



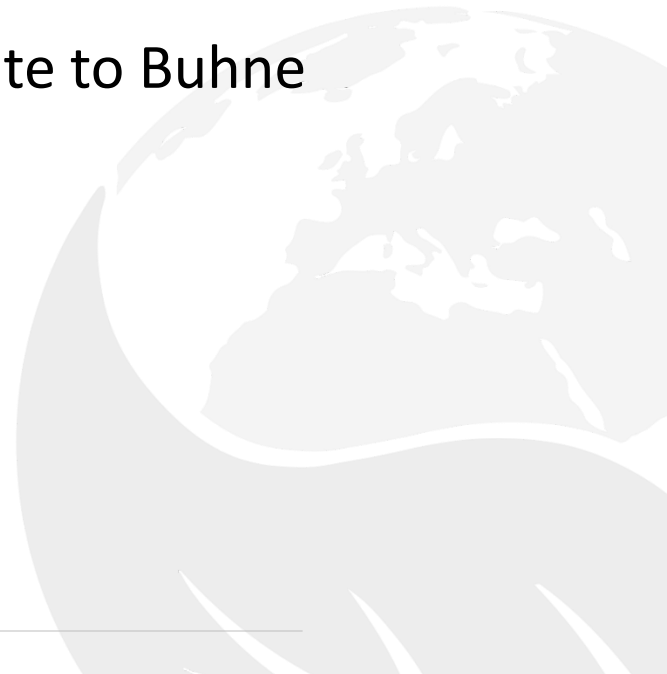
geobon.org

Earth Observation for Biodiversity Monitoring



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Overview

- What is GEO BON?
- Essential Biodiversity Variables
 - Framework
 - State of play and future direction

GEO BON: KEY OBJECTIVES

- Network of scientists, policy makers and space agency representatives
 - Developing and coordinating a global **biodiversity observation network** that contributes to **effective management policies** for the world's biodiversity and ecosystem services.
 - Improving **acquisition, coordination and delivery of biodiversity observations** and related services to users



GEO BON STRUCTURE

- Working Groups (concepts, methods)
 - Species populations
 - Ecosystem Structure
 - Ecosystem Functioning
 - Ecosystem Services
 - Biodiversity Observation Network development

Planned: WGs for other EBV classes (e.g. Genetic Composition)

- Biodiversity Observation Networks (implementation)
- Taskforces (short-term, small WG)



Figure 1. The structure of GEO BON for 2016-2019

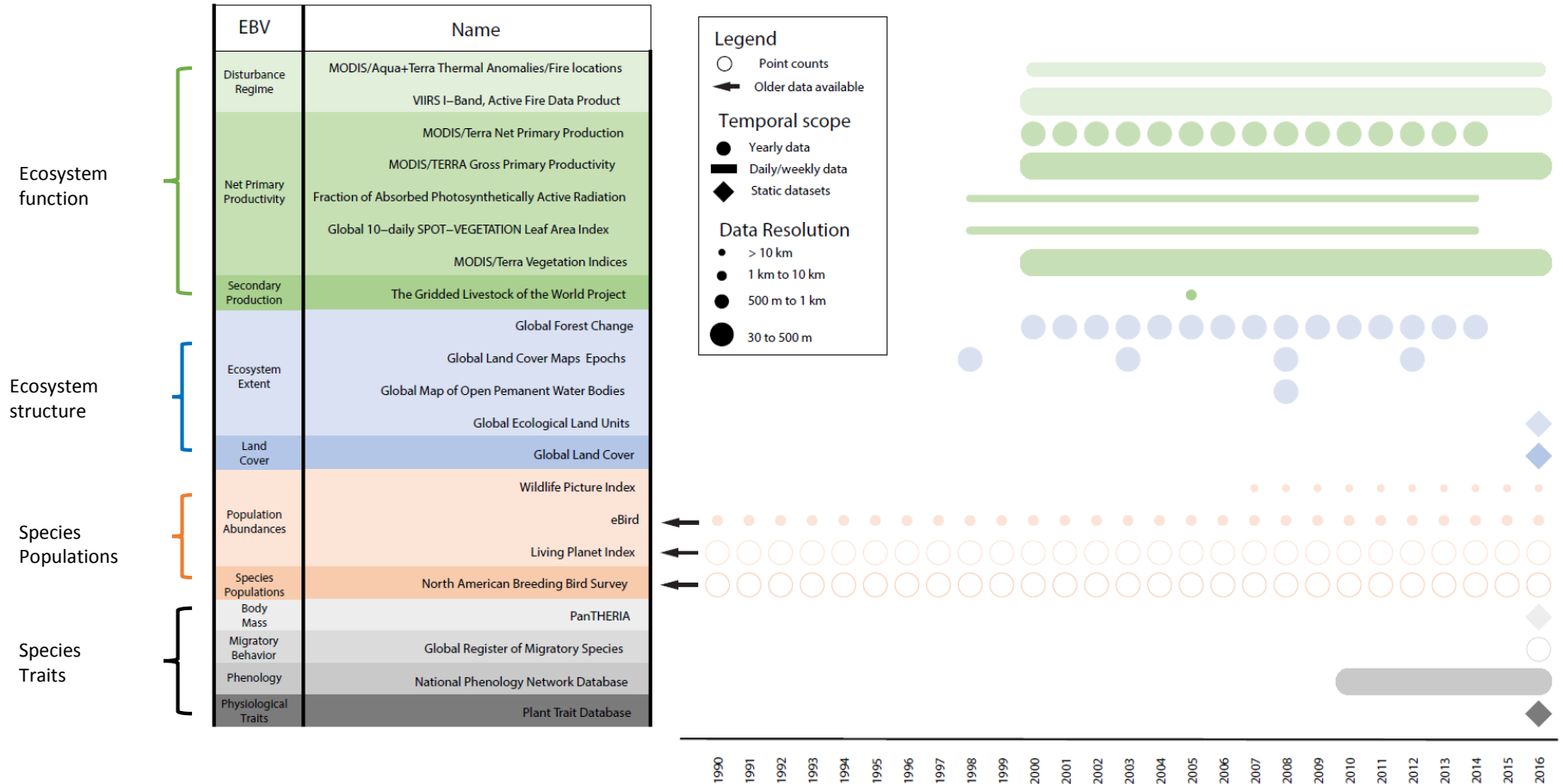
GEO BON: Essential Biodiversity Variables

- Analogous to Essential Climate Variables
- Current definition: “[A] variable or a group of **linked variables** that allows quantification of the **rate and direction** of change in one aspect of the **state of biodiversity** over time and across space” (Pettorelli et al., 2016)
- Identifications is an ongoing process
- EBV classes capture different dimensions of biodiversity
- Purpose: find consensus, harmonise monitoring, facilitate data integration, flexible and adaptable
- Remote sensing plays an important role

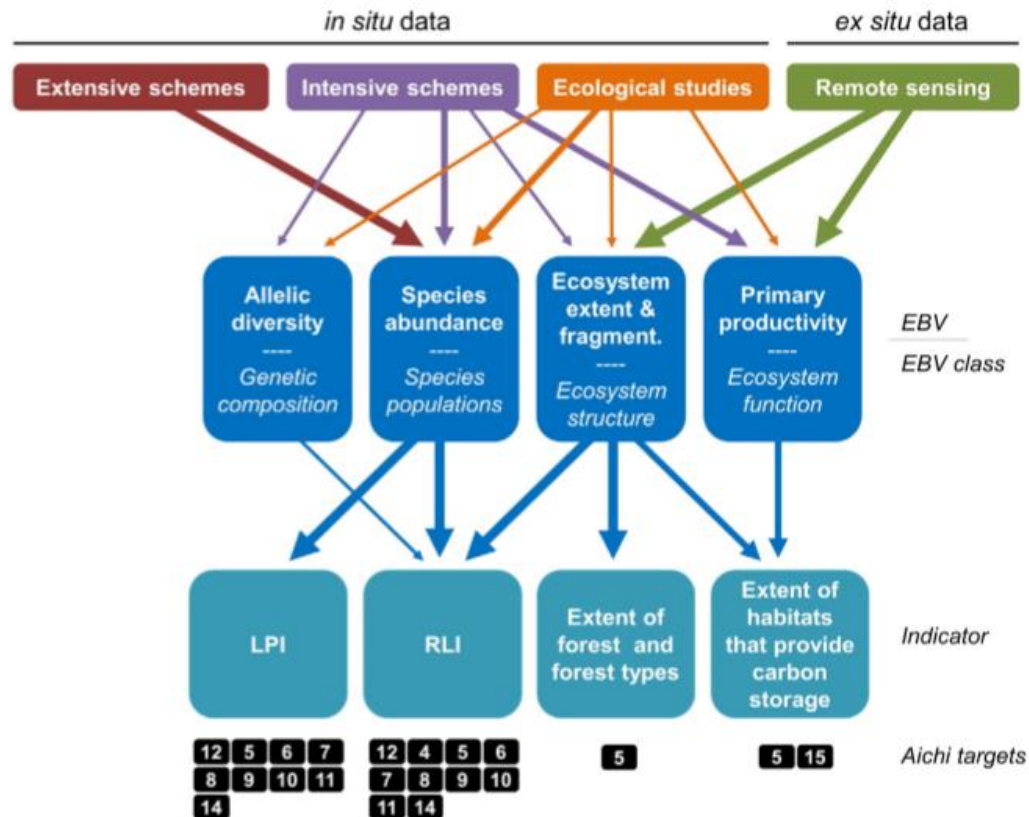
EBV candidates

EBV class	EBV candidate
Genetic composition	Co-ancestry
	Allelic diversity
	Population genetic differentiation
	Breed and variety diversity
Species populations	Species distribution
	Population abundance
	Population structure by age/size class
Species traits	Phenology
	Body mass
	Natal dispersion distance
	Migratory behavior
	Demographic traits
	Physiological traits
	Community composition
Ecosystem function	Species interactions
	Net primary productivity
	Secondary productivity
	Nutrient retention
Ecosystem structure	Disturbance regime
	Habitat structure
	Ecosystem extent and fragmentation
	Ecosystem composition by functional type

Potential supporting datasets (provisional!)



Deriving Global Biodiversity Change Indicators



Challenges and future directions

Covering all dimensions

- Genetic composition
- Community composition

Agree on definition

- Ecosystem function
- Ecosystem structure

Challenges and future directions

Identify and prioritise relevant EBVs

- Periodical update
- Data integration
- Cooperation with remote sensing community to support remote sensing EBVs
- Address spatial/thematic gaps

Implementation

- Endorsement
- Data management and maintenance