Science Counts!

National Strategic Science & Research Portfolios, Programmes, Priority Actions

2002/03 AND BEYOND

Department of Conservation
Te Papa Atawhai

FOREWORD

In March 2001, the Department of Conservation published "Science Counts!" a listing under Portfolios and Programmes of the priority research actions that aligned with the expectations of the Department's guiding strategic documents. Announced in "Science Counts!" was an intention to test and review, on an annual basis, the urgency and relevance of our research Priority Actions. Printed here are the outcomes of these deliberations, which have involved consultations with many people within and outside the Department.

The Department's Statement of Intent, "Restoring the Dawn Chorus 2001-2004"[1], established 10-year National Priority Outcomes and 3-year Strategic Directions. National Strategic Science & Research Priority Actions are the next level of definition; these are designed to indicate the context within which individual research investigations must perform. Thus a 'strategic cascade' is created that connects the individual research project to the ultimate delivery of a National Priority Outcome. New thinking that has been captured during the process of revising the Priority Actions, is expected to feed back and influence future versions of the Statement of Intent.

The move away from scientific research that was driven bottom-up, to nationally oriented top-down strategic allocations of science funding, means we can engage much more forcefully with our external science providers. These Priority Actions have been developed as much to guide the Department's national science effort, as they have to encourage external science provider collaboration. By deriving a clearer sense of direction, Science & Research Unit staff and our key external alliances know better where we need to place our collective efforts. Individual research projects that are funded in support of these Priority Actions are essentially driving science into the very heart of conservation management practice. At issue is making Science Count!

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1 Copies of the published Statement of Intent are available from DOC Science Publishing, email: science.publications@doc.govt.nz

PORTFOLIO: TERRESTRIAL RESTORATION & PESTS

Ecosystem Restoration

Priority Actions

A Investigate the processes that drive changes to ecosystem structure and function at island and mainland sites.

B Investigate how native forest and grassland communities change in relation to temporal variation in flowering, fruiting and seeding and determine implications for pest control.

C Develop and evaluate intensive ecological restoration models for a range of ecosystems to guide current and future management.

…improve how we set and measure conservation outcomes by researching spatial and temporal changes in ecosystems.

Animal Pests and Weeds

Priority Actions

A Model weed populations to predict future distributions and evaluate the processes that make particular native communities vulnerable to invasion.

B Develop predictive models of weed response to animal control over a range of control intensities and sites.

C Undertake risk assessments and develop surveillance systems for new and existing pests, diseases and other biosecurity hazards.

D Investigate how control of a single pest affects populations of other pests.

E Review, assess and refine existing tools, techniques and applications to eradicate or control key animal and plant pests. Develop new tools if required.

F Test adaptive experimental management and monitoring protocols and quantify relationships between management goals and monitoring indices.

PORTFOLIO: SPECIES & ECOSYSTEMS UNDER THREAT

Species, Communities and Ecosystems

Priority Actions

A Establish guidelines that will enable managers to identify appropriate conservation management units for threatened taxa in order to maximise biodiversity and ensure the survival of these taxa[2].

B Test conservation biology principles in the New Zealand context. Emphasis will be on determining

- the role of genetic diversity in maintaining long-term viability of threatened species,
- the importance of linkages in the landscape as a means of maintaining biological diversity, and
- the utility of population viability analysis in conservation planning.

C Establish, develop and test guidelines and criteria for defining the long-term security of populations and ecosystems under threat.

D Review and assess current techniques for monitoring threatened species, ecosystem health and trends. Develop new techniques where there are no appropriate methods. Techniques for monitoring invertebrates are a priority.

E Develop and test approaches to the management of several threatened species at key sites to maximise return on investment.

F Identify critical factors limiting the viability of threatened taxa, threatened communities, threatened ecosystems, and threatened ecological processes. Test ways to mitigate such threats. Understanding the effects of fragmentation of threatened lowland ecosystems is a priority.

G Establish objective methods for identifying outstanding and threatened ecosystem types.

2 Guidelines could identify total populations; or geographically, genetically, or behaviourally distinct sub-populations.

Classification and Measurement

PORTFOLIO: CONSERVATION ASSESSMENT

Priority Actions

A Guide the development, definition, mapping and application of classifications to terrestrial, freshwater and marine environments in ways that account for both ecological patterns and human uses. (Lead agencies: MfE, Landcare Research Ltd, NIWA; Stakeholders: DOC, MFish.)

B Develop and refine DOC's "Measuring Conservation Achievement" (MCA)[3] process. Priorities are:

a) improving the measurement of natural character components, in particular:

- human removal disturbances and physico-chemical resource modification, and the natural recovery from such impacts,
- the abundance and spread of introduced animal and plant pests,
- spatial and temporal changes in ecosystems, including the effects of climate change.

b) refining the process for estimating site importance.

c) exploring ways to map risk, beginning with social risk.

C Refine and implement the MCA system for use in DOC by developing and testing the computer support systems necessary for smooth, routine operation by non-expert staff.

D Support the design and test a national system to monitor and report on changes in the condition of indigenous terrestrial and aquatic biodiversity.

3 The MCA project aims to provide standard tools and procedures to assess conservation priorities, and measure and report on conservation performance. The current focus is on natural heritage assessment, but developments to incorporate historic heritage, cultural and recreational (visitor) aspects will follow.

Marine and Freshwater Protection and Restoration

PORTFOLIO: AQUATIC PROTECTION & RESTORATION

Priority Actions

A Develop and refine objective classification and prioritisation systems for protection and restoration of freshwater, estuarine and marine ecosystems, and to test these systems for the identification of outstanding, distinctive, representative or rare communities.

B Identify critical factors limiting the viability of populations of threatened freshwater, estuarine and marine species, communities, ecosystems and ecological processes. Test ways to mitigate such threats and biosecurity risks.

C Develop freshwater and estuarine ecosystem (lake, wetland, marsh and stream) restoration techniques.

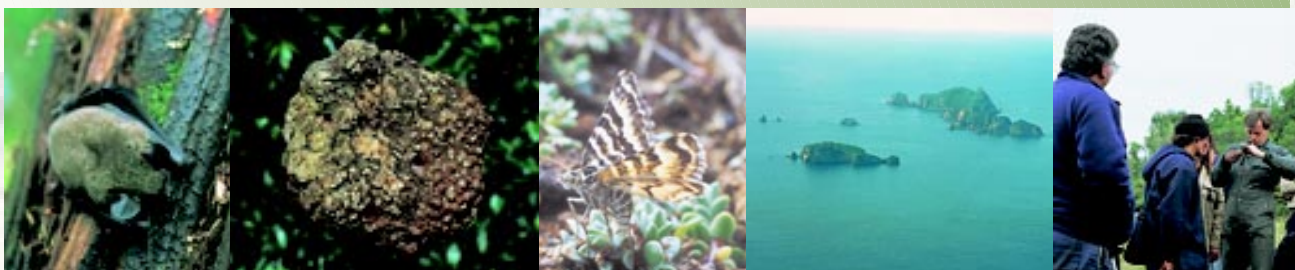
D Model optimal marine reserve design, including Maori indicators of marine protection; with an emphasis on size and shape, spill-over and direct effects on species.

E Determine the impacts of marine farms on nearshore ecosystems and protected species.

F Assess and refine tools for managing stranded cetaceans.

G Design ecosystem monitoring programmes that detect change in key processes (especially the impacts of critical limiting factors) and species that follows establishment of marine and freshwater reserves.

… managing multiple threatened species at key sites …



Visitor Use

Priority Actions

A Further develop and adapt systems to measure visitor characteristics, expectations and satisfaction with respect to access and use of protected areas and species.

B Further develop methods to identify, classify, prioritise and minimise impact of visitors and facilities, and predict the cumulative effects of increased volume and diversity of recreation and tourism.

C Increase understanding of social impact issues and develop methods to anticipate, minimise and resolve differences between diverse visitor user groups, and other stakeholders, and the conflicts that may arise from them.

D Evaluate and monitor the effectiveness and benefits derived from outcomes achieved by visitor management actions in different situations, including the different techniques and approaches for interpretation for visitors.

Community Participation

Priority Actions

A Measure the benefits and costs of public involvement in conservation management, considering the partnerships and inter-relationships with communities, and opportunities for improvement.

B Develop and measure the effectiveness of advocacy approaches in changing public awareness of, and commitment to, conservation and conservation practice.

C Develop better understanding of the expectations and concerns of Maori, the value and the outcomes of partnerships with tangata whenua, and opportunities for improvement.

D Measure the diversity of values and expectations among people and communities, and predict their influence on conservation.

E Identify national and local community responses to different management practices and to major conservation initiatives.

F Examine the Department's institutional culture and networks and assess how these affect the success of the Department's interaction with stakeholders and communities.

Historic and Cultural Heritage Protection

Priority Actions:

A Develop cost-effective practices to stabilise, restore and monitor cultural and historic heritage.

B Improve methods for assessing cultural and historic heritage values and their significance, and specifying appropriate conservation interventions.

C Establish the nature and scope of historic and cultural landscapes and priorities for management and protection.

D Develop frameworks and methods for achieving a better balance of historic themes on sites in the protected area network.

E Develop the information, methods and processes for improved departmental and public understanding and interpretation of cultural and historic heritage.

…assessing visitor expectations and community responses…

NATIONAL STRATEGIC SCIENCE & RESEARCH PORTFOLIOS, PROGRAMMES, PRIORITY ACTIONS, 2002/03 AND BEYOND

PORTFOLIO: Terrestrial Restoration & Pests
Programmes
- Ecosystem Restoration
- Animal Pests and Weeds

Science Manager Responsible: Rod Hay
Portfolio Leader: Clare Veltman

PORTFOLIO: Species & Ecosystems Under Threat
Programme
- Species, Communities and Ecosystems

Science Manager Responsible: Don Newman
Portfolio Leader: Colin O'Donnell

PORTFOLIO: Conservation Assessment
Programme
- Classification and Measurement

Science Manager Responsible: Rob McColl
Portfolio Leader: Theo Stephens

PORTFOLIO: Aquatic Protection & Restoration
Programme
- Marine and Freshwater Protection and Restoration

Science Manager Responsible: Ian West
Portfolio Leader: Lindsay Chadderton

PORTFOLIO: People, History & Conservation
Programmes
- Visitor Use
- Community Participation
- Historic and Cultural Heritage Protection

Science Manager Responsible: Paul Dingwall
Portfolio Leader: Kevin Jones

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