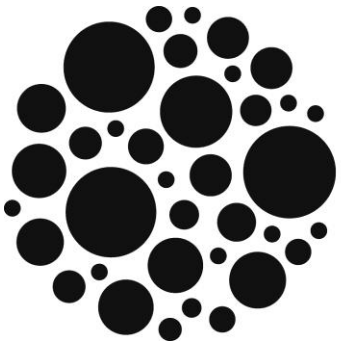

NEW ZEALAND
ECOLOGICAL
SOCIETY

Communicating Ecological Science – a strategy for the New Zealand Ecological Society: 2007-2017

New Zealand Ecological Society, August 2007

Contents

This strategy has been developed by Karen Denyer and the NZES Committee, with input from members via conference workshops and email correspondence invited through the NZES newsletter.

1 Background

1.1 New Zealand Ecological Society (NZES)

The New Zealand Ecological Society (NZES) was formed in 1951 to promote the study of ecology and the application of ecological knowledge in all its aspects. Through its activities, the society attempts to encourage ecological research, increase awareness and understanding of ecological principles, promote sound ecological planning and management of the natural and human environment and promote high standards both within the profession of ecology by those practicing it, and by those bodies employing ecologists.

The Society achieves this via

- an annual conference comprising symposia, contributed papers and workshops, field trips, and social functions
- a scientific journal, *New Zealand Journal of Ecology* (NZJE), published twice a year, containing refereed articles on both fundamental and applied ecological research
- a regular newsletter, to inform members of society activities and ecological news, and foster debate on current ecological issues
- a web site, regularly updated with information on relevant conferences, NZJE publications (including electronic copies of some publications), education initiatives (e.g. the interactive Tui-time game), submissions made by the Society, a listserv for member-member contact, and useful links
- awards and prizes for New Zealand ecologists and students
- preparation of submissions on government policies relating to the NZ natural environment
- other special-purpose publications

1.2 NZES Objectives

The NZES constitution states that the objectives of the Society are;

- To promote the study of ecology
- To promote the application of ecological knowledge in all its aspects
- To publish the New Zealand Journal of Ecology

This strategy focuses on the second objective. Promoting the application of ecological knowledge requires effective communication from science generators to science users. This strategy presents target messages, audience, and methods for effective science communication.

1.3 Why a communication role for NZES?

The NZES is a body comprising mostly professional ecologists, including leading experts in their field, who have access to scientific information useful for assessing the value of ecological resources and processes.

These professionals have credentials and expertise that can influence the decisions of politicians, resource users, and resource managers, thus influencing the fate of our unique species and ecosystems.

The NZES, as an organisation or through its members, can provide information and advice based on objective and rigorous scientific investigation and analysis to help achieve sensible decision-making and sustainable outcomes. Communicating the results of scientific research by NZES members and their peers is essential to ensure the application of that ecological knowledge.

2 Issues and Objectives

2.1 Gaps in the science communication 'market'

Many agencies have a role in communicating ecological science (see Appendix 1). However, there remain many barriers to fully informed decision-making regarding natural resources in New Zealand.

- Public understanding of the level of threat to native species and ecosystems is poor, with a 2006 national public perception survey indicating that the majority of New Zealanders consider the state of the nation's freshwater and land environments and constituent species as good to very good[1].

- New Zealand is generally a well-informed nation with an open media. However, ecological science reporting through the media is scant and often limited to contentious issues (such as the use of toxins to control pests), or 'feel-good' stories, generally about iconic species such as kakapo. This may be because the media perceives the public as having little interest in reading about ecological issues or the general state of the environment.

- A number of ecological issues have been dominated by pressure groups with sometimes un-stated agendas. Current examples include the 1080 debate and mangrove expansion. These issues often suffer from a lack of well-informed and balanced debate, and can be 'hi-jacked' by vocal and/or activist adherents to an extremist view on either or both sides of the debate.

- Ecosystems that are difficult to access, particularly wetlands and the marine environment, are often under-valued. Although appreciation by the general public appears to be increasing, decisions regarding these systems continue to be made without reference to their full suite of values. Often economic values are more easily understood and more readily applied.

- The natural systems that ecologists study are often partitioned into parks or waste-land, with little comprehension of the multiple roles that ecosystems perform. In particular, while the importance of tangible features are often readily grasped by the public, such as the value of kiwi or large trees, intangible (e.g.

[1] Cullen, R. 2007. Nature conservation: Information, costs, and evaluation. Unpublished report. Lincoln University. Lincoln.

ecological processes) or less visible features are often little understood or appreciated.

- Biodiversity degradation is ubiquitous and pervasive. While clearance of old-growth forest can readily capture the public imagination, the more insidious impacts of virtually invisible perpetrators of biodiversity degradation, such as ship rats has generally gone unnoticed by the general public. It is more difficult to educate on the need to control insidious problems, such as exotic species that are small or nocturnal, because their effects are not obvious or sudden.

The NZES is well-positioned to break down these barriers to sustainable management and effective maintenance of biodiversity. The Society can transfer robust science in an independent manner, unconstrained by employment agreements or limitations that its individual members may face, and present a collective scientific view on issues to facilitate healthy debate.

2.2 Key objectives of this Strategy

The primary objective of this strategy is to improve the communication of ecological knowledge to science users and non-scientists to increase ecological awareness among the general public and decision-makers, and, in doing so, achieve better decisions and outcomes in resource use and resource management, to reverse the decline of biodiversity in New Zealand.

It is hoped that through this the Society will:

- Make ecology approachable and interesting to the public
- Inform public opinion
- Incorporate credible science into ecological debate
- Influence decision-makers and guide policy
- Guide resource management and restoration activities

The application of ecological knowledge principally occurs in the following situations:

- Decision-making regarding use and / or protection of natural resources
- Restoration of natural ecosystems
- Development of commercial uses for natural resources
- Awareness-raising of the value of, and threats to, natural ecosystems
- Further ecological research through developing and testing hypotheses

Many members of the NZES are knowledge generators, researching ecosystems and their components to further our understanding of their processes, interactions, values, uses and threats. Other members are knowledge users, applying the results of research and their own observations to protect or sustainably manage or restore the environment, or to develop resources for commercial or other use (which may or may not be extractive / depletive). Many NZES members are both providers and users of ecological knowledge.

Increasingly the research undertaken by NZES members and journal submitters is focused on the maintenance and enhancement of indigenous biodiversity (Linklater and Cameron, 2001). The Society recognises that its members collectively gather and hold a body of scientific information that could make a difference in the environmental degradation and

decline of biodiversity and ecosystem health occurring in New Zealand (e.g. Department of Conservation and Ministry for the Environment, 2000).

The NZ Journal of Ecology and annual NZES conferences provide primarily for communication of that scientific information within and between researchers and applied scientists (e.g. staff of government agencies and consultants with ecological qualifications and experience). As such, that avenue for promoting the application of ecological knowledge is relatively well catered for.

The current gap for the Society is promoting the application of ecological knowledge, particularly that developed by NZES members, to science users, including resource managers, resource users, decision-makers, restoration groups, and the general public.

Good science can make a difference in the impact of our actions on the environment, but existing knowledge is not always adequately transferred or understood.

2.3 Scope of the Strategy

This strategy describes the Society's overall approach to promoting the application of ecological knowledge. It will be implemented via a series of two-year communication plans developed by the NZES Committee that will detail a series of time-bound actions. It is suggested that NZES continue to co-opt a committee member to the role of Science Communicator to facilitate implementation.

The key questions this strategy addresses are:

- What does NZES want / need to communicate?
- To whom?
- Why?, and
- Broadly, how will NZES do that?

In answering these questions the strategy identifies other parties with a role in communicating ecological science, assesses the gaps in that role, prioritises target audiences and key messages or issues, and recommends actions.

3 Prioritising Issues and Key Messages for NZES

3.1 Biodiversity Issues

A large portion of research undertaken by ecologists in New Zealand is aimed at the maintenance and enhancement of biodiversity.

Analysis of papers published by the New Zealand Journal of Ecology over the period 1993 to 1998 (Linklater and Cameron, 2001) showed a decrease in the proportion of articles on fundamental ecology of plants and animals and an increase in the proportion of articles on management issues (particularly invasive species impacts and eradication techniques).

Ecology research funding is also increasingly directed towards indigenous biodiversity maintenance. The Foundation for Research, Science and Technology, the prime public

funder of scientific research, directs funding through Outcome Portfolios that aim to strengthen the transfer of science into policy and management. The overall goal of the Ecosystem Portfolio is "*to enhance and support the resilience, functioning, and recovery of land, freshwater, and marine ecosystems*". The six target outcomes for the ecosystems area are:

1. Define New Zealand's biota
2. Reverse the decline in New Zealand's indigenous biodiversity
3. Biosecurity-management of incursions
4. Biosecurity-management of existing pests
5. Protection of unique ecosystems of Southern Ocean and Antarctica
6. Sustainable use of aquatic and terrestrial biota

Publications and presentations in NZJE and NZES conferences tend to focus on terrestrial ecosystems, and to a lesser extent freshwater wetlands. Aquatic ecosystem research is largely reported by other societies. Therefore, the key issues that NZES should communicate should relate to terrestrial and freshwater wetland ecosystems.

The major issues for terrestrial and freshwater biodiversity in New Zealand are;

- loss of habitat and habitat connections,
- predation of native species by alien species,
- competition for resources by alien species,
- degradation of habitat quality, e.g. pollution, excess nutrients, and
- un-sustainable harvest.

3.2 Prioritising issues

The NZES is a non-profit organisation and its members' contributions are largely undertaken on a voluntary basis. As such, the Society is not always in a position to respond rapidly to new issues, particularly where literature reviews, data analysis or peer review is required.

An alternative approach could be to predict which topics are likely to become of high public interest, or which have a high potential impact on the state of NZ's ecosystems (whether positive or negative). The Society can then prepare material in advance, allowing it to respond rapidly and effectively to issues when the need and opportunity arises.

Some major terrestrial biodiversity-related issues facing New Zealand that would benefit from a well-educated public and decision-makers, and a debate based on facts and sound assumptions are (in no particular order):

- Use of toxins (including spray and pellet forms) to manage pests
- Global climate change
- Values and rights of native vs exotic species
- Value of natural ecosystems (ecosystem services)
- Emerging industries with little-known impacts (e.g. impact of wind farms on flying organisms, impacts of increasing tourism to 'wild' places)
- Land intensification and South Island land tenure review
- Water allocation
- Land / water interactions and impact on water quality
- WAI 262 Treaty of Waitangi Claim on Native Flora and Fauna
- Genetic engineering

- Restoration (e.g. debate on re-introductions, translocations, what is a desired state)
- Harvesting of native species, including currently legally protected species (e.g. kereru)
- Value / need for or otherwise of wildlife corridors

Some issues are inherently philosophical, such as the rights of a threatened species to remain extant vs. the rights of a resource user to an economic gain. Scientific information can help the public and decision-makers to fully understand the ecological consequences of their decisions. In the threatened species example, for instance, by ensuring those decision-makers are aware of the uniqueness of the species at risk, or of the likelihood of success of remedial actions such as translocations.

3.3 Criteria for priority issues

Emerging issues may be predicted based on the manuscripts submitted to the journal. The journal editor can alert the Society to new issues, providing the opportunity to prepare information and responses.

Criteria for determining priority issues are:

1. **Urgency** - e.g. submissions on a hearing
2. **Importance** - based on risk of not responding
3. **Relevance** to NZES - is the society the best agency to respond, is the issue one that members have been researching
4. **Scope** - national issues should take priority over local issues
5. **Need** – where robust science is needed to resolve mis-conceptions or uncertainty
6. **Profile** – where NZES will gain credibility and recognition
7. **Capacity** – where NZES has the expertise and capacity to respond

The Society should only engage in issues that meet all of the above criteria, with the exception of urgency - the Society may chose to act proactively when there is no state of urgency for a given issue.

Ecological issues, like any issues, change over time, and the Society must be prepared to re-visit its priorities on a regular basis with input from members, such as at conferences.

4 Target Audience

Reversing the decline of New Zealand's biodiversity requires;

- controlling pests and preventing further spread/ incursions,
- sustainable use of resources,
- reduction in further loss and degradation of ecosystems, and
- restoration of ecosystems and of species' range.

The Society has an opportunity to influence a lot of people a small amount (scattergun approach) or to influence a few people a lot (targeted approach). The Society could apply both approaches, e.g. increase media interest in ecology in general, and target decision-makers on specific issues.

New Zealand's biological resources are managed by a range of agencies, most of which have elected officials in the position of decision-makers, whether local body politicians, or ministers in Central Government.

- Funding for pest control and management of the DoC estate is controlled by Treasury in Central Government through purchase agreements by the Minister of Conservation.
- Preventing new pest incursions at the border is the role of the MAF Biosecurity NZ, while managing the spread of pests is primarily the role of regional councils.
- Harvest of native species is regulated by Ministry of Fisheries, Ministry of Agriculture and Forestry, NZ Fish and Game Council, and the Department of Conservation.
- Clearance of indigenous vegetation and drainage of wetlands is controlled (at their discretion) by regional and district councils.

Directly influencing the funders, and those developing policy or making decisions on the use or protection of natural resources, is the most efficient and effective way to reduce the adverse effects of poorly informed decisions on natural resource management. This can be achieved via submissions on policy statements, reviews on ecological issues, and involvement in major consent applications, and through educating their advisors and/or staff. At the same time, elected decision-makers need assurance that their constituency will largely support their decisions, therefore continued communication to the general public is essential.

Industry and business leaders are another powerful body. Targeted position statements, and being 'available' for a reasoned, authoritative response will help position the Society as the first port of call for information from industry.

Criteria for target audience are:

1. Their level of influence (funders, policy makers, politicians)
2. Their ability to widely influence others (media, industry leaders, conservation lobby, educators)
3. Their potential impact (e.g. have extensive land-holdings or powers to designate large areas for infrastructure)

5 Methods

5.1 Options

There are two approaches the Society can follow:

1. Proactive – predict important emerging ecological issues and engage the decision-makers to develop a robust, appropriate policy response
2. Re-active – respond at often short notice, e.g. to invitations to submit on public policy

Table 1 presents a selection of options available to communicate to decision-makers.

Table 1: Options for communicating ecological knowledge to decision-makers

Option	How	Advantages	Disadvantages
Talk directly to	• Presentations at local	• Take message direct to	Can only target a few

decision-makers	council meetings • Invite politicians to field trips • Presence of an NZES representative on community advisory committees	the decision-makers. • Often good level of respect for messages heard from non-staff, particularly if complements messages from staff.	councils at a time
Send information to decision-makers	Send letters or reports	Can do mass targeting	Audience may not read items sent
Influence policy	Write / present submissions on discussion documents	Direct input to broader issues and decisions	Requires large time / labour input
Directly influence consent decisions	Write / present submissions on consent applications	Direct input to specific decisions	Requires large time / labour input. Deals only with specific or local issues that may re-appear (e.g. development proposals)
Indirectly influence consent decisions	Encourage others to make informed submissions on consent applications (e.g. by educating the public, assisting with providing relevant information/ literature to submitters)	Indirect input to specific decisions	• Requires large time / labour input. • Deals only with specific or local issues that may re-appear (e.g. development proposals) • Slow process between educating potential submitters on the issue and encouraging them to make submissions. Could target those known or likely to make submissions (e.g. Forest and Bird Society).
Educate ecosystem managers	• Invite community restoration group reps to NZES conference • Encourage members to link with local restoration groups to provide technical advice • Send relevant journal papers etc to resource management agencies	• Directly influence those making day to day decisions on natural areas. • Improve effectiveness and efficiency of restoration projects	• Requires large time / labour input from members, particularly to contribute to community restoration groups
Educate the general public	• Provide media releases • Hold public meetings / talks at NZES conference • Pay for media coverage for each conference	Gain broader support for sensible, robust decisions regarding ecology and natural areas	• $ Cost for media releases. • Indirect (sometimes slow) way to effect change

5.2 Opportunities

The Society has two main opportunities to implement the Science Communication Strategy;

1. Act as a Society
2. Encourage members to act individually

The NZES has already positioned itself as a professional Society, particularly through regular conferences and publications of a professional scientific journal.

The New Zealand Journal of Ecology and the NZES conference are the two outputs 'owned' by the NZES, and the Society is best placed to capitalise on those to communicate science to a wider audience.

The Society can add value to those outputs by transferring the information presented by its members (via the conference or the journal) into popular articles.

Some possibilities are:

- Popularise the results of members' research into thematic circulars sent to 'dispersal' organisations, e.g. produce a regular newsletter on new information on restoration ecology and forward to the 'coal-front' organisations such as the NZ Landcare Trust, QEII National Trust, New Zealand Ecological Restoration Network for them to distribute to NZES's key audience.
- Disseminate the results of members' research (particularly published papers and seminal work) through mainstream media.
- Take advantage of a concentration of members at NZES conferences to seek consensus views on priority issues for the Society, e.g. via theme-based workshops.
- At each conference, invite relevant local politicians to round-table, informal discussions with scientists on specific issues.
- Hold public events (evening talks, debates, or discussions) during the conference on relevant themes.
- Provide free conference attendance for a set number of members of community conservation / restoration groups.

Organising these outputs will take time and the Society may need to consider employing a science writer or facilitator. Alternatively, it may consider appointing a number of co-opts to divide the work into manageable units. As a non-profit organisation the Society may be eligible for funding to employ contractors for this sort of work, for instance through the Biodiversity Advice Fund.

Another strength of the Society is its membership, a large number of well-respected professional ecologists from throughout New Zealand, covering a range of disciplines. A register of available experts, those to willing to respond to requests for talks, information, submissions on key issues, will allow the Society to spread the tasks across the membership, and rapidly engage the appropriate expert to respond to the issue.

5.3 Constraints

The Society is a body of individuals who hold a range of views on issues. It may be difficult for the Society to form and defend a cohesive stance given that some members may hold

alternate views. It is likely that for some issues the Society may have to refrain from adopting an official position, at least until there is greater consensus or overwhelming evidence to support a position. Nevertheless, the Society can highlight the issues and encourage productive debate among its members.

Additionally, NZES has no salaried staff, and members undertake work for the Society on a voluntary basis, or through the benevolence of their employers.

A further constraint is that some members may consider it more important to represent their employers when commenting on an issue, rather than representing the Society. Therefore, it may be difficult for the Society to gain recognition from science communication undertaken by members within the realm of their employment.

6 Actions

6.1 Increase brand recognition and credibility

The NZES will have most influence on decision-makers if association with the Society adds a level of credibility to those representing it. This requires marketing the NZES 'brand' such that it is recognisable and associated with professional, unbiased, robust scientific information, and expert opinions. In essence, NZES should be widely seen as 'the source' of robust ecological information.

The Society can increase its recognition by:

- Regular use of the Society name attached to well-researched, well-written articles in the popular media.
- Regular engagement in debates related to ecological issues to keep the NZES brand and message consistently in the public view.
- Publication of Society awards e.g., Lifetime Achievement Awards, Ecology in Action, Te Taio Tohu, student presentations in mainstream media and special interest publications (e.g. Forest and Bird magazine)

Visual recognition of the brand is also important. The NZES committee is reviewing the logo which is not considered to be easily interpreted or particularly attractive, particularly when reproduced in black and white.

6.2 Establish a database of willing experts

To be able to quickly respond to emerging issues, it is recommended that the Society develop a register of members willing to respond to requests for information or to submissions on their field of expertise.

The membership includes retired professionals who may have more time to contribute to Society aims. These people are also unconstrained by the requirements of their employers and are therefore able to comment freely on any issue. In addition, they have a life-time of valuable knowledge and experience that we need to capture and utilise.

6.3 Develop and implement a two-yearly Action Plan

To predict and proactively respond to issues, it is recommended that every two years the NZES develop a plan detailing specific actions the Society will undertake to implement this strategy. The regular NZES Conference provides an ideal opportunity for members input via a facilitated workshop to prioritise issues, messages and audiences for the action plan.

The criteria presented in this strategy should be used to guide decisions regarding key messages, target audience, and appropriate communication methods.

7 Evaluation

There are several indicators that the NZES is communicating effectively:

- Citations of NZJE papers
- Regular use of / reference to NZJE papers in resource management (e.g. in hearings reports, mitigation plans etc)
- Hearings decisions that incorporate the Society's submissions
- Publication of press releases from NZJE in major newspapers
- Increase in conference attendance by non-scientists (media, community restoration groups, members of the public).
- Downloads / visits to NZES website

8 Recommendations

There are a number of recommendations throughout this document. The key recommendations are to:

1. Co-opt a committee member to implement this strategy
2. Increase the NZES profile and brand recognition (e.g. revamp the logo and website)
3. Bi-annually, prioritise issues for proactive communication (ideally through conference workshops).
4. Set aside a fund each year to pay for a media consultant to attend and report on each conference, including NZES awards and conference awards.
5. Set aside a fund each year to pay for a media consultant to popularise one issue from each journal.
6. Develop a database of willing respondents / submitters for reactive response.
7. Invite decision-makers (ministers, politicians) to conferences
8. Hold public evening events at each conference
9. Provide free conference attendance for members of conservation restoration groups.

9 References

Department of Conservation and Ministry for the Environment, 2000. The New Zealand Biodviersity Strategy. Our Chance to Turn the Tide.

Linklater, W. L., and E. Z. Cameron. Publishing by New Zealand and Australian ecologists: trends and comparisons. NZJE 25(1):101-106.

10 Useful web links

http://www.bbsrc.ac.uk/tools/download/communicating_notes/cwtp.pdf

http://www.esrc.ac.uk/ESRCInfoCentre/about/CI/CP/best_practice_guides/

11 Appendix 1: Other Science Communicators in New Zealand

11.1.1 Professional Ecological Societies

Target researchers and applied scientists[2]

The NZES tends to attract scientists working primarily on terrestrial and palustrine wetland ecosystems. Professional marine and aquatic ecologists tend to join other societies such as the New Zealand Freshwater Sciences Society and NZ Marine Sciences Society. Other societies focus on more specialised sectors of terrestrial ecology, for instance Ornithological Society of NZ, NZ Botanical Society, and New Zealand Entomological Society, while the Royal Society of New Zealand has a broader multi-disciplinary science focus.

The relatively newly formed SCANZ (Science Communicators Association of New Zealand) aims to improve the communication of science through networking, facilitating debate, and celebrating excellence
Most science societies communicate primarily between scientists via peer-reviewed journals and conferences.

11.1.2 Formal Education / Institutions

Target school and tertiary students

The Ministry of Education develops policy, funds research, and provides information and specialist services to the education sector. The NZ Association of Environmental Education is a non-profit association that aims to foster the development of environmental education in New Zealand by advocating for environmental education to be a formal component of the New Zealand Curriculum. The focus of both agencies is on education about the environment in general, a much broader theme than ecology, that encompasses issues such as sustainable use of non-renewable resources, waste minimisation, and energy efficiency.

11.1.3 Government Agencies

Target resource users, landowners and general public

The Department of Conservation and local government (district, city, and regional councils) have responsibilities for biodiversity protection and many use education and incentives to encourage wise use of resources and restoration of natural areas. Topics cover a wide range of environmental issues, but some councils and conservancies have produced factsheets and run field days on ecological topics such as wetland restoration and forest health monitoring.

[2] For the purposes of this strategy, applied scientists are considered to include professionals with ecology degrees and expertise working in applied fields such as ecological restoration, conservation, resource management or education. They may be in agencies such as Department of Conservation, consulting companies, educational institutions, or local government. They are not necessarily engaged in scientific research, but generally stay abreast of research, help with the direction and funding of research, and incorporate scientific findings into their work

Government-funded independent organisations such as WeedBusters, the QEII National Trust, and Landcare Trust provide specific information and advice on land management, particularly managing pests and legally protecting natural areas.

11.1.4 Conservation Organisations and NGO's

Target the general public and decision-makers

The Royal Forest and Bird Protection Society, Greenpeace and the WWF are perhaps the largest national charitable organisations that focus on conservation advocacy for New Zealand's terrestrial and aquatic ecosystems. The RFBPS publishes a glossy bi-monthly journal which frequently includes popular articles prepared by scientists as well as by conservation advocates. WWF also has a strong role in school education and both societies run public campaigns on conservation issues and lobby central and local government, including via submissions on policy and consent applications.

The National Wetland Trust aims to increase the appreciation of wetlands and their values, via a national wetland interpretation centre, regular national wetland symposia, a quarterly newsletter, and events, particularly World Wetland Day field trips. It attracts scientists, wetland managers, landowners, iwi and interested members of the public.

There are many other non-profit organisations with strong emphasis on education and sharing ecological information including the Native Plant Conservation Network and the Ecological Restoration Network.

12 Appendix 2. Snapshot of Agencies with a role in Communication of Ecological Science

Organisation	Main target	Main focus	Main communication methods	Notes
NZ Association of Environmental Education	Schools / teachers	Increase awareness of environmental issues at a young age	Teacher training Education kits	
Min Education	Schools / teachers	Increase awareness of environmental issues via the school curriculum	Teacher training Education kits	
NGO's Forest and Bird, WWF, Greenpeace, etc	General public (often the converted, i.e. members) Decision-makers	New Zealand's natural heritage	Magazine Newsletters Field trips Submissions on public policy/ consents Public talks	Generally seen as agenda driven but often engage scientists to support their campaigns
DoC	General public Visitors Councils (advocacy role)	New Zealand's natural and historic heritage.	Visitor centres Interpretation plaques Brochures Website Events (e.g. Conservation Week)	
Councils	Landowners Resource users	All environmental issues esp. water quality, land management, increasingly biodiversity	Factsheets/ web Training days Field trips Events	
National Wetland Trust	General public	Wetlands	Education centre (planned) Newsletters Web Events	
NZ FW Society		Aquatic ecosystems	Journal Conferences	