Biodiversity Monitoring at SANBI

Where are we at and where are we going?
So what do we monitor?
Monitoring Framework Proposed by GeoBon

<table>
<thead>
<tr>
<th>FOCUS OF MONITORING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species abundance &amp; occurrence (native &amp; non-native, over space and time)</td>
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<tr>
<td>Species traits (mean and variance over space &amp; time)</td>
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<tr>
<td>Wild and domesticated species genetic diversity</td>
</tr>
<tr>
<td>Species level pressures</td>
</tr>
<tr>
<td>Ecosystem Process/Function</td>
</tr>
<tr>
<td>Ecosystem structure (mean &amp; seasonality)</td>
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<tr>
<td>Ecosystem composition (over space and time)</td>
</tr>
<tr>
<td>Ecosystem level responses</td>
</tr>
<tr>
<td>Ecosystem level pressure</td>
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<tr>
<td>Ecosystem Services</td>
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</tbody>
</table>

Created by Dr J Donaldson
Canadian Ecosystem status and trends

SYNTHESIS OF KEY FINDINGS

This diagram presents the status and trends of the key findings, as well as confidence in the conclusions drawn. The key findings are grouped in themes, each occupying a quarter of the diagram. They are presented as parts of a circle to highlight the holistic nature of ecosystems—their health and diversity. The topics in the left half of the circle are aspects of the ecosystems themselves—biomes, habitat, wildlife, and ecosystem processes. The topics in the right half of the circle are human activities—alteration of ecosystems and actions taken to understand and conserve ecosystems. By necessity, the time frames over which the ratings of status and trends are made vary—both because the themes are meaningful for these diverse scales of ecosystems and the size of information which is over a range of time periods.

The height of the stack of papers beside each key finding represents confidence in the finding based on an evaluation of the adequacy of the supporting evidence. Confidence is lowered when the ecosystem aspect is not well understood or when data are inadequate in spatial or temporal coverage.

In the body of the report, at the beginning of each key finding section, these symbols are repeated, along with short phrases summarizing the basis for the ratings.

The red flag in some key finding sections is used to highlight aspects of the findings that may be early warning signs of significant ecological change.
New Zealand
NBSAP

PART FOUR

1. Better governance
2. Enhance community participation and learning
3. Becoming smarter biodiversity managers
4. Strengthen partnerships with Māori
5. Sustain indigenous biodiversity in privately managed areas and in freshwater environments
6. Enhance protected areas and prospects for threatened species
7. Manage the marine environment to sustain biodiversity
8. Identify and manage biosecurity risks to indigenous biodiversity
9. Maintain the genetic resources of our important introduced species
WHAT MUST WE MONITOR & REPORT ON?

NEM: Biodiversity Act

• status of the Republic’s biodiversity
• status of threatened or protected species and ecosystems
• status of all listed invasive species
• environmental impacts of genetically modified organism...based on research that identifies and evaluates risk
• legal and illegal trade in specimens of listed threatened or protected species (for Scientific Authority)
• Trends and status of species in trade (for Scientific Authority)

OUTCOME 10

• Amount of land under protection
• Climate change impacts on biodiversity
• Areas restored
• Ecosystem services

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Monitoring as an Integrative Function

- National Biodiversity Assessment (2012)
- Monitoring & Assessment
- Research
- Interim assessments & reports
- 7 year programme
- National Status of Biodiversity Report (assessment) 2019

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Monitoring as an Integrative Function

Issues → Knowledge Generation → Monitoring & Assessment → Research → New Questions → Gaps & Uncertainties relating to Policy or Actions → Informed Policy and Decision Making → Actions
SANBI’s direction

- Monitoring workshop 17 & 18 May 2012

**Ecosystem Status**
- Coastal ecosystems
- Protected areas
- Ecosystem protection levels
- Ecosystem threat status

**Species Status**
- Threatened species
- GMO's
- Invasives
- Measure species threat status – indicated by red list

**Supply Provision Benefits**
- Wetlands
- Pollination
- Pollination forage supply
- Provision of pollination services to farmers
- R value of pollinated crops

**Maintaining ecological infrastructure**

**Unlocking benefits**
Networked partners....

- Data sharing
- Sharing best practices & good science
- Helping each other achieve
Thank you

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