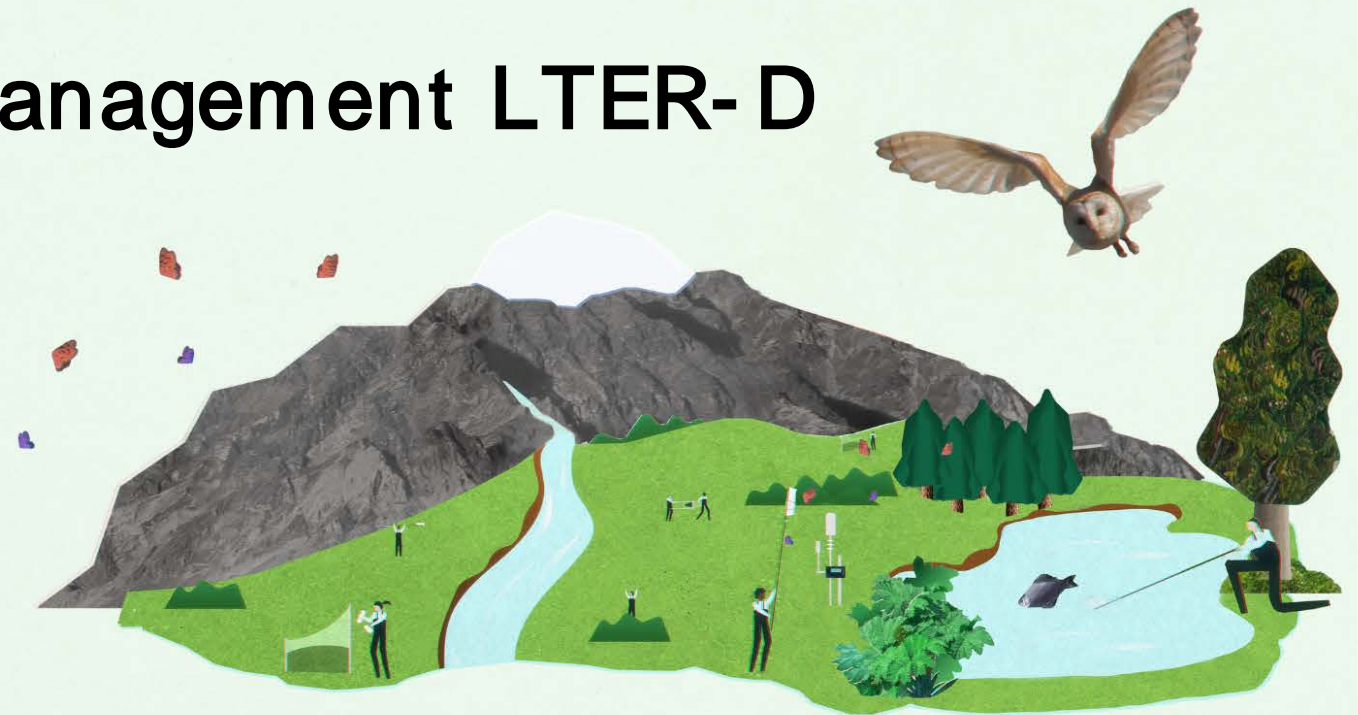
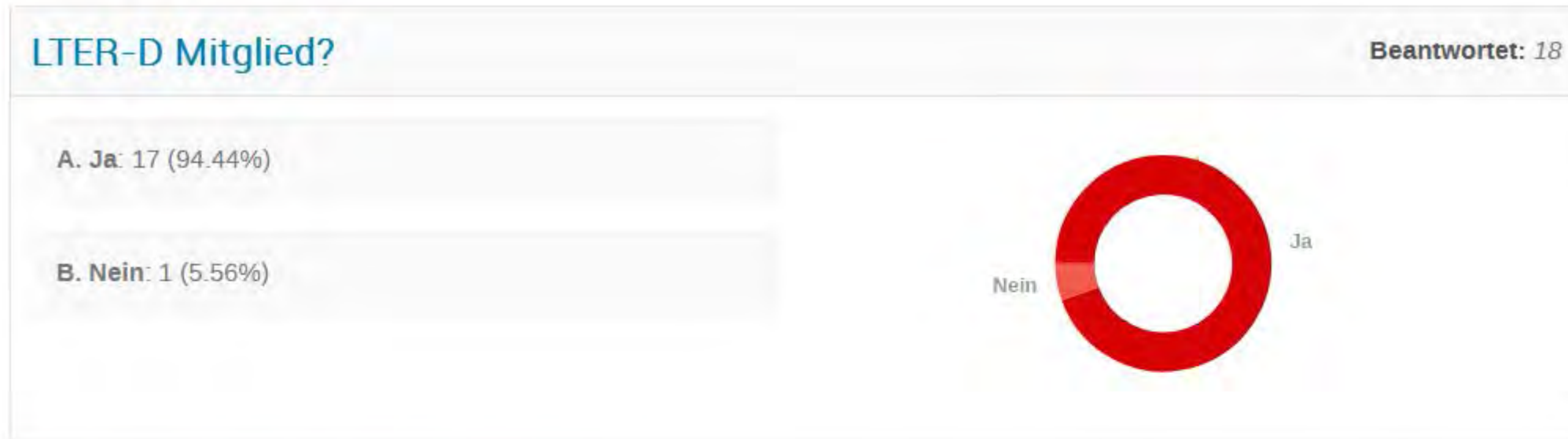


Teil 1: Umfrage Datenmanagement LTER-D



Datenmanagement Umfrage (März 2024)



Daten-Infrastruktur in Ihrer Institution

Gibt es in Ihrer Institution eine zentrale IT-Abteilung?

Beantwortet: 18

A. Ja: 17 (94.44%)

B. Nein: 1 (5.56%)



Wenn ja, ist die IT Abteilung auch für Forschungsdatenmanagement zuständig?

Beantwortet: 17

A. Ja: 7 (41.18%)

B. Nein: 10 (58.82%)



Gibt es an Ihrer Institution Richtlinien für das Forschungsdatenmanagement?

Beantwortet:

18

A. Ja: 14 (77.78%)

B. Nein: 4 (22.22%)



Gibt es Datenmanagementpläne bzw. Unterstützung bei der Erstellung?

Beantwortet: Datenmanagementpläne (DMP) werden öfters von Fördermittelgebern gefordert. NFDI4Biodiversity bietet über GfBio entsprechende Unterstützung an => <https://dmp.gfbio.org/>

18

A. Ja: 11 (61.11%)

B. Nein: 7 (38.89%)



Was ist die gängige Praxis der Datenspeicherung?

Beantwortet: 18

A. Individuelle Speichermedien: 7 (38.89%)

B. Zentrale Speichermedien (IT-Abteilung): 16 (88.89%)



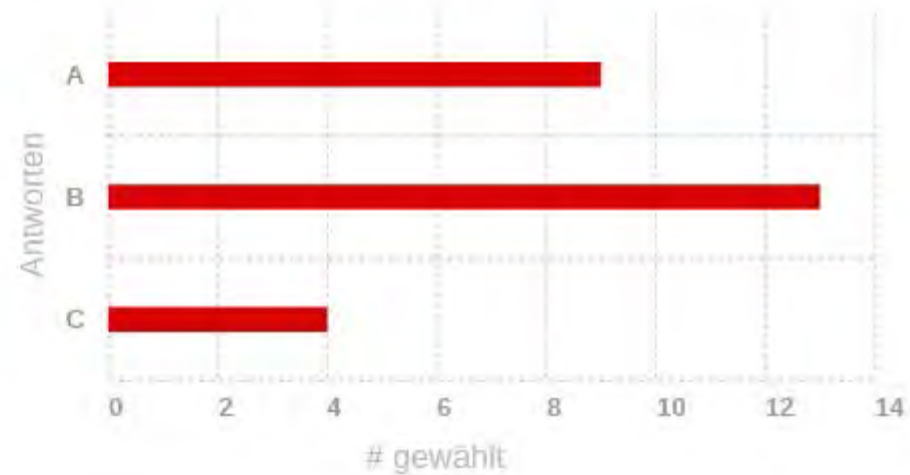
Was ist die gängige Praxis der Datenarchivierung?

Beantwortet: 18

A. Daten werden in einem öffentlichen Repository archiviert/publiziert: 9 (50.00%)

B. Daten werden über einen zentralen, institutionellen Dienst archiviert: 13 (72.22%)

C. Daten werden nicht archiviert: 4 (22.22%)



Werden Metadaten zu Datensätzen regelmäßig erfasst?

Beantwortet: Umfassende Metadaten (was, wo, wann, wie, wer?) sind eine zentrale Voraussetzung in der FAIR-Kette
et: 18

A. Ja: 14 (77.78%)

B. Nein: 4 (22.22%)



Wenn Metadaten erfasst werden, was trifft dann zu?

Beantwortet: 17

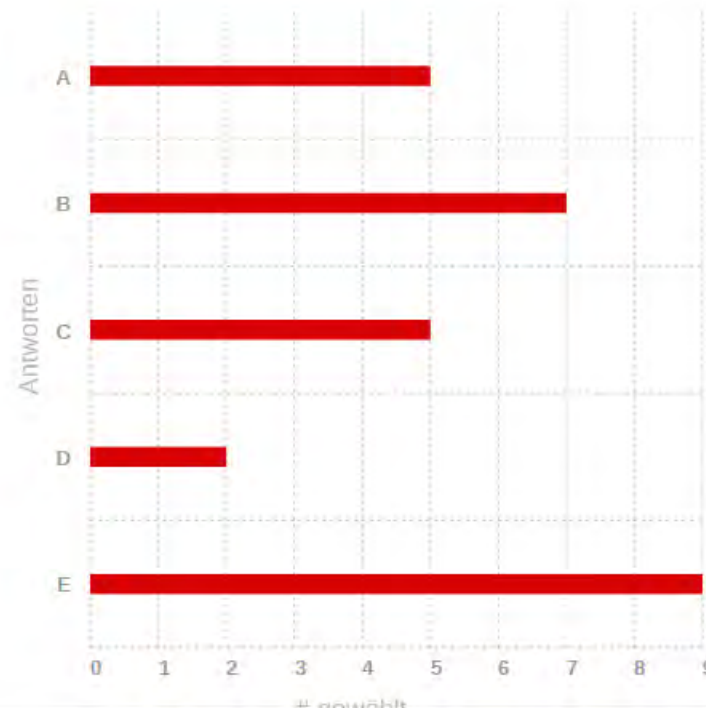
A. es gibt vorgegebene allgemeine Schemata (z.B. Darwin Core): 5 (29.41%)

B. es gibt eigene Schemata: 7 (41.18%)

C. eigene Schemata können mit gängigen Standard-Schemata wie z.B. Darwin Core verbunden werden: 5 (29.41%)

D. Metadaten werden tabellarisch z.B. in Excel gespeichert: 2 (11.76%)

E. Metadaten werden in einer Datenbank abgelegt: 9 (52.94%)



Kennen Sie NFDI4Biodiversity?

Beantwortet: 18

A. Ja: 12 (66.67%)

B. Nein: 6 (33.33%)



Wo wäre Unterstützung beim Datenmanagement im weiteren Sinn für Sie sinnvoll?

Beantwortet: mehrere Antworten möglich!
: 18

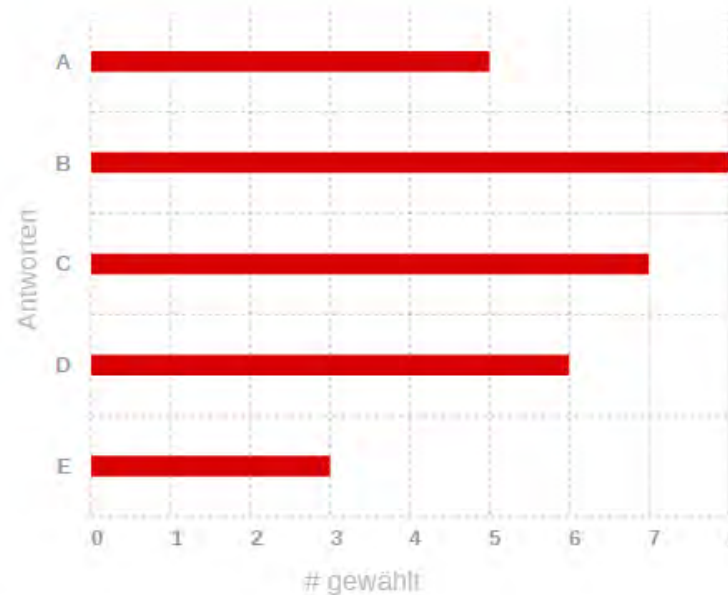
A. Datenmanagementplan: 5 (27.78%)

B. Metadatenschema: 8 (44.44%)

C. Datenbank (z.B. Informationssystem Bexis2): 7 (38.89%)

D. Datenpublikation: 6 (33.33%)

E. sonstige: 3 (16.67%)



...wenn "sonstige", was für eine Art von Unterstützung würden Sie sich wünschen?

Beantwortet:

6

Es fehlt primär an Personal

-

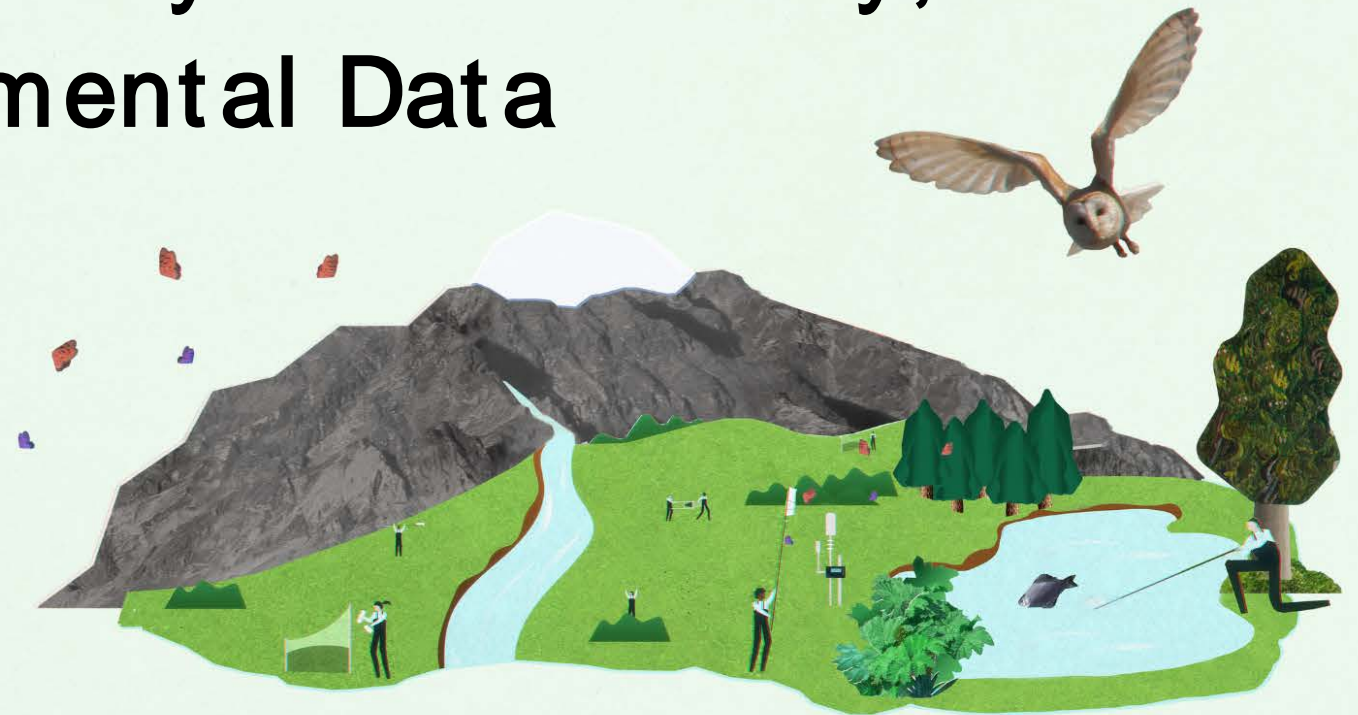
wir bereiten das Datenmanagement über Biodiversity Workbench vor

Austausch zwischen verschiedenen NFDI-Konsortien hinsichtlich speziellerer Fragen, z.B. juristische Aspekte

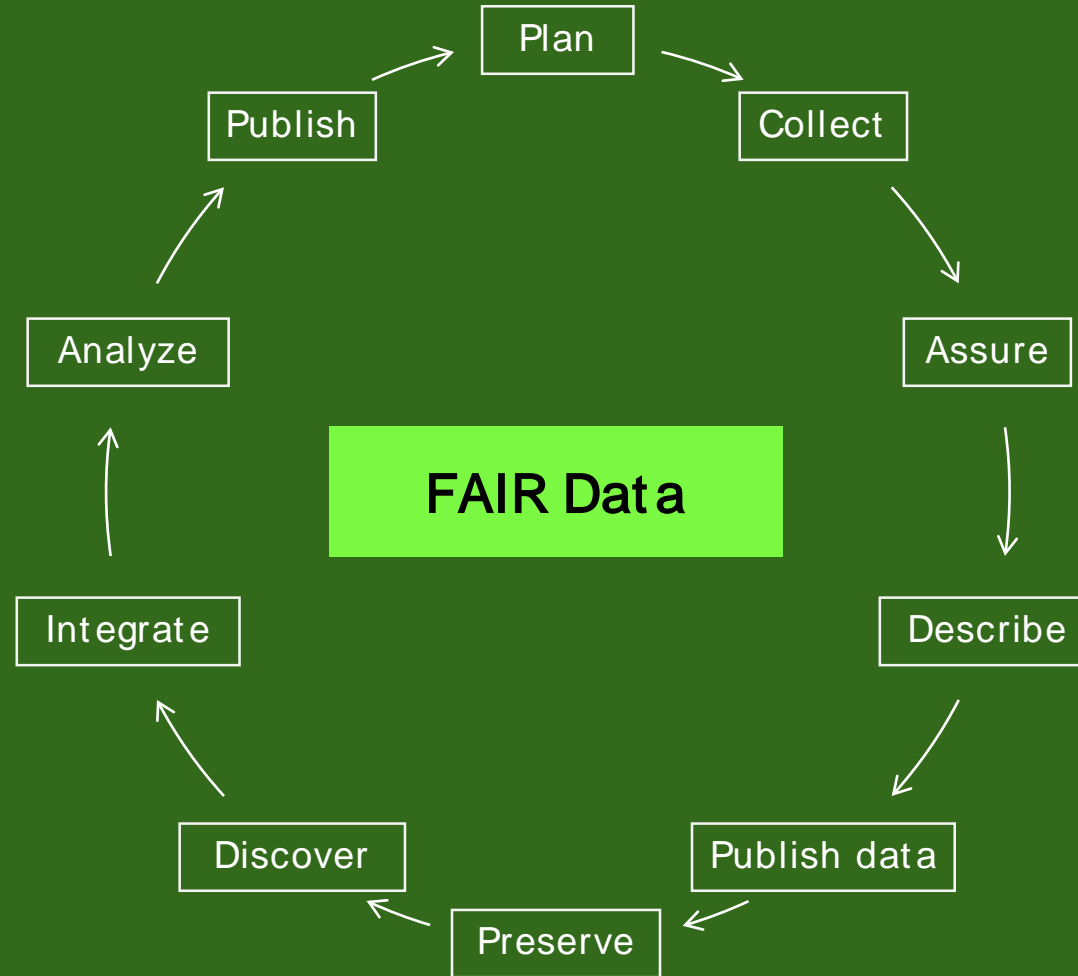
Enger Austausch im Sinne des FDM gewünscht; insb. bei disziplinspezifischen Daten.

Qualitätskontrolle, Digitalisieren von analog Aufzeichnungen (Altbestand)

TEIL 2: NFDI4Biodiversity – Biodiversity, Ecology and Environmental Data

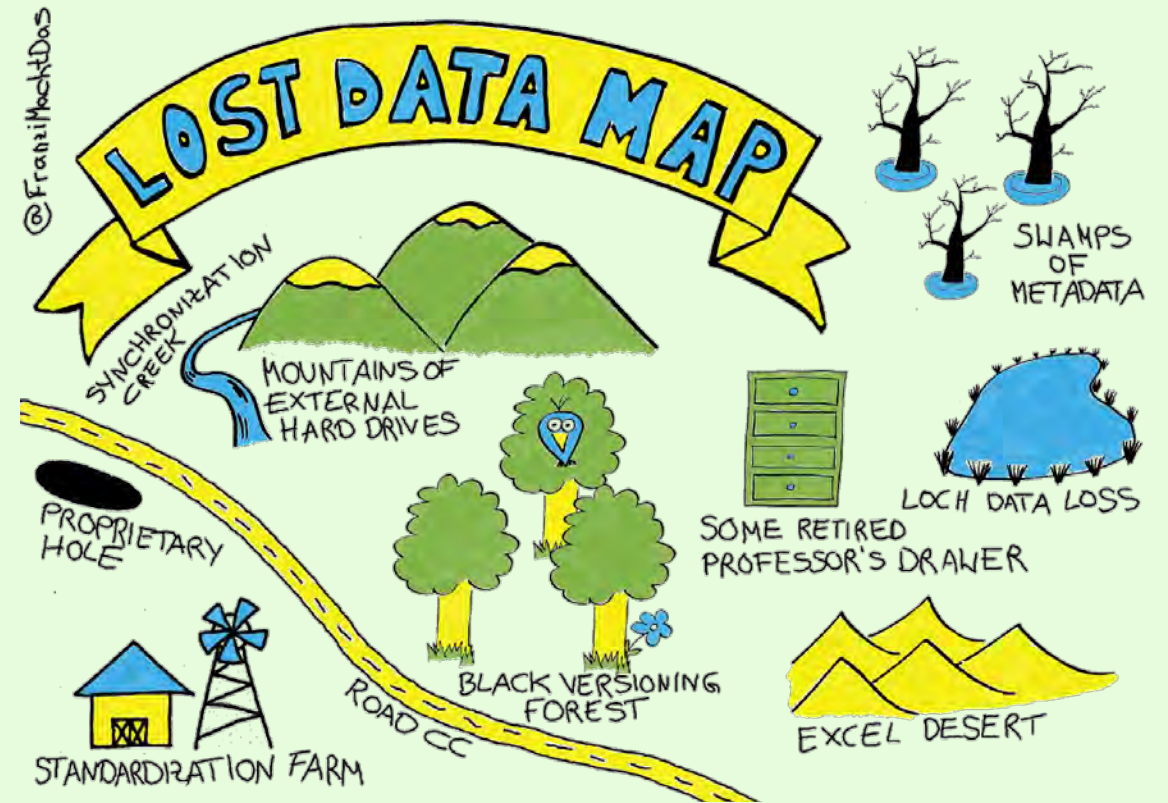


Data Life Cycle



Our Goal: Making Research Data FAIR

F	FINDABLE
A	ACCESSIBLE
I	INTEROPERABLE
R	REUSABLE



Structure of the NFDI

From January 2023 ff.		
27 funded consortia covering all research domains in Germany + basic services	Several hundred organisations teaming up as suppliers and in decision processes	> 1,000 professional staff

Facets of Biodiversity

Very specific data types – often combined with geospatial data. Time series, reference lists and taxonomies



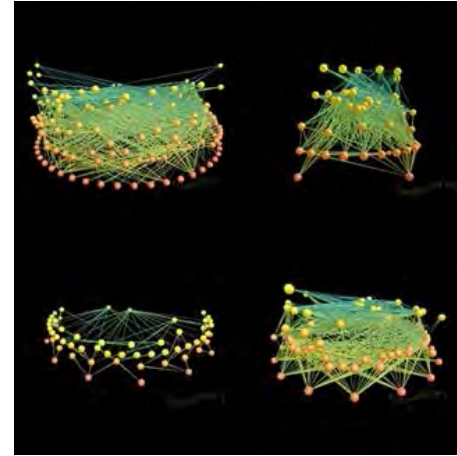
species



genes



functions

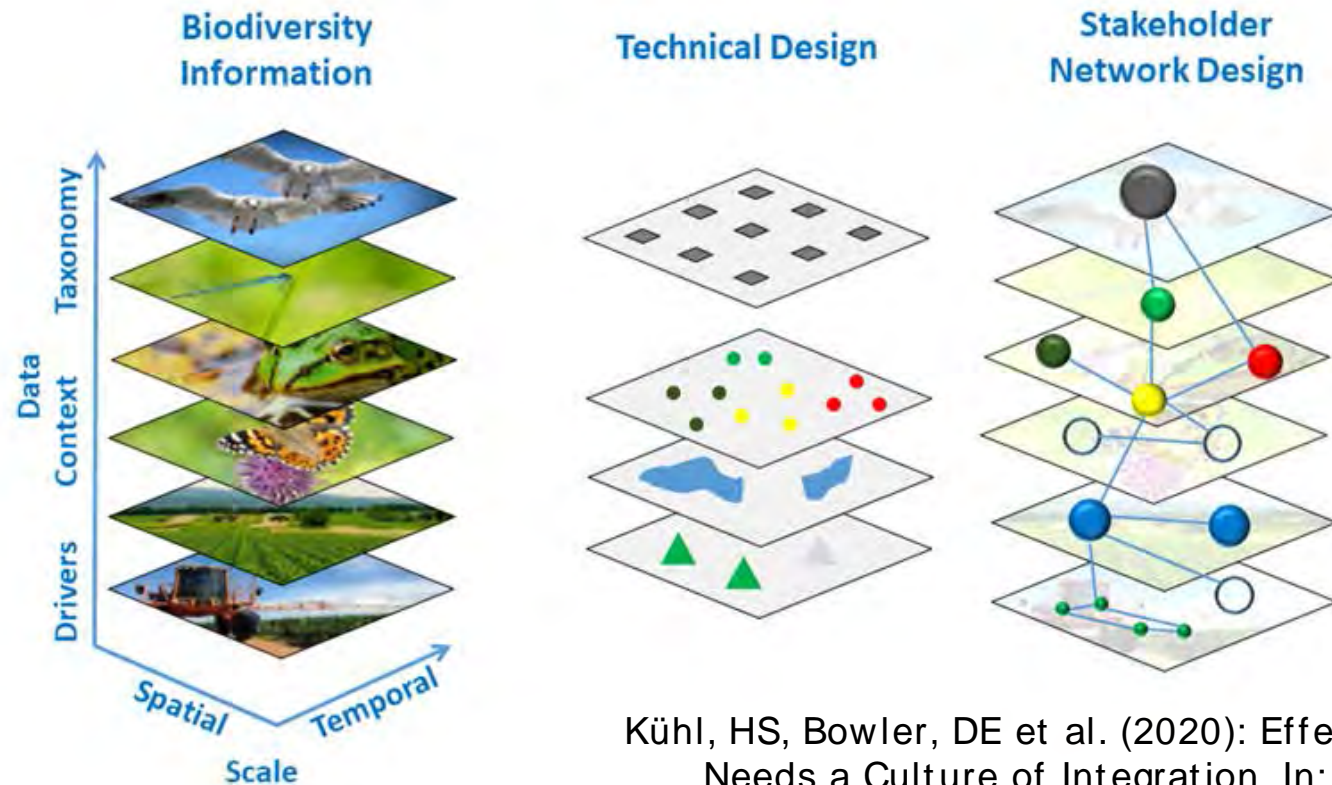


ecosystems



interactions

Transdisciplinary network



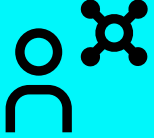



Kühl, HS, Bowler, DE et al. (2020): Effective Biodiversity Monitoring Needs a Culture of Integration. In: One Earth 3 (4), S. 462-474.
DOI: [10.1016/j.oneear.2020.09.010](https://doi.org/10.1016/j.oneear.2020.09.010).

NFDI4 Biodiversity Community Services

Consortium for Biodiversity, Ecology and Environmental Data

Services in NFDI4Biodiversity

With our experienced partners, we offer access to tried-and-tested tools for handling biodiversity and environmental data.

	Access to relevant data services from the domain
Front Office/Back Office Support for Research Data Management	
	Education and Training
Common Infrastructure (Research Data Commons)	

Services in NFDI4Biodiversity

Data submission, versioning and publication
Including long-term preservation
(extended **GFBio services**)

Helpdesk
Individual support for researchers and
data centers (extended **GFBio service**)

**Support with integration and
harmonization of data**
(**GFBio data centers**)

**Provision of collaborative
workspaces**
With support for scientific workflows
and provenance management

Education and Training
Tailored events, tools and materials
for teaching

Basic tools for data managers
Validation, transformation, automated
quality checks various **de.NBI** tools

Terminology service
(extended **GFBio service**)

**Search portals and API for data and
tools**
(extended **GFBio services**)

Elastic compute service
(Infrastructure-as-a-service)
In future: **Research Data Commons**

Data types and archives

Typical types of data our partners can handle:

- Occurrence Data (species)
- Environmental data (e.g. temperature, rainfall)
- Trait data (e.g. seed number and mass)
- Molecular data (e.g. sequences)
- Experimental and laboratory measurements
- Multimedia (photographs, audio, video), f.e. of observed specimens
- Orthophotos produced using a drone
- Digital surface models
- Model code
- Statistics

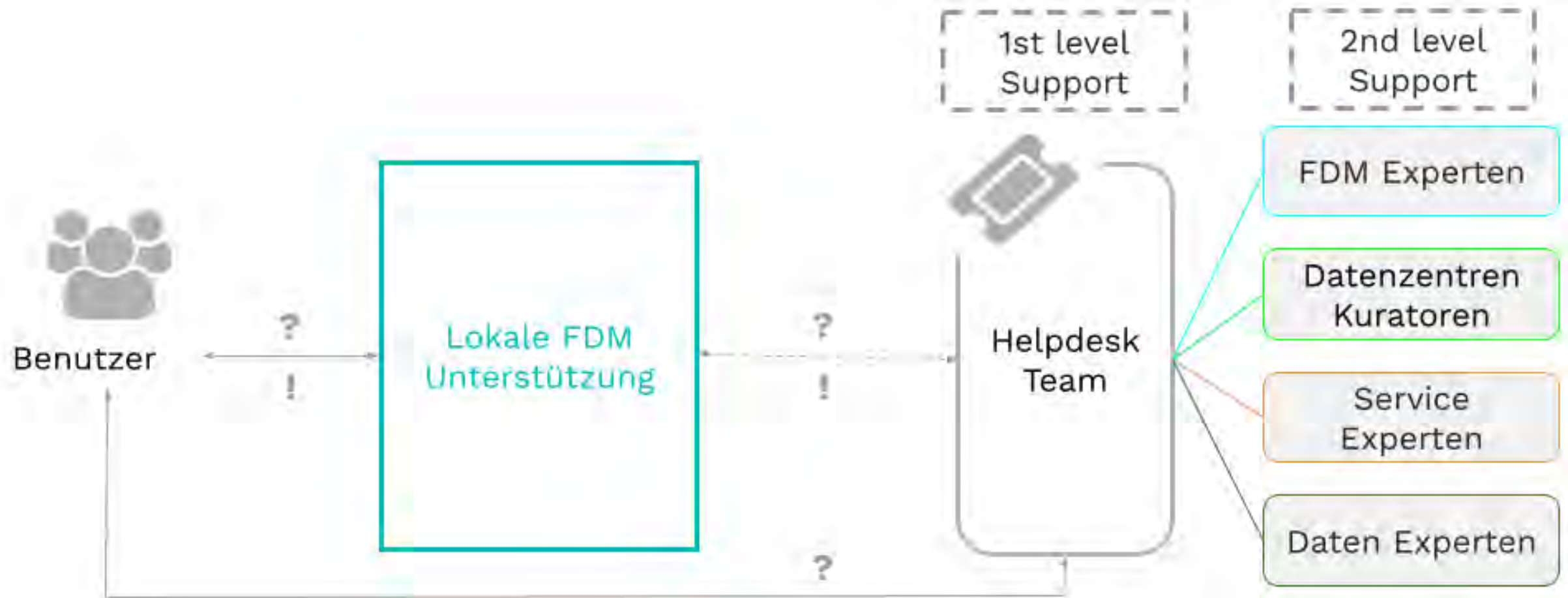
Data Centers specialized on Nucleotide, Plant and Environmental Data



Data Centers at Natural Science Collections

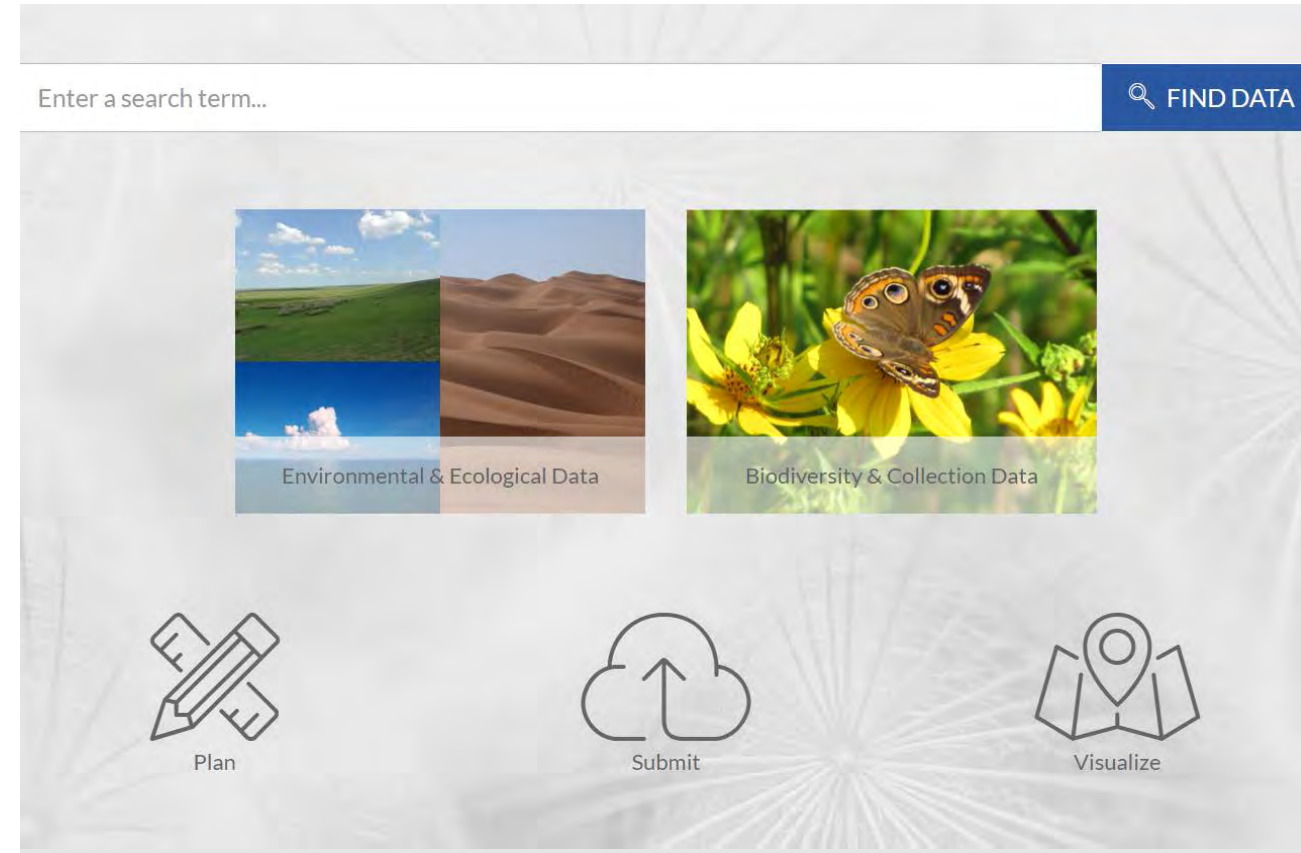


Central helpdesk



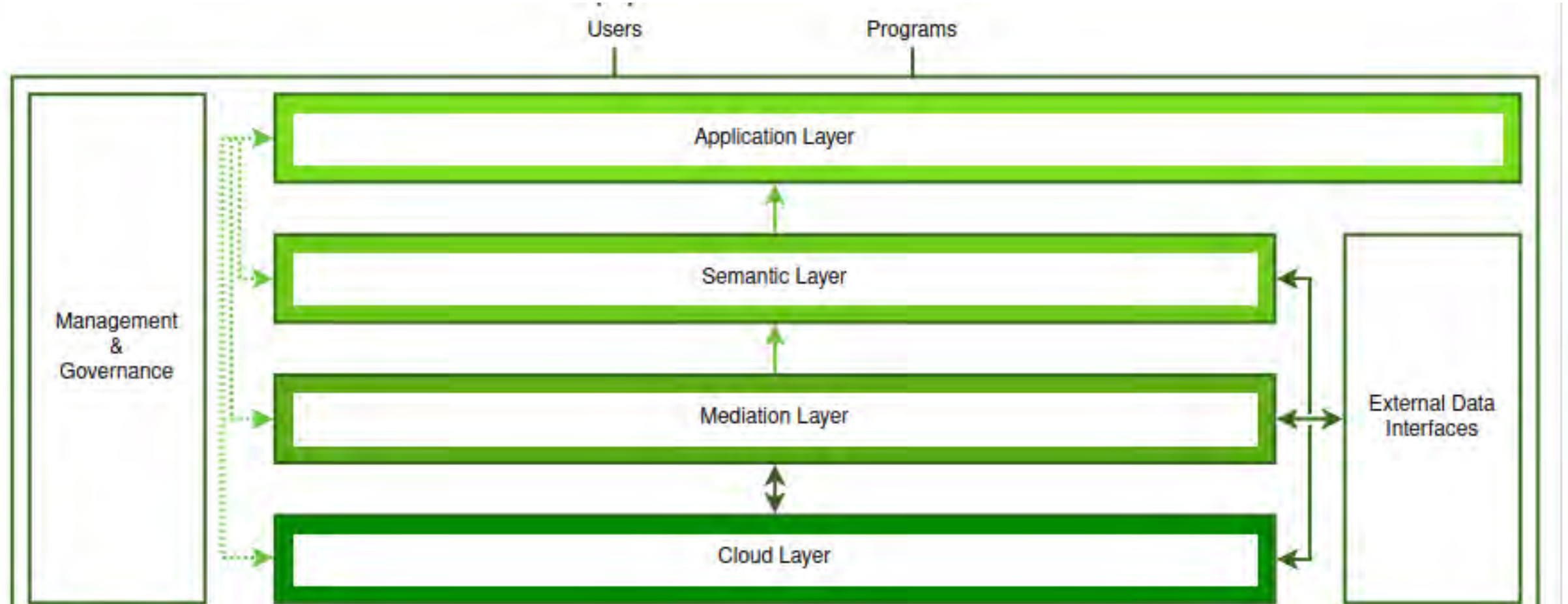
Research data services

A portfolio brought to NFDI4Biodiversity through the German Federation for Biological Data (GFBio e.V.)



The screenshot shows a web interface for research data services. At the top, there is a search bar with the placeholder text "Enter a search term..." and a blue button labeled "FIND DATA" with a magnifying glass icon. Below the search bar, there are two main data categories represented by images and text labels: "Environmental & Ecological Data" (showing a landscape with green fields and blue sky) and "Biodiversity & Collection Data" (showing a butterfly on a yellow flower). At the bottom of the interface, there are three icons representing different actions: "Plan" (two crossed pencils), "Submit" (a cloud with an upward arrow), and "Visualize" (a map with a location pin).

Moving services to the academic cloud

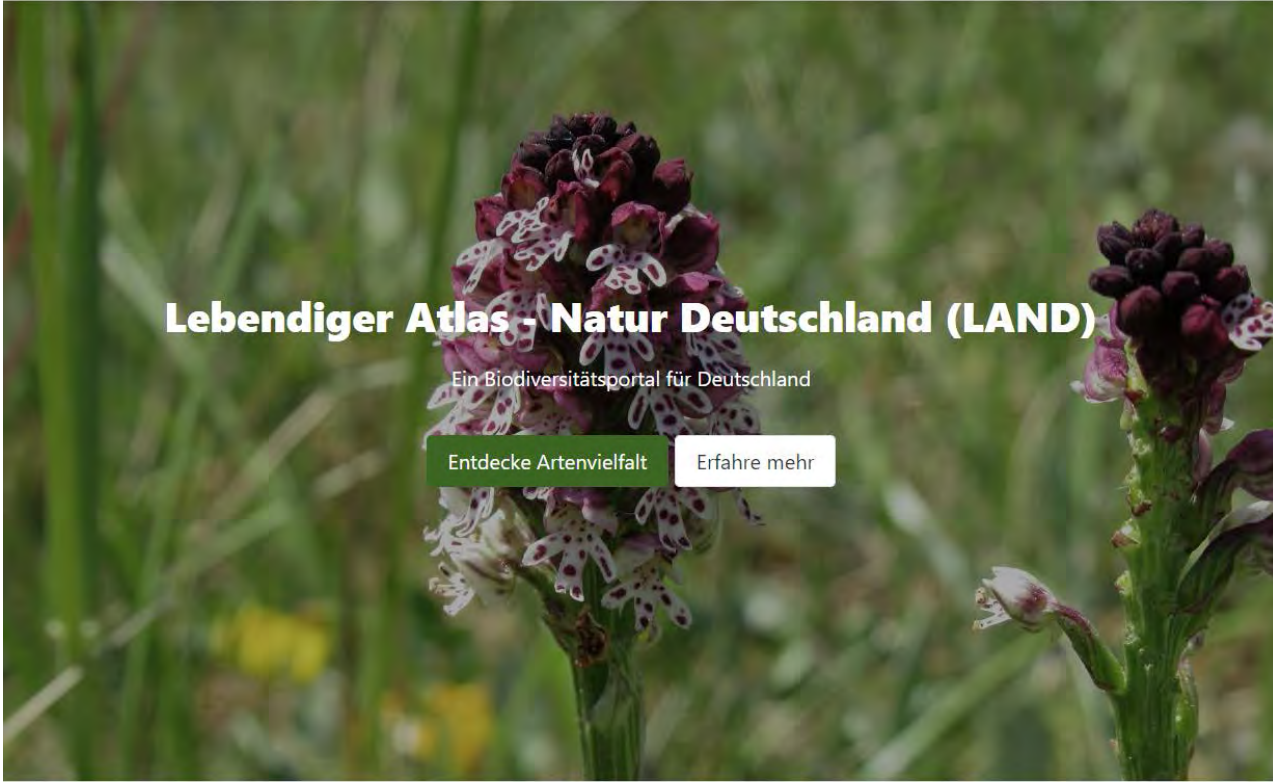


Levels of cooperation

Example: GBIF

- Setup of a GBIF hosted portal for the “Lebendiger Atlas Natur Deutschland”
- Moderated by the BioCASE helpdesk @ FU Berlin-BO
- Provides a standardized data workflow, DQ components, and a capable data portal
- Establishes a GBIF-pipeline and cooperation based on a concrete technical product

<https://land.gbif.de/>



Lebendiger Atlas - Natur Deutschland (LAND)
Ein Biodiversitätsportal für Deutschland

Entdecke Artenvielfalt Erfahre mehr

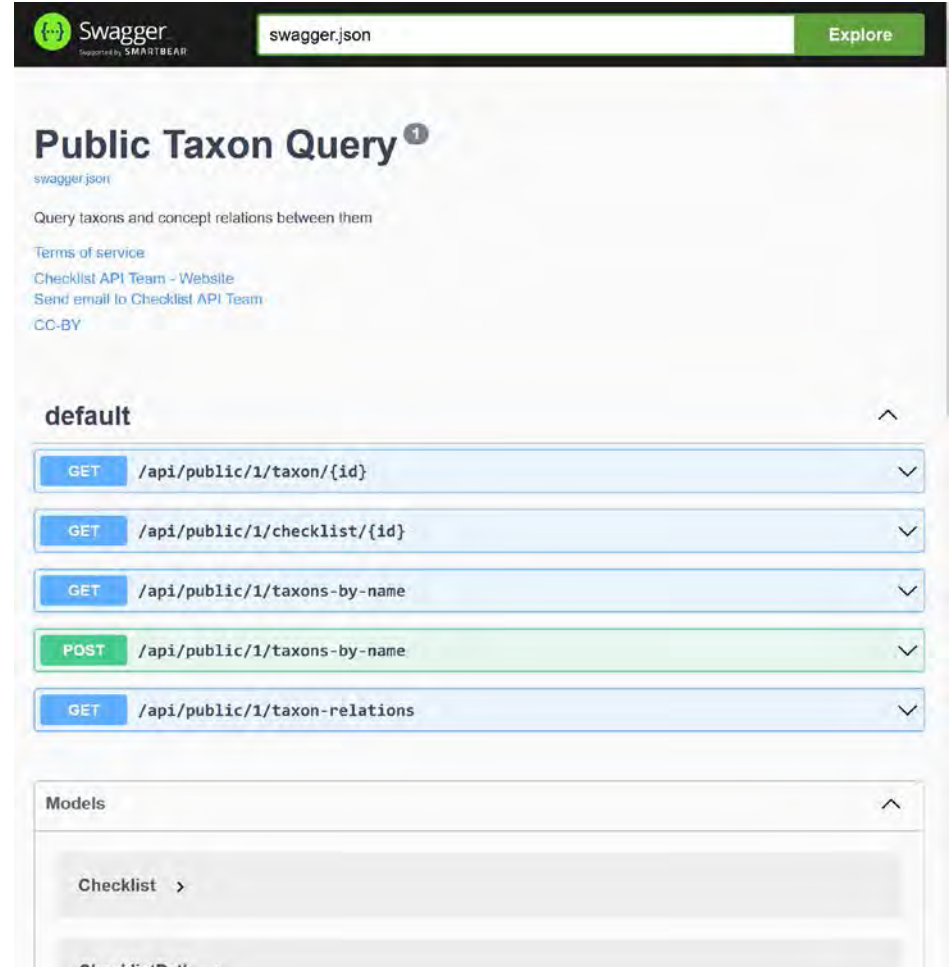
Willkommen auf dem neuen LAND-Portal

Hier gibt es Biodiversitätsdaten für Deutschland - zusammengestellt von NFDI4Biodiversity und gehostet von GBIF. Viel Spaß beim Entdecken!

Levels of cooperation

Example: Red List Center

- Joint specification and implementation of an API for the Red List Checklist Infrastructure (funded by NFDI4Biodiversity).
- Provides the taxonomic backbone for the German taxa and related research data.
- Cooperation agreement provides the blueprint for similar partnerships.



The screenshot shows the Swagger UI for the 'Public Taxon Query' API. The top navigation bar includes the Swagger logo, a search box containing 'swagger.json', and an 'Explore' button. The main content area is titled 'Public Taxon Query' with a 'swagger.json' link. Below the title, there is a description: 'Query taxons and concept relations between them'. There are also links for 'Terms of service', 'Checklist API Team - Website', 'Send email to Checklist API Team', and 'CC-BY'. The 'default' section is expanded, showing a list of API endpoints:

- GET /api/public/1/taxon/{id}
- GET /api/public/1/checklist/{id}
- GET /api/public/1/taxons-by-name
- POST /api/public/1/taxons-by-name
- GET /api/public/1/taxon-relations

Below the endpoints, the 'Models' section is partially visible, showing a 'Checklist' model.

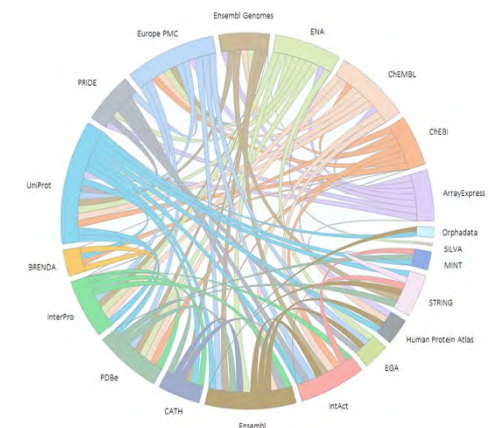
GBIF- related activities



- German GBIF nodes are partners in NFDI4Biodiversity and GFBio (<http://www.gbif.de/de>)
- Support for data deliveries to GBIF – all interested parties
- BioCAsE Services routinely used for mobilising data
- Win-win situation for other portals, for example GFBio (www.gfbio.org)

Digital Sequence Information and Services in NFDI4Biodiversity

- GFBio submission service: archiving sequence data produced by scientific projects and networks
 - Several Data Centers involved, including European Nucleotide Archive ENA
 - de.NBI Cloud to process genomic and transcriptomic data
- Downstream data services to provide sequence information to users
 - BRENDA enzyme database
 - SILVA ribosomal RNA database
- de.NBI Cloud Services for analysis capacity
- Integration German Barcode of Life (GBOL) as resource
 - Workflows for metabarcoding projects



Selected cooperations: Data management in research programmes

- Data management support (DMP) and archiving (through GFBio Helpdesk)
- Delivery of metadata from data repositories to portal (in preparation)
- Formalized Memorandum of Understanding (MoU) in 2022



<https://www.feda.bio/de/kooperationspartner/>

Selected cooperations: Institutional Data Management

- Hosted Data Management Information System (BEXIS)
- Service provided by NFDI4Biodiversity partner Uni Jena
- Prototyping archival workflows with Bavarian State Archive
- Cooperation governed within the Consortium (all three are partners)



NATIONALPARK
Bayerischer Wald



NFDI 4
BIODIVERSITY

Selected cooperations: Machine-to-machine data exchange

Access to Checklist data

- Development of API - additional programming funded through NFDI4Biodiversity project budget
- Formalized agreement between GFBio e.V. (NFDI4Biodiversity development partner) and BfN (contracting authority Checklist Editor)



NFDI 4
BIODIVERSITY

Selected cooperations: Data driven methodology



IUCN Red list fish species

- For the first time a data driven approach for short term trends
- > 6 month to collect and harmonize the data
- Data set will be archived and made publicly available
- Accompanying data publication in preparation



NFDI 4
BIODIVERSITY

Selected cooperations: Project initiated data pipeline



Data provision for eLTER IT infrastructure:

1. Hosted Data Management Information System BEXIS for LTER-D; data structure and metadata scheme adjusted to eLTER SO (data base, quality check; BEXIS Service provided by NFDI4Biodiversity partner Uni Jena)
2. (semi-) automated export to Pangaea
3. Pangaea: DOI, data publication (landing page)
4. eLTER data: harvested from Pangaea by eLTER IT infrastructure



NFDI 4
BIODIVERSITY

Thank you!



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