GBIF

INFORMATION FACILITY

Contributing to Coastal Atlases Development

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GBIF Mission

… to make the world's **biodiversity** data freely and universally available via the Internet

What is biodiversity?

GBIF follows the broadly outlined CBD recognition of levels of biological diversity:

- Molecules / genes
- Species
- Ecosystems / ecology

GBIF has five main programmes of work

Inventory, Discovery, Access (IDA)

4 Themes

Informatics

Content

Participation

Campaigns

Digitisation of natural history collections (DIGIT)

Electronic catalogue of names of known organisms (ECAT)

Outreach and capacity building (OCB)

Building regional and local infrastructure (NODES)

The species is the fundamental unit of biodiversity.

~1.8 million species have been described out of a possible total of between 5 and 100 million

Image source:
http://news.nationalgeographic.com/news/2006/03/0309_060309_yeti_crab.html

Threatened Species

Main threats
- Land use change
- Climate change
- Nitrogen deposition
- Invasive species
- Over-exploitation
- Pollution
- Ecosystem compositional changes

Current extinction rates 100 – 1000 times greater than pre-human rates.
Mainly due to:
- Land use change
- Over-exploitation

15–37% of species are threatened with extinction by 2050 due to climate change.

Why conserve biodiversity?

...to enable sustainable use of the earth's resources.

Humans are ultimately dependent on biodiversity for various goods and ecosystem services.

Ecosystem services

- nutrient cycling
- atmospheric regulation
- soil formation / retention
- water purification
- pollination

Convention on Biological Diversity

Rio Earth Summit in 1992 adopted Agenda 21 as strategy for addressing human impacts on environment

The Convention on Biological Diversity (CBD) conceived as practical way of achieving goals of Agenda 21

3 main goals of CBD

- the conservation of biological diversity,
- the sustainable use of its components,
- the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

CBD 2010 Biodiversity Target

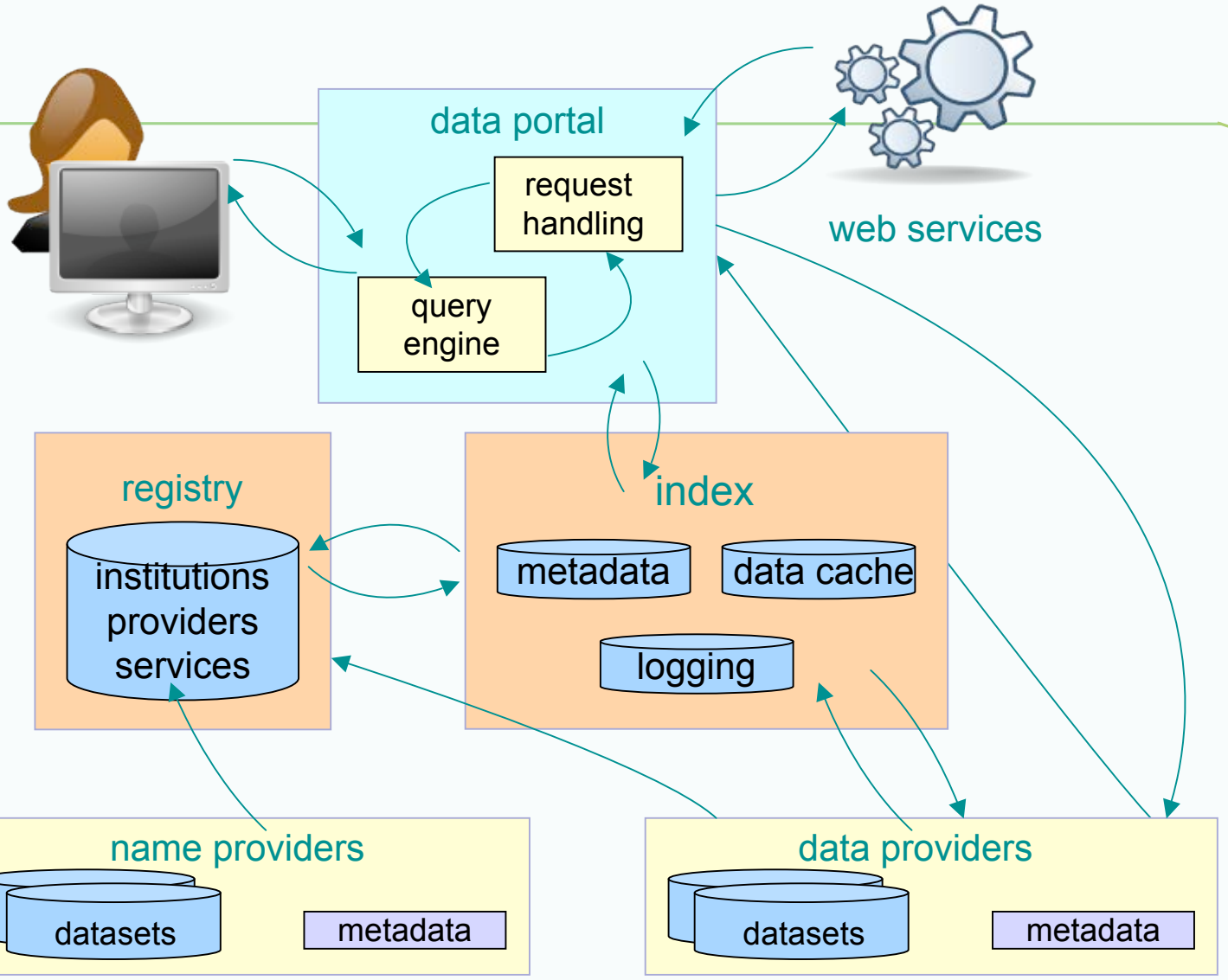
" to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth "

How is reduction in loss of biodiversity measured?

Indicators

- IUCN Red List of Threatened Species
- protected areas
- forest cover
- nitrogen deposition

Components of GBIF Architecture



MoU between TDWG and OGC

http://www.tdwg.org/

Standards for Interoperability

Data

- Darwin Core
- ABCD (Access to Biological Collection Data) Schema

Transport Standards & Protocols

- DiGIR (Distributed Generic Information Retrieval)
- TAPIR (TDWG Access Protocol for Information Retrieval)

Core data types on GBIF network

- Taxon names
- Taxon occurrence information
  - specimen records from natural history collections
  - observational records

Fields used in indexing records

Mandatory

- Scientific name
- Institutional code
- Collection code
- Catalogue number

Highly desirable

- Geospatial location
- Collection date
- Higher taxon info
- Date last modified

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- <xsd:sequence>
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    <xsd:element ref="darwin:InstitutionCode"/>
    <xsd:element ref="darwin:CollectionCode"/>
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    <xsd:element ref="darwin:MaximumDepth"/>
    <xsd:element ref="darwin:Sex"/>
```


GBIF UDDI Registry
* registration
* update information
Data Providers 218
Collections 1708
Records 149154370
HOME > GBIF Data Providers
Data Providers Data Collections Search for Data Availability Statistics
HOME > GBIF Data Providers
Data Collections Data Providers Search for Data Statistics
HOME > GBIF Data Providers
GBIF Participant Totals
Search for Data
Data Providers
GBIF Participant
Total Number of Records
Total Number of Data Providers
1. USA 50,458,164 62
2. UK 18,197,978 5
3. Sweden 13,697,970 1
4. Ocean Biogeographic Information System 12,307,677 5
5. Germany 5,653,065 16
6. France 4,264,518 7
7. Australia 4,094,344 6
8. Costa Rica 3,431,215 2
9. Austria 2,413,933 10
10. Netherlands 2,406,760 3
11. South Africa 2,118,214 1
12. Canada 2,114,146 8
13. Norway 1,906,564 1
14. Bioversity International 1,758,054 1
15. European Commission 1,646,269 1
16. Spain 1,642,059 5
17. Korea, Republic of 1,137,127 12
18. Poland 1,006,560 23
19. Japan 887,427 2
20. Mexico 721,732 3
21. NatureServe 624,880 1
22. Denmark 566,277 2
23. Iceland 504,985 1


GLOBAL BIODIVERSITY INFORMATION FACILITY
SPECIES COUNTRIES DATASETS OCCURRENCES SETTINGS ABOUT
... free and open access to biodiversity data
Search
species/country/dataset
Go!
Getting started
Test version 2007-05-14 See About for an introduction to using this portal. The default layout for this web site has been optimised for display on larger screens but can be changed through Settings.
http:/data.gbif.org
Explore Species
Find information for a species or a higher taxon, including names, occurrences and links to further resources.
Summary
This portal provides access to information on plants, animals, fungi and micro-organisms, organised by species and higher groups.
Example species:
Puma concolor (Linnaeus, 1771)
Explore Countries
Find information on the species recorded in a particular country.
Summary
This portal provides access to information on the occurrence of biodiversity in countries.
See data for:
France
Explore Datasets
Find information from a institution, dataset or project network, including occurrences and information about the datasets.
Summary
This portal includes biodiversity data from 1450 datasets shared by 217 data providers.
Latest dataset added:
Biological Records Centre - Ciidae (Coleoptera) records from Britain and Ireland to 2004

GBIF Portal - Species: Cerastoderma edule - The Global Biodiversity Information Facility: - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://data.gbif.org/species/13790179

Getting Started Latest Headlines https://www.checkmyt...

Disable Cookies CSS Forms Images Information Miscellaneous Outline Resize Tools View Source Options

Actions for *Cerastoderma edule*

Explore: Occurrences Names and classification
List: Countries with occurrences Datasets with occurrences
Download: Darwin Core records One-degree cell density overlay for Google Earth Placemarks for Google Earth (limit 10,000)

Names and classification

According to Catalogue of Life: 2007 Annual Checklist: The Integrated Taxonomic Information System

Name	*Cerastoderma edule* (Linnaeus, 1758)
Classification	»Kingdom: Animalia »Phylum: Mollusca »Class: Bivalvia »Order: Veneroida »Family: Cardiidae »Genus: *Cerastoderma* »Species: *Cerastoderma edule*
Status	Accepted name
Synonyms	*Cardium edule*
Common names	English: Common Cockle, Common Edible Cockle Danish: Almindelig Hjertemusling, Hjertemusling Dutch: Kokkel French: Bucarde, Coque, Coque Commune German: Herzmuschel Italian: Cuore, Cuore Edule Portuguese: Berbigão Vulgar Spanish: Berberecho, Berberecho Común, Chica, Gurrimaña, Gurrimaño, Perdigón, Verdigón
Record identifier	ITS-80901
Record URL	http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=80901
Review date	25-Jan-2001
Feedback	Feedback to Catalogue of Life: 2007 Annual Checklist on the classification of *Cerastoderma edule* (Linnaeus, 1758)

Occurrence overview

Done

Occurrence search

Your current search

Classification includes Species:
Cerastoderma edule

- Show georeferenced records only
- Hide records with geospatial issues
- Hide records with taxonomic issues

Search

Add search filter

Scientific name | is | Add Filter

- ***Taxonomy***
  - Scientific name
  - Classification
- ***Geospatial***
  - Country
  - Continent
  - Bounding box
  - Latitude
  - Longitude
- ***Datasets***
  - Provider
  - Data resource
  - Occurrence date
  - Year
  - Month
  - Institution code
  - Collection code
  - Catalogue no
  - Basis of record

This search matches 860 occurrence records

What to do next

View records on map | View records as table | More actions (hide)

Specify...

- Limit data providers matched by search
- Limit data resources matched by search
- Limit countries matched by search

Lis

- List species for results

Sample results

Dataset	Scientific Name	Institution Code	Collection Code	Catalogue No.	Coordinates	Date	Country
NLBIF	*Cerastoderma edule*	NMR	9930	NMR993000017127		31/03/1984	
NLBIF	*Cerastoderma edule*	NMR	9930	NMR993000017128		31/05/1990	
NLBIF	*Cerastoderma edule*	NMR	9930	NMR993000017129		16/06/1986	
NLBIF	*Cerastoderma edule*	NMR	9930	NMR993000017130		31/08/1989	
NLBIF	*Cerastoderma edule*	NMR	9930	NMR993000017131		27/07/1989	

GBIF Web Services

occurrence record data
http://data.gbif.org/ws/rest/occurrence

taxon data
http://data.gbif.org/ws/rest/taxon

occurrence density data
http://data.gbif.org/ws/rest/density

Software applications that run over the internet and use a standardised message passing system to handle request and response, usually based on XML.

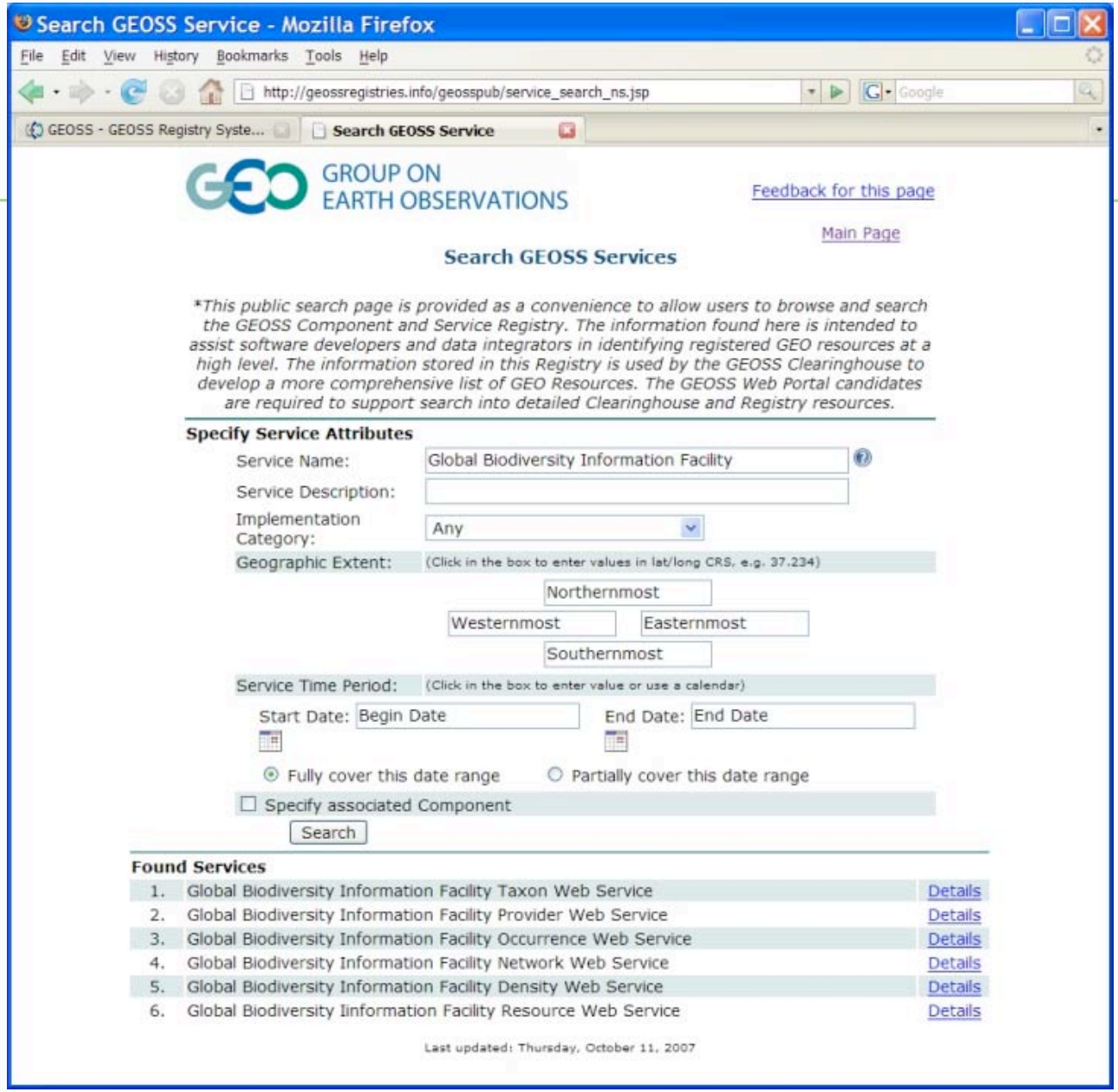
GBIF Web Services

GBIF's web services are based on the REST architecture style.

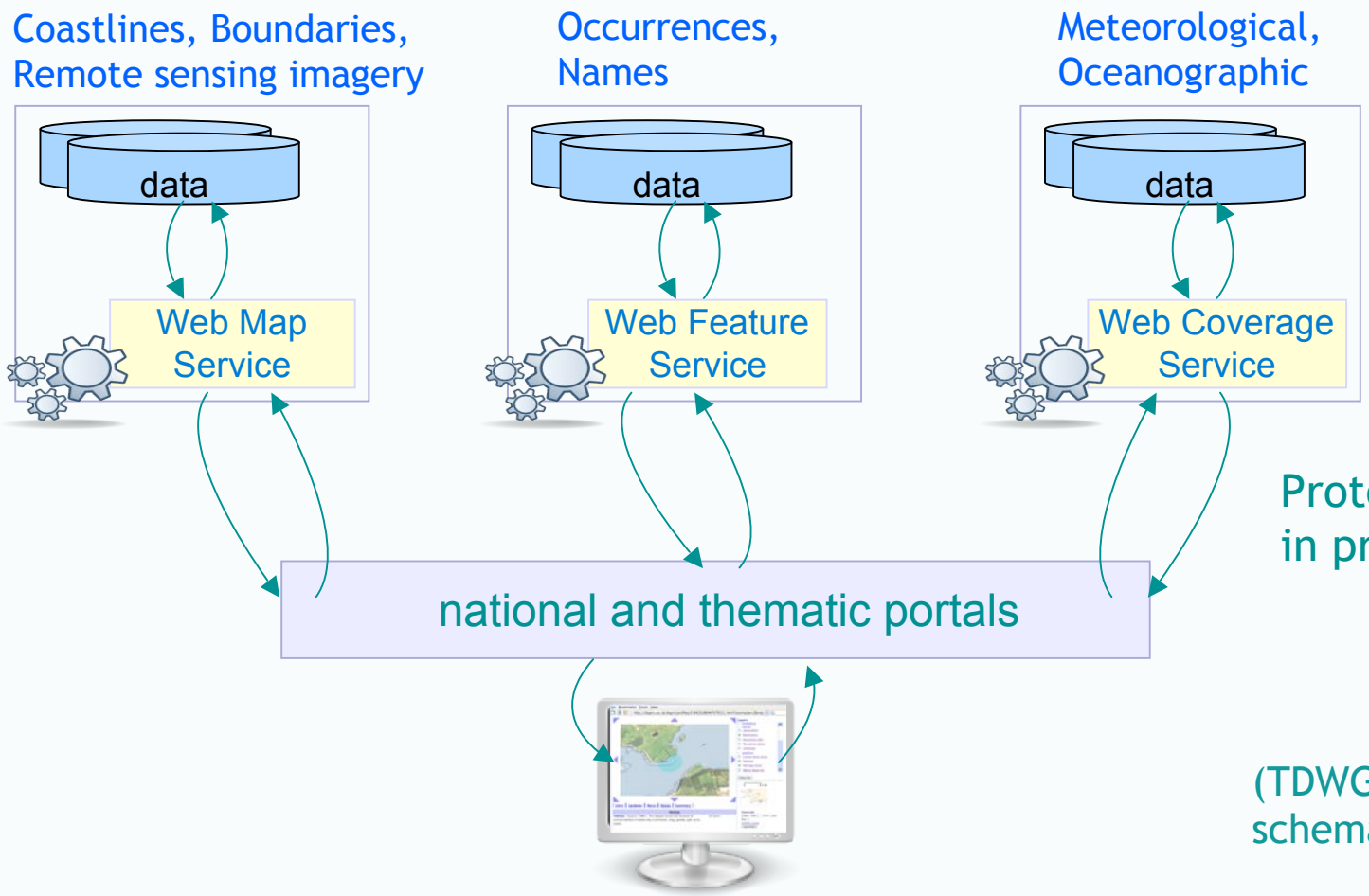
http://data.gbif.org/ws/rest/resource
dataset metadata

http://data.gbif.org/ws/rest/provider
data provider metadata

http://data.gbif.org/ws/rest/network
data network metadata


Search GEOSS Service - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://geossregistries.info/geosspub/service_search_ns.jsp
GEOSS - GEOSS Registry Syste...
Search GEOSS Service
GROUP ON EARTH OBSERVATIONS
Feedback for this page
Main Page
Search GEOSS Services
*This public search page is provided as a convenience to allow users to browse and search the GEOSS Component and Service Registry. The information found here is intended to assist software developers and data integrators in identifying registered GEO resources at a high level. The information stored in this Registry is used by the GEOSS Clearinghouse to develop a more comprehensive list of GEO Resources. The GEOSS Web Portal candidates are required to support search into detailed Clearinghouse and Registry resources.
Specify Service Attributes
Service Name: Global Biodiversity Information Facility
Service Description:
Implementation Category: Any
Geographic Extent: (Click in the box to enter values in lat/long CRS, e.g. 37.234)
Northernmost
Westernmost
Easternmost
Southernmost
Service Time Period: (Click in the box to enter value or use a calendar)
Start Date: Begin Date
End Date: End Date
Fully cover this date range
Partially cover this date range
Specify associated Component
Search
Found Services
1. Global Biodiversity Information Facility Taxon Web Service Details
2. Global Biodiversity Information Facility Provider Web Service Details
3. Global Biodiversity Information Facility Occurrence Web Service Details
4. Global Biodiversity Information Facility Network Web Service Details
5. Global Biodiversity Information Facility Density Web Service Details
6. Global Biodiversity Iinformation Facility Resource Web Service Details
Last updated: Thursday, October 11, 2007

The Geospatial Web - OGC[1] Web Services



Prototype OGC web servi
in preparation by GBIF:

- Web Map Service
- Web Feature Servi

(TDWG GML[2] application schema)

[1]Open Geospatial Consort

[2]Geography Markup Langu

GBIF and Climate Change

Some implications of climate change for biodiversity

- altered species distributions
- spread of invasives
- spread of disease vectors
- increased risk of extinctions

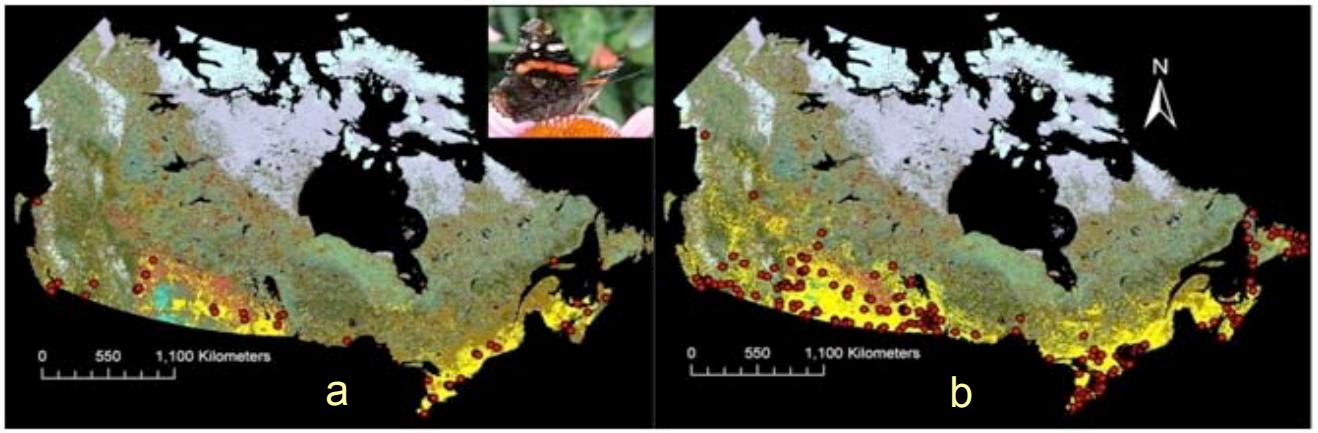
Scientists must be able to assess potential impacts in order to advise decision makers on their policy options.

GBIF can support scientists by providing access to primary species occurrence data.

GBIF participated in the GEOSS Interoperability Process Pilot Project (IP3)

Predicting the impact of climate change on biodiversity – a GEOSS scenario

Species Response to Climate Change



Distribution of *Vanessa atalanta*

Vanessa atalanta; Photo by Jeremy T.Kerr – August 1, 2005. Ottawa, Ontario

a) distribution derived from historical observations of climat land use, and species location from 1900-19

b) distribution derivec from models run on th same data from 1960-

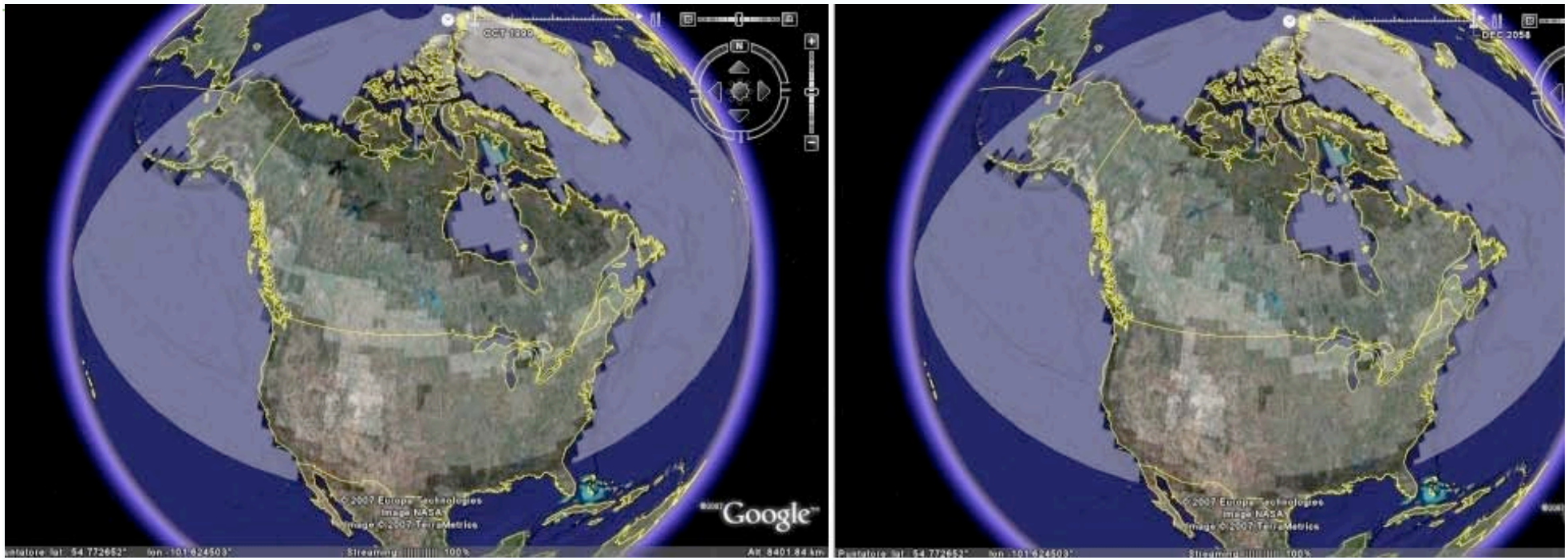
- Predicted distribution
- Oberved distribution

→ The species has expanded its range over time

→ Species can be highly responsive to climate change

Ref: Predicting the impact of climate change on biodiversity – a GEOSS scenario. Nativi et al. In "The Full Picture, A publication for the GEO Ministerial Summit, 'Earth Observation for Sustainable Growth and Development' Cape Town, 30 November 2007"

Species Response to Climate Change



The range of the common roadside skipper (*Amblyscirtes vialis*) will move about 300 km northwards by 2050 under the most conservative IPCC climate change scenario (B1)

Ref: Predicting the impact of climate change on biodiversity – a GEOSS scenario. Nativi et al. In "The Full Picture, A publication for the GEO Ministerial Summit, 'Earth Observation for Sustainable Growth and Development' Cape Town, 30 November 2007"

How to contact GBIF:

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Data portal: www.gbif.net

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