A global biodiversity observation system for a nature-positive world

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Co-chair GEO BON

CBD Webinar

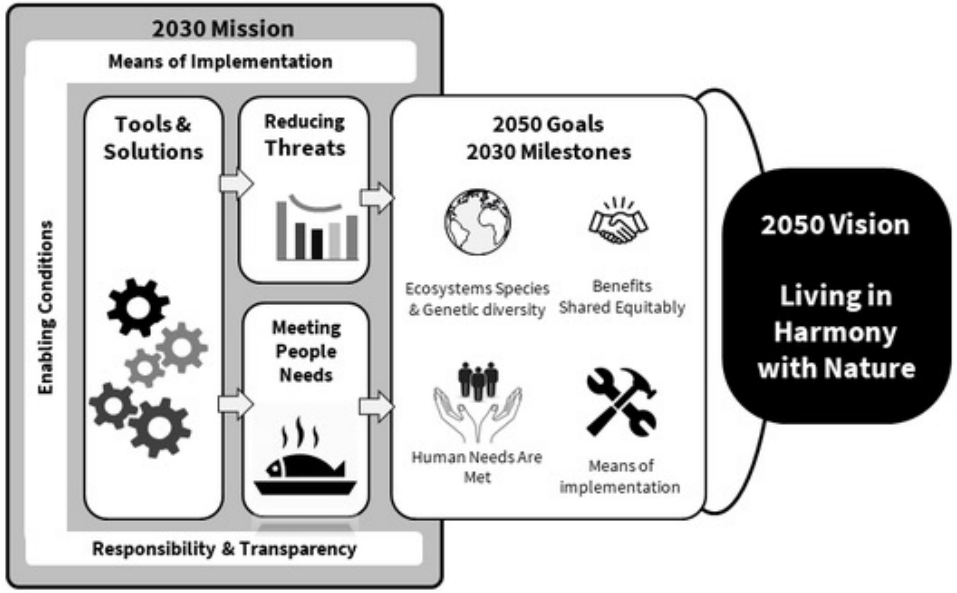
Updated Monitoring Framework and associated information documents (SBSTTA item 3)

www.geobon.org

A new horizon for global biodiversity monitoring

Convention on Biological Diversity

The post-2020 Global Biodiversity Framework



Monitoring framework

An essential part of the GBF is its monitoring framework (see CBD/SBSTTA/24/3), which ensures that we monitor the state of nature and our progress toward the targets and goals.

GLOBAL BIODIVERSITY MONITORING

Policy & action for conservation

Science to policy

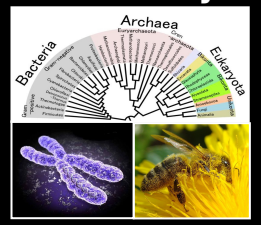
GBF

Convention on Biological Diversity

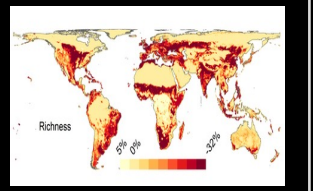
Scientific assessments

ipbes Science and Policy for People and Nature

Biodiversity



Changing trends



National observations & monitoring networks

Tracking progress via indicators

1) Indicators tracking progress to Goal A outcomes

MONITORING OUTCOMES

Planning of new actions (based on predicted gain in leading indicators)

2) Explanatory modelling (attribution) of links between actions, drivers & biodiversity

PLANNING ACTIONS

Implemented actions

3) Leading (predictive) indicators of progress toward Goal A outcomes

Observed change in biodiversity state variables, and drivers

CBD/WG2020/3/INF/11
CBD/SBSTTA/24/INF/31

The big picture of biodiversity observations

Species records cover less than 7% of the world's surface at 5 km resolution, and less than 1% for most taxa at higher resolutions.

Data from just 10 countries account for 82% of all available records

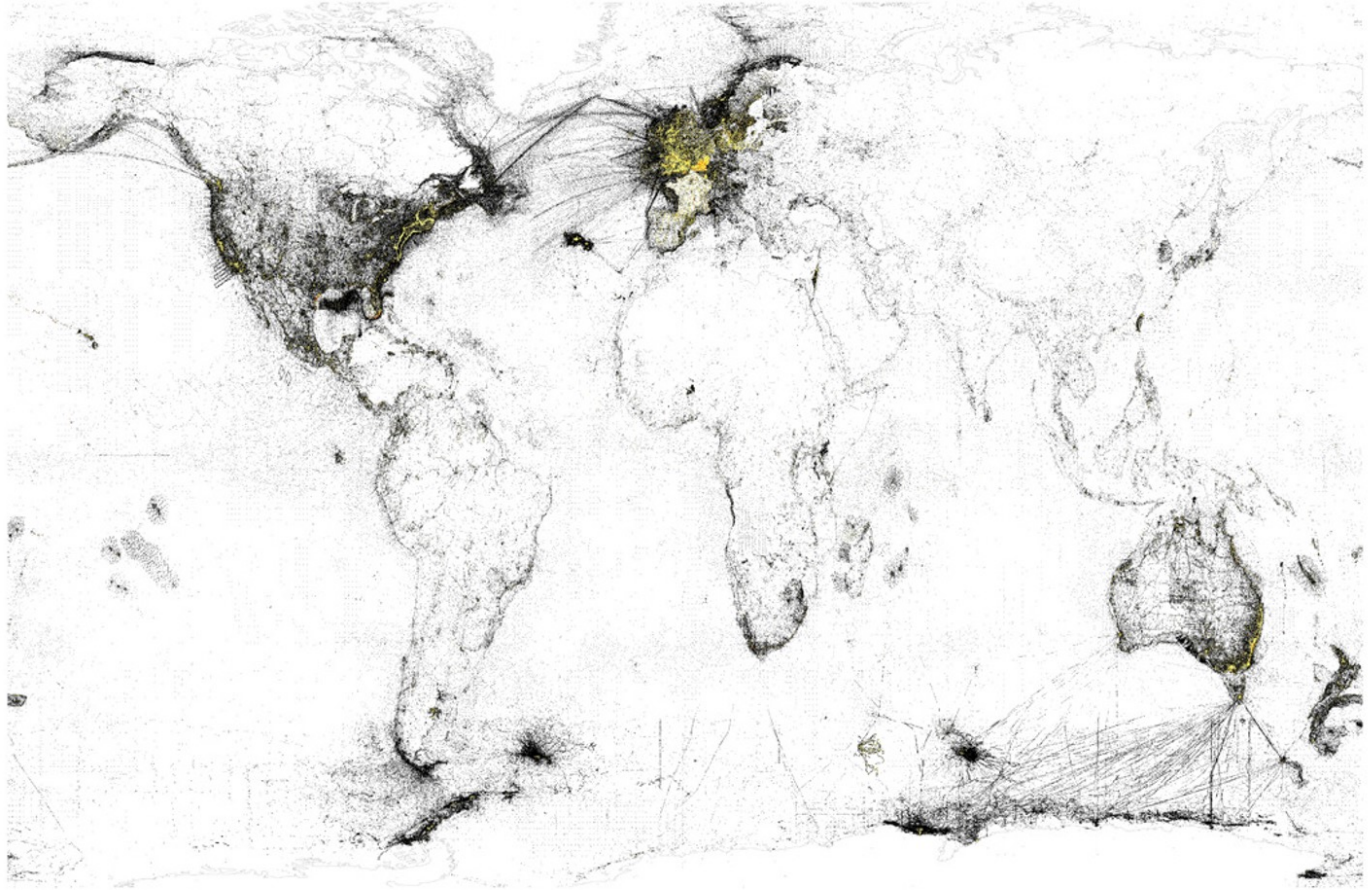
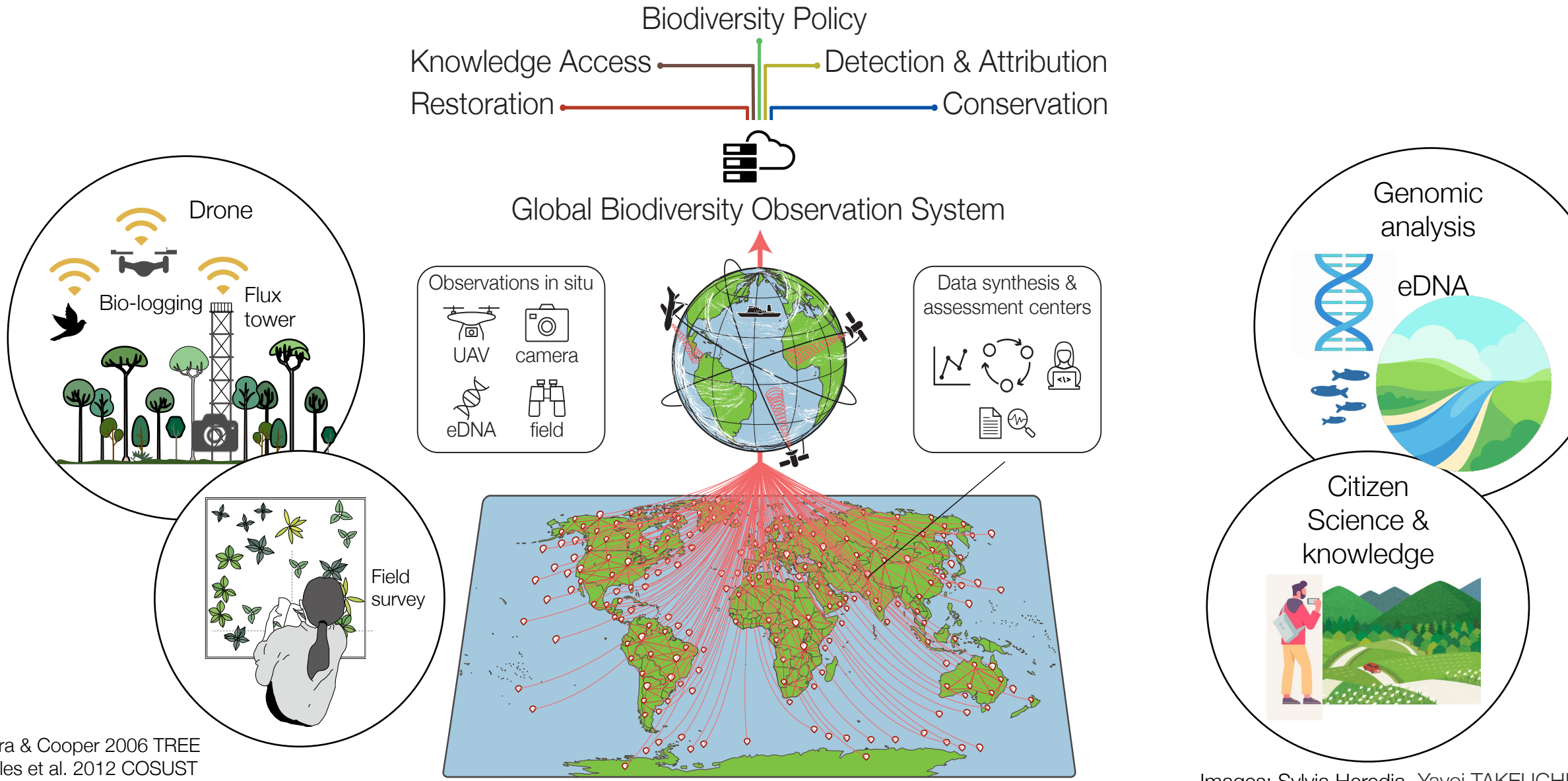


Figure 4.3 *Global distribution of sites sampled for biodiversity with high numbers of records in GBIF (https://www.gbif.org/) and OBIS (https://obis.org/) databases. At a 5 km resolution, 11% of the Earth's land (based on GBIF records) and 5% of the ocean (based on OBIS records) have been sampled. Black 1–50 records, yellow-red > 50 records* Hughes et al. 2021 *Ecography*

To understand biodiversity change higher spatial resolution and better coverage are needed

Global Biodiversity Observation System (GBiOS)



Pereira & Cooper 2006 TREE
Scholes et al. 2012 COSUST
Gonzalez et al. 2021 (in revision)

Images: Sylvia Heredia Yayoi TAKEUCHI

GBiOS as a network of national and regional networks

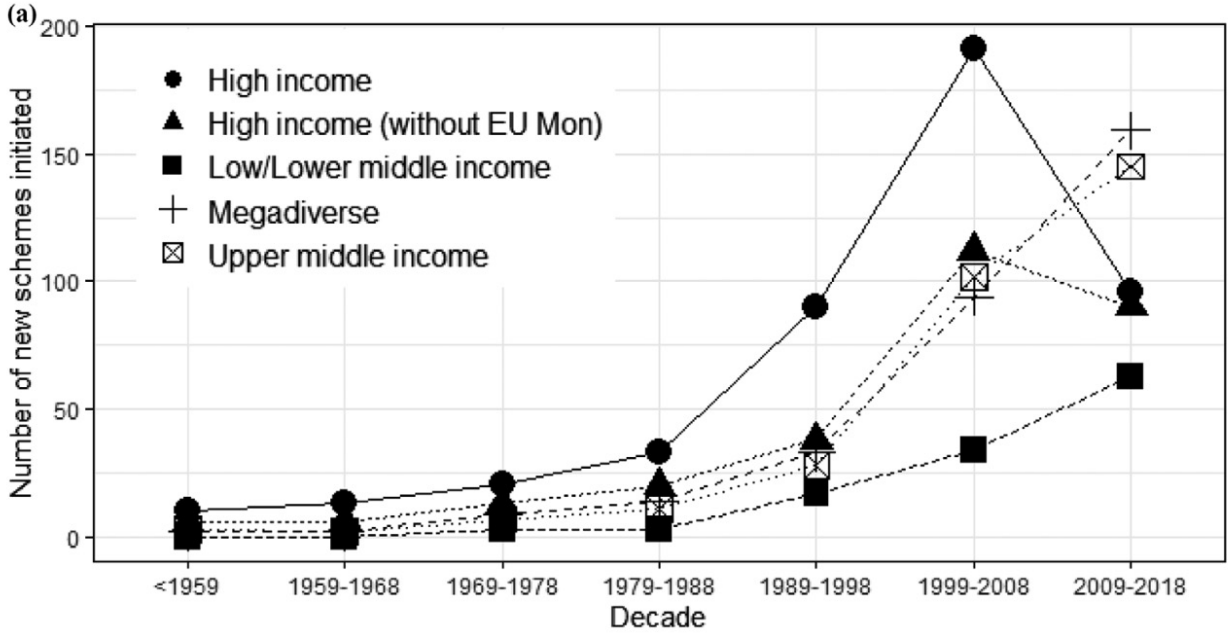
The GBiOS concept, envisions an integrated global monitoring system as a *network* of national, regional and international of biodiversity observation networks.

Operating across levels for the purpose of guiding conservation action for biodiversity:

- Fill geographic and taxonomic gaps in coverage
- Detect trends in biodiversity across different facets and headline indicators
- Attribute causes of trends due to drivers needed to support forecasts
- Support spatial prioritzation of actions needed to achieve the targets of the GBF
- Measure the efficacy of different actions on the state of nature

What do we have in hand?

There are 3000-15,000 operational national monitoring schemes worldwide that are meeting regional and local needs (Moussy et al. 2021).



Need:
A database of meta-information on active global monitoring scheme

(Moussy et al. 2021 Con. Biol.)

Support is needed to enable the development of new monitoring networks suited to the GBF: fill taxonomic and geographic gaps)

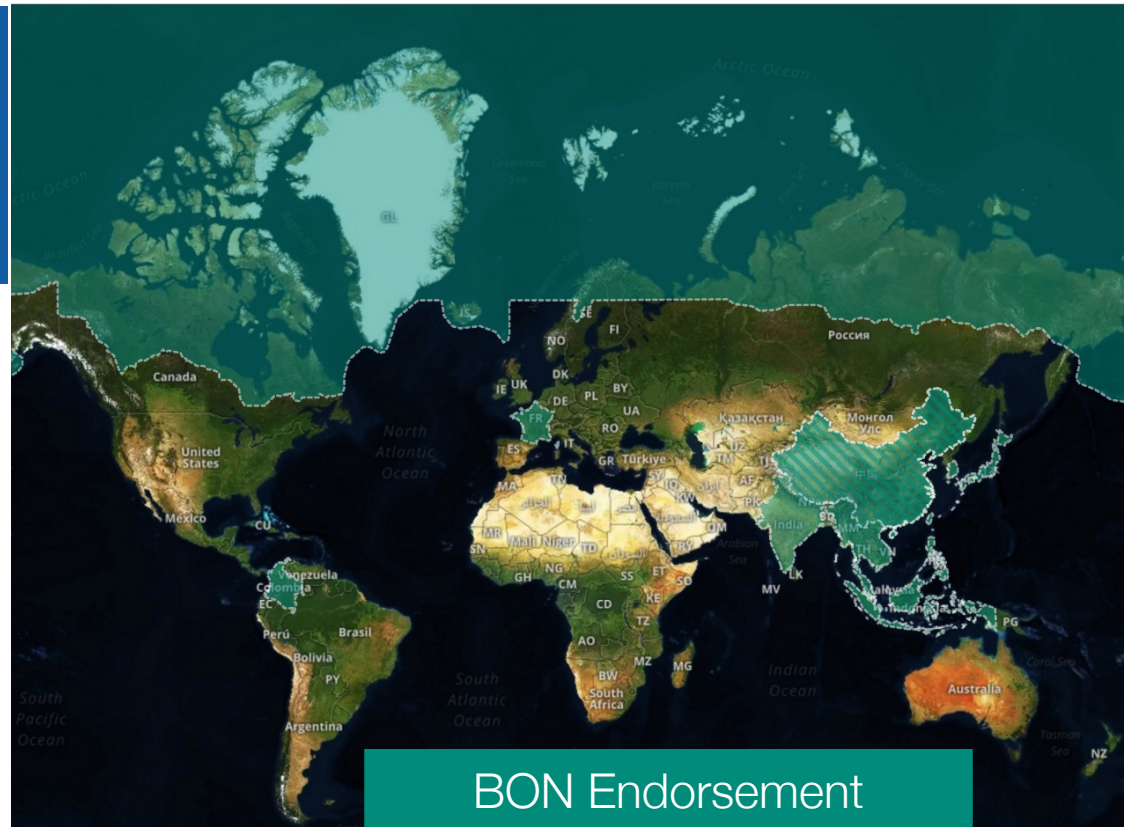
GEO BON: Assembling National, Regional and Thematic BONs

Guidelines for network establishment are publicly available and describe how to create an 'enabling environment' that assembles the partnerships, human capacity and scientific infrastructure needed to build an observation network.

(https://geobon.org/bons/bon-development/)

A global network:
2095 registered members,129 countries, 1304 institutions

https://geobon.org



BON Endorsement

23 national, regional, and thematic networks endorsed by GEO BON covering aquatic and terrestrial systems.

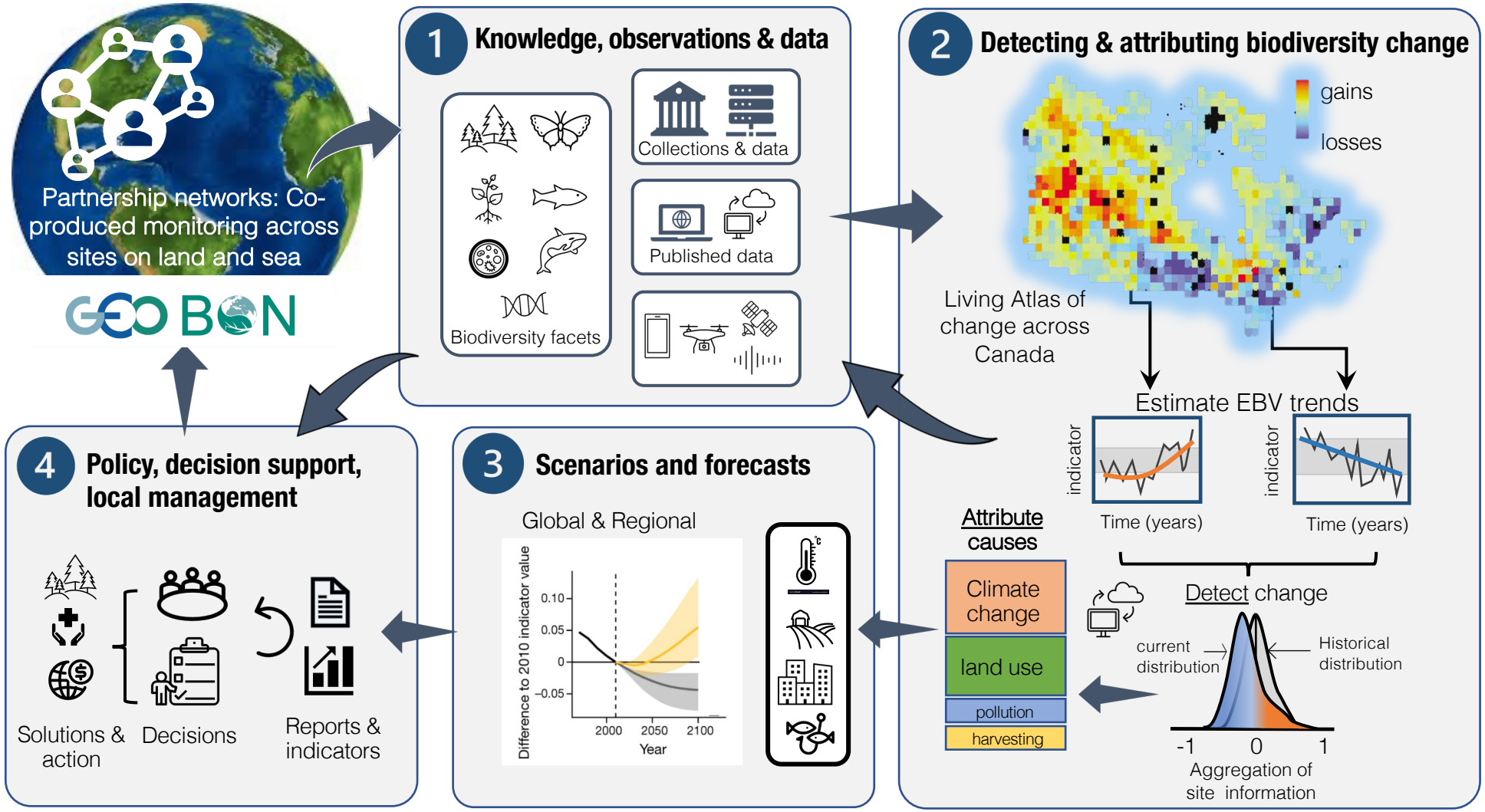
A significant starting point for the GBiOS network

Soil BON

FWBON Freshwater Biodiversity Observation Network

MBON Marine Biodiversity Observation Network

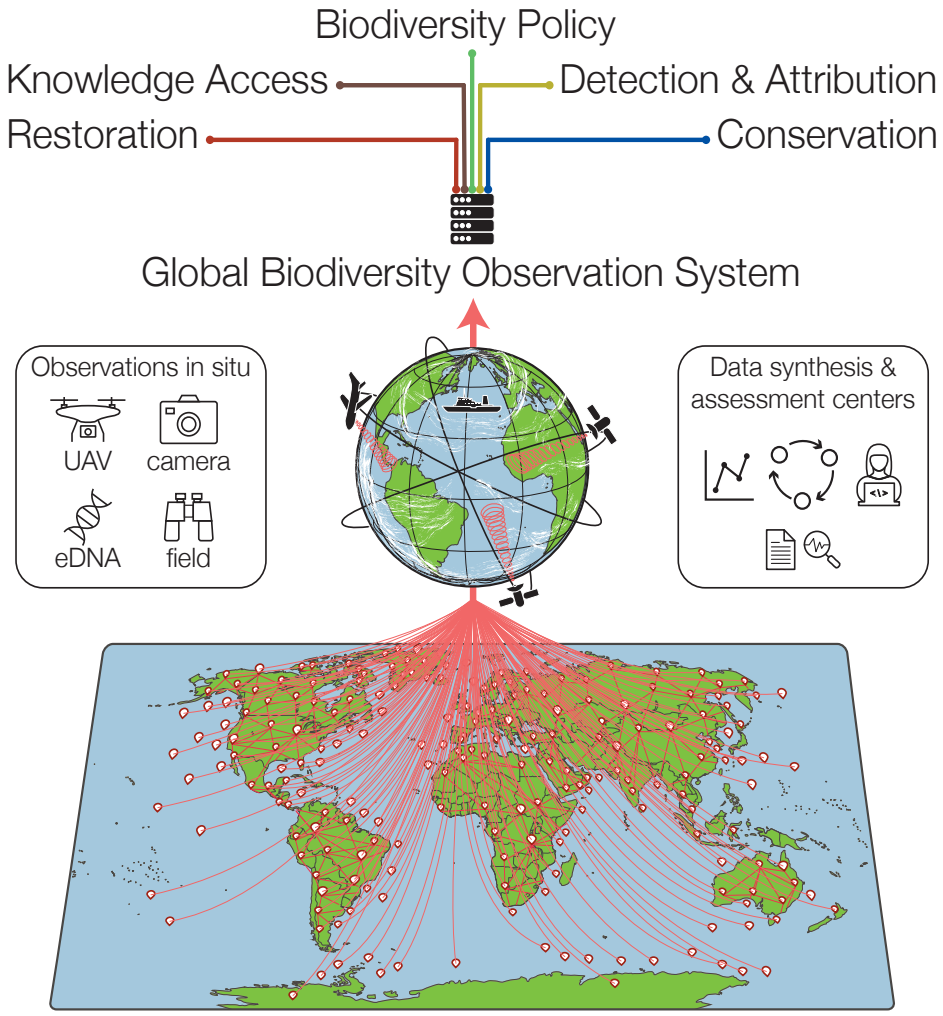
National BONs designed to support decisions for conservation

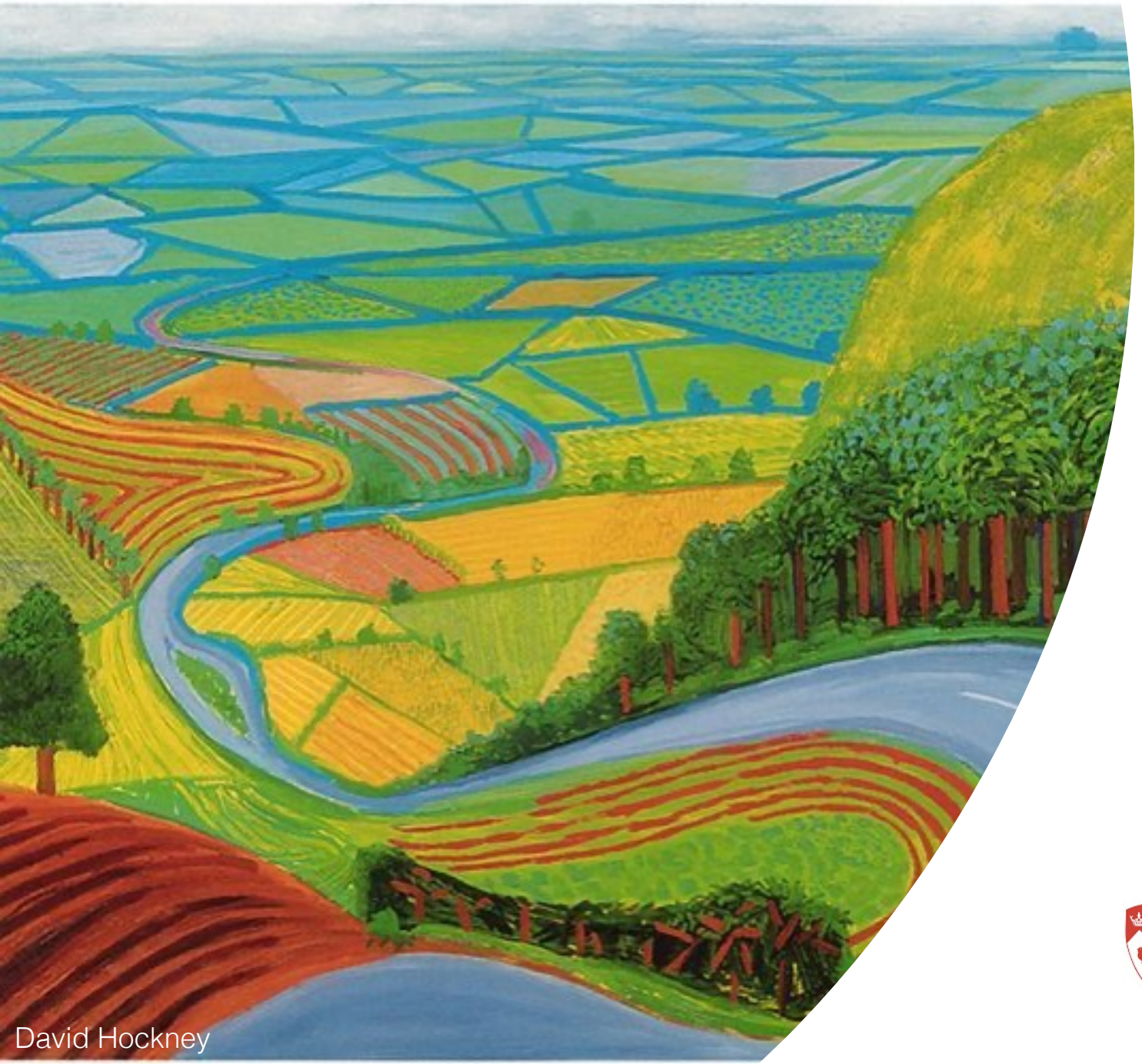


Gonzalez et al. 2021 (in revision)

GBiOS: A huge return on investment

- ✓ Global community is now aware of the enormous value of biodiversity to economy and the great cost of biodiversity loss.
- ✓ GBiOS will improve the accuracy and **reduce uncertainty** in our understanding of biodiversity trends
- ✓ A GBiOS will support **effective action**, avoid costs and provide warnings of the impacts and risks due to loss of biodiversity and ecosystem services.
- ✓ **Enhance capacity**: creation of jobs, deployment of new technologies, enhancement of capacity in government, businesses and other stakeholders, especially in low-income, high biodiversity countries.




David Hockney

For more information:
www.geobon.org
@GEOBON_org

Thank you

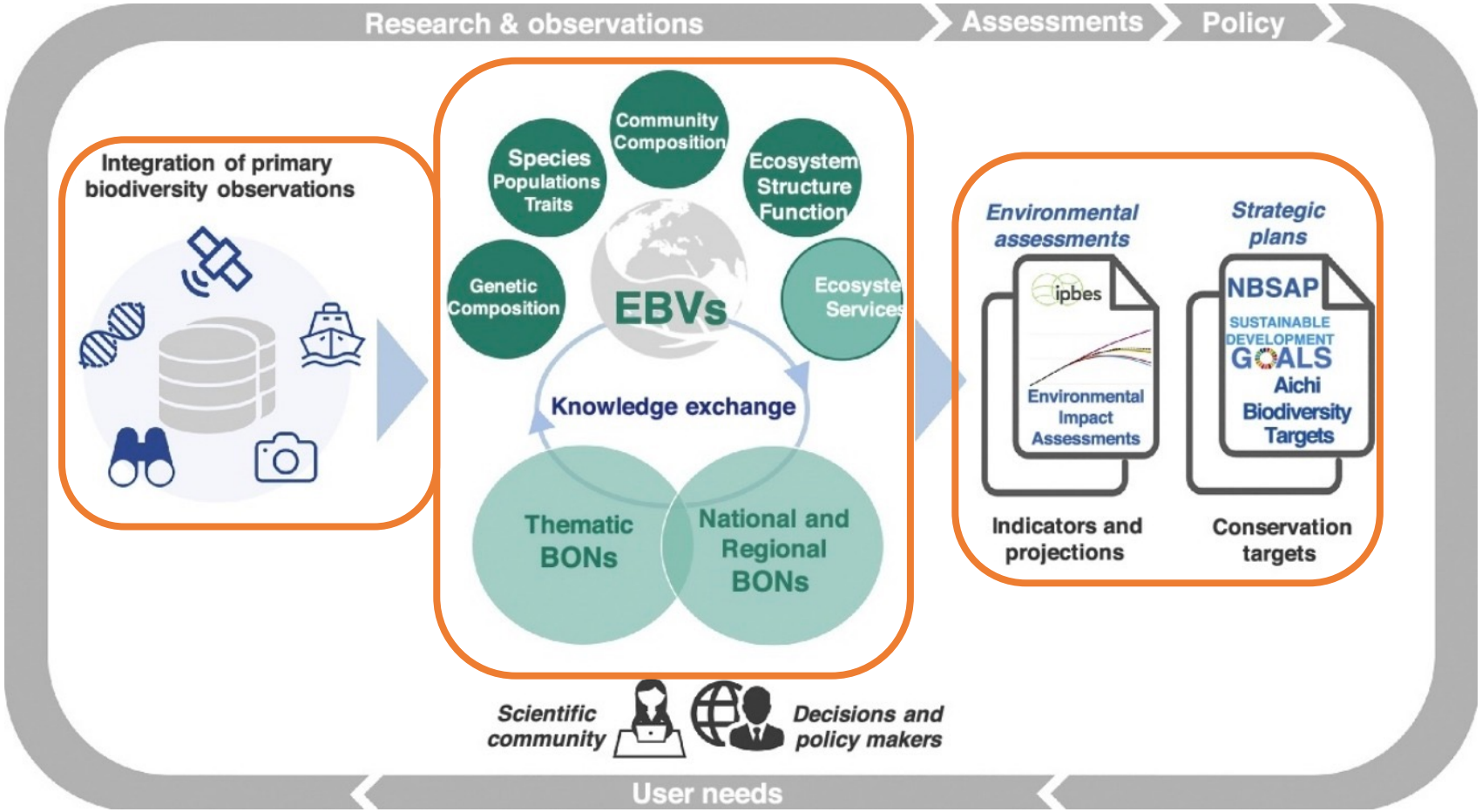
Group on Earth Observations Biodiversity Observation Network

A global network:
2095 registered members, 129 countries, 1304 institutions

GEO BON

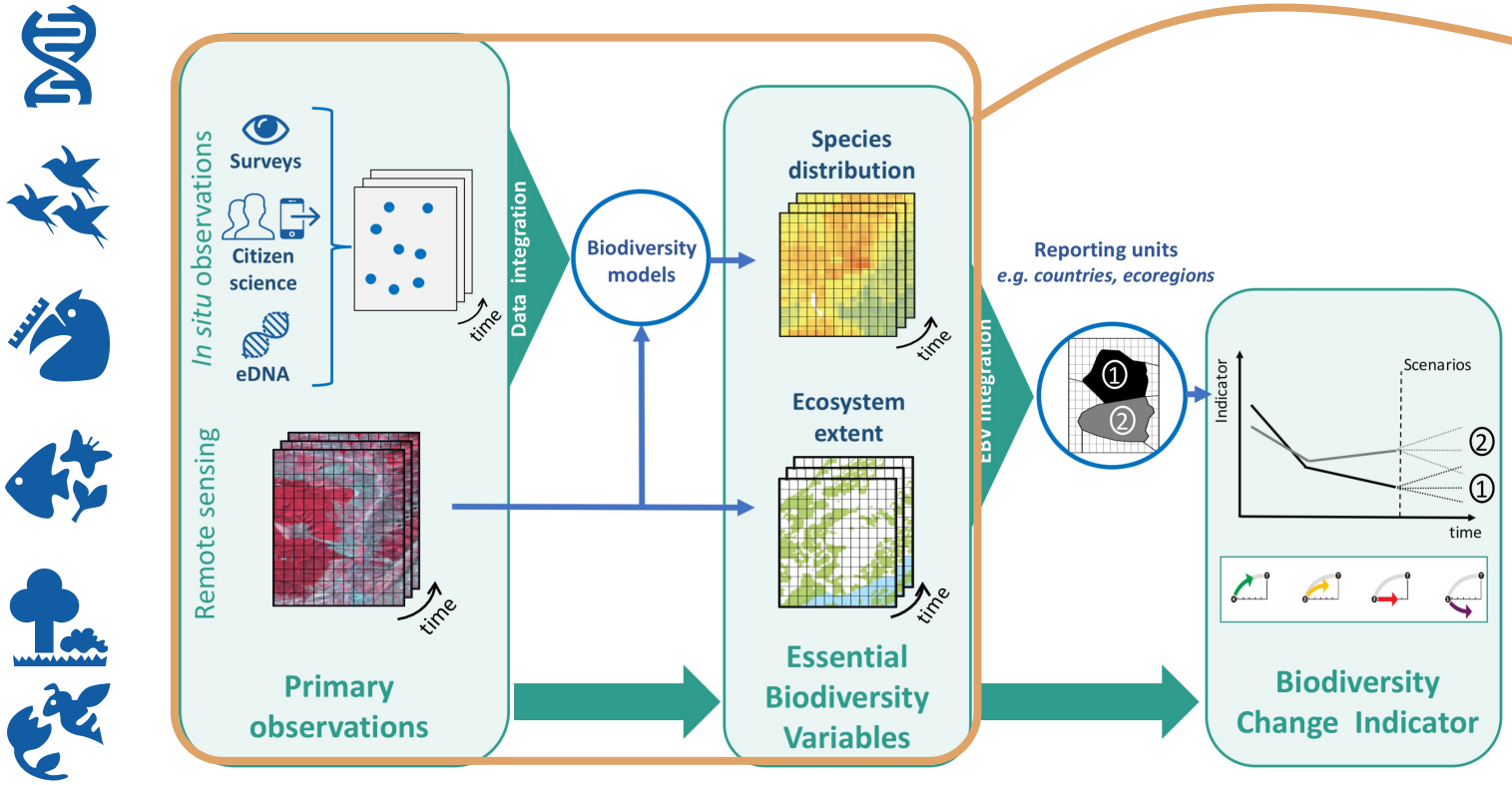
Flagship

https://geobon.org



Navarro et al. (2017) COES

Essential Biodiversity Variables for monitoring



EBV production workflows:

1. Collection of primary observations
2. Standardization of primary observation
3. Data integration and model-based estimation
4. Publication following GEO BON data guidelines

Navarro et al., (2017) Current Opinion in Environmental Sustainability