



# GEO BON's activities and post-2020 strategy

AO GEO TG2 - November 4<sup>th</sup> 2019



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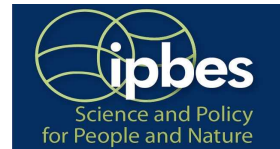


# GEO BON in a nutshell

## Mission

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

- Volunteer-based
- Open
- Small secretariat



UNEP WCMC



UNIVERSITY OF AMSTERDAM



## GEO BON core focus

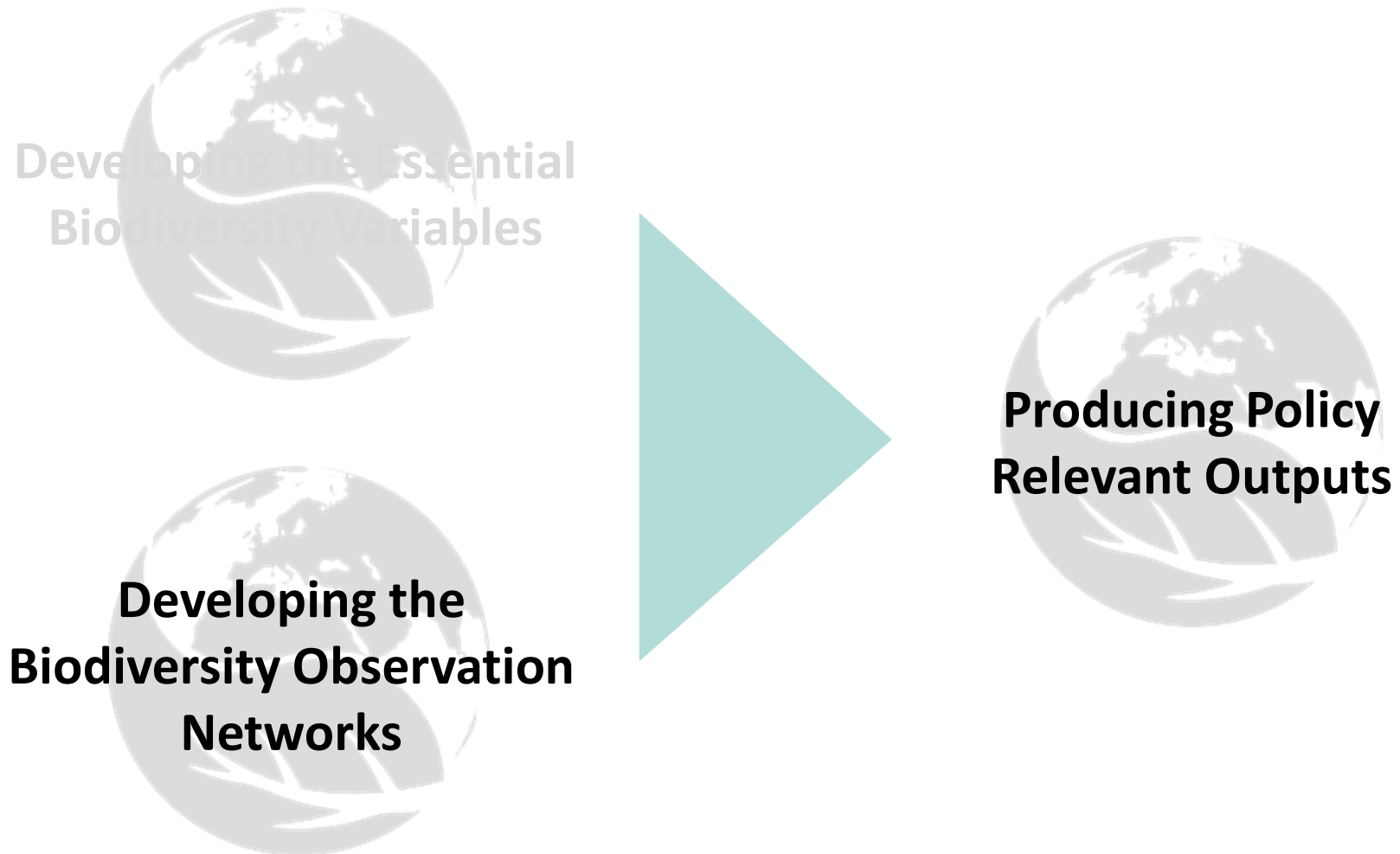
**Developing the Essential  
Biodiversity Variables**

**Developing the  
Biodiversity Observation  
Networks**



**Producing Policy  
Relevant Outputs**

## GEO BON core focus



## Building a Network of National, Regional and Thematic BONs

Contribute to the **collection** and **analysis** of **harmonised biodiversity observations**, the development of integrated and interoperable **biodiversity monitoring programs**, the development of **data standards**.

National and Regional BONs

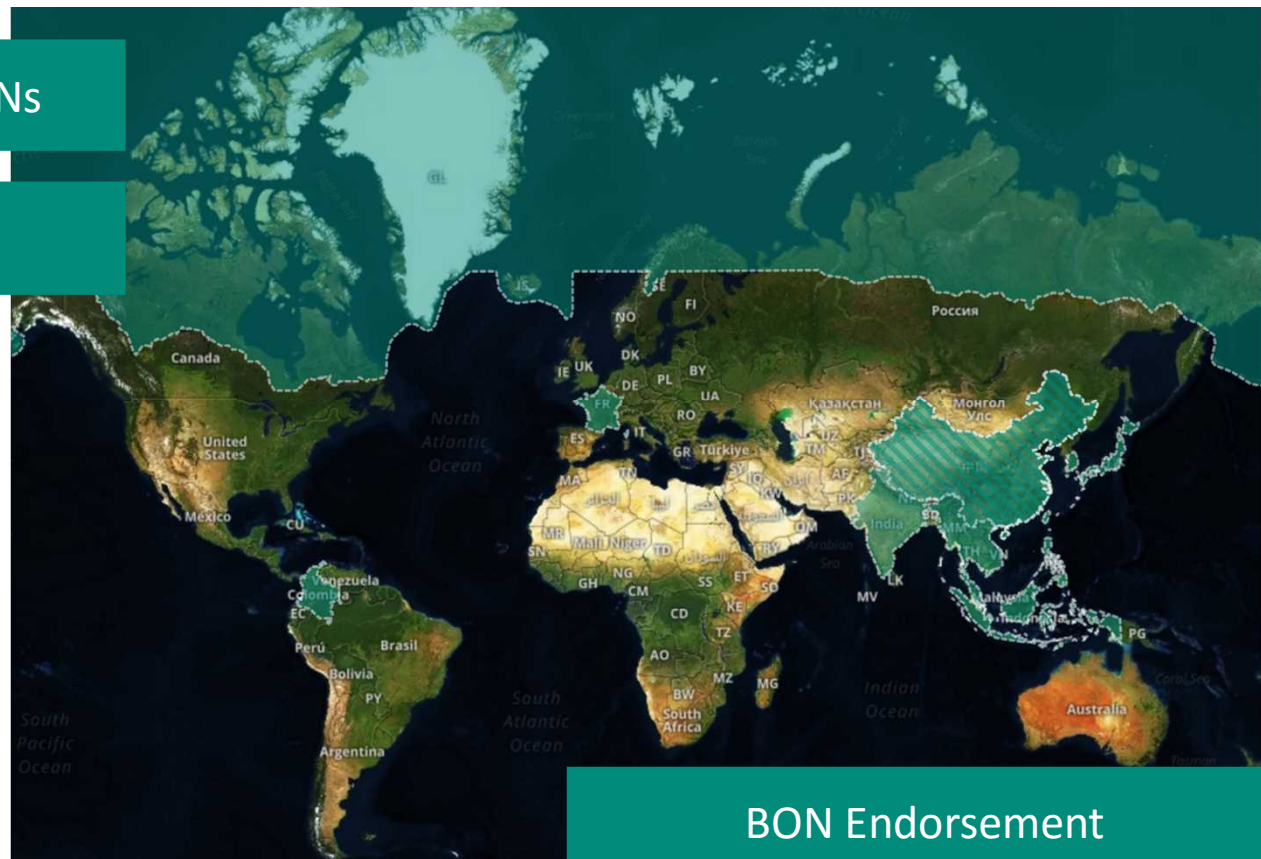
Thematic BONs

**MBON**  
Marine Biodiversity  
Observation Network

**FWBON**  
Freshwater Biodiversity Observation Network

**Soil BON**

**AP MBON**  
Marine Biodiversity  
Observation Network



BON Endorsement

# Updates on new BONs: soil BON and Americas BON

Leads:



Carlos Guerra  
**iDiv**



Diana Wall  
**Univ. Colorado**

**Pledged Resources**

- Laboratory analysis
- Sampling kit (partial)
- Training for African partners
- Training for Developing Countries
- Marketing and communication

**>500.000€**



# Updates on new BONs: soil BON and Americas BON



119 organizations  
 composed of 57  
 governmental agencies, 23  
 universities and research  
 institutes, and 39 non-  
 governmental organizations





# Tropical Andes Observatory

ERANet (2019-2022) - Peru, Ecuador, Bolivia (Spain and Germany)

## ENGAGEMENT



- ① Create an authorizing environment
- ② Establish design and implementation team

## ASSESSMENT



- ③ User needs assessment and choice of regional assessment units
- ④ Inventory of data, tools and platforms

## DESIGN



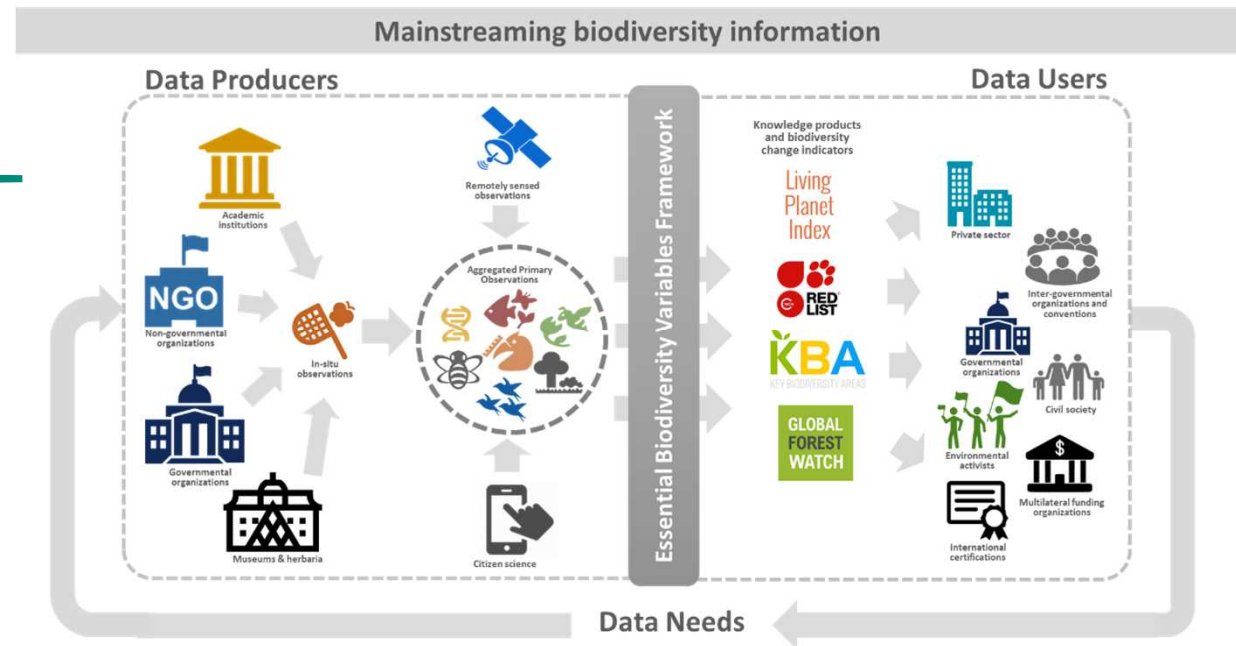
- ⑤ Focal ecosystems, conceptual models, EBVs and primary observations
- ⑥ Data collection methods
- ⑦ Sampling framework
- ⑧ Data management, analysis and reporting

## IMPLEMENTATION



Capacity Building

- Use of the BON Design process to define the work packages and deliverables
- Aim to identify and connect producers and users of biodiversity information for co-design of observatory



## GEO BON core focus

**Developing the Essential  
Biodiversity Variables**

**Developing the  
Biodiversity Observation  
Networks**



**Producing Policy  
Relevant Outputs**

# The Essential Biodiversity Variables

**EBVs: Minimum** set of measurements, **complementary** to one another, that can capture major dimensions of biodiversity **change**.

**EBVs are:**

- ✓ **Biological and policy relevant**
- ✓ **Sensitive to change**
- ✓ **Biological state variables**
- ✓ **Generalizable across realms**
- ✓ **Scalable**
- ✓ **Feasible**



**Genetic Composition**

e.g. Allelic diversity



**Species Populations**

e.g. Species distribution



**Species Traits**

e.g. Body size, phenology



**Community Composition**

e.g. Species interactions



**Ecosystem Structure**

e.g. Ecosystem extent

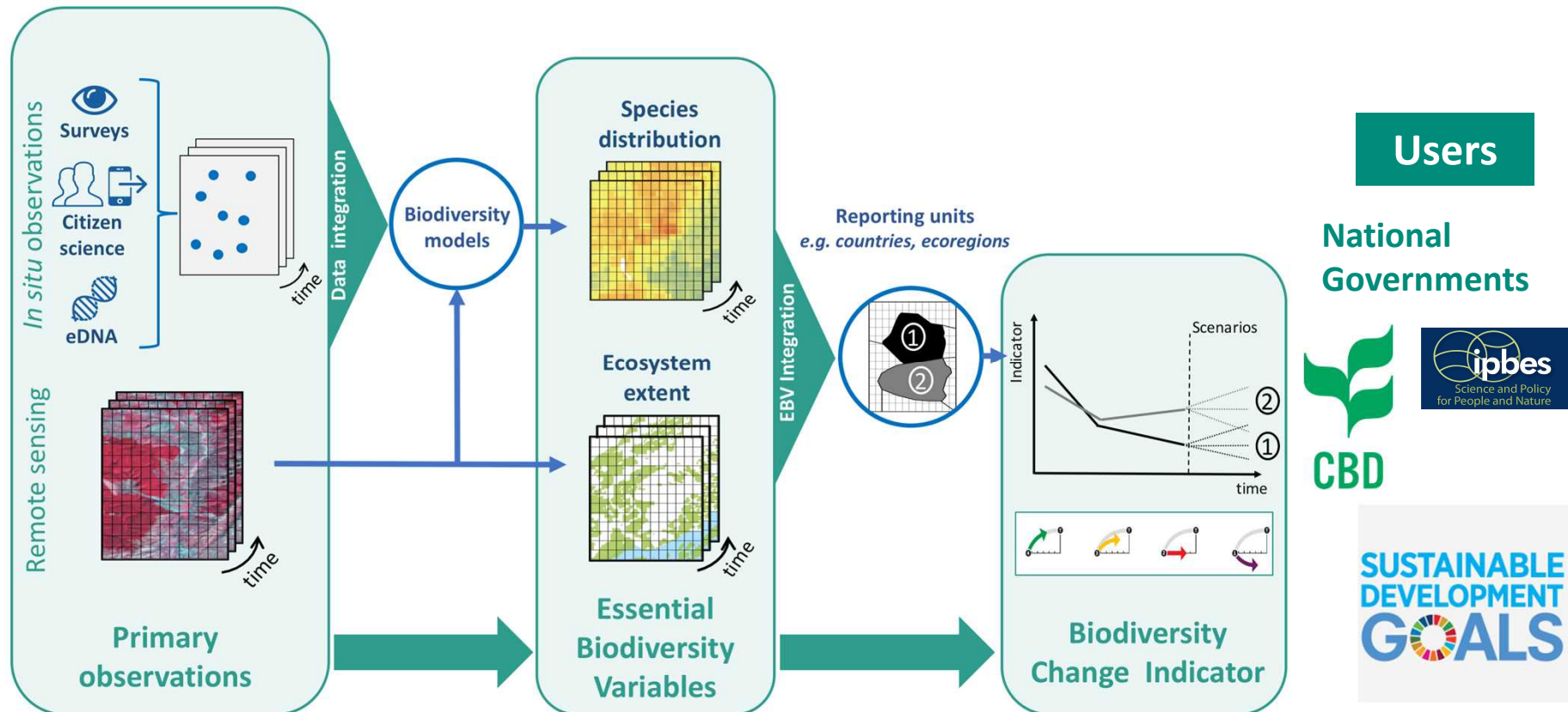


**Ecosystem Functions**

e.g. Disturbance

# Developing the Essential Biodiversity Variables

**EBVs: Minimum** set of measurements, **complementary** to one another, that can capture major dimensions of biodiversity **change**.



# Developing the Essential Biodiversity Variables



## Species Traits

nature  
ecology & evolution

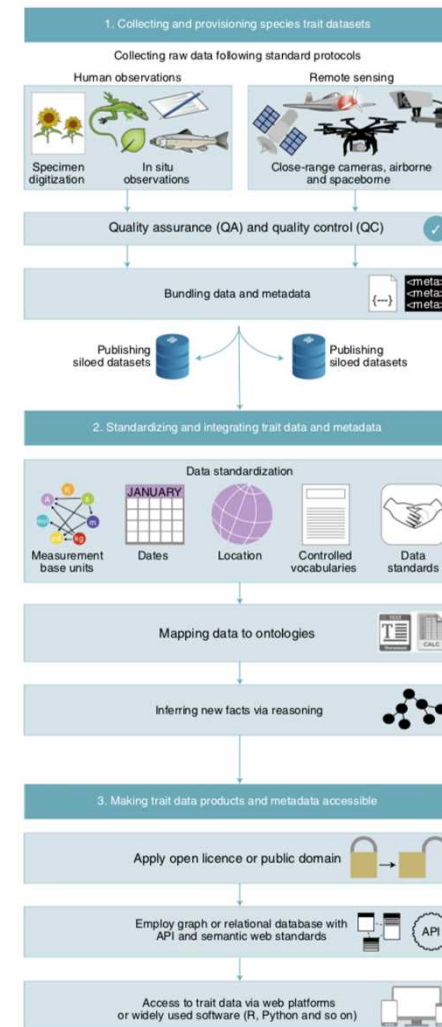
PERSPECTIVE

<https://doi.org/10.1038/s41559-018-0667-3>

OPEN

## Towards global data products of Essential Biodiversity Variables on species traits

W. Daniel Kissling<sup>1\*</sup>, Ramona Walls<sup>2</sup>, Anne Bowser<sup>3</sup>, Matthew O. Jones<sup>4</sup>, Jens Kattge<sup>5,6</sup>, Donat Agosti<sup>7</sup>, Josep Amengual<sup>8</sup>, Alberto Basset<sup>9</sup>, Peter M. van Bodegom<sup>10</sup>, Johannes H. C. Cornelissen<sup>11</sup>, Ellen G. Denny<sup>12</sup>, Salud Deudero<sup>13</sup>, Willi Egloff<sup>7</sup>, Sarah C. Elmendorf<sup>14,15</sup>, Enrique Alonso García<sup>16</sup>, Katherine D. Jones<sup>14</sup>, Owen R. Jones<sup>17</sup>, Sandra Lavorel<sup>18</sup>, Dan Lear<sup>19</sup>, Laetitia M. Navarro<sup>6,20</sup>, Samraat Pawar<sup>21</sup>, Rebecca Pirzl<sup>22</sup>, Nadja Rürger<sup>6,23</sup>, Sofia Sal<sup>21</sup>, Roberto Salguero-Gómez<sup>24,25,26,27</sup>, Dmitry Schigel<sup>28</sup>, Katja-Sabine Schulz<sup>29</sup>, Andrew Skidmore<sup>30,31</sup> and Robert P. Guralnick<sup>32</sup>



# Developing the Essential Biodiversity Variables

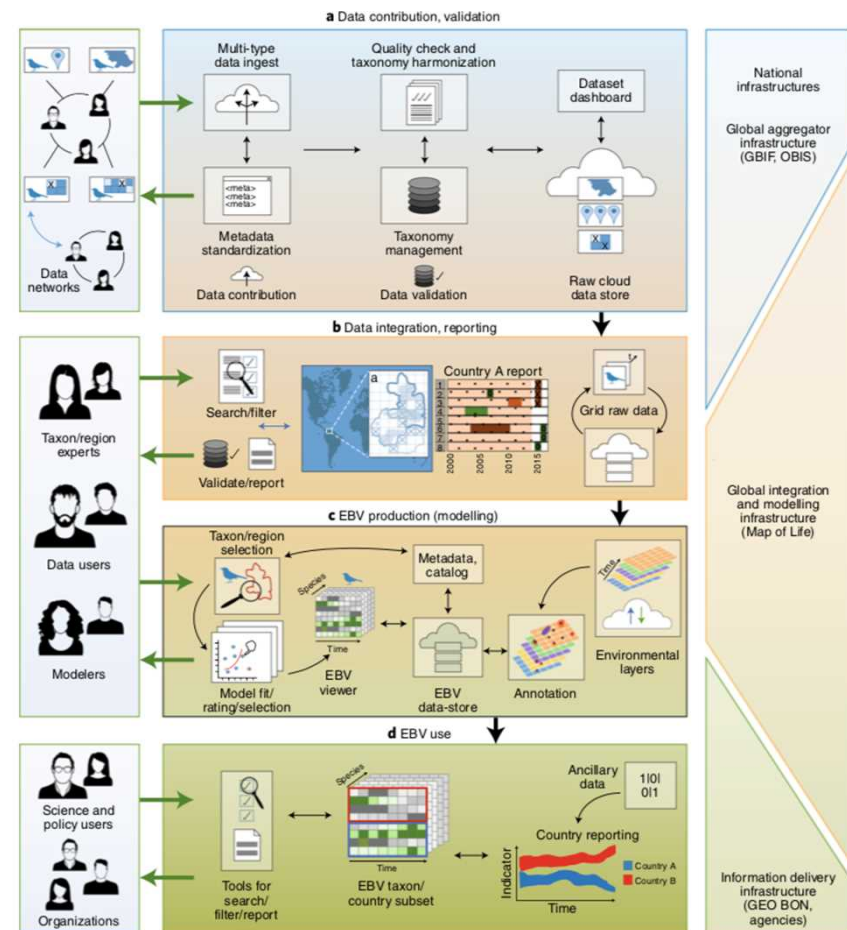
## Species Populations

nature ecology & evolution **PERSPECTIVE**  
<https://doi.org/10.1038/s41559-019-0826-1>

OPEN

### Essential biodiversity variables for mapping and monitoring species populations

Walter Jetz<sup>1\*</sup>, Melodie A. McGeoch<sup>2</sup>, Robert Guralnick<sup>3</sup>, Simon Ferrier<sup>4</sup>, Jan Beck<sup>5</sup>, Mark J. Costello<sup>6</sup>, Miguel Fernandez<sup>7,8,9</sup>, Gary N. Geller<sup>10</sup>, Petr Keil<sup>11</sup>, Cory Merow<sup>1</sup>, Carsten Meyer<sup>11,12</sup>, Frank E. Muller-Karger<sup>13</sup>, Henrique M. Pereira<sup>11,14,15</sup>, Eugenie C. Regan<sup>16</sup>, Dirk S. Scheller<sup>17,18</sup> and Eren Turak<sup>19,20</sup>



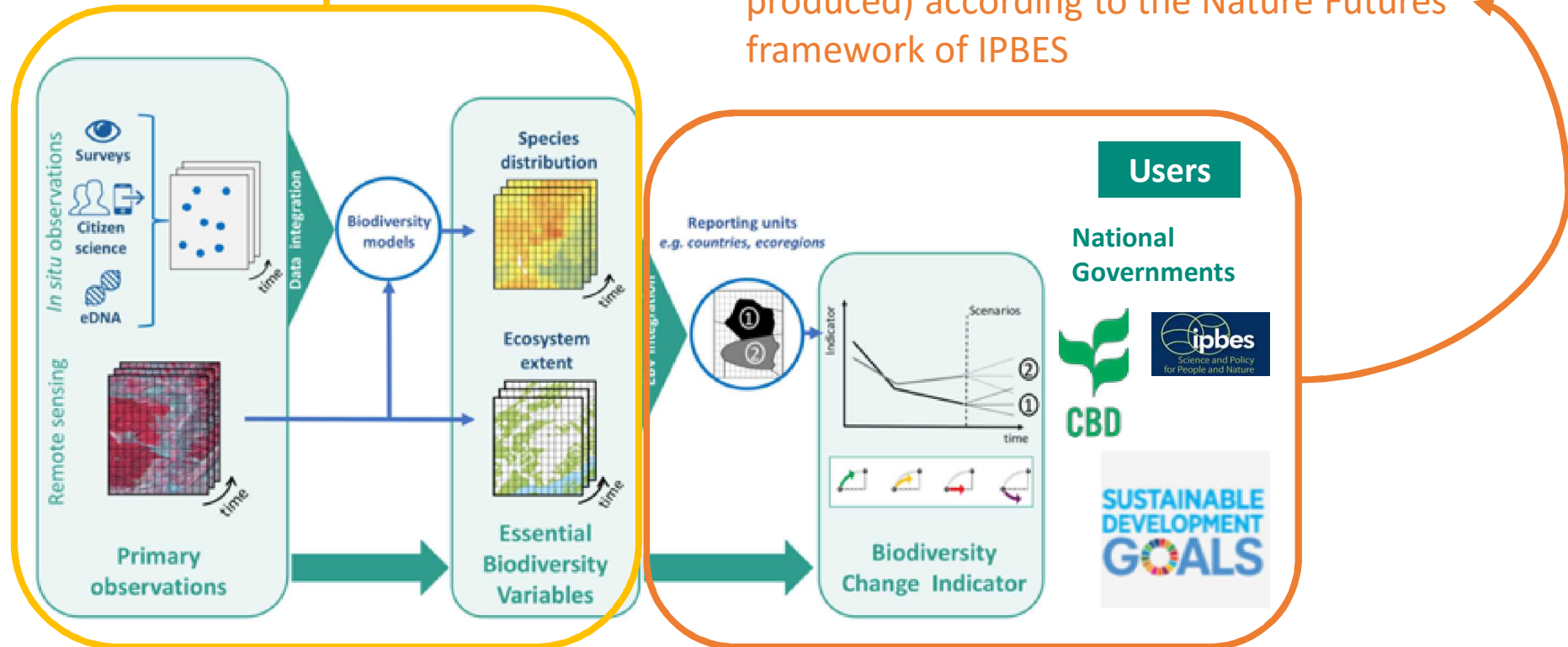
# “EBV2020”

Terrestrial, Marine, Freshwater

1<sup>st</sup> workshop: October 15<sup>th</sup> to 18<sup>th</sup> (USA)  
 2<sup>nd</sup> workshop: Feb-March 2020 (Germany)  
 Delivery – July 2020

At least one data product per EBV class is made available on the GEO BON portal

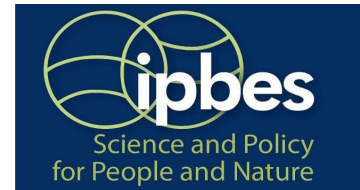
EBV derived indicators are identified (and produced) according to the Nature Futures framework of IPBES



# EBV derived indicators for post-2020 biodiversity framework and IPBES assessments



EBV based indicators: Integrating in situ and remote sensing observations for open access & real-time indicators



<p><b>SHI</b> Species Habitat Indices</p>	
<p><b>BHI</b> Biodiversity Habitat Index</p>	
<p><b>SPI</b> Species Protection Index</p>	
<p><b>PARC</b> Protected Area Representativeness &amp; Connectedness (PARC) Indices</p>	
<p><b>GERI</b> Global Ecosystem Restoration Index</p>	
<p><b>SSII</b> Species Status Information Index</p>	

**GEO BON**  
Global Biodiversity Change Indicators  
Model-based integration of remote-sensing & in situ observations that enables dynamic updates and transparency at low cost





# GEO BON involvement in discussion on post-2020 biodiversity framework

Since COP 14 (Nov 2018) in Egypt:

1. Beijing call (and revision of Aichi target 19) as contribution to post 2020 strategy of CBD
2. Representation and engagement in Trondheim Conference, thematic workshops, OEWG meetings, SBSTTA23, SBSTTA24, SBI3 all the way to COP15
3. Contributions of GEO BON Working Groups
  1. Genetic Composition WG – information document for SBSTTA on “Target 13 2.0”
  2. Species Populations WG – Invasive species monitoring and related targets
4. EBV2020 and indicators for Nature Futures



One Earth  
Commentary



## Measure and Reduce the Harm Caused by Biological Invasions

Melodie McGeoch<sup>1,2,\*</sup> and Walter Jetz<sup>2,3,\*</sup>

<sup>1</sup>School of Biological Sciences, Monash University, Clayton, VIC 3800, Australia

<sup>2</sup>Center for Biodiversity and Global Change, Yale University, New Haven, CT, USA

<sup>3</sup>Ecology and Evolutionary Biology, Yale University, New Haven, CT, USA

\*Correspondence: melodie.mcgeoch@monash.edu (M.M.), walter.jetz@yale.edu (W.J.)

<https://doi.org/10.1016/j.oneear.2019.10.003>

Invasions by alien species continue worldwide, causing tremendous harm to biodiversity and human well-being. Post-2020 discussions of the Convention on Biological Diversity must link targets to monitoring innovations and decision support for a maximally effective and global response.

# 2020: Important Milestones for the GEO BON Secretariat

25 October 2019

*Coming Shortly:*

## **Call for Expression of Interest**

**to Host Secretariat of the Group on Earth  
Observations Biodiversity Observation Network  
(GEO BON)**



**GEO BON  
OPEN SCIENCE CONFERENCE  
& ALL HANDS MEETING**

**2020**

BIODIVERSITY MONITORING FOR POST 2020

Open Science Conference  
**SAVE THE DATE**  
July 06-10, 2020



Thank you

For more information:

[www.geobon.org](http://www.geobon.org)

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# Structure and core objectives

