The Third GEOSS Asia-Pacific Symposium:
Data Sharing for a Transverse GEOSS
A parallel session

Monitoring changes in ecosystem, biodiversity and ecosystem services

Chair: Tetsukazu Yahara

DIVERSITAS / Kyushu University, Japan

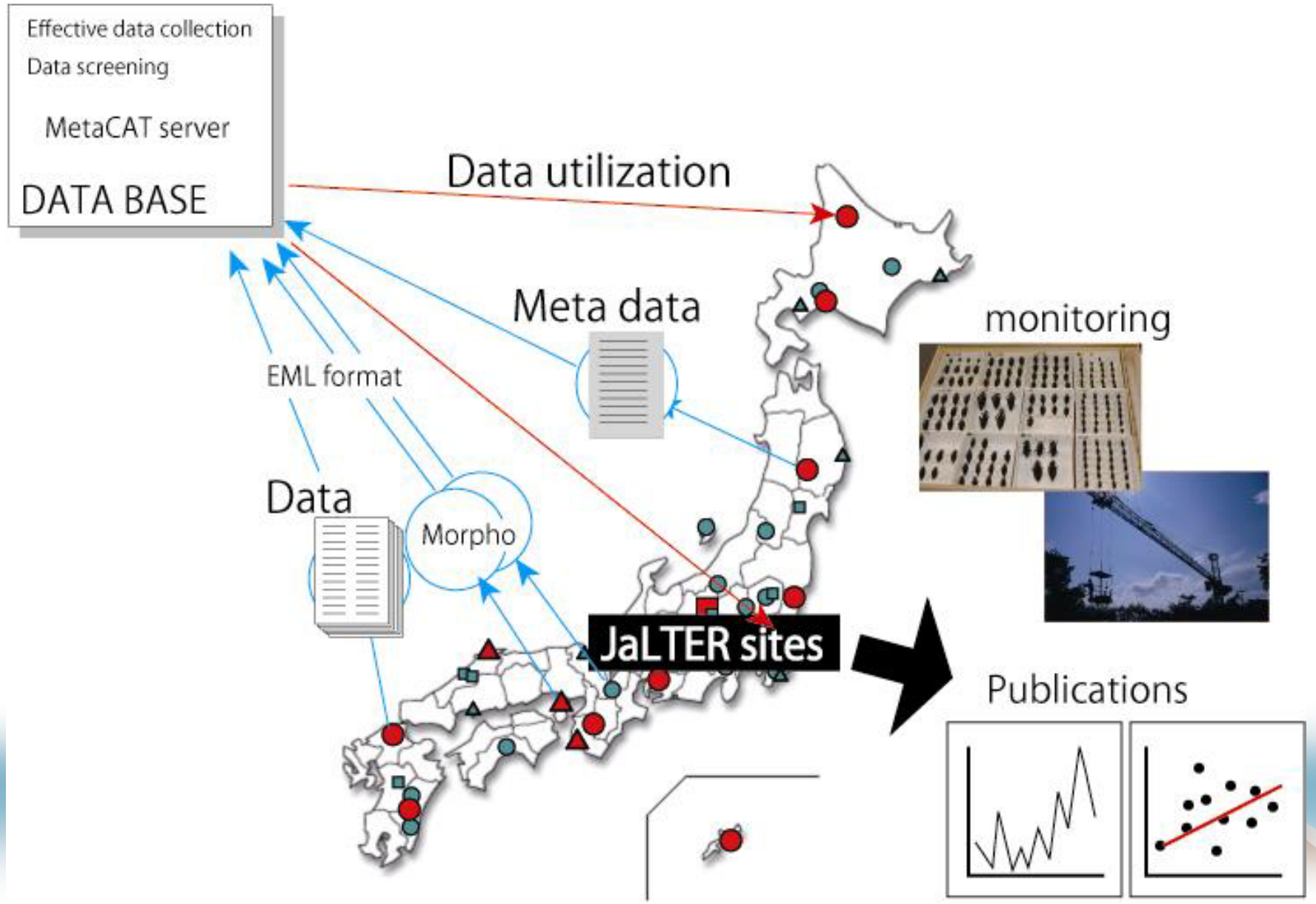
Session Program

- **Model project on data management of ecosystems** (H. Kunii, Shimane University, JaLTER)
- **ECOSMAG: An Integrative Research on Ecosystem Services Management in Asia** (Suneetha Subramanian, LAND Office, UNUU)
- **Vegetation monitoring using satellites** (Rikie Suzuki, JAMSTEC)
- **The formation of GEO BON** (Sebastien Miazza, GEO)
- **The role for GBIF in biodiversity monitoring** (Keiichi Matsuura, GBIF)
- **East and Southeast Asia Biodiversity Inventory Initiative** (Noriaki Sakaguchi, Biodiversity Center of Japan)

LTER

- Long-term research is important
  - Is there any convincing example ?
- Metadata
  - Progress
    - Morpho data management software
    - A standardized procedure to integrate ecological dataset; EML
    - Cooperation with monitoring site 1000
  - How to use them to describe biodiversity changes?

Structure of JaLTER database



GLP

- Focuses on human-environment relationships, integrating ecological and social systems
- Aims to quantify the rate of landscape change and explain the underlying causes
- Three themes
  - Land system dynamics
  - Consequences of land system change
  - Integrating analysis and modeling for land sustainability

ECOSMAG

- Project objectives
  - Develop a framework for analyzing ES
  - Analyze governance structures vis-à-vis delivery of ES
  - Identify trade-offs and incentives for ES conservation
- Focal services: Carbon sequestration, hydrological and soil fertility
- Needs to develop harmonized indicators

Parameters for assessment and valuation

- Biophyisical, water provision, carbon, landslide and erosion, mitrient depletion, NTFPs flora & fauna
- Socioeconomic; market data of goods, socio-cultural data incl. demography, income flows, expenses, from the region, supporting services, type of governance/power structures, institutions and norms

Methodology

- Multi-stakeholder analysis through stakeholder meetings, using pretested quastionnaire
- Biophysical inventrory; land cover

How to develop database

Global land cover

- GLCNMO
- GLC2000 (1km) using SPOT/VEGETATION data
- GLCCv.2 (1km) using NOAA/AVHRR

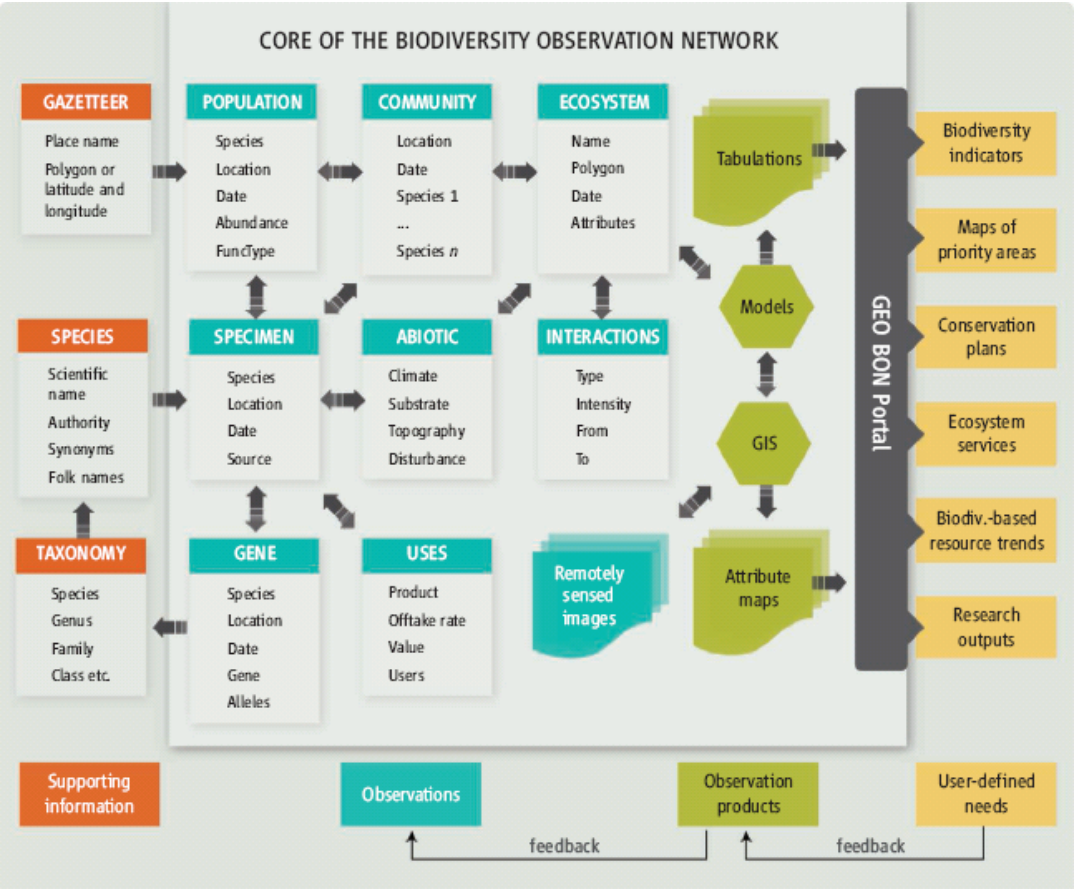
Increasing requirement of the ground truth data

- FLiES, the 3-D forest radiative transfer model (Kobayashi et al. 2007)
  - In situ measurement of LAI, forest census data
- Relatuionship between biomass and the signal of ALOS/PALSAR
  - In situ biomass data

Satellite monitoring

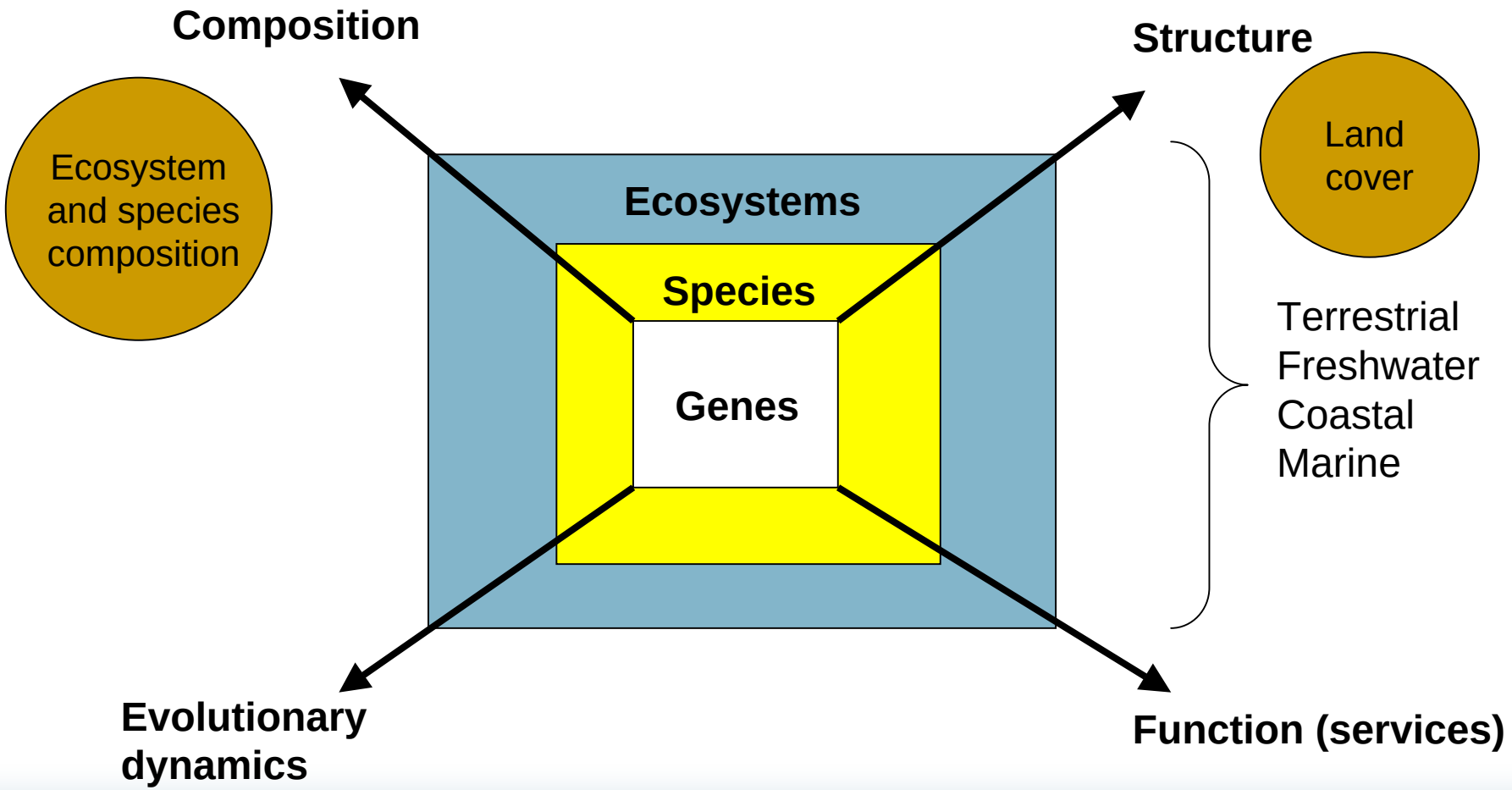
- Optical sensor (visible and NIR)
  - Greenness and estimated physical vegetation properties
- Microwave radar
  - Biomass, tree height etc

Good news: GEO BON launched



Scholes, R. J. et al. 2008. Science 321: 1044-1045.

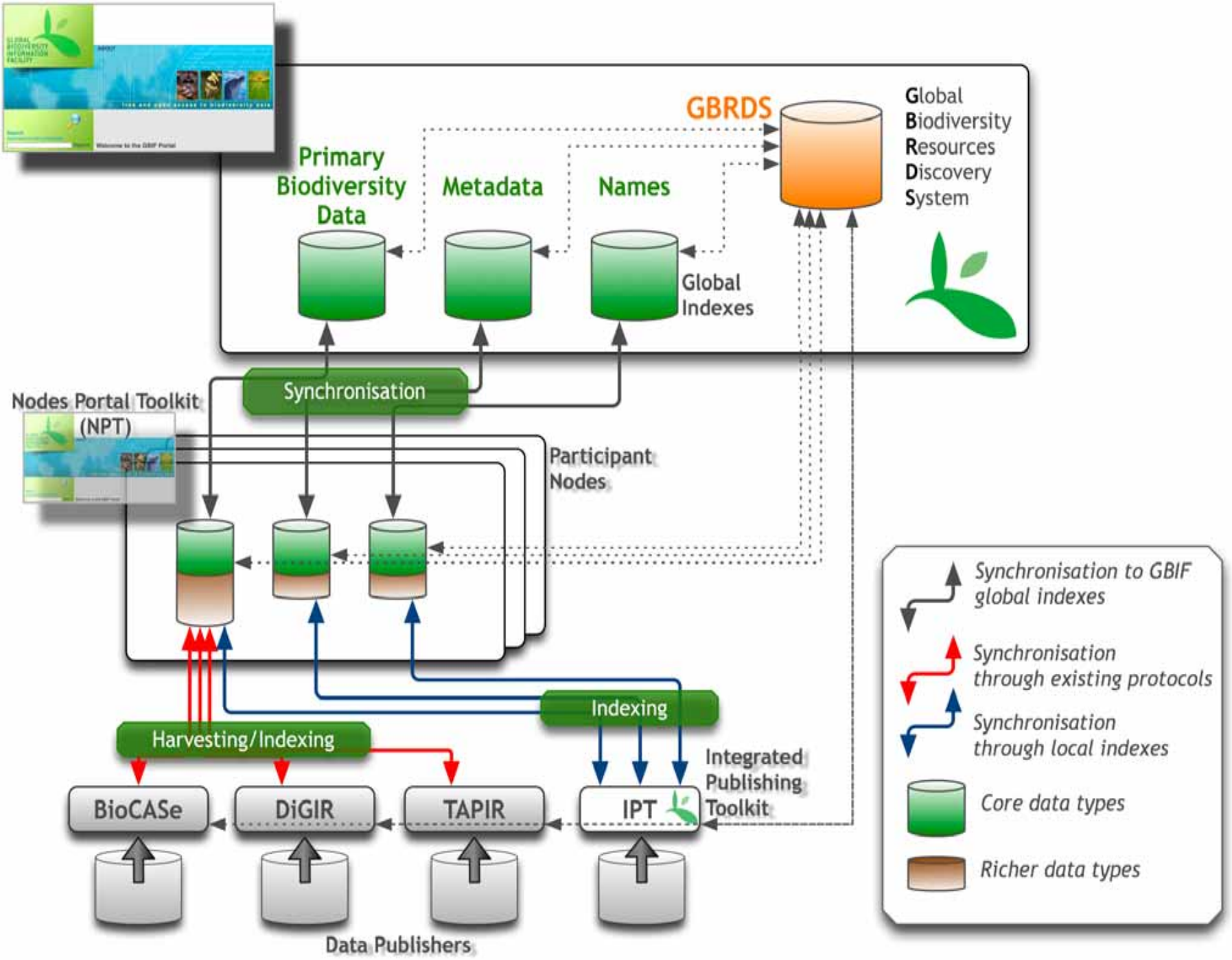
The concept of GEO BON



GEO BON early products

- Protected areas

GBIF


GBRDS
Global Biodiversity Resources Discovery System
Primary Biodiversity Data
Metadata
Names
Global Indexes
Synchronisation
Nodes Portal Toolkit (NPT)
Participant Nodes
Indexing
Harvesting/Indexing
Integrated Publishing Toolkit
BioCASe
DiGIR
TAPIR
IPT
Data Publishers
Synchronisation to GBIF global indexes
Synchronisation through existing protocols
Synchronisation through local indexes
Core data types
Richer data types

ESABII: E & SE Asian Biodiversity Inventory Initiatives

- Red data book
- Taxonomy capacity building
- Global biodiversity monitoring system
  - Networking among biodiversity centers

Issues for discussion

- Constructing standardized data management system
- Networking Satellite and Ground projects
- Developing indicators of biodiversity loss
- Providing products useful for conservation and sustainable use of biodiversity
  - Identifying users and user needs
- Planning action plans for promoting interaction, communication and collaboration among researchers

Data management system

- Not develop new thing but fully use available system
- Unification of format may not be so important; can be technically overcome
- What data we want to see；that is important
- Communication among researchers; eg. taxonomists with ecologists etc.

Satellite and Ground truth

- Learning each other is important
- Networking metadata in various plots
  - Steep slope data is not useful for remote sensing

indicators of biodiversity loss

plans for promoting collaboration

- Have a meeting in next May
- Invite all major activities in Japan
- Invite people in other fields eg. Agriculture

In the reception

- Yahara: Happy to see you. I am going to chair the biodiversity session.
- MEXT: Thank you for chairing the session. Biodiversity is difficult to understand, isn't it? （**生物多様性は難しいですね**）
- Yahara: ??
- MEXT: If we (MEXT) could do anything on biodiversity, it might be the case that biodiversity research could improve the accuracy of carbon estimation for better understanding the global warming.

Many bad news

- Forest decline and the loss of terrestrial biota
- Water pollution and the loss of freshwater biota
- Coral bleaching and the loss of marine biota



bioGENESIS Science Plan

- **New strategies and tools for documenting biodiversity**
- **The causes and consequences of diversification**
- **Evolution, diversity and human well being**

bioGENESIS Science Plan

- **Focus 1. New strategies and tools for documenting biodiversity**
  - Task 1. Discovering the unknown
  - Task 2. Capturing biodiversity information
  - Task 3. Developing phyloinformatics
- **Focus 2. The causes and consequences of diversification**
  - Task 1. Drivers of evolutionary change in diversity
  - Task 2. The evolutionary history of biotic assembly
  - Task 3. Evolutionary factors in shaping spatial patterns of biodiversity
  - Task 4. Evolution of functional traits and its ecological consequences
  - Task 5. Eco-evolutionary dynamics
- **Focus 3. Evolution, diversity and human well being**
  - Task 1. Evolutionary ecosystem management
  - Task 2. Global climatic change
  - Task 3. Combating disease
  - Task 4. Evolutionary conservation
  - Task 5. Evolutionary opportunities

CBD/COP10 and 2010 Target

Convention on Biological Diversity

The Convention | The Protocol | Programmes | Mechanisms | Information | Secretariat

地球のいのち、つないでいこう

生物多様性

生物多様性条約第10回締約国会議が
2010年10月18日から開催されます

CBD/COP10 愛知・名古屋

開催まであと 620日

2010 Biodiversity Target

About the 2010 Biodiversity Target

Why Set a Target?

Who is Committed?

Achieving the Target

Assessing Progress

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Nagoya Roadmap: CBD charts the way to COP10

top > News > 20 November 08

20 November 2008, Montreal (Canada). How to celebrate the International Year of Biodiversity? What are the key formal negotiation events that the Secretariat of the Convention on Biological Diversity has identified to mark the way ahead from now to the end of 2010? How can we draw the maximum attention of the international community on the 2010 biodiversity target? The Nagoya Roadmap tentatively lists all formal events in which governments and observers to the CBD will engage in the next 700 days to maximize public awareness of the 2010 biodiversity target.

Urgent needs: Harnessing the synergies of an integrated system