

Catalogue of Life



a world reference

Alastair Culham

A human-edited data aggregation

Depends on goodwill of data providers

Provides increased presence/publicity for data providers

The screenshot shows the Catalogue of Life website. At the top, there is a navigation menu with links for Home, About, Tools, Resources, and Contact. Below the navigation is a main heading "Catalogue of Life" with a colorful bar. The main content area features a section titled "Finding What You Need In The Catalogue of Life" with a sub-heading "Browse through the taxonomic tree or enter a name in the search box." Below this is a "Read More" button. To the right, there is a tablet displaying the website's search interface, which includes a search bar, a "Search" button, and a "Read more about this" link. Below the main content area, there are two boxes: "Dynamic Checklist" with an "Access" button and "Annual Checklist" with an "Access" button. At the bottom, there is a "FAQ" section with a question "What is the Catalogue of Life?" and a "Progress" section showing "Total Species: 1,352,388" and "Total contributing databases: 132" with a progress bar at 70%. There are also social media links for Twitter and Facebook.

- Browse
- Search
- Info

The Catalogue of Life, 18th April 2013

<< Previous The Catalogue of Life, 18th April 2013 Next >>

This release of the Catalogue of Life contains contributions from 132 databases with information on 1,352,308 species, 114,069 infraspecific taxa and also includes 926,470 synonyms and 498,689 common names covering the following groups:

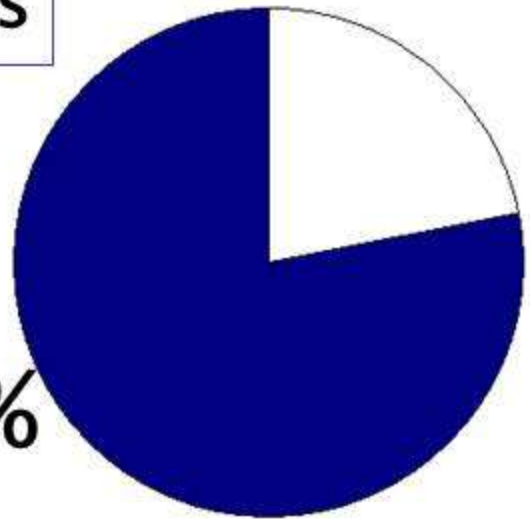
- Viruses** • Viruses and subviral agents from ICTV_HSL
- Bacteria and Archaea** from BOLD
- Chromista** • Chromista fungi from Species Fungorum
- Protozoa** • Major groups from ITIS Regima, • Ciliates from CICAT, • Polyzoaires from WoRMS Polyzoaria **UPDATED**, • Fungi from Species Fungorum and Trichomyctes database • Sine moulds from Fimen.suomyktozoa.com
- Fungi** • Various taxa in whole or in part from CAB International databases (Species Fungorum, Phytochizax, Rhytmatobas, Saccharomyces and Zygomycetes databases) and from three other databases covering Xylariaceae, Glomeromycota, Trichomyctes, Distromycetes • Lichens from IAS
- Plantae (Plants)** • Mosses from MOIST • Liverworts and hornworts from ELPF • Corals from Corall Database • Cycads and 6 flowering plant families from ITIS-GFC and 99 families from WCSP • Plus individual flowering plants families from Annonidae, Brassicaceae, Chnidoses, Droseraceae Database, Ebenaceae, GOC, IJDS, Lecythidaceae, UED, WELOW, RJB Garden, Solanaceae Source, Umbelliferae
- Animalia (Animals)** • Marine groups from IIRMO, ITIS Global, Hivacorn, ETI WBO (Euphausiacea), WoRMS: WoRMS Asteroida **UPDATED**, WoRMS Bichusacea **UPDATED**, WoRMS Brachiopoda **UPDATED**, WoRMS Brachiopoda **UPDATED**, WoRMS Brachyura **UPDATED**, WoRMS Bryozoa **UPDATED**, WoRMS Ctenophora **UPDATED**, WoRMS Chaetognatha **UPDATED**, WoRMS Cnidaria **UPDATED**, WoRMS Echinozoa **UPDATED**, WoRMS Gastrotricha **UPDATED**, WoRMS Gnathostomulida **UPDATED**, WoRMS Haloburidae **UPDATED**, WoRMS Hydrozoa **UPDATED**, WoRMS Insecta **UPDATED**, WoRMS Lophotrochozoa **UPDATED**, WoRMS Mollusca **UPDATED**, WoRMS Nematoda **UPDATED**, WoRMS Nemertea **UPDATED**, WoRMS Oligochaeta **UPDATED**, WoRMS Opheurozoa **UPDATED**, WoRMS Phoronida **UPDATED**, WoRMS Placozoa **UPDATED**, WoRMS Polydora **UPDATED**, WoRMS Polyzoaria **UPDATED**, WoRMS Porifera **UPDATED**, WoRMS Protista **UPDATED**, WoRMS Protista-Kinetoplastida, WoRMS Pteropoda **UPDATED**, WoRMS Scaphopoda **UPDATED**, WoRMS Tardigrada **UPDATED**, WoRMS Tardigrada **UPDATED**, WoRMS Trematoda **UPDATED**, WoRMS Trematoda, WoRMS Xenoturbellida **UPDATED** • Rotifers, mayflies, freshwater Planorbs, planarians from FAO databases: FAO Rotifera, FAO Ephemeroptera, FAO Remaneoptera & FAO Turbellaria • Crustaceans, water bears from ITIS Global • Spiders, scorpions, ticks & mites from SpicDat via ITIS, SaitoDB, ITIS Global, TokiBak, SpinnWeb Biodiversity **UPDATED** & Miles GSD: CiliogamidaeBase, PhytocystBase, RhodocystBase & TematopidBase • Diplopoda, centipedes, pauropods and symphylans from Cysthri **UPDATED** & Chelidasa • Dragonflies and damselflies from Odonata database • Stoneflies from PlecopteraSP • Caddisflies from TrichopteraSP • Praying mantids from MantodeaSP • Stick and leaf insects from PhasmodaSP • Grasshoppers, locusts, katydids and crickets from OrthopteraSP • Webspinners from EmbiopteraSP • Bark & parasitic wasps from ProcopteraSP • Some groups of true bugs from Scaphel, PLDW, COOL, Pylaei, Lepidoptera, HSB, 3 Coleoptera, 3 Tychitaxidae, MOWD & Coleoptera • Twisted-wing parasites from Strepsiptera Database • Lacewings, aphids, beetles, butterflies, dobsonflies & craneflies from LD, Toucraipedia • Some beetle groups from the Scarabaei **UPDATED**, ITIS, WYK's ITIS Global • Fleas from Parflost • Fleas, moulipolids, lola, midges and gnats from Systema Odonorum, CCW & CDA • Butterflies and moths from Lepidoptera, GIBBS (GART), Twisted WPS, World Odonatidae • Bees & wasps from ITIS Bees, Tropical Ichneumonidae, UCD, ZOBODAT vaspoda & HymenopteraOdonatidae • Molluscs from WoRMS Mollusca, FAO Bivalvia, MolluscaPW & APD (Pulmonata) • Fishes from FishBase • Reptiles from TIGR Reptiles • Amphibians, birds and mammals from ITIS Global



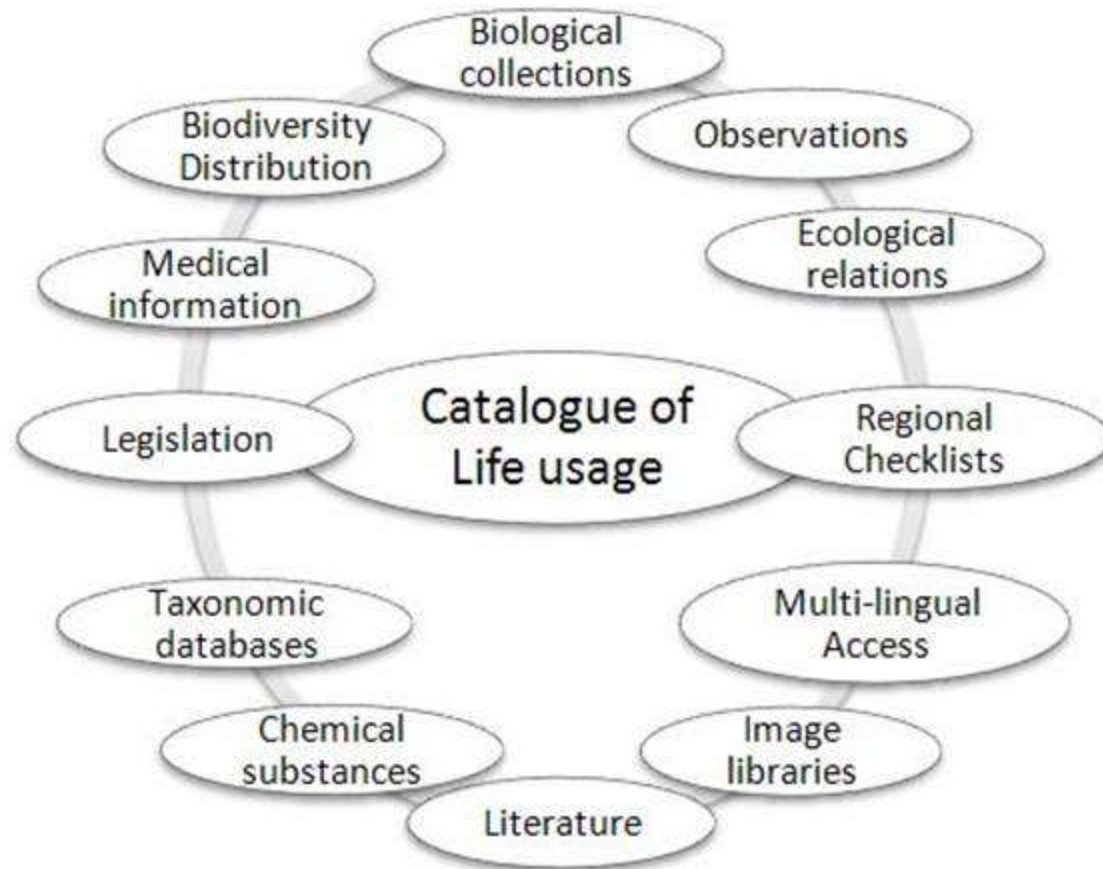
1,352,338 species



1,9M species



The community of users of the Catalogue of Life



Indexing for Life Project

(November 2010 – October 2013)

Co-ordinator

University of Reading, UK

Global Biodiversity Programmes

1. GBIF
2. EMBL-EBI
3. Barcode of Life
4. IUCN Red List
5. LifeWatch
6. Encyclopedia of Life

Catalogue of Life Community

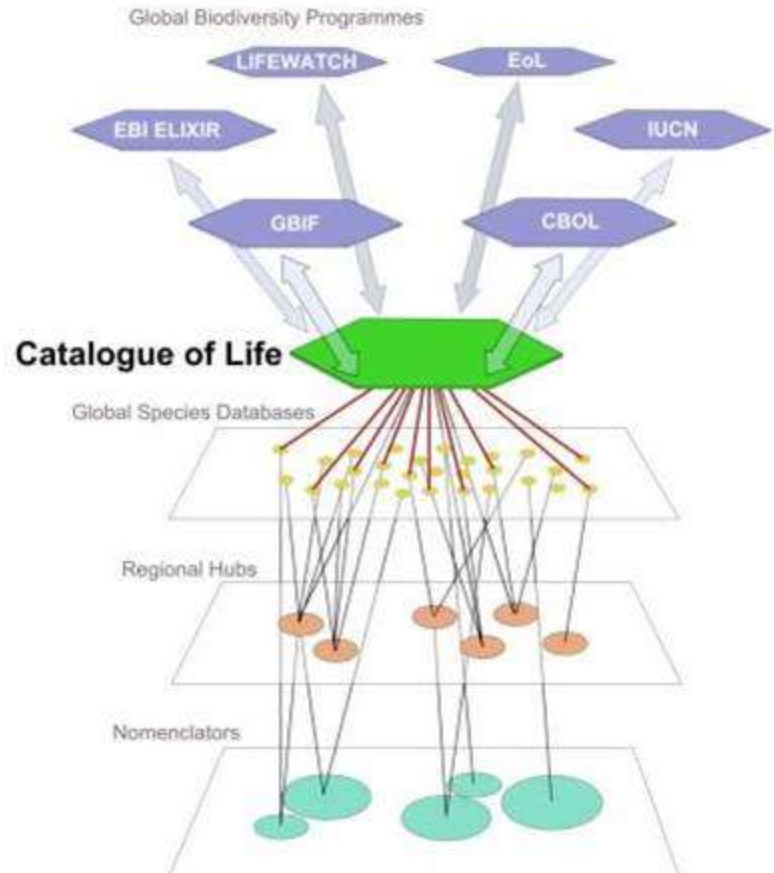
1. Sp2000
2. ITIS
3. University of Reading
4. ETI Bioinformatics
5. Cardiff University
6. MNHN Paris

i4Life Project Objectives

To establish a Virtual Research Community to interlink and harmonise **global taxonomic catalogues**.

The existing **Catalogue of Life** is used as a backbone.

This builds on the work of the 4D4Life Project.



Steps of the project

Infrastructure

Design, test and implement

Download Service

- ✓ Supplying chosen parts of Catalogue of Life
- ✓ Structured Darwin Core format
- ✓ Machine readable

[Read More](#)

Piping Tool

- ✓ Exchanging taxonomic data
- ✓ Improving quality of taxonomic data
- ✓ Enabling data flow

[Read More](#)

Cross-mapping Tool

- ✓ Comparing two lists of species
- ✓ Identifying overlap
- ✓ Outputting differences

[Read More](#)

i4Life internal services

Download

i4Life WP4 Download Service of the Catalogue of Life: Darwin Core Archive Export

Version 1.1 (2011)

The page offers an interface on the application that exports data from the Species 2000 & ITIS Catalogue of Life (25th March 2012 (2012-03-25)) in the Darwin Core Archive format.

The export can be narrowed down to a specific taxon by selecting it from the menu. E.g. if you want to limit your export to a specific order, you can select that order from the menu by typing its name or by clicking the Show all button. By default, the complete data is exported but you can fulfill and the export by selecting a different option. Hover over the buttons to see exactly what is exported for each option.

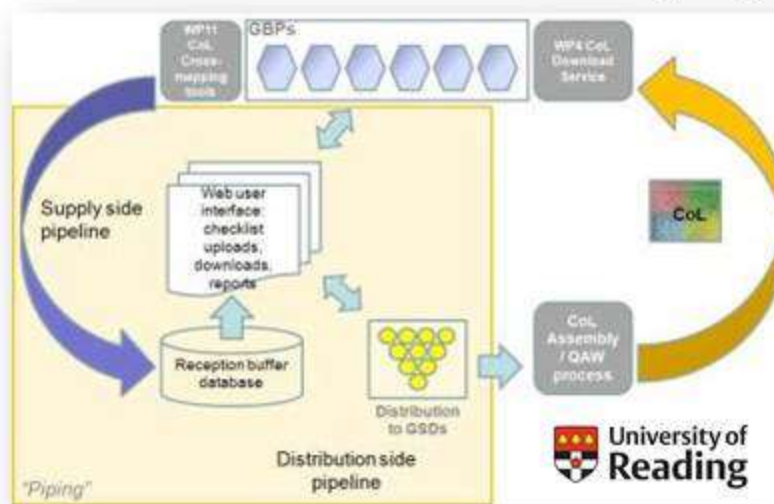
Download a Darwin Core Archive for the complete Catalogue of Life (135 MB).

Download the previous editions:
 Catalogue of Life 3rd Release 2012
 Catalogue of Life 2nd Release 2011
 Catalogue of Life 1st Release 2011
 Catalogue of Life 2007 July 2011

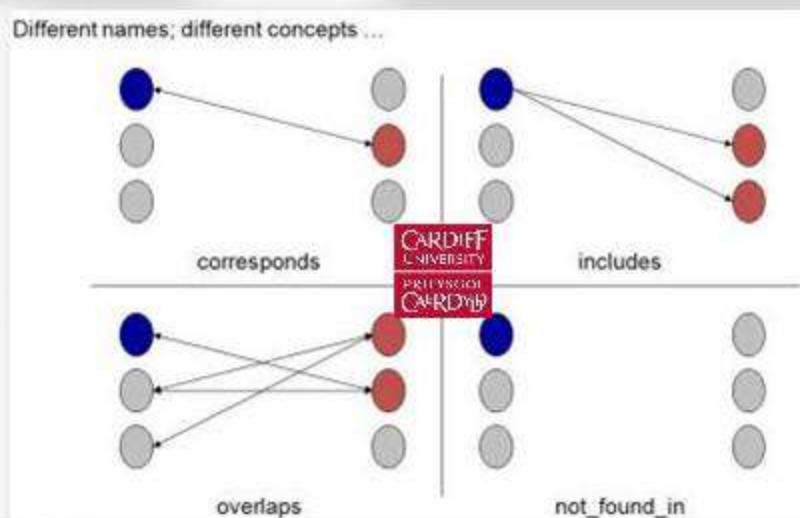
File level group:
 Phylum:
 Class:
 Order:
 Superfamily:
 Family:
 Genus:

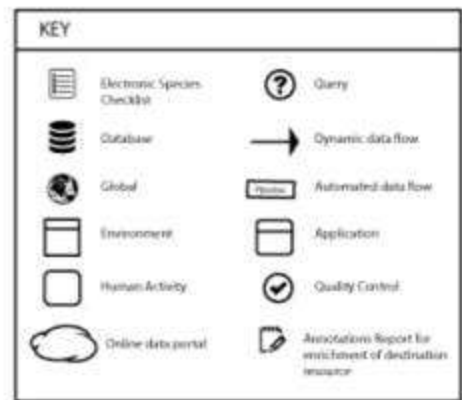
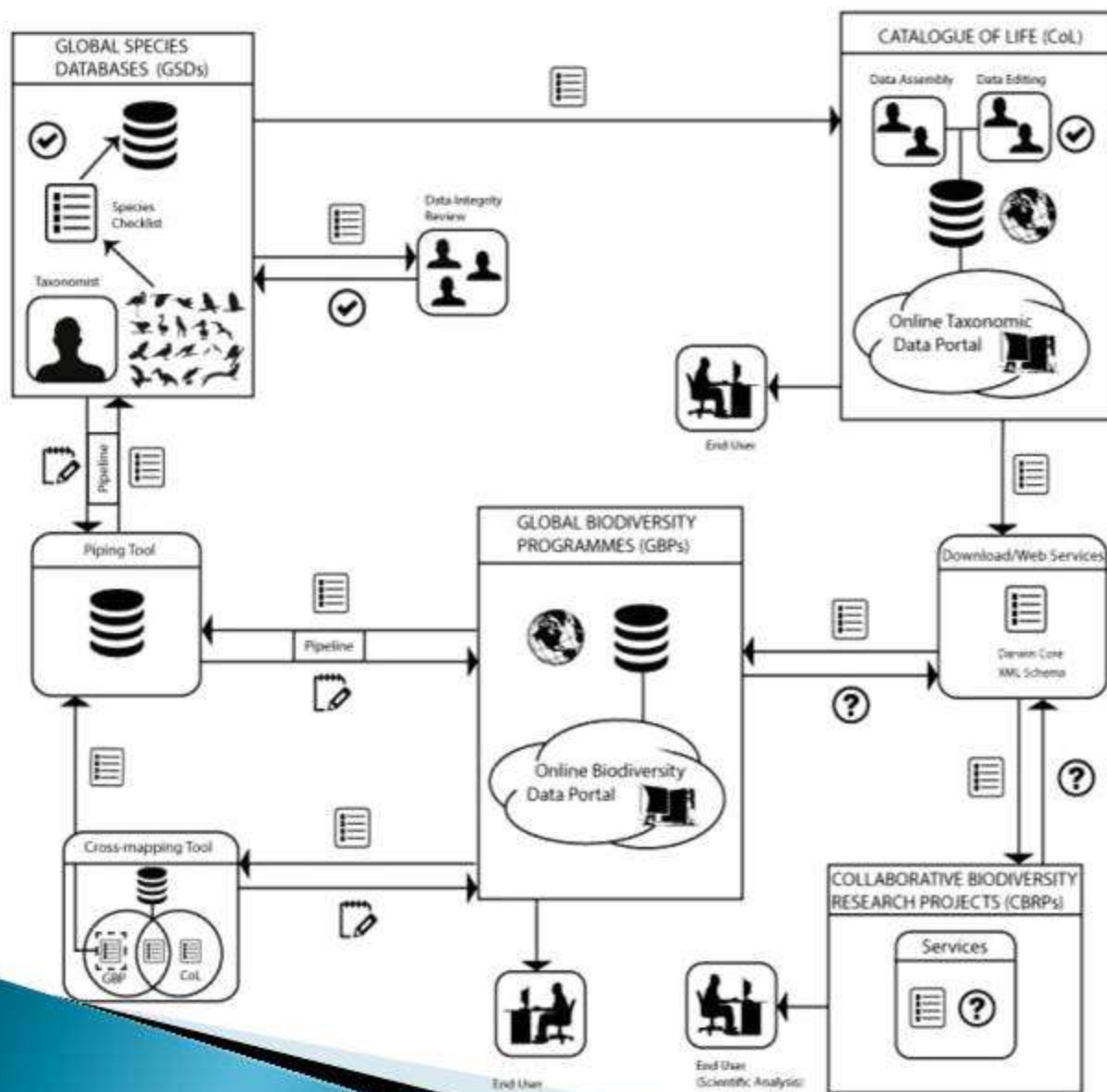
ETI
Bioinformatics

Piping



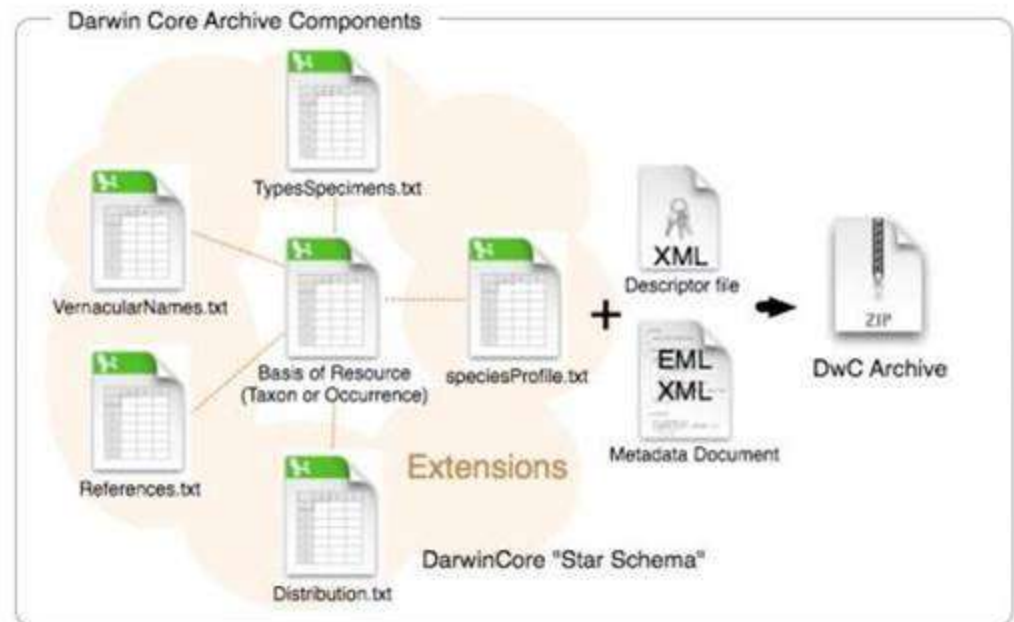
Cross mapping





Exchange format

- ▶ **DwC-A** is agreed as an official i4Life format for exchange of information between the CoL and Global Partners. The partners have agreed on a specific i4Life profile of DwC-A.
- ▶ **i4Life Darwin Core Archive Profile** a common format for the exchange of checklists among partners in i4Life and in the wider biodiversity informatics community available at: <http://www.i4life.eu/i4lifewebsite/projectdocuments/>



leader: Markus Döring
Institution: GBIF, Copenhagen, Denmark

- ▶ Regular, repeated access to the CoL data (download service)



- ▶ Sharing taxonomic data from GBIF to COL (piping tools)



- ▶ GBIF Checklist-Publishing Guides



leader: Guy Cochrane
Institution: EMBL-EBI

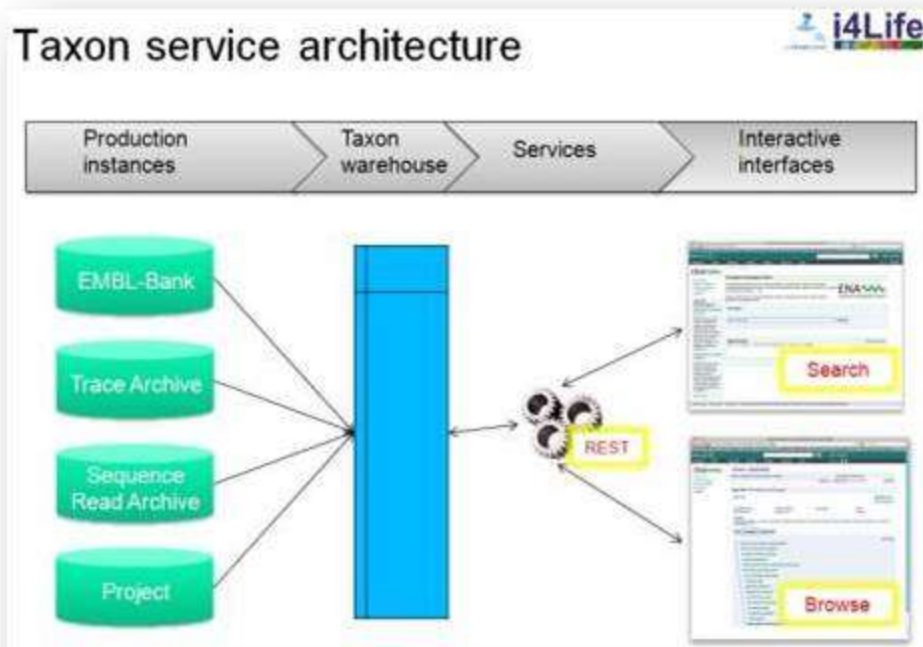
Taxon-centric portal

Prior to i4Life

- Taxonomy
- Sequence to taxon associations treated as simple annotations
- No connectivity through simple interface

After i4Life

- Dedicated warehouse
 - Taxonomic names
 - Lineages
 - Data associations
- Associated services
 - Browse
 - Search
- Web interface
- REST interface





leader: Craig Hilton-Taylor
Institution: IUCN, Cambridge, UK

The IUCN Red List of Threatened Species™ 2011.2

Mustela lutreola

CR

Species 2000

Name found in IUCN RedList...

The IUCN Red List of Threatened Species™ 2011.2

Enter Red List search terms

Search Results

No entries found

This taxon has not yet been assessed for the IUCN Red List, and also is not in the Catalogue of Life.

Name not found in IUCN RedList...

Species 2000
ITIS

Catalogue of Life: 2011 Annual Checklist

Search all species - Results for "Mustela lutreola"

Name	Rank	Taxonomic status	Group	Source database
<i>Mustela lutreola</i> (Gmelin, 1761)	Species	accepted name	Amniota	ITIS
<i>Mustela lutreola</i> (Swinhoe, 1862)	Subspecific taxon	accepted name	Amniota	ITIS
<i>Mustela lutreola</i> (Swinhoe, 1862)	Subspecific taxon	accepted name	Amniota	ITIS
<i>Mustela lutreola</i> (Swinhoe, 1862)	Subspecific taxon	accepted name	Amniota	ITIS
<i>Mustela lutreola</i> (Swinhoe, 1862)	Subspecific taxon	accepted name	Amniota	ITIS

Museum and Institute of Zoology PAS, Poland. Wieslaw Bogdanowicz

CBS-KNAW, Utrecht, The Netherlands. Vincent Robert

i4Life – links with two Bar-coding Laboratories in Europe:

1. uploading and downloading from to the Nematode taxonomy & barcode system (Warsaw)

2. Linking with BOLD database via European BOLD mirror at KNAW; uploading and downloading to the MycoBank plus Plants barcode database at CVS Utrecht



Fungal Barcoding
International Fungal Working Group

Home page | People | Collections | Search on | Identification | BOLD | Help

European BOLD Mirror

The purpose of this website is to provide an online international on-line fungal barcoding web site to facilitate communication and the development of collaborative among researchers interested in this topic.

DNA barcoding is the use of short standardized segments of the genome for identification of species in all the kingdoms of life. The goal of the Fungal Barcoding site is to provide the DNA barcoding of fungi and other fungal-like organisms.

Fungi are a large, diverse and economically important group of organisms. Estimates of the actual number of fungal species vary widely, from 1.5 million to 15.0 million, with fewer than 100,000 now known. Some fungi have extreme complex and conspicuous morphologies, but others have very simple morphologies; many fungi have been introduced using DNA sequences, but have either been seen, because of their cryptic nature. Fungal species are particularly suitable for DNA-based identification.

In addition to species barcoding, molecular methods are currently being used extensively in fungi for both phylogenetic reconstruction and species recognition. Fungal barcoding will also provide unique opportunities, if also presents particular challenges. For instance, many fungi reproduce asexually using the spore-stress of a biological species definition paradigm.

Moreover, fungal introductions are not externally identified, as is the case in animals. Consequently, initial efforts to barcode fungi involve testing a number of mitochondrial and nuclear candidate sequences.

We welcome the direct and participation of mycologists from all disciplines, working with and groups of fungi and fungi-like organisms.

Click here for the latest BOLD from February 2011

For Windows-related matters:
Vincent Robert
CBS-KNAW Fungal Biodiversity Centre,
Groenenborgh 5, Utrecht, The Netherlands
E-mail: vincent@i4life.uva.nl

For Bar-coding related matters:
Vincent Robert
MIZ-KNAW
4E Center Drive, ACC 4010
Reading, PA, Suite 401-01
Bellefonte, Berks County 17815-0101
U.S.A.
Phone: 717-462-1000 Fax: 717-462-2912
E-mail: vincent@i4life.uva.nl

For software and website related matters:
Vincent A. Robert
CBS-KNAW Fungal Biodiversity Centre,
Groenenborgh 5, Utrecht, The Netherlands
E-mail: vincent@i4life.uva.nl

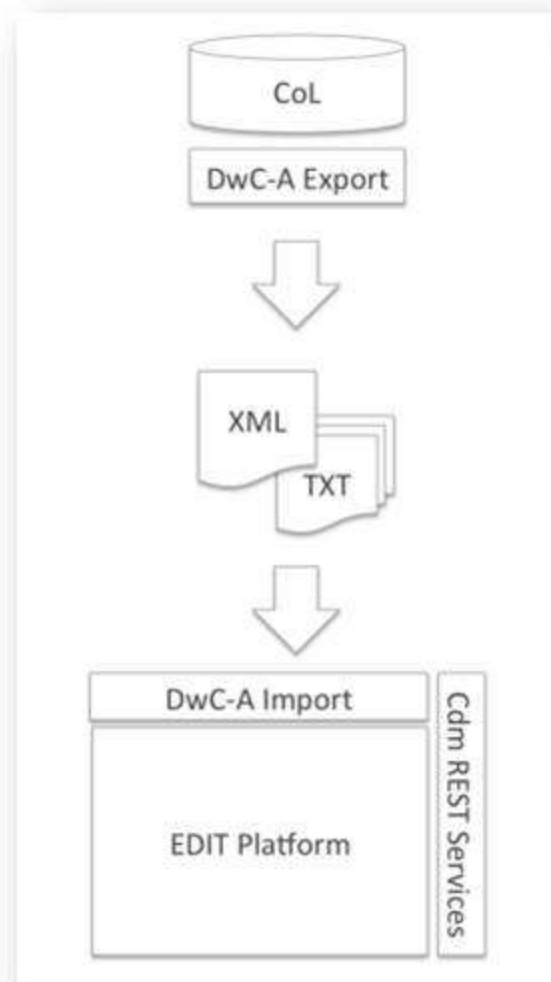
Official European BOLD mirror
(Test: www.cbs.knaw.nl/eubold)

What to do with the BINs system of BOLD and environmental sampling?

Workshop in September 2012 discussed this

leader Walter Berendsohn
Organisation: FUB-BGBM, Berlin, Germany

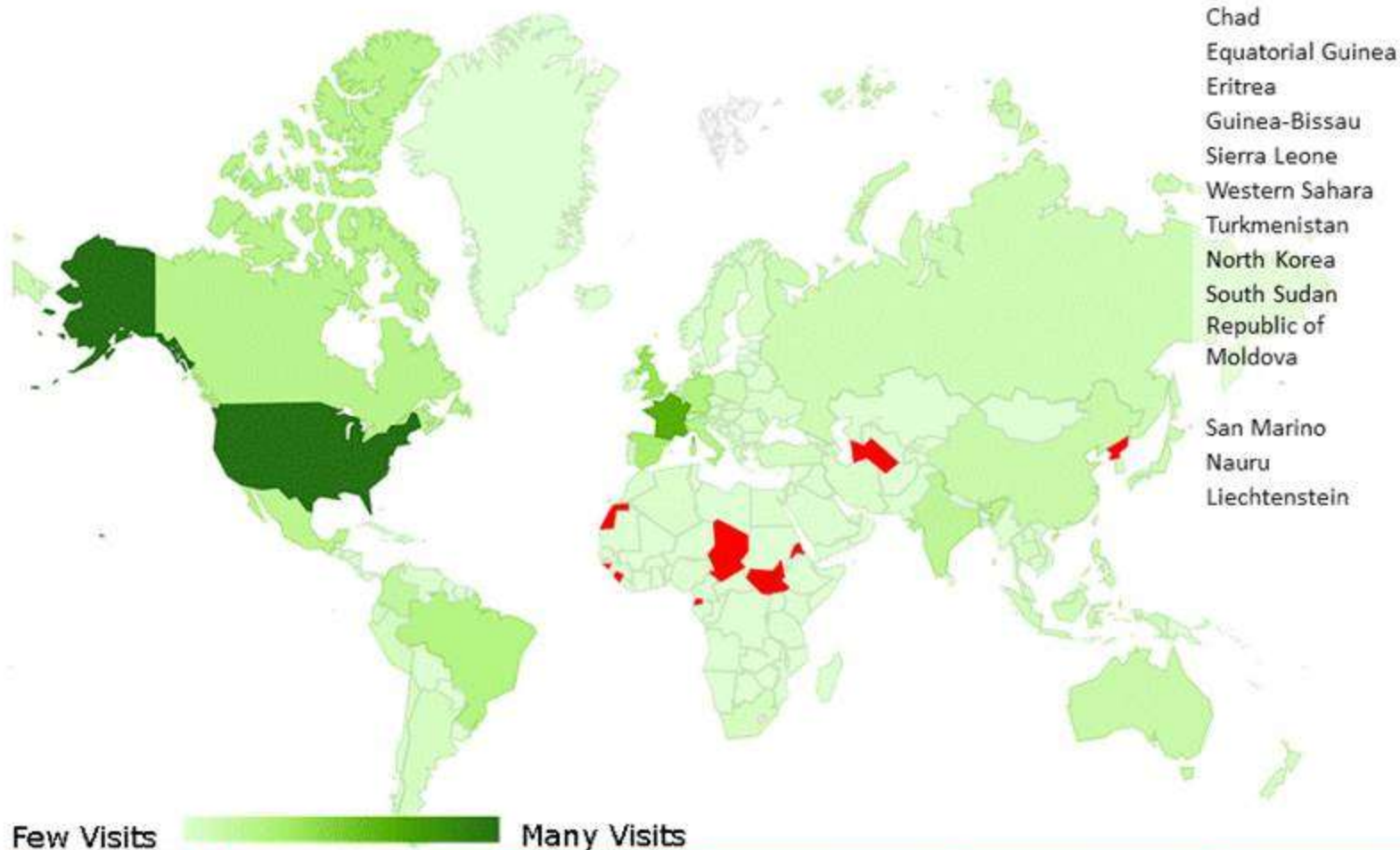
- ▶ To design, prototype, test, and implement an interface for importing the CoL into a new instance of the EDIT platform for Cybertaxonomy at an agreed frequency.
- ▶ To expose the EDIT-CoL instance via a robust and well-documented service-interface to the emerging LifeWatch infrastructure.



Who uses the Catalogue of Life?

Web interface hits

Distribution of Visits to CoL by Country



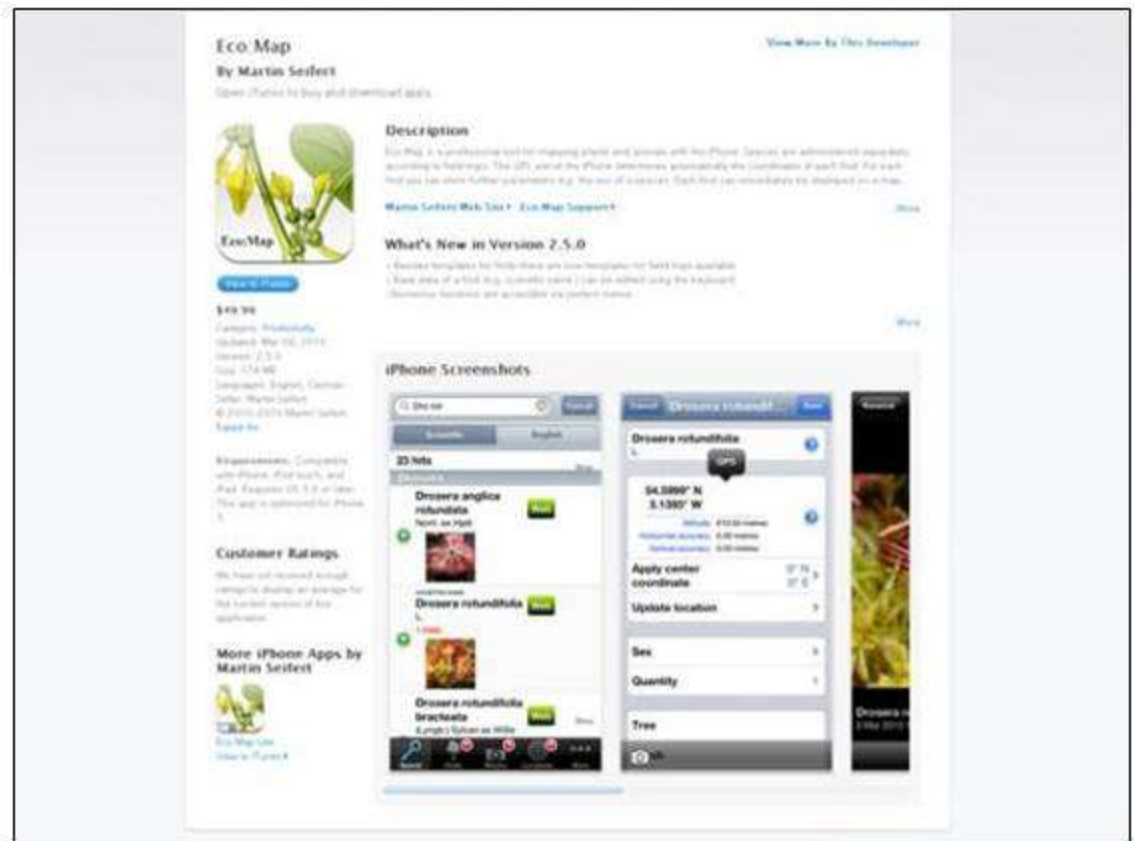
- Chad
- Equatorial Guinea
- Eritrea
- Guinea-Bissau
- Sierra Leone
- Western Sahara
- Turkmenistan
- North Korea
- South Sudan
- Republic of Moldova
- San Marino
- Nauru
- Liechtenstein

Year	2010	2011	2012*
Hits	45723435	59166896	84642709

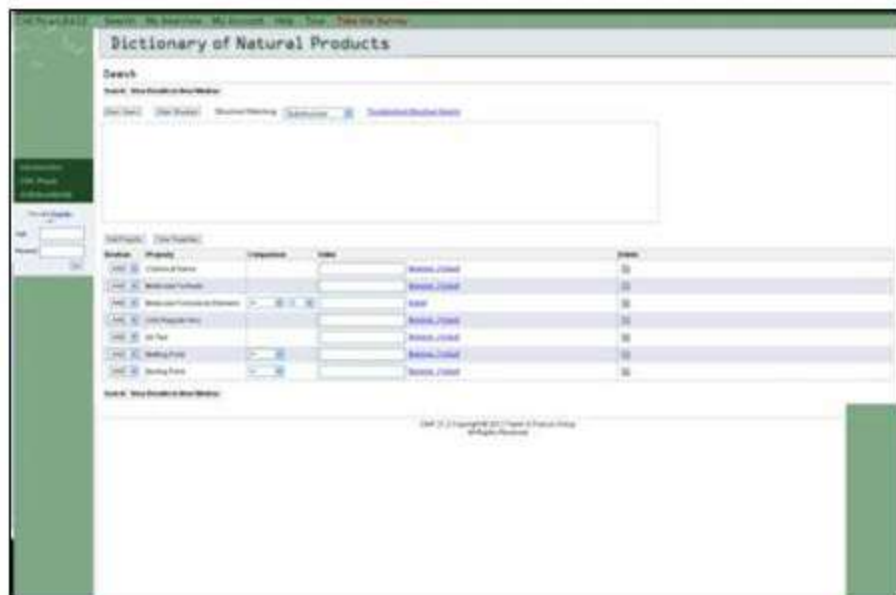
The screenshot displays the Elsevier Biofuel website interface. At the top, there is a navigation menu with links for Home, Who Elsevier Biofuel, Key Benefits, How Does It Work, Our Users, News, Video, and Resources. The main content area features a section titled 'Accelerating the Deployment of Biofuel R&D' with an 'Introducing Elsevier Biofuel' sub-section. This section describes the platform as a comprehensive online platform for scientific and industrial biofuel data, offering full-text, indexed access to 17 years of patent back files, 1,000 journals, and 2,000 abstracts. It also mentions over 3,000,000 searchable terms related to biofuels and a login option for Elsevier Biofuel. A prominent green 'Start Here' button is located below this text. To the right, there is a search bar and a sidebar with a category tree including options like Biogas, Biomethane, Bioethanol, and Biodiesel. At the bottom of the page, there are three green boxes: 'Elsevier Biofuel Fact Sheet', 'The Effect of R&D Information', and 'More About Elsevier Biofuel', each with a 'Download Report Here' link. The footer contains the Elsevier logo and copyright information.

The Catalogue of Life use cases

Eco:Map Lite – Free
Eco:Map – £17.49

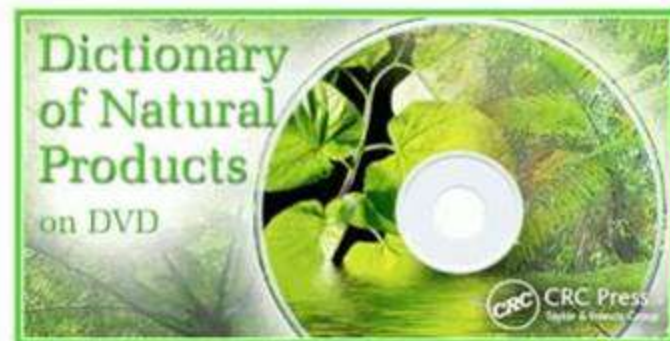


Dictionary of Natural Products



Online

<http://dnp.chemnetbase.com>



On DVD

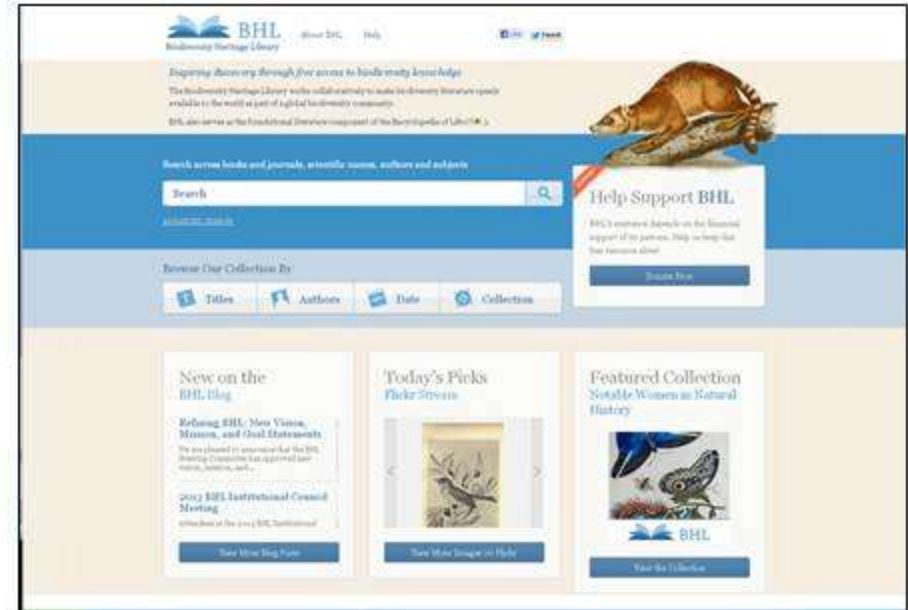
The Catalogue of Life use cases

Biodiversity Heritage Library



Europe

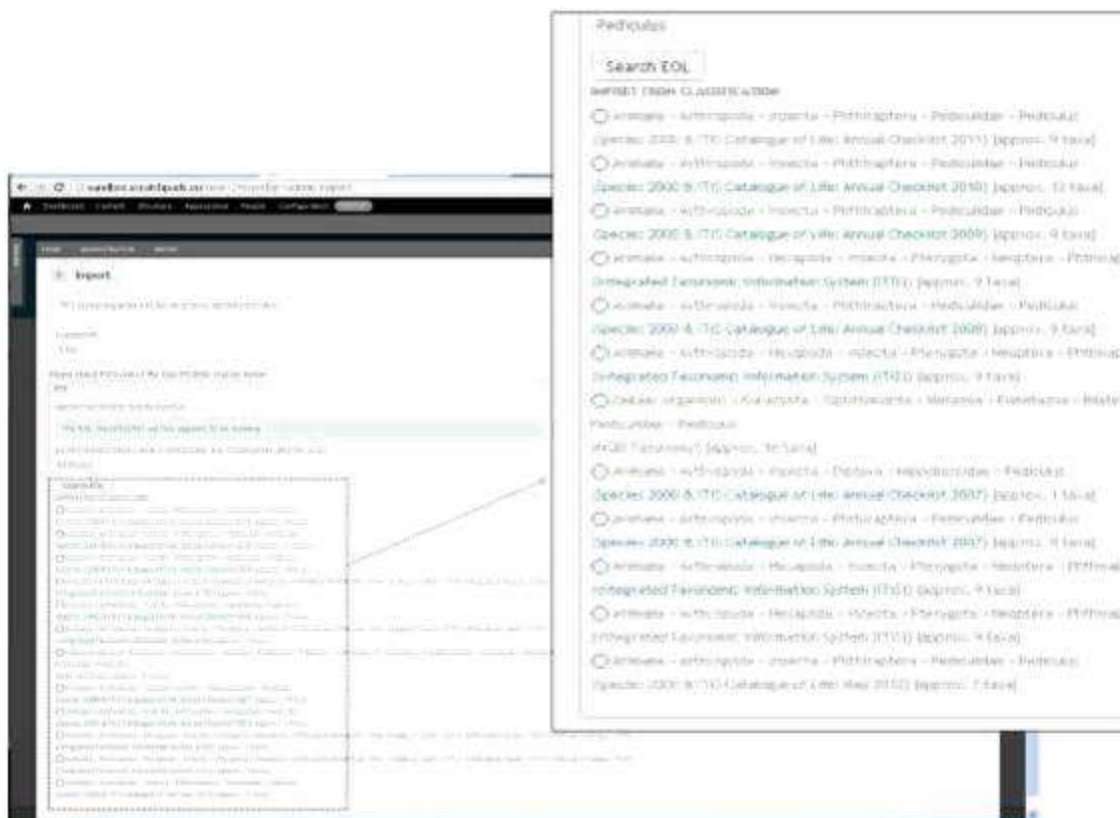
www.bhl-europe.eu



Global

www.biodiversitylibrary.org

The Catalogue of Life use cases



Future priorities



Re-inventing the wheel –
GOOD!

But we need to rebuild
the road...