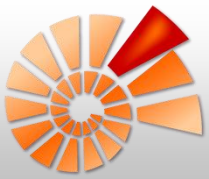


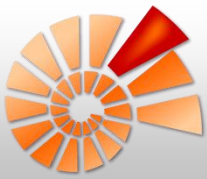
Mobilisierung von organismenbezogenen Forschungsdaten mittels Schnittstellen der *Diversity Workbench*

Dagmar Triebel



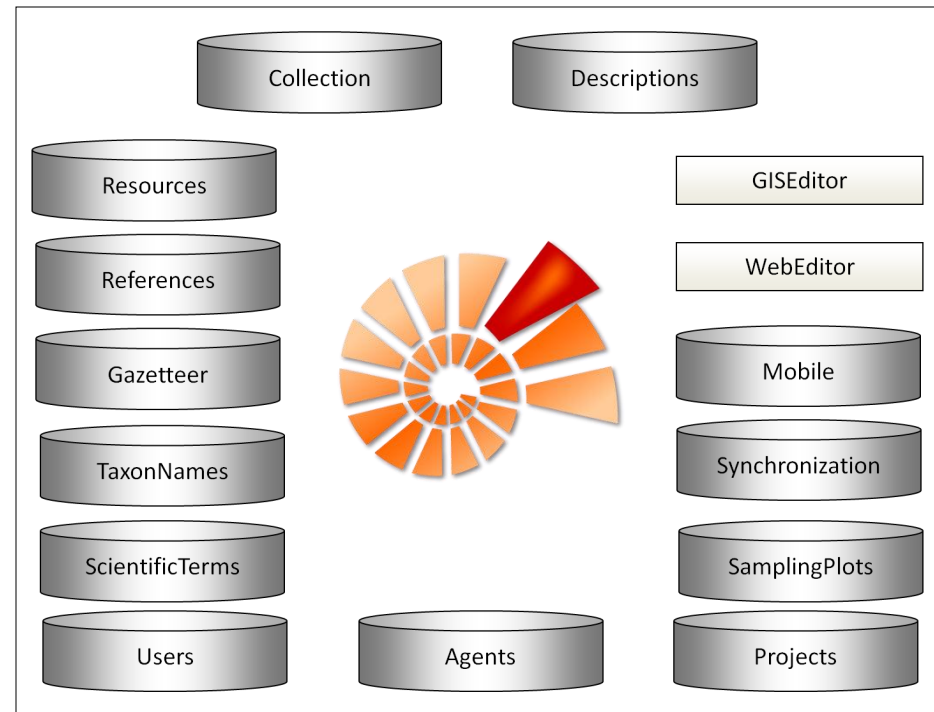
DWB – Datenmobilisierung

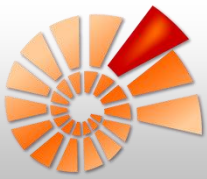
1. DWB Design
2. Schnittstellen zum Datenimport
3. Datenmanagement – VFU
4. Mobile VFU
5. Datenexport: nationale und internationale Netzwerke



Diversity Workbench Framework

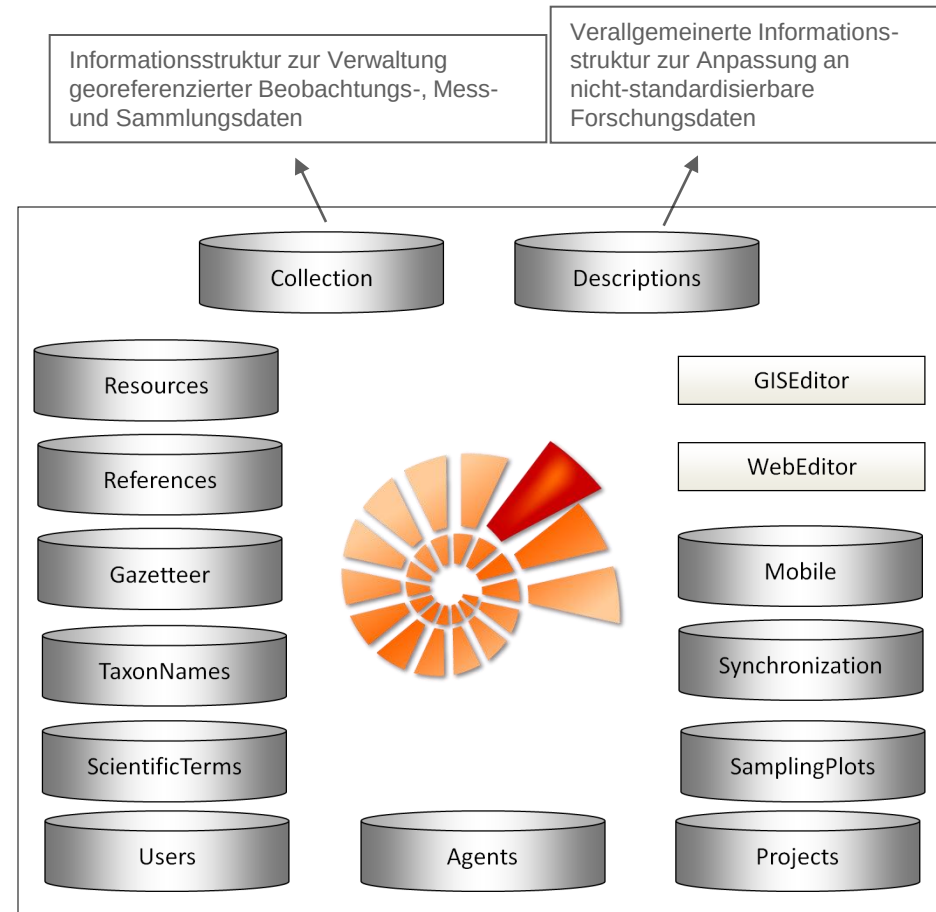
- Datenhaltungs- und Managementsystem
- Business Solution geeignet für Datenzentren
- Direkte Interoperabilität aller Komponenten
- Virtuelle Forschungsumgebung
- Im Einsatz für die Disziplinen
 - Taxonomie und Chemotaxonomie
 - (Molekulare) Ökologie und Organismische Interaktionen
 - Objektmanagement (Sammlungen)
 - Artenmonitoring
 - u. a. m.
- Datensätze aus allen organismischen Großgruppen Pflanzen, Algen, Pilze, Wirbeltiere, Insekten, andere Wirbellose, Fossilien

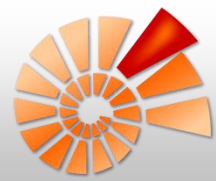




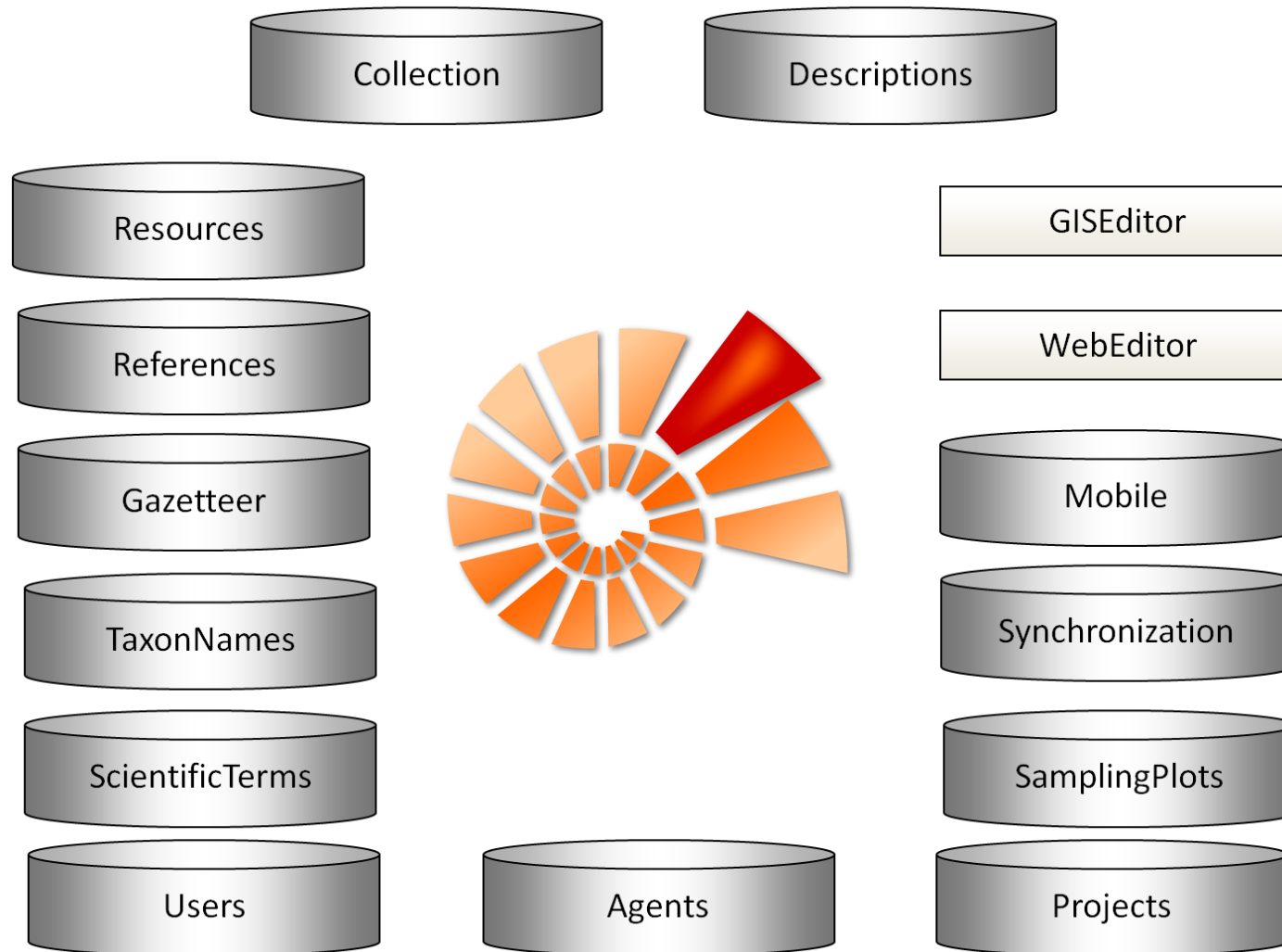
Diversity Workbench Framework

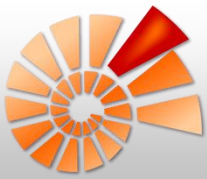
- Seit 1999 Modellierung (ER-Diagramme),
und Implementierung
- Datenbank-Komponenten („Module“) 14
- *Tabellen 233
- *Datenelemente/-attribute 1.902
- *Relationen-Tabellen 251
- Webschnittstellen/Clients 28
- *Quellcode-Zeilen > 706.567
(in 1.261 Quellcode-Files) (*Stand 12.2011)
- Seit 2007 Workshops für Anwender 24
 - Teilnehmer 207
 - Institutionen 45





DWB – Datendomains und Modularität



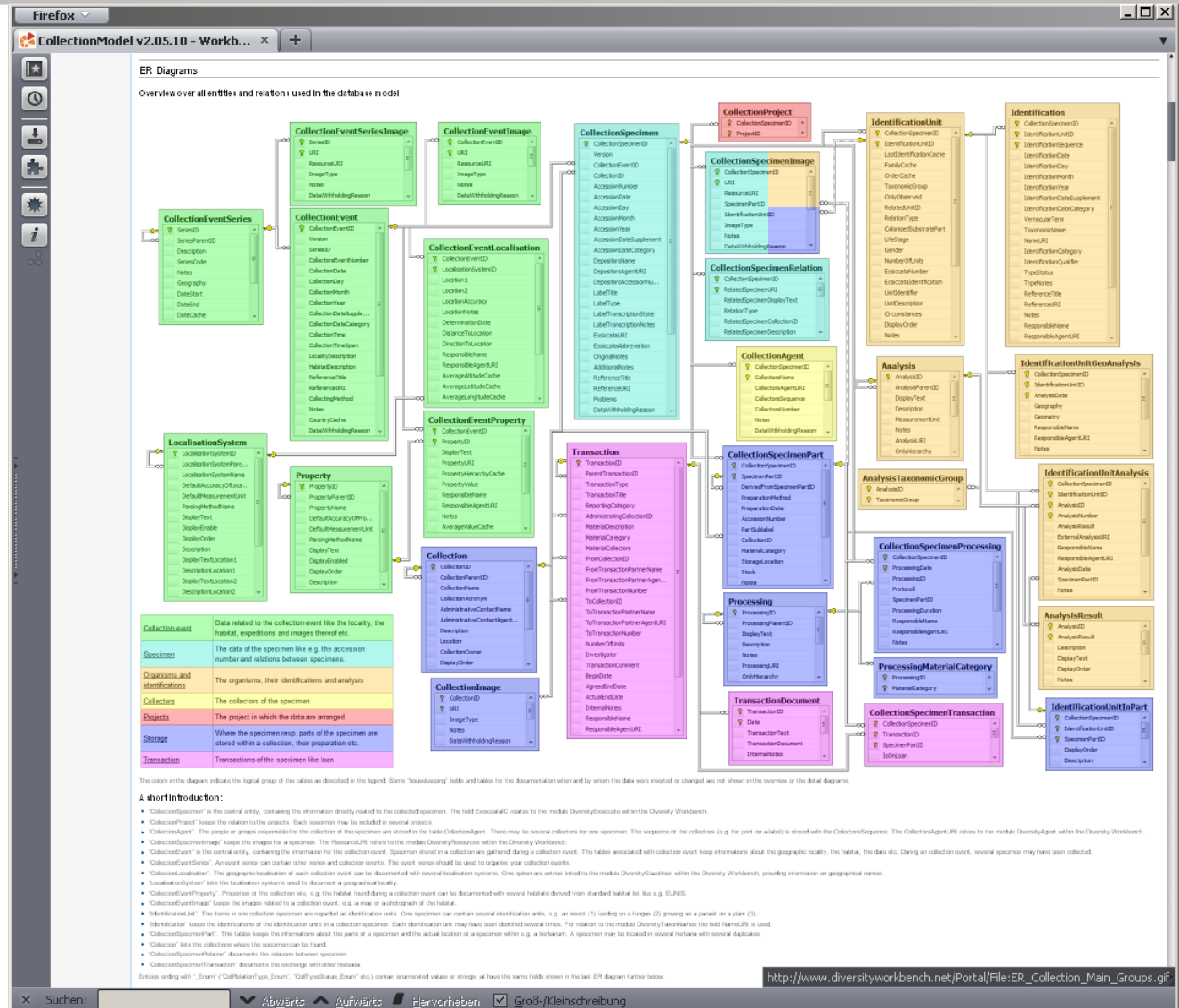


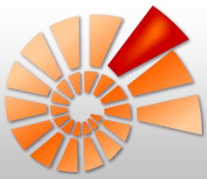
DiversityCollection – ER Diagramm

Publikation von
Informations-
modellen unter

Creative
Commons
License

www.diversityworkbench.net





DWB – Work in progress

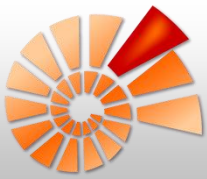
3 Institutionen mit
Herausgebern

6 Entwickler

Download Center

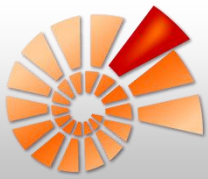
Software unter
GPL Lizenz

The screenshot shows the DiversityWorkbench website. The browser window has a single tab titled 'DiversityWorkbench - Workbench'. The website features a sidebar on the left with a navigation menu including 'Main page', 'Information models', 'Software', 'All pages', 'Help', and a 'Toolbox' section with links like 'What links here', 'Related changes', 'Upload file', 'Special pages', 'Permanent link', and 'Cite this page'. The main content area is titled 'DiversityWorkbench' and includes a 'Page' tab, a 'Discussion' tab, and a search bar. Below the title is a 'Contents' section with a list of links: '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', and '7 Ongoing discussions'. The main text area contains a paragraph about the project's goals and a list of partners: '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'. Below this is a section titled 'Diversity Workbench – Software tools for building and accessing biodiversity information' followed by a detailed description of the project's history and goals. The page also includes sections for 'Diversity Workbench job announcements', 'Diversity Workbench related workshops', 'Diversity Workbench information models', 'Diversity Workbench software', 'General information', and 'Ongoing discussions'.



DWB – Datenmobilisierung

1. DWB Design
2. Schnittstellen zum Datenimport
3. Datenmanagement – VFU
4. Mobile VFU
5. Datenexport: nationale und internationale Netzwerke



DiversityTaxonNames – Importschnittstelle

Import taxonomic names

Encoding: Unicode Source file: C:\Daten\ DiversityWorkbench 3\ DiversityTaxonNames\bin\Debug_Import Test.txt

Project: LAPInames Taxon list:

☒ Link taxa to genera if present ☒ Import all names as accepted

☐ No note ☐ replace note ☒ or add to note: New names

Similar name	Import name
Aethalopsis stercoformis Zopf	☐
Amaurochaete atra (Alb. & Schwein.) Rostaf.	☐
Amaurochaete comata G. Lister & Brändza	☐
Amaurochaete cribrosa (Fr.) T. Macbr.	☐
Centaurea balsanita ssp. kermanensis (Bomm.) Wageritz	☒
Chilotrachium diffusum (G. Forst.) Kuntze	☐

Identical name Similar name

DiversityTaxonNames, Database: DiversityTaxonNames_Fungi v. 3.0.1.5

Connection Query Lists References Data Help

Taxon: Biatora sylvana Korb. ID: 1036334 Vers.: 3 Ignore: Withhold_reason: Revision:

Taxonomic name: Biatora sylvana Species epithet: Korb. Aut.: Bas. auth.: Comb. auth.: Publ. auth.: Sanct.:

Rank: species Ori. orthogr.: Ana-/Teleomorph: Notes: Is hybrid:

Nomenclature

Code: Status: Creation type: Comment:

Taxonomic reference / Protologue

Syst. Lich. Germ. Volume: 200 Issue: Pages: Details: D. M. Y. of P. Suppl. 1855

Use ref.: on P.: Protol.: X

Hierarchy

Sup. tax.: Biatora Fr. Ref.: Det.: X

Ascomycota Caval.-Sm. Pezizomycotina O. E. Erikss. & Winka Lecanoromycetes Lecanoromycetidae P. M. Kirk, P. F. Cannon, J. C. David & Lecanorales Nannf. Ramalinaceae C. Agardh G. Biatora Fr. S. Biatora sylvana Korb.

Query conditions

Project: LAPInames

Taxonomic name

Name: ~ Biatora Genus: ~ Rank: ~ Status: ~

Authors

Bas. auth.: ~ Comb. aut.: ~

Revision

Level: ~

Synonymy overview External data sources

Lecania hyalina (Fr.) R. Sant. in Santesson, Moberg, Nordin, Tensberg & Vitikainen, Lichen-Fomig. und Lichenicolous Fungi of Fennoscandia: 145 (2004)

- Biatora hyalina Fr., Nov. Sched. Critic. Lich.: 38 (1826)
- Lecidea globulosa Flörke, Deutschl. Flecht. 10: 1 (1821)
- Biatora globulosa (Flörke) Fr., Summa veg. Scand.: 1: 112 (1846)
- Catillaria globulosa (Flörke) Th. Fr., Lich. Scand. (Uppsala): 1: 575 (1874)
- Bacidia globulosa (Flörke) Hafelner & V. Wirth, Die Flechten Baden-Württembergs, Verbreitungsatlas (Stuttgart): 511 (1987)
- Lecania globulosa (Flörke) van den Boom & Sérus., Lejeunia, n. s. 162: 34 (1999); nom. illeg.
- Biatora sylvana Korb., Syst. Lich. Germ.: 200 (1855)

Synonymy Taxon lists Specimen

Name is a heterotypic synonym

Based on: Biatora sylvana Korb. X

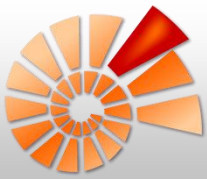
Lecania hyalina (Fr.) R. Sant. Ignore Uncert

Concept suffix: Syn. type: heteroty

Concept notes: Detail

Reference: according to HH Database inserted under Catillaria globulosa (following Printzen 1995)

Typist notes:



LIAS names – Webschnittstelle

The image displays three overlapping screenshots of the LIAS names web interface, showing the search process and results.

Left Screenshot (QUERY tab): The search form shows "Name" as "Lichen" and "Epithet" as empty. The "Include non-nomenclatural names" checkbox is checked. The "Submit" button is visible.

Middle Screenshot (WEB SERVICE tab): The search form shows "Name" as "Lichen" and "Epithet" as empty. The "Include non-nomenclatural names" checkbox is checked. The "Submit" button is visible.

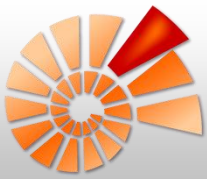
Right Screenshot (Search Result): The search result for "Lichen albocaerulescens Wulfen" is displayed. The Name ID is 1027523. The Accepted Name is *Porpidia albocaerulescens* (Wulfen) Hertel & Knoph, in Hertel, Beih. Nova Hedwigia 79: 433 (1984). The Synonyms list includes *Lichen albocaerulescens* Wulfen, *Lecidea albocaerulescens* (Wulfen) Ach., *Huilia albocaerulescens* (Wulfen) Hertel, *Lecidea pruinososa* Ach., and *Lecidea subnubila* Stirt. The Classification is Ascomycota Caval.-Sm., Pezizomycotina O. E. Erikss. & Winka, Lecanoromycetes, Lecanoromycetidae P. M. Kirk, P. F. Cannon, J. C. David & Stalpers ex Miqdl., Lutzoni & Lumbsch, Lecideaceae Chevall., Porpidia Körb., and *Porpidia albocaerulescens* (Wulfen) Hertel & Knoph.



→ DC-IW
frei
konfigurierbar







DiversityCollection – Import Wizard

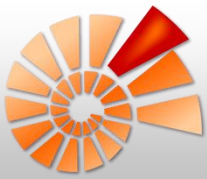
Als Prototyp
im Einsatz:

GBIF-D

GBOL

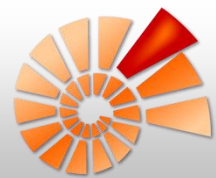
IDES

BiNHum

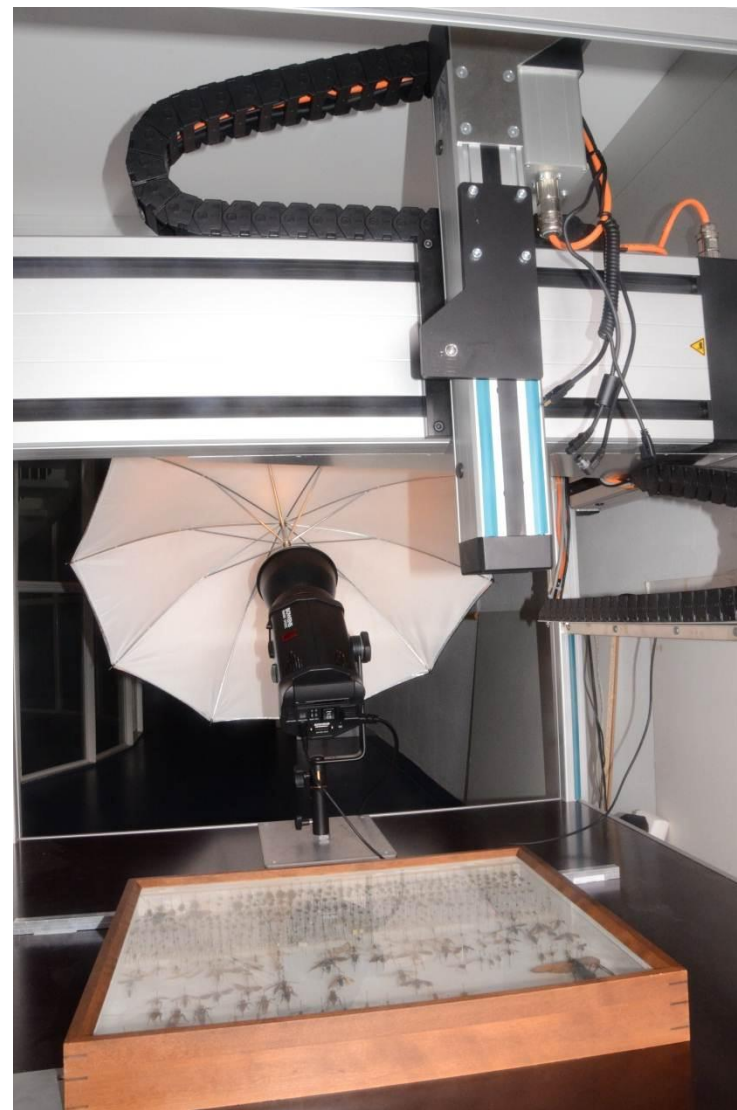
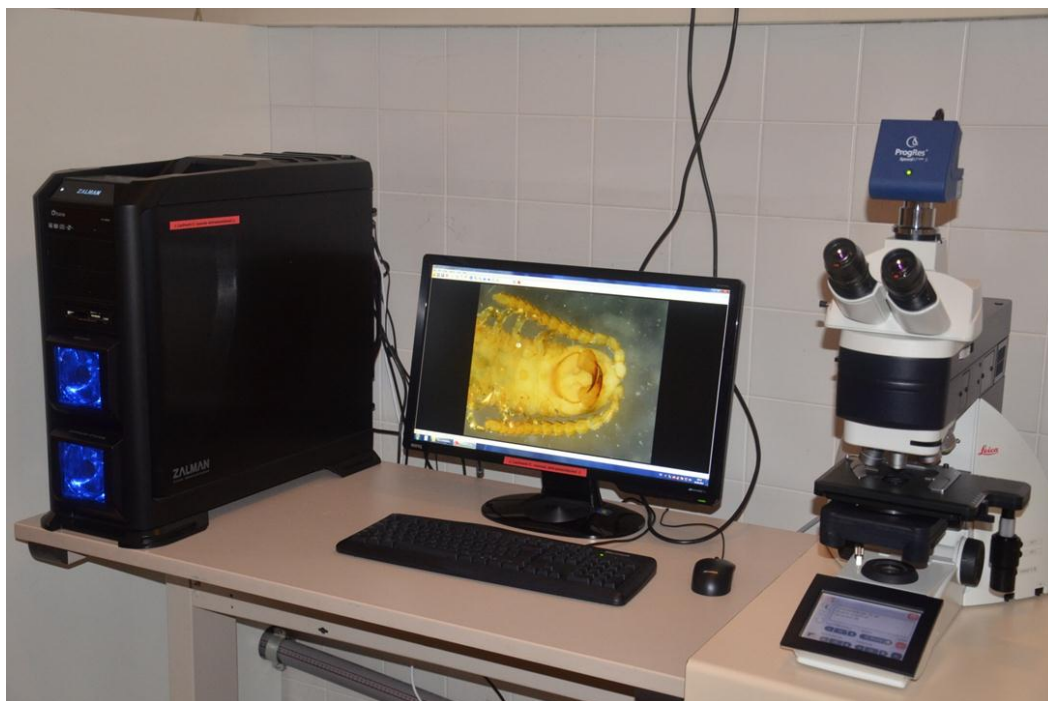


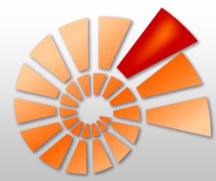
DWB – Datenmobilisierung

1. DWB Design
2. Schnittstellen zum Datenimport
3. Datenmanagement – VFU
4. Mobile VFU
5. Datenexport: nationale und internationale Netzwerke



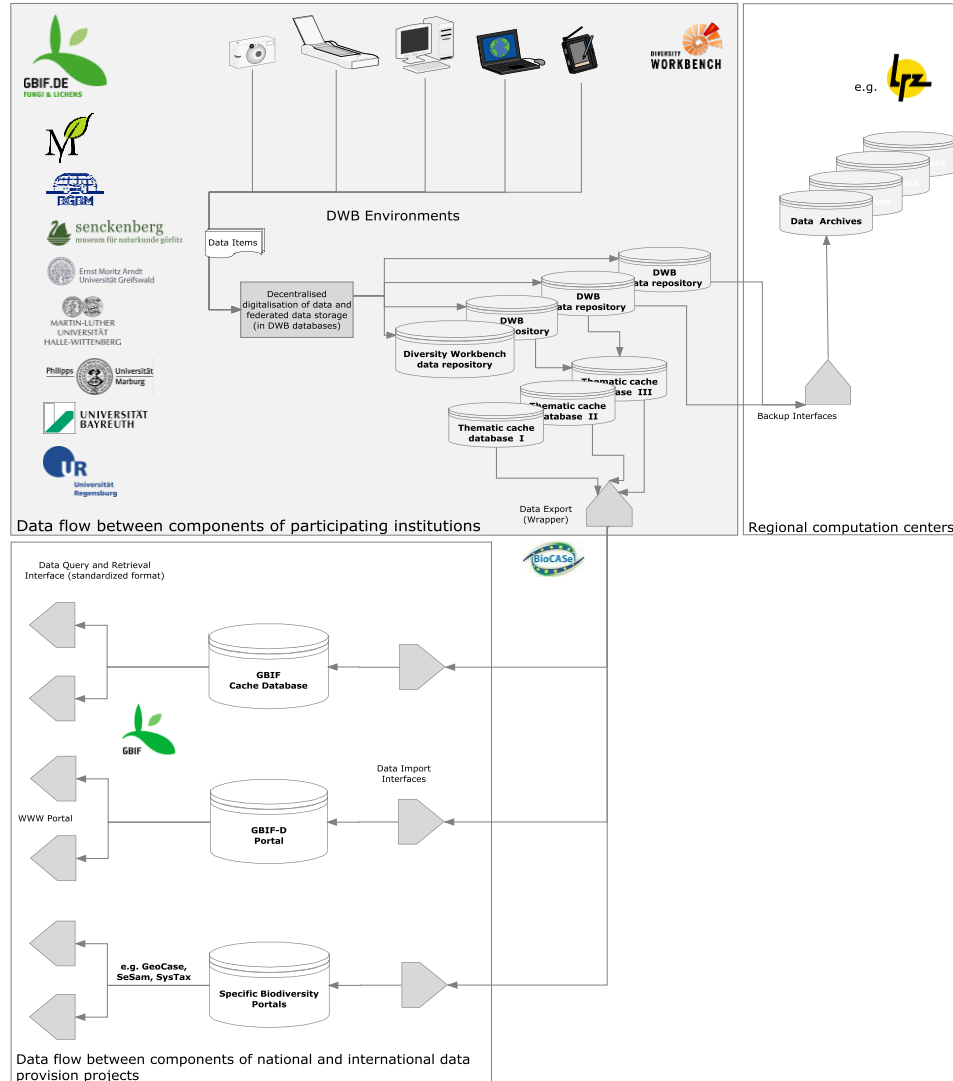
Arbeitsstationen – Multimedia-Daten

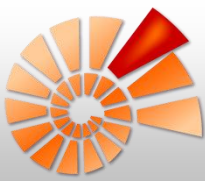




Datenmanagement

Multimedia-Daten und Textinformation





DWB – Rich Clients, konfigurierbar

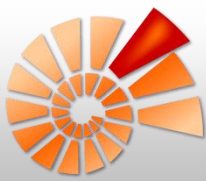
Three screenshots of the DWB (Diversity Web) Rich Clients interface are shown, demonstrating its configurability and data management capabilities.

Top Left: DiversityCollection v.3.0.3.6
This window displays a list of specimens, including a specimen image of *Ceratotherium simum* (Burchell, 1817). The interface includes a sidebar for selecting displayed fields (e.g., Collection event, Location of the collection site) and a table of specimens with columns for Accession number, Collection year, Country, and Locality.

Top Right: DiversityScientificTerms v.3.0.0.0
This window shows a hierarchical tree structure for scientific terms, including a list of terms (e.g., Givetan, Givetum, Gorstian) and a table of terms with columns for Term, Chronostratigraphy, and ID.

Bottom Left: DiversityAgents v.3.0.0.3
This window displays a list of agents, including a table of agents with columns for Agent, Title, Given name, Postfix, Prefix, Inherited name, and Role.

Bottom Right: DiversityTaxonNames, Database: DiversityTaxonNames.Fungi v.3.0.1.5
This window shows the taxonomic details for *Biatora sylvana* Korb. It includes a table of taxonomic names, a list of synonyms, and a table of taxonomic references. The interface is highly configurable, allowing users to select different views and filters.



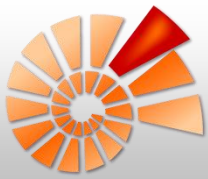
Datenmanagement – Einbeziehung von Webdiensten

The screenshot displays the DiversityCollection v. 3.0.4.4 interface, which is used for managing specimen data. The main window shows a list of specimens (M-0140350 to M-0140360) and a detailed view of specimen M-0140357. The specimen details include a photograph of the specimen, a description of the specimen (On face of pine boards and boxes lying on the ground), and a list of associated data (1914/10/6 Parrah, Chihuahua, Mexico; Altitude (mNN): 1450 m NN; 1206.55 m E of Baticada, Chihuahua, Mexico; Coord. WGS84 Long. (EW): -105.221557617 Lat. (NS): 2; M-0140357; fungus; 1/16/2007: BSMgrossebrcoll - The Fungal Collection).

On the right, a window titled "Index Fungorum: www.indexfungorum.org" is open, showing the query results for the specimen. The query results list 50 records, with the first few being: Antrodiella brunneimontana (Corner) T. Hatt., Antrodiella canadensis (Overh.) Niemelä, Antrodiella canadensis (Overh.) Niemelä, Antrodiella cinnamomea turr. & Ryvarden, Antrodiella citrea (Berk.) Ryvarden, Antrodiella citrinella Niemelä & Ryvarden, Antrodiella dentipora Ryvarden & Iturr., Antrodiella diffruens (Corner) T. Hatt., Antrodiella duracina (Pat.) I. Lindblad & Ryvarden, Antrodiella ellipsospora (Pilát) Niemelä & Miettinen, Antrodiella faginea Vampola & Pouzar, Antrodiella farinacea Vampola & Pouzar, Antrodiella fissiliformis (Pilát) Glib. & Ryvarden, Antrodiella flava (Corner) T. Hatt., Antrodiella flavitubus (Corner) T. Hatt., Antrodiella foliaceodentata (Nicol.) Glib. & Ryvarden, Antrodiella formosana T.T. Chang & W.N. Chou, Antrodiella fragrans (A. David & Torti) A. David & Torti, Antrodiella genistae (Bourdot & Galzin) A. David, Antrodiella globospora Núñez & Ryvarden, Antrodiella gypsea (Yasuda) T. Hatt. & Ryvarden, Antrodiella heritiae (Corner) T. Hatt., Antrodiella hoehnelli (Bres.) Niemelä, Antrodiella hunua (G. Cunn.) Ryvarden, Antrodiella hydrophila (Berk. & M.A. Curtis) Ryvarden, Antrodiella incrustans (Berk. & M.A. Curtis) Ryvarden, and Antrodiella induratus (Berk.) Ryvarden.

The Index Fungorum window also shows a table of specimen details, including the Name, Order, Family, Hierarchy, NAME OF FUNGUS, AUTHORS, PUBLISHED LIST REFERENCE, SPECIFIC EPITHET, INFRASPECIFIC RANK, VOLUME, PART, PAGE, YEAR OF PUBLICATION, RECORD NUMBER, and BASIONYM RECORD NUMBER. The specimen details for Antrodiella incrustans (Berk. & M.A. Curtis) Ryvarden are highlighted.

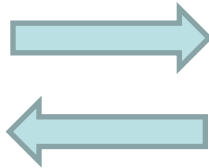
At the bottom of the Index Fungorum window, there is a section for "Record Details" which includes the specimen name, basionym, and citations in published lists or literature.



Datenmanagement von beschreibenden und Messdaten

Biodiversity
Information
Standards
TDWG

DELTA
und
SDD



XML Export & Import

Export to SDD | Import from SDD

Name of SDD file: SNSB_GeoEcology_Project_UBT_soils_2012-07-01

Available projects in current database:

1	SNSB_GeoEcology
---	-----------------

Select All
Deselect All

(Enter a filename for the export file - existing files will be overwritten! - and select one or several existing projects from the list of available projects)

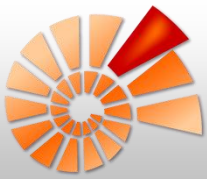
☒ Short ID values
☐ Debug ID values

Location of schema file: <http://rs.tdwg.org/UBIF/2006/Schema/1.1/>
Schema: may be set to local file; no validation if empty

☐ Multi-file xml (linked through entities)

Start Close





GIS-Funktionalitäten

Diversity GIS Editor 2.0.0.1

WpfsamplingPlotPage

ID: Barbing-01 Text: Barbing

DiversityCollection, Database: DiversityCollection_Training v. 3.0.4.7

Connection Grid Query Data Administration Help

Context: General

Specimen Event Version Withhold.

ID: 3188 45035 1 2

Distribution GIS - View Symbol: Size x 1.0 1.0 Add Use zoom level: 10

Query results 1 - 7

M-0041193
M-0041342
M-0041346
M-0042683
M-0042695
M-0042890
M-0049221

ordnen nach: Acc. Nr.

Suchkriterien Projects

Project = BSMi

Collection specimen

Acc. Nr. sp. ~
Depositor ~
Depos. Ac. ~
Orig. notes ~
Collection ~

Collection event

Coll. Date ~
Locality ~

Localisation of the collection

Geography O
Place ~
Gazetteer ~
TK25 ~
Quadrant ~

Organism

Last ident. ~
Tax. group ~

Conversion:

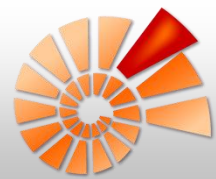
19

1995/7/26 Deutschland, Bayern: Berchtesgader Land, Nationalpark, Funtenseetaum, Gipfelbereich, 2500-2578 msm, auf Erde

Funtenseetaum, Germany

M-0041193

M-0041193
Cercidospora verrucosaria (Linds.) Arnold
Cercidospora verrucosaria (Linds.) Arnold



Datenmanagement – Verbundprojekte

Firefox

DiversityWebEditor



DiversityWebEditor

?

Dateneingabe

Einstellungen

Login

 Fundort anlegen:

Neu

Kopieren

Löschen

 Sammelobjekt anlegen:

Neu

Kopieren

Löschen

Daten anzeigen

Nord

Suchen

Von

<dd.MM.yyyy>

15

Bis

<dd.MM.yyyy>

15

Max. Anzahl Treffer

100

Fundortverzeichnis

▷ Svalbard, Spitsbergen, Norder

▷ Frankreich, dép. Ariège, Pyren

◀ Bayern, Oberbayern, Ammerg.

||||| M-0041993

▷ Buche im Wald bei Brandenbei

▷ W-Spitzbergen, Isfjord-Gebiet

▷ Felsköpfe bei 900 m herausrag

▷ Österreich, Tirol, Kitzbüheler A

▷ Spanien: Prov. Zaragoza, Sien

◀ Nordtirol: Gschnitztal, Martei

||||| M-0041332

▷ Italienische Alpen. Val Cison

 Ortsangaben

ok

Fundortbeschreibung

Land

Region

Datum

Sammelmethode

Breiten

☐

Nordtirol: Gschnitztal, Marteier Tal bei Grelnitz, auf Kalk

Austria

Gschnitz, Tirol, Austria

09.03.1919

 Sammelobjekt

ok

GBOL-Nr.

Feldnummer

Sammler

Anzahl Individuen

Entwicklungsstadium

Geschlecht

☒

M-0041332

Wettstein, F. von

 Bestimmung

ok

Taxon-Name

Familie

Taxon-Hierarchie

☐

Dacampia hookeri (Borrer) A. Massal.

Dacampiaceae

Ascomycota | Pezizomycotina | Dothideomycetes | Dacampiaceae | Dacampia

 Probe

ok

Fixierungsmethode

Sammlungs-Nr.

Platte oder Box

Position in Platte

Gewebetyp

Gewebemenge

☐

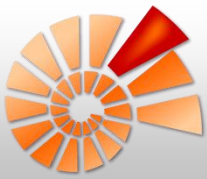
M | M-Fungi

Dacampia hookeri (Borrer) A. Massal.

Allgemeine Bemerkungen (nur für Projektbeteiligte)

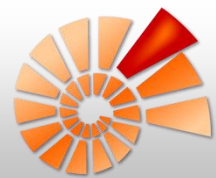
Staatliche Naturwissenschaftliche Sammlungen Bayerns • Zentrum für IT-Entwicklungen





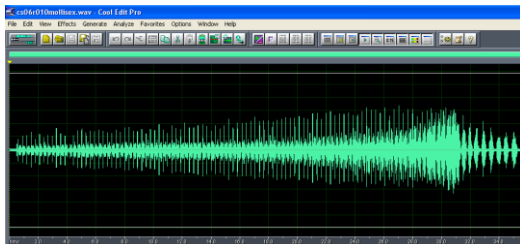
DWB – Datenmobilisierung

1. DWB Design
2. Schnittstellen zum Datenimport
3. Datenmanagement – VFU
- 4. Mobile VFU**
5. Datenexport: nationale und internationale Netzwerke



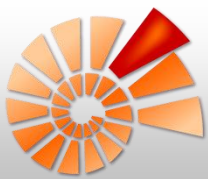
DiversityMobile für Smartphone

DWB VFU Gelände, offline, Datentransfer
zu stationärer DWB Umgebung



Daten und Metadaten
(GPS Record, Lokalität, Habitat ...)



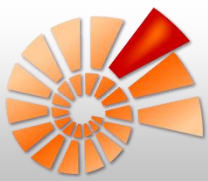


Mobiles Datenmanagement – Tablet PC

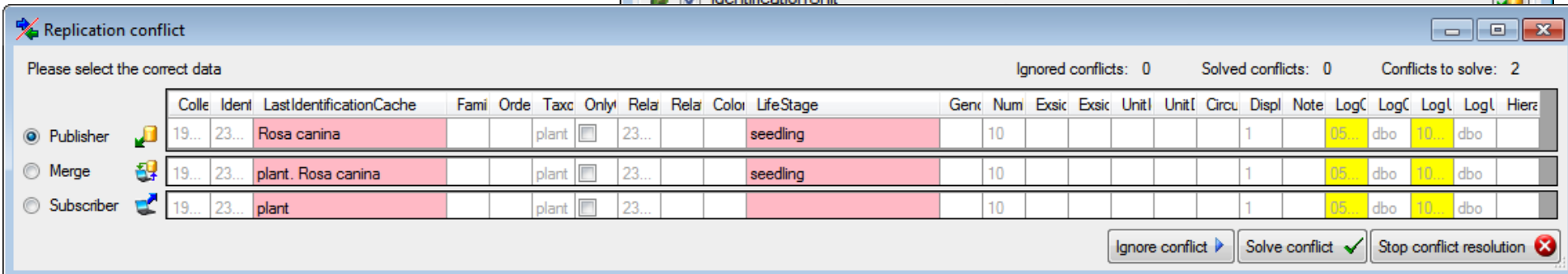
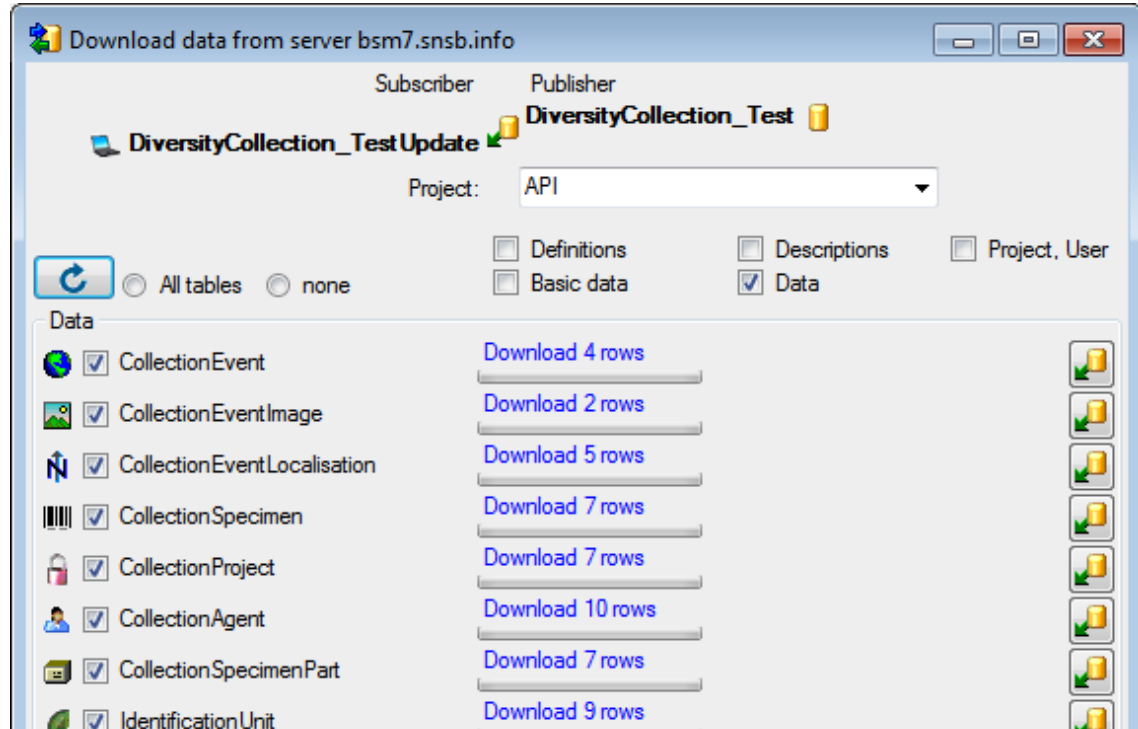


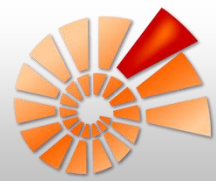
DWB VFU im Gelände, offline,
Replikation





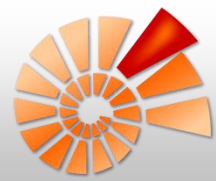
Datenreplikation zwischen VFUs der DWB



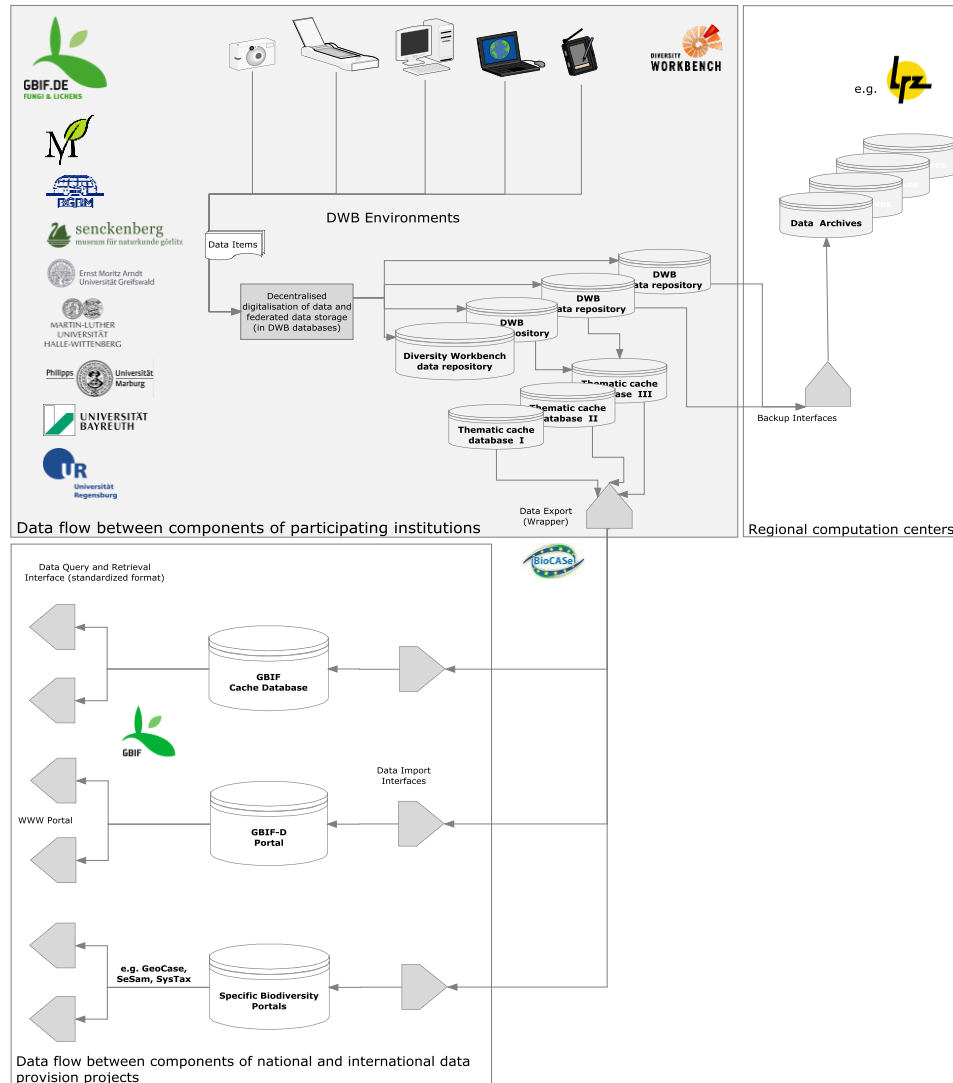


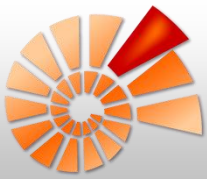
DWB – Datenmobilisierung

1. DWB Design
2. Schnittstellen zum Datenimport
3. Datenmanagement – VFU
4. Mobile VFU
5. Datenexport: nationale und internationale Netzwerke



Anwendung der DWB im GBIF-Kontext





Datentransfer für GBIF International

```
<abcd:DataSets xmlns:abcd="http://www.tdwg.org/schemas/abcd/2.06">
  <abcd:DataSet>
    <abcd:TechnicalContacts>
      <abcd:TechnicalContact>
        <abcd:Name>Dieter Neubacher</abcd:Name>
        <abcd:Email>neubacher@bsm.mwn.de</abcd:Email>
      </abcd:TechnicalContact>
    </abcd:TechnicalContacts>
    <abcd:ContentContacts>
      <abcd:ContentContact>
        <abcd:Name>Dagmar Triebel</abcd:Name>
        <abcd:Email>triebel@bsm.mwn.de</abcd:Email>
      </abcd:ContentContact>
    </abcd:ContentContacts>
    <abcd:Metadata>
      <abcd:Description>
        <abcd:Representation abcd:language="en">
          <abcd:Title>The Fungal Collection at the Botanische Staatssammlung München</abcd:Title>
          <abcd:Details>http://www.botanischestaatssammlung.de/DatabaseClients/BSMfungicoll/About.html</abcd:Details>
          <abcd:URI>http://www.botanischestaatssammlung.de/DatabaseClients/BSMfungicoll/About.html</abcd:URI>
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                <abcd:FullName>Dagmar Triebel</abcd:FullName>
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              <abcd:Role>Database curator</abcd:Role>
            </abcd:Roles>
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    </abcd:Metadata>
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</abcd:DataSets>
```

xml

ABCD
→
Schema

GBIF-D Project

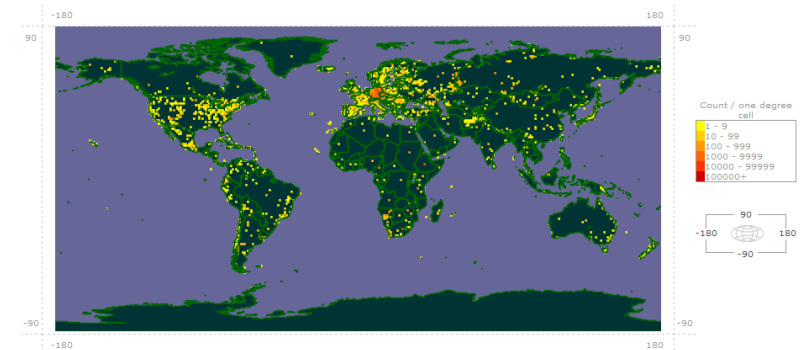


Data Publisher: Staatliche Naturwissenschaftliche Sammlungen Bayerns

Actions for Staatliche Naturwissenschaftliche Sammlungen Bayerns

Explore: Occurrences
Download: Darwin Core records One-degree cell density overlay for Google Earth Placemarks for Google Earth (limit 10,000)

Occurrence overview

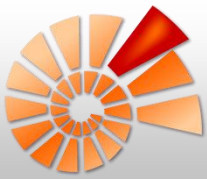


Beta: GBIF Open Geospatial Consortium services
This map only shows records with coordinates (326.962 records from a total of 416.946 records).
Disclaimer: Maps depict density of data registered within the GBIF network index and not necessarily true species occurrence density gradients. It includes records from all datasets shared by this data publisher.

Indexed data

Datasets:	27
Occurrences records indexed:	416.946
Occurrences with coordinates:	326.962





Datentransfer: JSTOR Plant Science

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<?xml version="1.0" encoding="utf-8" ?>
- <DataSet xsi:noNamespaceSchemaLocation="http://plants.jstor.org/XSD/AfricanTypesv2.xsd" xmlns:xsi="http://www
  <InstitutionCode>M</InstitutionCode>
  <InstitutionName>Botanische Staatssammlung München, München</InstitutionName>
  <DateSupplied>2012-03-15</DateSupplied>
  <PersonName>Schubert, Konstanze (München)</PersonName>
- <Unit>
  <UnitID>M0012279</UnitID>
  <DateLastModified>2012-02-24</DateLastModified>
- <Identification StoredUnderName="true">
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  <Author>(Vain.) R. C. Harris</Author>
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- <IdentificationDate>
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  <CollectorNumber>s.n.</CollectorNumber>
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  <CollectionDate>
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  <Unit>
  <UnitID>M0012294</UnitID>
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- <Identification StoredUnderName="true">
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  <Genus>Asterothyrium</Genus>
  <Species>argenteum</Species>
  <Author>Müll. Arg.</Author>
  <Identifier>Hertel, H.</Identifier>
- <IdentificationDate>
  <StartDay>15</StartDay>
  <StartMonth>01</StartMonth>
```

xml

GPI



Schema



JSTOR PLANT SCIENCE

Improve Plant

Explore Content By Map

Map data may not be available for all objects.

1 4.478

LOCATION DENSITY

20,301 Results | Sorted by Taxonomy | 20 per page

<< Previous | Page 1 of 1016 | Next >> | Go to page 1

Abies firma

Links to BHL | Links to JSTOR

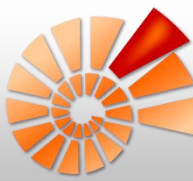
Lectotype of *Abies bifida* Siebold & Zucc. family PINACEAE

Collector Siebold, P.F. von, #s.n.
Collection date 1842
Country Japan
Herbarium M, MO120952

Lectotype of *Abies firma* Siebold & Zucc. family PINACEAE

Collector Siebold, P.F. von, #s.n.
Collection date Not on Sheet
Country Japan
Herbarium M, MO120955

Global Plants Initiative



Export im AC-Format für Catalogue of Life

2 „Global Species Databases“



Screenshot of the DiversityTaxonNames database interface showing taxonomic data for *Biatora sylvana* Korb. The interface includes fields for taxonomic name, species epithet, author, and rank. Below the form is a table of taxonomic data with columns for ID, Class, Order, Family, Genus, Species, Author, and AdditionalData. The table lists various species of *Biatora* and their associated data.

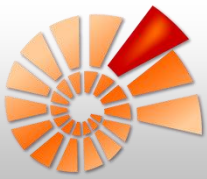
ID	Class	Order	Family	Genus	Species	Author	AdditionalData
1000000	Ascomycota	Ostropales	Stictiaceae	Albosordella	calata	Dobson & Poelt	Lichen species with LiSight item: 2
1000001	Ascomycota	Ostropales	Stictiaceae	Albosordella	delutula	(Nyl.) Coppins & H. Killas	Lichen species with LiSight item: 3
1000002	Ascomycota	Ostropales	Stictiaceae	Albosordella	ignicola	Vilka & Poelt	Lichen species with LiSight item: 4
1000003	Ascomycota	Ostropales	Stictiaceae	Albosordella	juvula	Vilka & Vavret	Lichen species with LiSight item: 5
1000004	Ascomycota	Ostropales	Stictiaceae	Albosordella	sparganum	Vilka & Poelt	Lichen species with LiSight item: 6
1000005	Ascomycota	Ostropales	Stictiaceae	Albosordella	trivialis	(Vilka ex Tuck.) Vilka	Lichen species with LiSight item: 7
1000006	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	(Nyl.) Th. Fr.	Lichen species with LiSight item: 20
1000007	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	Anzi	Lichen species with LiSight item: 25
1000008	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	H. Magn.	Lichen species with LiSight item: 8622
1000009	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	(Ach.) A. Massal.	Lichen species with LiSight item: 26
1000010	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	(Tuck.) H. Magn.	Lichen species with LiSight item: 7596
1000011	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	H. Magn.	Lichen species with LiSight item: 32
1000012	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	H. Magn.	Lichen species with LiSight item: 33
1000013	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	H. Magn.	Lichen species with LiSight item: 7597
1000014	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	H. Magn.	Lichen species with LiSight item: 41
1000015	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	H. Magn.	Lichen species with LiSight item: 42
1000016	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	H. Magn.	Lichen species with LiSight item: 7602
1000017	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	(Dufour) Hue	Lichen species with LiSight item: 45
1000018	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	H. Magn.	Lichen species with LiSight item: 46
1000019	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	Th. Fr.	Lichen species with LiSight item: 47
1000020	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	H. Magn.	Lichen species with LiSight item: 49
1000021	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	(Hepp) A. Massal. ex Bagl.	Lichen species with LiSight item: 55
1000022	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	H. Magn.	Lichen species with LiSight item: 7604
1000023	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	H. Magn.	Lichen species with LiSight item: 60
1000024	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	(Dufour) Hue	Lichen species with LiSight item: 7605
1000025	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	H. Magn.	Lichen species with LiSight item: 7606
1000026	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	(Nyl. ex Hasse) Zahlbr.	Lichen species with LiSight item: 7608
1000027	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	(Nyl.) Arnold	Lichen species with LiSight item: 66
1000028	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	H. Magn.	Lichen species with LiSight item: 67
1000029	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	Th. Fr.	Lichen species with LiSight item: 74
1000030	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	(Nyl.) Alstrup	Lichen species with LiSight item: 75
1000031	Ascomycota	Ostropales	Stictiaceae	Albosordella	bulbifera	(Ach.) A. Massal.	Lichen species with LiSight item: 7613

Annual
Checklist

CoL

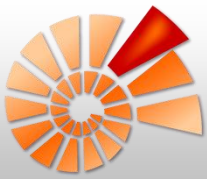
Exchange
Format





DWB Akzeptanz

- Von mehr als 100 Projekten genutzt, davon 35 online
- an 15-20 Institutionen aktiv im Einsatz



Dank

Editoren der Diversity Workbench: www.diversityworkbench.net

DWB-Softwareentwickler an der Universität Bayreuth (T. Schneider, Dr. B. Volz)

und am SNSB IT-Zentrum (Dr. M. Weiss, D. Neubacher, W. Reichert, A. Link)

sowie weitere Mitarbeiter/Innen



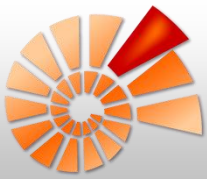
Bundesministerium
für Bildung
und Forschung

Bayerisches Staatsministerium für
Wissenschaft, Forschung und Kunst



DFG Deutsche
Forschungsgemeinschaft

4D4Life



Workshops in München

www.snsb.info

Nächster Termin:
Januar 2013

The screenshot shows the website of the sns b it center. At the top left is the logo, which consists of a green grid pattern forming a stylized 'S' shape, followed by the text 'sns b it center'. Below the logo is a navigation bar with green buttons labeled 'HOME', 'ABOUT US', 'PEOPLE', 'SERVICES', and 'WORKSHOPS'. The 'WORKSHOPS' button is highlighted. Below the navigation bar is a large green graphic with a white grid pattern. To the right of this graphic, the word 'Workshops' is written in a bold, sans-serif font. Below this text is a photograph of a workshop in progress. Several people are seated at long tables, working on laptops. A large screen at the front of the room displays a software interface. The room has large windows on the right side.

sns b
it center

HOME ABOUT US PEOPLE SERVICES WORKSHOPS

Workshops

staatliche
naturwissenschaftliche
sammlungen bayerns