

# North-south data sharing with the e-infrastructure of the Global Biodiversity Information Facility (GBIF)



Hannu Saarenmaa  
Finnish Museum of Natural History

Francis Oguya  
National Museums of Kenya

... recongising the help with slides by Nick King,  
Juan Bello, Mélianie Raymond, Francisco  
Pando, Aruro Ariño, Town Peterson, etc.  
GBIF Secretariat and Committee Members



# Biodiversity and the information about it are unevenly distributed...

- biodiversity hotspot
- holder of large amounts of biodiversity data



# Biodiversity data

- Worldwide there are:
  - 2-3 billion museum specimens (not digital)
  - 1-3 billion field observation records (digital)
- With the basic attributes:
  - Species (what)
  - Location (where)
  - Time (when)
  - Observer (who)



# Biodiversity data is helping to address global problems

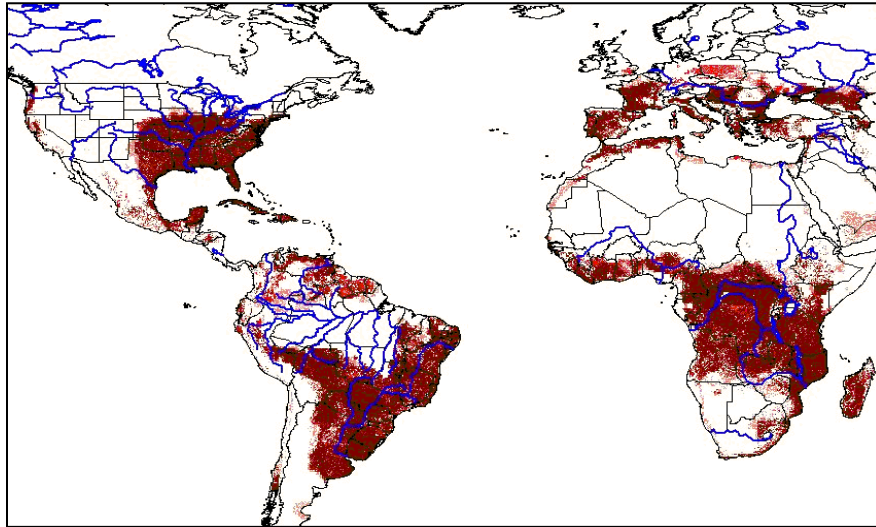


Image from <http://www.lifemapper.org>

Where do species occur now?

Where will they occur in the future?  
<http://www.globalamphibians.org/>





## UN Convention on Biological Diversity Decision VIII/11: *on Scientific and technical cooperation and the Clearing-House Mechanism*

“Invites Parties and other Governments **to provide free and open access** to all past, present and future public-good research results, assessments, maps and **databases on biodiversity**, in accordance with national and international legislation ...”



# UN Convention on Biological Diversity (CBD)



- Parties to the Convention have repeatedly emphasised the importance of repatriation of information to countries of origin (e.g. CBD Art. 17 paragraph 2); and decisions CBD COP III/10 and COP IV/1.D have stressed the role that scientific institutions - particularly in the developed world - can play in mobilising these data.

# What is GBIF?

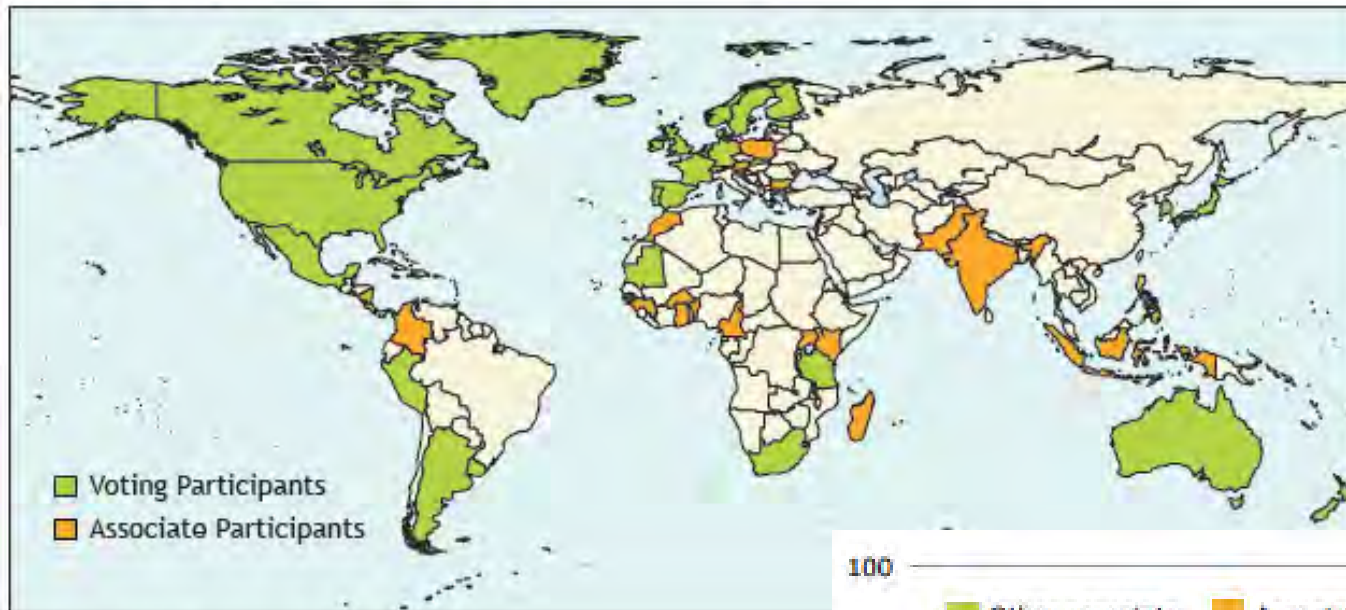


## A global research e-infrastructure:

- Enabling online **sharing** of biodiversity data;
- Promoting use of **data exchange standards**;
- Data **integrator** and aggregator.
- Catalysing development of **analytical tools**.
- Building **capacity** in developing countries;
- Promoting **global participation**, linking up a global network of participants;
- **Partnering** with other biodiversity organisations, e.g., the UN Convention on Biological Diversity;
- Helping to overcome the **digital divide**.

# An intergovernmental initiative to share biodiversity information

## GBIF Participants



GBIF Membership, as on 31 December 2009

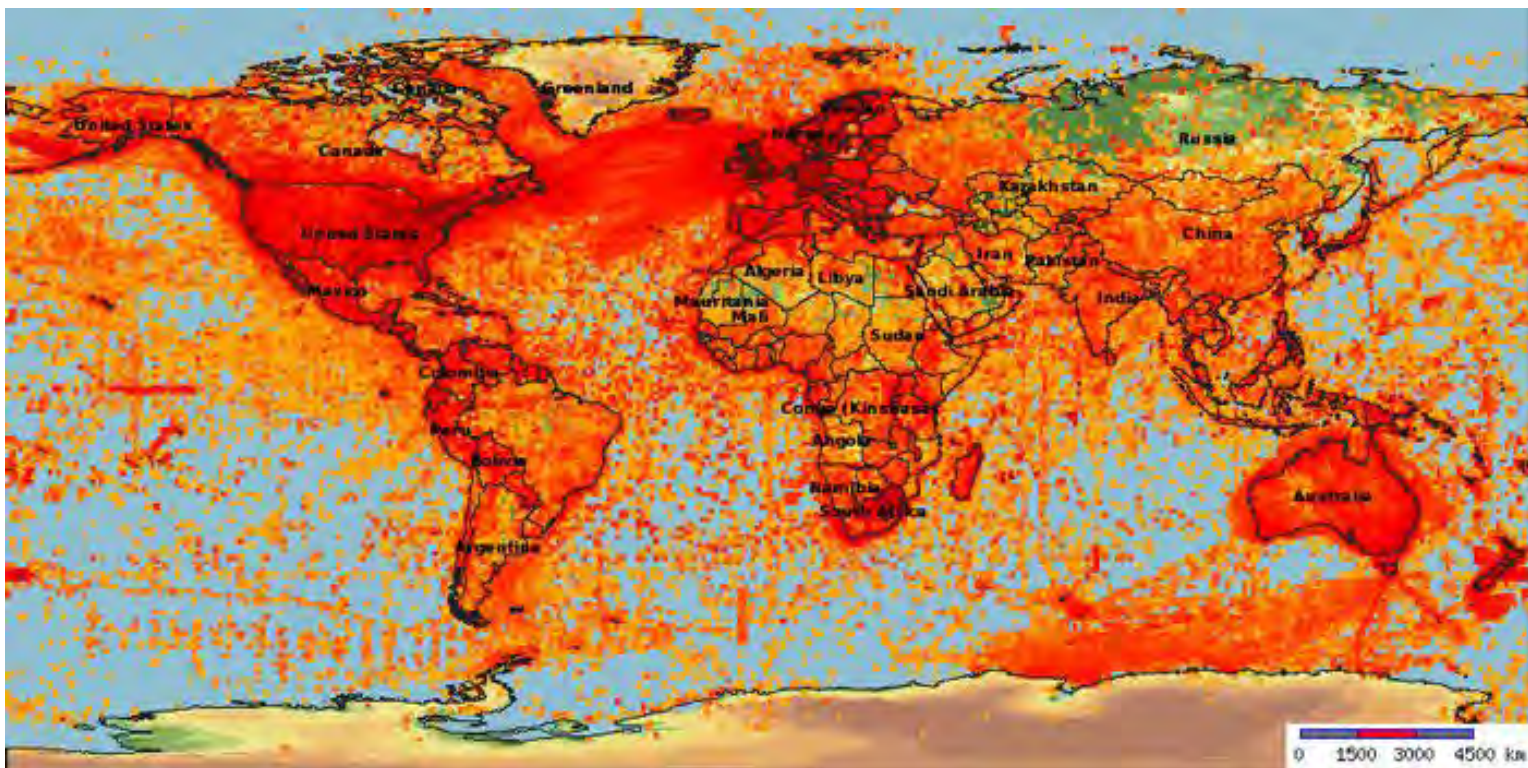
Launched in 2001  
by the OECD  
Megascience Forum

Currently:

- 54 countries;
- 44 International Organisations



# Data shared online via GBIF network



267 million biodiversity records mapped to a 1 X 1 degree cells, harmonised and aggregated from 10,000 databases on 315 servers in 40 countries



That is a lot, but...

Primary biodiversity data  
and information  
**effectively available**

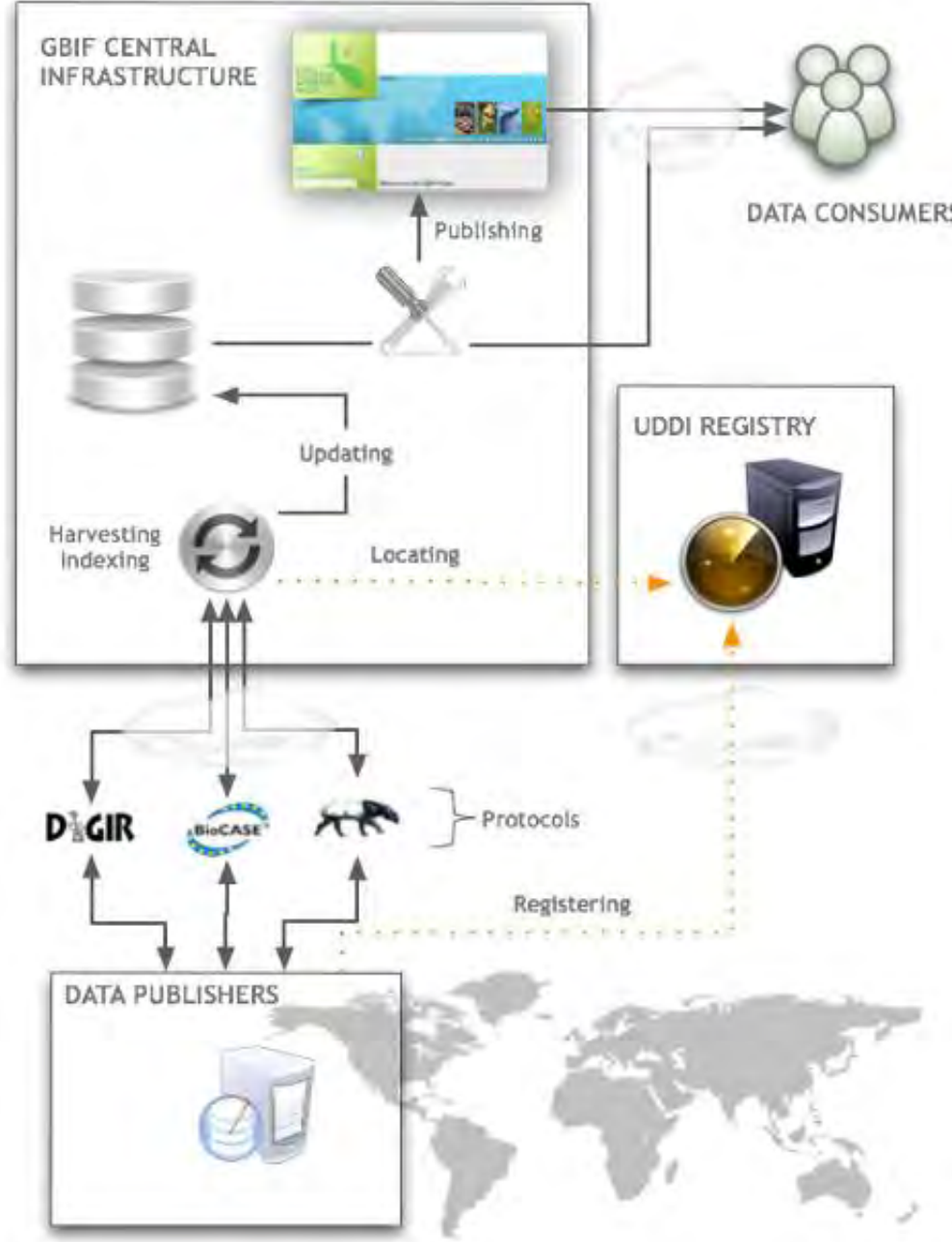
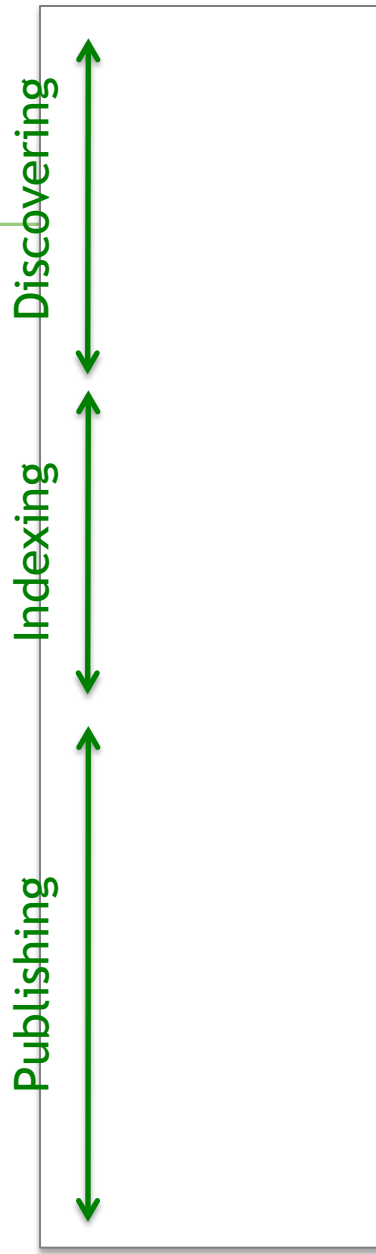


# GBIF has a web service architecture

267 M records  
8-9 M/month  
>300 publishers

<1% IPT  
3% TAPIR  
16% BioCASE  
80% DiGIR

80% DwC  
18% ABCD  
2% others





free and open access to biodiversity data

## GLOBAL BIODIVERSITY INFORMATION FACILITY



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## GBIF and Data Repatriation to Countries of Origin

It is well known that the greatest concentrations of biodiversity are found in developing countries, but most of the data and information about it is located in developed countries.

GBIF was brought into existence largely to help redress this asymmetry with regard to data about where species occur and about scientific names. The [GBIF Data Portal](#) can help countries of origin find sources of these types of data.

Countries have, through GBIF, quick and easy access to data about their own biodiversity served by institutions around the world. The data can be used to form and analyse new hypotheses, in education, and in decision-making about in conservation and sustainable use of biodiversity. In practice, "electronic consultation" with GBIF will translate into savings of time, funds and resources.

Data sharing with countries of origin on the GBIF Data Portal

free and open access to biodiversity data  
**GLOBAL BIODIVERSITY INFORMATION FACILITY**  
HOME SPECIES COUNTRIES DATASETS OCCURRENCES SETTINGS ABOUT

search species/country/dataset  
Search



## Countries, Territories and Islands

<< A B C D E F G H I J **K** L M N O P Q R S T U V W X Y Z >>

Countries, territories and islands are based on the [ISO 3166-1](#) standard.

### K

#### Countries, territories and islands

- [Kazakhstan](#)
- [Kenya](#)
- [Kiribati](#)
- [Korea, Democratic Peoples Republic Of](#)
- [Korea, Republic Of](#)
- [Kuwait](#)
- [Kyrgyzstan](#)

#### Occurrences (Georeferenced)

#### Species

<a href="#">54887</a> ( <a href="#">17598</a> )	<a href="#">3505</a>
<a href="#">234381</a> ( <a href="#">92003</a> )	<a href="#">15431</a>
<a href="#">15918</a> ( <a href="#">115</a> )	<a href="#">2524</a>
<a href="#">7725</a> ( <a href="#">643</a> )	<a href="#">2346</a>
<a href="#">722811</a> ( <a href="#">269608</a> )	<a href="#">15003</a>
<a href="#">1789</a> ( <a href="#">302</a> )	<a href="#">610</a>
<a href="#">32358</a> ( <a href="#">27291</a> )	<a href="#">1491</a>

▶ [Data sharing with countries of origin](#)

#### Recently viewed

- [Countries, Territories and Islands - A](#)

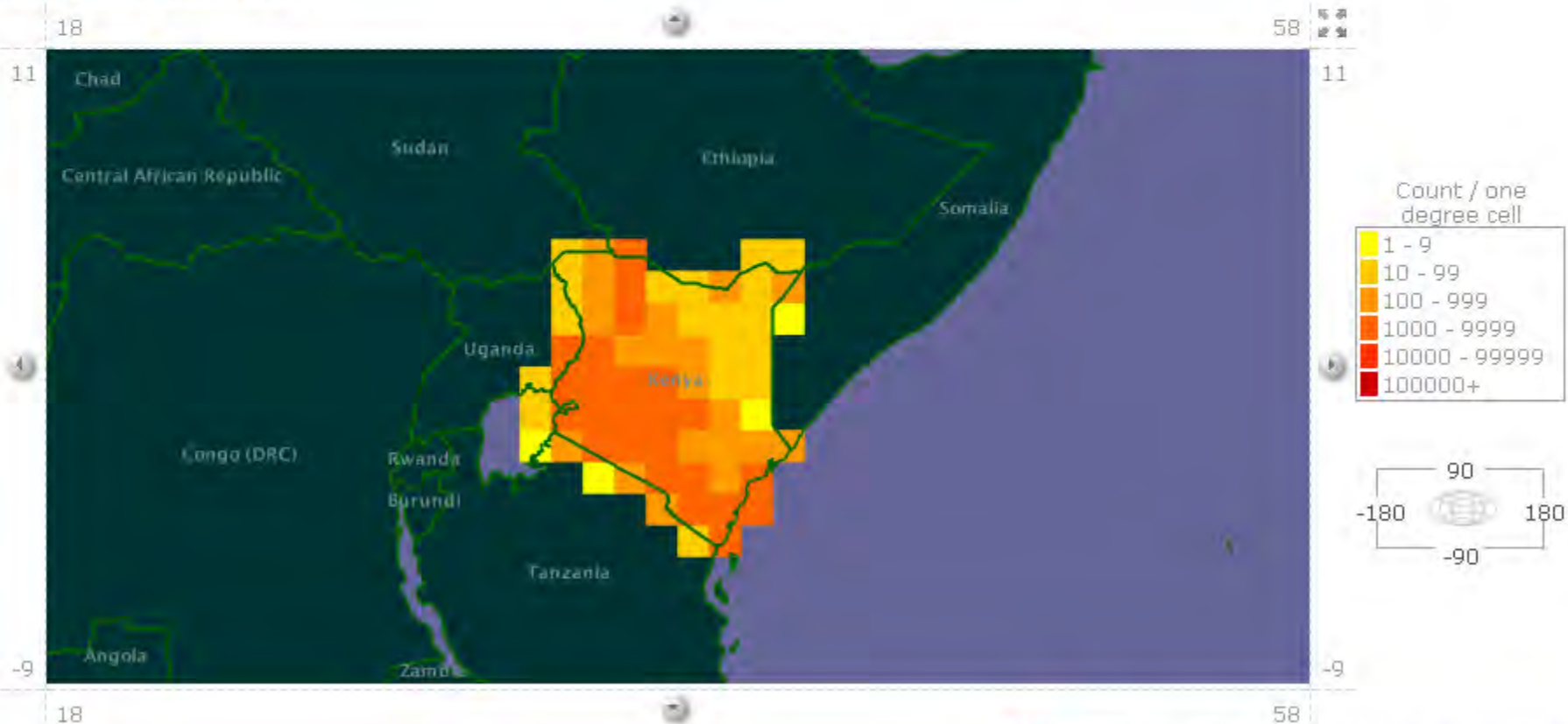
## Actions for Kenya

**Explore:** [Occurrences](#) [Species recorded in Kenya](#)

**List:** [Datasets with occurrences in Kenya](#)

**Download:** [One-degree cell density overlay for Google Earth](#) [Placemarks for Google Earth \(limit 10,000\)](#) [Darwin Core records](#) [Darwin Core records for data from publishers in Kenya](#) [Metadata for data publishers in Kenya](#)

## Occurrence overview



### Resources providing data for Map

[show/hide](#)



















Dataset	Count	Non-Georeferenced Count (does not appear on map)
<a href="#">ARC- Plant Protection Research Institute, National Collection of Arachnida</a> South African National Biodiversity Institute	<a href="#">0</a>	<a href="#">6</a>
<a href="#">Academy of Natural Sciences OBIS Mollusc Database</a> Ocean Biogeographic Information System	<a href="#">9</a>	<a href="#">0</a>
<a href="#">African Rodentia</a> BeBIF Provider	<a href="#">1244</a>	<a href="#">231</a>
<a href="#">Agricultural Research Council's Biosystematics Division</a> South African National Biodiversity Institute	<a href="#">0</a>	<a href="#">33</a>
<a href="#">View 356 more datasets...</a>		

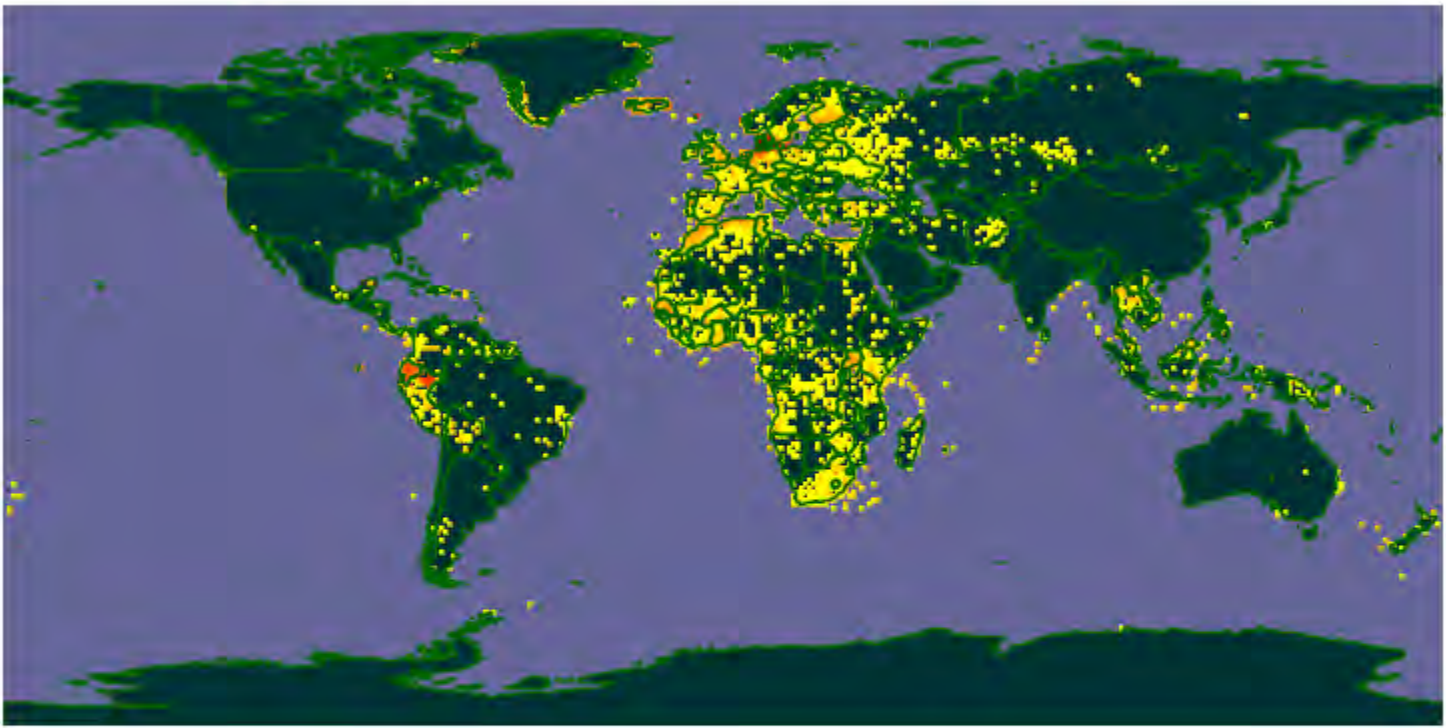
### Countries, territories or islands providing data for Map

[show/hide](#)

Country, territory or island	Count	Non-Georeferenced Count (does not appear on map)
 <a href="#">Argentina</a>	<a href="#">0</a>	<a href="#">4</a>
 <a href="#">Australia</a>	<a href="#">430</a>	<a href="#">108</a>
 <a href="#">Austria</a>	<a href="#">339</a>	<a href="#">129</a>
 <a href="#">Belgium</a>	<a href="#">5770</a>	<a href="#">1162</a>
<a href="#">View 22 more countries...</a>		

HOST	AR	AT	AU	BE	CA	CH	CO	CR	DE	DK	EE	ES	FI	FR	GB	IE	IL	IN	IS	JP	KR	LU	MG	MR	MX	NI	NL	NO	NZ	PE	PK	PL	PT	SE	SI	SK	TZ	US	ZA	Int'l. networks	
AD		X	X	X		X		X	X			X	X	X	X					X							X	X			X							X	AD		
AE		X	X	X		X			X			X	X	X	X			X		X								X		X		X		X				X	X	X	AE
AF		X	X		X	X		X	X			X	X	X	X					X	X						X	X	X		X		X						X		AF
AG		X	X		X				X						X	X											X				X								X		AG
AI		X			X				X						X												X							X					X		AI
AL		X		X	X	X		X	X			X		X	X					X							X		X		X		X		X			X	X	X	AL
AM		X	X	X	X	X		X	X			X	X	X	X					X							X	X	X		X		X					X		X	AM
AN		X	X	X	X	X		X	X			X	X	X	X					X							X	X	X		X		X					X		X	AN
AO	X	X	X	X	X	X		X	X			X	X	X	X					X							X	X	X		X	X	X					X	X	X	AO
AQ	X	X	X	X	X			X	X			X	X	X	X			X		X				X		X	X	X	X		X		X				X	X		X	AQ
AR	X	X	X	X	X	X	X	X	X			X	X	X	X					X	X				X		X	X	X		X	X	X	X				X	X	X	AR
AS			X		X				X					X	X									X		X	X	X		X		X					X	X		X	AS
AT	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				X	X				X		X	X	X		X		X		X			X	X	X	AT
AU	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X		X	X				X		X	X	X		X		X				X	X		X	AU
AW	X								X							X								X		X											X		X	AW	
AX												X																						X					AX		
AZ	X	X	X		X	X		X	X			X		X	X												X	X		X		X					X		X	AZ	
BA	X	X	X	X	X			X	X			X		X	X					X							X	X		X		X		X				X	X	X	BA
BB	X	X	X		X			X	X			X		X	X												X	X	X		X							X	X	X	BB
BD		X	X	X	X			X	X			X		X	X					X							X		X		X						X	X	X	BD	
BE		X	X	X	X	X		X	X	X	X	X	X	X	X					X	X						X	X	X		X	X					X	X	X	BE	
BF		X	X	X	X	X		X	X			X		X	X					X							X		X		X						X	X	X	BF	
BG		X	X	X	X	X		X	X	X	X	X	X	X	X					X			X				X	X	X		X		X		X			X	X	X	BG
BH			X		X	X		X	X			X		X	X					X							X		X					X		X		X	X	BH	
BI		X	X	X	X			X	X			X		X	X					X							X	X	X		X						X	X	X	BI	
BJ		X		X	X			X	X			X		X	X					X							X	X									X	X	X	BJ	
BM	X		X		X			X	X	X		X		X	X					X				X			X	X	X		X						X	X	X	BM	
BN			X	X	X			X	X			X		X	X					X							X		X								X	X	X	BN	
BO	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X	X						X	X	X		X						X	X	X	BO	

 IR	1576	71	51	296	598			10381	200		1117		2312	3134		103
 IS	53	88	10	968	1			2579	10881		30	426	74	153		456270
 IT	263	99665	886	528	792	332	2	3	51576	952	6	15878	1524	4384	4159	
 JE									2		3					
 JM	12	250	126	76	1068	37	6	89	1093	2		71	1	463	2034	
 JO	447	2	1		2			1174	20		293		10	275		
 JP	712	3490	1021	1111	64	3	1	11119	1095	1	3880	453	11112	5228		
 KE	4	468	538	6932	7787	231	1	7095	2124		138	2261	1459	7116		3
 KG	241	1		1				1005	46		30		6	44		
 KH	9	245		3	7			64	13		9		4880	723		31
 KI			1071		33			33					19			
 KM	37	275	61	2766	8			171	11		5		5827	247		3
 KN			29		32			549	3				11	18		
 KP	20	5		2				1183	17		21		110	41		
 KR	9	65	41	23				845	698		6	10	1108	787		
 KW	1	16		3	7			124						69		
 KY	1	1		277				6			3		2	1		
 KZ	4	231	127		43	76		901	40	260	112	13249	174	185		



### Data hosted by Denmark

CLOSE X

5253189 occurrence records are hosted by Denmark.

Denmark hosts 476495 records for 192 other countries & territories. This accounts for 0.09070586 of the total data hosted by Denmark.

The data hosted by Denmark accounts for 0.019647287 of the data within the GBIF network.

- ▶ [View these records](#)
- ▶ [Download a spreadsheet of these records](#)
- ▶ [Printable view](#)



GBIF

free and open access to biodiversity data

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## Participant Nodes

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## Capacity Enhancement Programme for Developing Countries

The Capacity Enhancement Programme for Developing Countries (CEPDEC) is a GBIF initiative that helps create effective capacity in developing countries to integrate the use of biodiversity data in education, science and decision-making at all levels.

Acting as an umbrella for projects conducted in individual countries or groups of countries, CEPDEC builds upon the efforts of **multiple partners**, who together focus on helping developing countries move toward a sustainable future. It also works to foster communication among science, policy and society by enabling them to better access, manage, share and use biodiversity data.

A CEPDEC project generally is a partnership among the government of a developing country, development agencies and other donors in developed countries, the scientific community, biodiversity stakeholders, decision makers and GBIF.



# Kenya - Finland GBIF mentoring project

- Initial phase funded by GBIF 2010-11
- Create plan for Kenyan BIF startup after Kenya joined GBIF in 2008
  - Introduce best practices
- Inventory (metadatabase) of Kenyan biodiversity data holdings
  - Plan of mobilisation of their data
- Plan for infrastructure build-up
  - Servers, connections, GBIF software
- Fundraising plan for 2012-15
  - Foreign aid for institutional strengthening, and others





Tanzania Biodiversity information Facility

### Welcome to TanBIF

This website gives access to biodiversity information on Tanzania and worldwide. TanBIF is the National Biodiversity Information Facility, an extensive, decentralized system of national biodiversity information units that intends to provide free and universal access to data and information regarding Tanzania biodiversity.

Tanzania boasts a vast array of biodiversity as well as Africa richest and most diverse flora. This biodiversity is an essential source for food and medicines as well as ecosystem services such as water availability, soil protection and climate regulation. Tanzania Poverty Reduction Strategy (MKUKUTA) has identified biodiversity as a cross-cutting issue with bearing on poverty reduction. Access to biodiversity data will help address important issues such as land-use planning, agricultural pests and diseases, and the spread of invasive species.

[More info»](#)

### Who is participating?

### Search this site

Search for species, collections, specialists and news:



### Example species

Click on a species picture or link for more detailed info about that species



[\*Canis aureus\*](#)  
Golden (Common) Jackal

[More info »](#)



[\*Lamprophis fuliginosus\*](#)  
Brown House Snake

[More info »](#)



Search the map of Tanzania »

### TanBIF News

[PRESS RELEASE](#)

TanBIF - Tue, 20 Apr 2010

[More TanBIF News»](#)

### Biodiversity News



SABIF

The South African Biodiversity Information Facility  
your national gateway to Biodiversity

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search...

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- Training and Development
- Standards & protocols

## SABIF Portal

### Welcome to SABIF- the South African Node of the Global Biodiversity Information Facility (GBIF)

South Africa has a distinctive natural heritage and biological diversity (known species from a recent survey in 2004:  $\pm$  19 500 plants,  $\pm$  8 000 fungi and  $\pm$  60 000 animals), which pose several challenges and opportunities for conservation, sustainable use and stewardship. As a nation, we need to recognize, protect and manage this natural resource base by improving our knowledge and developing technology, designs, systems, approaches and strategies to contribute to a safer and healthier environment for all.

▶ [READ MORE...](#)

### The Vision

#### The Vision

SABIF aims to contribute to South Africa's sustainable development by facilitating

### The Mission

#### The mission of SABIF is to:

Promote the sharing of data and information under a common set of



science  
& technology  
Department  
Science and Technology  
REPUBLIC OF SOUTH AFRICA

## SABIF DATA

Data	6
Providers	27
Datasets	6,705,823
Searchable Records	

## WHAT'S NEW ON SABIF

**The first South African Biodiversity Information Facility Data Handover Event was held on Thursday, the 25th March**

# Conclusions

- Much of the biodiversity data from the "south" is stored in the big museums of the "north". These data are now being digitised and mobilised.
- GBIF is a working e-Infrastructure for e-Science that also enables data repatriation.
- Biodiversity data is essential for decision-making about sustainable development.
- Biodiversity data is a valuable resource. Many biodiversity-rich countries have benefitted from establishing dedicated e-infrastructures for biodiversity data.
- Many African countries are now joining GBIF when they have seen the benefits.

