

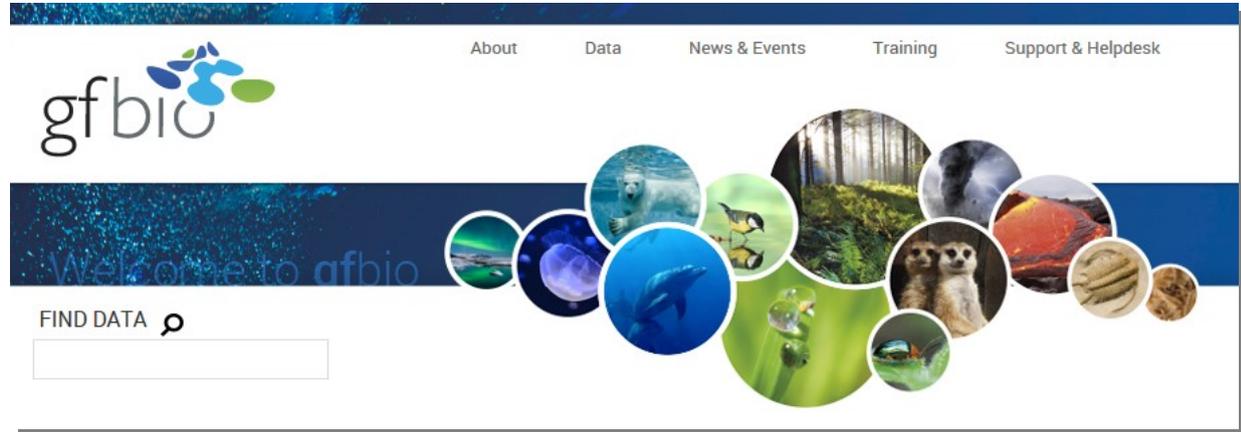
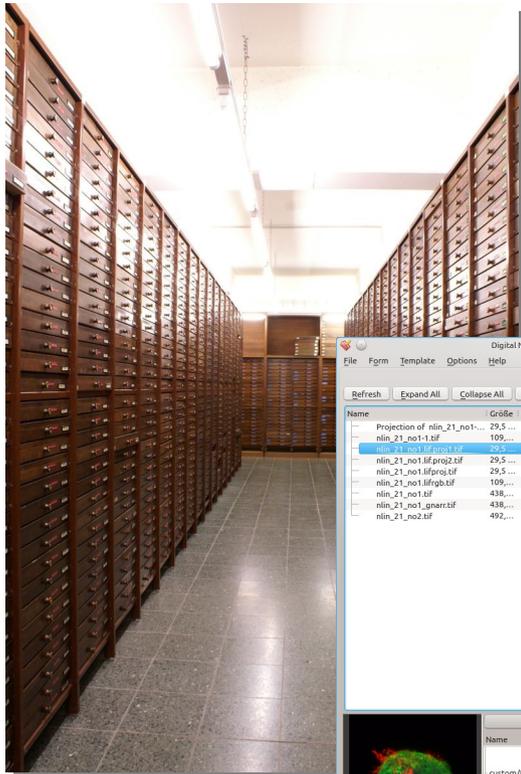
# Datenmanagement-Planung im GFBio Projekt

## - Eine Standortbestimmung -



DINI-Workshop Datenmanagementpläne Berlin 23.03.2015

Björn Quast



Thalassema owstoni partial histone 3

View: [TEXT](#) [FASTA](#) [XML](#)

Organism	Thalassema owstoni	Molecule type	genomic DNA	Topology	linear	Data class	STD
Sequence length	327	Sequence Version	1				

Microtubules

Imaging Date/Time:  **Lineage**

Experimenter:  Eukaryota, Metazoa, Lophotrochozoa, Annelida, Polychaeta, Echiura, Echiuroinea, Echiurida

Image Visibility:  Thalassema

Dataset Label:

Assay:

Microscope:

Binning:  **Overview**

Pixel resolution XY:

Pixel resolution Z:

Magnification:

Visualization Protein:

Reaction Apparatus:

Sample Temperature:

Cell Line:

Invitro Assembly Technique:

Test Substance:

Test Substance Source:  N/A

Test Protein Isoform:  N/A

Test Protein Mutation:  N/A

Test Drug Formulation:  N/A

Test Substance Application Method:  N/A

Test Substance Concentration:  D.O

Navigation Overview Source Feature(s) Sequence

Forward strand 0 bp

AB771487.1

Forward strand 327 bp

1 bp

Source: Thalassema owstoni

Genes: H3

CDS: H3

Refill meta-data >>>

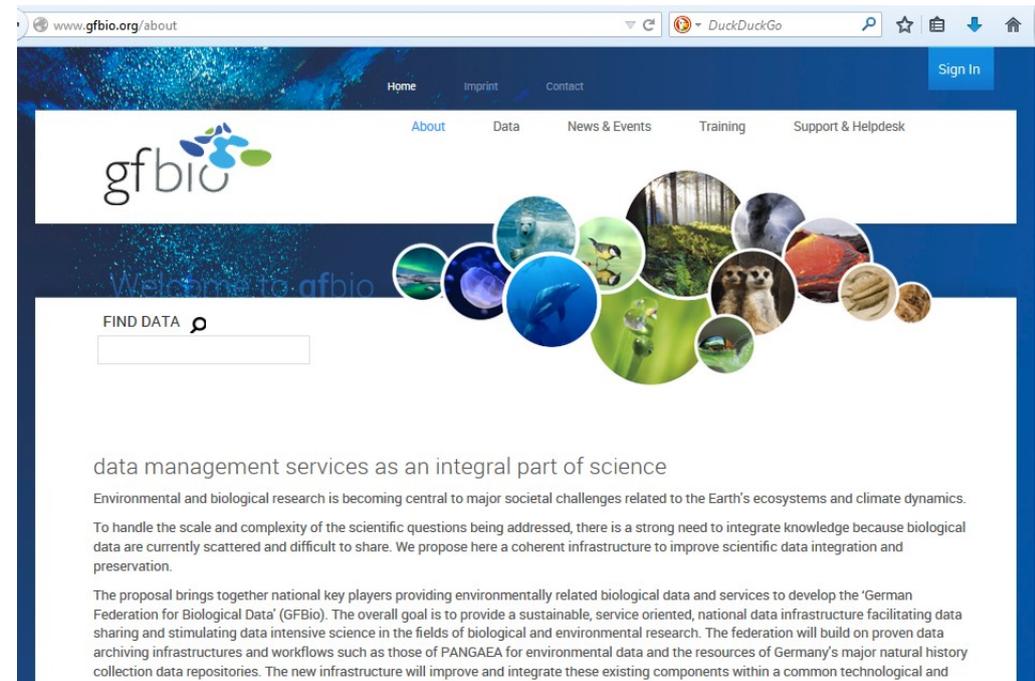
Name	Value
image_j=1.48q	
images=36	
custom/mag...	slices=36 loop=false
display_chann...	2
display_chann...	1
display_chann...	0
file_name	nlin_21_no1.lif.proj1.tif
file_path	/home/bquast/testdir/St_21/nlin_21_no1.lif.proj1.tif

Check All Uncheck All Clear Form



## German Federation for Biological Data

- Ökologie, Monitoring  
DFG-geförderte Projekte
- Biologische Sammlungen / Museen
- Molekulare Sequenzdaten
- Umweltdaten



The screenshot shows the GFBio website interface. At the top, there is a navigation bar with links for Home, Imprint, and Contact, and a Sign In button. Below this is a secondary navigation bar with links for About, Data, News & Events, Training, and Support & Helpdesk. The main content area features the GFBio logo, a search bar labeled "FIND DATA" with a magnifying glass icon, and a large graphic of various biological images in circular frames. Below the search bar, there is a paragraph of text:

data management services as an integral part of science

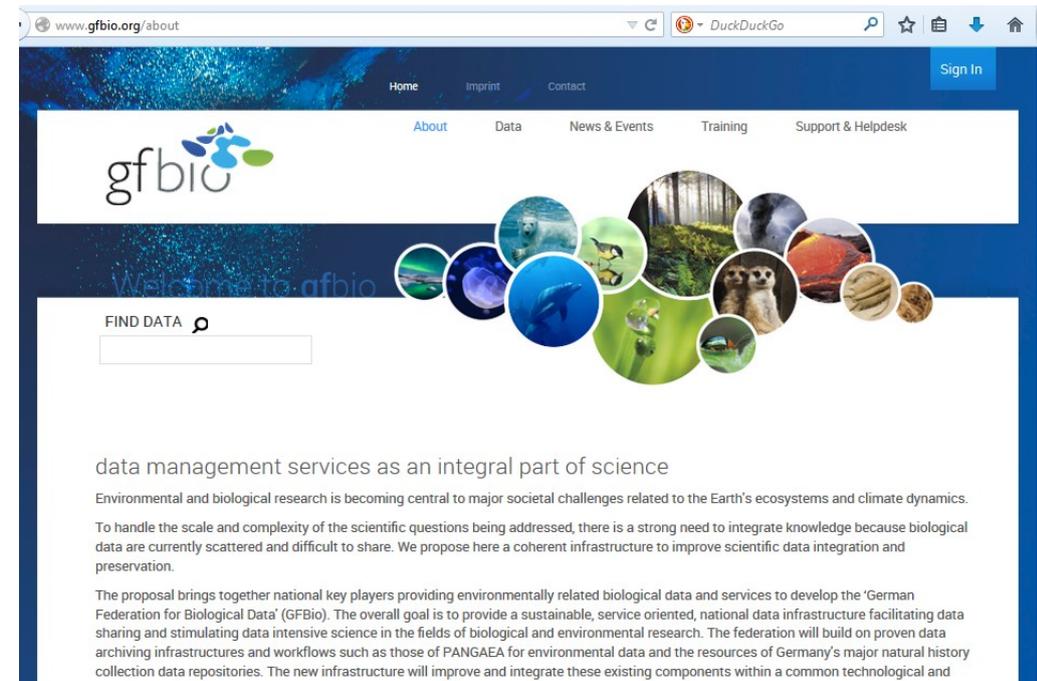
Environmental and biological research is becoming central to major societal challenges related to the Earth's ecosystems and climate dynamics. To handle the scale and complexity of the scientific questions being addressed, there is a strong need to integrate knowledge because biological data are currently scattered and difficult to share. We propose here a coherent infrastructure to improve scientific data integration and preservation.

The proposal brings together national key players providing environmentally related biological data and services to develop the 'German Federation for Biological Data' (GFBio). The overall goal is to provide a sustainable, service oriented, national data infrastructure facilitating data sharing and stimulating data intensive science in the fields of biological and environmental research. The federation will build on proven data archiving infrastructures and workflows such as those of PANGAEA for environmental data and the resources of Germany's major natural history collection data repositories. The new infrastructure will improve and integrate these existing components within a common technological and

## German Federation for Biological Data

Gemeinsames Portal:

- Submission
- Retrieval
- Makler-Aufgaben für dezentrale Datencenter



The screenshot shows the GFBio website interface. At the top, there is a navigation bar with links for Home, Imprint, and Contact, and a Sign In button. Below this is a secondary navigation bar with links for About, Data, News & Events, Training, and Support & Helpdesk. The main content area features the GFBio logo, a search bar labeled "FIND DATA" with a magnifying glass icon, and a "Welcome to gfbio" message. To the right of the search bar is a circular collage of various biological images. Below the search bar, there is a section titled "data management services as an integral part of science" followed by three paragraphs of text describing the project's goals and the need for data integration.

## PANGAEA

- Umweltdaten  
(Klima, Wasser, Geologie, Eiskerne)
- Bio-Monitoring



**PANGAEA®**

**Data Publisher for Earth & Environmental Science**



All  Water  Sediment  Ice  Atmosphere

measurement type, author name, project, taxa,...

[Help](#) [Advanced Search](#) [Preferences](#) [more...](#)

## PANGAEA

- Mitglied des World Data System
- Repository
- Datensubmission via Ticket-System
- Qualitätskontrolle der Daten
- DOIs / Publikationen
- Zusammenarbeit mit Verlagen



**Data Description** [Show Map](#) [Google Earth](#)

**Citation:** **Dörjes, Jürgen (2011):** Ash free biomass of the benthic infauna of the North Sea sampled during cruise Senckenberg\_04\_1986\_Senckenberg am Meer Wilhelmshaven. doi:10.1594/PANGAEA.757635

**Related to:** **Aldridge, J N; Bergman, M J N; Bolam, T; Craeymeersch, Johan A; Degraer, S; Duineveld, Gerard C A; Eggleton, J D; Goethals, P; Hillewaert, H; Irion, G; Kershaw, P J; Kröncke, Ingrid; Lavaleye, Marc; Mason, C; Rachor, Eike; Rees, H L; Reiss, H; Rumohr, Heye; Schratzberger, M; Smith, R; Vanden Berghe, E; van Hoey, G; Vincx, Magda; Willems, W (2007):** Structure and dynamics of the North Sea benthos. *Ices Cooperative Research Report-Rapport des Recherches Collectives*, **288**, 265 pp, hdl:10013/epic.34479.d001 [↗](#)

**Craeymeersch, Johan A; Heip, Carlo H R; Buijs, J (1997):** Atlas of North Sea benthic infauna. *Ices Cooperative Research Report-Rapport des Recherches Collectives*, **218**, 91 pp, hdl:10013/epic.36835.d001 [↗](#)

**Coverage:** *Median Latitude:* 55.161765 \* *Median Longitude:* 2.617647 \* *South-bound Latitude:* 53.750000 \* *West-bound Longitude:* 0.000000 \* *North-bound Latitude:* 55.750000 \* *East-bound Longitude:* 7.500000

*Minimum DEPTH, sediment/rock:* 0.0 m \* *Maximum DEPTH, sediment/rock:* 0.0 m

**Event(s):** **Senckenberg\_04\_1986\_046** (ICES46) [↗](#) \* *Latitude:* 53.750000 \* *Longitude:* 7.500000 \* *Date/Time:* 1986-04-24T00:00:00 \* *Location:* North Sea [↗](#) \* *Campaign:* Senckenberg\_04\_1986 (MarGIS\_DANS\_Label: ICES8586BSe\_9) [↗](#) \* *Basis:* Senckenberg [↗](#) \* *Device:* Box corer (BC) [↗](#)



## PANGAEA

- Tabellen mit Parametern

Parameter(s):

#	Name
1	Event label
2	Date/Time of event
3	LATITUDE
4	LONGITUDE
5	DEPTH, sediment/rock
6	Biomass, ash free dry mass per area
7	Biomass, ash free dry mass per area
8	Biomass, ash free dry mass per area
9	Biomass, ash free dry mass per area
10	Biomass, ash free dry mass per area

### Data

Download dataset as tab-delimited text (use the following character encoding: UTF-8: Unicode (PANGAEA))

1 Event	2 Date/Time	3 Latitude	4 Longitude	5 Depth [m]	6 Biom AFDM [g/m <sup>2</sup> ] (Animalia)	7 Biom AFDM [g/m <sup>2</sup> ] (Crustacea)	Biom AFDM [g/m <sup>2</sup> ] (Echinodermata)	Biom AFDM [g/m <sup>2</sup> ] (Mollusca)	Biom AFDM [g/m <sup>2</sup> ] (Polychaeta)
Senckenberg_04_1986_046	1986-04-24	53.75	7.50	0	3.987	0.071	18.871	4.861	4.092
Senckenberg_04_1986_054	1986-04-21	54.00	7.00	0	0.646	0.017	0.547	2.670	0.978
Senckenberg_04_1986_070	1986-04-21	54.50	5.00	0	0.145	0.126	0.642	0.776	0.730
Senckenberg_04_1986_084	1986-04-19	55.00	0.00	0	0.044	0.004	0.291	1.018	0.794
Senckenberg_04_1986_086	1986-04-20	55.00	2.00	0		0.060			
Senckenberg_04_1986_087	1986-04-20	55.00	3.00	0		0.178			
Senckenberg_04_1986_094	1986-04-19	55.25	0.50	0		0.110	0.001	0.167	1.836
Senckenberg_04_1986_095	1986-04-20	55.25	1.50	0	0.653	0.011	0.080	2.504	1.349
Senckenberg_04_1986_097	1986-04-18	55.25	3.50	0		0.093			
Senckenberg_04_1986_104	1986-04-19	55.50	0.00	0	0.016	0.077	2.276	0.443	1.161
Senckenberg_04_1986_105	1986-04-19	55.50	1.00	0	0.294	0.056	13.838	0.030	0.281
Senckenberg_04_1986_106	1986-04-19	55.50	2.00	0		0.025			

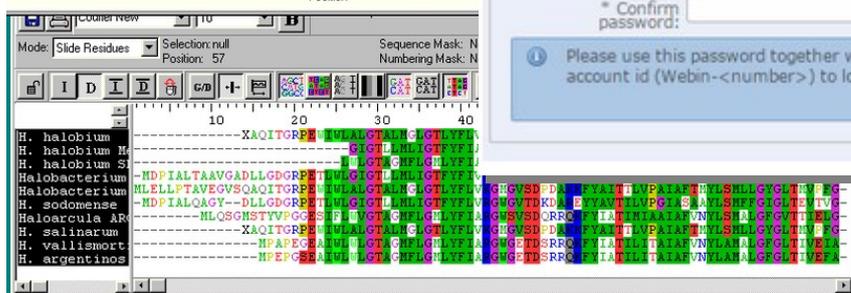
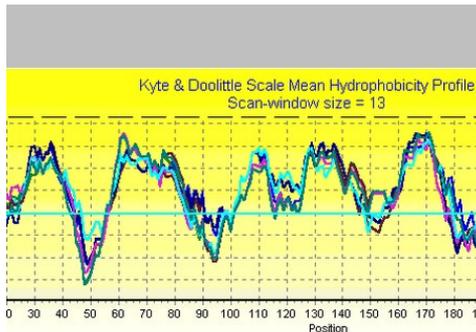
## ENA European Nucleotide Archive

- Molekulare Sequenzdaten
- Partner in INSDC
- Austausch der Daten nightly
- Accession numbers



## ENA European Nucleotide Archive

- Standard-Datenformate
- Software und Online-Tools
- Qualitätskontrolle bei Submission



**Account Details**

Account ID:

Dropbox:

\* Centre Name:

Laboratory Name:

\* Address:

\* Country:

Tel Number:

**Password**

\* Password:

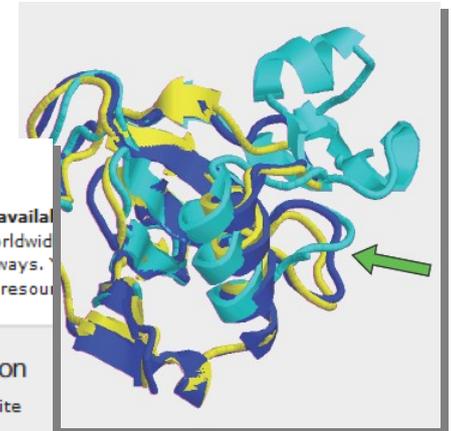
\* Confirm password:

Please use this password together with your submit account id (Webin-<number>) to login.

## Bioinformatics services

We maintain the world's most comprehensive range of **freely available** databases. Developed in collaboration with our colleagues worldwide, we perform complex queries and analyse the results in different ways. You can access our data and software, or use our [web services](#) to access our resources.

<b>DNA &amp; RNA</b> genes, genomes & variation	<b>Gene expression</b> RNA, protein & metabolite expression
<b>Structures</b> Molecular & cellular structures	<b>Systems</b> reactions, interactions & pathways
<b>Ontologies</b> taxonomies & controlled vocabularies	<b>Literature</b> Scientific publications & patents



## ENA European Nucleotide Archive

- Accession numbers
- **Nachnutzung!**



Sequence: **DQ813384.1**

Paralacydonia paradoxa elongation factor-1 alpha (EF-1 alpha) mRNA, partial cds.

View: [TEXT](#) [FASTA](#) [XML](#)

Download

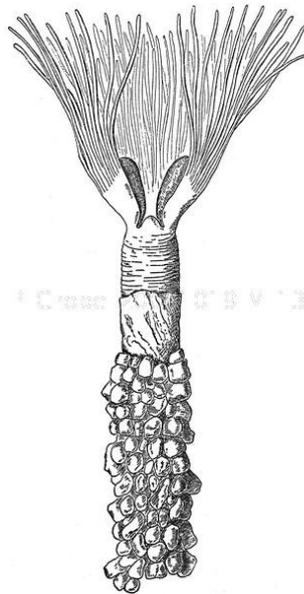
Organism	Molecule type	Topology	Taxon	Species	nucSSU	nucLSU	EF1 $\alpha$
<a href="#">Paralacydonia paradoxa</a>	mRNA	linear	Paralacydoniidae	<i>Paralacydonia paradoxa</i> Fauvel, 1913	DQ790088	DQ790050	<b>DQ813384</b>
			Phyllococidae	<i>Phyllococe groenlandica</i> (Oersted, 1843)	DQ790092	DQ790055	DQ813389
			Alciopidae	<i>Alciopina</i> sp.	DQ790073	DQ790021	DQ813347
				<i>Torrea</i> sp.	DQ790096	DQ790068	DQ813406
			Tomopteridae	<i>Tomopteris</i> sp.	DQ790095	DQ790067	DQ813405
			Amphinomidae	<i>Paramphinome jeffreysii</i> (Mcintosh, 1868)	AY838856	AY838865	DQ813383
				<i>Eurythoë complanata</i> (Pallas, 1766)	AY364851	AY364849	
				<i>Chloeia pinnata</i> Moore, 1911			DQ813354
			Dorvilleidae	<i>Ophryotrocha labronica</i> La Greca & Bacci, 1962	AY838855	DQ790047	DQ813380

### Publications in which the generation of this record is described

- [1] **Phylogeny of Annelida Based on Multiple Genes: Affiliation of Sipuncula, Echiura, Siboglinidae, and Clitellata**  
Struck T.H., Schult N., Kusen T., Hickman E., Bleidorn C., McHugh D., Halanych K.M.

## Sammlungen / Museen

- Auftreten und Artnachweise
- Beschreibungen
- Material (Organismen, Gewebe, Zellkulturen)
- Belege für Barcoding



BG | Botanischer Garten &  
BM | Botanisches Museum  
Berlin

museum für  
naturkunde  
berlin



SENCKENBERG  
world of biodiversity



STAATLICHES  
MUSEUM FÜR  
NATURKUNDE  
STUTTART  
Forschungsmuseum  
Am Löwentor und  
Schloss Rosenstein



## Sammlungen / Museen

- DFG-Projekte:  
Diversität / Monitoring



museum für naturkunde berlin



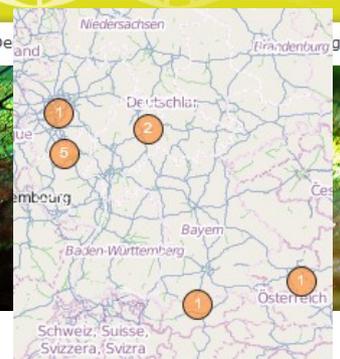
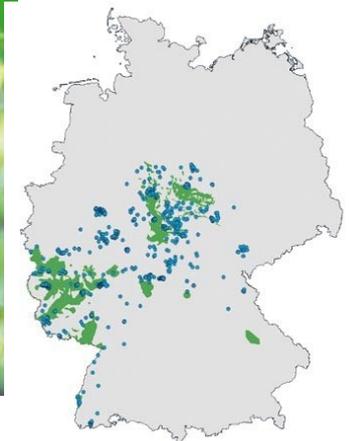
staatliche naturwissenschaftliche sammlungen bayerns

SENCKENBERG world of biodiversity



FORSCHUNGS MUSEUM KOENIG

## GENETIC WILDLIFE MONITORING: INTERFACE I CONSERVATION



## Sammlungen / Museen

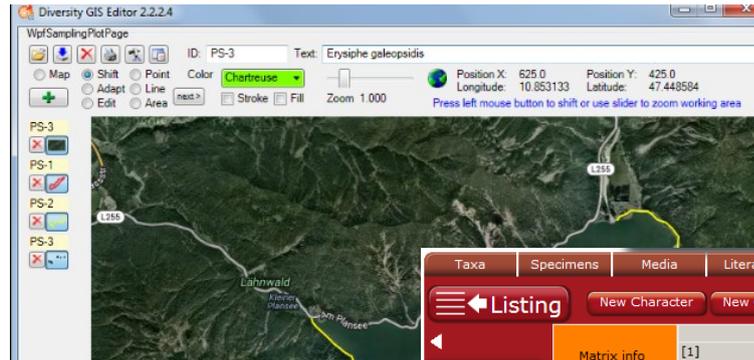
- Datenbanken, Workbenches
- Kein einheitlicher Zugang
- Keine einheitliche Submission



staatliche naturwissenschaftliche sammlungen bayerns

SENCKENBERG world of biodiversity

museum für naturkunde berlin



Matrix info	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
[1] Sagitta	Present	1	Present	1	Present	1	missing	?	missing	?
[2] Crangon	Present	1	Present	1	Present	1	missing	?	missing	?
[3] new OTU	Present	1	Present	1	Present	1	missing	?	missing	?
[4] Mytilus	missing	?								



Herbarium Berlinense

### Virtual Herbarium

Stable Identifier: <http://herbarium.bgbm.org/object/BW00617010>  
 Barcode: B -W 00617 -01 0  
 Family: ROSACEAE  
 Storage name: Acaena adscendens Vahl

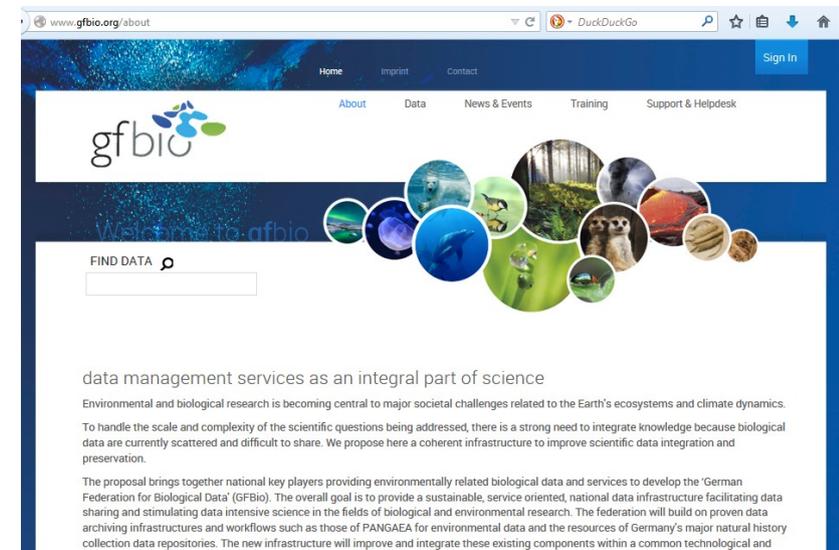
## Virtueller Help Desk

Grundlage:

- Evaluation Submission und Archiving Workflows
- Evaluation Biologieprojekte-spezifischer Datenmanagement Pläne

Erstes Ziel:

- Angepasstes Data Management Planning Tool

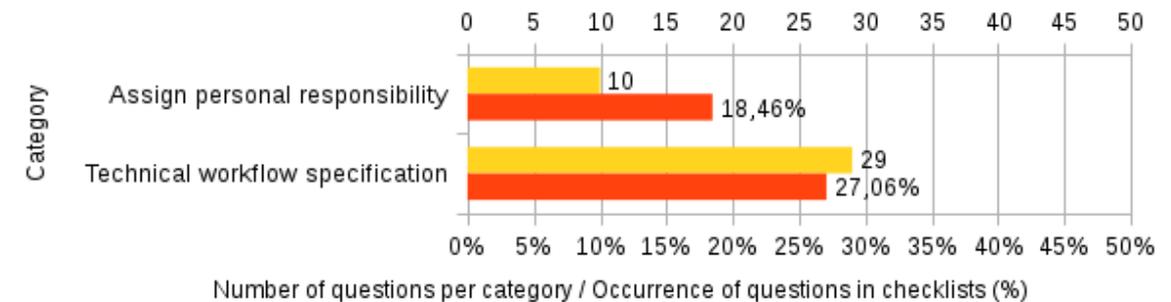
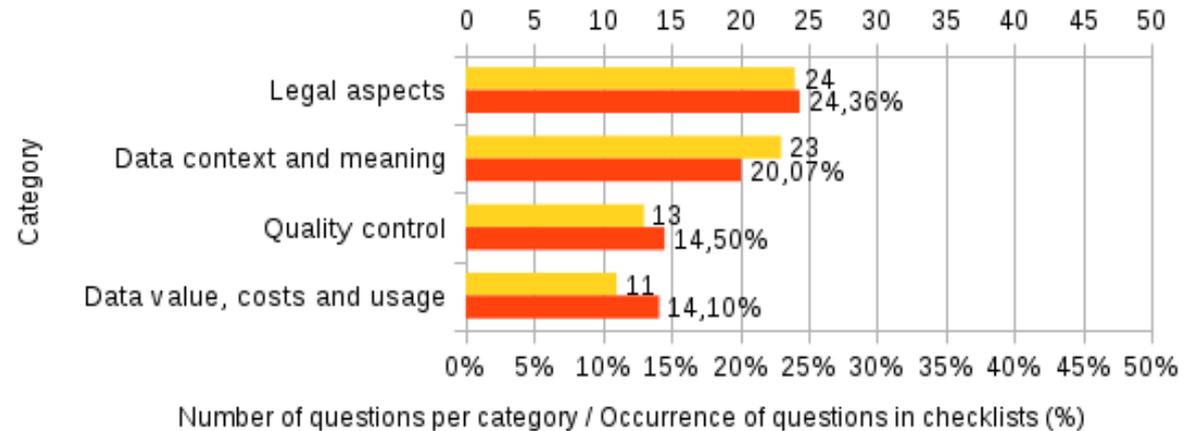


## Evaluation Biologieprojekte-spezifischer Datenmanagement Pläne

### Checklisten

Nicht repräsentativ, Eindruck:

- Projektspezifisch
- Verträge
- Legale und technische Aspekte
- Kaum Entscheidungsaspekte



■ # Questions  
■ Question occurrence

## Checklisten

- Einfache Nutzung
- Nutzerführung
- Gut anpassbar
- Geringe Hilfe bei Entscheidung
- Einfache Fragen bevorzugt



## Data Management Checklist

The Data Management Checklist can be used in a number of ways to assist with data management planning. The checklist identifies a series of issues and underlying questions that should be considered for the development of a data management plan as well as to raise awareness of good practice when planning for data management during the life cycle of a research project. The Checklist is aligned with the Data management Plan Template and either can be utilised. The Checklist is informed by the requirements set out in the Australian Code for the Responsible Conduct of Research, the UK Digital Curation Centre Checklist and current University Policy.

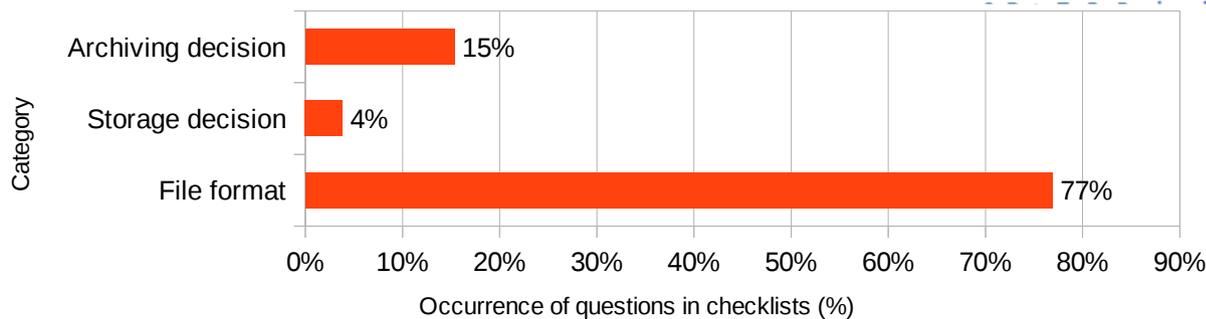
To use the Checklist effectively to develop a data management plan you should provide detailed and descriptive responses to the following questions.

### 1. Research Project

- What is the project title, project description and date commencing and estimated date for completion?
- What is the name of the Chief Investigator, Partner Investigators, or Supervisors?
- Who is the primary contact for the data?
- Who is the lead organisation and are there other partner organisations?
- What School or Centre is the project associated with?
- What is the name of the Chief Investigator and partner Investigators?

### 2. Funding Body

- What are the names of relevant funding bodies and their grant application numbers.



produced, collected, generated or captured during the project?  
ed, collected or created?  
equipment, hardware or software will you use to capture, produce,  
formats of the data that will be captured, produced or created?  
d on open standards, non-proprietary or widely used, documented

generated or captured during the project?  
ed?

What tools, instruments, equipment, hardware or software will you use to capture, produce, collect or create the data?

What processes will be established and followed to document and organise data? i.e. version control, filename conventions, directory structures etc.

## Institutionen:

- Gute wissenschaftlicher Praxis  
Codes of Conduct
- Wiederverwendbarkeit / Sparsamkeit
- Rahmenwerk zur Kontrolle

## Datenproduzenten:

- Hilfe bei Entscheidungen
- Beschleunigung und Vereinfachung von  
Abläufen
- Hilfe bei der Publikation / Sichtbarkeit der  
eigenen Arbeit

**Sicherung guter wissenschaftlicher Praxis**  
**Safeguarding Good Scientific Practice**

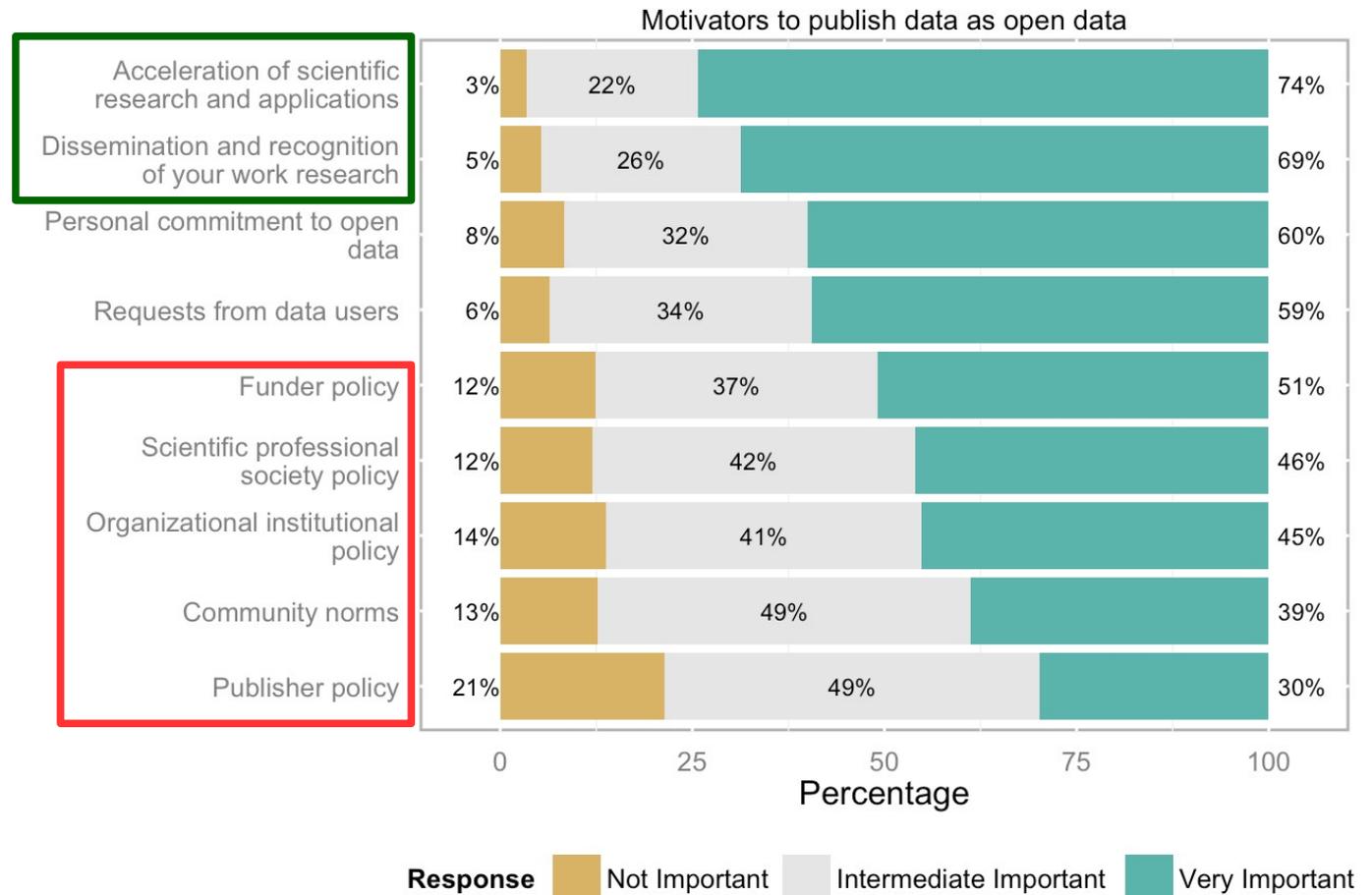
Denkschrift  
Memorandum

WILEY-VCH

**DFG**

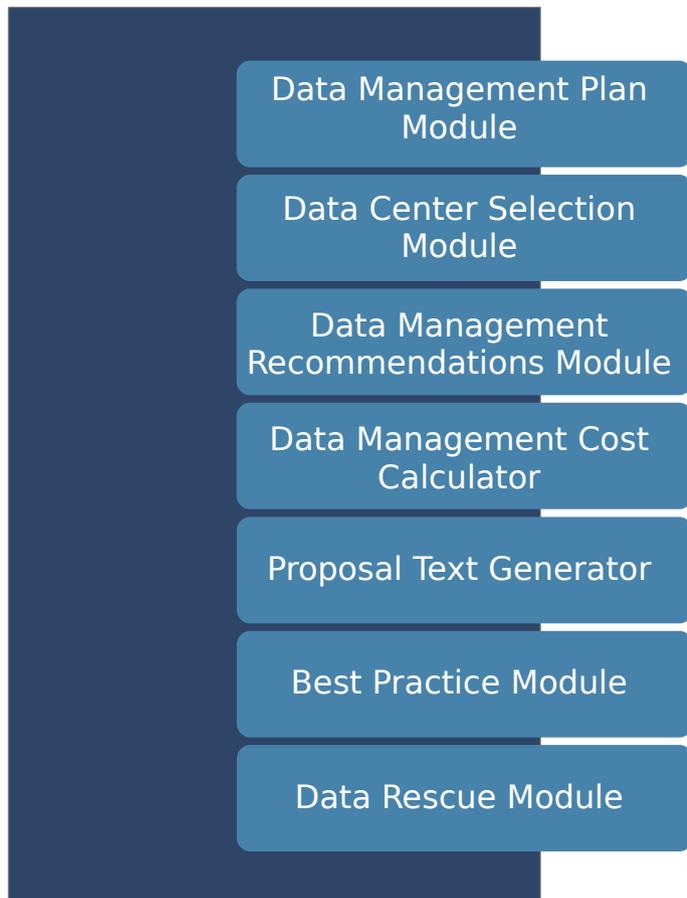
## Motivation Datenproduzenten:

- Beschleunigung von Abläufen
- Sichtbarkeit der eigenen Arbeit



Schmidt, Gemeinholzer & Treloar (submitted): Open Data in Global Environmental Research: The Belmont Forum's Open Data Survey

## Datenproduzenten an ihrem Standort abholen



Workflows kennenlernen

Datencenter finden

Kosten berechnen

Antragstext

Daten unterbringen

## Interaktiver Data Life Cycle Fact sheets



### Collect

#### What is it?

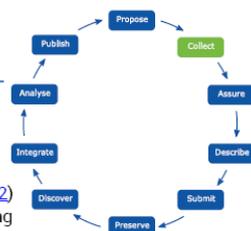
Data can be collected manually or automated in the laboratory/field or you can discover useful data through literature/repository search (see [Fact-Sheet Discover](#)). GFBio offers workbenches and tools ([Diversity Workbench](#), [BExIS 2](#)) to make data collection easy for you. Data emerge through observation (during an experiment), interviews, counting, measuring with instruments, or simulation by algorithms. Researchers use different technologies like tape- or video-recorders, (portable) computers/instruments, hand-written data sheets, questionnaires, tools, workbenches, satellite or aerial images.

#### How to do it?

- 1) Before collecting data, set up a collection protocol/sampling strategy.
- 2) Define which data will be created/collected. (What?, Where?, When?, Who?, How?)
- 3) Consider how many populations/individuals/tissue you need to gain significant results.
- 4) Allow for separate columns/rows per individual variable (eschew compound variables).
- 5) Define the collection methodologies and standards (see [Fact-Sheet Describe](#)) to ensure that your data will be compatible with standards. GFBio is currently creating a standardization-tool to convert data to the EML-metadata standard. Use our description-tool (that will soon be implemented within the [GFBio-Portal](#)) to ensure consistency and data quality.
- 6) Choose indicative, unique file names, reflecting the contents, place and time (keep it short: 20141104\_Collect\_Factsheet.xlsx). Document this consistent naming convention and coding that can be used by the whole research team.
- 7) Choose appropriate software and formats that are suited for long-term preservation and reuse.
- 8) Communicate your collection protocol to the involved team members so that everybody is on the same level.
- 9) Gain comprehensive knowledge about the item to be collected and its habitat/occurrence.
- 10) Organize the logistics, e.g. gain collection permits (if required).
- 11) Set up a backup plan and save your data on secure and geographically dispersed servers.

#### Who does it?

Currently every data producer integrating other data or creating own data within his/her research project or as partner in research programme (like ecologists, geo-scientists, geneticists etc.).

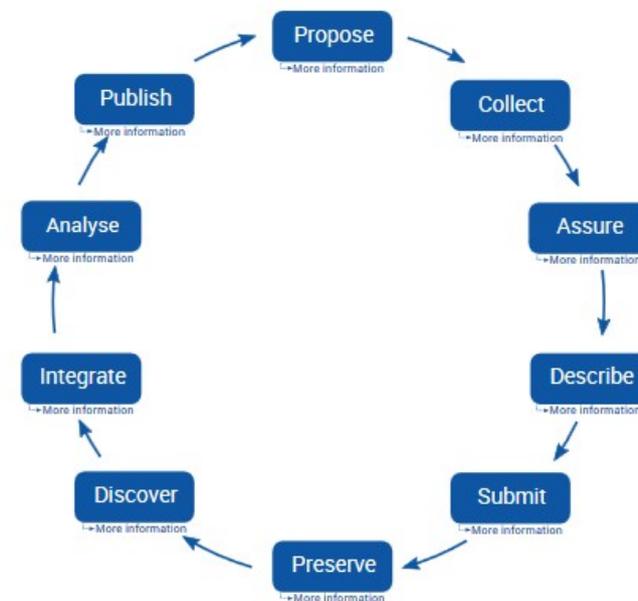


About Data News & Events Training Support & Helpdesk



e - fact sheets

### Data Life Cycle (DLC) - Ideal DLC 'data producer & reuser' -



Data Management Plan  
Module

Data Center Selection  
Module

Data Management  
Recommendations Module

Data Management Cost  
Calculator

Proposal Text Generator

Best Practice Module

Data Rescue Module

## Data Center Selection Module:

- Datencenter finden

Forscher kennen:

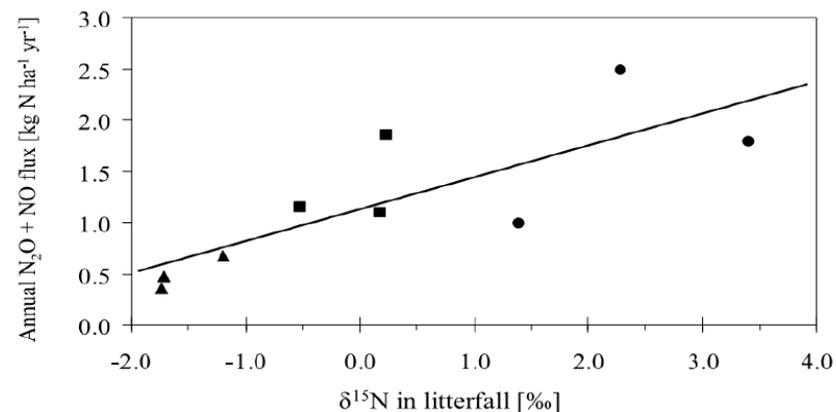
- Projekt und Förderung
- Forschungsbereich mit geforderter Expertise
- Daten-Domain und Datenformate

Ergebnisse 1 bis 9 von 9 Treffern auf 1 Seite

[SFB 990: Ökologische und sozioökonomische Funktionen tropischer Tieflandregenwald-Transformationssysteme \(Sumatra, Indonesien\)](#)

Sprecher	Stefan Scheu
Fachgebiet	Biologie
DFG-Verfahren	Sonderforschungsbereiche

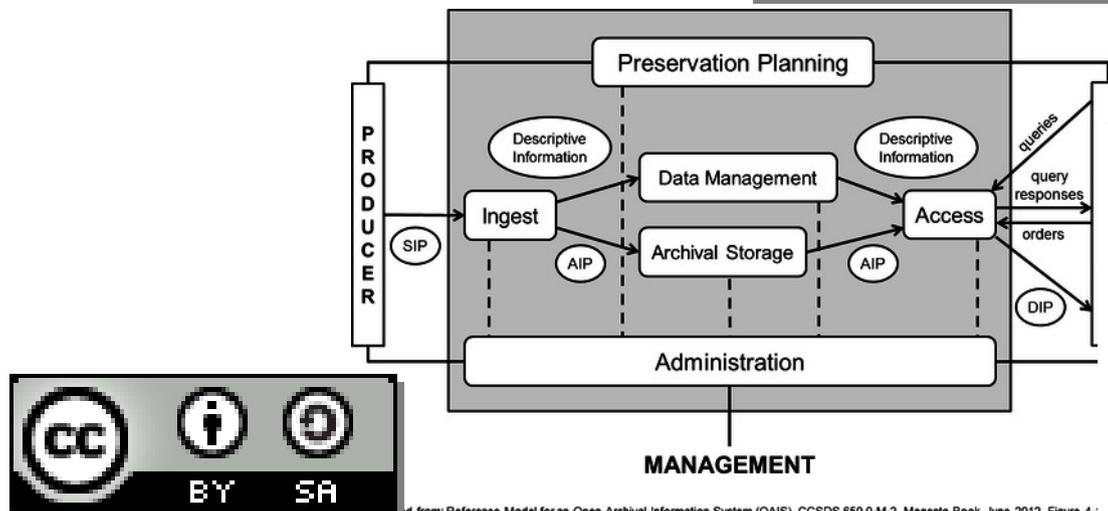
In vielen tropischen Gebieten werden Regenwälder gerodet, um Holz und a Nahrungs-, Futter- und Energiepflanzen anzubauen. ...



**Fig. 4.**  $\delta^{15}\text{N}$  signatures of litterfall as a proxy variable of N availability that controls annual  $\text{N}_2\text{O} + \text{NO}$  fluxes from rainforests in Indonesia (Purbopuspito et al. 2006).

Forscher kennen nur bedingt:

- Richtlinien
- Standards
- Migrationswege von Dateiformaten
- Lizenzmodelle
- Archivierungswege
- Spätere Nutzer



Adapted from: Reference Model for an Open Archival Information System (OAIS). CCSDS 650.0-M-2. Magenta Book, June 2012. Figure 4-

### 3 STATEMENT OF POLICIES

Note added September 2009: During fourth-quarter 2009, NEON will be transferring all Observatory requirements (including se... Observatory Requirements Database (RD[03])). This doc... provide additional description and context for the NEO...

#### 3.1 Archiving

- All data, whether from core sites, relocatable sites, systems, or experimental programs, will be secured... NEON data streams from the AQU, FIU, F... n as part of instrument calibration, engine... able as soon as possible once basic QA/QC... prior to QA/QC checks by special request... ives shall include easily accessible inform... including quality assessments and support... ing the data, will be provided on the NEO...

#### Accessibility

- NEON will utilize community standards for the prov...
- NEON will enforce a principle of non-discriminatory...
- Open-access means that data will be freely-distrib...

**PANGAEA®**  
Data Publisher for Earth & Environmental Science



## Auswahl über wenige bekannte Anforderungen

Neu- und Gebrauchtwagen mobile.de Neuwagen

**PKW-SUCHE: NEU- UND GEBRAUCHTWAGEN**

Alle Fahrzeugtypen  
 Ausgewählte Fahrzeugtypen

<input type="checkbox"/> Limousine 	<input type="checkbox"/> Geländewagen/Pickup 
<input type="checkbox"/> Kleinwagen 	<input type="checkbox"/> Cabrio/Roadster 
<input type="checkbox"/> Kombi 	<input type="checkbox"/> Sportwagen/Coupé 
<input type="checkbox"/> Van/Kleinbus 	<input type="checkbox"/> Andere

Marke (z. B. Volkswagen) Opel  
Modell (z. B. Golf) Astra  
Modellvariante (z. B. GTI)

Beliebig Beliebig Beliebig

**Fahrzeuge aus der Suche ausschließen**

Marke (z. B. Volkswagen) Modell (z. B. Golf)

Erstzulassung von Beliebig bis Beliebig Anzahl der Fahrzeughalter Beliebig

Kilometerstand von Beliebig bis Beliebig HU mind. gültig (in Monaten) Beliebig

Leistung von Beliebig bis Beliebig KW

Hubraum (in ccm) von Beliebig bis Beliebig

Ihre Suche erzielte 29.017 Treffer  
**Treffer anzeigen**



Konzept / Mockup:

- Mehrere Einstiegspunkte
- Bekannte Parameter



The mockup shows a web interface for selecting data centers. It features three main columns: Project, Scientific Focus, and Data Types. The Project column includes a dropdown for 'Project Name' (currently 'Biodiversity Exploratories') and a button 'insert / draft new project'. The Scientific Focus column has three dropdown menus: 'Research Discipline' (Zooology, Microbiology, Anthropology), 'Taxonomic Specialisation' (Earth Science, Paleoaanatomy, Sedimentology), and 'Ecological Specialisation' (Marine Ecosystems, Rain Forest, Agricultured Areas / Land Use). The Data Types column has two sections: 'Data Category' with checkboxes for Molecular Data, Observational Data, Environmental Data, Collection Data, Interview Data, and Experimental Data; and 'Data Representation' with checkboxes for Images / Multimedia, Publications / Presentations, Modelling, Tables / Structured Text, Unstructured Text / Descriptions, and Device Dependent File Formats. Below these columns is a 'Data Center Recommendation' section with a 'Table View' button. At the bottom, there are logos for FUSION, snsb it center, and FORSCHUNGS MUSEUM KOENIG.

Prozentuale Gewichtung der Spalten durch Nutzer?

### Project

Project Name

Biodiversity Exploratories ▾

insert / draft new project

### Scientific Focus

Research Discipline

Zoology ▲  
Microbiology ▾  
Anthropology

Taxonomic Specialisation

**Earth Science** ▲  
Paleoanatomy ▾  
Sedimentology

Ecological Specialisation

Marine Ecosystems ▲  
Rain Forest ▾  
Agricultured Areas / Land Use

Geographical Specialisation

### Data Types

Data Category

Molecular Data  
 Observational Data  
 Environmental Data  
 Collection Data  
 Interview Data  
 Experimental Data

Data Representation

Images / Multimedia  
 Publications / Presentations  
 Modelling  
 Tables / Structured Text  
 Unstructured Text / Descriptions  
 Device Dependent File Formats

Data Center Recommendation Table View

### Data Center Parameter

DataCenter	long term storage	data access control	file formats	migration possible	harvesting interfaces	retrieval interfaces	data submission to portals
Dummy 01	+++	-	+++	++	-	+++	--
Archiv no. 02	+++	-	+++	++	-	+++	--

Data Management Plan  
Module

Data Center Selection  
Module

Data Management  
Recommendations Module

Data Management Cost  
Calculator

Proposal Text Generator

Best Practice Module

Data Rescue Module

## Data Management Plan Module

## Generische Fragen und spezifische Handlungsvorschläge?

### How will you document data collection and acquisition methods?

Insert description here...

### Suggestions

- Methods are a standard documented in paper
- Parameter documented on each record by
  - Lab notebook
  - Digital notebook
  - Software
- Minimal parameter list defined by
  - Me
  - Work group
  - Community standard

## Die richtigen Fragen, die richtigen Hinweise



The screenshot shows the DMP ONLINE interface for a project titled "Clitellate TEM Image Scans". The top navigation bar includes "View plans", "Create plan", "About", and "News". A progress indicator shows "9/13 questions answered" and "approx. 45% of available space used (max 3 pages)". Below the title, there are tabs for "Plan details", "Generic DMP", "Share", and "Export". The main content area lists several categories with their respective question counts and answer status:

Category	Questions	Answers
Data Collection	2	2 answered
Documentation and Metadata	1	1 answered
Ethics and Legal Compliance	2	2 answered
Storage and Backup	2	2 answered
Selection and Preservation	2	2 answered
Data Sharing	2	0 answered
Responsibilities and Resources	2	0 answered

### DCC Guidance +

#### DCC guidance on Existing Data -

##### Questions to consider:

- Are there any existing data or methods that you can reuse?
- Do you need to pay to reuse existing data?
- Are there any restrictions on the reuse of third-party data?
- Can the data that you create - which may be derived from third-party data - be shared?

##### Guidance:

Check to see if there are any existing data that you can reuse, for examples by consulting relevant repositories. When creating new data sources, explain why existing data sources cannot be reused. If purchasing or reusing existing data sources, explain how issues such as copyright and IPR have been addressed. A list of repositories is provided by [Databib](#) or [Re3data](#).

## Ausschließlich Workflows aus GFBio anbieten?

### Workbenches:

- DiversityCollection
- Specify
- BEXiS
- MX

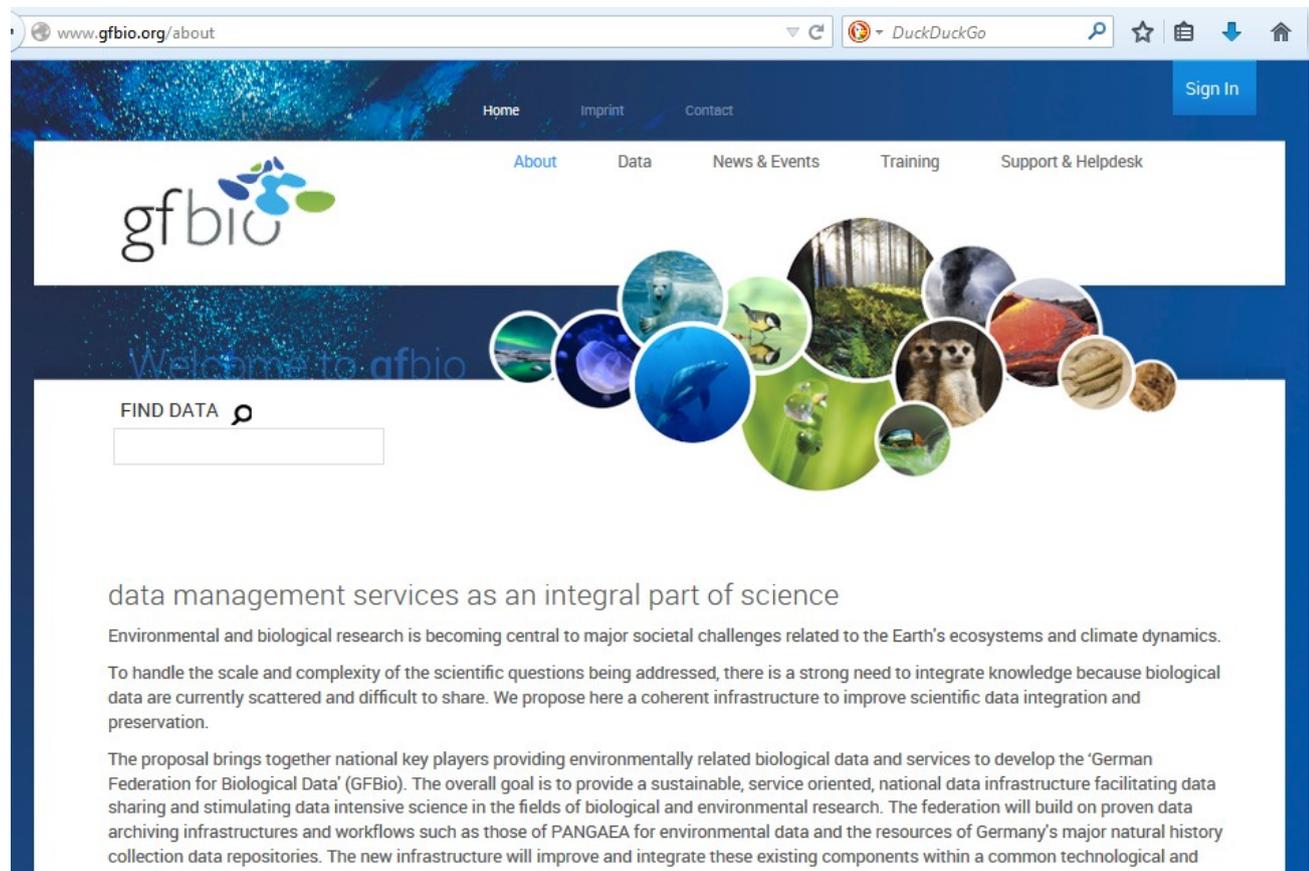
### Standards:

- MixS
- ABCD
- EML

### Archivierung:

- PANGAEA
- ENA
- DSMZ
- SNBS

...



The screenshot shows the GFBio website interface. At the top, there is a navigation bar with links for Home, Imprint, Contact, About, Data, News & Events, Training, and Support & Helpdesk. A 'Sign In' button is located in the top right corner. The main header features the GFBio logo and a large graphic of various biological organisms in circular frames. Below the header, there is a search bar labeled 'FIND DATA' with a magnifying glass icon and an input field. The main content area contains text about data management services as an integral part of science, followed by a paragraph discussing the need for data integration and preservation, and another paragraph describing the GFBio proposal and its goals.

data management services as an integral part of science

Environmental and biological research is becoming central to major societal challenges related to the Earth's ecosystems and climate dynamics. To handle the scale and complexity of the scientific questions being addressed, there is a strong need to integrate knowledge because biological data are currently scattered and difficult to share. We propose here a coherent infrastructure to improve scientific data integration and preservation.

The proposal brings together national key players providing environmentally related biological data and services to develop the 'German Federation for Biological Data' (GFBio). The overall goal is to provide a sustainable, service oriented, national data infrastructure facilitating data sharing and stimulating data intensive science in the fields of biological and environmental research. The federation will build on proven data archiving infrastructures and workflows such as those of PANGAEA for environmental data and the resources of Germany's major natural history collection data repositories. The new infrastructure will improve and integrate these existing components within a common technological and

## Beispiel Standards:

Title	Activity	Category
	(Task or Interest Group)	
<a href="#">GUID and Life Sciences Identifiers Applicability Statements</a>		Ap
<a href="#">Darwin Core</a>	<a href="#">DarwinCore Task Group (DWC)</a>	Te
<a href="#">TAPIR - TDWG Access Protocol for Information Retrieval</a>	<a href="#">TAPIR Task Group</a>	Te



### TDWG Current (2005) Standards (\*)

Title	Activity	Category	Status	Date Published	
	(Task or Interest Group)				
<a href="#">Access to Biological Collection Data - version 2.06</a>	<a href="#">Access to Biological Collections Data</a>	Technical Specification	Current (2005)	16-Sep-2005	<a href="#">Download</a>
<a href="#">Structured Descriptive Data</a>	<a href="#">Biological Descriptions Interest Group</a>	Technical Specification	Current (2005)	16-Sep-2005	<a href="#">Download</a>
<a href="#">Taxonomic Concept Transfer Schema</a>	<a href="#">Taxonomic Names and Concepts Interest Group</a>	Technical Specification	Current (2005)	16-Sep-2005	<a href="#">Download</a>
<a href="#">Definition of the Delta Format</a>		Technical Specification	Current (2005)	01-Oct-1986	<a href="#">Download</a>

### TDWG Draft Standards (\*)

Title	Activity	Category	Status	Date Published	
	(Task or Interest Group)				
<a href="#">TDWG Standards Documentation Specification</a>	<a href="#">TDWG Infrastructure Project</a>	Technical Specification	Draft		<a href="#">Download (**)</a>
<a href="#">Natural Collections Descriptions (NCD): A data standard for exchanging data describing natural history collections</a>	<a href="#">Natural Collections Descriptions Interest Group</a>	Technical Specification	Draft		<a href="#">Download (**)</a>
<a href="#">ABCD/DNA ♦ DNA extension for Access to Biological Collection Data</a>	<a href="#">Access to Biological Collections Data</a>	Technical Specification	Draft		<a href="#">Download (**)</a>
<a href="#">Audubon Core Multimedia Resources Metadata Schema</a>	<a href="#">Multimedia Resources Task Group</a>	Technical Specification	Draft	06-Dec-2012	<a href="#">Download (**)</a>

### TDWG Prior Standards (\*)

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	(Task or Interest Group)				
<a href="#">HISPID3 - Herbarium Information Standards and Protocols for Interchange of Data</a>	<a href="#">Observation and Specimen Records</a>	Technical Specification	Prior	01-Oct-1996	<a href="#">Download</a>
<a href="#">Economic Botany Data Collection Standard</a>	<a href="#">Economic Botany Interest Group</a>	Best Current Practice	Prior	01-Oct-1995	<a href="#">Not available for download</a>
<a href="#">Plant Occurrence and Status Scheme</a>		Status and Categories	Prior	01-Oct-1995	<a href="#">Download</a>
<a href="#">Plant Names in Botanical Databases</a>		Best Current Practice	Prior	01-Oct-1995	<a href="#">Download</a>
<a href="#">Authors of Plant Names</a>		Status and Categories	Prior	01-Oct-1992	<a href="#">Not available for download</a>
<a href="#">World Geographical Scheme for Recording Plant Distributions</a>		Status and Categories	Prior	01-Oct-1992	<a href="#">Download</a>
<a href="#">XDF - A Language for the Definition and Exchange of Biological Data Sets</a>		Technical Specification	Prior	01-Oct-1991	<a href="#">Not available for download</a>
<a href="#">Botanico-periodicum-huntianum/supplementum</a>		Status and Categories	Prior	01-Oct-1991	<a href="#">Not available for download</a>
<a href="#">Index Herbariorum. Part I: The Herbaria of the World</a>		Status and Categories	Prior	01-Oct-1990	<a href="#">Not available for download</a>
<a href="#">International Transfer Format for Botanic Garden Plant Records</a>		Technical Specification	Prior	01-Oct-1987	<a href="#">Download</a>
<a href="#">Floristic Regions of the World</a>		Status and Categories	Prior	01-Oct-1986	<a href="#">Not available for download</a>
<a href="#">Taxonomic Literature, ed. 2 and its Supplements</a>		Status and Categories	Prior	01-Oct-1976	<a href="#">Not available for download</a>
<a href="#">Botanico-periodicum-huntianum</a>		Status and Categories	Prior	01-Oct-1970	<a href="#">Not available for download</a>

## Beispiel Standards:

Biodiversity  
Information  
Standards  
TDWG

### Access to Biological Collections Data (ABCD) Primer

Please send comments, questions and additions on the Primer to Neil Thomson or Walter Berendsohn.

Title : Access to Biological Collections Data (ABCD) Primer  
 Date : 2006-07-27  
 Editors : Neil Thomson (NHM, London) <n.thomson [at] nhm.ac.uk>  
 Markus Döring (BGBM, Berlin) <m.doering [at] bgbm.org>  
 Renato De Giovanni (CRIA, Campinas) <renato [at] cria.org.br>  
 Javier de la Torre (MNCN, Madrid) <jatorre [at] gmail.com>  
 Walter Berendsohn (BGBM Berlin-Dahlem) <w.berendsohn [at] bgbm.org>  
 Wouter Addink (ETI, Amsterdam) <wouter [at] eti.uva.nl>  
 William Ulate (INBio, Santo Domingo de Heredia) <wulate [at] inbio.ac.cr>

Copyright : (C) TDWG 2006

IPR Statement:

Abstract : This primer is intended to provide an easily readable background to ABCD and should take anyone with no knowledge of the standard to the very point where they would be able to understand the principles and the more detailed technical specification. Examples are given which are complemented by references to the normative texts.

### ! Table of Contents

- ! Table of Contents
- 1 Purpose
- 2. Top-Level Structure
- Usage Recommendations
- Glossary
- References

### 2. Top-Level Structure

The ABCD schema is highly structured in order to manage the large

The top level of the schema is arranged as follows:

```
<DataSets>
  <DataSet>
    GUID
    <Metadata>
    <Units>          # Observations and Specimens
    <Unit>
      ...
```

A minimum ABCD record could look like this:

```
<?xml version='1.0' encoding='UTF-8'?>
<DataSets xmlns='http://www.tdwg.org/schemas/abcd/2.06'>
  <DataSet>
    <TechnicalContacts>
      <TechnicalContact>
        <Name>Gerd MÄEler</Name>
        <Email>gerd@dfb.de</Email>
      </TechnicalContact>
    </TechnicalContacts>
    <ContentContacts>
      <ContentContact>
        <Name>A Another</Name>
```

Floristic Regions of the World

Taxonomic Literature, ed. 2 and its Supplements

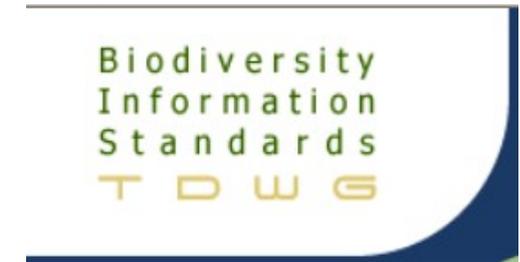
Botanico-periodicum-huntianum

Technical Specifications	Prior	01-Oct-1986	Not available for download
Status and Categories	Prior	01-Oct-1970	Not available for download
Status and Categories	Prior	01-Oct-1970	Not available for download

## Beispiel Standards:

Datendomäne  
Zielgruppe  
Software

Anwendbarkeit  
Erweiterbarkeit



Title	Activity (Task or Interest Group)	Category	Status	Date Published	
GUID and Life Sciences Identifiers Applicability Statements		Applicability Statements	Current	30-Jan-2011	Download
Darwin Core	DarwinCore Task Group (DWC)	Technical Specification	Current	09-Oct-2009	Download
TAPIR - TDWG Access Protocol for Information Retrieval	TAPIR Task Group	Technical Specification	Current	09-Sep-2009	Download

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ABCCDNA - DNA extension for Access to Biological Collection Data	Access to Biological Collections Data	Technical Specification	Draft		Download (*)
Audubon Core Multimedia Resources Metadata Schema	Multimedia Resources Task Group	Technical Specification	Draft	06-Dec-2012	Download (*)

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World Geographical Scheme for Recording Plant Distributions		Status and Categories	Prior	01-Oct-1992	Download
XDF - A Language for the Definition and Exchange of Biological Data Sets		Technical Specification	Prior	01-Oct-1991	Not available for download
Botanico-periodicum-Hortorium/Supplementum		Status and Categories	Prior	01-Oct-1991	Not available for download
Index Herbariorum. Part I: The Herbaria of the World		Status and Categories	Prior	01-Oct-1990	Not available for download
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Taxonomic Literature, ed. 2 and its Supplements		Status and Categories	Prior	01-Oct-1976	Not available for download
Botanico-periodicum-Hortorium		Status and Categories	Prior	01-Oct-1970	Not available for download

## „Deeds“ oder Steckbriefe?



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Deutschland (CC BY-NC-SA 2.0 DE)

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**Keine weiteren Einschränkungen** — Sie dürfen keine zusätzlichen Klauseln oder technische Verfahren einsetzen, die anderen rechtlich irgendetwas untersagen, was die Lizenz erlaubt.

## „Deeds“ oder Steckbriefe? Anpassung GFBio



### ABCD - Access to Biological Collection Data

The [Access to Biological Collections Data \(ABCD\) Schema](#) is an e-specimens and observations (a.k.a. primary biodiversity data). The data from a wide variety of databases. It is compatible with several e-data and free-text can be accommodated.

Sponsored by Biodiversity Information Standards TDWG - the Taxon 2007.

<b>Mappings</b>	<a href="#">Darwin Core</a> ; <a href="#">Eurisco Descr</a>
<b>Related Vocabularies</b>	<a href="#">LSID Vocabularies</a>
<b>Specification</b>	<a href="http://www.tdwg.org/standards">http://www.tdwg.org/standards</a>
<b>Standard's website</b>	<a href="http://wiki.tdwg.org/ABCD">http://wiki.tdwg.org/ABCD</a>

### Extensions

#### [ABCDDNA](#)

An extension of the ABCD standard for DNA data.

#### [ABCDEFG - Access to Biological Collection Databases Extend](#)

An extension of the ABCD standard for Geosciences data.

## ABCD Access to Biological Collections

### Goals

Define standard for biological collection specimens, focus on collection specific data like holding, accession numbers, collector, collection event, and specimen specification with taxonomy and descriptive data. Aims to cover all commonly used concepts of collections. It is expected that only parts of the concepts will be used by a single collection, minimal requirements are defined at: [GFBio\\_wiki](#).

### Data Domains and Research Field

Catalogization and description of specimens in biological collections. ABCD is also used as transport and interface standard for requests by data distributors.

### Application

Embedded in data management software for collection curators:

- [DiversityCollections](#)
- [SeSAM](#)

Used in [BioCASE-Wrapper](#) as transport and request standard

### Audience

Software developer, Web-Service Provider, Experienced Curators

### Standard Development and Extension

- Proposal of new concepts to maintainer group
- Private extensions possible but will break interoperability, therefore, strong request on proposal of extension

### Extensions

- ABCD EFG = geosciences
- ABCDDNA = DNA data

### Specification

## Portal-Datenbank Facetten-Suche

search facet

Filter Results: [clear filters](#)

- Author
  - Ra...
  - Sc...
  - Du...
  - Fr...
  - He...
  - Mc...
- Public
  - 20...
  - 19...
  - 20...
  - 2011 (2)
  - 1989 (1)
  - [More...](#)
- Geographical Region
  - [Atlantic Ocean \(8\)](#)
  - [North Atlantic Ocean \(8\)](#)
  - [North Sea \(8\)](#)
- Data Center
  - [PANGAEA: Data Publisher for Earth & Environmental Science \(13\)](#)

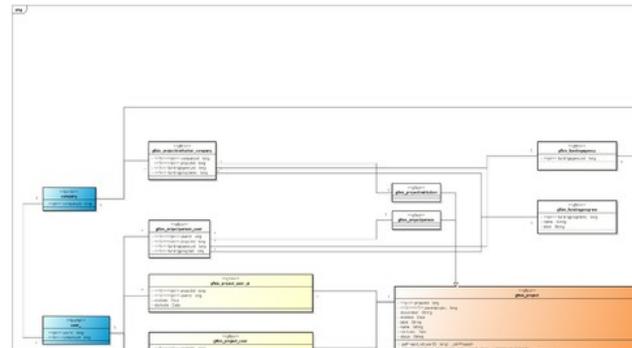
Previous 1 2 Next

[Frauenheim, Karin, Neume...](#)  
[Benthos fauna in the North...](#)

Data Center: PANGAEA: Data Publisher for Earth & Environmental Science

Summary: During two s... in winter 19... m beam tra... checked for JACCARD-in... clusters car... north and to...

Abra alba, A... minuta; Am... brevicornis; Anaitides gr... tenuis; Antir... Apodopsyll... spinipes; Ar... germanica; B... elegans; Ba... pelagica; Ba... schlosseri; C... Canthocam... Cyclopinida... subterranea... Capitellidae



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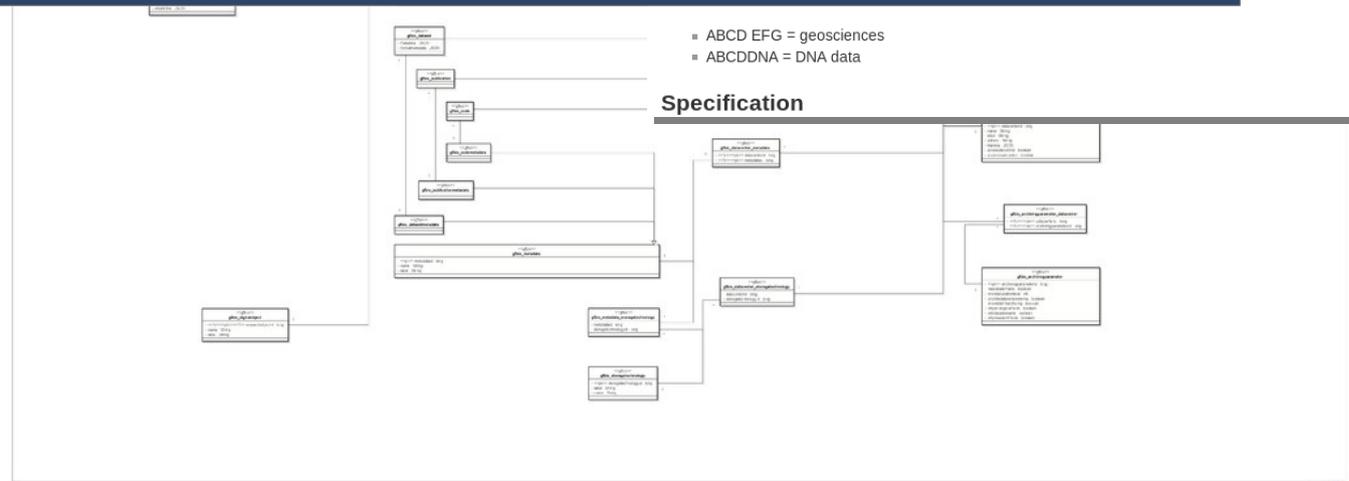
### Application

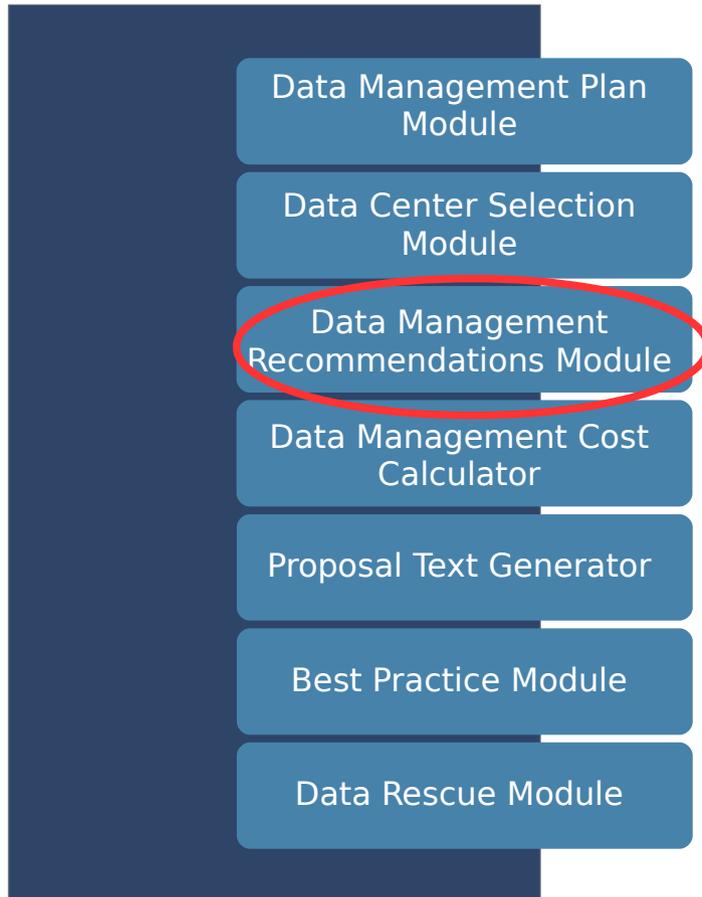
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- SeSAM

Used in [BioCASE-Wrapper](#) as transport and request standard

„Welche Standards für ökologische Monitoring-Daten gibt es, die in einer Tabellensoftware implementiert sind?“

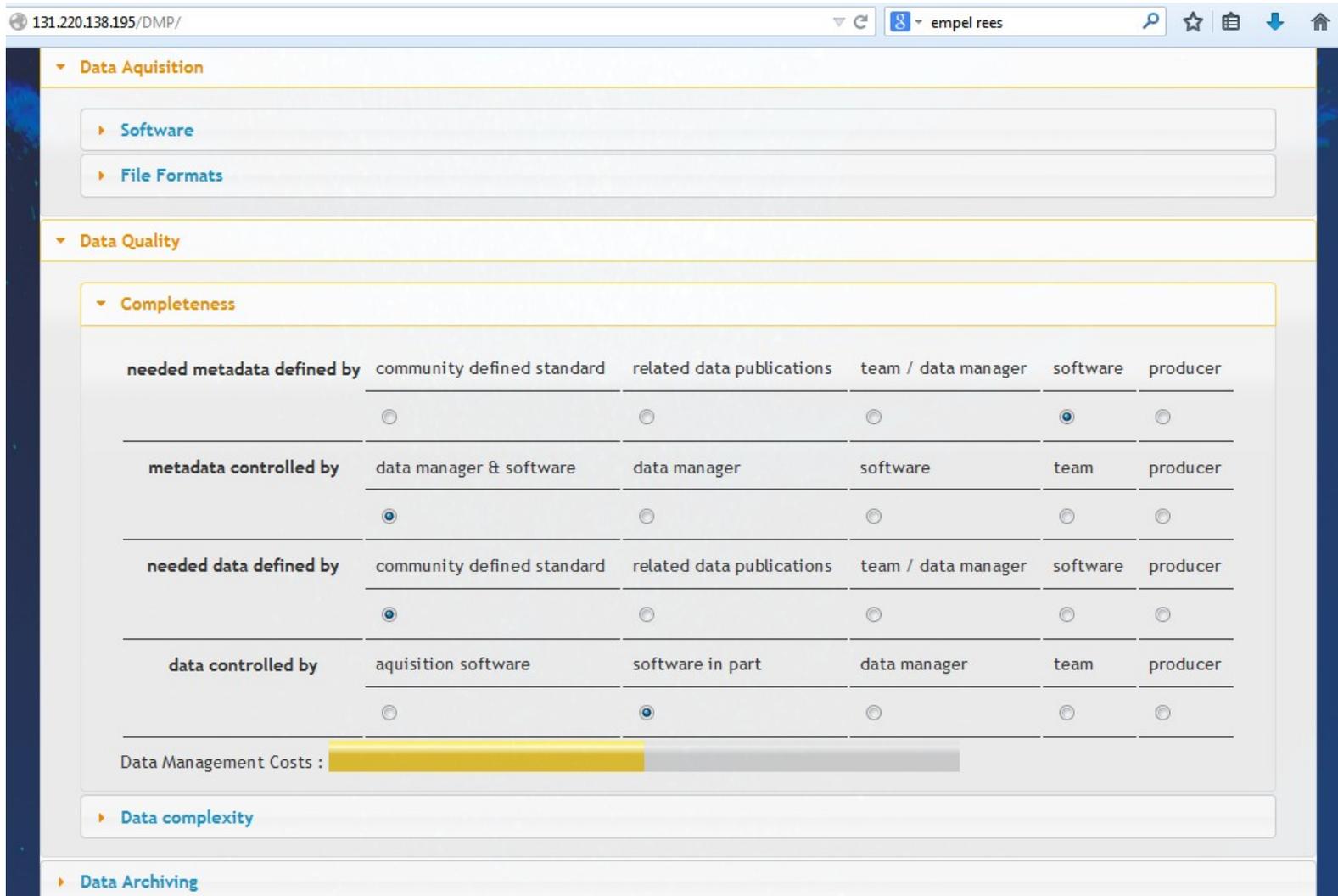




## Data Management Recommendations Module:

- Empfehlungen und „Kosten“-Abschätzung

## Fragen mit direktem Feedback



The screenshot shows a web browser window with the URL 131.220.138.195/DMP/. The browser's search bar contains 'empel rees'. The page content is organized into sections: 'Data Aquisition' (with sub-sections 'Software' and 'File Formats'), 'Data Quality' (with sub-section 'Completeness'), and 'Data Archiving'. The 'Completeness' section contains a table with radio button options for various metadata and data control criteria.

needed metadata defined by	community defined standard	related data publications	team / data manager	software	producer
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
metadata controlled by	data manager & software	data manager	software	team	producer
	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
needed data defined by	community defined standard	related data publications	team / data manager	software	producer
	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
data controlled by	aquisition software	software in part	data manager	team	producer
	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Data Management Costs : 

Below the table, there are expandable sections for 'Data complexity' and 'Data Archiving'.

Kosten und Aktionen  
Links zu Steckbriefen

131.220.138.195/DMP/ empel rees

**Data Aquisition**

- Software
- File Formats

**Data Quality**

**Completeness**

needed metadata defined by	community defined standard	related data publications	team / data manager	software	
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
metadata controlled by	data manager & software	data manager	software	team	
	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
needed data defined by	community defined standard	related data publications	team / data manager	software	producer

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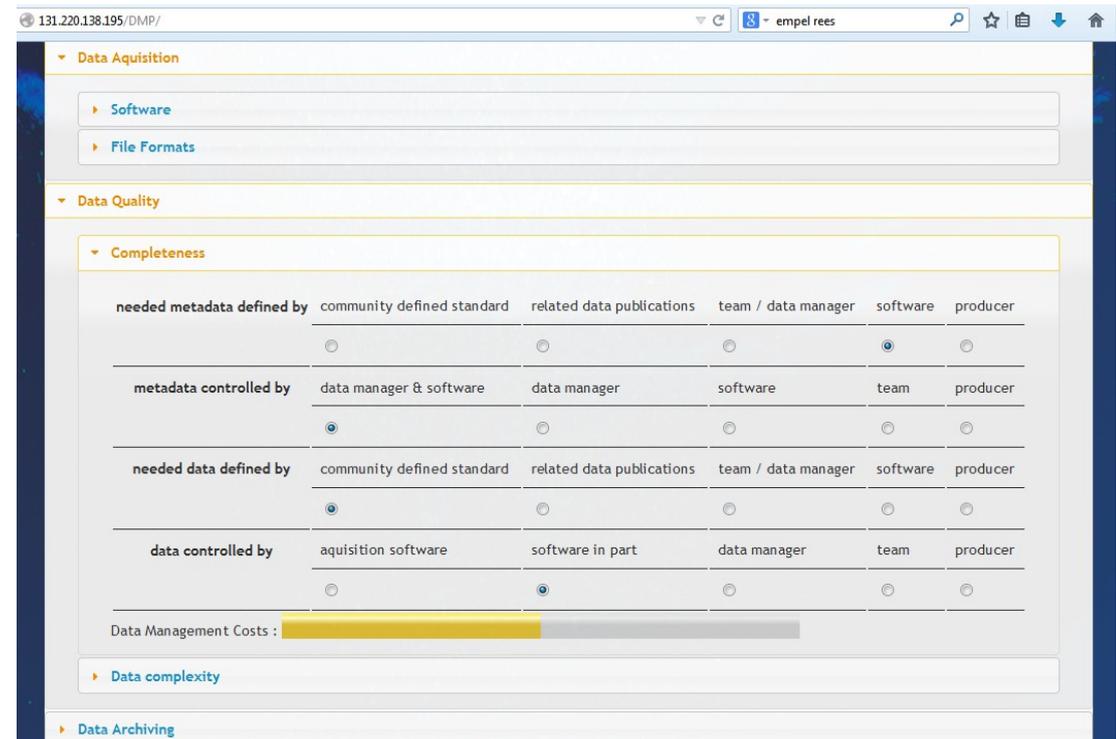
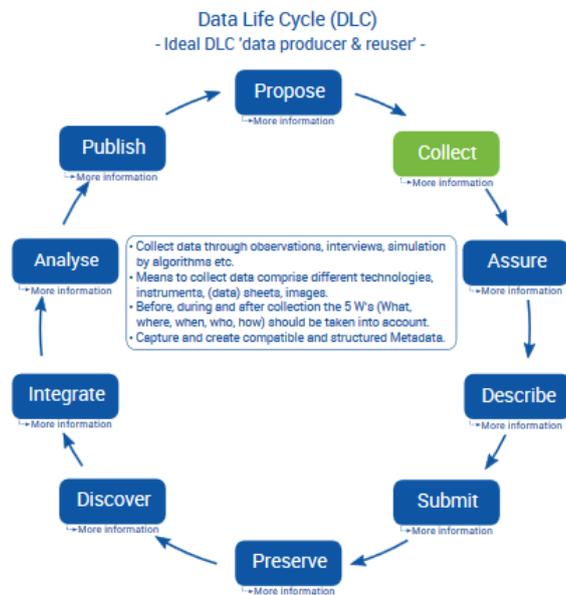
- ABCD EFG = geosciences
- ABCDDNA = DNA data

### Specification

**Software**

Costs	minimum	--		maximum	rationale	compensation
<b>Openess</b>	open source, no restriction	open source, no commercial use	freely available	freely available, restricted audience	proprietary	not all proprietary software can be licensed by archives
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	data export to open formats, archiving of hardware and software, contract with archive about software fees

- Anzeige Data Life Cycle-abhängig
- GFBio-spezifisch
- Offener Input, Fragen bewerten?



	community defined standard	related data publications	team / data manager	software	producer
needed metadata defined by	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
metadata controlled by	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
needed data defined by	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
data controlled by	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Data Management Costs :

## Neue Monster?

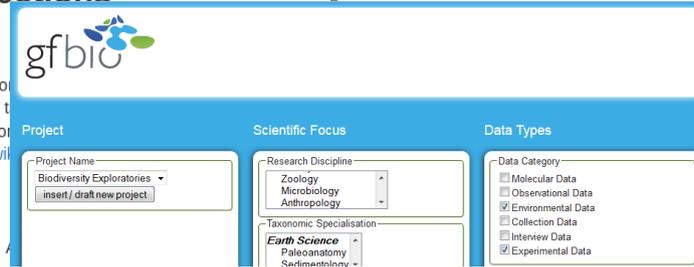
### ABCD Access to Biological Collections

#### Goals

Define standard for biological collection specimens, focus on collection numbers, collector, collection event, and specimen specification with t cover all commonly used concepts of collections. It is expected that of a single collection, minimal requirements are defined at: [GFBio\\_will](#)

#### Data Domains and Research Field

Catalogization and description of specimens in biological collections. /



The screenshot shows the GFBio web interface with the following sections:

- Project:** Project Name: Biodiversity Exploratories (dropdown), with a button "insert / draft new project".
- Scientific Focus:** Research Discipline: Zoology, Microbiology, Anthropology (dropdown). Taxonomic Specialisation: Earth Science, Paleoanatomy, Sedimentology (dropdown).
- Data Types:** Data Category: Molecular Data (checkbox), Observational Data (checkbox), Environmental Data (checkbox), Collection Data (checkbox), Interview Data (checkbox), Experimental Data (checkbox).



131.220.138.195 (DMP)

- Data Acquisition
  - Software
  - File Formats
- Data Quality
  - Completeness
    - needed metadata
    - metadata cont
    - needed data d
    - data contro
    - Data Management

#### Software

##### Costs

Openness	open source, no restriction	open source, no commercial use	freely available	freely available, restricted audience	proprietary	not all proprietary software can be licensed by archives	data export to open formats, archiving of hardware and software, contract with archive about software fees
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>		

# Danke für Ihre Aufmerksamkeit!

**Und an**  
**Jens Ludwig**  
**Astrid Slizewski**  
**Heike Neuroth**  
**Dagmar Triebel**  
**Tanja Weibulat**  
**Maren Gleisberg**  
**Peter Grobe**

