

IPBES and New Zealand's Terrestrial
and Marine Biodiversity Monitoring
and Reporting Framework



 **Intergovernmental Science-Policy Platform
on Biodiversity and Ecosystem Services (IPBES)**

For more information please visit:
www.ipbes.net

3rd Meeting, 7-11 June 2010
Busan, Republic of Korea



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**Department of
Conservation**
Te Papa Atawhai



CBD

Convention on Biological Diversity

Article 25: Subsidiary Body on Scientific, Technical
and Technological Advice (SBSTTA)

Functions:

- a) Provide scientific assessments of biodiversity status
- b) Assessments of outcomes
- c) Knowledge development and science/technical transfer
- d) Provide advice
- e) Respond to questions



Busan outcome

“The new platform should perform regular and timely assessments of knowledge on biodiversity and ecosystem services and their interlinkages.”

ipBes

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UNEP

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Post-2010 Strategic Plan

Target 19:

“By 2010, [knowledge, the science base and technologies relating to biodiversity, its values and functioning, its status and trends, and the consequences of its loss are improved, widely shared, and applied.][Technologies related to biodiversity are widely transferred to developing countries on preferential terms.]”



New Zealand and IPBES

1. Review and assess each country's methodologies for determining status and trends at national scale
2. Negotiate and internationally agree a set of defensible and consistently applied indicators and measures for accurate, standardised and globally consistent assessment of status and trends
3. Mechanisms to transfer evidence base to policy
4. Small set of metrics must be simple, meaningful, inexpensive to apply and readily transferable

New Zealand's Natural Heritage Management System (NHMS)



What's the problem?

- Responsible for \$6.1 billion (book value) of public conservation land
 - *But we don't know what's happening to it (though we may think we do)*
- Spend \$135 million every year on biodiversity mgmt
 - *But we don't know whether we're doing the right things in the right places or what overall difference that work is making*

Growing pressure: national and international reporting obligations

New Zealand's Natural Heritage Management System (NHMS)



The Solution: National Monitoring and Reporting Scheme

1. National status and trends monitoring

- *Measures overall status and trends in New Zealand's biodiversity*
- *Context for big decisions*

Answers the NHMS questions:

- ✓ *What is the state and condition of natural heritage?*
- ✓ *What are the trends in that condition?*

2. Monitoring of managed species and places

- *Monitors outcomes of active management*
- *Requires national consistency in project monitoring*

Answers the NHMS questions:

- ✓ *What difference does our management make?*
- ✓ *How can we improve management?*

Monitoring outcome



Conserving natural heritage is maintaining
ecological integrity:

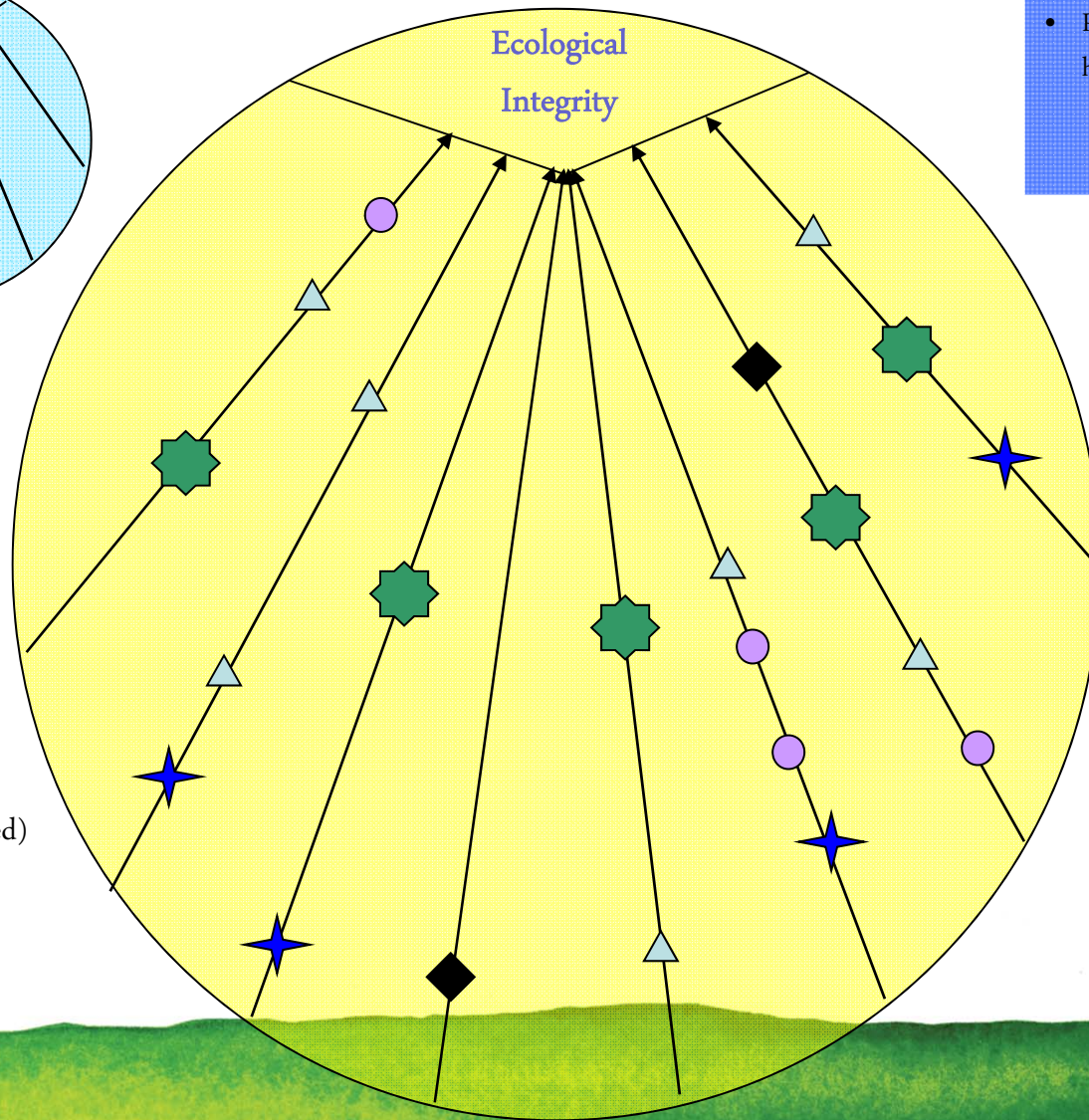
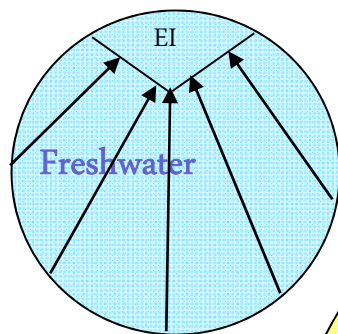
- Indigenous dominance (to maintain natural character)
- Species occupancy (to avoid extinctions)
- Ecosystem representation (to maintain 'a full range')

Measuring New Zealand's ecosystem health

The Indicator Framework: a world first!

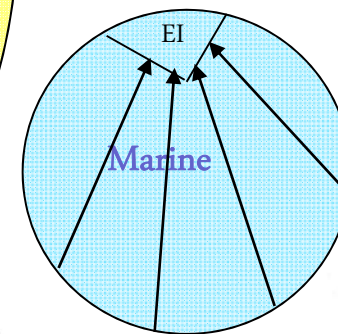
What is an indicator?

- Sales trends for business
- Blood pressure for health risks
- Pest dominance for ecological health

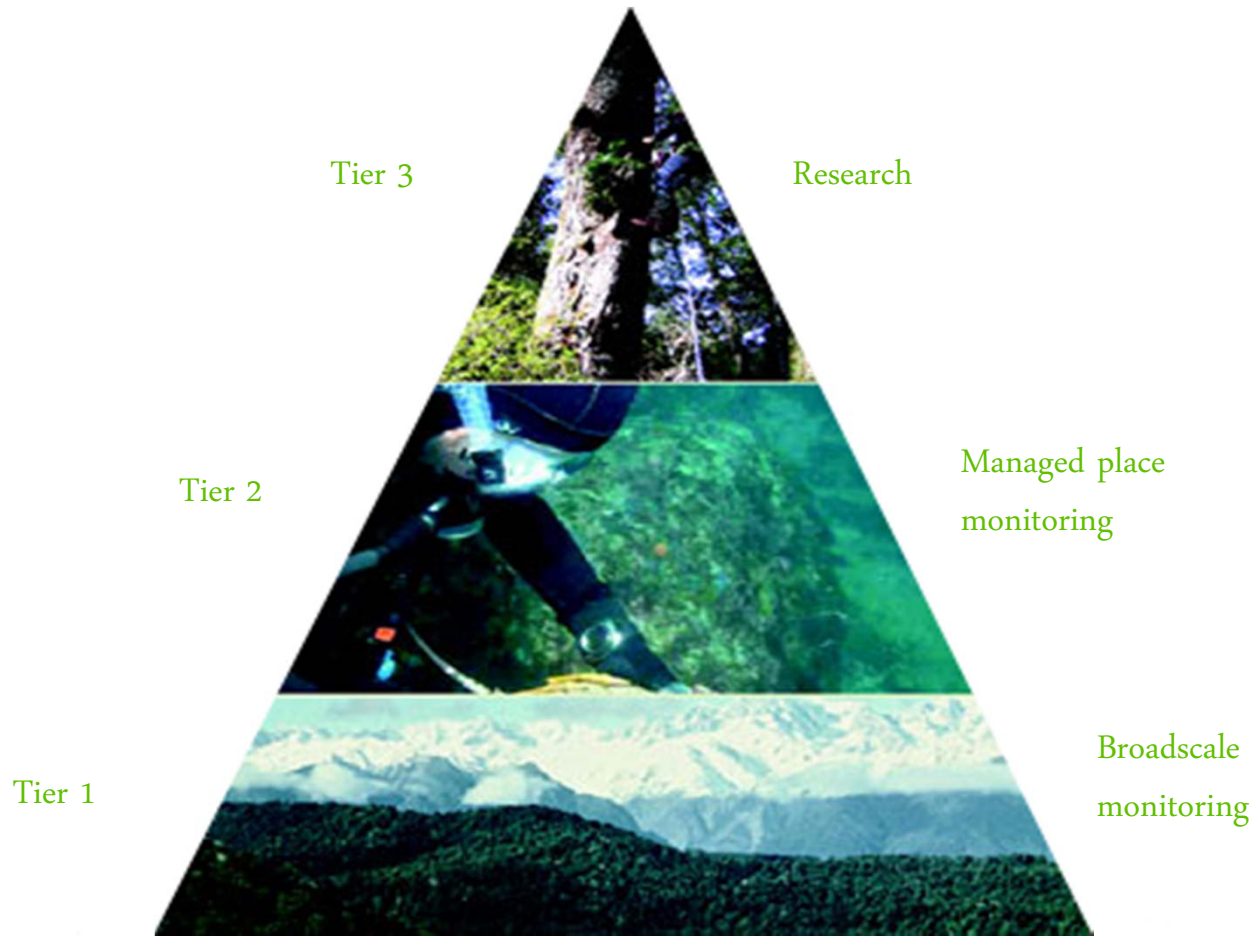


LEGEND

- ➔ Indicators
- Case studies
- ▲ Desktop
- ◆ Other agencies
- ★ NHMS products (improved)
- ★ Sampling Scheme



An integrated monitoring system



Central curation of data



The screenshot shows a web browser window titled "Inventory and Monitoring Toolbox - DOC Intranet - Windows Internet Explorer". The address bar shows the URL: <http://intranet/en/Conservation-Management/Biodiversity/Inventory-and-Monitoring-Toolbox/>. The browser interface includes a menu bar (File, Edit, View, Favorites, Tools, Help), a search bar with "Google" and "Go" buttons, and a toolbar with various icons. The page content is organized into a navigation menu on the left and a main content area. The navigation menu includes "Biodiversity" with sub-items: "Marine", "Freshwater", "Inventory and monitoring toolbox", "Threatened species", "Ecosystem management", and "Biodiversity strategy". The main content area is titled "Natural Heritage Inventory and Monitoring Toolbox" and has two tabs: "Inventory and monitoring toolbox" (selected) and "Procedures & Guides". Below the tabs, there is a paragraph: "The Inventory and Monitoring Toolbox has descriptions of how to inventory and monitor flora and fauna to national standards. It also has lots of tools and information about monitoring populations to assist you." The content is divided into four sections: "Getting started" with links "What is the toolbox" and "Using the toolbox"; "A guideline to monitoring populations" with a numbered list: "1. Introduction", "2. Design and implementation framework", "3. Statistical Concepts", "4. Sampling approaches", and "5. References"; "Modules" with links "Vegetation module", "Birds module", "Bats module", and "Animal pests module"; and "Modules under development" with a link "Overview of modules to come". The Windows taskbar at the bottom shows the "start" button, "Get Connected", and several open applications including "Inventory and Mo...", "2 Microsoft Offi...", "Find: In 80-20 Do...", and "3 Microsoft Offi...". The system tray shows "Local intranet", "140%", and "4:29 p.m.".

Intranet now;
Internet later

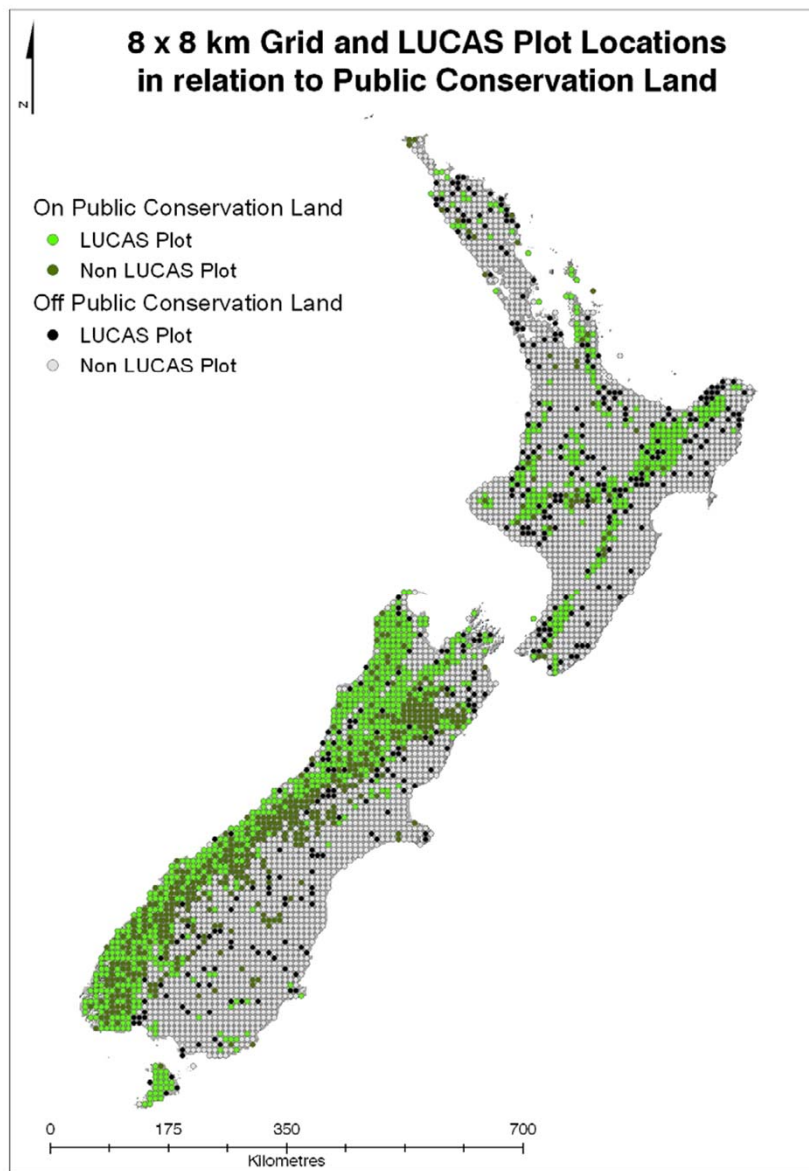
The National Sampling Scheme



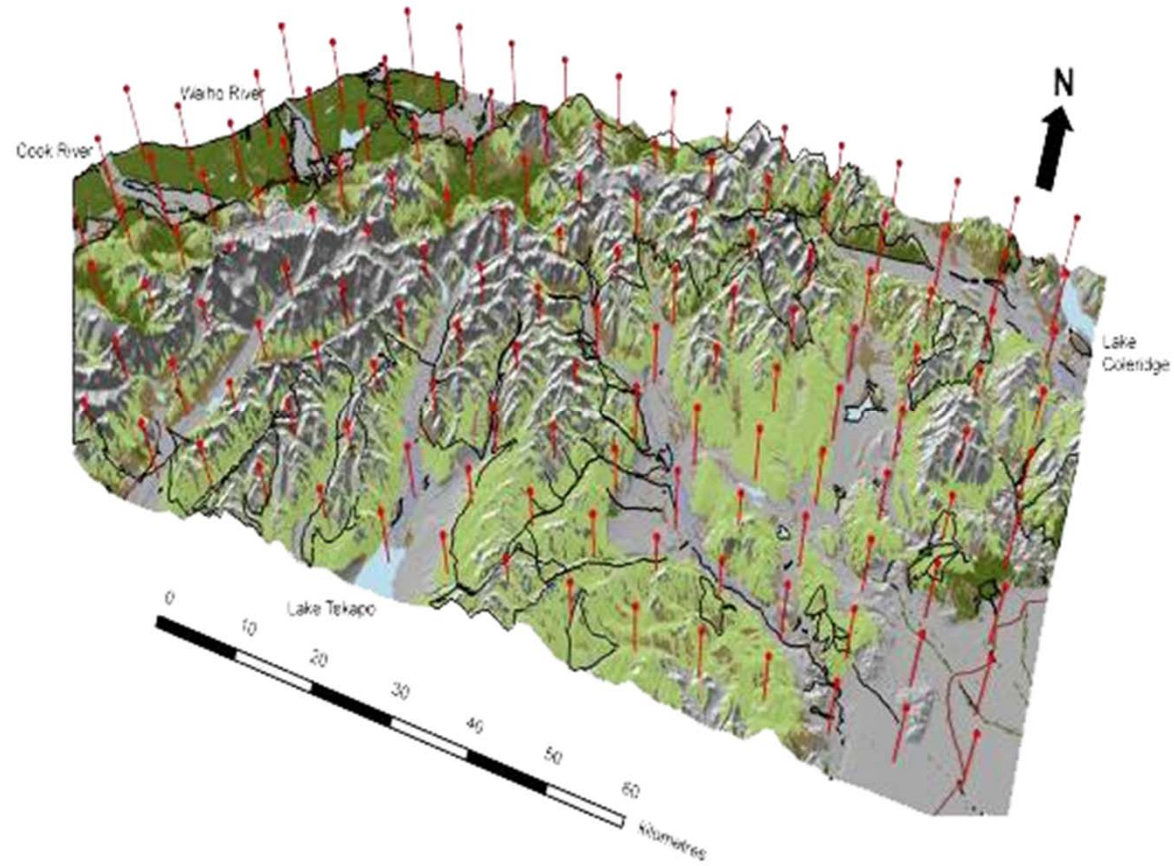
What is it?

- Annual sampling programme
- 1300 plots in 8 km grids over conservation land
- Five-yearly measurement cycles
- Others encouraged to do it too
- Long-term commitment

8x8 km grid and LUCAS plot locations



How it looks: layout of sampling locations



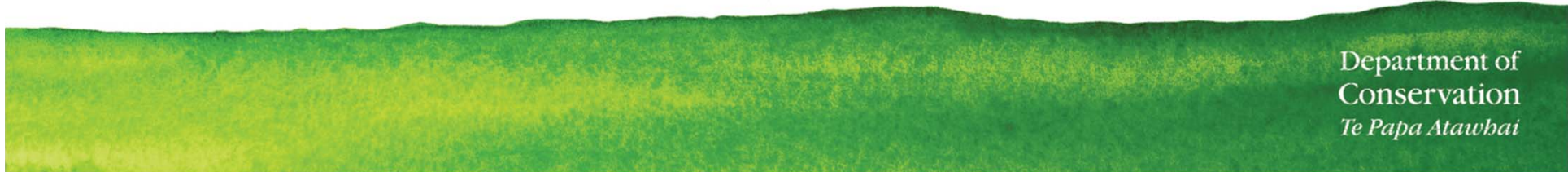
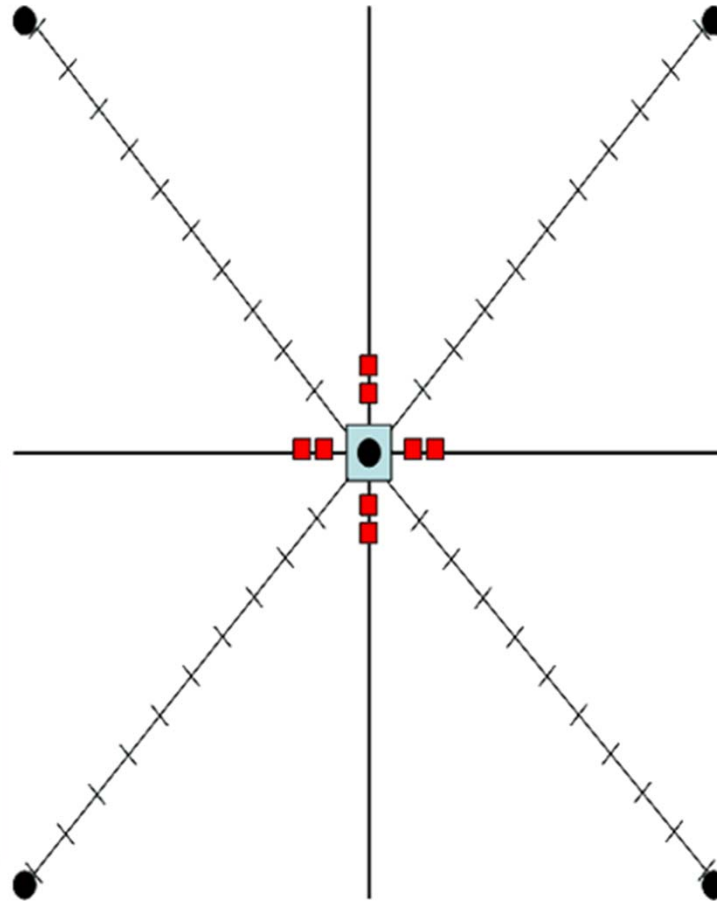
Layout of a sampling location



Plot design for I&M pilot surveys

Key:

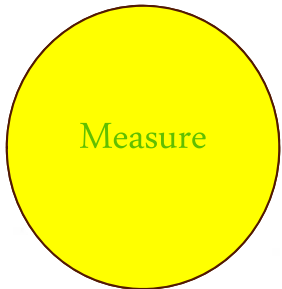
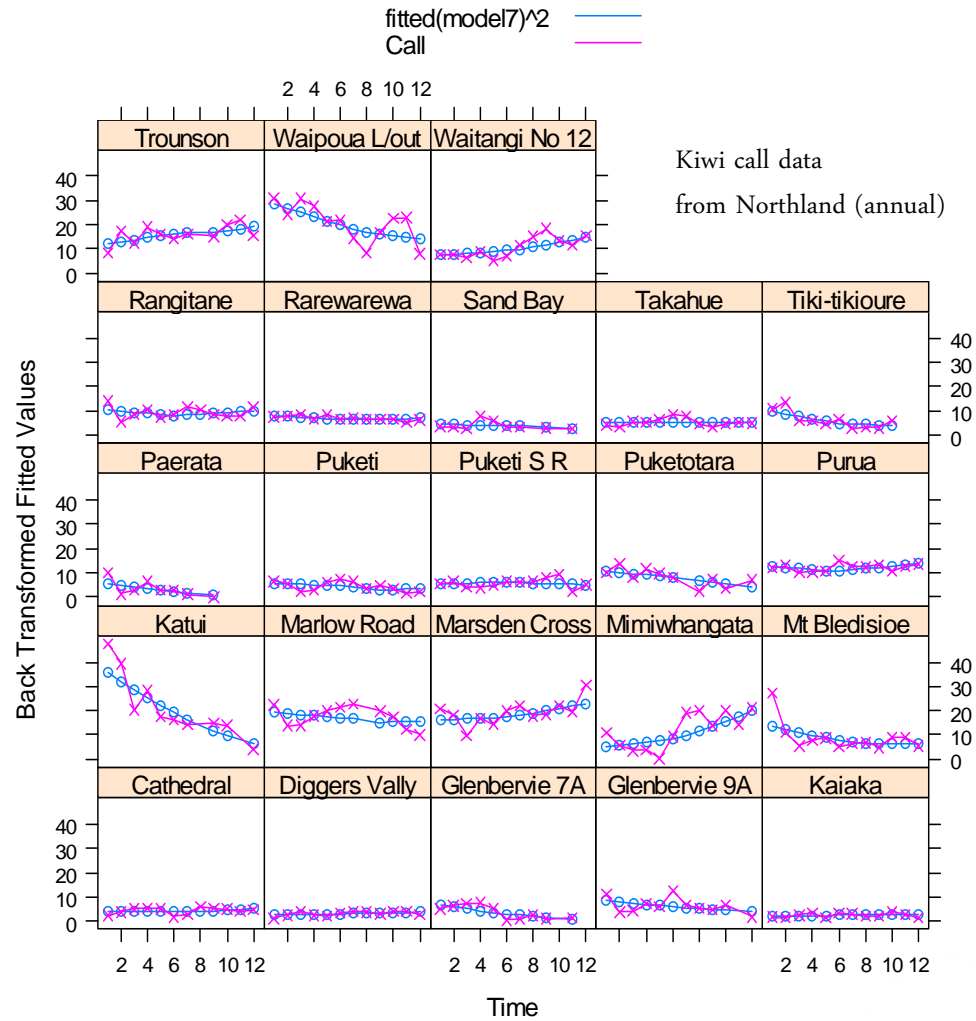
- 20 x 20m Vegetation plot
- 1 x 1m Rabbit quadrat
- Bird count station
- 150m Ungulate pellet transect
- 200m Possum trapping line



Statistical analysis workshops



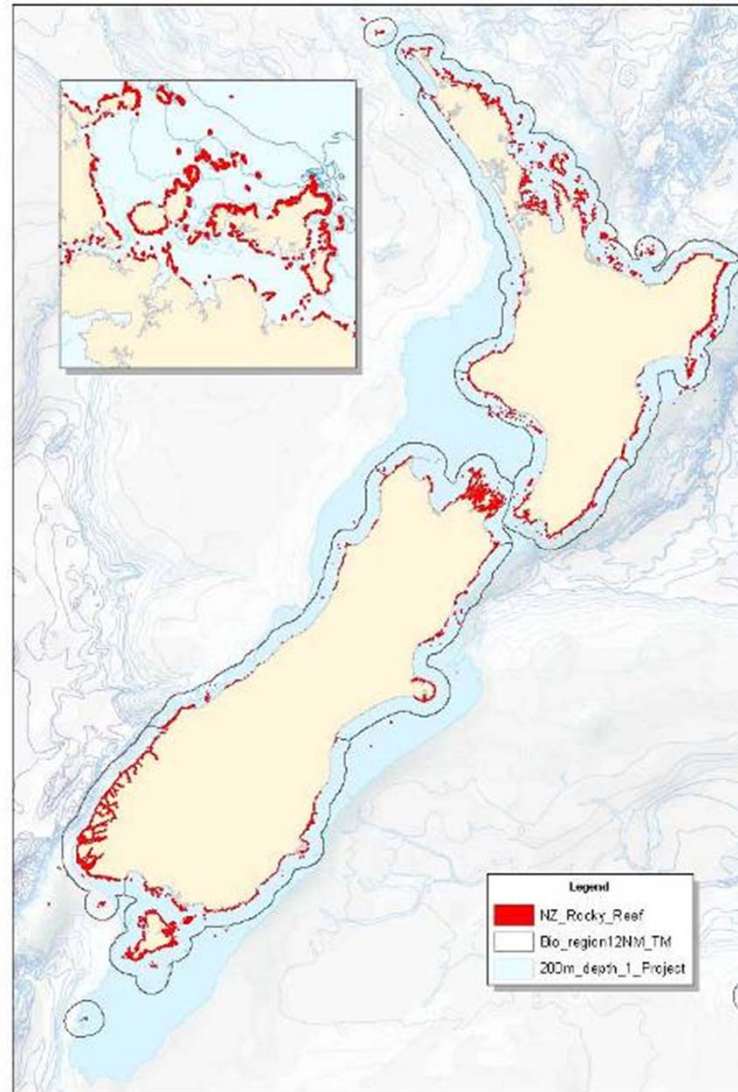
Back Transformed Fitted Values with Original Data



Marine Classification and information layers examples



National spatial layer for rocky reefs to 50m



Inventory
Catalogue
and
classify

NHMS Inventory & Monitoring Framework Marine examples



National Outcome	Targeted National Outcome	Outcome Objectives	Indicator (examples)	Potential measure (examples)	Potential elements (examples)
Ecological integrity	Indigenous dominance	1. Maintaining ecosystem processes	Ecosystem disruption	Disease outbreaks	Where data is otherwise gathered by DOC: the area or proportion of protected species impacted or number of individuals affected. E.g. mass mortality events, occurrence of disease in marine mammals.
		2. Reducing exotic spread and dominance	Naturalisation of new weed and pest species	Occurrence of self-maintaining populations of potential environmental weeds and pests	The number, abundance and distribution of selected adventive species that have established themselves in New Zealand's marine environment that pose a threat to managed marine sites. Data from MR monitoring and MAFBNZ.
		3. Limiting environmental pollutants	Ecosystem levels of persistent toxins	Toxins in selected environments and tissues of indigenous wildlife	Persistent organic pollutants e.g. tissue samples from marine mammals, sea birds. Data from RCs.



- GEO BON
- Marine BON

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