GBIF
www.gbif.org

Workshop on Open Publishing for Research Data
organized by the Research Council of Norway (RCN)

GBIF data publication

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

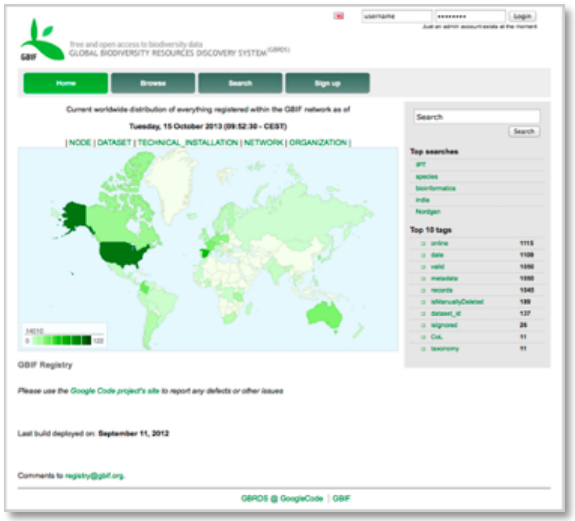
Lysaker, Oslo, November 1st 2016
Slides: CC-BY-4.0, GBIF.no

GBIF enables *free and open access to biodiversity data* online.

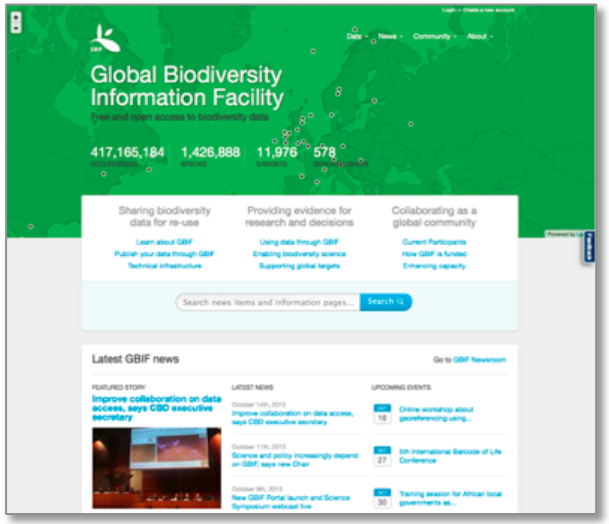
We are an international government-initiated and -funded initiative focused on making biodiversity data available to all and anyone, for scientific research, conservation and sustainable development.

GBIF provides a data discovery system

that is dependent on resolvable stable identifiers for efficient functionality



global registry

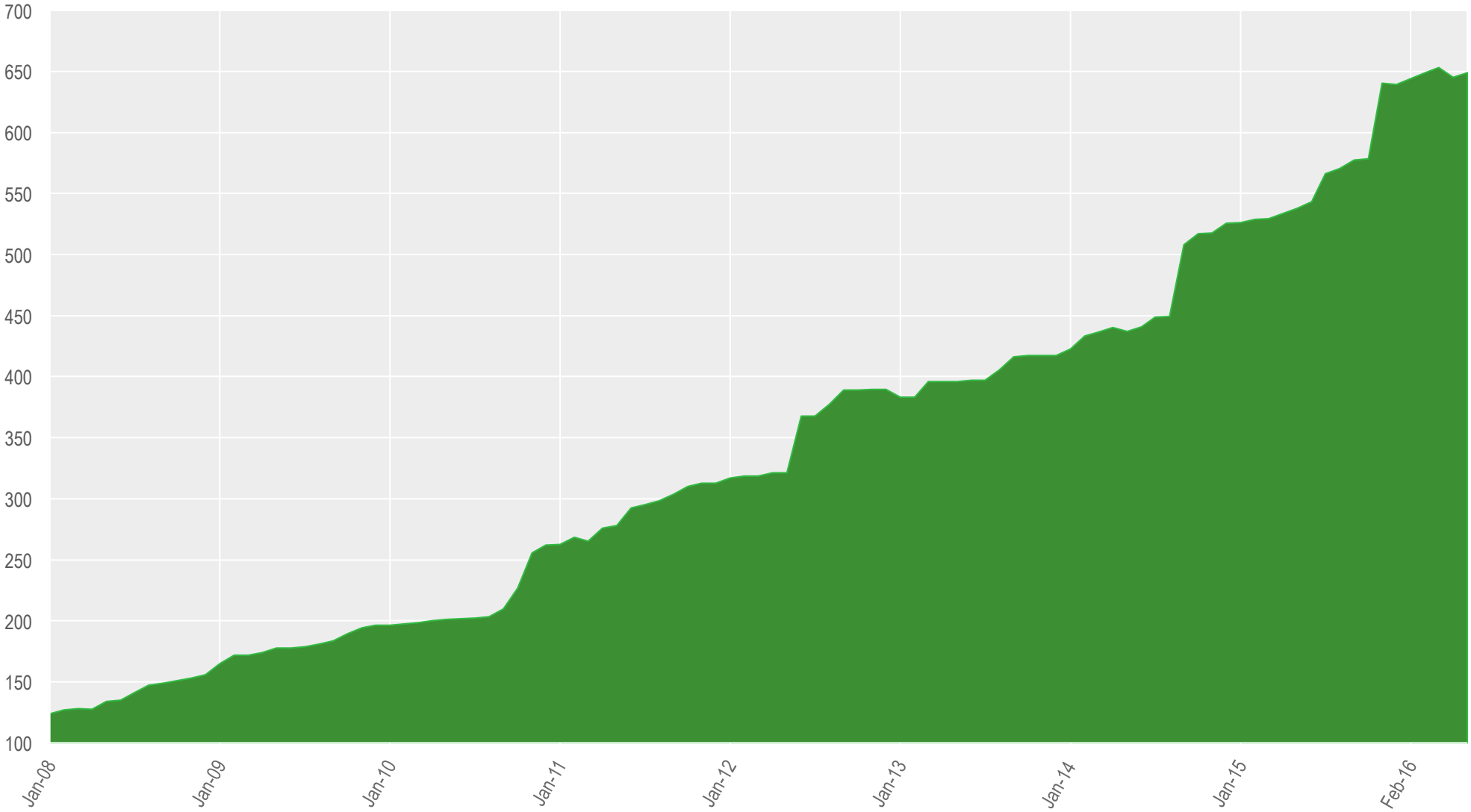


data portal

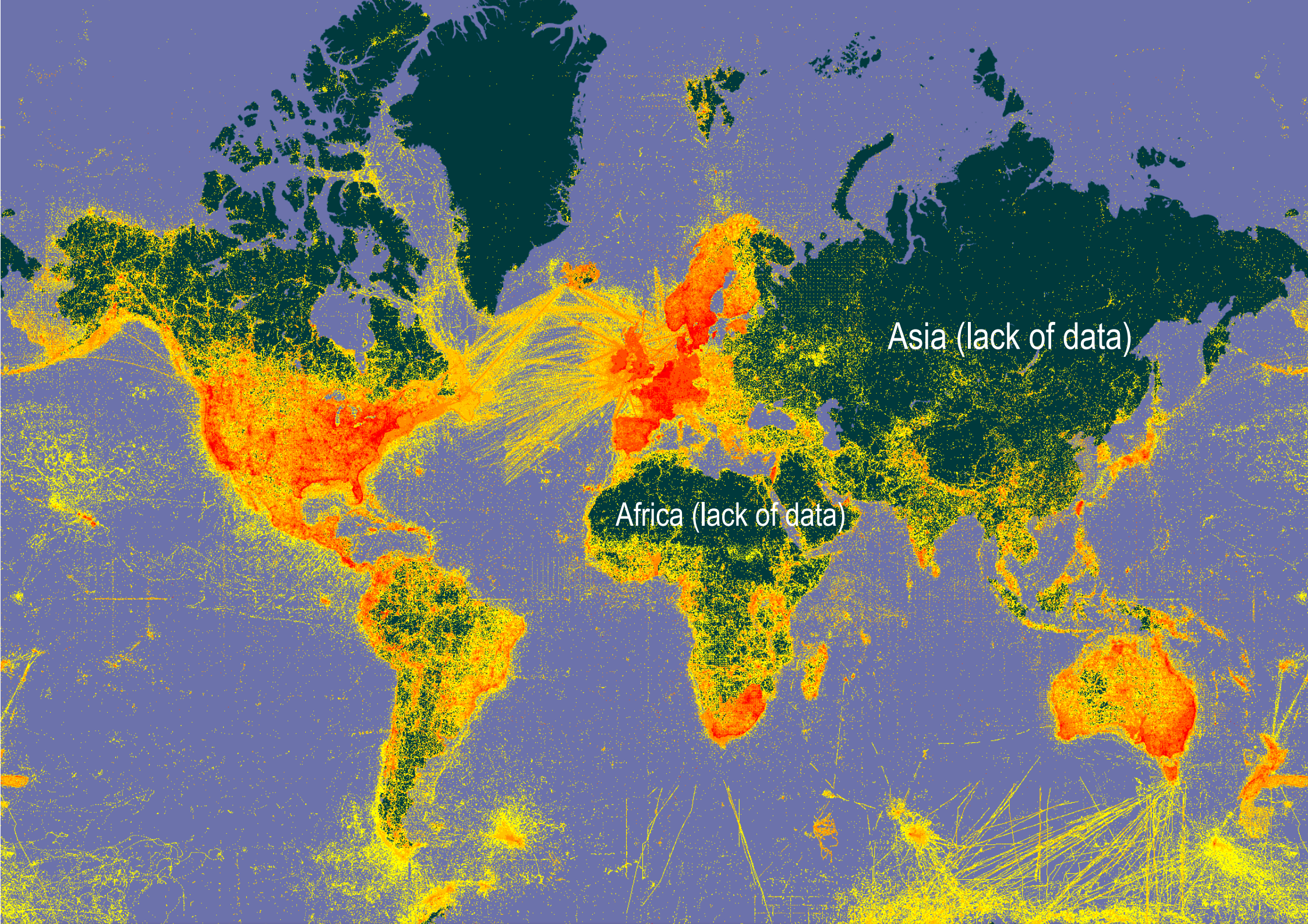
data mobilization

DATA PUBLISHED THROUGH GBIF.ORG

Occurrence records (millions)

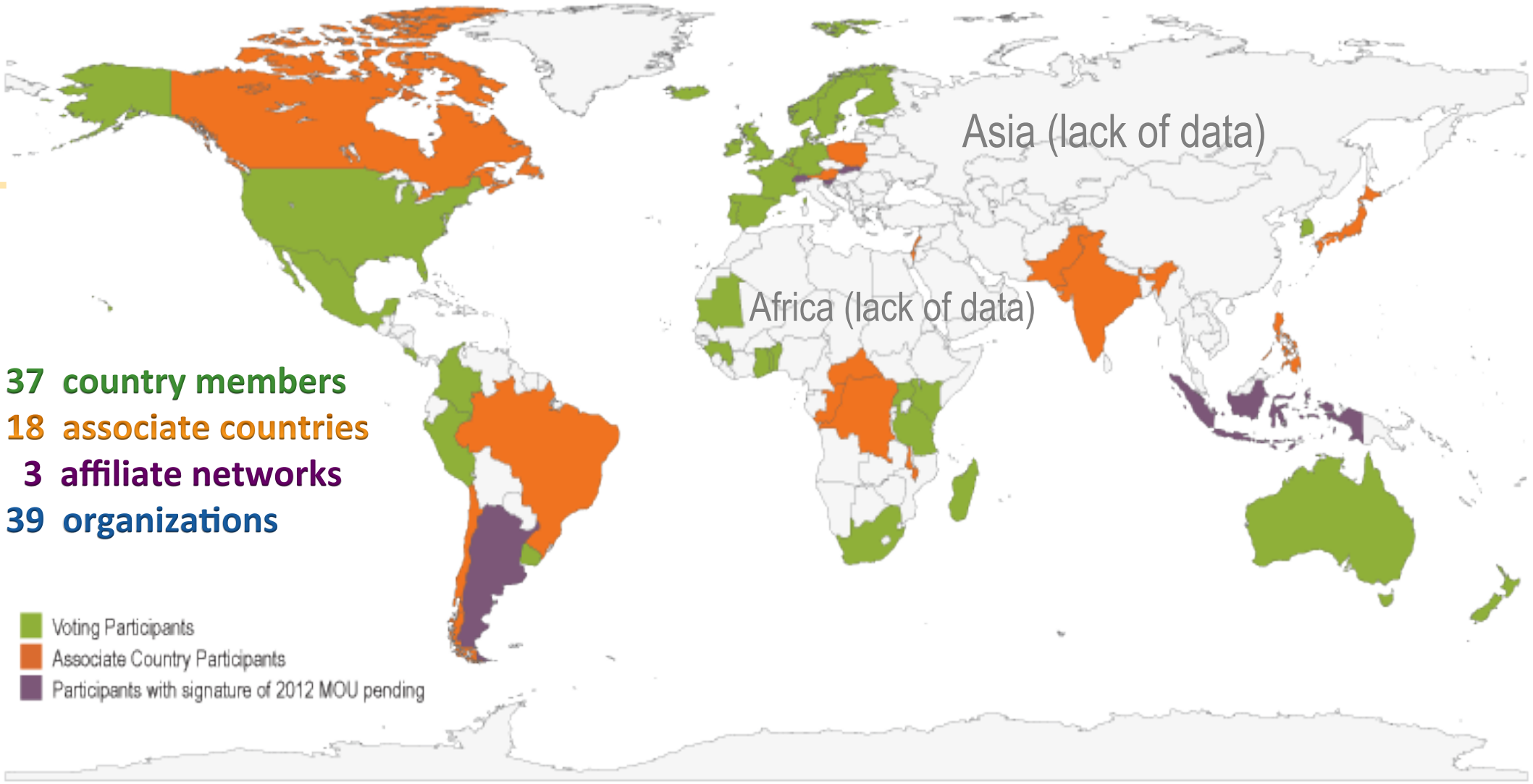


GBIF


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

participation

MAP OF GBIF COUNTRY PARTICIPANTS



Norway became a (voting) GBIF member in February 2004. (Map last updated August 2016)

GBIF

LICENSING FOR DATA PUBLISHED THROUGH GBIF

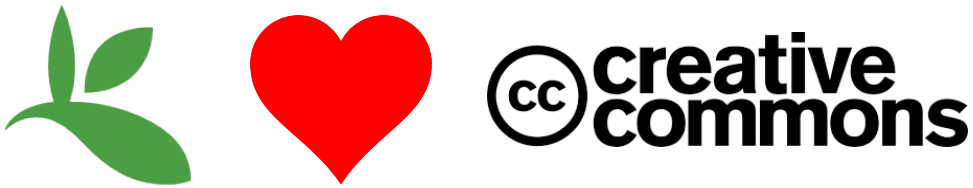
GBIF Governing Board decision in 2014 - three CC licenses

Status: set for all datasets published in GBIF since August 2016

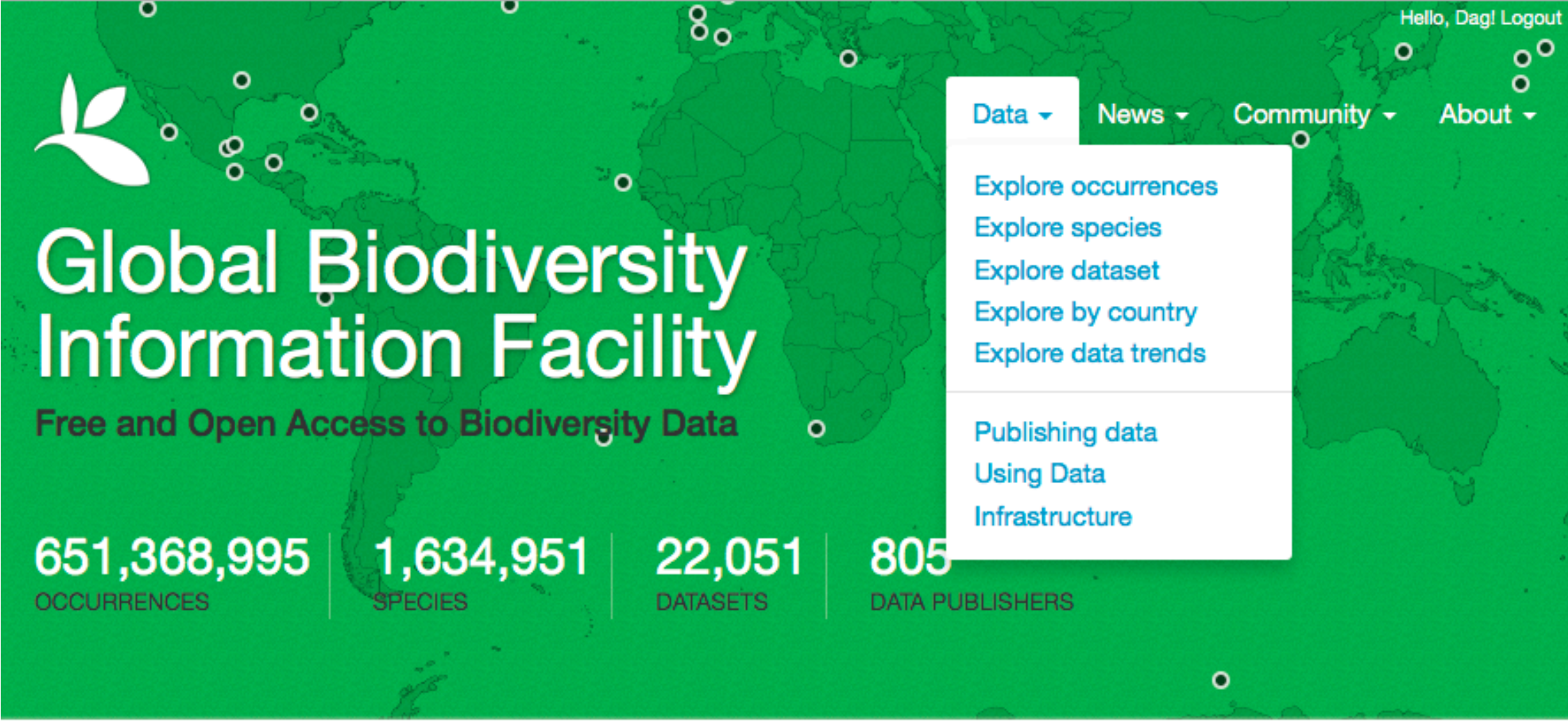
CC0 CC0 is recommended whenever possible

CC BY with use guidelines specified by the owner

CC BY-NC use is not for commercial purposes



GBIF Data portal



Sharing biodiversity data for re-use

Learn about GBIF

Publish your data through GBIF

Technical infrastructure

Providing evidence for research and decisions

Using data through GBIF

Enabling biodiversity science

Supporting global targets

Collaborating as a global community

Current Participants

How GBIF is funded

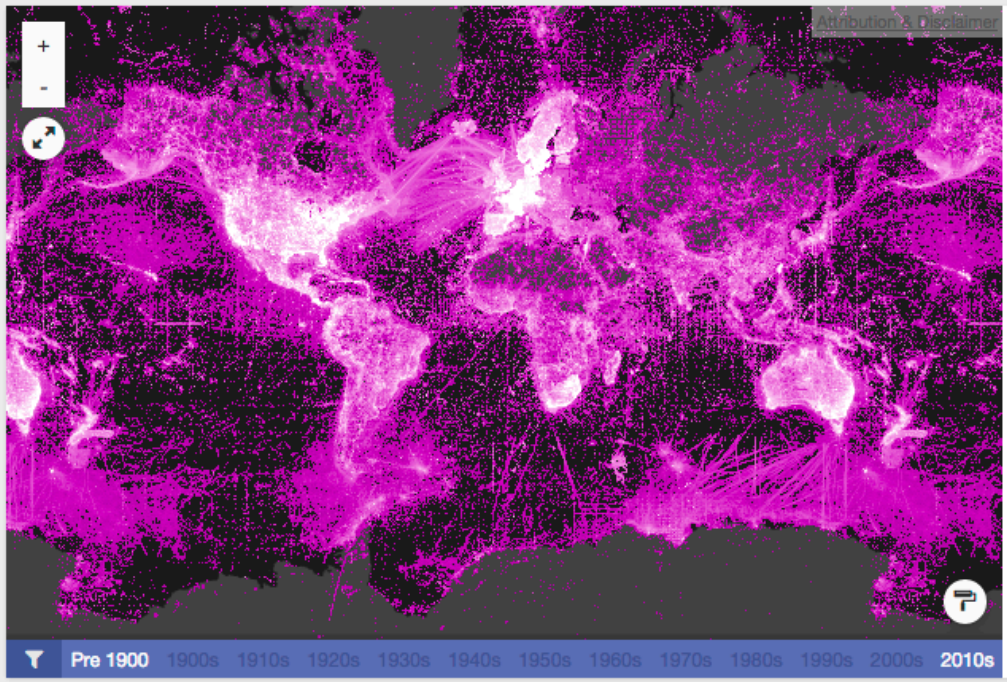
Enhancing capacity

Explore 624,169,030 occurrences

Occurrence records document evidence of a named organism in nature. Through this portal, you can search, view and download records that are published through the GBIF network.

624,169,030
occurrences records

546,208,754
georeferenced records



Georeferenced data

VIEW RECORDS

All records | In viewable area

ABOUT

This map shows the density of all 546,208,754 georeferenced occurrence records published through the GBIF network.

To explore the records, zoom into the map or click on the links above and add further filters to customize search results.

Search 1,634,951 species

of the GBIF Backbone Taxonomy

Hepatica nobilis Search

Mammals · Birds · Insects · Reptiles · Fishes · Butterflies · Fungi · Flowering Plants

1,634,951	862,163
Confirmed species in the Catalogue of Life	Names under review

Hepatica nobilis Schreb.

Species in **GBIF Backbone Taxonomy**

Plantae › Tracheophyta › Magnoliopsida › Ranunculales › Ranunculaceae › Hepatica

73,870 Occurrences | 6 Infraspecies

View occurrences

Information

Overview

FULL NAME
Hepatica nobilis Schreb.

TAXONOMIC STATUS
accepted species

COMMON NAMES
- hepatica eng
- Leberblümchen deu
- Leberblümchen

more ›

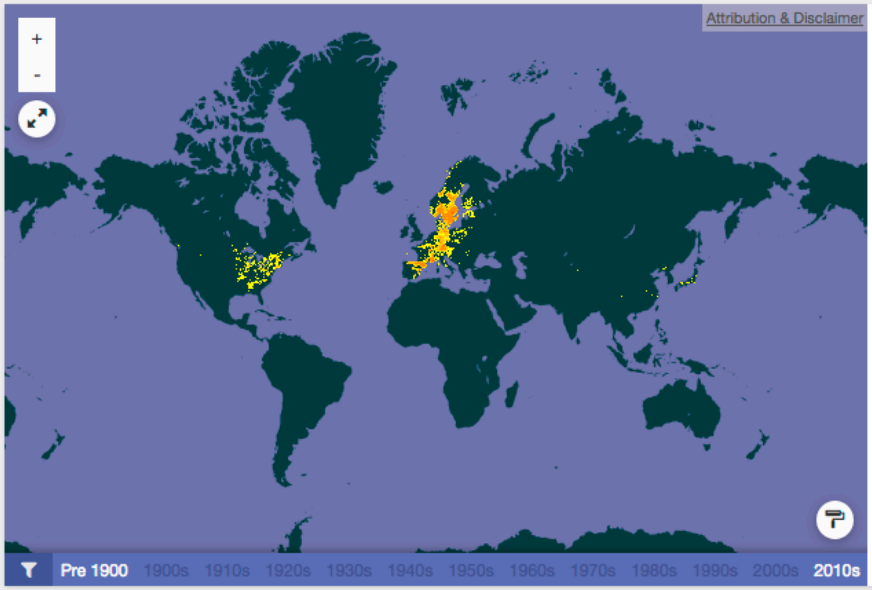
HABITAT
Not marine

SYNONYMS
- Anemone hepatica L.
- Anemone hepatica var. acuta Hitchc.
- Anemone hepatica var. acutiuscula Pritz.
- Anemone praecox Coste
- Anemone praecox Salisb.

more ›

GBIF ID 5371699

SEARCH LINKS
- Encyclopedia of Life
- Catalogue of Life
- Biodiversity Heritage Library



Georeferenced data

VIEW RECORDS
All 66,378 | In viewable area

DISTRIBUTIONS
Text based distributions present in some sources.

Add a filter

- Scientific name
- Country
- Location
- Establishment Means
- Basis of record
- Type status
- Multimedia types
- Collector
- Record number
- OccurrenceID
- OrganismID
- Collection date
- Year
- Month
- Last modified in GBIF
- Catalogue number
- Dataset
- Institution code
- Collection code
- Publishing country
- Elevation
- Depth
- Issues
- Data repatriation
- Locality
- State/Province
- Water body
- Protocol
- License

Refine your search

reset

BASIS OF RECORD
- Human Observation (56,830)
- Specimen (8,837)
- Unknown evidence (7,304)
- Observation (636)
- Living Specimen (232)
- Literature Occurrence (28)
- Machine Observation (2)
- Fossil (1)

TYPE STATUS
- type (4)
- holotype (2)
- syntype (1)

DATASET
- Artdata (27,984)
- INPN - Données flore d... (9,474)
- Norwegian Species Obse... (4,401)
- Occurrence Data of Vas... (4,315)
- FloraCAT: Banco de dat... (3,800)
- Flora von Deutschland ... (3,110)
- Vascular Plants, Field... (1,710)
- Fundación Biodiversida... (1,240)
- VegetWeb - Repositoriu... (1,152)
- Vascular Plant Herbari... (1,115)

1 >

imr_mareano_beamtrawl

Occurrence dataset published by **Institute of Marine Research**

15,733
Occurrences

View occurrences

Information | Stats | Activity

All datasets in GBIF are assigned a dataset DOI

Summary

FULL TITLE

imr_mareano_beamtrawl

DESCRIPTION

Data collected with a 2m beamtrawl towed about 200-300m. Dataset contains numbers and combined wet weight of specimen (down to 1 mg) within same species or higher taxonomic unit. Samples are preserved on formalin and then alcohol. After id the material is stored at the Bergen Museum, Bergen, Norway.

TEMPORAL COVERAGES

Date range: Jan 1, 2006 - Aug 5, 2013

LANGUAGE OF METADATA

ENGLISH

LANGUAGE OF DATA

ENGLISH

ORIGINATOR
Arne Hassel

METADATA AUTHOR
Arne Hassel

ADMINISTRATIVE CONTACT
Arne Hassel

DOI doi:10.15468/iomgfj

PUBLISHED BY

Institute of Marine Research

PUBLICATION DATE

Jun 15, 2016

REGISTRATION DATE

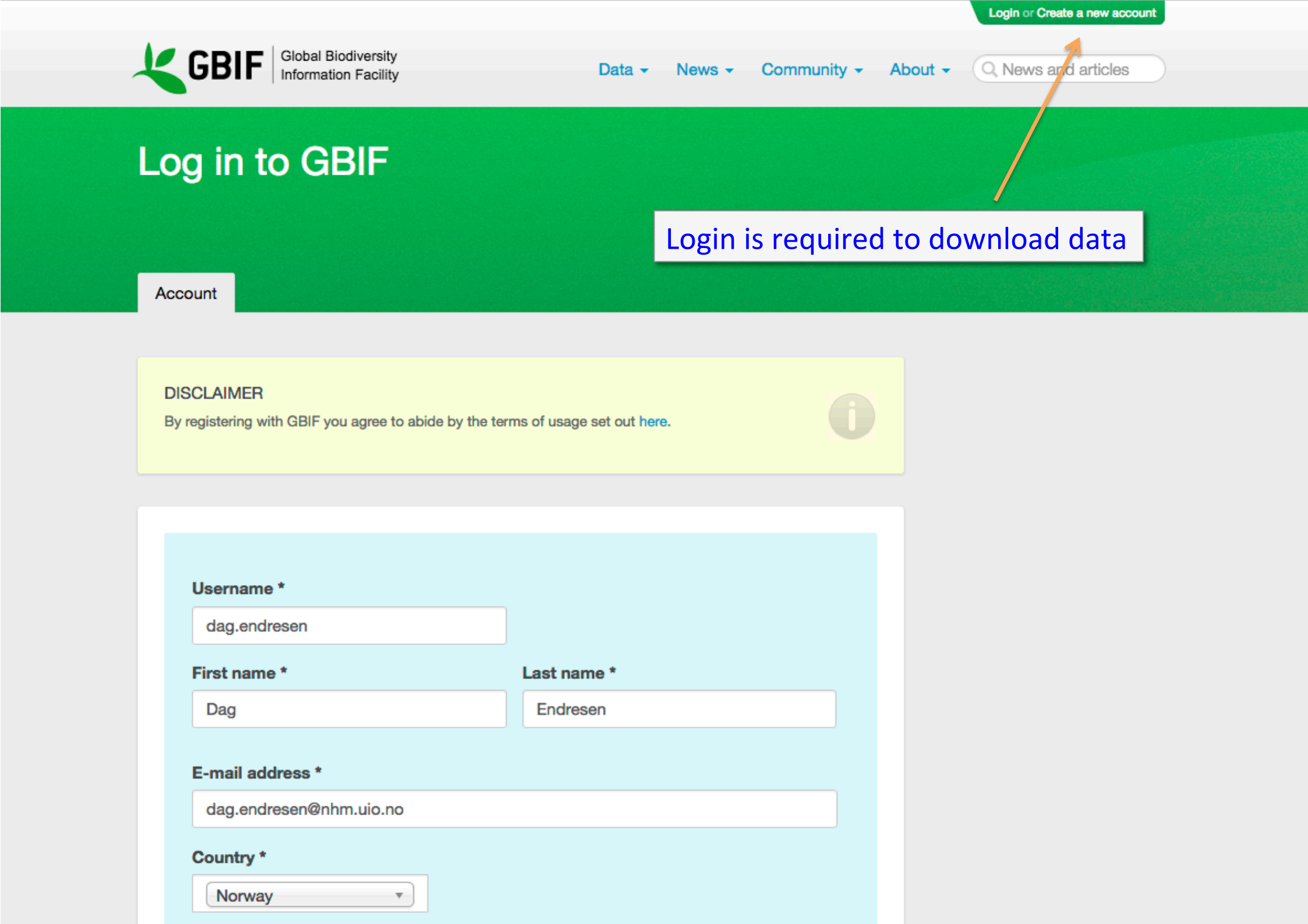
Apr 29, 2016

SERVED BY

IMR.NO-IPT

ALTERNATIVE IDENTIFIERS

- UUID
  99006141-bf02-4821-8e6e-5818a…
- Source webpage
  http://gbif.imr.no/ipt/resour…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News and articles
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Login is required to download data
Account
DISCLAIMER
By registering with GBIF you agree to abide by the terms of usage set out here.
Username *
dag.endresen
First name *
Dag
Last name *
Endresen
E-mail address *
dag.endresen@nhm.uio.no
Country *
Norway

Dag Endresen

User account and personal settings

Previous data downloads are listed from the user profile

Your downloads

DOWNLOAD doi:10.15468/dl.h6fdbn 20th October 2016

QUERY

TAXON *Puccinellia fasciculata (Torr.) E.P.Bicknell,Puccinellia maritima (Huds.) Parl.,Puccinellia distans (Jacq.) Parl.,Sclerochloa dura (L.) P.Beauv.,Stipa capensis Thunb.,Pseudoroegneria spicata,Secale sylvestre Host,Stephanachne pappophorea (Hack.) Keng,Thinopyrum intermedium (Host) Barkworth & D.R.Dewey,Elymus tauri (Boiss. & Balansa) Melderis,Stipa pappiformis Keng,Psathyrostachys fragilis (Boiss.) Nevski,Sesleria caerulea (L.) Ard.,Vahlodea atropurpurea (Wahlenb.) Fr. ex Hartm.,Pleuropogon refractus (A.Gray) Benth. ex Vasey,Triniochloa stipoides (Kunth) Hitchc.,Pleuropogon sabinei R.Br.,Stipa juncea L.,Vulpia fasciculata (Forssk.) Samp.,Antinoria agrostidea (DC.) Parl.,Psammochloa villosa (Trin.) Bor,Poa billardierei Steud.,Ptilagrostis dichotoma Keng ex Tzvelev,Ptilagrostis mongholica (Turcz. ex Trin.) Griseb.,Sesleria autumnalis (Scop.) F.W.Schultz,Schizachne purpurascens (Torr.) Swallen,Dryopoa dives (F.Muell.) Vickery,Stipa barbata Desf.,Taeniatherum caput-medusae (L.) Nevski,Poa annua L.,Trisetum cernuum Trin.,Poa pratensis L.,Stenostachys gracilis (Hook.f.) Connor,Puccinellia nuttalliana (Schult.) Hitchc.,Elymus reflexiaristatus subsp. strigosus (Schult.) Melderis,Polypogon monspeliensis (L.) Desf.,Elymus stipifolius (Czern. ex Nevski) Melderis,Polypogon viridis (Gouan) Breistr.,Sorghum bicolor (L.) Moench,Scolochloa festucacea (Willd.) Link,Triticum aestivum L.,Sphenopus divaricatus (Gouan) Rchb.,Stipa lagascae Roem. & Schult.,Rostraria azorica S.Hend.,Trikeraia hookeri (Stapf) Bor,Stipa parviflora Desf.,Triplachne nitens (Guss.) Link,Poa alsodes A.Gray,Stephanachne nigrescens Keng,Triticum turgidum L.,Vulpia myuros (L.) C.C.Gmel.,Poa autumnalis Muhl. ex Elliott,Wangenheimia lima (L.) Trin.,Trisetum flavescens (L.) P.Beauv.,Thinopyrum bessarabicum (Savul. & Rayss) Á.Löve,Thinopyrum junceum (L.) Á.Löve,Torreyochloa pallida (Torr.) Church,Piptochaetium montevidense (Spreng.) Parodi,Poa palustris L.,Ptilagrostis kingii (Bol.) Barkworth,Rostraria cristata (L.) Tzvelev,Periballia involucrata (Cav.) Janka,Koordersiochloa longiarista (A.Rich.) Veldkamp,Polypogon fugax Nees ex Steud.,Trisetum bifidum (Thunb.) Ohwi,Polypogon maritimus Willd.,Piptochaetium*

Occurrence download

doi:10.15468/dl.h6fdbn 20th October 2016

1,101,724
Occurrences

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The doi:10.15468/dl.h6fdbn will always resolve to this page, even if the download is removed.

All downloads are assigned a DOI for citation

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IDENTIFIER	DOI doi:10.15468/dl.h6fdbn
CITE AS	GBIF.org (20th October 2016) GBIF Occurrence Download http://doi.org/10.15468/dl.h6fdbn
QUERY	*Puccinellia fasciculata (Torr.) E.P.Bicknell,Puccinellia maritima (Huds.) Parl.,Puccinellia distans (Jacq.) Parl.,Sclerochloa dura (L.) P.Beauv.,Stipa capensis Thunb.,Pseudoroegneria spicata,Secale sylvestre Host,Stephanachne pappophorea (Hack.) Keng,Thinopyrum intermedium (Host) Barkworth & D.R.Dewey,Elymus tauri (Boiss. & Balansa) Melderis,Stipa pappiformis Keng,Psathyrostachys fragilis (Boiss.)* (...)
GEOREFERENCED	*true*
SIZE	67.0 MB
FORMAT	CSV
STATUS	Succeeded
	query latest data

Occurrence download

doi:10.15468/dl.h6fdbn 20th October 2016

1,101,724
Occurrences

PLEASE NO
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The doi:10.1

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IDENTIFI
CITE AS
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 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

WHO HAS CITED YOUR DATA RESOURCE?

CrossRef services link citations between scientific journal articles

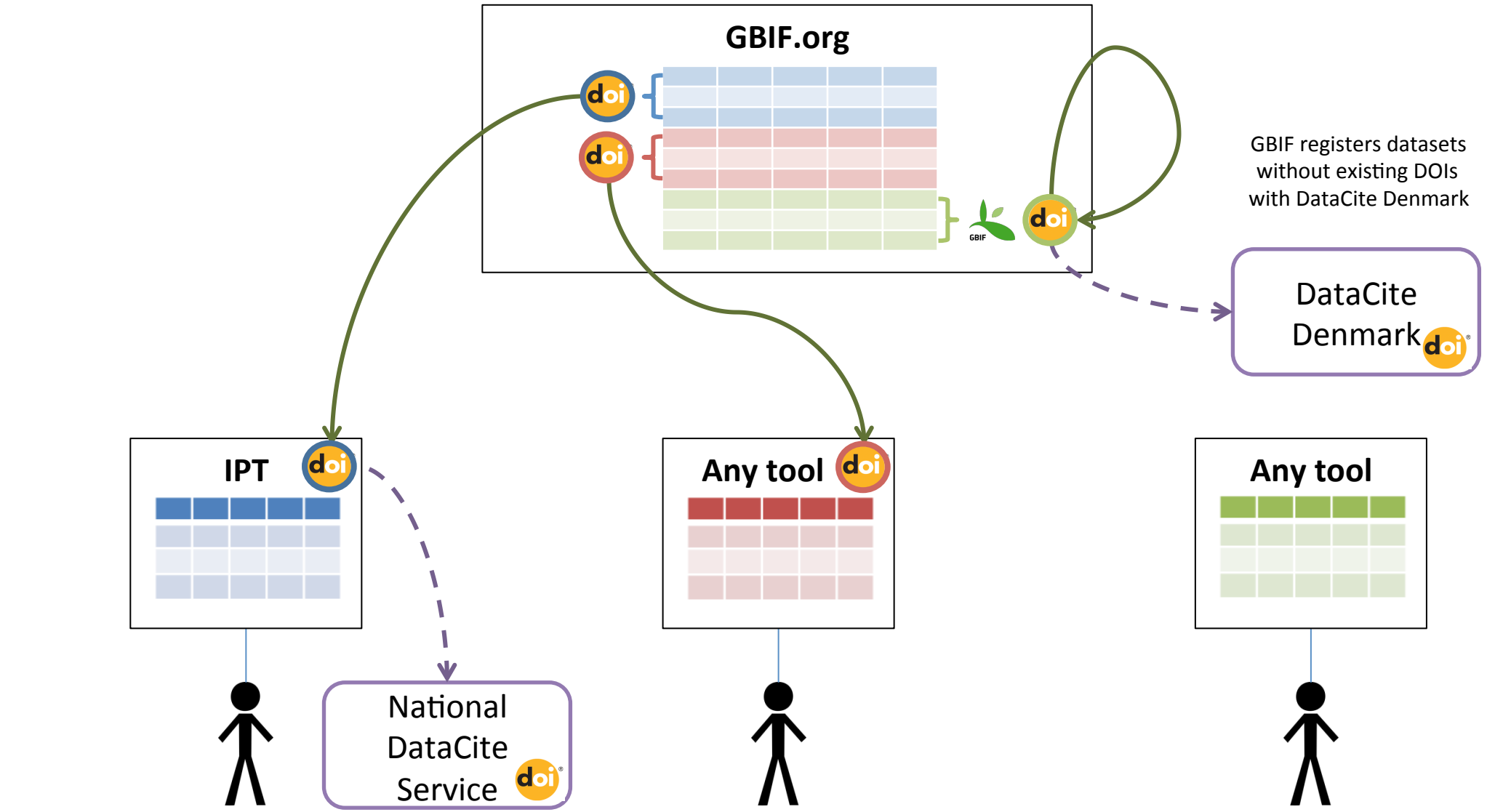
With CrossRef you can discover who has cited your research paper!

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

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

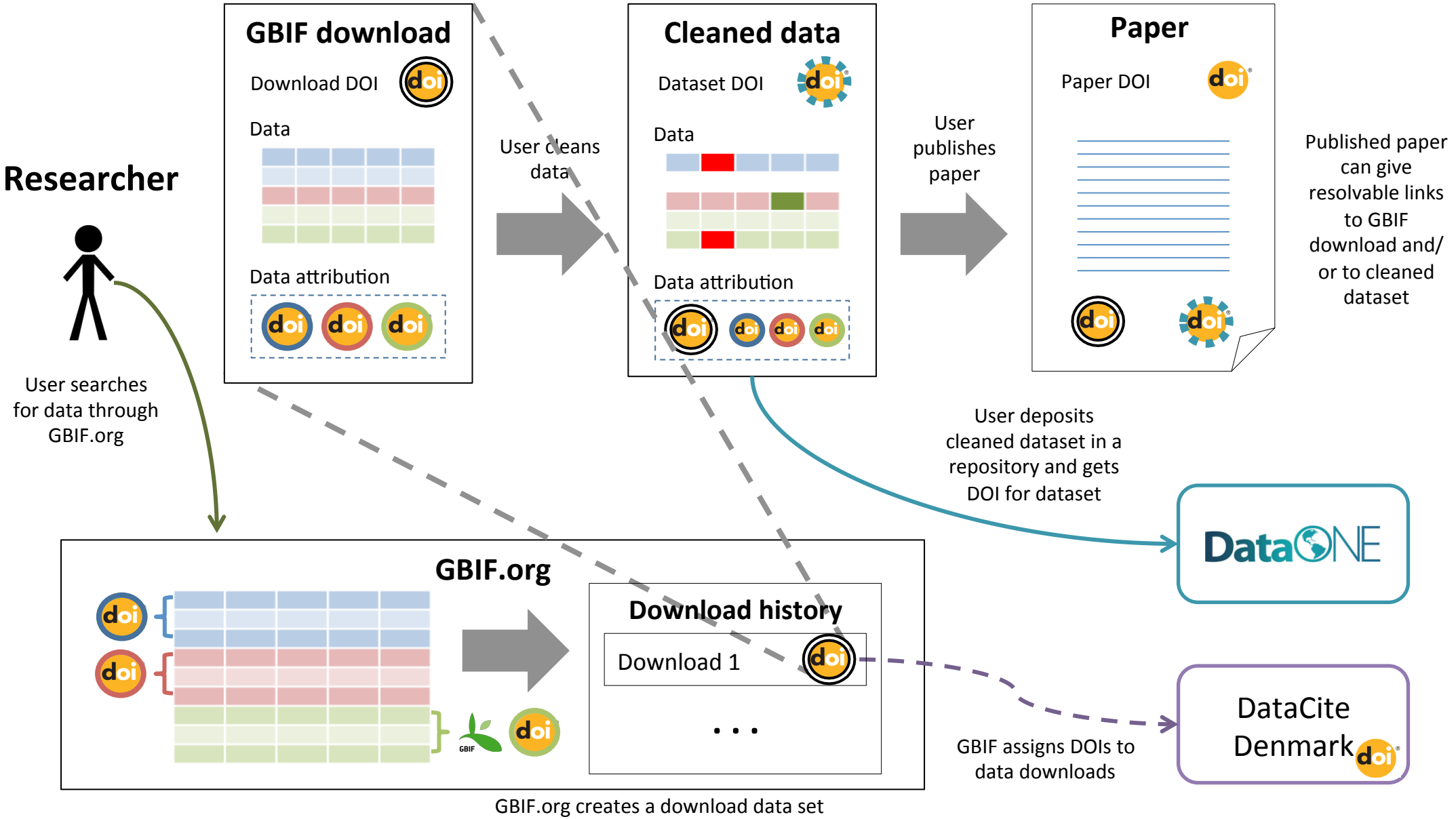
http://blog.crossref.org/?s=DataCite

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

BIBSYS IS THE NORWEGIAN MEMBER IN DATACITE

"*As a DataCite member **BIBSYS** act as a national DataCite representative in Norway and thereby allow all of Norway's higher education and research institutions to use DOI on their research data*".

- Resource must be citation-worthy
- Resource must have good metadata
- Long-term archiving and accessibility for data

BIBSYS
– gjør kunnskap tilgjengelig

http://www.bibsys.no/rammeverk-for-doi/

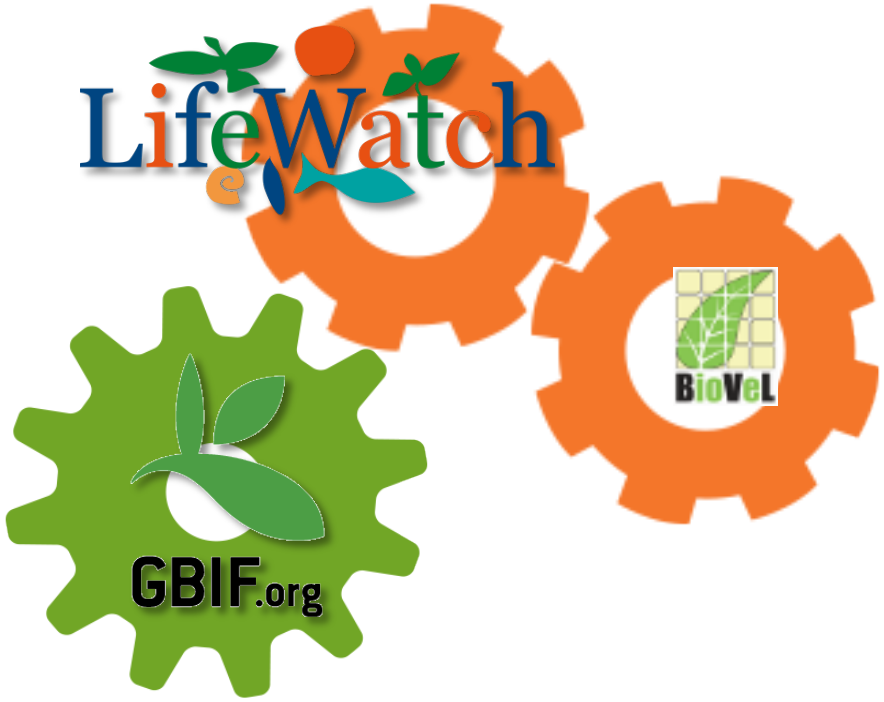
Services to enable data analysis

LifeWatch
E-Science European Infrastructure for Biodiversity and Ecosystem Research

LifeWatch Virtual Research Environment (VRE)

*Proposal submitted for creating a **LifeWatch Norway***

- *LifeWatch.no* proposal is based on the robust GBIF infrastructure and GBIF data publishing services/mechanisms
- Creating new services and work-flows for analyzing ecological data
- Contribute to international GBIF standards for new data types

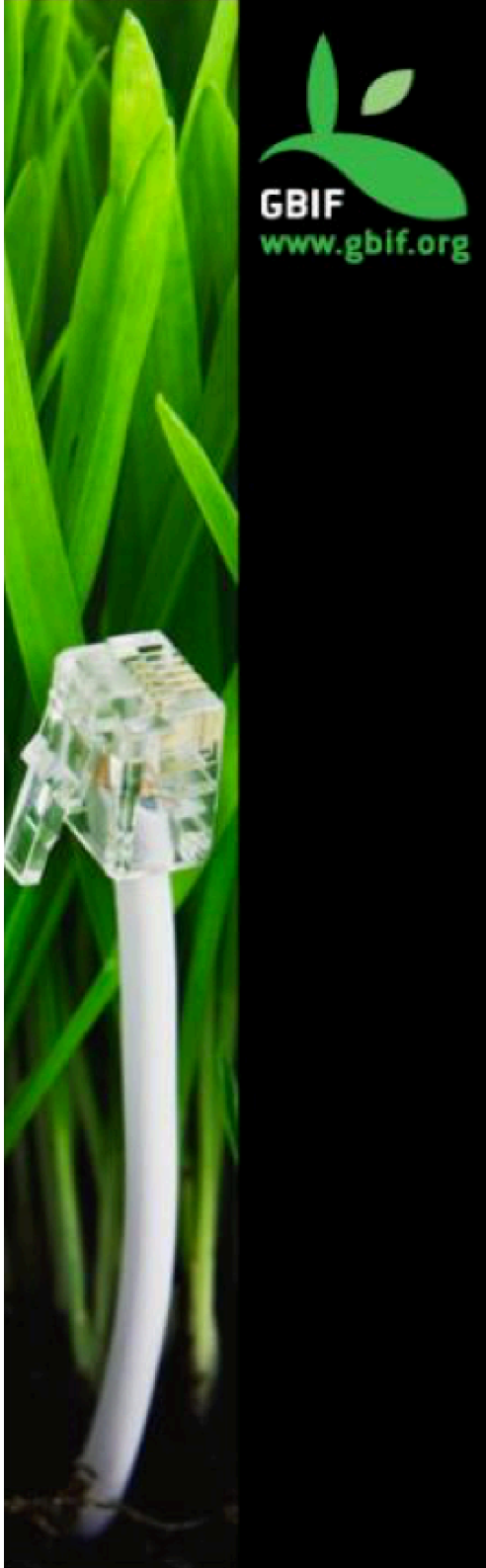


A LifeWatch Norway will substantially strengthen the societal benefits and capitalization of the Norwegian investments in GBIF.

GBIF DATA PORTAL API

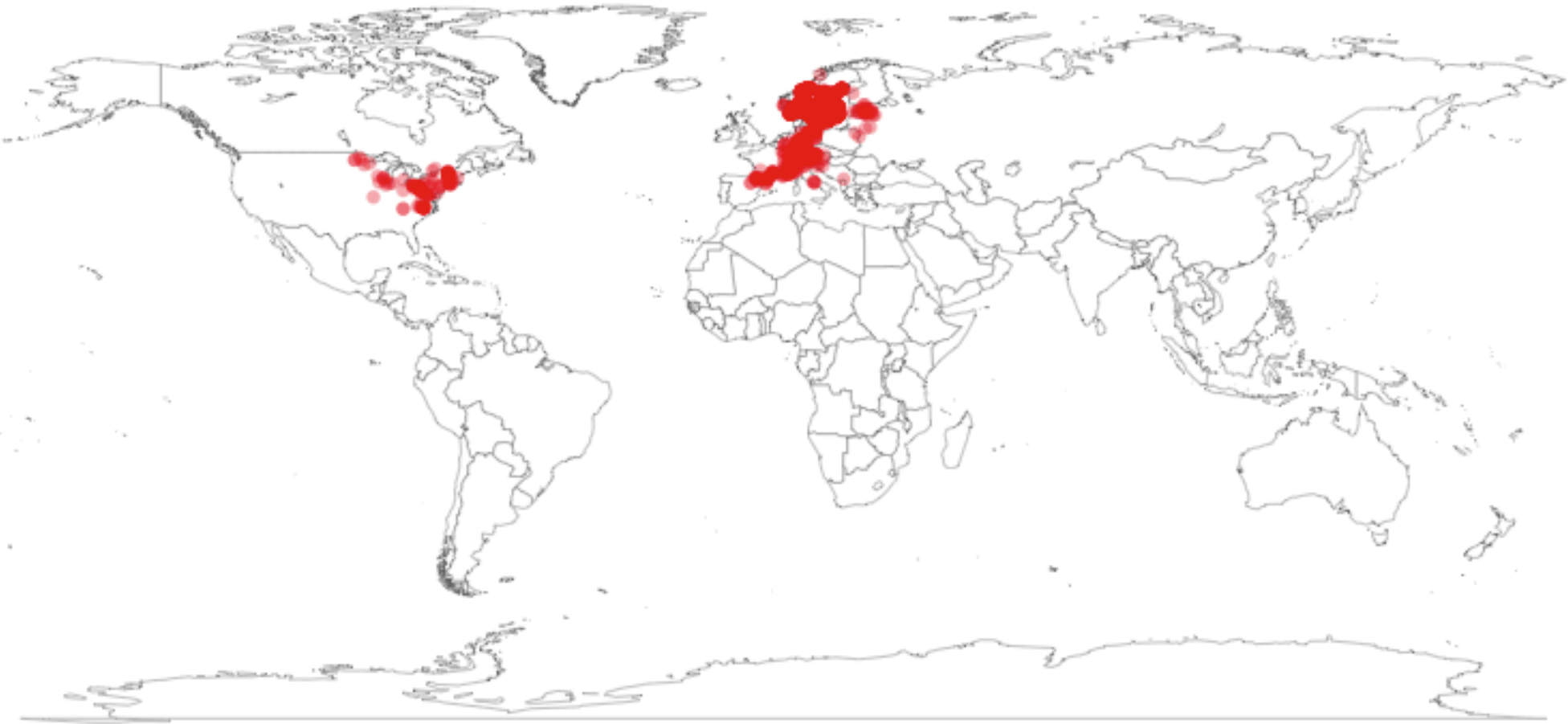
An interface to access data published through the GBIF network using **web services**.

http://api.gbif.org/v1/



ROPENSCI : RGBIF

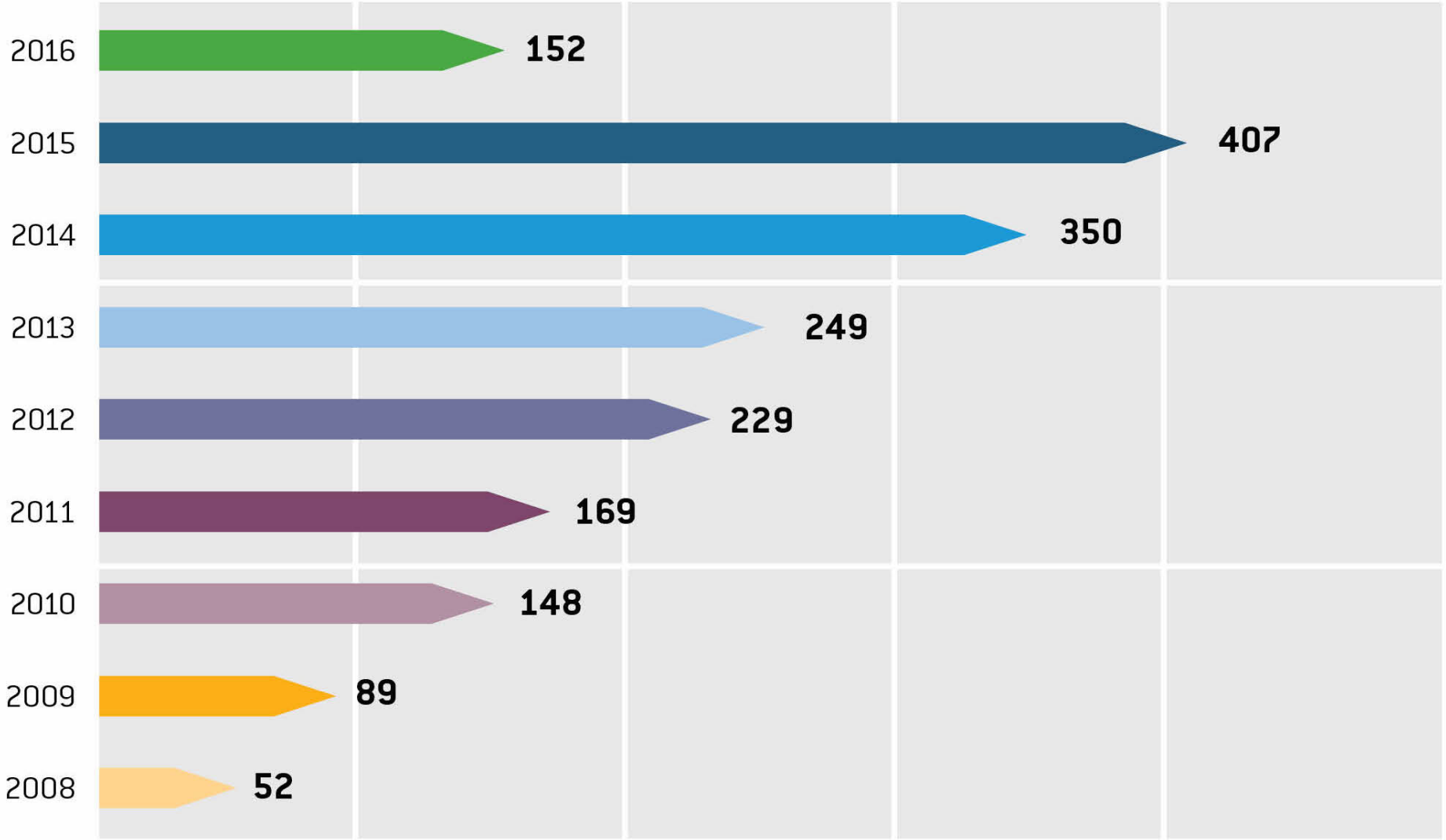
```
library(rgbif)
key <- name_backbone(name='Hepatica nobilis', kingdom='Plantae')$speciesKey
sp <- occ_search(taxonKey=key, return='data', hasCoordinate=TRUE, limit=1000)
gbifmap(sp)
```



data use

CITATIONS IN PEER-REVIEWED RESEARCH

Annual number of peer-reviewed publications using GBIF-mediated data



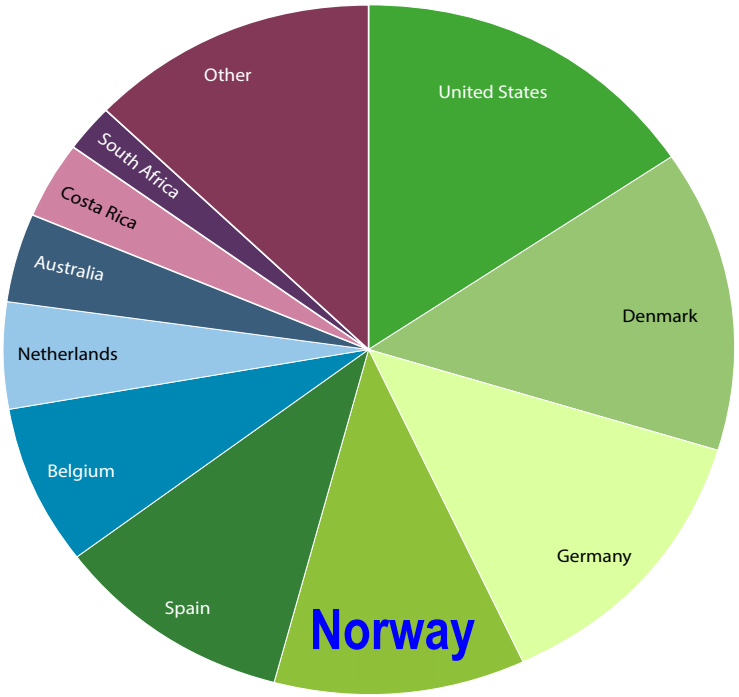
GBIF

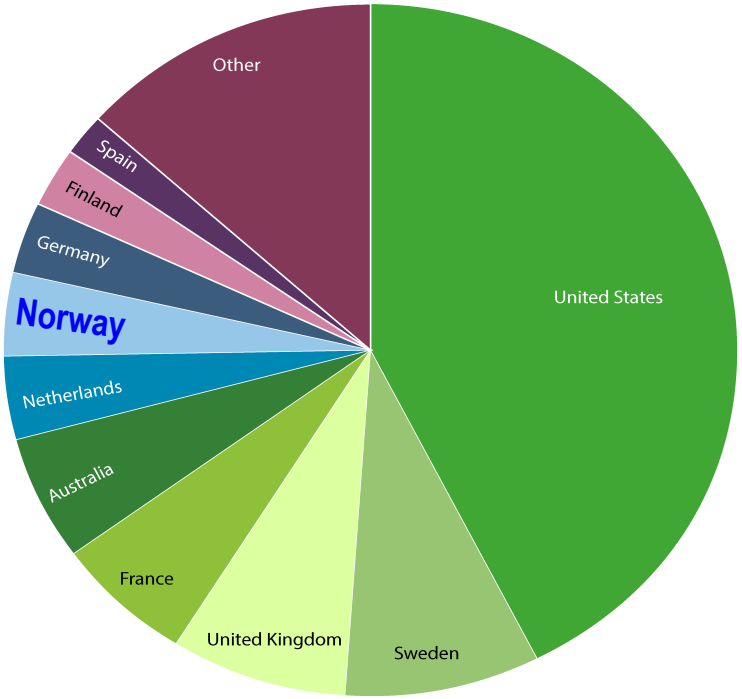
GBIF Norway
www.gbif.no

data publishing

DATA—BY GBIF PARTICIPANT

Status May 2016





Number of <u>new records</u> published—Top 10 participant Countries
(1 to 31 May 2016)

1. United States	3,348,499	6. Belgium	1,620423
2. Denmark	2,972,094	7. Netherlands	1,094,804
3. Germany	2,868,240	8. Australia	859,896
4. Norway	**2,322,797**	9. Costa Rica	810,035
5. Spain	2,238,363	10. South Africa	436,236

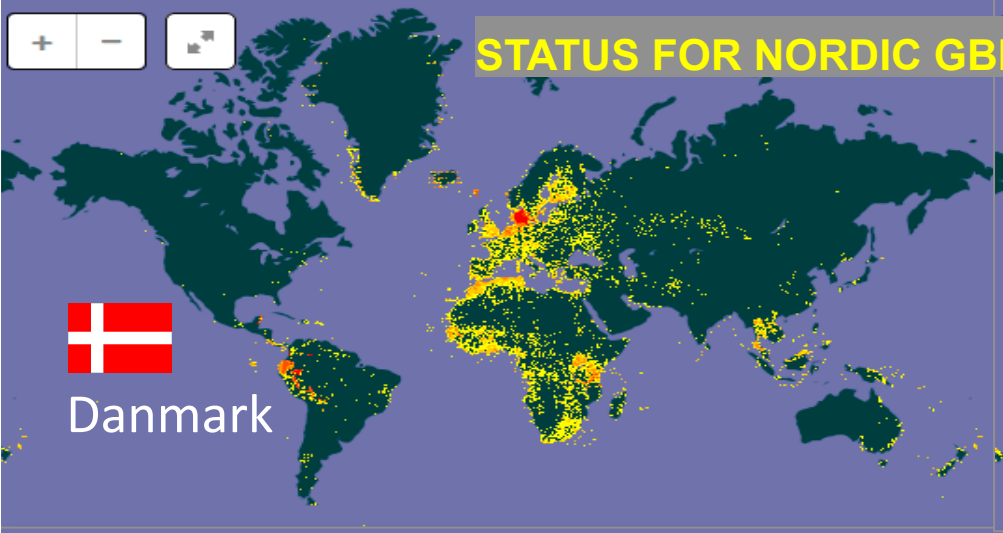
<u>Total number</u> of records published—Top 10 Participant Countries
(as of 31 May 2016)

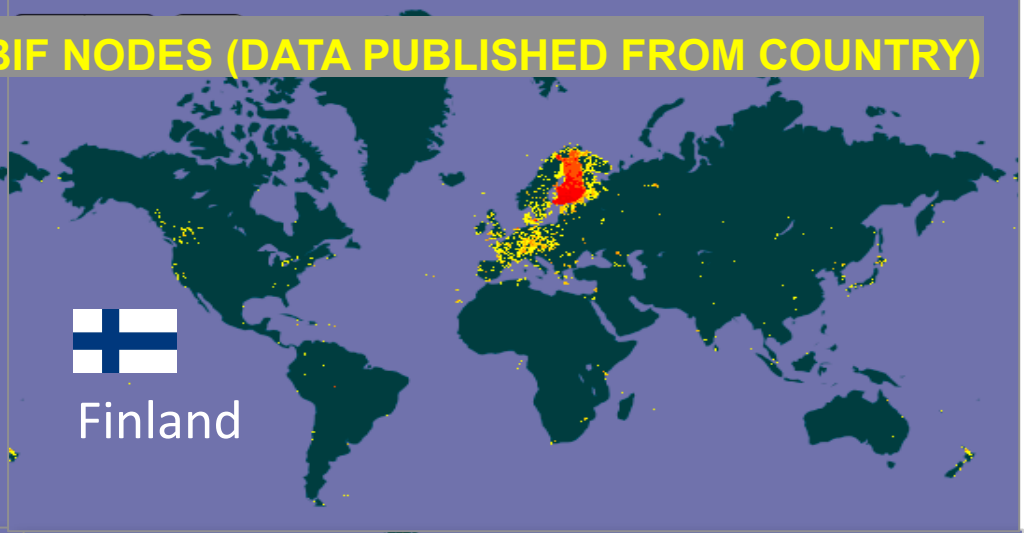
1. United States	271,901,500	6. Netherlands	24,241,092
2. Sweden	53,776,182	**7. Norway**	**23,811,863**
3. United Kingdom	49,786,646	8. Germany	22,151,479
4. France	39,896,982	9. Finland	16,612,735
5. Australia	37,489,401	10. Spain	13,630,866

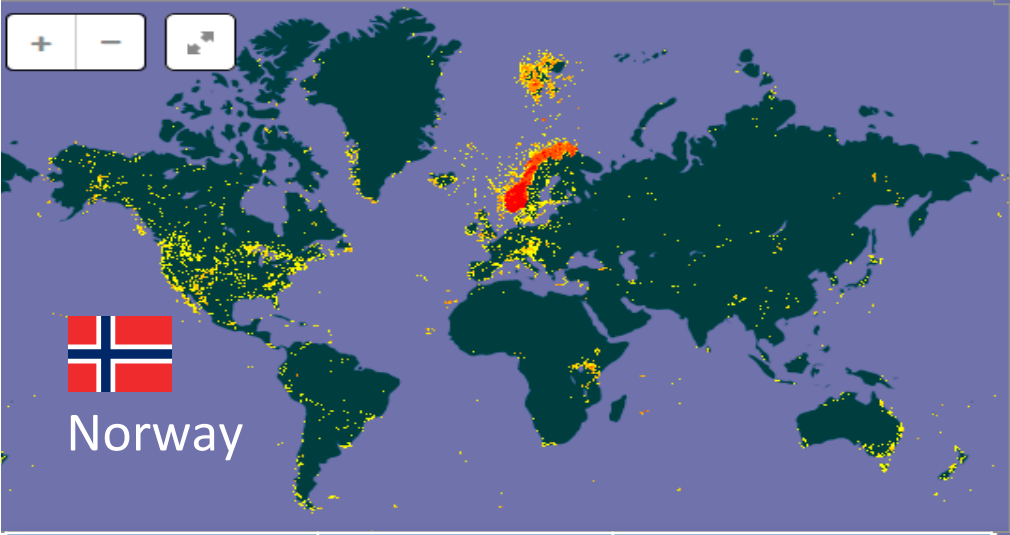
***NOTE**: Datasets are assigned to countries according to the location of the publishing institution, including aggregated datasets with contributors from many other countries.* http://www.gbif.org | 09 JUN 2016

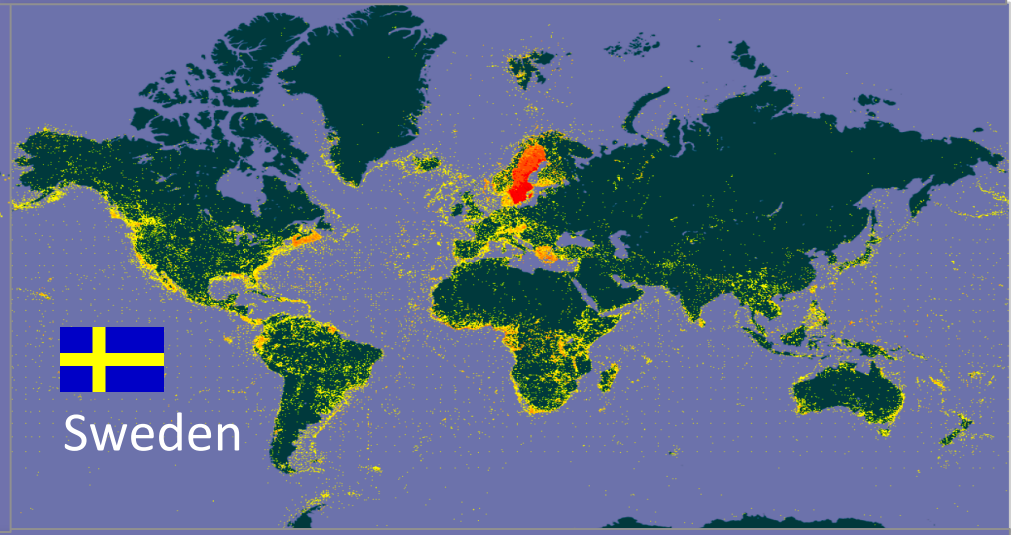
GBIF

STATUS FOR NORDIC GBIF NODES (DATA PUBLISHED FROM COUNTRY)

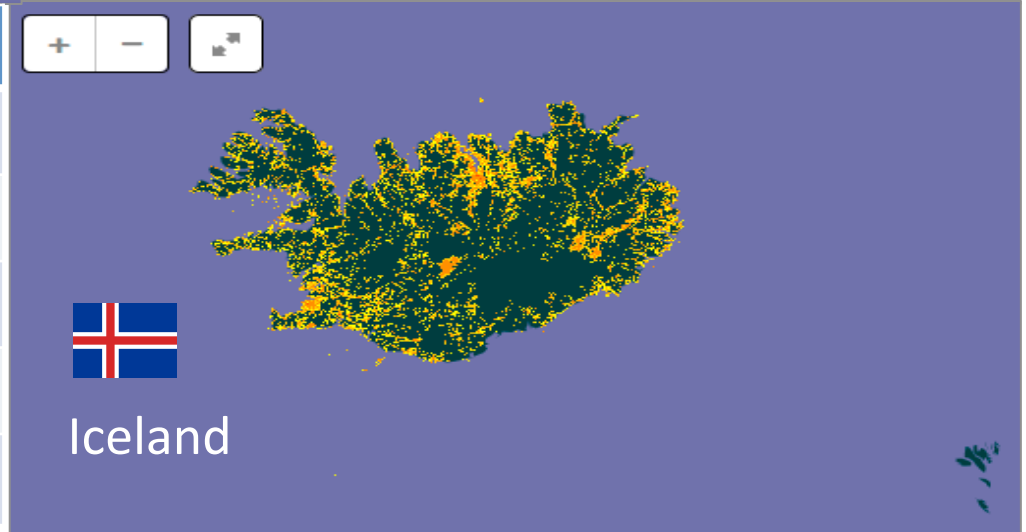








Oct. 2016	Datasets	Occurrences
Denmark	66 + 1	10 905 213
Finland	54	3 614 965
Iceland	4	458 705
Norway	**115 + 2**	**22 431 281**
Sweden	42 + 1	53 791 566



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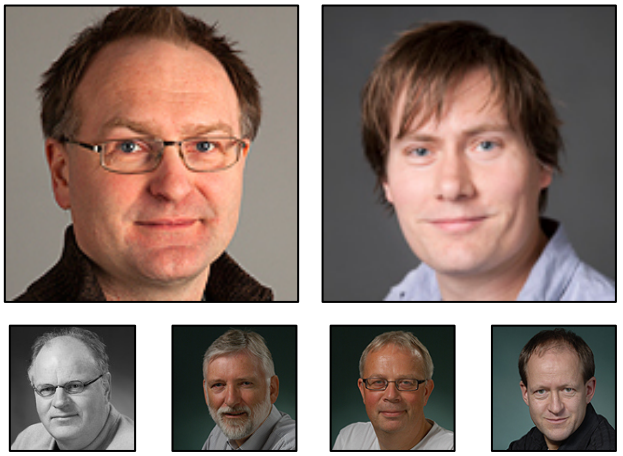
GBIF Norway

Node team at NHM, University of Oslo

Dag Endresen, *Node manager*
Christian Svindseth, *Data manager*

Fridtjof Mehlum, *Research director*
Einar Timdal, *Associate professor*
Geir Søli, *Associate professor*
Vidar Bakken, Consultant



Artsdatabanken, Trondheim

Wouter Koch
Nils Valland

NTNU University Museum

Anders Finstad, *GBIF Science committee*

Research Council of Norway

Per Backe-Hansen, *Head of delegation*

Contact us at: **gbif-drift@nhm.uio.no**