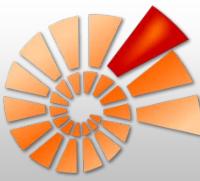


The Diversity Workbench

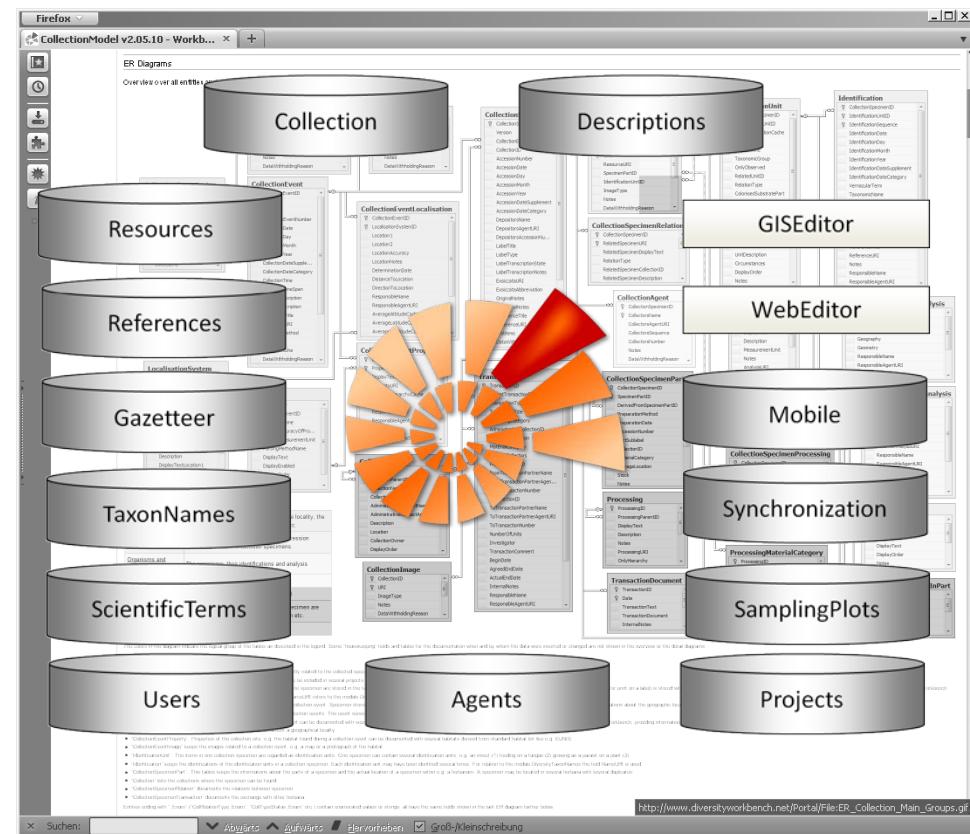
A Data Management Environment

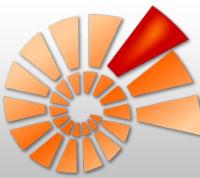
Dagmar Triebel



DWB – Architecture

- Database framework
- 13 database components for maintaining biodiversity and environmental data
- Designed according to logical data domains
- Namespace with ca. 2,000 elements
- ER models with > 240 linked tables
- Interoperable rich clients for data processing, reorganising and management
- Tools for data curators in data centers



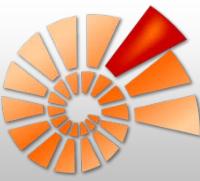


DWB – Work in Progress

- National cooperative initiative since 1999
- Team with 4-5 software developers
- Ca. 120 users, e. g. natural science collections and major research groups in Germany

The screenshot shows the DiversityWebEditor application running in a Firefox browser window. The interface is divided into several sections:

- Left Sidebar:** Contains buttons for "Fundort anlegen" (New location), "Sammelobjekt anlegen" (New collection object), and search functions for "Daten anzeigen" (Display data) and "Fundortverzeichnis" (Location index).
- Top Header:** Shows the Firefox logo, the title "DiversityWebEditor", and navigation buttons for "Dateneingabe", "Einstellungen", and "Login".
- Central Data Entry Area:** A table titled "Daten eingeben" with columns for "Fundortbeschreibung", "Land", "Region", "Datum", "Sammelmethode", and "Breiten". It shows a single entry: "Nordtirol: Gschnitztal, Marteier Tal bei Grelitz, auf Kalk" from Austria, dated 09.03.1919.
- Collection Object Area:** A table titled "Sammelobjekt" with columns for "GBOL-Nr.", "Feldnummer", "Sammler", "Anzahl Individuen", "Entwicklungsstadium", and "Geschlecht". It shows one entry: "M-0041332" by "Wettstein, F. von".
- Identification Area:** A table titled "Bestimmung" with columns for "Taxon-Name", "Familie", and "Taxon-Hierarchie". It shows the taxon "Dacampia hookeri (Borrer) A. Massal." belonging to the family Dacampiaceae, which is part of the Ascomycota phylum.
- Specimen Area:** A table titled "Probe" with columns for "Fixierungsmethode", "Sammlungs-Nr.", "Platte oder Box", "Position in Platte", "Gewebtyp", and "Gewebemenge". It shows a single entry: "M-Fungi" in a box labeled "M | M-Fungi" containing "Dacampia hookeri (Borrer) A. Massal."
- Comments Area:** A text input field titled "Allgemeine Bemerkungen (nur für Projektbeteiligte)".

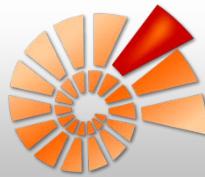


DWB – Strategies for System Development

- Publication of software and ER models
- GPL License
- www.diversityworkbench.net

The screenshot displays two windows of the DiversityCollection software:

- Top Window:** Shows a specimen image of a bird skull (Ceratotherium simum) against a red background. The left pane lists "Specimen images" and the right pane shows the specimen details: Specimen ID 178065, Event 208971, Version 3. It includes a sidebar for notes and type photographs.
- Bottom Window:** Shows a query results list on the left with IDs 408986 through 446521, ordered by Acc. Nr. The main area displays a photograph of green leaves with small brown spots. On the right, a detailed data entry form is shown for a specimen identified as *Trioza flavipennis* Förster. The form includes fields for Tax. group (id seedplants), Gender, Family, Identifier, Substr. rel., Colon. part, and various notes sections. A hierarchical tree view on the left shows the specimen's collection details, including dates (2012/6/5), locality (TK25), and collection number (ID: 446521).



DWB – Strategies for User Acceptance

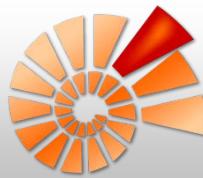
- Software development in cooperation with users
- Structured data import without loss of information
- Flexible tools for data management and reorganisation, e.g. user interfaces for data exchange and import wizards

The image displays two screenshots illustrating user acceptance strategies:

Desktop Application Screenshot: A screenshot of a Windows application window titled "Import wizard". The left sidebar shows a tree view of data types: Series, Collection event, Specimen, Relations, Collectors, Organisms, Parts, and Images. The main panel shows a step titled "Identifications" with a sub-step "Identification 1". It includes fields for "Taxonomic name", "Responsible date", and "Reference notes". Below this is a table titled "Identification1" with columns "TaxonomicName" and "Seq.: 3". The table contains data for various fish species, including their family, subfamily, genus, species, author, and typeset. A preview pane at the bottom shows the first few rows of the table.

Family	Subfamily	Genus	Species	Author	Typeset
Cichlidae		Sarotherodon	<i>cf. galilaeus</i>	(Linnaeus, 1758)	
Cyprinidae	Leuciscinae	Rutilus	<i>rutilus</i>	(Linnaeus, 1758)	
Cyprinidae	Gobioninae	Romanogobio	<i>vladikovi</i>	(Fang, 1943)	
Cyprinidae		Vimba	<i>vimba</i>	(Linnaeus, 1758)	
Cyprinidae		Tinca	<i>tinca</i>	(Linnaeus, 1758)	

Mobile Application Screenshot: A screenshot of a smartphone displaying the "DIVERSITYMOBILE" app. The screen shows a list of plant species with small icons next to them. The species listed are: *Sambucus nigra L.*, *Xanthoria parietina (L.) Willd.*, *Xanthoriicola physciae*, *Physcia tenella (Scop.) DC.*, and *Lecania cyrtella (Ach.) Th. Fr.*. At the bottom are standard mobile navigation buttons: back, home, and search.



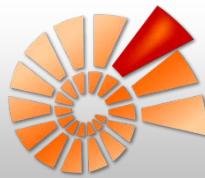
DWB – Strategies for User Acceptance

Services provided by the SNSB IT Center:

- Support with database administration
- Access to SNSB data pipelines and international portals
- Access to DWB contents, vocabularies and thesauri
- User help desk and workshops

The 'Import taxonomic names' dialog box displays the following table:

Similar name	Import name	Import in project	New taxon	Is accepted name	Genus or suprageneric name	Species epithet
Aethaliospis stercoformis Zopf	<input type="checkbox"/>	<input type="checkbox"/>	Aethaliospis stercoformis Zopf	<input checked="" type="checkbox"/>	Aethaliospis	stercoformis
Amaurochaete atra (Alb. & Schwein.) Rostaf.	<input type="checkbox"/>	<input type="checkbox"/>	Amaurochaete atra (Alb. & Schwein.) Rostaf.	<input checked="" type="checkbox"/>	Amaurochaete	atra
Amaurochaete comata G. Lister & Brändza	<input type="checkbox"/>	<input type="checkbox"/>	Amaurochaete comata G. Lister & Brändza	<input checked="" type="checkbox"/>	Amaurochaete	comata
Amaurochaete cribrosa (Fr.) T. Macbr.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Amaurochaete cribrosa (Fr.) T. Macbr.	<input checked="" type="checkbox"/>	Amaurochaete	cribrosa
Centaurea balsamita ssp. kermanensis (Bomm.) Wagenitz	<input type="checkbox"/>	<input type="checkbox"/>	Centaurea balsamita Lam. ssp. kermanensis (Bomm.) Wagenitz	<input checked="" type="checkbox"/>	Centaurea	balsamita
Chilitrichum diffusum (G. Forst.) Kuntze	<input type="checkbox"/>	<input type="checkbox"/>	Chilitrichum diffusum (G. Forst.) Kuntze	<input checked="" type="checkbox"/>	Chilitrichum	diffusum



DWB – Strategies for IT-Sustainability

Set up of wizards for data export

- e.g. XML-export of standard and non-standard research data via various technical formats and standards like SDD



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