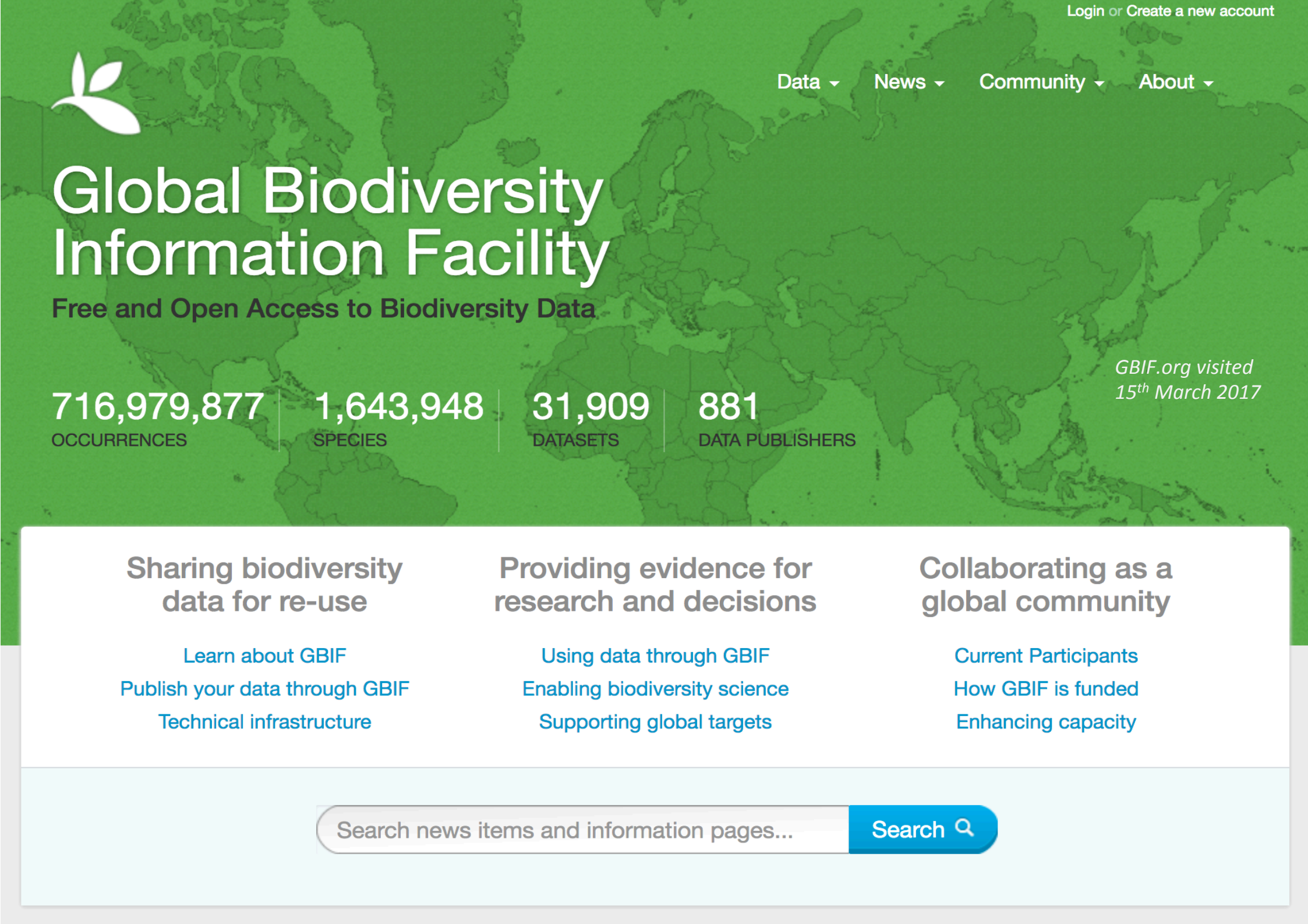
ECPGR Forage and Barley workshop

GBIF data portal

Dag Endresen
GBIF Norway
UiO Natural History Museum in Oslo
University of Oslo

Malmö, Sweden, March 16th 2017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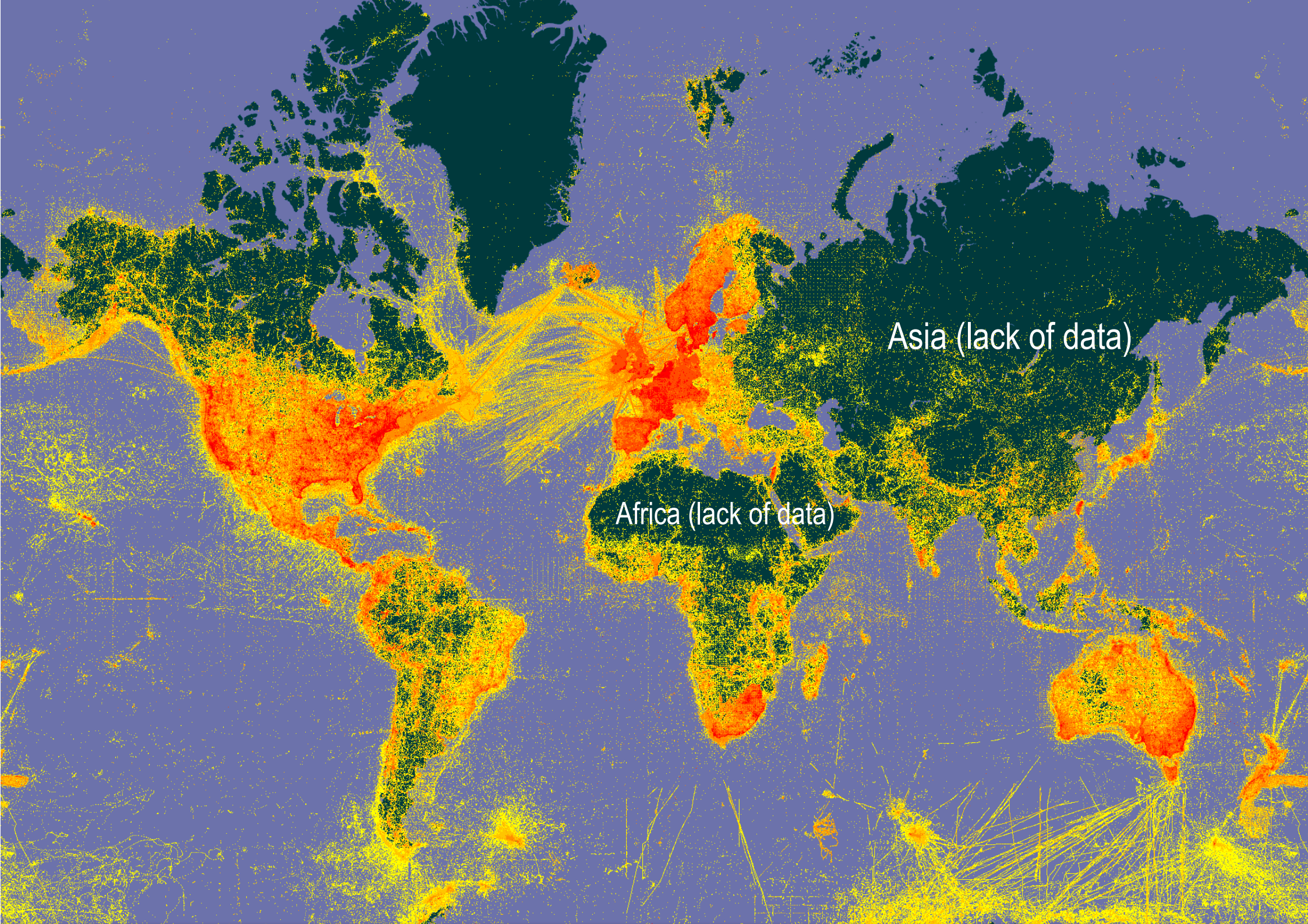
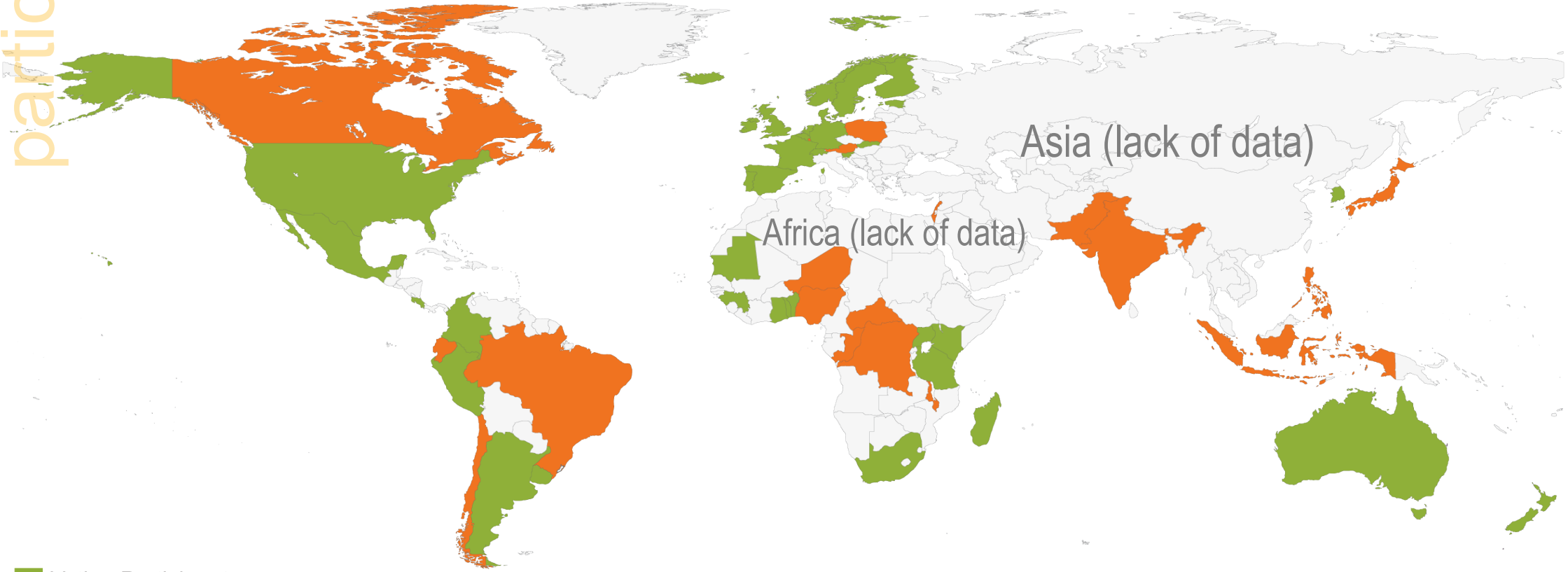

Asia (lack of data)
Africa (lack of data)

participation

MAP OF NATIONAL PARTICIPANTS



Voting Participants

Associate Country Participants

38 VOTING COUNTRY MEMBERS
19 ASSOCIATE COUNTRIES
39 ORGANIZATIONS
3 AFFILIATE NETWORKS

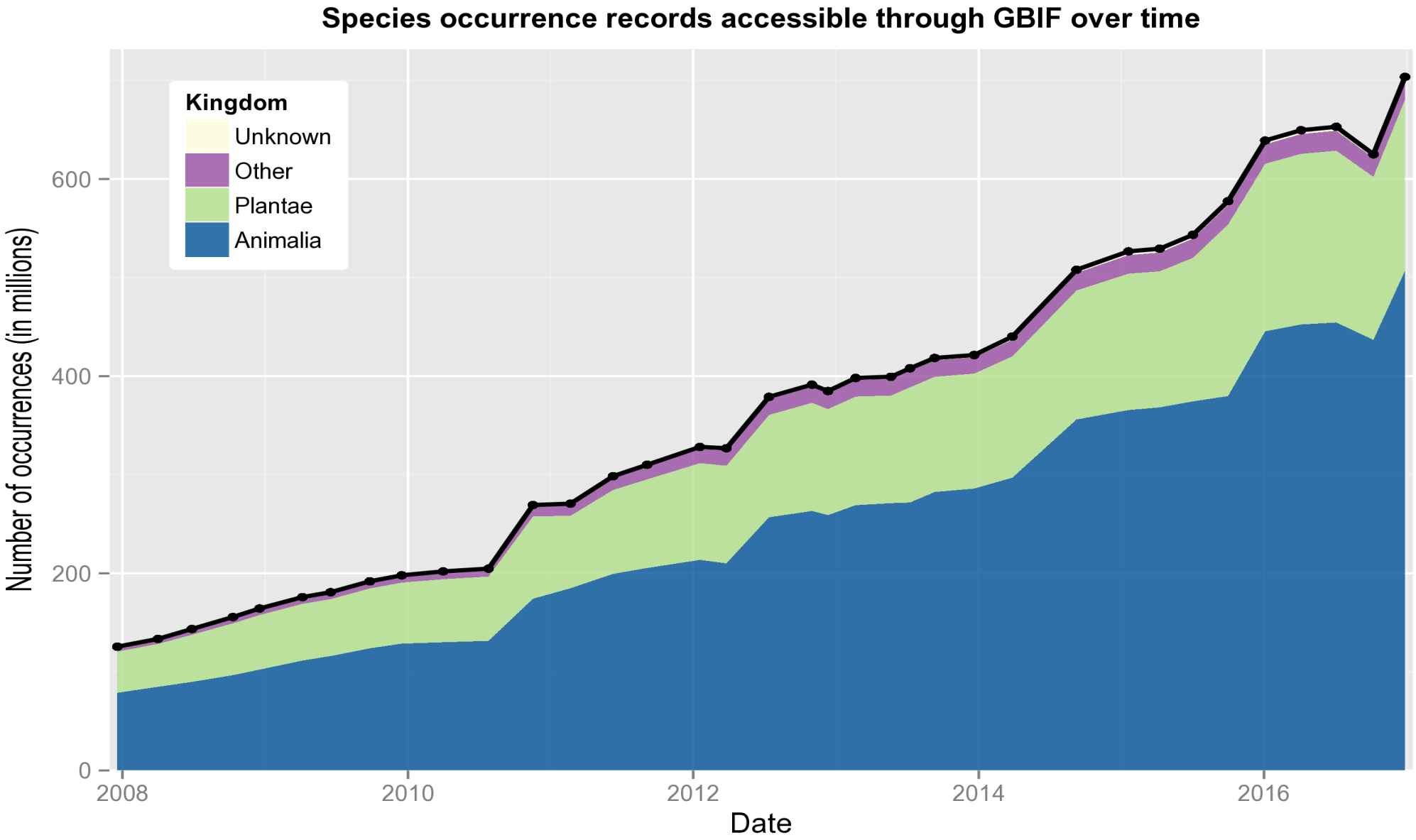
Norway joined GBIF in February 2004

Updated January 2017

GBIF

data availability

DATA PUBLISHED THROUGH GBIF.ORG

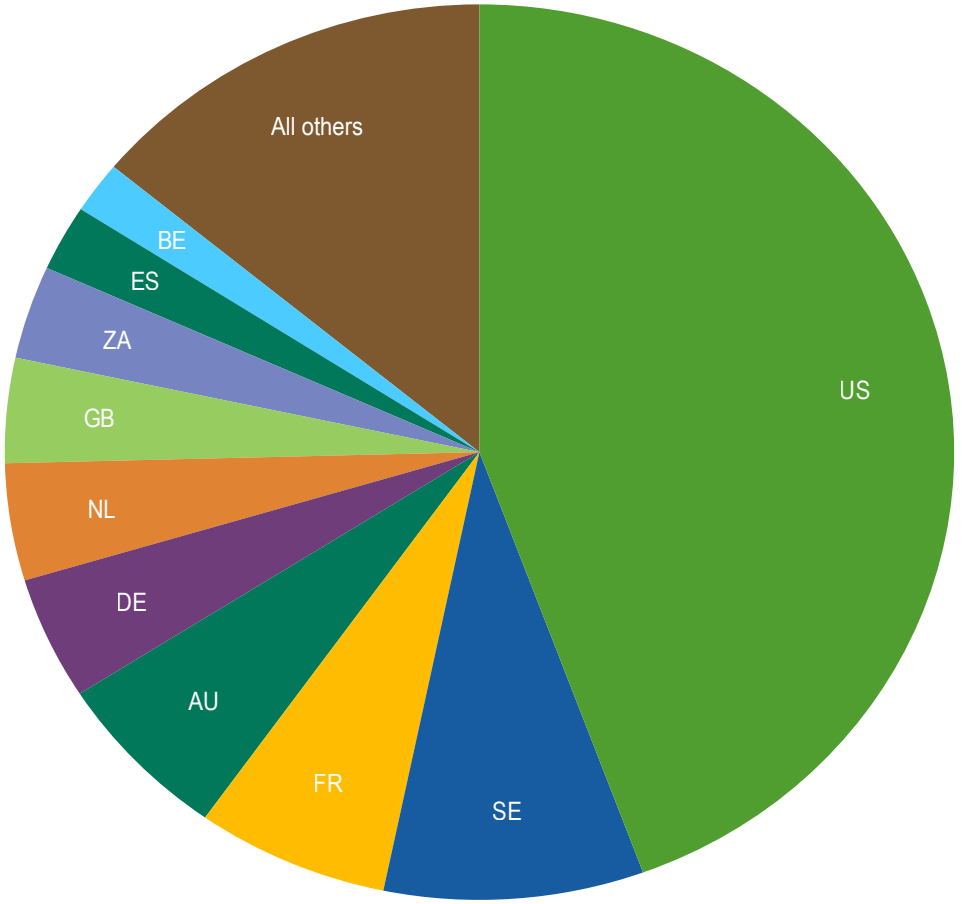


www.gbif.org/analytics/global

TOTAL DATA PUBLISHED BY COUNTRY

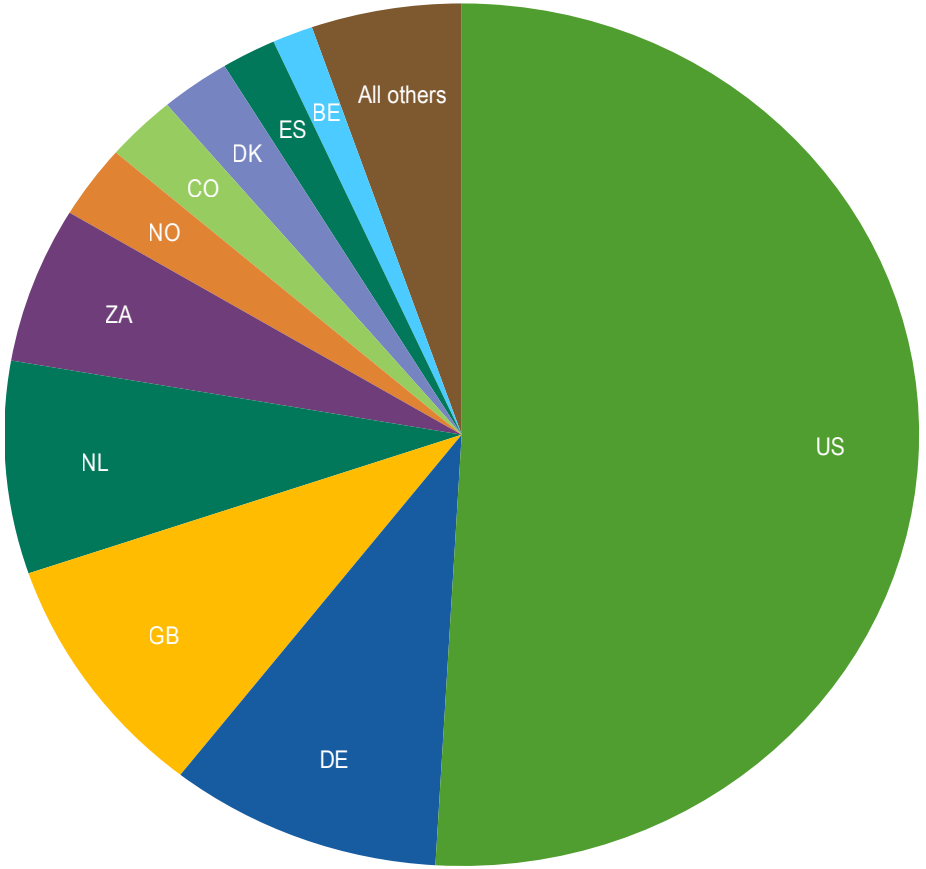
AS OF 15 MARCH 2016

1	United States	337,528,963
2	**Sweden**	**61,423,202**
3	France	40,469,687
4	Australia	36,435,662
5	United Kingdom	29,635,764
6	Germany	28,480,795
7	Netherlands	26,075,010
8	Norway	24,189,098
9	South Africa	21,045,000
10	Spain	14,323,393



OCCURRENCE RECORDS PUBLISHED DURING 2016 BY COUNTRY

1	United States	83,774,897
2	Germany	15,837,819
3	United Kingdom	15,217,220
4	Netherlands	13,098,430
5	South Africa	9,630,896
6	Norway	4,519,715
7	Colombia	4,122,621
8	Denmark	4,048,381
9	Spain	3,175,906
10	Belgium	2,366,452

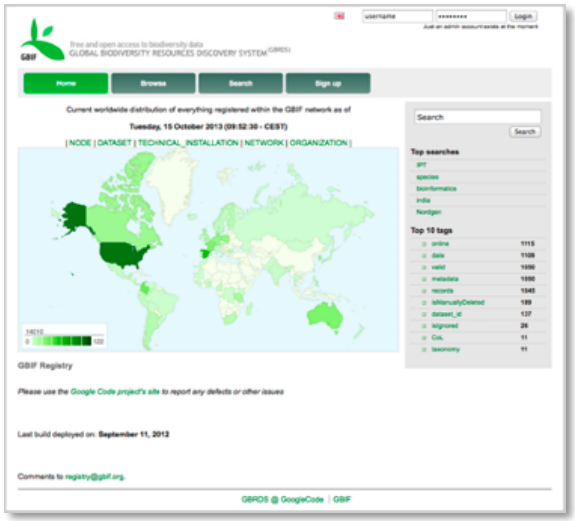


http://www.gbif.org/country

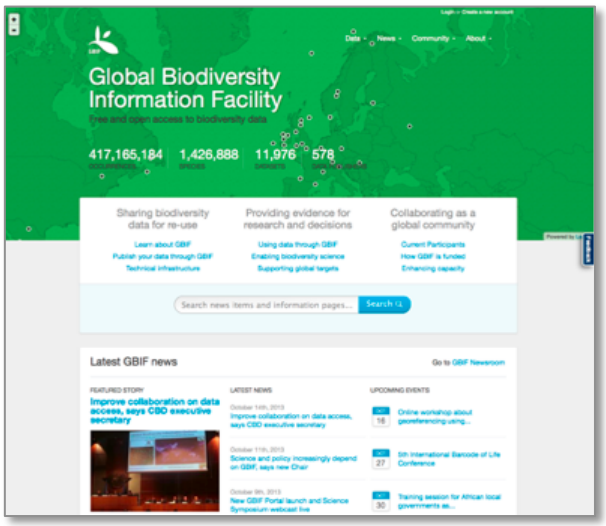
GBIF provides a data publishing infrastructure

GBIF provides a service for data discovery

that is dependent on resolvable stable identifiers for efficient functionality

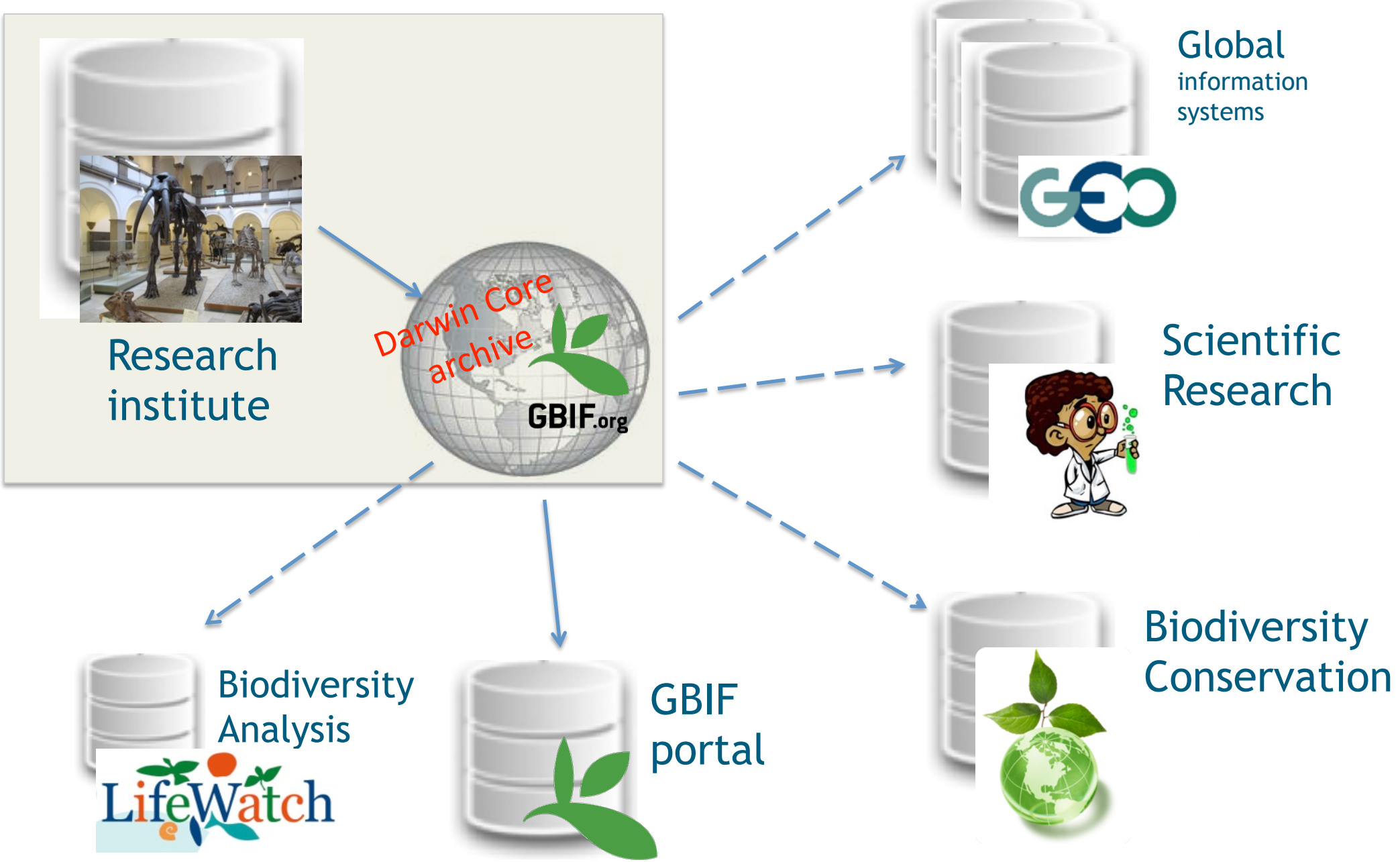


global registry



data portal

MULTIPLE-PURPOSE DATA SERVICES



MULTIPLE DATA EXPORT SERVICES FOR EACH GENEBANK

Genebank dataset

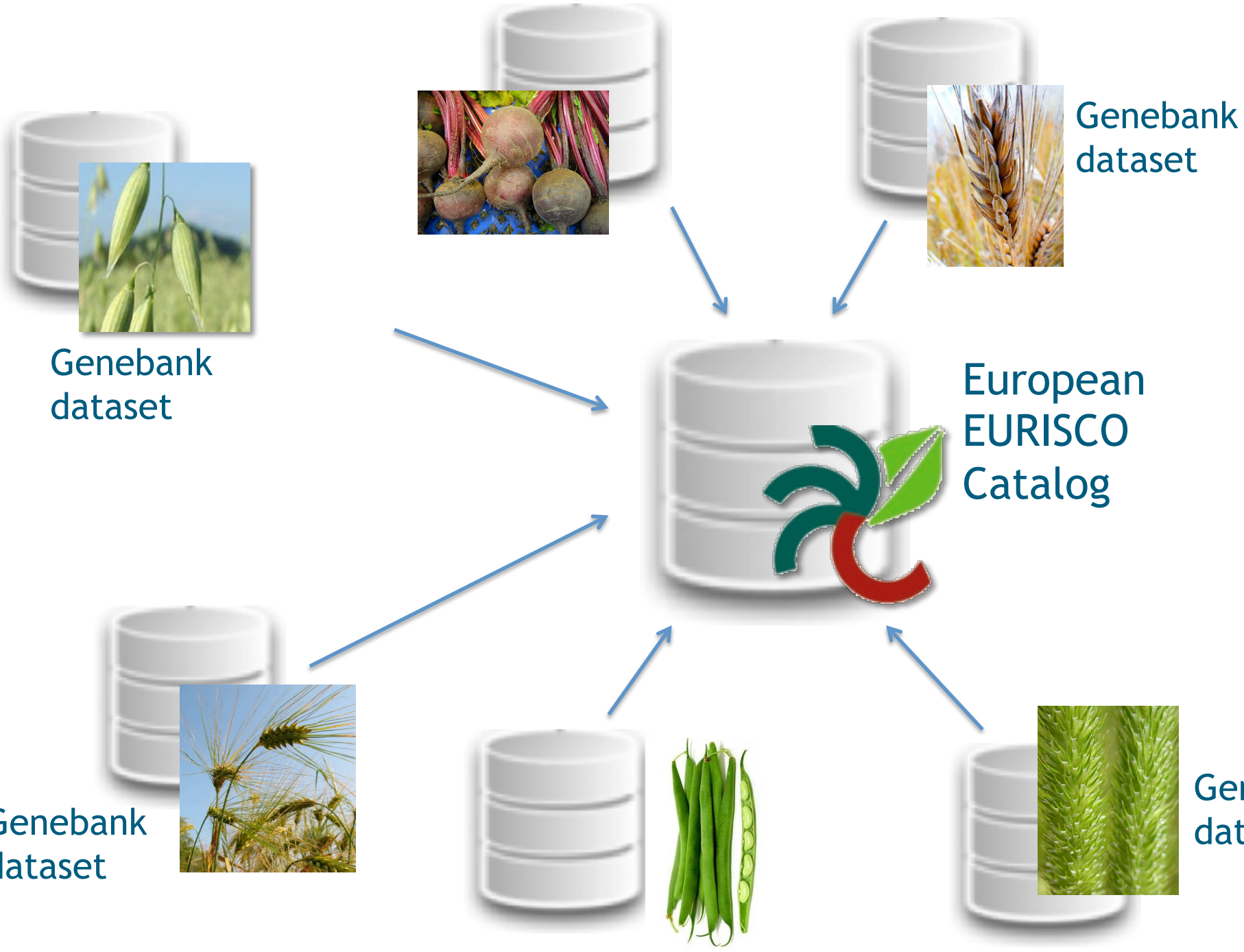
European Crop Databases

European EURISCO Catalog

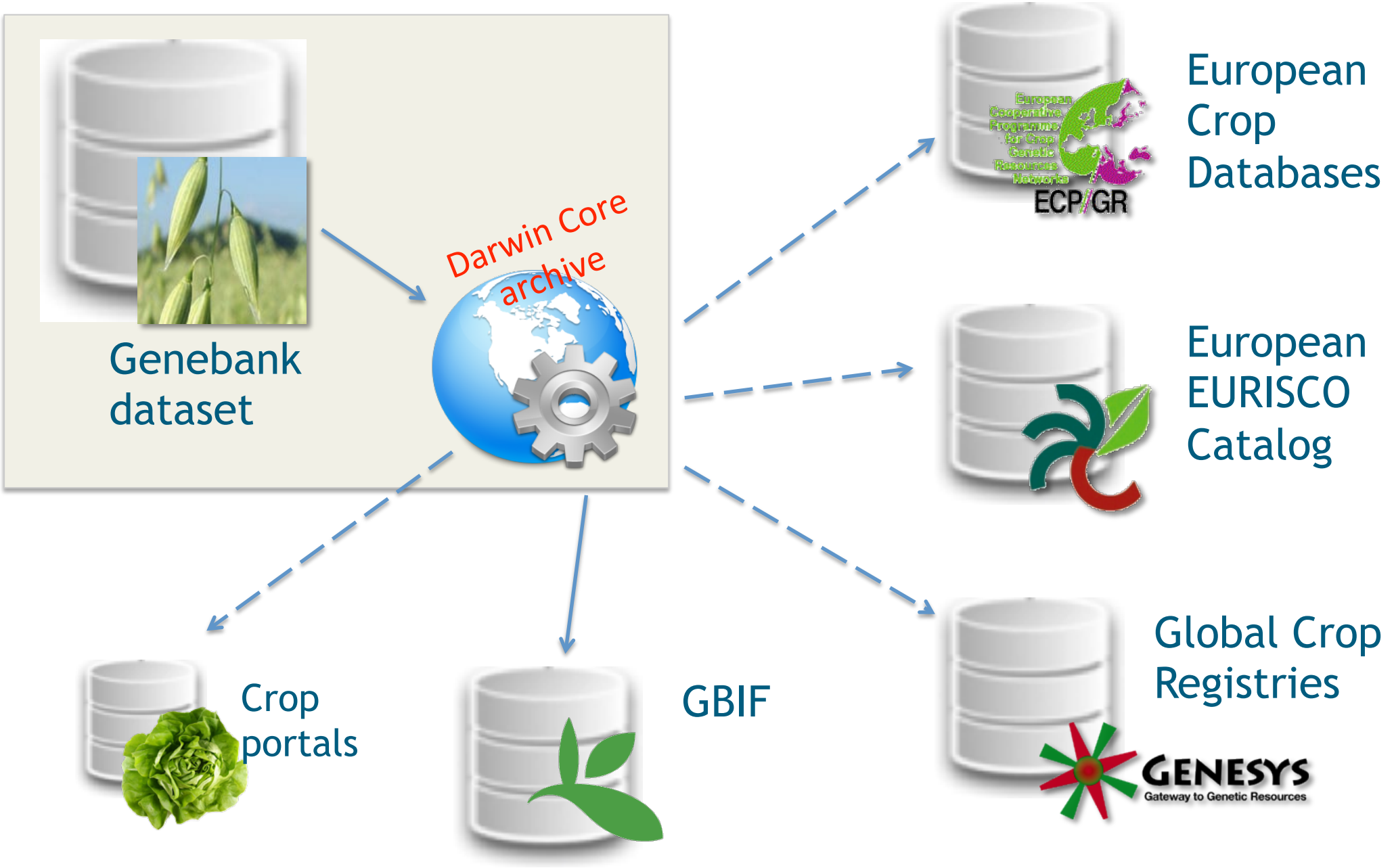
GBIF

Global Crop Registries

MULTIPLE DATA IMPORT SERVICES FOR EACH DATA PORTAL



→ MULTIPLE-PURPOSE DATA EXPORT SERVICES



POSSIBLE UPGRADED PGR NETWORK MODEL

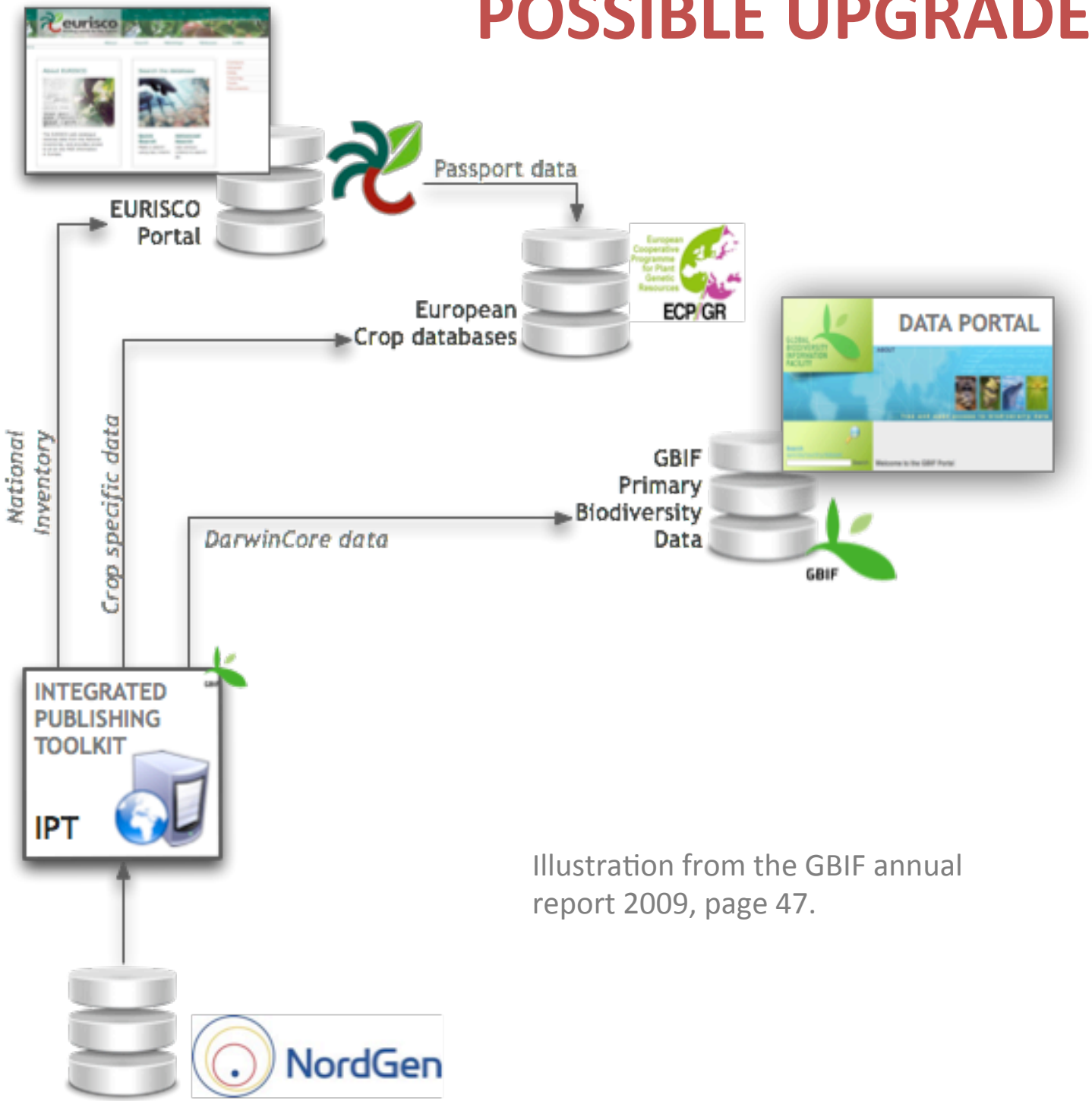
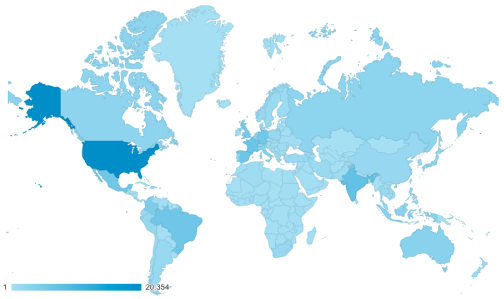


Illustration from the GBIF annual report 2009, page 47.

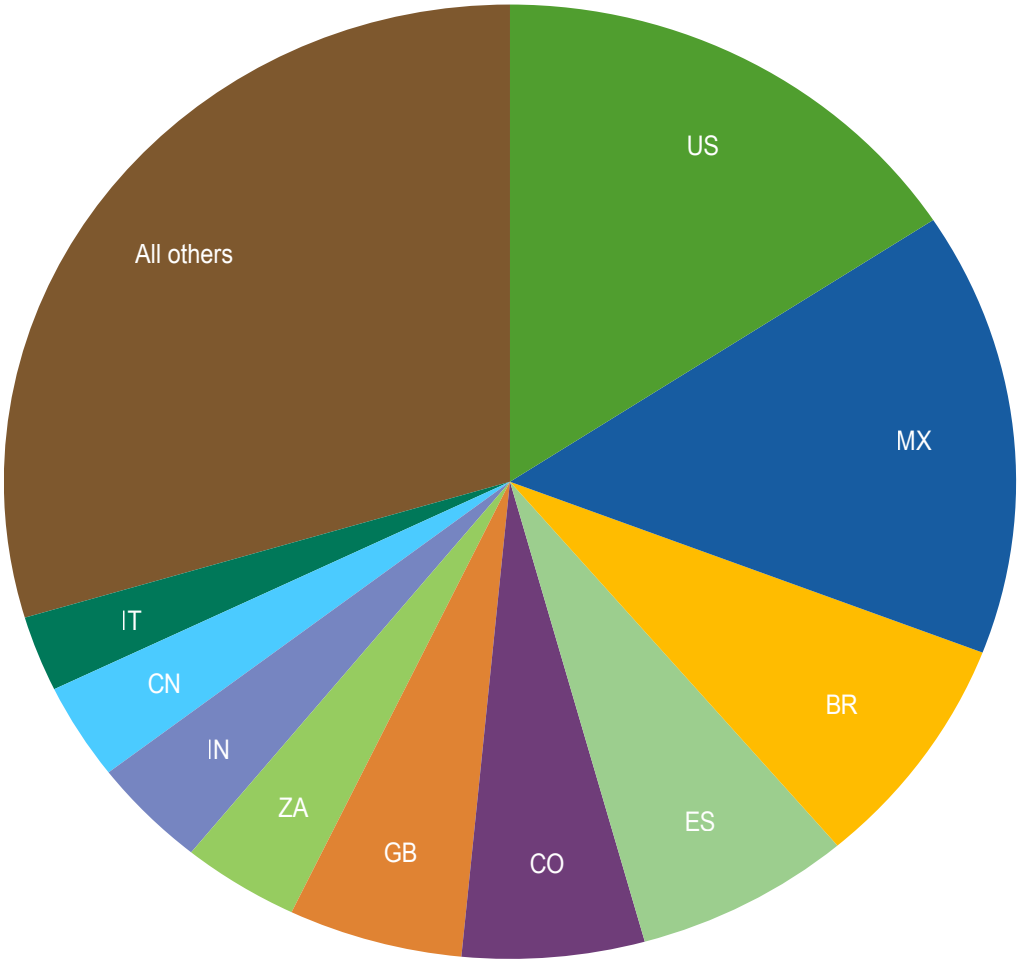
- Each dataset is shared from the holding gene bank.
- The National Inventory (NI) endorse all national gene banks for EURISCO.
- ECPGR Crop databases can access passport data from EURISCO and additional crop specific data from the gene bank IPT interface.
- Standard data sharing tools ensure that the genebank dataset is available to other relevant decentralized thematic, regional or global networks.

Use of GBIF-mediated data

DATA DOWNLOAD REQUESTS BY COUNTRY, 2016

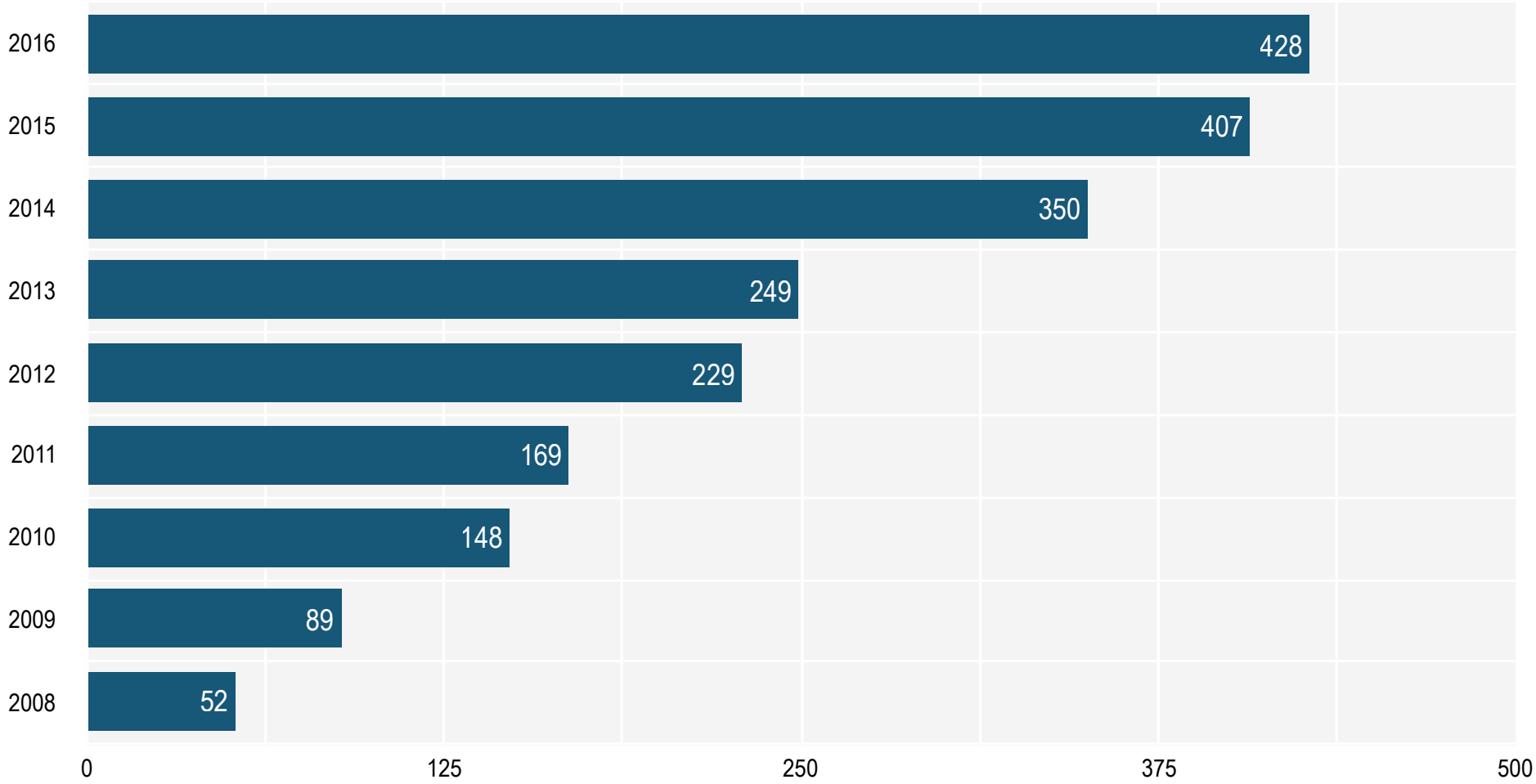


1	United States	14,700
2	Mexico	14,053
3	Brazil	7,437
4	Spain	6,443
5	Colombia	5,431
6	United Kingdom	5,195
7	South Africa	3,492
8	India	3,480
9	China	3,046
10	Italy	2,389



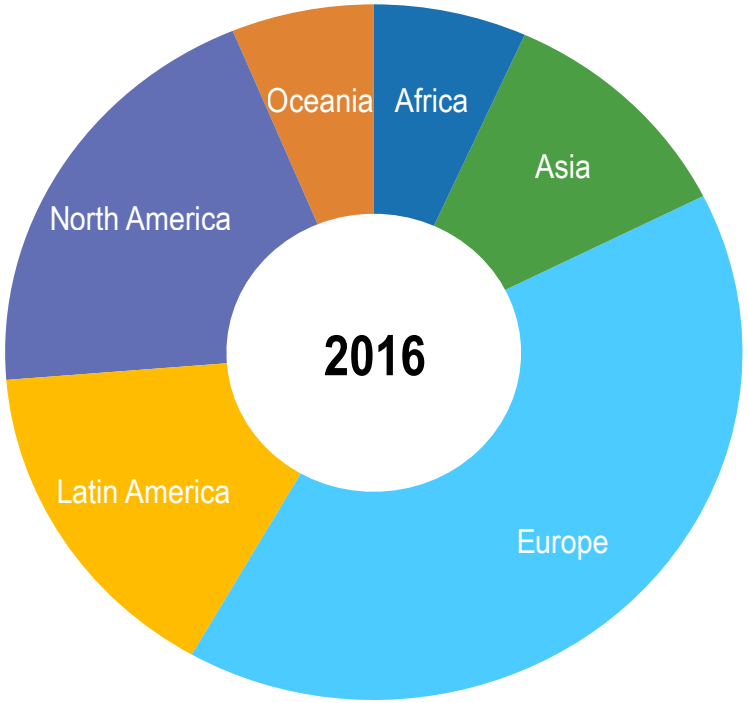
DATA ACCESS AND USE

Peer-reviewed publications using GBIF-mediated data



PEER-REVIEWED USES, BY COUNTRY AND REGION, 2016

Total # of papers by country		
1	United States	148
2	United Kingdom	61
3	Germany	51
4	Brazil	50
5	Australia	48
6	China	41
6	Mexico	41
8	France	39
9	Spain	31
10	Canada	25
10	South Africa	25



Total # of papers by region		
1	Europe	351
2	North America	173
3	Latin America	134
4	Asia	94
5	Africa	58
6	Oceania	54

2016 SCIENCE REVIEW

Annual publication summarizes more than 100 peer-reviewed articles that rely on GBIF-mediated data.

Accompanying *Sourcebook* includes more than 400 citations.

Download:

- gbif.org/science-review
- gbif.org/science-review-sourcebook-2016

http://www.gbif.org/science-review

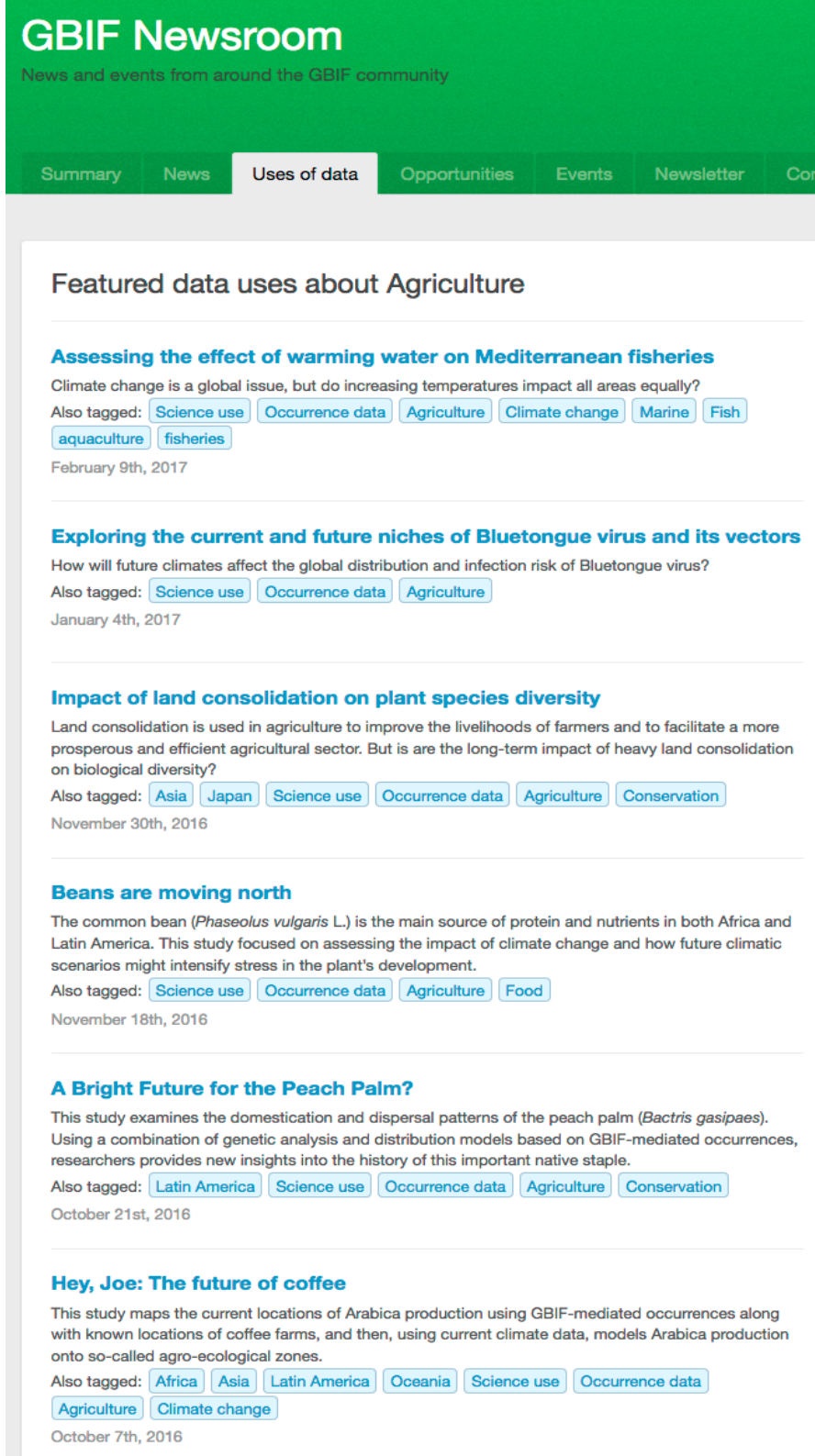
GBIF Data examples of use

USING DATA THROUGH GBIF

GBIF has established itself as an essential infrastructure underpinning science and policy related to biodiversity. Demonstrated by the growing volume of peer-reviewed research using data discovered and accessed through GBIF.

Featured examples of use in Agriculture:

http://www.gbif.org/newsroom/uses/agriculture



FEATURED RESEARCH AGRICULTURE

Well-stored common beans (Phaseolus vulgaris) by ICIPE licensed under CC BY 2.0.

"Coffea arabica" by Forest and Kim Starr licensed under CC BY 2.0.

Ramirez-Cabral NYZ, Kumar L, and Taylor S (2016) Crop niche modeling projects major shifts in common bean growing areas. Agricultural and Forest Meteorology. Elsevier BV, 102–113. Available at doi: 10.1016/j.agrformet.2015.12.002. Author countries: Australia, Mexico. 108 601 species occurrence data records used. Crop: Beans, *Phaseolus vulgaris* L. – (GBIF News story)

Bunn, C, Läderach, P, Pérez Jimenez, JG, Montagnon, C, & Schilling, T (2015). Multiclass Classification of Agro-Ecological Zones for Arabica Coffee: An Improved Understanding of the Impacts of Climate Change. *PloS One*, *10*(10), e0140490. doi:10.1371/journal.pone.0140490. Author countries: Colombia, Nicaragua, United States. Crop: Arabica coffee (*Coffea arabica*) – GBIF News Story

Dupin J, Matzke NJ, Särkinen T et al. (2016) Bayesian estimation of the global biogeographical history of the Solanaceae. Journal of Biogeography doi:10.1111/jbi.12898. Author countries: United States, Australia, United Kingdom. Crop: Potato, *Solanaceae* – GBIF News Story

Samy AM and Peterson AT (2016) Climate Change Influences on the Global Potential Distribution of Bluetongue Virus. PLOS ONE. Public Library of Science (PLoS) 11(3): e0150489. Available at doi:10.1371/journal.pone.0150489. Author countries: United States, Egypt. 40 species occurrence data records used. Crop: Genus *Culicoides* (insect pest) -- GBIF News Story

Idohou, R et al. (2013) National inventory and prioritization of crop wild relatives: case study for Benin. *Genetic Resources and Crop Evolution* 60(4):1337-1352. doi:10.1007/s10722-012-9923-6. Author countries: Benin, China, United Kingdom. 266 CWR species data used. Crop: Crop Wild Relatives (CWR) – GBIF News Story

Shabani, F, Kumar, L, and Taylor, S (2012) Climate Change Impacts on the Future Distribution of Date Palms: A Modeling Exercise Using CLIMEX V. Magar, ed. PLoS ONE, 7(10), p.e48021. doi:10.1371/journal.pone.0048021. Author countries: Australia. 163 species occurrence records used. Crop: date palms (*Phoenix dactylifera)* – *GBIF News Story*

FEATURED RESEARCH AGRICULTURE

Aegilops cylindrica roadside in Montana by Matt Lavin licensed under CC BY 2.0.

Peach palm (Bactris gasipaes) by CIFOR licensed under CC BY-NC 2.0

Ostrowski M, Prosperi J, and David J (2016) Potential Implications of Climate Change on Aegilops Species Distribution: Sympatry of These Crop Wild Relatives with the Major European Crop Triticum aestivum and Conservation Issues. PloS one 11(4) e0153974. doi:10.1371/journal.pone.0153974

Galluzzi, G, Dufour, D, Thomas, E, van Zonneveld, M, Escobar Salamanca, AF, Giraldo Toro, A, … Gonzalez Mejia, A (2015). An Integrated Hypothesis on the Domestication of Bactris gasipaes. *PloS One*, *10*(12), e0144644. doi:10.1371/journal.pone.0144644. Author countries: Colombia, Costa Rica. Crop: Peach palm (*Bactris gasipaes*) -- GBIF News Story

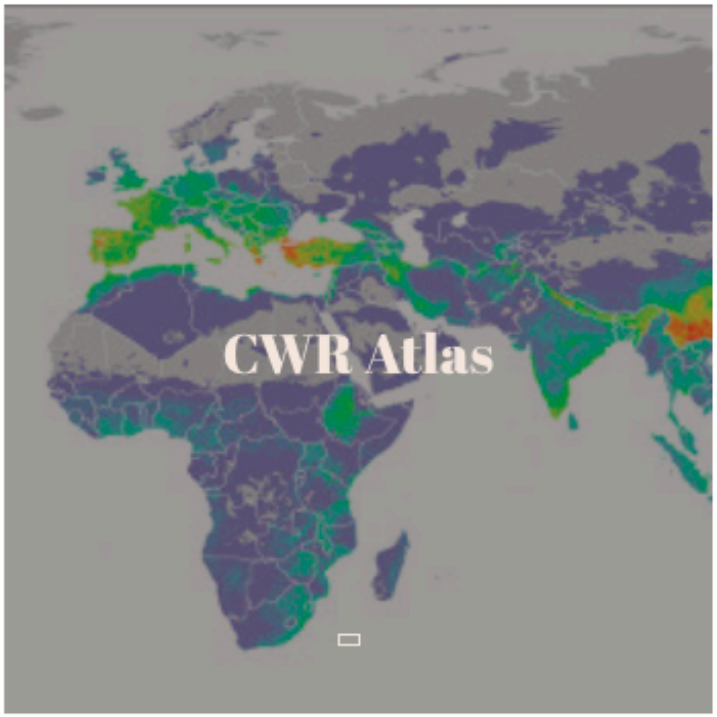
Solberg, SØ and Chou, YY (2017) Conservation of Indigenous Vegetables from a Hotspot in Tropical Asia: What Did We Learn from Vavilov? *Frontiers in Plant Science*. doi:10.3389/fpls.2016.01982 *Author country*: Taiwan. 108 787 species occurrence records used. Crop: Vegetables.

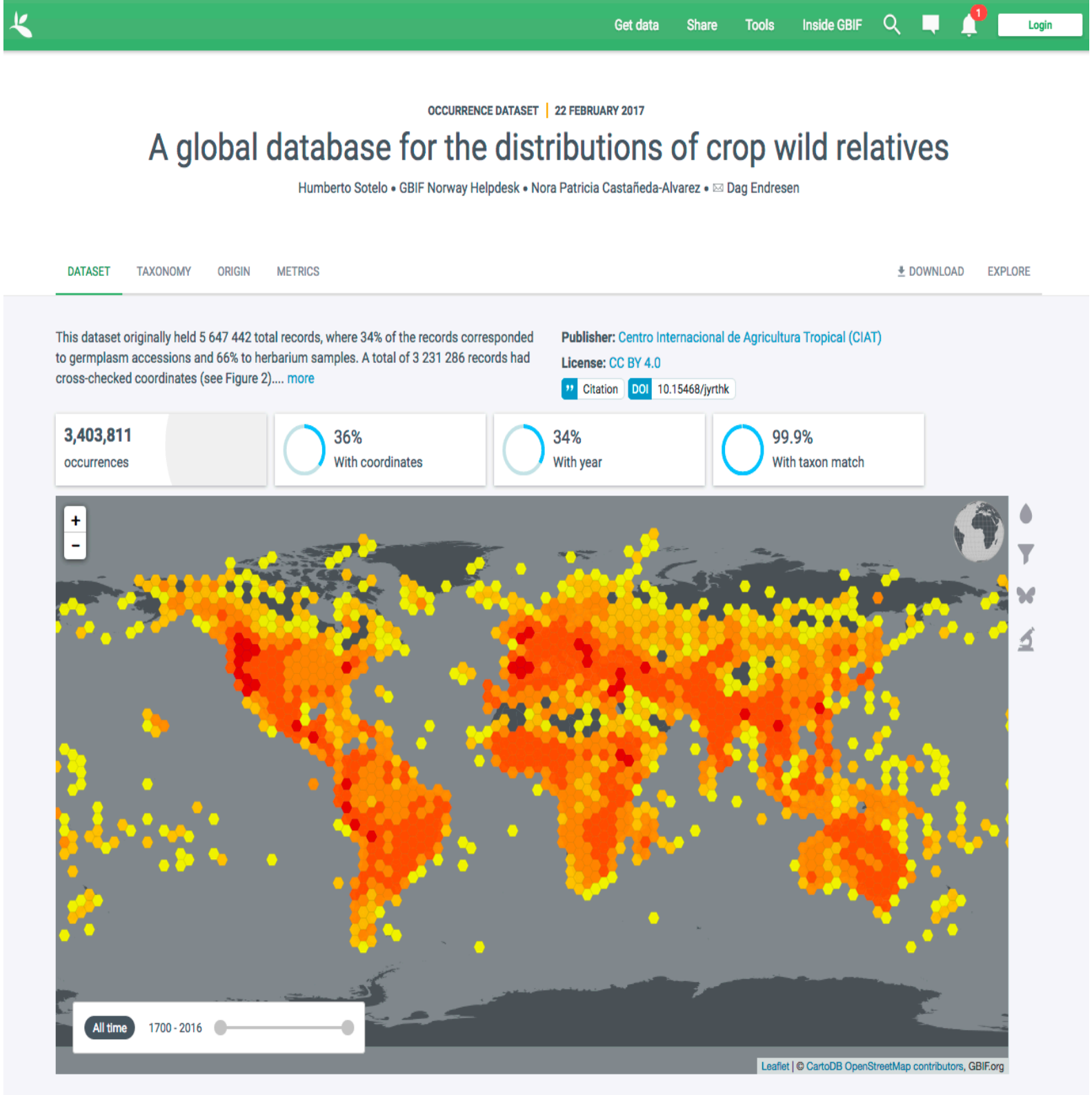
Pranovi F, Anelli Monti M, Brigolin D, and Zucchetta M (2016) The Influence of the Spatial Scale on the Fishery Landings-SST Relationship. Frontiers in Marine Science. Frontiers Media SA 3. Available at doi:10.3389/fmars.2016.00143. Author countries: Italy. 25 000 species occurrence data records used.

Osawa T, Kohyama K and Mitsuhashi H (2016) Trade-off relationship between modern agriculture and biodiversity: Heavy consolidation work has a long-term negative impact on plant species diversity. Land Use Policy. Elsevier BV, 78–84. Available at doi:10.1016/j.landusepol.2016.02.001. Author countries: Japan. 1000 species occurrence data records used.

Phillips J, Asdal Å, Brehm JM, Rasmussen M, and Maxted N (2016) In situ and ex situ diversity analysis of priority crop wild relatives in Norway. Diversity and distributions 22(11): 1112-1126. doi:10.1111/ddi.12470. Author countries: United Kingdom, Portugal, Norway.

Resources

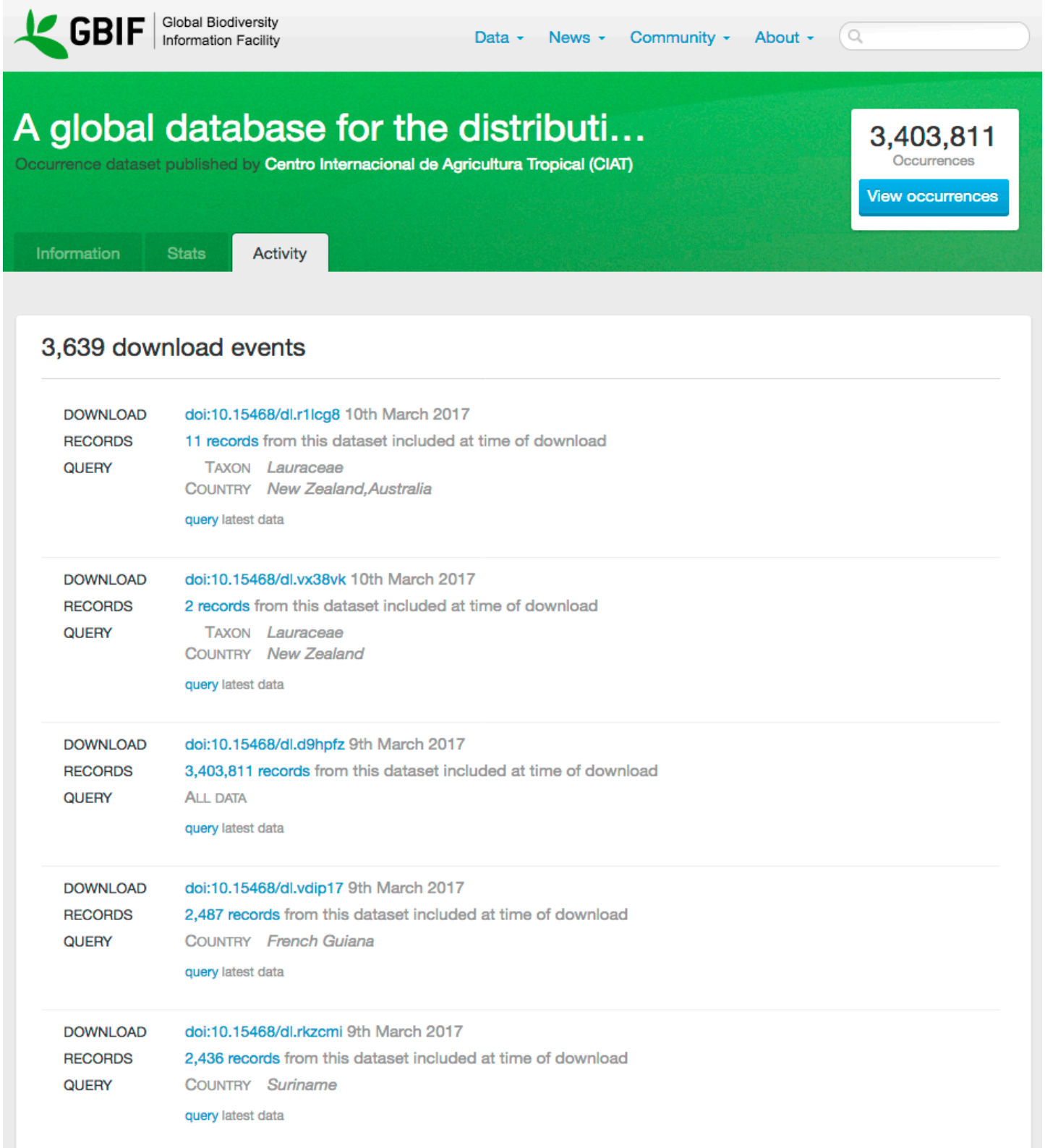




The Global Crop Wild Relative Occurrence Database include data from hundreds of data sources – including GBIF

The CWR Database is again published in GBIF (*excluding the data records originating from GBIF*)

DOI: 10.15468/jyrthk



crop wild relatives

GBIF provides metrics for the use of datasets downloaded from the GBIF portal

Each downloaded set of records is assigned a unique DOI for automatic citation tracking

doi:10.15468/dl.r1lcg8
doi:10.15468/dl.vx38vk
doi:10.15468/dl.d9hpfz
doi:10.15468/dl.d9hpfz
…

Plant in focus: Prickly lettuce

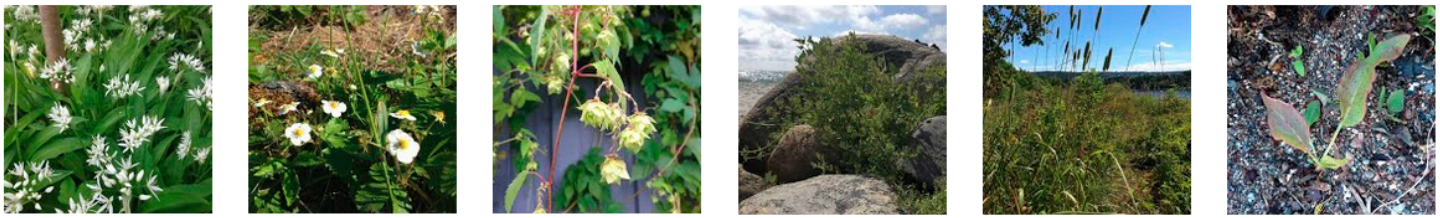
The wild flora holds a number of plant species that, even though we might not be aware of it, represent an important part of what we call genetic resources. Often lacking the physical characteristics that otherwise would make us pay attention, such as e.g. spectacular flowers, they are regularly equipped with different types of defenses like spines or thorns, burning or sticky glandular hairs, or bitter flavors. A good example of this is **prickly lettuce** (Lactuca serriola L.).

Nordic CWR project in iNaturalist

Help us to map the distribution of crop wild relatives (CWR) in the Nordic countries! You are invited to add your own observations to the Nordic CWR group at the iNaturalist portal. iNaturalist is an open, international and online citizen science portal for reporting biodiversity observations. Observations can be added directly at the website or by using a mobile app on your smartphone. Georeferenced observations with a species name that has been verified by at least one other person will be published in GBIF.

Nordic CWR iNaturalist group: http://www.inaturalist.org/projects/nordic-crop-wild-relatives

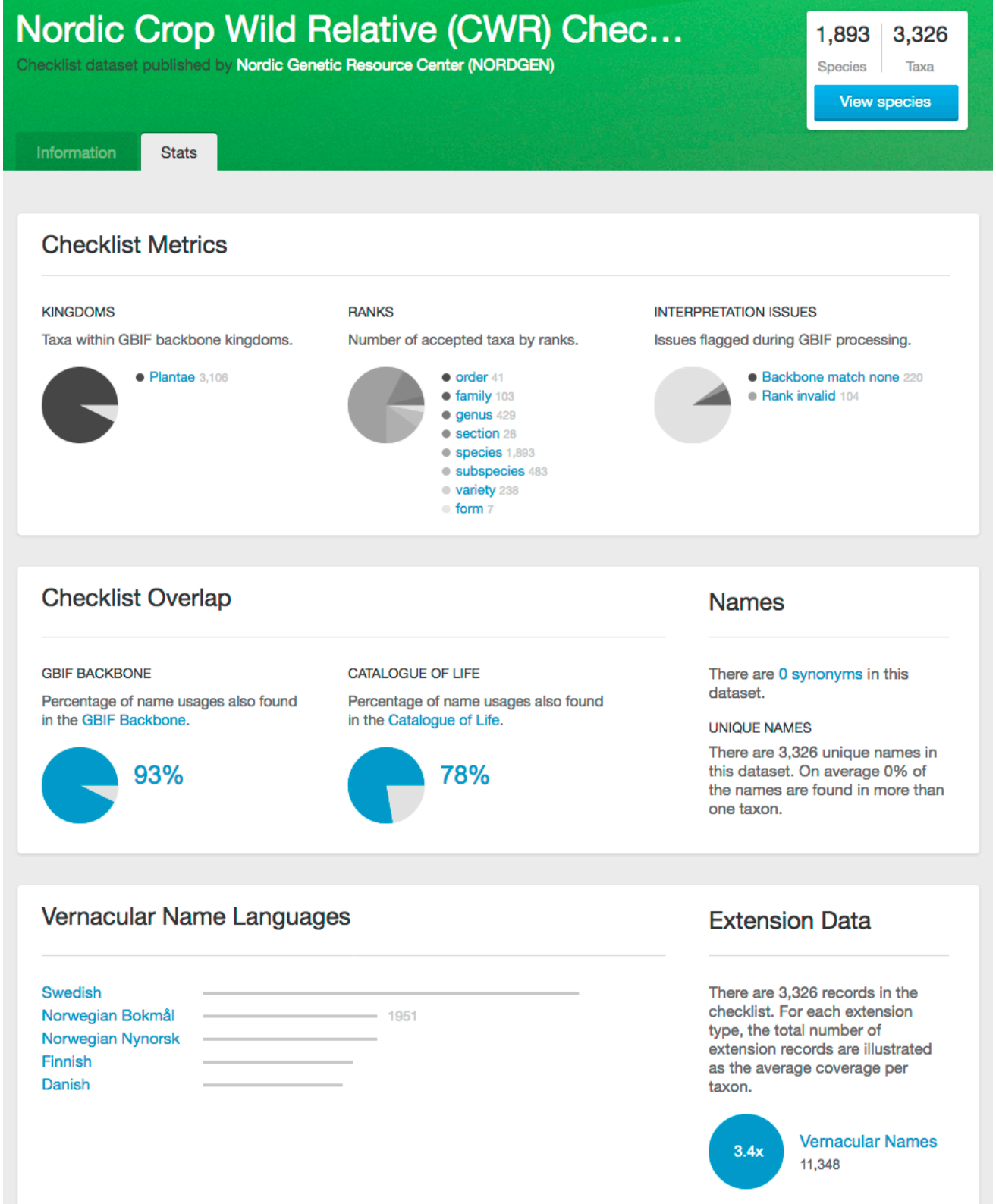
List of Nordic CWR species: http://www.inaturalist.org/lists/525787-Nordic-Crop-Wild-Relativess-Check-List?rank=species



NordGen

The Nordic CWR Relative Checklist is published in GBIF

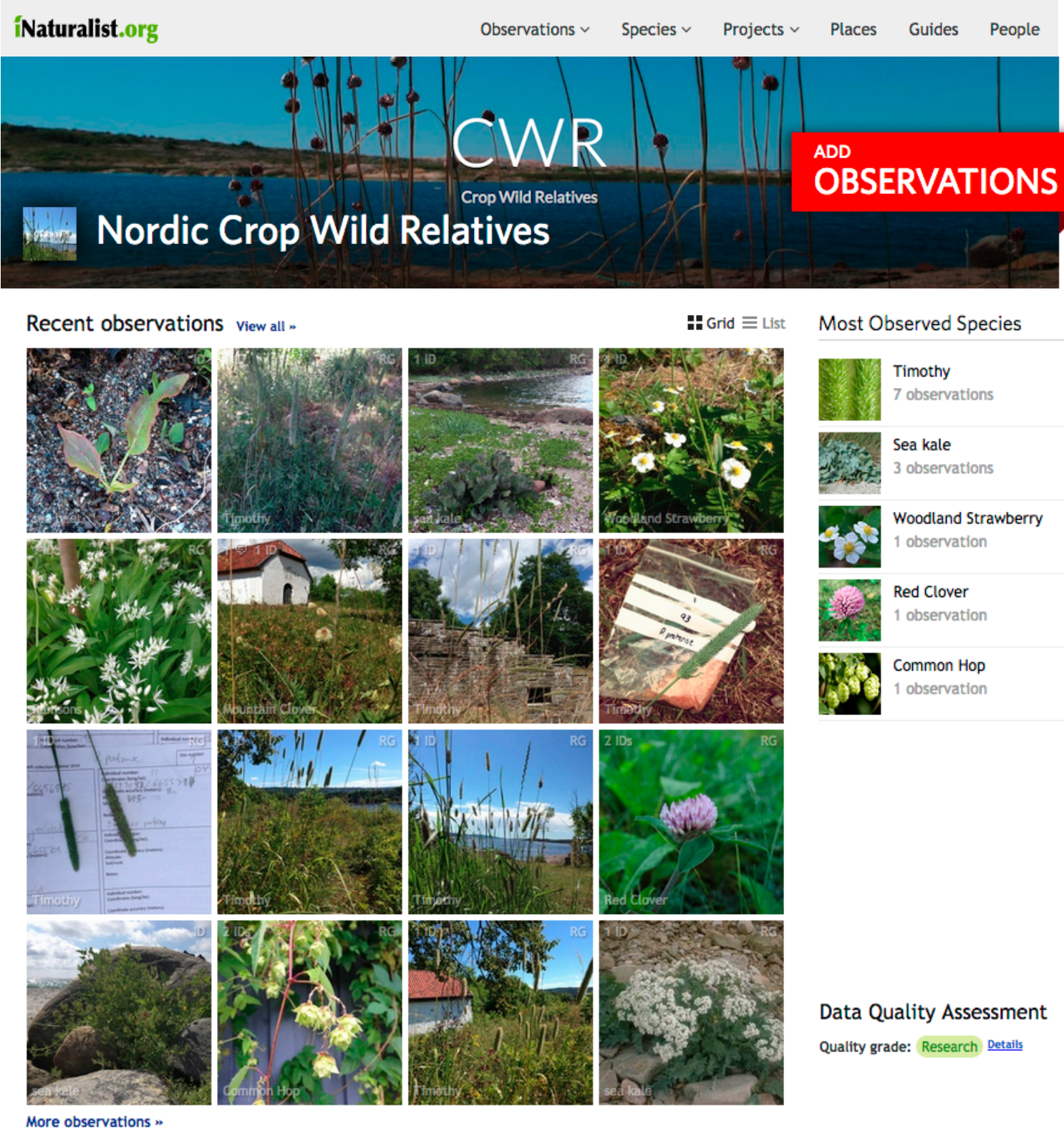
doi:10.15468/itkype



NordGen

The Nordic CWR Relative Checklist is published in GBIF

doi:10.15468/itkype



iNaturalist

Add your own observations to this [Nordic CWR group in iNaturalist]

Observations peer-review validated by other amateur naturalists are published in GBIF

Climate change and national crop wild relative conservation planning

Authors | Authors and affiliations

Jade Phillips, Joana Magos Brehm, Bob van Oort, Åsmund Asdal, Morten Rasmussen, Nigel Maxted

Report

First Online: 18 February 2017

DOI: 10.1007/s13280-017-0905-y

Cite this article as:
Phillips, J., Magos Brehm, J., van Oort, B. et al. Ambio (2017). doi:10.1007/s13280-017-0905-y

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Examples of use for GBIF-mediated data

CWR conservation

Development of a conservation plan for Crop Wild Relatives in Norway extracted the CWR species occurrence data points from GBIF

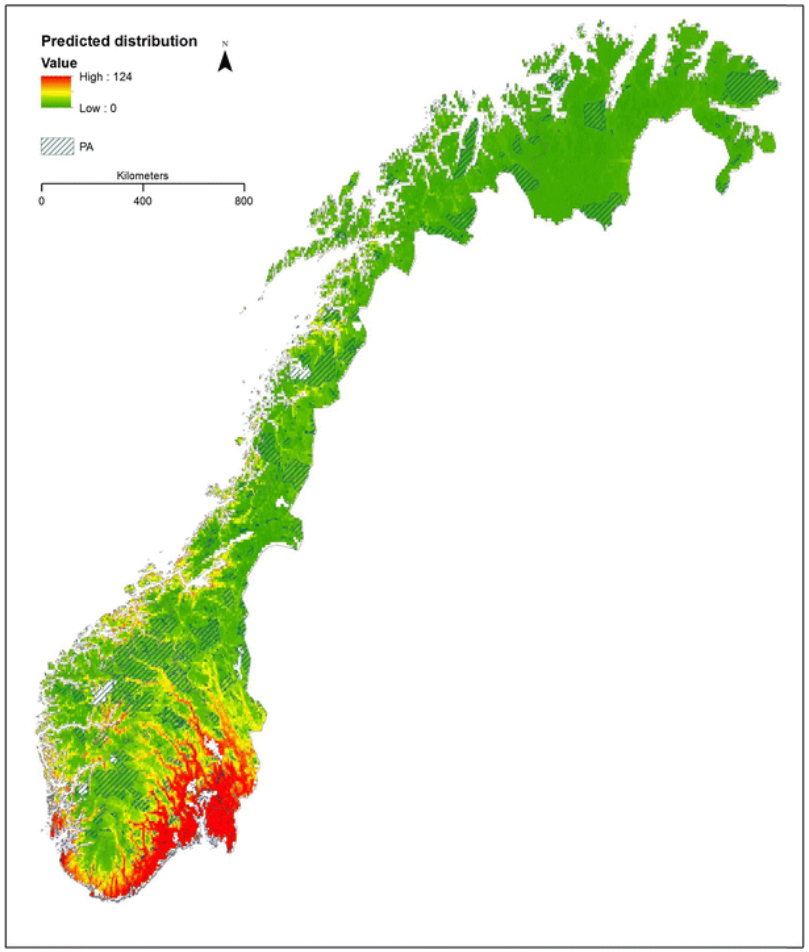

Figure. The predicted distribution of 187 priority CWR in Norway under the current climatic conditions. Red areas indicate taxon-rich areas with up to 124 taxa found there, and green areas indicate low taxon richness. Raster grid cell size 0.0416, approximately equal to 4 × 8 km2

Phillips, J., Magos Brehm, J., van Oort, B. Asdal, Å., Rasmussen, M., Maxted, N. (2017) Climate change and national crop wild relative conservation planning. Ambio. DOI:10.1007/s13280-017-0905-y

Phillips, J. Asdal, Å., Brehm, J.M., Morten Rasmussen M., Maxted, N. (2016) *In situ* and *ex situ* diversity analysis of priority crop wild relatives in Norway. Diversity and Distributions, 22, 1112–1126. DOI: 10.1111/ddi.12470

http://www.gbif.org/newsroom/uses/2016-phillips-et-al

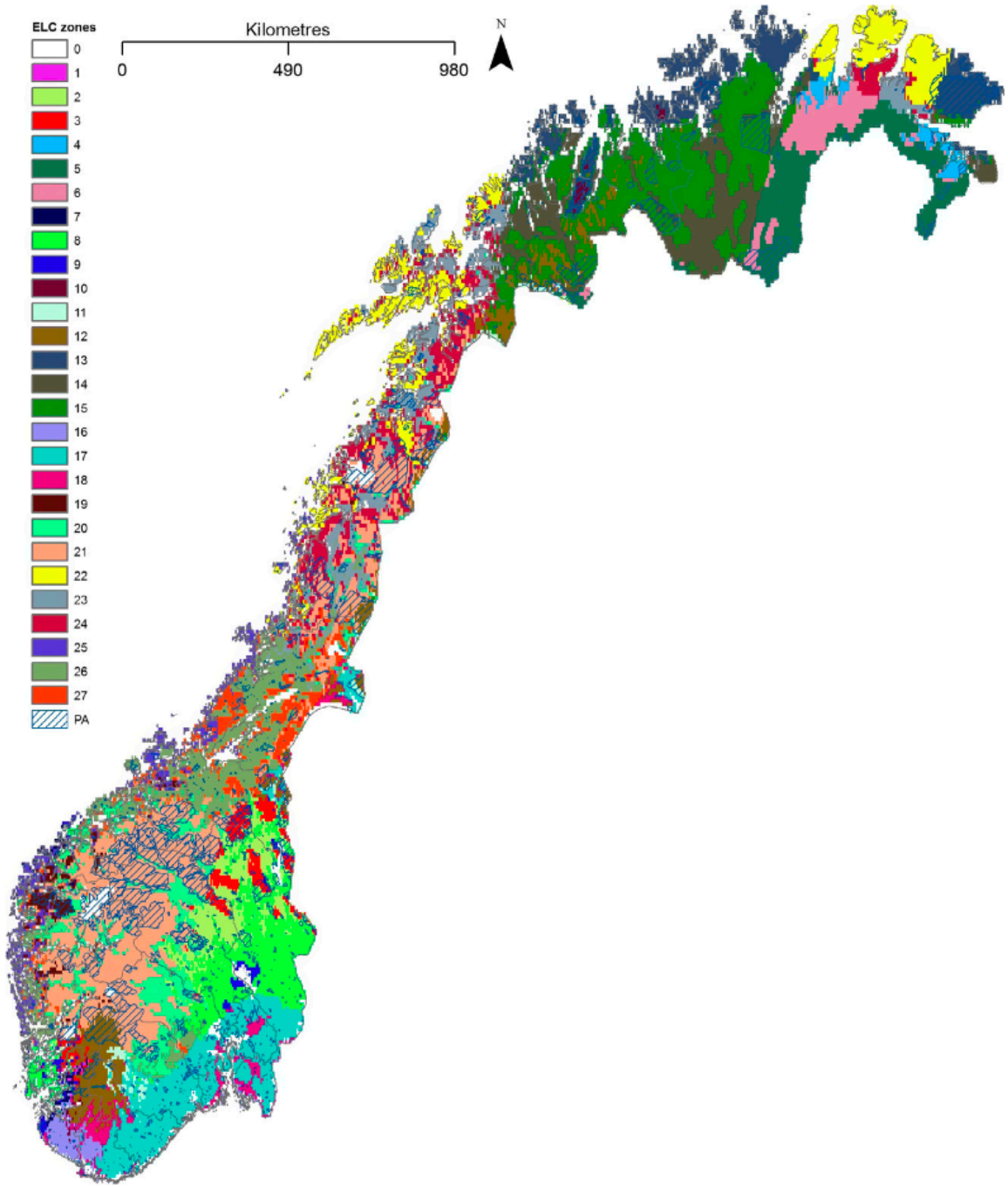

Figure 3 The ELC map for Norway composed of 27 ELC zones each representing a unique combination of environmental variables. See Table S8 for average values in each zone. Zone 0 refers to those areas where information for some of the components making up the map is missing. Variables used to create map: altitude, northness, eastness, slope, precipitation seasonality, isothermality, topsoil organic content and topsoil pH. Created in CAPFITOGEN using the ELC mapas tool. Cell size is equivalent to 10 km^2 at the equator. Map drawn to Geographic Coordinate System: WGS 1984.

Examples of use for GBIF-mediated data

ELC maps

Development of a conservation plan for Crop Wild Relatives in Norway extracted the CWR species occurrence data points from GBIF

Phillips, J., Magos Brehm, J., van Oort, B. Asdal, Å., Rasmussen, M., Maxted, N. (2017) Climate change and national crop wild relative conservation planning. Ambio. DOI:10.1007/s13280-017-0905-y

Phillips, J. Asdal, Å., Brehm, J.M., Morten Rasmussen M., Maxted, N. (2016) *In situ* and *ex situ* diversity analysis of priority crop wild relatives in Norway. Diversity and Distributions, 22, 1112–1126. DOI: 10.1111/ddi.12470

http://www.gbif.org/newsroom/uses/2016-phillips-et-al

If a tree falls in the forest and nobody publish the event in GBIF, did it really happen?

Global Biodiversity Information Facility
free and open access to biodiversity data.

GBIF Norway

UiO : Natural History Museum
University of Oslo

Lunch-seminar 30th March 2017 NMH Tøyen

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Global Biodiversity Information Facility

Free and open access to biodiversity data

hordeum vulgare

OCCURRENCES SPECIES DATASETS PUBLISHERS ACTIVITIES WHAT IS GBIF?

Eulalia microphylla Schmarda, 1861 observed in New Zealand. CC BY-NC 2016 Ryan Brooks via iNaturalist

News from the network

News

GBIF Secretariat seeks Web Developer

2 March 2017

Data Use

Pesticides turn queens into workers

14 March 2017

Data Use

Conserving crop wild relatives to help feed the world

13 March 2017

March

27

2017

Event

IODE XXIV

27 - 31 March 2017

SEARCH ARTICLES, EVENTS AND MORE

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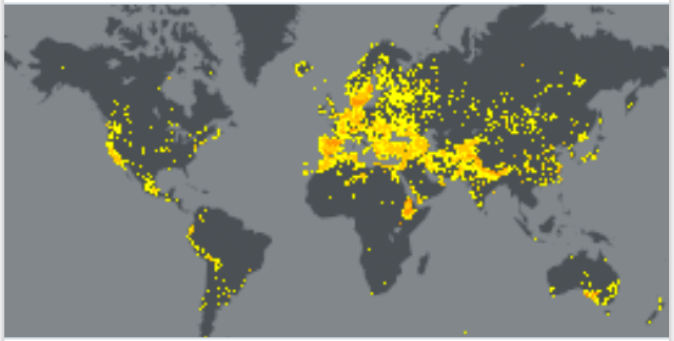
hordeum vulgare

Occurrence Species Dataset Publisher GBIF Network

SPECIES | ACCEPTED

Hordeum vulgare L.



Plantae › Tracheophyta › Liliopsida › Poales › Poaceae › *Hordeum*

Hordeum vulgare L.

Scientific Name	Year	Country
Hordeum vulgare L.	2015	United States
Hordeum vulgare L.	2015	United States
Hordeum vulgare L.	2013	Estonia
Hordeum vulgare L.	2010	Peru
Hordeum vulgare L.	2009	United Kingdom
Hordeum vulgare L.	2006	United States
Hordeum vulgare L.	2003	United States
Hordeum vulgare L.	2003	Germany

205,938 OCCURRENCES

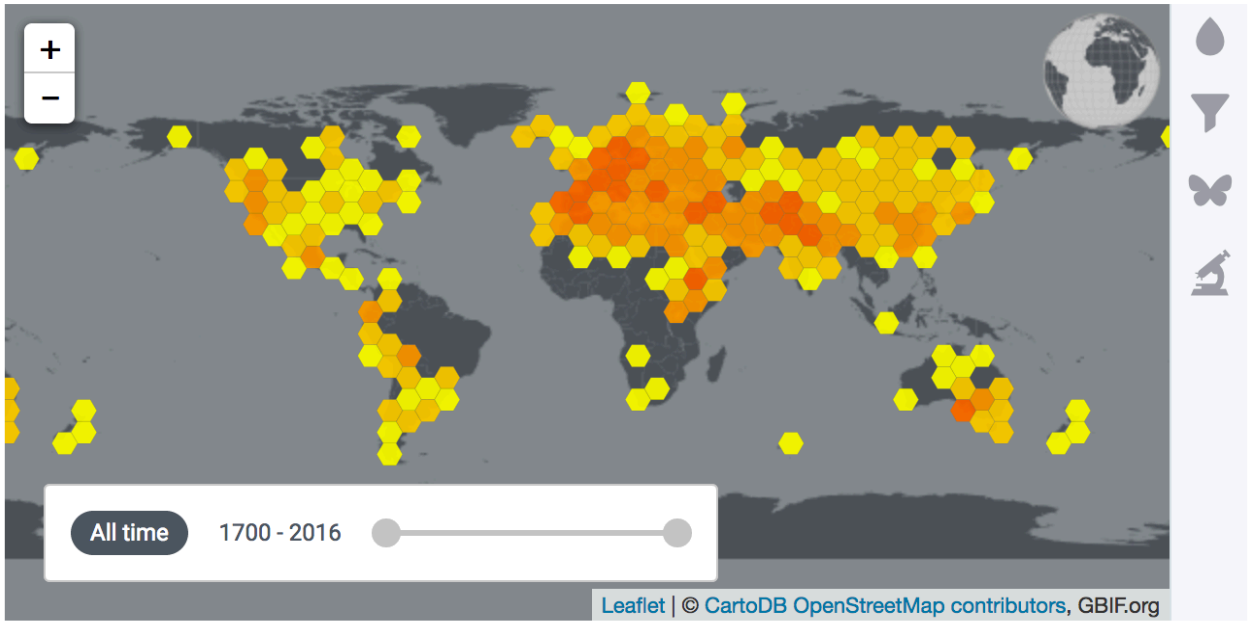
https://demo.gbif.org/search?q=Hordeum%20vulgare

Taxonomy

Plantae KINGDOM 800354
Tracheophyta PHYLUM 693154
Liliopsida CLASS 127024
Poales ORDER 43836
Poaceae FAMILY 22678
Hordeum GENUS 133

Hordeum vulgare L. SPECIES

= *Frumentum hordeum E.H.L.Krause* SPECIES
= *Frumentum sativum E.H.L.Krause* SPECIES
= *Hordeum aestivum R.E.Regel* SPECIES
= *Hordeum agriocrithon* SPECIES
= *Hordeum americanum R.E.Regel* SPECIES
= *Hordeum barbaricum Risso* SPECIES
= *Hordeum bifarium Roth* SPECIES
= *Hordeum brachyatherum R.E.Regel* SPECIES
= *Hordeum caspicum R.E.Regel* SPECIES
= *Hordeum coeleste (L.) P.Beauv.* SPECIES
= *Hordeum coeleste var. barbatum Ser.* VARIETY
= *Hordeum daghestanicum R.E.Regel* SPECIES
= *Hordeum defectoides R.E.Regel* SPECIES
= *Hordeum distichon subsp. distichon* SUBSPECIES
= *Hordeum durum R.E.Regel* SPECIES
= *Hordeum elongatum R.E.Regel* SPECIES
= *Hordeum gymnodistichum Duthie* SPECIES
= *Hordeum heterostychon P.Beauv.*



Type Specimen

NEOTYPE: John Ramsbottom; b.1885; d.1974; Ramsb. (1918) Greece. NHMUK BOT BM000576274
TYPE: W. Schimper Ethiopia. NHMUK BOT BM000060950
TYPE: Anon.. NHMUK BOT BM000576276
TYPE: W. Schimper Ethiopia. NHMUK BOT BM000060949
TYPE: Anon.. NHMUK BOT BM001067335

Vernacular names

ō-mugi bori 보리 Saat-Gerste, Zweizeilige Gerste deu Gerste deu barley eng cereal barley eng common barley eng Barley eng common barley eng barley eng cereal barley eng orge commune fra escourgeon fra orge fra orge carrée fra orge d'hiver fra orge vulgaire fra orzo ita Gerst nld korn swe

Dataset coverage

Hordeum vulgare also appears in 100 occurrence and 22 checklist datasets.

References

Gramíneas sul-rio-grandenses,2 ed.,2008
L. (1753) In: Sp. Pl.: 84
Sp. Pl.,1: 84–85.,1753

Occurrences 1

Search all fields

Simple Advanced

License

Scientific Name

Hordeum vulgare L.

Basis Of Record

Location

Year

Month

Dataset

Country

Issue

Media Type

Institution Code

Collection Code

Catalogue Number

SEARCH OCCURRENCES | 205,938 RESULTS

TABLE GALLERY MAP SPECIES DOWNLOAD

ScientificName	Country	Coordinates	BasisOfRecord
Hordeum vulgare L.	United States	34.1N, 118.2W	human observation
Hordeum vulgare subsp. vulgare	Germany	52.5N, 10.2E	human observation
Hordeum vulgare subsp. vulgare	Germany	52.6N, 10.1E	human observation
Hordeum vulgare subsp. vulgare	Germany	54.7N, 13.2E	human observation
Hordeum vulgare L.	Sweden	59.1N, 12.6E	human observation
Hordeum vulgare L.	Sweden	58.5N, 16.3E	human observation
Hordeum vulgare L.	Norway	59.6N, 11.0E	human observation
Hordeum vulgare subsp. vulgare	Germany	52.6N, 10.1E	human observation
Hordeum vulgare L.	Sweden	55.7N, 13.1E	human observation
Hordeum vulgare subsp. vulgare	Germany	48.9N, 10.3E	human observation
Hordeum vulgare var. vulgare	Sweden	58.4N, 16.8E	human observation
Hordeum vulgare subsp. vulgare	Germany	50.2N, 8.6E	human observation
Hordeum vulgare subsp. vulgare	Germany	49.9N, 8.5E	human observation

Occurrences 1

Search all fields

Simple Advanced

License

CC0 1.0	6,100
CC BY 4.0	195,384
CC BY-NC 4.0	4,453
Unspecified	1
Unsupported	0

Scientific Name

- [x] Hordeum vulgare L.

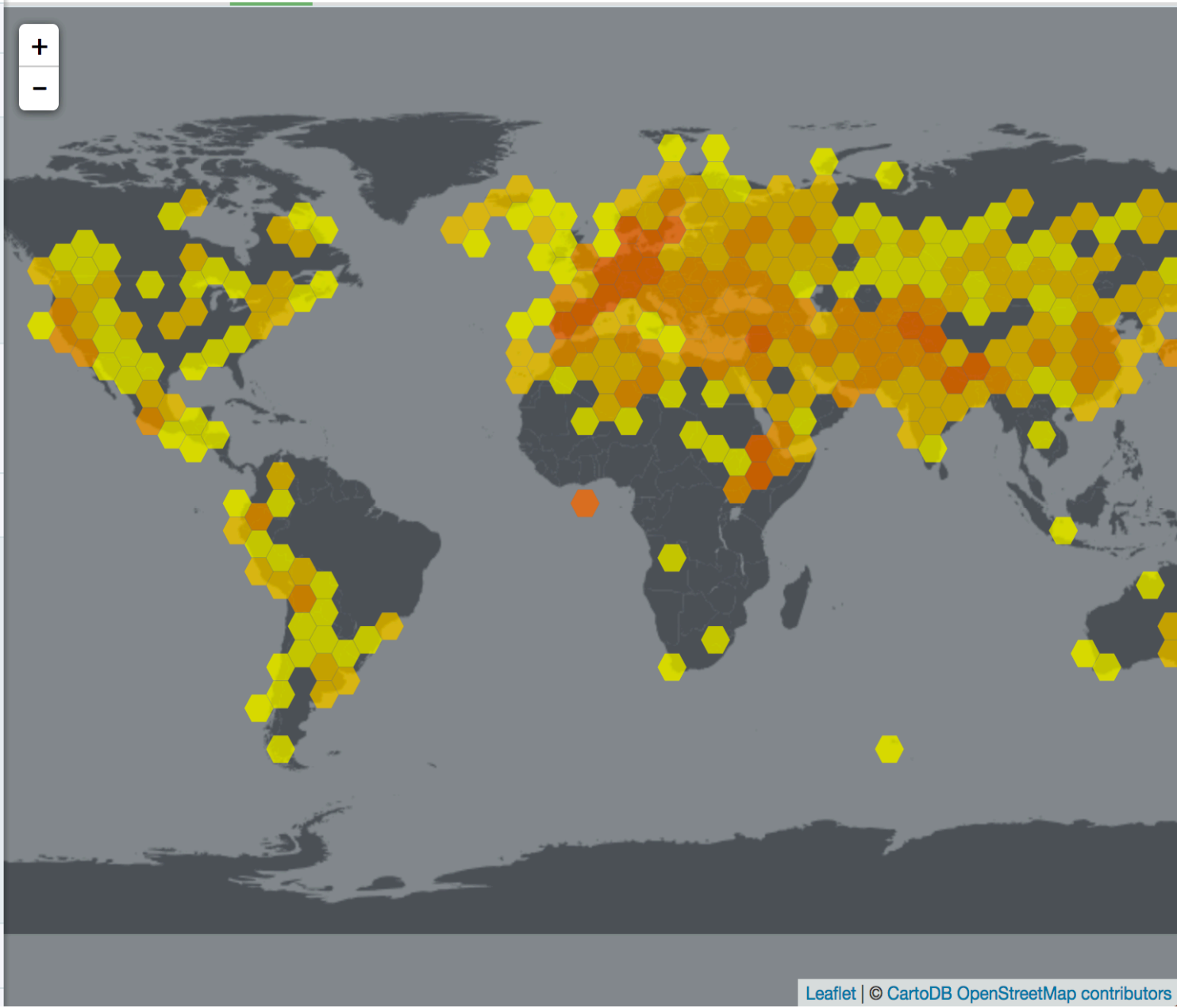
Basis Of Record

Observation	180
Literature	0
Preserved Specimen	74,113
Fossil Specimen	1
Living Specimen	24,392
Human Observation	7,011
Machine Observation	1
Material Sample	0
Unknown	100,240

Location

SEARCH OCCURRENCES | 31,528 WITH COORDINATES

TABLE GALLERY MAP SPECIES DOWNLOAD



Occurrences 1

search

- EURISCO, The European Genetic Resources Search Ca... 66,256
- A global database for the distributions of crop wild rel... 47,375
- The System-wide Information Network for Genetic Res... 36,048
- Nordic Genetic Resources 14,837
- United States National Plant Germplasm System Collec... 8,448
- SINGER Coordinator 7,707
- CZE National PGR Inventory 4,716
- Rye, Barley, Oats Genetic Resources. N.I.Vavilov Resear... 4,100
- Centre for Genetic Resources, the Netherlands, PGR pa... 2,588
- Artdata 2,240

Country

Issue

Media Type

Institution Code

search

- bioversity-ecpgr 30,775
- syr002 24,777
- rus001 16,544
- nordgen 14,837
- bioversity-singer 13,988
- mex002 11,202
- deu146 10,411

SEARCH OCCURRENCES | 205,938 RESULTS

TABLE GALLERY MAP SPECIES DOWNLOAD

ScientificName	Country	Coordinates	BasisOfRecord
Hordeum vulgare L.	United States	34.1N, 118.2W	human observation
Hordeum vulgare subsp. vulgare	Germany	52.5N, 10.2E	human observation
Hordeum vulgare subsp. vulgare	Germany	52.6N, 10.1E	human observation
Hordeum vulgare subsp. vulgare	Germany	54.7N, 13.2E	human observation
Hordeum vulgare L.	Sweden	59.1N, 12.6E	human observation
Hordeum vulgare L.	Sweden	58.5N, 16.3E	human observation
Hordeum vulgare L.	Norway	59.6N, 11.0E	human observation
Hordeum vulgare subsp. vulgare	Germany	52.6N, 10.1E	human observation
Hordeum vulgare L.	Sweden	55.7N, 13.1E	human observation
Hordeum vulgare subsp. vulgare	Germany	48.9N, 10.3E	human observation
Hordeum vulgare var. vulgare	Sweden	58.4N, 16.8E	human observation
Hordeum vulgare subsp. vulgare	Germany	50.2N, 8.6E	human observation
Hordeum vulgare subsp. vulgare	Germany	49.9N, 8.5E	human observation

synced 2 months ago
modified 29 April 2015

OCCURRENCE | 27 JUNE 2013

Hordeum vulgare L.

observed in Estonia

Plantae › Tracheophyta › Liliopsida › Poales › Poaceae › *Hordeum*

Species: Hordeum vulgare L.
Location: Estonia
Basis Of Record: Human Observation

Dataset: iNaturalist Research-grade Observations
Publisher: iNaturalist.org
Reference: http://www.inaturalist.org/observations/325390

Get data Share Tools Inside GBIF

1

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Occurrences

1

SEARCH OCCURRENCES | 205,938 RESULTS

TABLE GALLERY MAP SPECIES DOWNLOAD

Year

Month

Dataset

Country

Issue

Media Type

Institution Code

search

bioversity-ecpgr	30,775
syr002	24,777
rus001	16,544
nordgen	14,837
bioversity-singer	13,988
mex002	11,202
deu146	10,411
ita303	7,707
cze047	5,609
nld037	5,596

Collection Code

Catalogue Number

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Forgot your password?

SIGN IN

By signing in you accept GBIFs terms and privacy policy.

Occurrences 1

SEARCH OCCURRENCES | 205,938 RESULTS

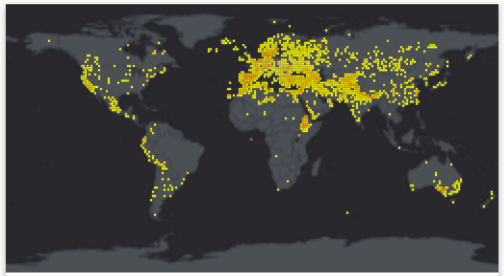
TABLE GALLERY MAP SPECIES DOWNLOAD

Year
Month
Dataset
Country
Issue
Media Type
Institution Code

search

bioversity-ecpgr	30,775
syr002	24,777
rus001	16,544
nordgen	14,837
bioversity-singer	13,988
mex002	11,202
deu146	10,411
ita303	7,707
cze047	5,609
nld037	5,596

Collection Code
Catalogue Number



Total: 205,938
License: CC BY-NC 4.0
Year Range: 1728 - 2016
With Year: 8 %
With Coordinates: 15 %
With Taxon Match: 100 %

CSV

Tab delimited csv. Only contains the data after GBIF interpretation. learn more
est size **14 MB**

Darwin Core Archive

The Darwin Core Archive contains both the original data as publisher provided it and the GBIF interpretation. learn more
est size **35 MB**

Known issues

A part of the GBIF processing is to flag occurrences that have suspicious fields

52,379 Basis of record invalid
15 Coordinate out of range
47,683 Taxon match fuzzy
31,046 Taxon match higherrank
25,456 Geodetic datum assumed wgs84
23,826 Country invalid
4,320 Country derived from coordinates
2,931 Recorded date invalid
2,240 Depth unlikely
1,266 Zero coordinate
1,057 Country coordinate mismatch
371 Individual count invalid
318 Recorded date mismatch
211 Coordinate precision invalid
175 Identified date unlikely
117 Elevation min/max swapped
71 References uri invalid
50 Multimedia uri invalid
32 Geodetic datum invalid
15 Multimedia date invalid
12 Coordinate uncertainty meters invalid
6 Presumed negated longitude
4 Presumed swapped coordinate
1 Presumed negated latitude
1 Recorded date unlikely

DOWNLOAD | 16 MARCH 2017

Under processing

DOI 10.15468/dl.uzesiq

PREPARING

FILTER APPLIED 16 MARCH 2017

RERUN QUERY

Citation: GBIF.org (16 March 2017) GBIF Occurrence Download doi:10.15468/dl.uzesiq

Scientific name Hordeum vulgare l.

API

Includes records from 292 datasets

Naturalis Biodiversity Center (NL) - Crustacea	1
Merseyside BioBank (unverified)	1
Marie-Victorin Herbarium (MT) - Plantes vasculaires	8

Your GBIF data download is ready

Inbox x

downloads@gbif.org 06:29 (0 minutes ago)

to me

Hello dag.endresen,

Your download is available at the following address:
http://api.gbif.org/v1/occurrence/download/request/0070322-160910150852091.zip

When using this dataset please use the following citation:
GBIF.org (16th March 2017) GBIF Occurrence Download http://doi.org/10.15468/dl.uzesiq

Download Information:
DOI: http://doi.org/10.15468/dl.uzesiq (may take some hours before being active)
Creation Date: Thursday, March 16, 2017 5:57:21 AM CET
Records included: 205938 records from 292 published datasets
Data size: 21.2 MB
Download format: DWCA
Filter used: TaxonKey: Hordeum vulgare L.

This download can always be viewed on
http://www.gbif.org/occurrence/download/0070322-160910150852091

For information about download formats please visit
http://www.gbif.org/faq/datause

DOWNLOAD | 16 MARCH 2017

205,938 occurrences downloaded

DOI 10.15468/dl.uzesiq

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Citation: GBIF.org (16 March 2017) GBIF Occurrence Download doi:10.15468/dl.uzesiq

File: 21 MB Darwin Core Archive For how long will GBIF store this data?

Involved Datasets: 292

Scientific name Hordeum vulgare l. API

Includes records from 292 datasets

Naturalis Biodiversity Center (NL) - Crustacea	1
Merseyside BioBank (unverified)	1

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This page will always resolve, but the file itself might be removed in the future.

But what does this mean? It means that storage space and funding isn't infinite. We strive to store all downloads forever, but prioritize downloads that have been cited.

DOI 10.15468/dl.uzesiq

Scientific name Hordeum vulgare l.

RERUN QUERY

DOI 10.15468/dl.mll0bw
Date: 23 February 2017

Occurrences: 1,642
Involved Datasets: 1

And
- Dataset key: A global database for the distributions of crop wild relatives
- Issue: Taxon match none

DOWNLOAD RERUN QUERY

DOI 10.15468/dl.z7jfht
Date: 27 May 2016

Occurrences: 390,329
Involved Datasets: 39

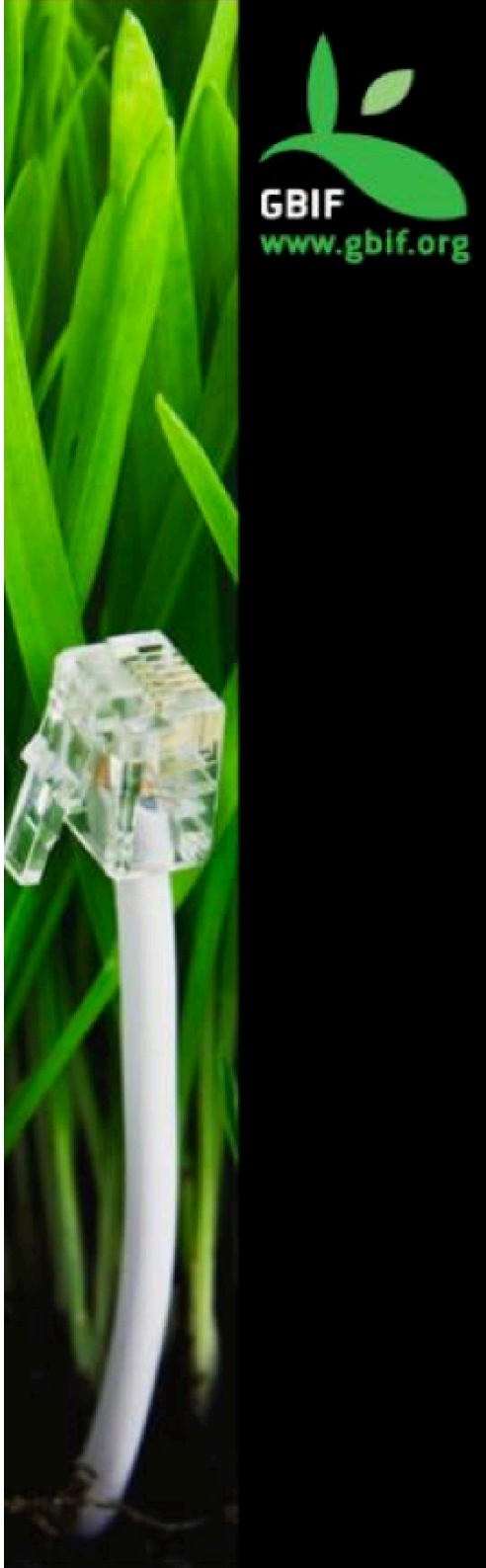
And
- Scientific name: 2704322 • 5359246 • 2993761 • 2882940 • 5359047 • 8400458 • 2705297 • 5376426 • 2986192 • 2875979 • 2975014 • 3140552 • 3034742 • 2998290 • 2984535 • 2704922 • 3140270 • 5383920 • 3001509 • 2992543 • 2986185 • 2704178 • 3041022 • 5358748 • 5375547 • 5374614 • 8324121 • 3054368 • 7931731 • 5289684 • 8073364 • 7903057 • 7515176 • 2705308 • 6109535 • 3021922 • 2986097 • 8350369 • 2706005 • 2855860 • 5708780 • 4129708 • 3020791 • 3047598 • 2704261 • 5373533 • 2706241 • 3023221 • 5358812 • 7580783 • 2995209 • 2975076 • 8255803 • 3001244 • 3140410 • 2992051 • 3029817 • 3140490 • 2965201 • 2965324 • 2974915 • 2704951 • 3042658 • 8300875 • 5359499 • 3022789 • 3021730 • 5358683 • 2882835 • 8270537 • 2768885 • 2882833 • 2996525 • 8235931 • 8344892 • 3034714 • 5362573 • 2986129 • 2993094 • 2704955
- Country: Sweden
- Has coordinate: True
- Year: After 1970

DOWNLOAD RERUN QUERY

Services to enable data analysis

GBIF DATA PORTAL API

An interface to access data published through the GBIF network using web services.



ROPENSCI : RGBIF

```
library(rgbif)
key <- name_backbone(name='Hepatica nobilis', kingdom='Plantae')$speciesKey
sp <- occ_search(taxonKey=key, return='data', hasCoordinate=TRUE, limit=1000)
gbifmap(sp)
```

Data citation with DOI

SCHOLARLY DATA CITATION IS GOOD RESEARCH PRACTICE

- **Data citation** integrated part of the scholarly system
- Supporting research **validation** and **reproducibility**
- **Enable reuse** of research output and results
- **Tracking impact** of published data
- Scholarly structure to **reward and credit people** involved in producing research data

DOI – DIGITAL OBJECT IDENTIFIER

Persistent resolvable identifiers

Standard for scholarly journal papers

Simplify citation of references

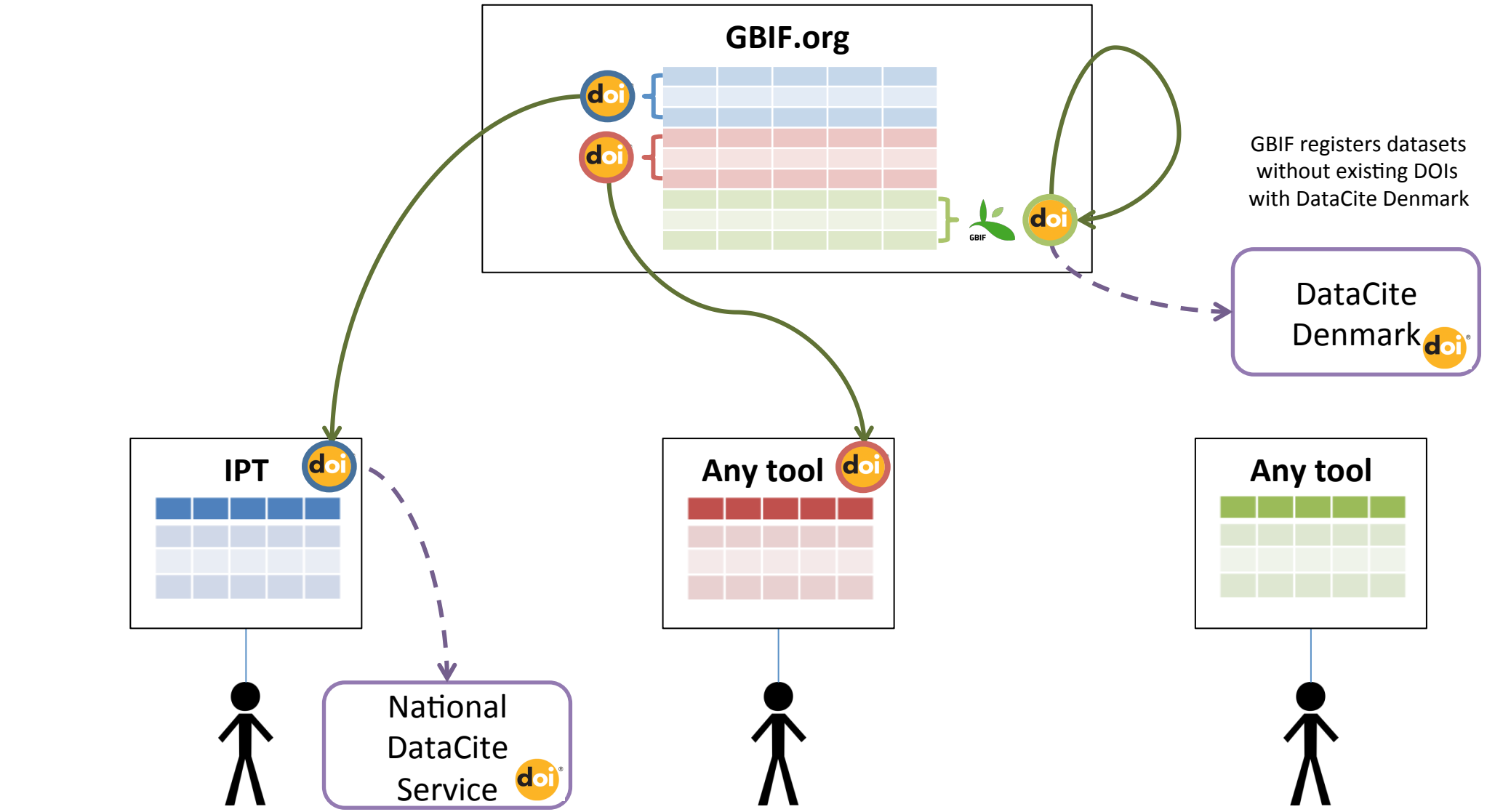
Used for **measuring impact**

Crossref

DataCite

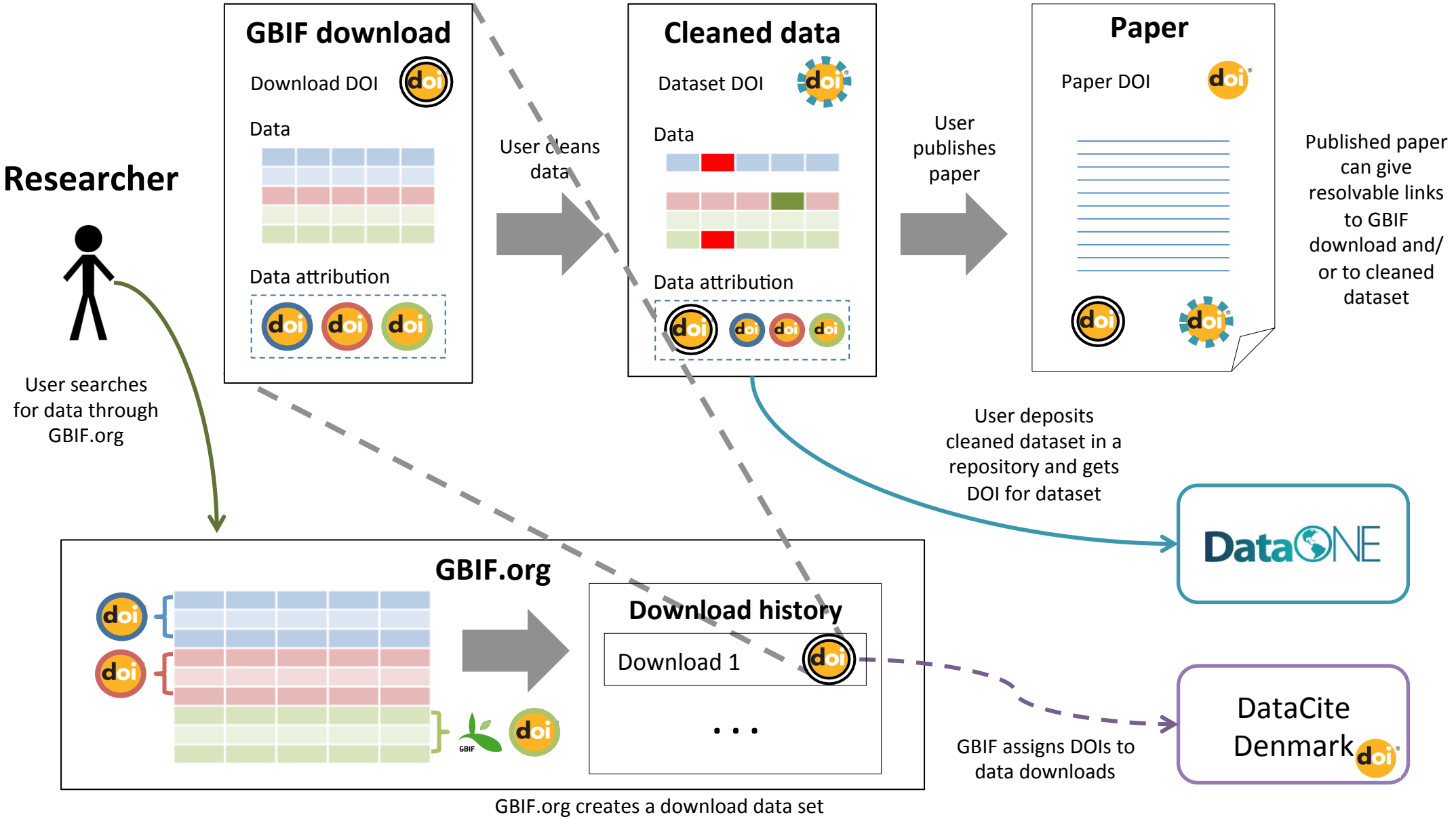
GBIF.org

GBIF & DIGITAL OBJECT IDENTIFIERS (DOI)



GBIF dataset DOI launced in September 2014: http://vimeo.com/107148220#t=6m28s

GBIF & DIGITAL OBJECT IDENTIFIERS (DOI)



GBIF dataset DOI launched in September 2014: http://vimeo.com/107148220#t=6m28s

WHO HAS CITED YOUR DATA RESOURCE?

CrossRef services link citations between scientific journal articles

With CrossRef you can discover who has cited your research paper!

Services to link dataset citations (DataCite DOI) with CrossRef systems

Towards services in CrossRef to discover who cited your research data …

http://blog.crossref.org/?s=DataCite

Occurrence download

doi:10.15468/dl.h6fdbn 20th October 2016

1,101,724
Occurrences

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The doi:10.1

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QUERY

SIZE
FORMAT
STATUS

820 datasets contributed data to this download

DATASET	Marie-Victorin Herbarium (MT) - Plantes vasculaires
RECORDS	333 records from this dataset included at time of download
IDENTIFIER	doi:10.5886/rzav8bu2
CITATION	Marie-Victorin Herbarium (MT) from University of Montreal Biodiversity Centre. http://dx.doi.org/10.5886/rzav8bu2 (accessed on [date]).

DATASET	National Trust - Wicken Fen nature reserve species data held by The National Trust
RECORDS	46 records from this dataset included at time of download
IDENTIFIER	doi:10.15468/iqeemg
CITATION	UK National Biodiversity Network: National Trust - Wicken Fen nature reserve species data held by The National Trust

DATASET	OEH Atlas of NSW Wildlife
RECORDS	4,137 records from this dataset included at time of download
IDENTIFIER	doi:10.15468/14jd9g
CITATION	Office of Environment and Heritage, Department of Premier and Cabinet representing the State of New South Wales: OEH Atlas of NSW Wildlife

DATASET	A global database for the distributions of crop wild relatives
RECORDS	28,096 records from this dataset included at time of download
IDENTIFIER	doi:10.15468/jyrthk
CITATION	Global Consortium of Crop Wild Relative Occurence Data Providers. 2015. A global database for the distributions of crop wild relatives. Scientifc data (in prep)

First 2 3 4 5 6 ... Last

Data Licenses

(machine-readable license)

creative commons

CC 0 ZERO

CC BY

CC BY NC

LICENSING FOR DATA PUBLISHED THROUGH GBIF

GBIF Governing Board established in 2014 support in GBIF for three licenses
Status: set for all datasets published in GBIF since August 2016

creative commons

GBIF Portal (status December 2016)

CC0	57 %	(409 million records)
CC BY 4.0	30 %	(215 million records)
CC BY NC 4.0	13 %	(93 million records)

DATA LICENSE REGULATES THE POSSIBILITY FOR REUSE OF DATA

CC0 data are made available for any use **without restriction** or particular requirements on the part of users.

CC BY data are made available for any use **provided that attribution is appropriately given** for the sources of data used.

CC NC data are made available for ***no-commercial*** use – however, how to limit what is considered to be "commercial use"?

CC SA data are made available provided conditional that derived products also are ***shared alike*** as CC SA – notice that this could block desired commercial products?

CC ND data are made available for verification read-only, however no modifications or derived products are allowed (blocking reuse)!

H2020 – OPEN DATA BY DEFAULT FROM 2017

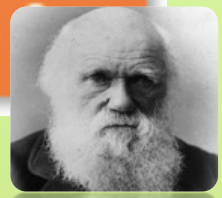
Open Access EC
@OpenAccessEC

Official! From 2017 no more pilot: #open #research #data will become the rule (with opt out) ec.europa.eu/digital-single …

The Commission will make open research data the default option, while ensuring opt-outs, for all new projects of the Horizon 2020 programme.	As of 2017

RETWEETS 157 LIKES 73

Kilde: OpenAIRE & EUDAT, CC-BY-4.0, 2013



Biodiversity Information Standards TDWG

GBIF.org

Darwin Core

data exchange standard

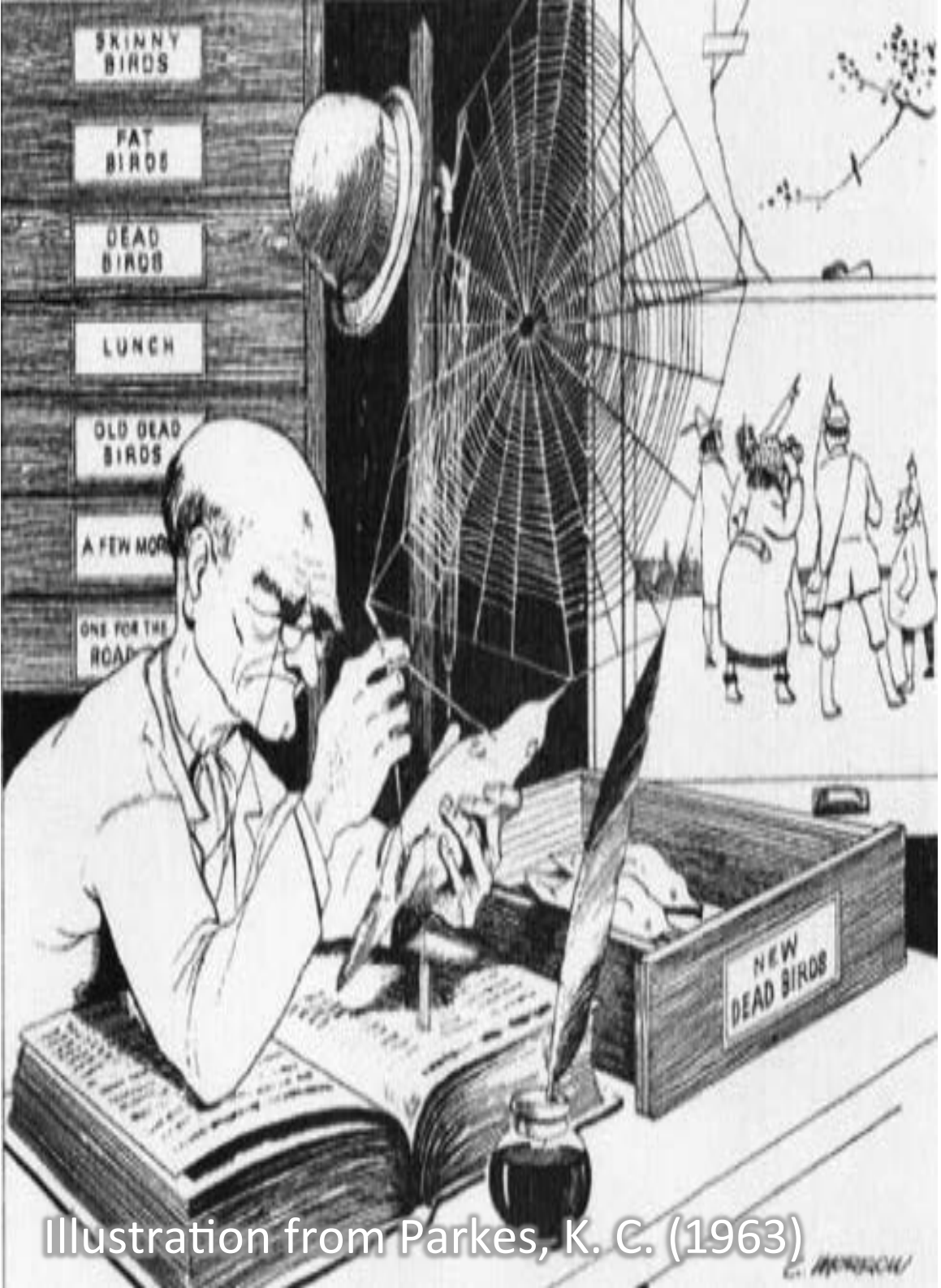


Illustration from Parkes, K. C. (1963)

Collections provide a unique resource – *when they are digitized and made publically available*.

Natural scientists can study historical samples and their properties for specimens archived together with information about:

What – Where – When – Who

The archived specimens provide access for scientists of today to DNA from individual specimens sampled hundreds of years ago – *some specimens even pre-dating Carl Linnaeus (1707-1778)*.

Darwin Core – a vocabulary of terms

Wieczorek J, Bloom D, Guralnick R, Blum S, Döring M, De Giovanni R, Robertson T, and Vieglais D (2012) Darwin Core: An Evolving Community-Developed Biodiversity Data Standard. *PLoS ONE* 7(1): e29715. (doi:10.1371/journal.pone.0029715)

Record-level Terms
dcterms:type | dcterms:modified | dcterms:language | dcterms:rights | dcterms:rightsHolder | dcterms:accessRights | dcterms:bibliographicCitation | dcterms:references | **institutionID** | **collectionID** | **datasetID** | **institutionCode** | **collectionCode** | **datasetName** | ownerInstitutionCode | **basisOfRecord** | informationWithheld | dataGeneralizations | dynamicProperties

Occurrence
occurrenceID | **catalogNumber** | **recordNumber** | **recordedBy** | individualCount | organismQuantity | organismQuantityType | sex | lifeStage | reproductiveCondition | behavior | establishmentMeans | occurrenceStatus | preparations | disposition | associatedMedia | associatedReferences | associatedSequences | associatedTaxa | otherCatalogNumbers | occurrenceRemarks

Organism
organismID | organismName | organismScope | assocoatedOccurrences | associatedOrganisms | previousIdentifications | organismRemarks

MaterialSample | **LivingSpecimen** | **PreservedSpecimen** | **FossilSpecimen**
materialSampleID

Event | **HumanObservation** | **MachineObservation**
eventID | **parentEventID** | **fieldNumber** | **eventDate** | eventTime | startDayOfYear | endDayOfYear | year | month | day | verbatimEventDate | habitat | samplingProtocol | sampleSizeValue | sampleSizeUnit | samplingEffort | fieldNotes | eventRemarks

Location
locationID | **higherGeographyID** | **higherGeography** | continent | waterBody | islandGroup | island | country | countryCode | stateProvince | county | municipality | **locality** | verbatimLocality | verbatimElevation | minimumElevationInMeters | maximumElevationInMeters | verbatimDepth | minimumDepthInMeters | maximumDepthInMeters | minimumDistanceAboveSurfaceInMeters | maximumDistanceAboveSurfaceInMeters | locationAccordingTo | locationRemarks | verbatimCoordinates | verbatimLatitude | verbatimLongitude | verbatimCoordinateSystem | verbatimSRS | **decimalLatitude** | **decimalLongitude** | geodeticDatum | **coordinateUncertaintyInMeters** | coordinatePrecision | pointRadiusSpatialFit | footprintWKT | footprintSRS | footprintSpatialFit | georeferencedBy | georeferencedDate | georeferenceProtocol | georeferenceSources | georeferenceVerificationStatus | georeferenceRemarks

GeologicalContext
geologicalContextID | earliestEonOrLowestEonothem | latestEonOrHighestEonothem | earliestEraOrLowestErathem | latestEraOrHighestErathem | earliestPeriodOrLowestSystem | latestPeriodOrHighestSystem | earliestEpochOrLowestSeries | latestEpochOrHighestSeries | earliestAgeOrLowestStage | latestAgeOrHighestStage | lowestBiostratigraphicZone | highestBiostratigraphicZone | lithostratigraphicTerms | group | formation | member | bed

Identification
identificationID | identifiedBy | typeStatus | identificationQualifier | dateIdentified | identificationReferences | identificationVerificationStatus | identificationRemarks

Taxon
taxonID | **scientificNameID** | **acceptedNameUsageID** | **parentNameUsageID** | **originalNameUsageID** | **nameAccordingToID** | **namePublishedInID** | **taxonConceptID** | **scientificName** | acceptedNameUsage | parentNameUsage | originalNameUsage | nameAccordingTo | namePublishedIn | namePublishedInYear | higherClassification | kingdom | phylum | class | order | family | genus | subgenus | specificEpithet | infraspecificEpithet | taxonRank | verbatimTaxonRank | scientificNameAuthorship | vernacularName | nomenclaturalCode | taxonomicStatus | nomenclaturalStatus | taxonRemarks

ResourceRelationship (*Auxiliary Terms*)
resourceRelationshipID | **resourceID** | **relatedResourceID** | relationshipOfResource | relationshipAccordingTo | relationshipEstablishedDate | relationshipRemarks

MeasurementOrFact (*Auxiliary Terms*)
measurementID | measurementType | measurementValue | measurementAccuracy | measurementUnit | measurementDeterminedDate | measurementDeterminedBy | measurementMethod | measurementRemarks

http://rs.tdwg.org/dwc/terms/

	MCPD (2012)	Darwin Core
	(missing)	dwc:datasetID
	(missing)	dwc:occurrenceID
1	INSTCODE	dwc:institutionCode
2	ACCENUMB	dwc:catalogNumber
3	COLLNUMB	dwc:recordNumber
4	COLLCODE	g:collectingInstituteCode
4.1	COLLNAME	dwc:recordedBy
4.1.1	COLLINSTADDRESS	(dwc:recordedBy)
4.2	COLLMISSID	dwc:collectionCode
5	GENUS	dwc:genus
6	SPECIES	dwc:specificEpithet
7	SPAUTHOR	dwc:scientificNameAuthorship
8	SUBTAXA	dwc:infraspecificEpithet
9	SUBTAUTHOR	(dwc:scientificNameAuthorship)
10	CROPNAME	dwc:vernacularName
11	ACCENAME	g:breedingIdentifier
12	ACQDATE	g:acquisitionDate
13	ORIGCTY	dwc:countryCode
14	COLLSITE	dwc:locality
15.1	DECLATITUDE	dwc:decimalLatitude
15.2	LATITUDE	dwc:verbatimLatitude
15.3	DECLONGITUDE	dwc:decimalLongitude
15.4	LONGITUDE	dwc:verbatimLongitude
15.5	COORDUNCERT	dwc:coordinateUncertaintyInMeters
15.6	COORDDATUM	dwc:geodetic.Datum
15.7	GEOREFMETH	dwc:georeferenceSources
16	ELEVATION	dwc:minimumElevationInMeters
17	COLLDATE	dwc:eventDate
18	BREDCODE	g:breederInstituteID
18.1	BREDNAME	g:breedingInstitute
19	SAMPSTAT	g:biologicalStatus
20	ANCEST	g:ancestralData, g:purdyPedigree
21	COLLSRC	g:acquisitionSource
22	DONORCODE	g:donorInstituteID
22.1	DONORNAME	g:donorInstitute
23	DONORNUMB	g:donorsIdentifier
24	OTHERNUMB	dwc:otherCatalogNumbers
25	DUPLSITE	g:safetyDuplicationInstituteID
25.1	DUPLINSTNAME	g:safetyDuplicationInstitute
26	STORAGE	g:storageCondition
27	MLSSTAT	g:mlsStatus
28	REMARKS	dwc:occurrenceRemarks

Mapping of DwC to to MCPD

Evaluation data

Evaluation data is published in an extension (not yet fully searchable)

Example:
http://doi.org/10.15468/gkeszo

http://www.gbif.org/occurrence/1040328345/verbatim

Measurements or Facts - 0

DWC:MEASUREMENTID	1365
DWC:MEASUREMENTVALUE	293
DWC:MEASUREMENTDETERMINEDDATE	9/19/07
DWC:MEASUREMENTUNIT	Bg/kg
DWC:MEASUREMENTTYPE	Cs-137 activity content in fish

Measurements or Facts - 1

DWC:MEASUREMENTID	453
DWC:MEASUREMENTVALUE	286
DWC:MEASUREMENTDETERMINEDDATE	9/19/07
DWC:MEASUREMENTUNIT	gram
DWC:MEASUREMENTTYPE	weight of fish

Measurements or Facts - 2

DWC:MEASUREMENTID	909
DWC:MEASUREMENTVALUE	30.5
DWC:MEASUREMENTDETERMINEDDATE	9/19/07
DWC:MEASUREMENTUNIT	cm
DWC:MEASUREMENTTYPE	length of fish

Øvre Heimdalsvatn, Radiocaesium (Cs-137) monitored annually in brown trout (Salmo trutta)

Latest version published by Natural History Museum, University of Oslo on Jul 12, 2016

"This dataset describes a long time serie for monitoring of radioactive radiocaesium isotope (Cs-137) concentration in the brown trout (Salmo trutta) population in a mountain lake (Øvre Heimdalsvatn) situated on the tree line in the eastern edge of the Jotunheimen Mountains. Ecosystem studies at Øvre Heimdalsvatn started in 1957, while this time series for radioecological monitoring started after the Chernobyl nuclear power plant accident in 1986. The aim of this study was to document the long-term changes in the radioactive isotope Cs-137 in brown trout and to elucidate the factors determining changes in Cs-137 activity concentrations over time. This dataset provides only one time serie from the extensive ecosystem studies (initiated in 1957) at Øvre Heimdalsvatn. The mountain lake is at 1090 meter above sea-level with a surface area of 0.78 square kilometer (km2) (78 hectare). The maximum length is 3 km and the maximum width is 396 m. The largest depth is 13 m and the average depth is 4.7 m. Vegetation near the lake ranges from subalpine birch forest with areas of mountain pasture to high alpine vegetation above 1,600 m a.s.l. Originally brown trout was the sole fish species in the lake, but since 1969 the European minnow (Phoxinus phoxinus) has also been recorded and its numbers have subsequently increased substantially. Brown trout for this study were generally caught by gill netting around the lake."

International Oceanographic
Data and Information Exchange

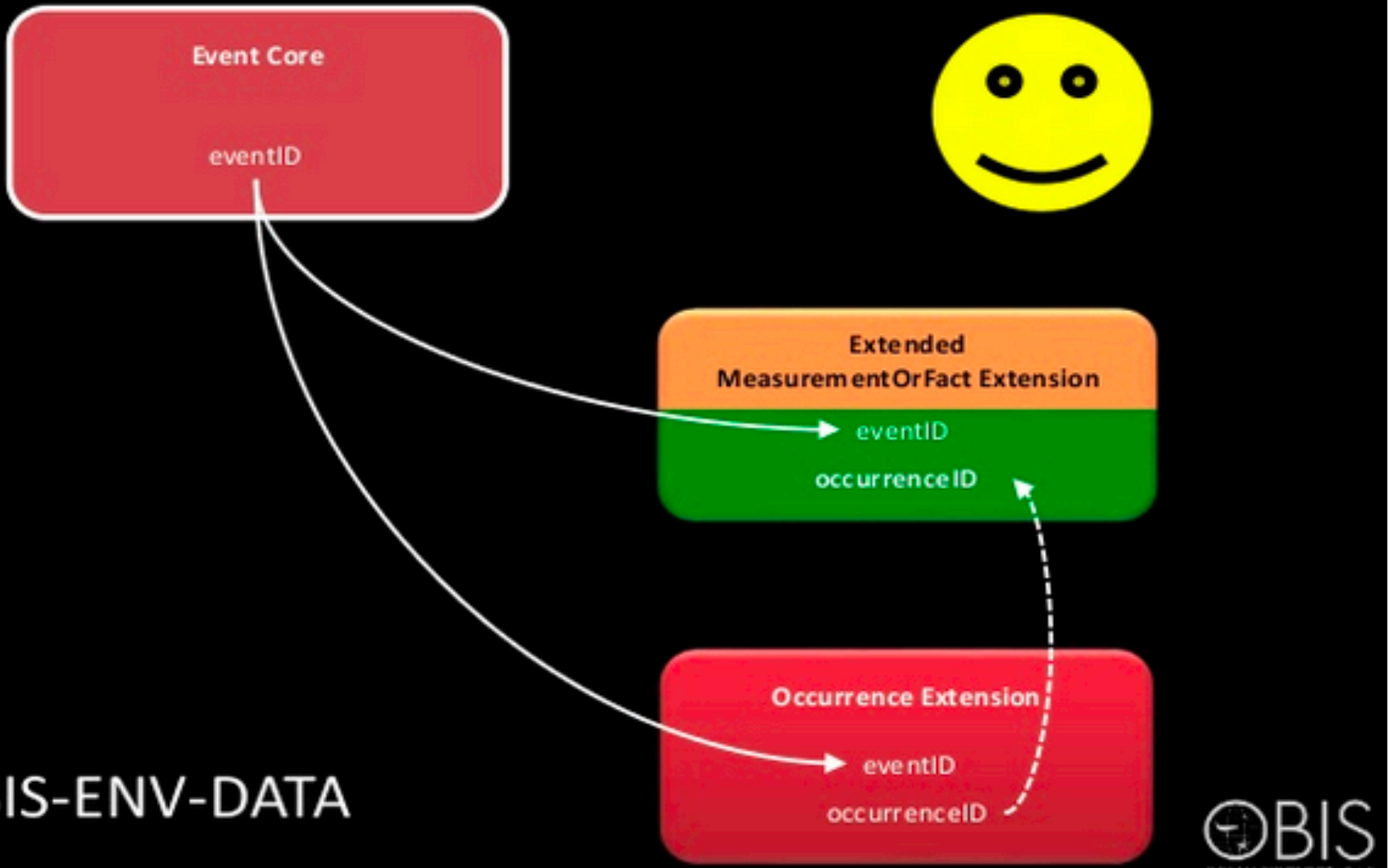
Expanding OBIS beyond species occurrence data, with an extension for environmental data

Photo credits Molly Timmers - NOAA

Co-authors: OBIS-ENV-DATA project consortium

w.appeltans@unesco.org

Option 6



OBIS-ENV-DATA

Extended MeasurementOrFact(s) Extension allows for parameter standardization (linking to external URI of a controlled vocabulary)

ID: the identifier used by DwC-A standard to link the eMoF to the Core file.

occurrenceID (new): identifier to link the eMoF with the occurrence extension.

measurementType: The nature of the measurement, fact, characteristic, or assertion.

measurementTypeID (new): An identifier for the measurementType (global unique identifier, URI)

measurementValue: The value of the measurement, fact, characteristic, or assertion.

measurementValueID (new): An identifier for facts stored in the column measurementValue (global unique identifier, URI)

measurementAccuracy: The description of the potential error associated with the measurementValue.

measurementUnit: The value of the measurement, fact, characteristic, or assertion.

measurementUnitID (new): An identifier for the measurementUnit (global unique identifier, URI)

measurementDeterminedDate: The date on which the MeasurementOrFact was made.

measurementDeterminedBy: A list (concatenated and separated) of names of people, groups, or organizations who determined the value of the MeasurementOrFact.

measurementMethod: A description of or reference to (publication, URI) the method or protocol used to determine the measurement, fact, characteristic, or assertion.

measurementRemarks: Comments or notes accompanying the MeasurementOrFact.

iobis / extension

Unwatch 4 Unstar 1 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Pulse Graphs

Extended Measurement Or Facts extension

20 commits 1 branch 0 releases 2 contributors

Branch: master New pull request Create new file Upload files Find file Clone or download

Daphnisd committed on GitHub Update obis-ExtendedMeasurementOrFact.xml Latest commit f519e86 on Aug 30, 2016

.gitignore	updated to latest version	a year ago
README.md	Update README.md	a year ago
obis-ExtendedMeasurementOrFact.xml	Update obis-ExtendedMeasurementOrFact.xml	7 months ago

README.md

Extended Measurement Or Facts

This extension adds the following fields to the existing `MeasurementOrFact` extension:

- `occurrenceID`
- `measurementTypeID`
- `measurementValueID`
- `measurementUnitID`

Publish your biodiversity data with GBIF

PUBLISH DATA IN GBIF

Step 1: data holding research institutes seek endorsement as an approved data publisher.

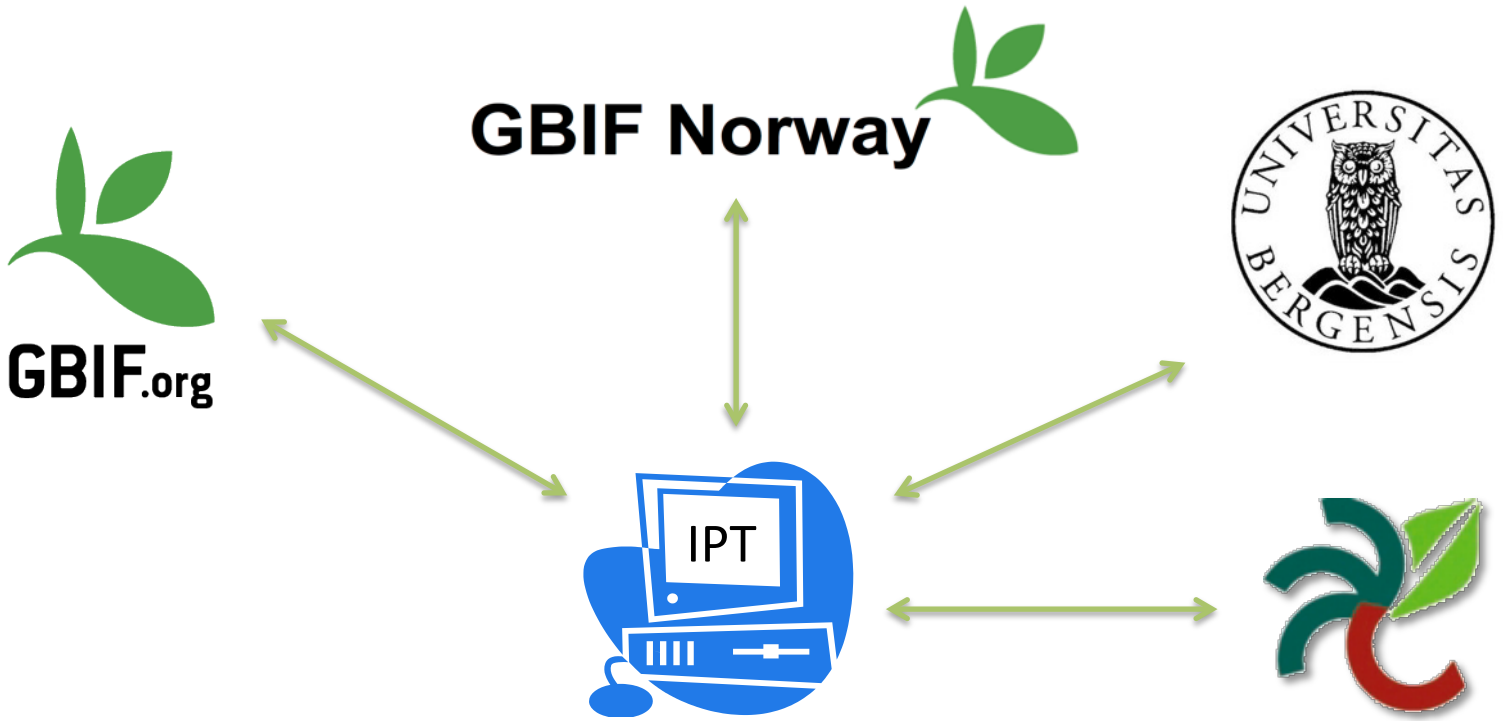
Step 2: datasets are identified and converted to standard Darwin Core format.

Step 3: datasets can be published directly from the data node and/or with the assistance from a national GBIF node (helpdesk).

Citizen science data platforms also publish in GBIF.

WHAT IS DATA PUBLISHING?

"Publishing" refers to making biodiversity datasets publicly accessible and discoverable, in a standardized form, via an access point, typically a web address (a URL).



Data publishing guidelines

http://www.gbif.org/resources?f[0]=gr_purpose%3A955

Photo: Ornithology Collection, Smithsonian National Museum of Natural History Museum, by Chip Clark.

The largest challenge for efficient utilization of biodiversity collection data are **lacking access to digitized electronic information** about the specimen objects (Berendsohn *et al*. 2010).

Global Biodiversity Information Facility (GBIF) is a global organization with a mission of "***Free and open access to biodiversity data***".
http://www.gbif.org

Persistent Identifiers

Digital Object Identifiers (DOI)

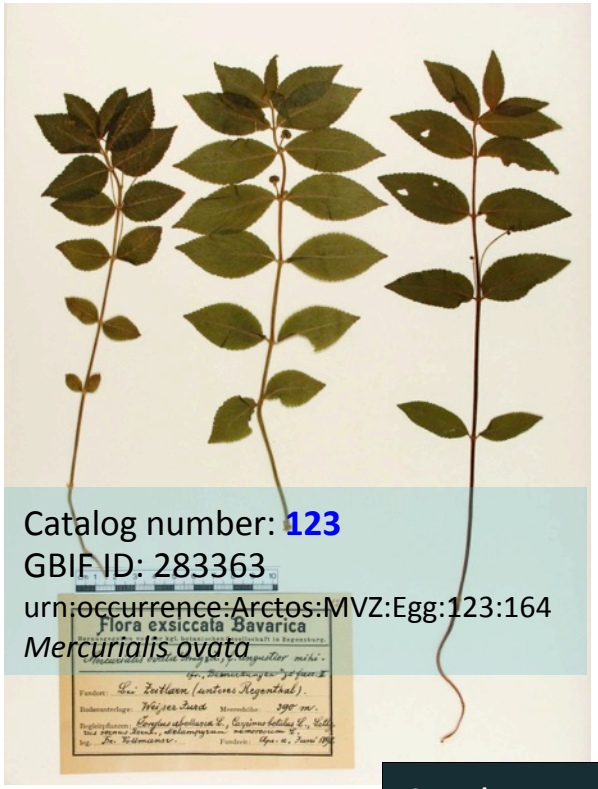
The purpose of identifiers

…is to name things,

making it possible to refer to them.

NAME AMBIGUITY: 123

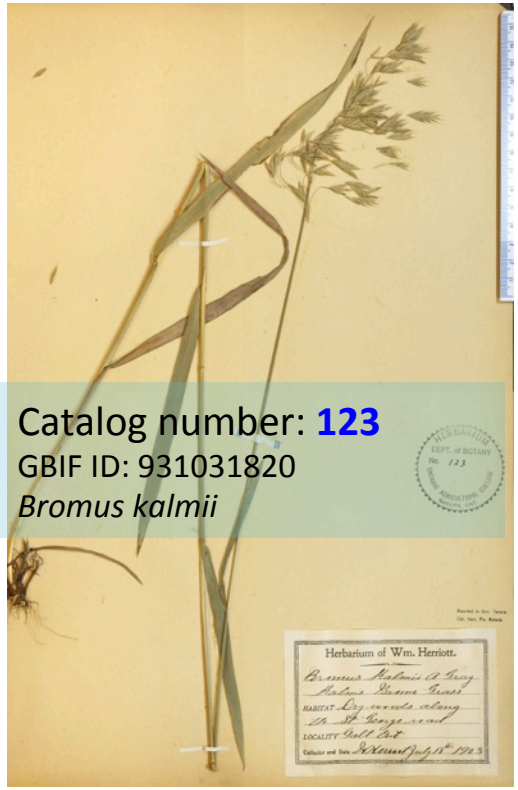
*Many things (in GBIF) are named **123***



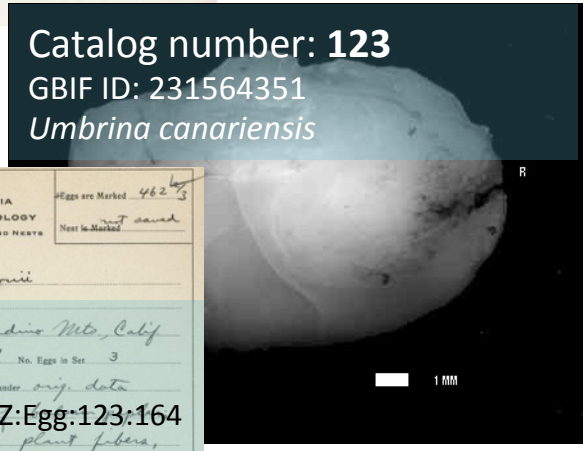
Catalog number: **123**
GBIF ID: 283363
urn:occurrence:Arctos:MVZ:Egg:123:164
Mercurialis ovata

Catalog number: **123**
GBIF ID: 1050327334
Cinchona ledgeriana

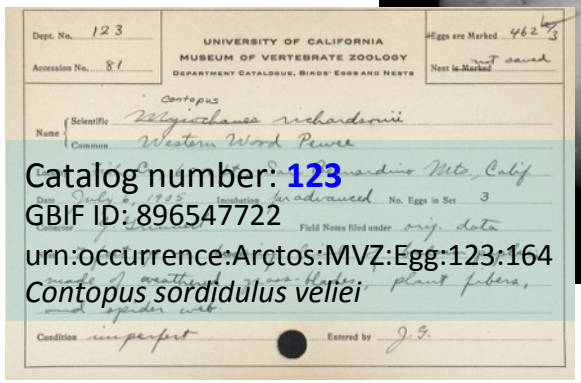
Catalog number: **123**
GBIF ID: 543392241
urn:catalog:CAS:BOT:123
Bigelowia juncea



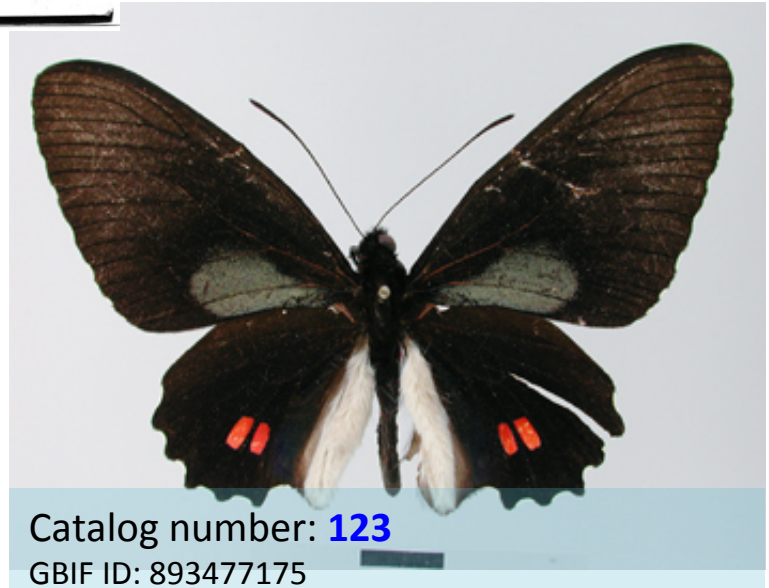
Catalog number: **123**
GBIF ID: 931031820
Bromus kalmii



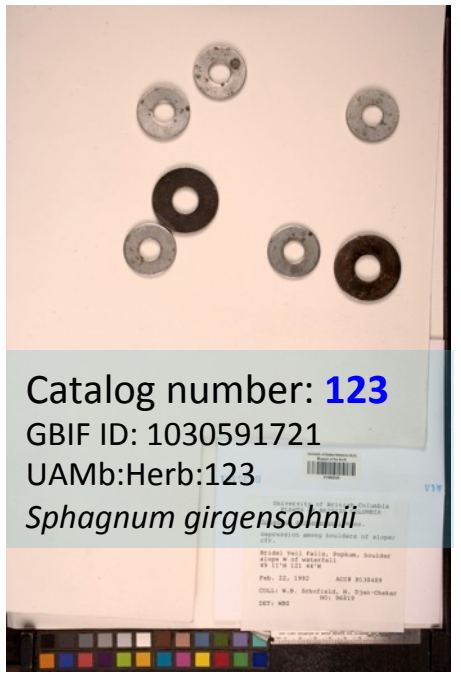
Catalog number: **123**
GBIF ID: 231564351
Umbrina canariensis



Catalog number: **123**
GBIF ID: 896547722
urn:occurrence:Arctos:MVZ:Egg:123:164
Contopus sordidulus veliei



Catalog number: **123**
GBIF ID: 893477175
Parides erithalion



Catalog number: **123**
GBIF ID: 1030591721
UAMb:Herb:123
Sphagnum girgensohnii

O-L-000014

html, csv, txt, n3/turtle, json-ld

Including machine-readable formats

ID:	urn:uuid:41d9cbb4-4590-4265-8079-ca44d46d27c3
Occurrence ID:	http://purl.org/nhmuio/id/41d9cbb4-4590-4265-8079-ca44d46d27c3
Institution code:	O
Collection code:	L
Catalogue number:	14
Basis of record:	Specimen

Event

Recorded by:	Tapper, R.
Year:	1971
Month:	6
Day:	23

Taxon

Scientific Name:	Anaptychia ethiopica
Kingdom:	Fungi
Phylum:	Ascomycota
Class:	Ascomycetes
Order:	Lecanorales
Family:	Physciaceae
Genus:	Anaptychia
Type Status:	Isotype

Location

Continent:	Africa
Country:	Ethiopia
State/Province:	Simen
Locality:	Buahit

Images

```
@prefix dc: <http://purl.org/dc/elements/1.1/>.
@prefix dwc: <http://rs.tdwg.org/dwc/terms/>.
<http://purl.org/nhmuio/id/41d9cbb4-4590-4265-8079-ca44d46d27c3>
    dc:identifier "urn:uuid:41d9cbb4-4590-4265-8079-ca44d46d27c3"
    dwc:occurrenceID "http://purl.org/nhmuio/id/41d9cbb4-4590-4265-8079-ca44d46d27c3";
    dwc:institutionCode "O";
    dwc:collectionCode "L";
    dwc:catalogNumber "14";
    dwc:basisOfRecord "Specimen";
    dwc:recordedBy "Tapper, R.";
    dwc:year "1971";
    dwc:month "6";
    dwc:day "23";
    dwc:scientificName "Anaptychia ethiopica";
    dwc:kingdom "Fungi";
    dwc:phylum "Ascomycota";
    dwc:class "Ascomycetes";
    dwc:order "Lecanorales";
    dwc:family "Physciaceae";
    dwc:genus "Anaptychia";
    dwc:typeStatus "Isotype";
    dwc:continent "Africa";
    dwc:country "Ethiopia";
    dwc:stateProvince "Simen";
    dwc:locality "Buahit".
```


BIG DATA
A new paradigm:
reuse of research data

DATA CITATION PRINCIPLES

FORCE11
The Future of Research Communications and e-Scholarship

1. Data to be legitimate **citable** products of research.
2. Data citations giving **scholarly credit** and attribution.
3. In scholarly literature, whenever claims are based on data, **data should always be cited**.
4. Persistent method for **identification of data**, that is machine actionable, globally unique, universal.
5. Data citation facilitate **access to data** or at least to **metadata**.
6. **Unique identifiers** that persist even beyond the lifespan of the data.
7. Data citation identify and access the specific data that **support verification** of the claim (provenance, time-slice, version).
8. Flexible, but attention to **interoperability** of practices across communities.

Data Citation Synthesis Group: Joint Declaration of Data Citation Principles. Martone M. (ed.) San Diego CA: FORCE11; 2014

GBIF

"FAIR" DATA

Findable

- *assign persistent IDs, provide rich metadata, register in a searchable resource (such as GBIF)*

Accessible

- *Retrievable by their ID using a standard protocol, metadata remain accessible even if data aren't*

Interoperable

- *Use formal, broadly applicable languages, use standard vocabularies, qualified references (e.g. Darwin Core)*

Reusable

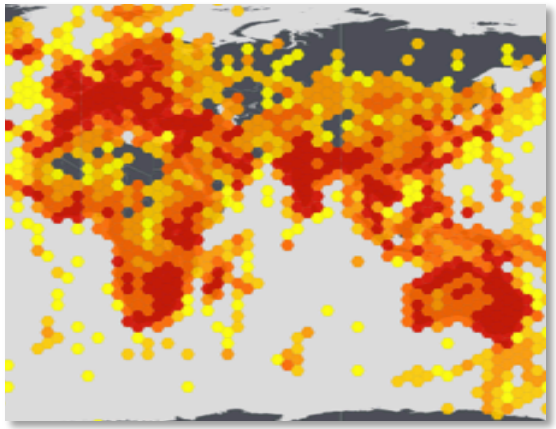
- *Rich, accurate metadata, clear licences, provenance, use of community standards (e.g. Dublin Core, EML)*

www.force11.org/group/fairgroup/fairprinciples

GBIF news

communications

LATEST NEWS



63.8 million new observations increase eBird total to 275 million records

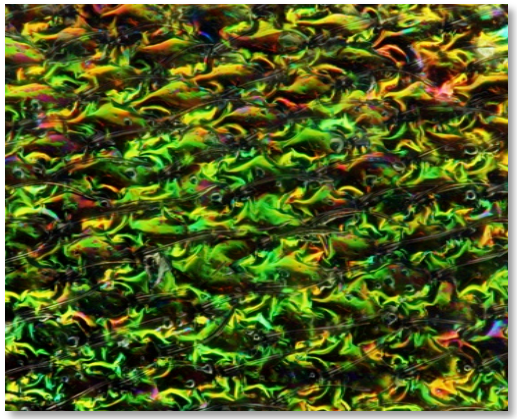
Annual dataset refresh grows by 30 per cent, with biggest gains in Asia and Europe

Read more

'Names in November' workshop targets single shared species list

Partnership with taxonomic community aims for a single, sustainable information service for species names

Read more



Experts outline strategy for improving alien species information

Task group recommends actions for reducing the impacts of invasive species on biodiversity

Read more

http://www.gbif.org/newsroom/summary

Photo credits: (center) courtesy of Peter Schalk.
(right) Abdomen of emerald ash borer (Argils planipennis) at 50x magnification by Macroscopic Solutions via Flickr. Photo licensed under CC BY-NC 2.0.

communications

LATEST NEWS

First BID grants provide nearly €1 million in funding to 23 African projects

- EU-funded programme grantees represent 34 organizations from 20 African countries (Read more)
- Open call for Caribbean and the Pacific (read more)
- Read more about BID

BIFA grants to benefit 14 Asian countries

Four project share €106,000 in funding to enhance data publishing capacity of current and future network members.

Read more

Belgium, Taiwan and Norway nodes provided BIFA funded mentoring for the AESEAN heritage parks in July 2016.

Read more (at gbif.no)

Appeal for help after damage Gabon's national herbarium

Post-election riots in September spared collections, but caused major damage to the BID grantee's headquarters in Libreville, Gabon.

Read English or French

http://www.gbif.org/newsroom/summary

Photos: (left) One Tree Plain, CC BY-NC-SA 2015 Geoff Livingston, (centre) Peacock pansy (Junonia almana), Ho Chi Minh, Vietnam. CC BY-SA 2015 Pavel Kirillov via iNaturalist. (right) Photo courtesy of Nestor Engone Obiang.

communications

LATEST NEWS

	W	X
ied	nomenclaturalCode	decimalLatitud
04	ICZN	42.4566
17	ICZN	42.4566
17	ICZN	42.4566
17	ICZN	42.4566
17	ICZN	42.4566
	ICZN	42.4566
02	ICZN	18.302
	ICZN	32.7038
	ICZN	43.362

New Darwin Core templates released

Pre-configured Excel templates simplify data formatting, preparation and publication.

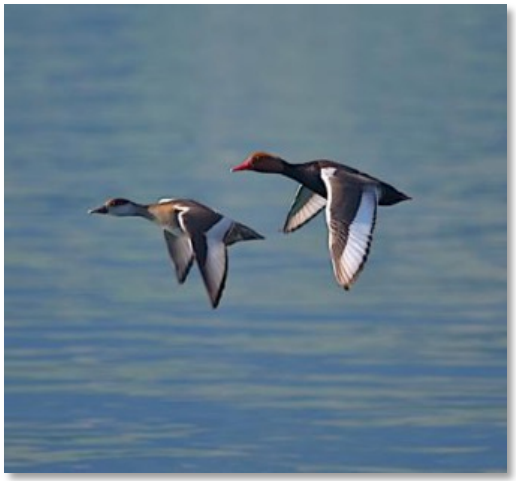
- metadata template
- checklist template
- occurrence template
- sampling event template

Read more

Template tool from GBIF.no

Four network projects awarded 2016 capacity enhancement support grants (mentoring)

- A total of €23,300 in funding will support the work of GBIF nodes and partners in five countries (Colombia, France, Guinea, Portugal, Spain).
- Read more



Four countries become the GBIF network's newest national members

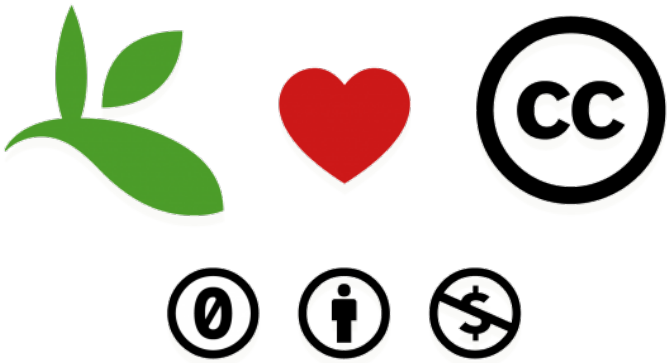
- Switzerland (voting)
- Ecuador (associate)
- Niger (associate)
- Nigeria (associate)

http://www.gbif.org/newsroom/summary

Photos:. (center) courtesy of GBIF Portugal.
(right) Red-crested pochards (Netta rufina) off the eastern shore of Obersee, Switzerland, photo by roby 2016 CC BY-NC via iNaturalist.

communications

LATEST NEWS

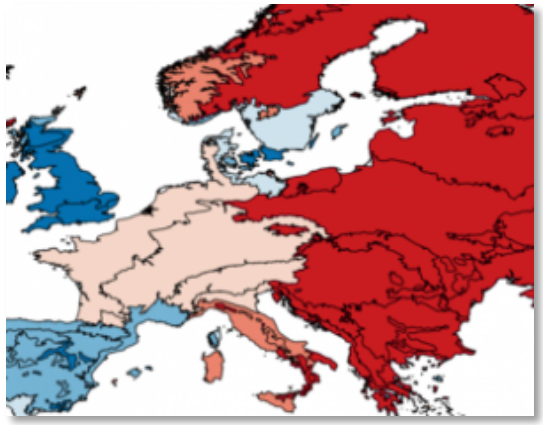


Data licensing milestone

All species occurrence datasets on GBIF.org now carry standardized Creative Commons licenses.

CC0	57 %
CC-BY 4.0	30 %
CC-BY-NC 4.0	13 %

Read initial announcement and update



2016 Ebbe Nielsen Challenge winner

Alejandro Ruete (Argentina, postdoc at SLU, Sweden) seeks to calculate 'Where and when is there enough data?'

Read more

2016 Young Researchers Awards

Meet the winners!

– Mexican PhD student Juan M. Escamilla Mólgora

– Brazilian Master's student Bruno Umbelino

http://www.gbif.org/newsroom/summary

Photos: (far right) © 2016 Williams Fagner.