



Sharing and using biodiversity data for e-Science

Cees H.J. Hof

Netherlands Biodiversity Information Facility (NLBIF)

The Dutch branch of the Global Biodiversity Information Facility (GBIF)

What is biodiversity?



"Biological diversity" means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems....



Biodiversity data are....



Natural history collections



Living collections



Biodiversity data are....



Systematic monitoring + research data



Citizen science data



What is GBIF?

The Global Biodiversity Information Facility (GBIF) is an **international open data infrastructure**, funded by governments.

It allows **anyone, anywhere to access data** about all types of life on Earth, shared across national boundaries via the Internet.

By encouraging and helping institutions to publish data according to **common standards**, GBIF enables **research** not possible before, and informs better decisions to conserve and sustainably use the biological resources of the planet.

GBIF operates through **a network of nodes**, coordinating the biodiversity information facilities of Participant countries and organizations, collaborating with each other and the Secretariat to share skills, experiences and technical capacity.

GBIF's vision: "A world in which biodiversity information is freely and universally available for science, society and a sustainable future."



History of GBIF



Megascience Forum
Working Group on
Biological Informatics

1999

The purpose of GBIF is to co-ordinate the **standardisation**, **digitisation** and global **dissemination** (within an appropriate property rights framework) of the world's biodiversity data.

Ministers acknowledged the importance of such a facility in the areas of **health, resource management, environmental protection, agriculture and education**



2001

GBIF established and secretariat settled in Copenhagen

NLBIF

2002

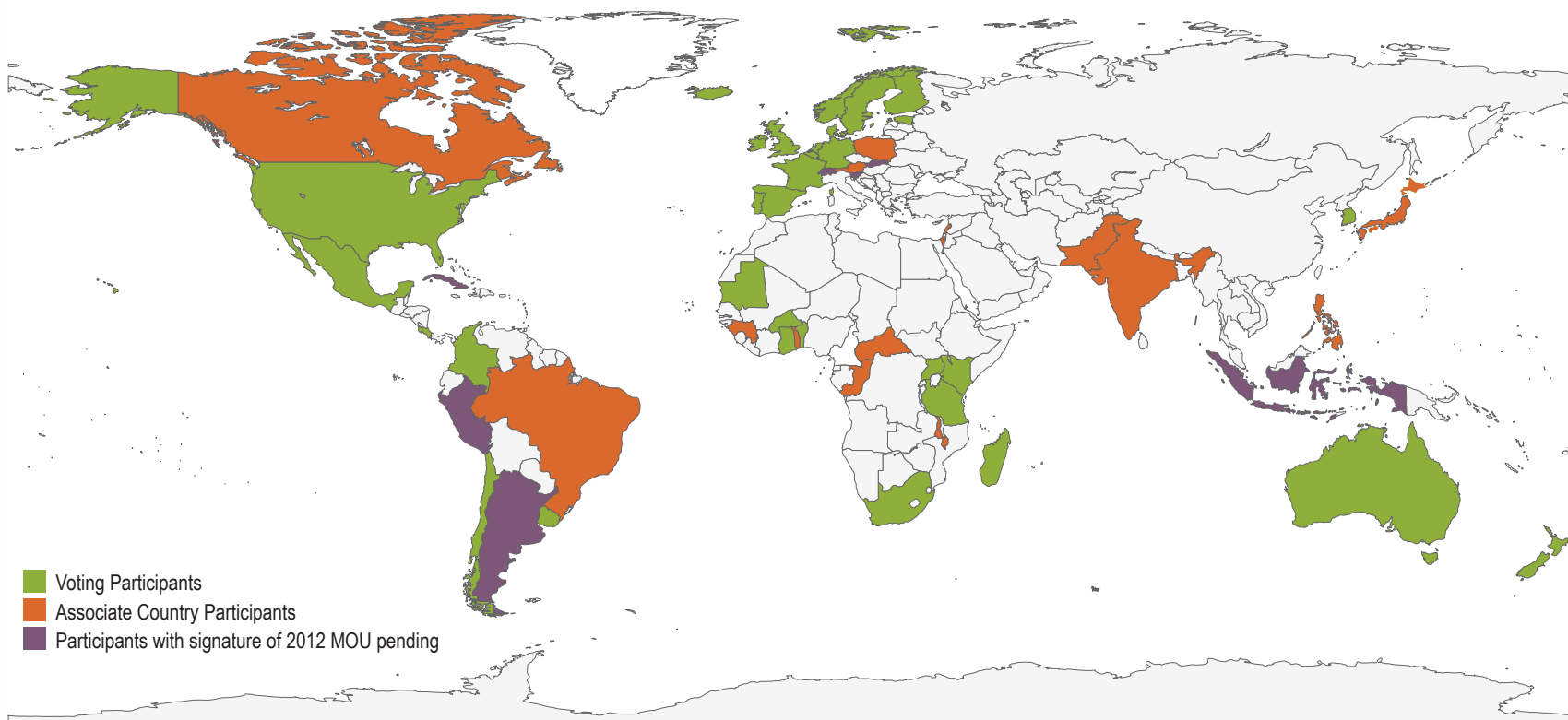
Founded by OCW, NWO and UvA

2012

Currently **structurally** financed by OCW, hosted by UvA

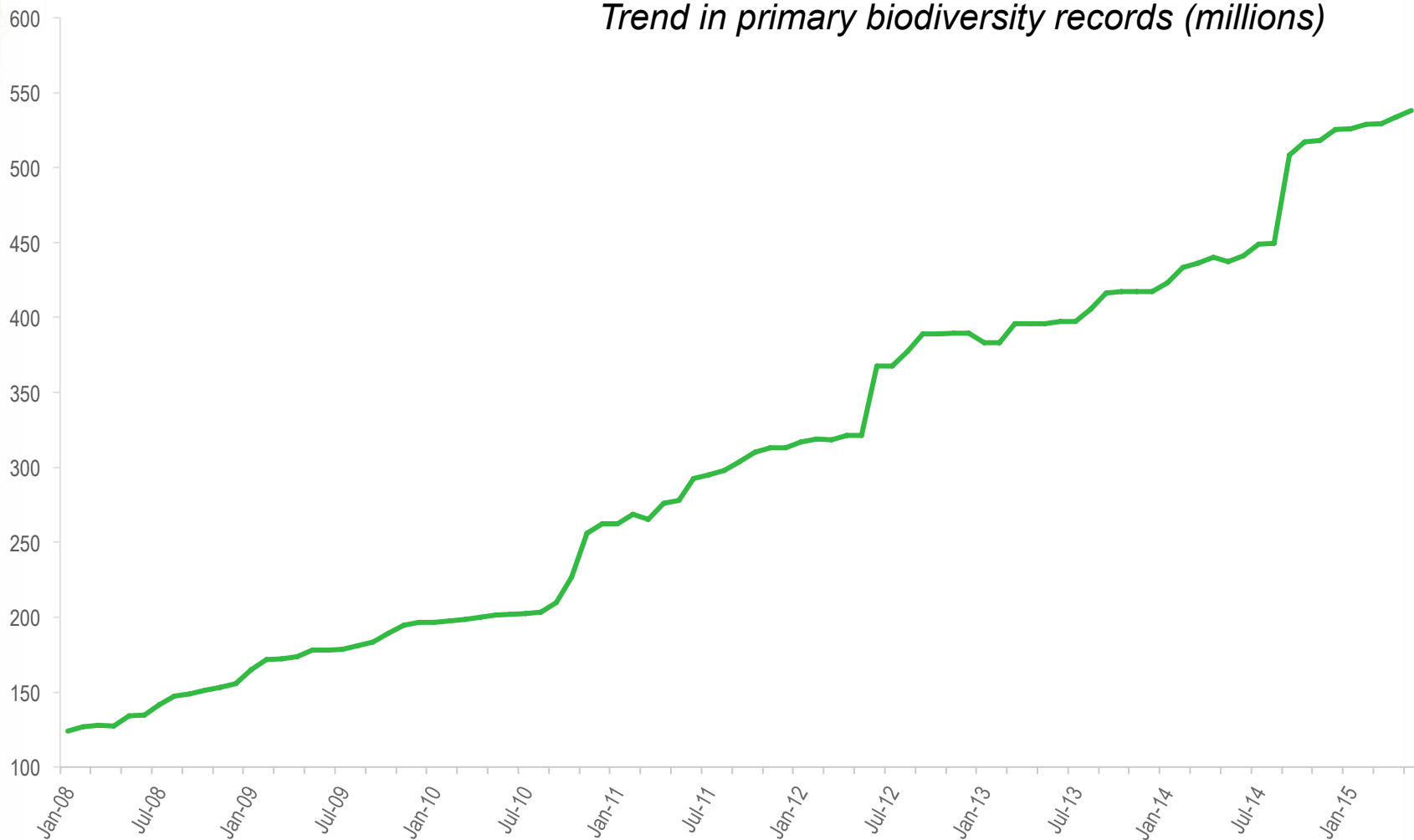


GBIF country participants

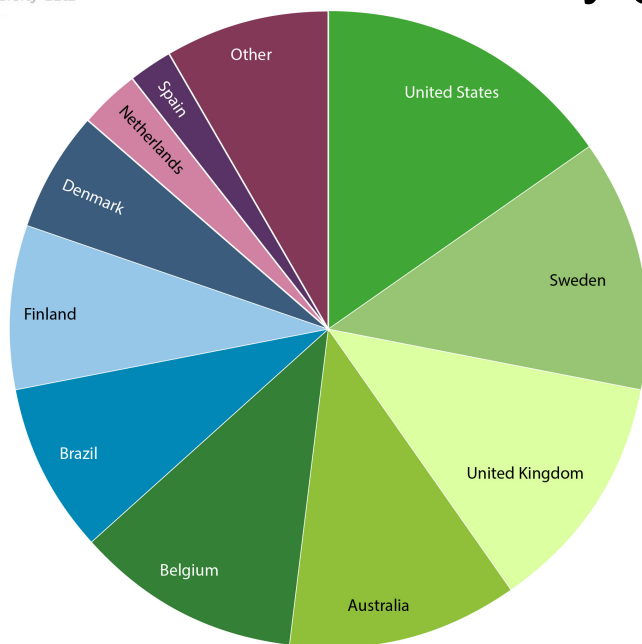


Data published through GBIF.org

Trend in primary biodiversity records (millions)

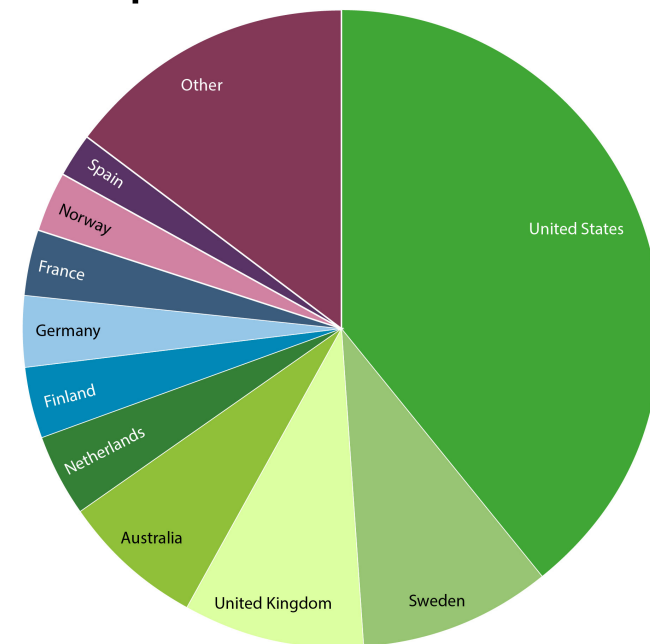


Data by gbif participant



Number of new records published—Top 10 participant Countries
(1 Jan to 31 May 2015)

1. United States	2,951,100	6. Brazil	1,660,476
2. Sweden	2,476,199	7. Finland	1,572,265
3. United Kingdom	2,372,307	8. Denmark	1,187,322
4. Australia	2,260,641	9. Netherlands	630,252
5. Belgium	2,230,015	10. Spain	391,161



Total number of records published—Top 10 Participant Countries
(as of 31 May 2015)

1. United States	209,679,618	6. Finland	20,036,123
2. Sweden	51,325,126	7. Germany	18,909,265
3. United Kingdom	49,543,695	8. France	17,577,672
4. Australia	38,955,381	9. Norway	17,425,011
5. Netherlands	21,578,737	10. Spain	10,578,485



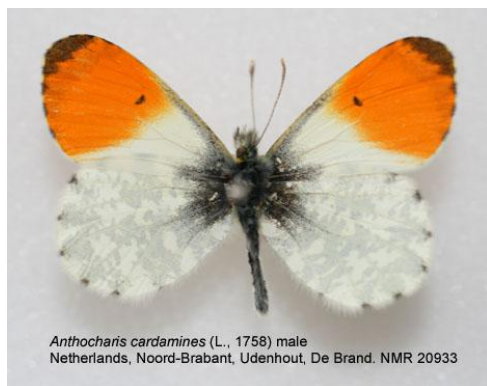
The primary GBIF data:

What is a record in GBIF?

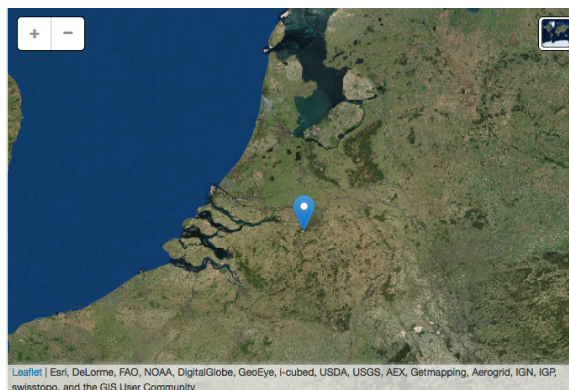
GBIF hosts so called “occurrence data”

→ Which species of plant / animal / micro-organism was observed / collected from which locality and when?

Taxonomic information



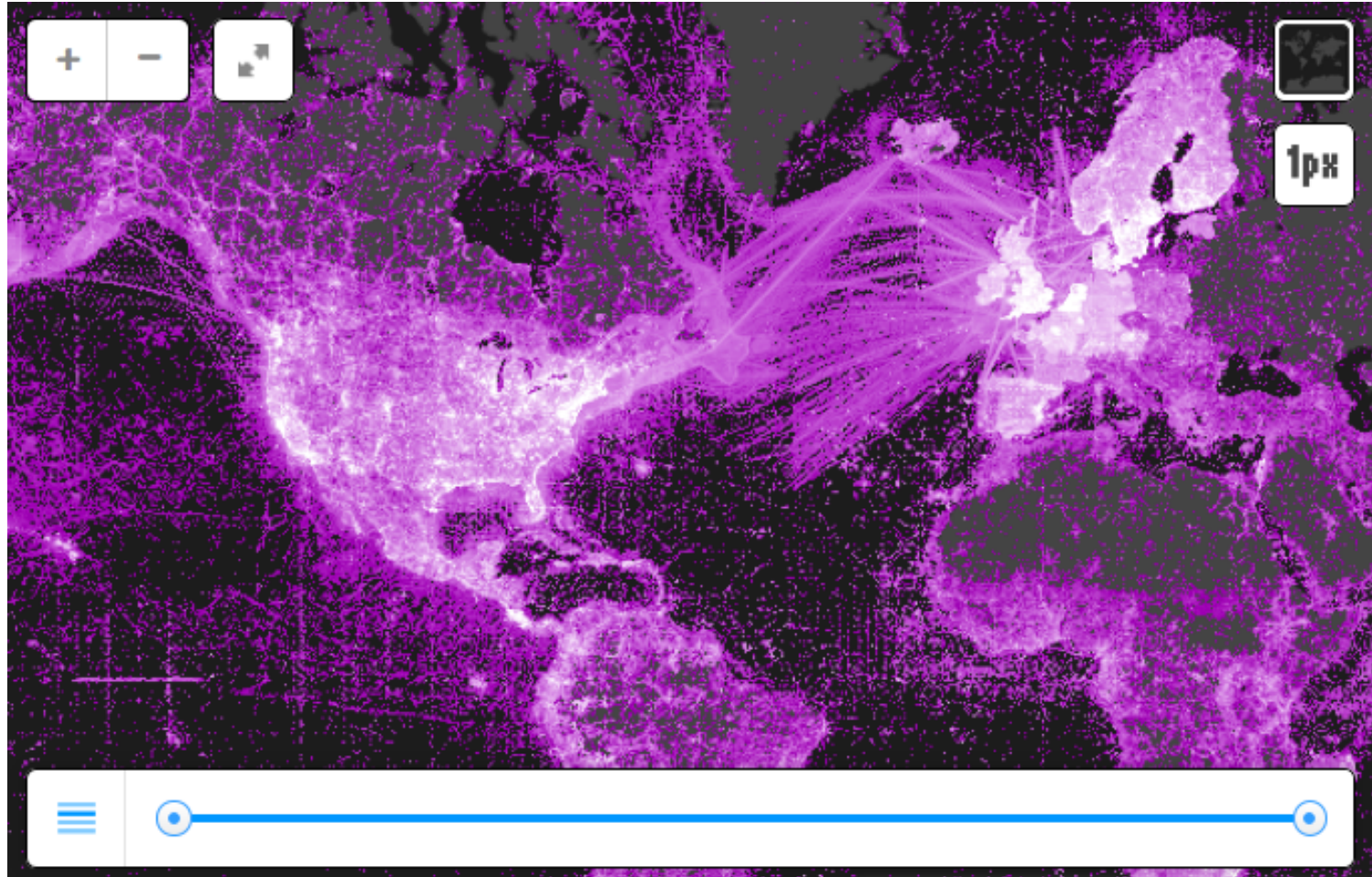
Geographic information

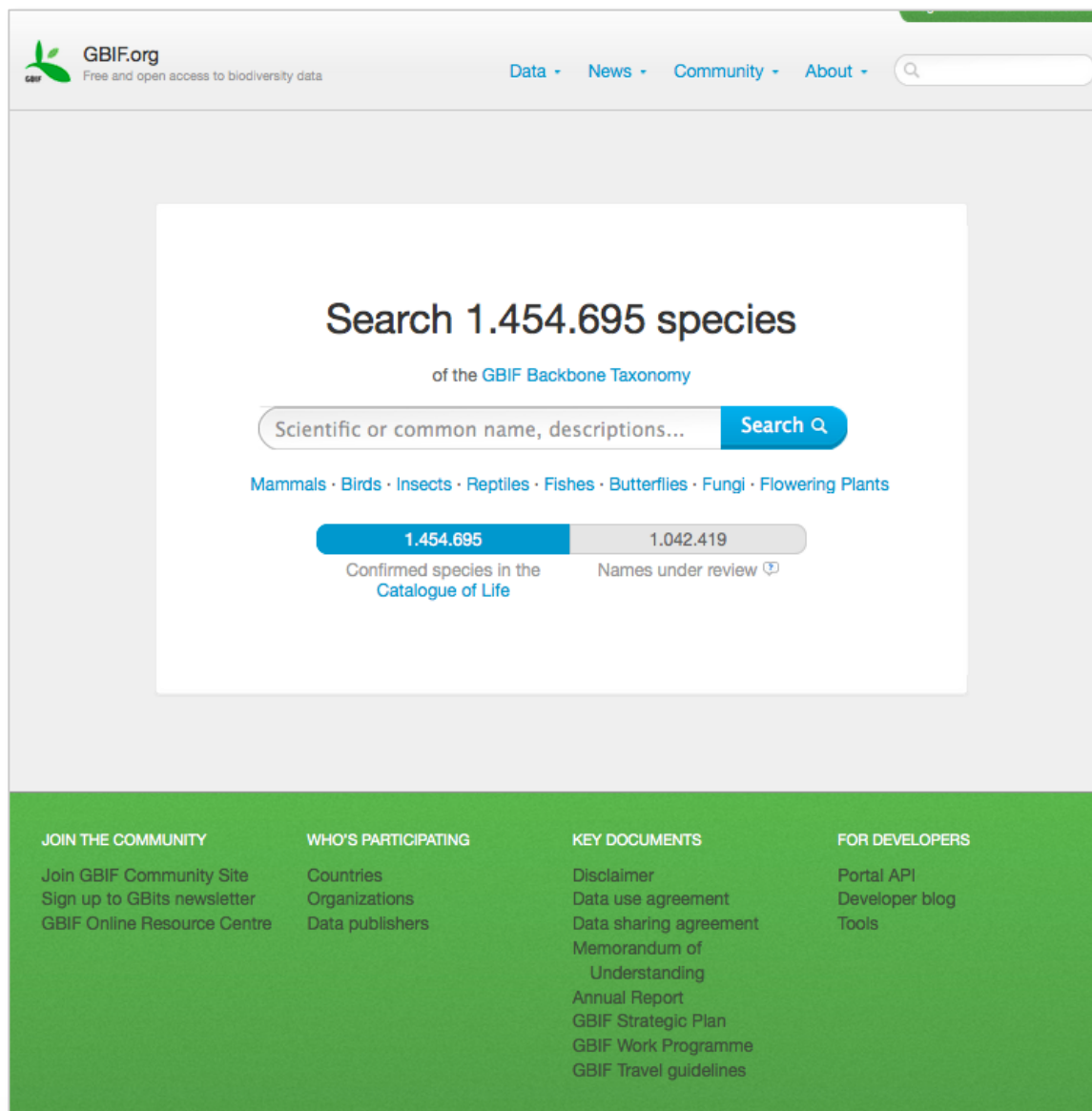


Temporal information

01 May 1971
00:00:00







The screenshot shows the GBIF.org website interface. At the top left is the GBIF.org logo with the tagline "Free and open access to biodiversity data". To the right are navigation links: "Data", "News", "Community", and "About", followed by a search bar. The main content area features a large heading "Search 1.454.695 species" and a sub-heading "of the GBIF Backbone Taxonomy". Below this is a search input field containing the text "Scientific or common name, descriptions..." and a blue "Search" button. Underneath the search bar are category links: "Mammals · Birds · Insects · Reptiles · Fishes · Butterflies · Fungi · Flowering Plants". A progress bar shows two segments: a blue segment for "1.454.695 Confirmed species in the Catalogue of Life" and a grey segment for "1.042.419 Names under review". The footer is a green bar with four columns of links: "JOIN THE COMMUNITY", "WHO'S PARTICIPATING", "KEY DOCUMENTS", and "FOR DEVELOPERS".

GBIF.org
Free and open access to biodiversity data

Data · News · Community · About

Search 1.454.695 species

of the GBIF Backbone Taxonomy

Scientific or common name, descriptions... Search

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

1.454.695 Confirmed species in the Catalogue of Life

1.042.419 Names under review

JOIN THE COMMUNITY
Join GBIF Community Site
Sign up to GBIFs newsletter
GBIF Online Resource Centre

WHO'S PARTICIPATING
Countries
Organizations
Data publishers

KEY DOCUMENTS
Disclaimer
Data use agreement
Data sharing agreement
Memorandum of Understanding
Annual Report
GBIF Strategic Plan
GBIF Work Programme
GBIF Travel guidelines

FOR DEVELOPERS
Portal API
Developer blog
Tools



Search for:



Asellus aquaticus (Linnaeus, 1758)

Species in GBIF Backbone Taxonomy


Animalia · Arthropoda · Malacostraca · Isopoda · Asellidae · Asellus


45.358 Occurrences | 12 Intraspecies

[View occurrences](#)

Information

Overview

<p>FULL NAME Asellus aquaticus (Linnaeus, 1758)</p> <p>COMMON NAMES</p> <ul style="list-style-type: none"> • zoetwaterpissebed nld • o?liczka pospolita pol • ośliczka pospolita pol <p style="text-align: right;">more ></p> <p>SYNONYMS</p> <ul style="list-style-type: none"> • Oniscus aquaticus Linnaeus, 1758 	<p>TAXONOMIC STATUS Accepted species</p> <p>ACCORDING TO The Catalogue of Life, 3rd January 2011</p> <p>PUBLISHED IN Linnaeus, C. (1758). Systema Naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Editio decima, reformata. Laurentius Salvius: Holmiae. ii, 824 pp.</p> <p>HABITAT Not terrestrial, Not marine</p>	 <p>EXTERNAL LINKS</p> <ul style="list-style-type: none"> • Encyclopedia of Life • Catalogue of Life • Biodiversity Heritage Library <p>GBIF ID 2206247</p>
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Georeferenced data

VIEW RECORDS
[All 44.432](#) | [In viewable area](#)

DISTRIBUTIONS
Text based [distributions](#) present in some sources.



Find....
Filter
&
Download



Search occurrences

Use the filters to customize search results

26.978

Occurrences

Download

26.978 results

Configure Add a filter

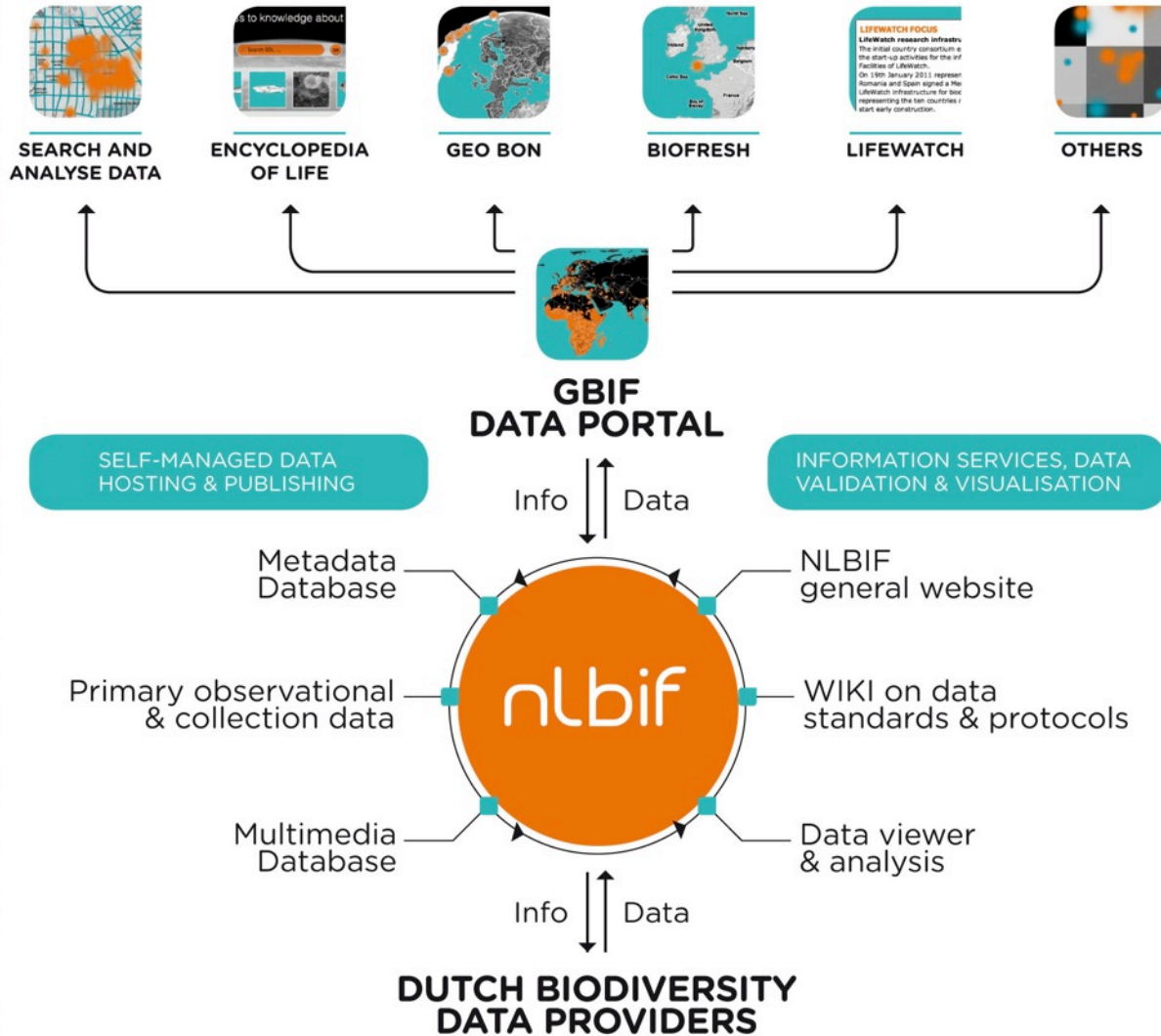
DATASET Dutch Foundation for Applied Water Research (STOWA) - Limnodata Neerlandica ✕

SCIENTIFIC NAME Asellus aquaticus (Linnaeus, 1758) ✕

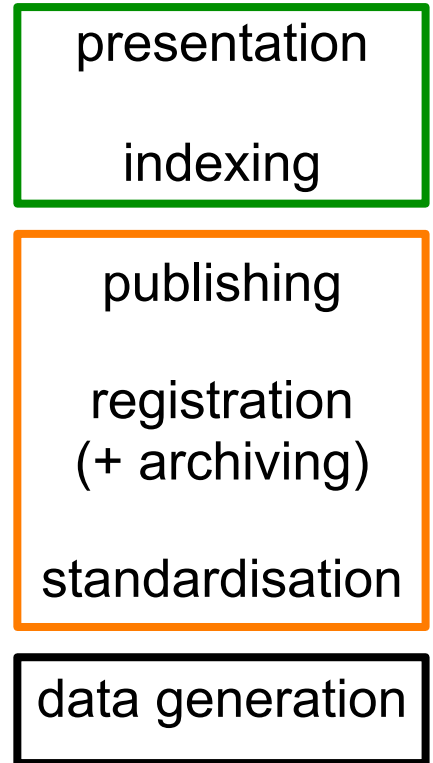
	LOCATION	BASIS OF RECORD	DATE
52934681 - Cat. 233991 Asellus aquaticus (Linnaeus, 1758) Published in Dutch Foundation for Applied Water Research (STOWA) - Limnod...	Netherlands 52,18/4,80	Observation	4 / 2012
52205016 - Cat. 2680 Asellus aquaticus (Linnaeus, 1758) Published in Dutch Foundation for Applied Water Research (STOWA) - Limnod...	Netherlands 52,24/4,85	Observation	4 / 2012
700746676 - Cat. 2689321 Asellus aquaticus (Linnaeus, 1758) Published in Dutch Foundation for Applied Water Research (STOWA) - Limnod...	Netherlands 52,62/6,41	Observation	4 / 2012
52955143 - Cat. 241006 Asellus aquaticus (Linnaeus, 1758) Published in Dutch Foundation for Applied Water Research (STOWA) - Limnod...	Netherlands 52,36/4,82	Observation	4 / 2012
52998089 - Cat. 253860 Asellus aquaticus (Linnaeus, 1758) Published in Dutch Foundation for Applied Water Research (STOWA) - Limnod...	Netherlands 52,25/4,91	Observation	4 / 2012
52202667 - Cat. 1143 Asellus aquaticus (Linnaeus, 1758)	Netherlands	Observation	4 / 2012



Netherlands Biodiversity Information Facility



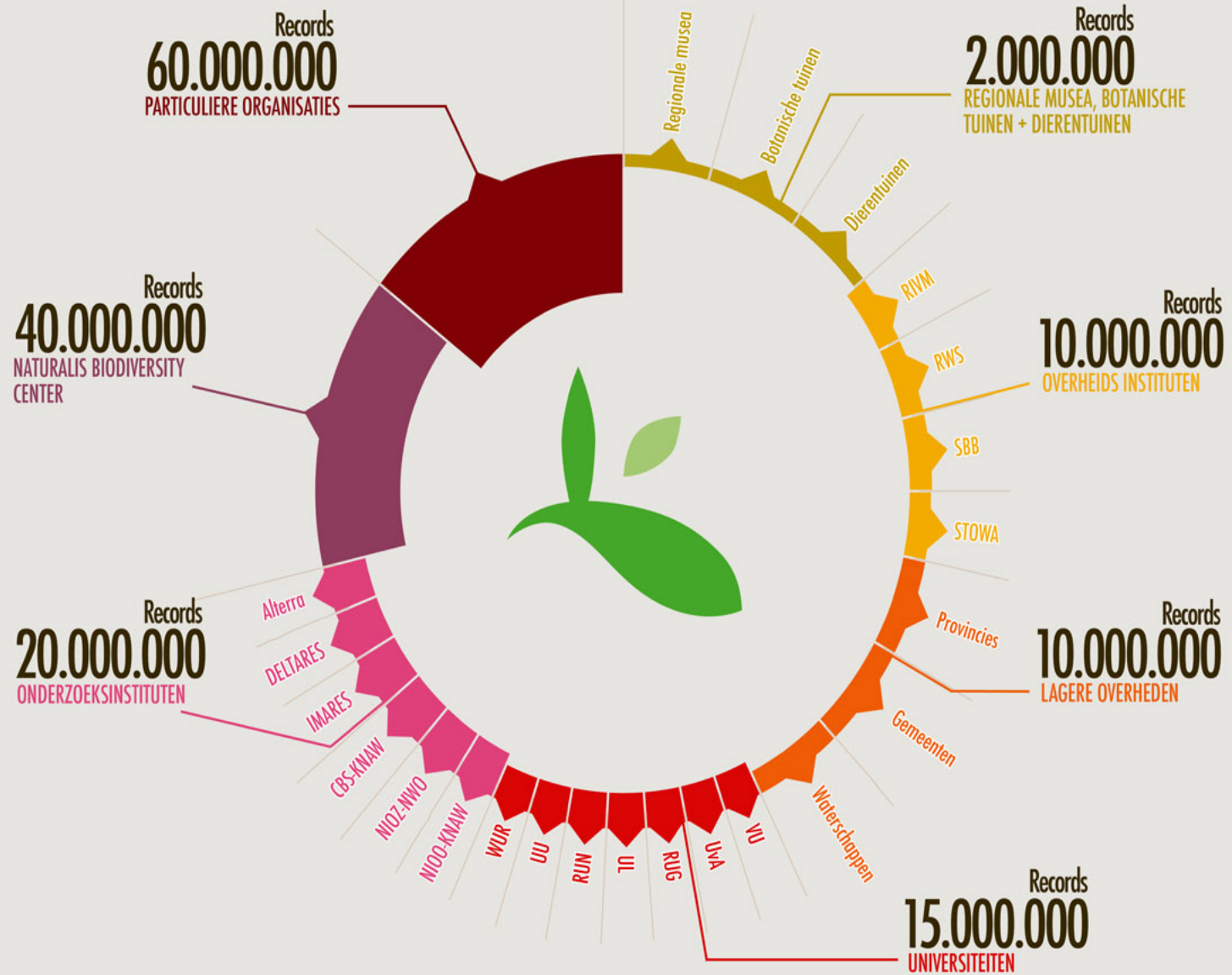
GBIF data flow:



NLBIF - DATA LANDSCAPE



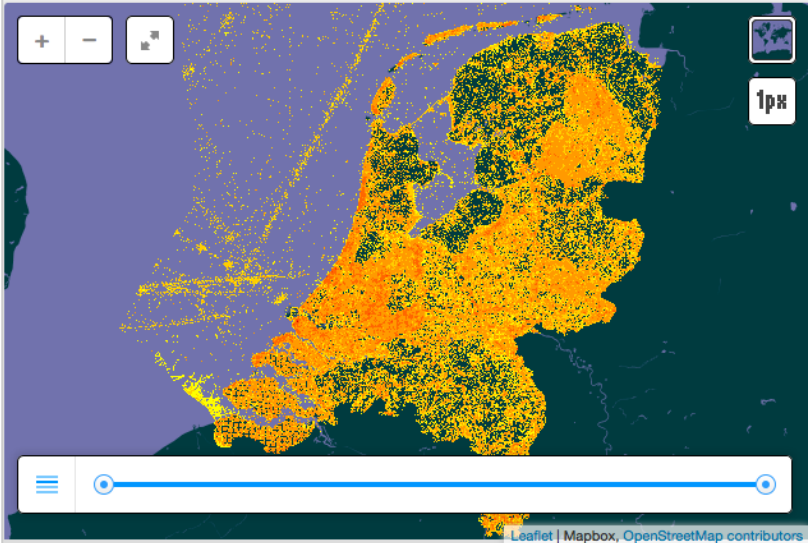
LET OP: VEEL GEGEVENS ZIJN BIJ BENADERING



(rough guess!)

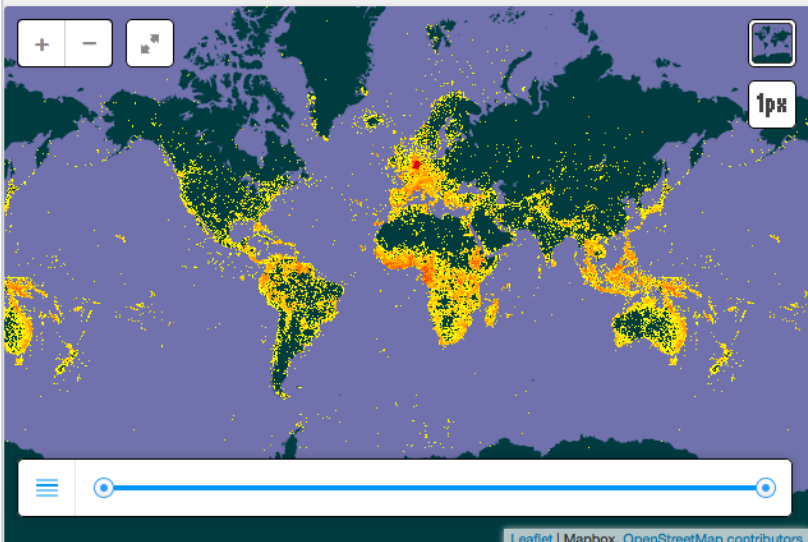
Summary | Data About | Data Publishing | Participation | News and Events | Publications

Data about Netherlands



- 598 occurrence datasets with 15,927,446 records.
- No checklist datasets.
- No metadata-only datasets relevant to Netherlands.
- 31 countries contribute data about Netherlands.

Data from Netherlands



- 123 occurrence datasets with 21,465,722 records.
- 1 checklist dataset with 23,126 records.
- No metadata-only datasets.
- Netherlands publishes data covering 245 countries, territories and islands.

Leaflet | Mapbox, OpenStreetMap contributors

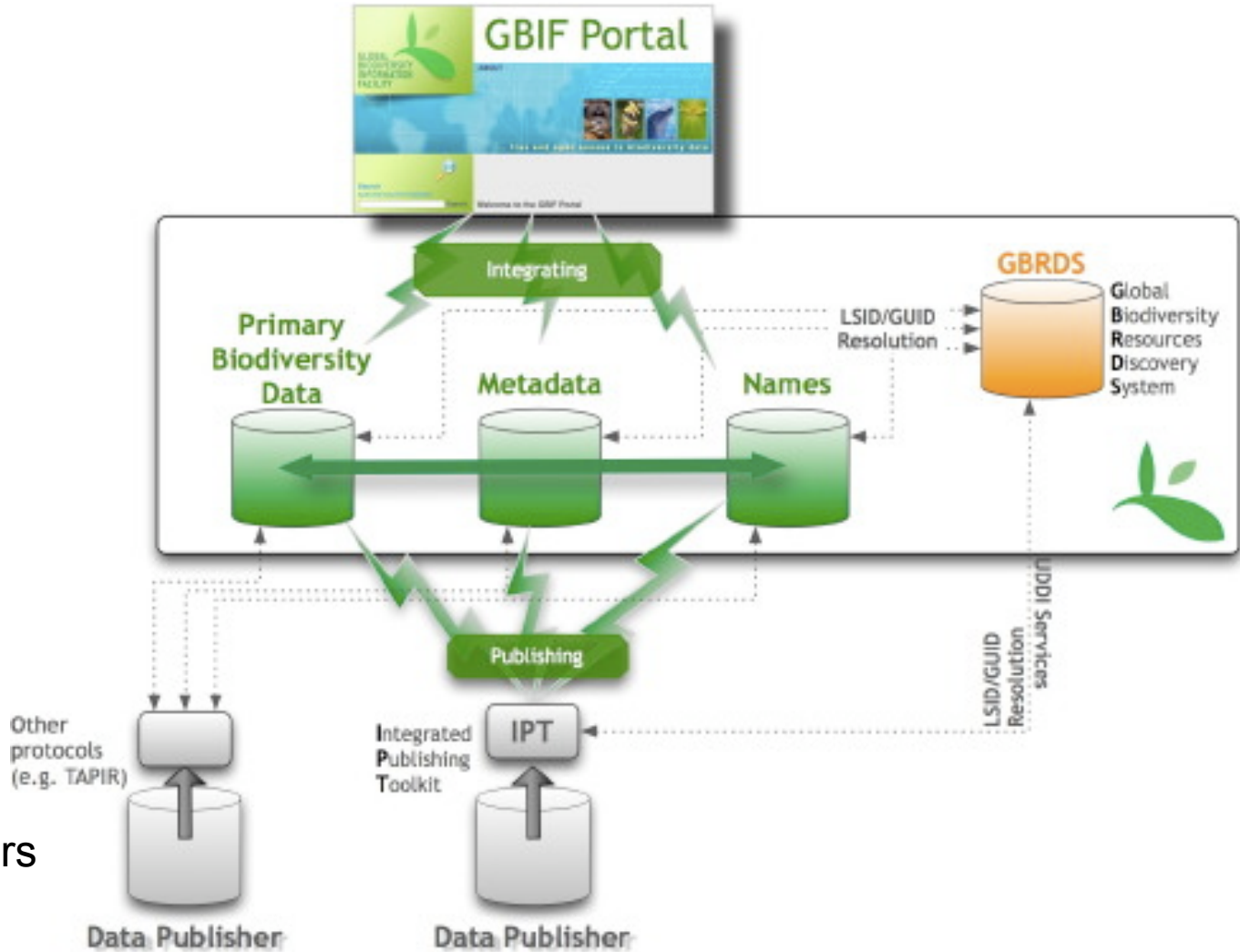


The GBIF infrastructure

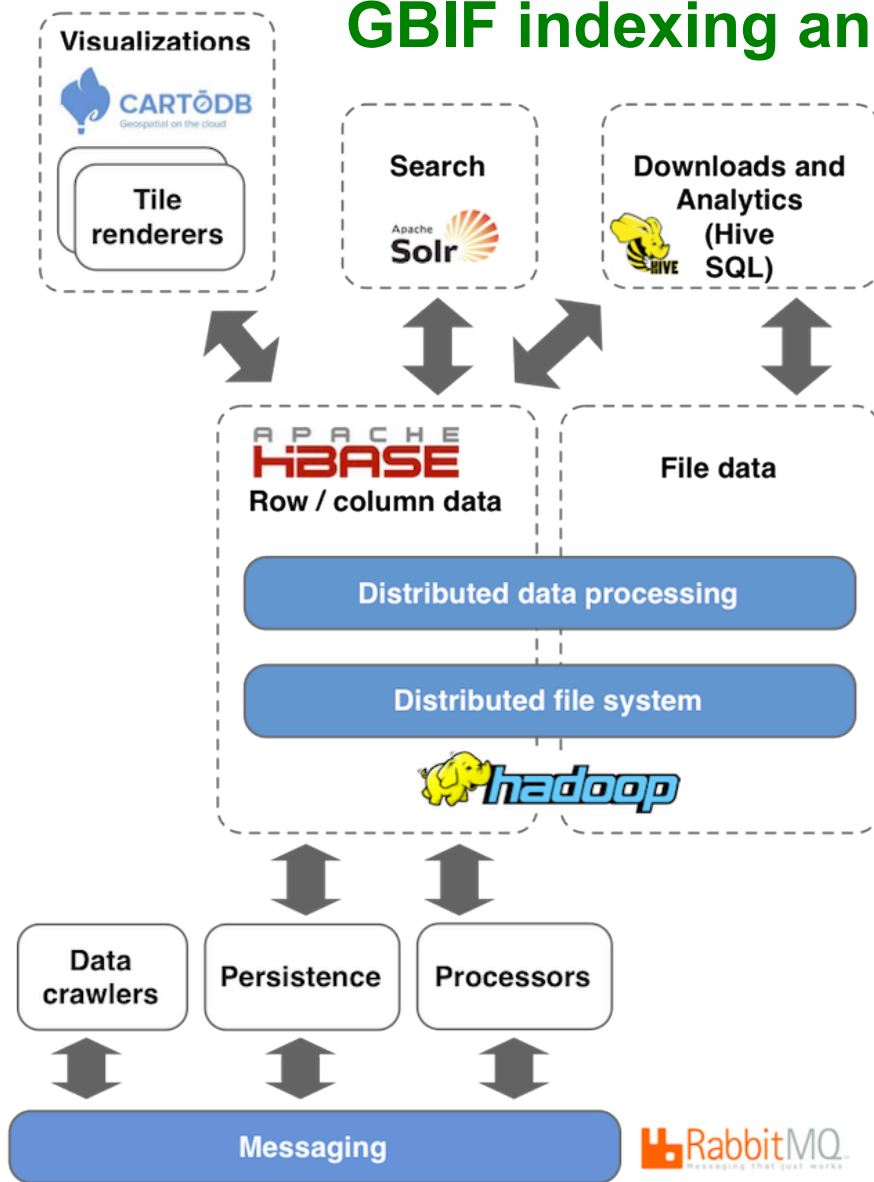
Central data portal

Central data index

Distributed data publishers



GBIF indexing and portal ICT



The GBIF data standards (primary data)

Access to Biological Collection Data (ABCD)

- Full coverage approach: ABCD is comprehensive and therefore complex. It explicitly aims to define the semantics of all elements.
- Element groups: nearly 1200 concepts provided
- Metadata embedded

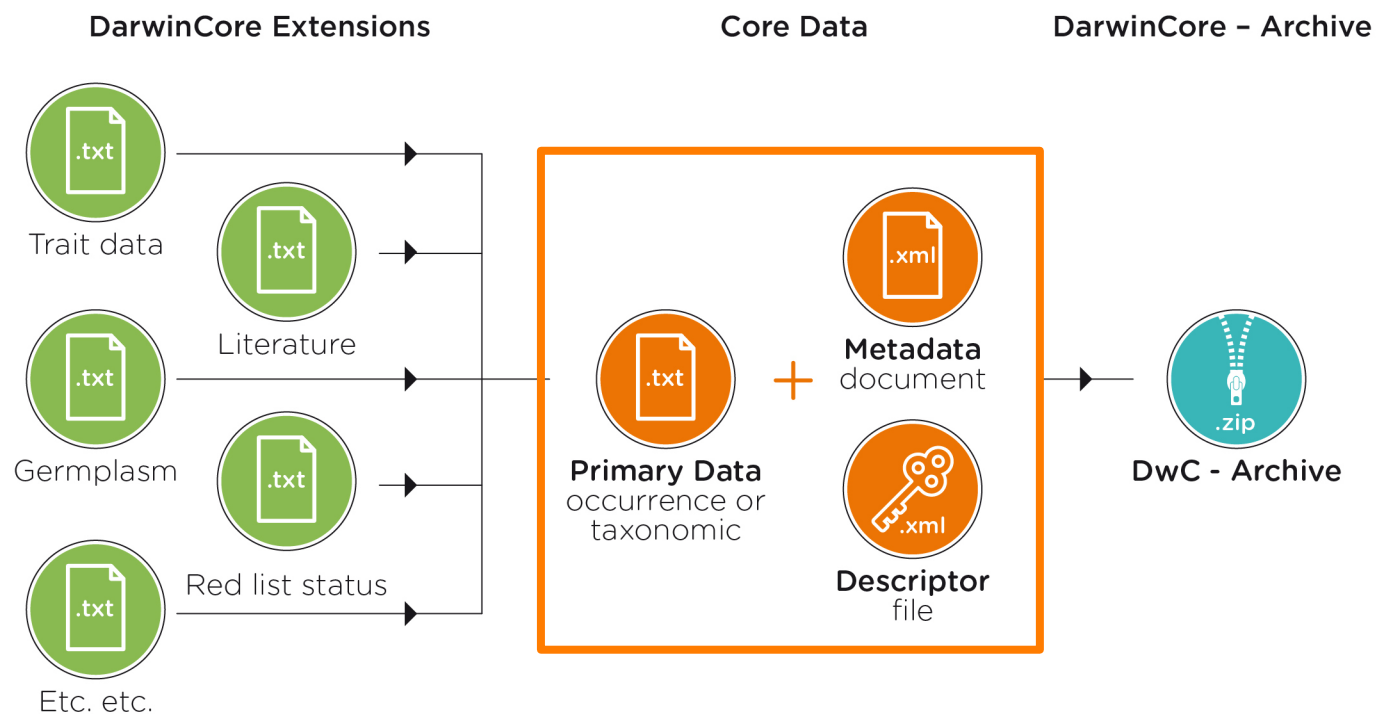
Darwin Core (DwC)

- Body of data standards which function as an extension of Dublin Core for biodiversity informatics
- 9 categories, about 180 terms
- Additional info in data extensions



The GBIF data exchange format (DarwinCore-Archives)

The generation and components of GBIF DarwinCore – Archives (DwC-A)



Example of the core data in GBIF



Occurrence

CATALOGNUMBER	NMR996800020933
DISPOSITION	in collection
INDIVIDUALCOUNT	1
PREPARATIONS	whole animal

Event

DAY	01
EVENTDATE	1971-05-01
MONTH	05
YEAR	1971

Location

CONTINENT	Europe
COUNTRY	Netherlands
COUNTRYCODE	NL-NB
DECIMALLATITUDE	51.630592
DECIMALLONGITUDE	5.135164

GEOETICDATUM	WGS84
GEOREFERENCEDBY	F.J.A. Sliker
LOCALITY	Udenhout, De Brand
MINIMUMELEVATIONINMETERS	10
STATEPROVINCE	Noord-Brabant

Taxon

CLASS	Insecta
FAMILY	Pieridae
GENUS	Anthocharis
KINGDOM	Animalia
NOMENCLATURALCODE	ICZN
ORDER	Lepidoptera
ORIGINALNAMEUSAGE	Oranjetipje
PHYLUM	Arthropoda
SCIENTIFICNAME	<i>Anthocharis cardamines</i> (Linnaeus, 1758)
SCIENTIFICNAMEAUTHORSHIP	(Linnaeus, 1758)
SPECIFICEPTHET	cardamines



The data publishing tool!

Integrated
Publishing
Toolkit

See examples at:

<http://ipt.nlbif.nl>

<http://www.cgn.ipt.wur.nl/>

<http://ipt.ibed.uva.nl>

<http://ipt.nioz.nl>

<http://ipt.ibed.uva.nl>



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nlbif sharing biodiversity data Integrated Publishing Toolkit (IPT)

Home **Manage Resources** Administration About

Geographic Coverage: *University of Amsterdam, Páramo vegetation research, Western Andean Cordillera*

Drag the markers or fill in the fields to set the geographic bounding box of the area covered by the resource.

2000 km 2000 mi North Pacific Ocean United States Mexico Venezuela Colombia Peru Bolivia Chile South Atlantic Ocean South

Map

Algeria Libya Egypt S. Ar Mauritania Mali Niger Chad Sudan Nigeria Ethiopia DR Congo Kenya Tanzania Angola Namibia Botswana Ma

Google Map data ©2012 MapLink, Tele Atlas Terms of Use

Set global coverage

West East

South North

Description

Section

- [Basic Metadata](#)
- [Geographic Coverage](#)
- [Taxonomic Coverage](#)
- [Temporal Coverage](#)
- [Keywords](#)
- [Associated Parties](#)
- [Project Data](#)
- [Sampling Methods](#)
- [Citations](#)
- [Collection Data](#)
- [External links](#)
- [Additional Metadata](#)

**Metadata Authoring
Primary Biodiversity Data
Species Checklists**



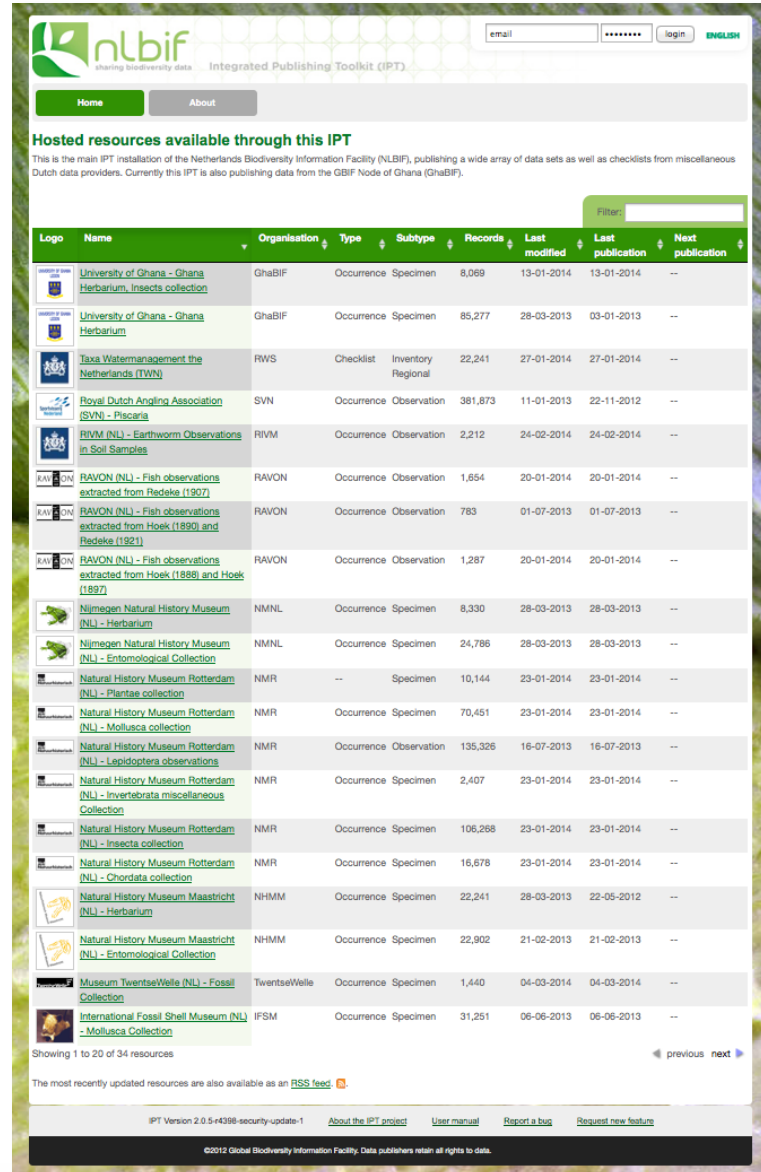
Data publishing in GBIF

A distributed network of “Integrated Data Publishing Toolkits”





















Simple, easy to deploy

Primary data + Metadata

Stable url for your DarwinCore Archive



The screenshot shows the nlbif IPT interface. At the top, there is a search bar and a language selector set to 'ENGLISH'. Below the navigation bar, a section titled 'Hosted resources available through this IPT' provides a brief description. The main content is a table listing various data resources, each with a logo, name, organization, type, subtype, number of records, last modified date, last publication date, and next publication date.

Logo	Name	Organisation	Type	Subtype	Records	Last modified	Last publication	Next publication
	University of Ghana - Ghana Herbarium, Insects collection	GhaBIF	Occurrence	Specimen	8,069	13-01-2014	13-01-2014	--
	University of Ghana - Ghana Herbarium	GhaBIF	Occurrence	Specimen	85,277	28-03-2013	03-01-2013	--
	Taxa Watermanagement the Netherlands (TWN)	RWS	Checklist	Inventory Regional	22,241	27-01-2014	27-01-2014	--
	Royal Dutch Aradina Association (SVN) - Piscaria	SVN	Occurrence	Observation	381,873	11-01-2013	22-11-2012	--
	RIVM (NL) - Earthworm Observations in Soil Samples	RIVM	Occurrence	Observation	2,212	24-02-2014	24-02-2014	--
	RAVON (NL) - Fish observations extracted from Redake (1907)	RAVON	Occurrence	Observation	1,654	20-01-2014	20-01-2014	--
	RAVON (NL) - Fish observations extracted from Hoek (1890) and Redake (1921)	RAVON	Occurrence	Observation	783	01-07-2013	01-07-2013	--
	RAVON (NL) - Fish observations extracted from Hoek (1888) and Hoek (1897)	RAVON	Occurrence	Observation	1,287	20-01-2014	20-01-2014	--
	Nijmegen Natural History Museum (NL) - Herbarium	NMNL	Occurrence	Specimen	8,330	28-03-2013	28-03-2013	--
	Nijmegen Natural History Museum (NL) - Entomological Collection	NMNL	Occurrence	Specimen	24,786	28-03-2013	28-03-2013	--
	Natural History Museum Rotterdam (NL) - Plantae collection	NMR	--	Specimen	10,144	23-01-2014	23-01-2014	--
	Natural History Museum Rotterdam (NL) - Mollusca collection	NMR	Occurrence	Specimen	70,451	23-01-2014	23-01-2014	--
	Natural History Museum Rotterdam (NL) - Lepidoptera observations	NMR	Occurrence	Observation	135,326	16-07-2013	16-07-2013	--
	Natural History Museum Rotterdam (NL) - Invertebrata miscellaneous Collection	NMR	Occurrence	Specimen	2,407	23-01-2014	23-01-2014	--
	Natural History Museum Rotterdam (NL) - Insecta collection	NMR	Occurrence	Specimen	106,268	23-01-2014	23-01-2014	--
	Natural History Museum Rotterdam (NL) - Chordata collection	NMR	Occurrence	Specimen	16,678	23-01-2014	23-01-2014	--
	Natural History Museum Maastricht (NL) - Herbarium	NHMM	Occurrence	Specimen	22,241	28-03-2013	22-05-2012	--
	Natural History Museum Maastricht (NL) - Entomological Collection	NHMM	Occurrence	Specimen	22,902	21-02-2013	21-02-2013	--
	Museum TwentseWelle (NL) - Fossil Collection	TwentseWelle	Occurrence	Specimen	1,440	04-03-2014	04-03-2014	--
	International Fossil Shell Museum (NL) - Mollusca Collection	IFSM	Occurrence	Specimen	31,251	06-06-2013	06-06-2013	--

Showing 1 to 20 of 34 resources previous next

The most recently updated resources are also available as an [RSS feed](#).

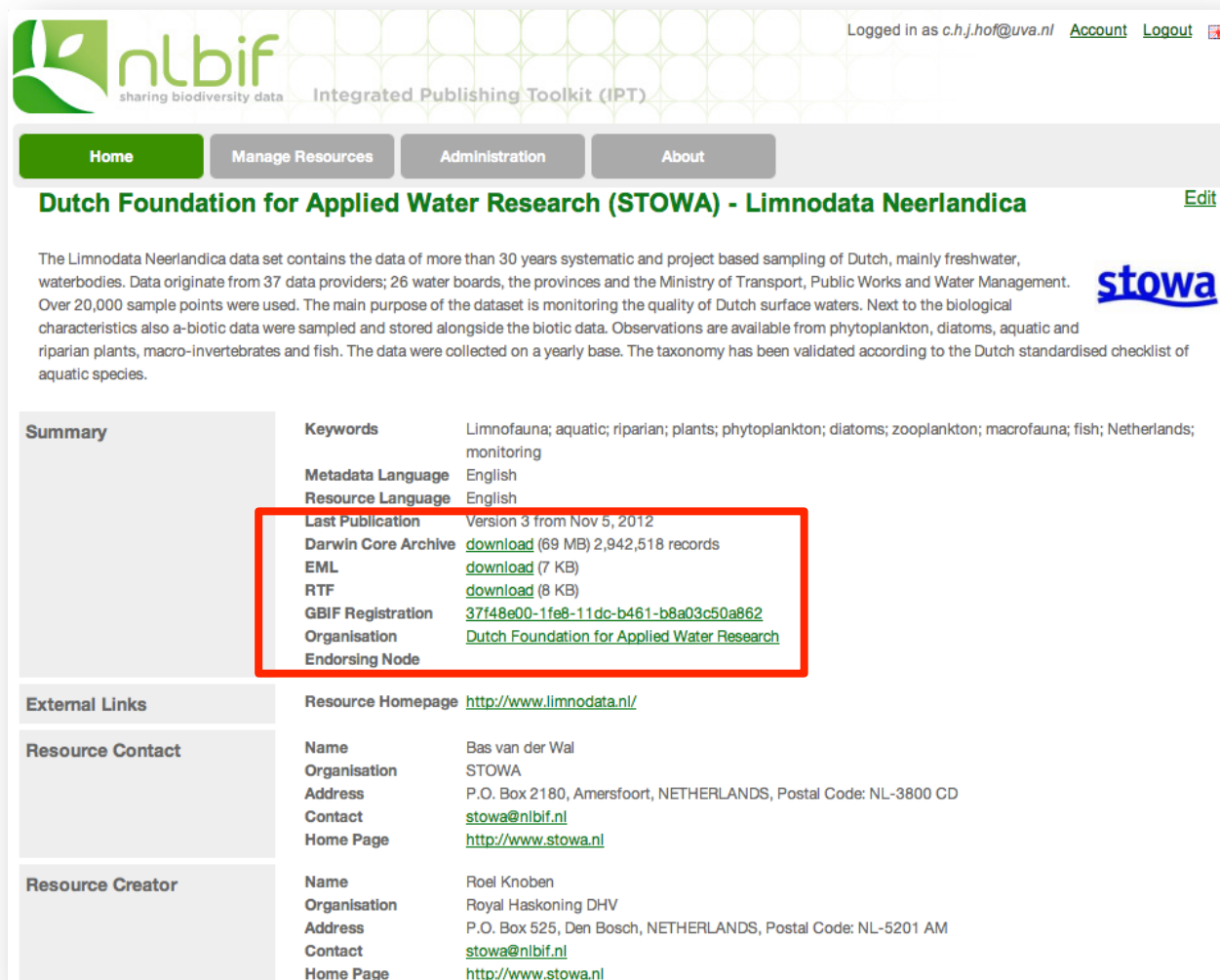
IPT Version 2.0.5-4398-security-update-1 [About the IPT project](#) [User manual](#) [Report a bug](#) [Request new feature](#)


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The Tool!

The data in the Toolkit of the dataprovider...




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nlbif sharing biodiversity data **Integrated Publishing Toolkit (IPT)**

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Dutch Foundation for Applied Water Research (STOWA) - Limnodata Neerlandica [Edit](#)

The Limnodata Neerlandica data set contains the data of more than 30 years systematic and project based sampling of Dutch, mainly freshwater, waterbodies. Data originate from 37 data providers; 26 water boards, the provinces and the Ministry of Transport, Public Works and Water Management. Over 20,000 sample points were used. The main purpose of the dataset is monitoring the quality of Dutch surface waters. Next to the biological characteristics also a-biotic data were sampled and stored alongside the biotic data. Observations are available from phytoplankton, diatoms, aquatic and riparian plants, macro-invertebrates and fish. The data were collected on a yearly base. The taxonomy has been validated according to the Dutch standardised checklist of aquatic species.



Summary	Keywords	Limnofauna; aquatic; riparian; plants; phytoplankton; diatoms; zooplankton; macrofauna; fish; Netherlands; monitoring
	Metadata Language	English
	Resource Language	English
	Last Publication	Version 3 from Nov 5, 2012
	Darwin Core Archive	download (69 MB) 2,942,518 records
	EML	download (7 KB)
	RTF	download (8 KB)
	GBIF Registration	37f48e00-1fe8-11dc-b461-b8a03c50a862
	Organisation	Dutch Foundation for Applied Water Research
	Endorsing Node	

External Links	Resource Homepage	http://www.limnodata.nl/
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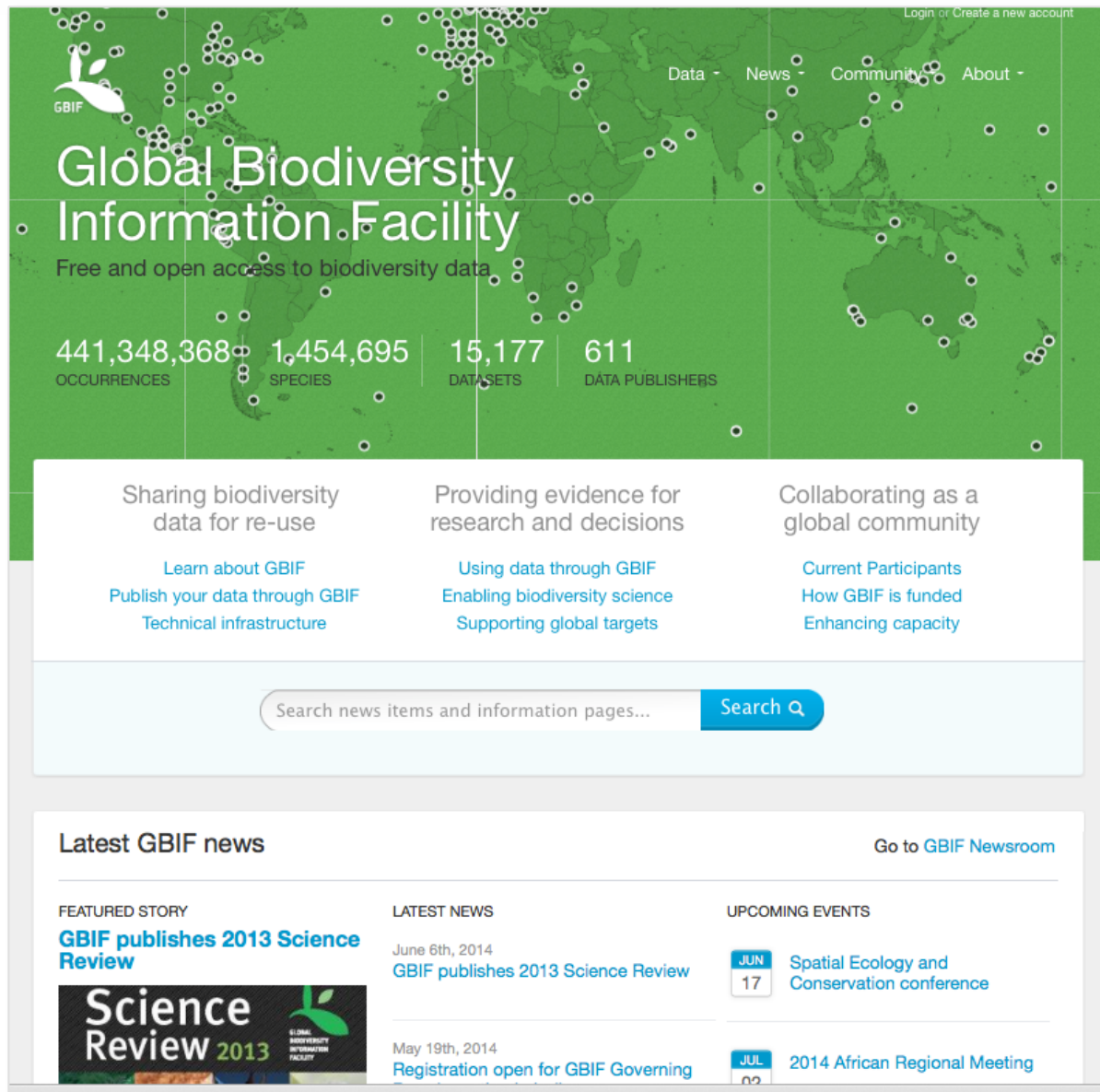
Resource Contact	Name	Bas van der Wal
	Organisation	STOWA
	Address	P.O. Box 2180, Amersfoort, NETHERLANDS, Postal Code: NL-3800 CD
	Contact	stowa@nlbif.nl
	Home Page	http://www.stowa.nl

Resource Creator	Name	Roel Knobben
	Organisation	Royal Haskoning DHV
	Address	P.O. Box 525, Den Bosch, NETHERLANDS, Postal Code: NL-5201 AM
	Contact	stowa@nlbif.nl
	Home Page	http://www.stowa.nl



The Portal

<http://www.gbif.org>



Global Biodiversity Information Facility

Free and open access to biodiversity data

441,348,368 OCCURRENCES | 1,454,695 SPECIES | 15,177 DATASETS | 611 DATA PUBLISHERS

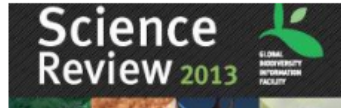
Sharing biodiversity data for re-use
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[Publish your data through GBIF](#)
[Technical infrastructure](#)

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](#)

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FEATURED STORY
GBIF publishes 2013 Science Review


LATEST NEWS
 June 6th, 2014
 GBIF publishes 2013 Science Review

UPCOMING EVENTS
 JUN 17 Spatial Ecology and Conservation conference
 JUL 02 2014 African Regional Meeting



The data in GBIF



GBIF.ORG
Free and open access to biodiversity data

[Data](#) - [News](#) - [Community](#) - [About](#) -

Dutch Foundation for Applied Water R...

Occurrence dataset published by Dutch Foundation for Applied Water Research

2.942.518
Occurrences

[View occurrences](#)

[Information](#) [Stats](#) [Activity](#)

Summary

FULL TITLE

Dutch Foundation for Applied Water Research (STOWA) - Limnodata Neerlandica

DESCRIPTION

The Limnodata Neerlandica data set contains the data of more than 30 years systematic and project based sampling of Dutch, mainly freshwater, waterbodies. Data originate from 37 data providers; 26 water boards, the provinces and the Ministry of Transport, Public Works and Water Management. Over 20,000 sample points were used. The main purpose of the dataset is monitoring the quality of Dutch surface waters. Next to the biological characteristics also a-biotic data were sampled and stored alongside the biotic data. Observations are available from phytoplankton, diatoms, aquatic and riparian plants, macro-invertebrates and fish. The data were collected on a yearly base. The taxonomy has been validated according to the Dutch standardised checklist of aquatic species.

PURPOSE

Water management and research.

TEMPORAL COVERAGES

Date range: 1-jan-1980 - 31-dec-2010

LANGUAGE OF DATA

ADMINISTRATIVE CONTACT


[Bas van der Wal](#)

METADATA AUTHOR

[Bas van der Wal](#)

ORIGINATOR

[Roel Knobben](#)



PUBLISHED BY

[Dutch Foundation for Applied Water Research](#)

PUBLICATION DATE

5-nov-2012

REGISTRATION DATE

4-mei-2010

HOSTED BY

[Netherlands Biodiversity Information Facility \(NLBIF\)](#)

SERVED BY

[NLBIF IPT](#)

LINKS

[Dataset homepage](#)

ALTERNATIVE IDENTIFIERS

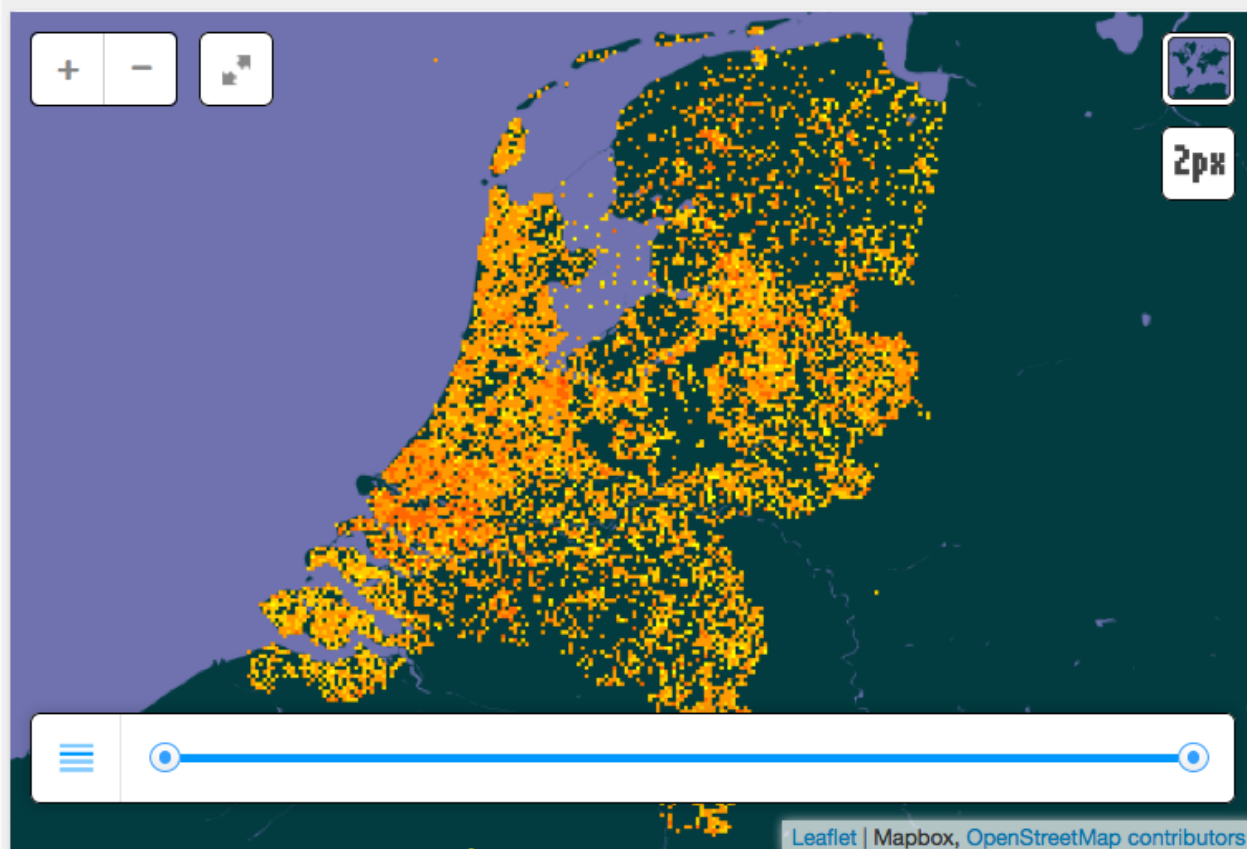
[GBIF Portal ID](#)
<http://data.gbif.org/datasets/...>

EXTERNAL DATA

[Darwin Core Archive](#)



The data visualised in
GBIF, etc.



2.942.518
Georeferenced data

VIEW RECORDS

[All records](#) | [In viewable area](#)

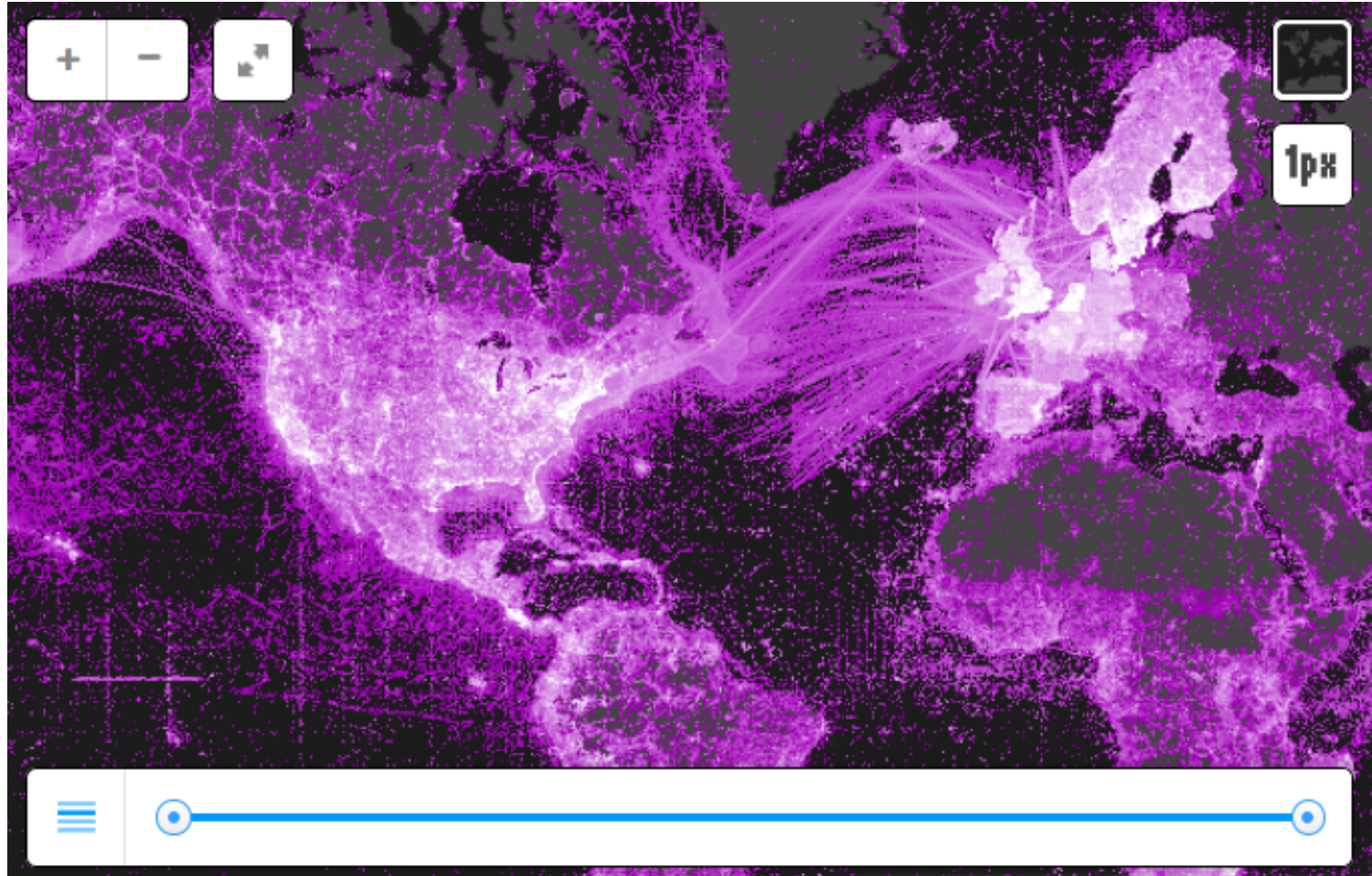
DESCRIPTION

The [Netherlands](#)

ABOUT

[What does this map show?](#)





nature
climate change

Home | Opinion & Analysis | Research | Current Issue | Archive

Archive > 2013 > July > Letters > Abstract

ARTICLE PREVIEW
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NATURE CLIMATE CHANGE | LETTER

Quantifying the benefit of early mitigation in avoiding biodivers

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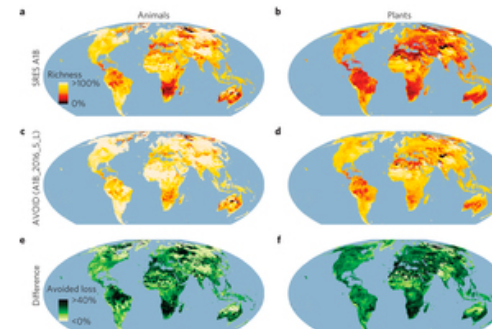
Affiliations | Contributions | Corresponding author

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 Citation
 Reprints

Climate change is expected to affect biodiversity at multiple levels, including species-level extinctions of endemic species^{1, 2, 3, 4, 5, 6}. Reducing greenhouse gas emissions could reduce biodiversity loss.

Figure 3: Species richness in the 2080s.



a–d, Species richness of animal (**a,c**) and plant (**b,d**) species in the 2080s under realistic dispersal for the stringent mitigation case in which global greenhouse gas emissions peak in 2016 and are subsequently reduced at 5% annually (**c,d**).

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The information on the current location of common species of plants, mammals, birds, reptiles and amphibians was taken from around 170 million individual data records published freely online through GBIF by some 200 different institutions around the world. The records include museum specimens, data from scientific expeditions and the observations of thousands of volunteer 'citizen scientists'.



More and more (smart) use of the GBIF services

N
NATURAL HISTORY MUSEUM
Data Portal

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Specimens

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Specimen records

Grid

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Statistics

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Collection code: ZOO x

<< 1 - 100 >>
1146849 records
↗

	GBIF QI	Catalogue nu...	Scientific name	Author	Type status	Locality	Country	Recorder
View	●	1996.7.17.22	Nematoflustra flagell...	Waters		Discovery ...	Antarctica	
View	●	1903.3.9.795	Glareola nordmanni				South Africa	
View	●	1926.6.3.157-...						
View	●	1937.12.5.348	Holodactylus africanus			Haud, Briti...	Somalia	R H. Tayl
View	●	1901.7.30.75-76	Bombina bombina			Comana, Vl...	Romania	
View	●	ZD 1907.12.16.2	Apodemus pallipes				India	
View	●	1951.8.10.644	Ilyopsyllus coriaceus...	Brady & Robertson		Connemara		
View	●	1920.1.20.535	Discoglossus pictus			Tetuan, Mo...	Morocco	
View	●	1926.11.24.50	Hybomys trivirgatus ...		Holotype		Nigeria	
View	●	20031283	Lunatia fusca (Blainv...	(Blainville, 1825)		Sea Area S19		
View	●	1927.5.4.85	Favia acropora (Linn...	(Linnaeus)				
View	●	1932.8.6.214	Macrodipteryx longi...					
View	●	1930.5.8.652	Boiga gokool			Dejoo, Assam	India	
View	●	2001.639	Pachyseris sp.			Chagos Ar...		
View	●	1909.12.24.17...	Pseudomma affine			West of Irel...	Ireland	
View	●	1928.5.31.15	Dynamena cornicina...	McCrary			Egypt	



The two big questions for GBIF:

To what extent do the data represent the true biodiversity of the world?

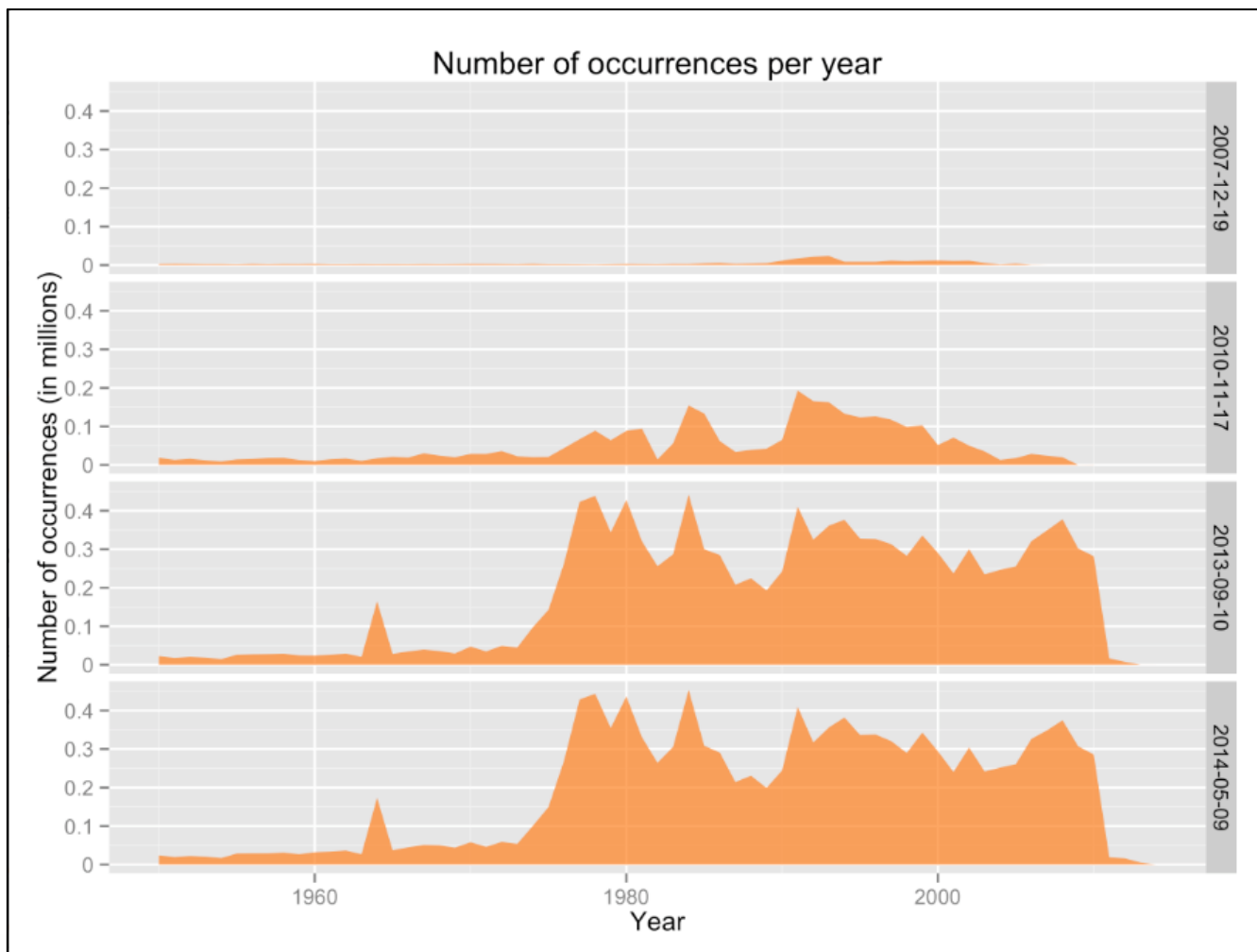
- Biases, gaps, disparities, selections, artifacts, etc.etc.
- How to determine the “fit for purpose”

What do the data tell us when combined with other data resources?

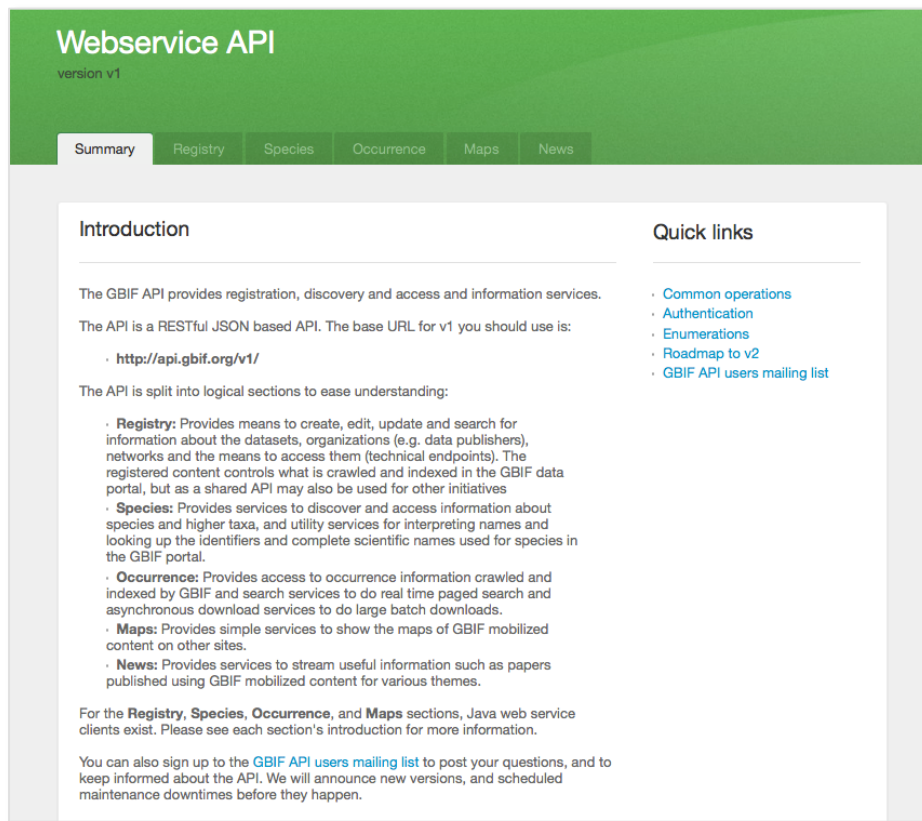
- GIS, genetics, habitats, nature conservation, etc. etc.
- Remote sensing, infrastructure, urbanisation, crops, etc. etc.



For example; Occurrence records by year of occurrence for the Netherlands



All GBIF data / metrics / metadata available (API):



Webservice API
version v1

Summary Registry Species Occurrence Maps News

Introduction

The GBIF API provides registration, discovery and access and information services.

The API is a RESTful JSON based API. The base URL for v1 you should use is:

- <http://api.gbif.org/v1/>

The API is split into logical sections to ease understanding:

- **Registry:** Provides means to create, edit, update and search for information about the datasets, organizations (e.g. data publishers), networks and the means to access them (technical endpoints). The registered content controls what is crawled and indexed in the GBIF data portal, but as a shared API may also be used for other initiatives
- **Species:** Provides services to discover and access information about species and higher taxa, and utility services for interpreting names and looking up the identifiers and complete scientific names used for species in the GBIF portal.
- **Occurrence:** Provides access to occurrence information crawled and indexed by GBIF and search services to do real time paged search and asynchronous download services to do large batch downloads.
- **Maps:** Provides simple services to show the maps of GBIF mobilized content on other sites.
- **News:** Provides services to stream useful information such as papers published using GBIF mobilized content for various themes.

For the **Registry**, **Species**, **Occurrence**, and **Maps** sections, Java web service clients exist. Please see each section's introduction for more information.

You can also sign up to the [GBIF API users mailing list](#) to post your questions, and to keep informed about the API. We will announce new versions, and scheduled maintenance downtimes before they happen.

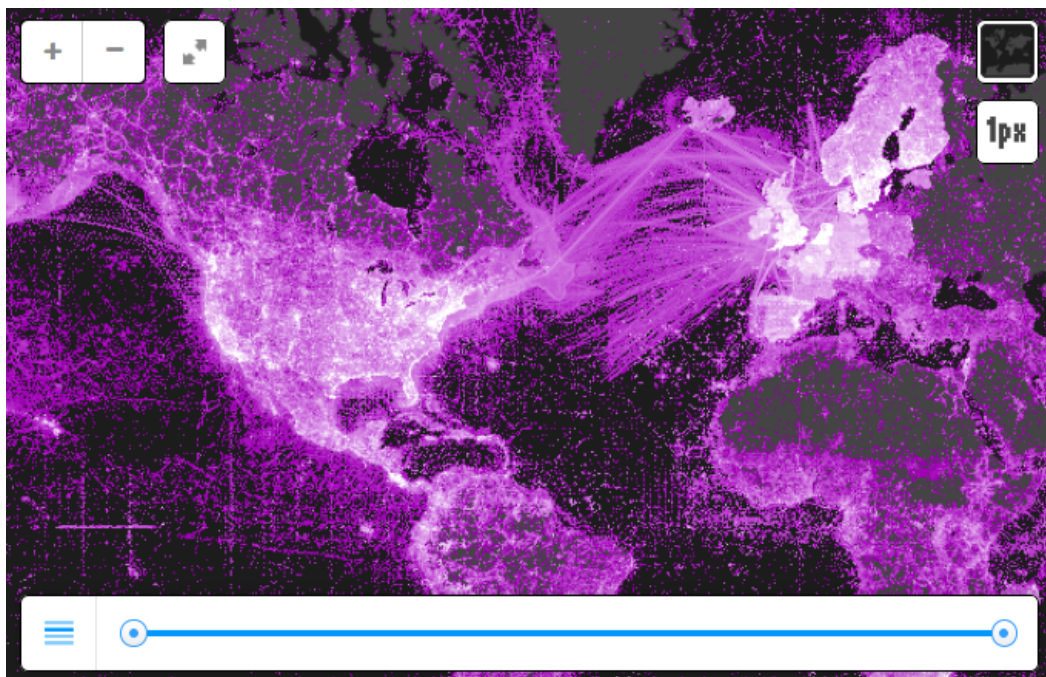
Quick links

- [Common operations](#)
- [Authentication](#)
- [Enumerations](#)
- [Roadmap to v2](#)
- [GBIF API users mailing list](#)

<http://www.gbif.org/developer/summary>



CHALLENGES...



+ 400 million open access biodiversity records in GBIF

Data are being used in scientific publications, but what else is in there?

- Advance data statistics...
- Combining with other info domains (geography, climate, infrastructure, etc.)
- Data streamlining...
- “Fit for purpose” how to meet the needs of data users...



<http://www.gbif.org>

<http://www.nlbif.nl>

