

# GBIF: an international network and data infrastructure

Tim Hirsch | Deputy Director






# NATURE AS DATA

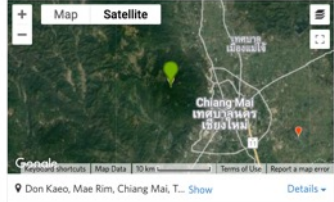


Fungus Root (*Balanophora fungosa*) Research Grade Edit



**timhirsch**  
716 observations

Observed: Nov 15, 2022: 1:04 PM +07:00  
Submitted: Nov 15, 2022: 3:12 PM +07:00



Chiang Mai  
เชียงใหม่  
5000 10000

Don Kao, Mae Rim, Chiang Mai, T., [Show](#) [Details](#)

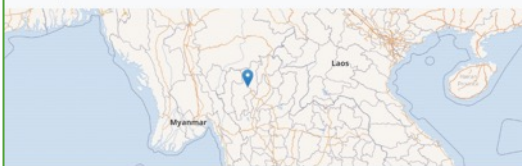

★ Be the first to save this observation!

**Balanophora fungosa** J.R.Forst. & G.Forst.  
Observed in Thailand

Phaner: Tracheophyta | Magnoliopsida | Santalales | Balanophoraceae | Balanophora

Species: *Balanophora fungosa* J.R.Forst. & G.Forst.  
Location: Thailand  
Basis of record: Human observation

Dataset: [Naturalist Research-grade Observations](#)  
Publisher: [Naturalist.org](#)  
Reference: <https://www.naturalist.org/observations/142054817>

Created: Tim Hirsch  
Publisher: [Naturalist.org](#)  
Record Source: <https://www.naturalist.org/observations/142054817>  
Reference: <https://www.naturalist.org/observations/142054817>  
Created: 2022-11-15 13:04:46 +07:00+07:00  
Rights holder: Tim Hirsch  
Identifier: <https://www.naturalist.org/observations/142054817>  
Suggested attribution: *Balanophora fungosa* (J.R.Forst. & G.Forst.)  
Observed in Thailand by Tim Hirsch (Observed under <https://www.naturalist.org/observations/142054817>)

**Balanophora fungosa** J.R.Forst. & G.Forst.  
Published in: J. R. Forst. & G. Forst. In: Char. Gen. Pl., ed. 1: 50. (1775). source: [Synonymic Checklists of the Vascular Plants of the World](#)

SPECIES | ACCEPTED

OVERVIEW METRICS REFERENCE TAXON [591 OCCURRENCES](#)

319 OCCURRENCES WITH IMAGES



SEE GALLERY

402 GEOREFERENCED RECORDS



Generated 5 hours ago © OpenStreetMap contributors, © OpenMapTiles, GBIF



# OBSERVATIONS OLD AND NEW

SPECIES | ACCEPTED

## *Pavo muticus* Linnaeus, 1766

Published in: Linnaeus, Carolus. 1766. Systema naturae sive regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymiis, locis. Laurentii Salvii, Holmiae. Vol. 1, No. 1, Editio duodecima, reformata: 1-532.  
source: The Integrated Taxonomic Information System  
Green Peafowl in English

OVERVIEW METRICS REFERENCE TAXON 4895 OCCURRENCES 0 INFRASPECIES

134 OCCURRENCES WITH IMAGES

3,532 GEOREFERENCED RECORDS

Generated an hour ago © OpenStreetMap contributors, © OpenMapTiles, GBIF.

Any year 1701 - 2022 EXPLORE

RECORDED AS INTRODUCED IN 4 COUNTRIES OR ISLANDS

Recorded as introduced in	According to	Evidence of impact	Occurrences in GBIF
United Kingdom of Great Britain and Northern Ireland	Global Register of Introduced and Invasive Species - Great Britain	No	1 occurrence
Ecuador	Global Register of Introduced and Invasive Species - Galápagos Islands, Ecuador	No	Unknown
Ecuador	Protected Areas - Global Register of Introduced and Invasive Species - Galápagos Islands, Ecuador	No	0 occurrences

SHOW ALL

IUCN STATUS

NT DD LD NF VU EN CR EW EX



*Pavo muticus* subsp. *imperator* Delacour, 1949 observed in Thailand by scaup (licensed under <http://creativecommons.org/licenses/by/4.0/>); temple photo by Tim Hirsch, CC-BY

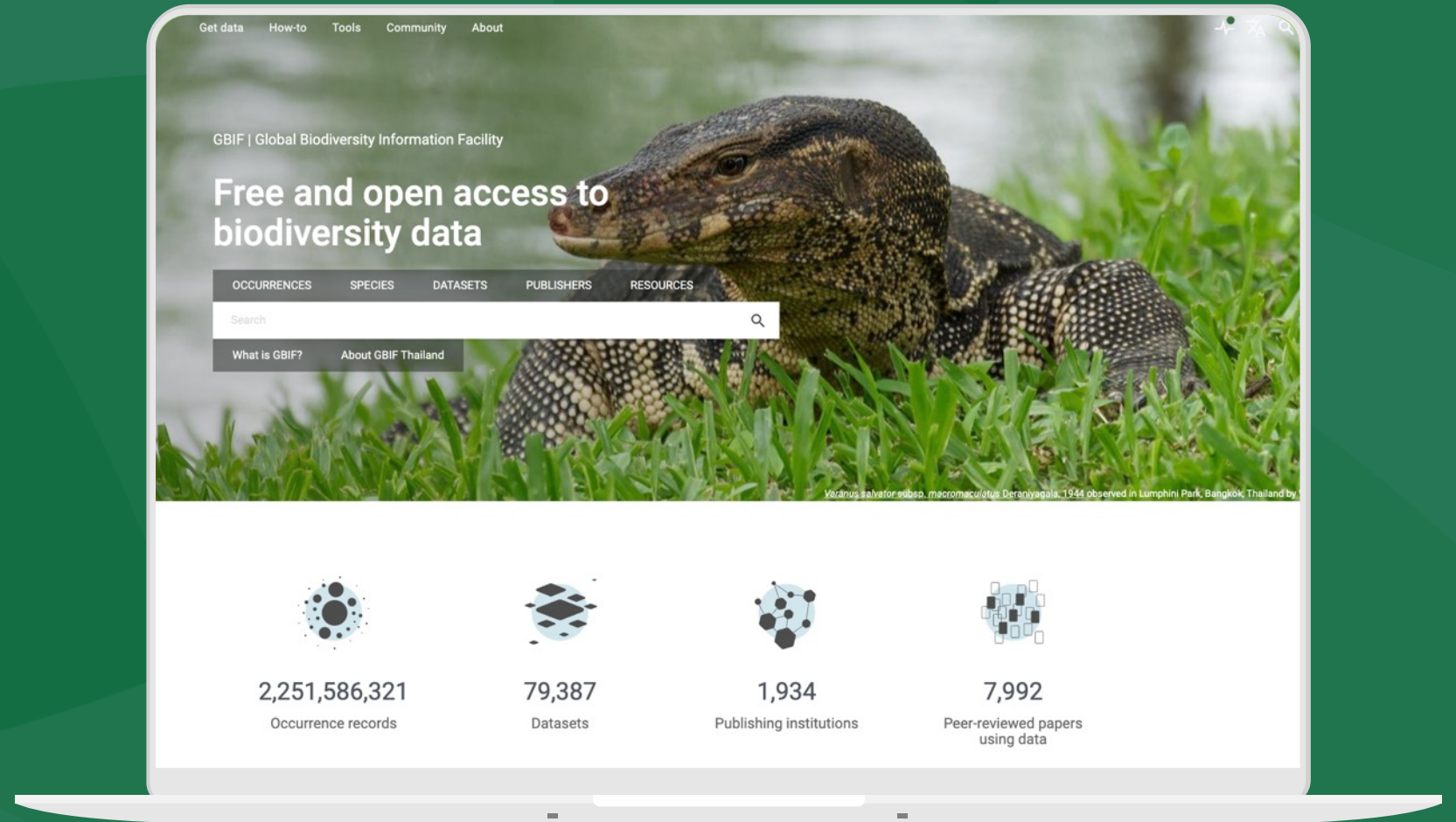
# WHAT IS GBIF?

Intergovernmental network  
and data infrastructure

Provides anyone, anywhere,  
free and open access to data  
about all types of life on Earth

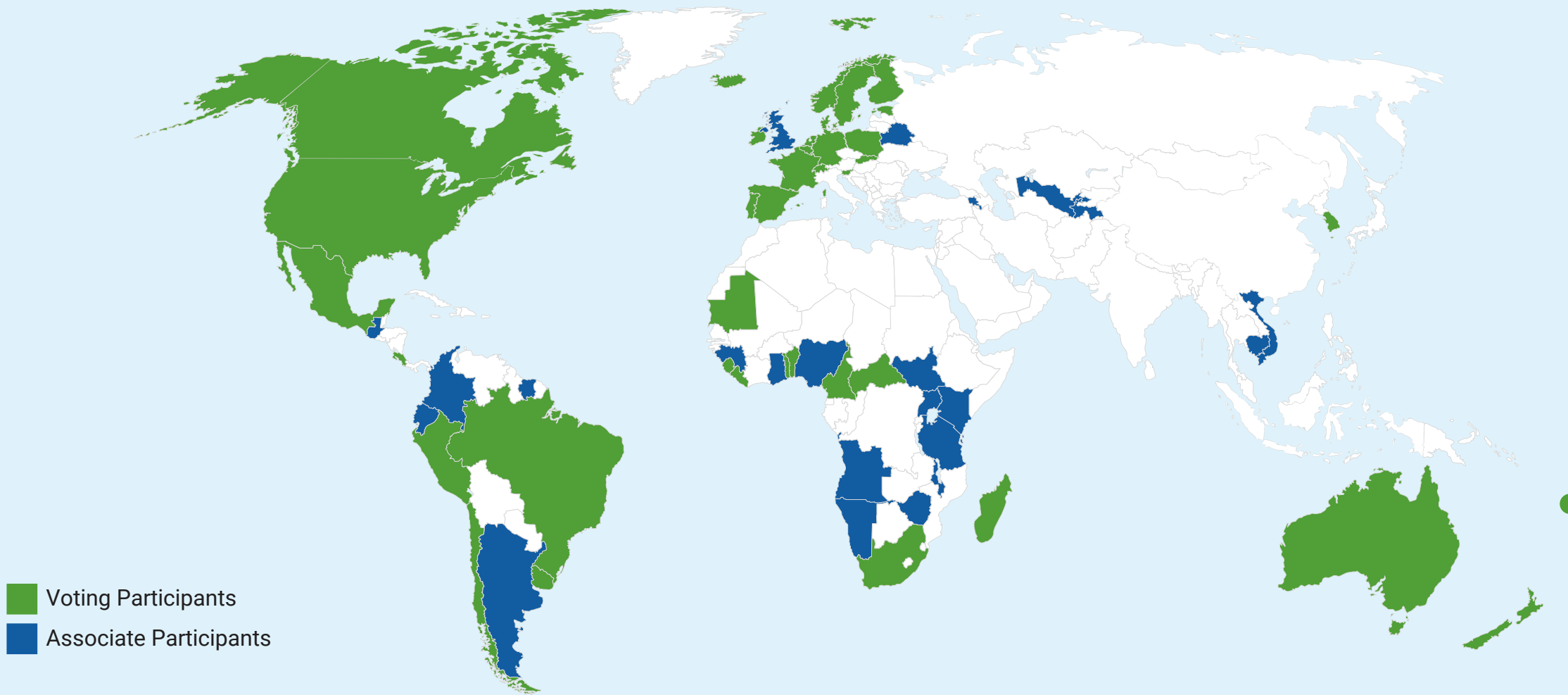
Voluntary collaboration  
through Memorandum of  
Understanding

Participant nodes, Secretariat  
in Copenhagen, DK





# GBIF PARTICIPANT COUNTRIES 30 Sept 2022



■ Voting Participants  
■ Associate Participants

# GBIF PARTICIPATION IN ASIA

1 VOTING PARTICIPANT
2 ASSOCIATE COUNTRY PARTICIPANTS
6 OTHER ASSOCIATE PARTICIPANTS

### GBIF Asia region

The GBIF Asia region includes countries in the following sub-regions used in the IPBES regional assessments, described [here](#)<sup>1</sup>: North-East Asia, South Asia, South-East Asia, Western Asia. Below is a list of all GBIF Participants in Asia, including membership status and a summary of data published through GBIF.org.

<sup>1</sup>IPBES Technical Support Unit on Knowledge and Data. (2020). IPBES regions and sub-regions (Version 1.1) [Data set]. Zenodo. <http://doi.org/10.5281/zenodo.3928281>

---

**Representatives**

Role	Name	Participant
Nodes regional representative Asia	Xu, Zheping	Chinese Academy of Sciences
Nodes regional representative deputy Asia	Tuanmu, Mao-Ning	Chinese Taipei

**9 participants**

Participant	Membership	Member since
<a href="#">ASEAN Centre for Biodiversity</a>	Other associate participant	2009
<a href="#">Cambodia</a>	Associate country participant	2020
<a href="#">Chinese Academy of Sciences</a>	Other associate participant	2013
<a href="#">Chinese Taipei</a>	Other associate participant	2001
<a href="#">East Asia Biodiversity Conservation Network</a>	Other associate participant	2020
<a href="#">International Centre for Integrated Mountain Development</a>	Other associate participant	2009
<a href="#">Korea, Republic of</a>	Voting participant	2001
<a href="#">Viet Nam</a>	Associate country participant	2018
<a href="#">World Federation for Culture Collections</a>	Other associate participant	2002

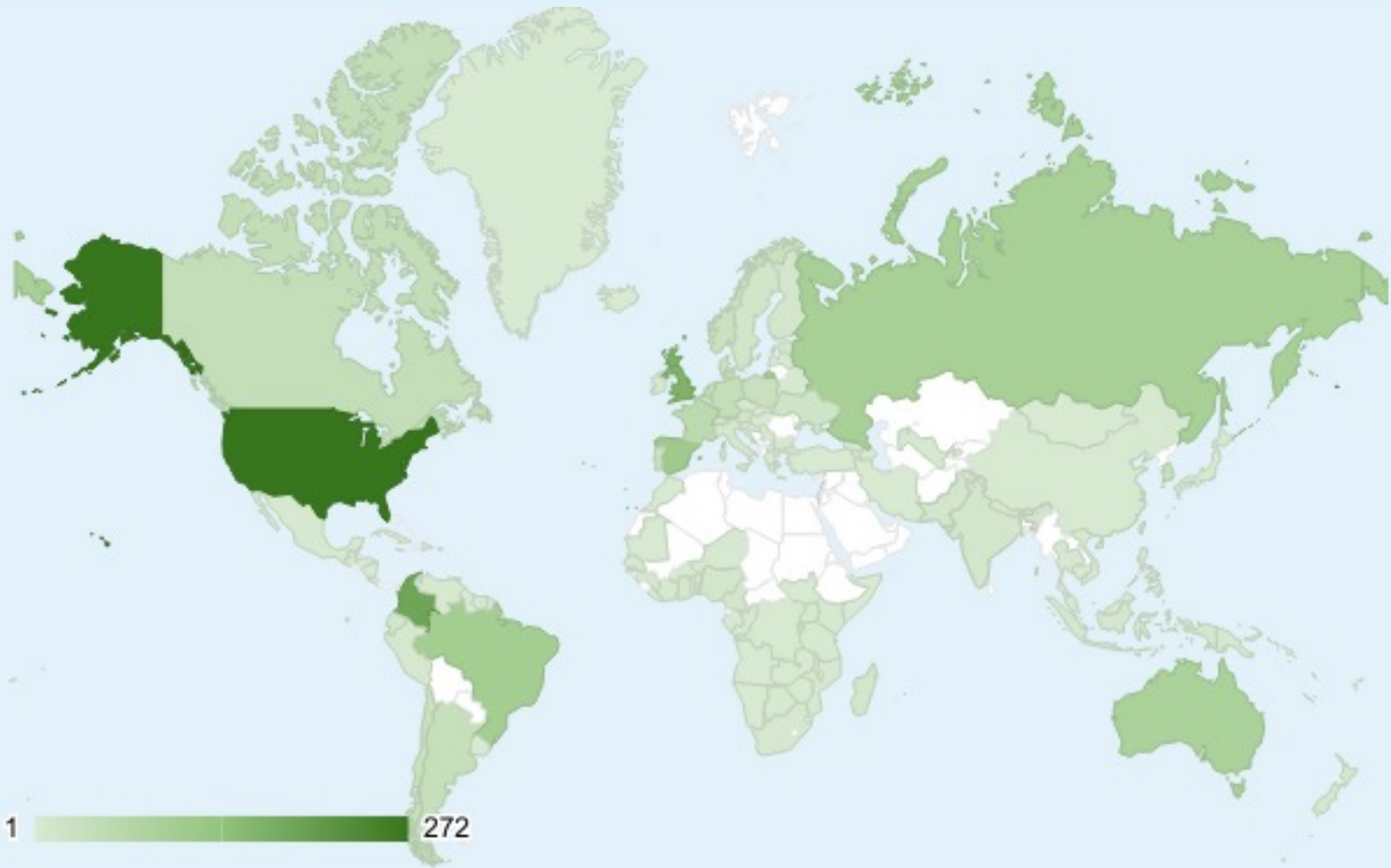
### Observer countries:

- Japan
- India
- Indonesia
- Philippines
- Pakistan

### Project participants in:

- China
- Bhutan
- Nepal
- Thailand
- Malaysia
- Singapore

# GBIF NETWORK OF DATA PUBLISHING INSTITUTIONS 30 Sept 2022



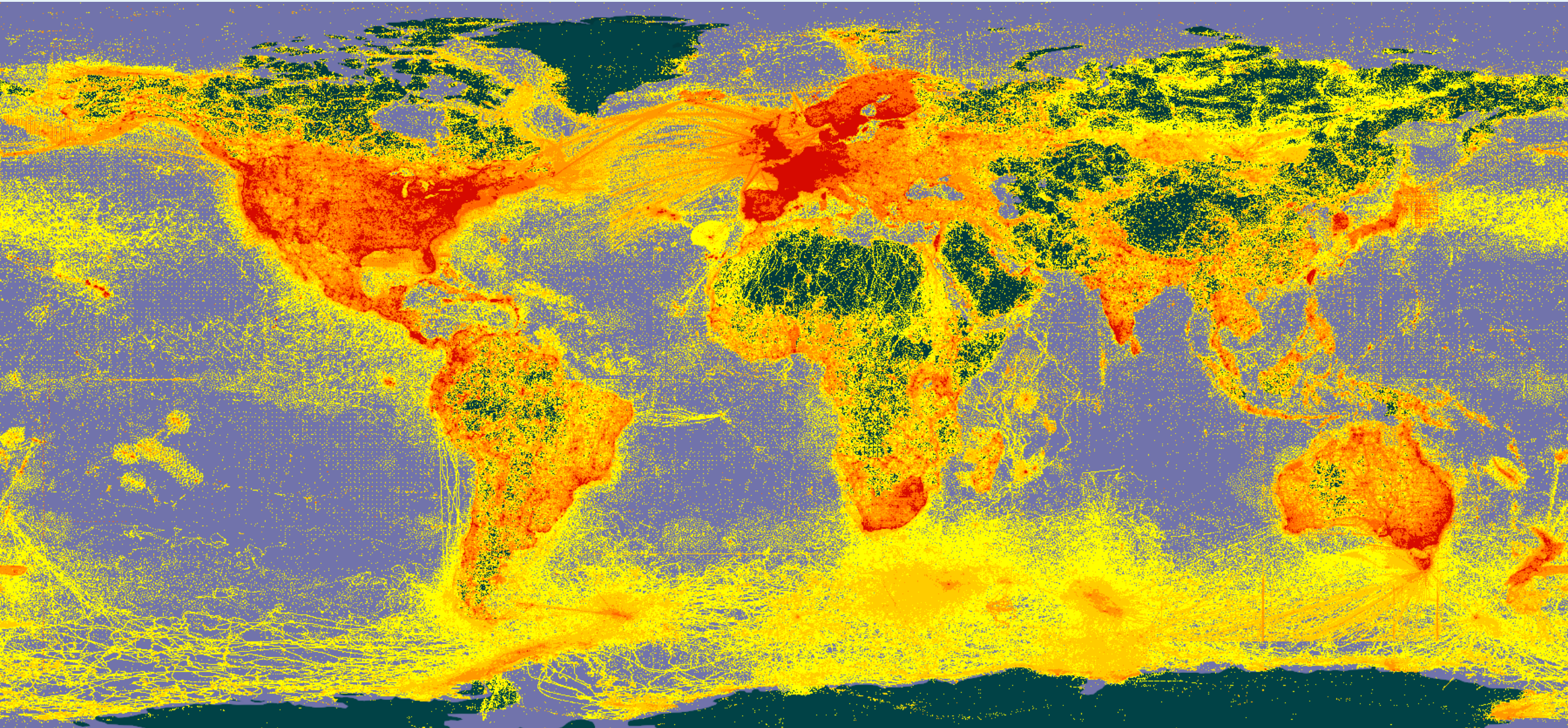
**132** countries/territories with institutions sharing data through GBIF

*Top 10 countries: number of data publishers*

1	United States	272
2	Colombia	189
3	United Kingdom	164
4	Spain	112
5	Brazil	102
6	Russian Federation	95
7	Australia	88
8	France	56
9	Canada	44
10	Netherlands	41



**DATA FROM THE GBIF NETWORK** 30 Sept 2022

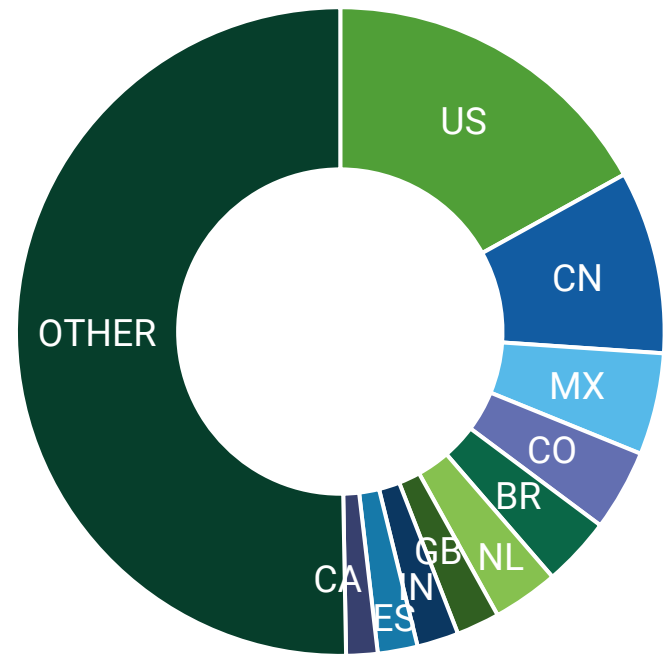




# DATA DOWNLOAD REQUESTS 30 Sept 2022

		2022	2021 total	2021 rank
1	United States	55,713	36,467	2
2	China	29,940	42,639	1
3	Mexico	16,684	21,725	3
4	Colombia	13,282	16,414	4
5	Brazil	11,362	16,344	5
6	Netherlands	10,800	5,808	8
7	United Kingdom	7,070	11,605	6
8	India	6,819		
9	Spain	6,526	9,777	7
10	Canada	5,125	5,187	10
OTHER COUNTRIES + AREAS		165,203	81,673	
TOTAL		328,534	253,140	

Download requests by country, island or territory



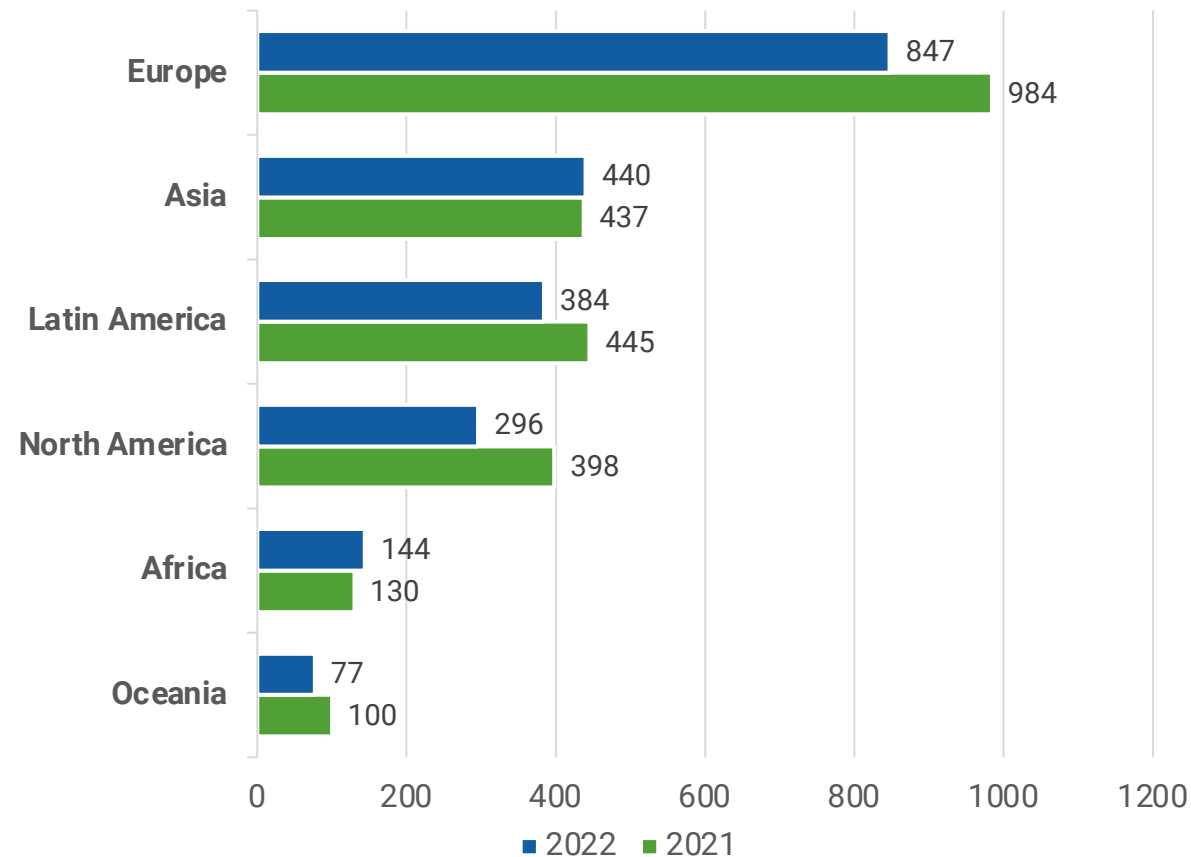
**151** countries, islands & territories where users have requested downloads (+5)

# DATA USE IN PEER-REVIEWED JOURNALS 30 Sept 2022

## Peer-reviewed uses by country

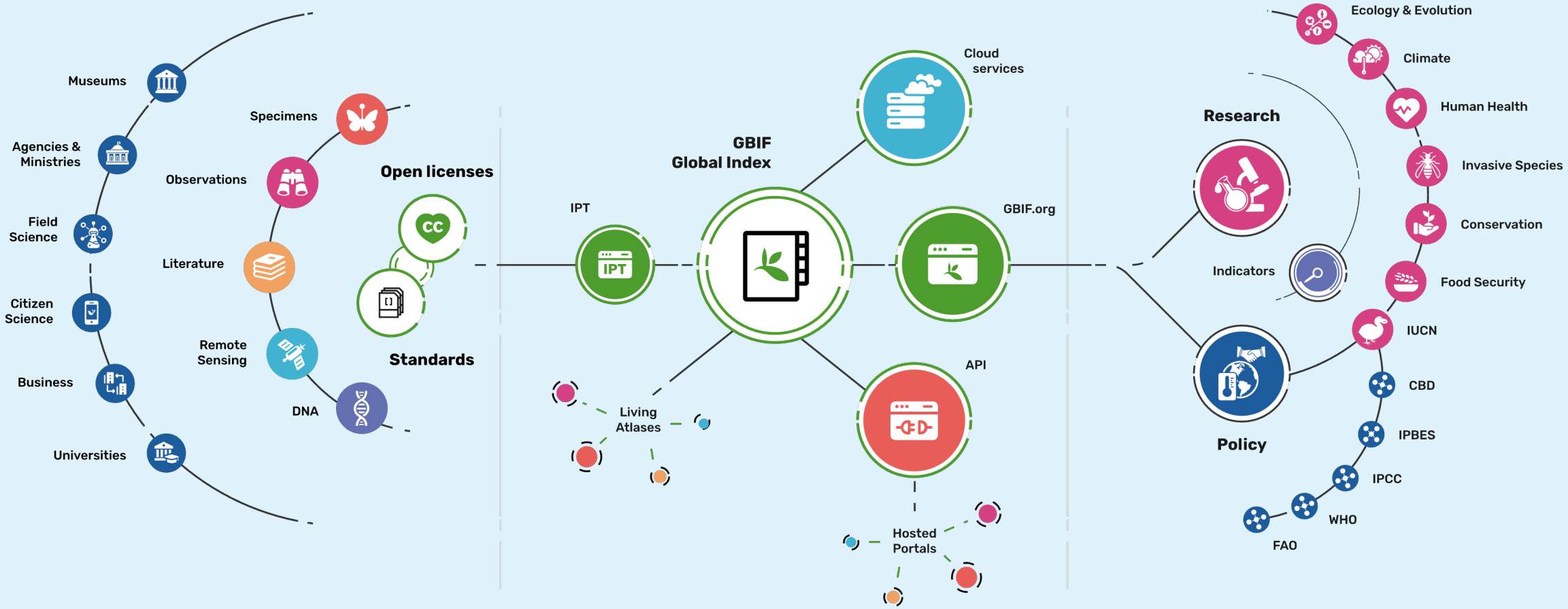
<i>Year-to-date</i>		<i>2022 total</i>	<i>2021 total</i>	<i>2021 rank</i>
1	United States	248	331	1
2	China	223	227	2
3	United Kingdom	117	140	4
4	Brazil	116	142	3
5	Mexico	106	130	6
6	Germany	98	131	5
7	Spain	80	102	7
8	Australia	59	70	9
9	France	57	78	8
10	India	52	35	19

## Peer-reviewed uses by region

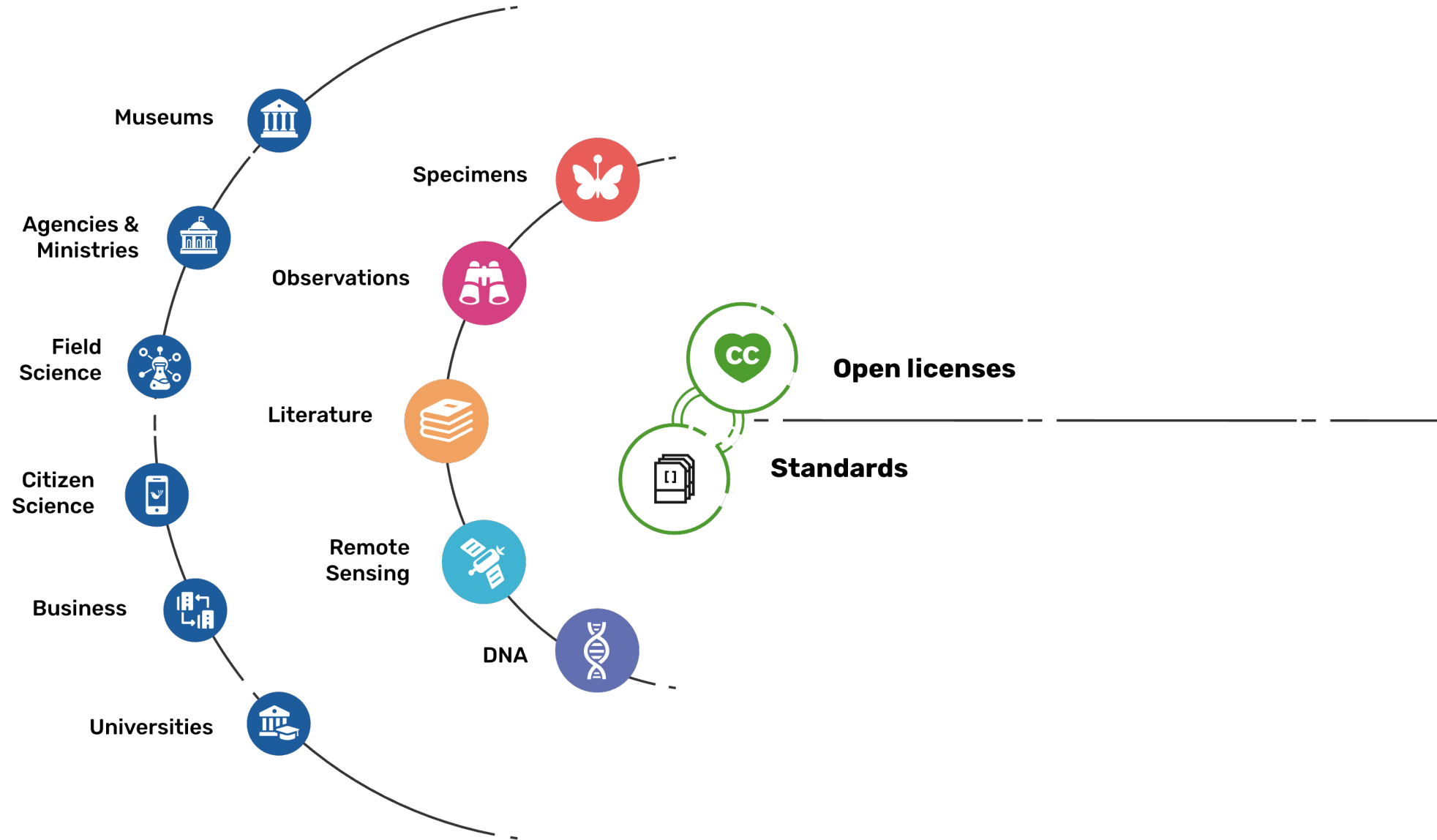




# PROVIDING BIODIVERSITY EVIDENCE FOR RESEARCH AND POLICY

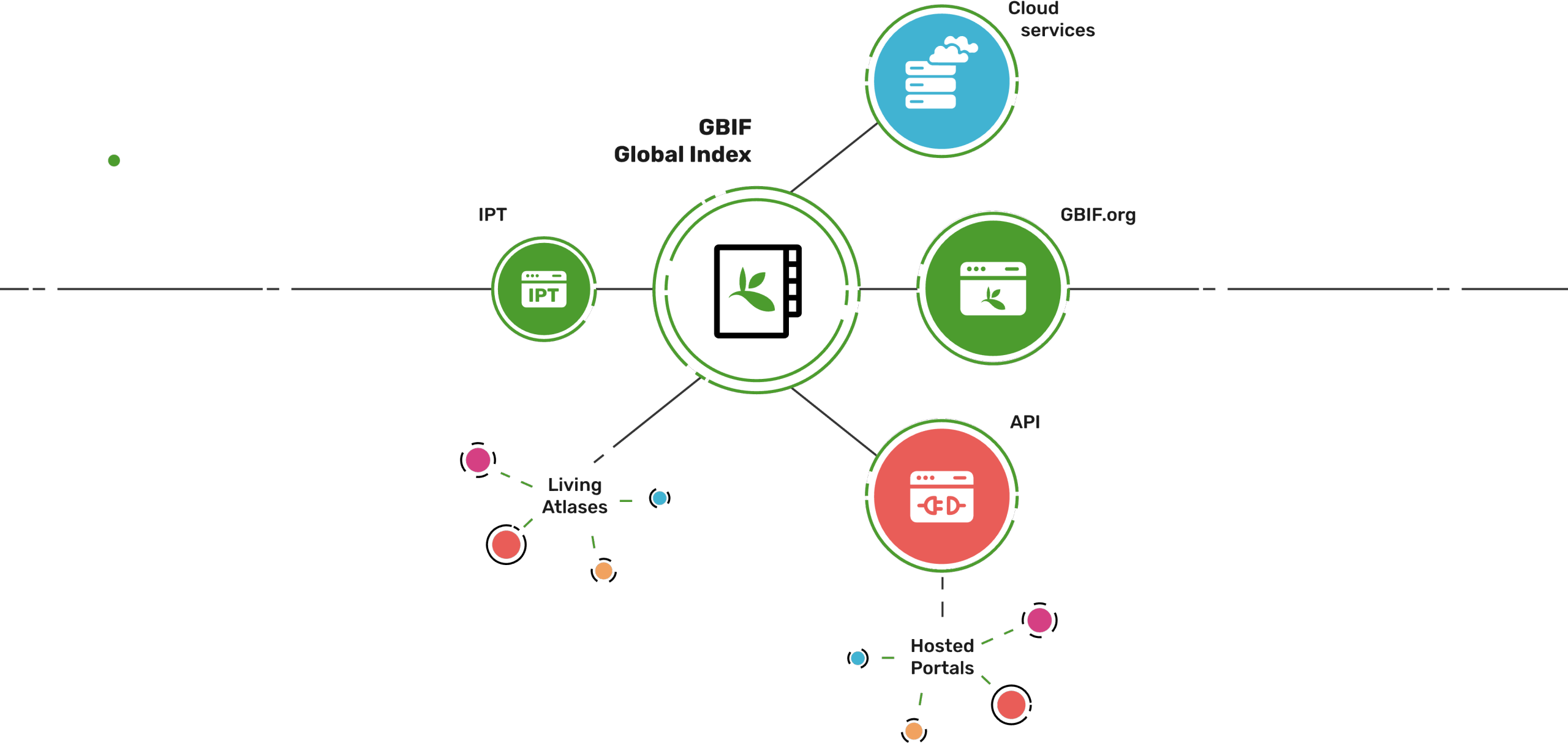


# SOURCES OF BIODIVERSITY EVIDENCE

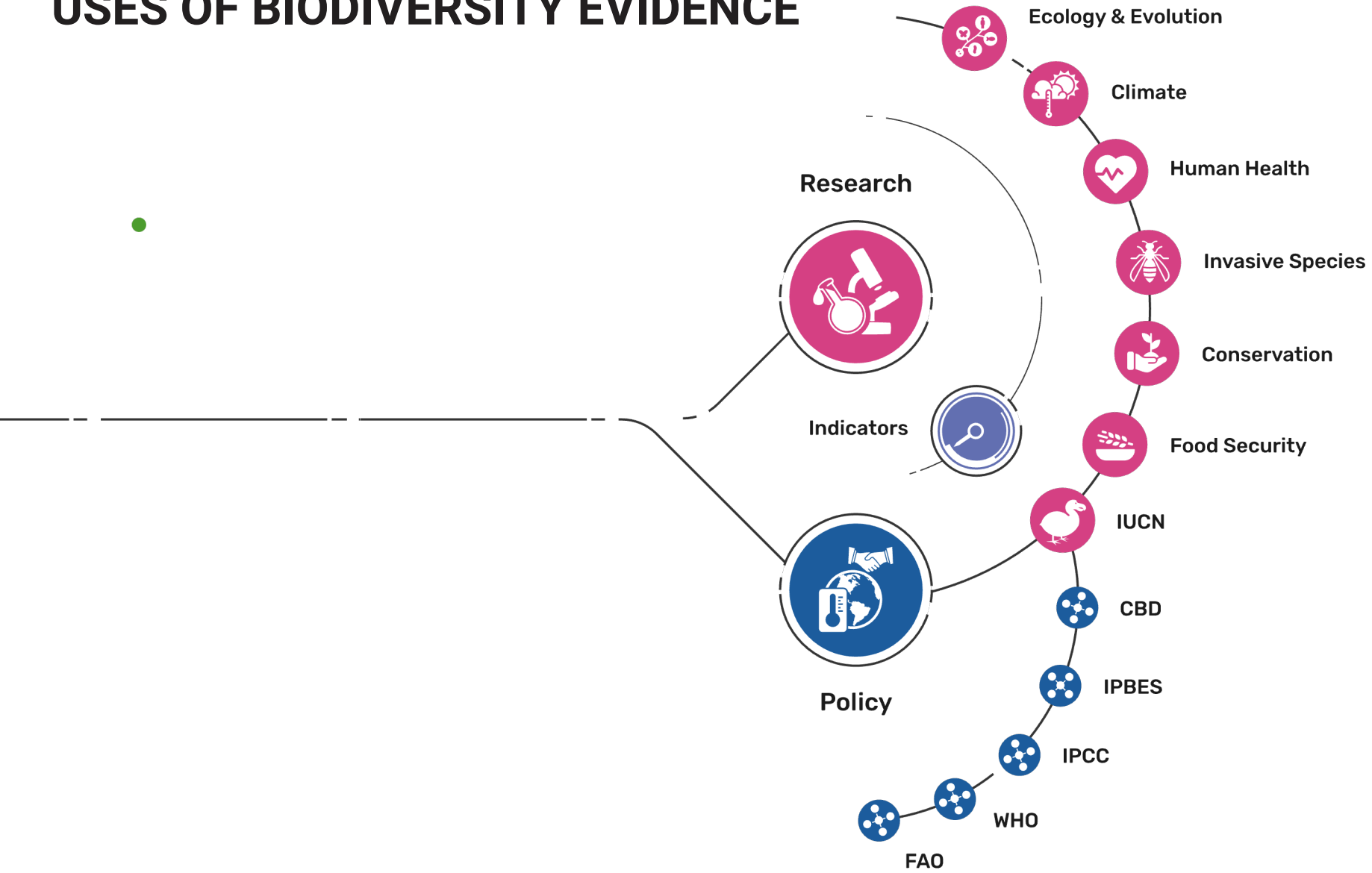




# ACCESS TO BIODIVERSITY EVIDENCE



# USES OF BIODIVERSITY EVIDENCE





# RESEARCH USES OF DATA FROM THE GBIF NETWORK SUPPORTING SUSTAINABLE DEVELOPMENT



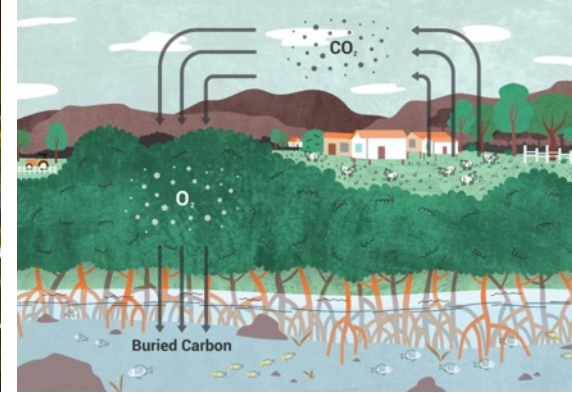
## Conservation

- Protected areas
- Key biodiversity areas
- Threatened species
- Monitoring and targeting invasive species



## Food security

- Crop wild relatives
- *In situ* and *ex situ* conservation of genetic diversity
- Pollination by wild species
- Fisheries planning



## Climate change

- Modelling impacts on species ranges
- Adaptation strategies
- Mitigation benefits, risks



## Human health

- Tracking disease risk based on shifting distribution of vectors, hosts and reservoirs
- Medicinal plants
- Hazards e.g. snakebite

# TRAINING AND CAPACITY FOR ENHANCED BIODIVERSITY DATA MOBILIZATION AND USE

## BID: Biodiversity Information for Development



BID is a multi-year programme funded by the [European Union](#) and led by GBIF that aims to enhance capacity to mobilize and use biodiversity data effectively in research and policy in sub-Saharan Africa, the Caribbean and the Pacific.

[Learn more](#) [Explore all projects](#)

## BIFA: Biodiversity Information Fund for Asia

BIFA addresses the needs of regional researchers and policymakers mobilizing and using biodiversity data with support from the [Ministry of the Environment, Government of Japan](#).

[Learn more](#) [Explore all projects](#)



## CESP: Capacity Enhancement Support Programme



This programme aims to address specific capacity needs identified by [GBIF Participants](#), facilitating collaboration at regional and global levels by providing co-funding for projects focused on mentoring activities, regional training workshops and documentation.

[Learn more](#) [Explore all projects](#)

## Northern Eurasia

Funded by the [Finnish Biodiversity Information Facility](#) (FinBIF), the GBIF national node for Finland, this programme supports projects that mobilize biodiversity data and promote regional training and capacity-building activities around data publishing.

[Learn more](#) [Explore all projects](#)



# GBIF AND THE CBD

## Post-2020 Global Biodiversity Framework:

- Target 20 on data and information
- Data supporting indicators for monitoring framework
- Knowledge management
- Capacity building
- Business impacts and disclosure

INFORMATION ABOUT THE SECRETARIAT

16 DAYS TO COP 15 Search

Convention on Biological Diversity

BIODIVERSITY CONVENTION CARTAGENA PROTOCOL NAGOYA PROTOCOL COUNTRIES PROGRAMMES

Programmes

COP15: OFFICIAL WEBSITE OF THE UN BIODIVERSITY CONFERENCE: CBD.INT/COP15

More on the COP 15 Presidency, COP 15 / CP-MOP 10 / NP-MOP4 documents, High-level segment, associate events, news and media information, and key information for participants

- Topics
- Processes and Meetings
- Cooperation and Partnerships
- Action Agenda
- News and Stories



# ADDED VALUE OF INTERNATIONAL COLLABORATION

- BIODIVERSITY DOESN'T RESPECT BORDERS!

## Data use



### Invasive alien species

1,096

peer-reviewed papers using data

Information is the single most important variable necessary to support research, monitoring and management of alien and invasive species. From identifying and predicting potential invasions to improving management applications, detection strategies, and risk assessments, GBIF plays a pivotal role in fulfilling data needs about these costly and disruptive forces of change.

[Featured](#) [See all](#)

### Predicting hotspots for invasive species introduction in Europe

Data use

Study uses machine-learning approach to produce risk hotspot maps for pest introductions with high predictive accuracy ... Invasive plant pests have a massive social impact in Europe, costing billions ...

Published October 27, 2022



### Spotted lanternfly planthopper: grape pest to disrupt the global wine market?

Data use

Assessment suggests that paninvasion and disruption of global wine market is likely unless invasion potentials are mitigated immediately ... Native to China, the spotted lanternfly planthopper (Lycorma...

Published August 12, 2022



### The role of temperature in shaping the impacts of marine invasions

Data use

Ecological impact of marine invasions is most severe within the thermal niche of the invader ... When marine species are redistributed by human transport systems, such as ballast water, the success of ...

Published May 31, 2022



### Composition and function of the alien flora of New Zealand

Data use

Study summarizes the current knowledge of traits and distribution of naturalized plants in the Pacific archipelago ... Ranked among the world's top 25 biodiversity hotspots, New Zealand is an isolated ...

Published November 4, 2021



### Global assessment of human influence on modelling of bird invasions

Data use


Study demonstrates that incorporating variables measuring human impact in distribution models significantly increases accuracy of predictions ... Species distribution modelling (SDM) is a powerful tool...

Published October 14, 2021



# ADDED VALUE OF INTERNATIONAL COLLABORATION

- SHARED DATA SUPPORTS GLOBAL GOALS


 Convention on Biological Diversity

BIODIVERSITY CONVENTION | CARTAGENA PROTOCOL | NAGOYA PROTOCOL | COUNTRIES | PROGRAMMES

**United Nations Biodiversity Conference**  
COP15 / CP-MOP10 / NP-MOP4  
Montreal, Canada, 7-19 December 2022


**SUSTAINABLE DEVELOPMENT GOALS**



 United Nations  
Climate Change

Home COP 27 Process and meetings Topics Calendar

Sharm el-Sheikh Climate Change Conference - ...

 PREVIOUS CONFERENCE

**SHARM EL-SHEIKH CLIMATE CHANGE CONFERENCE - NOVEMBER 2022**

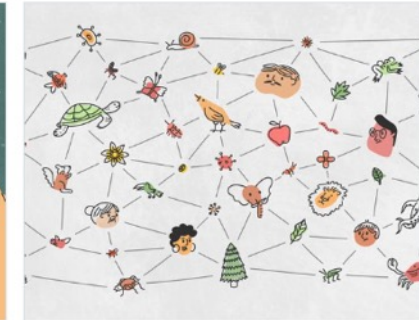
## Discover the value of GBIF



Conservation



Climate change



Human health and One Health



DNA barcoding and metagenomics



Agriculture and food security

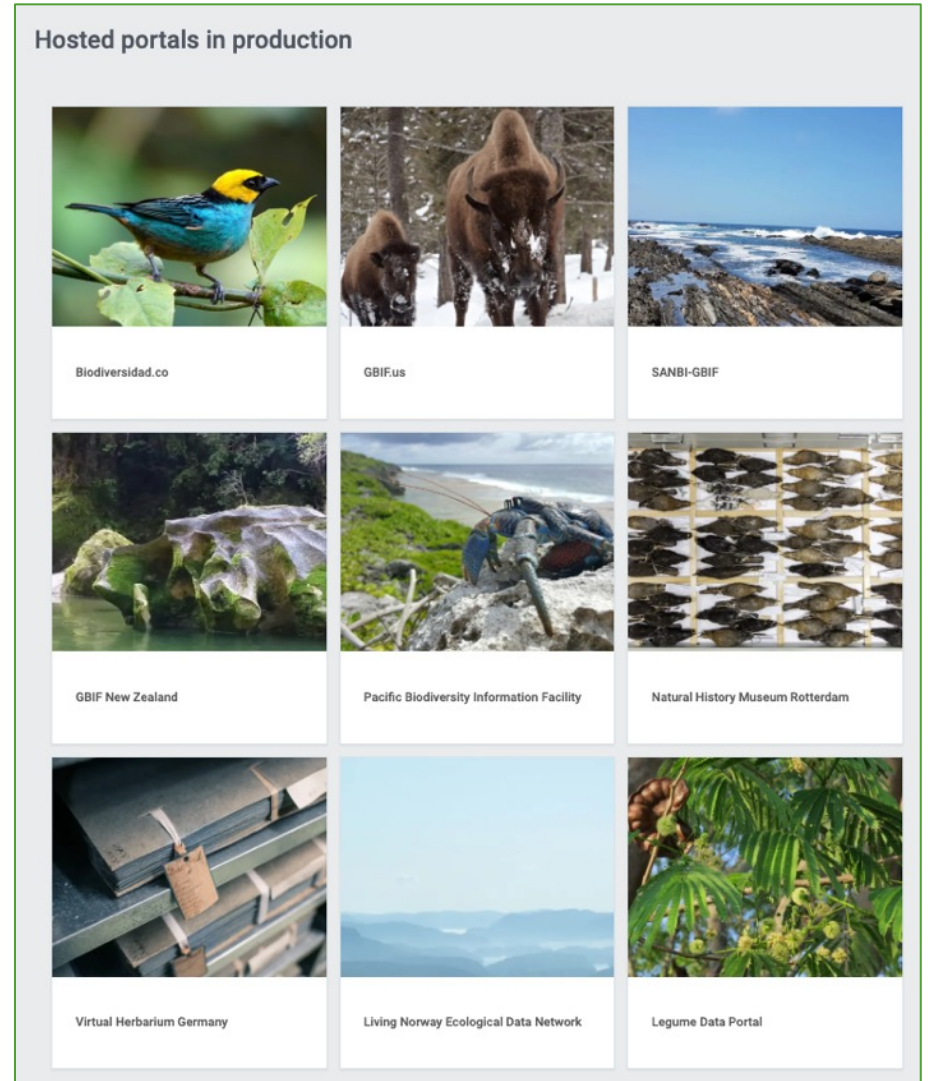


Private sector



# ADDED VALUE OF INTERNATIONAL COLLABORATION

- GLOBAL EFFICIENCIES  
SAVE NATIONAL COSTS



- <https://living-atlases.gbif.org/> ; <https://www.gbif.org/hosted-portals>



# THANK YOU

[thirsch@gbif.org](mailto:thirsch@gbif.org)

