Floodplain and river monitoring

The database contains metadata of biological monitoring projects of rivers and their floodplains in Germany and gives a first overview about nationwide monitoring activities. More detailed information about single projects are given in the data entries UFO_11, UFO_12 and UFO_17 to UFO_24 of the Freshwater Metadatabase (http://data.freshwaterbiodiversity.eu/metadb). Metadata were collected in the national project 'Development of biodiversity in floodplains' funded by the Federal Agency of Conservation (BfN). Four institutions were involved: Departement of Aquatic Ecology, University of Duisburg-Essen; Institute of Geography and Geoecology, Karlsruhe Institute of Technology; Floodplain Institute Neuburg, University of Eichstätt-Ingolstadt; Department of Conservation Biology, Helmholtz Centre for Biological Research-UFZ.

science keywords according to GCMD:

- **topic**: Biosphere, Terrestrial Hydrosphere

ISO topic category according to ISO 19115:

- **Biota, Inland Waters**
Technical and administrative specifications

data format: Excel
operating system: all Windows systems
data language: German
current access level: internal
currently available through GBIF: no
exchange planned: no
data in data repository: no

Do you plan to publish the data on the Freshwater Biodiversity Data Portal: no

update level: update planned
documentation:
type: internal description
language: German

contact details:

metadata contact person: Kathrin Januschke
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Intellectual property rights and citation

(if the dataset is already published):

dataset creator (data compiler):

  contact name: Kathrin Januschke
  contact email: kathrin.januschke@uni-due.de
  contact institution: Department of Aquatic Ecology, University of Duisburg-Essen, Germany

data contributors to/owners of this dataset:

  number: multiple

provider 1:
  provider institute: Department of Aquatic Ecology, University of Duisburg-Essen, Germany
  contact name: Kathrin Januschke
  contact email: kathrin.januschke@uni-due.de
  criteria for using the data in a publication/scientific analysis:
  The dataset needs to be requested from dataset creator with specific conditions of use.

provider 2:
  provider institute: until 2015: Karlsruhe Institute of Geography and Geocology, Rastatt, Germany
  contact name: Gloria Ledesma-Krist
  contact email: g.ledesma-krist@umwelt.saarland.de
  criteria for using the data in a publication/scientific analysis:
  The dataset needs to be requested from dataset creator with specific conditions of use.
  comments: Current contact institution: Ministry of Environment and Consumer Protection - Saarland, Germany

provider 3:
  provider institute: Department of Conservation Biology, Helmholtz Centre for Biological Research-UFZ
  contact name: Mathias Scholz
  contact email: mathias.scholz@ufz.de
  criteria for using the data in a publication/scientific analysis:
  The dataset needs to be requested from dataset creator with specific conditions of use.

provider 4:
  provider institute: Floodplain Institute Neuburg, Cath. University of Eichstätt-Ingolstadt, Germany
  contact name: Marion Gelhaus
  contact email: marion.gelhaus@ku.de
  criteria for using the data in a publication/scientific analysis:
  The dataset needs to be requested from dataset creator with specific conditions of use.

provider 5:
  provider institute: Floodplain Institute Neuburg, Cath. University of Eichstätt-Ingolstadt, Germany
  contact name: Barbara Stammel
  contact email: barbara.stammel@aueninstitut-neuburg.de
  criteria for using the data in a publication/scientific analysis:
  The dataset needs to be requested from dataset creator with specific conditions of use.
provider 6:
  provider institute: Department of Aquatic Ecology, University of Duisburg-Essen, Germany
  contact name: Daniel Hering
  contact email: daniel.hering@uni-due.de
  criteria for using the data in a publication/scientific analysis:
  The dataset needs to be requested from dataset creator with specific conditions of use.

citation of this dataset:
  author(s): Januschke, K., Ledesma-Krist, G., Scholz, M., Gelhaus, M., Stammel, B. & Hering, D.
  title: Floodplain and river monitoring
  year: 2016

citation of the metadata:
  author(s): Januschke K., Ledesma-Krist G., Scholz M., Gelhaus M., Stammel B. & Hering D.
  title and journal (name, number, pages): Floodplain and river monitoring. Freshwater Metadata Journal 0: 0-0
  year: 0000
  doi (if applicable): http://dx.doi.org/10.15504/fmj.0000.0

comments:
Articles mentioned as dataset related references will be published within 2016.
Dataset: Floodplain and river monitoring

General data specifications

regional coverage of the dataset:
  scale of the dataset: national
  continents: Europe

spatial extent (bounding coordinates):
  southernmost latitude [°]: 47.392186
  northernmost latitude [°]: 54.046898
  westernmost longitude [°]: 6.108089
  easternmost longitude [°]: 14.337918
  minimum altitude: 5 metres
  maximum altitude: 1120 metres
  countries: Europe: Germany
Site specifications

**coordinate system/grid data:**
- latitude/longitude
  - projected
- datum (e.g. WGS84):
  - WGS84
- grid data available:
  - no

**other site classification parameters:**
- Floodplain typology (Koenzen, 2005)
- site coding available:
  - no
  - numerical

**number of sites:**
- 100 - 1000
- exact number of sites:
  - 138

**comments:**
- Number of sites means here: number of restoration projects with monitoring data.
### Climate and environmental data

- **climate related data:** no data available
- **environmental data:** no parameter data per catchment available
  no parameter data per site available
- **physico-chemistry data:** no data available

**stressors influencing the sites:**

<table>
<thead>
<tr>
<th>stressor</th>
<th>restored sites available</th>
<th>data before/after restoration available</th>
<th>stressor gradient available</th>
<th>comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>hydromorphological degradation</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>some projects with before/after or time series</td>
</tr>
<tr>
<td>hydrologic stress (e.g. impoundment, flow velocity reduction, hydropeaking, water abstraction, flow velocity increase)</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>some projects with before/after or time series</td>
</tr>
<tr>
<td>other stressors</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>dam construction; some projects with before/after or time series</td>
</tr>
</tbody>
</table>
Dataset: Floodplain and river monitoring

Biological data

biological data origin: from sampling
specify project: metadata collection from 138 projects focusing on biological monitoring in rivers and floodplains

organism group addressed: mammals, water birds, amphibians, terrestrial invertebrates (Carabidae), fish, macro-invertebrates (Mollusca, Crayfish, Ephemeroptera, Odonata, Plecoptera, Coleoptera, Trichoptera, Chironomidae), (benthic) diatoms, macrophytes, angiosperms (riparian vegetation), other group(s): butterflies and moths (Lepidoptera)
Sample specifications/sample resolution

mammals:
sample information:
covered timeframe: 1996 - 2002
historical data: no
season: summer, autumn
temporal resolution/frequency of sampling: differs between projects
time series data: yes
comments: 13 projects with replicate samplings (continous time-series with yearly samplings or selected years), 2 with one-time records.
taxonomic resolution:
percentage of species level data: 100
comments: Projects focused on Lutra lutra, Castor fiber, Ondatra zibethicus, Myocastor coypus.
taxonomic coding:
taxalist according to: selected species only
coding system: no coding used
sample specifications:
replicate samples: yes
number of samples: 11
specification of method(s) used for sampling and sorting: Information about sample methods is not available.

water birds:
sample information:
covered timeframe: 1988 - 2014
historical data: no
season: spring, summer, autumn
temporal resolution/frequency of sampling: differs between projects
time series data: yes
comments: 21 projects with replicate samplings (continous time-series with yearly samplings or selected years), 4 projects with one-time records.
taxonomic resolution:
percentage of species level data: 100
taxonomic coding:
taxalist according to: Barthel (1993, 2005)
coding system: no coding used
sample specifications:
replicate samples: yes
number of samples: 25
specification of method(s) used for sampling and sorting:
Predominantly the method according to Bibby et al. (1992) was used. The intensity and frequency of records differ between projects. Some projects only focus on selected bird species.


**amphibians:**

**sample information:**

<table>
<thead>
<tr>
<th>covered timeframe:</th>
<th>1989 - 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>year from - to:</td>
<td></td>
</tr>
<tr>
<td>historical data:</td>
<td>no</td>
</tr>
<tr>
<td>season:</td>
<td>spring, summer</td>
</tr>
<tr>
<td>temporal resolution/frequency of sampling:</td>
<td>differs between projects</td>
</tr>
<tr>
<td>time series data:</td>
<td>yes</td>
</tr>
<tr>
<td>comments:</td>
<td>12 projects with replicate samplings (continous time-series with yearly samplings or selected years), 3 projects with one-time records.</td>
</tr>
</tbody>
</table>

**taxonomic resolution:** species

**percentage of species level data:** 100

**taxonomic coding:**

- coding system: no coding used

**sample specifications:**

- quantitative (abundance data), presence/absence
- replicate samples: yes
- number of samples: 61
- specification of method(s) used for sampling and sorting: Methods differ between projects.

**terrestrial invertebrates:**

**sample information:**

<table>
<thead>
<tr>
<th>covered timeframe:</th>
<th>1972 - 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>year from - to:</td>
<td></td>
</tr>
<tr>
<td>historical data:</td>
<td>no</td>
</tr>
<tr>
<td>season:</td>
<td>spring, summer, autumn</td>
</tr>
<tr>
<td>temporal resolution/frequency of sampling:</td>
<td>differs between projects</td>
</tr>
<tr>
<td>comments:</td>
<td>53 projects with replicate samplings (continous time-series with yearly samplings or selected years), 70 projects with one-time sampling.</td>
</tr>
</tbody>
</table>

**taxonomic resolution:** family, genus, species

**percentage of species level data:** 80

**comments:** 87 (of 123) projects focused on ground beetles (species level). The other
projects differ strongly in investigated organism groups: single investigations of e.g. bugs (Heteroptera), millipedes (Isopoda, Diplopoda), ants (Formicidae), rove beetles (Staphylinidae), longhorn beetles (Cerambycidae) or beetle families in general.

**Taxonomic coding:**
- Citation: Fauna Europaea: Coleoptera 2; http://bdj.pensoft.net/articles.php?id=4750
- Coding system: no coding used

**Sample specifications:**
- Replicate samples: yes
- Number of samples: 281
- Specification of method(s) used for sampling and sorting:
  Predominantly pitfall traps (Barber, 1931) and hand sampling (Trautner, 1996) were used, but intensity and frequency of sampling strongly differ between projects. In some projects light traps, strip nets, sweeping off the upper soils or sieving methods have been used.
  
  **Citation:**
  

**Fish:**
- Sample information:
  - Covered timeframe: 1991 - 2014
  - Historical data: no
  - Palaeo data: no
  - Season: spring, summer, autumn
  - Temporal resolution/frequency of sampling: differs between projects
  - Time series data: yes
  - Comments: 32 projects with replicate samplings (continous time-series with yearly samplings or selected years), 35 projects with one-time records.

**Taxonomic resolution:**
- Percentage of species level data: 100%

**Taxonomic coding:**
- Taxalist according to: Diekmann et al., 2005, Mauch (2003-2011)
  
**Dataset:** Floodplain and river monitoring

<table>
<thead>
<tr>
<th>coding system:</th>
<th>no coding used</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>sample specifications:</strong></td>
<td>quantitative (abundance data), semi-quantitative</td>
</tr>
<tr>
<td>replicate samples:</td>
<td>yes</td>
</tr>
<tr>
<td>number of samples:</td>
<td>177</td>
</tr>
<tr>
<td>specification of method(s) used for sampling and sorting:</td>
<td>Method following the Water Framework Directive (Diekmann et al., 2005).</td>
</tr>
</tbody>
</table>

**macro-invertebrates:**

<table>
<thead>
<tr>
<th>sample information:</th>
</tr>
</thead>
<tbody>
<tr>
<td>covered timeframe:</td>
</tr>
<tr>
<td>historical data:</td>
</tr>
<tr>
<td>palaeo data:</td>
</tr>
<tr>
<td>season:</td>
</tr>
<tr>
<td>temporal resolution/frequency of sampling:</td>
</tr>
<tr>
<td>time series data:</td>
</tr>
<tr>
<td>comments:</td>
</tr>
</tbody>
</table>

| taxonomic resolution: | family, genus, species |
|-----------------------|
| percentage of species level data: | 80 |
| taxonomic coding: | differs between organism groups (see below) |

Adult dragon- and damselflies:

Adult, winged macro-invertebrates:

Sample specifications:

- Coding system: no coding used
- Replicate samples: yes
- Number of samples: 330
- Specification of method(s) used for sampling and sorting:
  - Benthic invertebrates: Multihabitat-sampling according to Meier et al. (2006) was predominantly used. In some projects substrate-specific samplings were applied. In 4 projects light traps for sampling of adult, winged macro-invertebrates were installed.
  - Adult dragon- and damselflies: Sight observations and dip net catches. Intensity and frequency of samplings differ strongly between projects.

Citation:
Aquatic (and terrestrial) molluscs:

Adult dragon- and damselflies:

(benthic) diatoms:

taxonomic resolution:
percentage of species level data: 70

(benthic) diatoms:
sample information:
covered timeframe:
year from - to: 2005 - 2010
historical data: no
palaeo data: no
season: spring, summer
temporal resolution/frequency of sampling: differs between projects
time series data: yes
comments: 6 projects with replicate samplings (continous time-series with yearly samplings or selected years), 3 projects with on-time records.
taxonomic coding:
taxalist according to: Schaumburg et al. (2004)
coding system: no coding used
sample specifications:
quantitative (abundance data)
replicate samples: yes
number of samples: 15
specification of method(s) used for sampling and sorting:
Method following the Water Framework Directive (Schaumburg et al., 2006).

macrophytes:
sample information:
Dataset: Floodplain and river monitoring

covered timeframe:
year from - to: 1978 - 2014
historical data: no
palaeo data: no
season: summer, autumn
temporal resolution/frequency of sampling:
differs between projects
time series data: yes
comments: 21 projects with replicate samplings (continuous time-series with yearly samplings or selected years), 35 projects with one-time records.
taxonomic resolution:
percentage of species level data: 80
taxonomic coding:
taxalist according to: Van de Weyer & Schmidt (2007)
citation:
coding system: no coding used
sample specifications:
quantitative (abundance data)
replicate samples: yes
number of samples: 96
specification of method(s) used for sampling and sorting:
Method following the Water Framework Directive (Schaumburg et al., 2006).
citation:

angiosperms:
sample information:
covered timeframe:
year from - to: 1938 - 2010
historical data: no
season: spring, summer, autumn
temporal resolution/frequency of sampling:
differs between projects
time series data: yes
comments: Projects focused predominantly on riparian vegetation.
52 projects with replicate samplings (continuous time-series with yearly samplings or selected years), 30 projects with one-time records.
taxonomic resolution:
species, other
other taxonomic levels: vegetation units
percentage of species level data: 90
taxonomic coding:
taxalist according to: differs between projects
citation:


coding system: no coding used

sample specifications: quantitative (abundance data), qualitative, presence/absence

replicate samples: yes

number of samples: 81

specification of method(s) used for sampling and sorting:
Methods differ between projects: e.g. method according to Barkmann et al. (1964), Braun-Blanquet (1964), transect-based records of vegetation units with species records on sample plots according to Jähnig et al. (2009) and Januschke et al. (2011).

citation:


other group(s):
sample information:
covered timeframe:
year from - to: 1992 - 2014
historical data: no
season: spring, summer, autumn
temporal resolution/frequency of sampling: differs between projects
time series data: yes
comments: Lepidoptera sample information: 7 projects with replicate samplings (continuous time-series with yearly samplings or selected years), 1 project with one-time records.

taxonomic resolution: species
percentage of species level data: 100

taxonomic coding:
taxalist according to: Karlsholt & Razowski (1996), Settele et al. (1999)
**Dataset:** Floodplain and river monitoring

<table>
<thead>
<tr>
<th>coding system:</th>
<th>no coding used</th>
</tr>
</thead>
<tbody>
<tr>
<td>sample specifications:</td>
<td>quantitative (abundance data), presence/absence</td>
</tr>
<tr>
<td>replicate samples:</td>
<td>yes</td>
</tr>
<tr>
<td>number of samples:</td>
<td>30</td>
</tr>
<tr>
<td>specification of method(s) used for sampling and sorting:</td>
<td>Sight observations, light traps, dip net catches. Intensity and frequency strongly differ between projects.</td>
</tr>
<tr>
<td>citation:</td>
<td>No information available.</td>
</tr>
</tbody>
</table>
Other specifications

GIS layers, shapes related to the dataset: no data available

availability of photos: yes

availability of maps: no

quality control procedures:
  Were any quality control procedures applied to your dataset?
  yes

quality control protocols and comments:
  Quality control was made after data input by checking the input table for inconsistencies.