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Front Cover: While the NZ Government campaigned this winter to end the countless deaths of marine mammals by driftnetting, hundreds of fur seals were dying in NZ waters and the same Government chose to stand by and watch. Such a slaughter must not be repeated (see article page 8).

Photo: David Comer

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pleasure in knowing you are playing an
important role in belping to
preserve our priceless natural
beritage.

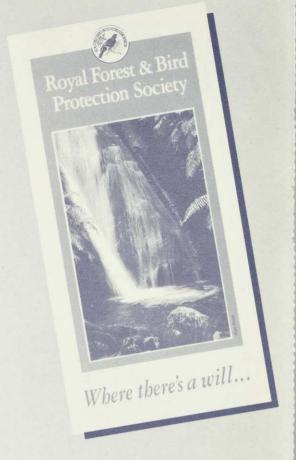
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The National Secretary, Royal Forest & Bird Protection Society, PO Box 631, Wellington.

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World Heritage Partnership

Last month the Government delivered an historic document to the headquarters of the World Heritage Convention in Paris.

This was the nomination for the 2.6 million hectare South West New Zealand or Te Wahipounamu World Heritage Area. It embraces four outstanding national parks, and the nation's finest lowland podocarp forests (South Westland and Waitutu). It also now includes the tussock grassland communities of Wanaka's Buchanan Peaks and Te Anau's Mayora Lakes.

This great continuous wilderness is poised to join the elite club of World Heritage sites such as as the Great Barrier Reef, Grand Canyon, Serengeti National Park and Sagarmatha (Mt Everest) National Park.

Official acceptance of the proposal, which must surely be a formality, is expected by the middle of 1990, our sesquicentennial year. For the thousands of New Zealander who have campaigned tirelessly over 20 years for the protection of the South West, this will be the highlight of 1990.

Areas that first leapt into prominence as conservation battlegrounds are now universally held to be some of this country's most precious natural gems: Manapouri, Okarito, Waikukupa, Waitutu, Dart, Rowallan, Haast's kahikatea forests, the Red Hills.

Future generations will owe a huge debt to the many people who gave of their time to save the South West, to the professional conservation advocacy of the Department of Conservation, and to the politicians who embraced the wilderness ideal – Geoffery Palmer, Helen Clark, Philip Woollaston, Ken Shirley, Ian Shearer, Jim Bolger, Simon Upton. Kerry Burke's commitment to UNESCO's World Heritage philosophy was responsible for muting bizarre claims by some West Coast business interests that the World Heritage proposal was a communist plot.

Work begins shortly on the Rainforest Visitor Centre at Haast, ushering in a new era where nature tourism is being integrated with traditional activities in this frontier town. Forest and Bird's former director, Gerry McSweeney, who pioneered the South West concept, has taken the partnership between local people and conservationists a step further and now as a tourist operator at Lake Moeraki is working with his neighbours to promote Haast's natural wonders.

At Whataroa the white heron, once reviled as a symbol of conservation, is now the proud symbol of the town. Sensitive trips to the colony are conducted by the local Arnold family.

Just as important as the partnership between conservationists and local people has been the partnership between conservationists and the tangata whenua. The Ngai Tahu Trust Board fully support the South West World Heritage proposal. Indeed, the Trust Board together with Forest and Bird are listed in the nomination document as having assisted the Department of Conservation in its preparation. Virtually all of the lands involved are currently the subject of a claim by the Ngai Tahu before the Waitangi Tribunal. The outcome of this claim will not affect the future protection of the South West or its eligibility for World Heritage status as Ngai Tahu are publicly committed to maintaining the area's protected status in partnership with the Crown should the claim be successful.

From Aoraki to Fiordland the area is seen as the cradle of Ngai Tahu belief. The maintenance of their ancient traditions within the South West is seen by Ngai Tahu as being as important as the natural and scientific values for which it is recognised by the wider world

The partnership between the Maori people and the Government over the South West took a further step forward when the Minister of Conservation announced in July that agreement in principle had been reached with the Waitutu Incorporation for a protective permanent lease over the Waitutu Maori land that stretches along the southern coast.

The commitment of the Waitutu Incorporation to the protection of their taonga is a matter for rejoicing. They are to be congratulated for their farsighted stand and it is hoped that negotiations for an enduring agreement are successful.

If such fruitful partnerships can be continued – for example to end the scourge of woodchipping and the plunder of our marine resources – then conservation in New Zealand will be in good heart.

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.

Issue Number 254 November 1989 Volume 20 Number 4



$C \cdot O \cdot N \cdot T \cdot E \cdot N \cdot T \cdot S$

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Shedding Light on Blue Duck

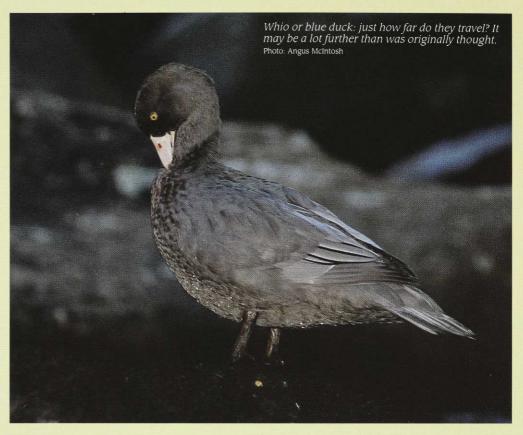
NE OF THE FASCINATING QUESTIONS that has exercised the minds of wildlife scientists recently is whether the vulnerable blue duck can fly out of one catchment into another.

The answer to that has important implications for the long term survival of the torrent birds. If they are restricted to one catchment, the birds stand to suffer from over population within their catchment, or human modification of their habitat could have dire consequences for that particular population.

For some time now it's been believed that blue duck were destined to remain within the catchment where they were born. However, DoC scientist Duncan Cunningham believes otherwise and has good evidence to suggest blue duck can disperse across watersheds into other catchments (a watershed is a high point from which water flows away into different catchments). He gives the example of a blue duck that was spotted recently on a log on a saddle in the Kaweka Range, apparently heading for a new catchment. In addition there are 34 records of blue duck sighted high up on South Island mountain tarns, presumably also looking for a new river to move to in the next catchment. Most of these were seen between December and April; one theory is they were juveniles pushed out of their birth territory.

One way to resolve the debate is through blood testing of populations which should show whether birds in areas far distant from one another are widely similar or different in their makeup. DoC has started to carry out such tests..

One of the major findings of the distribution survey carried out by Cunningham is that

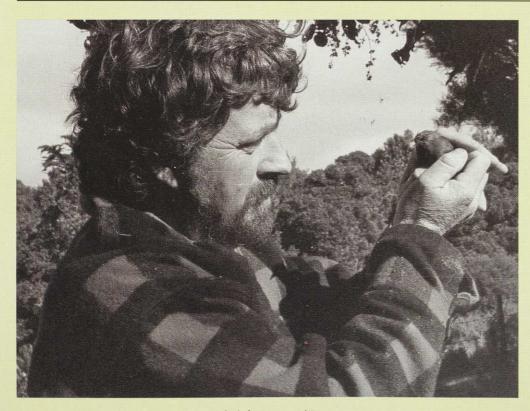


blue duck are most common in areas which humans have not modified. Because most blue duck now live within the DoC estate, in theory there should be less danger of habitat destruction than in the past, and therefore hopes are high that numbers may increase.

A question that researchers and managers are wrestling with now is to decide whether to capture lone blue duck far from sizeable

populations and use them for captive breeding, or whether to take ducks from large populations for captive breeding or leave them alone. Sometimes it can be difficult to ascertain whether in fact the blue duck is a lone one, in which case a breeding pair may be broken up.

Gerard Hutching



Mike Lee releases a bellbird into Forest and Bird's Onetangi Reserve. Photo: Gulf News

The Bellbirds' Return

BELLBIRD SONG was heard from trees in Forest and Bird's Onetangi Reserve on Waiheke Island for the first time in more than 100 years when 10 of the birds were recently released by member Mike Lee.

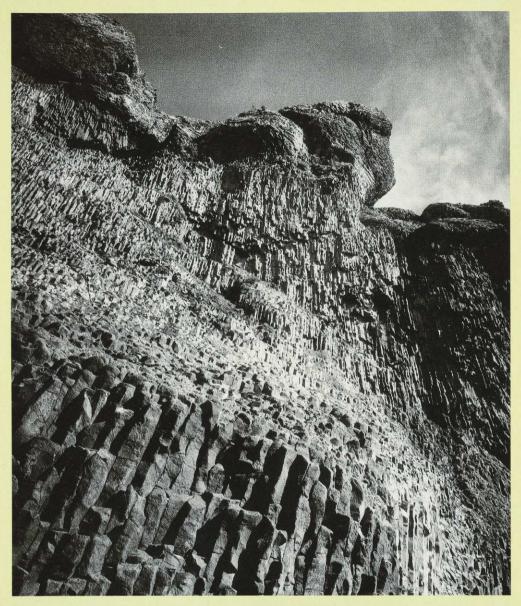
The birds were caught in mist nets near Rotorua from a remnant of native forest soon to be clearfelled. It is the second group of bellbirds to be released on Waiheke. In May 1988, 11 were released at Te Matuku Bay.

Bellbirds have been extinct on Waiheke and mainland New Zealand north of the Waikato since about 1862. It is thought they were wiped out by a disease imported by mynahs and sparrows.

Mike Lee now has plans to recolonise bellbirds into the Auckland area.

In another restoration success story, 40 whiteheads were released on to Tiritiri Matangi in September to join the tuis, bellbirds, saddlebacks and red-crowned parakeets already reclaiming the island for themselves. The next ambitious project for that island is the relocation of little spotted kiwis.

Forest & Bird



Quarrel at Makereatu

A T MAKEREATU on the coast south of Dunedin, walls of hexagonal basalt columns rise 40 metres out of the sea. Here, swells from the Antarctic crash on polished column ramparts.

It is a place dear to Maori people and many others: ramblers, surfers, artists, anglers and rock climbers are all inspired by the massive formations. They are the finest in New Zealand and equal to the famed Giant's Causeway of Ireland.

The area is also known as Blackhead, a term supplied by Blackhead Quarries Ltd which is in the process of taking away the whole headland for cheap road metal and railway ballast. The company owns the land and rock down to high tide. In the slow process of demolishing the headland, rubble from blasting is falling on to the best formations and into the water.

A coalition of friends of Blackhead, including the Otago branch of Forest & Bird, has been protesting at this irresponsible exercise of property "rights". They are asking for protection of the southern cliffs, a halt to shale dumping and the clean up of rubble in an area known as the "Roman Baths". More than 6000 people have signed a petition, asking the company to protect the geological features now, and not in 40 year's time as has been promised – when there won't be any features left to protect.

The Geological Society has recently placed it on its register of geological sites worth protecting.

Sue Maturin

Behind the Scenery

Outdoor Recreation in Otago: Volume 2 Silver Peaks and Otago's Alps by Bruce Mason (1989), Publ by Federated Mountain Clubs of NZ, 104 pages, price \$30 incl GST (25% discount to Forest and Bird members).

This is the second and final volume, covering the remainder of Otago not covered in Volume 1 (the Central Otago Block Mountains). It deals with lands broadly suitable for conservation and recreation but not necessarily administered by the Department of Conservation.

Most Forest and Bird members will generally know Otago for Mt Aspiring National Park, Lakes Wanaka and Wakatipu, and the Otago skifields. But Otago has much more than these areas, and these two volumes cast a conservation and recreational spotlight on them for the first time. Many will be amazed and stimulated by the interesting Otago areas outside the national parks, highlighted in these volumes.

If anything, Bruce Mason has achieved a higher standard of presentation in Volume 2 with more than 150 clear and often stunning

black and white photos, by a range of Otago recreationists.

The book very effectively summarises the history, natural features, geology, vegetation, scenery and land tenure issues. It is not a guide book, but rather a handbook giving



Mt Aspiring National Park. Cross country skiers returning from Mt Brewster and glaciers – just one of the 150 photos from the book. Photo: Bruce Mason

a broad overview and picture of the recreational characteristics and management issues of each area.

Overall Outdoor Recreation in Otago Volume 2, gives us the scenery, but gets behind it to the history, geology and land use issues, with perceptive and careful arguments. Otago is one of the few areas of New Zealand where the public protection of natural, recreational and scenic mountain lands is presently inadequate. The book is a timely pointer to balanced reservation, even though the path may not be easy.

Hugh Barr

Note: *Outdoor Recreation in Otago Volumes 1 and 2* is available at a special combined price of \$45 (reduction of \$15. Write to FMC, Po Box 1604, Wellington with your order).

NOVEMBER 1989

Project Taranaki Kokako

ORE THAN 100 DAYS of slogging it out through Taranaki forests very early in the morning and endless repetitions of taped kokako call have proved vital ingredients for the survival of endangered kokako in the region.

The Department of Conservation (DoC) in Taranaki has undertaken extensive kokako surveys from October 1987 to May 1988 and again from September last year to this February with the rather alarming conclusion that remaining populations there will probably die out unless factors working against their sur-

vival are actively managed.

The co-ordinator of Project Taranaki Kokako, the department's Janice Molloy, has developed a genuine love of the attractive dark birds with their blue wattles and distinctive song through weeks spent in the bush tracking them, but it is affection heavily accented with concern for their survival.

In a report detailing the outcome of the project, she makes strong recommendations which, if implemented, will make Taranaki one of only about four locations where kokako "research by management" programmes will be carried out. The Taranaki kokako population is particularly important because it represents the southern-most limit of the species. And along with that, the result of her management programmes will help design others for kokako populations elsewhere in the North Island, where the birds were once widely found.

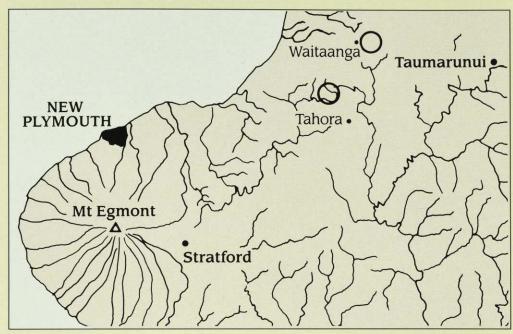
The recently completed surveys aimed to determine the location and approximate number of kokako remaining in Taranaki and were concentrated in forests where kokako had been reported in the last 15 years, using extra sightings from forest users such as possum trappers, pig hunters, goat shooters, trampers and farmers. At the final count, 27 kokako territories were found. Four of those were confirmed to hold pairs, with a resulting total of 31 individual birds located in two main areas – the upper Waitara River (in the Moki and Makino forests) and in the northern Waitaanga forest.

Janice Molloy believes, however, that the numbers found provide an underestimate of real numbers, mainly because the walkthrough surveys used don't detect all kokako in an area. The work went well and DoC completed the job it set out to do, but there's a lot more left, she sighs.

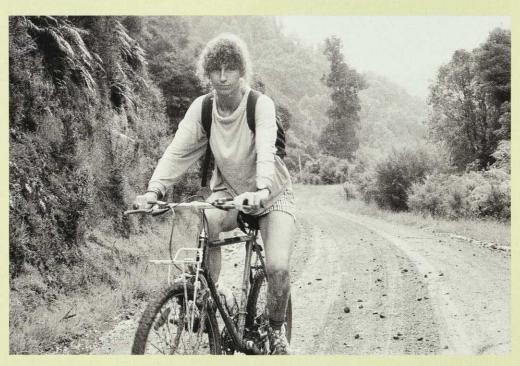
"We'll be going back in this spring and summer to carry out territorial mapping, which gives a much more accurate indication of how many kokako are in the population and we will also be carrying out juvenile searches to determine the productivity of the birds."

Petrocorp, which sponsored the project with a \$10,000 grant, has now confirmed that it will continue to support Project Taranaki Kokako during the next phase.

Accepting even so that DoC is unlikely to have enough money to manage both major kokako populations in Taranaki, she recom-



The areas circled show the forests where most Taranaki kokako have been found.



Intrepid kokako researcher Janice Molloy and her novel mode of back country travel.

mends the larger, in the upper Waitara River, be selected for management, while the Waitanga population is used as a control, with its future management to be reviewed once the numbers in the other territories are more accurately known.

A series of recommendations spanning five years means later management will depend on the effectiveness of the first years, with an overall objective of increasing territorial adult kokako in the upper Waitara area by controlling browsing mammals such as possums and goats. The troublesome possums, ever hungry for much of the same food the kokako eat, should be reduced by at least 70 percent in the first year of that time, while goat control must be continued intensively for similar reasons, Janice stresses.

Her recommendations are:

- That territorial mapping of both populations be carried out in the next year to determine absolute numbers;
- Privately-owned forest containing kokako should be protected (11 of the 31 birds found in Taranaki inhabit private forest);
- The public should be kept informed of progress. People generally had been very supportive of the kokako project and supplied a mass of information about present and past distribution, Janice says.
- Further sightings of kokako in the neighbouring Whanganui National Park should also be sought from the public, following several reports from the area.

Sioux Bennett

Forest & Bird

Flocking to Christchurch

OR DECEMBER 1990, Christchurch may have to be renamed City of Birds. Hundreds of ornithologists will flock from around the world for the 20th International Ornithological Congress (IOC). They will be treated to a five-day feast of all things feathered. From parent-offspring relationships and bird song, to how birds adapt to life in the extremes of deserts and Antarctica, the whole gambit of bird matters will be covered.

The New Zealand organisers hope that the Congress, held once every four years, will have a distinctly Southern Hemisphere flavour. New Zealand ornithological work will be well represented, along with work from countries as diverse as Venezuela and Belgium.

There will be a special New Zealand night, when Ian Atkinson and Ben Bell will look at past and present ornithology in New Zealand.

There will be a choice of 48 sessions to attend, as well as discussion groups, 15-minute talks, posters, trade displays and bird films.

Among the New Zealand offerings will be:

- An address by John Craig to the whole Congress on communal breeding.
- Ron Moorhouse's studies on the ecology of kaka on Kapiti Island will be part of a session on parrots and parakeets that ranges from the Bahamas to Argentina.
- While some people use fossils to look at the makeup of past bird communities, Geoff Chambers and Andy Cooper have been reconstructing the genetic makeup of an extinct moa.
- Clare Veltman and Susan Triggs will look at

blue ducks and how they have adapted to life on rivers, and Murray Williams will look at the unique features of waterfowl on islands, as part of a session on Southern Hemisphere water birds.

- The kinds of songs that starlings sing in New Zealand compared to France will get an airing from Peter Jenkins in a session on how birds acquire and use their songs.
- Mike Imber will share his findings about the food petrels shared with him, in a session on what seabirds eat in the subantarctic and Antarctica.
- Jim Mills's study of red-billed gulls at Kaikoura will share the platform with mute swans and Tengmalm's owls in a session on long term population studies of birds.
- Mick Clout will chair a symposium on how birds and plants help each other when birds pollinate flowers and disperse the seeds of plants
- John Cockrem and Murray Potter will look at the role of hormones in the breeding of the brown kiwi.

There will be a number of sessions which address topical environmental issues:

- How habitat loss affects birds
- How fishing and pollution affects seabirds
- The role of captive breeding in conserving endangered species
- How birds can be indicators of global contamination

There will also be a "day in the country" to visit Canterbury bird watching spots, and sample a slice of rural life at Mount Hutt Station. The conference organisers have

arranged a suite of nature tours around New Zealand before and after the Congress including a subantarctic cruise (see the May 1989 issue of *Forest and Bird*).

The IOC is one of four events being held in New Zealand in late 1990 as part of "The World of Birds – a Southern Perspective". Stamp collectors and film buffs also get a chance to look birdwards, and the International Council for Bird Preservation will hold a conference on bird conservation in Hamilton.

Alison Ballance

For further information on the International Ornithological Conference, to be held in Christchurch from the 2-9 December 1990, please contact:

Ben Bell, Secretary-General 20th IOC School of Biological Sciences Victoria University of Wellington P O Box 600, Wellington

Books Received

Walter Buller — Reluctant Conservationist, Ross Galbreath. (Govt Print, \$44.95) Buller's reputation was no better in the 19th century than it is today, as this fascinating study of morals and manners of the period shows. We may have Buller to thank for attractive bird books, but his inglorious advocacy for those same (often endangered birds) leaves a bad taste. 336 pages of how not to tread lightly on the earth.

Between the Tides, by Mike Bradstock. (Bateman, \$29.95) The revised edition of Bradstock's book will be welcomed by Forest and Bird members who are taking a close interest in our campaign for the coast. Before you head off to the beach this summer, swot up on what is really happening down on the shore. It will make your visit that much more interesting.

Untouched Horizons: Photographs from the South Island Wilderness,

by Nic Bishop. (Hodder & Stoughton, \$49.95) This beautiful book heralds a significant new talent onto the somewhat crowded natural history book scene. Explorer Bishop manages to come up with a portrayal of the South Island's wild places that is vivid and fresh, and the text sparkles along with the images.



NOVEMBER 1989



Where the Wild Places Are

A BOUT ONE-THIRD of the global land surface is wilderness, according to an inventory drawn up from US military maps.

The research, compiled by the chairman of the Sierra Club and a researcher, only included blocks of wilderness over 400,000 ha in size. All areas with roads, settlements, buildings, airports, railroads, pipelines, powerlines, canals, causeways, aqueducts, mines, dams and reservoirs, and oil wells, were eliminated by the researchers.

The study found almost 4.8 thousand million ha of undeveloped land in 77 countries plus Antarctica. Most of the settled continents are still between one quarter and one third wild, Europe being an exception. Less than 20 percent of the wilderness around the world is protected.

Countries with the largest areas of wilderness are: Greenland, 99 percent; Maruitania, 69 percent; Canada, 65 percent; Algeria, 59 percent; Soviet Union, 34 percent; Australia, 30 percent; Saudi Arabia, 28 percent.

As the tables show, over 60 percent of wilderness is inhospitable snow, ice or desert.

According to the inventory, New Zealand's wilderness areas are North West Nelson and South West New Zealand.

Energy Lessons

N 1977 TWO US STATES, California and Texas, both took off in divergent directions with their energy policies.

Texas decided to adopt a laissez-faire approach, in contrast to California where a policy with strict conservation controls was opted for. Everything from skyscrapers to pop up toasters had to meet approved energy efficiency standards.

By 1984, the different approaches had resulted in: (1) the average Californian was using 267 kilowatt hours (kwh) fewer than in 1977, and the average Texan 1,424 kwh more; (2) California, with 11 percent of the US population and 12 percent of the income, consumed 8 percent of the country's electricity; Texas, with 7 percent of both, consumed 9 percent; (3) in California 3.5 cents in every dollar were spent directly on energy – in Texas, 7.1 cents – and in terms of gross state product, Californians spent half as much; (4) in the seven years, California built three new power plants, Texas built 11.

In New Zealand, Treasury has recently administered the pruning shears to a worthwhile energy efficiency programme for appliances run by the Government's Energy Management Group.

Pandering to Pandas

OR LONG IT'S BEEN ACCEPTED as fact that the mass flowering of arrow bamboo every so often, accompanied by the plant's death, has resulted in pandas dying of starvation. The usual response has been to "rescue" pandas to stock the world's zoos. However, recent research in China's

Wilderness Dis	ibution by	V Continent
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Continent	Km2	%	No. of areas
Antarctica	13,208,983	100	2*
North America	9,077,418	37.5	85
Africa	8,232,382	27.5	434
Soviet Union	7,520,219	33.6	182
Asia	3,775,858	13.6	144
South America	3,745,971	20.8	90
Australasia	2,370,567	27.9	91
Europe	138,563	2.8	11

*This is really one contiguous block divided into two for biogeographical purposes.

Wilderness Distribution by Biomes

Biome	Km2	%	Count
Tundra Communities	20,047,533	41.5	100
Warm deserts/Semi-deserts	9,329,531	19.5	389
Temperate Needleleaf Forests	8,799,312	18.3	120
Tropical Humid Forests	3,006,855	6.3	77
Mixed Mountain Deserts	1,478,494	3.1	51
Cold-winter Deserts	1,478,494	3.1	51
Tropical Dry Forests	1,424,099	3.0	120
Tropical Grasslands/Savannas	735,331	1.5	33
Temperate Rainforests	420,215	0.9	15
Temperate Broadleaf Forests	290,646	0.6	20
Temperate Grasslands	272,016	0.6	24
Evergreen Sclerophyllous Forests	170,885	0.4	7
Mixed Island Systems	91,647	0.2	7
	48,069,951	100	1,039

Wolong Reserve has shown that pandas adapt to the loss of 80 percent of their food supply. After the bamboo flowers, the pandas are forced to spend more time foraging. They became less choosy about their food, eating shoots that would have been previously discarded.

As the pandas eat their way through the remaining patches of arrow bamboo, some eventually make their way down hillsides to eat umbrella bamboo, previously not a favoured part of their diet.

The lesson, according to scientists, is that panda reserves must be made much larger to provide sufficient food for the pandas in times of critical need. In some cases where there is only one bamboo source, the pandas should be rescued.

Spotted Owl Cover Up

FFICIALS OF THE US Fish and Wildlife Service have been accused of secretly plotting to keep the northern spotted owl off a US endangered species list in order to appease the logging industry.

If the spotted owl were declared endangered, 1.08 million hectares of national forest (27 percent of Forest Service lands in the Pacific Northwest) would be off-limits to timber moguls. In order to prevent this, FWS top brass orchestrated a cover up in order to protect the interests of the timber lobby.

Researchers were ordered to "sanitize" a report which showed that efforts to save the

owl "would lead to the species' extinction in the foreseeable future." Implicated in the cover up is the head of the Fish and Wildlife Service.

Space Wars

THE IMPLICATIONS of a war in space just above earth are horrendous. Astronaut and author Edgar Mitchell, the sixth man to walk on the moon, says there will never be a second war in space.

"Let me tell you why. It only takes a simple calculation to determine this. All aerospace engineers understand the problem. You only need a few million pounds of matter, broken up into tiny pellets of a one-gram size, to make the near reaches of space uninhabitable. If we explode a few pieces of equipment up there, the equivalent of eight million pounds (the size of the Saturn launch vehicle, the kind I went to the moon on), into one-gram particles distributed through the first 1000 km of space, there is no way any spacecraft will be able to survive in space for more than a few days.

"Should this come to pass, it will prevent future generations from using space at all. They would not be able to get out into deep space. It would be like running through a hail of bullets. It doesn't seem sensible that in the first 100 years of using the space environment, we should make decisions and commit acts that will prevent future generations from a proper use of that environment."



L·E·T·T·E·R·S

Dear Sir

I believe I was the anonymous but "keen enthusiast within the old Lands and Survey Department" whose actions in the 1960s resulted in some geological reserves in Southland (Bruce Hayward's article in the August '89 journal). I was acting with advice from DSIR Geological Survey officers whose names I can't recall now, regrettably.

The Te Anau Scientific Reserve is one of the areas Bruce refers to. The process of getting it established holds a memory which is still a very vivid one in a 26-year career in conservation. The memory is of walking into the field officers' room in the Lands and Survey Invercargill office one day and saying I wanted some land from a farm settlement to preserve erratic boulders. The reaction was disbelieving laughter and ridicule. Life was tough for the would-be environmentalist in the mid-1960s! Anyhow, it's good to see the rest of New Zealand catching up with Southland in protecting important geological sites. Congratulations, Bruce, for reminding us so well of this heritage at risk.

Wayne Devine, Wellington

Dear Sir

I was very pleased to receive my August issue of your magazine in the mail today. However I was most distressed to see this magazine covered in clear plastic wrapping.

Why does an organisation that proclaims itself as having a "conservation ethic" waste money, energy and resources wrapping its publications in something as environmentally unsound as plastic? It seems to me to be a poor example to set. Can't we change it?

John Coppal, Christchurch

The magazine is in fact wrapped in cellophane, not plastic. However, there have been problems with the durability of the cellophane and it is 15 percent more expensive than plastic. We are looking at the option of returning to manilla envelopes. Ed.

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Fur Seals and Hoki

by Gerard Hutching

In the dark still depths of the Tasman Sea's Hokitika Canyon, millions of hoki fish congregate every winter. Falling water temperatures trigger a mass spawning of hoki at great depths of 400 metres or more. For centuries this extraordinary annual gathering of teeming myriads of hoki has been hidden from the world. It was certainly unknown to the West Coast fur seals as the hoki spawn way beyond their diving depth, but now the seals are tragically linked to the hoki story.

nce this huge biomass of fish was discovered by increasingly desperate local and foreign fishing fleets, the previously unheard of hoki quickly became the country's leading fish stock, eclipsing even orange roughy. Now each winter a fleet of fishing trawlers, some larger than the interisland ferries, follow the hoki to the Hokitika Canyon. Huge nets sweep through the packed schools, dragging them up to the blinding glare of another world. Changes in water pressure kill the hoki before they reach the surface where they are discharged into the bowels of the trawlers and mainly mashed up into surimi – the mincemeat of fish cuisine.

Ministry of Agriculture and Fisheries Officers bedazzled by the seemingly bountiless riches have in recent years bumped up the total allowable catch of hoki from 60,000 tonnes before 1986 to this year's staggering 250,000 tonnes. While hoki are incredibly abundant, this high catch is definitely not sus-

tainable. Fishermen and conservationists alike are increasingly alarmed that hoki will follow the pattern of snapper, Chatham Island crayfish, Bay of Plenty trevally, Golden Bay scallops, and other boom and bust New Zealand fisheries.

This fishing bonanza has proven to be a fatal attraction for West Coast fur seals. The hoki fishery is located within reach of the major West Coast seal colonies at Westport's Cape Foulwind and South Westland's Greens Beach and Gillespies Beach. Coincidentally, the seals congregate at these colonies during the same months the hoki mass offshore.

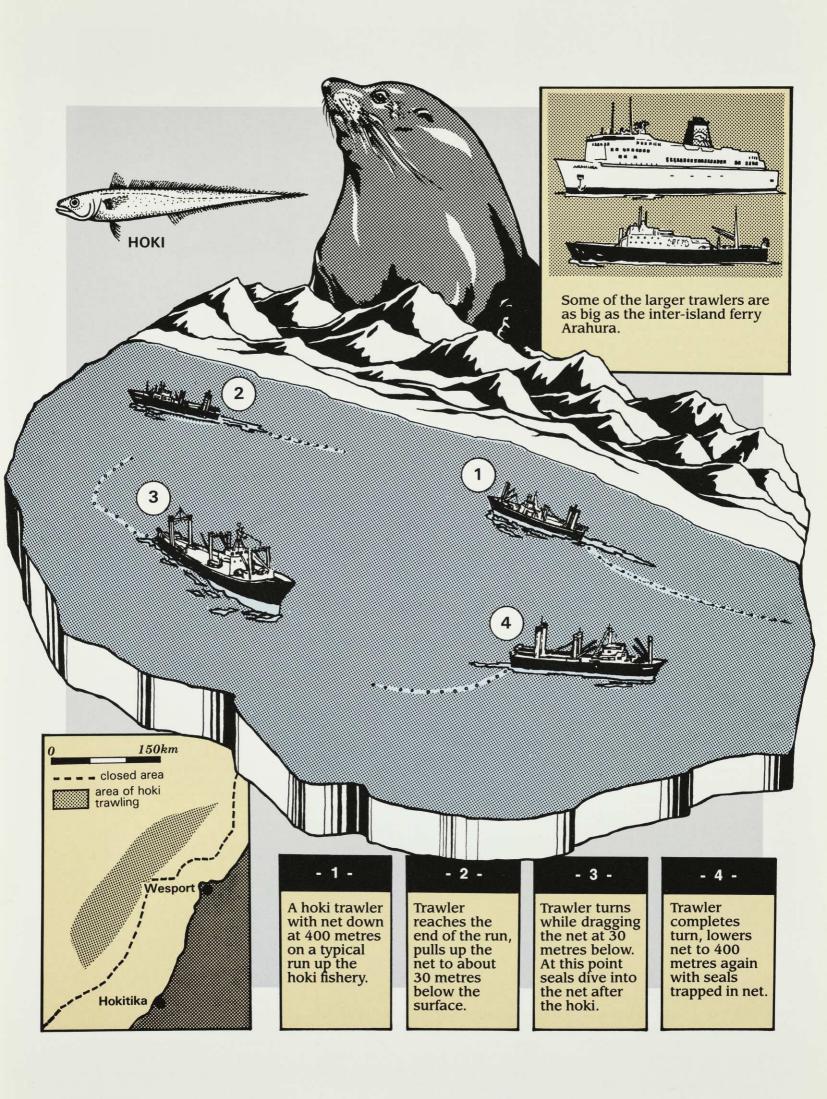
Offal discharge and fish spillage from the nets has lured the seals out in growing numbers to this winter feast. The clanking of the trawl gear hauling in over-flowing nets has become the seals' dinner gong. Highly intelligent as they are, the seals have not yet learnt that the dinner gong is also their death knell.

Disturbing statistics of seals killed by entanglement in the hoki nets began to be compiled two years ago by the Department of Conservation. DoC administers the Marine Mammals Protection Act which provides total protection for seals – on paper at least. This season seal deaths rocketed. The plunder of the hoki and related deaths of hundreds of fur seals has now become a major controversy.

The Forest and Bird Society has called for a major reduction in the hoki catch and changes in fishery practices to protect the seals. But, as the following account of the campaign to save the seals shows, officials and politicians are overwhelmed by the enormity of the problem and slow to take the decisive action required. Mounting public concern for their plight is the main hope for both the seals and the hoki.



New Zealand fur seal. Photo: David Comer



Diary of a Tragedy

Hundreds of seals need never have died in trawling nets this winter. Government inaction, however, ensured they would. The following diary of events chronicles a sorry saga of department indifference and Government inaction.

July 20: The Dominion breaks the story that 97 fur seals have been reported dead in two weeks off the eight hoki boats in the West Coast hoki fleet carrying MAF observers. News of the deaths was given to the newspaper by way of an anonymous phone call, presumably from an official upset at the scale of the deaths. Forest and Bird responds by demanding that the Government takes urgent action to stop decimation of the West Coast fur seal population.

July 21. Forest and Bird writes to the Minister of Fisheries, Colin Moyle, asking him to act immediately over the deaths. He responds on August 11. Meanwhile in the Christchurch Star Conservation Minister Philip Woollaston says he is disturbed by the seal deaths, but his departmental officials claim more research is needed on the cause of the deaths before action can be taken.

DoC's principal officer for marine mammals, Mike Donoghue, agrees that Forest and Bird's estimate that up to 450 seals may have been killed is "not unreasonable" as the 35 hoki boats without observers are not reporting any seal deaths. Donoghue believes the rise in seal deaths over previous years is probably due to the influx of huge 7,000 tonne surimi trawlers into the fishery.

July 22: Fishing industry representatives claim the West Coast fur seal population is growing and threatening fish stocks. "We're not talking about white rhinos or black robins here," says Federation of Commercial Fishermen executive secretary Peter Stevens. Fishing Industry Association vice-president Peter Talley blames "kamikaze' seals and claims there are probably ten times more in the West Coast population than the 4500 estimated by the Department of Conservation.

July 24. Forest and Bird says that New Zealand's international credibility in the campaign against driftnetting will nosedive unless action is taken on the alarmingly high seal deaths. West Coast fishing represent-sentatives advise the Society to stick to what it does best – saving forests – and not get involved in contentious fishing matters. Several weeks later the West Coast attitude will change and Forest and Bird will be seen as an ally.



Actress Miranda Harcourt helped highlight the fur seal issue when she addressed Forest and Bird's "Save Our Seals" rally in late August. Photo: Gerard Hutching

July 26: The Department of Conservation is criticised by Forest and Bird Conservation Director Kevin Smith for apparently accepting the fur seal deaths. Still no action is taken by DoC to go out to the fishery and monitor the boats to see why they are killing seals.

August 2: The Society launches its coastal appeal with the help of Environment Minister Geoffrey Palmer. Pupils from the Worser Bay school stage a "beach theatre" play for the soon-to-be-Prime Minister, illustrating the plight of seals caught in fishing nets.

August 11: West Coast fishers head for Cook Strait to fish for hoki rather than tangle with big joint venture and foreign vessels. They dub the big joint-venture trawlers "the bulldozers of the sea" and complain that congestion on the West Coast hoki grounds is making fishing "really dangerous".

August 13: New figures supplied by MAF show that 146 seals have been killed. A report gives the names of the boats with observers and the kill for each boat. Two Soviet vessels – the Aragonit and Klimovo – have killed 44 and 42 of the seals respectively. Forest and Bird again asks the Government to do something to stop the deaths.

August 14: West Coast fishermen express doubts that Government will take action against the big trawlers that are killing most of the seals. "The bigger boats bring in too much revenue".

August 15: Following a letter from Philip Woollaston in which the Minister promises to investigate what could be done to stop the fur seal deaths next season, Forest and Bird respond that the Government has condemned hundreds more seals to death by doing nothing in 1989. "Plainly Government ministers are more concerned about the export dollars coming from the hoki fishery than fur seal deaths or the future of the fishery itself," the Society says.

August 16: A meeting between Kevin Smith and Philip Woollaston ends with no commitment by the Government to try and end the seal deaths this year. Forest and Bird asks for observers on all hoki boats, for senior MAF and DoC officials to inspect the fishery, and for an immediate halt to fishing by the big trawlers killing most of the seals. Colin Moyle who has earlier said that the West Coast fishery is a little like "Queen St on a Friday night", says that hundreds of deaths occur on New Zealand roads every year but the roads are not therefore closed.

August 18: Grey County councillors call for a commission of inquiry to look into the "rape" of West Coast fish resources. "We should put all the politicians on the foreign ships and send them away," is one comment.

August 23: In a Good Morning New Zealand radio interview, Philip Woollaston is asked why he does not intervene immediately to stop the deaths. He replies that the Government needs to analyse its data and "this season has actually come to an end." In fact the season is not due to end until early September.

August 25: Forest and Bird organises a novel SOS – "Save Our Seals" rally. 400 paper bag "seals" complete with whiskers and flippers are piled high on Parliament's steps. Executive member Joe Crandle, Opposition conservation spokesperson Denis Marshall and Miranda Harcourt from Gloss address the rally. That same day Colin Moyle and Philip Woollaston

Hooker's Sealion: Threatened Too



A young female Hooker's sealion that was lucky enough to return to the sea alive after her ordeal in a trawl net. Many others are less fortunate in their encounters with fishing boats, being crushed to death beneath the weight of tonnes of squid or drowned before they are hoisted aboard in the net. Photo: Mike Donoghue / World Wildlife Fund

Hooker's sealion, the world's rarest sealion with an estimated population of between 6-7,000, is this November converging on the chill waters around the Auckland Islands to breed.

At the same time Japanese, Korean and Soviet trawlers arrive at the islands. Their target, and that of the sealions: squid. Between November and February more than 100 sealions will die, entangled in the trawl nets. Because of the small numbers of this marine mammal, the population loss each year in nets is far more serious than that suffered by the fur seal.

In most cases pregnant females are being caught as they take easy pickings from the flanks of the net being winched toward the boat. When she drowns, three sealions are lost: the mother, her pup which is waiting on shore, and the pup she is carrying from this season's mating.

Forest and Bird believes that the current 12 mile fishing exclusion zone around the Auckland Islands is inadequate in providing realistic protection for the sealions. We are pressing for a marine mammal sanctuary that excludes trawl nets and set nets from the summer feeding grounds of the breeding sealions. The squid could be fished by jigging (as they are in almost every other squid fishery), and sealions will not be caught.

announce that fishing methods probably account for the seal deaths. This follows a meeting of DoC, MAF and industry representatives five weeks after the first news of seal deaths became public.

In September, at the end of the season, the official seal death tally from the handful of boats with observers exceeds 200. Officials refuse to estimate the likely total kill.

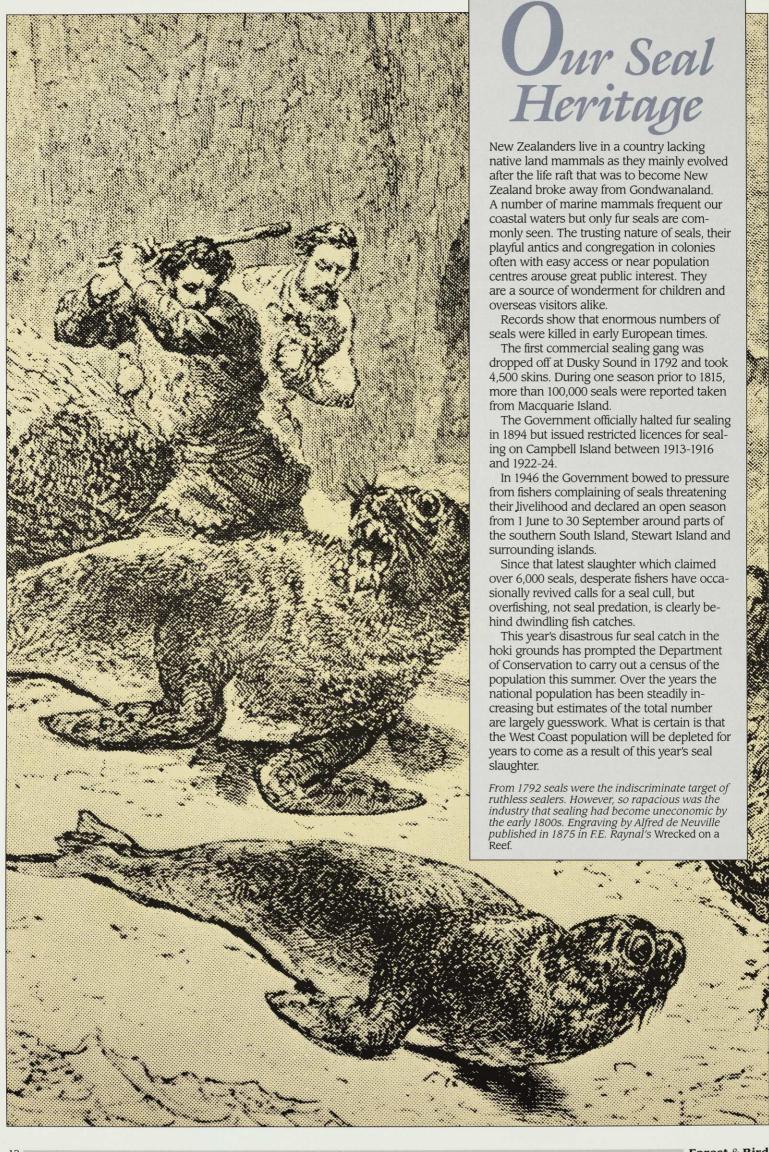
September 4: Geoffrey Palmer writes to Forest and Bird saying he shares our concern about the problem but he is powerless to order changes to fishing practices to protect the seals. He claims there is no evidence to support claims that the hoki resource is being over-fished.

September 10: The Dominion Sunday Times editorialises that Prime Minister Geoffery Palmer's international campaign against the evils of driftnetting will suffer unless New Zealand's own credibility is intact. "New Zealand is inviting international condemnation. Fur seals are protected but the Government's failure to act, despite frequent statements of concern, makes the legislation ineffective."

"It is important that Mr Palmer's driftnetting campaign does not founder on inconsistencies in Government's policies. We must be seen to be doing at least as much as we ask other nations to do."

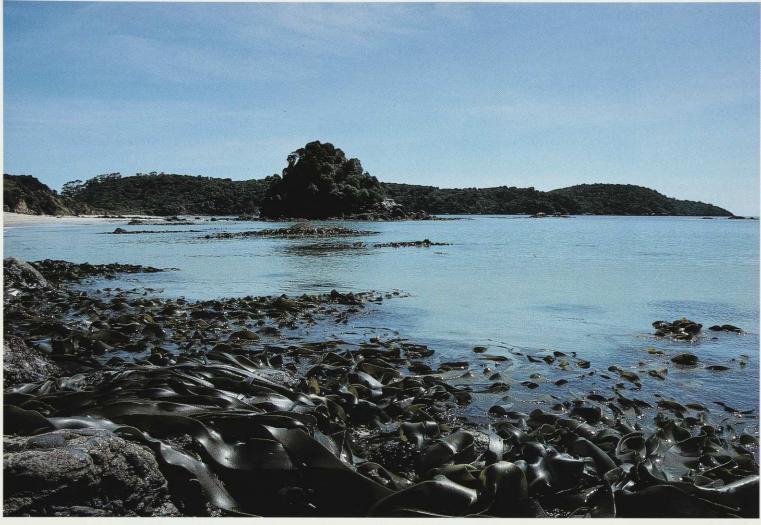
Officials now suspect the large number of seal deaths are the result of the increased fishing effort required to catch the dwindling hoki stocks. In previous years trawl nets filled on one or two passes across the hoki spawning grounds but now several passes are required with the trawl nets being raised to only about 30 metres below the surface at the end of each run to enable the huge trawlers to turn without wasting time. Seals, attracted to the fishery originally by the dumped waste and huge fish spillage, dive down and are caught in the nets, which are then lowered, drowning the seals.

September 11: A small press item tucked away on newspaper business pages reports that surimi from West Coast hoki has earned the country \$450 million gross in overseas exchange. The true economic benefit to the country from the foreign-dominated hoki fishery is not reported, nor is the cost to the country in allowing boom and bust exploitation of the hoki fishery. The other casualties of the fishery, the fur seals, are not mentioned.



Marine Reserves: Spreading the idea

by Russell Joyce



The clear waters around Stewart Island support rich seaweed beds of bull kelp, important commercial species such as paua, crayfish and blue cod and living fossils called brachiopods. Such a marine environment deserves protection. Photo: Gerard Hutching

A UCKLAND UNIVERSITY marine biologist Dr Bill Ballantine likes to tell a story about the Leigh Marine Reserve where he lives and works, 100km north of Auckland.

The heavy concentration of marine life which has chosen the five square kilometre reserve as home attracts thousands of people a year. Occasionally some of those visitors ask him how the university can afford all the bright buoys which mark the reserve's perimeter.

Dr Ballantine is happy to explain: the buoys are proof that the 10-year-old marine reserve works. In fact they are tied to crayfish pots carefully placed around the boundary by commercial fishers who know that the Leigh reserve holds the greatest concentration of crayfish anywhere in the area.

It's not that the coastline habitat is anything special, he says. Its just that nobody has been allowed to catch or kill anything there for ten years. It now reflects what the rest of our coastline could be like without human interference.

Startling Results

An Auckland University student recently spent a year diving at Leigh, studying crayfish and comparing their numbers with those outside. The startling results showed crayfish

numbers to be 20 times greater than in similar surrounding shorelines.

"That's not twenty percent more, that's 2000 percent more," Dr Ballantine emphasises. The numbers are still rising and the weights are greater than elsewhere.

"Nobody had predicted this when Leigh was set up. In fact if we had made a prediction it would have been that the reserve would have made no difference to crayfish numbers.

"What we knew about crayfish was that they hatch into larvae and drift off in currents for up to 18 months. They're extremely unlikely to end up where they started.

"What we found at Leigh was that the adult crayfish don't migrate. They stay and, because nobody is touching them, they build up in numbers. And that's fairly shattering because it suggests that what we've been doing in the rest of the country is not very sensible and the programmes our fisheries management are based on are not even true.

"You would think the crayfish at Leigh might be overcrowded – they aren't. You might think that they are short of food and slower growing, but they aren't.

And it's not only the crayfish which have benefitted from the reserve, Dr Ballantine says. Snapper abound in great numbers while the red moki population is estimated to be about 250 percent greater than elsewhere.

Reserve Advocate

Dr Ballantine does not hide the fact that he is pro-reserves. His aim is to see ten percent of New Zealand's coastline turned into protected marine areas.

"I'm pushing for more reserves. I live next to one and I think its pretty good. The question is do we just want one – like you have one set of crown jewels – or is there some point in spreading the idea elsewhere?"

Presently the Department of Conservation (DOC) is contemplating setting up such reserves around the country. The Royal Forest and Bird Protection Society has embarked on a campaign to see Bill Ballantine's dream come to fruition. Already it has proposed a reserve for Waitemata Harbour's Pollen Island – a feature of the marine reserves legislation is that organisations other than the Department of Conservation can nominate areas for reserve.

These days Dr Ballantine is often called on to speak at public meetings and disarm the often angry commercial and recreational fishers with his arguments and proof.

Part of that argument revolves around those crayfish pot buoys. It would be hard, if

The Poor Knights Islands Marine Reserve is a haven for marine life. Here blue demoiselle and pink maomao gather at 40 metres depth over a reef of yellow and orange golf ball sponges, gorgonian sea fans and a yellow finger sponge.

not impossible, to find a commercial fisher around Leigh who objected to the reserve now, he says. Many claim fishing has actually improved since it was set up.

Dr Ballantine sees the reserves as potential nurseries and "stud farms" for future commercial harvests. Snapper serve as his example.

"In Leigh reserve large snapper are now common. These big fish are home ranging and they don't move round much, so they don't waste energy that way. They don't grow very fast at this stage and they've got big heads and jaws so they can easily munch up high protein foods like kina – so where does all this high grade energy go to? Into reproduction.

"This relatively small number of large fish, putting all their energy into reproduction, will be producing a disproportionately large number of the next generation – at least they would if they were allowed to exist.

"But these fish, because they are close to shore and home ranging, are the easiest to catch and the first to go," he says.

In a country internationally renowned for its first class land reserves, Dr Ballantine finds



Leigh Marine Reserve: good for marine life, good for people. Photo: Bill Ballantine

it hard to understand why this can happen, why it has taken so long to extend the reserves concept to our coastal waters.

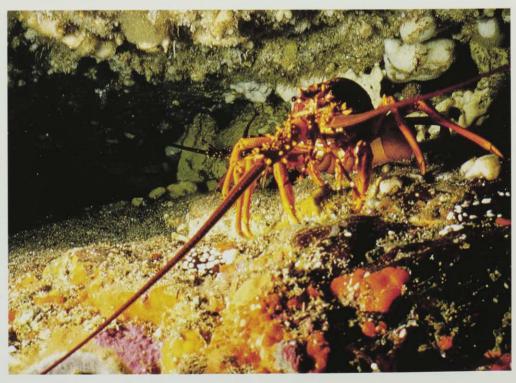
"Our birds are protected, including the marine birds, when they come in to shore. We have legislation to protect their nests but we don't move to provide them with food. In the sea they take their chances along with everyone else.

"We have totally protected our marine mammals – but only against deliberate killing. Hector's dolphin, which schools off Banks Penninsula amongst other places, was last year estimated to have a population of about 600 in that region. In the past four years 200 have been accidently caught and drowned in set nets – they don't breed as fast as that," he says.

Strict Limitations

On the land we have strict limitations on hunting and killing but in our coastal waters people are free to do as they like. Only at Leigh has this full protection been extended below the high tide mark. At the Poor Knights Islands, New Zealand's second marine reserve, big game fishing has been allowed to





At Leigh there are 20 times the crayfish in the reserve than in other stretches of our coastline.





Recreational spearfishing gives a good example of the impact the slightest human activity can have, he says.

'One relatively inexperienced spearfisher, fishing inshore for home ranging territorial reef fish, can have an effect in half an hour which can last for 10 years."

In the 1950s Leigh was an example of this. Close to Auckland, the coast became a favourite weekend spearfishing spot which quickly saw the area gutted of fish, crayfish and shellfish.

Since the reserve was created, fishing of any sort has stopped.

"Today we can see what happens if we stop all the killing; things change back to what is presumably more natural," Dr Ballantine says.

"Most people would like to eat crayfish that are at Leigh. Most people would like to eat the snapper, or sell them. But we have decided, collectively, that we won't because there are other benefits which outweigh that - fun, recreation, education for students, but most importantly of all the protection of fish stocks.

"I think insurance is important - most sensible people spend money on it. We're still very ignorant of the way the sea works. This is a complicated system which we know so little about. So perhaps it would be better to keep some parts untouched, as insurance, until we find out what effects we're having.

"I think it would be quite nice to keep some places pristine and natural so we can tell what effect we're having on others. Are we going to have more disasters like the Chatham Island crayfish industry, the Firth of Thames mussels, the Golden Bay scallops, fur seals, snapper nearly everywhere - or are we learning?

'Symbolically you can ask - is Leigh a sunrise of a new idea which will actually provide a benefit and do some good? Or is it a sunset in which we will preserve a sort of museum of how things used to be?

'Leigh is a place where fish can breed undisturbed. It's a place where large fish can provide lots of eggs and continue to live. Dispersal of fish out of the reserve supports people who wish to fish for fun, food or money.



The slow growing, coastal reef fish red moki has been decimated by spearfishing in the last few decades. In Leigh Marine Reserve it finds a safe haven. Photo: Ken Grange

"It seems to me this situation is increasingly required if we're to have fishing rights in the future - who wants rights to something that doesn't exist? Would you like rights to catch moa? It's hardly worth bothering about," he concludes. 💉

Russell Joyce is a Department of Conservation journalist from the Waikato region.

Old Blue Award For Dr Bill **Ballantine**

N RECOGNITION of the tremendous efforts made by Dr Bill Ballantine in promoting marine reserves, Forest and Bird recently presented him with our "Old Blue" award for outstanding conservation achievements.

Dr Ballantine welcomed Forest and Bird's involvement in the marine reserve campaign, saying New Zealand was at the start of a revolution in marine conservation.

"New Zealanders must insist on the protection of marine assets. I believe nearly everyone will be hoping that the Forest and Bird Society can repeat the successes it has had on land, in the seas," Dr Ballantine said.



Executive member Joe Crandle (left) presenting the Old Blue to Bill Ballantine. Photo: Rodney and Waitemata Times

Pollen Island Permanent protection sought

by Mark Bellingham



Pollen Island – a marine reserve within sight of Auckland Harbour Bridge? Photo: Sylvia Donohue

S INCE THE END of the last glaciation about 10,000 years ago there has been a small shrubby shell bank island in the mudflats of the Waitemata Harbour. It has been eroded by storms, and then built up again, with the flax, rush and *Olearia solandri* communities re-establishing.

The island has been a stable feature of the Waitemata landscape and has seen many changes: the periodic eruption of the Auckland volcanoes, the arrival of Polynesian settlers 1,000 years ago who named it Motu Manawa, and finally the arrival of European settlers 150 years ago. The latter cut a motorway through its sister island and earmarked Pollen Island for a container port.

Waitemata Harbour has changed dramatically in the past millenia and Pollen Island is now one of few remaining natural coastal systems left in the harbour. It is flanked by salt marshes, mangroves and tidal flats – havens for wildlife. Fernbirds are found here within 7km of the heart of Auckland city. When the tides are out banded rail and wading birds come out of their island roosts and feed on the extensive mud and sand flats.

At high tide flounder, snapper and mullet move into areas to feed and breed. The waters around the bay are an important nursery area for juvenile fish that later move out to form part of the important Hauraki Gulf fishery.



The only habitat in the world of this moth (Bactra sp) is Pollen Island., Photo: Peter Maddison

The mangroves, saltmarshes and coastal vista are important also for the thousands of Waitemata City residents who commute into Auckland, past Pollen Island. The golden hues of the rushes, greens of the mangroves,

the birds and the tidal flats provide a touch of sanity in their busy day.

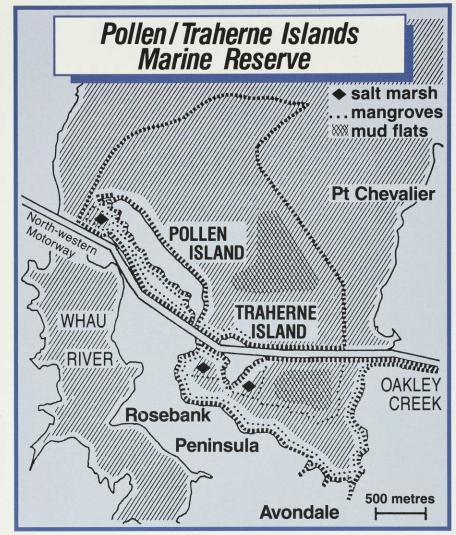
Pakeha colonisation has had a profound effect on Waitemata Harbour. Harbour Board politicians and officers in particular have de-

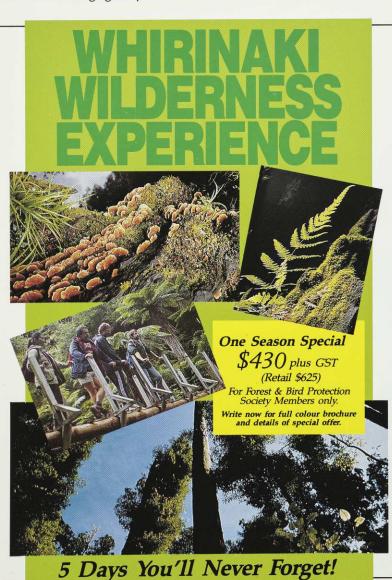
Map of the proposed Pollen Island marine reserve. Fernbirds and banded rails should continue to survive near the heart of Auckland city once Pollen Island becomes a marine reserve.

veloped the harbour with a missionary zeal. Even the Auckland public looked on in disbelief when the Harbour Board proposed a container port for Pollen Island. The port would need a large reclamation, a massive dredging scheme to turn mudflats into a shipping canal and factory relocation and further reclamations to get a railway linkage.

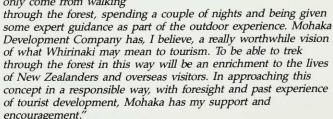
The Harbour Board later persuaded the Auckland Regional Authority to incorporate the container port plan into the Auckland Regional Planning Scheme. From that point on the container port myth was perpetuated in other planning schemes and led to the Minister of Transport, Bill Jefferies, giving Pollen Island away to the new Auckland Port Company in October 1988.

But in its wisdom the ARA also recognised the nationally-important biological and land-scape values of Pollen Island and recommended that it be given permanent protection. Forest and Bird has now nominated the marine system around Pollen Island as a marine reserve. This would finally give permanent protection to this vestige of the Waitemata that has survived 10 millenia and deserves a chance to survive without further modification at least as long again.





"One of the greatest glories of the central North Island is its rainforests, in their scenic and botanic splendour, of which Whirinaki is perhaps supreme. In recent years they have become the prize in a hardfought conservation battle. When we did the book Whirinaki — To Save a Forest' an important message was that everyone should be let into these forests, which facilities for everyone to get there and enjoy in moderate comfort. One day is certainly not enough. The right vista will only come from walking



Professor John Morton, QSO, D.Sc., Ph.D., FRSNZ (Hon)., FLS, former Professor of Zoology at Auckland University.



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EADY 1502



The kakapo – top DoC priority for endangered species. Photo: Rod Morris



Conservation Minister Philip Woollaston, centre, helps conservation officers Sandra King and Alan Munn remove a radio transmitter from Jane, a female kakapo captured on Stewart Island in August and moved to Codfish Island. Photo: Southland Times



Kakapo Cure

HE KAKAPO RECOVERY PLAN, released by the Department of Conservation in July, is a welcome sign of the department's determination to rescue the world's largest parrot.

The document, compiled by kakapo scientist Ralph Powlesland, sets out in detail the steps which will have to be taken over the next five years to rescue the species. Estimated cost of the programme is \$2.3 million, and DoC is hoping sponsors will pick up the tab for \$1.5 million of that total.

A compelling sense of urgency pervades the plan. It points out that there are only 40 known kakapo, of which just 11 are female. Except for two young banded in 1981, the ages of the remaining kakapo are unknown (Since the report was written a further 3 females have been discovered on Stewart Island and relocated on to Codfish Island).

"Although kakapo are likely to be long-lived, this probably provides only a 10-year period in which we need to ensure that the newly established populations (on Codfish and Little Barrier Islands) start breeding. For instance, if no young are raised and the females have a 90 percent annual survival rate, only three or four of the 11 females known to

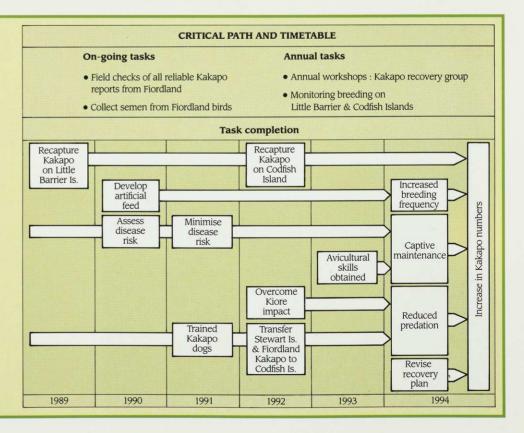
survive today will be left after 10 years – thus the situation is urgent."

The plan of action to save the kakapo includes the following measures:

- Establishing a kakapo recovery group.
- Continuing to transfer kakapo from Stewart to Codfish Island.
- Hand raising kea and kaka chicks in order to develop captive rearing techniques.
- Monitoring booming and survival of the birds.
- Reducing the impact of the Polynesian rat kiore which exists on Little Barrier and Codfish Islands and is a threat to eggs and chicks.
- Preparing new islands for kakapo translocations.
- Increasing breeding frequency this will be done by providing protein-rich foods such as kumara, carrots and apples for the kakapo. It is believed there is a correlation between diet and breeding.
- Prepare the way for possible captive breeding.

The report says that ideally in the long term there should be at least 500 kakapo on two predator-free islands. This should ensure the viability of the species.



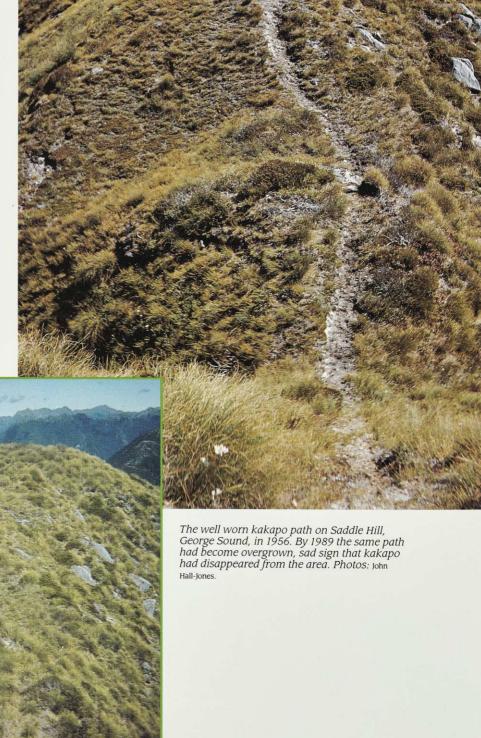


Kakapo tracks at George Sound

by John Hall-Jones, Southland branch councillor

N 1956 I DISCOVERED a well-defined kakapo track and bowl system on the summit ridge of Saddle Hill, George Sound. In 1989 I returned to the site and was impressed to find that the kakapo track was still there, although sadly it had obviously fallen into dis-

In 1863 John Buchanan, the botanical artist on Sir James Hector's expedition to the West Coast Sounds, made a sketch of a system of "kakapo tracks on a mountain 3,000 feet above George Sound". An alignment of his sketch shows that Buchanan was on the leading ridge of Nita Peaks directly across the valley from Saddle Hill and at the same level







Sketch of kakapo tracks at George Sound by John Buchan in 1863. (From Fiordland Explored by John Hall-Iones)

as the track and bowl system discovered in 1956.

In 1949 members of the combined New Zealand-American expedition to Caswell Sound "encountered" two kakapo to the west of Saddle Hill which prompted the author and three companions, Brian Reid (later of DoC), Alistair Carey and the late Tom Couzens to plan an expedition into this area in search of kakapo. Near our base camp at the foot of Saddle Hill we discovered some comparatively fresh bird bones which were subsequently confirmed by Ron Scarlett of the Canterbury Museum to be those of a kakapo.

On 17 February 1956 Alistair Carey and I ascended the main south ridge of Saddle Hill,

an impressive, steeply walled mountain (3,971 feet) protected on all flanks by typical Fiordland bluffs. An ideal retreat, a "Kakapo Castle", if ever there was one. Nearing the summit (at about 3,300 feet) the whole character of the ill-defined ridge track that we were following changed abruptly to that of a wider, well kept garden path. This pathway extended for about 50 metres before reverting to a scarcely definable track. The pathway linked two knolls, each of which offered extensive panoramic views over the whole of George Sound to the north and the main Stillwater Valley of Caswell Sound to the south. As such the system was superbly sited to project boom calls in either direction over a wide

The spectacular view from the heights of "kakapo castle", looking down into George Sound. Photo:

ranging area. The whole of the 50 metre "garden path" was notably clean and tidy with closely cropped and sharply defined edges. On average it was 5cm deep and 35cm wide. Along the verges there were five bowl-shaped areas, 45-60cms wide and 12-15cms deep. Three of the bowls appeared to have been used recently and one of these had a Dacrydium root at the back of it which had been nibbled at from below.

On the west side of the pathway, tunnels led off into the stunted *Dacrydium* to drop steeply down the hillside to a tiny tarn perched on a rock ledge 100 metres below. Descending to this tarn we were excited to find a mass of typically rolled kakapo grass chews around its edge. We also found a characteristically coiled grass dropping of a kakapo. On the north side of the tarn we found another track and bowl system encompassing a rock outcrop which offered both shelter and potential nesting sites. The whole rock ledge with its tiny tarn was poised on the brink of a great overhang rendering it safe from any approach to Kakapo Castle from the valley below – a perfect retreat for a beleagured bird.

A night vigil was kept within the precincts of Kakapo Castle but no kakapo were seen or

In February 1989 I returned to the scene of our former find with another companion, Bruce Miles. The kakapo had been booming on Stewart Island that month but none had been heard or seen in the Milford Sound area by Don Merton and his party who preceded our expedition. On 13 February we camped on the summit slopes of Saddle Hill within half a kilometre of Kakapo Castle, but no booms were heard. The next day we carried on down the main south ridge. As we approached Kakapo Castle I was delighted to see that the kakapo pathway was still obvious after 30 long years. But its whole neat and tidy character had changed. The edges were no longer closely trimmed and cropped and had become overgrown with grass and shrubs. All five bowls had become completely overgrown and could no longer be distinguished. As a track and bowl system for kakapo to boom and display it had obviously become disused. The tunnels leading off through the Dacrydium were still present, however (probably because of the slow rate of growth of this shrub) and I descended to the tarn on the rock ledge below. But there too the display bowls had disappeared and there was no sign of any kakapo chews or droppings.

Reluctantly I concluded that Kakapo Castle at George Sound, one of the last retreats of the kakapo in Fiordland, had become deserted. This sad fact emphasises the importance of the transfers of the cat-plagued kakapo colony of Stewart Island to Little Barrier Island and Codfish Island. These two bird sanctuaries would seem to offer the last hope for these "old New Zealanders" as Richard Henry once called them.

WOODCHIPPING - THE FACTS

New Zealand

Forest Cleared: 50 football fields of native beech, kamahi and rata a week, or 1250 hectares a year.

Where: On private land in Nelson, West Coast and Marlborough; Southland, South East Otago.

By Whom: In Nelson and Marlborough, Newmans, 100 percent owners of Nelson Pine Forests Ltd; in Southland Wood Export Tokanui Ltd owned by M. K. Hunt Foundation and C. Itoh Ltd.

Destination: Japan.

Japanese Companies Involved: C. Itoh Ltd and the Marubeni Corporation.

Both are among the greatest destroyers of tropical rainforests.

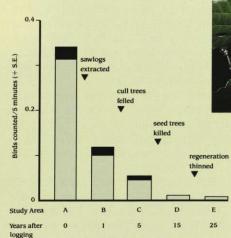
End Use: Paper.

Mill Employment: 100.

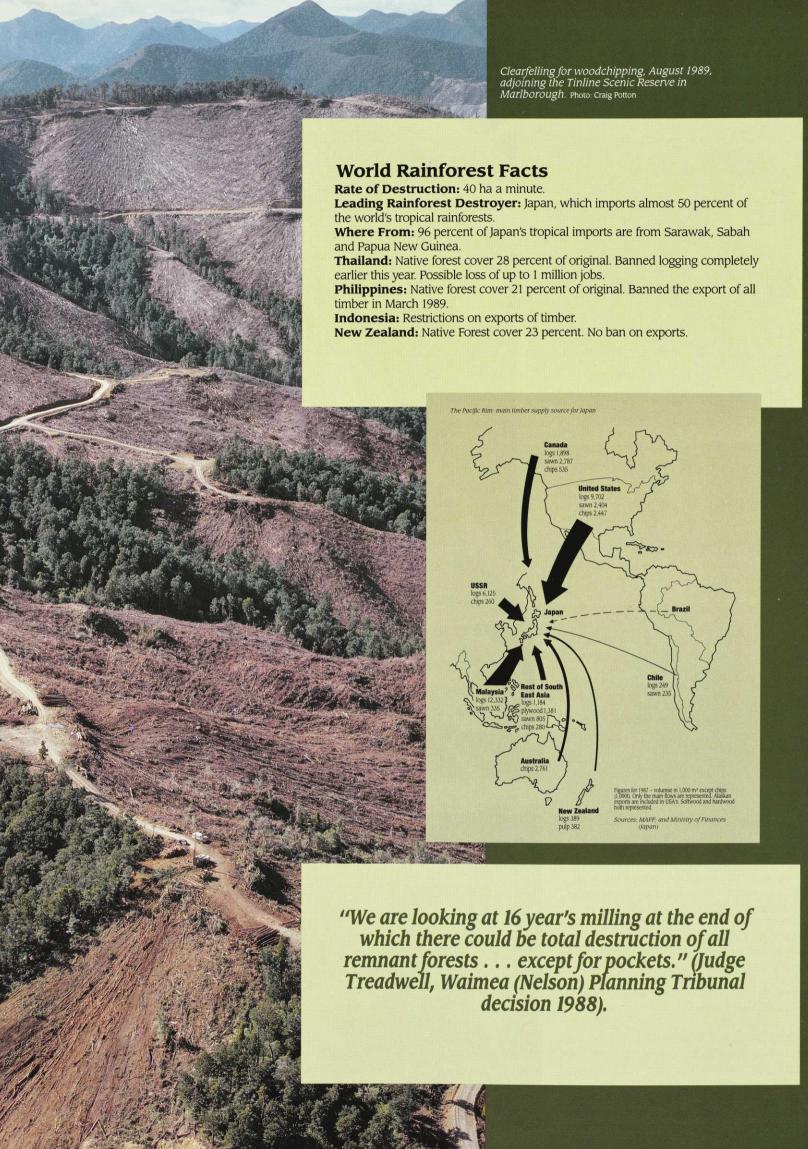
Export Value: Year ended December 1988, \$14.8 million. Effect on Birdlife: 1350 birds killed for every chip shipment.

Birds Most Threatened: Kaka, parakeet, robin, pigeon, rifleman, vellowhead.

The kaka, threatened by large scale forest clearance. Effects of beech management in Rowallan Forest on the parakeet. Hatched areas represent birds seen; plain areas represent birds heard. (From Beech Management – its effects on bird populations, by Eric Spurr).







ASTA REAL PROPERTY OF THE PROP

Wildlife Sanctuary of the Americas

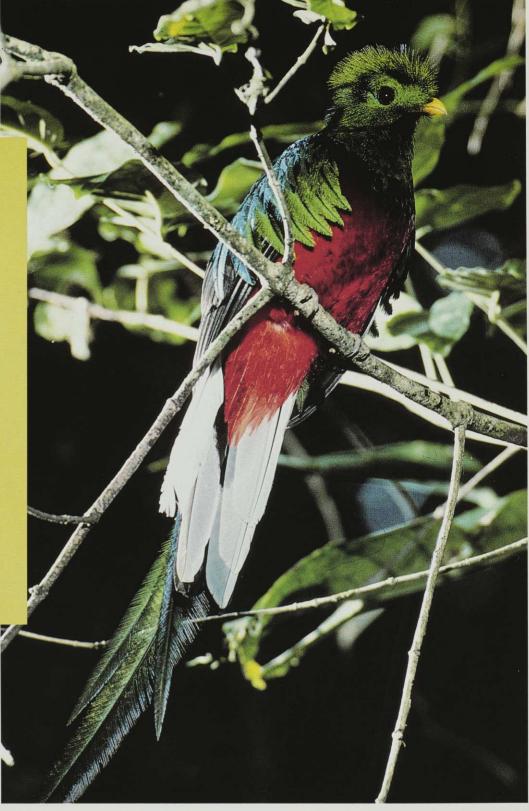
By Margaret Peace

the "Southern" countries of Latin America as extreme examples of environmental abuse, especially through deforestation. But a closer look at Costa Rica reveals a country making valiant conservation efforts which deserve international recognition.

When the Spanish arrived in Costa Rica in the 16th century they found the country almost entirely forest covered. Indian methods of agriculture, with no livestock, had made minimal destructive impact on the landscape for centuries. Spanish settlers, with far less respect for nature than the indigenous people, soon began large scale land clearance for cropping but the population remained fewer than 50,000 until the 19th century when coffee was established as an export crop. Since then the population has expanded to two and a half million with consequent increased demand for cropping and grazing land, as well as sacrifice of forests for timber exports. A figure quoted in 1981 was 60,000 ha being cleared per annum in a country with a total area of only 5.2 million ha (a third the size of our South Island).

Costa Rica Different

However, Costa Rica is different from all other Latin American countries in several respects. It has never been plagued by extremes of wealth and poverty and is immensely proud of its 40-year record of stable democratic government with no expenditure on any military







forces, and strong emphasis on the housing, health and education of its people. This background has favoured the development of a conservation ethic singularly lacking in other parts of Central America.

The concept of National Parks, first considered in the 1940s, became a reality in 1974 when several parks were established. Since then a succession of presidents have favoured conservation and ensured government funding which has enabled the setting aside of 29 national parks and wildlife reserves which now comprise 525,000 ha, or 10.3 percent of the country's total area.

Because of its varied topography and geographical position, Costa Rica has a remarkably rich and diverse flora and fauna condensed in a small area. The number of species already identified (by no means exhaustive) include 208 mammals, 850 birds, 220 reptiles, 132 amphibians and over 9,000 species of vascular plants. It is claimed that the confirmed existence of most of these is assured by the protection of a wide range of habitat types including tropical rainforest, dry deciduous forest, herbaceous swamps, lagoons and coastlines, coral reefs, bird islands, and mountains up to 3,000m high.

Iguanas spend much of their time feeding and resting in the tops of trees. Chris Thomas

Dedication and Enthusiasm

In a recent month-long visit to Costa Rica I stayed in several of the parks and was impressed by the dedication and enthusiasm of park superintendents who were eager to share their knowledge. So far, funding priority has been given to acquiring the reserves and supplying field staff to guard against poaching of wildlife, or burning and timber removal on park boundaries. Facilities for visitors are generally minimal, sometimes non-existent. Tourists are therefore conspicuously absent

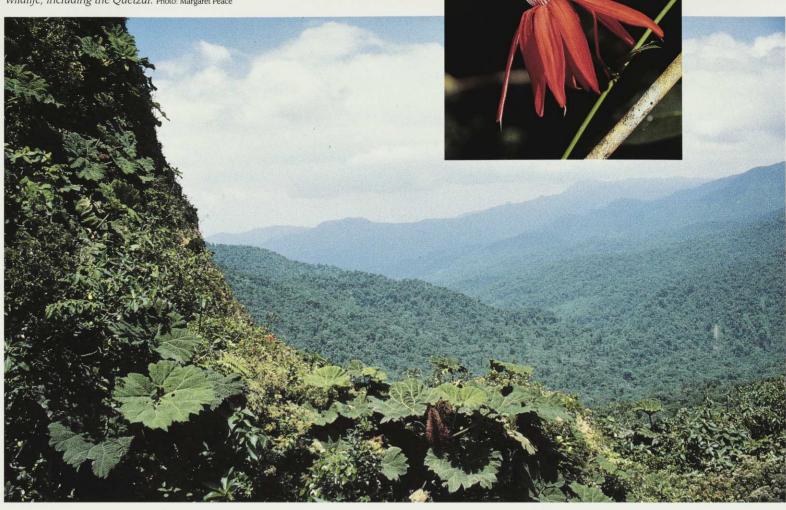
except in two or three of the coastal parks.

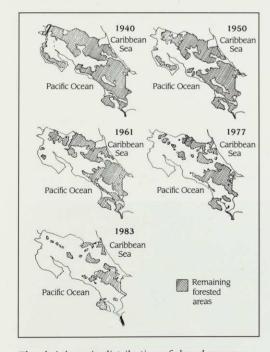
Santa Rosa National Park in the extreme northwest represents the only remaining sizeable area of tropical dry forest, a habitat type once continuous along the entire Pacific coast from northern Mexico to Panama, but mostly long since converted to cattle and cotton production. Of several hundred tree species in the dry forest, half of them are deciduous during the drought conditions which prevail for six months of the year. Nevertheless there is an abundance of fauna, including



A familiar toad of the Costa Rican lowlands. Photo: Chris Thomas

Monte Verde reserve, host to a rich assortment of wildlife, including the Quetzal. Photo: Margaret Peace





The shrinkage in distribution of closed canopy forest in Costa Rica from 1940 to the present. Only the volcano slopes within the area of Guanacaste National Park (northwestern Costa Rica) contained enough pristine forest to be recorded in this map in 1983 (Rodas 1985). Note that the relative rate and thoroughness of forest removal has been substantially greater in the dry western habitats than in the mountainous rainforest habitats.

gorgeously coloured birds and insects, monkeys, coatimundis, anteaters and deer. There is an ongoing project to reafforest areas previously burned by planting hundreds of thousands of tree seedlings every year. The adjacent beach protects the largest arribadas of Olive Ridley turtles in all of tropical America.

Manual Antonio National Park contains virgin coastal rainforest, home to brilliant macaw parrots and several species of humming birds, two-toed sloths and the beautiful endangered squirrel monkey. The adjacent coastline and off-shore islands are also protected nesting sites for brown pelicans, frigate birds and boobies.

Monte Verde reserve, which spans the Continental Divide, has been largely funded by North American conservation organisations and is administered by the Tropical Science Centre. It contains well-maintained tracks, an information centre and accommodation facilities for large groups of students. Important among the wealth of wildlife are the amazing golden toad, which is endemic to the reserve, and the magnificent Quetzal which has been described as the most beautiful bird in the world. A sacred bird to the Aztec and Mayan Indians, its gorgeous metre-long tail feathers were carefully plucked to adorn kings and priests, and were treasured more than gold. Formerly distributed throughout Central America, the Quetzal is now very rare outside Costa Rica (though it continues to be the national symbol and coinage of Guatemala).

Probably the most developed of the national parks is Poas, centred on a huge active volcano, which can be reached by road. There is a large, well-appointed visitor centre with excellent educational displays.

Some of the less accessible reserves do not encourage visitors other than bona fide scientific researchers. It is important to note that Costa Rica claims 93 percent literacy in its population and nature conservation is a subject specifically included in the science programmes of all secondary schools (where attendance is free and compulsory). There is considerable public awareness about environmental problems and a demand for information from the National Parks Service. The National Open University is developing an extensive programme of education, research and field studies in nature conservation.

Natural Laboratories

In the words of a past Costa Rican president: "Our National Parks are splendid natural laboratories which we offer to the scientific community – the contribution of the Costa Rican people to peace and goodwill among nations". And in this respect their sincerity has been proved by Costa Rican initiatives in establishing International Friendship Parks spanning the boundaries between their own country and Panama to the south and Nicaragua to the north.

The largest of Latin American butterflies, Morpho peleides.





Nevertheless it needs to be emphasised that, by western standards, Costa Rica is a poor country, where the setting aside of land for nature conservation means deprivation in the short term for the majority of the people who depend on agriculture. Western societies who deplore the loss of tropical ecosystems should be prepared to reduce their own high demands on the earth's resources, as well as donating some of their wealth and expertise for conservation projects in "Southern" countries.

Margaret Peace from Blenheim is a former member of Forest and Bird's executive.

Male and female golden toad. Photo: Michael & Patricia Fogden



All photos: Rod Morris



FOR THE AVERAGE PERSON Latin scientific names are often a mouthful, but one recently discovered species of weta should be easy to pronounce: "Jaws" is the affectionate name assigned to an as-yet-undescribed weta found on Middle Mercury Island off the Coromandel coast.

To all intents and purposes the weta resembles the giant wetas (*Deinacrida* spp.; refer *Forest & Bird* May 1988) and like most of them is found only on an isolated island without predatory mammals. However, we now know that they are not even closely related. Certainly in one respect it is strikingly different: the male of this species has a greatly enlarged head with a prominent "tusk" adorning the mandible or jaw. The female, on the other hand, has a smaller head with no "tusk".

Adults of both sexes weigh 25-28g (about the size of a rifleman), while the male is up to 9cm to the tip of the "tusk". Little is known about the weta which was first discovered by DSIR scientist Tony Whitaker in 1970. Another scientist, Ian Southey, also made sightings in



Above: "Jaws" in close up, showing the remarkable 2.5 cm long tusks of the male. The ridges at the top of the tusks grate against each other so the animals are able to "stridulate" by moving their jaws.

Both males have engaged horns, and much of the fight progresses like this, becoming an exercise in pushing and stamina. The wetas continue to push, endeavouring to throw their opponent over on his back. After five or so minutes both animals disengage, with the loser rapidly retreating, leaving the winner prancing around in a highly excitable state.

1983-84. However, three specimens being held at Victoria University taken during a March 1989 joint Victoria University/Department of Conservation/World Wide Fund for Nature expedition, are providing some Victoria University scientists with clues as to exactly what sort of weta it is.

Most speculation about the weta has centred on the unusual tusk. It is remarkably stout and very effective in defense but this is mainly by bluff! Most other wetas defend themselves by kicking with well-armoured



The beginning of a fight between the male on the right who has just emerged from his burrow under a fallen log and is threatening an intruding male which is coming in from the left.



The two animals squaring up for a face-off. The tusks are opened so they resemble bulls' horns, and the wetas' hind legs are widely splayed so the animals are braced for the impact of butting movements.



NOVEMBER 1989



Male and female wetas, showing the total absence of a tusk on the female.

hind legs or hissing as well. Both sexes of the Mercury Island weta threaten instead with impressive mandibles, and throw up their forelegs or lunge rather than kick. The "tusks" of the male greatly enhance this display. In fact when the ridges on the "tusks" scrape together they produce a shrill rasp to startling effect. The captive males also use their "tusks" to threaten and spar with each other, apparently over access to hiding places where the more secretive females gather. We now believe that this is the tusk's main function. Studies using video playback to analyse behaviour show how these sparring bouts can escalate into an energetic and prolonged head-butting contest, in which the wetas use their tusks much in the way that deer use their antlers. Eventually one concedes defeat and walks away unharmed. The tusks are part of the jaw without separate articulation and seem to get very much in the way at

Unlike the giant wetas or well known common tree wetas (*Hemideina* spp.) which are vegetarian, this species seems to be mainly carnivorous. The captive specimens eat grubs and beetles, earthworms, mincemeat and "Biscats"! Cockroaches and slaters are less popular, while the more usual weta fare of fresh mahoe leaves and sliced carrot rates hardly a bite.

These wetas can also leap up to a metre at a time, and are adept tree climbers with well developed tarsal pads, or "suction cups" on the feet. Nevertheless, they live on the ground and seem reluctant to climb unless chased.

Now that research has begun on the weta, concern has arisen over how to best protect the species. Middle Island is small (10ha), bush-covered, rocky and steep. It is one of only two islands in the Mercury group (the other even smaller) naturally free from intro-

duced mammals. Both have surprisingly rich faunas of invertebrates and reptiles, which are in marked contrast to other nearby islands which have kiore and, in one case, rabbits as well.

The tuataras on Middle Island are probably natural predators of these wetas. However, because both animals are cold-blooded the tuatara does not pose the same threat as a warm-blooded predator like a rat would. Rats seek out their prey and find any cold-blooded creatures easy game when they become inactive in cold weather. Fortunately Middle Island so far has been spared this affront. Tuataras, in contrast, sit in wait for a meal to walk by. It also seems likely that the tuatara and weta prefer slightly different habitats, with the weta usually living where there is deep forest litter or dense low ground cover.

There could be other threats to survival of this weta. These are associated with small size of the island, which makes it particularly vulnerable to damage from any natural disturbance or introduced animals. This is perhaps well illustrated by the plight of the smaller common tree wetas on the Mercury Islands, which are becoming increasingly rare. Past burning and rat infestation have been pointed to as a reason; however some observers believe that the releases in the past 25 years of saddlebacks on two of the larger Mercury Islands have had an adverse effect on tree wetas. Saddlebacks are skilful foragers often able to prise prey out of tree holes during daylight. The Victoria University scientists would like to see this situation monitored more closely, and warn that any bird relocations on to rat-free island where invertebrates appear to be abundant should nevertheless be carefully assessed for potential impact.

Self-introduced birds such as starlings also pose a threat to wetas, but in an unexpected

way. Starling droppings from an extensive night-time roost on Middle Island have impaired plant growth except for hard ferns on the forest floor. Even a minor disturbance such as this could have unexpected biological consequences for the native animals, especially for those living on small islands where such effects are magnified.

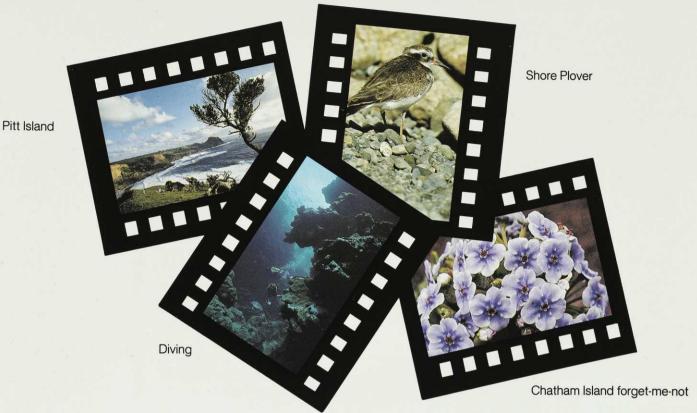
Although Middle Island is a strictly protected site, the future for "Jaws" there is not assured. The threat of rats reaching the island is ever present, as was proven in 1988 with the escape of a ship rat on nearby Korapuki Island where kiore were eradicated in 1985. Small boats frequent the Mercury Islands, providing opportunities for an unwelcome "hitchhiker" to escape. The discovery of the ship rat on Korapuki demonstrates the value of adequate surveillance in the area.

While continuous protection from rats is essential, in the long term this unusual species will require the preservation of suitable habitat, a suitable food supply, and an animal community without close competitors – and perhaps also a captive rearing "insurance" programme. Plans are underway to find out more this summer by tracking wetas with miniature radiobeepers – providing sponsorship can be found.

Until we understand more of the habits, susceptibilities and genetic resources of this unusual creature, we will not know what additional measures are needed or indeed what can be done, to provide appropriate protection.

Source: Mary McIntyre (who would like to acknowledge the permission of the Department of Conservation for permission to collect wetas and for logistic support).

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Fezz Ct



Introduced predators have had a disastrous effect on New Zealand's unique fauna. Yet now conservation authorities seem unmoved that large numbers of voracious ferrets have recently escaped into the wild from farms and that we may be poised to see mass releases by irresponsible fitch* farmers. Auckland Acclimatisation Society field officer John Dyer reports on a growing problem.

New Zealand has caused so much heartburning and controversy as the introduction of these blood thirsty creatures". So wrote G.M Thomson in 1922 about the 1890s Government introduction of mustelids (ferrets, stoats and weasels) to control the rabbit nuisance. Even then some Acclimatisation Societies warned of the disastrous consequences, as did many of the senior conservationists of the day.

One hundred years on after the release of large numbers of mustelids in Otago, rabbits still threaten farming viability, showing just how ineffective mustelids were. However, mustelids soon found easy pickings among New Zealand's flightless or ground-dwelling birds – so much so that the predators appeared in Fiordland before rabbits! Fortunately they did not reach everywhere. Most offshore islands are free of mustelids and DSIR reports in the 1940s and 1960s showed large parts of the mainland – such as Northland – to be ferret-free.

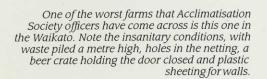
But a little over five years ago the fitch industry was founded. Environmental concerns were dismissed with the claim that ferrets were so valuable no farmer would allow any to escape but reports of dead kiwis showing all the classic signs of ferret predation started coming from Dargaville. Ferrets were starting to escape.

Fitch Market Crashed

As with any industry it is necessary to supply what the market wants. The fitch industry failed to do this because it was breeding the wrong type of fitch. Anticipated returns were well down. Then the grossly oversupplied market crashed. You couldn't give fitch away in 1987. World production toppled from 600,000 to 200,000 that year and in New Zealand many farmers went bankrupt. A number simply opened up their doors and let their whole stock loose.

Eight hundred animals from one farm bordering Mamaku Conservation Park, home of the precious kokako, were let go straight into the Park. Nine farms operated in this area and seven of these folded. What happened to the other animals is speculation. Our stall at the Mystery Creek Agricultural Fieldays was inundated with stories of poultry attacks, loss of game and native birds. From Wanganui to Warkworth came reports of 11 farms releasing part or all of their stock and six farms still in operation but losing stock regularly.

Opposite: Ferrets – no friend to native birds since their introduction in the 1890s. The fine for releasing any number of ferrets into the wild is a farcical \$100:





Contrary to regulations, fitch farms such as these have little in the way of security. Animals are supposed to be enclosed in a building as well as in cages.







The ferret depicted by artist Cynthia Cass doing what it was brought into the country to do: killing rabbits. However, the introduction of the ferret for this purpose has been a failure. (From Immigrant Killers, Oxford University Press).

A report came of one neighbouring farm 15 km away losing two dozen turkeys in a night to a single animal caught in the act. An identical report came from another district. Altogether some 200 poultry were killed in specific instances but much more was alluded to. Following one escape of 50 animals near Warkworth, the area's pheasant and fernbird populations disappeared. In another area fitch were entering houses in search of food. Spotless crake, a shy, uncommon native swampbird once inhabited a swamp virtually on this farm's boundary. Wildlife officers playing tape recordings of spotless crake in this wetland attracted curious ferrets instead.

Another farmer told me of a tethered goat being killed by a tame fitch which regularly appeared on the driveway. His neighbour described one pulling a hen up into a tree leopard-style.

However, farmers weren't just releasing stock. Many failed to install even rudimentary security fencing – required by law – and so escapes continue to this day. Dogs on farms bordering fitch farms are savaged, though they sometimes manage to bring home the culprit. Cats disappear. Farmers find fitch entering open doors looking for breakfast.

One farm I inspected had a beer crate to hold the fitch shed door shut and had holes in the security netting big enough for a large dog to escape through. Furthermore the type of security fence was the one specifically identified by regulations as unsuitable. Everything on this farm was in disarray. Sheets of old iron were haphazardly used to plug gaps. The animals' waste, having never been cleaned to anyone's knowledge, stood nearly a metre under the cages. The farmer admitted the fitches were overcrowded. He is currently seeking planning permission to increase production to 4500 per annum.

The Future

Already fitch breeders have asked to bring in mink. These are identified as the worst ground predator of game known and following releases and escapes in Britain identical to those of fitch in New Zealand, they are now causing millions of pounds of damage annually.

Fitch breeders are bringing from Finland into New Zealand new types of fitch (probably closer to the steppe polecat subspecies) and although each shipment is inspected on the wharf to make sure no mink are included, the possibility of covert introductions by embryonic transplants gives little to be complacent about.

What Is Being Done?

The Department of Conservation has authority to enforce the fitch regulations. However different districts vary in their application, from diligent – giving operators 28 days to install security fencing or face closure – to disinterested. The Auckland office is in press as "having neither the cash nor the priority to monitor ferrets".

The current regulations carry a maximum fine of \$100 which is petty cash for someone with 4,000 or more animals each carrying \$30 pelts.

Realistically the law lacks teeth and needs reviewing. A \$100 fine for releasing hundreds of animals into the wild is no deterrent. The releases we have documented were all made AFTER these 1985 regulations were passed.

Clearly another price crash will produce the same result.

The Acclimatisation Society has called on the Government to urgently review fitch farming. Farming regulations need to be tightened up and properly enforced. A number of specific measures are required:

- Realistic penalties are needed to control irresponsible operators.
- Security fencing must be installed on every fitched farm. This is a requirement under the law that is being ignored by some operators.
- Farmed ferrets must be earmarked to identify ownership.
- All farmers should be required to have live traps on their boundary as a safeguard against escaped ferrets.
- Farmers leaving the industry should be accountable for stock disposal.
- The Department of Conservation must effectively supervise the industry.

The public also has a role to play. If you know of any irresponsible fitch farmers in your area, or of any ferret releases or escapes, inform the Department of Conservation or your local council. Pass the information on to your local Forest and Bird branch as well and make sure you follow up your complaint to see if it is actioned.

New Zealand's indigenous animals are incredibly vulnerable to predators and yet we continue to gamble with the future of our heritage for any get-rich-quick scheme that arises. If our more vulnerable wildlife is to continue to share the mainland with us and not be shunted off to offshore islands, we have an obligation to remove the threats to their survival. Preventing further ferret introductions, either accidental or deliberate, would be an important step.

*Fitch is the term for a farmed ferret. The ferret is the domesticated version of the wild polecat. It has been bred in captivity since Roman times, but we do not know whether the original stock were European polecats (Mustela putorius) or Asiatic steppe polecats (Mustela eversmanni). To save confusion, tame ferrets and their feral descendants in New Zealand are usually treated as a separate species, Mustela furo. (Information supplied from Immigrant Killers, by Dr Carolyn King).

PARTICIAN SEALAND'S LAST SEALAND'S LAST SEALAND'S AND SEALAND'S By Mike Daniel and Alison Ballance

Bats are among the least known and most rarely seen of the native vertebrate animals in New Zealand. They hide by day in forest trees or caves, and only emerge to feed at dusk or after dark. Despite diligent study for over 10 years, we still know very little about the natural history and distribution of these secretive mammals. Ecology Division DSIR would like to enlist the help of Forest and Bird members to increase our limited knowledge of the distribution of bats throughout the country in order to assist with efforts to ensure their continued survival.

ANY NEW ZEALANDERS are surprised to hear that we have bats in this country. While Australia has over 60 species of bats and Britain has 15 species, New Zealand has only three species of bats, but one of these has probably become extinct as recently as 1965. However, New Zealand's modest bat fauna makes up in scientific interest what it lacks in numbers, with the two species of short-tailed bats belonging to a family of bats unique to this country. These small furry flying mammals, called 'pekapeka' by the Maori, have the distinction of being our only native land mammals.

Long-tailed Bats

The only relatively common species of bat, and the one most likely to be seen flying at dusk, is the long-tailed bat (*Chalinolobus tuberculatus*). This little bat, weighing only 8-10g, has small rounded ears, and long silky black or dark brown fur. Its long tail is almost as long as its body, and is joined to the hind legs on each side by a large 'v'-shaped tail membrane. This tail membrane is used like a butterfly net to catch and hold insects in flight. It can sometimes be seen if the bat is flying reasonably close to the observer and the light is still good.

Long-tailed bats are like nocturnal fantails



The lesser short-tailed bat.



The long tailed bat is the most common of our two native bats. Photo: Doc.

as they swoop with typical zigzag flight over streams, lakes and forest clearings, to catch a meal of small moths and other small flying insects. It is easy to mistake fantails, swallows and even large moths for bats in the fading light at dusk.

Long-tailed bats have adapted to the changing New Zealand environment, and are found in exotic pine forests as well as in native forests, in farm shelter belts, and occasionally in farm buildings, in caves and under bridges. They hibernate for up to 4 or 5 months during winter over most of the country, but in parts of Northland are active in winter during mild weather. From our records they appear to be widespread, and have been found from near Kaitaia to Stewart Island. However, an unknown number of our bat records may in fact have been of swallows or large moths!

Short-tailed Bats

There are, or were until 1965 (see below), two species of short-tailed bats, which belong to the endemic New Zealand family Mysta-

cinidae. In many ways these are among the most remarkable bats of the nearly 1,000 species found in the world. They possess several unique features, such as spurs on their claws, and a remarkably efficient way of folding and protecting their furled wings, which enable these bats to hunt for food on the forest floor and by crawling up tree trunks and along tree branches.

The greater short-tailed bat (*Mystacina robusta*) was at one time – several hundred years ago – found over both the North and South Islands, but has not been seen on its last rat-free refuges since 1965 when ship rats wreaked havoc on the birds, plants and bats on Big South Cape and Solomon Islands off Stewart Island. The 1988 IUCN Red List of Threatened Animals gives this species as extinct, but a few may possibly survive on one of the small rat-free muttonbird islands near Big South Cape Island, their former stronghold.

The lesser short-tailed bat (*Mystacina tu-berculata*) weighs about 15g and has large prominent ears, short frosted-brown velvety

fur and remarkably strong hind legs and feet for scurrying around on the forest floor. Their terrestrial behaviour makes them particularly vulnerable to introduced predators such as cats, stoats and rats. They live in deep forest, and have in recent years been found only in a few extensive native forests in the North Island, on Little Barrier Island, in Northwest Nelson Forest Park and on Codfish Island off Stewart Island. They are listed as vulnerable in the 1988 IUCN Red List of Threatened Animals and in The New Zealand Red Data Book.

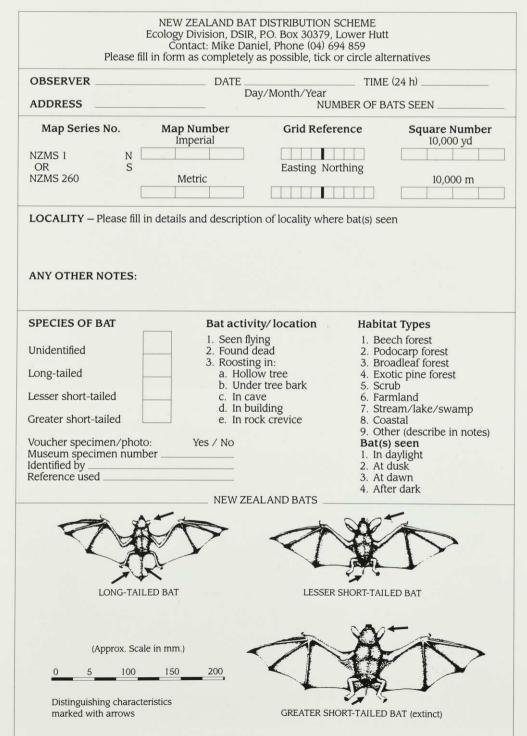
Short-tailed bats roost in hollow trees, caves and occasionally in seabird burrows and in tramping huts in the mountains. They are active only after dark until just before dawn, and they eat fruit, nectar and pollen, as well as insects caught while flying and while hunting on the ground. Like some of the South American bats, their tongues have a special brush tip for collecting nectar and pollen.

Much of our knowledge of the ecology and natural history of lesser short-tailed bats has come from our studies in Omahuta kauri forest in Northland, and on Codfish Island. A brief account of the recently discovered lek mating behaviour of these bats appeared in the August 1989 issue of Forest & Bird.

Bat Distribution Survey

Ecology Division, DSIR, has been collecting records of bat sightings for a number of years with help from other agencies and the public. All records of bat sightings from the old Wildlife Service, from DoC, and from the public are entered on special cards in the New Zealand bat distribution scheme. New Zealand's natural habitats are disappearing at a rapid rate. We need to increase our knowledge of the distribution and habitat requirements of the two remaining species of native bats so that sound conservation advice on forest management proposals will ensure their continued survival. A copy of our new bat distribution form is reproduced here. We would be very grateful to Forest and Bird members for details of any sightings of bats, dead bats (well wrapped please!), occupied bat roosts, or photos of bats found. Old records are of as much values as recent ones, provided the dates and localities can be accurately recalled. Bat survey forms can be obtained from Mike Daniel, Ecology Division DSIR, P O Box 30-379, Lower Hutt (phone (04) 694-859), or you can send information in a letter. We need to know as much detail as possible about your bat record, such as precise locality (so we can locate it on a map), the date, the observer's name and address, how many bats were seen, what habitat type and any other information you can provide. Thank you in advance for your help in furthering our scientific knowledge of New Zealand's unique native bats. 🖊

For further information on bats: The Collins Guide to the Mammals of New Zealand (1986) by Mike Daniel and Alan Baker, provides information on New Zealand bats with colour photographs and drawings. A list of scientific publications of studies on New Zealand bats is available on request from Ecology Division. Mike Daniel and Alison Ballance are scientists with the DSIR Ecology Division.



Rare plants of Waima Forest

by Lisa Forester



The Hauturu trig, looking east to Mt Misery, the highest point in Northland. Several new plant species have recently been discovered along this Waima range.

n cold, south-facing, wind-blasted cliffs along a range which rises to Te Raupua, the highest point in Northland, grows a strange community of plants including two recently discovered species which have been found nowhere else. One is a leathery leaved *Olearia* which grows into a small tree. The other is a strikingly different *Coprosma*. Both are seriously threatened by goats and possums.

It is remarkable that two such conspicuous plants should have remained undiscovered when the ridgetop above their habitat is well used by trampers. The fact is that their territory is one of the coldest, dampest and most inhospitable places in Northland. The plants grow on the upper slopes of the Waima Range on forest and scrub-covered ledges and near-vertical basalt cliff faces where only the keenest tramper or botanical enthusiast would ever attempt to visit.

The story began a few years ago when John Beachman, now District Conservator for the Department of Conservation in Kaikohe, collected, below Hauturu Trig, a robust, shiny leaved *Olearia* that he did not recognise. The plant, which has large, bronze-backed leaves, was identified as a new species.

Anticipating that there might be other rarities John and I made another visit to Hauturu in 1986. Clambering around on the steep cliffs and ledges below the trig we found a *Hebe* previously known only from similar country in Herekino Forest, south of Kaitaia and from a gorge cut into the Ahipara gumlands plateau. We also found a very odd looking

Coprosma with upright stems which branched sparsely, and with large, distinctive leaves.

This *Coprosma* differs from all the other New Zealand coprosmas in having enlarged leaf bases and greatly-reduced petioles, or stem. The plant grows to around three metres in height, sometimes collapsing down the cliffs and sending up new growth from the old stems.

On subsequent visits with botanists Helen and Tony Druce, Anthony Wright and Ewen Cameron we were lucky enough to catch both sexes of the *Coprosma* at various stages of flowering and we also found plants fruiting. A stem of the *Olearia* in bud, collected in late November, burst into spectacular sprays of white daisies a week later. Both plants are being described at present.

Suspecting that these and perhaps a few other oddities might be found on similar topography in other parts of Northland we began a search of possible habitats. So far we have checked areas in Warawara, Herekino and Waipoua forest without success, but there is still a lot more country to cover. In Waima Forest we have recorded further populations of the Olearia and Coprosma four to five km east below Te Raupua, the highest point in Northland, and below Mt Misery. These preliminary investigations suggest that it is likely that the plants will be restricted to the main Waima Range. A more comprehensive survey of the whole forest is needed and we intend, this year, to produce a status report for the plants as well as a fuller

description of their habitat and associated species.

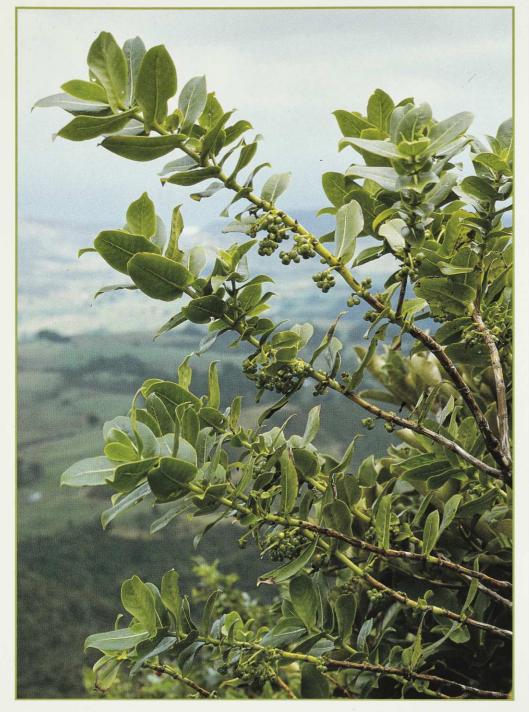
Ancient Relics?

An intriguing question is whether the new species are ancient in origin, perhaps Ice Age relics clinging tenuously to a remnant of what was a much wider habitat. The total absence of the plants, even as seedlings, in the surrounding bush suggests that they do not compete well in a closed-forest environment. Maybe comparison of the fossil pollens will shed some light on these questions. Tony Druce, who is describing the *Coprosma*, has found that it is closely related to *Coprosma grandifolia*, previously regarded as the sole representative of a distinct group.

Goats and Possums

Unfortunately goats and possums are having a heavy impact on the Waima cliff habitats. The skeletal soils, kept damp under the forest canopy, are prone to erosion, making the habitat very fragile. Even human footsteps cause a surprising amount of damage.

The Hauturu habitat is in relatively good condition although the *Olearia* and *Coprosma* occupy less than a hectare. Elsewhere much of the *Coprosma* has been chewed to a stubble and only survives in areas too steep or too dense in vegetation for the goats to reach. The *Olearia* is a little more widely distributed, inhabiting some of the less steep areas and some of the ridgetops. Nevertheless it is still vulnerable as it is







ringbarked by goats and browsed by possums. I have seen trees with piles of possum-ripped leaves beneath them.

There is no doubt that although goats pose the greatest threat, the combination of goat and possum damage has already been devastating. Damage now in some places is such that you find yourself climbing dry, naked faces with patches of rock pushing through the eroding soil. Hook wedges and adventive species find a suitable habitat under ghostly forests of sticks, while occasional terminal bunches of dying leaves are all that remain to bunches of dying leaves are all that remain to tell that here once grew a flourishing Olearia forest.

Top Left: Coprosma waima which is found only in Waima forest, and in flower (left).



Hunters

The Department of Conservation employs two full-time hunters in the North. What makes the goat control especially difficult in Waima Forest and throughout most of the rest of Northland's forests is the lack of boundary fences. Fencing Waima Forest would be a huge and costly task so the goats continue to filter up from scrub and farmland in the valleys below. However, goat control in Waima is seen as a priority and in 23 hunting days spent there recently 122 goats were shot. If goat culling is continued in Waima, as intended, we can look forward to a much brighter future for this unique habitat.

It seems astounding that these large and conspicuous plants on the Waima ranges should hide for so long, suggesting, I feel, that Northland is a treasure house for the naturalist and needs proper inventory. I have a suspicion that Waima's story is not quite finished, that up on those windblown slopes other gems await discovery. Perhaps next time a giant skink, or new insect will be found. Only time will tell.

Lisa Forester is a conservation officer with the Kaikohe office of DoC.



This attractive Hebe was discovered on the exposed Hauturu cliffs.
All photos Ewen Cameron.

NOVEMBER 1989



The World of Birds A Southern Perspective

November - December 1990

ate in 1990, New Zealand will be the bird capital of the world. Two large international conferences will be held here as a recognition of New Zealanders' outstanding achievements in the study and conservation of our remarkable and unique birdlife.

The 20th Conference of the International Council for Bird Preservation (ICBP) will be held in Hamilton from 19-27 November 1990. Formed in 1922, the ICBP is a federation of over 330 member organisations with representatives in 100 countries. This will be only the second time they have met in the southern hemisphere.

The event will start with two days of workshops (for invited specialists) on topics such as 'Seabirds on Islands', 'Birds and Tourism' and 'Conservation of piciformes' (woodpeckers, toucans, honeyeaters). During the Conference proper, international conservation issues are to be discussed and world bird conservation priorities for 1991-1994 will be set. A variety of nature tours will provide a mid-Conference break and then the last three days will be devoted to special symposia of four very topical bird conservation topics: birds and tourism, management of threatened birds, conservation of biological diversity, and bird conservation in the South Pacific.

A week later, from 2-9 December 1990, the 20th International Ornithological Congress will be held in Christchurch. Only held once before in the southern hemisphere, this will be a marvellous opportunity to see, hear and learn about all aspects of the study of birds. A wide

variety of topics of interest to birdwatchers, conservationists and learned scientists will be covered. The organisers are expecting to provide facilities for a programme of 500 spoken symposia and contributed papers, 500 poster papers and a wide range of special interest group and round table discussions. A continuous programme of bird films will be shown, many birdwatching trips around Canterbury have been arranged, and a mid-week field excursion programme and 'Country Fair' at Mount Hutt station will let participants relax, and sample a slice of New Zealand rural hospitality.

A unique programme of conducted tours has been organised to display off our magnificent natural heritage. The real gem being offered is a subantarctic cruise to our pristine southern islands which abound with fascinating wildlife – flowering plants, albatrosses, penguins, seals and whales.

Why not join in these exciting events? – this will be your only opportunity to share New Zealand's natural heritage with so many like-minded people from overseas. There is also a requirement for a number of volunteers to assist at the venues. These assistants will have the opportunity to participate more closely in the daily operations.

Write now for the World of Birds Final Circular, a 30-page information booklet outlining these events (and more!!!). Offers of assistance and requests for the Final Circular should be forwarded to:

Dr Ben Bell
'World of Birds'
Schools of Biological Sciences
Victoria University
P O Box 600
Wellington







Green Shoots, Rotten Roots by Jonathon Porritt

T'S HARD NOT TO BE INFECTED by a new found sense of purpose and optimism within the Environment Movement. Membership of most environmental organisations is soaring; inquiries are running at an all time high. The media can't get enough of today's burgeoning greenery, and politicians are embarrassingly anxious to drape themselves in the stuff. Any movement that can legitimately claim to embrace people as dissimilar as Prince Charles and Sting, the editors of the Daily Mail and the New Internationalist, let alone Mrs Thatcher and the Bishop of Durham, must surely have something going for it!

Yet the deepest fear of those currently riding the crest of this green wave is that we've been here before, in the early seventies. And since nothing came of it then, why should anything come of it now? One green flash in the pan is, after all, much like another. Such world-weary cynics provide a useful antidote to the euphoric enthusiasm of some of the Environment Movement's more recent converts. In a society dominated by the ephemera of fashion, advertising hype, photo opportunities, and thirty-second "sound bytes", a modicum of cynicism is a handy attribute.

There are two main causes for caution. First, the early seventies did indeed witness an astonishing upsurge of interest in the environment. A spate of doom-and-gloom publications such as The Limits to Growth and The Ecologist's Blueprint for Survival chucked down the gauntlet of sustainability with considerably more panache than latterday successors like Our Common Future and the World Conservation Strategy. Fritz Schumacher's Small is Beautiful even got the economists up out of their well protected dugouts, temporarily trading in their self-imposed sensory deprivation for a few daring encounters with the real world.

But it all phuttered out within a few years. Peversely and paradoxically, the oil shocks of the mid-seventies actually reinforced the unsustainable policies and profligate attitudes of 'advanced' industrial economies. It was felt that if we could survive such an assault from OPEC through welcome improvements in energy efficiency then we could surely survive anything that the environment might chuck at us. With the tedious wisdom of hindsight, it is now clear that the 1972 Stockholm Conference actually marked the end of a period of enhanced environmental awareness, rather than the dawning of a new era of international co-operation.

Second, it is clear that much of today's "greening" is pretty superficial, and that opinion polls indicating the importance people attach to environmental issues need to be read with sackfuls of salt at the ready. For instance, a MORI opinion poll in 1982 indicated that about 75 percent of people wanted to use unleaded petrol in their cars. But by 1989, despite a significant price advantage for unleaded, a mere 5 percent of petrol sales were actually unleaded. Not even the usual combination of motorists' chronic ignorance, chronic incoherence within the Department of the Environment, and industry's chronic reluctance to associate good environmental practice with good business, can explain away the reluctance of the apparently 'concerned' to take up the unleaded option until very recently.

Caution, if not outright cynicism, about the future of the Environment Movement would therefore seem to be well justified. But as a hardened cynic, and an intractable opponent of phoney green dreams, even I can't help but

feel that this time it's different.

For one thing, the scientists are now with us rather than against us. On occasions, they actually seem to be out in front of the activists of the Environmental Movement. In the early seventies, the protagonists of the "limits to growth" scenario relied primarily on an inadequately programmed computer model. Politicians had little difficulty dismissing it as sensationalist speculation. Today, there's nothing speculative about the depletion of the ozone layer, the deforestation of the Amazon,

"I can't help but feel that this time it's different. For one thing, the scientists are now with us rather than against us."

the build-up of carbon dioxide in the atmosphere, or the pesticide residues in our water and food. Hard scientific evidence counts for a lot in a hard materialistic world.

More importantly, today's environmental organisations have learned how to articulate this message without precipitating members of the public into a state of instant and total depression. Though the prophets of the early seventies never consciously intended it, their powerful jeremiads left many people feeling powerless or conveniently fatalistic: "What can I do if things are as bad as that?"

Far greater emphasis is now placed on empowering people by providing the information for them to make changes (however small) in their own lives. Hence the fascinating phenomenon of "green consumerism", the revolt against CFC-based aerosols, the uptake of organic produce, and a host of other lifestyle changes. They are all cumulatively significant.

It is the international dimension which encourages the greatest optimism and not just in the West. In Eastern Europe, the political route for Greens is as comprehensively

blocked by oppression as it is for Greens in the UK by the patent absurdity of our electoral system. Nonetheless dozens of pressure groups have sprung up over the past two years, taking the newly minted and astonishingly green words of Mikhail Gorbachev and Edvard Scheverdnadze at their face value.

The Brundtland Report, Our Common Future, is at last beginning to shape the international agenda in a way that neither the Brandt Report nor the World Conservation Strategy managed to do. The United Nations Environment Programme is at last beginning to come into its own, building on the considerable success of the Montreal Protocol to protect the ozone layer. And perhaps most important of all, environmentalism no longer represents a 'neo-imperialist conspiracy' in many developing countries.

In short, the difference between the early seventies and today lies in the Environment Movement's ability to reach more people in a more politically astute way in a more co-operative international context. But before we all imagine that the environmental battle is won, let me draw your attention to one particularly nasty fly in the green ointment: the apparent success of the Environment Movement may be the cause of its own decline, for such back-slapping perception of success is

horrendously premature.

We may have started to stem the tide of destruction, with a few useful reforms here and there, but in truth, little is changing deep down. We are still hell-bent on beating up the planet to create our kind of human-made wealth; we still condone untold suffering among two-thirds of humanity; and society's values are still dominated by the kind of crude aggressive materialism that crushes the gentler, more spiritual side of human nature, and profoundly distorts our relationship with the living Earth.

Having got this far, the Environment Movement must therefore address itself to the inherent unsustainability and inequity in our industrial society, and start the job of encouraging a profound transformation of that society rather than settling for a hopelessly compromised accommodation with it. If it doesn't, the next generation may judge us too as just another green flash in the pan. 💉

Jonathon Porritt has been director of Friends of the Earth since 1984, and involved in the Green Movement since 1974. At the same time, he was an active Green Party Member standing as a candidate in local, General and European Elections on seven different occasions. He is the author of Seeing Green, and (together with David Winner) of The Coming of the Greens, which accurately predicted the huge upsurge of interest in green concerns over the last year or so. He is son of a former New Zealand Governor-General, Sir Arthur Porrit.

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There are three categories of hut: \$4, \$8, or \$12 a night. Children 11 and over are charged half price. Buy your tickets

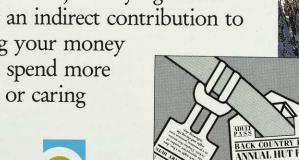
in advance; they're sold at Department of Conservation offices, visitor centres and shops displaying this sign:

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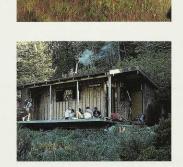
children) and last for a year. Passes can be used in more than 500 \$4 and \$8-a-night huts and can be bought at DOC outlets or by mail order from the department.

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Bird Surveys -Your Help Wanted

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Four species being targeted at present are scaup, falcon, kea and kaka. If in your travels you sight these birds, the Department would like to hear about it. Information you send in should include:

- a good description of the location (map reference is preferable but not necessary)
- altitude
- date and time
- number of birds
- repeat sightings

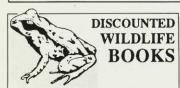
Some birds may be banded. If so, information about the colours or arrangements of these bands would

Information on the scaup and falcon should be sent to Nina Swift, Science and Research Directorate, Department of Conservation, P.O. Box 10-420, Wellington. Information on the kea and kaka should be sent to Michael Wakelin at the same address.

WORKING HOLIDAY **OPPORTUNITIES**

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Books Received

Threatened Plants of New Zealand,

by David Given and Catherine Wilson. (DSIR Publishing, \$49.95) More than 10 percent of New Zealand plants are considered at risk. This new guide will be welcomed by botanists and conservationists who have looked for a book which readily describes our threatened species. Virtually all the species are depicted in colour photographs and for ease of reference they have been divided up into a number of sections: trees and tall shrubs, middle sized shrubs, climbers, grasses and so on. For each species a distribution map is included. Notes on each species are full, with most emphasis appropriately on conservation status.

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for further details.

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Bookings and enquiries should be made from P O Box 631, Wellington (04) 728-154. The lodge is very popular, and bookings may be made six months in advance, if secured with a 20% deposit. The rates are reasonable, and fluctuate seasonally.

Full payment is required four weeks prior to occupation, after which time there is no refund for cancellation.

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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/-Mr W. Fisher, P.O. Box 44, Stewart Island.

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For rates send a stamped addressed envelope to the Booking Officer, Mrs Colleen MacKay, 3 Plunket Street, Tamatea, Napier, Telephone (070) 444-219.

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Tai Haruru Lodge, Piha, West Auckand

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

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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.

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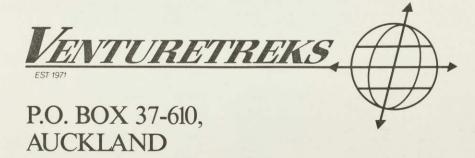
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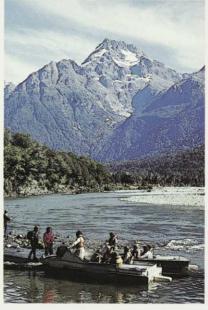
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