

FOREST & BIRD

NUMBER 313 • AUGUST 2004

Saving Our Seas



Silvereyes • Wild Pigs • Molesworth
Big South Cape Island Remembered
Tuatara Turnaround • Extinct Crows



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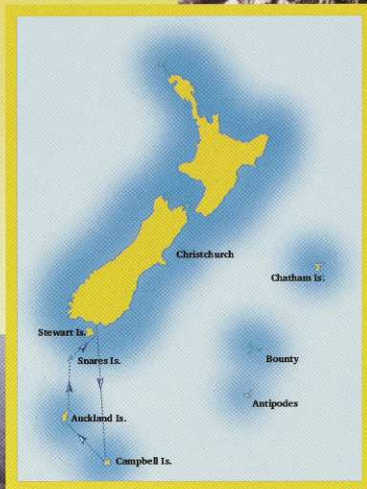
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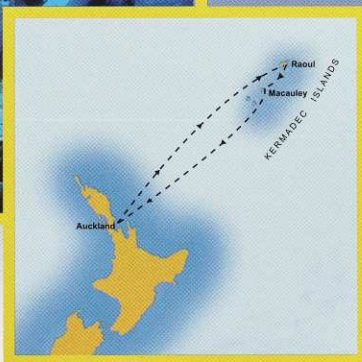
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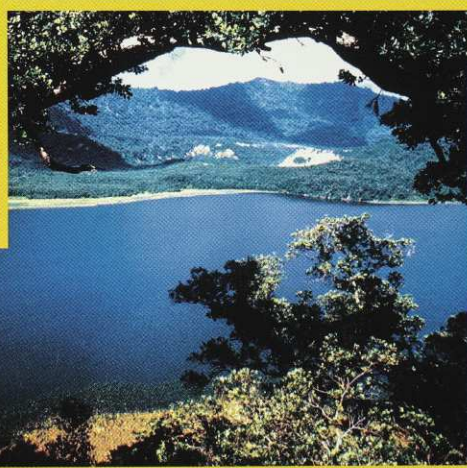
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COVER: The wandering albatross is globally threatened, see 'Blue Zealand' page 12. **PHOTOGRAPH:** Dr Roger Grace

A Bird's Eye View of Forest and Bird

Whilst attending the BirdLife Partnership Meeting in Durban, I was asked on several occasions to explain how Forest and Bird is structured. On returning, I discussed this with a number of people and believe it would be useful to explain this to members as well. Doing so will highlight some of the people within the 'central office' — the staff who keep the wheels of the Society so well oiled. So here goes....

Membership of Forest and Bird is organised into 54 geographically-based Branches so that the whole country is covered. Branches deal with conservation issues within their areas; they organise field excursions and meetings on a range of subjects; and make submissions and other contributions to local, regional and national legislation — to district and regional plans, resource consent applications, park management plans and on a host of other issues.

Some of these branches have their own Sections set up to encompass communities and deal with local issues in discrete areas. Branches nominate one (or two in branches with large membership) Councillor(s) to represent them on the National Council of the Society. This Council is responsible for development and approval of the Society's policy. It meets twice a year. Both informally and through workshops and meetings, delegates discuss a range of issues and forward remits for work to be undertaken by the Society's staff. The Council elects an Executive Committee (President, Deputy President, Treasurer and up to 10 members) responsible for the governance and supervision of the business of the Society, and reporting back to the Council at its bi-annual meetings.

Forest and Bird now has 16 staff members. These are arranged into an administration team, with Niki Francis as general manager, and a conservation team, with Kevin Hackwell as conservation manager. Space does not permit me to feature the whole staff here, but I hope the following three profiles will start a process of recognising the contribution these staff make to the Society — my apologies to those who missed out but I hope to introduce others in future journals.

Sarah Crawford is our membership database administrator — Sarah deals with all the routine work of subscription renewal and donations and producing monthly branch membership statistics and the annual Society directory. Sarah says, '...there are a lot of things I enjoy about the job. The sheer size and complexity of membership and the database mean that the job is constantly challenging and stimulating.... I really enjoy the contact with the branches and with the members... I also really enjoy working for an organisation which is contributing something really positive to society and which is so far-reaching in its goals.'

Geoff Keey has two roles. He works as a communications officer, assisting other staff to get conservation stories into the media and helping to ensure that Forest and Bird's voice is heard by decision-makers. He is also the biosecurity awareness officer, promoting better protection for our native plants and animals from exotic pests and diseases. His biosecurity work varies from making submissions on trade negotiations, to campaigning for better border biosecurity, and promoting increased protection of our biodiversity from the devastation

wrought by rats, stoats and possums.

Geoff says: 'I get really excited when I see members talking about conservation in the media... Our public profile is very important and the more we do to build a positive public profile for Forest and Bird, the more we build support for conservation in New Zealand.' In his spare time, Geoff can be found tramping in our mountains or paddling on Wellington Harbour.

Tracy Hinton is our assistant accountant dealing with the routine financial side of things — paying invoices, wages and capitation payments to branches, filing IRD returns and completing the Year End financial accounts. This includes looking after the Threatened Species accounts. She also looks after the Society's Ruapehu Lodge — taking bookings and arranging for maintenance of the Lodge. Tracy says 'Although I enjoy doing accounts, Ruapehu Lodge gives me a good variety and makes sure my job doesn't get too monotonous.' Part of Tracy's spare time is spent sharing her husband's hobby of miniature trains.

In finishing, I would like to include a vote of thanks to Coralie Urwin, who has undertaken a range of administrative tasks as assistant to our General Manager, including the organisation of the Council meetings and work developing the website. She is leaving Forest and Bird to pursue her work interest in website administration — thank you Coralie.

And welcome to Janice Baxendale, who has extensive experience as a personal assistant in the creative arts sector, and enjoys working with Forest and Bird as an organisation with a cause.

— PETER MADDISON
Deputy President

Royal Forest and Bird Protection Society of New Zealand Inc. (Founded 1923)

Registered Office at 172 Taranaki Street, Wellington.

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Mailbag

Forest & Bird welcomes brief comments or criticisms about items or issues in the magazine. We reserve the right to edit letters for length. The deadline for our November issue is August 31, 2004.

Kaitorete Spit

The article on Kaitorete Spit (*Forest & Bird* November 2003) describes it as a 'forgotten corner of Canterbury'. It reflects badly on land management authorities in Canterbury that one of the most significant dune areas in New Zealand has been allowed to go unprotected for so long.

During 1972 and 1973 I spent many hundreds of hours studying the plant ecology of the Spit for my MSc thesis, in which I pointed out the uniqueness of the area — its extreme aridity, unusually coarse sand, and the special nature of its indigenous flora, including species endemic to Kaitorete, and emphasised the vulnerability of this vegetation to the impact of grazing and vehicles. I tried many times to persuade the Department of Lands and Survey and subsequently the Department of Conservation to protect this dune area. Although two small

scientific reserves were eventually gazetted, even these areas have continued to suffer damage.

Having been resident in Marlborough since 1975, I had hoped that others would continue the battle for protection of the natural values of Kaitorete Spit. Now in my 81st year, I am wondering whether I will live to see this area receive the conservation it deserves.

— MARGARET PEACE
Distinguished Life Member

Eeling Contests

I was surprised that no mention was made of children's eeling competitions in the article 'The Disappearing of Eels', *Forest & Bird*, May 2004. It saddens me how often one reads that there is an eeling competition for children running alongside fishing competitions for their elders. Later, a picture might appear in the local paper of rows of eels caught, and apparently

wasted, by the children. I have written letters of protest several times to organisers of these events, but, not surprisingly, have never received a reply.

Surely it is time that the eel became a fully protected species, along with other native animals. They are no less precious than other freshwater fish, and should be given protection.

— TINA MORGAN
Upper Coromandel

Silly Mistake

I always look forward to *Forest & Bird* magazine because I like the articles and the photographs and it's always interesting. However, in the May 2004 issue, on page 6, there is an error in the caption of the photo of Archey's frog which is an amphibian NOT a reptile. I guess someone had some momentary confusion!

— DR JOAN SUCKLING
North Shore

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Lilian Valder Awards 2004

The Waikato Branch of *Forest and Bird* has a sum of money to be distributed each year to help groups or individuals with projects aimed at conservation.

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New Wildlife Sanctuaries in Fiordland

A \$7 million project to create two giant island sanctuaries for wildlife in Fiordland has been announced by the Government. It is expected to take eight years to transform Secretary Island off Doubtful Sound and Resolution Island off Dusky Sound into safe havens for endangered wildlife.

At 20,860 hectares, Resolution Island is 10 times larger than any other island sanctuary around our immediate coastline. Secretary Island is around four times larger than the other sanctuaries, at 8140 hectares.

'By restoring Secretary and Resolution, we are writing New Zealand an insurance policy against the extinction of signature species,' according to



GORDON ELL, BUSH FILMS

Two large islands in Fiordland are to be managed as wildlife sanctuaries with invasive pests eradicated. Deep waterways separate Resolution (above right) and Secretary islands from the Fiordland coast but reinvasion by pests from the mainland will be a major challenge.

the Minister of Conservation, Hon. Chris Carter. 'Their size, and the terrain of Secretary which rises to 1196 metres, offers a critically important opportunity to nurture larger

and more diverse populations of native wildlife than can possibly be accommodated on island sanctuaries at present.

'Resolution Island is so big that it may enable us to locate the endangered whio (blue duck) on an island sanctuary for the first time. Until now all of our existing island sanctuaries have lacked the large river systems necessary to support a whio population.

The islands are already populated by species such as the Fiordland crested penguin, New Zealand falcon, western weka, kaka and kea, but they also have the potential to become homes for the threatened kakapo, mohua (yellowhead), rock wren and robin.

The restoration of Secretary and Resolution will cost \$7 million with annual maintenance costs of up to \$1 million. It will involve two enormous pest-control programmes, among the biggest the Department of Conservation has ever attempted.

Resolution Island is populated by mice, deer and stoats, and there is a historical record of rats. Secretary Island is also populated by stoats and deer but has never had rats.

'Pest control on both islands will either seek to eradicate these pest species completely or control them to very low numbers where they do not impact on native species,' Chris Carter said. 'Because of the scale of this project, we are going to start with Secretary first, as the smaller of the two islands. Lessons learned on Secretary will then be applied to Resolution Island.

'The biggest challenge in the project is not how to eradicate the pests but how to keep them from reinvading from the mainland,' Chris Carter said.

'This is the kind of bold initiative Forest and Bird wants to see the Department of Conservation doing and is great news for New Zealand's native birds,' according to Forest and Bird's conservation manager, Kevin Hackwell.

'Long term, the challenge is to restore wildlife on the mainland, but restoring wildlife on Secretary and Resolution islands is a bold step along the way. These two islands will add to a list of important island sanctuaries including Little Barrier, Kapiti, Maud, Codfish/Whenua Hou and our subantarctic islands.'

Congratulations to the winners of the 2004 Green Ribbon Awards

Caring for the urban environment

Winner: Dr Alwyn Seeley

Caring for the rural environment

Winner: Banks Peninsula Conservation Trust

Caring for our biodiversity

Joint Winners: Hugh Willis and Te Rangatahi o te Whenua Trust

Raising awareness of environmental issues

Winner: Nelson City Council and Tasman District Council – Ecofest

Excellence in community action for the environment

Joint Winners: Waitohu Stream Care Group and Rakiura Resource Recovery Centre and Stewart Island Community

Caring for our water – fresh and sea water

Joint Winners: John Scott and Transit New Zealand/Fulton Hogan/Opus International Consultants

Sustainable business

Winner: Dave Kellian

Young people making a difference

Joint Winners: Lincoln High School and Eilidh Bocker



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Kaikoura Island to be Protected and Restored

Kaikoura Island in the outer Hauraki Gulf is to be protected, restored and used as an area for the environmental education of New Zealand youth. In May, the Minister of Conservation, Hon. Chris Carter, announced a joint-venture deal to buy Kaikoura for \$10.5 million by combining resources from the Government's Nature Heritage Fund, ASB Trusts, the Auckland Regional Council, and Auckland's territorial authorities.

At 564 hectares, Kaikoura is the seventh largest island in the Hauraki Gulf. Despite being highly modified, it has regenerating native bush, notably manuka and kanuka

with a significant stand of large ngaio on its eastern coast. The island is fringed by stands of pohutakawa, and some spectacular rocky outcrops and attractive beaches.

Native pigeon, kaka, morepork and kingfisher are found on the island, and should increase once pest populations, such as deer and pigs, are eradicated.

Mr Carter says the island will be protected as public land under the Reserves Act, although it would be managed by a trust representative of organisations which contributed to its purchase.

'My hope is that Kaikoura Island will be a place where all of Auckland's communities can

work side by side to restore a flourishing natural environment, as has occurred on another gulf island, Tiritiri Matangi,' Mr Carter says. 'The ASB Trusts have a vision of using Kaikoura as a centre for outdoor and environmental education of young people, and I heartily endorse that.'

The Government, through the Nature Heritage Fund, is paying at least \$6 million. ASB community trusts will contribute \$2 million, and will lift this if the local authorities of the Auckland region also contribute. The Auckland Regional Council has already made a firm commitment of \$250,000. Until the territorial authorities have decided what

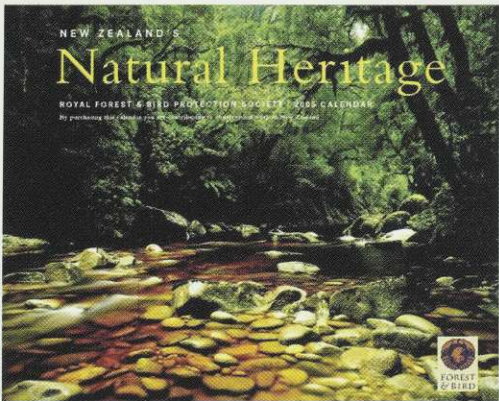
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Kaikoura Island lies in the entrance to Port Fitzroy on the northeast coast of Great Barrier Island, in the Hauraki Gulf. The island has been purchased in a joint-venture deal led by the Government and is to be used for environmental education and conservation.

they will contribute, the Government has underwritten the difference. After two months, only Auckland City had made a commitment — of \$83,000.

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Kokako and Kiwi Restored to Mount Bruce

Mount Bruce/Pukaha Forest is the last remaining pocket of a formerly massive belt of bush in the lower North Island, alive then with innumerable birds. The forest was one of the last strongholds of the huia; but other birds were also lost as it was felled, and kokako and kiwi became locally extinct.

Over the past two years, however, the Mount Bruce National Wildlife Centre, in conjunction with other conservation organisations — including Forest and Bird — and the local community, has carried out a major pest-control operation in the 942-hectare forest. Many kilometres of track have been cut, and poisoning and trapping have been used to remove over 1500 possums, almost 4000 rats and over 150 stoats, weasels and ferrets, along

with numerous hedgehogs and mice. The project's goal is 'to restore the forest so that our native birds can be set free to breed in the wild . . . back where they belong'. That goal is now beginning to be realised.

Six kokako, taken from the Pureora Forest Park, were released into the Mount Bruce Forest in July and August 2003. Four more were released this year. Returning kokako to the lower North Island was a great achievement in itself, but in January 2004, whilst tracking birds fitted with transmitters, a nest with two kokako chicks was discovered.

Breeding success so early has exceeded all expectations. The chicks have now been successfully fledged and plans for the future involve the eventual release of five pairs of kokako into the forest.

Another sign of the success of the pest-control programme was the release of six North Island brown kiwi in December 2003. The kiwi were 'captive-bred' at the Willowbank Wildlife Reserve in Christchurch. One of the birds drowned when 118 millimetres of rain fell in one day in February, but the remaining birds are doing well. The plan is eventually to release 10 pairs of birds into the forest.

As well as the recent release of

kokako and kiwi, other birds found in the forest include tui, bellbird, rifleman, grey warbler, whitehead and fantail. Kaka have also been breeding in the forest for a number of years.

Fund-raising for the restoration project has been aided by individuals and organisations each sponsoring a hectare of the forest for \$25 a year, and all hectares are now subscribed.

— JASON ELSWORTH



Kokako aviary, Mount Bruce National Wildlife Centre. Birds from this aviary were released into the forest in May.

JASON ELSWORTH



Kaka nest box erected in Pukaha/Mount Bruce Forest, by the National Wildlife Centre.

JASON ELSWORTH



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Major High-Country Reserve Established in Mid Canterbury

The Nature Heritage Fund has purchased some 10,000 hectares of Clent Hills high-country station, in the inland Ashburton district, in partnership with three adjacent high-country farmers. The arrangement will ensure that land with conservation values is protected while the cultivated flats and terraces can be managed as farm land.

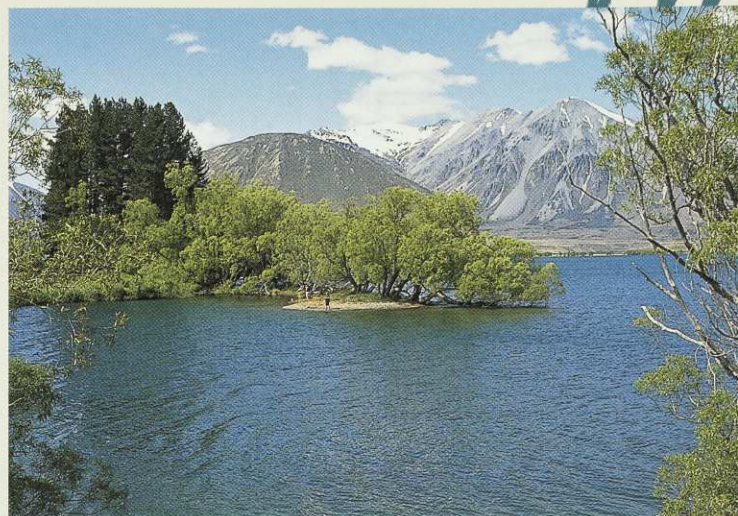
Strategically, the new reserve links with a number of other public conservation areas, enabling a large conservation park to be established, extending from the foothills of the Canterbury Plains through to the Main Divide of the Southern Alps.

The area is in the Lake Heron

basin, an area previously featured in detail in *Forest & Bird*. A number of small lakes and tarns are located in this landscape with Lake Heron as the centrepiece.

Clent Hills extends from the shores of Lake Heron, and includes low flats, terraces, fans, tarns and prominent low hills, dominated by the rugged Taylor and Mount Somers ranges. This sequence of land systems will protect the biodiversity of the Lake Heron basin from 691 metres to Mt Taylor at 2333 metres.

The areas being protected include a vital buffer zone around the Lake Heron Nature Reserve, which is one of the most important unmodified



GORDON ELL, BUSH FILMS

The 10,000-hectare Clent Hills reserve surrounds the Lake Heron Nature Reserve in the Ashburton high country. The lake is home to 99 of the remaining 270 southern crested grebe.

lake/wetland complexes remaining in the South Island. It is home to New Zealand's largest remaining population of the endangered southern crested grebe, which is restricted to the South Island and totals only 270 adult birds. A national grebe survey in January found 99 adults on Lake Heron.

The purchase will be

managed by the Department of Conservation. Access to the area is from Mt Somers on the edge of the Canterbury Plains, and up the Ashburton Gorge by the Lake Heron road which runs along the edge of the new reserve. A variety of recreational opportunities will be available including fishing, birdwatching, tramping and mountain biking.



my point of view



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New Marine Reserve at Stewart Island

After 13 years of advocacy by conservationists and community interests a new marine reserve is to be created in Paterson Inlet, Stewart Island. The reserve will be centred on Ulva Island and stretches over 1075 hectares along 12 kilometres of coastline in the heart of Paterson Inlet.

Much of the new marine reserve is bordered by national park land.

The remaining 9000 hectares of the inlet (which is close to the island's settlement of Oban) is to form part of a new mataitai reserve under the Fisheries Act. The mataitai is a provision for a Maori-managed fishing reserve, established with community consultation, to ensure sustainable fishing around the marine reserve.

'This marine reserve is

deserved recognition for a special area of significant marine habitats,' says Margaret Hopkins of Stewart Island, a sometime Forest and Bird councillor and member of the Southland Conservation Board when the idea was first mooted.

'It is really appropriate that this marine reserve lies adjacent to Ulva Island, an amazingly special, pest-free sanctuary. Both the marine and terrestrial habitats encompassed within these areas are a reminder to us all of what the world was once like. It is disappointing, however, that the marine reserve shrank with each round of consultation.

'To this day there are accusations about lack of consultation and a failure to take into consideration the objections that people have had,



GORDON ELL, BUSH FILMS

Paterson Inlet on Stewart Island lies close to the settlement of Oban. After 13 years of discussion, 1057 hectares centred on Ulva Island have been made into a marine reserve. Another 9000 hectares are now controlled by a mataitai reserve under Maori fisheries regulations.

but I think we have gone too far in that respect and ended up with a much diminished reserve that may struggle to be viable.

However, it is an achievement that we have reached this stage and the marine reserve in conjunction with the mataitai will ensure a high degree of marine protection for a very accessible area,' she says.

The Minister of Conservation, Hon. Chris Carter, sees the new marine reserve as 'a very exciting development in marine conservation'.

'Paterson Inlet's crystal-clear waters are a treasure chest of marine life,' he says. 'More than 270 seaweed species have been found there. Five species of marine mammals visit the inlet, including rare leopard seals and southern right whales. There are 57 species of fish, and 50 species of bird found in the reserve area.

'Most importantly, Paterson Inlet is one of only a few sites in the world where four species of primitive shellfish, called brachiopods or lamp shells, live

on the seabed at depths which visitors to the area can dive to,' Mr Carter says.

'Lamp shells are quite literally living fossils. They date back 600 million years and have hardly changed in that time. That such a substantial population of these shellfish remains in our waters is just one example of the remarkable marine bounty New Zealand is fortunate enough to have.

'Unfortunately, our efforts in marine conservation have lagged well behind our efforts to permanently protect land-based species. If we added together all the marine reserves we have around mainland New Zealand, they cover an area smaller than the smallest of our 14 national parks, even though our marine area is 15 times larger than our land area.

'New Zealand has a lot of work to do in marine conservation, and the Paterson Inlet initiative is an important step forward,' Mr Carter says. 'I congratulate the local Stewart Island community for their role in achieving it.'

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Marine Reserves Proposed in North

A new marine reserve is proposed by the Department of Conservation for the Mimiwhangata Peninsula, between Whangarei and the Bay of Islands in Northland. Although designated a marine park in 1984, fisheries regulations still allowed selective recreational fishing and shellfish gathering within the park.

There are some indications that some species may be in a worse state than in 1980, reports marine advocate and biologist Vince Kerr, who co-ordinated the biological investigation for DoC.

In July, the Department of Conservation floated a community discussion document that provides the public with information and asks for consideration, comment and participation. Copies of the discussion document can be obtained from the Department of Conservation Northland, PO Box 842, Whangarei, phone 09 459 7942 or email mimiwhangata@doc.govt.nz

An electronic version of

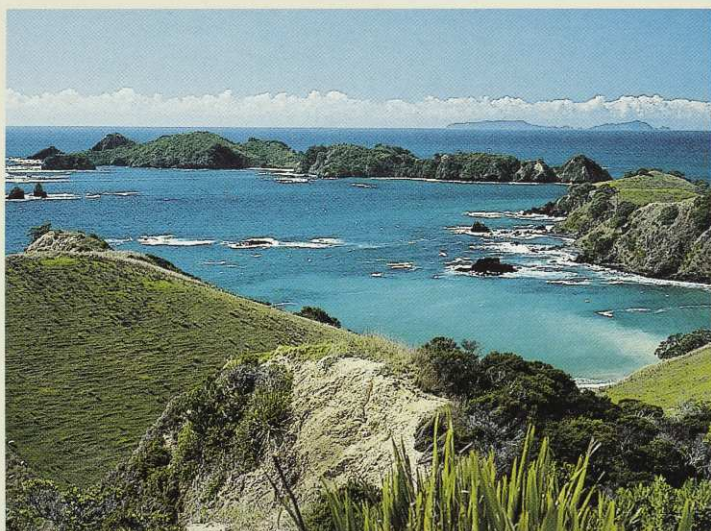
the discussion document can be viewed at www.forest-bird.org.nz

Please send all submissions to DoC Northland by October 12, 2004.

As we go to press, the Department of Conservation is also due to notify its application for a marine reserve at Great Barrier Island during July. DoC aired its plans for a large marine reserve off the northeast coast of Great Barrier Island last year. (See *Forest & Bird* magazine, August 2003.)

The proposal has since been modified (the Whangapoua Estuary is no longer included) but the area still covers a diverse mix of marine habitats, from rocky shores to offshore coral and sponge-encrusted deep reefs.

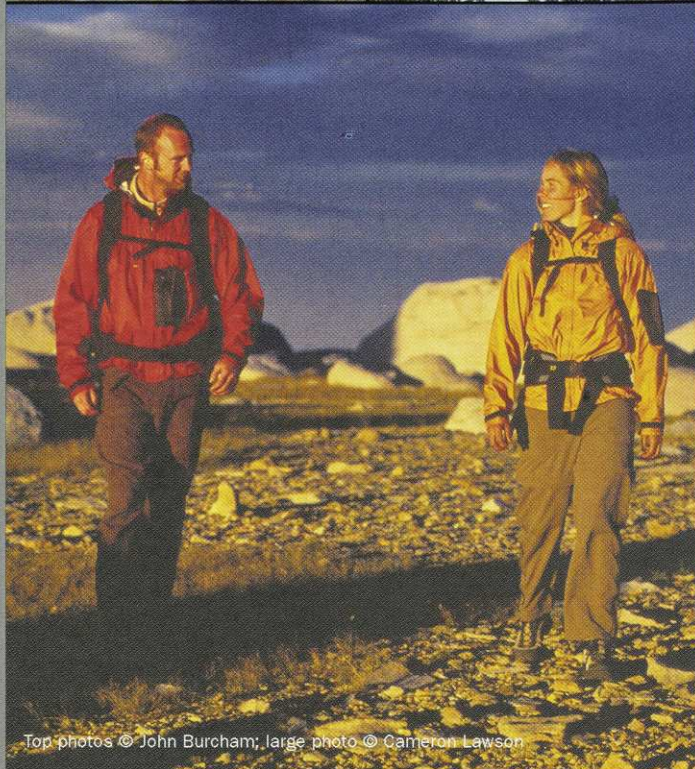
People have two months from notification to make their submission in support or opposition. The Minister of Conservation will consider these in his decision on the marine reserve. For further details see www.doc.govt.nz



A marine park declared in 1984 off the Mimiwhangata farm park in Northland has failed to protect sealife. Recreational fishing, allowed in a marine park, is blamed for the deterioration. The Department of Conservation is now proposing a proper marine reserve and is calling for public submissions.

JOHN GARDINER

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A Future for Coastal Herbfields

Rare and endangered coastal herbs continue to be found on the shores of Taranaki. The latest discovery is *Lepidium flexicaule*, a vulnerable coastal cress native to the northwest Nelson coast and southern Australia.

Until last year, it had been found just eight times in the North Island – first in 1769, and most recently in 1934 — and never in Taranaki.

This *Lepidium* is a delicate creature that grows in small colonies, often in the company of ‘weeds’ — the introduced Cape daisy, plantain and a native groundsel. Certainly no one expected to stumble across it in a coastal herb field at Stent Road, a south Taranaki beach more famous locally for its surf break than its botanical treasures.

A scientist from Dunedin, Geoff Rogers of the Department of Conservation, found it while visiting there. The rare plant grew with *Zoysia*, a dwarf native grass which grows in dense mats, and a keystone species in the development and survival of herb fields.

The biodiversity ranger for DoC in Stratford, Jim Clarkson, who was one of the first contacted by Geoff Rogers about the discovery, believes the relatively large size of *Lepidium flexicaule* may, ironically, have

helped it to avoid earlier detection.

‘When we go to herb fields, we all think small,’ he says. ‘We’re looking for tiny plants.’ He believes the relatively bulky *Lepidium* was too big to be noticed.

The Stent Road *Lepidium* population is on the seaward lip of the coastal platform, where the cress prospers in luxurious clumps of Cape daisy. There are six main clumps of plants, with about 20-30 individuals in total.

The site has been degraded by dairy farming, but — more irony — there is speculation that boosted fertility from nitrogen-rich cow-pats may have played a part in the survival of the *Lepidium* colony.

So, invasive though cattle can be, the villain of the piece is not the dairy cow, but its diet — exotic pasture grass.

‘In Taranaki, it’s a case of farm to the coast as much as you can, and a lot of places you go you’ll get exotic grasses and weeds growing right to that coastal edge,’ says Jim Clarkson. ‘Natural cover survives only where you’ve got the influence of weather, the salt spray and high winds — that trims the exotics back and leaves the native herb fields alone.’

This exposure, combines with thin soils, lack of shelter and



HAL WILLIAMS

A close look at the plant at the centre of the mystery, *Lepidium flexicaule* recently discovered in a south Taranaki herb field.

cattle trampling and causes topsoil to erode back to rock, gravel or compact tephra and lahar deposits. This makes for too hostile a place for most exotic species to establish, according to Colin Ogle, formerly a DoC conservancy scientist and now a part-time consultant. *Zoysia* grass and other specialised natives can cope with this, however.

Even with the knowledge of the dangers of overstocking, introduced pasture grasses and weeds, there are contradictions which highlight the dilemma of how best to manage herb fields.

‘With grazing, the hooves of cattle break up the turf plants, and grazing animals do create space for plants to come in on the bare ground,’ says Colin Ogle, ‘but they also bring in weeds, whose growth is enhanced by raised fertility.

‘If you fence it off, the weeds do even better, because they’re not being grazed any more, and they invade the turf mats. It’s a Catch-22 situation,’ he says. ‘If you don’t fence [the herbs] deteriorate, and if you do fence, they deteriorate. I think at present, for a lot of these sites

low-level grazing is preferable to no grazing, and sheep are preferable to cattle.’

‘As soon as a boundary is erected, you’ve got to go in there with hands-on management,’ says Jim Clarkson, ‘you’ve actually got to start hand-weeding and other things to keep those exotic grasses at bay.’

At present, most of Taranaki’s herb fields lie on private land and have no DoC protection in terms of legislation. DoC works to educate farmers on the dangers of overgrazing, however.

Lepidium isn’t the only plant deserving of attention. Other special species in Taranaki include the dwarf buttercup, *Ranunculus recens* (which grows at only one site in the region); a tiny, unnamed species of native carrot *Oreomyrrhis* ‘minutiflora’; and the pygmy forget-me-not *Mysotis pygmaea* variety ‘minutiflora’.

A national Coastal Cress Recovery group is now devising suitable policies and tactics to ensure the continued survival of plants like *Lepidium flexicaule* and another relative, Cook’s scurvy grass *L. oleraceum*.

— HAL WILLIAMS



HAL WILLIAMS

Coastal herb field on southern Taranaki coast. Conservation scientists and technical officers survey the Stent Road site for populations of rare coastal cress and other coastal herbs.



Forest and Bird Joining BirdLife International

Forest and Bird is to upgrade its membership in the international conservation organisation BirdLife International to that of a full partner. The organisation is an association of some 66 national bodies working in a worldwide partnership to protect the world's birds and their habitats.

For some years, Forest and Bird has been affiliated to BirdLife International, and its predecessor the International Council for Bird Protection. Forest and Bird's role is seen as a key one, protecting birds in the southwest Pacific and Antarctic regions, and the Society has been taking an increasingly active role in this advocacy, internationally.

Forest and Bird's deputy national president, Dr Peter



Forest and Bird is negotiating to become the New Zealand partner in BirdLife International.

Maddison, recently attended a meeting in Durban, South Africa, marking 10 years of global conservation action by BirdLife International.

'The focus of the meeting was on the challenges and opportunities facing all of us in the conservation of birds and their environments, while sustaining people's livelihoods,' Peter Maddison writes. 'Despite the meeting being initially faced with the doom and gloom of the perilous state of the world's

birds — with the grim statistic of 300,000 seabirds being killed annually, for example — the meeting was upbeat about the growing and huge support for bird conservation, and the growing involvement of communities in restoration and protection projects.

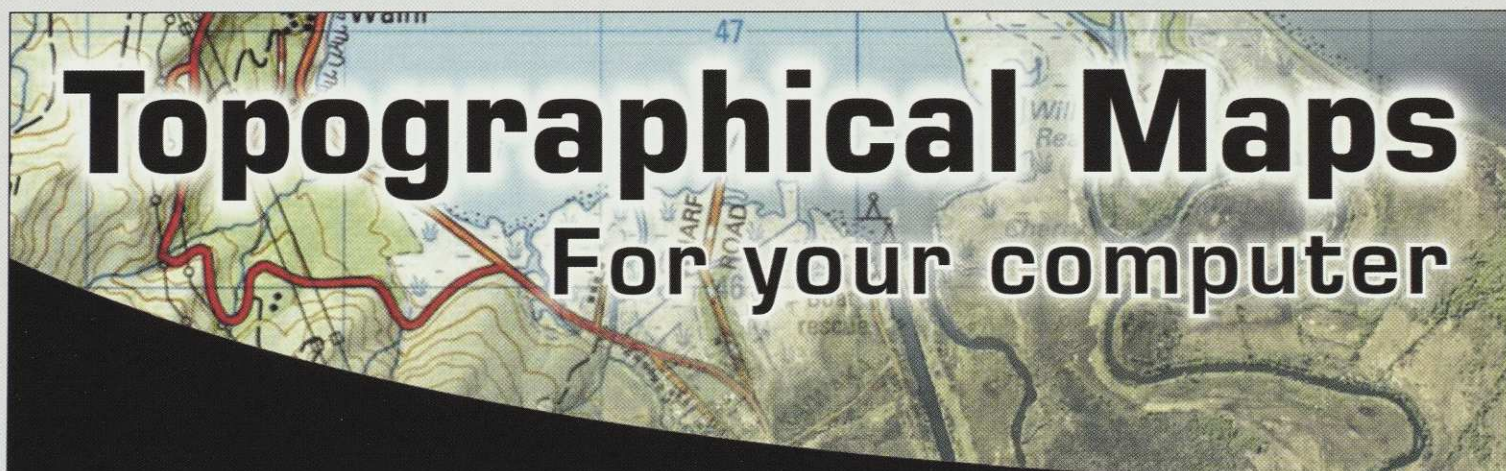
'New Zealand has a ranking high in the list of countries with endangered species (27 in all, including our subantarctic territories),' Peter Maddison says. The six days of meetings included presentations, seminars and workshops on 'Important Bird Area Conservation', 'The Challenges of Achieving Sustainability', 'Saving the World's Threatened Seabirds', 'Climate Change and Bird Conservation', 'Saving Threatened Species from Extinction' and 'Achieving

Sustainable Financing and Conservation Campaigning'.

At the conference, Peter Maddison presented papers on Forest and Bird's role in BirdLife International's 'Albatross and Petrel Campaign' (by Barry Weeber) and on the Kiwi Conservation Club (Ann Graeme and Carol Knutson).

Launched at the meeting was a compact disc giving details of the conservation status of all the world's birds. This information is also available on BirdLife's web site, www.birdlife.org

On his return, Peter Maddison recommended to the national executive that Forest and Bird upgrade its membership status in BirdLife from Affiliate to Partner Designate, a probationary status covering the year or so while formal arrangements are made.



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'BLUE ZEALAND'

The World Beneath Our Waves

MICHAEL SZABO and BARRY WEEBER explain why Forest and Bird wants to save our seas.

It has been said New Zealand's 'out of this world' wildlife and wild places are the nearest thing on Earth to life on another planet. It is little wonder that our southern beech forests and ponga groves were used to such great effect as some of the settings for the BBC television series *Walking with Dinosaurs*. Our unique wildlife includes

large flightless birds such as the kiwi, takahe and kakapo found nowhere else on Earth, as well as the prehistoric tuatara, giant weta, and the world's only mountain parrot, the kea.

But this is not even half the picture. More than 80 percent of our wild places and wildlife are found in the marine environment. This is 'Blue Zealand', where most of the country's unique biodiversity is found. At 4.8 million square kilometres, New Zealand's Exclusive Economic Zone (EEZ) is the fourth largest in the world. 'Blue Zealand' itself is 15 times larger than the terrestrial parts of New Zealand.

'Blue Zealand' is also a submerged continent — a world beneath the waves — spreading from the subtropical habitats of the Kermadec Islands to the north through

Grey petrel make up more than a quarter of seabirds killed in the New Zealand fishery. A circumpolar bird of the subantarctic, the New Zealand population breeds at the Auckland and Campbell islands. Following fishing vessels, as they discharge offal, the petrels get hooked on long-lines set for tuna and ling.

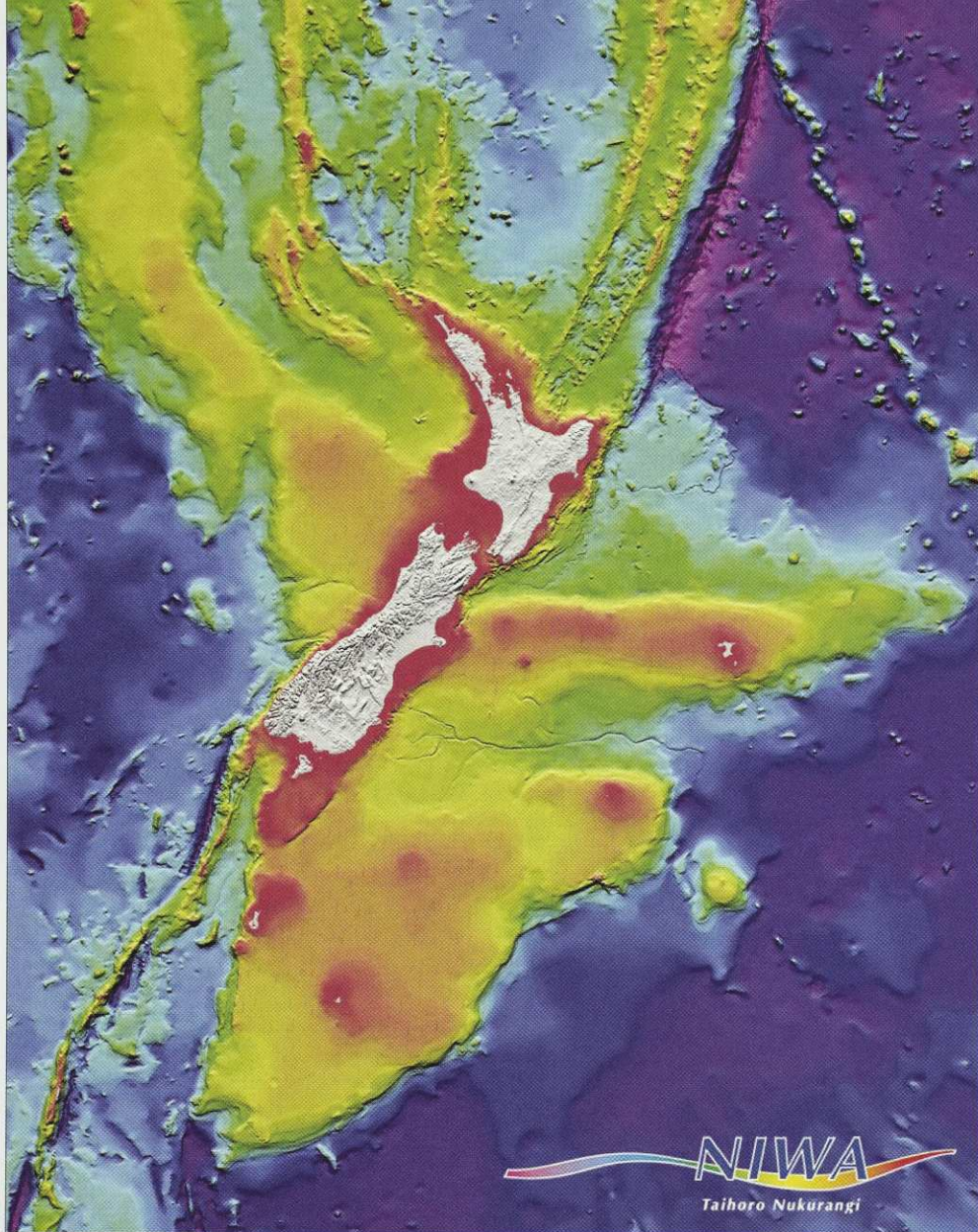
BRENT STEPHENSON

New Zealand's huge underwater territory has been dubbed 'Blue Zealand' in a campaign to save our marine world from destructive fishing practices. Unsustainable commercial fishing over-exploits too many fish stocks, while often killing other wildlife, particularly birds and seals, and damaging underwater habitats. Forest and Bird's latest marine campaign focusses on helping consumers select fish products which are taken with least damage to that environment.



GREENPEACE/GRACE

The New Zealand vessel Ocean Reward bottom trawling for orange roughy over a seamount on the New Zealand continental shelf. Deep-water fishing was pioneered in New Zealand seas. This photograph was taken outside our territorial limits by a Greenpeace expedition.



New Zealand's Exclusive Economic Zone extends 200 nautical miles from any of our islands, covering some 4.8 million square kilometres. This vast area is the extent of fisheries governed by our fishing quota management system. It still does not encompass the area of our continental shelf, coloured yellow in this map from the National Institute of Water and Atmosphere. Governments worldwide are currently investigating the possibility of extending national waters to cover the continental shelf.

live around 'Blue Zealand'. Thirteen of the 16 species in the world occur here, including the world's smallest penguin, the little blue; and the world's rarest penguin, the endangered yellow-eyed penguin or hoiho, which forage up to 60 kilometres offshore and dive to depths of 160 metres.

'Blue Zealand' also has an incredible variety of marine fish and invertebrates. Two of the largest fish in the world occur in our waters — the globally vulnerable whale shark and the basking shark that reach up to 14 metres long. In comparison, the tiny triplefins and blennies are less than five centimetres long. Last year a new invertebrate species, dubbed the colossal squid, was found in the Ross Sea, south of the subantarctic islands. The specimen was a juvenile, but the adults are thought to reach up to 18 metres long.

Amongst our most exotic-looking fish are splendid perch, blue and pink maomao, and multicoloured Sanddagger's wrasse. As for the weirdest, take your pick from the black sea dragon — festooned with bioluminescent light organs — the eccentric goblin shark, or the aptly named black swallower.

an archipelago of subantarctic islands to the south. Even the inshore habitats vary, through mangrove forests, seagrass beds, warm-water corals and temperate rocky reefs, to colourful sponge gardens that bask in the sun. Further out lie submerged volcanic seamounts adorned with ancient coral forests, standing above vast plateau seascapes carved with meandering 160-kilometre channels and deep-sea canyons. Another reason, no doubt, why the BBC filmed parts of its Blue Planet series here as well.

The superlatives that distinguish our islands extend to our oceans. Almost half the world's 84 species of whales and dolphins occur in 'Blue Zealand', including the world's rarest and smallest marine dolphin — the endangered Hector's dolphin — and the even rarer Maui's dolphin subspecies. We have the world's largest dolphin species — the whale-sized orca — and the world's largest toothed predator, the sperm whale, and the world's largest animal, the blue whale. We also have the world's rarest sea lion, the globally threatened New Zealand or Hooker's sea lion.

Our islands also rank as the seabird capital of the world, with more seabird species breeding here than in any other country. For example, 14 of the 24 species of albatrosses breed on our islands. Our seabirds range

from the tiny storm and diving petrels around the size of a blackbird, to the majestic wandering and royal albatrosses with their three-metre wingspans which make them the largest flying birds in the world. They are also among the rarest.

Then there are the various penguins that



By-catch of non-target fish and crustacea, including starfish, caught during bottom trawling for orange roughy over a seamount on New Zealand's continental shelf. The picture was taken by a Greenpeace expedition, close to New Zealand's Exclusive Economic Zone in June this year.

The oldest of our fish is the humble orange roughy, which can live for 150 years. The prize for fastest fish goes to the critically endangered southern bluefin tuna – which grows up to 2.2 metres and 180 kilograms and can reach speeds of up to 90 kilometres per hour.

All five of the Pacific's endangered marine turtle species occur in New Zealand waters. The largest is the leatherback which ventures as far south as Foveaux Strait; it can reach three metres in length and weigh up to 700 kilograms.

Marine biologists have only recently started to unravel the deep secrets of 'Blue Zealand' and what they're finding is changing the way we view the ocean depths. According to Peter Batson, author of the recently published *Deep New Zealand*, new species from our deepest waters are being discovered at a rate of about one per fortnight, many around underwater seamounts. (See *Forest & Bird*, November 2003.)

Seamounts are submerged volcanic mountains, ridges and hills that rise from the sea floor but do not break the surface. They can reach several kilometres in height from the sea floor and can have particularly lush fauna because of the nutrient-rich 'upwellings' in the water around them.

These 'oases of life' allow some species to grow to unusual sizes. One species of black coral reaches two storeys high. Hard coral trees of one bright pink *Paragorgia* species can grow even taller. Some of these coral 'forests of the deep' can live for centuries.

We have all heard about the diversity of life in tropical rainforests and around tropical coral reefs. Studies now indicate there is even

more biodiversity amongst deep cold-water coral forests. The top predator here is the sperm whale, which dives down over a kilometre to feed on giant squid and fish species including orange roughy.

It is here the environmental cost of seafood begins its impact. Most of us assume that if a fish is commercially caught it must come from a well-managed, healthy and abundant fishery. But sadly this is not necessarily the case. The fishing methods used and the intensity of exploitation have hidden costs for the marine environment which are affecting the abundance and diversity of all marine life. Sadly, some species could be wiped out before they are even described by scientists.

The seas around New Zealand are being industrialised. Every year more than 2000 local and foreign commercial vessels catch over 600,000 tonnes of fish in our waters. They do this by setting 50 million hooks and 10,000 kilometres of nets, making over 100,000 trawls and 90,000 dredge tows. This adds up to industrial-scale pressures on marine fish and the wider marine environment. As a result, destructive fishing methods such as bottom trawling and the sheer intensity of exploitation have taken their toll on 'Blue Zealand's' marine environment, reducing the abundance and diversity of life, particularly in deeper waters.

It is the orange roughy fishery that has helped New Zealand become the deep water fishing capital of the world. Despite the use of 'high-tech' fishing gear and the complex quota management system, almost all orange roughy fisheries are down to below 20

percent of their original unfished population — in the worst case below three percent. Two fisheries, Challenger and Puysegur, are now closed.

After orange roughy was commercially 'discovered' in the late 1970s, quotas and catches shot up from a few thousand tonnes in the 1979-80 fishing season to a peak of 56,000 tonnes in 1988-89. By 1995-96, orange roughy had been so badly overfished that the catch had to be reduced to below 17,000 tonnes, with about 70 percent coming from bottom trawls of seamounts. Bottom-trawling nets are often weighted across the bottom with large steel rollers that crash, crush and drag corals, swallowing all in their path.

Industrial-scale clear-felling of indigenous forest habitats on Crown land ended nearly 10 years ago, but the marine equivalent continues in our deep water fisheries.

Seamounts may also play a role in determining where seabirds such as albatrosses feed on the high seas. The same nutrient-rich upwellings and waters that seabirds feed in are sometimes targeted by fishing vessels. It's not surprising then that trawling and long-lining over some seamounts kills seabirds. Some seabirds collide with and are killed by the heavy trawl-net cables or 'warp lines'; others are caught and drowned on baited long-line hooks as they are set.

Sadly, the orange roughy fishery is not an isolated 'bad apple'. Many of our commercially fished species are being exploited to their lowest population levels ever, especially deep water species. As with orange roughy, Forest and Bird research shows hoki and oreos stocks have been poorly managed and overfished — and there are problems with the high level of non-target fish also being caught.

Hoki is one of our most destructive fisheries. It is also a fishery which relies heavily on the bottom-trawling methods that bulldoze fragile deep-water habitats and kill a range of by-catch species including New Zealand fur seals, albatrosses and petrels. Hoki fishers also catch a variety of deep-water, non-target fish species including long-lived sharks. Hoki are heavily overfished and the western fish stock is nearing collapse.

In 2001, when the hoki fishery was awarded a form of environmental certification by the UK-based Marine Stewardship Council, the annual allowable catch was 250,000 tonnes. Last year the allowable catch had to be cut to 180,000 tonnes, but the stocks are in such bad shape that the industry was unable to catch this much. The 2004 assessment of hoki stocks by the Ministry of Fisheries shows the quota needs to be cut to around 100,000



Northern giant petrel, a circumpolar species, seen here with a chick on subantarctic Antipodes Island. Like albatrosses, petrels too are vulnerable because of unsustainable fishing practices.

ANDY COX © DEPARTMENT OF CONSERVATION, TE PAPA ATAWHAI



C.J.R. ROBERTSON © DEPARTMENT OF CONSERVATION, TE PAPA ATAWHAI

The critically endangered Chatham Island albatross has been caught on long-lines set for tuna and ling.

tonnes. [Forest and Bird research has contested the environmental certification from the Marine Stewardship Council from the beginning.]

Ling is a deep-water trawl fishery as well as a long-line fishery. It has a very high level of seabird and New Zealand fur seal by-catch. Up to an estimated 5000 seabirds are drowned on the long-lines used in the fishery every year, including critically endangered Chatham albatross, white-chinned and grey petrel, and flesh-footed and sooty shearwater. A single fishing vessel killed over 300 seabirds in one trip in 2002.

More than 10,000 seabirds, 1000 New Zealand fur seals, and many rare New Zealand sea lions, marine turtles and dolphins are killed in commercial fisheries as by-catch every year. There is even a 'quota' for how many New Zealand sea lions may be legally caught and drowned in the squid fishery, where 2000 have been killed since 1980.

Faced with the enormity of this issue and the sad plight of so many species — including 41 globally threatened species of seabird in our oceans — what can each of us do to help turn the tide?

The answer could be Forest and Bird's 'Best Fish Guide' enclosed with this magazine. It is the first independent ecological assessment of our commercial marine fisheries. In it, Forest and Bird has ranked 62 wild-caught species based on the ecological impacts of each fishery. The idea is to guide consumers towards buying species which come from better-managed fisheries with more-adequate stocks, and away from the worst.

Pilchards came out at the top of the 'good' ranking list, along with species such as blue moki, trevally and kahawai. Orange roughy is at the bottom of the 'worst choice' list, with oreos, hoki and ling.

Unfortunately, none of the 62 fisheries ranked as a green 'best choice'. Many ranked poorly because of the lack of knowledge about the species, the size of stocks, and/or the overall state of the fishery. About 60 percent of our fish stocks are being managed with no information on sustainable yields. In the absence of such data we applied the precautionary approach and assigned a lower ranking because, without it, we cannot know how ecologically sustainable the fishery really is.

We describe 45 percent of fish species as species to approach with caution because there are a number of concerns with each of them, but they are better choices than those in the red. A number of the fish are on this list because of the lack of data about their sustainability.

The remaining 55 percent are ranked red. These are the worst choices.

In addition to the guide, which is available on the Forest and Bird website, we have produced the easy to use fold-out 'wallet card' enclosed with this magazine. If enough

The Best Fish Guide

Enclosed with this copy of *Forest & Bird* is a 'Best Fish Guide', making it easy to make better seafood choices to benefit our oceans.

The wallet-sized card is designed to be user-friendly. It makes it easy to see at a glance how each of 62 commercial marine fisheries rank.

To help make the guide even more appealing, we have enlisted the help of some leading food writers and chefs to create tasty new recipes for some of the top-ranking fish. You will find contributions from Martin Bosely, Margaret Brooker, Lois Daish, Kelda Haines, Annabel Langbein and Ray McVinnie on our website, or request them by mail.

Also, Ann Graeme writes about 'Cooking with a Conscience' in this edition of *Forest & Bird* (see 'In the Field', page 40).

The two reports on the 62 fisheries and the criteria used to assess them can also be found on our website:

www.forestandbird.org.nz or write to Forest and Bird, Box 631 Wellington.

You can also send the Freepost tear-off 'pledge card' at the front of this magazine to the Minister of Fisheries, to show him you will be using the guide and urging him to make decisions which will help our ocean life.

people use the guide, we can tip the scales in favour of ecologically sustainable fisheries management. By using the guide you will also be part of a global movement of people using similar guides in other countries.

— **BARRY WEEBER** is Forest and Bird's senior researcher. **MICHAEL SZABO** is a consultant writer, and previously communications manager at Birdlife International. Together, they wrote the 'Best Fish Guide'.

Unsustainable Fisheries

Forest and Bird's assessment found a raft of problems associated with our 62 commercial fisheries.

Stock status: 16 commercial fisheries have stocks that are overfished or in substantial decline.

Seabird by-catch: 23 commercial fisheries have a seabird by-catch problem.

Marine mammal by-catch: 28 commercial fisheries have a marine mammal by-catch problem.

Non-target fish by-catch: 56 marine fisheries catch non-target fish species.

Habitat damage: 50 fisheries cause marine habitat damage.

Ecological effects: 60 marine fisheries have significant detrimental effects on the environment. The problem is that cumulative ecological effects across all fisheries and species are not taken into account by the quota management system. 'Knock-on' ecological effects caused by removing certain species or a certain size-range, can cascade up and/or down marine food webs.



The native silvereye is a self-introduced bird which arrived in New Zealand from Australia in large numbers during 1853. The birds descend from the Tasmanian subspecies, one of six, also known in Australia as white-eyes.

Silvereyes in the Garden

GEOFF MOON photographs the most common native bird in the garden. Story, GORDON ELL.



Silvereye pairs may raise three broods between September and February. Their delicate nest cups may be found secured to the outer twigs of garden shrubs and trees. Most nests are built in October.



The range of food taken by silvereyes may be part of their success. Here a youngster is fed a large katydid but birds also feed on a range of invertebrates, nectar and fruit.

They rustle through the garden announcing themselves in a continuous chorus of bird chatter. The shrubs vibrate as little flocks of silvereyes hunt and peck their way through the foliage in search of food.

Silvereyes are the most common of native birds to visit the garden. Mature gardens offer them as good a home as the fringes of the bush. They can find food aplenty — they are omnivorous feeders — and find shelter both for roosting and nesting in the cover of modest urban trees.

With their attractive white-encircled eyes, silvereyes have been given several common names including the descriptive white-eye and waxeye. The Maori name of tahou (meaning stranger) is a reflection of

their comparatively recent self-introduction to New Zealand.

The first silvereyes were reported here in 1832, but large numbers found their way here in 1856 from Australia. There are some six subspecies of silvereye in Australia — they vary in their chest colouring — and the New Zealand invasion was from Tasmanian stock. This subspecies, *Zosterops lateralis*, has a migratory habitat, moving in winter from Tasmania across Bass Strait to eastern Australia. Among the theories about how the invasion happened here — it would take only two or three days for birds to be blown across the Tasman in a high wind — is the belief some hitched a ride in the rigging of a sailing ship. While there are

accounts of silvereyes settling on ships at sea, the numbers that reached New Zealand in 1856 were much greater than this method would allow, and sufficient to establish breeding populations in many places.

Part of the reason for the success of these birds is their catholic feeding habits. They take insects and other invertebrates, along with nectar and fruit for feed. In the garden they can find berries from native and introduced shrubs, nectar from plants such as kowhai and puriri, and a host of insects and other small creatures including spiders, caterpillars, flies and bugs. Their fondness for aphids early earned them another nickname — ‘blight-birds’.

In the forest, flocks may form about trees in fruit, particularly the giant podocarps,



Silvereyes are easy to attract in the garden. Breadcrumbs aren't the best food and bird tables need to be kept clean. An apple on a nail, or a suspended pottle or bag of lard, can be a very effective way of attracting silvereyes.

but the birds can be found anywhere in sheltering vegetation, from sea level to the natural treeline.

They are most noticeable, however, in the garden. Little flocks follow a regular route from garden to garden, favouring the cover of shrubs such as coprosma, particularly in berry, and Australian nectar-bearing shrubs such as bottle-brush and banksias. In winter, they make an interesting study at the feeder or bird table.

The omnivorous nature of the silvereye is reflected in what attracts them. Besides their natural food, they will eat soaked

bread, old fruit, lard and scraps of cooked meat. They can be a delight to watch as the birds in a flock have a detectable 'pecking' order. Birds waiting to feed will flutter their wings and threaten their companions, calling continuously. The boldest male eats first, sometimes defending his position against other contenders.

Probably the best way to enjoy watching this behaviour is to establish a feeding point in view of the house. The problem with bird tables is that they need to be scrubbed regularly or they become a place where birds pick up infections from each

other. Instead, stick a piece of apple on a nail in a fence or tree trunk. Another feeding method is to put a little lard in a plastic-netting bag or a pottle suspended from a branch.

Silvereyes will battle for their turn on adjacent branches. Then they demonstrate their agility as they swing from the food, often hanging upside down to reach their meal. Another advantage of this suspended 'feeder' is that more aggressive birds, particularly sparrows and starlings, won't take the food as they usually don't like the way it swings.



Nature photographer Geoff Moon captured this spectacular sequence of a silvereye in flight as it approached a bird table. Pictures were taken at 1/250th of a second assisted by an electronic flashlight at 1/110,000 of a second. The camera was triggered as the bird left its perch three metres away. It took many shots to capture the bird mid-frame.

Of course, a well-placed bird bath will attract the silvereyes which use it to groom all through the year. Silvereyes also drink sugar water — artificial nectar set on the bird table — but keep it fresh and use sugar in the mix, not honey which can spread bee diseases.

The best time to feed silvereyes is in the winter when there is less food in the garden. It is also the season when birds from the higher country come to warmer places, or are in need of supplementary feeding. In inland Canterbury, for example, flocks of silvereyes can come down from the ranges and feed in country gardens on the plains, even though the surrounding open country is not their normal habitat. (There is evidence that some silvereyes in New Zealand have not lost their habit of migrating locally, as do many of their ancestral race in Australia, moving to warmer areas in cold winters.)

Make sure feeding in winter is regular or the increased number of birds in the garden will starve. Cease feeding in spring when birds are nesting, as the young will benefit from being fed natural food.

Silvereyes are among the few birds that can live their whole life cycle in the garden (or a series of adjacent gardens). They nest in shrubs from as low as a metre off the ground, usually in the outer foliage. The nest is suspended by bindings to adjacent twigs and is rather delicate; a cup woven from grass and light fibres, softened with moss, lichens and spider web. There are usually three pale blue eggs, but broods of

up to five occur.

A pair of silvereyes may raise two or three broods each spring and summer, from eggs laid from September to February. The adult pair stay together from season to season and both take their turn brooding on the nest and feeding the young. Young birds cease to follow their parents after two or three weeks, becoming independent feeders, but flock with others in winter.

Silvereyes are a great introduction to the fascination of birdwatching because their group behaviour is so obvious and easy to observe. They soon become a popular feature of the bird garden, but they are less popular with orchardists and winegrowers.

Silvereyes can be a pest because of their habit of eating fruit. As a result they are one of the few native birds to be only partially protected. Commercial growers can get permission (from the Director-General of Conservation) to kill them in certain circumstances, under the Wildlife Act. Their defenders argue the effect on crops is generally on fruit already damaged by other birds. Winegrowers take a different view and not all are willing to protect their grapes with netting. In the home garden the damage they might be able to do is, generally, minimal.

— **GORDON ELL** is the author of *Encouraging Birds in the New Zealand Garden*, and its successor, *Enjoying Nature in the New Zealand Garden*.

— **GEOFF MOON** is a pioneer of nature photography in New Zealand and author of many books about birds.



Silvereyes share the job of raising young. Both male and female brood the eggs and feed the chicks. Pairs stay together from year to year but join others in winter flocks.

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The Pig's Back

DAVE HANSFORD finds wild pig numbers are on the rise again, and no one knows what to do about it.

Wild pigs are posing a growing problem for conservation projects in several parts of New Zealand. Community objections to their control by poisons, and illegal releases by hunters, are blamed for the surge in population.

Rising pig numbers are a serious concern to conservation scientists trying to bring back several native animals from the brink of extinction.

On the Chatham Islands, Graham Taylor recently tracked a typical incident by radio signal as he followed the return to the land of a critically endangered taiko, or magenta petrel. The signal came from one of his oldest charges, a bird first caught in 1982. The radio signal faded and surged as he

pursued it through the scrubby margin of the island. As a Department of Conservation scientist, Graham Taylor knew every taiko burrow by heart, and he realised the transmitter was drawing him to a new nesting attempt. But the signal peaked at a scene of devastation.

'The burrow had been rooted up; the ground all around it was bare . . . big, folded-over chunks of soil. I found the transmitter and some feathers amid what looked to be the remains of the burrow, which been completely destroyed. We think the tracked bird may have survived, but we don't know whether it lost its partner.'

Only one predator leaves such a catastrophic signature. Linnaeus called it

Sus scrofa. We call it razorback, te poaka, the porker, kuhukuhu or Captain Cooker — the wild boar.

As omnivores, pigs will devour pretty much anything they find. On the main Auckland Island, says Graham Taylor, they've been seen to walk up to nesting white-capped albatrosses and kill and eat them where they sit.

Last decade, he had an entire shearwater colony — 20 to 30 burrows — destroyed by pigs on the Chathams, an attrition that continues.

'We're still losing bird colonies to pigs, and blue penguins are suffering too.'

There's good evidence that pigs exterminated six of the known Hutton's

shearwater colonies in the Kaikoura ranges. The two surviving colonies owe their existence to a steep bluff that pigs can't traverse, but Graham Taylor prays that a slip or heavy-snow year won't grant them access.

'Once they got in there, they would just cause havoc.'

At Te Paki Farm Park in the Far North, a DoC technical-support officer, Andrea Booth, has witnessed that kind of havoc. She's overseen efforts to protect what's left of the region's local flax snails from pigs, which include a series of exclosure plots ringed by pig-proof fences.

'The land is totally devoid of vegetation outside the fence,' she says. 'It's completely ploughed up. It's horrific — there's nothing regenerating. The snails are only hanging on in steep areas where the pigs can't access.'

'Then, inside the fence, you've got healthy regeneration of coastal forest and lots of snails. They need the vegetation to feed on and the leaf litter to live in, and there's none of that outside the fence.'

Meanwhile, on DoC's 1700-hectare 'mainland island' just east of Te Araroa on East Cape, a DoC conservation officer, Graeme Atkins, is trying to protect the country's biggest surviving population of *Dactylanthus* plants, or 'wood roses'. These subterranean oddities — our only fully parasitic flowering plant — are among the world's most prolific nectar bearers. In better days, they would have been pollinated by native short-tailed bats, but their powerful scent is more likely nowadays to draw possums, rats, mice — and pigs.

Graeme Atkins says that when a possum or rat finds a *Dactylanthus*, the plant has an even chance of flowering again next season. When a mouse finds it, the plant may even benefit from the pollination. But when a pig comes to visit, the destruction is total.

'They just tear it out. They're our single biggest threat,' he says.

Four years ago, feral pigs were found with traces of brodifacoum (a popular rat poison marketed as Talon) in their livers. The discovery has forced DoC to change the way it deals with pests. As wild pork is a major item in the rural human food chain, the Department had no option but to withdraw the toxin from mainland aerial operations — it can now be used only in bait stations — and no effective alternative has yet been found for rats.

So, for Graeme Atkins — and Graham Taylor — it means controlling the rodents by the time-honoured, but time-consuming, expedient of trapping. Graeme Atkins says if you set the traps at the right spacings, you can still get close to 100 percent kills, but it's a very labour-intensive process for an operation that only has so many staff and so much money.

In Marlborough, the impact of the brodifacoum problem has been more direct — and disastrous.

The DoC area manager, Roy Grose, says because pig hunters can no longer sell wild pork (it was banned in 2001), hunting pressure has relaxed.

'I'll be quite honest, our 1080 operations have also compounded the problem,' he says, 'because pig hunters won't risk losing their dogs in the reserves we've treated.'

Consequently, he says, pig numbers are 'rocketing.'

The problem is compounded by hunters 'who feel it's their mission to spread pigs as far and wide as possible, to the extent where we've had to remove pigs from islands in the Sounds, such as Pickersgill and Blumine,' Roy Grose says. Releasing pigs on islands is usually a ploy to give the hunters an advantage in pig-hunting competitions — the island becomes a remote, secret 'fattening pen' — but the losers are the islands' rare *Powelliphanta* snails. It seems pigs have an insatiable appetite for these carnivorous relics of ancient Gondwana.

Then there is the traditional hunting ethic of leaving sows with piglets to live another day. Roy Grose, a keen pig hunter himself, says he routinely finds sows carrying 10 or 11 piglets.

There are other worrying things.

'In the hill country around here, we have these giant native earthworms — they're as thick as your little finger and about 25 centimetres long,' says Roy Grose.

'I caught a boar a while back and opened it up, because I'm always keen to see what they've be eating, and its stomach was just full of these earthworms.'

Pigs present a threat to biodiversity — especially invertebrates — wherever they roam. But at a national level, DoC is virtually silent on the subject. They're not even listed on its pests web page, and the Conservation Authority's *Pests and Weeds, a Blueprint for Action* makes not a single mention of them.

Instead, conservancies are left to try and find their own solutions — solutions that invariably boil down to a compromise. That's because the too-hard basket is bulging with conflicts over pigs — with Maori iwi, with recreational hunters, with landowners and farmers.

DoC relies heavily on good community relationships, and has an obligation to manage the public estate in consultation with Maori. Pigs come squarely between both ideals because while DoC sees them as the worst kind of pest, those same communities treasure them as a hunting resource, and iwi regard them as a traditional food item.

Graham Taylor has to live with this paradox in his efforts to save taiko on the Chathams. 'Pig hunting is a really big thing on the island. The whole community turns out for the annual pig hunt each September — it's like a big show day. Even some of the DoC staff are keen pig hunters.'

Graham Taylor says he walks a 'very fine line' between trying to keep pigs away from his seabirds and staying on good terms with the locals, whose support is vital to the project.

'We can't afford to compromise benefits like community support, access to land — a lot of our conservation sites are on private property — by taking a hard line on pigs.'

'We encourage the locals to hunt in the area where the birds are, but we accept that this is just a problem we have to live with.'

Pigs also have the Animal Health Board in a bind. They're known carriers of bovine tuberculosis. While they don't transmit it directly to cattle or deer, pig carcasses can be scavenged by ferrets and possums, which do.



The health board's spokesman, Nick Hancox, says the pig hunters' tradition of releasing pigs in new locations puts the farming economy in jeopardy. A few years ago, a pig was killed near Kaeo, in Northland, that was infected with a strain of bovine tuberculosis formerly restricted to the Central Plateau. He blames a surge in tuberculosis infections in wildlife on illegal releases.

'Certainly the spread of tuberculosis in wildlife east of Taupo recently has been much more rapid than we would expect through natural dispersion. So we suspect strongly that translocation has been happening there.'

While nobody has any firm ideas about how to control pigs, most agree that using 1080 is out of the question. Maori communities, like the ones with an interest in the East Coast *Dactylanthus* reserve, are precisely the sort of stakeholders DoC needs to keep onside.

'They simply wouldn't tolerate it,' says Julie Black, manager of Nga Whenua Rahui, (a Government fund to protect natural values on Maori-owned land). 'They would have issues about the use of 1080 around a traditional food source, and also with waterways and people's diets.'

'It's about traditional Maori beliefs and values about upsetting the natural system with introduced toxins.'

Furthermore farmers, who would be key players in any war on pigs, are not about to risk losing their farm dogs to 1080 poisoning.

Quite apart from anything else, pigs are smarter than the average pest, and will simply regurgitate a 1080 bait the moment they feel its effects. That creates two new problems, says Landcare Research wildlife toxicologist Penny Fisher.

'It increases the risk of them are getting a sub-lethal dose and becoming bait-shy. Also the vomit itself can become a non-target hazard.'

In North Canterbury, Landcare, DoC, Environment Canterbury and landowners have teamed up to try to find an answer. They're looking for funding to hire Connovation, the company that manufactures and sells cholecalciferol and Feratox encapsulated cyanide, to register an effective pig toxin.

Steve Hix, of Connovation, says the answer probably lies with an existing poison: 'Getting official registrations is far easier for existing products. If another new product came along, we would certainly have a look at it, but there's nothing on the horizon.'

'It's about finding a bait that pigs will eat readily. They're pretty smart animals.'

While Connovation has indicated some



TREVOR CHAPPELL

success with cholecalciferol, the most likely candidate seems to be cyanide, which it has been testing on pigs in Australia. It's a fast-acting poison, which is crucial if pigs aren't to become bait-shy. But Landcare toxicologist Penny Fisher says a major hurdle will be getting the pigs to take enough of the toxin to kill them.

'They're much bigger than a possum, and a block of pig bait would need a lot more cyanide in it than a normal possum bait.'

Then there's the problem of by-kill, which she says might be solved by using buried baits, or specific entry stations for pigs: 'Something that the pig has to force its way into to get at the bait.'

In any event, she says, pre-feeding — loading the stations initially with non-toxic baits to get pigs used to the idea of taking them — will be a must.

Steve Hix says any solution is still a long way off.

'It all depends on how many people get interested in it. We'd have to do some bait acceptance trials — there's a lot of work involved even before we get to the toxicology stage.' In the meantime, conservation managers like Roy Grose will keep on hiring pig hunters with dogs, and encouraging clubs to concentrate on areas of high biodiversity value.

But even that comes at a cost to wildlife.

In May, a pig dog was found wandering on Motuara Island in the Marlborough Sounds, home to the 14 surviving kiwi chicks evacuated from the Okarito Kiwi Sanctuary in South Westland after a disastrous stoat irruption. The dog's owner maintained it must have swum the two kilometres to the island after it went missing during a hunt.

Fortunately, the dog only spent a day or two on Motuara — killing and eating a penguin before it was discovered — but DoC programme manager Mike Aviss says the incident could have been a disaster for the threatened kiwi subspecies.

'If it had been there longer it is very likely it would have killed kiwi chicks for food.'

Kiwi in Te Urewera National Park have not been so lucky. Pig dogs left in the park last year killed nine out of 16 monitored kiwi in the northern part of the park.

The local DoC conservator, Peter Williamson, says the use of pig dogs in conservation areas can only be justified if 'the benefits outweigh the cost.'

'Irresponsible hunters may jeopardise DoC's ability to continue to support using pig dogs as a control method if the costs outweigh the benefits,' he says. 'Last year, we found kiwi carcasses half buried and covered in dog bites, and dog stools containing kiwi feathers.'

'We're hoping that last season's kiwi deaths

were an aberration and the policy of allowing pig dogs in the park won't need to be re-assessed.' Peter Williamson says the Department generally has 'a very productive relationship with responsible pig-hunters' and appreciates their contribution to pest control in the park.

'Our staff have been well received when speaking to local pig-hunting club members about avian-aversion training for dogs, which is something we recommend.

'We also recommend that hunters use tracker collars on pig dogs to reduce the risk of becoming parted from valuable animals in a vulnerable environment.'

In the meantime, pig dogs have been banned from parts of the park, and restricted to a hunting season elsewhere in the Urewera National Park.

Wild pigs are many different things to many people — pests, trophies or taonga. They seem to enjoy a degree of public

'ownership' greater than deer or thar.

Wildlife managers must somehow curb the devastating impacts of pigs on biodiversity while accommodating their place in rural cultures. This delicate juggling act may yet prove one of the biggest conservation challenges.

— DAVE HANSFORD of *Origin Natural History Media* is a photo-journalist based in Wellington.

The Nature of Wild Pigs

Linnaeus gave the name *Sus scrofa* to both the European wild boar and to its distant descendants, the domesticated pigs. Some authorities regard the domesticated form as a separate species and call it *Sus domesticus*, but the prevailing opinion is that they are one and the same.

Of all members of the pig family, *Sus scrofa* occupies the largest range. Wild pigs originally occurred in Europe, Asia, North Africa and the Malay Archipelago until humans domesticated them around 5000 years ago and spread them about the world.

Domesticated pigs were already a part of Polynesian culture 1000 years ago, but it seems they did not accompany the navigators on, or at least did not survive, their first voyage to New Zealand.

The first pigs to arrive here were brought by the French explorer De Surville in 1769, who presented two to Maori in Doubtless Bay in Northland. Their fate is unknown but they are not credited with founding any feral population.

During his second and third voyages to New Zealand in the 1770s, James Cook made

frequent gifts of pigs to Maori. He also liberated pairs, brought from the Society Islands and Tonga, around the Marlborough Sounds.

Sealers and whalers liberally sprinkled pigs about the offshore islands as potential food for castaways; they were liberated on Auckland Island in 1807, on Raoul and Macaulay in 1836 and on Enderby and Campbell in 1867.

By 1840 pigs were well established, but there is no evidence that any true 'wild boars' were ever introduced, although today's feral pigs look very similar to them. Local populations were established from a mix of breeds and have since crossbred with others.

For example, the ancestry of feral pigs in central Otago has been traced to the Tamworth breed, with small dashes of Berkshire and Hampshire breeds.

Pigs are now found in most areas of New Zealand in a wide variety of habitats, from high alpine regions to lowland exotic forests.

Colour patterns vary considerably within and between regions. Most commonly wild pigs are black, but other forms include rusty

red or ginger, sandy brown with black spots, a brown and white, white, black with a white stripe, grey, and a smoky blue, particularly in North Canterbury.

Feral pigs are omnivorous, opportunistic feeders, and their feeding habits differ markedly from other introduced hooved animals, such as deer.

Studies have shown that 62 percent of food is foraged on the ground, 31 percent by rooting, and the balance by browsing and grazing.

Some 70 percent of their diet is plant matter — ferns, roots, fruits and crops — with animal carrion, earthworms, snails and insects making up the rest. Pigs typically forage on dusk. They can leave extensive damage with their specially adapted snouts and tusks.

Adult boars have been known to weigh 350 kilograms (some domestic pig breeds can reach 450 kilograms), and reach shoulder heights of nearly a metre.

Sows are slightly smaller, and while both sexes grow tusks, boars are able to sharpen theirs by rubbing the lower ones against the upper ones. These are used as weapons in often-violent fights between rivals for females.

Boars are insulated with thick tissue around the front of the belly to help protect against the stab wounds they suffer in these contests. A male might secure as many as eight sows in a single season.

In New Zealand, sows give birth to one litter in the spring, usually producing between 6 and 10 piglets. But mortality is high — perhaps half a litter will survive.

Feral pigs are not protected by law in New Zealand and are classed as a 'containment pest animal' in most regional pest-management strategies under the Wild Animal Control Act 1977. As such, it is an offence to release pigs into the wild or carry out an act that will cause an increase in the population of feral pigs.



Two wild piglets, hand held, Maungatutara, Raukumara Ranges

J. L. KENDRICK © DEPARTMENT OF CONSERVATION



Above: Serpentine wetlands in the upper Clarence valley, Molesworth.

Below left: Above Island Pass on the western edge of Molesworth looking into the headwaters of the Serpentine Stream.

A New Future for Molesworth

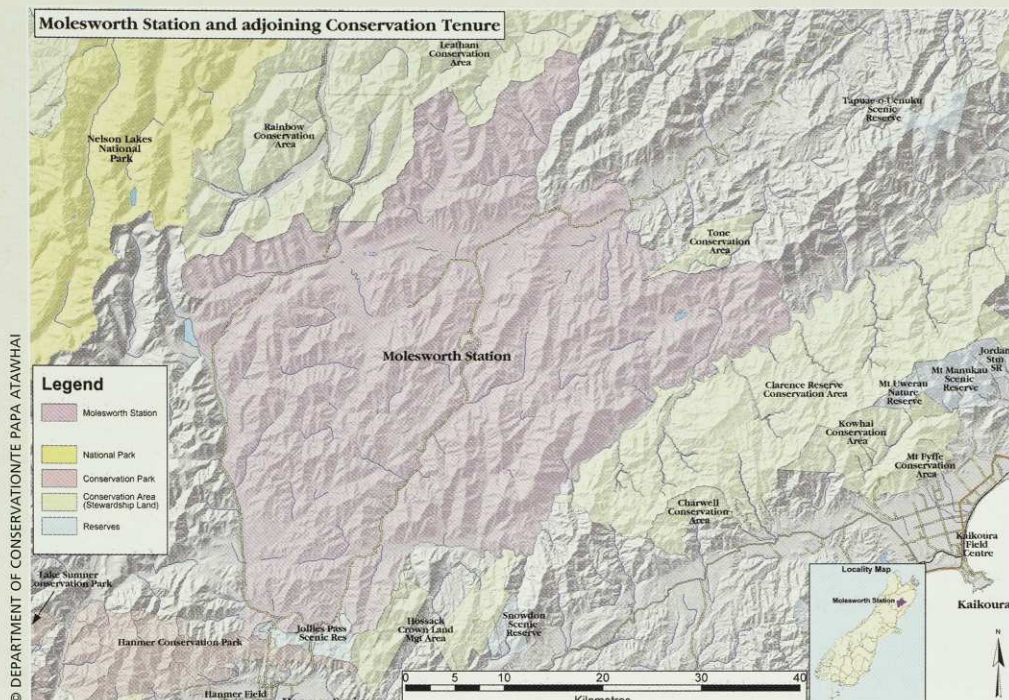
The famous high-country run is soon to be managed for conservation, GORDON ELL reports.



Driving into Molesworth is like journeying into legendary land. At the Marlborough end it is rooted in the broken molars of the Inland Kaikoura Range; lots of bare rock, near-desert grassland and a shingle road to follow. It takes a good, long day to drive through New Zealand's largest farm, to emerge through the dry hills of inland Canterbury.

The station is so big it has its own literature; including *Musterer on Molesworth* by Bruce Stronach, and *Molesworth* by Lance McCaskill. It also has its own scientific record, born of the ecological disasters of the earlier twentieth century and its recovery as a cattle station. Old cob houses survive along the trail, dating back to the pioneer 1860s.

G. MCSWEENEY



Subalpine vegetation above Island Pass, on Molesworth.

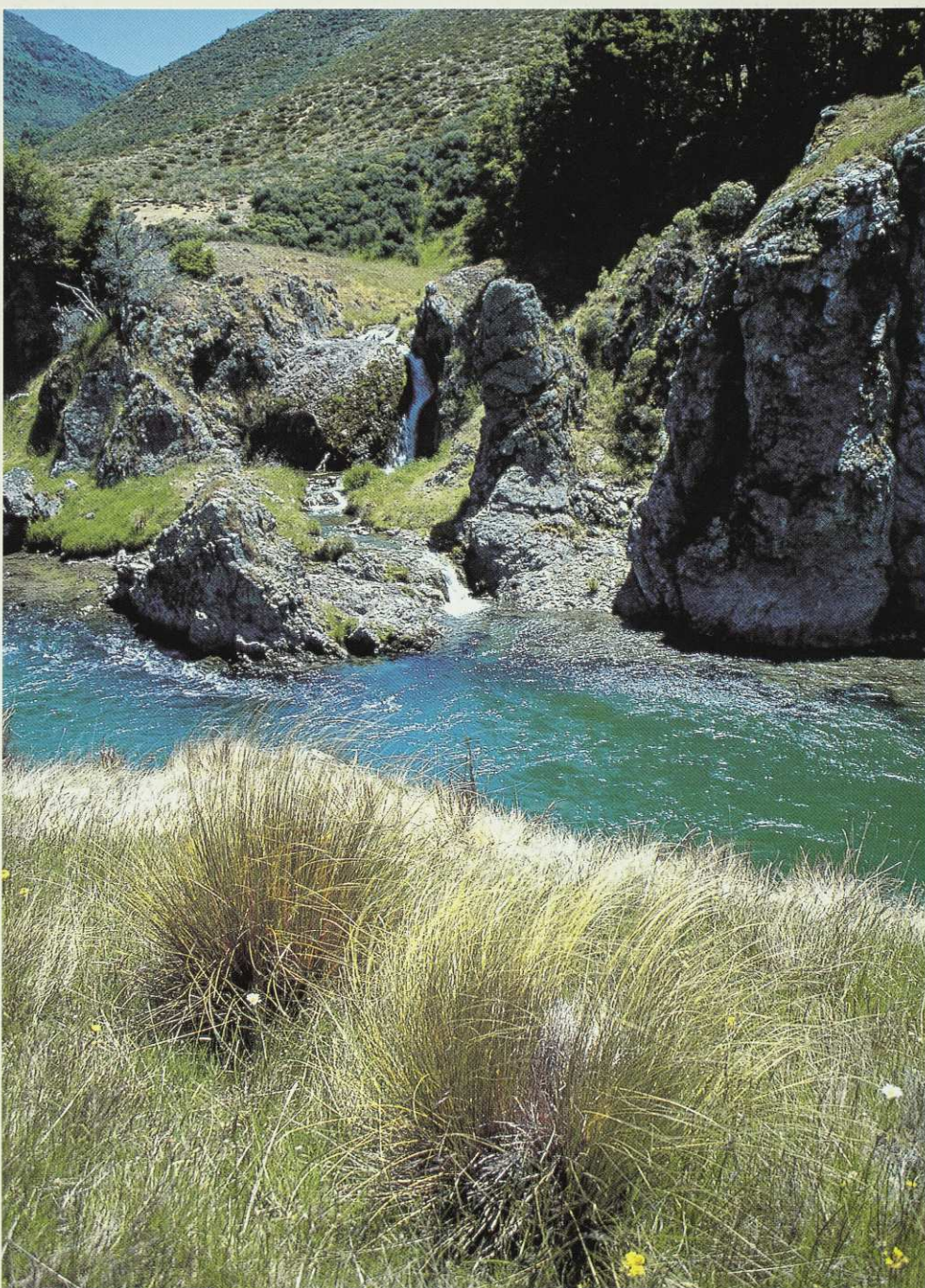
If there were ever a hierarchy in the heritage of the high country, Molesworth was for long the iconic run. Encompassing 180,476 hectares, it will be transferred from the Government's land-management agency to the Department of Conservation on July 1, 2005. Meanwhile, interested parties are working out what the future will be for this inland valley system — it's roughly the same size as Stewart Island.

Molesworth changes management as part of the Government's plans to establish a network of high-country parks and reserves in the eastern South Island. It is currently carrying about 10,500 cattle, a huge success for a property which was eroding away earlier last century. From the 1860s, unwise burn-offs of native vegetation combined with overstocking exposed the mountainous land to the extremes of weather; disastrous snows annihilated sheep flocks. Eventually, plagues of rabbits destroyed the pastures that once carried 90,000 sheep.

This was always Crown leasehold land but the Government took over as farmer as the ecological disaster deepened. Molesworth today actually consists of four former pastoral leases abandoned to the Crown between 1938 and 1948: Molesworth in the middle, with Tarndale, St Helens and Dillon adjacent.

Early on the sheep were removed and cattle only run. A more sensitive grazing regime, which involved oversowing some 37,000 hectares in the 1950s-60s, arrested the threatening desert. This much-admired farming operation, under Landcorp, is to continue under the new regime.

Grazing presently occupies only a third of the station's area. The rest is too sensitive to farm — either too prone to erosion, or too rugged to carry feed plants.



Native vegetation on the edge of the Clarence River, near Acheron, at the southern entry to Molesworth.



© DEPARTMENT OF CONSERVATION/TE PAPA ATAWHAI



© DEPARTMENT OF CONSERVATION/TE PAPA ATAWHAI



G. MCSWEENEY

Molesworth is so big, and its valleys so isolated, that it has its own special species. They include 37 threatened plant species restricted to southern Marlborough, including a silver daphne and a scree daisy. The world population of the Sedgemere woollyhead is restricted to a fenced-off and weeded quarter acre round one tarn.

Special insects have evolved to live in the extremes of heat and cold. Then there are the lizards; 10 different species, including two skinks recently discovered and limited in distribution to southern Marlborough.

Up till now, driving through Molesworth has been frustrating for the enthusiast for natural history. Apart from camping spots alongside two of the cob buildings, it has been largely a tourist experience, sticking to the road. Indeed, public access into Molesworth was closed until 1987 when the public was granted year-round walking access along the western side of the station (itself only accessible from the 4WD St James and Rainbow station roads). The shingle farm road down the centre of the station was supposed to be open for six to seven weeks in summer but droughts and consequent fire risk meant some years it remained closed to the public. Unseasonal snow storms and ice are other major concerns with the road.

It is hoped the new management, under the Reserves Act, will lead to more public access. A Molesworth Steering Committee, including DoC and the farming interests, is working out how to extend public recreation and enhance conservation while maintaining the farm side. They have other problems besides fire.

Weed and pest control are big challenges. In places, the broad valley floors are speckled with the dark cones of wilding pines with broom in riverbeds and some flats. Pests include rabbits, presently in lower numbers due to calicivirus disease, mobs of goats, and wild pigs in places. The risk of pests carrying bovine tuberculosis concerns the farmer.

The move to reserve status carries with it a need to tackle cleaning up the most sensitive areas where rare-plant habitats such as wetlands are threatened. The whole landscape has a complicated ecology. Weeds such as hieracium, briar rose and viper's bugloss, and exotic grasses and sedges, may challenge the pasture managers but they are

Special plants of the Molesworth high country. From top left, the penwiper plant; nationally threatened scree pea; scree cotula.

Right, Molesworth is popular with mountain bikers.



G. MCSWEENEY

Above, wetlands need special protection from stock. Red tussocks, Serpentine wetlands.

sometimes the only way the bare earth can form a new skin — one small but vital step on the long road to recovery.

The steering committee has also to set aside 45,000 hectares especially for the protection of native species.

To date, the enjoyment of Molesworth has been largely restricted to six weeks in summer when people have access to the farm road, or to mountain bikers, and then only at times when it's not too dry or the road too icy. The planners are now facing a challenge to increase public access for such recreations as walking, botanising, photography, trout fishing, kayaking, rafting, horse-trekking, and cross-country skiing, without compromising conservation or the farming regime. Vehicle management will continue to be a challenge in an environment which is both sensitive and harsh.

The reservation of Molesworth Station creates a substantial link in publicly owned reserves across the breadth of the South Island. The reserve lands now rise from the sea on the Kaikoura ranges, crossing the Clarence Reserve to Molesworth. They then

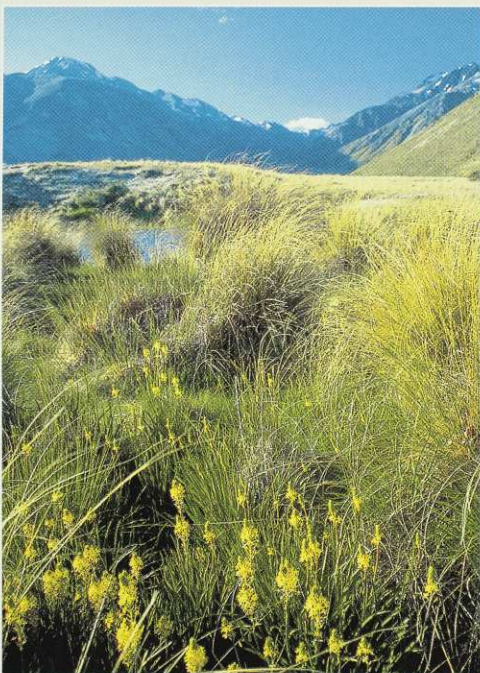


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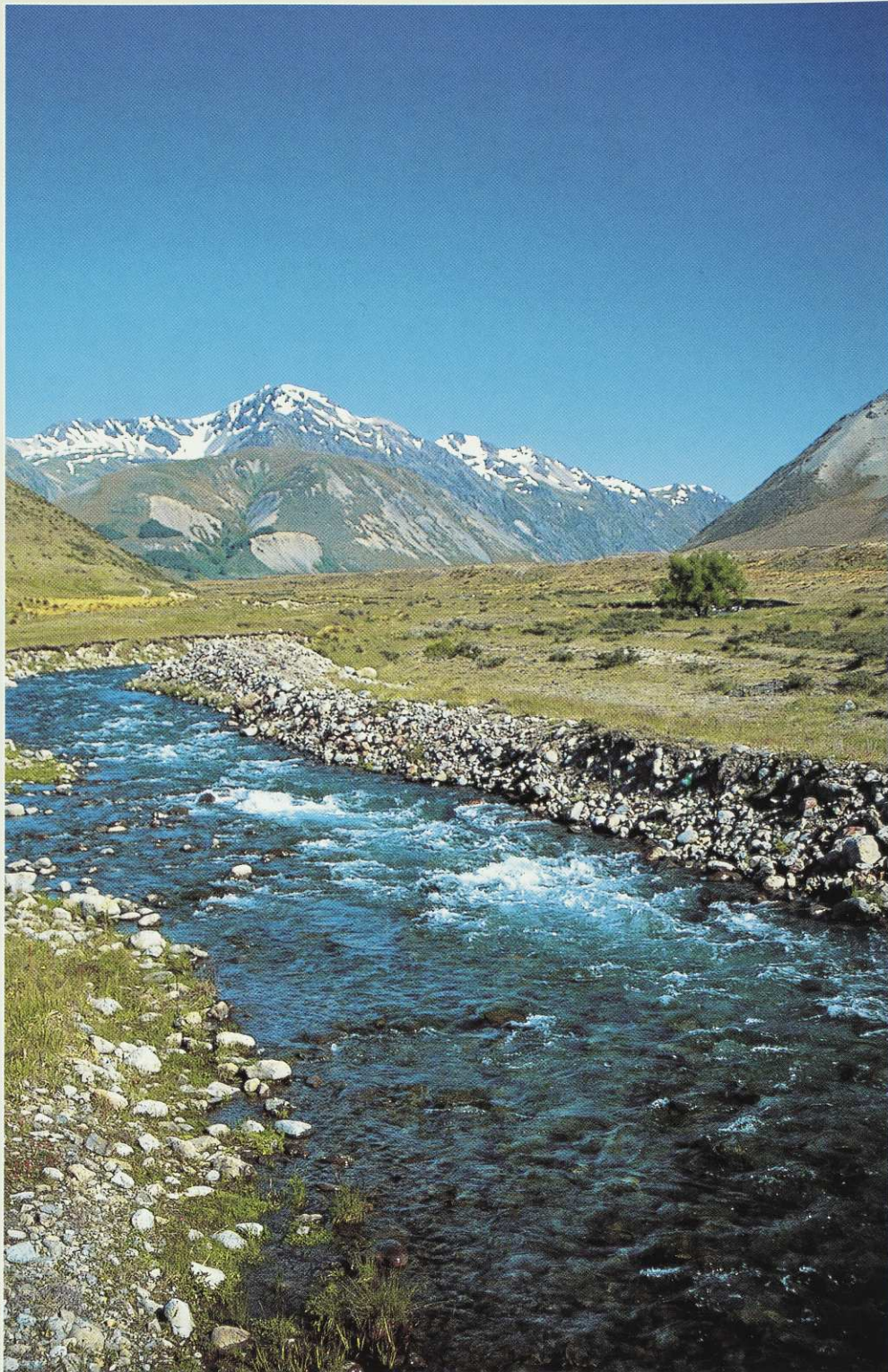


blend into the parallel Branch-Leatham Conservation Area, the Rainbow Conservation Area and into Nelson Lakes National Park; or west through Lewis Pass National Reserve to the Lake Sumner area. Conservation land then continues through to Westland, and north to the Kahurangi National Park and northwest Nelson. The station has become a huge link in the reservation of wilderness New Zealand.

'Molesworth has a natural, recreational and historical significance beyond the economic value of its farming operation,' according to the Prime Minister, Rt Hon. Helen Clark. 'By transferring management to the Department of Conservation the Government is formally recognising the wider public interest in the area, particularly the need for conservation.'



A Bulbinella wetland (Maori onion) near the outlet of the Clarence river from Lake Tennyson.



The Upper Clarence River marks the boundary between Molesworth, at right, and the St James station, left.

Conservation Priorities

Forest and Bird has welcomed the Government's decision to vest Molesworth with the Department of Conservation.

'We want to see real progress in excluding cattle immediately from the 45,000 hectares identified for native plant protection,' says national president Dr Gerry McSweeney, himself a high-country farmer and expert in range-land management.

'We are of the view that a much larger area of indigenous vegetation on Molesworth Station should be excluded from the grazing regime. In particular, we believe that grazing red tussock swamps, wetlands and sensitive rivers and stream areas is inappropriate.

'We are delighted that DoC and Landcorp are now working closely together to tackle weed and pest management and that DoC has been able to substantially lift the level of funding Landcorp previously devoted to this task, particularly for wilding conifer control.'

A Turnaround for Tuatara

KATHY OMBLER finds populations of
our ancient reptile are improving, thanks to teamwork.



There's a cage on Little Barrier Island, that's teeming with little tuatara. The temporarily caged juveniles represent hope for the future of their species.

There are about one hundred of them, all descended from 'natives' of the island. None is more than 10 years of age, which is young for this celebrated 'dinosaur' of New Zealand reptiles.

The tuatara are waiting in their island 'holding pen', tended and fed by the resident conservation officer, for the day Little Barrier/Hauturu is declared rodent free. Then it will be deemed safe to let them roam loose on this island ark, free of threats from rats, mice or any other mammalian predator.

'Releasing over a hundred tuatara on Little Barrier will make a fantastic day,' says Charles Daugherty of Victoria University, whose research colleagues Nicky Nelson and Sue Keall can take a fair amount of the credit for getting them all there. 'It's a really good outcome, considering 13 years ago they were thought to be extinct on the island and nobody was interested.'

In fact, the tuatara revival that's occurred throughout New Zealand, on Hauturu and other islands in the Hauraki Gulf and in the Marlborough Sounds, ranks among our most successful species-recovery stories. It's one that's been achieved by cooperation between several organisations; the Department of Conservation, Victoria University, Zoological Society of San Diego, Auckland Zoo, Hamilton Zoo, iwi and conservation groups. It's seen the establishment of new tuatara populations on several islands. It's led to the discovery of a new species, the Brothers tuatara, or Gunther's tuatara. Academic research related to the incubation of eggs in captivity has attracted both international



The tuatara research team at Victoria University, Dr Nicky Nelson (left), and Sue Keall, with resident tuatara Oliver.

interest and significant sponsorship.

Much of the recovery work has been undertaken in line with the Department of Conservation's Tuatara Recovery Programme, and has been made possible by rat eradications that have ensured the safety of tuatara on island habitats.

Charles Daugherty tells this story:

'Back in 1984, we started a three-year study on tuatara egg ecology. We visited 25 islands and in the process discovered that the Brothers Island tuatara (Gunther's tuatara or *Sphenodon guntheri*) on North Brother was genetically different, and that it was the only population of that species. We proposed to DoC that they mount a rescue programme by collecting eggs on the island [off

Marlborough Sounds] and incubating them here at Victoria.

'For three years from 1989 we collected about 70 eggs per year from the island, incubated them here and raised them in captivity. The eggs have a low survival rate in nature so by incubating them here we were able to improve the rate of hatching success.

'By 1995 half of those hatched and raised were taken to Titi Island in the Marlborough Sounds. In 1998 the rest went to Maiti/Somes Island. Thus we have been able to establish two new wild populations on rat-free islands and rescue what was a very rare species of tuatara.'

In the mid-1990s, as rat eradications were carried out on Hauraki Gulf islands, tuatara



Scientists working on the rescue of tuatara populations have discovered a new species of tuatara on tiny North Brothers, an islet off Marlborough Sounds (above). It has been named the Brothers Island tuatara or Gunther's tuatara, *Sphenodon guntheri*, pictured left.

KATHY OMBLER

RAY GROSE



KATHY OMBLER

A new Little Barrier baby.

recovery attention turned northwards.

'Populations on some of these islands were hugely reduced by rats, compared with Stephens Island for example where the tuatara density can be as high as 3000 per hectare. On Cuvier, only five very old animals were found. Rats had been eating the eggs and babies.'

Andrew Nelson, native fauna team leader at Auckland Zoo, takes up the story: 'During the island rat eradication the tuatara were caught and held in the zoo for their safety. While here they bred successfully and productivity was very high. We sent the eggs to Victoria University for incubation, then the young babies were returned to our "head start" programme. The youngsters were nurtured at the zoo for the first three to four years, to minimise losses from adult predation. The big "toots" will pretty much eat anything that crosses their paths, including young tuatara. So to give them the best chance of surviving in the wild they were kept here, closely monitored, then released onto their parents' islands when they weighed about 80 grams and had a 120mm snout-vent measurement. That bigger size minimised potential risk.

'To date we have released about 41 animals

through the zoo programme. Last year we released 20 on Cuvier and Stanley islands and we've actually now sent back all our animals from Red Mercury Island [off the Coromandel Peninsula] including the adults.

'We're continuing with the project. What happens is the adults are kept in breeding groups. In March/April we watch for courtship and mating; come September/October we will x-ray the females

to see which are gravid, or carrying eggs.

'We let them lay their eggs naturally then we recover them and send them to Victoria for incubation. Once the little tuatara have hatched they're transferred back to our head start programme. Then we work with Waikato DoC staff with island placements. So it's a real little tuatara kindergarten.

'We also really push advocacy here at the zoo, so with the tuatara we are able to raise



THEO STEPHENS © DEPARTMENT OF CONSERVATION TE PAPA ATAWHAI

Tuatara coming out of burrow

awareness about why they are found only on offshore islands. They are part of our “daily encounter” where we talk about the uniqueness of New Zealand animals.

‘Some of the adults have been here for 14 years now. You definitely get to know them as individuals and see the little life dramas that go on, how they protect their territories, which males are going for which females during breeding. We have in house names; for example, two handsome males from Stanley Island are called Zeus and Dragon.

‘We really enjoy the tuatara programme. It is one of the nice programmes with multiple outcomes. As well as the conservation outcome it provides a good mix of field work, captive, research and advocacy components, and it’s a great little showcase of how different groups are working together to carry out species recovery work. We’ll take our lead from the DoC Recovery Group; as long as they are keen for us to help we will keep going.’

Last year Auckland Zoo provided technical assistance for a translocation of 60 tuatara from the Mercury’s Middle Island to Tiritiri Matangi Island off Auckland. The last sighting of a tuatara there had been in 1902.

Graham Ussher, who completed doctoral studies on the recovery of threatened species using tuatara as case studies, was involved in the translocation on behalf of the Supporters of Tiritiri Matangi:

‘After five years of preparation, 60 adult tuatara were captured on Middle Island in the Mercury Group, and released on Tiritiri Matangi in October last year,’ he says. ‘We already know that we have two nests on the island and we believe most, if not all, have survived.

‘While tuatara themselves are fascinating creatures, other aspects of this translocation

Females to order

Controlled laboratory incubation has played a major part in the success of the tuatara recovery programme, in particular the ability to influence gender through varying incubation temperatures. The phenomenon of temperature-dependent sex determination has long been known in other reptiles, such as crocodiles and turtles; now research undertaken at Victoria University has confirmed that incubation temperatures also influence tuatara gender.

‘We have been able to establish that warmer temperatures produce males in tuatara populations,’ Dr Nicky Nelson explains. ‘The implications are that we need to incubate at multiple temperatures to ensure some of each sex. On Little Barrier, for example, the warmer temperatures naturally produce more males but we would ideally like two females to one male, because males have annual breeding cycles and females breed every two years.

‘We visited the island in 2002 and sexed the young captive tuatara by laparoscopy to determine male/female ratios. In the laboratory incubator we are able to keep temperatures constant, and we know that from 21° up produces males and below 21° produces females. Hence we can incubate eggs to produce males or females to order.’

Nicky Nelson completed a PhD funded by the Marsden Fund studying tuatara incubation in captivity, and is now completing post-doctoral study on the effects of global warming on tuatara populations. Her study is being sponsored by the Zoological Society of San Diego.

that interest me are that Tiritiri Matangi has started restoring smaller parts of our wildlife, a refocus from the bird-dominated restoration to date. The translocation has also generated a lot of goodwill between agencies and groups. There has been a whole raft of people involved — DoC (operational requirements), Auckland Zoo (disease screening), Auckland University (research), iwi (support and volunteer involvement) and of course the Supporters of Tiritiri Matangi.’

For Charles Daugherty, however, Little Barrier is a special story: ‘For years there was a famous old tuatara there and then he disappeared. No others had been seen for

some time and it was thought there were none left. In 1991 DoC gave us permission to search the island. About ten of us spent a week on the island. It was tough work, but we found four animals. The following year four more were captured. In 1994 they started producing eggs; since then all four females have been breeding, producing clutches of eight to 14 eggs every other year.

‘We have been incubating the eggs here at Victoria University with a pretty good success rate, and the young are sent back to the island. Sue Keall and Nicky Nelson have been working at the coal face, along with the DoC staff on the island who are taking care of the young animals.

‘The tuatara are being held on the island with the understanding they will be released when the rats have been eradicated. Little Barrier is ten times bigger than the next largest island with tuatara, the highest island and the only one with a cross section of vegetation that’s found on the mainland. To me, this feels like the biggest success story. Releasing over 100 tuatara on Little Barrier will be a fantastic day.’

For DoC’s part, the Tuatara Recovery Group leader, Peter Gaze, says the recovery programme has been successful because of effective partnerships with iwi, universities and captive breeding institutions. Looking ahead, he says that while the group continues to focus efforts on keeping tuatara islands free of rats, successes to date now allow the focus to shift towards extending the range of tuatara and facilitating public accessibility and enjoyment.



Enclosures for rearing captive tuatara on Little Barrier Island in the Hauraki Gulf. The view looks across Te Maraeroa toward the boat shed from the base of the Thumb Track.



Probably the only colour photograph ever taken of Stead's bush wren, a bird rendered extinct when rats invaded Big South Cape Island. Starting five months after the irruption was first reported, wildlife officers were able to relocate only six of this species to nearby rat-free Kaimohu Island. Bush wrens were last seen on Kaimohu eight years later — in 1972.

The Legacy of Big South Cape Island

Forty years on, DON MERTON remembers an ecological catastrophe which changed the way we protect our islands and endangered birds. Historic pictures by the author.

Forty years ago an event occurred on an island near Stewart Island that changed forever the way we perceive, manage and protect our offshore islands — and our living heritage. The accidental introduction of rats to Big South Cape Island/*Taukihepa* had far-reaching implications not only for New Zealand, but for island nations around the world.

Before the diasaster, as a junior officer with the former Wildlife Service, I was privileged to spend a month on Big South Cape Island — at 939 hectares, the largest of the 'muttonbird islands' off the southwestern coast of Stewart Island. Big South Cape at that time was the final refuge for a number of native animals formerly abundant and widespread on the mainland and Stewart Island. The island was home to the last populations of three bird species and a bat which had become extinct on all but Big South Cape and two tiny adjacent islands — Solomon and Pukaweka. Although inhabited by some 300 'muttonbirders' for around three months each year, and somewhat modified, no mammal had been introduced and the island retained its full quota of native wildlife.

Big South Cape was a remarkable bird island then — and a very special place for both Maori and Pakeha.

As a consequence of this visit (and many other field trips in remote areas), I tried to fathom just how and why our native wildlife — especially birds peculiar to New Zealand — could flourish here but be in such a predicament on the mainland.

Although habitat destruction and



The rat 'irruption' was so massive that not only birds suffered. Invertebrates and vegetation were devastated. This was one of many punui *Stilbocarpa lyallii* plants ravaged by rats.

fragmentation were well advanced on the mainland, we still had hundreds of thousands of hectares of seemingly intact native forest and other habitats. Yet massive extinctions and retractions in range had occurred and, in contrast to islands like Big South Cape, our mainland forests were largely silent.

Some leading biologists (educated in Europe or North America) were adamant that the ecological collapse and extinctions we'd experienced were not a consequence of predation — predators, they explained, were a natural part of the scheme of

things....They argued that, as in Europe and North America, extinction and the numbers of birds endangered within New Zealand were primarily due to habitat destruction and fragmentation.

My colleagues and I were not convinced. It was the rat invasion of Big South Cape Island that clinched our arguments, and changed forever the way we perceive, protect and manage our islands and their native plants and animals:

In March 1964, muttonbirders returning to Big South Cape reported that a rat plague was causing immense damage to property and wildlife. Ship rats *Rattus rattus* had reached their island and had 'irrupted'. This was disastrous as the island was the final and only refuge for such rarities as the South Island saddleback, Stead's bush wren, the Stewart Island bush snipe and (unknown to us at the time) the greater short-tailed bat.

My Wildlife Service colleagues and I were very concerned and anticipated a biological disaster. We had the support of Forest and Bird and the Southland Acclimatisation Society in this, but only a few scientists agreed.

Some of the most knowledgeable and respected biologists at that time genuinely believed the rats did not pose a significant threat to resident wildlife, and vigorously opposed any suggestion to intervene.

They took the view that the birds would adjust to rats as they apparently had in Europe, and maintained that 'if we intervene we will change the ecology in a way that we cannot predict. We should



Landing through the surf on Potuma, one of the muttonbird islands off Southwest Cape, Stewart Island, in 1961. The buildings belonged to 'muttonbirders'. The arrival and irruption of rats, shortly after this, on nearby Great South Cape Island/*Taukihepa*, devastated that island's wildlife, causing local extinctions plus the global extinction of Stead's bush wren, the Stewart Island snipe and the greater short-tailed bat.



Don Merton on Big South Cape Island as a young wildlife officer in 1961. With others, he pondered why native birdlife could be so abundant on some offshore islands while mainland forests held comparatively few birds. He, and others, were about to discover why.

intervene only after research has shown there is in fact a problem.' They overlooked the fact that our birds are different, having evolved without four-legged predators.

In spite of this — and thanks to the tenacity of senior Wildlife Service staff members Brian Bell and Frank Newcombe, together with concerned

scientists including Sir Charles Fleming — we eventually succeeded in gaining permission to mount a rescue mission.

Sadly, by the time we reached Big South Cape, five months had passed and many land-bird populations had already been effectively destroyed.

Our small team, led by Brian Bell, succeeded in saving the South Island

saddleback by transferring some of the remnant to two small neighbouring pest-free islands — Kaimohu (8 hectares) and Big (Stage) (18 hectares). Tragically, it was too late to save the bush wren, the snipe and the bat — all of which were quickly exterminated along with at least one invertebrate species.

On our first visit to Big South Cape Island, in 1961, 18 species of landbird were present. By 1965, following the colonisation and irruption of rats, eight species of the island's landbirds had undergone a dramatic decline. Five of these were subsequently lost from the island — two becoming globally extinct. Not only did the rats exterminate the bush wren, the snipe and saddleback; more common species such as the Stewart Island fernbird and robin became locally extinct, and others such as the bellbird and kakariki underwent major population declines.

Fortunately, the saddlebacks we rescued and released on Kaimohu (15 birds) and Big (Stage) (21 birds), thrived so that it has since been possible to establish them on numerous other islands off Stewart and the South Island, including Breaksea in Fiordland — after rats were removed. Sadly, the six bush wrens we released on Kaimohu did not persist. The last two



The last Stewart Island snipe population was found on Big South Cape Island. Two birds were rescued but died before the constant wintry gales and big seas abated sufficiently for them to be transferred to a safe island. Wildlife staff found it difficult to feed them because rats had greatly reduced the numbers of invertebrates on which the snipe fed.

were seen there in 1972. And, the two Stewart Island snipe caught died in captivity before the constant wintry gales and big seas abated sufficiently for us to transfer them. The bush snipe would eat only live invertebrates and we were unable

to find enough natural food for them (I later carried out trials involving the related Chatham Island snipe and found that these birds can in fact be maintained in captivity, but require copious quantities of live food by night and day). The rats on

Big South Cape had reduced that island's invertebrate populations to a level where we had great difficulty finding sufficient natural foods to feed the captive birds.

The tragedy of Big South Cape was a valuable and timely lesson for conservation workers. The experience served to convince even the most sceptical that — unaided — rats are capable of inducing ecological collapse and extinctions on islands.

The Big South Cape disaster also had a massive, enduring impact in shaping future conservation policy and practice both within New Zealand, and in other island nations around the world.

Refined over the decades, the techniques of predator mitigation, eradication and control have now reached a level where — with ongoing vigilance — it is possible to maintain the rodent-free status of biologically important islands. Forty years on, we can eradicate rats, stoats and other aliens from large islands (both offshore and mainland) so as to restore ecological values and processes. We can then reinstate predator-sensitive species, such as kaka, kokako, kiwi — and even saddleback — within mainland habitats.

— **DON MERTON** is now a world-renowned expert in the rescue and recovery of endangered species. He works from Wellington, with the Department of Conservation.



DON MERTON

By the 1960's the South Island saddleback was found only on Big South Cape Island and two tiny adjacent islands — Solomon and Pukaweka. In 1964, 36 birds were rescued from rat-infested Big South Cape and released on neighbouring Kaimohu (15 birds) and Big (Stage) (21 birds), so averting extinction of the subspecies. According to the International Council for Bird Preservation (now BirdLife International) this was the first instance where a bird in imminent danger of extinction had been saved from extinction and restored to viability in the wild, through direct human intervention. Progeny of those released on Big (Stage) Island have since been periodically cropped to establish more than a dozen new island populations.



DON MERTON

Rescued birds were held in this makeshift aviary in the muttonbirders' camp at Puai, on Big South Cape Island. This was one of the first successful 'translocations' involving an endangered New Zealand bird. Techniques pioneered then are now an everyday part of conservation work.

Extinct Giant Crow of New Zealand

BRIAN GILL traces the appearance and disappearance of New Zealand's ravens.

Watch any film or television drama from Australia, Britain or North America, and the chances are you will hear in the background of outdoor scenes the cawing of crows. Members of the crow family are found almost worldwide, but New Zealand and the polar regions are among the few substantial areas without them, though it was not always so.

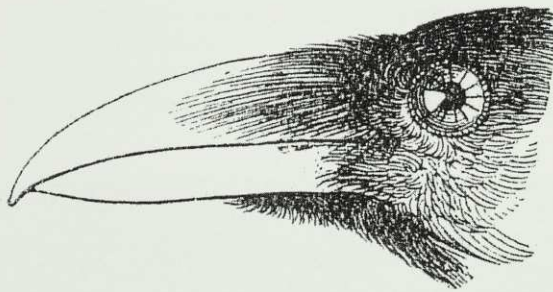
Our only crow today is the rook *Corvus frugilegus*, introduced from Britain in the 1860s and 1870s. It is mainly limited to hill country and arable farmland in Hawke's Bay and Canterbury where its populations are controlled by poisoning.

It is not widely known that we once had native crows of our own that are now extinct. Like other crows, they had a long, stout bill, and their plumage was probably black. 'Crow' is a general term, either for members of the family Corvidae, or, more particularly, for those in the genus *Corvus*. The largest of the latter are called 'ravens', and the family includes jays and magpies (but not Australian 'magpies', which are in a different family).

The New Zealand crows were discovered as 'fossils'. In 1892, H.O. Forbes of Canterbury Museum found fossil bones of a large crow in sand dunes on Chatham Island. He described these as belonging to a new species called *Corvus moriorum*. A year later he named a slightly smaller species, now called *Corvus antipodum*, based on fossil bones from the North Island. The bones of both species are large, as crow bones go, so we are justified in calling these extinct birds ravens.

Raven bones have since been found around much of the New Zealand coast, mostly in sand dunes and never more than about 25 kilometres inland (see map). Along with sites on the Chatham Islands, these sites are all

known, or assumed to be, Holocene in age; that is, deposited since the last ice age, which ended about 10,000 years ago. Most are probably younger than about 6500 years old, when the present sea level was established. Older raven bones, up to several tens of thousands of years old, have been found at Oamaru and in limestone caves in the



Close-up of the northern raven's bill.
From Newton, 1893-6, A Dictionary of Birds.

northwest of the South Island.

Some of the bones are found at coastal archaeological sites, in Moriori cooking middens on the Chatham Islands and in prehistoric Maori waste in the North and South Islands. This human association proves that the ravens were not extinct before the Polynesian settlement of New Zealand began about 750 years ago.

Raven bones are absent from several well-studied inland sites, such as the caves of the Waitomo limestone region, and Earnsclough Cave in Central Otago. This suggests that the ravens preferred open habitats and forest margins. The east coasts of both main islands, where dense forest was less abundant, may have suited the ravens best, and they may have been specialised coastal scavengers.

Chatham Islands ravens were slightly larger on average than those from the South Island, which in turn tended to

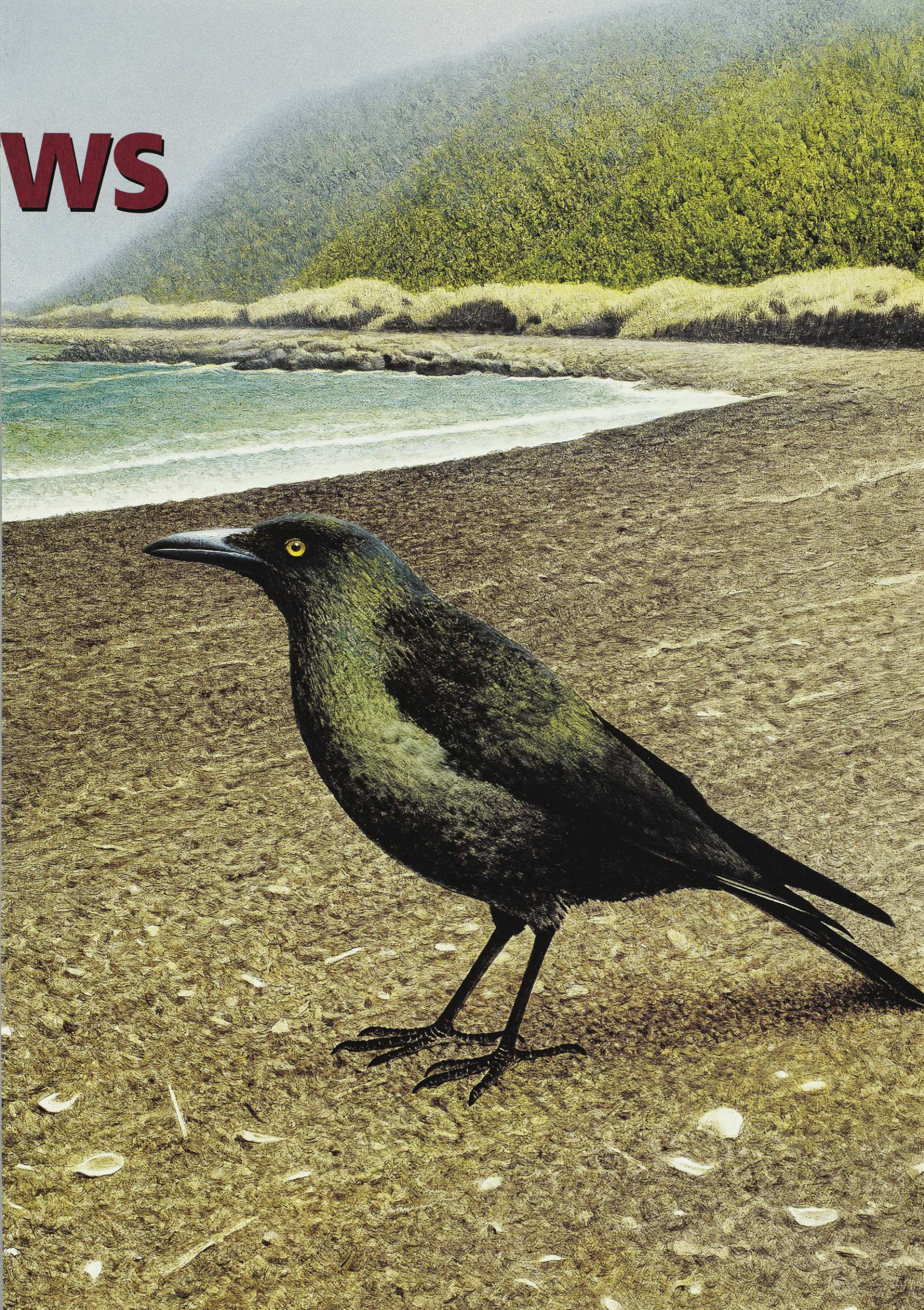
be slightly larger than North Island birds. For example, the humerus (one of the major wing bones) was 80-87 millimetres long in the Chathams, 78-83 millimetres in the South Island and 74-82 millimetres in the North Island. The variation on the mainland was probably clinal average size increased gradually from North to South as happens in many New Zealand birds. This follows Bergmann's Rule, whereby in birds and mammals that vary in size geographically, size tends to be larger among the populations in cooler areas, i.e. towards the south in New Zealand. Larger animals are better able to conserve their body heat in colder areas. We recognise two species of ravens, a mainland form (*antipodum*) and a larger insular form on the Chatham Islands (*moriorum*).

There are several living crows and ravens in Australia, New Caledonia and the Solomon Islands. New Zealand ravens were the largest of all these crows. The humerus is only 71-75 millimetres long in the Australian raven *Corvus coronoides*, the largest Australian crow, which weighs 540-820 grams. However, in European populations of the northern raven *C. corax*, the humerus is 88-102 millimetres long.

New Zealand ravens would have weighed about 0.9-1.0 kilograms when fully grown. Northern ravens weigh up to 1.4 kilograms, and are often cited as the world's largest songbird. However, that title apparently belongs to the thick-billed raven *C. crassirostris* of Ethiopia which is larger,

Opposite: Paul Martinson's artistic impression of a New Zealand raven in a coastal setting. From Gill and Martinson, 1991, New Zealand's Extinct Birds (Random Century). Reproduced by courtesy of the artist.

WS





A drawing of the northern raven. From Yarrell, 1843, *A History of British Birds*.

although its weight is unknown. There are several other large ravens, such as the white-necked raven *C. albicollis* of southern Africa, which weighs around 0.9 kilograms. The unrelated superb lyrebird *Menura novaehollandiae* of Australia can weigh around 1.1 kilograms. Compared with these, the Chatham Islands raven was probably the world's fourth or fifth-largest songbird.

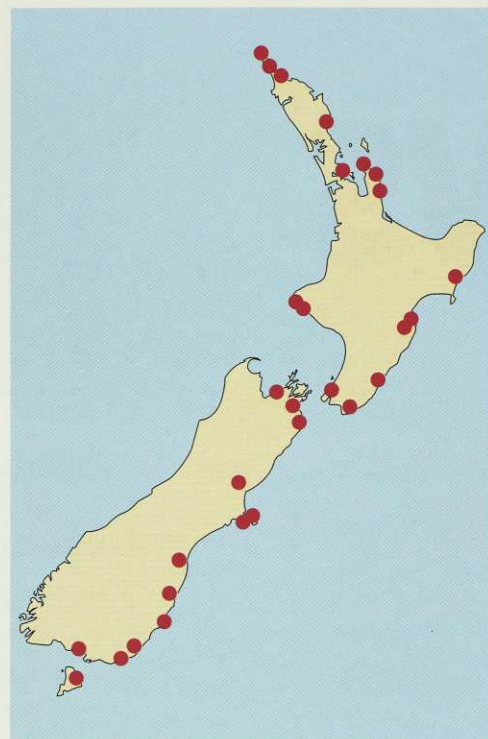
The wing bones of New Zealand ravens were fully developed relative to the leg bones, suggesting that they were strong fliers. There was no reduction in the wing, as evident in weak-flying birds such as the kokako or saddleback. The tendency towards flightlessness, displayed by so many ancient New Zealand land birds, was not shared by the ravens, not even the isolated Chatham Islands population. The wing bones of New Zealand ravens were shorter than those of the northern raven of Europe, but the lower leg was equal or longer in New Zealand birds. Thus New Zealand ravens were relatively long-legged, perhaps as an adaptation to spending more time on the ground, walking or running. Apart from the leg bones, there is nothing unusual about the relative size of the raven bones, one to another, or their shape. They were typical crow bones which suggest that New Zealand ravens were fairly ordinary crows.

During the isolation of New Zealand ravens from their overseas ancestor, natural selection must have favoured those that kept flying despite the lack of mammalian predators. Flight may have been essential in the ravens' ability to succeed as coastal scavengers.

Within the last 20 years, studies of DNA have revolutionised understanding of bird taxonomic relationships. Among the new findings is the remarkable and unsuspected notion that the world's songbirds fall into two major groups: the corvidans (Parvorder Corvida) which originated in the Australasian region, and the passeridans (Parvorder Passerida) which arose elsewhere. The crow family belongs in the Australasian group.

The origin of the corvidan songbirds presumably goes back some 90 million years to the Cretaceous when the Australian region (including New Zealand) broke away from Antarctica and drifted north. The ancestral species that gave rise to the Corvida probably reached Australia from Asia 55-60 million years ago. There was an 'adaptive radiation' of these birds into the local songbird groups of the Australasian region. When Australia got closer to southeast Asia, a successful crow-like species must have crossed the gap and spread widely to give rise to the Northern Hemisphere crows, magpies and jays.

The closest living relative of New Zealand ravens is not immediately obvious. The five Australian *Corvus* represent a secondary radiation from an ancestral *Corvus* that reinvaded Australia. Species of *Corvus* in New Zealand, New Caledonia and the Solomon Islands must also descend from an ancestral *Corvus* that reinvaded the area, most likely the same one that gave rise to Australian crows. The Australian raven *C. coronoides* is the likely closest relative of the New Zealand species, being the largest Australian *Corvus* and one that is widespread



Distribution of raven bones in sites younger than about 6500 years old.

in southeast Australia. New Zealand ravens probably developed following the invasion of New Zealand by *C. coronoides* or its ancestor. This took place sufficiently long ago to allow development of the slightly increased size of the New Zealand birds.

There is no evidence that any European ever saw a New Zealand raven. So they are among the birds eliminated by prehistoric Maori activity, which included forest clearance, the introduction of mammalian predators, and direct hunting for food. It is puzzling that our ravens should have died out when crows in general are renowned for intelligence, adaptability and association with human settlements. This is especially so considering the size of their wing bones shows that New Zealand ravens flew well.

At Marfell Beach, Marlborough, raven bones are not present in Maori middens at greater relative frequency than in nearby natural deposits, suggesting that over-hunting was not a main cause of extinction. Instead, it is plausible that New Zealand ravens nested on cliff ledges, or had come to nest elsewhere on or near the ground, and that their eggs and nestlings were prey for the southeast Asian rat (kiore, *Rattus exulans*) that Maori introduced. Irruptions of this rat would have spread throughout the country, posing a threat to the eggs and young of many birds, if not to the adults themselves.

— BRIAN GILL, Curator of Birds at Auckland War Memorial Museum, has a particular interest in extinct birds. He has written several books, including *New Zealand's Extinct Birds* with Paul Martinson (Random Century, 1991) and *New Zealand's Unique Birds* with Geoff Moon (Reed, 1999).

Small Wonders

People exploring the outdoors are continually amazed by the rich variety of New Zealand wildlife and plants. What scientific jargon coolly describes as 'biodiversity' is actually made up of a vast variety of different life forms living together.

Forest and Bird is campaigning to maintain this natural heritage in the face of development and issues such as pollution. Here are two interesting examples which members have recorded recently.

Native Forest Slugs

Rebecca Bowater of Nelson photographed this native slug on the Mt Patriarch road in Mt Richmond forest park. It was five centimetres long and veined like a leaf. It is photographed here, as found, on a rock.

There are 25 or more species of native leaf-veined slugs. They live in the forest, not the garden, and usually come out to feed at night. Different species may be found in different habitats, including the forest floor, in flaxes or astelia and on tree trunks, shrubs and tussock. Many are eaten by rats.



REBECCA BOWATER

Native leaf-veined slugs are usually nocturnal. This one, photographed in the Mt Richmond forest park near Nelson, is *Pseudaneitea gigantea* but there are 25 or more similar species found in highly varied habitats.

Wandering Sea Anemone

Wandering sea anemones, although relatively common right around New Zealand's coast, aren't often seen. They are occasionally found drifting amongst the seaweeds in low intertidal rock pools but are more common below low tide down to 35-metre depths. Divers often see them, either attached to rocks amongst kelp holdfasts or wandering across sand where there are detached kelp fronds.



JENNY AND TONY ENDERBY

A wandering sea anemone, photographed by Jenny and Tony Enderby of Leigh, lower Northland. It is known in Maori as *humenga* and scientifically as *Phlyctenactis tuberculosa*.

The anemones' foot allows slow movement by extending and gripping the ground in the direction of travel and releasing at the other side. We have seen anemones attached to the same rock near Goat Island marine reserve for several days, possibly because of an abundance of food, or because the animals were digesting a meal.

Colour varies from light rusty brown to dark grey, sometimes with patches of a different colour. During the day the yellow or orange tentacles are often withdrawn, but at night they extend to trap drifting food particles, small invertebrates and small fish.

Wandering sea anemones can reach 20 centimetres in length and 15 centimetres in diameter. Their shape can change from almost circular to columnar, especially in calm areas with no wave action. Their flaccid, warty exteriors are well designed for protection against bumping on the rocks and seaweeds in storms.

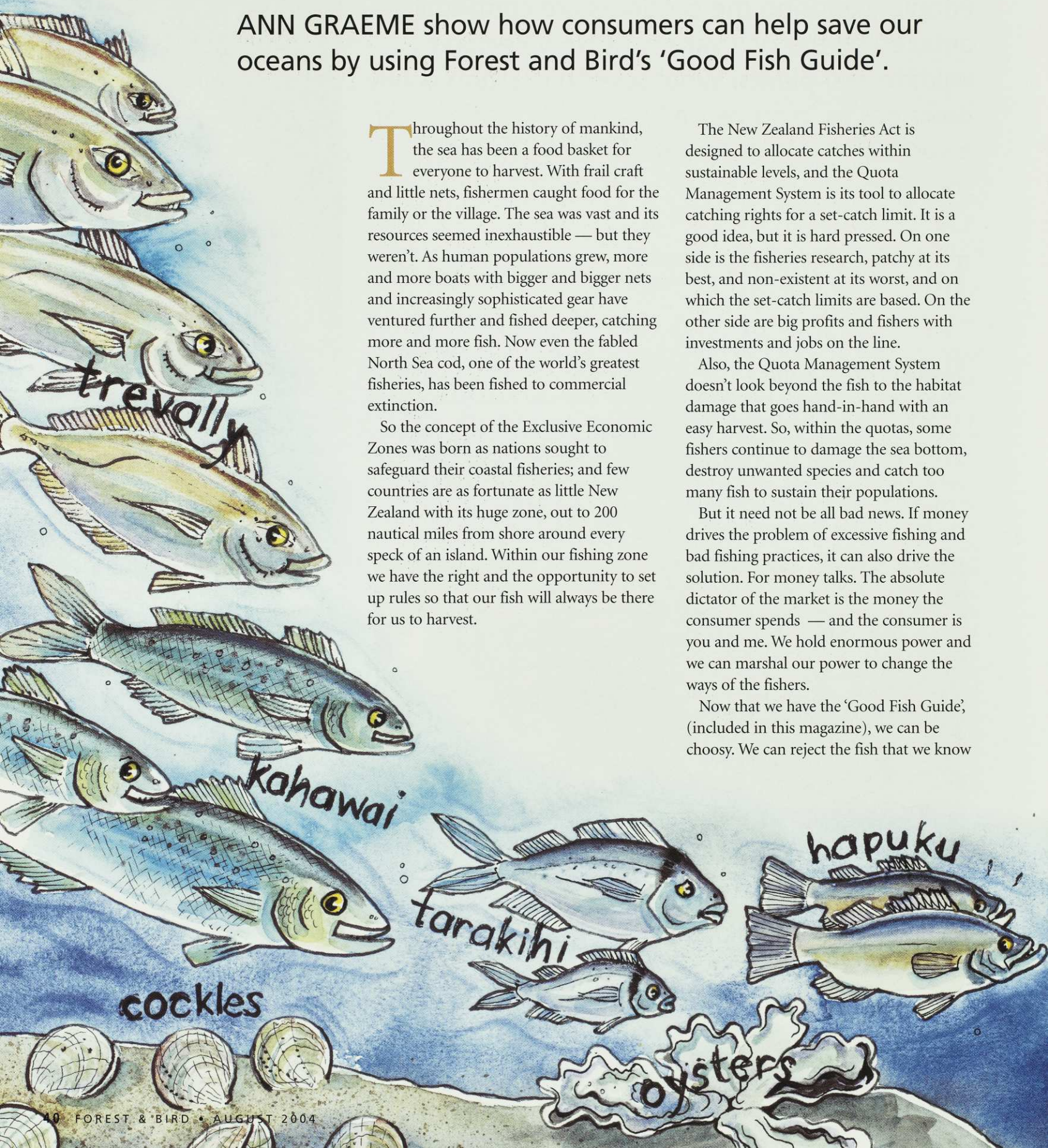
These creatures are also found around Tasmania and southern and Western Australia.

— JENNY AND TONY ENDERBY www.enderby.co.nz

in the *field*

Cook with a Carefre

ANN GRAEME show how consumers can help save our oceans by using Forest and Bird's 'Good Fish Guide'.



Throughout the history of mankind, the sea has been a food basket for everyone to harvest. With frail craft and little nets, fishermen caught food for the family or the village. The sea was vast and its resources seemed inexhaustible — but they weren't. As human populations grew, more and more boats with bigger and bigger nets and increasingly sophisticated gear have ventured further and fished deeper, catching more and more fish. Now even the fabled North Sea cod, one of the world's greatest fisheries, has been fished to commercial extinction.

So the concept of the Exclusive Economic Zones was born as nations sought to safeguard their coastal fisheries; and few countries are as fortunate as little New Zealand with its huge zone, out to 200 nautical miles from shore around every speck of an island. Within our fishing zone we have the right and the opportunity to set up rules so that our fish will always be there for us to harvest.

The New Zealand Fisheries Act is designed to allocate catches within sustainable levels, and the Quota Management System is its tool to allocate catching rights for a set-catch limit. It is a good idea, but it is hard pressed. On one side is the fisheries research, patchy at its best, and non-existent at its worst, and on which the set-catch limits are based. On the other side are big profits and fishers with investments and jobs on the line.

Also, the Quota Management System doesn't look beyond the fish to the habitat damage that goes hand-in-hand with an easy harvest. So, within the quotas, some fishers continue to damage the sea bottom, destroy unwanted species and catch too many fish to sustain their populations.

But it need not be all bad news. If money drives the problem of excessive fishing and bad fishing practices, it can also drive the solution. For money talks. The absolute dictator of the market is the money the consumer spends — and the consumer is you and me. We hold enormous power and we can marshal our power to change the ways of the fishers.

Now that we have the 'Good Fish Guide', (included in this magazine), we can be choosy. We can reject the fish that we know

e Conscience

are being decimated by overfishing and whose capture drowns birds and destroys the sea bed and sea life. We can choose the fish that we know will always be available because the catch is more sustainable and the habitat is more secure. And we can influence other consumers, the vast and varied crowd of housewives, superannuants, city workers, students and children whose shopping is the life blood of the fishing industry.

Consumer power has worked before. Remember Genetically Engineered food? Such was the power of customer resistance that GE food stuffs couldn't get a toehold in the New Zealand supermarket. After a campaign against GE-fed chicken, McDonald's have announced that they will no longer use them. Their chickenburgers will not be tainted with even a suspicion of GE.

The GE victory was easy because it depended entirely on the consumer's self-interest. People think GE products might be bad for them, so rejecting them was easy. The health campaigns about the risks of excess salt and sugar in our diets weren't so easy because the health messages conflicted with our love of sweet and salty food, but still the buyers' response led to a range of salt and sugar-reduced products being marketed.

Let's not insult ourselves — for we are the consumers — by suggesting that we only think about our stomachs. We can act selflessly for a cause we think is right.

Twenty years ago, the campaign to stop drift-net fishing showed just that. While governments tried to enact laws to stop the indiscriminate massacre by the enormous drift nets, we consumers demanded that our tuna wasn't caught over the corpses of the dolphins entangled and drowned in the giant nets. In no time, 'dolphin-friendly tuna, not caught in drift nets,' swept the shelves and tuna tins proclaim it even today, when drift netting is hopefully only a memory.

We cared about dolphins and we care that the albatrosses should fly above the southern oceans and not be dragged to a dreadful death on the hooks of long-line fishers. We want the undersea gardens of coral and seaweed to flourish, and not to be smashed beneath the rollers of the trawl nets. We don't want sea creatures like crabs, sea urchins, the bizarre sea lilies and the sea pens to die, trashed as 'by-catch' from the nets dragged for scampi. We want sustainable fishing practices that work. We want to eat fish, and we want to eat it with an easy conscience.

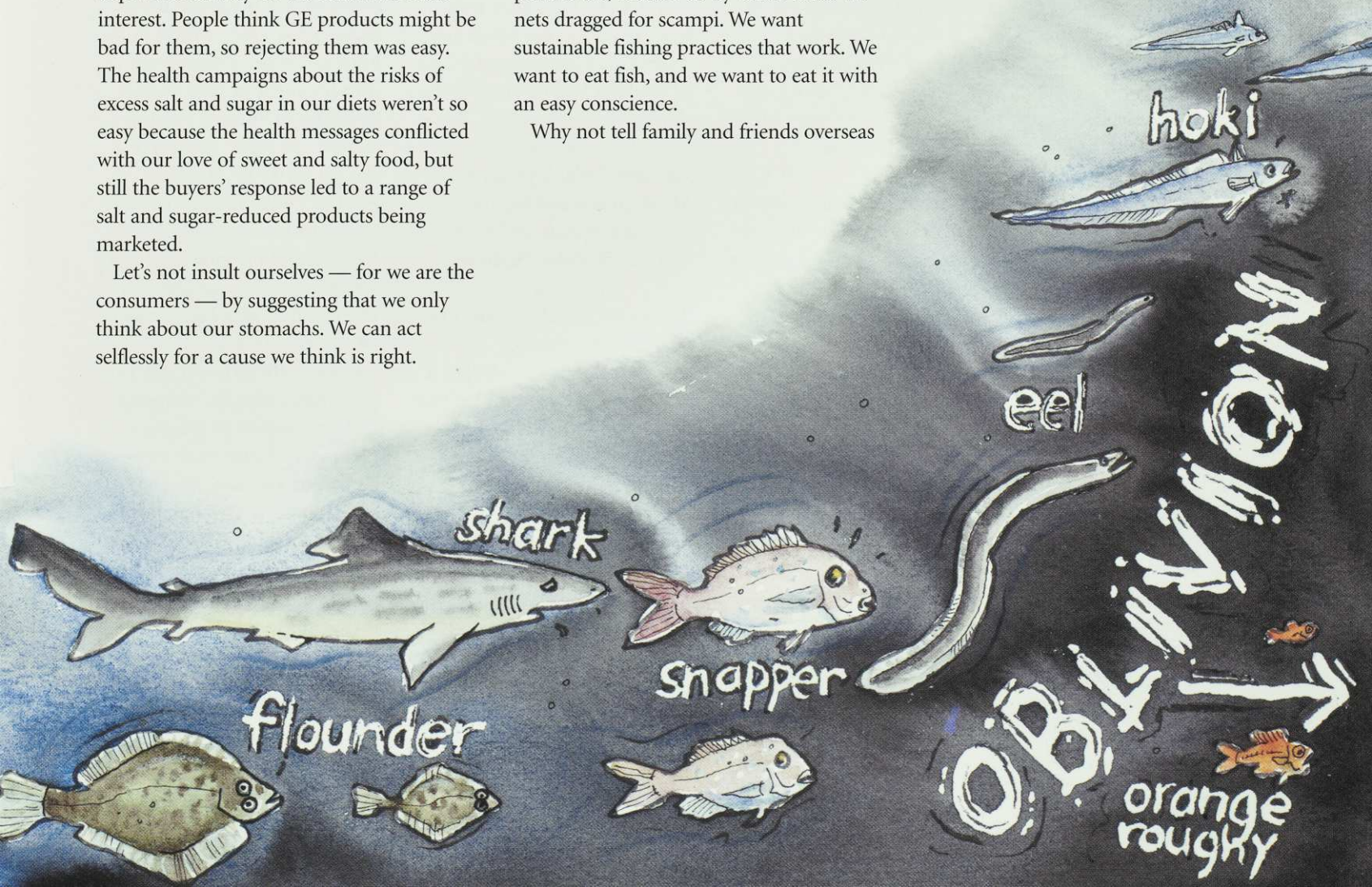
Why not tell family and friends overseas

to avoid eating hoki and orange roughy? Take your 'Good Fish Guide' with you when you go shopping. Tell the people around you about your choice of fish. Tell the person behind the counter too, and your friends and neighbours and family.

We can make a difference.

— ANN GRAEME co-ordinates the Kiwi Conservation Club for Forest and Bird branches.

Find new fish recipes to use with more acceptable fish species at www.forestandbird.nz



Forest and Bird Recognises Outstanding Conservation Efforts

The presentation of Forest and Bird's 'Old Blue' awards, which recognise outstanding contributions to conservation, was a highlight of the June Council meeting. Taking their name from the last female Chatham Island robin, which then went on to save the species, the 'Old Blue' awards carry descriptive citations, abbreviated below:

Ruth Dalley and Lance Shaw are passionate believers in conservation of marine environments, especially in Fiordland and Southland. They led the way showing that tourism in Fiordland can be about protecting marine life and the wilderness, and does not need the addition of recreational fishing in order to run a highly successful nature-based business.

Cruising the waters of the region on board their vessel 'Breaksea Girl', they believe in educating and inspiring passengers with their great knowledge of, and passion for, marine life in the subantarctic and Fiordland.

They are tireless advocates for the environment using the Resource Management Act as a valuable tool. Often working in the face of strong local criticism, they are courageous in their fight to keep other tourism operators honest, and help strengthen DoC and Environment Southland's enforcement duties.

Basil Graeme has been an untiring and courageous advocate for conservation both in his local community and around the country. Many native forests and shrublands owe their survival to the creation of the New Zealand Forest Accord, in which Basil played a key role.

Many District and Regional Plans include conservation measures, thanks to Basil's



The Graeme family — conservationists all — turn out in support of Basil Graeme who was awarded an 'Old Blue' at the Society's annual dinner 'for making a difference'. From left, daughters Meg and Claire, Basil, wife Ann, and daughter Kate. The daughters are active in local branches of the Society, while Ann is the co-ordinator of the Kiwi Conservation Club and a frequent contributor to Forest & Bird. Basil and Ann were both honoured with the Queen's Service Medal last year.

meticulous submissions and dogged perseverance. Often ahead of public opinion, he has never shied away from difficult and unpopular conservation issues and, over time, has seen once-radical ideals become accepted policy. He is presently chairman of Tauranga Forest and Bird, and has been a member of the national executive, and previously was the Society's field officer for the central North Island.

Bill Garland, with his wife Sue, farms on the western slopes of Maungatautari in the southern Waikato. Regionally and nationally, Bill has served on major boards and committees connected to the land, including Federated Farmers, the Animal Health Board, the advisory committee for Regional Environment, advisory committee for Landcare Research, the Waikato Conservation Board, and as deputy chair of the Queen Elizabeth II National Trust, chair of the Farm Environment Award Trust, and the Maungatautari Ecological Island Trust. He is a life-long trapper.

Bill's father made one of the

first QEII covenants, with 12 hectares of bush, and Bill followed with another 13 hectares. Walking round his farm, one can appreciate why it was chosen as the site to launch the National Biodiversity Strategy. The bush is fenced and streams run clean. It is, however, in his persistent and relentless campaigning for care of the land and its biodiversity that Bill leaves his mark. Bill Garland was made an Officer of the New Zealand Order of Merit for services to farming and conservation in the Queen's Birthday Honours.

The award to **Allan McKenzie** of the Department of Conservation acknowledges a lifetime of extraordinary effort in conservation from someone who has worked all his life within the Public Service. Allan is not alone in this work but his contribution is outstanding. He worked closely with Forest and Bird in his early career with the Nature Conservation Council when conservation had few friends in Government.

Allan helped lead Government efforts to save native forests.

When DoC was formed, Allan

championed the importance of public involvement, particularly in conservation boards when their future was jeopardised. He has played a lead role in the saving of the West Coast forests including coordinating the review of the Timberlands forests and their ultimate allocation to DoC. He has also put a huge and increasingly successful effort into seeking protection for the forests created by the South Island Landless Natives Act, largely in Southland, where he is the Government's chief negotiator. For the last 15 years Allan has been the Manager of the Nature Heritage Fund.

Raewyn Ricketts served four years as chairperson of the Hastings/Havelock North branch, four years on its committee and eight years as the leader of its Kiwi Conservation Club. She has initiated three major projects: The Friends of the Kawekas (a pressure group started in 1997 focussed on deer control in the Kaweka range), a native tree nursery and a storage nursery at Pekapeka Swamp. Raewyn started the plant nursery as a project for KCC. It now produces 4000 native trees each year, and is managed by Raewyn and her small band of volunteers while the children are involved in collecting seed and planting trees.

Raewyn Ricketts also works with many schools, showing children how to propagate plants, supplying them with seeds and seedlings. She is also secretary of the Maraetotara Stream Enhancement Trust.

Raewyn Ricketts was recognised late last year, by her own community, for her work with the Kiwi Conservation Club when she received a Natural Heritage Award from the Department of Conservation and Norsewear of New Zealand.

Branches Visit South Australia

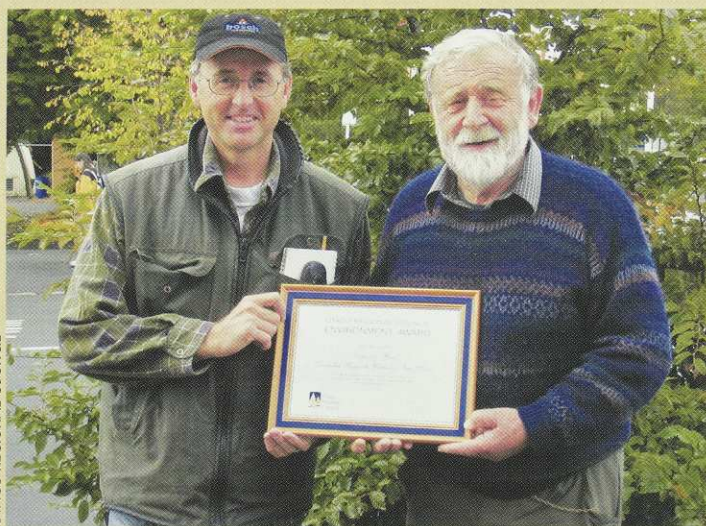
A grant by winemaker Banrock Station of \$20,000 to Waitakere Forest and Bird, for wetland protection and enhancement, led to a visit there by members of branches in the Auckland region. The Waitakere Forest and Bird secretary, Ken Catt, investigated possibilities and discovered that Banrock Station's Riverland Biosphere had great potential for bird watching. A safari organiser was approached and in April a group from Waitakere, Auckland Central and North Shore branches assembled in Adelaide for coach travel to Berri, a small town on the Murray River

'Guides led us for five days into the Mallee country, visiting Banrock Station on the first morning,' writes participant Dr Michael Taylor. 'We drove north on red dust tracks, over ridge after ridge, covering around 150 kilometres each day. A radio link between the cars and GPS way-points helped to confirm positions

'We entered the Birds Australia Gluepot Reserve, 54,000 hectares for biodiversity protection, and stopped at its visitor centre. After three days we returned to Riverlands where vineyards prosper. Our personal bird checklists passed the hundred ticks each.'



Auckland Forest and Bird members visiting in South Australia included Chris Bindon, Sharon Davies, Ethne Richards, John and Karen Staniland, Claire Stevens, Michael Taylor and Neil Williams. The trip was organised by Ken Catt, secretary of Waitakere Forest and Bird.



The Otago Regional Council has presented its Environment Award to Dunedin Forest and Bird's 'Wilding Tree Team'. The award recognises the team's efforts, over the past six years, in the control of wilding trees in areas of high conservation value in Otago. The award was received by Dave McFarlane and Prof. Alan Mark (on right). More than 78,000 pines have been removed.

Small Section Handles Big Job



Steve Hart of Forest and Bird's Mercury Bay section (Upper Coromandel branch) at the new boundary fence between Kaitoke Scenic Reserve and a Landcorp property.

Behind the bustling town of Whitianga, and a world away from the surf and the trendy town houses of the Coromandel Peninsula, lie the secret inlets and estuaries of the Whitianga Harbour. Captain Cook once stood high on Kopaki Point in Kaitoke forest, admiring the view across mangroves and saltmarsh to the kauri forests lining the Whenuakite and Waiwawa rivers. The remnants of those great forests still provide a magnificent sight from the water, but, when volunteer goat hunters Steve Hart, John Longden and Adele Smaill explored Kaitoke Scenic Reserve in May 2001, they found a dying forest of leafless kohekohe, gaunt pohutukawa and the stench of billy goats. Under the onslaught of possums, goats, wild pigs, feral cats, stoats and rats, Kaitoke forest was near collapse.

But Kaitoke Reserve has had a reprieve. Steve Hart was the chairperson of the small Mercury Bay section of Upper Coromandel Forest and Bird. In August 2001 the section set up the Kaitoke Restoration Project, now in its third year. The group secured funding from the Waikato Branch of Forest and Bird, Project Crimson, the Ron Greenwood Trust and Environment Waikato. The project also received excellent support from the Department of Conservation's Hauraki Area Office which donated Fenn trap

covers, track markers and permits.

Possums were poisoned over the 122-hectare reserve. A goat hunting team, helped by trained goat dogs, exterminated all the goats. Goat reinvasion is now limited by regular patrols with dogs (trained to be safe with kiwi) and a boundary fence with the adjacent Landcorp property, built and funded by Mercury Bay Forest and Bird, DoC and Landcorp. Steve and his wife Gay continue to trap possums, stoats and pigs in the key ecological sites within the reserve. Tallies so far are 378 possums, 11 pigs, 73 stoats, one weasel, 59 rats and 160 goats. Stoat numbers this year have been alarming — most months between five and seven stoats are being caught using only 25 Fenn traps.

For Kaitoke forest, the results of this pest control are spectacular. Kohekohe and pohutukawa have a new lease of life and are flowering again. Hangehange is now two metres tall in places where there was none two years ago. Seedlings carpet the previously bare ground and the trees ring with bird song, to the delight of members who came to picnic in the summer.

Members of the Mercury Bay section of Forest and Bird also protect dotterels nesting on Buffalo Beach.

— ANN GRAEME

New National Executive Declared for 2004-05



The Forest and Bird national executive for 2004-05 was declared, without need for an election, at the June council meeting of the Society in Wellington. Executive councillors are: at back from left, Dr Philip Hart, Keith Beautrais, national president Dr Gerry McSweeney, national treasurer Ian White, deputy national president Dr Peter Maddison, Mark Fort; in front from left, Prof. Alan Mark, Anne Fenn, Jocelyn Bielecki, and Dr Herb Madgwick. [Absent: Dr Liz Slooten and Dr Barry Wards.]

There are four new members on the national executive for Forest and Bird declared at the June council meeting in Wellington. There was no election as one member from last year stood down and there were three existing vacancies.

The retiring councillor was Helen Campbell of Nelson-Tasman Forest and Bird. The new executive councillors are: **Jocelyn Bielecki**, now a member of Nelson-Tasman Forest and Bird, was a founder-member of Upper Coromandel Forest and Bird serving on the committee and including terms as treasurer and chair. She continues a long-term interest in resource management protection which has included mining issues. Her 'main concerns' are 'focussed on retaining what is left of our natural heritage and biodiversity'. **Mark Fort** is a self-employed horticulturalist in Te Teko, Bay of Plenty, and previously served on the national executive in 1996. He has organised a coalition which successfully opposed the building of an hydro dam on the Rangitikei River, and is concerned with possible future developments following the abandonment of Project Aqua on the Waitaki. His priorities include more field staff to help

branches oppose the increasing urbanisation of the countryside, the protection of high-country landscapes, a membership campaign for Forest and Bird, and support for the Kiwi Conservation Club.

Dr Herb Madgwick of Rotorua is a retired forest scientist. He was secretary of Rotorua Forest and Bird from 1995-98, resigning so he could spend more time as a member of the Bay of Plenty Conservation Board, 1996-2002. He rejoined the branch committee after this and is now again Rotorua branch secretary. His current interests include his areas of technical expertise; the environmental impacts of plantation forests, carbon sequestration, geothermal and marine issues.

Dr Barry Wards has a doctorate in microbiology and has been a research scientist with MAF and AgResearch for the past 19 years. He was brought up on a high-country station in the South Island. He has been active with Upper Hutt Forest and Bird since 1992, and chairperson for the past 10 years. He has coordinated the branch's Resource Management Act work and managed the branch's numerous projects, receiving an 'Old Blue' award from the Society in 2002.

Architecture Students Redesign F&B Offices

During the first term of this year, 60 students in the third-year class in Sustainable Architecture at the Victoria University School of Architecture were given the task of designing a refurbishment of Forest and Bird's central office building in Taranaki Street, Wellington. The School of Architecture is keen to engage with the community in this way and it was a great opportunity for Forest and Bird to make our message known to all those students and the staff working with them.

Once the assignments were complete the students were required to do presentations of their work, using their drawings. Forest and Bird staff members sat on the review panels along with Victoria University School of Architecture staff and architects in practice.

The designs were on display in the School of Architecture's atrium for a week and the top eight were later judged by the Head of School, Professor Gordon Holden, course director Associate Professor John Storey and Forest and Bird's general manager Niki

Francis. The winning student was Jesse Matthews who was awarded a Forest and Bird membership and a 'save the albatross' t-shirt. His design indicated that he had taken account of Forest and Bird's brief and designed something that was both practical and creative. Vida Christeller was second while Taylor Pressly and Yifan Zhang were jointly third.

Jesse Matthews wrote of his design: 'I kept the art-deco exterior of the building intact but the interior is completely changed. The activities of Forest and Bird have been condensed into the western side of the building through more efficient use of space, allowing the other half of the building to be rented out, contributing to the financial viability of the society. A series of terraces have been built over the car park to the rear of the building and it is intended that these support a small forest/public park that can be used for education as well as providing a green area in an otherwise hard and gray area of the city. This park also helps to filter the air entering the building, all of which is drawn from this side of the building instead of off busy Taranaki St.



Architectural view of the Forest and Bird building in Taranaki Street, Wellington, prepared by Jesse Matthews, in a student competition to improve the building. Refurbishment is part of long-term planning for the Society which purchased the property nearly 15 years ago.

A living legacy

Like many of us, Lilian Valder joined Forest and Bird with a desire to help preserve New Zealand's unique natural environment. In an extraordinary way during her full life – and also after her death last year at the age of 90 – she was able to assist in the protection of the native plants and wildlife she cared about.

Born in 1911, Lilian signed up as a foundation life member of the Forest and Bird Society when still a young adult. She trained in secretarial practice and accounting, and worked with her father on his extensive philanthropic activities, including assisting men onto derelict dairy farms. In the early 1930s she joined her oldest sister Mollie on a sheep and drystock farm on the southern slopes of Mt Pirongia in the Waikato, living for nearly 20 years without electricity. It was an unconventional move, but then Lilian was in many ways ahead of her time. She was also very practical, and as well as making bread and soap she was equally competent with an axe or a butcher's knife. She had no qualms about shooting possums from her kitchen window and then boiling up the carcasses for her pets.

She was more than capable of running the farm, and often helped muster, dag and crutch sheep on the neighbouring property belonging to Walter Scott, husband of noted author Mary Scott. When Walter's health declined it is said that Lilian spent some time practising on her own arm before administering injections for the ailing Walter.

Walter was also a keen conservationist and after he died in 1960 Lilian and Mollie expressed their concern for the felling of large areas of forest by gifting some 100 acres of native bush along with £500 for fencing and maintenance of the appropriately named Walter Scott Reserve in 1963.

The following year Lilian found she 'had trouble pulling the sheep out of the pen' so decided to 'retire' to a bach at Waihi beach, but her efforts to help others didn't cease. Instead she established two trusts which over the next twenty years were to distribute over \$2 million to a variety of charities, including the Royal Forest and Bird Protection Society.

She also didn't let up on her campaign against possums, and was often called up to kill possums caught in traps by local residents.

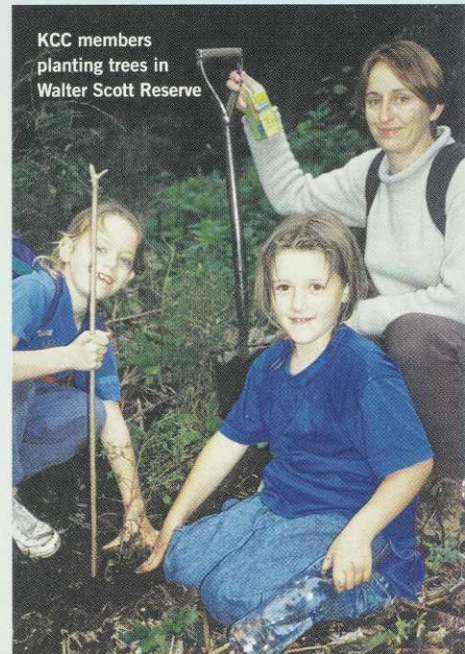


Lilian Valder

Lilian was active in tree-planting, revegetation and predator control, and in her later years she maintained an interest in how her donations were spent, taking pleasure in visiting reserves and covenanted private land. Those who met her describe a remarkable woman with a lively, intelligent and stimulating personality.

Three questions guided her actions: Is it true? Is it kind? Is it necessary? In 1993 she received the MBE for services to the community. Before she died she agreed that the Waikato branch annual grants be named the Valder Conservation Grants in her honour.

Lilian's life and work has been an inspiration to many, and her legacy has made a significant contribution to the protection of New Zealand's natural heritage in helping projects, research and people.



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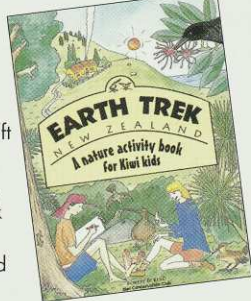


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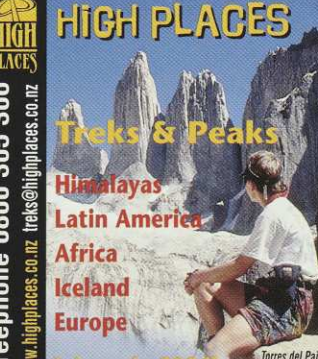
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To help us put more money into conservation we invite you to join or renew your membership by direct debit. You can also use direct debit to make a regular donation.



Please use the direct debit form at the back of this magazine, download it from our web-site or call us and we will post you a copy.

When you have completed the form, send it to us and we will set up your direct debit membership and donation.

Every step of the way you are helping us to protect Aotearoa New Zealand's wildlife and wild places.



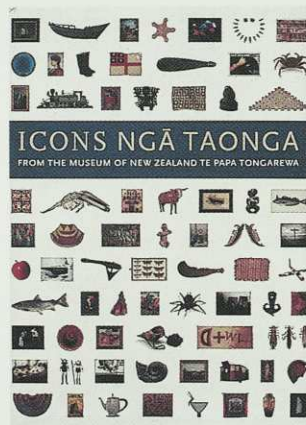
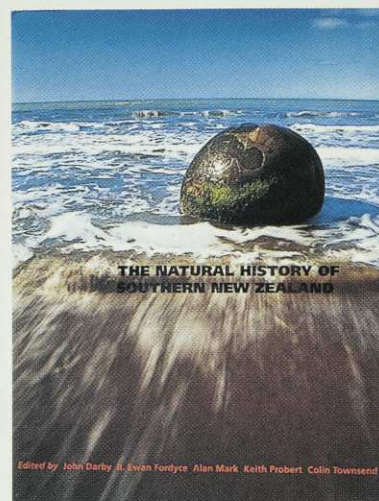
www.forestandbird.org.nz
office@forestandbird.org.nz
Free Phone 0800 200 064
Or Wellington 04-385 7374

booknotes

The Natural History of Southern New Zealand

edited by John Darby, R. Ewan
Fordyce, Alan Mark, Keith
Probert and Colin Townsend,
387pp, hardbound, Otago
University Press, Dunedin 2004
RRP\$120.00.

Oh, that every region of New Zealand had such a fine natural history book! This volume — devoted to Otago, Southland, Fiordland and Stewart Island — is the work of a large team of scientists from the south, including many museum and university staff. It begins with the geological history and continues through the ages of the evolving landscape, describing how the forests grew, exploring the habitats, and recording the impacts of the animals (and people) that occupied them. Evidence from recent scientific discovery gives this book a helpful new dimension, carrying the lay reader along with a fresh view of the natural values of the south. Good and helpful photographs parallel the text and special-interest 'boxes' make it easier to accommodate complex ideas. The book is a serious symposium made readable, for the interested layperson, by the high quality of its editing and presentation.



Icons Nga Taonga from the Museum of New Zealand Te Papa

306pp limpbound, Te Papa Press,
Wellington 2004, RRP\$79.99.

Selected treasures of Te Papa are displayed here in fine colour printing and extended captions. A team of staff has put together this sampler of their departments, dividing it into sections on Maori taonga, art, natural history, history, and Pacific pieces. It

is beautifully displayed but provides tantalisingly light reading: while presenting fascinating snippets they are really little more than an invitation to find out more and the opportunity to do so in Te Papa is sometimes limited by the nature of its displays. *Icons Nga Taonga* has the scope of the great Victorian collections of curiosities from which the modern museum evolved. It follows a similar volume marking 150 years of Auckland War Memorial Museum. Both books are tributes not only to historical museology but to the art of contemporary designers and photographers. Both visually display the wonderful complexity of our heritage — the natural and the cultural — and often the way the two streams can fuse, as when native materials produce native objects. As an alternative to visiting the museum on a wet day, *Icons Nga Taonga* offers a fascinating browse. This is a physically large book (326x245mm) and can most comfortably be read at a table. The lack of a hard binding means it is floppy and hard to shelve.

Join, renew or make a regular donation by direct debit

Every year we process over 25,000 cheques. Processing them is a time consuming and labour intensive job. You can help by paying your membership and donation by direct debit.

1. Direct Debit - Membership/Donation Form

This is a ☐ New membership
☐ Renewal (membership # if known) _____

Membership to

Name (Mr/Mrs/Ms) _____

Address _____

Phone (wk) _____ Phone (hm) _____

Email _____

If this membership is a gift please complete the contact details above and below. The gift membership will be sent with a card in the gift giver's name.

Gift membership from

Name (Mr/Mrs/Ms) _____

Address _____

Phone (wk) _____ Phone (hm) _____

Email _____

Forest and Bird Membership (Prices include GST)

- | | | | |
|---|-------|---|--------|
| <input type="checkbox"/> Single | \$52 | <input type="checkbox"/> Overseas (single) | NZ\$95 |
| <input type="checkbox"/> Family | \$52 | <input type="checkbox"/> School | \$35 |
| <input type="checkbox"/> Senior single | \$39 | <input type="checkbox"/> Non-profit Group/Library | \$52 |
| <input type="checkbox"/> Senior family | \$39 | <input type="checkbox"/> Business | \$120 |
| <input type="checkbox"/> Student | \$35 | <input type="checkbox"/> Corporate | \$395 |
| <input type="checkbox"/> Life (single only) | \$780 | <input type="checkbox"/> Donor member | \$250 |

Kiwi Conservation Club Membership (Prices include GST)

For you and your family

- | | | | |
|--|------|---|------|
| <input type="checkbox"/> Single | \$12 | <input type="checkbox"/> Mini Set (4 magazines) | \$28 |
| <input type="checkbox"/> Family (# of children ____) | \$20 | <input type="checkbox"/> Class Set (30 magazines) | \$65 |
| <input type="checkbox"/> Overseas (single) | \$28 | | |

For your school or group

Please debit my account

- ☐ Annually (January)
☐ Twice a year (January and July)
☐ Monthly (may only be used where donation is included)

Please complete the relevant boxes below

\$ _____	Your annual membership
\$ _____	Gift membership for _____
	Member number (if known) _____
\$ _____	Donation (annual amount)
\$ _____	Total annual amount (membership and donation)

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

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

For direct debit please complete the forms and return to Forest and Bird

For direct debit please complete the:

1. Direct Debit - Membership/Donation Form
2. Direct Debit - Bank Authority Form

Please post completed forms to:

Forest and Bird, PO Box 631, Wellington
For assistance phone 04-385 7374

2. Direct Debit - Bank Authority Form

Bank Instructions

NAME:
(of Bank Account)

Authority to Accept Direct Debits
(Not to operate as an assignment or agreement)

Bank account from which payments are to be made:

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Bank	Branch	Account number						Suffix			

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

Authorisation Code

0 6 1 0 3 5 3

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

FOREST & BIRD	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	THANK YOU
Payer Particulars											Payer Code	Payer Reference

Your Signature/s

Date / /

Approved

1035

02 | 1999

For bank use only

Original - Retain at Branch

Date received:

Recorded by:

Checked by:

Bank Stamp

Conditions of this Authority

The Initiator:

- 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)".
- 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:

- At any time, terminate this Authority as to future payments by giving written notice of termination to the Bank and to the Initiator.
- 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:

- 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.

- 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.
- 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.
- 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.
- 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:

- 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.
- At any time terminate this authority as to future payments by notice in writing to me/us.
- Charge its current fees for this service in force from time-to-time.



FORES
& BIRCH

lodgeaccommodation

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 Jan Harvey, 25 Kauri Point Road, Laingholm, Waitakere City, Tel: (09) 817 8282. Email: janharvey@xtra.co.nz.

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: Robin Griffiths, 125 The Strand, Onetangi, Waiheke Island, Tel: (09) 372-7662.

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@forestandbird.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.

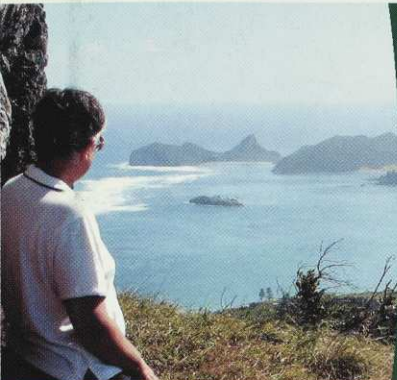
Tautuku Lodge

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: diana.n@clear.net.nz

Go Bush in Australia



For the past 35 years leading Australian conservationist, John Sinclair, has led safaris to Australian World Heritage areas. Since 1988 Sinclair has personally lead all GO BUSH safaris.



GO BUSH Safaris are Australia's World Heritage Area Specialists.

Kakadu in the Wet \$2000*

9 days (All Accommodated)

Leaves Darwin: Wednesday, 9th February, 2005

Returns Darwin: Thursday, 17th February, 2005

Lord Howe Island \$2300*

9 days (All Accommodated)

Leaves Sydney: Sunday, 1st May, 2005

Returns Sydney: Monday, 9th May, 2005

Cruising New Guinea's Northern Coast \$5600*

17 days (Live Aboard)

Leaves Cairns: Friday, 20th May, 2005

Returns Cairns: Sunday, 5th June, 2005

Kimberley Adventure \$4000*

17 days (Camping)

Leaves Darwin: Saturday, 2nd July, 2005

Returns Darwin: Monday, 18th July, 2005

Fraser Island - Whale Watching \$1700*

9 days (Camping)

Leaves Brisbane: Saturday, 13th August, 2005

Returns Brisbane: Sunday, 21st August, 2005

Uluru - Red Centre \$1700*

9 days (Camping)

Leaves Alice Springs: Wednesday, 3rd September, 2005

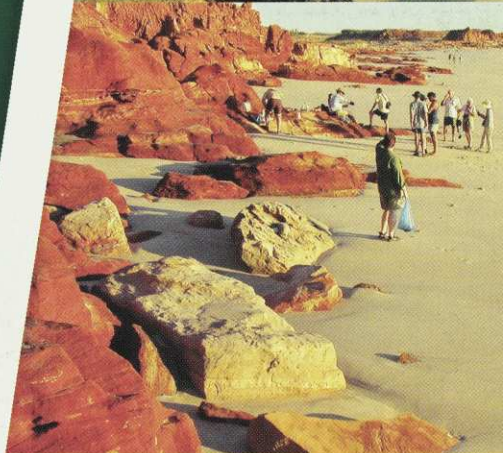
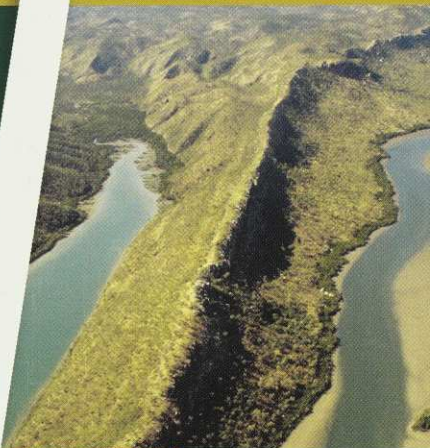
Returns Alice Springs: Sunday, 11th September, 2005

Shark Bay and Western Wildflowers \$2400*

14 days (All Accommodated)

Leaves Perth: Sunday, 25th September, 2005

Returns Perth: Saturday, 8th October, 2005



Full details and itineraries are available from:

GO BUSH



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Phone: +61 2 9817 4660

Fax: +61 2 9816 1642

Web: www.gobush.com.au

Email: john@gobush.com.au

* All prices are in \$ Aus and include GST plus all transport, meals, accommodation, and access fees from start to finish. Australian GST will not apply to air travel within Australia if included with your international flight. A few places remain on some 2004 safaris.