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GUEST EDITORIAL

Climate change and conservation

Atmospheric scientists are increasingly convinced that the anticipated global warming effect caused by human-induced emissions of greenhouse gases has moved from prediction to reality. During a recent conference of the International Panel on Climate Change (IPCC) scientists concluded that there is enough evidence now to say that our planet is indeed heating up. They agreed that without urgent measures to control carbon dioxide and other greenhouse gas emissions, the global climate will be rapidly and radically changed.

While it remains difficult to predict the exact impact of this climate change, the scientists' attention is now turning away from the most obvious effects such as melting ice caps and rising sea levels to the more subtle influences on biological habitats and ecosystems.

Unfortunately, the effect of this current climate change on ecosystems is likely to be anything but subtle, particularly when endangered and threatened species are concerned.

They will be at the front line of the climate assault, and delicate ecosystems such as wetlands, rainforests, alpine meadows and off-shore islands may undergo damaging and irreversible changes.

Climatic conditions are the basic controlling force on the functioning and distribution of most species, many of which show a relatively limited tolerance to change. Studies of Pleistocene pollen records show that as climate changed into and out of glacial periods, the species composition at any particular locality changed, causing some but relatively few extinctions. The difference between those climate changes and the current situation is that previously climate conditions tended to shift slowly enough to allow ecosystems to adapt naturally. Human-induced emissions are now speeding up the process several fold, robbing slowly adapting species of the chance to move to more suitable climate zones in time.

Some scientists estimate that the rate of warming will be the fastest experienced in at least 10,000 years—for many tree species the changes will take place more than 20 times faster than the speed with which they can migrate to keep up with favourable habitat conditions.

This will aggravate the up-hill battle conservationists already face in trying to protect threatened species from being smothered by pests. The main reason why pests and parasites are so successful in taking over habitats is that they tend to have high reproductive rates, short generation times and efficient dispersal mechanisms, which together enable them to adapt quickly to any changes. This will give them a distinct advantage in a changing climate.

World wide, there are already indications that climate change is causing

Department of Conservation
Te Papa Atawhai

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Veronika Meduna currently works as a science reporter for Radio New Zealand, as well as a freelance writer and editor focusing on scientific and environmental issues.

havoc in some fragile environments: the Yellowstone National Park is becoming increasingly arid, intensifying the risk of wildfires; warmer climate episodes in the Caribbean and Pacific have caused the bleaching of coral reefs; coastal mangrove forests are dying off throughout the Bermuda archipelago as a result of rising sea levels.

In New Zealand, perhaps the most obvious changes can be observed around the subantarctic islands, which are in many ways more fragile and exposed to change than mainland habitats. Rockhopper penguins and elephant seals are struggling to keep up their population sizes. Both the rockhoppers and southern elephant seals are still found in large numbers on the Tasmanian-administered Macquarie Island. But the elephant seal populations there are at best static compared to the thriving colonies living on subantarctic islands south of South America. Ecologists blame temperature changes in the ocean for the situation, at least partly. They believe that temperature variations led to changing currents and to a southward shift of the nutrient-rich Antarctic convergence zone—and this means that the marine mammals and sea birds of this region face longer commutes between their breeding grounds on the islands and feeding areas along the convergence zone. It is difficult to say whether this is a temporary variation or part of a long-term trend, but even a few breeding seasons without reliable access to sufficient food sources will make a significant dent into what used to be healthy populations.

On the mainland, climate change is also likely to push already endangered species closer to the brink, while more common species are expected to cope better. The overall result will be an even faster loss of biodiversity.

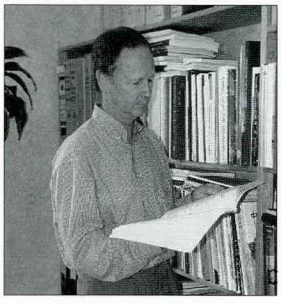
Auckland University environmental scientist Neil Mitchell has studied the effect of a 4°C temperature increase on several plant communities. Plants are central to our understanding of the future of ecosystems under changing climate conditions. They are static and their ability to adapt to climate change is strictly limited. But because of the role of plants as the primary producers of energy in any ecosystem, how they are affected by climate change will have enormous ramifications for the rest of the biota.

For his model, Dr Mitchell chose the commonly found hard beech (*Nothofagus truncata*) and tawa (*Beilschmiedia tawa*) and compared their fate with the regionally restricted kauri (*Agathis australis*) and rare canopy tree *Ackama rosaefolia*. While the common trees are predicted to spread south-east to more suitable habitats, kauri becomes very localised as the number of usable areas is drastically reduced. A 4°C warming would render the rare *A. rosaefolia* extinct. In contrast, weeds are predicted to increase and spread more widely. The same applies to ticks, mosquitoes and other insect pests and pathogens.

Both Australia and New Zealand have a relatively high level of biodiversity and high proportions of endemic species, with a level of endemism of more than 90% for many groups. Yet, these countries are the only developed nations of the dozen or so 'megadiverse' countries worldwide. As a consequence, we have a global responsibility to preserve biodiversity in our regions and finding a workable solution to the climate change problem may well become one of the most critical environmental challenges of the coming decades.

Veronika Meduna

Social, Historic, and Technical Research Group



Paul Dingwall

Paul Dingwall

Science Manager

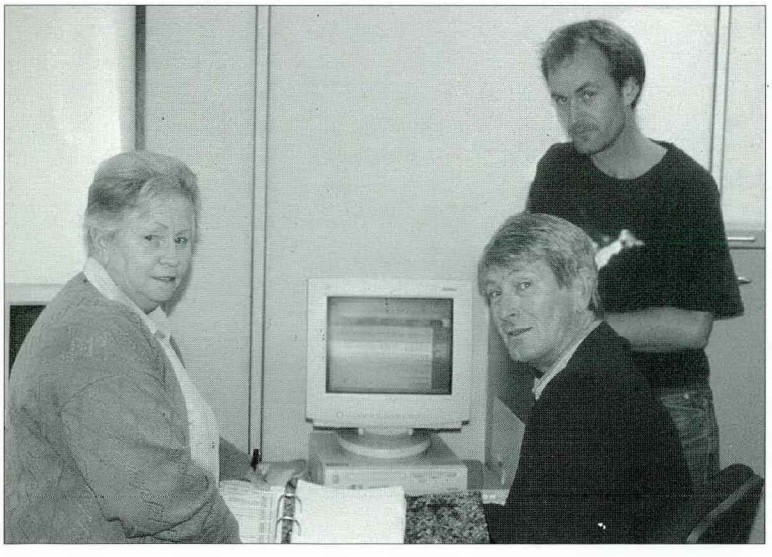
Paul taught at Universities in New Zealand, Australia and Canada for the first seven years of his career, before joining the Department of Lands & Survey in 1975 as the first scientific advisor to the then New Zealand National Parks Authority. From a position as Director of Natural Sciences in Lands & Survey, he joined the Science & Research Unit of DOC in 1987, and is now Manager of Social and Historical Research and the Technical areas of Electronics, Science graphics, and Banding. In addition to his research activities, Paul has published widely on conservation law, policy, planning and ethics, and on tourism, history and Antarctic conservation. Paul has more than 20 years experience in international conservation, having been an office-holder in the Protected Areas Commission of the World Conservation Union (IUCN), in the Man & Biosphere Programme of UNESCO, and in the World Wide Fund for Nature (WWF). He has undertaken more than 60 international assignments.

New Zealand Banding Scheme

Roderick O. Cossee

Banding Scheme Manager

Rod Cossee came to New Zealand from the Netherlands in July 1979 and took up a temporary position with the New Zealand Wildlife Service, where he became involved in bird banding. In 1981 he took over the running of the scheme. The Banding Scheme transferred to DOC in 1987, and today Rod is probably the longest-serving manager of all the banding schemes around the world.



The Banding Scheme Team—Dawn, Rod, and Mike.

Rod's responsibility is to direct and manage all functions of the scheme, set and implement policies and promote involvement by researchers, management and the public. Liaison with overseas institutions, firms and banding schemes (the latter in connection with international flyway research and recoveries) forms an important part of his work areas.

Rod started his working career as technical officer with the University of Leyden, where he was mainly involved with the taxonomy of insects. He next became curator of the Rotterdam Museum of Natural History, then worked as a public relations officer with a large international concern. Rod also had his own biology column in a magazine which was the equivalent of the largest Women's Weekly in Holland, and published many photos, hand-drawn illustrations and posters. He has a background in the printing industry, journalism, graphic arts, and design.

Dawn Tofield

Administration Support Officer for the New Zealand National Banding Scheme

Dawn has been with DOC since its formation in 1987. She is responsible for daily administration, i.e. processing of all public and banding operator recoveries and enquiries, data preparation, registration of incoming banding data and provision of supplies. She frequently liases with the public in other countries and overseas banding schemes in connection with birds banded or recovered there.

Before joining DOC, Dawn held a secretarial position with a well-known Wellington legal firm.

Michael Wakelin

Although Michael resides officially with the Species Protection Unit, he assists part-time with the Banding Scheme. Michael has had a long-term association with the scheme, assisting with administrative and regulatory matters of banding as well as the clearance of information gathered under the scheme. He provides assistance with trials of new bird banding materials and techniques in the field, and produces plastic colour bands when required.

Historic Heritage Research

Kevin Jones

Scientific Officer, Archaeology

Kevin Jones is Programme leader for historic heritage research. He is a graduate of Otago University (in Anthropology) and Victoria University of Wellington (in Public Policy). He has worked for the former DSIR, the New Zealand Historic Places Trust (from 1978) and DOC from its founding. His specialist interests are pre-contact horticulture, settlement pattern and stone tool technology. In historical archaeology, he has been involved with goldfields, Cook sites, and the Katherine Mansfield Birthplace Society. Victoria University Press published his book on New Zealand archaeology in aerial photographs in 1994 and he was an adviser to the New Zealand Historical Atlas. Kevin's special areas of interest include the eastern Bay of Plenty, East Coast, Hawkes Bay and Wellington, besides surveys and aerial reconnaissance in most parts of New Zealand. On the conservation methodology side, Kevin's programmes include applications of aerial photography for mapping and condition reporting. He has researched site conservation in the UK and USA and is currently writing guidelines on archaeological site conservation and management for farmers, foresters, and reserves managers.

Tony Walton *(L)* and Kevin Jones

Tony Walton

Scientific Officer, Archaeology

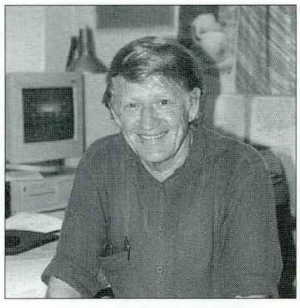
At the University of Auckland, Tony's studies focussed on geography and later on archaeology. On leaving university, he worked for the New Zealand Historic Places Trust from 1978 to 1987. He has looked after the national archaeological record systems for many years and recently edited a new edition of the site recording handbook (*Archaeological Site Recording in New Zealand, 1999*). His particular research interests include evidence of prehistoric gardening, the size and distribution of Maori population in the mid 19th century, and fortifications (both Maori and later). Outside interests include genealogy and early music.

Tony's current research projects involve developing techniques for long-term monitoring of earthwork sites, methods for assessing archaeological values and prehistoric models for archaeological site distributions. He is also mapping archaeological sites at Puponga Farm Park.

Bruce McFadgen

Scientific Officer, Archaeology

Bruce has been actively involved in archaeology for more than 35 years. He originally trained as a land surveyor and worked for the Department of Lands & Survey for 8 years. He returned to University to study archaeology and completed his PhD in Geology in 1968. Beginning in 1977, Bruce worked for the New Zealand Historic Places Trust before moving to DOC Science & Research. His archaeological interests include environmental archaeology and the dating of archaeological material. Bruce believes that the present is the key to the past, and the past the key to the future. His non-archaeological hobbies include bread-making and Mediterranean cooking.



Bruce McFadgen

Social Science Research

Ned Hardie-Boys

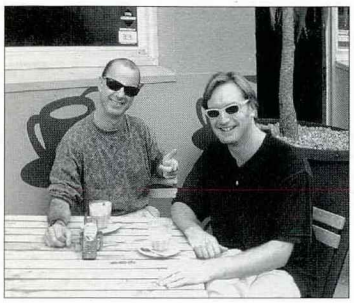
Scientific Officer, Social Science

Ned leads the Department's research programme relating to people aspects of conservation. This includes research on public awareness, advocacy, community involvement, public attitudes and perceptions, and socio-economic impacts of conservation initiatives. Recently, Ned's key research project has been an assessment of the essential features of working relationships between the Department and iwi/hapu groups. Ned has been working for the Department since May 1999. Prior to this he worked for three years in the social policy sector at Te Puni Kokiri after completing an MA in Geography. Ned's thesis for his Masters examined the extent to which conservation and development aid initiatives in Samoa were inclusive of local socio-economic, cultural and political systems.

Gordon Cessford

Scientific Officer, Social Science

Gordon works with Ned to cover the social science and visitor impact research and information needs of the Department. This involves a little individual research, and a lot of research co-ordination, co-operation and facilitation with other DOC staff, external agencies and re-



Gordon Cessford *(L)* and Ned Hardie-Boys

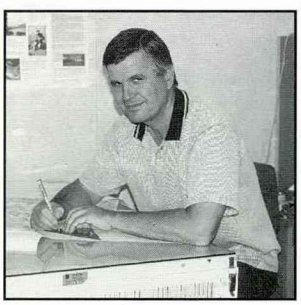
search service providers through the science planning process and his general advice functions. Given the variety of research areas covered, he has found that his Otago undergraduate science background in botany, geology and physical geography is as relevant as his Lincoln postgraduate experience of social research in parks and tourism.

His work areas have included mountain biking impacts and demand, subantarctic tourism, conservation benefits, social and physical impactes of visits, and visitor counter development.This all tends to keep him in the office environment a lot more than he would like. He compensates with a heavy schedule of mountain bike rides, runs, the odd swim and in more recent times, organising lunchtime sessions for his colleagues on the basics of some cool Latin dances.

Technical Support

Chris Edkins

Science Illustration, and Graphics



Chris Edkins

Trained as a cartographer in the UK, Chris joined the Department of Lands and Survey in 1975, working on most types of mapping but specialising in derived products such as atlases, tourist maps and publications. He joined DOC from the then DOSLI in 1990 as part of the HO draughting team. Chris spent the next 7 years preparing maps and graphics for various HO divisions, brochure maps for Conservancies and graphics and illustrations for Science & Research. Since 1997 he has been employed by S&R in his current position of Science Illustrator. His most recent development is the design of a range of science posters which present the work of some segments of S&Rs research with words, pictures, and graphics.

Murray Douglas

Senior Electronics Officer

Murray has been with the department since its inception and manages the Science & Research Unit Electronics Laboratory. This facility has one other full-time electronics engineer (previously Peter Carey) and occasional part time assistance. They provide specialist electronic advice, service, and designs of new equipment for Threatened Species staff of the department and research scientists. Examples of recent work include developing automatic telemetry equipment for kakapo, underwater video cameras for Conservation Sciences Levy work, automatic bat monitors, and small data-loggers for a variety of tasks including visitor monitoring. Murray has a zoology and electronics engineering background and worked previously on behaviour and ecology projects for the Department of Biological Sciences, University of Auckland.

Murray Douglas

Rachael Shand, aged 14, took this photo at the Southland Museum in Invercargill in January 2000. "Henry" is the oldest living Tuatara in the Museum, aged approximately 30.

RESEARCH IN PROGRESS

Assessing the impacts of dams on Taranaki freshwater fish

The Taranaki region has more than 50 known dams and weirs. Evaluating the impact of these barriers on fish communities has been difficult owing to the high proportion of migratory species (diadromy) in the fauna. The high incidence of diadromy means that simply looking at the presence or absence of species above a dam is not sufficient, as there is a natural reduction in species over an elevational range. Thus, to assess the impacts of barriers the expected community assemblage must be predicted based on the unimpacted conditions in the region.

To evaluate the effect of dams on freshwater fish communities in Taranaki a reference condition approach was chosen. This approach uses an array of reference sites to characterise the biological conditions in a region; a test site is then compared with an appropriate subset of the reference sites using probability weightings to evaluate impacts. Reference sites are defined as a group of minimally disturbed sites organised by selected physical, biological or chemical characteristics.

Sites from the New Zealand freshwater fish database (NZFFD) for the Taranaki ring plain listed as having no downstream barrier were used as reference sites to create a predictive model of community assemblage. Altitude and distance inland from the sea were found to be the best predictors of fish communities. Trajectories of occurrence for each species of migratory fish then become the probability of finding that species at that elevation. To evaluate a possible impact the predicted number of species at a test site is calculated and compared to that observed. This is expressed as a ratio, observed over predicted (O/P). The observed over predicted ratio is a measure of the deviation of the site from the reference condition (i.e. values less than 1).

An example of an application of the model is the Motukawa Dam on the Manganui River. The mean O/P ratio for 23 sites below or in tributaries entering the river below the dam was 1.31 (SE 0.084) while the mean O/P ratio for 8 sites above the dam was 0.76 (SE 0.085). These results show that the dam is having a significant impact on the fish communities of the Manganui River. The Waiwhakaiho River Hydro dam was also shown to be having a negative impact on fish communities.

The model has been integrated into a windows-based computer program and is available to resource and conservation managers in the Taranaki region to assess the impacts of dams and the efficiency of fish passes. We are continuing this research by developing models for other regions in New Zealand with the help of Horizons.mw and the Auckland Regional Council.

For more information see the June issue of the *New Zealand Journal of Marine & Freshwater Research.*

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Email: R.G.Death@massey.ac.nz

INFORMATION TRANSFER

The Weed Team

This article introduces a new section to ConScience News, *one concerned not with science, but with how we get the science out to the managers and staff that need the information for their work. All S&R staff have copious amounts of advice time in their yearly work programme, but some, by the nature of their subject, seem to spend most of their time helping line staff to achieve objectives on the ground. Those involved with the management of weeds are one such group. They get to begin our series.—Ed.*

DOC's **full** weed team comprises:

S&R weedos: Susan Timmins, Chris Buddenhagen, plus temporary staff on special projects—Helen Braithwaite and Julie Geritzlehner *and*

Policy weedy folk: Susan-Jane Owen; weed QCM: John Boal *and*

Biosecurity staff working on weeds: Clare Miller and Sean Goddard *and*

Regional weed technical support people: Keith Briden, Paul Mahoney and Phil Dawson *and*

Conservancy Weed Techs and Conservancy Advisory Scientists *and*

Area Office and Field Centre staff with weed responsibilities.

Over the last five years, this team has needed to work together to achieve the goals set in Key Output 'Weeds'. We've had many workshops, including: setting priorities for the Weed Research Plan, developing a weed inventory system, refining the weed-led and site-led concepts and, latterly, developing the standard operating procedures (SOP's) for weed surveillance and weed control monitoring. Each member of the team has offered their own perspective and contributed different skills. These differences have been respected and valued.

(L to R) Julie Geritzlehner, Susan Timmins, Chris Buddenhagen, and Helen Braithwaite.

As you can see, the S&R weed team within this bigger DOC weed team is small—just two permanent staff. Our strength comes from our interactions with others. The S&R weed team has focussed on making weed information available, and in a form that Area staff can use to make a conservation difference. We have been big on producing and contributing to databases. The latest initiative is the development of the National Weeds Database. We also contributed to the development of DOC's weed strategy, driven by Conservation Policy Division. The late NPP funding system gave us the wherewithal to make headway on many of the essential strategic activities listed.

Susan-Jane Owen and Sean Goddard

Recognising that education is the key to stemming the tide of weed spread, we have taken the opportunity to spread the weedy word whenever we can by giving talks at Forest & Bird and horticultural society meetings. We have also presented oral papers at a variety of confer-

Clare Miller

INFORMATION TRANSFER

ences and made a plethora of punchy posters for display.

We have put lots of effort into information transfer because we saw the need, and its priority, and so attempted to meet it quickly and effectively. The consequent lack of in-house experimental work has been off-set by our close working relationships with weed scientists in other science organisations. We have produced a raft of joint publications, many in the S&R publication series. In the future we will shift the balance to do more original research to answer higher-level generic questions such as what are the impacts of weeds and what are the measurable conservation outcomes of weed control? This work, too, will support the Department's weed management and decision-making, and will quantify the conservation benefits of continued funding of weed control.

Susan Timmins
S&R Tory Street

NEW PUBLICATIONS

New from Science & Research Unit

What's happening with stoat research? Report on the five-year stoat research programme. January 2000.
Department of Conservation. 2000. 12 p. Free.

Science for Conservation

Factors affecting possum re-infestation—implications for management.
P.E. Cowan. 2000. *Science for Conservation 144.* 23 p. $12.50 incl. GST.

Considers factors influencing rates of re-infestations of possums after control measures, and makes recommendations for minimising re-infestations.

Threats to New Zealand's indigenous forests from exotic pathogens and pests.
G.S. Ridley; J. Bain; L.S. Bulman; M.A. Dick; M.K. Kay. 2000. *Science for Conservation 142.* 68 p. $22.50 incl. GST.

Assesses the likelihood and consequences of the arrival and establishment of insect and fungal pathogens in New Zealand's indigenous forests and other natural ecosystems. The report focuses on the Araucariaceae, Podocarpaceae, Nothofagaceae and Myrtaceae families of trees.

Preliminary study of the effects of honey bees (Apis mellifera) in Tongariro National Park.
C. Murphy; A. Robertson. 2000. *Science for Conservation 139.* 18 p. $12.50 incl. GST.

Examines the impact of honey bees on the pollination of heather, flax, manuka and *Hebe stricta*. Honey bees were found to play a role in determining the structure of pollinator communities and may be a threat to local native biodiversity.

Invertebrates seen on cereal baits. A study of video and manual observation methods.
M.D. Wakelin. 2000. *Science for Conservation 137.* 36 p. $12.50 incl. GST.

A comparison of a video observation method and a manual observation method of determining which invertebrates are at risk from pest mammal control programmes.

Assessing the risk to indigenous New Zealand biota from new exotic plant taxa and genetic material.
P.A. Williams; E. Nicol; M. Newfield. 2000. *Science for Conservation 143.* 42 p. $22.50 incl. GST.

Describes the potential risks to New Zealand's natural areas and indigenous biota from the importation of new plant taxa and additional material of taxa already here.

Border control for potential aquatic weeds. Stage 1. Weed risk model.
P.D. Champion; J.S. Clayton. 2000. *Science for Conservation 141.* 48 p. $22.50 incl. GST.

The first of three stages in the development of a border control programme for aquatic plants that have the potential to become ecological weeds in New Zealand. A new weed risk assessment model for aquatic plants is presented.

Status and conservation role of recreational hunting on conservation land.
K.W. Fraser. 2000. *Science for Conservation 140.* 46 p. $22.50 incl. GST.

Explores conservation benefits of recreational hunting and also options for enhancing benefits. Compares recreational hunting and commercial hunting.

Development of a method for evaluating the risk to New Zealand's indigenous fauna from the introduction of exotic diseases and pests—including a case study on native parrots.
R. Jackson; R.S. Morris; W. Boardman. 2000. *Science for Conservation 138.* 94 p. $22.50 incl. GST.

Suggests a framework and approach for assessing risks to indigenous wildlife populations from exotic diseases. Psittacines are used as a case study, in order to identify the risks to this group and make recommendations on how the proposed approach could be applied to other indigenous wildlife.

Conservation status of the New Zealand Lepidoptera.
B.H. Patrick; J.S. Dugdale. 2000. *Science for Conservation 136.* 33 p. $12.50 incl. GST.

New Zealand moths and butterflies were assessed for species of conservation interest using criteria devised by Molloy and Davis. 114 endemic species in 22 families were assessed as having conservation significance.

Metapopulation dynamics of the coxella weevil (Hadramphus spinipennis) on the Chatham Islands.
K. Schöps. 2000. *Science for Conservation 134.* 37 p. $12.50 incl. GST.

An investigation of the interactions between the endangered endemic monophagous coxella weevil and its host plant, Dieffenbach's speargrass.

Science & Research Internal Reports

Genetic diversity of Dactylanthus taylorii in New Zealand.

M.J. Faville; A.S. Holzapfel; C.E.C. Gemmill. 2000. *Science & Research Internal Report 173.* 19 p. $12.50 incl. GST.

Social impacts of visitors to conservation lands. Part 2. Workshop proceedings.

G.R. Cessford (Ed.). 1999. *Science & Research Internal Report 172.* 188 p. $22.50 incl. GST.

Outcome monitoring—animal pests. Workshop proceedings.

S.M. Frimmel; S.J. Turner (Eds). 2000. *Science & Research Internal Report 170.* 312 p. $22.50 incl. GST.

Conservation Advisory Science Notes

The sand dunes of Kawakaputa Bay and Haldane Bay, Southland.

M. Hilton. 2000. *Conservation Advisory Science Notes 275.* 12 p. $3.50 incl. GST.

Implications of a subdivision proposal near an important shorebird breeding site.

R.J. Pierce. 2000. *Conservation Advisory Science Notes 274.* 6 p. $3.50 incl. GST.

Vegetation survey and monitoring in Whakatane Field Centre.

W.B. Shaw. 2000. *Conservation Advisory Science Notes 273.* 22 p. $3.50 incl. GST.

Conservation of kakerori *(Pomarea dimidiata)*, Rarotonga.

H.A. Robertson. 2000. *Conservation Advisory Science Notes 272.* 9 p. $3.50 incl. GST.

Captive rearing diet of the New Zealand shore plover.

Y. Cottam; W. Hendriks. 2000. *Conservation Advisory Science Notes 271.* 9 p. (incl. 1 colour page). $4.50 incl. GST.

Threatened Species Occasional Publications

G. Dumbell. 2000. *Threatened Species Occasional Publication 15.* 30 p. $15.00 incl. GST.

The goal of the plan is to maintain, manage and develop the brown teal captive breeding programme to retain known genetic diversity, annually supply known quality birds for release in the quantities and at the times required by the recovery programme, and to contribute to brown teal advocacy.

DOC SCIENCE PUBLICATIONS ORDER FORM

Please include payment with order. All cheques must be in NZ dollars and made out to the Department of Conservation. Add postage and packaging of $2.00 for one publication, or $4.00 for two or more. Send order to: DOC Science Publications, PO Box 10 420, Wellington, NZ.

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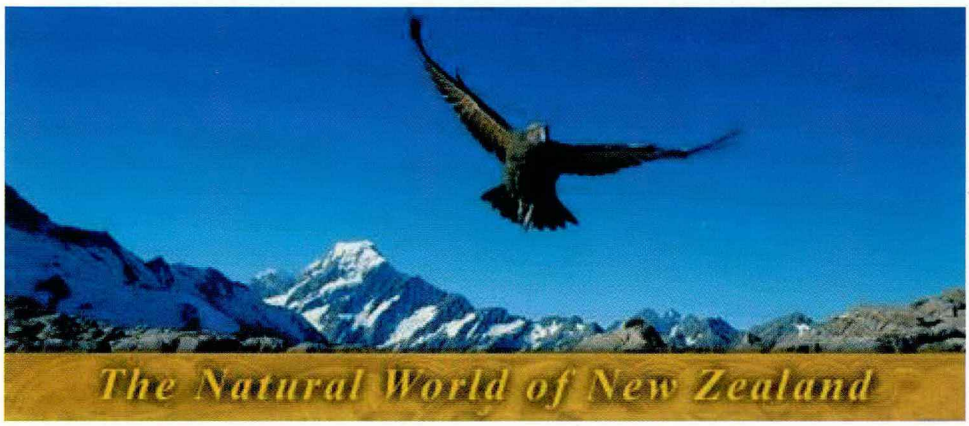
REVIEW

Protech has done it again!

The company that brought us state-of-the-art New Zealand CD-ROMs (Birds of New Zealand, New Zealand Encyclopaedia, Coast to Coast, Atlas of New Zealand, and the Tantrix game) have produced another beauty: the full text and pictures of Gerard Hutching's book 'The Natural World of New Zealand' (1998).



Developed & Published by: PolyMedia, Nelson
Reviewed by: Martijn Jasperse
Reviewed using: Pentium 200 MMX edition, Windows 95
Requires: Windows 95/98/2000/NT 4.0, 2x CD-ROM, 16MB RAM
PolyMedia price: $49.95

PolyMedia at its best

I believe this is the best software PolyMedia has produced to date. It has amazed me with a wonderful graphical interface and ease of use. The quality of video and pictures creates a feeling of being there. The way they set out the interface gives the warm feeling of wood.

Very easy to use

The interface is an easy one to navigate through. PolyMedia have developed ProTech Media Viewer to give a new level of interaction. It is so easy to use I don't even have to describe the interface: it works. If you get stuck however, leave the cursor over the icon and a suggestion window will appear, saying what to do. One thing to remember though, do not mistake the Previous for the Back button as they do not do the same things!

Gold mine!

The Natural World of New Zealand is a gold mine of information about New Zealand, its animals & plants. The information way surpasses anything else available in electronic form to date.

New Zealand to the max

The CD has an awesome coverage of New Zealand and its plants and animals. Clicking the map of New Zealand on the start-up screen will give you data on New Zealand itself—from its length and width to animal record breakers (longest living animals, rarest animals, etc.).

The 49+ MPEG videos give a stunning resolution and amazing audio that get you up close and personal to your subject. For example, you can get closer to an octopus with the video than I would feel comfortable to be in the

About our reviewer

Martijn Jasperse says: "I'm thirteen and really interested in computers. In my spare time I enjoy Website designing, programming, reviewing software, and things along those lines. Unlike most other people, I don't play many computer games as I'm not very good at playing them. I started software reviewing with my Dad, whose company reviewed New Zealand-made CD-ROMS of the 1990s. I started reviewing when Dad wanted a kid's opinion on some CDs and I really enjoyed doing it. So I just kept writing little add-ons to his reviews, and now I write my own."

water. Or you can take a tour of Mt Cook. Full screen quality depends on your processor and monitor.

The Internet too?

Yes, one of the new features is Internet links. There are 170+ of these ranging from DOC and NIWA to the Yellow-Eyed Penguin site. Not only are these listed in one spot but also in each of the related information items.

Animal living areas and human effects

The software also includes information about the habitats of animals. This includes links to related videos and pictures. 'People and the environment' is about the species we have lost (now extinct), and species introduced to this country

Searching

The search software is very powerful, but the results in the window are displayed alphabetically, instead of what matches best. This can be quite frustrating when given about 40 matches. However, the detailed alphabetical index is very well organised.

Final Word

I believe this is must-have software, an incredibly useful addition to any CD-ROM collection. It can be used from school projects to homework assignments and much much more. It is great value for money at $49.95 and is now my No.1 reference for New Zealand nature information.

Martijn Jasperse

We are moving

After more than fifteen years in Tory Street (under various names and departments) Science & Research is moving to new quarters in the Wellington City Council Library building. We are taking our post box number, computers, telephone numbers, and email addresses, but alas for some of the scientists not all of our labs and equipment. We begin the move on the 20th June and should have most things in place by 1st July. During that time there may be some delays in filling your orders, because a lot of Science Publications' books will be packed up. Please be patient, and you will get your order as soon as we can manage it.

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