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Biodiversity_Next
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Essential Biodiversity Variables (EBVs)

Group on Earth Observations – Biodiversity Observation Network



Why EBVs?

- Define key biodiversity observations to enable efficient monitoring and assessment of global biodiversity change
 - to support effective policy development to reduce rate of loss:



CONSERVE AND SUSTAINABLY USE THE OCEANS, SEA AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT



PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, AND HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS



**Convention on
Biological Diversity**



What are EBVs?

- Key measurements that capture the necessary components of biodiversity change
- EBVs are:
 - Biological state variables
 - Sensitive to change
 - Ecosystem agnostic

<https://geobon.org/ebvs/>

Development of EBVs

- GEO-BON workshop – 2012
- Working Groups for each Class to develop EBV Candidates:

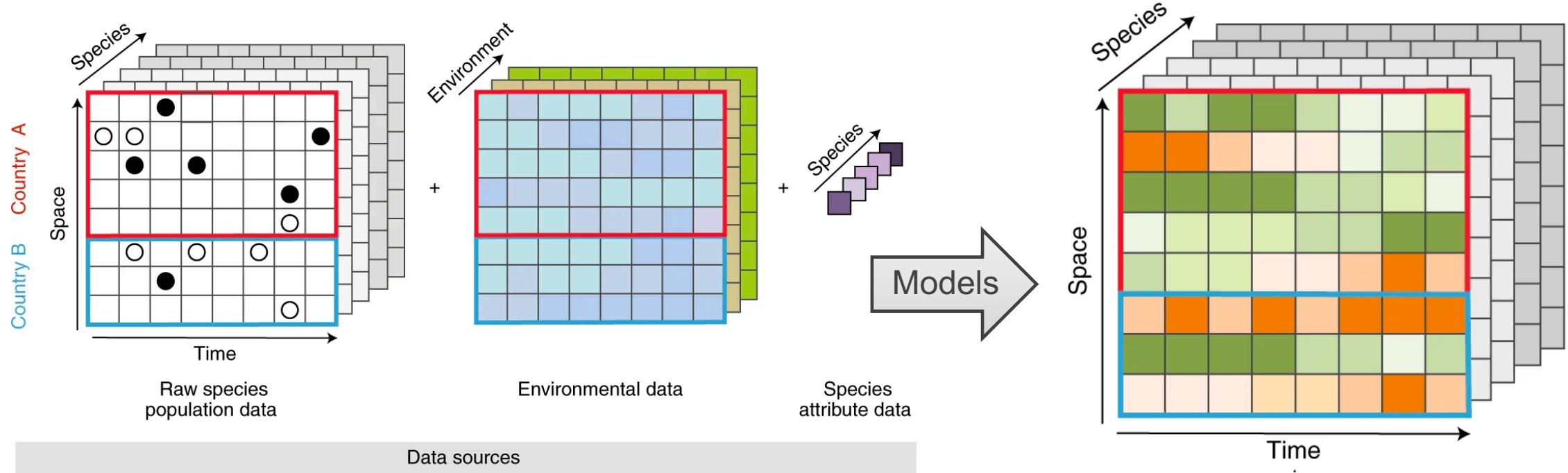
	Genetic composition
	Species populations
	Species traits
	Community composition
	Ecosystem function
	Ecosystem structure

EBV Candidates

<https://geobon.org/ebvs/>

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 Morphology Reproduction Physiology Movement
Community composition	Taxonomic diversity Species interactions
Ecosystem function	Net primary productivity Secondary productivity Nutrient retention Disturbance regime
Ecosystem structure	Habitat structure Ecosystem extent and fragmentation Ecosystem composition by functional type

Examples of EBVs: Species populations



Modified from Jetz et al. 2019.

Nature Ecology & Evolution 3:539–551

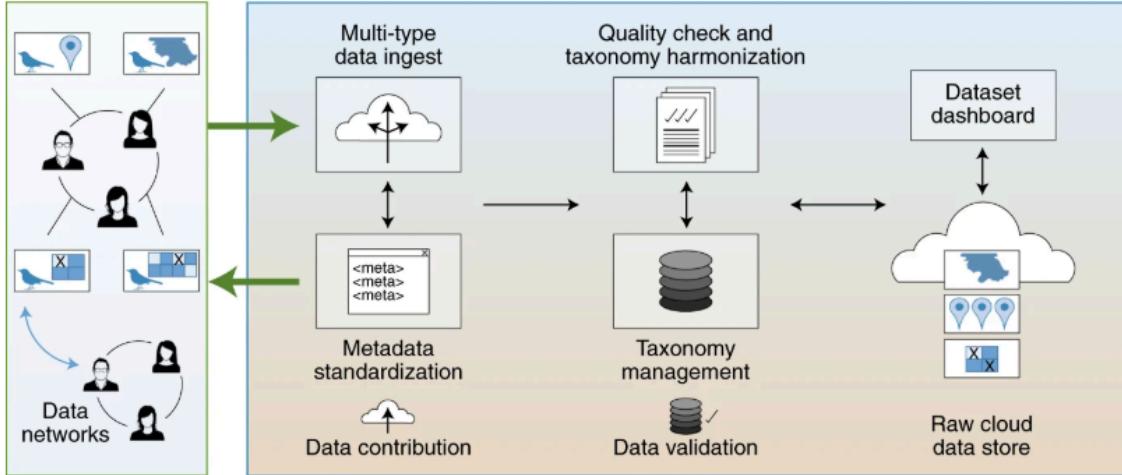
<https://doi.org/10.1038/s41559-019-0826-1>

- Species distribution = probability of occurrence
- Species abundance = number of individuals

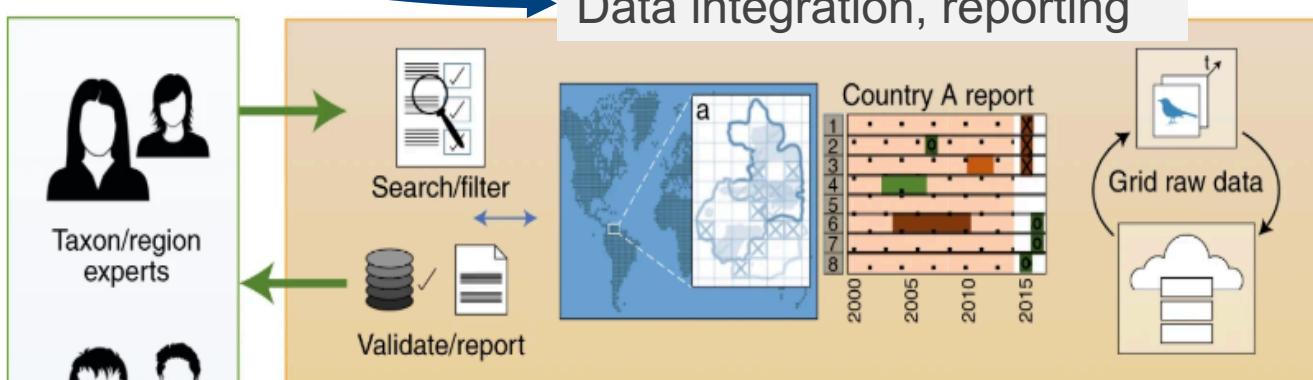
Future directions

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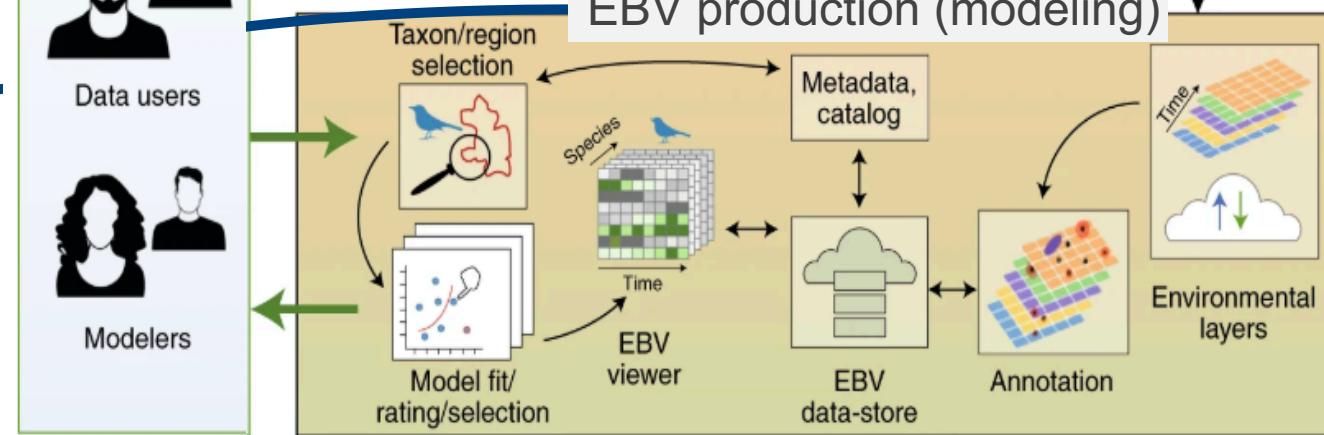
Data contribution, validation



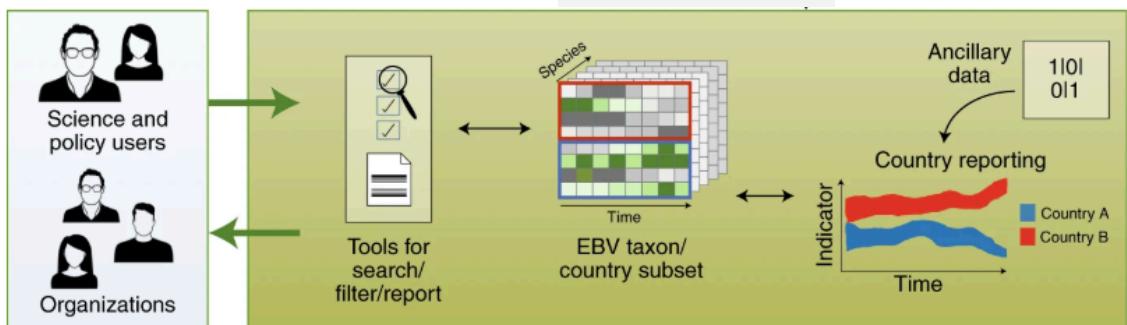
Data integration, reporting



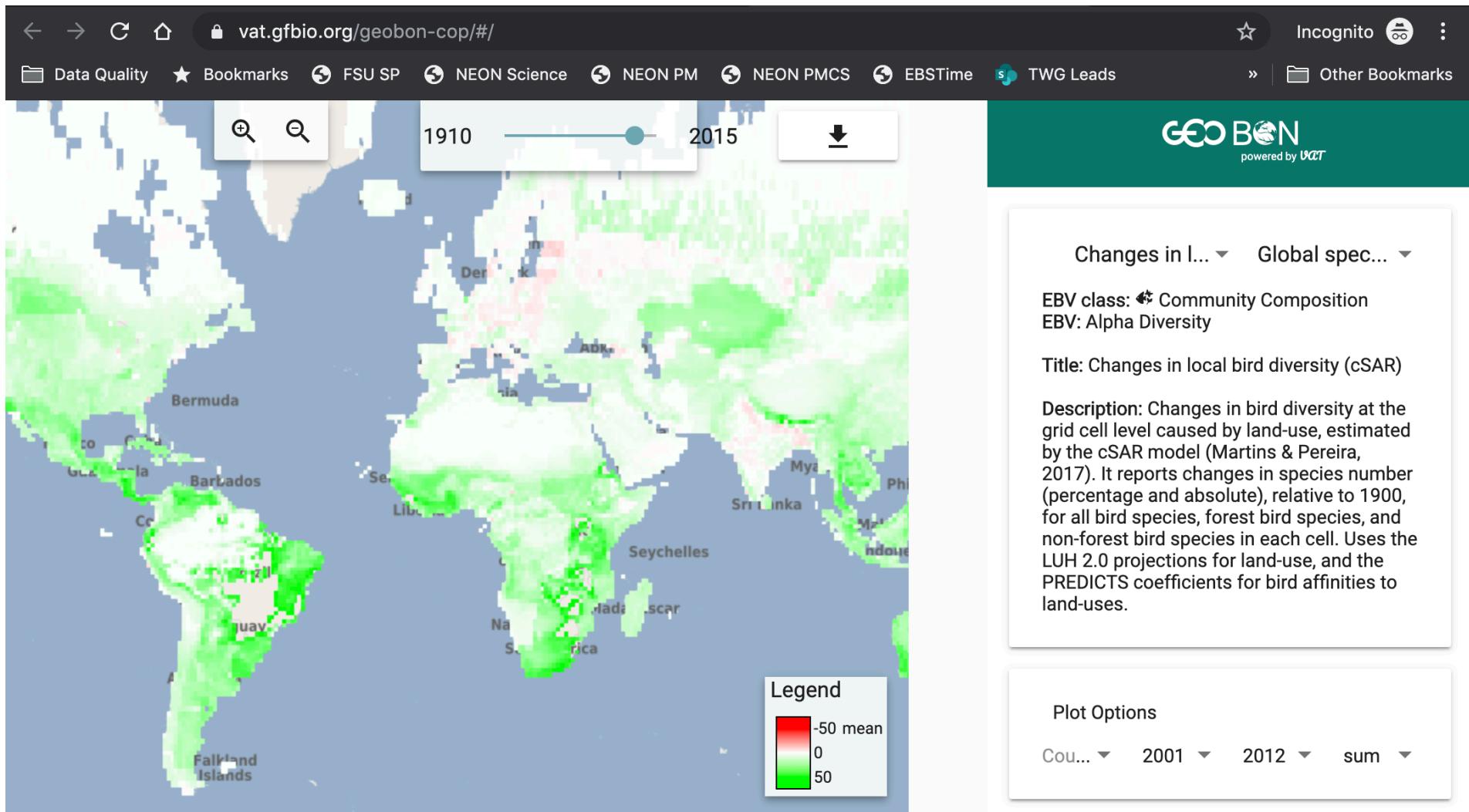
EBV production (modeling)



EBV use



Future Directions



Relevant Biodiversity_Next Events

- SP35 – Operationalizing Essential Biodiversity Variables: data integration, production and dissemination – TUE 13:30 – 17:00
- Towards an annual species distribution EBV for the United Kingdom – TUE 13:42 – 13:54
- WP88 – From data to policy: supporting biodiversity policy needs and the SDGs – WED 11:00 – 12:30
- SI72 – Operationalizing Trait-Based Biodiversity – THU 11:00 – 17:00



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