

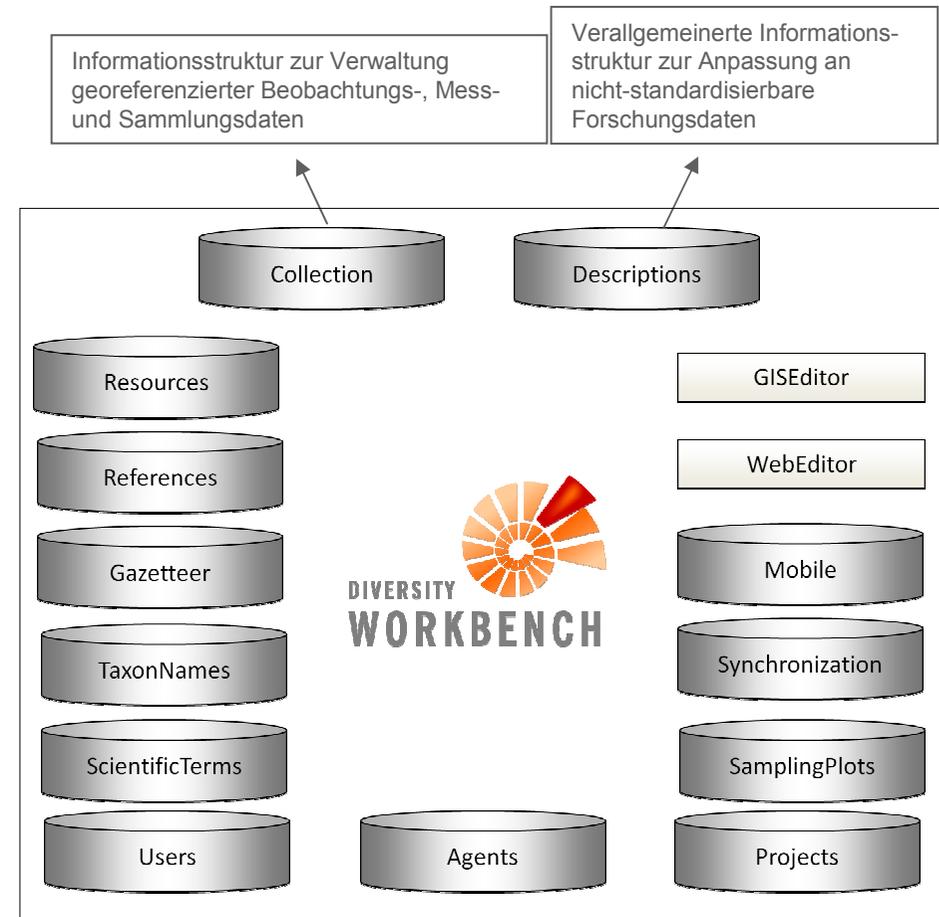
# Diversity Workbench

Systemdesign, Datenflüsse, Netzwerke und Dienste

Dagmar Triebel

# Diversity Workbench Framework

- Seit 1999 Modellierung (ER-Diagramme),  
und Implementierung
- Datenbank-Komponenten („Module“) 14
- \*Tabellen 233
- \*Datenelemente/-attribute 1.902
- \*Relationen-Tabellen 251
- Webschnittstellen/Clients 27
- \*Quellcode-Zeilen > 706.567  
(in 1.261 Quellcode-Files) (\*Stand 12.2011)
- Seit 2007 Workshops für Anwender 21
  - Teilnehmer 186
  - Institutionen 43

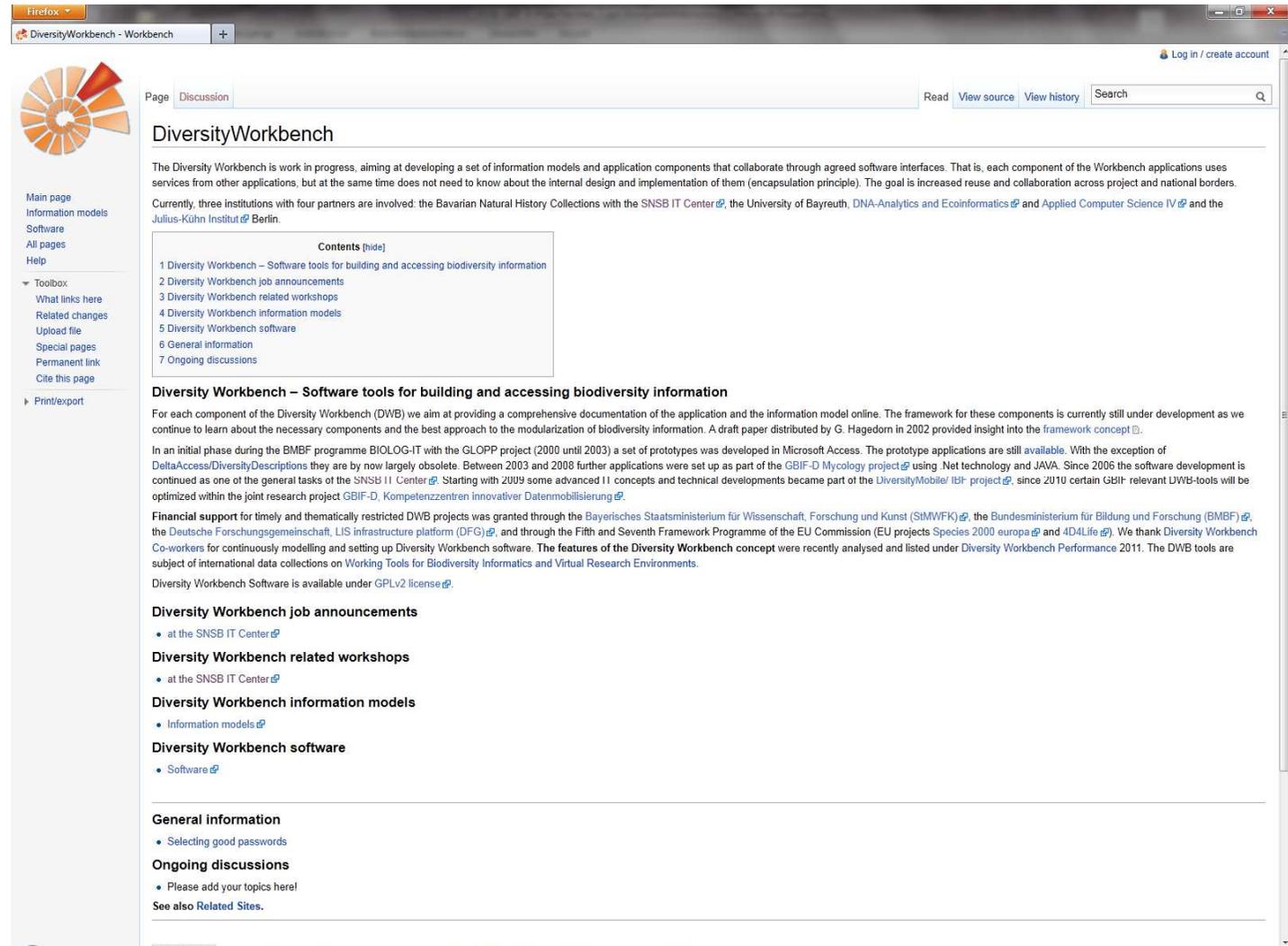


# Diversity Workbench – Work in progress

4 Partner

Download  
Center

Software unter  
GPL Lizenz



Page Discussion Read View source View history Search

## DiversityWorkbench

The Diversity Workbench is work in progress, aiming at developing a set of information models and application components that collaborate through agreed software interfaces. That is, each component of the Workbench applications uses services from other applications, but at the same time does not need to know about the internal design and implementation of them (encapsulation principle). The goal is increased reuse and collaboration across project and national borders.

Currently, three institutions with four partners are involved: the Bavarian Natural History Collections with the SNSB IT Center, the University of Bayreuth, DNA-Analytics and Ecoinformatics and Applied Computer Science IV and the Julius-Kühn Institut Berlin.

Contents (hide)

- 1 Diversity Workbench – Software tools for building and accessing biodiversity information
- 2 Diversity Workbench job announcements
- 3 Diversity Workbench related workshops
- 4 Diversity Workbench information models
- 5 Diversity Workbench software
- 6 General information
- 7 Ongoing discussions

### Diversity Workbench – Software tools for building and accessing biodiversity information

For each component of the Diversity Workbench (DWB) we aim at providing a comprehensive documentation of the application and the information model online. The framework for these components is currently still under development as we continue to learn about the necessary components and the best approach to the modularization of biodiversity information. A draft paper distributed by G. Hagedorn in 2002 provided insight into the [framework concept](#).

In an initial phase during the BMBF programme BIOLOG-IT with the GLOPP project (2000 until 2003) a set of prototypes was developed in Microsoft Access. The prototype applications are still available. With the exception of [DeltaAccess/DiversityDescriptions](#) they are by now largely obsolete. Between 2003 and 2008 further applications were set up as part of the [GBIF-D Mycology project](#) using .Net technology and JAVA. Since 2006 the software development is continued as one of the general tasks of the [SNSB IT Center](#). Starting with 2009 some advanced IT concepts and technical developments became part of the [DiversityMobile/IT project](#), since 2010 certain GBIF-relevant DWB-tools will be optimized within the joint research project [GBIF-D, Kompetenzzentren innovativer Datenmobilisierung](#).

**Financial support** for timely and thematically restricted DWB projects was granted through the [Bayerisches Staatsministerium für Wissenschaft, Forschung und Kunst \(StMWFK\)](#), the [Bundesministerium für Bildung und Forschung \(BMBF\)](#), the [Deutsche Forschungsgemeinschaft](#), [LIS infrastructure platform \(DFG\)](#), and through the [Fifth and Seventh Framework Programme of the EU Commission \(EU projects Species 2000 europa and 4D4Life\)](#). We thank Diversity Workbench Co-workers for continuously modelling and setting up Diversity Workbench software. **The features of the Diversity Workbench concept** were recently analysed and listed under [Diversity Workbench Performance 2011](#). The DWB tools are subject of international data collections on [Working Tools for Biodiversity Informatics and Virtual Research Environments](#).

Diversity Workbench Software is available under [GPLv2 license](#).

### Diversity Workbench job announcements

- at the [SNSB IT Center](#)

### Diversity Workbench related workshops

- at the [SNSB IT Center](#)

### Diversity Workbench information models

- [Information models](#)

### Diversity Workbench software

- [Software](#)

### General information

- [Selecting good passwords](#)

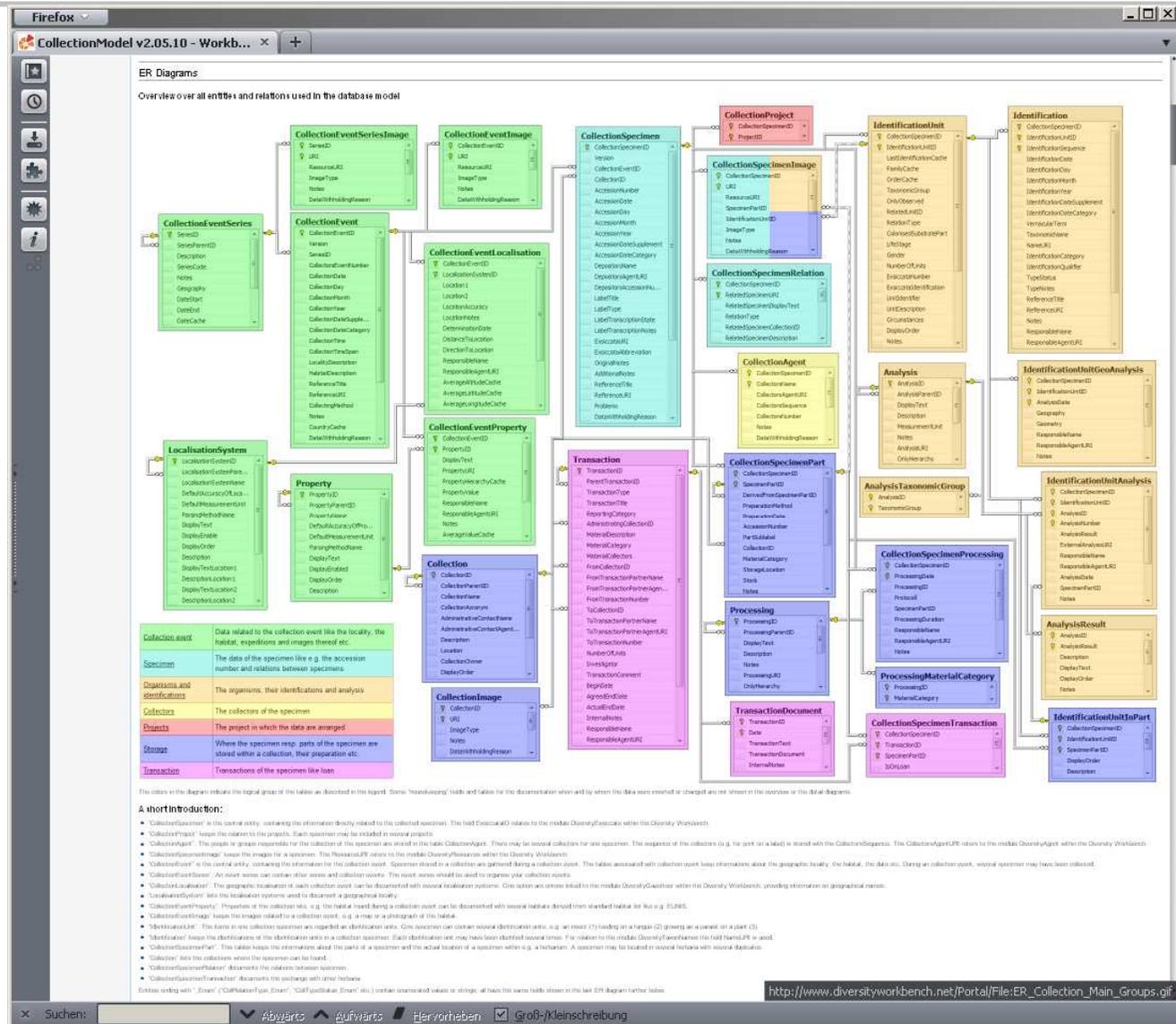
### Ongoing discussions

- Please add your topics here!

See also [Related Sites](#).

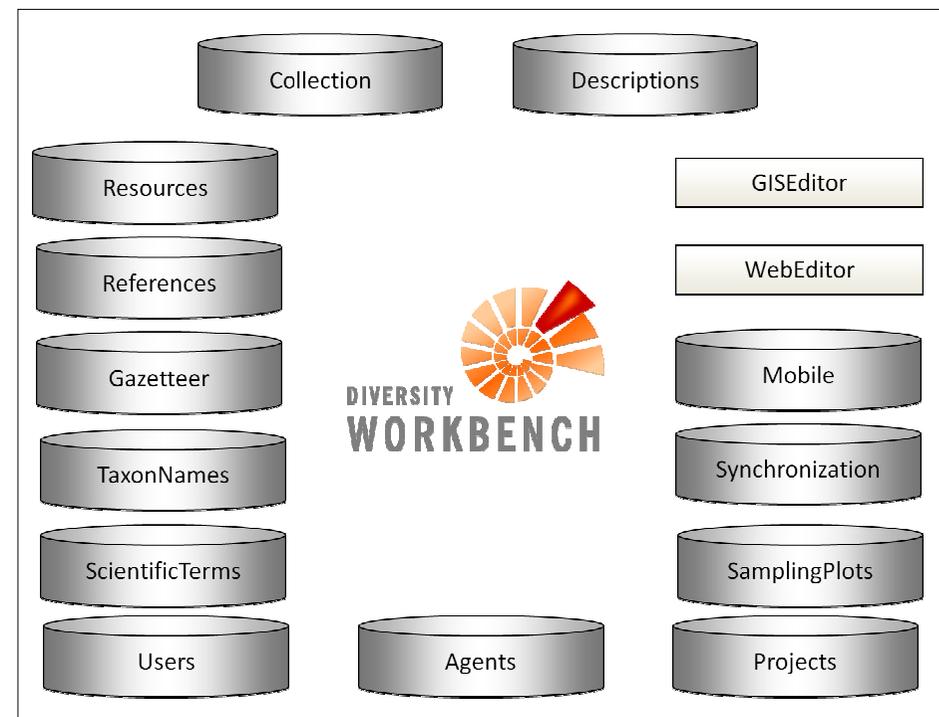
# DiversityCollection – ER Diagramm

Publikation von  
Informations-  
modellen unter  
**Creative  
Commons  
License**



# Diversity Workbench Framework

- Business Solution geeignet für Datenzentren
- Direkte Interoperabilität aller Komponenten
- Virtuelle Forschungsumgebung
- Schwerpunkte für die Disziplinen
  - Taxonomie und Chemotaxonomie
  - Phytosoziologie
  - Molekulare Ökologie und Organismische Interaktionen
  - Ökophysiologie
  - Fernerkundung (p.p.)
- Datensätze aus allen organismischen Großgruppen .... Pflanzen, Algen, Pilze, Wirbeltiere, Insekten, andere Wirbellose, Fossilien



# DiversityWorkbench – Rich Clients

The screenshot displays the DiversityWorkbench interface with several overlapping windows:

- DiversityCollection v.3.0.3.6:** Shows specimen details for *Ceratotherium simum* (Burchell, 1817) with specimen ID 178065 and event 20871. It includes a 'Select the displayed fields' list and a table of specimen records with columns for Accession number, Collection year, Country, and Locality.
- DiversityScientificTerms v.3.0.0.0:** A terminology browser showing a hierarchy for 'Indusium' under 'Chronostratigraphy'. It includes a search bar and a list of related terms.
- DiversityAgents v.3.0.0.3:** Displays agent information for 'Hertel, Hannes, Prof. Dr.' (ID: 12732), including title, given name, and contact details.
- DiversityTaxonNames, Database: DiversityTaxonNames\_Fungi v.3.0.1.5:** A detailed taxonomic record for *Biatora sylvana* Korb. (ID: 1036334). It includes taxonomic name, nomenclature, taxonomic reference, and a list of synonyms.

# Browser-embedded Diversity Web Editor

DiversityCollection - Windows Internet Explorer

http://localhost:1775/ABC01TestPage.html

Google

Datei Bearbeiten Ansicht Favoriten Extras ?

Favoriten DiversityCollection

Seite Sicherheit Extras »

## Diversity Web Editor

Logout EntryIdentification Save Select table

Server: bsm7.snsb.info:5432 Database: DiversityCollection\_Test User: TestEditor

SamplingSite

AK	Accuracy	Altitude	Author	Date	Description	Direction	Distance	GeocodeMethod	Latitude	Location	Longitude	Notes
<input type="checkbox"/>	1	40		2/28/2007 12:00:00 AM						40	40	c.

CollectionEvent

AK	CollectingMethod	CollectorsName	CollectorsNumber	Day	HabitatDescription	Month	Notes	PreparationMethod	Year
<input type="checkbox"/>		Huneck, S.		27		5	methode		1996

CollectionSpecimen

AK	AccessionDate	DepAccNumber	Depositor	ExternalID	Number	Project	Status
<input type="checkbox"/>					M-0041201		

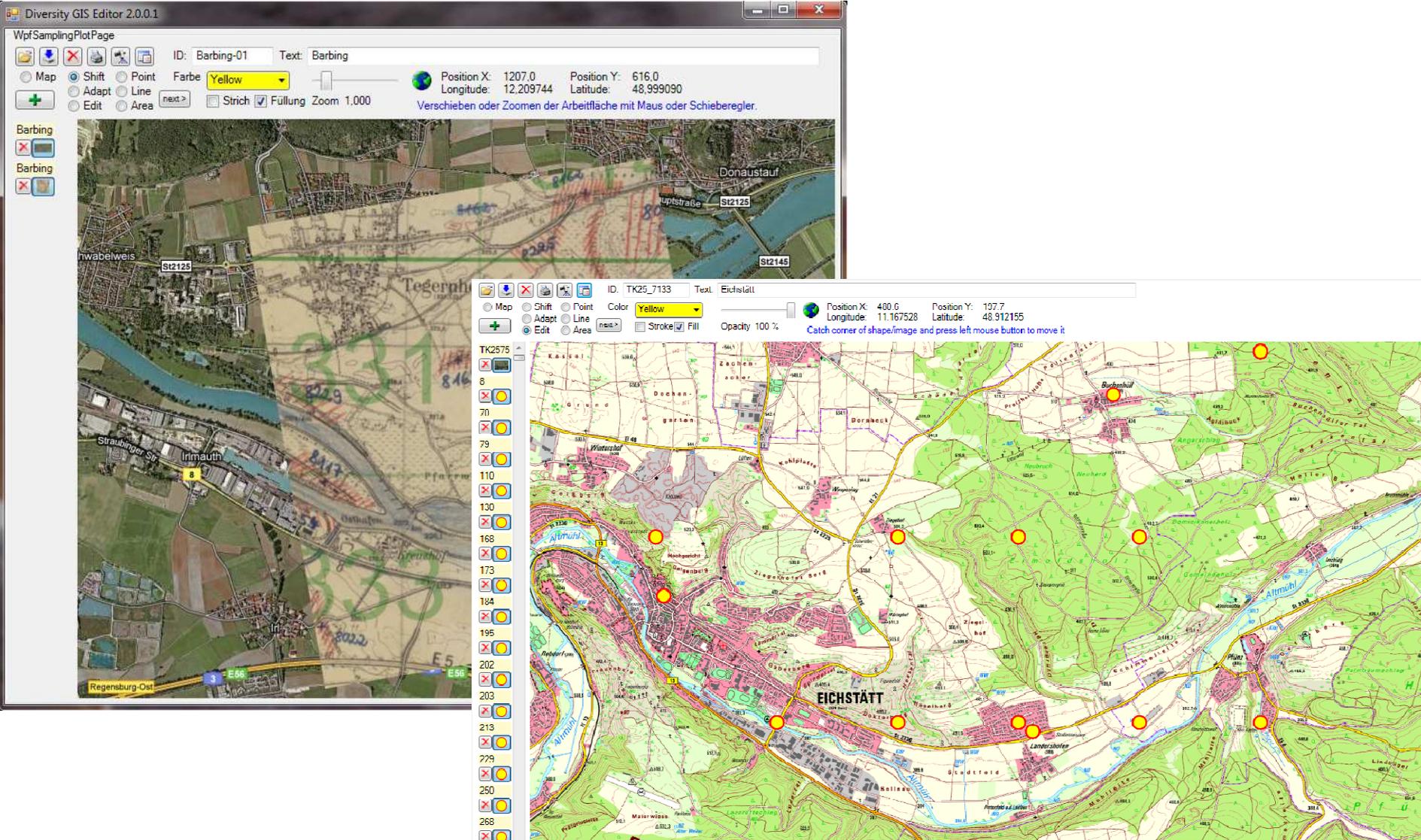
Organism

AK	Gender	LifeStage	Number	Relation	RelationTaxon	RelationType	Remarks	TaxonomicGroup	VoucherNumber
<input type="checkbox"/>								fungus	

Fertig

Internet 100%

# Diversity GIS Editor



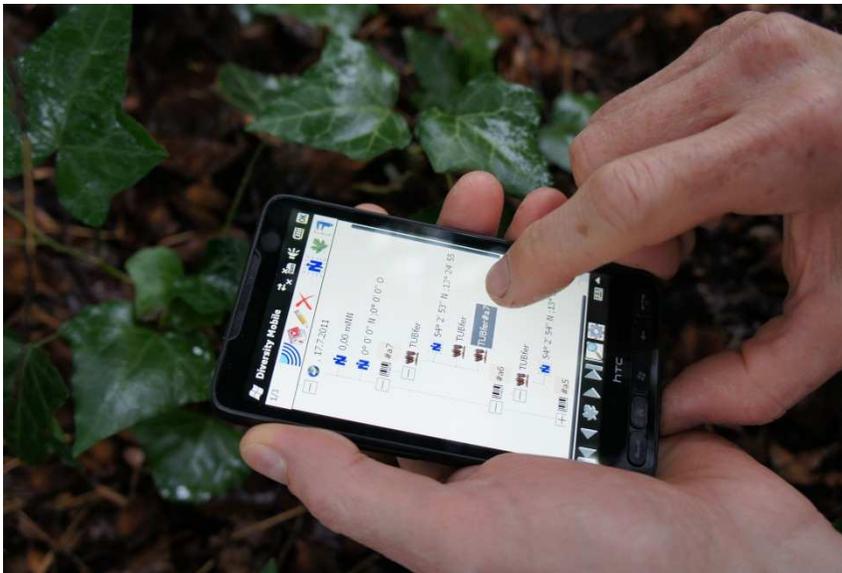
# DiversityMobile – [www.diversitymobile.net](http://www.diversitymobile.net)

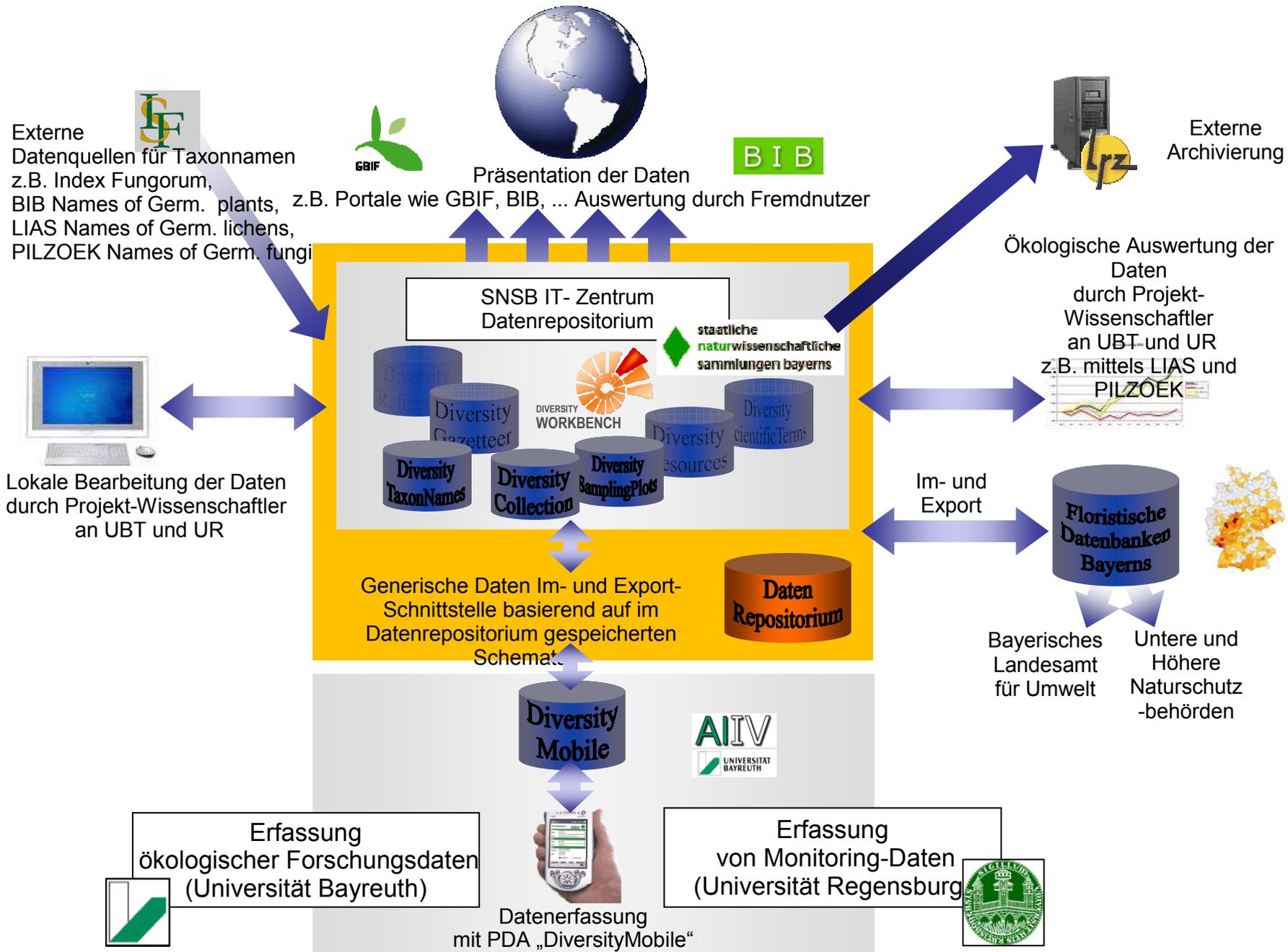
- Erfassung von **raum- und zeitbezogenen Biodiversitätsdaten** in Forschungsprojekten, z. B. Inventory- und Monitoring-Projekten
- Erfassung **ökologischer Beziehungen**, z. B. auf Langzeit-Untersuchungsflächen

Dateneingabe über Smartphones (WindowsPhone) und Tablet PC (Windows 7)

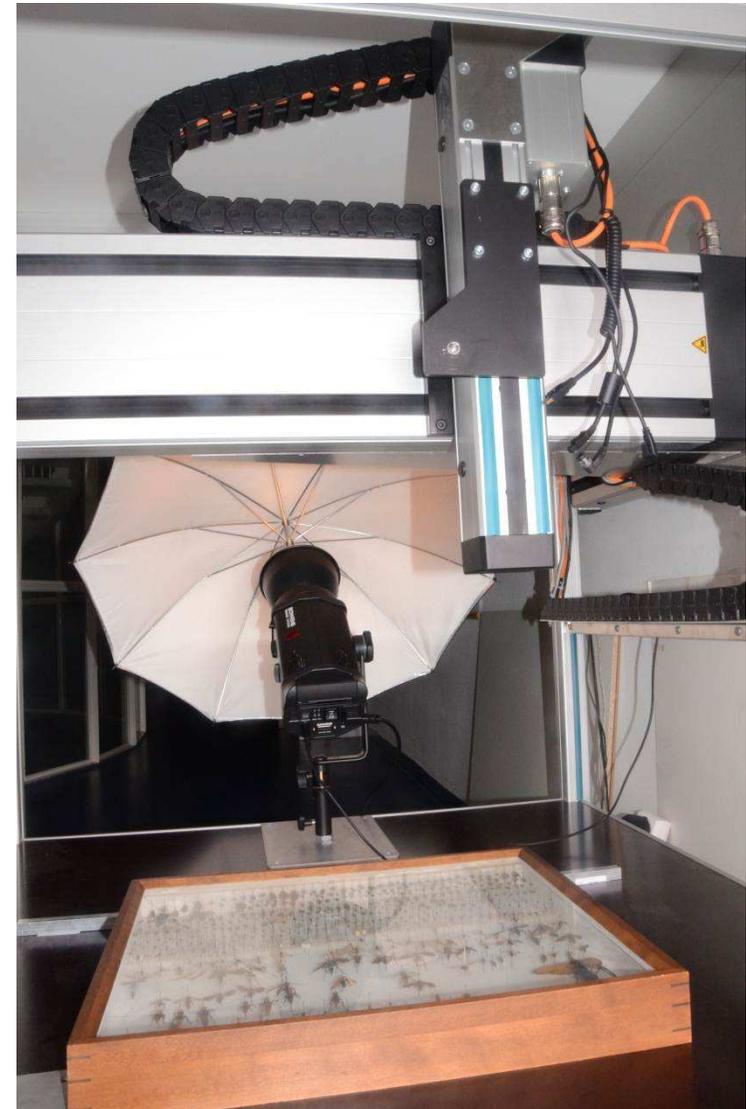
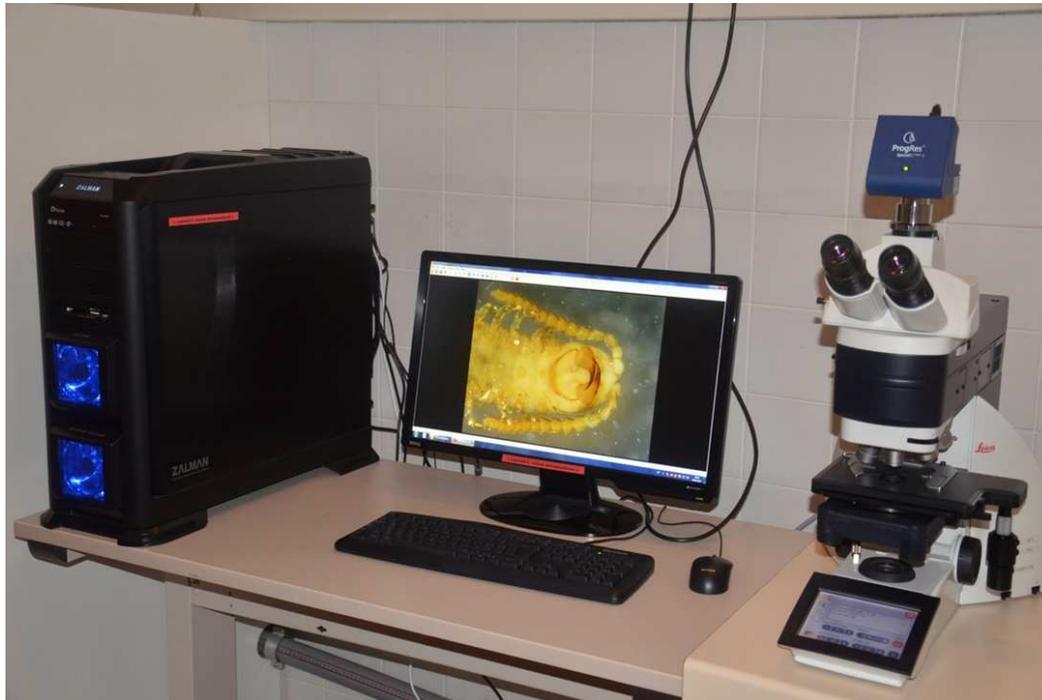


# Mobiles Datenmanagement – verschiedene Szenarien

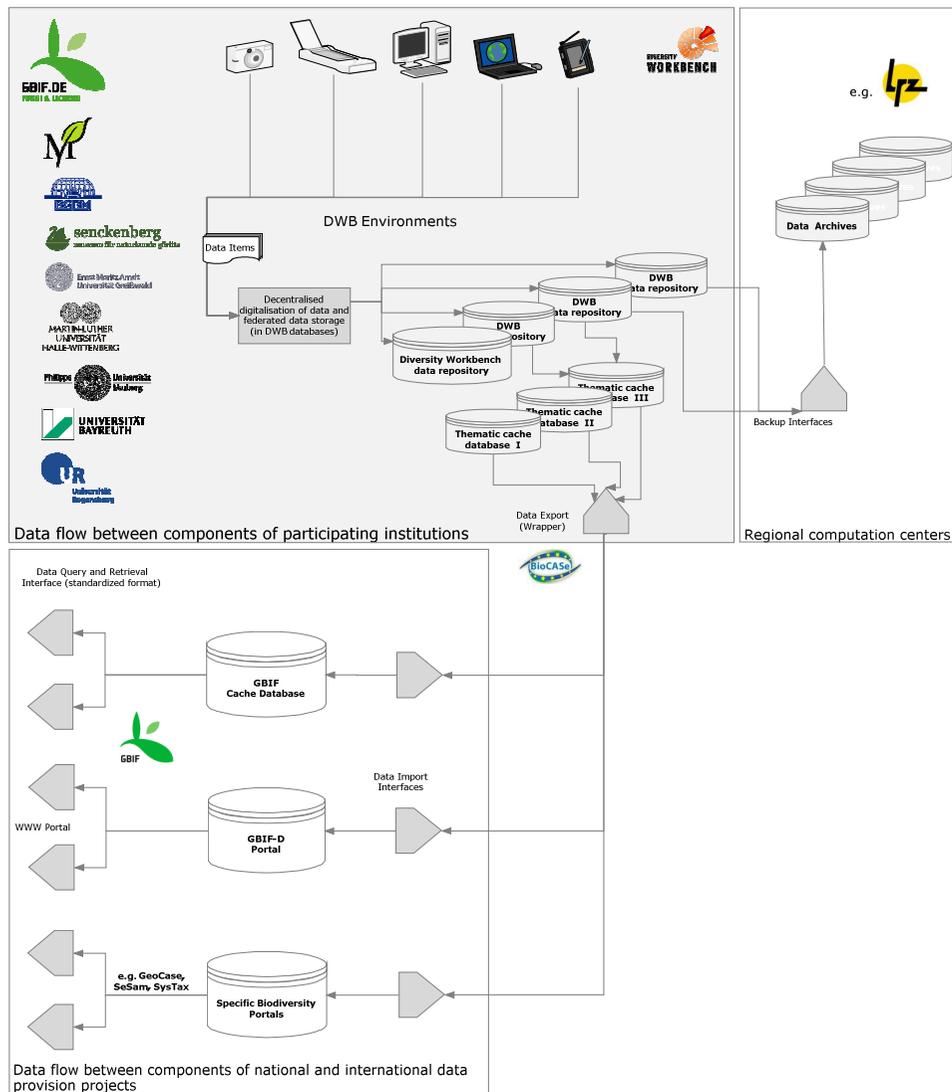




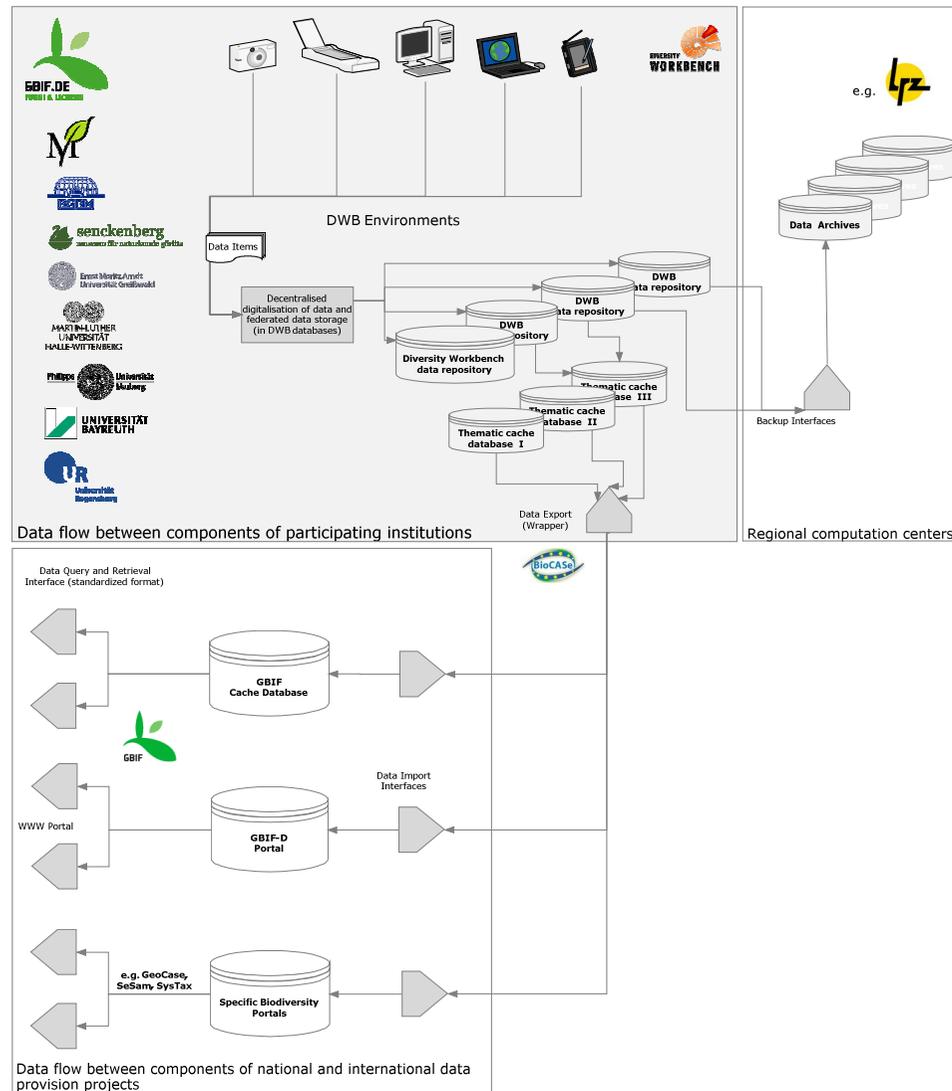
# Multimedia-Daten – Generierung



# Multimedia-Daten und DWB-Daten – Datenfluss im Repositorium



# Multimedia-Daten und DWB-Daten – Datenfluss zu Portalen



# DWB-Daten – GBIF Portal

The screenshot shows the GBIF portal interface in a Firefox browser window. The browser tab is titled "Staatliche Naturwissenschaftliche ...". The page header features a green and blue banner with the text "free and open access to biodiversity data" and "GLOBAL BIODIVERSITY INFORMATION FACILITY". A search bar is present with the text "search species/country/dataset" and "Search Start new search". Below the header, the "Data Publisher" is identified as "Staatliche Naturwissenschaftliche Sammlungen Bayerns". A section titled "Actions for Staatliche Naturwissenschaftliche Sammlungen Bayerns" includes "Explore: Occurrences" and "Download: Darwin Core records, One-degree cell density overlay for Google Earth, Placemarks for Google Earth (limit 10,000)". The main content area is titled "Occurrence overview" and displays a world map with a grid overlay. The map shows the density of occurrence records per one-degree cell, with a color scale ranging from yellow (1-9) to red (100000+). A red box highlights a specific area in the North Atlantic. A legend on the right side of the map provides the color key and a small globe icon with coordinates 89, 149, 169, and 79. Below the map, a beta notice states "Beta: GBIF Open Geospatial Consortium services" and a disclaimer reads "This map only shows records with coordinates (189.683 records from a total of 253.571 records). Disclaimer: Maps depict density of data registered within the GBIF network index and not necessarily true species occurrence density gradients. It includes records from all datasets shared by this data publisher."

# DWB-Daten – Biological Collection Access Services for Europe

The screenshot displays the BioCASE Europe Portal interface. The main header features the BioCASE logo and the text 'Biological Collection Access Service for Europe'. The left sidebar contains navigation links for Home, Search, Registry, About, and Contributors. The main content area shows a search for 'Ceratotherium' with a dropdown menu listing 'Ceratotherium simum (4)' and 'Ceratotherium simum (1)'. The details page for 'Ceratotherium simum (Burchell, 1817)' is visible, showing the following information:

<b>Registry</b>	<b>Ceratotherium simum (Burchell, 1817)</b>	<b>Source Institution:</b> SAPM
<b>About</b>	<b>Unit ID:</b> SAPM-MA-00136 / 211061 / 153754	<b>Collection:</b> SAPMmammaliacoll
<b>Contributors</b>	<b>Unit GUID:</b> http://id.snsb.info/Collection/178065-211061-153754	
	<b>Kind of Unit:</b> PreservedSpecimen	

The details page also includes sections for Identification(s) and Multimedia, with a small image of a specimen visible under the Multimedia section.

# DWB-Daten – Geosciences Collection Access Service for Europe

The image shows two browser windows. The left window displays the main GeoCASE website, which includes a navigation menu (Home, Data Access, Join the Network, Tutorial, About the Project) and introductory text about the ABCDEFG service. The right window shows the 'Simple ABCDEFG provider access portal', which features a search form with various criteria and a 'Search' button.

**GeoCASE Website Content:**

March 2011 - The Natural History Museum Vienna has joined the GeoCASE network

**Geosciences Collection Access Service**

Home | Data Access | Join the Network | Tutorial | About the Project | About

ABCDEFG (Access to Biological Collection Databases Extended for Geosciences) is an > developed for use with palaeontological, mineralogical and geological digitalized collection data. It extends the ABCD-XML-Schema (Access to Biological Collection Databases) used by GBIF (Glo...)

The ABCDEFG-XML-Schema is used to apply a mapping to the local data source and it is supp Software is easy to install and provides a very handy user interface for database description a mediates between the local data source and the GeoCASE Portal by sending and receiving XML...

ABCDEFG is proposed to the organisation of biodiversity information standards TDWG (Taxo standard for geoscientific collections. GeoCase will be adopted by GBIF as soon as possible. The schema provides a general geoscientific collections. It does not replace an individual database management software.

The BioCASE Provider Software may be obtained from [http://biocase.org/products/provider\\_snfw](http://biocase.org/products/provider_snfw)

For further information on ABCD visit <http://wiki.tdwg.org/ABCD/>.

For further information on the EFG Extension download the [ABCDEFG-XML-Schema document /efg\\_schema.pdf](#) or use the following documentation on this website.

ABCDEFG Schema Documentation:

Schema **abcdefg.xsd**

schema location: <http://www.geocase.eu/documentation/abcdefg.xsd>  
targetNamespace: <http://www.synthesys.info/ABCDEFG1.0>

Elements

- [AnalysisDateTime](#)
- [AnalysisReferences](#)
- [Certainty](#)
- [DatingQualifier](#)
- [IdentificationAnalysis](#)
- [NamedGeologicalFeature](#)
- [StratigraphicMeasurementsOrFacts](#)

Complex types

- [AllocthonousMaterialType](#)
- [AlterationType](#)
- [AnalysisAtomisedType](#)
- [AssociatedFossilAssemblageType](#)
- [AssociatedMineralAssemblageType](#)
- [BiostratigraphicAttributionsType](#)
- [ChronostratigraphicAttributionsType](#)
- [EarthScienceSpecimenType](#)
- [IdentificationAnalysisType](#)
- [IdentifiersType](#)
- [IsotopeStratigraphicDeterminationsType](#)
- [LithostratigraphicAttributionsType](#)
- [MagnetostratigraphicDeterminationsType](#)
- [MineralogicalUnitType](#)
- [MineralRockIdentifiedType](#)
- [PalaeontologicalUnitType](#)
- [RadiometricDatesType](#)

**Simple ABCDEFG provider access portal**

**Important Note:**

This is a simple data portal for the **GeoCASE network**. It uses **BioCASE** technology to perform a distributed query on ABCDEFG providers, using the BioCASE protocol. Since searches are performed on the original provider's databases, they might take some time and yield less results than expected, if some of the providers are offline.

**★ Query ABCDEFG Data Providers:**

First, choose the type of database you want to query, you can search for either paleontological or mineralogical data. Then enter your search criteria, using \* as a wildcard. Please note that not all data has yet been translated into English for this prototype version. If you would like to receive the full response in xml format, please supply a valid email address.

**Fossils   Minerals & Rocks**

<b>Scientific name</b> or a part of it (e.g. Archegosaurus*)	<input type="text"/>
<b>Higher taxon name</b> (e.g. Amphibia)	<input type="text"/>
<b>Chronostratigraphic attribution</b> (e.g. Permian)	<input type="text"/>
<b>Country name</b> (e.g. Germany)	<input type="text"/>
<b>Named Area</b> (e.g. Saarland)	<input type="text"/>
<b>Locality</b> (e.g. *Saalfeld*)	<input type="text"/>
Enter your email address for a full result response email:	<input type="text"/>
Limit max. number of results per database to <input type="text" value="10"/>	
Wait for not more than <input type="text" value="15"/> sec. for a database to respond (consider raising this timeout level if you get insufficient results).	
<input type="button" value="Search"/>	

Powered by:

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Seitenverantwortliche/Page editors: J. Holetschek, A. Hahn, M. Döring, C. Dancea, A. Güntsch  
BGBM Impressum/Imprint; Haftungsausschluss/Disclaimer

# DWB-Daten – SysTax-Portal

The screenshot shows a Firefox browser window displaying the SysTax-Portal website. The browser's address bar shows the URL "Wirbellose II Systax Abfrage | Gbi...". The website has a green and white color scheme with a logo of three leaves in the top left corner.

**Navigation Menu (Left):**

- GBIF-DE
  - Home
  - Datenabfrage
  - Einstiegsliteratur
  - GIS-Anwendungen
  - GloMyrIS
  - Oribatida
  - Acari
  - Online-Zugang zu alter Literatur
- GBIF-Deutschland
  - GBIF.DE Home
  - News
  - Aktuelle Termine
  - Koordination
  - Bakterien & Archaeen
  - Pflanzen & Protisten
  - Pilze & Flechten
  - Insekten
  - Wirbellose II
  - Wirbellose III
  - Wirbeltiere
  - Fossilien
  - Publikationen
  - GBIF-D Archiv
  - Weitere Projekte
- GBIF International
  - GBIF International Home
  - Deutsche Delegation
  - GBIF News and Events
- User login
  - Username: \*

**Main Content Area:**

**Home**  
**Wirbellose II Systax Abfrage**  
bereitgestellt für:  
  
**SysTax - German GBIF portal - zoological and botanical collection data**  
help print

**Search Interface:**

search [input field] search advanced  
search  
data source: all data sources  
restriction: zool. collections only  
types only:   
with images only:   
with sound only:   
sort order: taxon, institute  
display: short

© SysTax - Universität Ulm & Ruhr-Universität Bochum; script last modified: 16.09.2009

**Right Sidebar:**

**Search**  
Search this site: [input field] Search

**BMBF stärkt deutschen Beitrag zur Global Biodiversity Information Facility (GBIF)**  
SPONSORED BY THE  
Federal Ministry of Education and Research

Die Global Biodiversity Information Facility (GBIF) hat sich als weltweit führende Informationsinfrastruktur für den Bereich der organismischen Vielfalt etabliert und bewährt (<http://data.gbif.org>).

Deutschland ist eines der Gründungsmitglieder von GBIF und seit Jahren einer der größten Biodiversitätsdatenanbieter weltweit.

**GBIF-Publikationen demnächst im „GBIF Online Resource Centre“ zusammengefasst.**



# DWB-Daten in LIAS

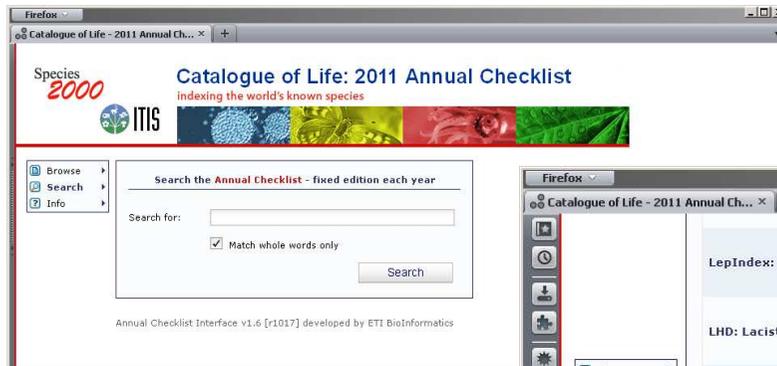
LIAS, ein  
Informationssystem für  
deskriptive und  
taxonomische  
Daten

seit 1996 online

seit 2001  
Daten in DWB-  
Komponenten

The screenshot shows the LIAS website in a Firefox browser window. The browser title is "LIAS". The page content includes a navigation menu with the following items: "DESCRIPTORS" (Listing, Definitions), "TAXA" (Descriptions, Data Entry and Revision, Images), "IDENTIFICATION" (Keys on Genus Level, Keys on Species Level), "Forum", "About", and "Cooperating Websites". The main content area displays the LIAS logo and the text: "LIAS - A Global Information System for Lichenized and Non-Lichenized Ascomycetes". Below this, it states: "A Multi-authored, Distributed Internet Project Containing Information about Phylogeny and Biodiversity". At the bottom, there is a copyright notice: "© 1996-2011 by Botanische Staatssammlung München. All rights reserved." and links for "Impressum", "Disclaimer", and "Webmaster".

# DWB-Daten in Catalogue of Life



LepIndex: The Global Lepidoptera Names Index		Butterflies and moths	243,006
LHD: Lacistemataceae Holistic Database		Waits Nuni plant family	28
LIAS: A Global Information System for Lichenized and Non-Lichenized Ascomycetes <b>NEW!</b>		Lichens	5,499
MantodeaSF: Mantodea Species File		Praying mantids	2,403
MBB: Moss Bug Base		Moss bugs	32
Mites GSDs: OlogamasidBase		Ologamasid mites	446
Mites GSDs: PhytoseiidBase		Phytoseiid mites	2,186
Mites GSDs: RhodacaridBase		Rhodacarid mites	145
Mites GSDs: TenuipalpidBase		Tenuipalpid mites	887
MOST: Moss TROPICOS Database		Mosses	13,365
MOWD: Membracoidea of the World Database <b>NEW!</b>		Treehoppers and leafhoppers	15,392
Nomen.eumycetozoa.com		Slime moulds	1,034

# Dienstleistungen für GBIF Deutschland

**GBIF-DE**

**Home**

## Global Biodiversity Information Facility - Deutschland

English Version

Die internationale Initiative **Global Biodiversity Information Facility (GBIF)** hat sich zum Ziel gesetzt, wissenschaftliche Daten und Informationen zur weltweiten Artenvielfalt in digitaler Form über das Internet frei und dauerhaft verfügbar zu machen.

### Ziele und Beteiligte von GBIF-D

Deutschland gehört zu den Gründungsmitgliedern der Global Biodiversity Information Facility (GBIF). Seit Ende 2010 arbeitet **GBIF-Deutschland (GBIF-D)** im Rahmen eines BMBF-finanzierten Verbundvorhabens an der gezielten Zusammenstellung und Mobilisierung aller bundesweit geeigneten Sammlungs-, Forschungs-, Beleg- und Observationsdaten zur Umsetzung des GBIF-Leitbildes ([pdf](#)). Als Verbundpartner sind insgesamt **acht GBIF-Knoten an deutschen Forschungsanstalten** aktiv:

- BGBM Berlin-Dahlem für das Teilprojekt **Koordination**
- DSMZ Braunschweig für das Teilprojekt **Bakterien & Archaeen**
- BGBM Berlin-Dahlem für das Teilprojekt **Pflanzen, Algen & Protisten**
- BSM München für das Teilprojekt **Pilze & Flechten**
- MfN Berlin für das Teilprojekt **Insekten**
- ZSM München für das Teilprojekt **Wirbellose II**
- Senckenberg Frankfurt für das Teilprojekt **Wirbellose III**
- ZFMK Bonn für das Teilprojekt **Wirbeltiere**
- MfN Berlin für das Teilprojekt **Fossilien**

Sprecher GBIF-D: Walter Berendsohn (Wiederwahl 2009)  
Stellvertretende Sprecherin GBIF-D: Dagmar Triebel (seit 2009)  
Sprecher der IT-Kommission: Anton Güntsch

Weitere fachliche und technische Begriffe im Zusammenhang mit der GBIF-Arbeit finden Sie im [Glossar](#). Informationen für Pressevertreter sind [hier](#) hinterlegt.

**Search**

Search this site:

**BMBF stärkt deutschen Beitrag zur Global Biodiversity Information Facility (GBIF)**

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Federal Ministry of Education and Research

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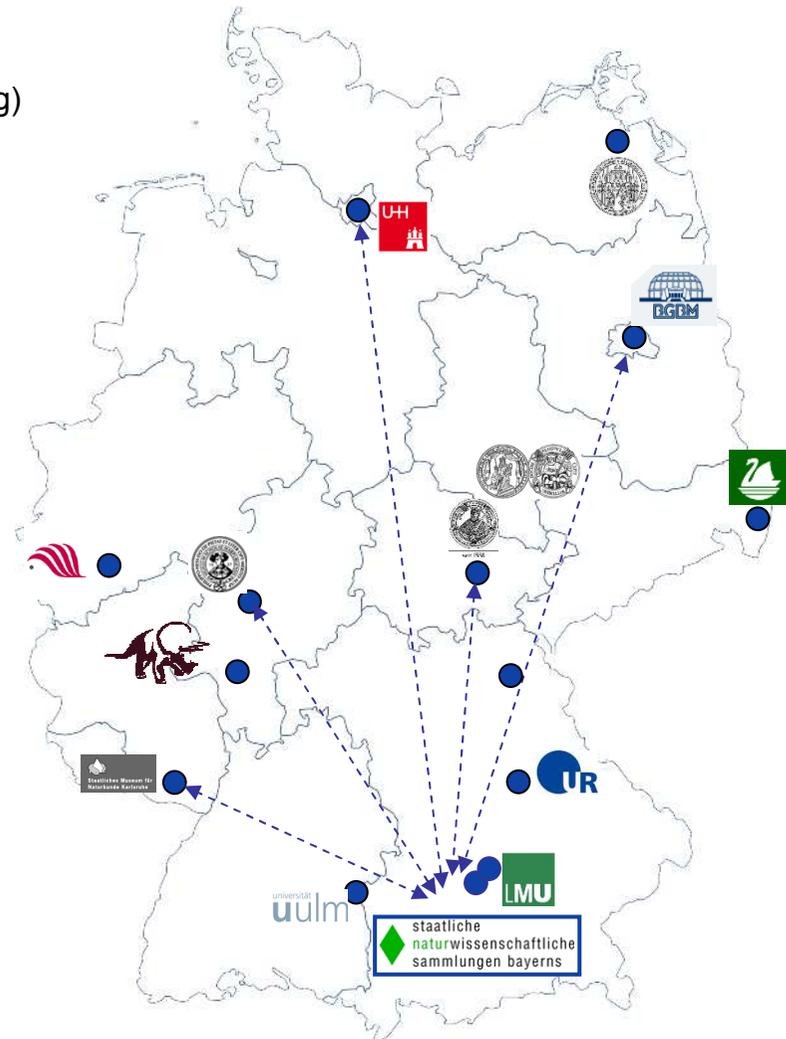
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**GBIF-Publikationen demnächst im „GBIF Online Resource Centre“ zusammengefasst.**

Entsprechend dem aktuellen GBIF-Arbeitsprogramm laufen

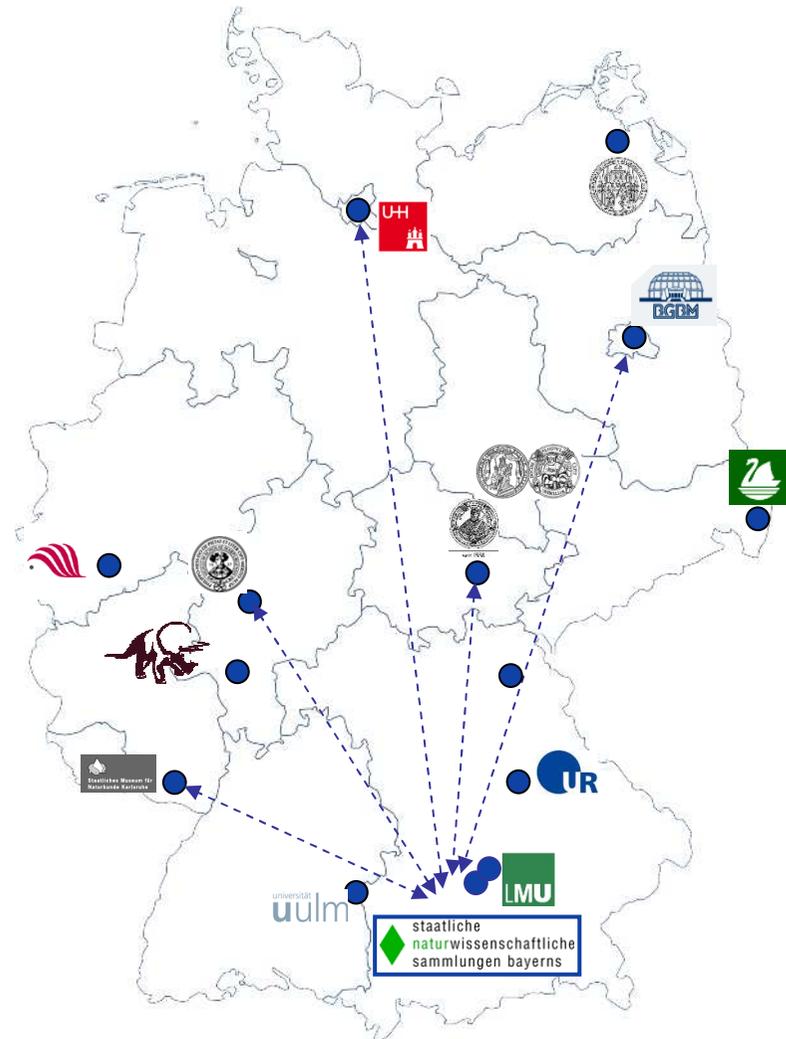
# Nationale Kooperationen

- Datenaufnahme (via DWB-VRE-Clients; aktuell ca. 120 Remote Clients)
  - Senckenberg Museum für Naturkunde Görlitz (Sammlung)
  - Universität Bayreuth (Lehre, Forschung)
  - Universität Greifswald (Forschung)
  - Universität Halle-Wittenberg (Sammlung)
  - Universität Hamburg (Forschung)
  - Universität Marburg (Sammlung)
  - Universität München LMU (Lehre, Forschung)
  - Universität Regensburg (Bayernflora-Datenbank)
  - u. a.
- Datenbereitstellung, -publikation (Anbindung Datennetzwerke Deutschland)
  - BIB Bayern Portal
  - SeSam Portal (vereinbart)
  - SysTax Portal (im Rahmen GBIF-D vereinbart)
  - GBIF-Deutschland Portal (im Rahmen GBIF-D vorgesehen)



# Nationale Kooperationen

- Datentransfer (Aufnahme von Komplettbeständen, Datenrettung)
  - Staatliches Museum für Naturkunde Karlsruhe (Biota-Applikation)
  - Universität Greifswald (MyxDB)
  - Universität Tübingen (TUB-Bilddatenbank)
  - Universität Ulm (SysTax)
  - Zoologisches Forschungsmuseum Alexander Koenig Bonn (BIODAT)
  - u. a.
- Aufbau eigener DWB-Umgebungen
  - Staatliches Museum für Naturkunde Karlsruhe
  - Zoologisches Forschungsmuseum Alexander Koenig Bonn
  - Universität Bayreuth
  - u. a.



# SNSB IT-Zentrum – Web-Präsenz

- Informationsportale 14
- Standard-Thesauri online 3
- Online Datenprojekte 30–35
- BioCase-Wrapper, publ. Daten >250.000
- Digitalisate >500.000
- Remote Zugänge (VRE) 120
- GBIF-D Knoten 3

contact impressum disclaimer webmaster

snsb it center

HOME ABOUT US PEOPLE SERVICES WORKSHOPS

Services and Products

Beside data curation tasks as mentioned under [Home](#) and [About us](#) the SNSB IT Center is running services and products in the thematic areas below.

- ▶ **Software Design and Implementation**
  - DIVERSITY WORKBENCH
  - DIVERSITY MOBILE
  - MOBILE
- ▶ **Development of Web Portals for Collections**
  - M
  - GBIF DE FUNGI & LICHTENS
  - STAATSSAMMLUNG FÜR ANTHROPOLOGIE UND DALADANATOMIE MUC. **SAPM**
- ▶ **Species Information Systems**
  - DEEMY
  - LIAS
  - MELNET
  - Myxomycota Germany
- ▶ **Portals with General Biodiversity Information**
  - THE MYCOLOGY .NET
  - MYCO PHYLOGENY
  - THE PHYCOLOGY .NET
- ▶ **Literature Catalogues and Bibliographies**
  - DALI
  - IndExs
  - Index Maps
  - MyxLit
- ▶ **Services for Internet Platforms**
  - Catalogue of Life
  - GBIF
  - IAL
  - STOR

staatliche naturwissenschaftliche sammlungen bayerns

# Diversity Workbench – Workshop heute



Infos unter

<http://www.snsb.info> → dort Link zu „IT Workshops“