The Biodiversity Indicators Dashboard

--Monitoring Biodiversity Trend and Conservation Performance

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NatureServe

Partnership and Collaborators

NatureServe

Biodiversity Indicators Partnership

UNEP

WCMC

IUCN

SSC Species Survival Commission

BirdLife International

University of Maryland

Conservation International

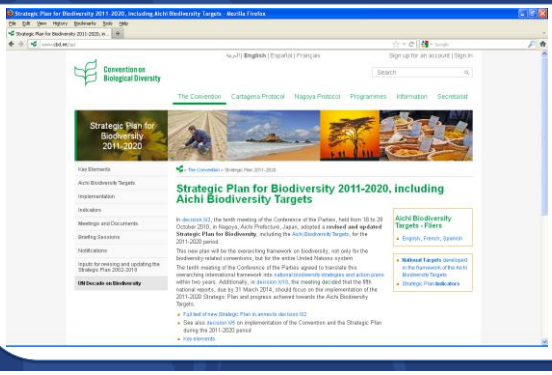
Centre d'Ecologie Fonctionnelle & Evolutive

MacArthur Foundation

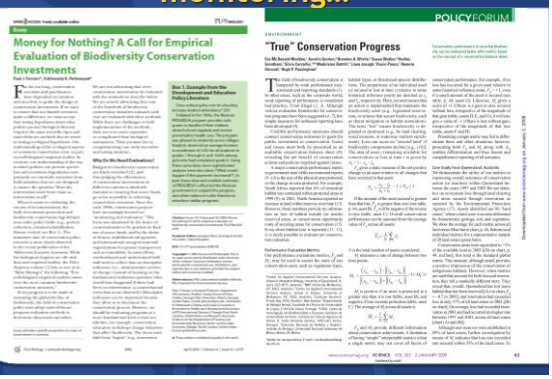
Outline

- Background & conceptual approach
  - Dashboard development timeline
  - Pressure-state-response-benefit indicator framework
- Intended audiences and goals for Dashboard
- Demonstration of initial Dashboard prototype
- Indicator recruiting strategies
- Challenges and capacity needs: Lessons learned from regional stakeholders
- Dashboard ongoing efforts and next steps

Life on Earth needs monitoring…



…and conservation needs monitoring…



Money for Nothing? A Call for Empirical Evaluation of Biodiversity Conservation Investments

POLICYFORUM

ENVIRONMENT

"True" Conservation Progress

…but monitoring is difficult!

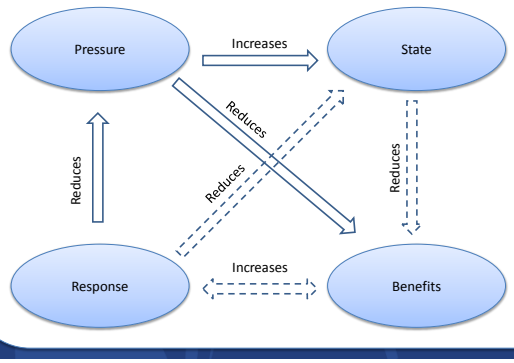
- Barriers to data access and sharing
- Lack of access to remotely sensed data
- Dispersed, inadequate, non-standard data
- Limited data reporting and visualization tools
- Insufficient resources: human, funding, IT
- Inadequate coordination among institutions
- Ineffectual national regulatory requirements

…Comprehensive and easily understood information on biodiversity trends is often not available at regional and national scales

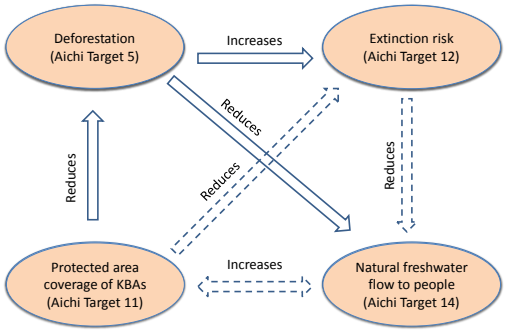
Dashboard development timeline

- Phase I: Proof of Concept, 2011 – 2012
  - Establish four baseline indicators in three regions
  - Access local data capacity through regional consultation workshops
- Phase II: Dynamic Prototype, 2013 – 2015
  - Develop the dashboard platform
  - Continue building local capacity
  - Analyze dashboard data to assess conservation actions

Conceptual framework



Global indicator examples



Dashboard program goals

A clear, user-friendly visualization of biodiversity indicators that tracks biodiversity and conservation performance and facilitates iterative adaptive management

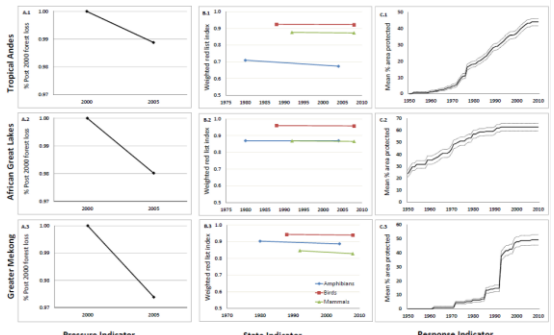
- Establish regional dashboard assessments for reporting on trends in biodiversity using a "pressure–state–response–benefits" indicator framework
- Develop infrastructure to allow data upload, maintenance, analysis, and reporting
- Catalyze sustainable national investment in the data flow needed to sustain assessments
- Inform adaptive management and investment by better placement of responses within the regional context of status, threats, and benefits to humanity

Audiences: policy and practice

- Regional and global:
  - Support reporting to global conventions, e.g., the Convention on Biological Diversity
  - Inform regional- and global-scale investment by agencies and donors
- National:
  - Strengthen coordination and investment among national government agencies and civil society
- Local:
  - Provide counterfactuals for appropriate reporting of conservation results
  - Support adaptive management of conservation action and investment

Geographic regions

Sample indicator trend graphs



From Han et al., manuscript in review

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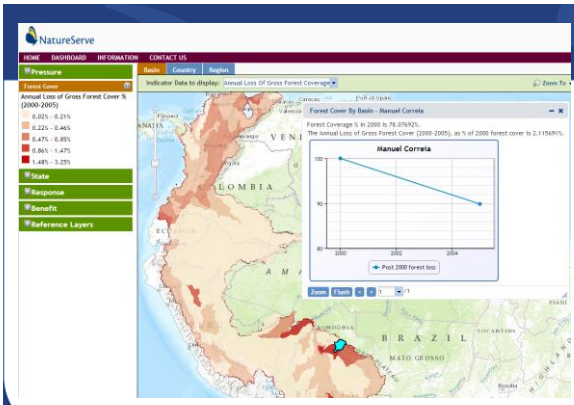
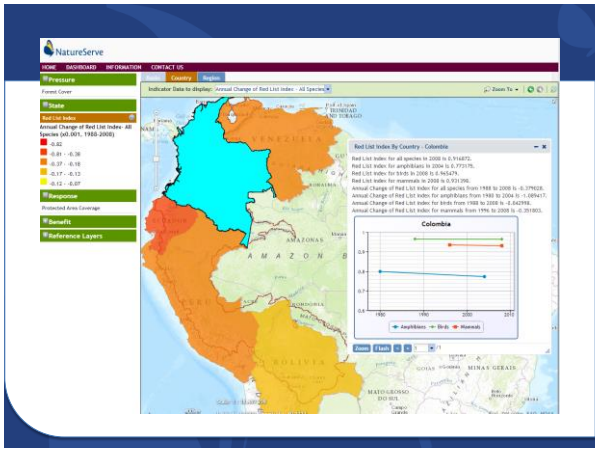
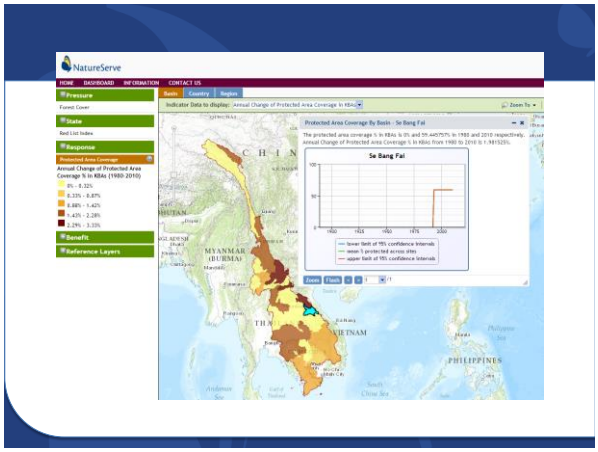
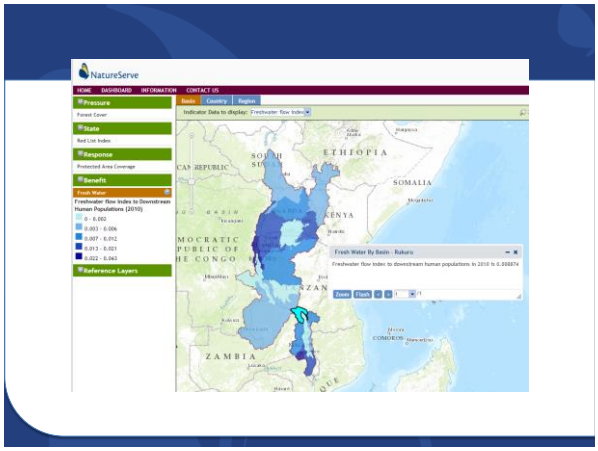
Prototype Demonstration

http://dashboarddev.natureserve.org









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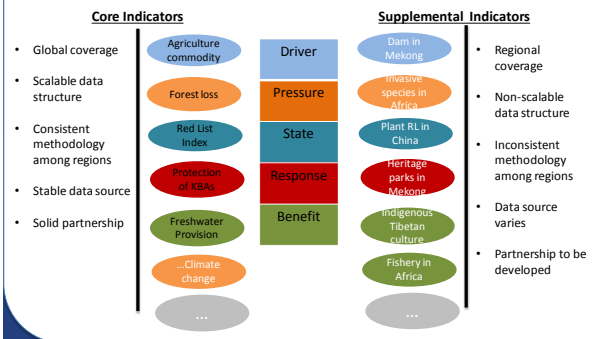
Biodiversity Dashboard Indicators



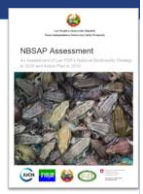
Core Indicators

- Closely work with partners to update and calibrate the existing indicators

- Watch out for promising existing and emerging indicators and develop new partnerships, possibly through the networks of:
  - BIP
  - GEO BON
  - GBIF
  - IPBES

Supplemental indicators

- Data mining of National Reports and NBSAP reports
- Partner with existing intergovernmental data hosts to harvest ready country indicators & national reporting agencies
  - ASEAN Centre for Biodiversity
  - World Bank Open Data
  - China CBD /Nanjing Institute of Environmental Science
  - Vietnam National Biodiversity Database System
  - Uganda Data Bank
  - Peru National Environmental Information System
- Acquire indicators generated by foundation grantees
- Partner with existing local-scale monitoring initiatives , regional data centers, and NatureServe network



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Consultation workshops

- Entebbe, Uganda (Sep 2011)
  - 20 participants from 6 countries
- Phnom Penh, Cambodia (Oct 2011)
  - 70 participants from 5 countries
- Entebbe, Uganda (Nov 2011)
  - 39 participants from 10 countries
- Nairobi, Kenya (Jan 2012)
  - 27 participants from 3 countries
- Hanoi, Vietnam (Mar 2012)
  - 47 participants from 9 countries
- Lima, Peru (May 2012)
  - 27 participants from 4 countries
- Lima, Peru (August 2012)
  - 30 participants from 10 countries


Dashboard questionnaire

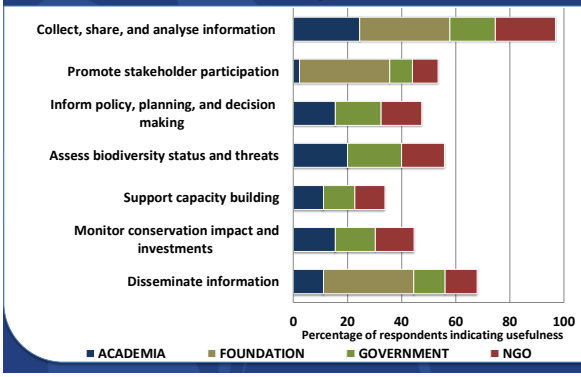
1. How might the dashboard program be useful in your country?

2. Are the four example indicators being monitored in your country? What other indicators are monitored?

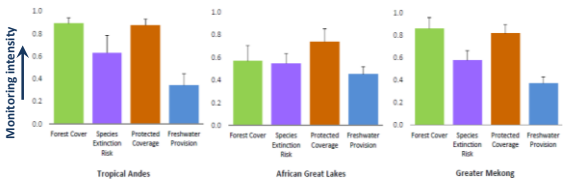
3. Which of the spatial scales would be most useful in your country?

4. Do you have any other questions/comments about the dashboard program?


How might the dashboard program be useful in your country?



Monitoring of dashboard indicators



From Han et al., manuscript in review

What other indicators are being monitored?

	Drivers	Pressure	State	Response	Benefit
Indicator			Mekong	Great Lakes Region	Tropical Andes
"Social indicators"			✓		✓
"Economic indicators" (agriculture, livelihoods) / Land use and agricultural yield			✓	✓	✓
Wildlife trade / Poaching			✓	✓	
Hydro power dams			✓		
Hydrological data				✓	✓
Illegal cultivation				✓	✓
Alien invasive species				✓	
Climatic data				✓	✓
Livestock censuses				✓	
Change of habitat other than forest				✓	✓
Fuel wood / charcoal use				✓	
Plant biodiversity			✓		
IBAs status and trends				✓	
Wildlife census: birds and large mammals			✓	✓	✓
Wetland coverage				✓	
Wildlife: herpetology and entomology				✓	✓
Community based conservation actions (forestry)			✓		
Conservation investments					✓
Protected Area Management Plans			✓		
Proportion Natural Areas Protected			✓		
Water quality			✓	✓	
Fisheries / Fish stock assessment			✓	✓	✓
Living conditions of people around protected areas			✓		
Carbon				✓	✓
Bio-culture diversity				✓	✓
Traditional ecological knowledge					✓

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Work plans for Phase II, 2013-15

Develop digital information architecture:

- Migrate dashboards from static proof of concept to dynamic digital environment
- Support a minimum of 4 datasets for data upload, periodic archiving, analysis, download, reporting, and accuracy assessment

Analyze data to assess conservation actions:

- Extend Phase I results to **watershed scale**
- Incorporate a **driver** indicator
- **Calibrate** pressure and benefits indicators against high resolution data
- Advance scientific research on **benefits and impact** of conservation investments and actions

Continue building monitoring capacity

Communicate with audiences

Story map

- Dashboard Map Journal for Mekong region

Thank you!

http://dashboarddev.natureserve.org