

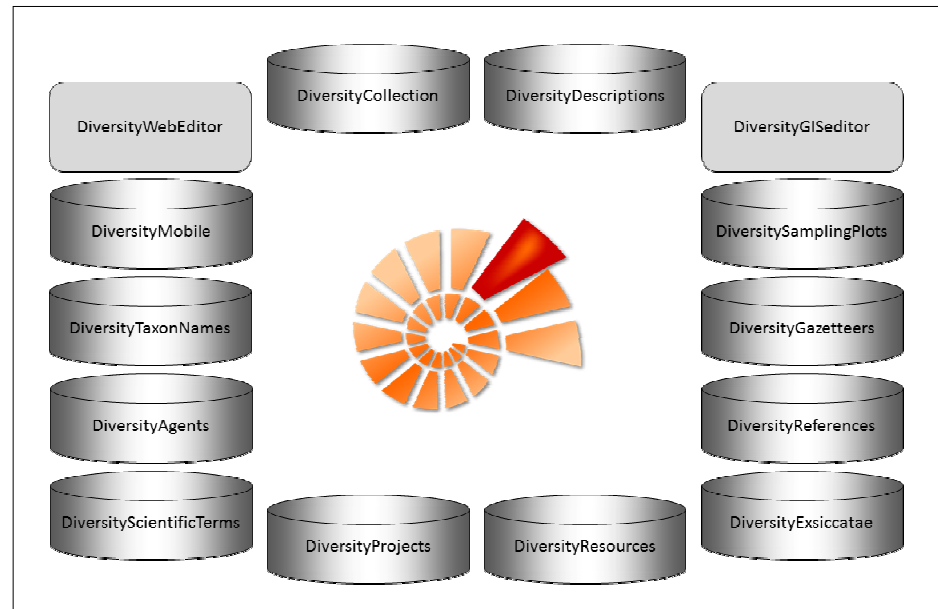
# Diversity Workbench

## Einführung

Dagmar Triebel

# DWB – System aus SQL-Datenbanken

- Für Datenzentren/ Sammlungen, aber auch für Einzelanwender und große Forschungsprojekte
- Direkte Interoperabilität von 12 Datenbank-Komponenten
- Datenbanken nach Datendomänen
- Lokale Installation möglich, wie auch Client-Server Netzwerke
- Diversitätsdatensätze aus allen organismischen Großgruppen  
.... Pflanzen, Algen, Pilze, Wirbeltiere, Insekten, andere Wirbellose, Fossilien
- Monitoringdaten, ökologische und molekulare Daten



# DWB – Open Source Code Repositorien

- z. Zt. 5 Entwickler: SNSB + UBT
- Quellcode in 2 Code-Repositorien
- Quellcode-Zeilen >1.3 Mill.  
(in 2.835 Quellcode-Dateien)  
(\*Status 10.2015)
- GPL 2 Lizenz

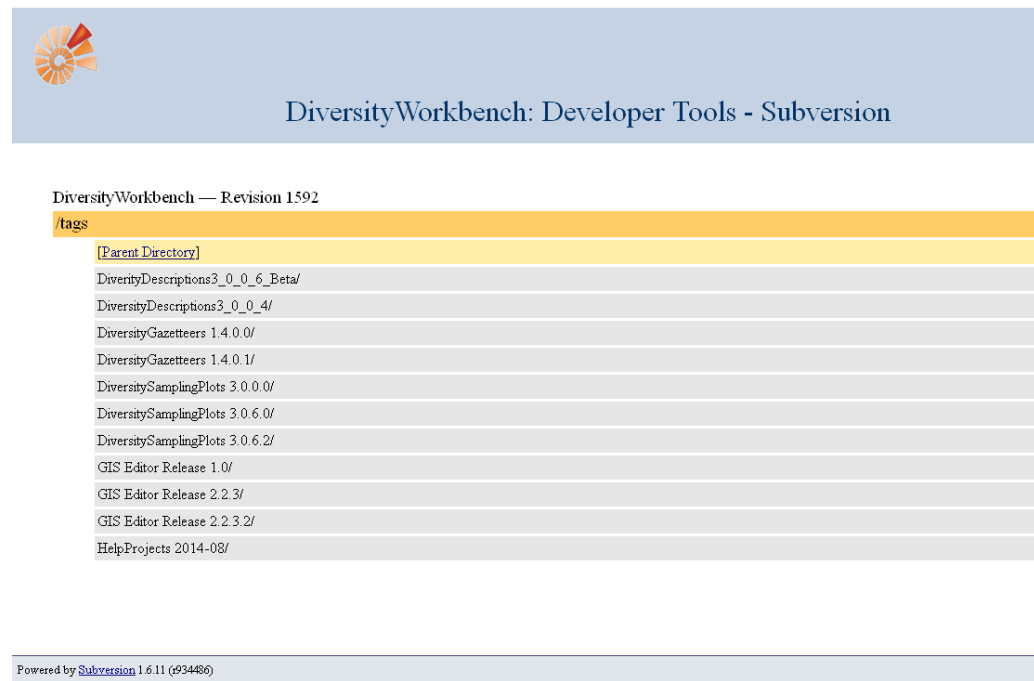



GitHub Search GitHub Explore Features Enterprise

 **Staatliche Naturwissenschaftliche Sammlungen Bayerns**

Partner: University of Bayreuth <http://www.ai4.uni-bayreuth.de/de/index.html> - DWB at <http://svn.snsb.info/repos/DiversityWorkbench/>

Munich <http://www.snsb.info>



 DiversityWorkbench: Developer Tools - Subversion

DiversityWorkbench — Revision 1592

/tags

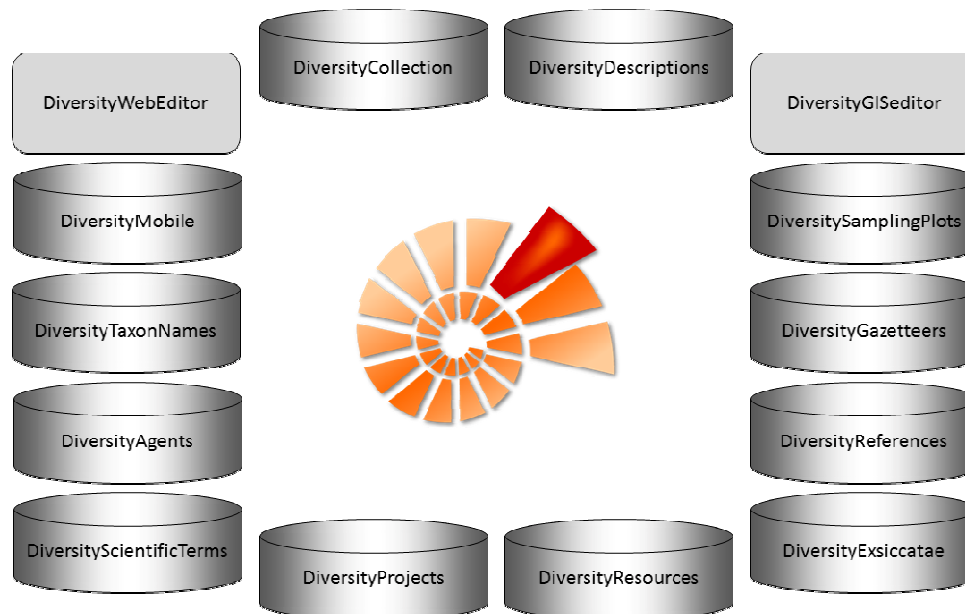
<a href="#">[Parent Directory]</a>
<a href="#">DiversityDescriptions3_0_0_6_Beta/</a>
<a href="#">DiversityDescriptions3_0_0_4/</a>
<a href="#">DiversityGazetteers 1.4.0.0/</a>
<a href="#">DiversityGazetteers 1.4.0.1/</a>
<a href="#">DiversitySamplingPlots 3.0.0.0/</a>
<a href="#">DiversitySamplingPlots 3.0.6.0/</a>
<a href="#">DiversitySamplingPlots 3.0.6.2/</a>
<a href="#">GIS Editor Release 1.0/</a>
<a href="#">GIS Editor Release 2.2.3/</a>
<a href="#">GIS Editor Release 2.2.3.2/</a>
<a href="#">HelpProjects 2014-08/</a>

Powered by [Subversion 1.6.11](#) (934486)



# DWB-Anwender mit DB-Installationen (soweit bekannt)

- Installationen am SNSB inkl. ZSM (diverse VM und Instanzen; inkl. Datenbank(DB)-Hosting für rund 20 Partnerorganisationen; v.a. Unis) z. Zt. 150 Anwender
- Installationen am ZFMK z. Zt. 40 Anwender
- Installation am SMNK z. Zt. 15 Anwender
- Installation am SMNS z. Zt. 10 Anwender



# DFG RIsources: DWB empfohlen

## Detailseite

[→ Zurück](#)

### Diversity Workbench – Software components for building and accessing biodiversity information (DWB)

Das Projekt Diversity Workbench (=DWB) wurde in 2000 gestartet und wird kontinuierlich fortgesetzt. Basierend auf dem DWB Konzept werden SQL-Datenbanken und Datenbankschnittstellen entwickelt, um sämtliche Typen von georeferenzierten quantitativen und qualitativen Beobachtungs-, Sammlungs- und Messdaten aus den Bereichen Bio- und Geodiversitätsforschung und Ökologie zu verwalten. Dazu wird ein modularisiertes Komponenten-Framework zur Datengenerierung, -erhaltung und -prozessierung aufgebaut (12 eigenständige, interoperable Datenbanken, jeweils mit Rich-Clients zum Datenmanagement sowie browserbasierten Anwender-Schnittstellen, s.u. [www.diversityworkbench.net/Portal/Diversity\\_Workbench\\_Performance](http://www.diversityworkbench.net/Portal/Diversity_Workbench_Performance) und Apps für Smartphones). Der DWB Namensraum umfasst rund 2.000 Elemente. ER-Modelle zu den einzelnen Entwicklungen werden in regelmäßigen Abständen publiziert. Die Software steht als open source-Entwicklung zum download bereit. Neben den unten genannten Trägern agiert das Julius Kühn-Institut Berlin [http://www.jki.bund.de/nn\\_813794/](http://www.jki.bund.de/nn_813794/) als weiterer Partner.

**Adresse:** Menzinger Straße 67  
80638 München  
Bayern  
Deutschland

[↗ Zur Webseite](#)

#### Träger

##### Staatliche Naturwissenschaftliche Sammlungen Bayerns, SNSB

###### IT-Zentrum

Menzinger Straße 67  
80638 München  
Bayern  
Deutschland  
[↗ http://www.snsb.info/](http://www.snsb.info/)

##### Universität Bayreuth, DNA-Analytik und Ökoinformatik

Geb. NW1, Universitätsstraße 30  
95447 Bayreuth  
Bayern  
Deutschland  
[↗ http://www.daneco.uni-bayreuth.de](http://www.daneco.uni-bayreuth.de)

##### Universität Bayreuth, Lehrstuhl für Angewandte Informatik IV Datenbanken und Informationssysteme

Universitätsstraße 30  
95447 Bayreuth  
Bayern  
Deutschland



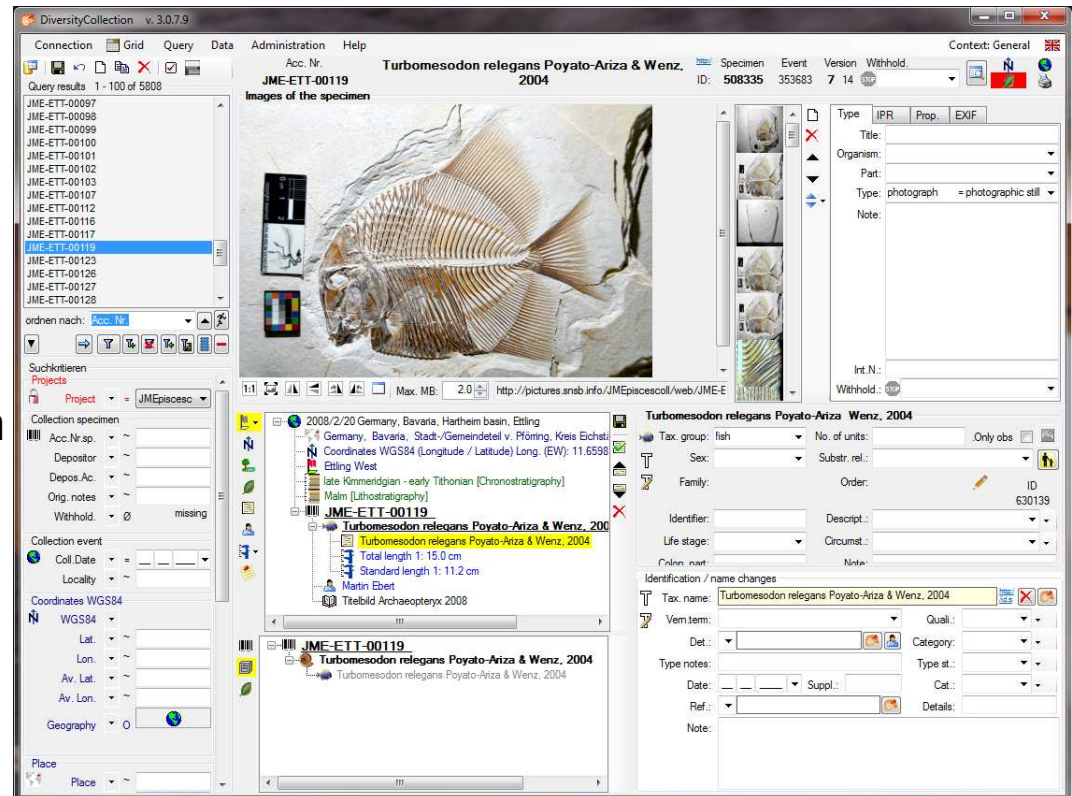
# Diversity Workbench – Schnittstellen zum Datenmanagement

The screenshot displays the Diversity Workbench v. 3.0.0.3 interface, which is used for managing biological specimen data and taxonomic information. The interface is divided into several main sections:

- Top Panel:** Shows the current specimen being viewed, *Ceratotherium simum* (Burchell, 1817), with its ID (178065) and event details.
- Left Panel:** A tree view for selecting displayed fields and a table of specimen records. The table includes columns for Accession number, Collection year, Country, and Locality. The record for SAPM-MA-00136 is highlighted.
- Middle Panel:** A hierarchical tree view for selecting displayed terms, currently showing the 'Indusium' term.
- Right Panel:** A detailed view of the selected term, 'Indusium', including its description, broader terms, and a list of associated agents like 'Hertel, Hannes, Prof. Dr.'.
- Bottom Panel:** A detailed view of a taxon, *Biatora sylvana* Körb., showing its taxonomic name, nomenclature, taxonomic reference, and a list of synonyms.

# DiversityCollection

- Management von Beobachtungs- und Sammlungsdaten
  - Ereignisse, Expeditionen
  - Beobachtungs- und Sammlungsobjekte
  - Experimente und Analysen
  - Administration von Objekten (Transfer, Inventarisierung)
  - Präparation und Lagerung von Objekten
  - Verwaltung von Multimedia-objekten
- Druckoptionen: Reporte, Etiketten
- Erzeugung von Verbreitungskarten





# Portale mit DWB Daten, dynamischer Datenfluss

Access provided by National Botany Collection Munich  
Login

**BiNHum**  
The biodiversity portal of the Humboldt-Ring

The **BiNHum-Portal** is a joint Humboldt-Ring project, for querying the biodiversity data of different institutions.

Results filtered by  
 Institution: M  
 Country: Afghanistan  
 Remove all filters.

Additional Filter  
**Scientific name**  
 astragalus (90)  
 milkvetches (90)  
 milkvetch (90)  
**Genus**  
 Astragalus (90)  
 Cousinia (34)  
 Acantholimon (20)  
**Country**  
 Afghanistan (332)  
**Type status**  
 isotype (93)  
 not a type (83)  
 holotype (72)  
**Collector**  
 Podlech, D. (138)  
 Rechinger, K.H. (70)  
 Griffich, W. (33)  
**Institution**  
 M (332)  
**Collection**  
 BSMplantscoll (287)

19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49  
 54  
 55  
 56  
 57  
 58  
 59  
 60  
 61  
 62  
 63  
 64  
 65  
 66  
 67  
 68  
 69  
 70  
 71  
 72  
 73  
 74  
 75  
 76  
 77  
 78  
 79  
 80  
 81  
 82  
 83  
 84  
 85  
 86  
 87

Arbeitsgemeinschaft Flora von Bayern - www.bayernflora.de

**Ambrosia artemisiifolia**  
*Beifußblättriges Traubenkraut*

167 Angaben aus 92 Quadranten, davon: 144 Qua  
 0 1/4-Qu  
 23 1/16-

**FLORA VON BAYERN**

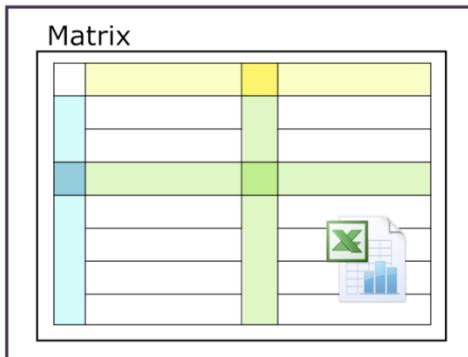
»Entdecken und Bestimmen  
 »Forum »Quiz »Veranstaltungen

»Infos für Experten  
 »Daten »Erfassung »Dokumente

WWF Deutschland Datenschutz Über die Flora von Bayern Kontakt Impressum

# Datenmanagement

## Matrixdaten → DiversityDescriptions



Alternative import formats:  
DELTA and SDD

### Triples:

- > item-descriptor-state
- > item-character-state
- > entity-attribute-value
- > element-property-value

I_ID	Item	D_ID	Descriptor	V_ID	Value

I_ID	D_ID	V_ID

DiversityDescriptions, Database: DiversityDescriptions3\_0\_6\_Erythroneura v. 3.0.0.7

Connection Edit Query Data Administration Help

**Erythroneura aclys McAtee** Project: Erythroneura Language: en

Suchergebnisse 1 - 54

- Erythroneura aclys McAtee
- Erythroneura acuticephala Robinson
- Erythroneura amanda McAtee
- Erythroneura ancora Beamer
- Erythroneura anfracta Beamer
- Erythroneura aza Robinson
- Erythroneura bakeri Dmitriev & Dietrich
- Erythroneura beameri Robinson
- Erythroneura bidens McAtee
- Erythroneura bistrata McAtee
- Erythroneura browni Dmitriev & Dietrich
- Erythroneura caetra McAtee
- Erythroneura calycula McAtee
- Erythroneura cancellata McAtee
- Erythroneura carinata Dmitriev & Dietrich
- Erythroneura coloradensis Gillette

ordnen nach: Description

Suchkriterien

Description

Title ~

Project Erythroneura

Descriptor

Categoric. =

Quantitati. =

Text =

Data status = +

Scope

Taxon =

Geography =

Specimen =

Observati. =

Reference =

Other =

Description: Erythroneura aclys McAtee DB key: 868

Main attributes Descriptor view Continuous view Resource links

ID	Type	!	Descriptor name
1	categorical	•	Ground color of dorsum
2	categorical	•	Coloration of vertex
3	categorical	•	Coloration of vertex midline
4	categorical	•	Anteclypeus coloration
5	categorical	•	Pronotum color pattern
6	categorical	•	Color pattern of mesonotum
7	categorical	•	Coloration of thoracic venter
8	categorical	•	Presence of crossbands on forewings
9	categorical	•	Presence of oblique pattern on forewings
10	categorical	•	Presence of a brown spot in forewing inner apical cell
11	categorical	•	Presence of distal spot in forewing apical cell II
12	categorical	•	Clavus color pattern
13	categorical	•	Length of forewing outer apical cell
14	categorical	•	Length of 2S abdominal apodemes (Males)
15	categorical	•	Length of aedeagus preatrium (Males)
16	categorical	•	Dorsal apodeme of aedeagus in ventral view (Males)
17	categorical	•	Presence of teeth in distal part of aedeagal shaft (Males)
18	categorical	•	Width of aedeagal shaft in lateral view (Males)
19	categorical	•	Position and length of aedeagus ventral processes (Males)
20	categorical	•	Position and length of aedeagus distal processes (Males)
21	categorical	•	Shape of pygofer dorsal appendages (Males)
22	categorical	•	Shape of pygofer lobe (Males)
23	categorical	•	Apex of aedeagus in ventral view (Males)
24	categorical	•	Apical vestiture of aedeagus (Males)

Categorical states

x	ID	State	Modifier	Frequency	Notes
<input type="checkbox"/>	1	entirely pale			
<input type="checkbox"/>	2	pale, with dark late...			
<input checked="" type="checkbox"/>	3	entirely dark			
<input type="checkbox"/>	4	pale, with dark bro...			

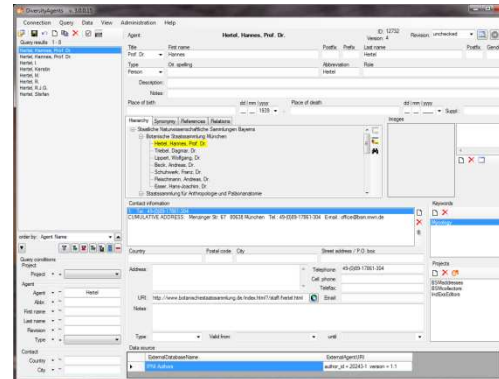
Media view

<http://ctap.inhs.uuc.edu/dmitriev/images/aclys1.gif>

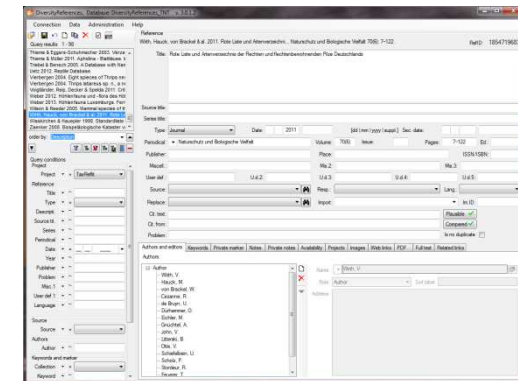
Edit description

# Terminologien, Referenzen, Vokabularien.....

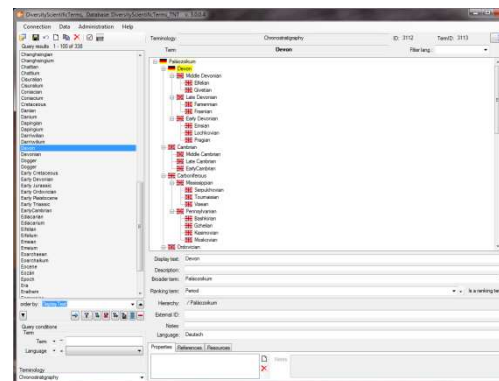
DiversityAgents  
Verwaltung von Personen und Organisationen



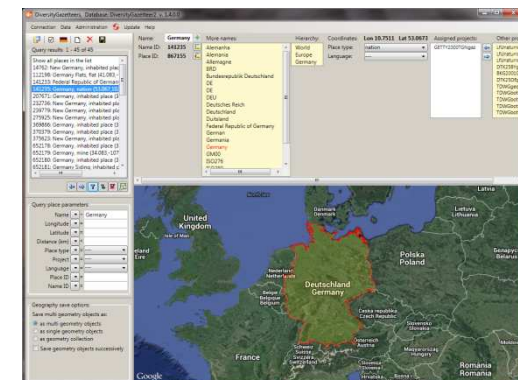
DiversityReferences  
Verwaltung von Literaturreferenzen und Literaturdokumenten



DiversityScientific Terms  
Management von Ontologien, Terminologien



DiversityGazetteers  
Verwaltung geographischer Namensbestände, oft mit GIS Information und Hierarchien





# DiversityTaxonNames

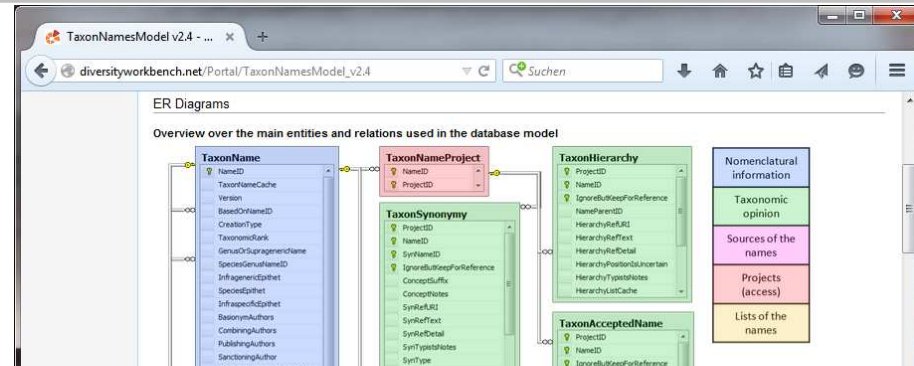
- Management von taxonomischen Namen, verknüpfter Information
- Management von Synonymen, akzeptierten Namen, Klassifikationen, Typifizierung and Volksnamen
- Erstellung von Taxonreferenzlisten, Checklisten mit z. B. geographischen, naturräumlichen oder Naturschutzkategorien

The screenshot displays the DiversityTaxonNames database interface. The main window shows the taxonomic details for *Biatora sylvana* Korb. The interface is divided into several panels:

- Taxon:** *Biatora sylvana* Korb. ID: 1036334, Vers.: 3.
- Taxonomic name:** Genus/supragen: *Biatora*, Species epithet: *sylvana*, Aut.: Korb.
- Nomenclature:** Code, Status, Creation type, Comment.
- Taxonomic reference / Protologue:** Table with columns: Volume, Issue, Pages, Details, D. M. Y. of P., Suppl. (e.g., 200, 1855).
- Hierarchy:** Taxonomic tree showing *Biatora* Fr. as a subgenus of *Lecanoromycetes*.
- Typification:** Reference: New reference 1, Typification: isotype (M-0061230), Substrate, Sp. notes: M-0061230.
- Synonymy:** Name is a heterotypic synonym. Based on: *Biatora sylvana* Korb. Synonym: *Lecania hyalina* (Fr.) R. Sant.
- Synonymy overview:** List of synonyms with their original publications, including *Biatora hyalina* Fr. (1826), *Lecidea globulosa* Flörke (1821), *Catillaria globulosa* (Flörke) Fr. (1846), *Catillaria globulosa* (Flörke) Th. Fr. (1874), *Bacidia globulosa* (Flörke) Hafellner & V. Wirth (1987), and *Lecania globulosa* (Flörke) van den Boom & Sérus. (1999).

# DWB – DiversityTaxonNames

- ER-Modell publiziert
- Eine Reihe Installationen am SNSB IT-Zentrum: intern und auf TNT Server „DWB Cloud“ stellen Inhalte bereit
- Verschiedene maschinen- und menschenlesbare Webschnittstellen greifen darauf zu



The screenshot displays the DiversityTaxonNames database interface for the taxon *Biatora sylvana* Korb. The interface includes a navigation pane on the left with a list of related taxa and a main content area with several tabs: Taxon, Nomenclature, Taxonomic reference / Protologue, Hierarchy, Typification, Geography, Common names, and Projects. The Taxon tab is active, showing details such as the taxon name, rank (species), and author (Korb). The Hierarchy tab shows the taxon's position within the fungal kingdom. The Typification tab shows the taxon's reference to a new reference (M-0061230) and its status as a heterotypic synonym. The Projects tab shows the taxon's inclusion in the HH Database.

# Portale und Webdienste – DiversityTaxonNames

The screenshot displays the LIAS names web service interface. The browser address bar shows 'liasnames.lias.net'. The page title is 'LIAS names' and the subtitle is 'A Database with Names of Lichens, Lichenicolous Fungi and Non-Lichenized Ascomycetes'. The main navigation bar includes 'About' and 'Cooperating Websites'. The search interface has two tabs: 'QUERY' and 'WEB SERVICE'. The search form contains a 'Name' field with 'Lecano' entered and an 'Epithet' field. Below the form, there are checkboxes for 'Accepted names only' (checked) and 'Include non-nomenclatural names'. The search results section shows the following information:

<b>Entered Name</b>	<i>Lecanora albescens</i> (Hoffm.) Branth & Rostr.
<b>Name ID</b>	1009252
<b>Accepted Name</b>	<b>Lecanora albescens</b>
<b>Synonyms</b>	≡ <i>Psora albescens</i> <i>Placodium albes</i> = <i>Lecanora galact</i>

Below the search results, there is a section titled 'Regionalised and Domain-specific Taxon Lists' with a description of the DWB REST Webservice for Taxon Lists. The text states: 'The DWB REST Webservice for Taxon Lists is part of a Diversity Workbench (DWB) services network. It is delivering basic information on taxon names in use, synonyms, classification and German vernacular names of a number of groups of animals, fungi and plants. The current focus is on domain-specific lists (checklists, taxon reference lists, red lists) from Germany under active curation by experts on taxonomy or floristics and faunistics. Each regionalised and domain-specific taxon list has its own history and objectives, is managed completely separately and has its own hierarchical classification. The DiversityTaxonNames (DTN) data resources accessed by the REST API may include additional taxon-related data useful, e. g., for regional nature conservation agencies and environmental projects. This information might be mobilised in a next step. For more information please refer to DTN\_Taxon\_Lists\_Services'.

Below this section, there is another section titled 'Regionalisierte und domän-spezifische Taxonlisten' with a description in German: 'Der DWB REST Webservice for Taxon Lists ist Teil eines Netzwerkes aus Diversity Workbench (DWB) Diensten. Er liefert Basisinformation zu anerkannten Taxonnamen, Synonymen, Klassifikationen und deutsche Volksnamen für eine Anzahl von Tier-, Pilz- und Pflanzengruppen.'

The screenshot also shows a smaller browser window in the foreground displaying the MELNET website, which features a banner with a green leaf and the text 'MELNET Home'.



# LIAS GSD – DiversityTaxonNames

The screenshot shows the 'Catalogue of Life' website interface. At the top, it displays 'Species 2000' and 'Catalogue of Life: 18th March 2015 indexing the world's known species'. The language menu is set to 'German'. The main content area is titled 'Details zur Datenbank' and features the LIAS logo. A 'Datenbank Qualitätskriterien' box shows: Umfang: Global, Vollständigkeit: 65%, and Vertrauenswürdigkeit der Checkliste: ★★★★★. The main data table includes the following entries:

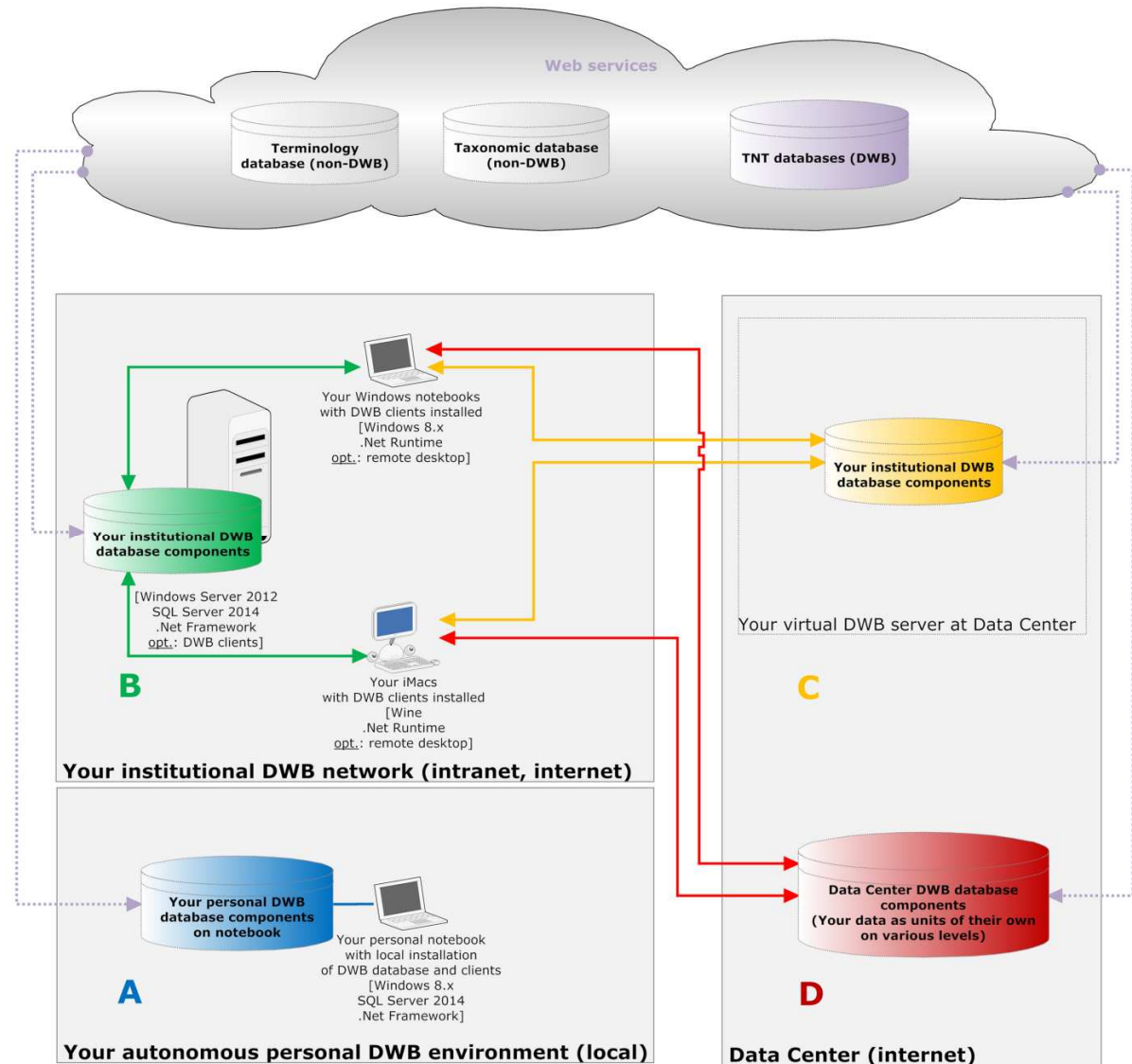
<b>Voller Name:</b>	A Global Information System for Lichenized and Non-Lichenized Ascomycetes
<b>Namensabkürzung:</b>	LIAS
<b>Version:</b>	Jan 2013
<b>Datum der Veröffentlichung:</b>	2013-01-08
<b>Autoren/Editoren:</b>	Rambold G. (lead editor); for detailed information see <a href="http://liaslight.lias.net/About/Impressum.html">http://liaslight.lias.net/About/Impressum.html</a> and <a href="http://liasnames.lias.net/About/Impressum.html">http://liasnames.lias.net/About/Impressum.html</a>
<b>Taxonomische Abdeckung:</b>	Eurotiomycetes - Pyrenulales, Verrucariales, Mycocaliciales Dothideomycetes - Arthopyrenia, Eopyrenula, Lichenothelia, Mycoporum, Leptorhaphis, Naetrocymbe, Tomasellia, Peridiothelia, Pseudopyrenula, Cyrtidula, Cystocoleus, Kirschsteiniothelia, Mycoglaena, Racodium Leotiomycetes - Thelocarpaceae, Vezdaeaceae Sordariomycetes - Sarcopyrenia
<b>Englischer Name für diese Gruppe:</b>	Lichens
<b>Anzahl von Arten:</b>	8,949
<b>Anzahl von innerartlichen Taxa:</b>	196
<b>Anzahl von Synonymen:</b>	7,283
<b>Anzahl von Vernakularnamen:</b>	1,829
<b>Gesamtzahl von Namen:</b>	18,257
<b>Zusammenfassung:</b>	LIAS is a multi-authored information system for the collection and distribution of descriptive and other biodiversity data on lichens and selected groups of non-lichenized ascomycetes. LIAS is a long-term designed project with the final goal to comprise global data – estimates for the total number of lichen species worldwide range between 13.500 and 20.000. As GSD for Lichens LIAS is delivering combined data from LIAS light at <a href="http://liaslight.lias.net">http://liaslight.lias.net</a> and LIAS names at <a href="http://liasnames.lias.net">http://liasnames.lias.net</a> .
<b>Organisation:</b>	LIAS, Botanische Staatssammlung München, Germany
<b>Website:</b>	<a href="http://www.lias.net">http://www.lias.net</a>

Navigation links: Zurück zur letzten Seite | Neue Suche

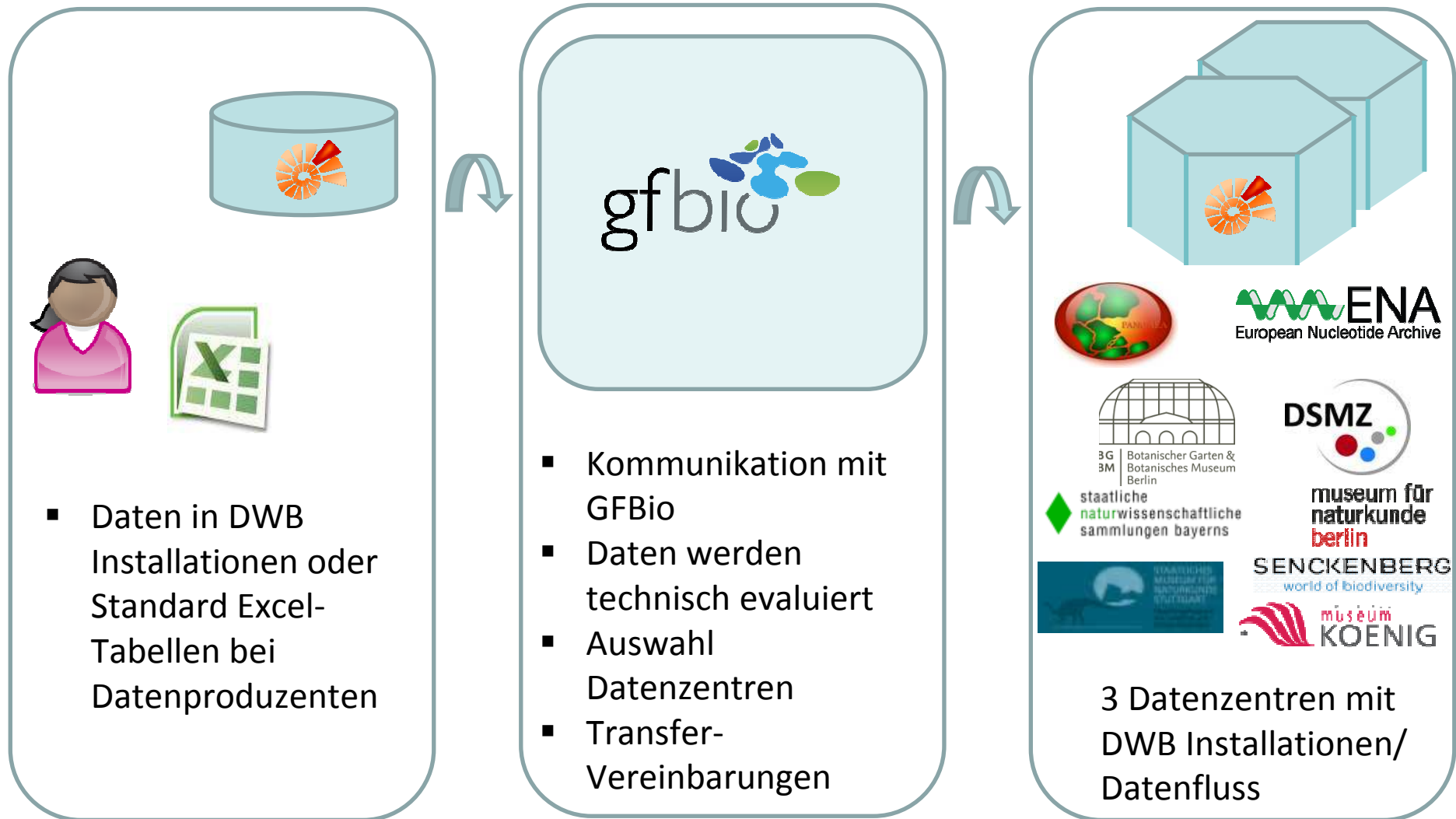
Annual Checklist Interface v1.8.1 r1397 Entwickelt von ETI Naturalis. Bitte beachten sie – diese Seite benutzt cookies. Wenn sie weiterhin diese Seite nutzen, nehmen wir an, dass Sie der Verwendung zustimmen.

# DWB – Alternativen der Installation

- Interoperabilität und Flexibilität
- TNT Cloud/ Server
- Installations-Alternativen A-D
  - Web-basiert
  - Stand-alone (A)



# Einsatz von DWB in GFBio



# Installation: Mobile Intranet Lösung

- Als Arbeitsumgebung zum Einsatz in Feldstationen ohne Internetzugang
- Als IT Trainingsumgebung für DWB Workshops an Orten mit unsicherer Stromversorgung

mehr unter [http://diversityworkbench.net/Portal/Mobile\\_intranet\\_solution\\_for\\_DWB](http://diversityworkbench.net/Portal/Mobile_intranet_solution_for_DWB)



# Danke

an alle Mitarbeiter, Interessenten und Anwender



www.snsb.info/People.html

snsb it center

HOME ABOUT US PEOPLE SERVICES WORKSHOPS

### People

<a href="#">Dr. Dagmar Triebel</a>	Head
<a href="#">Wolfgang Ahlmer*</a>	Data Scientist and Research Assistant
<a href="#">Dr. Konstanze Bensch*</a>	Research Scientist
<a href="#">Ina Leininger*</a>	Data Scientist and Research Assistant
<a href="#">Anton Link*</a>	Software Developer
<a href="#">Dieter Neubacher</a>	System Administrator and Software Developer
<a href="#">Dr. Andreas Plank*</a>	Research Scientist and Software Developer
<a href="#">Wolfgang Reichert*</a>	Software Developer
<a href="#">Georg Rollinger*</a>	Software Developer
<a href="#">Marcel Ruff*</a>	Data Scientist and Research Assistant
<a href="#">Veronica Sanz*</a>	Data Scientist and Research Assistant
<a href="#">Dr. Stefan Seifert*</a>	System Administrator and Software Developer
<a href="#">Tanja Weibullat*</a>	Data Scientist and Research Assistant
<a href="#">Dr. Markus Weiss</a>	Software Developer

Former staff

<a href="#">Jan Ingenhaag</a>	Research Assistant, Web Application Developer
<a href="#">Manfred Knick</a>	System Administrator and Software Developer
<a href="#">Asif Rashid Lakehsar</a>	Software Developer
<a href="#">Wiltrud Spiesberger</a>	Research Assistant, Web Application Developer

and associated

[Diversity Workbench](#) Co-workers

\* temporary employment

staatliche naturwissenschaftliche sammlungen bayerns

www.snsb.info/Services.html

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
- Data Management Workflows and Web Access for Collections and Occurrence Data
  - M
  - STAATSSAMMLUNG FÜR ANTHROPOLOGIE UND PALÄONTOLOGIE MUC
  - SAPM
  - IDES
  - BINHum
  - FLORA VON BAYERN
  - GRIF DE FORU & LICHENS
  - GRIF DE INVETERATES
  - GRIF DE VIT/DE
  - INSTITUT HERBARIUM UNIVERSITÄT WÜRZBURG
- Species Information Systems
  - deEMY
  - LIAS
  - MELNET
  - Myxomycota Germany
- Biodiversity Information – Platforms and Standards
  - mod-co
  - THE MYCOLOGY .NET
  - MYCO PHYLOGENY
  - THE PHYCOLOGY .NET
  - FLORA VON BAYERN
- Literature Catalogues and Bibliographies
  - DALI
  - IndExs
  - IndexMaps
  - MyxLit
- Data Management Services and primary IT support for Major Research Infrastructure Projects and Data Portals
  - BioWikifarm
  - Catalogue of Life
  - GBIF
  - GBOL
  - gfbio
  - IAL
  - STOR

