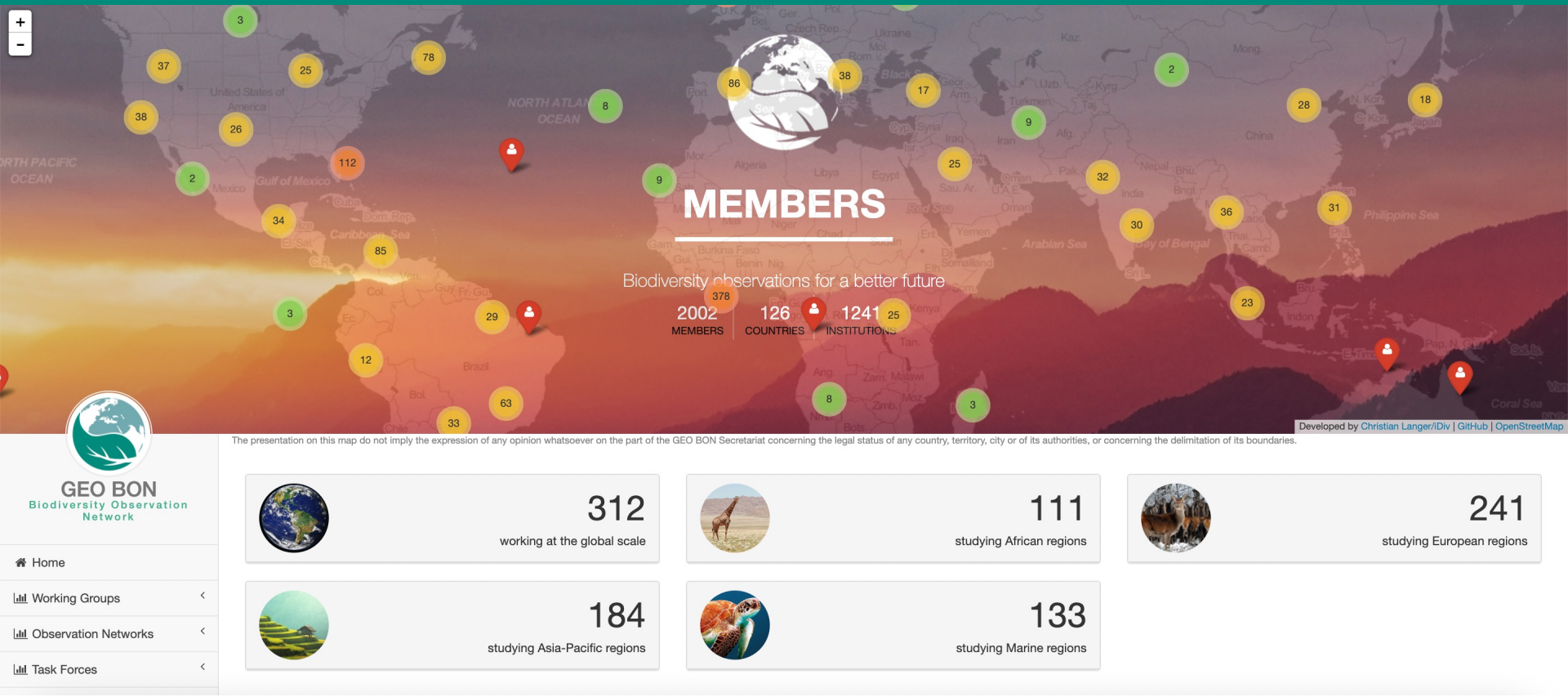
Enhancing Data Interoperability through Essential Variables and Biodiversity Observation Networks

SEEA Ecosystem Accounting Expert Forum

7 December 2021

HyeJin Kim
German Centre for Integrative Biodiversity Research (iDiv)

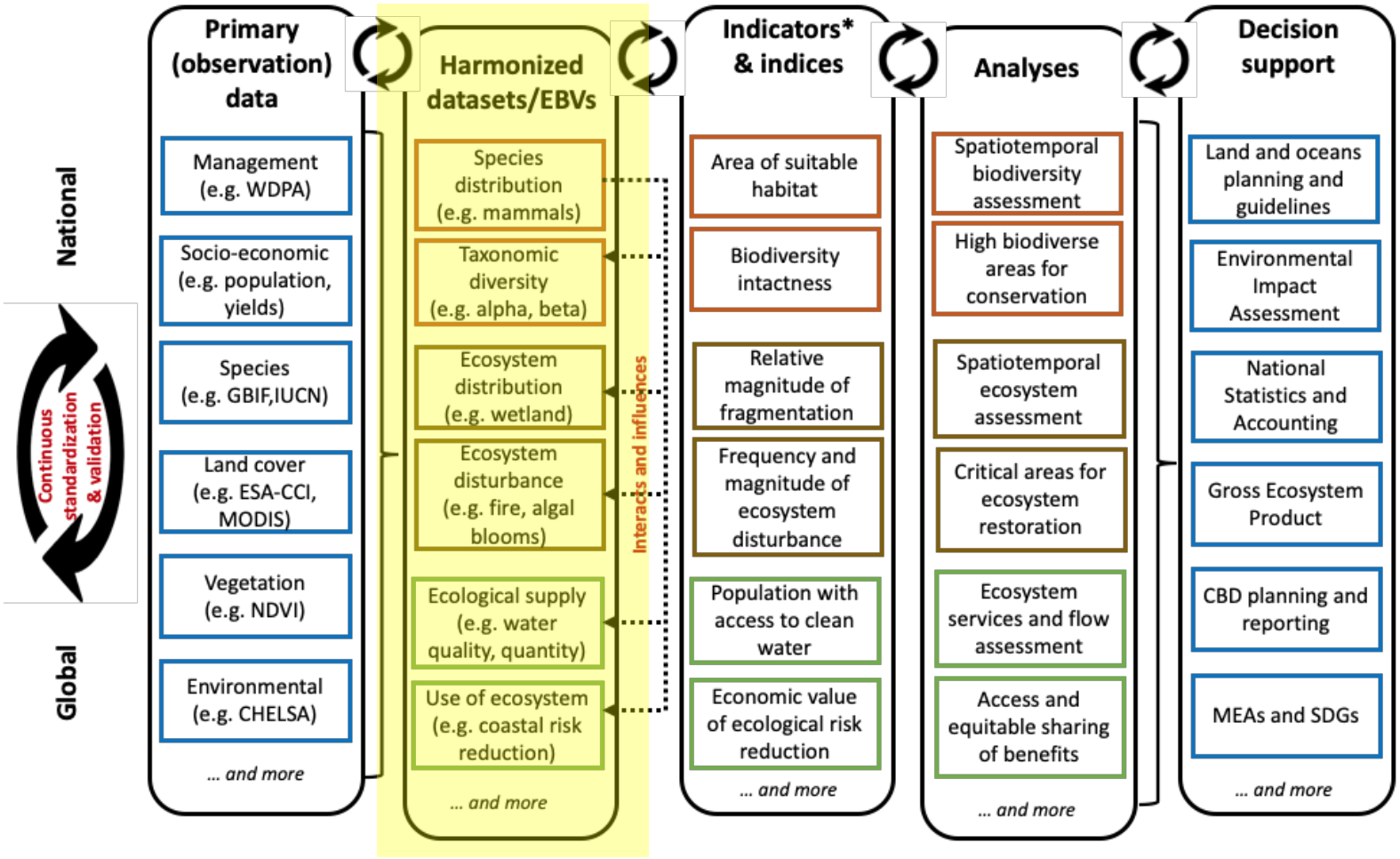
Global Earth Observations Biodiversity Observation Network



Mission: Improve the acquisition, coordination and delivery of biodiversity observations and related services to users including decision makers and the scientific community.

Vision: A global biodiversity observation network that contributes to effective management policies for the world's biodiversity and ecosystem services.

1. Data to Decision Support Workflow - essential variables, and the role of models & indicators



Kim et al. (n.d.). Interweaving Multi-scale Science and Policy Frameworks for Conservation and Sustainability Implementation. Forthcoming.

2. SEEA-Ecosystem Accounting and Essential Variables - compatibility of their frameworks (via EO4EA)

SEEA EEA Framework			Ecosystem Extent Account	Ecosystem Condition Account						Ecosystem Services Account		
				Abiotic Ecosystem Characteristics		Biotic Ecosystem Characteristics			Landscape level characteristics			
GEOBON EBV Framework												
Type	Class	EBVs / EESVs		Physical state	chemical state	Compositional state	Structural state	Functional state	Landscape and Seascape	Provisioning	Regulating	Cultural
EBV	Species Populations	Species distribution				x		x				x
EBV	Species Populations	Population abundance				x		x				x
EBV	Community Composition	Taxonomic diversity				x						
EBV	Community Composition	Phylogenetic diversity				x						
EBV	Community Composition	Multi-trophic interaction diversity				x						
EBV	Community Composition	Biomass distribution					x					
EBV	Ecosystem Structure	Ecosystem distribution	x									
EBV	Ecosystem Structure	Ecosystem live cover					x					
EBV	Ecosystem Structure	Ecosystem vertical profile					x					
EBV	Ecosystem Functions	Disturbance						x				
EBV	Ecosystem Functions	Ecosystem phenology						x				
EBV	Ecosystem Functions	Net primary productivity						x				
EBV	Ecosystem Functions	Secondary productivity						x				
EESV	Ecosystem Services	Ecological supply		x	x					x	x	
EESV	Ecosystem Services	Anthropological contribution								x		
EESV	Ecosystem Services	Demand										
EESV	Ecosystem Services	Use								x	x	x

Kim et al. (n.d.). Interweaving Multi-scale Science and Policy Frameworks for Conservation and Sustainability Implementation. Forthcoming.

3. EBV Data Portal
- essential variables in NetCDF with metadata

GEO BON Home Discover Map Upload **https://portal.geobon.org** Login

Date of creation
From **2010** To **2021**

Filter By EBV attributes

EBV classes

- Species populations (1)
- Community composition (2)
- Ecosystem structure (5)
- Ecosystem functioning (1)

EBV names

- Ecosystem phenology (1)
- Ecosystem distribution (5)
- Taxonomic and phylogenetic diversity (2)
- Species distributions (1)

Spatial scope

- National (1)
- Global (7)

Selected filters:

annually ✕

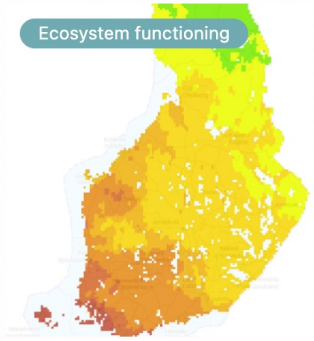
Forest loss year (2000-2018)

Forest loss during the period 2000–2018, defined as a stand-replacement disturbance, or a change from a forest to non-forest state. Data in this layer were generated using multi-spectral satellite imagery fro...

Data: netCDF (47.64MB)

Metadata: ACDD (JSON) | EML

Vegetation Phenology in Finland

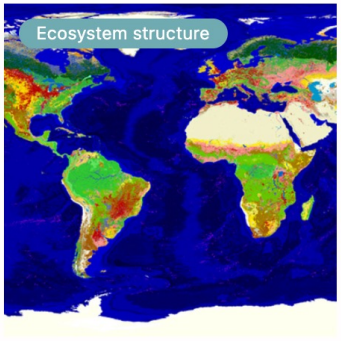


Datasets present the yearly maps of the start of vegetation active period (VAP) in coniferous forests and deciduous vegetation during 2001-2019 in Finland. The start of the vegetation active period is defined a...

Data: netCDF (303.17kB)

Metadata: ACDD (JSON) | EML

GlobES – 1-km Resolution Global Ecosystem Data Cube



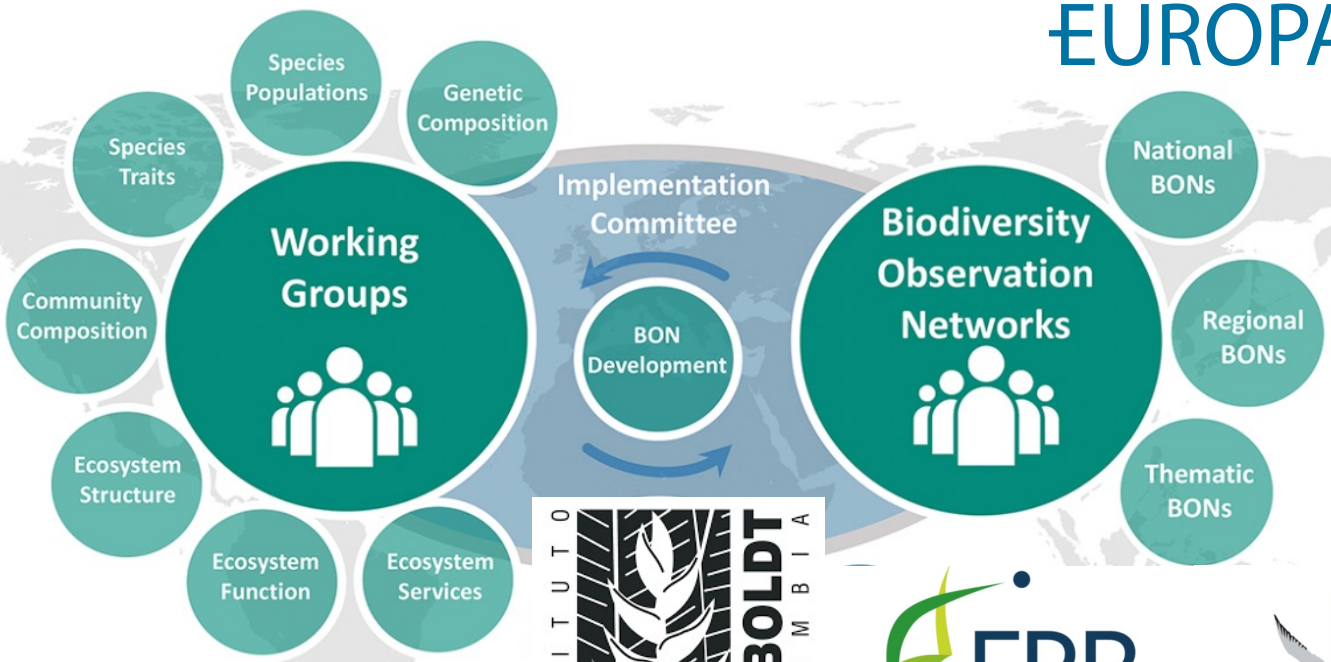
Global data cube on the yearly extent of ecosystems following the habitat classification scheme of the IUCN Red List, used in the assessment of over 100,000 species. This data cube is composed by 65 ecosystem t...

Data: netCDF (4.76GB)

Metadata: ACDD (JSON) | EML

GEO BON

4. Biodiversity Observation Networks (BON) - linking science-governance-practice for co-implementation



EUROPABON

AP-BON
Asia Pacific Biodiversity Observation Network

FWBON
Freshwater Biodiversity Observation Network

MBON
Marine Biodiversity Observation Network

INSTITUTO HUMBOLDT COLOMBIA

FRB
FONDATION POUR LA RECHERCHE SUR LA BIODIVERSITÉ

French BON/ ECOSCOPE is led by the Foundation for Research on Biodiversity (FRB)

CIRCUMPOLAR BIODIVERSITY MONITORING PROGRAM

Arctic BON is led by the Circumpolar Biodiversity Monitoring Program (CBMP) of CAFF.