

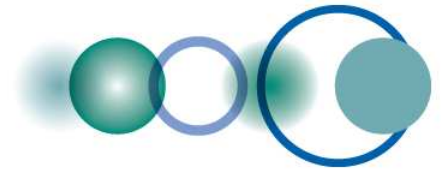
Overview and Progress of GEO Work Plan Tasks - GEO Biodiversity and Ecosystem

**2nd GEO Forest Monitoring Symposium
July 1-3, 2009 Chiang-Rai, Thailand**

Douglas Muchoney, GEO

**K.D. Singh, Indian Academy of
Forests and Environment**

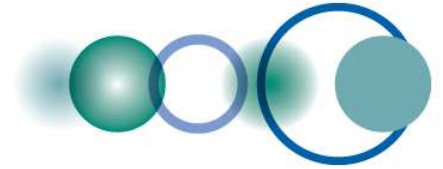




GEOSS Addresses Nine Societal Benefit Areas:

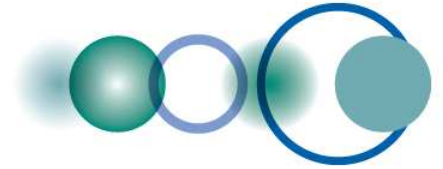
- 1. Reduction and Prevention of Disasters**
- 2. Human Health and Epidemiology**
- 3. Energy Management**
- 4. Climate Variability & Change**
- 5. Water Management**
- 6. Weather Forecasting**
- 7. Ecosystems**
- 8. Agriculture**
- 9. Biodiversity**





Relevant Work Plan Tasks: Eco and Bio

- EC-09-01 Ecosystem Observation and Monitoring Network
- EC-09-01a Ecosystem Classification and Mapping
- EC-09-01d Protected Areas Assessment and Monitoring
- BI-07-01a GEO Biodiversity Observation Network (GEO BON)
- BI-07-01b Invasive Species Monitoring System
- BI-07-01c Capturing Historical and New Biodiversity Data

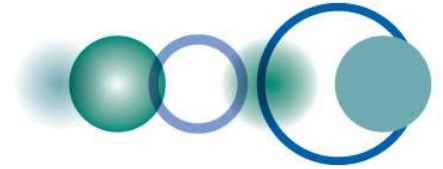


GEO Ecosystems – 2009-11 Work Plan

Objective: to improve the management and protection of terrestrial, coastal and marine resources

EC-09-01: Ecosystem Observation and Monitoring Network (GEO EcoNet)

- Coordinate and improve the observation, characterization and monitoring of terrestrial (forest, urban agriculture, woodlands, grasslands, and deserts), freshwater, ice and oceans ecosystems – especially in terms of acquisition and use of satellite/aerial/in-situ observation.
 - a) *Ecosystem Classification and Mapping (former EC-06-02)*
 - b) *Ecosystem Status and Trends*
 - c) *Regional Networks for Ecosystems (former EC-06-07)*
 - d) *Protected Areas Assessment and Monitoring (GEO PAAM)*



EC-09-01a: Ecosystem Classification and Mapping

Develop a standardized, robust, and practical global ecosystems classification and map for the planet's terrestrial, freshwater, and marine ecosystems.

Lead and POC

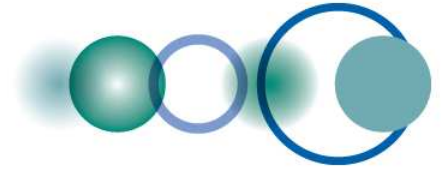
**Roger Sayre, PhD
U.S. Geological Survey**



Global Ecosystems Classification
and Mapping Initiative

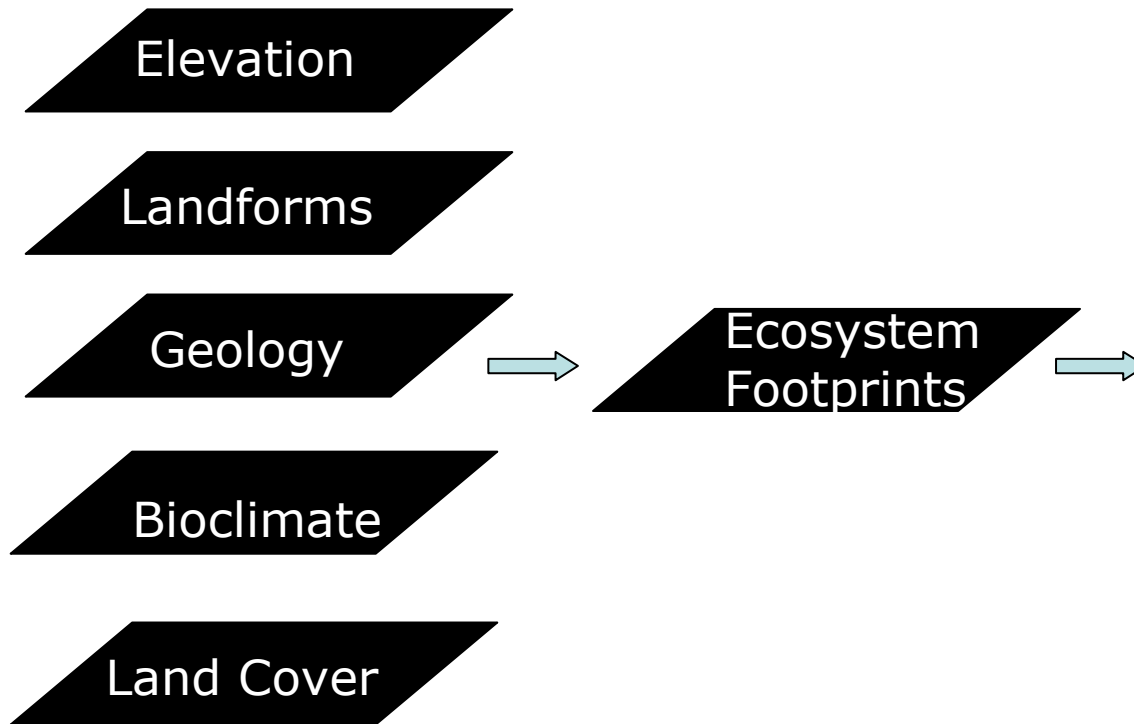
Co-lead

**Alberto Yanosky, PhD
Guyra Paraguay**

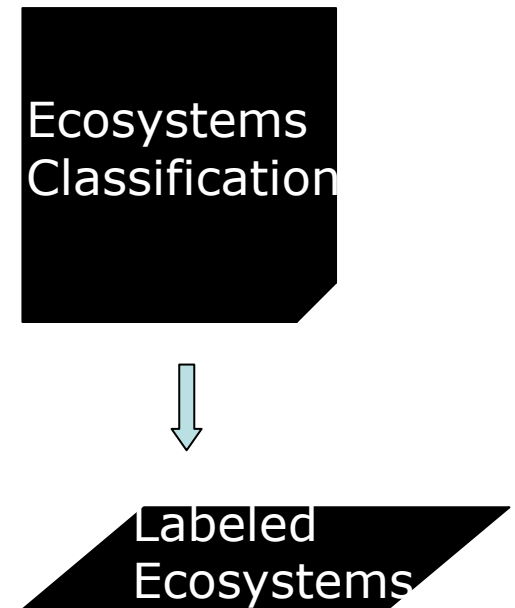


Ecosystems Mapping Model

Step One

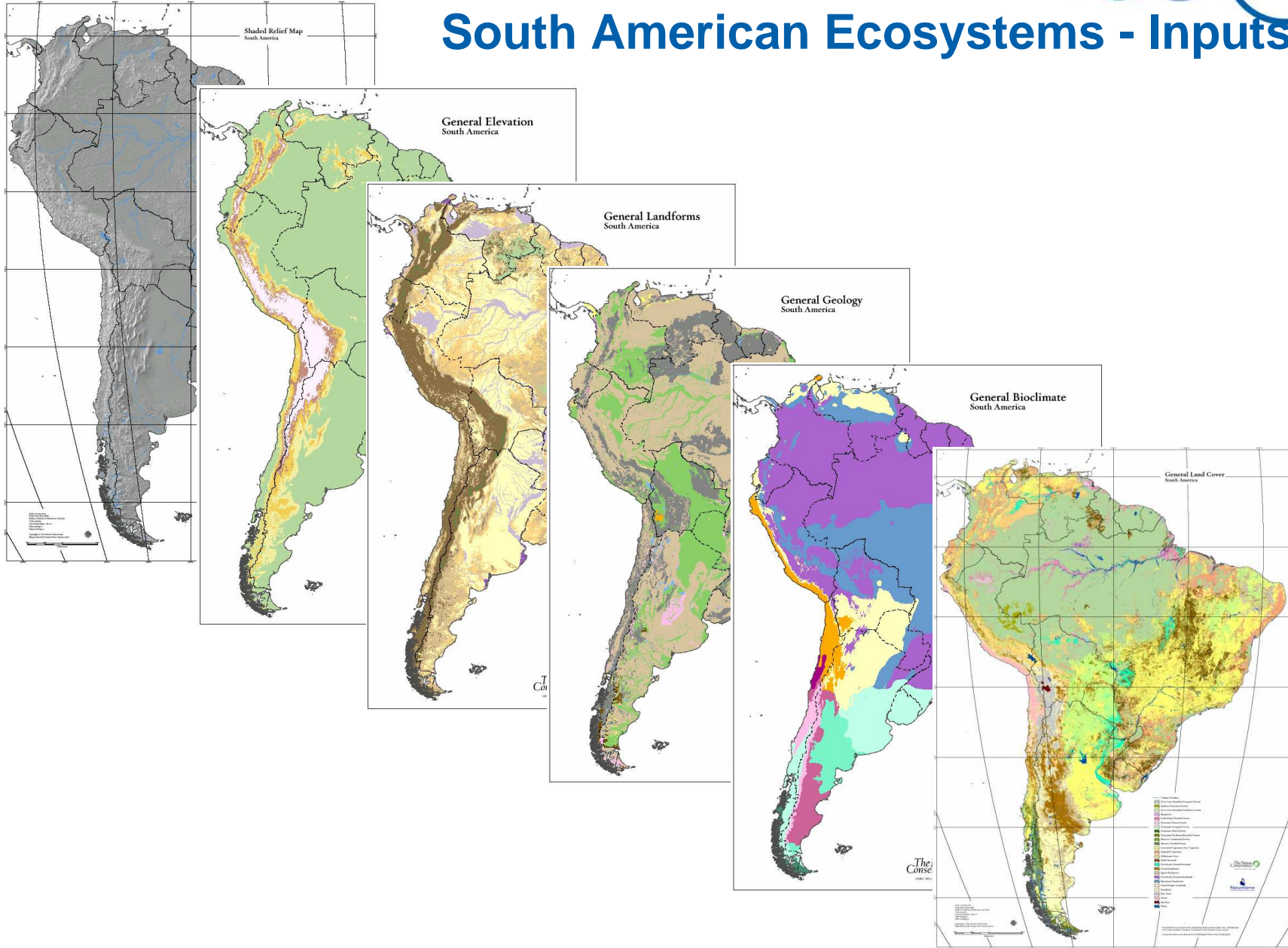


Step Two

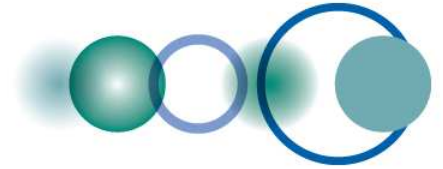




South American Ecosystems - Inputs



GO GROUP ON
EARTH OBSERVATIONS
South American Ecosystems

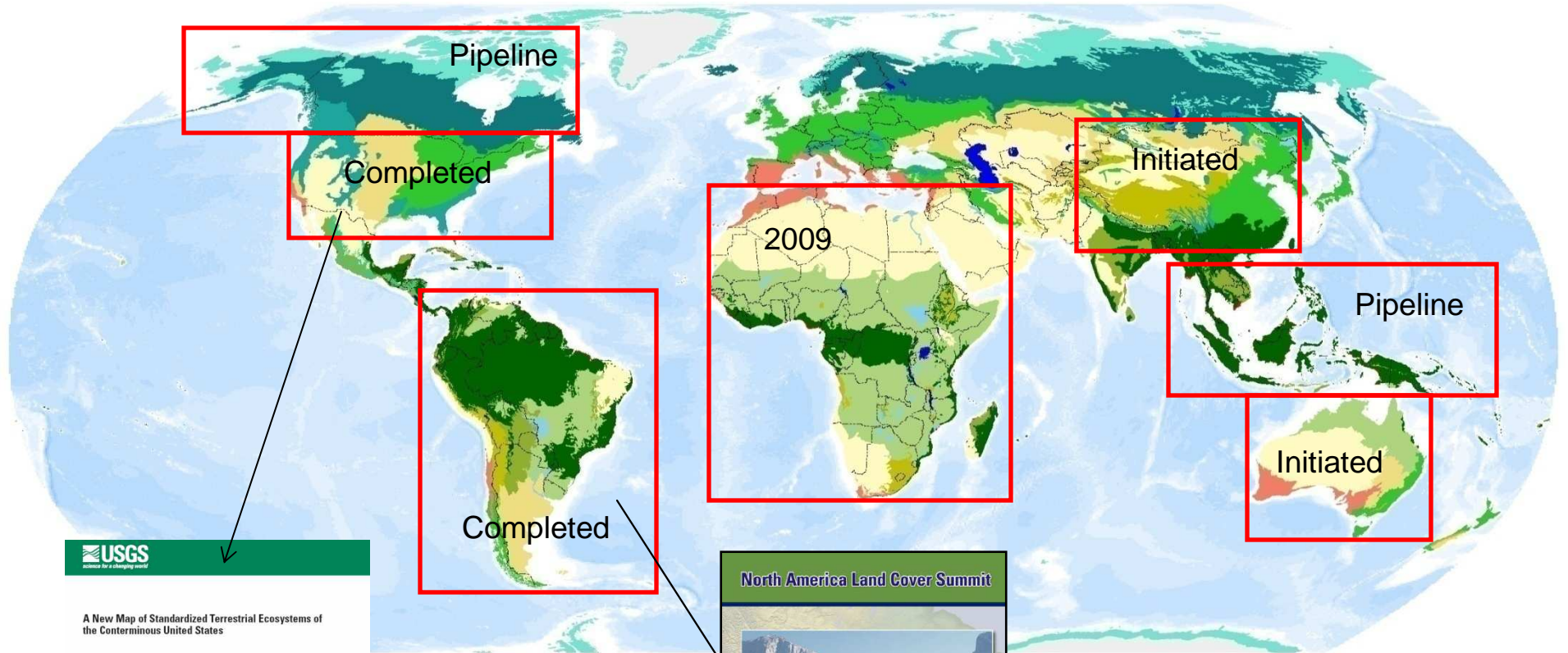


- *9000 ecosystem “footprints” delineated...*
- *...aggregated into 659 terrestrial ecosystems*
- *450m working resolution*
- *Standardized framework for crosswalking national ecosystem maps*





GEOSS Global Terrestrial Ecosystem Mapping Efforts



A New Map of Standardized Terrestrial Ecosystems of the Conterminous United States



Professional Paper 1768

U.S. Department of the Interior
U.S. Geological Survey

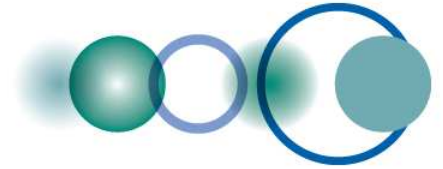
North America Land Cover Summit

Sponsors:
 U.S. Geological Survey
 U.S. Environmental Protection Agency
 Association of American Geographers
 Natural Resources Canada
 Agriculture and Agri-Food Canada
 INEGI - Mexico

CHAPTER 9

Terrestrial Ecosystems of South America

Roger Sayre¹, Jacque Bow¹, Carmen Josse², Leonardo Sotomayor³, and Jerry Touval⁴



EC-09-01: Protected Areas Assessment and Monitoring

NEED



Effective information to support policy planning and monitoring in protected areas

TOOL



A dynamic visualization system with composite indicators of biodiversity value & vulnerability

RESULTS



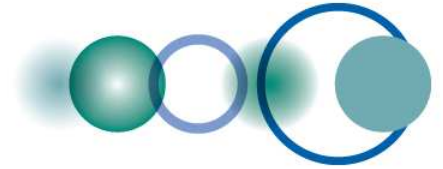
Improve capacity to judge effectiveness of local protected areas

METHODS



Aggregate GBIF's biodiversity data with WCMC's protected areas information

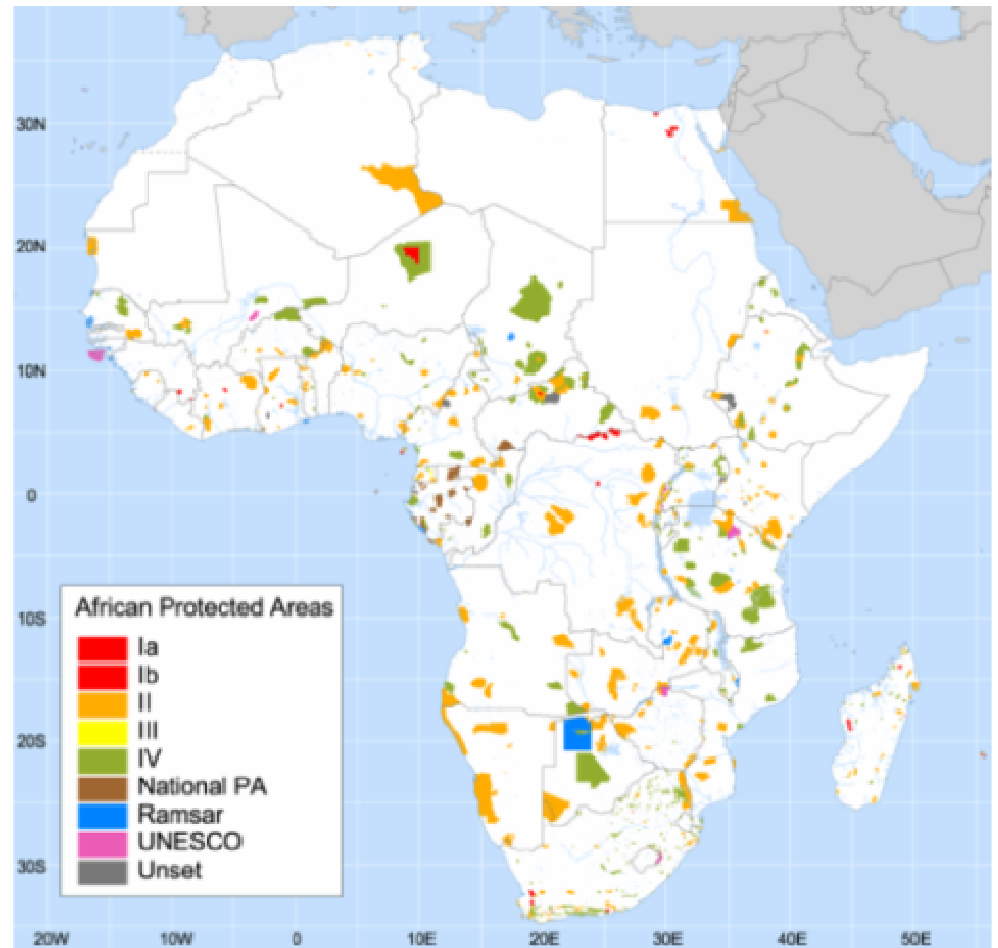


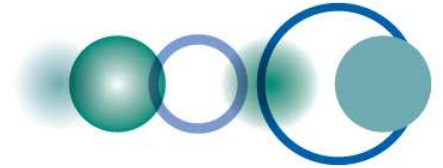


Added value provided by GEO BON early product

Connect information and organizations together to improve the global assessment of biodiversity trends

Connect *in situ* and remote-sensing information systems





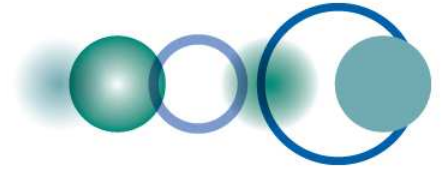
GEO Biodiversity – 2009-11 Work Plan

Objectives: Understanding, monitoring and conserving biodiversity. Issues include the condition and extent of ecosystems, distribution and status of species, and genetic diversity in key populations.

BI-09-01: Biodiversity Observation Network (GEO BON)

Coordinate and improve biodiversity (animals, plants, genes, etc) observation, assessment and conservation – especially in terms of acquisition and use of satellite/aerial/in-situ observation. Develop a global observation network to facilitate coordination among information users and providers. Improve the quality and quantity of observation and advocate for a better understanding of trends and conservation.

- a) Biodiversity Observation Network (GEO BON)
- b) Invasive Species Monitoring System (former BI-07-02)
- c) Capturing Historical and New Biodiversity Data

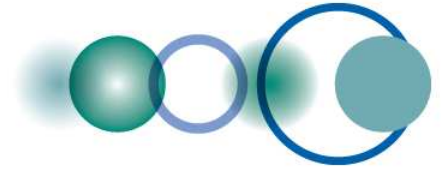


Invasive Species Monitoring System

Objectives: Characterize, monitor, and predict changes in the distribution of invasive species. Characterize the current requirements and capacity for invasive species monitoring, identify gaps, and develop strategies for implementing cross-search functionality among existing online invasive species information systems from around the globe.

BI-09-01b: Invasive Species Monitoring System

Invasive alien species (IAS) threaten biodiversity and exert a tremendous cost on society for IAS prevention and eradication. They endanger natural ecosystem functioning and seriously impact biodiversity and agricultural production. The Task is coordinated by members of the Global Invasive Species Information Network (GISIN) and their partners.

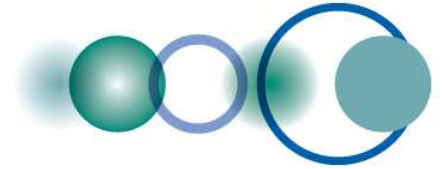


Capturing Historical and New Biodiversity Data

Objectives: Develop a strategic plan for the capture and mobilisation of various types of “fit-for-use” historical and new biodiversity data through multi-cultural, heterogeneous and distributed data custodians. Develop criteria for Data Hosting Centers. Develop strategies for industrialisation of capture, digitisation and mobilisation of primary biodiversity data. Develop strategies for mobilisation of biodiversity data generated through “ad-hoc” and “non-primary” projects. Promote uptake of Global Biodiversity Resources Discovery System (GBRDS). Review and facilitate development of primary biodiversity data capture standards. Implement the strategic plan for capturing historical biodiversity data from natural history collections and the research community.

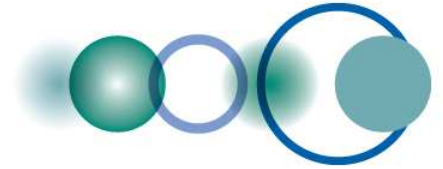
BI-09-01c: Capturing Historical and New Biodiversity Data

- Data Hosting Centers are envisaged as national, regional, and thematic data rescue, archive, and access infrastructures and/or facilities
- [Ad-hoc, Non-Primary Work/Projects are projects where survey and inventory of biodiversity resources and collection of species occurrences were not the primary goal, but the generation of such data sets was a by-product of such work , e.g. Environmental Impact Assessment studies.
- GBRDS can be viewed as an extended Universal Description, Discovery and Integration (UDDI) registry. In addition to the standard UDDI business information, it also acts as a registry for globally unique identifiers (GUIDs) that have been issued for biodiversity specific information.



The GEO Biodiversity Observation Network

- **What is it?**
- **Why do we need it?**
- **What will it do?**
- **Who are the beneficiaries?**
- **What has happened so far?**
- **What are the next steps?**



The GEO Biodiversity Observation Network

GEO BON is a new global partnership and network that serves as the biodiversity arm of GEOSS

Countries – Individuals – International Organizations

Collection

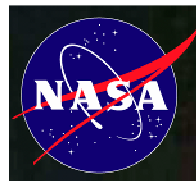
Management

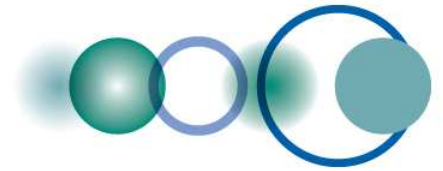
Analysis

Sharing

Status & Trends of the World's Biodiversity

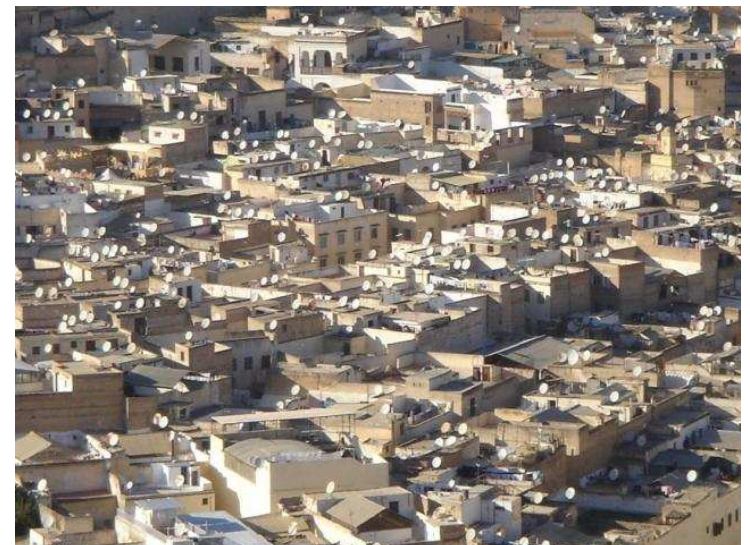
Co-Leads of the Task :

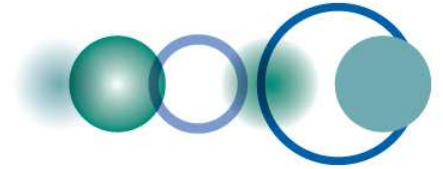




GEO BON: Why do we need it ?

- **The picture is patchy**
 - Geo-spatial gaps
 - Taxonomic and thematic gaps
 - Inconsistency in space, time & quality
- **Access is limited**
 - Many more data are collected than are used
 - Interoperability is still weak
- **Communication**
 - Many initiatives are not well known
 - Communication between initiatives is weak





GEO BON: What will it do?

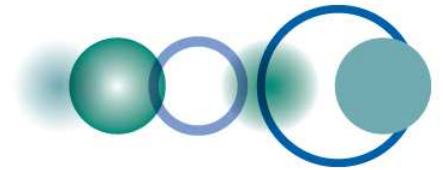
GEO BON will build upon, pull together and integrate existing initiatives



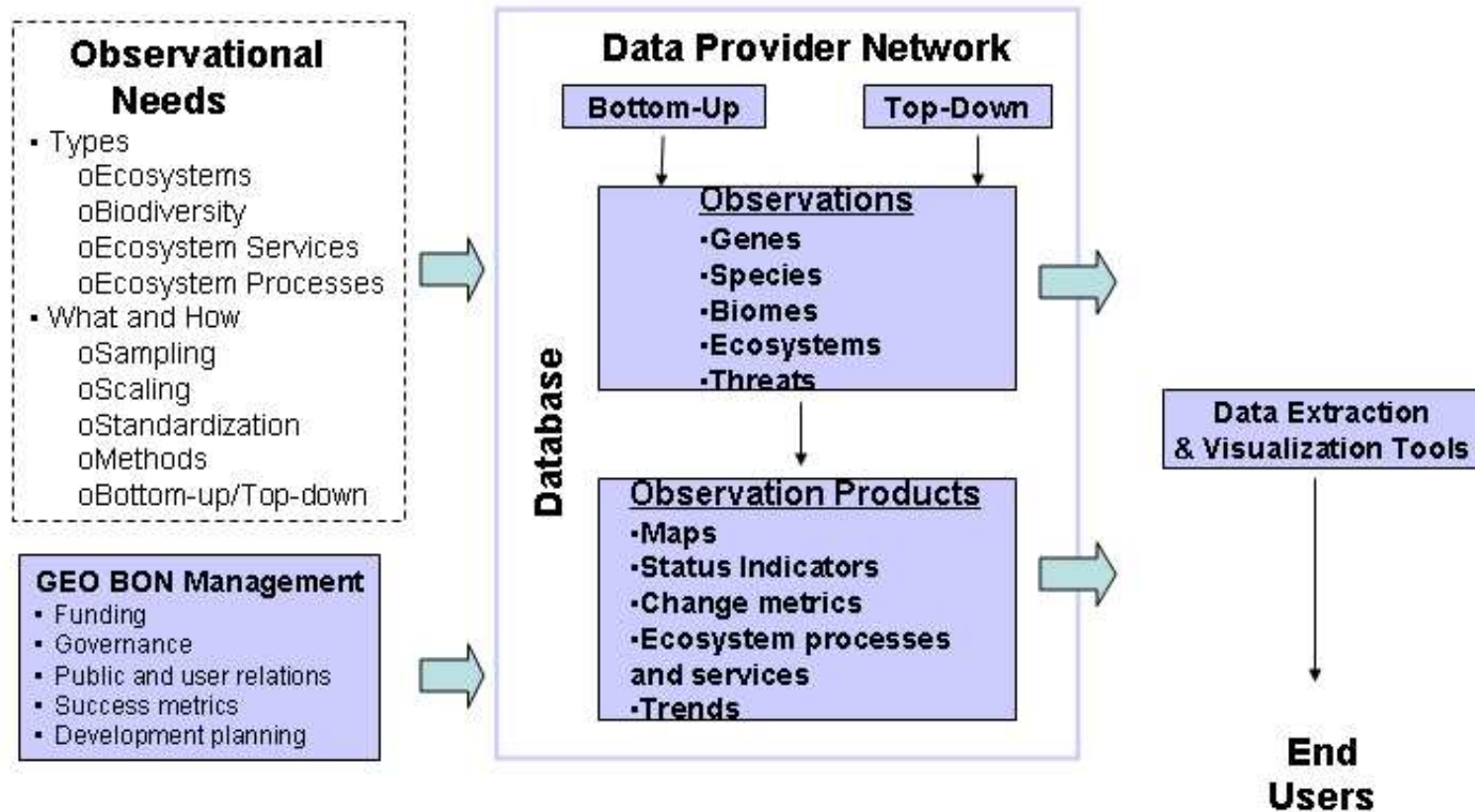
Higher-level “value added” analytical products are not currently available through existing activities

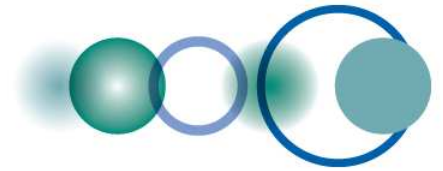
To build a global “system of systems” based on *in situ* and remote-sensing observation systems

To ensure long-term continuity of data supply

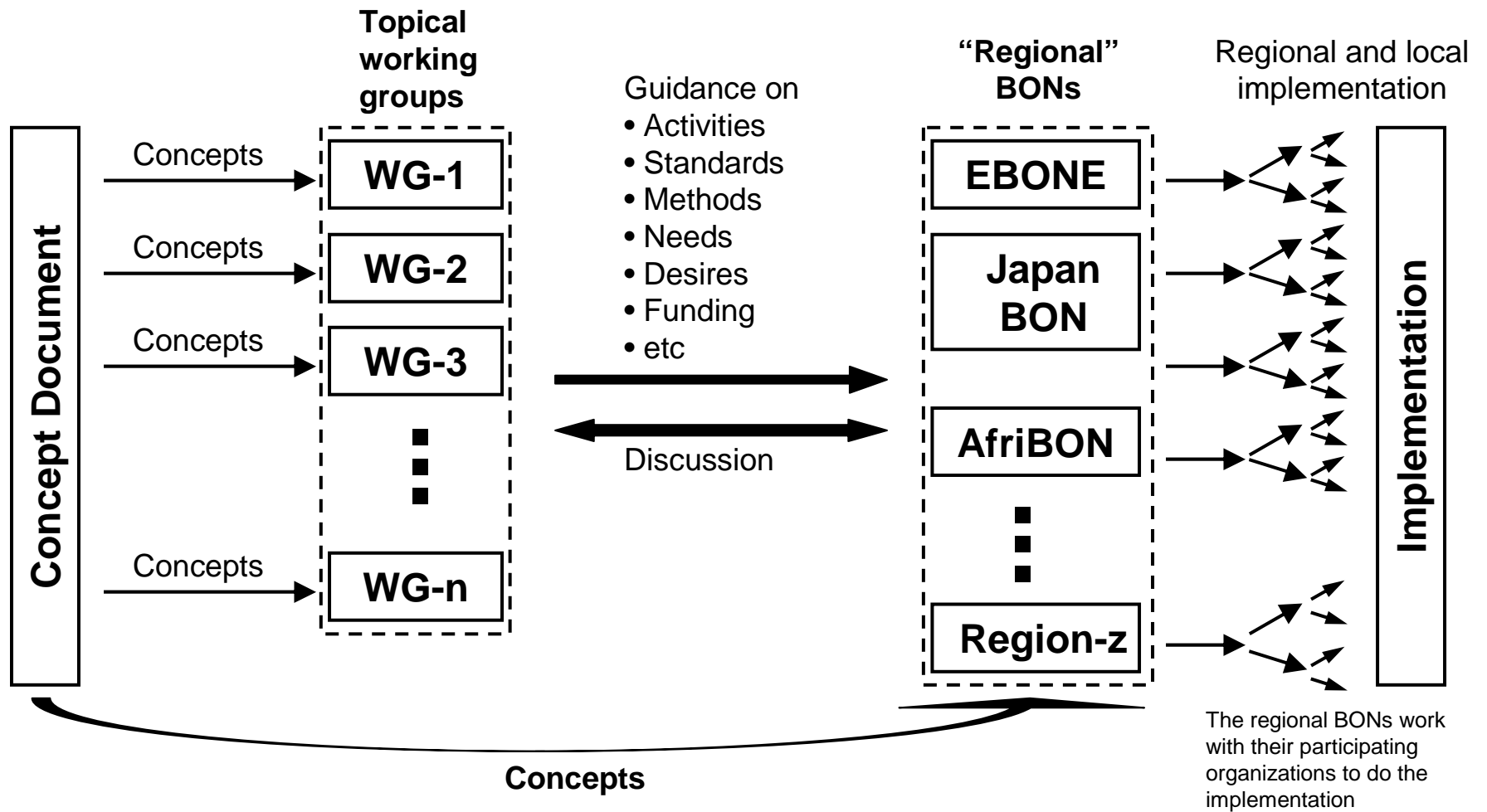


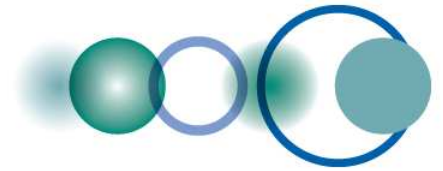
GEO BON Concept Overview





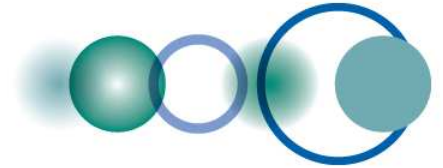
GEO BON implementation





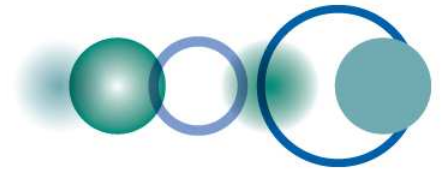
GEO Biodiversity Observation Network





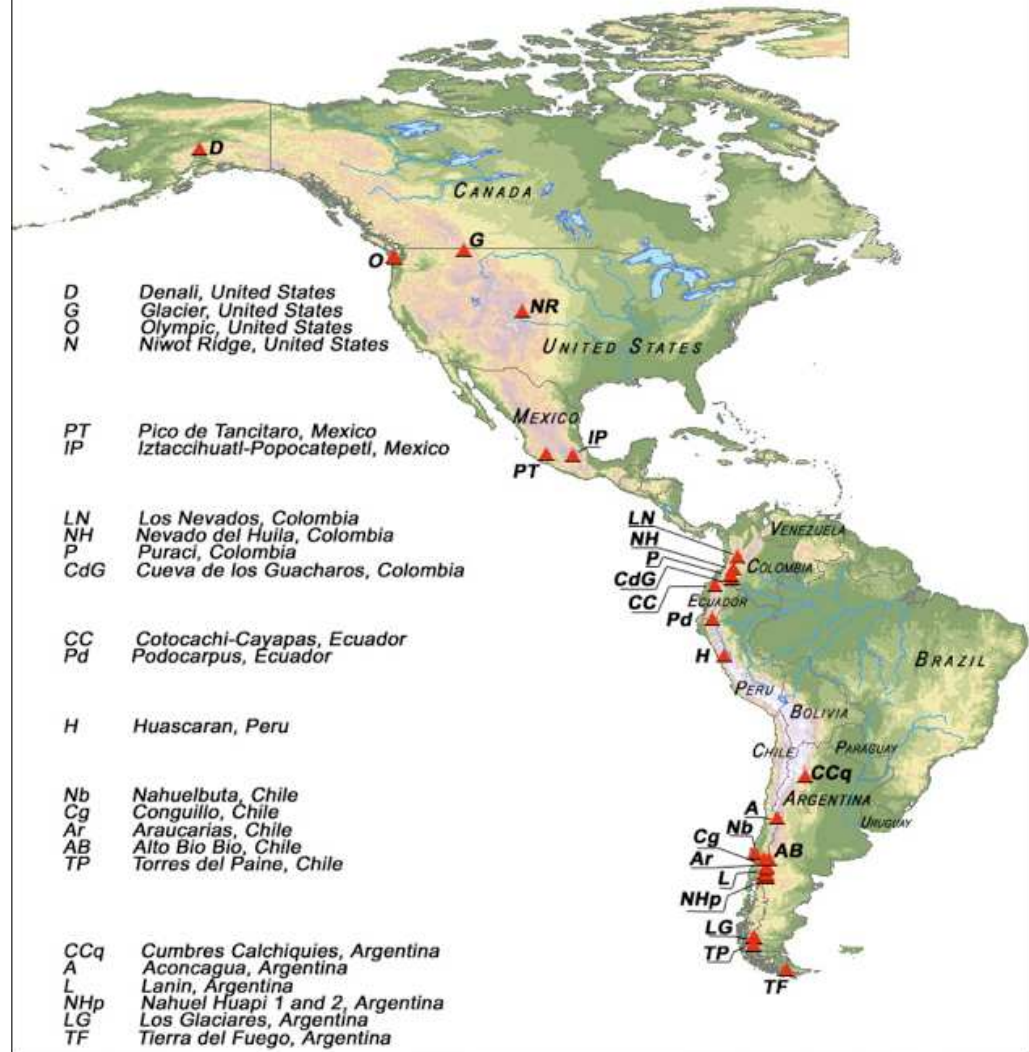
GEO Biodiversity Community of Practice

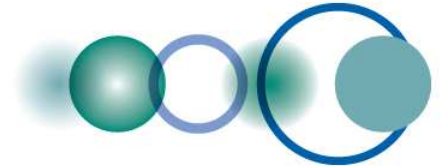
Australia, Botswana, Brazil, Canada, Columbia, Denmark, Estonia, France, Germany, Ghana, Hungary, India, Iran, Israel, Italy, Japan, Mexico, Namibia, Netherlands, Nicaragua, Niger, Nigeria, Norway, Panama, Philippines, Portugal, South Africa, Switzerland, Thailand, Tunisia, UK, Ukraine, Uruguay, USA, ASEAN Centre for Biodiversity, BioNET-INTERNATIONAL, BirdLife International, Conservation International, DIVERSITAS, ESRI, GBIF, Guyra Paraguay, IUCN, LIFEWATCH, The Nature Conservancy, UNEP, UNESCO



Example of terrestrial in situ networks in the Americas

The American Cordillera Transect for Global Change Research Sites





Beneficiaries (data providers and users)

- Parties (governments) to international treaties (CBD, UNCCD, CITES, Ramsar, CMS, etc.)
- Biodiversity conservation organizations (IUCN, TNC, WCMC...)
- National conservation agencies and biodiversity custodians
- Scientists and researchers
- The GEO community of governments and organizations
- Society as a whole

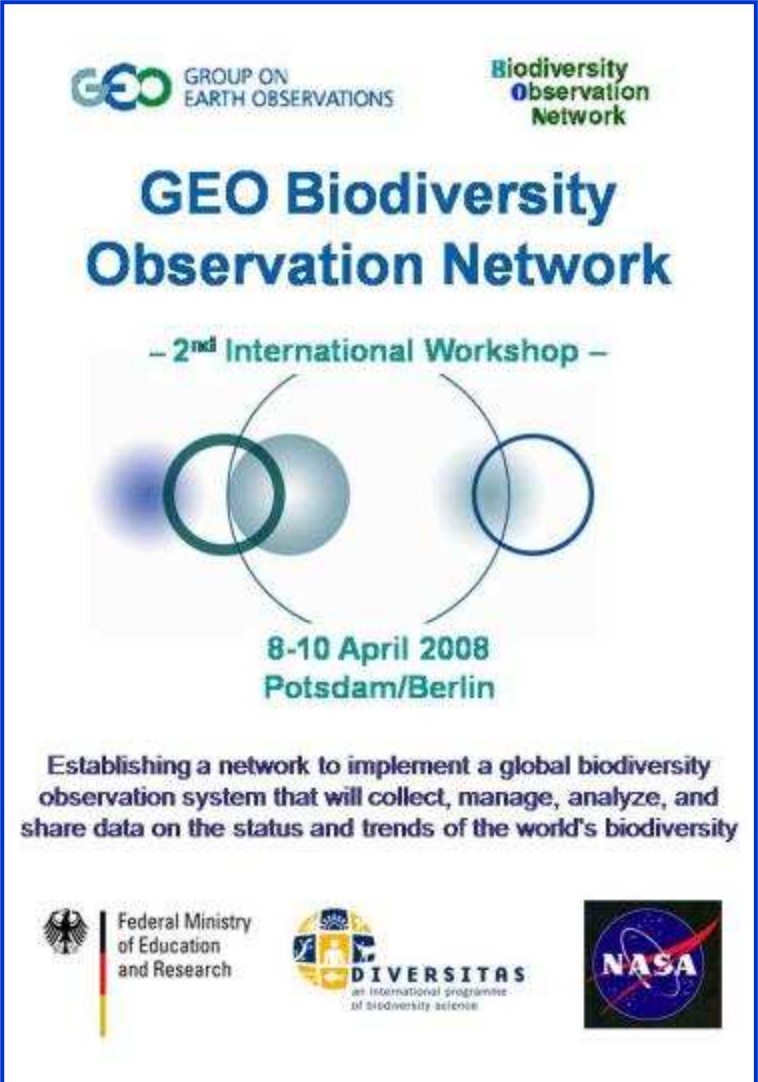
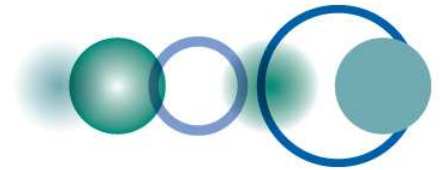
GEO BON Milestones


2006: **User Needs Workshop, Geneva 23-25 October**

2007: **GEO Ministerial in Cape Town**

2008:

- **Interim GEO BON Committee Meeting 14-16 January**
- **2nd International Workshop, Potsdam/Berlin 8-10 April**
- **Draft GEO BON concept document discussed and amended, first implementation steps planned**
- **Science Forum article**
- **BIOSTRAT Workshop – Budapest, 25-26 Oct. 2008**
- **GEO BON Implementation Plan, October 2008**

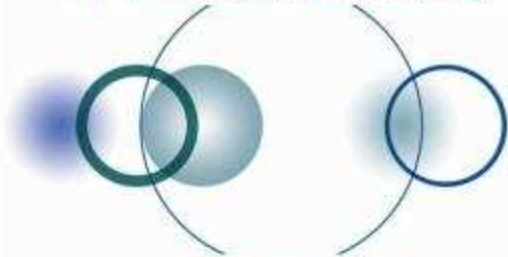


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**Biodiversity
Observation
Network**


GEO Biodiversity Observation Network


– 2nd International Workshop –




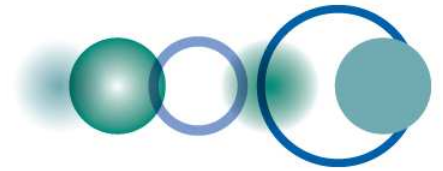
8-10 April 2008
Potsdam/Berlin

Establishing a network to implement a global biodiversity observation system that will collect, manage, analyze, and share data on the status and trends of the world's biodiversity

 Federal Ministry
of Education
and Research

 **DIVERSITAS**
an international programme
of biodiversity science





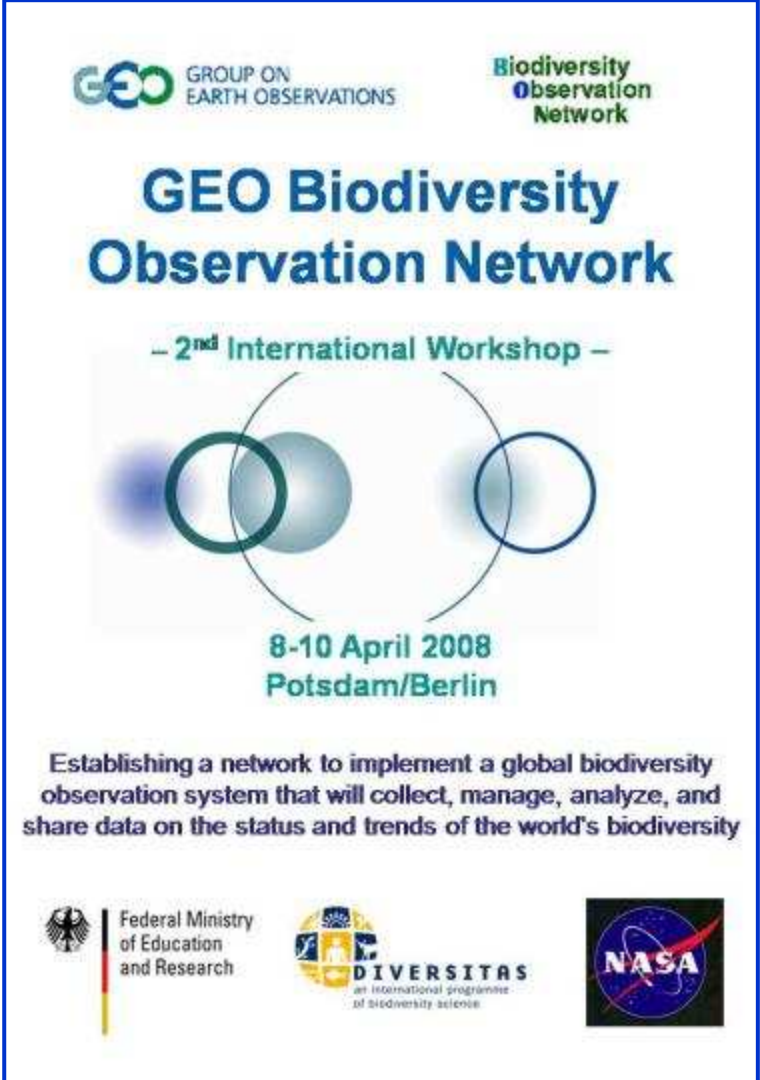
GEO BON Milestones and Plans


2009:

- GEO BON Steering Committee Meeting, 22-23 January, Washington DC
- GEO-VI, Washington DC

2010:

- 3rd GEO BON Meeting
- First early products delivered, GEO BON network expanded, existing initiatives and investments strengthened, gaps identified, new activities launched ...

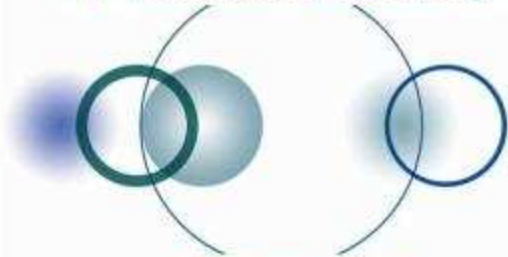


 GROUP ON
EARTH OBSERVATIONS

**Biodiversity
Observation
Network**


GEO Biodiversity Observation Network


– 2nd International Workshop –




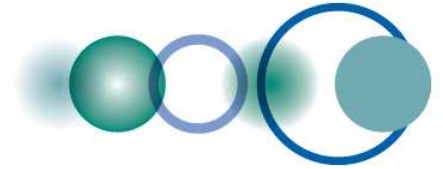
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 **DIVERSITAS**
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Thank You!

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Academy of Forest and Env.