

GBIF in 2017: progress and priorities

Tim Hirsch, Deputy Director, GBIF Secretariat

GBIF ORIGINS



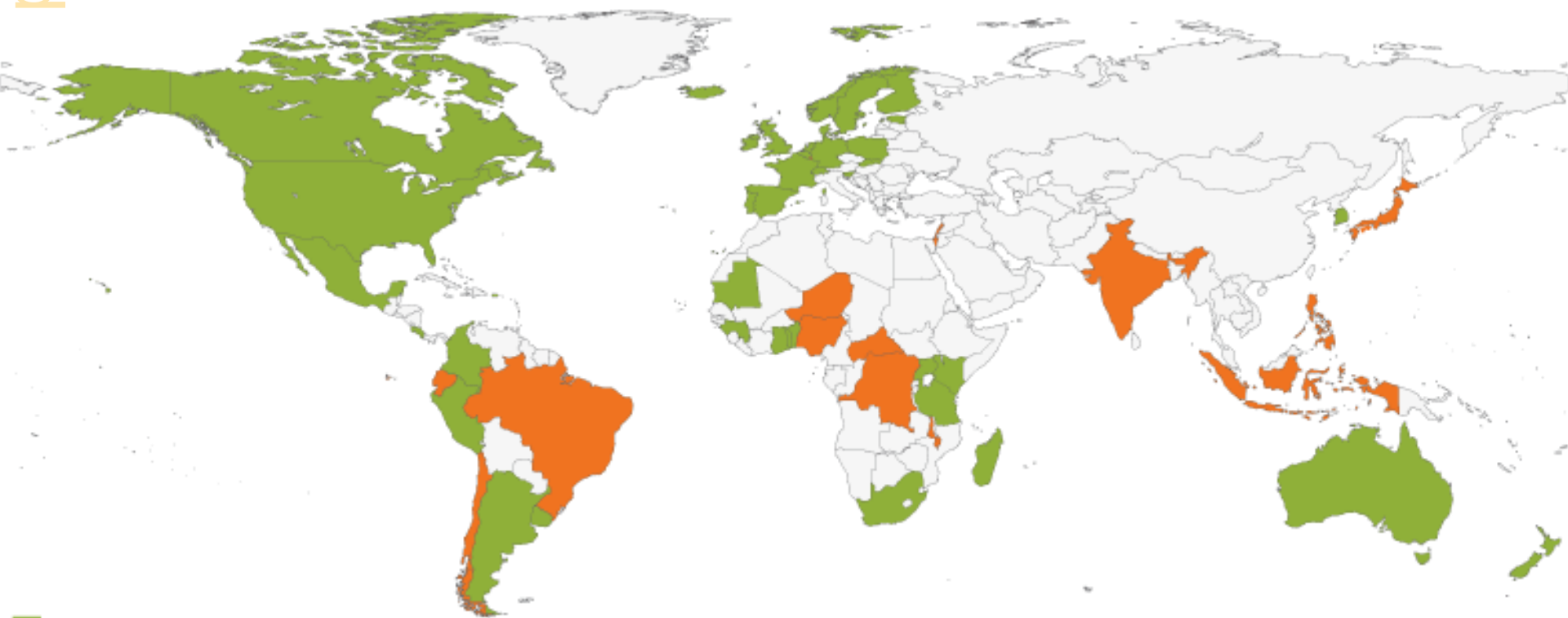
1999: recommendation of Biodiversity Informatics Subgroup of OECD Megascience Forum

“An international mechanism is needed to make biodiversity data and information accessible worldwide”

2001: GBIF Memorandum of Understanding opened for signature

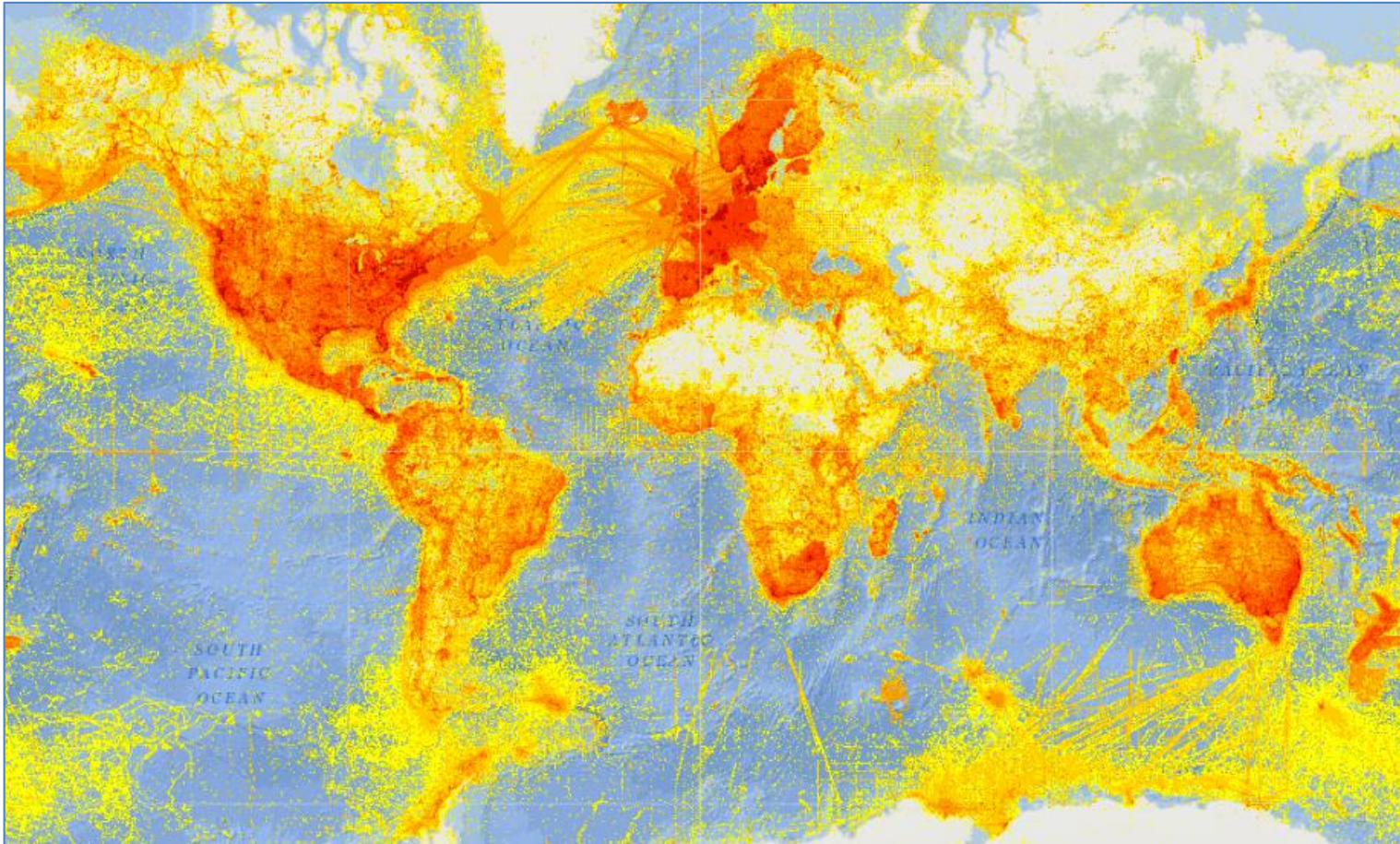
2003: Secretariat established in Copenhagen under country host agreement with Denmark

CURRENT NATIONAL PARTICIPANTS



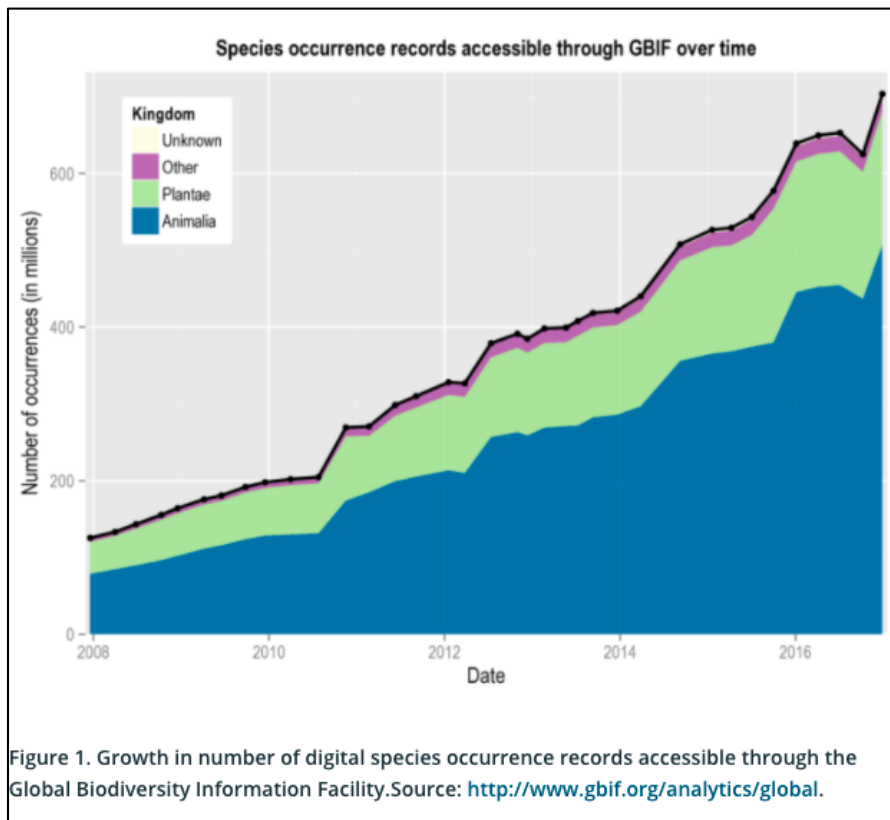
- Voting Participants
- Associate Country Participants

DATA DISTRIBUTION



Each dot represents evidence of species occurrence with standardized information on e.g.:
What? Where? When? By whom?

Growth in Species Occurrence Records Accessible Through GBIF



Related Aichi Targets

[Expand](#)

Primary target



Target 19:

By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

Related SDGs

[Expand](#)



GOAL 11 - Make cities and human settlements inclusive, safe, resilient and sustainable.



GOAL 14 - Conserve and sustainably use the oceans, seas and marine resources for sustainable development.



GOAL 15 - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.



GOAL 17 - Strengthen the means of implementation and revitalize the global partnership for sustainable development.



GBIF

BY THE NUMBERS

June 2017

Species occurrence records

781,975,184

Datasets

35,130

*Country
Participants*

54

*Organizational
Participants*

40

Publishers

977

*Records downloaded per month (avg
2017)*

35.7 billion

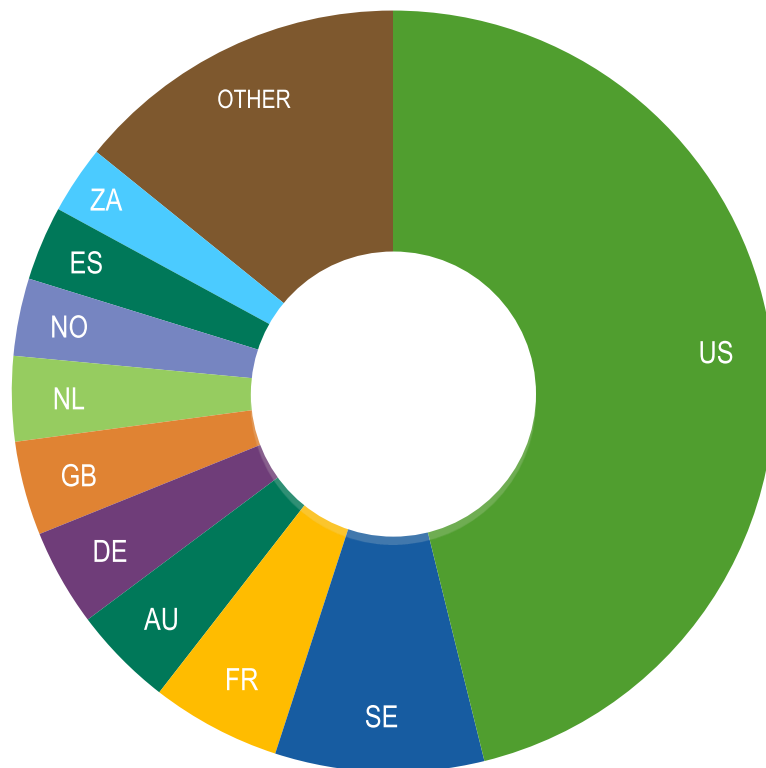
Unique users per month (Apr 2017)

106,438

TOTAL NUMBER OF OCCURRENCE RECORDS PUBLISHED BY COUNTRY

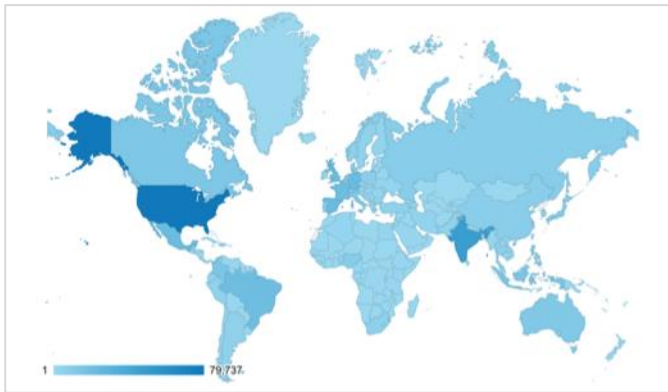
AS OF 30 APR 2017

1	United States	339,979,449
2	Sweden	65,190,071
3	France	40,519,027
4	Australia	31,451,021
5	Germany	30,325,909
6	United Kingdom	29,406,999
7	Netherlands	26,545,089
8	Norway	24,232,504
9	Spain	23,277,447
10	South Africa	21,218,378



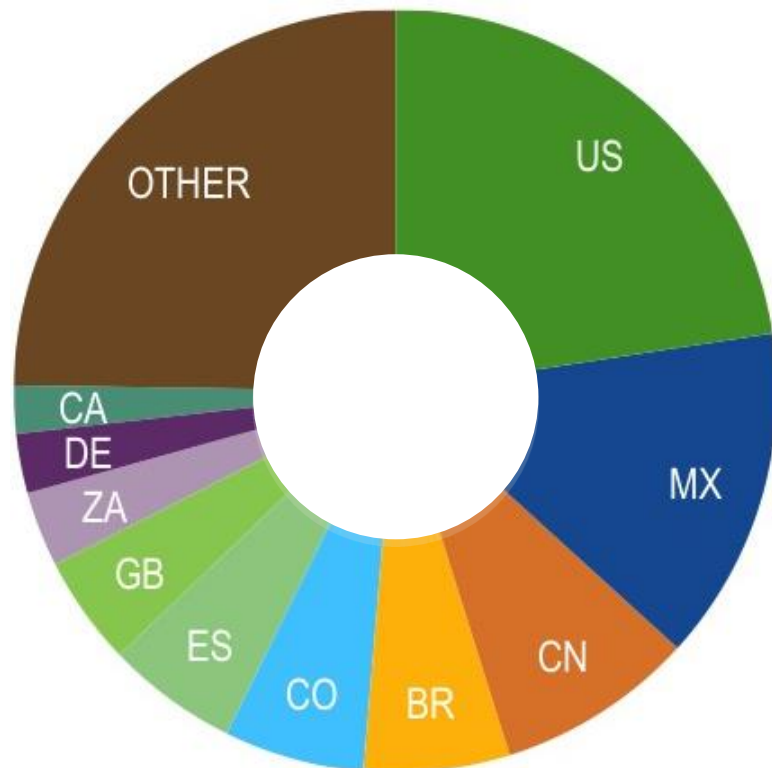
WEB TRAFFIC TO GBIF.ORG, 2017

Rank	Country/Territory	Sessions	% Total Sessions	2016 rank	Pages / Session
1	United States	82,191	13.75%	1	4.52
2	India	47,968	8.03%	2	1.97
3	Spain	23,781	3.98%	6	6.07
4	United Kingdom	23,637	3.95%	5	7.01
5	Mexico	23,247	3.89%	7	8.36
6	Germany	23,082	3.86%	3	5.47
7	Brazil	21,043	3.52%	8	5.05
8	France	20,750	3.47%	4	3.43
9	Colombia	15,316	2.56%	13	6.47
10	Indonesia	14,277	2.39%	12	2.75

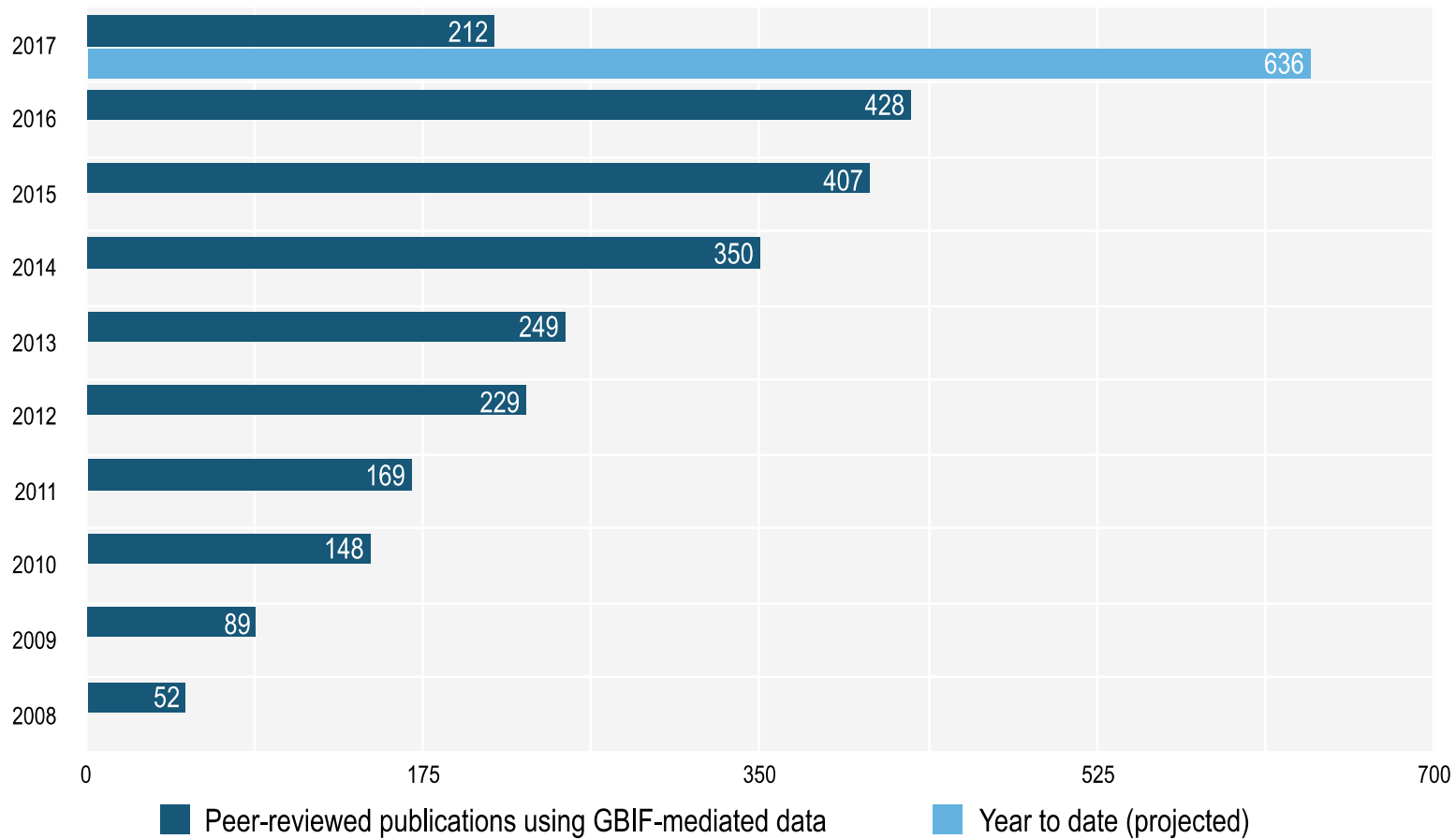


DATA DOWNLOAD REQUESTS BY COUNTRY, 2017

	Country	Downloads	Feb-17 rank
1	United States	7,576	1
2	Mexico	4,756	2
3	China	2,818	5
4	Brazil	2,074	4
5	Colombia	1,994	9
6	Spain	1,873	6
7	United Kingdom	1,556	3
8	South Africa	1,071	7
9	Germany	844	8
10	Canada	683	12



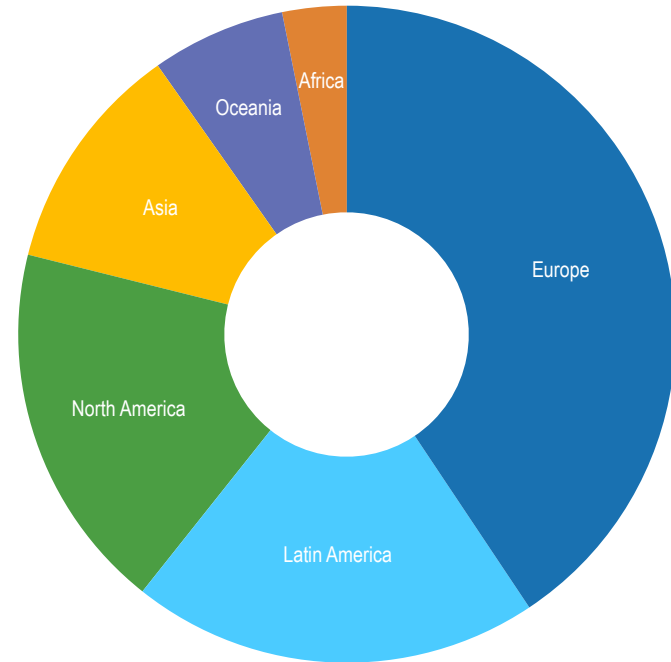
Peer-reviewed publications using GBIF-mediated data



PEER-REVIEWED USES, BY COUNTRY AND REGION, 2017

Total # of peer-reviewed papers by country

1	United States	61
2	Brazil	24
3	Australia	21
4	Spain	19
4	United Kingdom	19
6	Germany	17
7	Mexico	16
8	China	15
9	Switzerland	14
10	India	13



Total # of papers by region

1	Europe	154
2	Latin America	76
3	North America	69
4	Asia	43
5	Oceania	25
6	Africa	12

Peer-reviewed publications using GBIF-mediated data



Invasive alien species

Climate change

Species conservation and protected areas

Biodiversity and human health

Food, farming and biofuels

Advancing biodiversity science

Priority 1 – Empower Global Network

Ensure that governments, researchers and users are equipped and supported to share, improve and use data through the GBIF network, regardless of geography, language or institutional affiliation.

1a	Focus on people
1b	Strengthen skills
1c	Equip nodes
1d	Equip data publishers
1e	Expand national participation
1f	Plan implementation
1g	Coordinate resources

Priority 2 – Enhance Information Infrastructure

Provide leadership, expertise and tools to support the integration of all biodiversity information as an interconnected digital knowledgebase.

2a	Modernize data standards
2b	Deliver names infrastructure
2c	Catalogue collections

Priority 3 – Fill Data Gaps

Prioritize and promote mobilization of new data resources which combine with existing resources to maximize the coverage, completeness and resolution of GBIF data, particularly with respect to taxonomy, geography and time.

3a	Identify priority gaps
3b	Expand data streams
3c	Engage data holders
3d	Rescue datasets
3e	Liaise with journals

Priority 4 – Improve Data Quality

Ensure that all data within the GBIF network are of the highest-possible quality and associated with clear indicators enabling users to assess their origin, relevance and usefulness for any application.

4a	Ensure data persistence
4b	Assess data quality
4c	Enable data curation

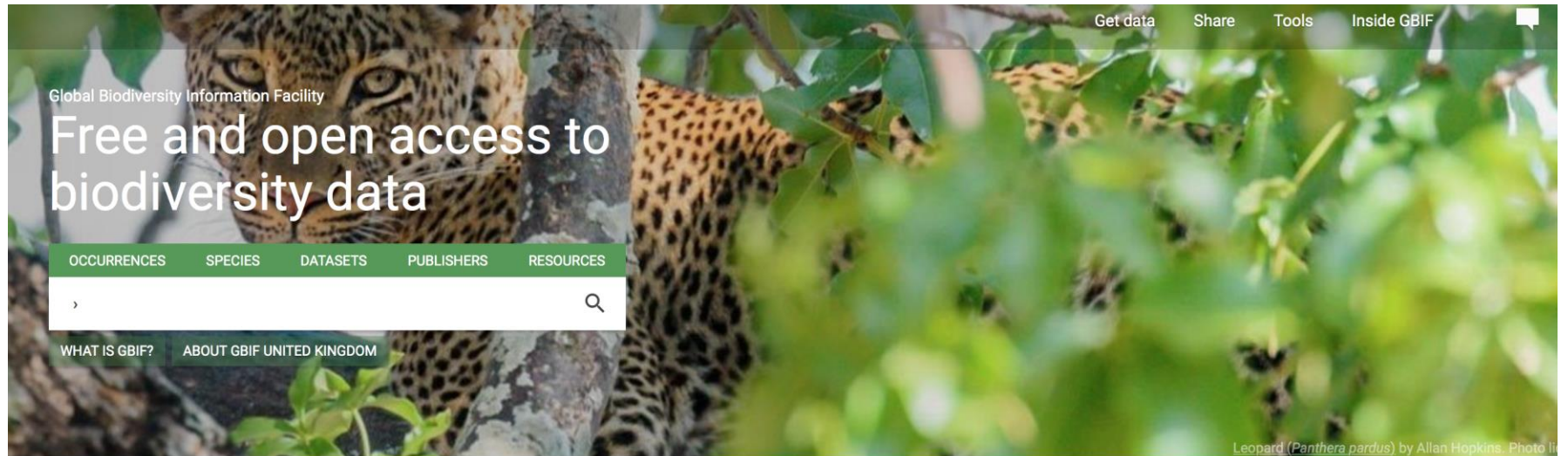
Priority 5 – Deliver Relevant Data

Ensure that GBIF delivers data in the form and completeness required to meet the highest-priority needs of science and, through science, society.

5a	Engage academia
5b	Document needs
5c	Support biodiversity assessment
5d	Assess impact

NEW GBIF.ORG PLATFORM!

<https://demo.gbif.org>



Global Biodiversity Information Facility

Free and open access to biodiversity data

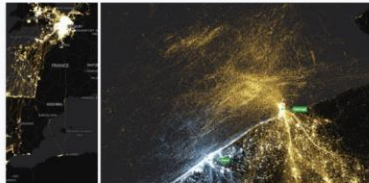
Get data Share Tools Inside GBIF

OCCURRENCES SPECIES DATASETS PUBLISHERS RESOURCES

WHAT IS GBIF? ABOUT GBIF UNITED KINGDOM

Leopard (*Panthera pardus*) by Allan Hopkins. Photo by

News from the network



Learn all about data papers

A data paper is a peer reviewed document describing a dataset, published in a peer reviewed journal.



Ganoderma pfeifferi (Bres., 1889)

A recent observation from the Danish Mycological Society (fungal records database) by Bent Christiansen



GBIF Asia members, partners and regional representatives to meet in Viet Nam

8 June 2017



Investigating seed tolerance to dehydration

6 June 2017

NEW GBIF.ORG PLATFORM

Get data Share Tools

< Occurrences 1
SEARCH OCCURRENCES | 302,361 RESULTS

Search all fields

Simple Advanced

License

Scientific Name

Basis Of Record

Location

Year

Month

Dataset

Country

Viet Nam 302,361


- United States 256,995,911
- Sweden 64,154,803
- United Kingdom 63,360,208
- Australia 37,581,429
- France 35,346,184
- Canada 32,430,142
- Spain 24,662,266

[TABLE](#) [GALLERY](#) [MAP](#) [SPECIES](#) [DATASETS](#) [DOWNLOAD](#)

Scientific Name	Country	Coordinates	Basis Of Record	Month & Year	Dataset
Gynacantha Rambur, 1842	Viet Nam	11.4N, 107.4E	preserved specimen	January 2017	A new species of Gynacantha
Potamarcha congener Rambur, 1842	Viet Nam	10.4N, 106.3E	human observation	March 2017	iNaturalist Research-grade Ob
Troides aeacus (Felder & Felder, 1860)	Viet Nam	10.8N, 106.7E	human observation	March 2017	iNaturalist Research-grade Ob
Calotes versicolor (Daudin, 1802)	Viet Nam	10.9N, 108.2E	human observation	March 2017	iNaturalist Research-grade Ob
Calotes versicolor (Daudin, 1802)	Viet Nam	10.9N, 108.2E	human observation	March 2017	iNaturalist Research-grade Ob
Calotes versicolor (Daudin, 1802)	Viet Nam	10.8N, 106.7E	human observation	March 2017	iNaturalist Research-grade Ob
Manihot esculenta Crantz	Viet Nam	11.1N, 106.5E	human observation	March 2017	iNaturalist Research-grade Ob
Rhythemis variegata Linnaeus, 1763	Viet Nam	16.4N, 107.6E	human observation	April 2017	iNaturalist Research-grade Ob
Ischnura senegalensis Rambur, 1842	Viet Nam	15.9N, 108.3E	human observation	April 2017	iNaturalist Research-grade Ob
Diplacodes trivialis Rambur, 1842	Viet Nam	15.9N, 108.3E	human observation	April 2017	iNaturalist Research-grade Ob
Orthetrum sabina Drury, 1773	Viet Nam	15.9N, 108.3E	human observation	April 2017	iNaturalist Research-grade Ob
Diplacodes trivialis Rambur, 1842	Viet Nam	15.9N, 108.3E	human observation	April 2017	iNaturalist Research-grade Ob
Orthetrum sabina Drury, 1773	Viet Nam	15.8N, 108.1E	human observation	April 2017	iNaturalist Research-grade Ob


NEW GBIF.ORG PLATFORM

Get data Share


Occurrences  1


SEARCH OCCURRENCES | 38,509 WITH IMAGES


TABLE GALLERY MAP SPECIES DATASETS DOWNLOAD


Search all fields 


Simple Advanced


License 


Scientific Name 


Basis Of Record 

Location 


Year 


Month 


Dataset 


Country 


Viet Nam


Issue 


Media Type 

Publisher 


Institution Code 

Collection Code 


Catalogue Number 




Potamarcha congener Rambur, 1842




Troides aeacus (Felder & Felder, 1860)




Calotes versicolor (Daudin, 1802)



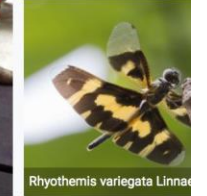
Calotes versicolor (Daudin, 1802)




Calotes versicolor (Daudin, 1802)




Manihot esculenta Crantz




Rhyothemis variegata Linnaeus, 1763




Diplacodes trivialis Rambur, 1842




Orthetrum sabina Drury, 1773




Diplacodes trivialis Rambur, 1842




Orthetrum sabina Drury, 1773




Ischnura senegalensis Rambur, 1842




Lantana camara L.




Ceriagrion auranticum Fraser, 1922




Rhyothemis variegata Linnaeus, 1763




Bidens pilosa L.




Diplacodes trivialis Rambur, 1842




Diplacodes trivialis Rambur, 1842




Ceriagrion auranticum Fraser, 1922



Rhyothemis variegata Linnaeus, 1763




Bidens pilosa L.




Diplacodes trivialis Rambur, 1842

NEW GBIF.ORG PLATFORM

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Occurrences  2

SEARCH OCCURRENCES | 180,698 WITH COORDINATES

TABLE GALLERY **MAP** SPECIES DATASETS  DOWNLOAD

Including coordinates

Year

Month

Dataset

Country

Viet Nam

Issue

Media Type

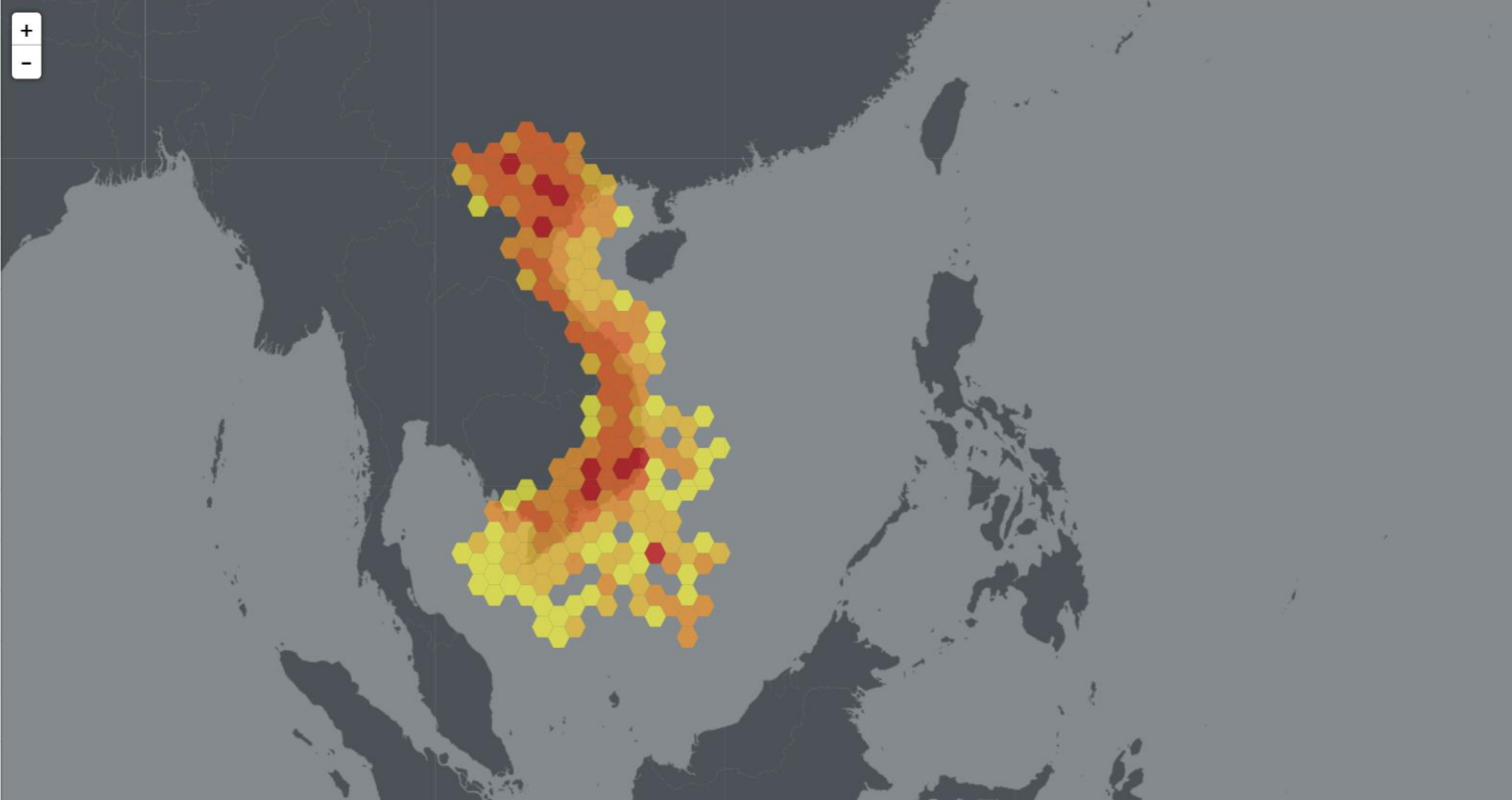
Publisher

Institution Code


Collection Code

Catalogue Number

Type Status



NEW GBIF.ORG PLATFORM


Get data
Share

Occurrences 3
SEARCH OCCURRENCES | 48,609 RESULTS

Search all fields 🔍

Simple Advanced

License ▼

Scientific Name ▼

Plantae

Basis Of Record ▼

Location ▼

Including coordinates

Year ▼

Month ▼

Dataset ▼

Country ▼

Viet Nam

Issue ▼

Media Type ▼

Publisher ▼


Institution Code ▼

[TABLE](#)
[GALLERY](#)
[MAP](#)
[SPECIES](#)
[DATASETS](#)
[DOWNLOAD](#)


Occurrences	ScientificName	Kingdom	Phylum	Class	Order	Family	Genus
4,080	<i>Oryza sativa</i> L.	Plantae	Tracheophyta	Liliopsida	Poales	Poaceae	Oryza
399	<i>Glycine max</i> (L.) Merr.	Plantae	Tracheophyta	Magnoliopsida	Fabales	Fabaceae	Glycine
147	<i>Citrus reticulata</i> Blanco	Plantae	Tracheophyta	Magnoliopsida	Sapindales	Rutaceae	Citrus
144	<i>Citrus grandis</i> (L.) Osbeck	Plantae	Tracheophyta	Magnoliopsida	Sapindales	Rutaceae	Citrus
74	<i>Solanum melongena</i> L.	Plantae	Tracheophyta	Magnoliopsida	Solanales	Solanaceae	Solanum
72	<i>Tadehagi triquetrum</i> (L.) H.Ohashi	Plantae	Tracheophyta	Magnoliopsida	Fabales	Fabaceae	Tadehagi
60	<i>Podocarpus nerifolius</i> D.Don	Plantae	Tracheophyta	Pinopsida	Pinales	Podocarpaceae	Podocarpus
59	<i>Citrus aurantium</i> L.	Plantae	Tracheophyta	Magnoliopsida	Sapindales	Rutaceae	Citrus
54	<i>Xanthocyparis vietnamensis</i> Farjon & Hiep	Plantae	Tracheophyta	Pinopsida	Pinales	Cupressaceae	Xanthocyparis
53	<i>Desmodium heterocarpon</i> (L.) DC.	Plantae	Tracheophyta	Magnoliopsida	Fabales	Fabaceae	Desmodium
53	<i>Cymbidium lancifolium</i> Hook.	Plantae	Tracheophyta	Liliopsida	Asparagales	Orchidaceae	Cymbidium
50	<i>Dacrycarpus imbricatus</i> (Blume) de Laub.	Plantae	Tracheophyta	Pinopsida	Pinales	Podocarpaceae	Dacrycarpus
48	<i>Ficus simplicissima</i> Lour.	Plantae	Tracheophyta	Magnoliopsida	Rosales	Moraceae	Ficus
47	<i>Arenga caudata</i> (Lour.) H.E.Moore	Plantae	Tracheophyta	Liliopsida	Arecales	Areceae	Arenga
47	<i>Lithocarpus elegans</i> (Blume) Hatus. ex So...	Plantae	Tracheophyta	Magnoliopsida	Fagales	Fagaceae	Lithocarpus

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Occurrences  3

SEARCH OCCURRENCES | 48,609 RESULTS


Search all fields 


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License 


Scientific Name 


Plantae


Basis Of Record 


Location 

Including coordinates


Year 


Month 


Dataset 

Country 

Viet Nam

Issue 

Media Type 

Publisher 



Institution Code 

TABLE GALLERY MAP SPECIES DATASETS  DOWNLOAD

Occurrences	Dataset	Publisher
29,554	Tropicos Specimen Data	Missouri Botanical Garden
5,133	A global database for the distributions of crop wild relatives	Centro Internacional de Agricultura Tropical (CIAT)
3,786	Naturalis Biodiversity Center (NL) - Botany	Naturalis Biodiversity Center
3,185	The vascular plants collection (P) at the Herbarium of the Muséu...	MNHN - Museum national d'Histoire naturelle
1,223	Bioversity Collecting Mission Database	Bioversity International
1,072	Royal Botanic Garden Edinburgh Herbarium (E)	Royal Botanic Garden Edinburgh
607	Royal Botanic Garden Edinburgh Living Plant Collections (E)	Royal Botanic Garden Edinburgh
594	Phanerogamic Botanical Collections (S)	GBIF-Sweden
544	NMNH Extant Specimen Records	National Museum of Natural History, Smithsonian Institution
533	Natural History Museum (London) Collection Specimens	Natural History Museum
451	The New York Botanical Garden Herbarium (NY) - Vascular Plant ...	The New York Botanical Garden
395	Royal Botanic Gardens, Kew - Herbarium Specimens	Royal Botanic Gardens, Kew
332	Australia's Virtual Herbarium	Council of Heads of Australasian Herbaria (CHAH)
229	Geneva Herbarium – General Collection (G)	Conservatoire et Jardin botaniques de la Ville de Genève - G

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OCCURRENCE DATASET | REGISTERED 3 APRIL 2007

Tropicos Specimen Data

Published by [Missouri Botanical Garden](#)

✉ Bob Magill • Jim Solomon • Heather Stimmel

[DATASET](#) [STATS](#) [ACTIVITY](#) [DOWNLOAD](#)

16 CITATIONS

4,440,254 OCCURRENCES

The Missouri Botanical Garden's Herbarium is one of the world's outstanding research resources for specimens and information on bryophytes and vascular plants. The collection is limited to these two major groups of plants. As of 31 December 2015 the collection had 6.66 million specimens (6.1 million vascular plants and 563,000 bryophytes). This specimen dataset includes over 4.4 million records (4.0 million vascular plants and 300,000 bryophytes).

Last Modified: 18 August 2016

License: [CC BY 4.0](#)

[How to cite](#) [DOI](#) [10.15468/hja69f](#)

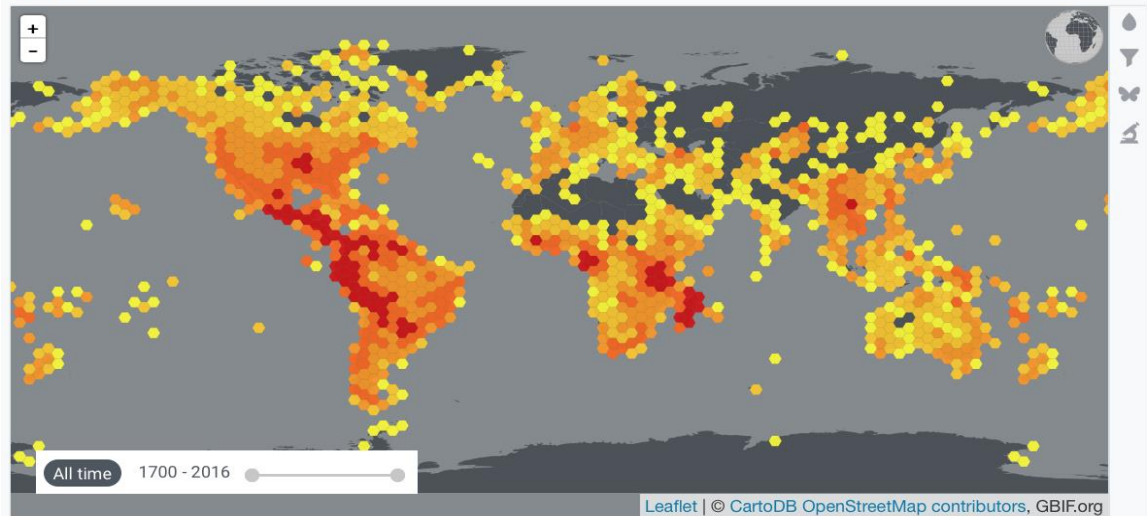
4,440,254
Occurrences

99.9%
With taxon match

66%
With coordinates

95%
With year

2,914,723 GEOREFERENCED RECORDS



233,701 OCCURRENCE WITH IMAGES



NEW GBIF.ORG PLATFORM

We do our best to find literature citing GBIF downloads. When a paper cite using a DOI we can track it to the individual datasets and publishers. This list only shows usage known to GBIF. The data might have been filtered further after download.

[Habitat diversity predicts orchid diversity in the tropical south-west Pacific](#) [↔](#) Literature

Keppel, G. Gillespie, T. Ormerod, P. Fricker, G. (2016) *Journal of Biogeography*

Aim To determine if habitat diversity, as estimated by climatic and topographic variables, can predict patterns of orchid diversity on different islands and archipelagos with similar explanatory power to biogeographical variables, such as area, isolation and age of an island. Location Sixty-three is...

Orchidaceae • biodiversity • climate • endemism • environmental heterogeneity • habitat diversity

Journal

[Symbiosis limits establishment of legumes outside their native range at a global scale](#) [↔](#) Literature

Simonsen, A. Dinnage, R. Barrett, L. Prober, S. Thrall, P. (2017) *Nature Communications*

Microbial symbiosis is integral to plant growth and reproduction, but its contribution to global patterns of plant distribution is unknown. Legumes (Fabaceae) are a diverse and widely distributed plant family largely dependent on symbiosis with nitrogen-fixing rhizobia, which are acquired from soil ...

Biogeography • Invasive species • Plant ecology • Rhizobial symbiosis

Journal

[Why input matters: Selection of climate data sets for modelling the potential distribution of a treeline species in the Himalayan region](#) [↔](#) Literature

Maria, B. Udo, S. (2017) *Ecological Modelling*

Betula utilis is a major constituent of alpine treeline ecotones in the western and central Himalayan region. The objective of this study is to analyse for the first time the performance of different climatic predictors in modelling the potential distribution of *B. utilis* in the subalpine and alpine...

Betula utilis • CHELSA • Model evaluation • Predictive modeling • WORLDCLIM

Journal

[Toward a Self-Updating Platform for Estimating Rates of Speciation and Migration, Ages, and Relationships of Taxa](#) [↔](#) Literature

Antonelli, A. Hettling, H. Condamine, F. Vos, K. Nilsson, R. Sanderson, M. ... - (2016) *Systematic Biology*

Rapidly growing biological data –including molecular sequences and fossils– hold an unprecedented potential to reveal how evolutionary processes generate and maintain biodiversity. However, researchers often have to develop their own idiosyncratic workflows to integrate and analyse these data for re...

Bayesian phylogenetics • GenBank • data mining • divide-and-conquer methods • multilocus multispecies coalescent • next-generation sequencing

Journal

Thank you very much!