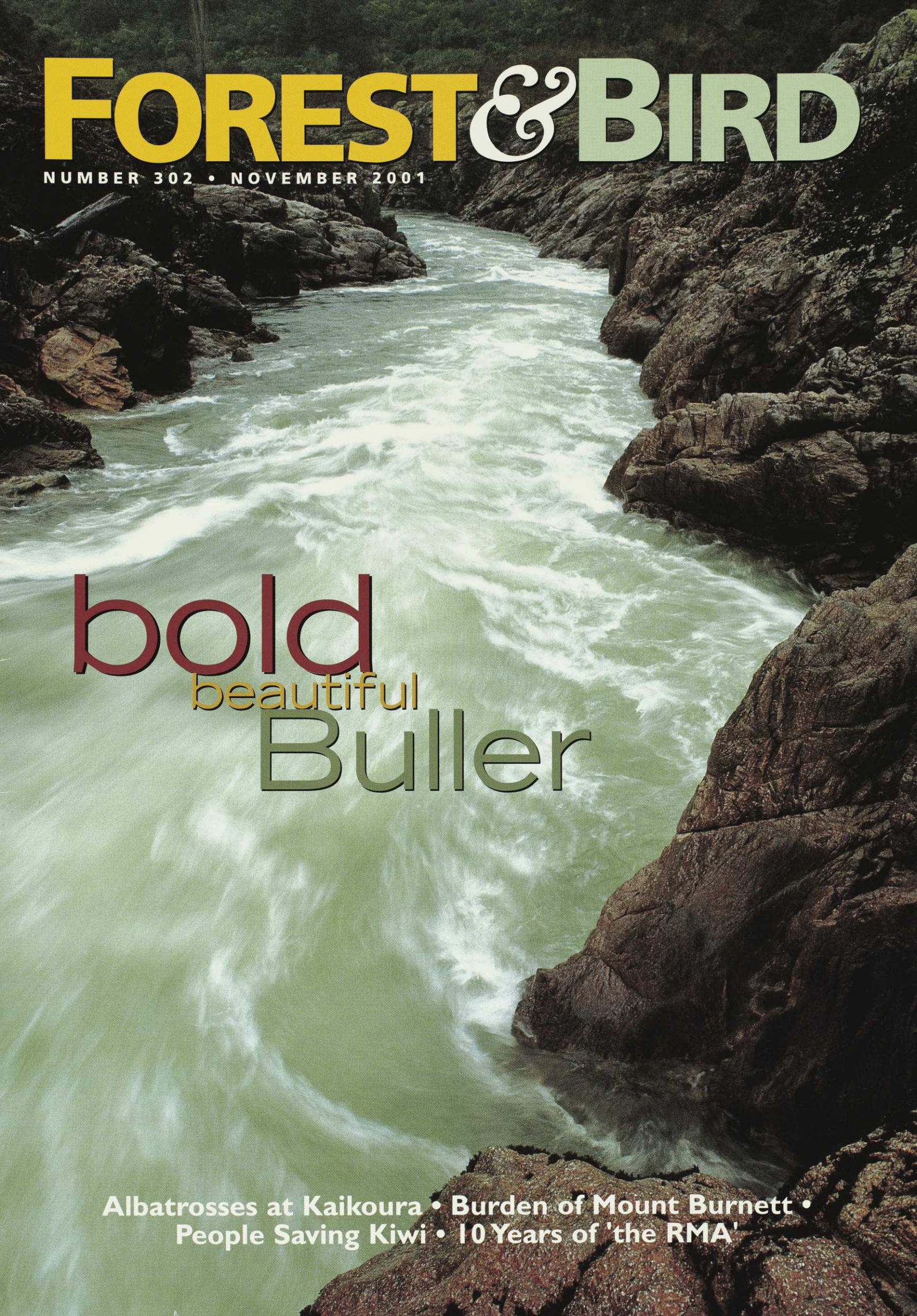
FOREST & BIRD

NUMBER 302 • NOVEMBER 2001



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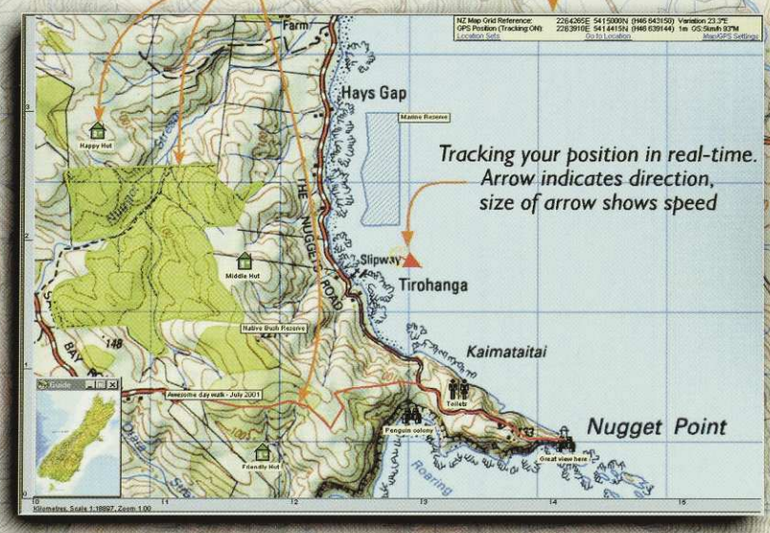

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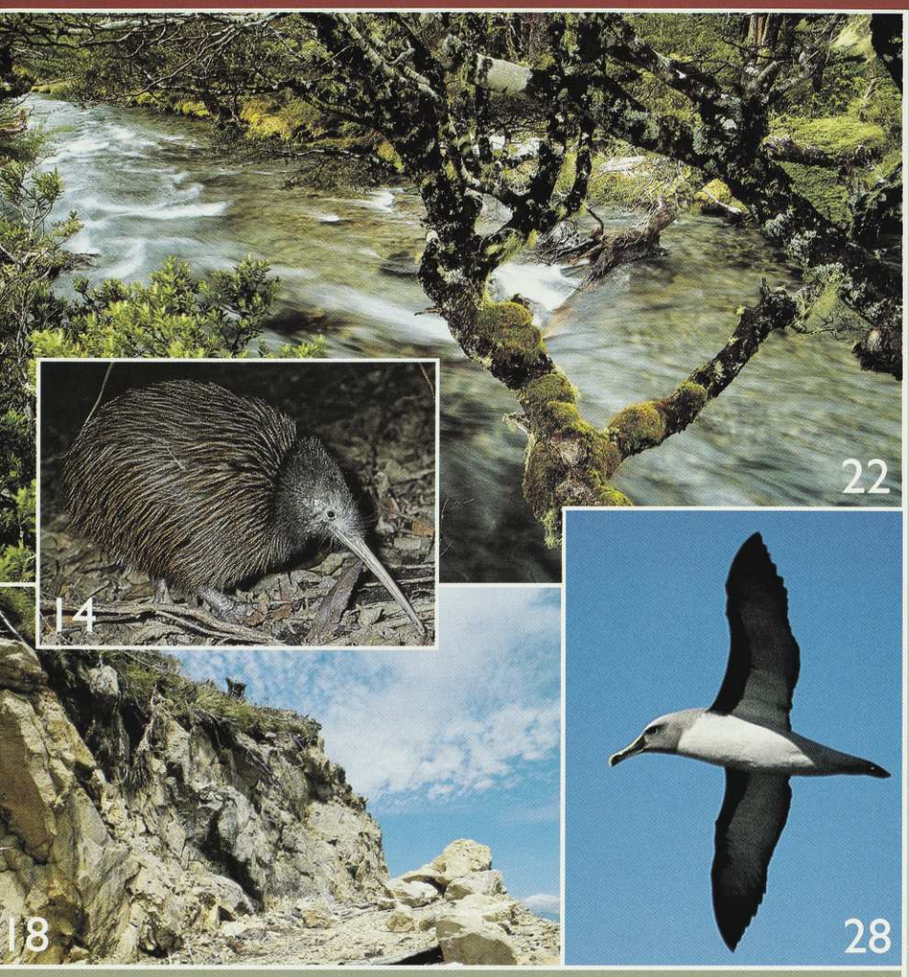

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Editor: GORDON ELL
The Bush Press, PO Box 33-029,
Takapuna 1309.
Telephone & fax: (09) 486-2667
Email: bush.press@clear.net.nz

Creative Director: Anna Tunnell
Designer: Daxa Bhana
Design House: Studiomicrodot
Prepress Production: Microdot
Printing: Business Printing Group

Advertising: Peg Mackay,
Print Advertising Ltd,
PO Box 27-194, Wellington.
Ph: (04) 801-6187 Fax: (04) 801-6261
Email: peg@printad.co.nz

Field Officers:
Sarah Gibbs, Suite 207, 2nd Floor,
cnr Elliot & Wellesley Sts.
PO Box 106085,
Downtown, Auckland.
Tel: (09) 303-3079. Fax: (09) 303-3514.
Ann Graeme, KCC co-ordinator,
53 Princess Rd, Tauranga.
Tel: (07) 576-5593. Fax: (07) 576-5109.
Eugenie Sage, PO Box 2516,
Christchurch.
Tel: (03) 366-6317. Fax: (03) 366-0655.
Sue Maturin, PO Box 6230,
Dunedin.
Tel: (03) 477-9677. Fax: (03) 477-5232.

Royal Forest and Bird Protection Society of New Zealand Inc.

General Manager: Lyn Bates
Conservation Manager: Eric Pyle
Central Office: 172 Taranaki St, Wellington.
Postal address: PO Box 631, Wellington.
Telephone: (04) 385-7374, Fax: (04) 385-7373
Email: office@wn.forest-bird.org.nz
Web site: http://www.forest-bird.org.nz

FOREST & BIRD

Features

Regulars

Cover: The Ariki Falls in the Buller Gorge are now protected (see picture feature, page 22). Photograph: Craig Potton

Stand Up for the Environment

'Do I want to raise my children to serve cups of coffee for tourists? We're not the servants of New Zealand,' says Gina Gray, Reefton coal miner's wife, in the *Listener* of September 8, 2001.

My wife, Anne Saunders, read this and laughed. We have been serving tourists coffee for the last 11 years to develop our West Coast nature-tourism business. Ironically, whereas some see chopping down ancient trees or hard-rock mining as the pathway to prosperity, the world's most successful economies are those that have focused on services and technology not commodity production.

Conservation Minister Sandra Lee's decision to deny GRD Macraes Ltd increased access into the heart of the Victoria Forest Park heightened debate about future development of 'clean, green' New Zealand. Forest and Bird has been at the forefront of this debate.

Our opposition to what would have been this country's largest goldmine is based on the huge environmental risks associated with hard-rock goldmining. The mine would have cleared 290 hectares of beech/beech-rimu forest, 60 percent of it relatively pristine. It would create a deep, 46 hectare pit, two tailings dumps (76 hectares) and two waste-rock dumps (105 hectares). It would create 13 million tonnes of toxic tailings in steep, high-rainfall country with 12 earthquake faults within 50 kilometres. The mine's main tailings dam would have been New Zealand's second highest dam after Benmore — and higher than the Clyde dam.

Sadly, this would not have been New Zealand's first experience with dams for hard-rock mining tailings. In 1997, the Environment Commissioner, Morgan Williams, presented Parliament with a detailed report on the long-term management of tailings dams. He revealed 'serious deficiencies in current financial and legislative provisions for dealing with environmental effects that arise after a mine has been closed'. He also identified that 'the risks and any burdens are borne by local communities, local and central government'. His recommendations for legislative changes have not yet been actioned.

Those of you from the Waikato/Bay of Plenty will know of the tailings-dam nightmare at the Tui Mine near Te Aroha, and again at Golden Cross near Waihi. Tens of millions of dollars have been spent in stabilisation efforts.

Ironically, the day before Sandra Lee's Macrae's announcement, Lincoln University released its three-year West Coast Tourism study. Now the Coast's largest industry, tourism annually earns $108 million directly, generates a third of the province's economic activity, and is growing faster in Westland than anywhere else in New Zealand.

The Macraes mine debate highlights a choice we all face; dirty or clean industries.

Fisheries Minister, Pete Hodgson's decision to ban set netting close inshore along the North Island's west coast highlights another environmental choice; convenient fishing or saving the last 100 North Island Hector's dolphins. Around six full-time fishermen will now have to net further out to sea. The Minister acted wisely to save this unique marine mammal.

Both Macraes and the dolphin decision are tough issues. Forest and Bird has been criticised for its stance. But we must tackle the hard issues as well as non-controversial species rescue and habitat restoration projects.

National president Dr Gerry McSweeney, with his wife Anne Saunders, taking a break from serving tourists at their wilderness lodge near Arthur's Pass National Park.

Fundamental to the debate over New Zealand's future is Forest and Bird's participation in the Resource Management Act (RMA) processes. This may at times seem long-winded and confrontational, but we have no choice. It is democracy in action. Unless we participate, it is difficult to subsequently criticise or oppose projects that are contrary to our policies. We have been involved in many local RMA battles: to save bush in the Bay of Plenty; to protect reserves on Waiheke Island; and to control the explosion of marine farms around our coast. We also tried to protect, through the Hurunui district scheme, some 400 hectares of ancient matagouri thorn forest, close to Lake Sumner Forest Park, on the high-country farm of the Chief Justice and Hugh Fletcher (which, sadly, has subsequently been destroyed). We must maintain that advocacy for nature.

During the intense environmental debate of recent months, I have been proud to belong to Forest and Bird; proud of our present and former staff and of all those members who have written to newspapers, magazines and the Government in support of the environment. I have been particularly humbled by the courage of outspoken West Coast Forest and Bird members, Brenda Kaye, Peter Lusk and Mary Trayes.

We value all our members. We also need more. If you are involved in a local restoration project and have not yet joined, or have let your Forest and Bird membership lapse, we need you. Please join Forest and Bird and stand up for the environment!

GERRY McSWEENEY
National President

Mailbag

Forest & Bird welcomes comments, up to 200 words in length, on items in the magazine or on environmental matters generally. We reserve the right to edit letters for length and space. The deadline for the February mailbag is November 30, 2001.

Thar, No Thanks

'The Trouble With Thar' called for this introduced species to be 'progressively eradicated'. (Forest & Bird, August 2001.) However, Himalayan thar are listed by the World Conservation Union as 'Vulnerable' in the Red Data list. The Species Survival Commission defines 'Vulnerable' as 'facing a high risk of extinction in the wild in the medium-term future'. Dr Amjad Tahir Virk, Pakistan's member of the Caprinae Specialist Group, tells me that, 'I personally feel Himalayan thar are threatened throughout its entire (natural) range'.

There are only two introduced populations in the world. The South African government is poised to exterminate their small herd despite India pleading with them to stop. New Zealand will soon be the only country in the world with a viable thar population.

New Zealand is a signatory to international biodiversity agreements. It would be illegal and immoral to destroy this last life-boat population. Everything, even thar, in moderation would seem to be the middle ground.

JOHN DYER

Forest and Bird wants to get rid of thar on public lands such as national parks because they are destroying OUR biodiversity. India, it seems, has a different conservation need.

Reefton Mining

Our whanau wish to convey to the conservation manager in particular, and all Forest and Bird staffers, our sincere thanks for a great effort under considerable pressure for articulating the views of the Society re the toxic GRD Macraes proposals for a Reefton goldmine. The struggle to protect our indigenous Gondwana biodiversity is one that will hopefully go on forever as we all know the struggle will only end when it has all gone.

Kia kaha

BARBER CHILDREN

Poutini

West Coast Work

Forest and Bird has given me hope over the last 17 years. While I'm at work or at home I know there is a group of people, fellow New Zealanders, who are doing their best to advocate for the environment and, in the short and long term, bring benefits to this country's environment and therefore its future. I have admired the work Kevin Smith has done while he was at Forest and Bird and I am pained, as I am sure you are, of how this person has been made the bogeyman of the Coasters. Everyone should be extremely thankful for his work — my two-day-old daughter will be able to enjoy more of the countryside and seaside when she is older because of Forest and Bird.

Be encouraged and keep up the good work.

DR ALASTAIR MURRAY

Pied Oystercatchers

The bird labelled a South Island pied oystercatcher in our feature on the Kaipara (*Forest & Bird* August 2001, page 17) was in fact a pied variant of the variable oystercatcher, a rare species as the story pointed out. Variable oystercatchers are generally black birds with a variable amount of white under the wings. The bird in our feature was almost fully pied, however: the difference, which we failed to notice when viewing the 35mm slide, is that the South Island pied oystercacher has a sharp contrast between its black wings and its white front, whereas the distinction between black and white on our bird was blurred. — *Editor*

Rebirth of a New Zealand-long Foot Trail

GEOFF CHAPPLE explores progress with Te Araroa 'long walk'.

When I talked recently to the North Shore branch of U3A about Te Araroa — the Long Path — one of its members, a Federated Mountain Clubs man, approached me afterward.

'I notice you consistently used the word "hike" which is European,' he said, 'rather than the traditional New Zealand "tramp"'.

I'm 'guilty as charged'. The word 'tramp' has a low vowel. The articulating tongue sinks, not unlike a boot into mud, whereas with 'hike' it describes an upbeat loop onto the palate.

For a 3000-kilometre route — the distance of the planned trail from Cape Reinga to Bluff — the difference between 'tramp' and 'hike' may be significant, particularly as regards support.

According to the Hillary Commission 12 percent of men tramp, and 9 percent of women do. Yet 80 percent of women 'walk for recreation' and 60 percent of men do. The recreational walkers are those we believe will use Te Araroa trails. In the course of our longer objective of a trail the length of the country, Te Araroa Trust is doing small sections that traverse farmland and coastline more often than the back country.

The new trails may also help to keep tourists off the crowded 'Seven Great Walks' which, when you add them up, total a meagre 270 kilometres distance. They'll enable visitors to see more of the New Zealand way of life and to meet New Zealanders, with marae-, home- and farm-stays.

The seven-kilometre link Te Araroa is presently planning between Pakiri and Matakana in lower Northland is an example of this kind of trail. It will go through bush over Mt Tamahunga, and give views out as far as Auckland, but it has farmland, and settlements, on either side.

An 18-kilometre track we opened last December up the Waikato River, is another example. It climbs no higher than 30 metres on a couple of bluffs, and is generally an easy walk alongside the river, though with some mud in winter. It is the longest river walk around, and has some good stands of New Zealand native trees en route — the river frontage on Malcolm and Ngaire Entwisle's farm the best of them, with kahikatea, pukatea, and cabbage trees in abundance.

AMOS CHAPPLE

Raised boardwalks help smooth the way along the damp banks of the Waikato River.

New Zealanders seem to want this penetration of the countryside. A New Zealand-long trail was a goal of the now-defunct New Zealand Walkways Commission in the 1970s, but faded then. After a quiet start in the mid-1990s Te Araroa Trust is suddenly finding its goal has considerable support. The trust's budget is something over $200,000 for the 2001-2002 year. Trust Waikato made a generous grant to finance two trails in the Waikato, and the Far North District Council and the Tai Tokerau Maori Tourism Association is helping develop the proposed 'Ocean to Ocean' track from Ahipara to Kerikeri in the north.

These new trails pose certain challenges, not least how Te Araroa Trust, which has had one part-time employee, will manage the major track-building exercises.

The trust has been feeling its way. It began by putting in a trail — mainly forest roads which the trust signposted, between Kerikeri and Waitangi in the Bay of Islands. It then set about designing a North Island trail, in consultation with local authorities, Department of Conservation conservancies and Maori. It then publicised the North Island trail, with its 1998 stories of walking the route, stories which are still on the Internet at www.teararoa.org.nz.

In 2000 though, the trust began putting in the North Island trail. The budgets since then have grown sufficiently for the trust to need competent local chapters to oversee trail planning, budgets and construction in at least two regions — Northland and Waikato.

Te Araroa Trust had support from the Community Employment Group last year, and that is expected to continue in the year ahead. That includes a budget for 'regional co-ordinators' who get $5000 each for assisting with trail planning. Nevertheless, the New Zealand-long trail has to be a citizens effort, and we're putting out the word now for those interested in assisting the trail, by way of forming local chapters, to get in touch.

AMOS CHAPPLE

The first Waikato section of the Te Araroa long walkway follows the true right bank of the Waikato River. It runs from the end of Dragway Road just south of Meremere to Te Kauwhata Pumphouse (Churchill East Road at 9.5 kilometres) then on to Rangiriri (another 8.5 kilometres).

— **GEOFF CHAPPLE** *is chief executive of Te Araroa Trust, PO Box 5106, Wellesley Street, Auckland.*

Tuatapere Hump Ridge Track Aspires to 'Great Walk' Status

Local enterprise, assisted by the Government, is behind the development of a new long walk in Southland. The Tuatapere Hump Ridge Track is a three-day/two-night walk which aspires to the status of other tourist 'great walks'.

The 53-kilometre walk begins and ends at Bluecliffs Beach, Te Waewae Bay, which is about 20 minutes drive from Tuatapere. It traverses the Hump Ridge area, on the southeastern edge of Fiordland National Park, following a new 23-kilometre trail, before returning along 30 kilometres of the existing South Coast Track. In places it also crosses the Rowallan Maori lands.

The spectacular nature of the walk includes the richly forested Waitutu marine terraces, and podocarp and beech forests which rise to the subalpine zone with spectacular sandstone outcrops and mountain tarns. Wildlife to be seen en route includes kea, kaka, yellow-crowned parakeet, fur seals, and Hector's dolphin in the surf along the coastal leg.

BILL MANNIX

Percyburn Viaduct, one of three restored from the timber milling days of Port Craig.

SONYA CROOK

The return journey includes a section of the South Coast Track.

Trampers spend the first night (after a nine-hour uphill walk of 18 kilometres) at the purpose-built Okaka Hut, just below Hump Ridge, at around 900 metres. A summit-loop boardwalk offers even more spectacular viewpoints.

The second (seven-hour) day descends the southern end of Hump Ridge to sea-level again, through the Waitutu Forest, then joins the South Coast Track, for a total of 18 kilometres. In part, it follows an old logging track, crossing immense, restored wooden viaducts, and ending the day's walk at the timber ghost town of Port Craig. A new 'village' here accommodates walkers on the track.

The third day returns along the coast to the beginning again, a 17-kilometre walk of six to seven hours.

Overall the track rating is 'moderate'. The tramping instructions, however, recommend starting before 8am each day, carrying full wet-weather gear, and being fit enough to handle rough, uneven surfaces, climbing and descending for up to 18 kilometres a day. Unpredictable wind, rain and snow are possible year round.

The Hump Ridge Track is run by a local trust in Tuatapere, set up to develop tourism after the withdrawal of the old Forest Service from the area. The development budget of $2.8 million has produced two large lodges (costing $40 a night), and the new tracks which include six kilometres of board walk. Besides Government and local funding, volunteers have contributed in excess of 20,000 hours to the project.

Contact: Tuatapere Hump Ridge Track, PO Box 21, Tuatapere, Southland.

BILL MANNIX

Boardwalking just above the Okaka Hut. Part of the roof of the new lodge is visible beyond.

SONYA CROOK

Scientists Confirm Magpies Bad for Native Birds

Controlling magpie numbers may help build up populations of native birds, particularly tui and kereru, according to preliminary results from a major scientific trial.

Landcare Research is co-ordinating a four-year study examining the effects of magpies on other birds in rural areas. The fieldwork is being undertaken by regional councils in five areas: Northland/Auckland; Waikato; Bay of Plenty; Wellington and Southland. Each region has two study blocks covering several hundred hectares: one where magpies are killed, and another where they are not. All types of birds were counted in all blocks in late 1999 before magpie control started, then again in late 2000 after several months of magpie control.

Preliminary analyses of bird counts show that numbers of native pigeon, and three introduced birds (blackbird, skylark and song thrush), increased in nearly all blocks when magpies were killed. Tui, mynahs and spur-wing plovers also increased in most of these blocks, although more data is required to confidently attribute those increases to magpie control.

Landcare Research pest-ecologist John Innes says the results are based on bird counts after just one year of magpie control. Two further annual counts are planned.

'If the increases noted so far are real ecological effects, due to fewer magpies, then even bigger differences between the 'kill' blocks and the 'non-kill' blocks should emerge.

'The interim results should not yet be taken as a scientific mandate for destroying magpies, but they do suggest that some benefits of magpie control are likely,' John Innes says. 'There is anecdotal evidence from landowners that kereru (New Zealand pigeon) are seen more often after magpie control, and so far the research confirms that.

'Magpies occasionally harass any bird flying or feeding in the open in the magpies' territory. In the cases of tui and kereru at least, this seems to be independent of the diet of the persecuted birds since magpies eat mainly pasture insects, while tui and kereru eat nectar, fruits and foliage.'

Mr Innes says up to 1200 magpies were removed from each of the kill blocks, and the large numbers were a surprise.

'Council workers found up to 20 times more magpies than they thought were present,' he said. — **DIANA LEUFKENS**

DEPARTMENT OF CONSERVATION

Black-backed magpies are particularly aggressive in their breeding territories.

Member Wins Loder Cup

A Canterbury ecologist who earlier this year won an 'Old Blue' award from Forest and Bird, has now been awarded the Loder Cup, New Zealand's premier award for botanical conservation.

The award to Dr Colin Meurk recognises his outstanding contribution to the conservation of New Zealand's flora and fauna. Dr Meurk is a scientist at Landcare Research in Lincoln, and is seconded part time to Christchurch City Council as an ecological consultant.

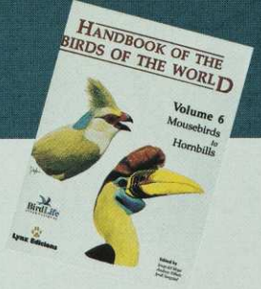
Dr Meurk says his interest in 'ecology and the big holistic things to do with life', started early. He remembers his uncle giving him a book by Peter Scott, the renowned English bird painter, who set up Slimbridge wildfowl refuge and wetland. Slimbridge was in the back of Dr Meurk's mind when he was working to protect Travis Swamp, a wetland on the outskirts of Christchurch. Travis swamp is now regarded as one of the most valuable areas of natural habitat in the eastern South Island.

As a consultant Dr Meurk had encouraged the city council to plant native vegetation along the edges of waterways within Christchurch. He said council research had shown the majority of people using parks supported the work. Some people felt 'threatened' by native plants and the 'squeaky-wheel principle' resulted in the council compromising.

'There is a vociferous and influential minority who are able to chew the ear of the council and councillors to unravel some of the advances in native plant initiatives in the city,' he says.

Dr Meurk would like to see half the 100 kilometres of waterways in Christchurch planted in natives instead of the present two percent.

The Loder Cup is was first awarded in 1962 by Gerald Loder, later Lord Wakehurst, who developed an extensive collection of New Zealand plants on his estate in Surrey, England. — **LYNETTE HARTLEY**



Two Serious Bird Handbooks

The monstrous bird books of BirdLife International (with which Forest and Bird is allied) are published by Lynx in Spain and delivered to New Zealand in something resembling a sugar sack. The volumes of *Australian, New Zealand and Antarctic Birds* are born in Australia but are just about as big. These volumes are 'the ultimate word' in reference books on birds.

BirdLife's *Handbook of the Birds of the World* volume six, covers 'Mousebirds to Hornbills'. It is 310mm x 240mm weighing in around four kilograms: some handbook. In 589 pages, there are 385 colour photographs and 45 comparative colour plates, pus 270 distribution maps and around 6000 bibliographical references: cost 145 Euros.

The only part of this volume which seems to include New Zealand species is that dealing with Kingfishers, a most useful review of status and distribution of our subspecies, and an accurate arrow pointing to the lower Rodney district for the distribution of introduced kookaburra.

Each of the 12 sections has a general overview of a Family, dealing with systematics, morphological aspects, habitat, general habit, voice, food, feeding, movements and relationship with people. The accompanying illustrations are superb, indicating key features of adaptation and behaviour; including in the case of the kingfishers sequences of diving and life in the breeding tunnel as part of a richly illustrated introduction of some 60 pages. Species accounts with comparative plates for all species follow these Family introductions.

The *Handbook of Australian, New Zealand and Antarctic Birds* will run for seven volumes: the latest is volume five 'Tyrant fly-catchers to Chats'. (Editors, P.J. Higgins, J.M. Peter, W.K Steele, publisher Oxford University Press, Sydney, $A355 plus postage). Sponsored by Birds Australia, it's an even more technical book than *Birds of the World*. Detailed references are embedded in the text, much of which is written in a scientific shorthand of abbreviations, managing to compress an immense amount of information.

More than 900 species of birds have been recorded in this region, and volume five records 118 of them. Its packed pages cover field identification, habitat, distribution and population movements, food, social organisation, voice (often illustrated with sonograph print-outs showing the pattern of calls), breeding, plumages and external morphology.

This book is obviously the place to go for the details of accumulated research, critically examined. It should be valued by students and referees. By comparison with the Birdlife series, illustration is minimal but adequate, being limited largely to distribution maps, some sketches of behavioural postures, and colour keys to each of the Families reviewed.

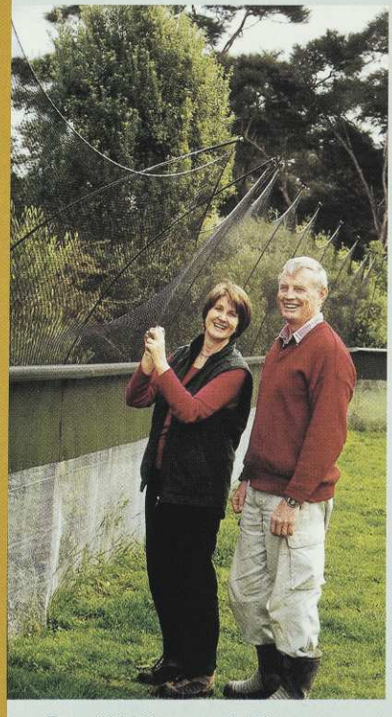
The HANZAB series aims to synthesise the collective knowledge about all the birds in the region. It will be essential for serious workers.

— GORDON ELL

Successful New Fence Design Excludes Pests From Reserves

David Wallace and Juliette Chamberlain dreamed of planting a native forest in their 16-hectare, weed-infested gully. Their dream, in 1995, was to surround it with a pest-proof fence to create a sanctuary for native wildlife. That required a sturdy fence, which was practical and economical to build, and capable of keeping out rats, mice, stoats, ferrets, cats, rabbits and possums.

That was a tall order, but David and his enthusiastic team set about designing a fence that could be added to an existing farm fence. Environment Waikato and Ministry for the Environment assisted financially with the months of experimentation.



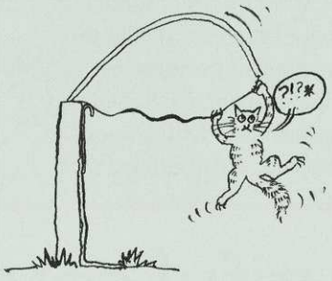
ANN GRAEME

David Wallace and Juliette Chambelain beside their Xcluder Fence.

The challenge was to build. a fence which could cope with all the different pests. An enclosure was created which could incorporate different fence designs. One by one, different pest species were confined in the enclosure and a video camera recorded the success or failure of their attempts to escape. Scientists from the Animal Behaviour Unit at AgResearch studied their reactions. Cats proved to be the supreme Houdinis and the camera revealed some surprises and useful results.

'Cats,' says David, 'are not deterred by electricity. It just galvanises them into action!'

So electric fences were eliminated from the search for the perfect fence. So too were out-riggers, which cats and possums negotiated with ease. The final design, called Xcluder, was sturdy, practical, economical and baffled all the pests.



TIM GALLOWAY

Flexible netting excludes cats.

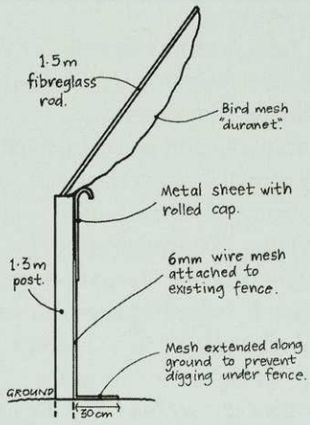
Flexible netting is required specifically to deter cats. If a cat climbs or leaps at the netting, this portion sags down, leaving the cat dangling until it gives up and falls off.

Having proved the fence design, in 1999 a fence of 2.3 kilometres was built around a growing forest.

In the intervening years, the gully had been transformed. The pines and invasive Tasmanian blackwoods were harvested, the stumps poisoned and the gorse and blackberry sprayed, slashed and burned. Pest control began. In 1996, the first of 45,000 native trees were planted.

The fence was completed in November 1999, the last pests were eliminated and monitoring shows that no pests have got in since. The young forest is now free of mammalian pests . . . even the mouse!

'Already, bush weta are thriving,' says Juliette, ' Their faeces look like mouse droppings and really had us worried until they were identified!'



STANDARD XCLUDER™ FENCE

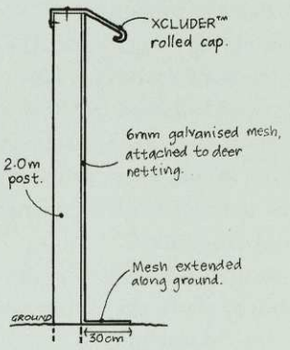
TIM GALLOWAY

Pest fence attaches to a standard farm fence.

Birds are coming too. The first tui has arrived and grey warblers, fantails, waxeyes, shining cuckoos, moreporks and kingfishers sing and chirp — and multiply — with no rats to steal their eggs, or stoats and cats to kill them. Soon threatened species will join them, first kiwi and brown teal, then perhaps North Island robins and weka, bellbirds, skinks, geckos, Archey's frog — even tuatara!

Meanwhile, David and Juliette bask in the bird song and the outlook over their forested gully.

Costing between $70 and $90 a metre to build, their patented Xcluder standard design is based on a standard farm fence. A second version, the Xcluder Deer fence, is based on a two-metre-high deer fence. With the extra height, combined with the rolled-top capping, it can defeat all the invading pests without the need for a floppy extension. Both versions of fence are now being used by farmers, conservationists and the Department of Conservation in projects from Northland to the Chatham Islands.



XCLUDER™ DEER FENCE

TIM GALLOWAY

Alternative version also excludes deer.

Now, David and Juliette have even bigger dreams. From their home near the Waikato River they can see Maungatautari, a forested mountain rising like an island from the sea of the Waikato grassland.

'We can fence Maungatautari,' says David. 'It's 3500 hectares of forest. That's big, but it's feasible.'

They have already made a start. With the support of the community they set up a trust to raise the finance and administer the project. A brochure explains their goals, lays out the vision: 'to remove forever, introduced mammalian pests and predators from Maungatautari and restore to the forest a healthy diversity of indigenous plants and animals, not seen in our lifetime.' Strategies are being planned to woo investors. Maungatautari could rival Tiritiri Matangi and become the conservation and tourist Mecca of the Waikato, they say.

This is a giant project but, with the vision of people like David and Juliette, a New Zealand forest awash with bird song could be restored to the Waikato. We wish them every success.

— ANN GRAEME

Cry of the Kiwi in Capital Suburbia

Real estate agents have been advertising homes for sale in the Wellington suburb of Karori with the enticement 'hear kiwi calling from the veranda'. Over 100 years after little spotted kiwi disappeared from the North Island, 20 were moved back from Kapiti Island last year to Karori Wildlife Sanctuary, a fenced and forested haven in the heart of Wellington city.

Within months nesting was confirmed and in February this year one kiwi egg hatched. Sanctuary staff believe it highly likely that more chicks are present. Ten months after moving from Kapiti, one kiwi was caught and weighed. Although this was the height of the 2001 summer drought, she weighed more than when captured on Kapiti.

'This, plus the fact that the kiwi were breeding in their first season here, just after they were released, suggests they have settled very well in their new home,' says the sanctuary's conservation manager, Raewyn Empson. Another 20 little spotted kiwi were relocated there in June.

The successful kiwi transfer has been but one of the milestones in the community conservation project that is Karori Wildlife Sanctuary. The sanctuary trust's '500-year vision' aims to transform a valley of assorted native regrowth, gorse and pine trees into a predator-free sanctuary filled with mature native forest and wetlands and supporting some of our most endangered wildlife species, just five minutes' drive from downtown Wellington.

Before the kiwi release nine weka were released in the sanctuary; they were initially placed into breeding enclosures in 1998, and offspring are currently being kept apart from the kiwi population. Later came 18 brown teal and, last May, 38 North Island robin 'flew in' by helicopter from Kapiti Island. To date there have been no reports of them 'flying the coop'. Instead, the robins appear to be settling within the confines of their 250-hectare city dwelling and are now nesting. Since then, 30 bellbirds, 30 whiteheads and some tomtit have been brought to the Sanctary from Kapiti Island. This introduces an experimental phase, testing effective methods to translocate these birds.

'We've done the easy releases — the birds that can't fly,' says the sanctuary manager, Stephen Fuller. 'Now we're onto the tough ones. A lot of the work we do will be research focused.'

The original challenge was to secure 'the most pest-free square mile of urban habitat in the world', as Stephen Fuller has it. The key to this has been the much-vaunted predator-proof fence enclosing the entire valley. The fence cost $2.2 million and is 8.6 kilometres long, 2.2 metres high, and is buried at the bottom to 600 millimetres underground.

Following completion of the fence in 1999 the key task has been ridding the valley of its mammalian pests. Raewyn Empson, one of New Zealand's top pest ecologists who oversaw the notable eradication of rats from Kapiti Island, was seconded from DoC to spearhead the Karori operation. Through a combination of trapping, aerial and ground poisoning, and secondary poisoning, Empson and her team, assisted initially by Wellington Regional Council staff, have established a number of conservation firsts.

It is the first time 14 species of pests have been eradicated from a targeted area simultaneously. It is the first time hedgehogs have been eradicated. These animals survived the initial aerial poison drop but proved susceptible to Talon bait, and the last hedgehog was trapped in December 1999.

It is also the first time that a fence has been designed to prevent reinvasion by the full suite of mammal pests, including rodents. But there has been one setback — the return of the mice.

'We have learned that mice are able to detect the smallest flaw and we will need to be eternally vigilant,' says Raewyn Empson. 'We still need to undertake modifications to the fence to exclude mice before we will be able to eradicate them again.'

Volunteer restoration teams will plant over 6000 native trees this year.

New and upgraded tracks are being constructed throughout the reserve but have played second fiddle to the birds.

The Sanctury will be open on Sundays only, until the construction of visitor facilities has been completed.

— KATHY OMBLER

Releasing little spotted kiwi in the Karori Wildlife Sanctuary, five minutes from downtown Wellington. Raewyn Empson was seconded from the Department of Conservation, as the sanctuary's conservation manager.

Subdivisions Bring Weeds to Native Forests

Coastal forests are under pressure from the impacts of new subdivisions, especially in northern New Zealand, where weeds are escaping from gardens and infesting the bush. The Department of Conservation has been concerned that planned coastal subdivisions will mean more weeds in adjacent reserves. Until now, however, there has not been the hard evidence to counter claims by some developers that subdivisions are good for reserves as they bring more people to care for them.

By visiting coastal forests and their neighbouring settlements in eastern Northland, our team of ecologists from Landcare Research and DoC has now recorded all the exotic plant species at these sites, showing how subdivisions affect the weediness of forests. Gardens in the area were growing 87 percent of the plants listed by the Northland Regional Council as the worst invaders of forests. In the reserves we often found piles of freshly dumped garden waste containing these invasive weeds.

Coastal forests near old or high-density housing were weediest. Forests with more than 70 houses close by had, on average, two and a half times as many weeds as forests with only a few nearby houses. The weediest forests were those near settlements with lots of exotic garden plants.

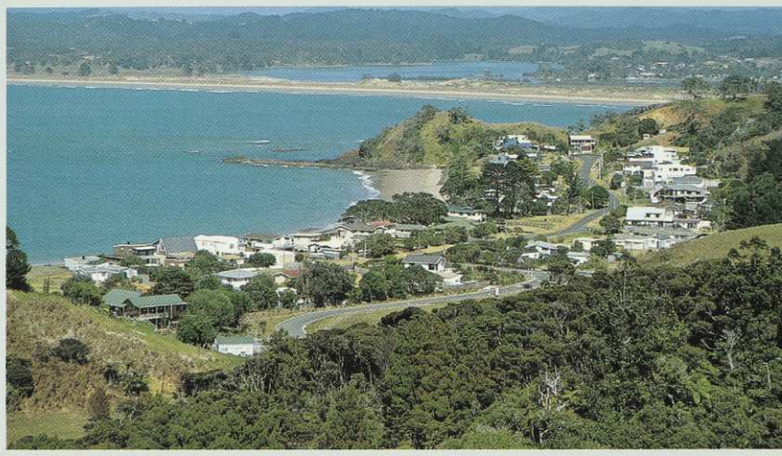
The settlement characteristics of housing age, density, proximity, and garden diversity explained an incredible 70 percent of the variation in the diversity of weeds growing in these forests. Other ecological factors were insignificant. When it comes to the impact of weeds in native forests, it is the nearby houses that really matter.

A recent national survey, and international studies, concur with these Northland findings.

DoC's claim that subdivisions greatly increase the weed pressure on reserves is correct. Given the major effects weeds have on the ecology of native forests, we believe new subdivisions should be prevented near important conservation reserves.

People already living near reserves can assist in maintaining the health of their nearby bush, by growing only non-weedy plants in their gardens, and by helping to control weeds in local reserves. Together, we could still make the optimistic claims of developers a widespread reality — to have ocean and bush views, and healthy native forests, too.

— JON SULLIVAN, SUSAN TIMMINS AND PETER WILLIAMS



JON SULLIVAN

Subdivisions introduce garden weeds to the forest, according to researchers. The native coastal forests with the most exotic plant species are those bordering old, dense settlements, like this one in Whangamumu Bay, Northland. The authors argue new subdivisions should be kept away from important conservation reserves.

Conservation Emergencies

The Department of Conservation has launched a national 0800 freephone service for conservation emergencies. The service will be available 24 hours and 365 days of the year by calling 0800 DOCHOTLine (0800 36 24 68).

The freephone facility is designed to provide a more effective and accessible service for the public and to ensure the department is able to respond to conservation emergencies as quickly as possible. Callers will be linked with the department's duty officers in the nearest conservancy either directly or through a national answering service.

The number is for emergencies only and should be used when callers wish to report illegal activity associated with conservation land, facilities or wildlife, including illegal whitebait fishing. The number should also be used to report whale strandings and on any other occasions when any native wildlife is in distress or obviously injured.

— *Source:* **WAYNE HUTCHINSON, DOC**

New Native Fish Discovered in Mackenzie Country

New Zealand has a new freshwater fish species, according to the Department of Conservation in Twizel. The fish appears to be a galaxid, the family to which whitebait belong. It was found during a freshwater fish survey in the high-country Mackenzie Basin of inland South Canterbury.

A freshwater fish specialist, Dr Bob McDowall of the National Institute of Water and Atmosphere, was called on for his expert opinion and visited the site to collect specimens.

'They definitely seem like something new,' he says. 'They are so different it is almost unbelievable! I am fairly certain they are a distinct species, belonging to the genus *Galaxias*.'

DoC staff were surveying for freshwater fish on a local property when they made the discovery. Among their catch of the usual native bullies were a number of small, most unusual-looking fish.

'When I first saw the fish I thought wow! These are something really different!' recalls ranger Simon Elkington. 'I've surveyed freshwater fish in most of the Mackenzie Basin but I've never come across anything like these before.'

The most distinctive features of the fish are their unusually rounded snout, large eyes and very tiny pelvic fins when compared with alpine galaxias, a species present in the nearby Ahuriri River. There are also many other differences that distinguish them from known species of fish.

If DNA evidence confirms that the fish are a new species, they will be formally named and described. Further surveying will be necessary to clarify their distribution, as they may also be present in adjacent swamps and streams.

New Zealand has around 35 species of native fish. Galaxids are New Zealand's most common group of native freshwater fish, and the best known are those that go through a whitebait stage and spend part of their lives in saltwater.

— *Source:* **DEPARTMENT OF CONSERVATION**

BOB MCDOWALL

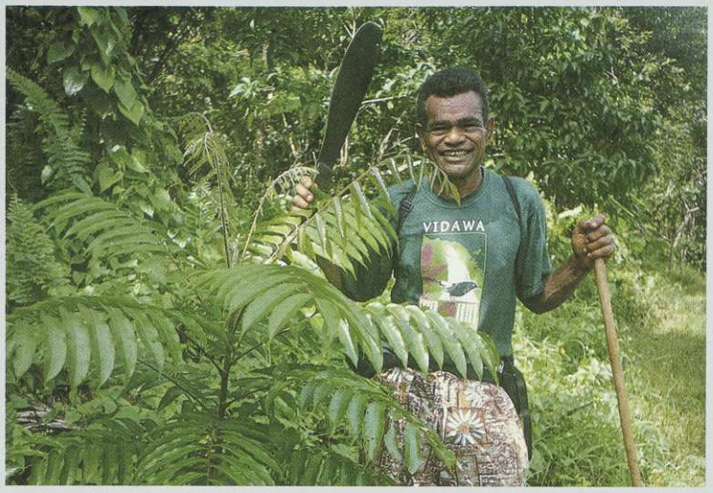
A yet unamed fish discovered during a freshwater fish survey in the Mackenzie Country, a high-country basin in inland South Canterbury. Experts believe the fish is a galaxid, part of a group of fish which includes the whitebait.

New Zealand Aid Programme Helps Nature Tourism

A New Zealand overseas aid programme has helped four small, neighbouring villages on Taveuni Island in Fiji to establish a 'profitable sustainable tourism product'.

The villagers have supported the concept and the money they are now making from tourism is going back into their communities for needs such as schooling. In the process, the intrinsic values of Fiji's largest remaining tract of indigenous rainforest have become recognised and protected.

Bouma rainforest is a tangled, lush, jungle where great specimens of dakua (Fijian kauri) flourish. A host of wildlife species long since gone from other, more developed Fijian islands remain safe here. There are no introduced mongeese. It is also a forest important to the local people who still rely on its fruit, nuts, flowers, gum and bark for a host of traditional needs.



KATHY OMBLER

Isake Dale, a gardener and rainforest walking guide, has been replanting the forest he once cleared at Bouma on the island of Taveuni, Fiji. The New Zealand overseas aid programme has been helping with the establishment of sustainable tourism there.

In the 1960s the Fiji Government offered monetary incentives for villagers to fell this forest and plant coconut plantations. As a young man, Isake Dale toiled hard to clear 3 hectares, then realised the birds and game had disappeared, and the new coconut trees weren't even productive because they were too far from the coast. He has since replanted hundreds of native trees and plants, including fruit-bearing species for the birds. He now guides trekking visitors into the heart of the rainforest. Isake explains the meaning of sustainable tourism thus:

'I can take a dozen sacks of taro to the market and exchange them for money. Once! I can bring visitors here today and show them the giant kauri, the birds, the waterfalls — and they will pay me money. Tomorrow, I can bring another group and show them the kauri, the birds, the waterfalls — and they will pay me money. Or we can say yes to the overseas companies who want to log our kauri and pay us big money…once.'

The four coastal villages of Bouma rely on the sea as well as the forest to provide their staple food, which makes it even more significant that a key aspect of their tourism development has been the creation of a marine reserve. For three years now the villagers themselves have declared an area of coral reef and lagoon 'off limits' from fishing and reef walking. Already, villagers report an increase in fish numbers — and better fishing in adjacent areas.

There are four tourism ventures:

Waitabu Marine Reserve: tourists are poled and paddled on bilibili (traditional bamboo rafts) to snorkel in the reserve. Village hospitality follows — tea and cake, kava, singing and meke (dancing) all delivered with an abundance of friendliness and humour.

Vidawa Rainforest Hike: village guides lead a full day hike through gardens and historic village sites high into the heart of the Bouma rainforest. Giant Fiji kauri, sightings of rare birdlife and demonstrations of the traditional uses of the forest are all features.

Tavoro Falls: a popular attraction for years.

Lavena: offers a backpacker's lodge, with fresh fish and village garden produce available on request, plus a seakayaking/walking expedition, taking in the stunning beauty of coral reefs, rivers, rainforest and waterfalls.

It was a beauty the Bouma people barely knew they had, prior to their tourism development. 'We've lived here all our lives. We didn't know what we had was so beautiful until people from other countries came here and told us,' says Tino, fisherman and now kayak guide, of Lavena.

— KATHY OMBLER

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FOREST & BIRD

ROYAL & SUNALLIANCE

SARAH GIBBS reports that lessons from a 'mainland island' are helping people save kiwi in Northland.

Community Care for Kiwi

Trounson Kauri Park in Northland was one of the first 'mainland islands' established by the Department of Conservation. The forest lies on a side road north of Dargaville, and near the Waipoua Kauri Sanctuary. Intensive pest control has been used here to help the recovery of North Island brown kiwi. Techniques of pest control developed here are now being used in other projects which aim to protect local kiwi populations from predators such as stoats and ferrets.

The shrill call of a male kiwi pierces the dark night. Before he has even finished calling, his question is answered by the low, husky call of his female partner. Their raucous duet prompts a morepork and two more kiwi in a neighbouring territory to start up in competition.

Standing in the dark listening to the eerie sounds of a threatened species being saved from extinction on the mainland is a somewhat surreal experience. It's a sound that is fading rapidly from New Zealand forests, as stoats, weasels, ferrets, cats and stray dogs systematically decimate kiwi populations nationwide. But it's also a sound that, thanks to places such as Trounson Kauri Park in Northland, we now know how to bring back.

Trounson, north of Dargaville, is one of six experimental 'mainland islands' run by the Department of Conservation. These are key sites where models of pest and predator control are developed.

One of the challenges at Trounson was to establish what was necessary to get predator numbers low enough so young kiwi chicks were able to survive their first year. Scientists have calculated that around 20 percent of kiwi chicks need to survive in order for kiwi populations to maintain themselves. The fact that less than five percent of wild kiwi manage to live to breeding age is the main reason the birds are now considered an

PHOTOGRAPHS: DEPARTMENT OF CONSERVATION

Trounson's botanical treasure is the kauri. At top left, a typical giant crown rises above the camping ground. Straight, clean trunks, distinguish mature trees at left.

endangered species.

For the first two years of intensive pest management at Trounson, predators were trapped around the perimeter of the forest. In terms of results, the perimeter trapping worked well. Kiwi chick survival in those first two years alone increased to as high as 30 percent. To see if survival could be boosted even higher, an additional trap line was set up through the forest itself, and the second outer perimeter boundary of traps was also increased. The end result is kiwi chick survival rates of up to 85 percent, well worth the effort for those involved.

Predator control at Trounson is now at the end of its fifth year. Since it began, more than 300 cats, 200 stoats and well in excess of 1000 hedgehogs have been removed. The sheer numbers of these predators show the extent of the problem in New Zealand. It also shows that it is possible to do something about it.

Kiwi at Trounson are now doing well. More than 200 birds have been banded in the park — a healthy population given that the park is only 450 hectares. Indications are Trounson is filling up. Monitoring reveals that seven juvenile birds have left the safety of the park, possibly seeking new ground, with some birds travelling to nearby Waipoua Kauri Forest.

The resulting control of possums and rodents is also clearly seen at Trounson, with the forest looking really healthy and increased numbers of birds in the park. New Zealand pigeon have been particularly noticeable, with flocks of up to 20 birds, giving us a small feeling for past times: William Swainson observed, in the 1860s, pigeon 'flew literally in their thousands'.

The research and monitoring components of experimental 'mainland islands' make places like Trounson relatively expensive to run.

The development of the 'mainland island' concept has, however, allowed New Zealand to progress past the era where the only way to save endangered species is to bundle them onto offshore islands where they are safe from the predators that ravage the mainland.

The pest-control techniques developed in 'mainland islands' can now be used around the country to ensure that we are not the last generation of New Zealanders who can listen to kiwi singing duets in the night forest.

Forest and Bird field officer **SARAH GIBBS** *wrote her M.Sc thesis on the kiwi of Trounson.*

The 'Nine Lives' of a Kiwi

by KARLI THOMAS

'Toejam' was a very special North Island brown kiwi who survived an astonishing series of threats before he was killed by a ferret, on a farm near Raetihi, recently.

Toejam got his name after being caught by the toe in a leg-hold possum trap which had been set on the ground. He was rescued by the trapper who, we are happy to report, has since switched to raising his traps to a 'kiwi-safe' height.

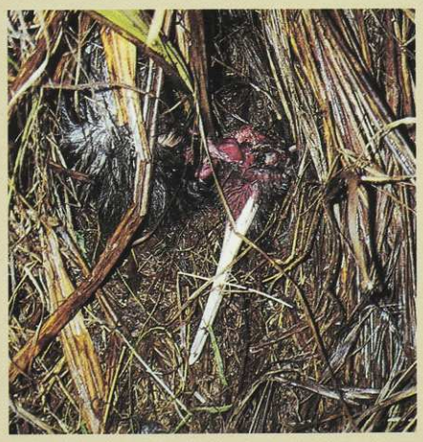
Toejam was taken to the Otorohonga Kiwi House to recuperate. After a few months he was released back into the forest remnant where he'd been caught, sporting a shiny new radio transmitter so his further adventures could be recorded. The following summer the next-door landowner clearfelled and burnt approximately 30 hectares of manuka, including about a third of Toejam's home range.

Despite this setback, Toejam and his mate made a nest and Toejam started incubating the eggs. Cattle came very close, almost trampling the nest where Toejam sat. Department of Conservation staff approached the farm manager and he shifted the stock. Then the farm owner became interested, and is thinking about fencing off some of his forest remnants to secure their survival and greatly improve them as kiwi habitat.

Even with the good intentions of the landowner, Toejam's chicks had practically no chance of survival in the face of stoats, ferrets and cats, however. The eggs were taken to hatch at Rainbow Springs in Rotorua, and the chicks spent the first vulnerable months of their lives in safety as a part of 'Operation Nest Egg'. Two chicks, nicknamed Tia Kariti and Tua, have now been released into the Karioi Rahui on southern Ruapehu, a managed area where predator control will give them a better chance of survival.

The odds remained stacked against Toejam, however, and his luck finally ran out when he met a ferret. Predation is the main reason why the kiwi population declines by six percent throughout the North Island each year. On average, of every 20 North Island brown kiwi chicks, only one survives, and the population is being cut in half every decade.

Toejam's territory is now vacant, and will probably stay that way.



North Island brown kiwi 'Toejam' killed by a ferret.

Forest and Bird is a partner, with the Bank of New Zealand and DoC, in the kiwi recovery programme, which runs 'Operation Nest Egg'. The Society also advocates for greater rules under the Resource Management Act on issues such as stock fencing and vegetation clearance to protect habitat. The Society is also promoting a ban on keeping pet ferrets and control of predators such as feral cats, ferrets, stoats and weasels.

Beyond Trounson: Kiwi in the Backyard

A few years ago people were questioning whether it was actually possible to save kiwi on the mainland. Introduced predators such as stoats, ferrets and feral cats ravaged our forests. It seemed only a matter of time before our national icon, the kiwi, and many other species were restricted to a few zoos and island arks.

The success of 'mainland island' experiments such as Trounson have changed that. We now know how to control predators on the mainland, at least on a small scale. Peninsulas are often the easiest place to establish kiwi protection zones on the mainland, and an increasing number of communities on peninsulas are using the ideas developed at Trounson to do just that.

Russell Peninsula Predator Fence

The Russell Peninsula kiwi zone in the Bay of Islands was initiated in March 2001. Laurence Gordon, a long-time, predator-control specialist, runs the technical side of the programme. Administration and funding is organised by Enterprise Russell — a charitable trust.

Russell still had a remnant kiwi population, with a kiwi even being found on the Russell bowling green recently. Kakariki also breed in the area. Organisers hope the predator control programme will mean that kiwi and kakariki continue to survive in the area, as well as making it possible to re-introduce other threatened species in the future.

Laurence Gordon himself is paid to lay out the bait stations and trap lines, and show people how to trap and build a 'predator fence'; but he maintains the key to the project's success so far has been community support.

Over 100 landowners have allowed predator traps and bait stations on their land, and a local farmer has gone out of

Bream Head Community Initiatives

The Department of Conservation initiated the Bream Head kiwi zone in August 2000 using kiwi-zone funding that Forest and Bird's 'Kiwis for Kiwi' campaign helped secure. The area includes Crown forests and private farmland beyond the north head of Whangarei Harbour.

Work began with an intensive predator-trapping programme. Kiwi that had been taken as eggs, from an unmanaged population where their survival was dubious, and raised in captivity until they had grown to a 'stoat-resistant' size, were released at Bream Head in September 2000.

At the same time, local residents at Bream Head and further down the peninsula at 'The Nook' had been having a few ideas of their own. They held a public meeting and, with the help of DoC staff, set up their own predator-trapping programme to protect kiwi on their own land.

The result of the combined effort by locals and DoC staff was encouraging to say the least. In June 2001, locals and DoC staff undertook the first 'kiwi call' count to incorporate the private land surrounding the reserves DoC was managing. In an area where kiwi populations were expected to have become locally extinct, call counts clearly showed that the kiwi population was expanding rapidly.

Even better news is the fact that local enthusiasm to save the kiwi is growing as fast as the kiwi population appears to be. In July 2001, another public meeting signalled the likelihood that locals further along the peninsula were about to set up their own kiwi protection programme.

DoC trapper Steve Allen surveys the protected kiwi area, inland from the top of Bream Head scenic reserve, near Whangarei Heads. By controlling predators over their private farmland, local residents, at Bream Head and the Nook peninsula (left), have extended the area suitable for kiwi. Thanks to the support of local residents, almost all the land seen from this vantage point is now protected, and the kiwi population is expanding accordingly.

Predator control in these steep, bush-clad hills means that kiwi are once again able to survive at Bream Head, beyond Whangarei Heads in Northland. Residents and DoC staff hope that, in time, kaka and other birds that survive on nearby off-shore islands will also return to breed in the area. Trappers check and re-bait the traps on foot.

ENTERPRISE RUSSELL

Spreading the word on pest control for kiwi at Russell: trapper Laurence Gordon with Far North district councillors, Noma Shepherd, Evon Sharp (mayor), James Munroe and Johnson Davis.

his way to help set up a 1.5-kilometre predator fence across a farm. Predator control will still need to take place on the 2500 hectares of land the fence protects. However, the hot-wire fence should reduce the number of ferrets, stoats, feral cats, possums and species that manage to re-invade the peninsula.

The project has cost around $100,000 to set up in its first year, but Laurence Gordon is sure that support from various agencies, the 800 permanent residents and 1,600 holiday residents, will ensure it continues. He is also expecting the cost to drop to under $40,000 per year, now that the bait stations and traps have been purchased and the fence has been erected.

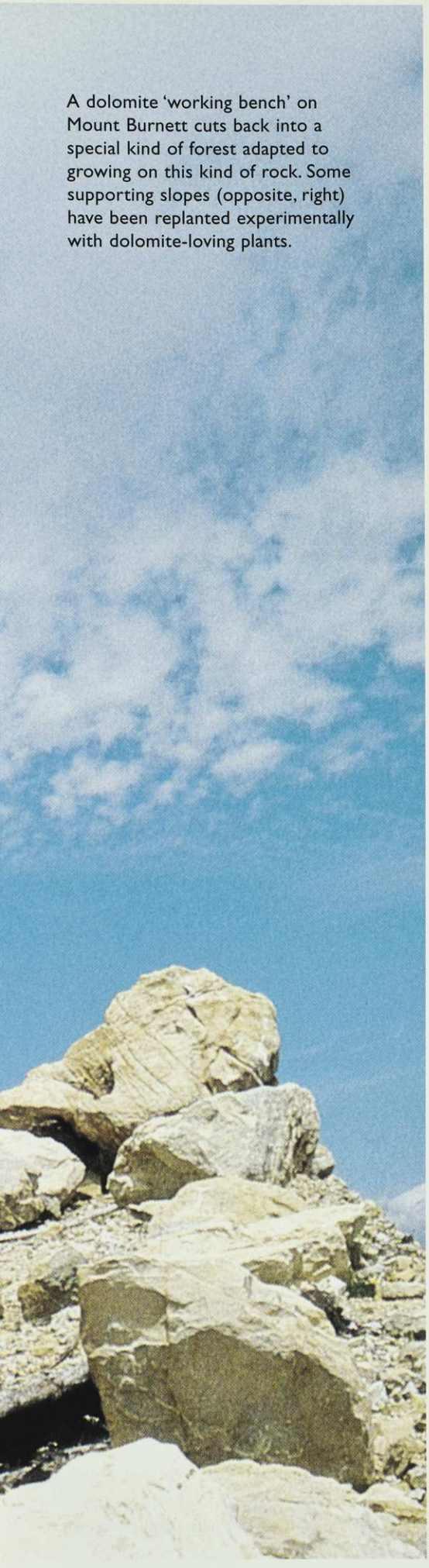
SARAH GIBBS

At right: Steve Allen setting pest traps. Wooden trap covers prevent kiwi and other non-target animals getting caught in the pest traps. Covering the traps with tunnels also helps to attract predators such as stoats and ferrets, which often hunt for food in rabbit and bird burrows. Baits, such as hen eggs and salted rabbit meat, are used.

SARAH GIBBS

Another Kiwi-zone project, in Motatau forest, is managed by local Maori (Ngati Hine) in association with the Department of Conservation. Workers and volunteers can stay in this hut when doing surveys of kiwi and New Zealand pigeons (known locally as kukupa). Ngati Hine also makes the hut available to some private groups.

SARAH GIBBS



DION BOOTHBY

A dolomite 'working bench' on Mount Burnett cuts back into a special kind of forest adapted to growing on this kind of rock. Some supporting slopes (opposite, right) have been replanted experimentally with dolomite-loving plants.

DION BOOTHBY

The Burden of Mt Burnett

Miners and rare plants compete for the dolomite deposits of Mt Burnett, according to DEAN BAIGENT-MERCER.

In summer from the southern summit of Mt Burnett you can see the sweeping arch of Golden Bay, the picturesque Aorere Valley, a patchwork of farms and a winding river, and the velvety deep-red of flowering northern rata in Kahurangi National Park. Venture up Mt Burnett's southern ramparts, however, and there is an open-cast dolomite mine, climbing up through seven working 'benches' into the bush.

The unusual dolomite baserock is both blessing and curse for Mt Burnett. It is a blessing because the Mt Burnett massif has numbers of unusual plants which have evolved specially to survive on its dolomite soils and rocky outcrops. It is a curse because Mt Burnett is the only commercial source for mining dolomite in New Zealand.

Dolomite is essentially limestone enriched with magnesium carbonate. Like limestone, dolomite is formed on the seabed by layers of dead sea creatures, calcifying over time.

Before quarrying began in 1959, the unique vegetation on Mt Burnett's southern peak is estimated to have covered 3.7 hectares of shrublands and 5.3 hectares of forest. Mining has destroyed 3 hectares of the unique forest. Now around 40 percent of dolomite forest remains on the southern peak.

In July 1998, the owners of the mine notified the Department of Conservation of its intention to develop a seventh mining bench. They wanted access to more dolomite; also Occupational Safety and Health claimed quarrying had left over-steep contours which were becoming unstable and unsafe for workers. When DoC staff visited the area of the proposed seventh bench they found that '...two nationally threatened plant species endemic to Mt Burnett exist in high numbers'. Three other nationally rare species were also found, all of which have major populations centred on Mt Burnett.

Since then, the seventh bench of the mine has been developed, with an application underway to extend the roading system into the adjacent forest park, to make a better turning elbow for machinery.

The value of the area for plants has been recorded by Dr Geoff Rogers who says: 'No other area in New Zealand is judged to have greater floristic endemism or biogeographic significance at such a restricted scale. Its lithological and botanical rarity is of the highest order. Apart from the [mining site] I conclude that the Mt Burnett dolomite-ecosystem is of the highest national significance'.

On small areas where dolomite is

Mining Company has Old Rights

OMYA NZ Ltd, a 100-percent Swiss-owned company, has a 21-year mining licence for dolomite on Mt Burnett. It was issued by the former New Zealand Forest Service in 1985 and expires on February 14, 2006. This licence allows mining on 136 hectares of Mt Burnett. Because the agreement pre-dates the more recent Conservation and Crown Minerals Acts, DoC's power is restricted to agreeing to proposed mining work-plans and negotiating weed control and revegetation trials.

Unlike the more-recent Crown Minerals Act 1991, the Mining Act 1971 does not require OMYA to pay compensation to DoC, to offset the loss of conservation values. If and when a new licence, or an extension to the current licence area is sought, then the newer Conservation Act and Crown Minerals Act will be applied.

Currently, OMYA is requesting an extension outside its mining licence into an area designated as Forest Park buffer zone, for use as a 'turning elbow'. This area has all but two of the special dolomite plants — and straddles a nationally unparalleled geology where dolomite rock meets nearby coal measures.

The turning area would also allow access to an eighth bench, up-slope of the quarry for which OMYA has also submitted plans. This area presently supports the remaining dolomite forest.

Dave Martin, chairman of OMYA, was sketchy when asked about an eighth bench, 'There's probably an eighth bench on the planning, but whether it gets used is anybody's guess. It would be normal quarry planning, but you may not actually activate it for quite a long time — who knows, you may be talking 50 or 100 years. We don't know what the demand is going to be like in three or four years time.'

Because the eighth-bench application is within the current mining area, again DoC's powers are limited — unless access to the area, via the proposed turning elbow in the Forest Park, is denied.

The Minister of Conservation will soon make that decision.

Fantastic

Hebe townsonii

Brachyglottis laxifolia

Brachyglottis hectorii

exposed, unusual plants are evolving. Mt Burnett has a high rainfall, big winds, with karrenfields of dolomite outcrops, and little soil.

There are two obvious habitats for its dolomitic plants. The first is the steep, grey-finned dolomite outcrops, on the summit and ridge, which support shrublands. The second is the exposed upper slopes where a deeper soil has developed, which allows a low, wind-shorn forest to grow.

Shrublands dominate the northern peak, while a mix of stunted forest and shrublands occur on the southern dolomite peak. Rock outcrops host mostly herbs and shrubs, which tolerate full exposure to the elements. Here there is a shrubby daisy *(Brachyglottis laxifolia)*, an unusual form of flax with leaves only two centimetres wide and 40 centimetres long, a rare hebe *(Hebe townsonii)*, an unnamed dolomite-loving aniseed *(Gingidia* aff. *montana)*, a little unnamed yellow-flowered herb *(Senecio* aff. *glaucophyllus)*, another handsome hebe *(Hebe* aff. *glaucophylla* subsp. "Burnett"), and a threatened sedge *(Carex dolomitica)*. The last four species appear to exsist only on Mt Burnett.

The combination of high light-levels, due to the relatively open forest canopy, and deeper soils has allowed a unique forest understorey to develop. You can't help but notice the strange mix of trees and shrubs, with small trunks appearing out of the severe fins of karrenfield, often with a carpet of an unnamed native iris *(Libertia* "marble") beneath.

The small tree, *Myrsine argentea*, a relative of weeping matipo, is another plant specific to Mt Burnett and makes up a notable component of the canopy. Occasionally a rare carnivorous land snail *Powelliphanta gilliesi gilliesi* can be found amongst the leaf litter. *Coprosma obconica*, a threatened small-leaved shrub of two metres in height, appears in the stunted forest understorey and scrub. Mt Burnett is home to one of the largest populations of this plant.

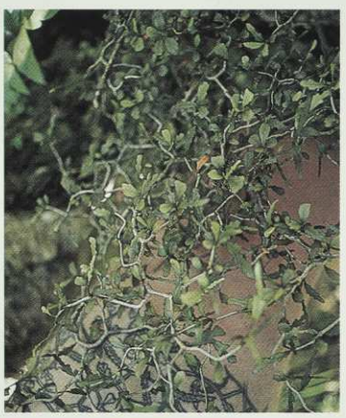
Coprosma obconica, Myrsine argentea, and *Carex dolomitica* are all listed as 'vulnerable' on the list of nationally threatened plants. They are likely to be moved into the 'endangered' category in the near future if factors causing their decline continue.

Apart from habitat destruction, the other threat to these plants is weed invasion. Mexican daisy is the big threat for the shrubby daisy, aniseed, and endemic sedge, *Carex dolomitica*. Mining continually creates favourable habitat for Mexican daisy: full sun and fine rich gravels — the same habitat that rare herbs prefer.

Some remedial work has been required of OMYA by DoC. Weed control has been contracted by the company against

Flora

Hymenophyllum



Pokaka *Elaeocarpus hookerianus*

Libertia "marble" seed capsules

PHOTOGRAPHS: DION BOOTHBY

Mexican daisy, and this has had some success. Other weeds present are gorse and buddleia. Revegetation experiments are also being carried out. But will OMYA fund weed control and revegetation measures beyond the life of the mine?

OMYA already has within its license area all the best areas of dolomite forest and therefore the best places for their conservation.

DEAN BAIGENT-MERCER *is a freelance writer about plants and wild places.*

The Dilemma of Dolomite Use

The chairman of OMYA, Dave Martin, says that dolomite quarrying has been steadily increasing over the last few years, both for agriculture and for industry. One hundred percent of the rock quarried from Mt Burnett is used.

Around 80 percent is crushed to a dust for agricultural fertilizer, to increase magnesium and calcium levels. Soil-magnesium levels nationwide have been steadily declining since forested land was cleared for farming. Today most farmland either has a low magnesium content or magnesium has leached from the earth, with a noticeable decline over the past 20-30 years. Magnesium content in soils is important for dairy farming. It doesn't enhance grass growth but acts as a preventative for grass staggers, a magnesium deficiency which can kill cows.

Waste rock from the mine is used for river protection. Waste rock has "a slightly higher than normal silica content", which means lower levels of magnesium and calcium.

The percentage of dolomite used in agriculture fluctuates annually depending on what the market wants.

'If someone's doing a protection job, or some roadworks, and they want some large rock in a hurry that can consume quite a lot,' says Dave Martin. 'Mt Burnett "waste rock" has been used to create the Seaview Marina at Petone, various flood-control stopbanks, roadworks, sea walls in Golden Bay, and 14,500 dolomite stone panels as the exterior cladding of Te Papa.'

A water conservation order to protect the wild river.

Photographs by CRAIG POTTON, Text by GORDON ELL

bold, beautiful Buller

The Buller begins delicately in fragile streams high in the Nelson Lakes and Kahurangi national parks. It descends steeply, gathering strength from rivers which drain the ranges of the Southern Alps and Paparoa. By the time it enters its tidal reaches above Westport, the Buller has become New Zealand's third largest river.

Now, after 15 years of legal processes, many of its headwaters and the main stream itself, join a select few of our wild rivers to be protected by a water conservation order. This means certain rivers and lakes must be preserved forever in their natural state. Other reaches are simply protected, for their natural beauty, or for recreation. Anglers, kayakers and rafting enthusiasts have joined with conservationists in celebration.

The water conservation order should halt the development of hydro-electric generation on the main river and its lakes. Among fully 'preserved' waters are Lakes Constance, Rotorua and Rotoiti, their alpine tributaries, and the Ohikanui River, for their 'outstanding values'.

Rushing streams in the alpine beech forests of Nelson Lakes National Park are preserved, along with the lakes, as sources of the Buller.

The case for the water conservation order began in the 1980s, with what is now Nelson-Marlborough Fish and Game as prime movers. Among those supporting the order for Forest and Bird was Craig Potton who took this photo essay, and provided evidence about the aesthetic significance of the river.

The Buller is no ordinary place: its deep gorges fill with seasonal mists. In winter, hoar frosts turn the beech and podocarp forests along its southern walls into a monochrome landscape, hung with icicles.

The river surges and boils around jumbled rocks. Its bottom can only be imagined.

The rugged nature of the country was recorded in 1846-47 by the explorer Thomas Brunner, who was trapped in the gorges of the Buller for 14 weeks, during his epic 550-day round-trip from Nelson to Paringa in Westland.

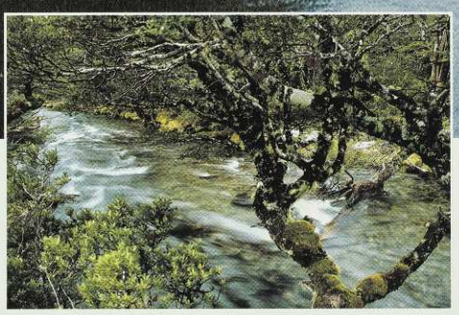
At Murchison where the Matiri and the Matakitaki join it on the Four River Plain, the Buller is temporarily broader, running over boulders which grind and rumble, bouncing along in its flood. Its course here is unstable; having washed away the earlier town, the Buller moved away, then more recently returned to cut into the terraces of the present town.

While the scars of the massive 1929 earthquake are now softening, the frequent earthquakes and massive slumps are a reminder that the Buller is better left alone.

The misty moods of the Buller create a mythic landscape.

Top: A Buller tributary, the D'Urville River, enters Rotoroa.
Bottom: Alpine Lake Constance, above the West Sabine valley.

The Buller River at Hawks Crag, 18 kilometres west of Inangahua. Here the Buller has grown to be New Zealand's third largest river.



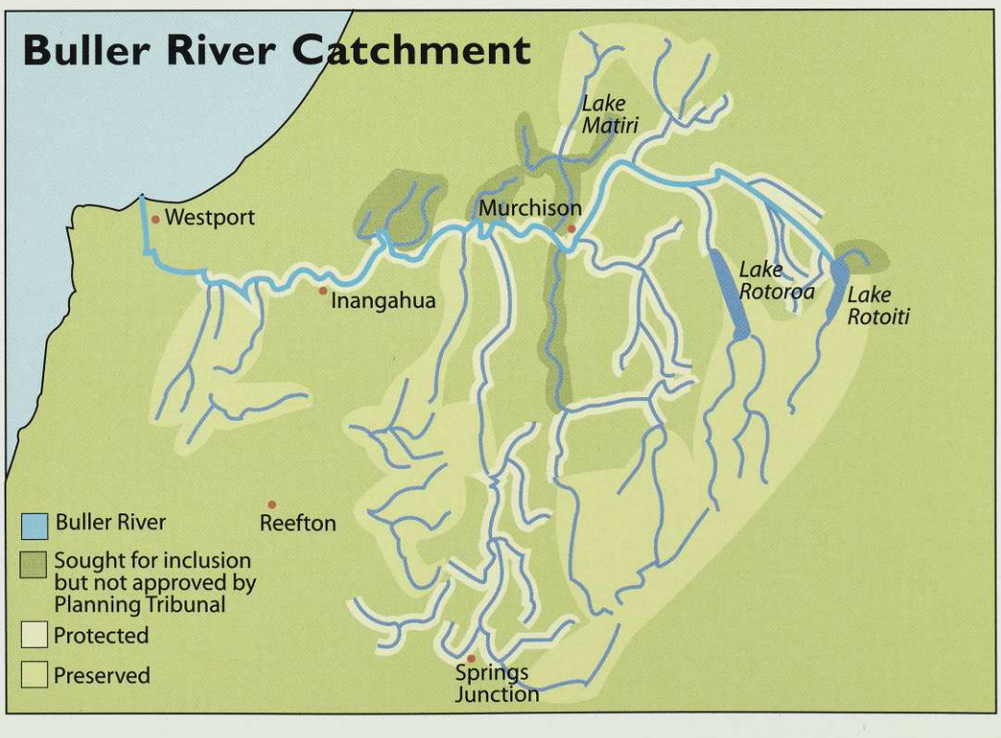
West Sabine, a source of the Buller above Rotoiti.

Blue Lake in the West Sabine valley above Rotoiti.

The water conservation order is published with extensive schedules, defining rivers and reaches of rivers, which are respectively 'preserved' or 'protected'. (Our map is only indicative, because of constraints in rendering scale.) Curiously, the rushing Gowan — arguably New Zealand's best-stocked flyfishing river — is protected for its usefulness for kayaking, not fishing. So some risk remains from those advocating power development there. Lower reaches of the Matiri and the Matakitaki, and the Inangahua, have been excluded altogether, because of conflicting claims from other interests.

The good news is the extension of protected status to the full length of the Buller, and its sources in the Owen and Maruia catchments down to Te Kahu, 12 kilometres from the sea. The attempt to protect the tidal waters of what is believed to be New Zealand's largest whitebait fishery were defeated by port interests at Westport.

When those who had fought for the river gathered to celebrate at the outlet of Lake Rotoiti, a Maori elder invited those present to each throw in a pebble, so it might run unimpeded to the sea.



CRAIG POTTON *is deputy president of Forest and Bird.* **GORDON ELL** *was brought up on the Buller.*

Part of the Matuku Reserve

A Living Legacy

In 1992 Mary and Bill Cole from West Auckland died within a few months of each other. Both were longstanding members of Forest and Bird. They shared a keen love of the outdoors and, in particular, of the native forests of the Waitakere Ranges.

In their will, the Coles made a generous bequest to Forest and Bird to assist the Society's conservation work in the Auckland area. They requested that the enhancement of Forest and Bird's Matuku Reserve in the Waitakeres be one of the projects funded by the bequest.

Enthusiastic supporters of the branch's Matuku Reserve project, the Coles had watched it grow from the original 50 hectares of goat-infested native forest and wetland alongside the Waitakere River, purchased in 1979. Led by John Staniland, the branch further extended the reserve and actively managed it for conservation. The goats were removed, possums trapped and invasive weeds eradicated.

The Coles and other branch members enjoyed the spectacular regeneration of native plants and the flourishing of native wildlife. Funds from the Cole Bequest, supplemented by $35,000 from the Nature Heritage Fund, were used to purchase an additional adjoining 20 hectares of native forest and wetland. The enhanced reserve is of significant ecological value. School groups, scientists, branch members and others all frequent the trails developed in the reserve and enjoy today the native forests and birds Bill and Mary had cared for so passionately.

Their legacy lives on beyond Matuku, however. The Society's Auckland branches formed a committee in 1993 to determine the best way to allocate the remainder of the bequest funds. A memo calling for project proposals from the Society's then northern conservation officer, Jacqui Barrington (who has since died, leaving Forest and Bird her own bequest), noted it was the Coles' wish that the money be spent wisely on conservation projects benefiting nature in the Auckland area.

Since then the Cole bequest has helped fund the purchase of Whakanewha Reserve on Waiheke Island, now a regional park managed by the Auckland Regional Council. Other Cole Bequest projects have included fencing of the Colin Kerr Taylor Reserve in Waitakere and the initiation of the proposed Te Matuku Marine Reserve at Waiheke Island.

Bill and Mary Cole have indeed left a living legacy that has made a significant and lasting contribution to the protection of the native plants and wildlife that had enriched their lives.

You too can leave a living legacy by remembering Forest and Bird in your will

South Auckland Forest and Bird Branch members enjoying a rest stop in the Matuku Reserve

To receive a bequest pack contact:
Royal Forest and Bird Protection Society
PO Box 631, Wellington
New Zealand
phone: 04-385 7374
fax: 04-385 7373
email:
office@wn.forest-bird.org.nz

FOREST & BIRD

Kaikoura has more to offer than whales.

Story & pictures by JENNY & TONY ENDERBY.

Paddling across the calm sea surface came a bird about the size of a turkey. Its almost pure-white body glowed as it headed into the melée of smaller birds at the rear of the boat. The mollymawks and smaller birds moved aside for the majestic snowy albatross. Those that didn't were dispatched with a peck from its massive beak.

The birds were paddling rather than flying as the lack of wind made takeoffs difficult. Our previous sighting of the largest albatross in the world, with its more than three-metre wingspan, was a distant, gliding shape. To have one feeding a few metres from the boat was a nature lover's dream.

We were drifting off Kaikoura, on an Ocean Wings albatross encounter.

Many visitors to Kaikoura miss seeing these magnificent birds up close, choosing to view the area's marine mammals instead. The albatrosses are not there by chance. The food that attracts the whales, dolphins and seals to the Kaikoura coast also brings countless birds. Nearer the coast we had seen huge numbers of seagulls, shags and terns.

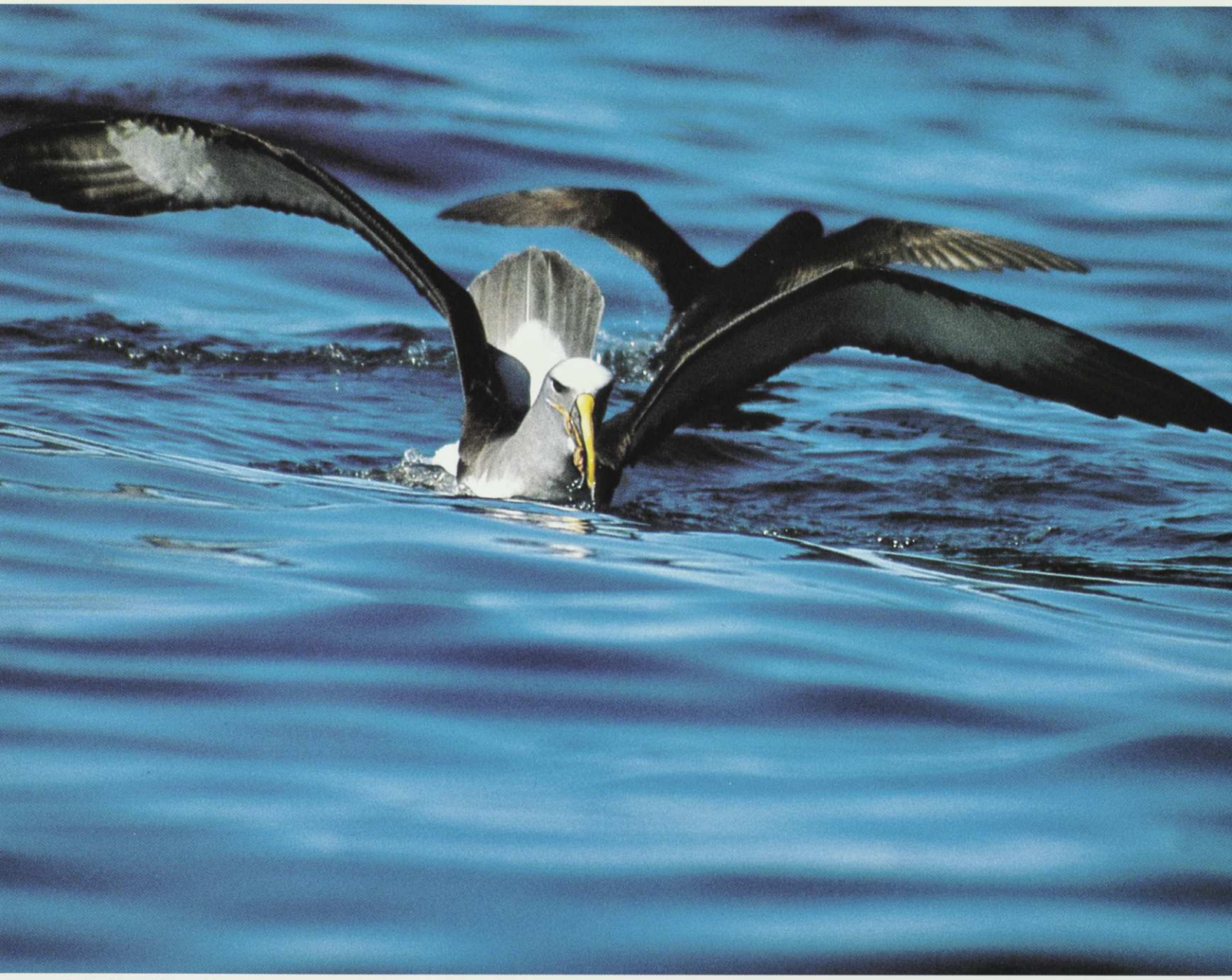
Ten kilometres from the coast we had our first encounter with albatrosses near a fishing boat. The fishermen were cleaning their catch and the flock of birds near the stern fought over the scraps.

These birds weren't at risk from the fishermen, but further south, in the Southern Ocean, many have been caught

1. Northern royal albatross seen from the boat.
2. Cape pigeon joins the birds at the back of our boat.
3. A snowy (wandering) albatross, the largest species.
4. White-capped mollymawk or albatross resting on the surface.

Top of column: A Salvin's mollymawk or albatross.

The Albatrosses of Kaikoura



Buller's mollymawk or albatross showing its huge wingspan.

Protecting Migratory Seabirds

New Zealand and Australia have recently signed an international agreement to protect petrels and albatrosses in their waters and beyond. The agreement has been developed under the Convention on Migratory Species, which is now in force in 73 countries.

'The agreement contains legally binding obligations to safeguard the seabirds by conserving their habitats and developing ways to catch fish without catching the seabirds as well,' according to the Minister of Conservation, Hon. Sandra Lee. 'Worldwide, urgent action on the part of scientists and the fishing industry is required because some species of these birds are now threatened with extinction.

'They are being caught on longlines in several commercial fisheries, they are menaced by alien predators and in some places their habitats are being ruined by development of recreational facilities.'

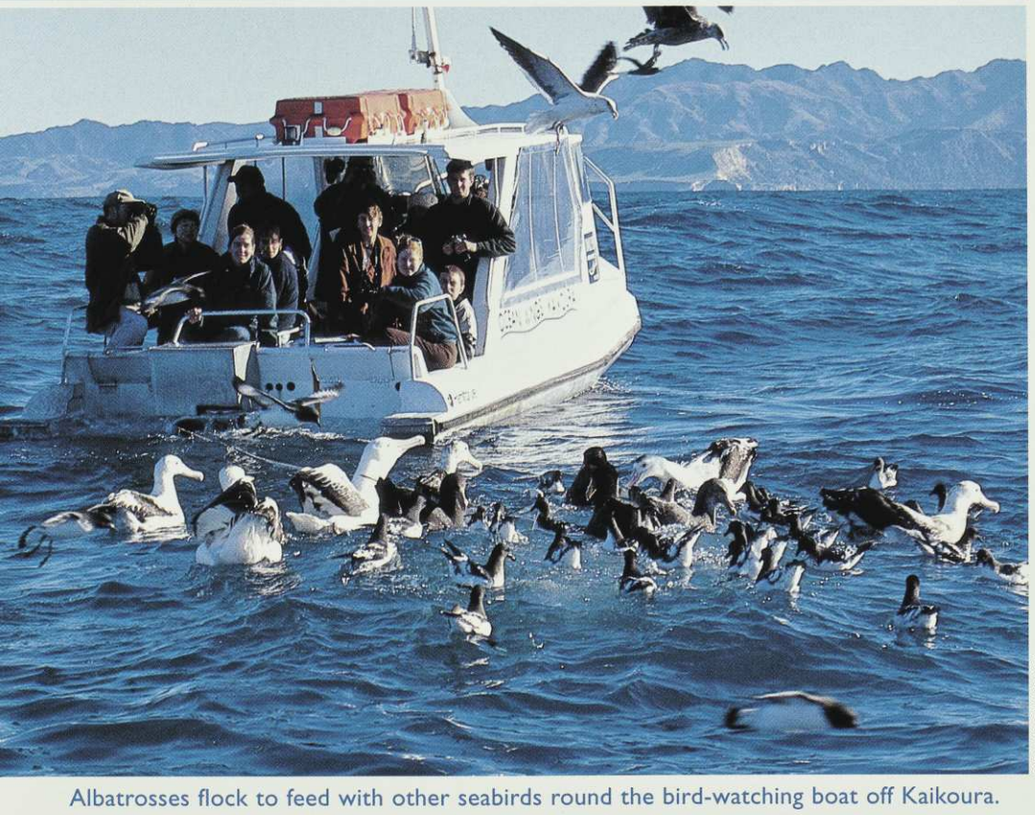
The international agreement will allow better conservation, monitoring and information sharing among signatories.

'We want all countries fortunate enough to have these magnificent birds visiting their territories to sign up,' Sandra Lee says. 'The greater the global area covered by this agreement, the more effective it will be.

'New Zealand involvement is crucial to this initiative, given that nearly half the 28 albatross and petrel species managed under the agreement breed in this country,' she says.

The Ministry of Fisheries and the Department of Conservation are currently producing a 'national plan of action' to deal with seabird deaths. (This is a requirement of the United Nations agreement.)

'The plan is turning into a "plan of inaction" as both the ministry and DoC refuse to put effective and binding arrangements into the plan,' according to Forest and Bird's marine-issues expert, Barry Weeber. A revised draft of the plan will be released for public comment in October with submissions closing at the beginning of November. Check the Forest and Bird website www. forest-bird.org.nz for further information.



DENNIS BUURMAN

Albatrosses flock to feed with other seabirds round the bird-watching boat off Kaikoura. The birds visit these waters, just as whales do, because of the availability of food about the upwelling waters of the Kaikoura Trench.

Gliding past, a black-browed mollymawk or albatross.

on baited long-lines as these drop from fishing boats into the water. The birds grab the bait, are hooked and drown. Fishing companies can reduce this problem by laying lines through chutes which contain the baited hooks until they are well below the surface and away from the beaks of albatrosses and petrels. Other techniques, such as setting lines only at night, using tori poles, and extra line weighting, can reduce seabird deaths.

The Kaikoura fishermen finished cleaning their catch and moved off. The birds then transferred their attention to our stern, giving us our first close up view. Among them was a snowy albatross, one of four sub-species of wandering albatrosses. (The others occurring in our waters are Gibson's and Antipodean wandering albatrosses. These two breed in New Zealand's subantarctic.)

The number of birds at the rear of the boat increased as a large brown bird landed. The new arrival was a giant petrel, not quite as big as the albatrosses, and also keen on a free feed. It swam in, wings extended, perhaps to give the impression of a larger size and battled with the albatrosses over the scraps of fish near our stern

We gradually became more aware of the birds around us and with the help of our onboard guide began to identify the other species of albatross.

The birds with the almost completely black backs and wings were northern royal albatrosses. New Zealand's only mainland breeding colony of northern royals is at Taiaroa Head, on the Otago Peninsula where about 50 pairs breed each year. Their other breeding sites are on the offshore islands around the Chathams. These birds circle the globe, riding the prevailing winds of the Southern Ocean. Some birds banded as chicks in New Zealand have been encountered off South America.

All albatross species normally mate for life.

Studies of the albatrosses from the Taiaroa colony have helped increase our knowledge of the birds' life history. The first five to six years of life are spent at sea. They then return to visit their nesting grounds and commence breeding

Two southern royal albatrosses gathered at the stern of our boat.

at around nine years of age. The wandering albatrosses have much the same breeding cycle, the pairs producing chicks every second year.

A similar bird, with less black plumage, was a southern royal albatross. Closer inspection of the group clustered around us revealed several more of them. This is where it paid to have an expert for identification on board. He explained that the older southern royals lose their dark colouring and look very similar to the wandering albatrosses. Southern royal albatrosses breed at the Auckland and Campbell Islands in the subantarctic.

If identification of the big albatrosses was difficult, then their smaller relatives, popularly known in New Zealand waters as mollymawks, created even more problems for the uninitiated. We had Buller's, black-browed, white-capped, Salvin's and Pacific or northern Buller's mollymawks around us. (Note: recent references rename them as albatrosses too, not mollymawks, so to make them easier to look up in reference books we give both names in the photograph captions.)

Most of the albatrosses hung around the boat, paddling away to rest on the sea surface after they had eaten. The smaller petrels, shearwaters, cape pigeons and ever-present black-backed gulls completed the flock of birds around the boat.

A whale-watch boat moved to within 400 metres of us. The object of its attention, a sperm whale, surfaced and blew a plume of vapour, then after a few minutes lifted its tail skywards and headed back to the depths of the Kaikoura Canyon for another 50 minutes. Not long ago that would have taken our attention. This trip belonged to the albatrosses and we continued to watch one of the best displays off the Kaikoura coast.

The birds remained unperturbed at the arrival of a blue shark. It cruised in and inspected the back of the boat and on finding there was nothing of interest vanished back into the blue.

Every few minutes another bird would arrive, gliding down to almost touch the surface then lift, sometimes using wing power to compensate for the lack of wind. After circling us several times the birds would glide in overhead, then settle on the smooth surface. It was great to have had such a calm day to view the birds. An acceptable trade-off would have been some wind and a little more wave action, to see them lift off and fly or glide rather than just drift away.

Behind us the peaks of the Seaward Kaikouras gradually darkened as the cloud cover increased and we headed back to the boat harbour. Other albatrosses continued to glide around us effortlessly, sometimes wings almost touching the sea, then catching an updraft and turning to repeat the procedure.

Close to the coast a pod of dusky dolphins raced in and joined us, playing on our bow and around us. After a minute or two of interaction they continued on their way.

The albatrosses may not be Kaikoura's main attraction but their diversity of species and approachability make them one of the more interesting trips. Any visit to Kaikoura in the future must include time to see these masters of the sky.

TONY AND JENNY ENDERBY *are wildife and underwater photographers based at Leigh in lower Northland. They viewed Kaikoura's wildlife courtesy of Ocean Wings Albatross Encounters, Kaikoura.*

The Decade of the R.M.A.

If New Zealand is to retain its 'clean, green image' we need to plan more effectively, according to ERIC PYLE.

The first 10 years of the Resource Management Act have been turbulent ones. If New Zealand is not to lose its 'clean, green image', then thought must be given to implementing the Act better.

Among many of our natural and human environments, the Resource Management Act affects the air we breathe, the water quality at the beach, the character of the street, and the coastal environment. It can even affect the quality of the water in the tap!

Developers, however, blame the Act for slowing development. Communities blame it for allowing too much development. Houseowners blame it when they can't build something that shades the neighbours. Houseowners blame it when the person next door builds something that shades them!

Ten years ago, the Resource Management Act was heralded as world-leading environmental legislation, yet major parts of it have never been used. Industry has repeatedly attacked it. Environmentalists staunchly defend it. Barely a week goes by without it being mentioned as a point of argument in the media. So what has the Act achieved, what is all the controversy about?

The Gains

There is little quantitative evidence of the environmental gains that the Resource Management Act has helped achieve. This is not a fault with the Resource Management Act. Rather, it is a failure of a critical aspect of the Act, which is to monitor our environment.

The foundation on which the Act's 'sustainable management' relies is that decisions are based on adequate knowledge. Each regional council and some district councils, to which day-to-day implementation of the Resource Management Act has devolved, are developing their own monitoring systems, independently. There is little coordination. Putting together a consistent national picture on the state of our environment, or even comparing the situation around the country, is well nigh impossible due to the different planning approaches and monitoring systems used.

Yet anecdotal evidence suggests there have been considerable environmental gains since the Resource Management Act was enacted.

Landfills around the country are now mostly 'consented' (meeting environmental standards under the Act). Many others, which failed to meet the standards, have been closed.

There has undoubtedly been an improvement in water quality, through better control of forestry practices and discharges of stormwater, sewage and dairy-shed effluent. Large hydro schemes are being 'consented' too, and for the first time their effects on the environment properly considered.

In some parts of the country landowners cannot destroy native forest without first seeking approval from councils, but unfortunately this is not the case everywhere.

So there have been some real advances, but getting quantitative information on these and developing a coherent national picture is difficult.

The Pains

Judging by media coverage, the Resource Management Act is a controversial piece of legislation. But when it is remembered that this single Act replaced a plethora of legislation it is probably no more controversial than the total controversy which surrounded the numerous acts it replaced; such as the Water and Soil Conservation Act, the Clean Air Act, and the Town and Country Planning Act. All the 'controversy' that occurred under these previous Acts is now concentrated around the one Act.

If anything the controversy has been about the implementation of the Resource Management Act, not the Act itself. Patchy and often bizarre implementation by local councils makes the Resource Management Act vulnerable to criticism. Councils frequently do not give sufficient weight to considering alternatives. Some persist in accepting applications that are deficient in the necessary information base on which the act relies for its the successful operation.

Implementation at a local level is a major problem. Increased guidance and assistance of local government by central Government would aid implementation.

Doing It Hard

Underpinning the Resource Management Act is the idea that local communities know best and decisions should be 'devolved' to local communities. Some people argue this devolution is a

fundamental tenet of sound resource management. Cynics argue it is a way for central Government to save money on the implementation of the Resource Management Act, by lumbering local government with all the costs and responsibility.

This devolution of decision-making to the local level may sound like a good idea, but the reality is that there are issues that occur nationally and which are best addressed at the national level. As it is, approaches to management of issues vary around the country. Yet a cow in a stream has the same impact on the stream whether it is in Northland or Southland. The solution is the same throughout the country — fencing streams. There are many other issues that need to be tackled nationally rather than in an ad hoc, local manner.

There is also the issue of social equity. Some councils are rich with trading profits and trust funds, while others are cash strapped. Those with a small ratepayer base cannot afford the investment required to follow sound practices.

The real problem with the Resource Management Act is that central Government has not provided the necessary assistance to local Government to make it work properly.

Local Government was given a number of extra tasks following its restructuring in the 1980s. Yet central Government has not really faced up to this fact. Sadly, it has not offered much assistance to councils to help them adapt to the brave new way of doing things under the Resource Management Act.

Instead, Governments have attempted to change the legislation to sort out, what in reality are implementation issues. The difficulties with implementing the Resource Management Act will not be solved by amending the legislation.

Acting in Ignorance

The role of science and research in good planning is an important area that has not worked well. The central Government's lack of support was most acute in this most important area. Good resource management is based on good science and information. Yet at the same time the Resource Management Act was implemented, Government turned its science agencies into Crown Research Institutes. These institutes are required to charge for services and information which creates an economic barrier for people involved in resource management and wanting access to scientific information. The result is that good science is being published in international journals (often obscure) but is not well used by central Government, local councils or communities.

This restructuring of the public science system in the early 1990s pulled out a key foundation from under the resource management system. If the Resource Management Act is to work effectively, the Government needs to ensure that the science system is able to deliver tools and information to people working with the Act.

'Clean, green' but mean

New Zealand's 'clean, green image' is becoming increasingly important to our prosperity. Yet, at present, it's conceivable that a local community could make a decision that puts us at risk. In these circumstances, the protection afforded by the Resource Management Act could be a huge economic advantage for New Zealand — not the constraint that many in the business sector claim it is.

With the 'clean, green image' becoming more important, there may need to be greater central Government involvement in resource management. The idea that environmental problems are best addressed at the local level may also need revisiting.

The increasing importance of the 'clean green image' may mean that some of the mechanisms for implementing the Resource Management Act may need to be used much more effectively. For example, more national standards, such as one for water quality, and some national policy statements may be needed. Currently we have no national standards. It could even mean, as in many other countries, a new agency might desirable along the lines of an Environmental Protection Agency to protect the 'clean, green image'.

Looking Ahead

There is no inherent problem with the Resource Management Act. The controversy is all about some poor practice by local councils, caused by a lack of assistance from central Government.

Better implementation will require a concerted effort by central Government and a much broader approach, focusing on the whole system of resource management. This includes the development of standards, national policy statements, the training of council officers, and putting in place good environmental information systems. The science system should produce better information for those working with the Act.

A recent Government report, by the Ministerial Panel on Business Compliance Costs, summarises the situation:

'The issues that continue to arise regarding the interpretation of the Act occurred because the introduction of the Act a decade ago was underfunded.... It is a lesson sorely learned and one that must be avoided when future legislation is introduced.'

The Government and all parties which work with the Resource Management Act now need to focus on ways of making it work better.

ERIC PYLE *is conservation manager of Forest and Bird, and has broad experience with several agencies concerned with resource management.*

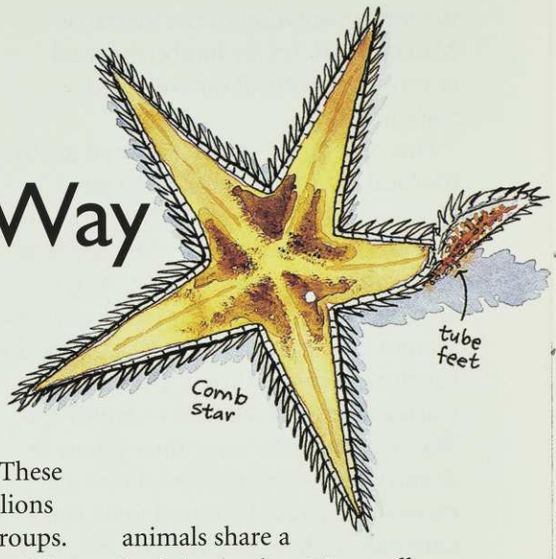
Getting Better Results from the R.M.A.

If New Zealand is to retain its 'clean, green' image, central Government needs to take action to improve the implementation of the Resource Management Act. The Government needs to:

- provide more guidance to local councils by issuing national policy statements, standards and guidelines
- provide more training to council staff and councillors who interpret and give effect to the Act.
- develop the equivalent of an Education Review Office (an audit agency) to review council performance
- develop effective monitoring and information systems so that issues can be accurately identified by councils
- ensure that the Crown science agencies are empowered to work collaboratively with the management agencies to develop the necessary tools (e.g. monitoring systems).

How the Starfish Lost Its Way

ANN GRAEME investigates a hox; TIM GALLOWAY illustrates.



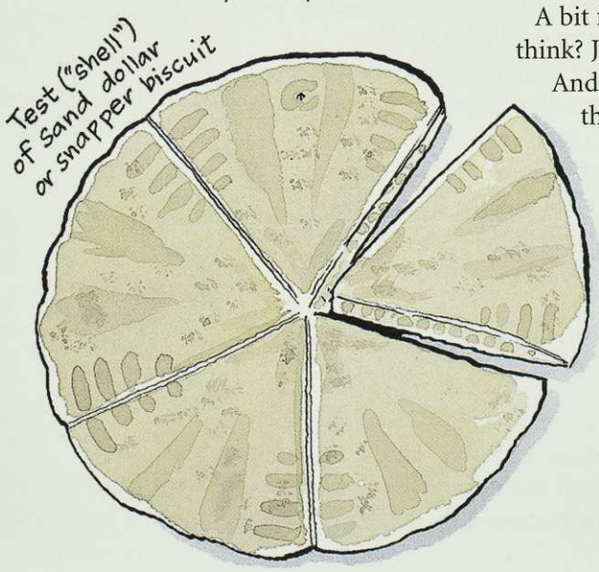
Three billion instructions tell the human body how to develop. 3,000,000,000! It makes the mind boggle thinking about it. Yet that's how many pairs of links there are in the DNA code that represents the genetic make-up of humans.

So you may be relieved to hear about the master genes, the 'hox' genes. These organise the multi-millions into comprehensible groups.

The hox (from homeotic) genes are the eight master genes which determine what each part of a developing animal ought to be. Each hox gene governs a territory, and each territory is based on body sections first delineated in the early stages of embryonic development. One hox gene oversees the genes that create the first body section, the second hox gene oversees the second section, and so on. Such a sequence lends itself to the evolution of the head, with the senses and the nervous tissues concentrated in the front segments. Then the paired limbs follow, regulated by the hox genes of the following body sections. And so a bilaterally symmetrical animal develops, with a head end and a tail end.

A bit far-fetched, do you think? Just look at yourself.

And the truly astounding thing is that the same eight hox genes that master-minded you, also regulate all animal life from the humble worm to the insects, fish, reptiles and mammals. This is why all we animals share a basic body plan. We are all running on the same genetic software!

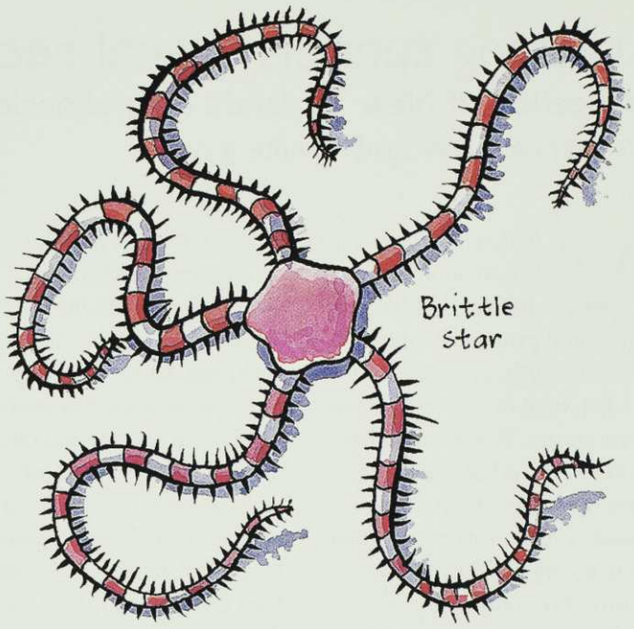


But there is an ancient group of marine animals which seems to buck this trend. They are the members of the Phylum Echinodermata. Echinoderm larvae are perfectly orthodox, being bilaterally symmetrical with a head and a tail. Their early form reveals that they are of the same lineage as the chordates, amongst whom we ultimately find our place. But from the young echinoderm grows an adult which has neither head nor tail, and whose body is organised in a circle of radial symmetry.

The most ancient echinoderms grew on stalks, as modern sea lilies still do, with the mouth pointed upwards. More modern groups like the starfish, the brittle star and the sea urchin have flipped over so that the mouth faces down. Lacking a head, echinoderms lack a brain too, or rather they lack a distinct organising centre, but they get along with a network of nerves linked to a ring around the mouth.

To read more about echinoderms, and hox genes, try The Variety of Life: a survey and a celebration of all the creatures that have ever lived, *by Colin Tudge (Oxford University Press).*

'It's very readable — but huge and pretty dense,' according to Ann Graeme.



It seems that echinoderms are swimming against the tide of animal evolution, and yet they are an ecological success. They are major players in many marine ecosystems and sometimes even the boss — remember the depredations of the Crown-of-thorns starfish on the Great Barrier Reef? There are about 7000 species of echinoderms living today, and 13,000 in the fossil records stretching back more than 500 million years.

But what about the hox genes? Have they abdicated their responsibilities in the echinoderms? If those eight hox genes are in charge, how did they permit a proper, bilaterally symmetrical young echinoderm to grow up into a radially symmetrical adult starfish?

The answer was discovered by the molecular biologist, Greg Wray. In an experiment with a brittle star, he attached markers to a gene accompanying a hox gene. Then he could trace where the hox gene was being expressed in the growing brittle star. Wray found that the gene was expressed along each arm in the same way, as if each arm was a separate animal. In other words, the arms are like five complete animals, joined at the heads. The apparently radial echinoderm is in fact made up of independent symmetries — so the hox genes are at work, and the mystery of the radial echinoderm has an elegant solution.

Some Odd Bods

There seems no limit to the oddities of the echinoderms.

Their skeletons are made, not of bone or cartilage or chitin, but of calcareous fragments called ossicles. These fit together like a mosaic in the sea urchins.

Many echinoderms are armoured with moveable spines and bumps like speed humps. They move, not through muscle-braced-on-bone but by hydraulics, their spaghetti-like tube feet extending and contracting by water pressure.

Echinoderm eating habits are remarkably diverse — and even gross. Sea lilies and feather stars trap minute food in their feathery arms. Sea urchins and sand dollars grind their food with five hard teeth in a device called an Aristotle's lantern. Starfish and some brittle stars are predators. With the suckers of its hundreds of tube feet, a starfish will fix its opposing arms to the shells of a cockle, and pull — and pull — and pull. Eventually the cockle's muscles tire and it gapes open a little. Through the gap, the starfish pushes its stomach like a plastic bag, dissolves the flesh of the helpless shellfish and sucks in the soup.

Bereft of table manners, the sausage-like sea cucumbers lie on their sides, stuffing into their mouths debris trapped on their sticky tentacles. Upset a sea cucumber and it will throw out all its digestive system — a messy trick which deters even ardent naturalists!

Tracking tunnels reveal secrets of animal pests in gardens

Protection of New Zealand's natural heritage should start in our own backyards, say WARREN AGNEW and CLAIRE JEWELL.

Whether your backyard is a small urban property, a lifestyle holding, or large rural property with patches of native bush, predator control is a keystone in any restoration programme. To find out what animals are lurking, we have developed a tracking tunnel which reveals pests not normally seen, giving an impetus for control programmes.

Introduced animal predators, such as stoats, ferrets and rats, prevent the regeneration of native trees, destroy insects and lizards, and eat birds and their eggs and fledglings in the nest. In particular, the stoat poses the greatest threat to New Zealand's birds. It is quite possible that if stoat numbers are not significantly reduced, many of New Zealand's native birds will be lost from the mainland within the next 50 years. There is a need to establish the extent of the stoat problem so that appropriate control programmes can be designed and implemented.

Warren Agnew first became aware of the problem following the sighting of a stoat near to a grey warbler nest that children at his school were studying: 'The children had built a very nice hide that held two seats and was placed about six metres from the nest. The first day the children sat in the hide a stoat came near to them. They chased it away with the vigour of youth. The next morning soon after the children went to the hide a stoat appeared again. And again it was chased. Over the weekend the nest was predated.'

This ultimately led to Warren putting a proposal to the Department of Conservation to encourage the children of New Zealand to participate in an environmental science programme, which he called 'Find Out'. The Find Out programme was initially provided with $30,000 seed funding by the DoC Stoat Technical Advisory Group. The programme aimed to interest children in science and obtain data on stoat distribution, especially within urban parks and residential areas. Native bird numbers there seemed to have diminished over the years despite the efforts of councils and property owners in planting native species as a food source for birds.

This was to be a backyard monitoring programme for the children, and so it required a light-weight, easy-to-use tracking tunnel. Warren with the assistance of a neighbour, Martin Farrand, the owner of a large Auckland packaging company, developed an innovative tracking tunnel. Martin felt it would be possible to develop a long-life ink that would not be affected by rain and that would provide clear animal footprints.

The Black Trakka, as the new tracking tunnel is now known, consists of a folded polyethelene tunnel secured in place by two U-shaped wires. Inside the 500mm tunnel is placed a pre-inked card to record the footprints of the animal attracted inside by a lure. On the underside of the inked card are printed explanatory notes and sample footprints that assist with interpretation of mice, rats, mustelids and hedgehog tracks.

Development of the tracking tunnel has enabled hundreds of school children, ranging from 8 to 18 years, to become involved in a discovery-based science programme. The Find Out programme raises young people's awareness of animal pests and their harmful effects on our native flora and fauna. It also demonstrates the application of science to resolve a significant environmental issue.

Students are being encouraged to experiment with different lures, visual stimuli, camouflage and tunnel placement. From this it is hoped that a more efficient means of luring stoats into traps might be discovered. Recording and collation of data from the students' monitoring may also provide a better understanding of stoat distribution and feeding patterns in parts of New Zealand. Monitoring data recorded by participating schools is collated and available at www.stoats.co.nz where there is also information on stoats and other animal predators in New Zealand.

The tracking tunnel has contributed to the success of the Find Out programme because it is easy to use, and the same benefits are now being realised by councils and other conservation agencies.

Because tracking tunnels also allow the detection of mice, rats, hedgehogs, weasels and ferrets, it is possible to discover the presence of any unwanted predators in the neighbourhood. This indicates the necessary steps to remove or control these animals for the protection of New Zealand's largely unique flora and fauna.

For more information on the Black Trakka, and tips on effective predator control, look up the internet website of Gotcha Traps and Tracking at www.gotchatraps.com phone (09-425-6483), or email gotcha@best.net.nz.

GORDON ELL

This 'tracking tunnel' is designed to record the passing of small mammals such as the stoat (pictured), weasel, ferret, mouse, rats and hedgehog. An ink pad, with white impression areas at either end, is placed in a tunnel which attracts these animals, naturally. Inky footprints left by the passing animals (on card at right) may be compared and identified from the diagnostic samples also printed on the card. The lightweight tunnel (at rear) packs flat and is widely used in school projects. The tracking tunnel has now attracted the interest of professional pest controllers.

Techniques for trapping stoats and other mustelids

Forest and Bird conservation officer SARAH GIBBS shares her field experience.

Stoats are 'public enemy number one' when it comes to conservation of kiwi and many other bird species. As long as there is bush habitat available, the best way for individuals to protect birds and other native animals in their area is to trap stoats.

When trapping for stoats, ferrets and weasels (a group of animals known as mustelids) it is important to place the traps in areas the animals will use. Stoats and other mustelids cover large distances and will find a trap if it is on a route they usually travel along. Spreading traps sparsely (for example, one trap per hectare) can be more successful than clustering traps in a small area. Well-placed traps means that greater areas can be covered more effectively.

Stoats use waterways, fence-lines, tracks and boundaries between two habitat types (eg, the boundary between a forestry block and a farm paddock) in the same way humans use roads. Also look for raised vantage points, especially when there is a chicken coop or similar attraction on or near that vantage point. Although they like some cover, stoats will travel along raised areas when it gives them a view into an area where prey, such as rabbits or birds, may be present.

Don't worry if your trap does not catch something immediately. It may take a while for animals to get used to the trap and for your human scent to wear off the trap. Also, as stoats do cover large areas, they may not encounter your trap immediately. If after a month or so you still haven't caught anything and think you have a better place for your trap, try a new location.

Egg is still the most commonly used bait for stoat traps. It lasts reasonably well, is easy to obtain and attracts stoats as well as almost any other bait. To obtain extra scent around the traps, some trappers use salted rabbit meat. Fish can also be used to target ferrets, but may not work as well for stoats.

Meat in general will also mean that you catch more rats. This is good as rats also eat birds' eggs and prevent forest regeneration by eating seeds and vegetation from some plant species (eg kowhai). Don't hesitate to experiment with different baits. Animals in different areas may be 'tuned in' to different scents.

When to trap depends on your objective. If your objective is to catch the highest number of stoats, trap in autumn (February-April) when young stoats are around. If your objective is to protect birds in your area, trap when the birds are breeding and in need of the most protection. For most bird species this occurs in spring and summer (September-January).

Above all, don't get discouraged if you only catch a small number of stoats. Predatory species such as stoats survive in low densities, and the one stoat you do catch may be the one that is targeting the birds you are trying to protect.

Setting Fenn Traps to Catch Stoats, Ferrets, etc.

GORDON ELL

1. Fenn traps are currently the most commonly used way to catch stoats, ferrets and weasels (a group of animals known as mustelids).

GORDON ELL

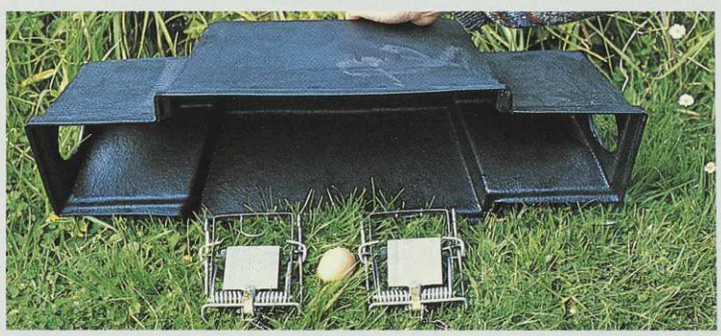
2. Open the trap using two hands.

GORDON ELL

3. While holding the trap open, flick the catch over the trap 'jaw' and lift the plate to secure it. It is a good idea to also put the safety hook on at this point in case the trap is accidently set off.

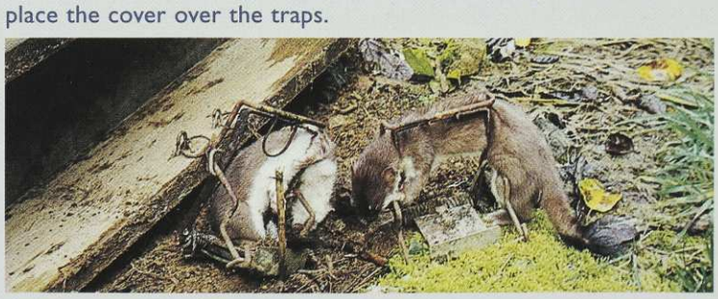
GORDON ELL

4. Peg down the chain which is attached to each Fenn trap. If using a plastic cover, you can secure it with the same peg.



GORDON ELL

5. Fenns can either be used as a double or single set. (A double set is shown here.) Covering the traps helps to attract mustelids, which love exploring burrows. They also help to prevent ground birds and other non-mustelids getting caught in the traps. Place the traps in the tunnel so the animals can't miss them. Sticks can be used to stop mustelids reaching the bait without crossing a trap. Note that the traps are set cross-ways, not lengthways, across the tunnel. Once everything is in place, take the safety hook off and place the cover over the traps.



SARAH GIBBS

If the trap is set correctly, its jaws should close on the animal in two places.

Forest and Bird Staff Member Reports on Study Exchange

Forest and Bird's lawyer, Kate Mitcalfe, recently had the opportunity to learn first-hand about environmental management and planning in northwest England. Kate was one of four New Zealanders selected to visit Lancashire and Cumbria in May and June, as part of a Rotary group study exchange. The exchange is designed to provide young professionals with a broader perspective on the field in which they work. Other members of the group included the national president of Young Farmers clubs, an environmental enforcement officer with the Manawatu-Wanganui Regional Council, and a policy analyst with the Ministry for the Environment.

Kate describes the exchange as full and varied. 'The group visited Sellarfield Nuclear Waste Reprocessing Plant, the Farmers' Union, Cumbria Wildlife Trust, Friends of the Lake District, United Utilities, Lake District National Park Authority, Penrith Environment Agency, English Nature, Carlisle City Council, Farmers' Wildlife Advisory Group, Morcombe Bay Biodiversity Project....to name but a few!' The members of the team stayed with Rotarians, spending three or four nights with each host.

Kate's last host was an agricultural lawyer, who represents the Upland Estate Owners. This group receives considerable criticism from the Royal Society for the Protection of Birds for the culling of hen harriers, a threatened upland bird species, in order to protect grouse hunting on their estates. This is a popular (and exclusive) sport: needless to say there were some interesting dinner conversations!

Kate discovered that the concept of conservation in England is very different to that in New Zealand, as a result of the long history of human settlement.

'Often the cultural landscape, the hedgerows and stone walls, obscures what is the natural environment. Ecosystem management and intrinsic values seem to be very new concepts in England.' Despite the differences, Kate said there was a lot to learn.

She considers that the experience has already made a positive contribution to her work at Forest and Bird.

'After experiencing the strict regulatory environment in England, I realise how permissive the Resource Management Act can be,' she says. Kate often defends the Resource Management Act as part of her role at Forest and Bird. After seeing a different system of environmental management in England, she is more convinced than ever that the RMA is innovative environmental legislation.

Forest and Bird lawyer Kate Mitcalfe has her footwear disinfected before entering an English nature reserve during the foot-and-mouth disease epidemic. Helping her is another New Zealander, Rebecca Maplesden from the Minstry for the Environment. They were part of a New Zealand Rotary group-exchange studying environmental practices.

Mainland Kiwi Transferred to New Offshore Haven

Two female kiwi juveniles, rescued from the mainland Ohope Scenic Reserve near Whakatane last summer, have been released on to Moutohora (Whale Island) in the Eastern Bay of Plenty.

The chicks, nicknamed 'Manaia' and 'Humbumble', were raised at Rainbow Springs in Rotorua by Deidre Vercoe, under the joint Operation Nest Egg programme which is sponsored by the Bank of New Zealand along with Forest and Bird and the Department of Conservation.

'We have been very pleased with the weight gain of these chicks,' says Deidre. 'We are quite confident they will do well at Moutohara, as there are no predators there.'

'The initial aim of this kiwi programme on Moutohora is to produce sufficient birds to start re-introducing them back on to locally managed reserves on the mainland,' says John Sutton, area manager for DoC.

Over the last 8 years DoC, together with the Maori people Nga Awa, has developed Moutohora into a predator-free island by eradicating rats, possums and many weed species. There has been an intensive native planting programme, and the island is now ready to offer sanctuary to other birds and insects. Already tuatara, saddleback and kakariki parakeets have been released and all are thriving.

The birth of kiwi chicks at the Ohope Scenic Reserve was a boost for all the people and organisations, including Forest and Bird, who have been collectively helping to save the birds in the one of the largest pohutukawa forests in New Zealand.

The nesting success of the kiwi at Ohope is due to a combination of possum control by the Whakatane District Council and Environment BOP at Kohi Point, rat and stoat control by DoC, and possum and magpie control by the 'Bring Back the Birds' programme organised by the local Forest and Bird, and 39 nearby residents. The local residents have also seen a noticeable increase in tui, New Zealand pigeon and bellbird since the inception of the programme.

DoC will be surveying and monitoring the remaining seven kiwi in the Ohope Scenic Reserve which will provide information for future kiwi management on the mainland about Whakatane. A pair here are breeding again.

— MEG COLLINS

Work of Forest and Bird Members Recognised by Local Authorities and Government

The names of Forest and Bird members were to the fore in environmental awards made in several parts of New Zealand this year. Among those advised to Branching Out were awards made by regional councils in Wellington and Auckland, and national recognition for a South Canterbury member by the Minister for the Environment to mark World Environment Day.

Russell Langdon of Ashburton received a 2001 Green Ribbon Award from the Minister for the Environment, Hon. Marion Hobbs, for his work in 'Caring for our biodiversity'. His work included the development of the Hawthorn Wood Wildfowl and Wetland Reserve, and a captive breeding programme for endangered waterfowl.

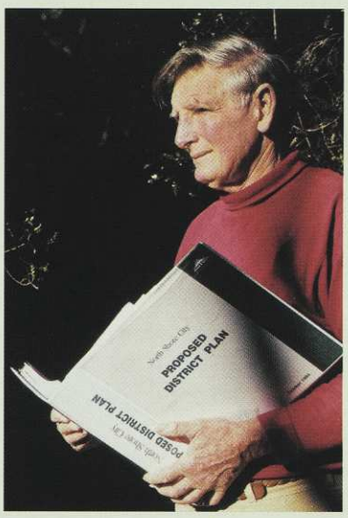
To mark Conservation Week in the Wellington conservancy of the Department of Conservation, the Minister, Hon. Sandra Lee, presented a range of awards which included recognition of the work of Forest and Bird.

The Upper Hutt branch of Forest and Bird was recognised for 'its ongoing commitment and hard work to the restoration of bush remnants of the Hutt Valley'. The work included wilding pine eradication and predator control in the Upper Hutt area.

In the individual volunteer category, distinguished life member Stan Butcher of Lower Hutt was recognised for his long-term commitment to restoration, environmental education and community awareness projects. In 1981 he joined a planting group on Matiu/Somes Island and has continued to work fortnightly on the island since then, with Lower Hutt Forest and Bird. He also works fortnightly at Pauatahanui Inlet with Forest and Bird members, and served as trust board member and on the executive of Bushy Park, in the Wanganui district.

Bill Milne of Lower Hutt Forest and Bird also received an award for his sustained dedication to a wide range of conservation projects in the Hutt Valley. Since retiring he has spent much of his time working as a conservation volunteer on at least seven long-term projects.

Gary James and the Wellington Home Nursery Group were also recognised. They have produced 70,000 trees for planting in the community over the past 10 years. Seeds of native plants and trees, including rare and endangered species, are locally sourced and grown by 20 local home nurseries in the scheme, for projects such as Karori Wildlife Sanctuary, Manawa Karioi and Makara Peak.



Jim Lewis of North Shore Forest and Bird won an Auckland Regional Council environment award for his work protecting suburban forests from development.

Former North Shore Forest and Bird chair, Jim Lewis, was honoured in the biennial environmental awards of the Auckland Regional Council. The judges acknowledged that Jim Lewis has worked up to 40 hours a week over the last five to seven years to provide an environmental voice on subdivision developments on the North Shore. His practical advice and suggestions to developers has won him respect among many development companies. As a result many forest remnants, wetlands and streams have been saved while development has proceeded.

The Eco-Store in Freeman's Bay, which is one of Forest and Bird's corporate sponsors, won the Environmental Contributor of the Year Award, and also the business award. The judges noted the Eco-Store was developed as a cause-related business eight years ago to create a sustainable fund for environmental initiatives.

One of two conservation awards made by the Department of Conservation in the Waikato region went to Tina Morgan of Upper Coromandel Forest and Bird for her restoration and conservation work in the upper Coromandel area. She has been co-ordinator for control of weeds and pests on large areas of private land, besides activities with tree planting and other community projects.

Cold Night on a Harbour Island

Members of Dunedin's Kiwi Conservation Club got more than they expected on a wintery overnight visit to Quarantine Island in Otago Harbour.

Their trip began on a warm Saturday morning, with 13 adults and children planting native trees to augment the seven hectares of revegetation on the island. Later, the sky turned an ominous blue-black and by morning a southerly storm struck. Snow blanketed the Otago Peninsula and soon fell to sea level on the island. The schedule of outdoor activities was changed to games and reading indoors. A midday expedition to the crest of the island revealed a wintery scene. Harbour Cone glistened under a coat of new snow and even Taiaroa Head (location of the albatross colony) had a white touch.

The journey back to Port Chalmers on the mainland in a small open boat brought a numbing combination of sea spray and sleet, despite everyone being cocooned in full storm clothing and life jackets.

KCC members brave a cool crossing from Quarantine Island to Port Chalmers.

MARILYN BARKLA

— *Source:* **JOHN BARKLA**

Returning Forest to a City Open Space

New forest cover is being planted on Hamlin's Hill, in an industrial suburb of Auckland, as a project of Central Auckland Forest and Bird.

Gently sloping Hamlin's Hill (Mutukaroa) survived as open fields till recent years because it was the holding paddocks of Otahuhu freezing works. Now it is a reserve managed by the Auckland Regional Council.

Central Auckland branch became involved early on, planting native trees from 1998. Deliberately, a wide variety of trees and shrubs has been planted, so that a fertile and diverse community can grow, and more successful species can assume natural dominance. They include kauri, rimu, kahikatea, rewarewa, kanuka, titoki and karaka. Shrub and other smaller species include karo, ribbonwood, coprosma, whau, manuka, nikau, flax and cabbage trees.

Between June 1998 and October 2000, some 20,000 plants were dug in, making up four hectares of native forest. Significant numbers of these were planted by volunteers on days organised by the branch along with Auckland City Council (which owns half the reserve) and the Auckland Regional Authority. Another hectare has now been identified in which the branch and others are working this season.

Early on, several hundred trees had to be dug up and shifted because they might have damaged archaeological (early European farm) sites. While the matter was quickly resolved it exemplifies the need for good and open communication between all parties before digging begins.

The trees planted during the first season of 1998 are now a credible two-three metres tall. Located in a gully with a stream running through, they form their own microclimate in which they are obviously doing very well. Now these trees are established, work can be concentrated on infilling with understorey species.

DAVID BOWDEN

Central Auckland Forest and Bird has been planting trees and shrubs on Hamlin's Hill, a former abattoir farm in the industrial suburb of Penrose. Here is the initial planting.

DAVID BOWDEN

Early days, 1998: contrast this view with the one below. It shows how the trees and shrubs grew in just two-and-a-half years.

Apart from this success being very gratifying, the plantings also serve as an interesting 'living laboratory' from which to learn lessons for other restoration projects. For instance, now that the trees form a dense canopy, weed species have practically been eliminated simply because they are shaded out. Also, the plants are bearing large quantities of fruit, which in turn is attracting birds to the area, and distributing seed naturally.

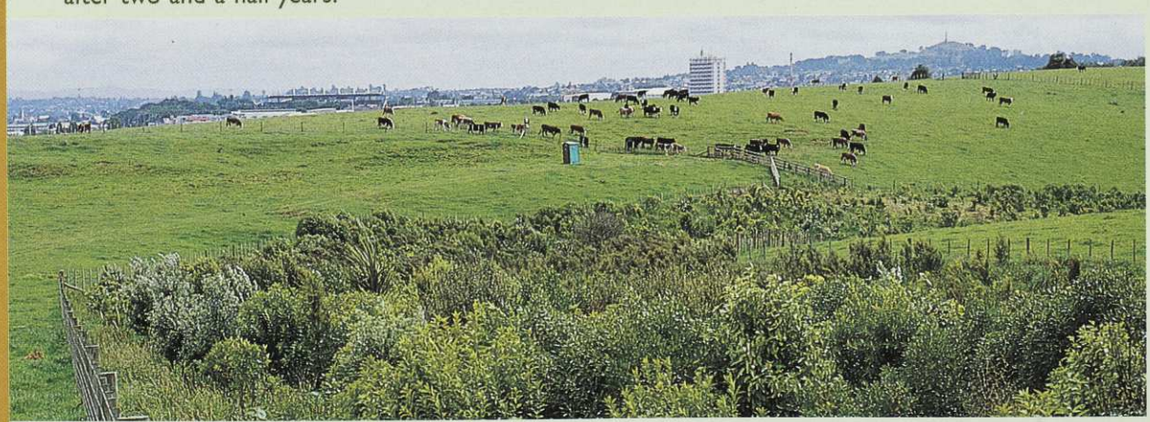
The success of the planting provides information about densities and areas necessary for rapid afforestation. The extent of sheltering 'edge effects' is clear, showing this depends on the 'depth' and 'width' of areas planted, plant densities and plant types. There may well be lessons here for other plantings in the region.

Earlier plantings were located around a stream, and the relation between them and the water quality is obvious. It would be valuable to study these changes, for assessing and restoring other urban waterways.

People are encouraged to visit the site to see at first-hand the success of the plantings. Forest and Bird members can be proud of what they have achieved. The area also indicates just what can be achieved by planting trees within an urban area.

— *Source:* **ANNE FENN AND DAVID BOWDEN**

A recent picture of native trees and shrubs planted on Hamlin's Hill, shows the pattern of growth after two-and-a-half years.



DAVID BOWDEN

R.M.A. Saves Forest Remnants

Imagine this: along the highway there is an patch of regenerating native forest you admire every time you drive by. It is a remnant of the once extensive forest that has been cleared for farming in your district and has been designated as a Recommended Area for Protection. When you learn the owner has applied to clear-fell the forest for pasture what can you do?

This was the scenario in the 'Pineridge Case'.

Near Gisborne, a landowner applied to the District Council to clear-fell native forest which was designated as a Recommended Area for Protection, or RAP. Forest and Bird and the Department of Conservation objected on the grounds that, despite its scruffy appearance, peppered with wilding pines, the regenerating lowland forest was significant because it was scarce in the district, and had therefore been selected as a Recommended Area for Protection.

Despite their objections, the District Council granted a consent to clear-fell the forest. Forest and Bird and DoC didn't give up. Together they lodged an appeal against the decision to the Environment Court.

The Court ruled that the Council was in the wrong. By granting the clear-felling application the Council had misinterpreted the Resource Management Act. The Council's decision not only spelled destruction to the forest but would open the way to clearfelling other regenerating forest, and nullify the status of the RAP designation. The Court revoked the District Council's decision and refused the clear-felling application.

The judgement recognised that this was 'an area of significant indigenous vegetation' and as such should be protected under section 6(c) of the Resource Management Act.

This decision was important, not just because it protected that particular forest, but because it confirmed the significance of the RAP designation. It may set a useful precedence for you to use.

— ANN GRAEME

(The Forest and Bird people involved were Linda Conning, Basil Graeme and Kate Mitcalfe. The decision reference number is A16/2000.)

Community Helps Forest Regeneration

'Possum Busters' was set up in Eastbourne, Wellington, five years ago, to overcome the possums which were the scourge of coastal forests in Eastbourne and surrounding hills. Forest and Bird member Jeff Booth, from the community group, sees much progress since then.

'I am amazed at the increase in the bush canopy after five years of regeneration,' says Jeff. He has taken over the traps of departing Possum Busters and has passed them on to others as well. A fifth-former from Eastbourne has been given four traps and is now looking after a gully that Jeff previously cleared of possums. Others, such as Will Louden, are moving further into the forest to tackle the pest.

'You used to see droppings everywhere around here. Now you don't even hear possums at night,' Jeff says.

The group has worked in conjunction with a skin dealer, providing a useful means of disposal. Jeff initially undertook a poisons course, paid for by Hutt City, but now believes that trapping is safer and as effective. The group has 60 traps and initially recorded its catches: 1200-odd possums in 1998. Jeff was then catching 8-10 possums a week.

'Now I may catch one possum a week from 10 traps,' he says. Jeff Booth discovered a previously unidentified patch of mature fuchsia in the bush behind Eastbourne and now, free of possum browsing, the fuchsia is flowering prolifically.

Possum Busters consists of local people and the project continues to be a community initiative, supported by Hutt City. In May 2001 the Wellington Regional Council gave notice that it too would support this work by plant and animal pest control in the area. Pests remaining include deer, pigs, and rats.

The group complements the Mainland Island Restoration Organisation Eastbourne (MIRO) — a project initiated by the East Harbour Environmental Association. In partnership with the residents, MIRO is undertaking bird counts and photographic recording to monitor the benefits of continuing trapping.

'The next problem to be tackled is feral cats,' says Jeff. 'I have seen evidence of native pigeon predation, trails of feathers down the hill. We need the Department of Conservation's advice on this as it is a sensitive issue.'

— DIANE MENZIES

Backyard Nature Website

An informative new section on how to create a native habitat in your backyard has been established at the Internet website of Forest and Bird. The section was written by Dean Baigent-Mercer with foreword provided by Carol Knutson. It can be accessed through 'Enjoying nature' or through the 'What you can do' section as listed on the home page. To check it out yourself, go to: www.forest-bird.org.nz/index.asp and select either section. There is also a new site map.

— MELISSA BARDSLEY

Executive Membership Changes

The composition of the Society's national executive has changed with the resignation of Dr Diane Menzies who has been appointed a Commissioner in the Environment Court. To replace her, the executive has appointed Peter White of Hauraki Islands branch, who was the next-highest polling candidate at the annual general meeting of the Society in June. Peter White was on the previous executive.

Attention Life Members

If you are a couple who signed up as a 'joint-life member' (prior to 1993) then the name on your membership may need to be changed. In 1994 when the Society was updating its constitution a decision was made to allow only single-life memberships in future. These single life memberships are not transferable on the death of that person.

Unfortunately, following that decision, the name of any second person listed on a joint-life membership was removed. (Don't ask us who or when, as the people who did this are no longer here.) We can fix things up, however. If you joined as a couple prior to 1993 and now find that only one name or set of initials appears on your magazine label, we will reinstate the other name if you like. To do this, please contact us by phoning 0800 200 064. We will be happy to oblige to honour the 'joint' life membership that was previously allowed. Unfortunately this doesn't apply to anyone who joined after 1993, as only the single-life membership is now available.

Plant Identification Labels

Forest and Bird members and branches are now able to purchase labels for native plant identification at discounted rates. The Society has entered into an agreement with Metal Image to produce durable illustrated labels for native plants.

These plates are of high-grade anodised aluminium sealed to protect the image in the outdoors for many years. Actual size is 100mm x 200mm. Please contact Metal Image direct for further information — phone Auckland (09) 415-3610, or visit the Forest and Bird website, under the 'Enjoying Nature' section to view further details, including a list of the tree and plant labels and the prices: www.forest-bird.org.nz

— LYN BATES, GENERAL MANAGER

Society's Forest Islands in Hawke's Bay

PETER WHITE visits the Society's lodge and reserves.

At 700-825 metres above sea level, Blowhard Bush Reserve is the most elevated of Forest and Bird's reserves. The 63-hectare forest grows over an area of limestone which produces karst ridges among the trees.

Blowhard got its name in the coaching days as horses struggled to cross the inland ranges of Hawkes Bay. It is located at the corner of Lawrence Rd and the Napier-Taihape Rd, approximately 53 kilometres northwest of Hastings. The western boundary adjoins part of Kaweka State Forest Park, administered by the Department of Conservation.

The vegetation consists of an island of broadleaf forest with emergent podocarps and localised black beech, bordered by regenerating forests of kanuka and manuka. Impressive matai, miro and rimu trees aged between 400-800 years grow amongst striking moss-covered limestone formations.

Blowhard Bush has a colour-coded track network offering walks of from 30 minutes to two hours, crossing a picturesque stream and meandering amongst the karst scenery, and across the flatter pumice fields of the Glen Ross Range. Lowry Shelter, a picnic shelter built by members of the Hastings-Havelock North branch, stands at the top of the reserve.

Since 1969, the Hastings-Havelock North branch of Forest and Bird, overseen by Roy Peacock, has been restoring the erosion-scarred crest of the reserve, initially with manuka seedlings (which blew away), and then by pouring tutu seeds mixed with sand into shallow cracks in the tephra surface. This was followed by forest duff collected on the reserve. Now the area has developed into manuka shrublands with mountain tutu, forest tutu, papaumu, *Cyathodes juniperina, Hebe stricta,* kohuhu, mountain flax and *Gaultheria* species. The branch also conducts twice yearly working bees to remove wilding *Pinus contorta* trees.

The eastern portion of Blowhard Bush Reserve.

PETER WHITE

A 'Mini Mainland Island'

The 11-hectare Little Bush Reserve can be regarded as one of New Zealand's smallest mainland islands, due to more than 40 years of pest control by Rob Whittle. When he purchased the farm containing Little Bush in 1950, the forest was in a bad state from cattle grazing and past logging. At first, he fenced the forest and then around 1960 began a sustained pest-control programme. His tally included hares, rabbits, possums, rats, stoats, ferrets and hedgehogs. Though the reserve was subdivided off and bought by the Society in 1989, utilising a legacy and local funds raised by the Napier branch of Forest and Bird, Rob has continued the pest control.

Little Bush is notable for its constant birdsong, particularly bellbird and tui, and its significant insect population. The pest control has also ensured the survival of the hundreds of white mistletoe *Tupeia antarctica* that occur throughout the reserve. A single specimen of green mistletoe *Ileostylus micranthus* is also present, growing on a horopito on the fenceline near the entrance to the reserve.

Overall the vegetation consists of kahikatea-matai-rimu-tawa-hinau forest with titoki, lemonwood, pokaka and occasional miro and totara. Pockets of tree ferns are common throughout.

Little Bush is situated near the end of Little Bush Rd, Puketitiri, to the northwest of Napier. A circular track which meanders gently through the forest takes about 45 minutes.

PETER WHITE

Little Bush Reserve viewed from the northeast.

Base for Exploring

William Hartree Lodge, situated on the Puketitiri-Napier road some 51 kilometres northwest of Napier, sits on the 14-hectare William Hartree Memorial Scenic Reserve, administered by Department of Conservation. The reserve, one of a handful of forest remnants in Hawkes Bay outside the Kaweka Ranges, has a track network through regenerating broadleaf-podocarp forest giving extensive views toward Cape Kidnappers and the Esk Valley.

The reserve was gifted to the Crown in 1963 by Audrey Hartree as a memorial to her late husband William, a keen naturalist. The lodge, accommodating up to 15 people, was built by the Hawkes Bay Junior Wildlife Wardens in 1967. The Society assumed ownership of the lodge and a lease of the land on which it stands in 1974.

The lodge is only a short drive from other reserves further inland such as Balls Clearing, Hutchinson, our own Little Bush and, further afield, the Kaweka Range. To book William Hartree Lodge see Lodges page 49 for details.

J. WUTS

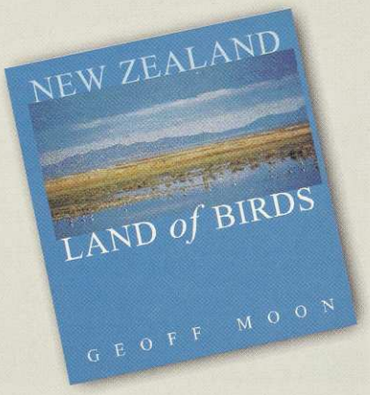
William Hartree Memorial Lodge, at Patoka, 51 kilometres northwest of Napier, is available for hire by Forest and Bird members.

New Zealand Land of Birds

by Geoff Moon, 160pp hardback, New Holland Publishers, Auckland 2001, RRP$59.95.

Geoff Moon has written more than 20 books and some of his photographic studies are recognised as icons of our natural world. For him to produce, in his mid-80s, a new-looking book is a pleasant surprise, and a delight.

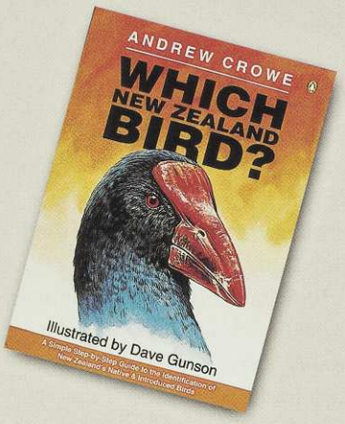
While the theme of New Zealand as a land of birds sounds quite familiar, his images of land and birds are largely fresh ones; the birds bounded with the glowing landscapes of a master craftsman.



Here is New Zealand's wild margins exposed without embellishment; without unnatural filters, or digital manipulation. The result is fresh impact from pictures from even familiar places: New Zealand photographed in its natural freshness.

The bird pictures are generally a fresh collection, too. Many of the bird photographs in this book are not only technically superb studies; more than likely the birds are also engaged in interesting behaviour.

This is not a guide book, though there is plenty of information. It is, rather, a fine collection of work from a pioneer bird photographer who is still undertaking new and interesting studies.



Which New Zealand Bird?

by Andrew Crowe, illustrated by Dave Gunson, 96pp limpback, Penguin Books, Auckland 2001, RRP$34.95.

As if there aren't enough bird guides already, Andrew Crowe has extended his considerable talent for easy-to-use guides to the world of birds. His fresh approach makes the whole project well worthwhile.

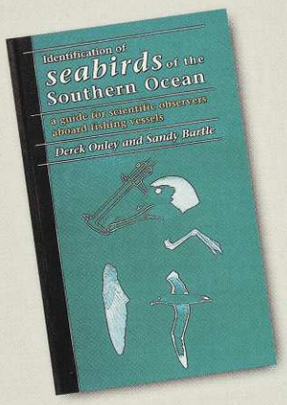
Having previously made it easy to identify trees, ferns, seashells and other wildlife, Andrew Crowe uses paintings by Dave Gunson to guide the eye to identify our more common birds, and those that can be seen in nature sanctuaries. The book is by no means comprehensive, but it is all the beginner needs to recognise the birds of home and park, the open countryside, forest and coast.

Birds are presented by habitat. Each likely species is painted on to a habitat background which leads to pages with details about them. Alternatively, just flick through the excellent illustrations, checking out the distribution maps and extensive notes in tiny type.

Andrew Crowe appends a chart of birds sorted by size, by colour, those 'with very long bill, neck, legs or tail', and a descriptive tree of birds which is a simplified guide to the main New Zealand families. Conservationists may ponder the wisdom of illustrating the more commonly found birds eggs, sorted by size, but the information is listed with a warning and is certainly interesting. Maori names for birds can differ through the country; Andrew Crowe here adds a list of all the variations he can track down.

Identification of Seabirds in the Southern Ocean

by Derek Onley and Sandy Bartle, 82pp hardback, Te Papa Press, Wellington 1999, reprinted 2001, RRP$34.95.



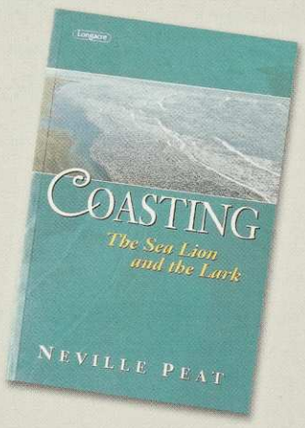
Subtitled 'a guide for scientific observers aboard fishing vessels', this handbook is based on illustrations by Derek Onley who painted the current *Field Guide to the Birds of New Zealand*. Notes by Sandy Bartle tell how to make identifications on land and sea. There is a simple, working system which leads from plate to plate to establish identification among these largely black and white birds. The book is published with the support of the Commission for the Conservation of Antarctic Marine Living Resources, which presumably makes it part of the international impetus to save the seabirds of the Southern Ocean from from death as a by-product of commercial fishing.

For most of us, birdwatching in the low southern latitudes is not a prospect, so conservationists should be grateful the first edition found its target audience aboard ship and sold out so quickly.

Coasting: The Sea Lion and the Lark

by Neville Peat, 184pp, limpback, Longacre Press, Dunedin 2001, RRP$29.95.

There aren't many literary writers in New Zealand, who write well and accurately about our outdoors, but Neville Peat is one. Described as a naturalist's musing on the southern sea and the coast, *Coasting* is a philosophical voyage about Otago and the subantarctic in the company of a sea lion.



Along the way Neville Peat encounters southern people too. His book has space for those grand southern seascapes, and for the atmosphere they evoke, the feeling for local history and the origins of traditions. Neville Peat bases his 'musings' on science but writes reflectively around his subjects. If you fancy more than statistics and DNA, when discovering our wildlife and habitat, Neville Peat offers a rounder view.

projectcrimson.org.nz

Photo: Kerry Fox

PROTECTING POHUTUKAWA & RATA

PROJECT CRIMSON

Carter Holt Harvey
in partnership with the Department of Conservation

10 YEARS

2001 *index*

By issue, then page number.
Key: Bn = Bulletin
BO = Branching Out
CB = Conservation Briefs
Com = Comment
IF = In the Field
WW = World Watch

AUTHORS

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we CAN make a difference

As a member of Forest and Bird you can:

- Gain satisfaction from the knowledge that you are contributing to the conservation and protection of New Zealand's natural heritage.
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- Receive regular issues of Conservation News containing the latest in environmental news.
- Participate to the level you desire in a large, successful, grassroots conservation group.
- Be informed by your local branch of trips, walks and conservation projects in your area.
- Stay at Forest and Bird's reasonably priced lodges around the country.

Kiwi Conservation Club

a special club for children

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KCC members receive:

- Five copies annually of the KCC magazine, packed with interesting stories, games, jokes and projects.
- A personalised KCC membership certificate containing the Kiwi Conservation Code.
- KCC member's stickers.
- Notification of activities and trips held in most areas by local KCC groups.

Use the attached form to give a donation or join as a member (donations over $5 are tax deductible)

It is your support and generosity that enables Forest and Bird to continue working for the environment

FOREST & BIRD

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Name (Mr/Mrs/Ms) _____

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This is a ☐ new membership
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GIFT MEMBERSHIP
Join a friend by filling in their name above and your name below. Gift membership will be sent with a special gift card in your name. If you would like to be billed for renewal of this gift membership next year please tick here ☐

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☐ student/schools	$35.00	☐ libraries	$52.00
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☐ single	$12.00	☐ family (no. of children ____)	$20.00
☐ mini set (4 magazines)	$22.00	☐ class set (30 magazines)	$55.00
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We invite new and existing members to pay membership and donations by direct debit

Every year we process in excess of 25,000 cheques. As you can imagine, this is a time consuming and labour intensive process. You can greatly assist the work that we do by making your membership payments and donations by Direct Debit.

Pay your membership/donations by direct debit

If you are an exisiting member this authority will operate from the next date your membership becomes due for renewal

Name (Mr/Mrs/Ms) _____

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We may need to contact you if problems are encountered setting this up.

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Please debit my bank account on a continuous basis as selected below:

☐ 28th each month (may only be used where donation is included with subscription)
☐ 5 instalments, on the last day of January, February, March, April and May in any year.
☐ 6 monthly on 28 January and 28 July
☐ annually on 15 January

If you join part way through the year, a partial payment by direct debit maybe required.
Should the membership fee be increased Forest and Bird are authorised to automatically increase this amount.

For the relevant portion of the following:

$	Current annual subscription
$	Gift subscription for: member number member name
$	Donation as outlined below (list annual amount here)
$	Total annual amount

I wish to make a regular donation to Forest and Bird of $ _____ per annum.

☐ To be deducted from my bank account together with my subscription as outlined above **or:**
☐ To be deducted on the day closest to the 15 January every year.

Please make my annual donation: $ _____

Complete the bank authority form overleaf and post together with your completed direct debit form to: Forest and Bird, Freepost no. 669, PO Box 631, Wellington

BANK AUTHORITY FORM

Direct Debit

BANK INSTRUCTIONS

NAME:
(of Bank Account)

AUTHORITY TO ACCEPT DIRECT DEBITS
(Not to operate as an assignment or agreement)

AUTHORISATION CODE
0 6 1 0 3 5 3

Bank account from which payments to be made:

BANK | BRANCH | ACCOUNT NUMBER | SUFFIX

(Please attach an encoded deposit slip to ensure your number is loaded correctly)

To: The Bank Manager

BANK:

BRANCH:

TOWN/CITY

I/We authorise you until further notice, to debit my/our account with all amounts which ROYAL FOREST AND BIRD PROTECTION SOCIETY OF NEW ZEALAND INC.
(hereinafter referred to as the Initiator)
the registered Initiator of the above Authorisation Code, may initiate by Direct Debit.
I/We acknowledge and accept that the bank accepts this authority only upon the conditions listed below.

Information to appear on my/our bank statement:

PAYER PARTICULARS:	PAYER CODE:	PAYER REFERENCE:
FOREST&BIRD	SUBSCRIPTION	THANK YOU

YOUR SIGNATURE(S) DATE / /

Approved	For Bank Use only	
1035	Original - Retain at Branch	BANK STAMP
02 | 1999	Date Received: | Recorded by: | Checked by:	

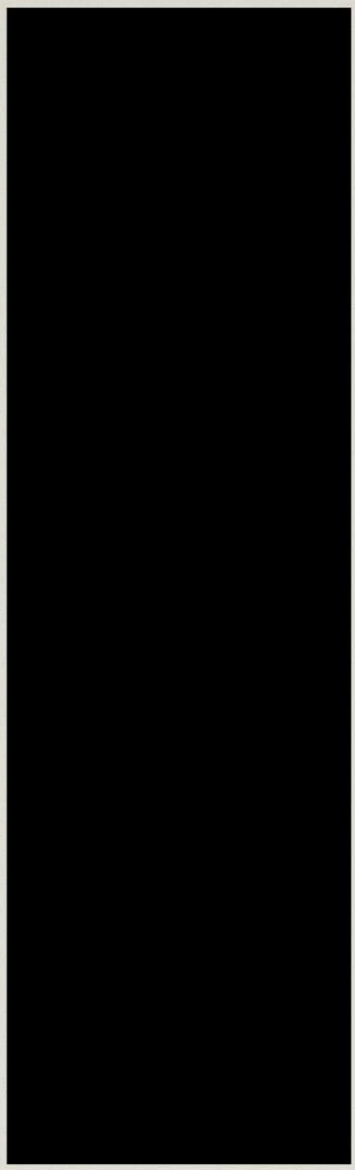
CONDITIONS OF THIS AUTHORITY

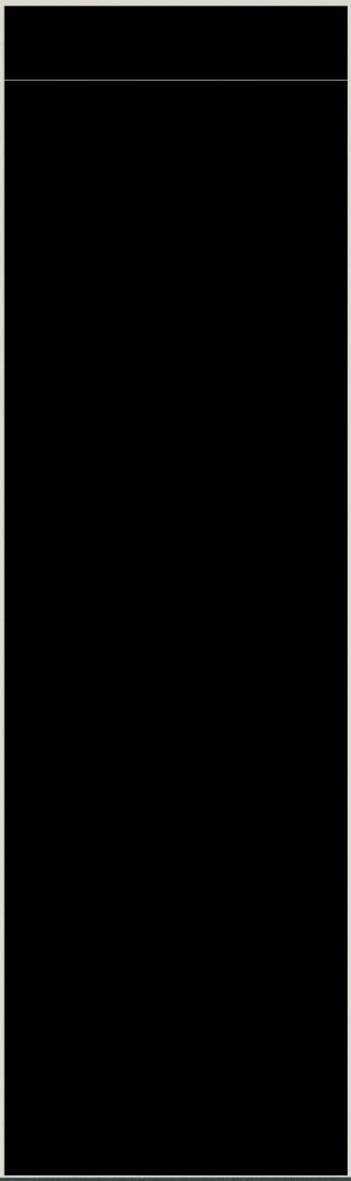
The Initiator
(a) Has agreed to give written advance notice of the net amount of each direct debit and the due date of debiting at least four business days before the date when the direct debit will be initiated. The advance notice will include the following message:-
The amount of $..... will be direct debited to your bank account on (initiating date).
(b) May, upon the relationship which gave rise to this Authority being terminated, give notice to the Bank that no further Direct Debits are to be initiated under the Authority. Upon receipt of such notice the Bank may terminate this Authority as to future payments by notice in writing to me/us.

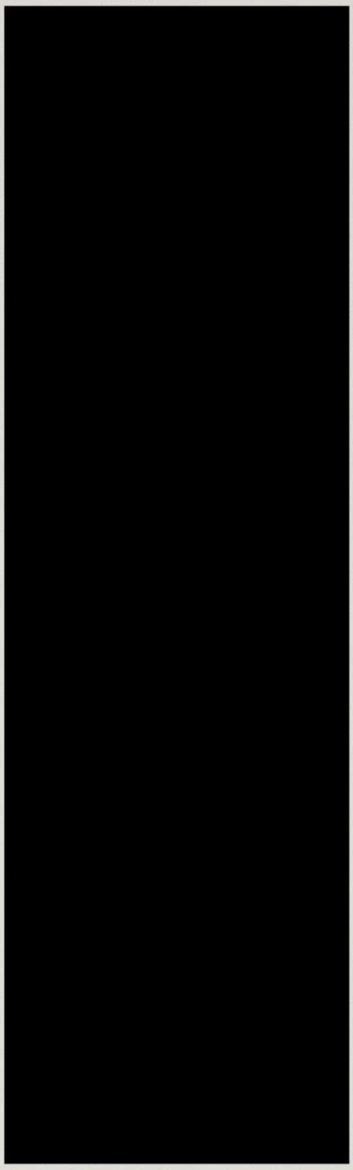
The Customer may:-
(a) At any time, terminate this Authority as to future payments by giving written notice of termination to the Bank and to the Initiator.
(b) Stop payment of any direct debit to be initiated under this authority by the Initiator by giving written notice to the Bank prior to the direct debit being paid by the Bank.

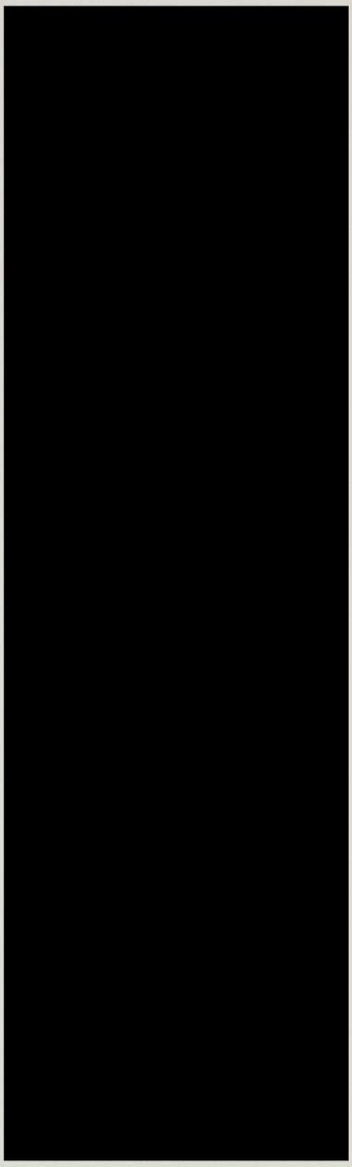
The Customer acknowledges that:-
(a) This authority will remain in full force and effect in respect of all direct debits made from my/our account in good faith notwithstanding my/our death, bankruptcy or other revocation of this authority until actual notice of such event is received by the Bank.
(b) In any event this authority is subject to any arrangement now or hereafter existing between me/us and the Bank in relation to my/our account.
(c) Any dispute as to the correctness or validity of an amount debited to my/our account shall not be the concern of the Bank except in so far as the direct debit has not been paid in accordance with this authority. Any other disputes lie between me/us and the Initiator.
(d) Where the bank has used reasonable care and skill in acting in accordance with this authority, the Bank accepts no responsibility or liability in respect of:-
- the accuracy of information about Direct Debits on bank statements.
- Any variations between notices given by the Initiator and the amounts of Direct Debits
(e) The Bank is not responsible for, or under any liability in respect of the Initiator's failure to give written notice correctly nor for the non-receipt or late receipt of notice by me/us for any reason whatsoever. In any such situation the dispute lies between me/us and the Initiator.

The Bank may:-
(a) In its absolute discretion conclusively determine the order of priority of payment by it of any monies pursuant to this or any other authority, cheque or draft properly executed by me/us and given to or drawn on the Bank.
(b) At any time terminate this authority as to future payments by notice in writing to me/us.
(c) Charge its current fees for this service in force from time-to-time.









lodge*accommodation*

Arethusa Cottage
An ideal place from which to explore the Far North. Near Pukenui in wetland reserve. 6 bunks, fully equipped kitchen, separate bathroom outside. For information and bookings, contact: John Dawn, Doves Bay Road, RD1, Kerikeri, Tel: (09) 407-8658, fax: (09) 407-1401.

Tai Haruru Lodge, Piha, West Auckland
A seaside haven set in a large sheltered garden on the rugged West Coast, 38km on sealed roads from central Auckland. Close to store, bush reserves and tracks in the beautiful Waitakere Ranges. Double bedroom and 3 singles, plus large lounge with open fireplace, dining area and kitchen. The self-contained unit has 4 single beds. Bring food, linen and fuel for fire and BBQ. For details and rates send stamped addressed envelope to Myriam Schreuder, PO Box 91, Piha, Waitakere City. Tel: (09) 812-8541.

Waiheke Island Cottage
Located next to our 49ha Wildlife Reserve,10 minutes walk to Onetangi Beach, general stores etc. Sleeps up to 8 in two bedrooms. Lounge, well-equipped kitchen, separate toilet, bathroom, shower, laundry. Pillows, blankets provided. No pets. Ferries 35 minutes from Auckland. Enquiries with stamped addressed envelope to: Maya Spence, 16 Hobson Tce, Waiheke Island, Tel/fax: (09) 372 9333, e-mail: andyspence@xtra.co.nz

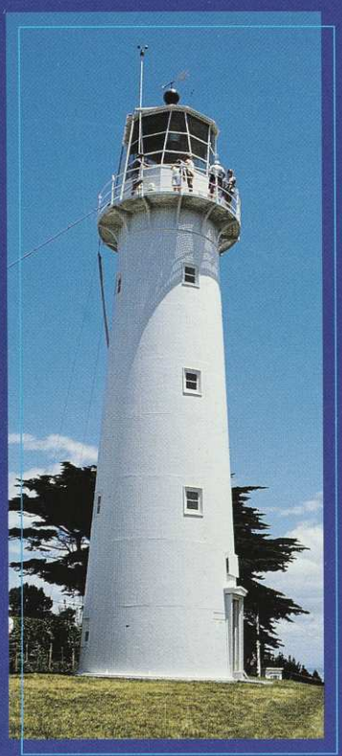
Ruapehu Lodge, Tongariro National Park
Situated 600 metres from Whakapapa Village, at the foot of Mount Ruapehu, this lodge is available for members and their friends. It may also be hired out to other compatible groups by special arrangement. It is an ideal base for tramping, skiing, botanising or visiting the hotpools at Tokaanu. The lodge holds 32 people in four bunkrooms and provides all facilities except food and bedding. Bookings and inquiries to Forest and Bird, PO Box 631, Wellington.Tel: (04) 385-7374, fax: (04) 385-7373. Email: office@wn.forest-bird.org.nz

William Hartree Memorial Lodge, Hawkes Bay
Situated 48km from Napier, 8km past Patoka on the Puketitiri Rd (sealed). The lodge is set amid a 14ha scenic reserve and close to many walks, eg: Kaweka Range, Balls Clearing, hot springs and museum. The lodge accommodates up to 15 people. It has a fully equipped kitchen including stove, refrigerator and microwave plus tile fire, hot showers. Supply your own linen, sleeping bags etc. For information and bookings please send a stamped addressed envelope to Pam and John Wuts, 15 Durham Ave, Tamatea, Napier. (06) 844-4751, email: wutsie@xtra.co.nz

Matiu/Somes Island, Wellington Harbour
Joint venture accommodation by Lower Hutt Forest and Bird with DoC. A modern family home with kitchen, 3 bedrooms, large lounge and dining room, just 20 mins sailing by ferry from the centre of Wellington or 10 mins from Days Bay. Ideal place to relax in beautiful surroundings, with accommodation for 8. Bring your own food and bedding and a torch. Smoking is banned everywhere on the island, including the house. For information sheet, send stamped addressed envelope to: Accommodation officer, PO Box 31-194, Lower Hutt. (04) 567-1686.

Tautuku Lodge
State Highway 92, Southeast Otago. Situated on Forest and Bird's 550ha Lenz Reserve 32km south of Owaka. A bush setting, and many lovely beaches nearby provide a wonderful base for exploring the Catlins. The lodge, the Coutts cabin and an A-frame sleep 10, 4 and 2 respectively. No Animals. For information and rates please send a stamped addressed envelope to the caretaker: Diana Noonan, Mirren St, Papatowai, Owaka, RD2.
Tel: (03) 415-8024, fax (03) 415-8244.
Email: dianan@clear.net.nz

tiritiri matangi



WILDLIFE BIRD ISLAND

Tiritiri Matangi

There is a special place, where the air is unbelievably fresh, the scenery gloriously rich and the birdsong closer than you've ever experienced. Let the magic of this treasured island unfold as you cruise the coastline to Tiritiri Matangi - world renowned bird sanctuary.

Embark on a guided walk and discover the honest delight of nature and rare native birds - safe in their natural habitat.

Dedicated conservationists have carefully encouraged growth back into the island creating a rich legacy for the future.

Visit Tiritiri Matangi and take home treasured memories of a very special island.

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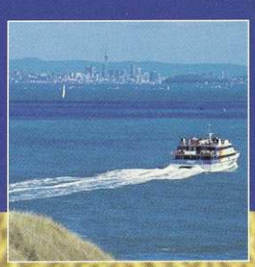

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