

Versioned Archive and Review of Biotic
Interactions and Taxon Names Found within
globalbioticinteractions/pensoft-ipt
hash://md5/c0a02a50770e919ffc597faeca53b278

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<https://github.com/globalbioticinteractions/pensoft-ipt/issues>

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Abstract

Life on Earth is sustained by complex interactions between organisms and their environment. These biotic interactions can be captured in datasets and published digitally. We present a review and archiving process for such an openly accessible digital interactions dataset of known origin and discuss its outcome. The dataset under review, named globalbioticinteractions/pensoft-ipt, has fingerprint hash://md5/c0a02a50770e919ffc597faeca53b278, is 63.7MiB in size and contains 38,773 interactions with 4 unique types of associations (e.g., interactsWith) between 201 primary taxa (e.g., *Hydrocharis morsus-ranae* L.) and 765 associated taxa (e.g., NULL). This report includes detailed summaries of interaction data, a taxonomic review from multiple catalogs, and an archived version of the dataset from which the reviews are derived.

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Introduction

Data Review and Archive

Data review and archiving can be a time-consuming process, especially when done manually. This review report aims to help facilitate both activities. It automates the archiving of datasets, including Darwin Core archives, and is a citable backup of a version of the dataset. Additionally, an automatic review of species interaction claims made in the dataset is generated and registered with Global Biotic Interactions (J. H. Poelen, Simons, and Mungall 2014).

This review includes summary statistics about, and observations about, the dataset under review :

Aggregated occurrence records of invasive European frog-bit (*Hydrocharis morsus-ranae* L.) across North America - Version 1.3 <https://ipt.pensoft.net/archive.do?r=europeanfrogbit> 2026-01-24T05:41:42.776Z AnthWest, occurrence records for wool carder bees of the genus *Anthidium* (Hymenoptera: Megachilidae, Anthidiini) in the Western Hemisphere - Version 7.0 <https://ipt.pensoft.net/archive.do?r=anthidium> 2026-01-24T05:41:42.776Z A review of the *Cercyon* (Coleoptera: Hydrophilidae: Sphaeridiinae) of the Greater Antilles - Version 1.2 https://ipt.pensoft.net/archive.do?r=cercyon_greater_antilles 2026-01-24T05:41:42.776Z *ariadna_sa* - Version 1.3 https://ipt.pensoft.net/archive.do?r=ariadna_sa 2026-01-24T05:41:42.776Z A taxonomic synopsis of Altingiaceae with nine new combinations - Version 2.3 https://ipt.pensoft.net/archive.do?r=altingiaceae_synopsis 2026-01-24T05:41:42.776Z *Calamagrostis hongii* (Poaceae: Agrostidinae), a new species from southwestern China - Version 1.2 https://ipt.pensoft.net/archive.do?r=hongii_final 2026-01-24T05:41:42.776Z Data from: Spatial decoupling of taxon richness,

phylogenetic diversity and threat status in the megagenus *Erica* (Ericaceae) - Version 1.2 https://ipt.pensoft.net/archive.do?r=erica_edge_2024
 2026-01-24T05:41:42.776Z Diversity and distribution of reptiles in Romania - Version 1.4 https://ipt.pensoft.net/archive.do?r=reptiles_romania
 2026-01-24T05:41:42.776Z Empria and Monsoma in Japan - Version 6.0 https://ipt.pensoft.net/archive.do?r=japanese_empria 2026-01-24T05:41:42.776Z geophilidae_of_south_eastern_alps - Version 1.1 https://ipt.pensoft.net/archive.do?r=geophilidae_sealps 2026-01-24T05:41:42.776Z New species of the Eastern Hemisphere genera Afroheriades and Noteriades (Hymenoptera, Megachilidae) - Version 1.0 <https://ipt.pensoft.net/archive.do?r=afroheriades>
 2026-01-24T05:41:42.776Z Occurrence data of Namibimydas and Nothomydas (Diptera: Asiloidea: Mydidae) - Version 8.3 https://ipt.pensoft.net/archive.do?r=dikow2012_namibimydas_nothomydas
 2026-01-24T05:41:42.776Z Occurrence data of new Afrotropical and Oriental Mydidae (Diptera: Asiloidea) - Version 14.3 https://ipt.pensoft.net/archive.do?r=dikow2010_data
 2026-01-24T05:41:42.776Z Occurrence dataset for Neotropical species of Bolitogyrus (Insecta: Coleoptera: Staphylinidae) - Version 2.3 <https://ipt.pensoft.net/archive.do?r=neobolito1>
 2026-01-24T05:41:42.776Z oriental_bolitogyrus - Version 1.4 https://ipt.pensoft.net/archive.do?r=oriental_bolitogyrus 2026-01-24T05:41:42.776Z Species biodiversity transnational geo-database - IMPRECO Project - Version 1.4 https://ipt.pensoft.net/archive.do?r=im_pr_eco
 2026-01-24T05:41:42.776Z Synopsis of Schizanthus: list of specimens examined - Version 1.4 https://ipt.pensoft.net/archive.do?r=schizanthus_specimens
 2026-01-24T05:41:42.776Z Taxonomic revision of Dennettia, Uvariopendron and Uvariopsis - Version 1.0 https://ipt.pensoft.net/archive.do?r=taxonomic_revision_dennettia
 2026-01-24T05:41:42.776Z Two new species of Brueelia Kéler, 1936 (Ischnocera, Philopteridae) parasitic on Neotropical trogons (Aves, Trogoniformes) - Version 11.0 https://ipt.pensoft.net/archive.do?r=trogon_brueelia_2011
 2026-01-24T05:41:42.776Z USBombus, contemporary survey data of North American bumble bees (Hymenoptera, Apidae, Bombus) distributed in the United States - Version 2.11 <https://ipt.pensoft.net/archive.do?r=usbombus> 2026-01-24T05:41:42.776Z Western Palaearctic Ectoedemia (Zimmermannia) Hering and Ectoedemia Busck s. str. (Lepidoptera: Nepticulidae): five new species and new data on distribution, hostplants and recognition - Version 7.0 <https://ipt.pensoft.net/archive.do?r=ectoedemia> 2026-01-24T05:41:42.776Z
 hash://md5/c0a02a50770e919ffc597faeca53b278

For additional metadata related to this dataset, please visit <https://github.com/globalbioticinteractions/pensoft-ipt> and inspect associated metadata files including, but not limited to, *README.md*, *eml.xml*, and/or *globi.json*.

Methods

The review is performed through programmatic scripts that leverage tools like Preston (Elliott et al. 2025), Elton (Kuhn, Poelen, and Leinweber 2025), Nomer (Salim and Poelen 2025), globinizer (J. Poelen, Seltmann, and Mietchen 2024) combined with third-party tools like grep, mlr, tail and head.

Table 1: Tools used in this review process

tool name	version
preston	0.11.1
elton	0.16.1
nomer	0.5.17
globinizer	0.4.0
mlr	6.0.0
jq	1.6
yq	4.25.3
pandoc	3.1.6.1
duckdb	1.3.1
mapserver	7.6.4

The review process can be described in the form of the script below ¹.

```
# get versioned copy of the dataset (size approx. 63.7MiB) under review
elton pull globalbioticinteractions/pensoft-ipt

# generate review notes
elton review globalbioticinteractions/pensoft-ipt\
> review.tsv

# export indexed interaction records
elton interactions globalbioticinteractions/pensoft-ipt\
> interactions.tsv

# export names and align them with the Catalogue of Life using Nomer
elton names globalbioticinteractions/pensoft-ipt\
| nomer append col\
> name-alignment.tsv
```

or visually, in a process diagram.

¹Note that you have to first get the data (e.g., via `elton pull globalbioticinteractions/pensoft-ipt`) before being able to generate reviews (e.g., `elton review globalbioticinteractions/pensoft-ipt`), extract interaction claims (e.g., `elton interactions globalbioticinteractions/pensoft-ipt`), or list taxonomic names (e.g., `elton names globalbioticinteractions/pensoft-ipt`)

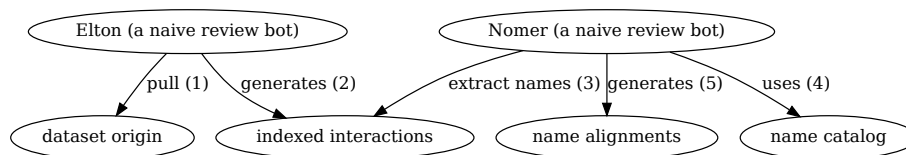


Figure 1: Review Process Overview

You can find a copy of the full review script at [check-data.sh](#). See also [GitHub](#) and [Codeberg](#).

Results

In the following sections, the results of the review are summarized ². Then, links to the detailed review reports are provided.

Files

The following files are produced in this review:

filename	description
biblio.bib	list of bibliographic reference of this review
check-dataset.sh	data review workflow/process as expressed in a bash script
data.zip	a versioned archive of the data under review
HEAD	the digital signature of the data under review
index.docx	review in MS Word format
index.html	review in HTML format
index.md	review in Pandoc markdown format
index.pdf	review in PDF format
indexed-citations.csv.gz	list of distinct reference citations for reviewed species interaction claims in gzipped comma-separated values file format
indexed-citations.html.gz	list of distinct reference citations for reviewed species interactions claims in gzipped html file format

²Disclaimer: The results in this review should be considered friendly, yet naive, notes from an unsophisticated robot. Please keep that in mind when considering the review results.

filename	description
indexed-citations.tsv.gz	list of distinct reference citations for reviewed species interaction claims in gzipped tab-separated values format
indexed-interactions-col-family-col-family.svg	network diagram showing the taxon family to taxon family interaction claims in the dataset under review as interpreted by the Catalogue of Life via Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024)
indexed-interactions-col-kingdom-col-kingdom.svg	network diagram showing the taxon kingdom to taxon kingdom interaction claims in the dataset under review as interpreted by the Catalogue of Life via Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024)
indexed-interactions.csv.gz	species interaction claims indexed from the dataset under review in gzipped comma-separated values format
indexed-interactions.html.gz	species interaction claims indexed from the dataset under review in gzipped html format
indexed-interactions.tsv.gz	species interaction claims indexed from the dataset under review in gzipped tab-separated values format
indexed-interactions.parquet	species interaction claims indexed from the dataset under review in Apache Parquet format
indexed-interactions.png	species interaction claims indexed from the dataset under review plotted on a map
indexed-interactions.gpkg	species interaction claims indexed from the dataset under review in GeoPackage format
indexed-interactions-h3.gpkg	geospatially clustered h3 species interaction claims indexed from the dataset under review in GeoPackage format
indexed-interactions-sample.csv	list of species interaction claims indexed from the dataset under review in gzipped comma-separated values format

filename	description
indexed-interactions-sample.html	first 500 species interaction claims indexed from the dataset under review in html format
indexed-interactions-sample.tsv	first 500 species interaction claims indexed from the dataset under review in tab-separated values format
indexed-names.csv.gz	taxonomic names indexed from the dataset under review in gzipped comma-separated values format
indexed-names.html.gz	taxonomic names found in the dataset under review in gzipped html format
indexed-names.tsv.gz	taxonomic names found in the dataset under review in gzipped tab-separated values format
indexed-names.parquet	taxonomic names found in the dataset under review in Apache Parquet format
indexed-names-resolved-col.csv.gz	taxonomic names found in the dataset under review aligned with the Catalogue of Life as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped comma-separated values format
indexed-names-resolved-col.html.gz	taxonomic names found in the dataset under review aligned with the Catalogue of Life as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped html format
indexed-names-resolved-col.tsv.gz	taxonomic names found in the dataset under review aligned with the Catalogue of Life as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped tab-separated values format
indexed-names-resolved-col.parquet	taxonomic names found in the dataset under review aligned with the Catalogue of Life as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in Apache Parquet format

filename	description
indexed-names-resolved-discoverlife.csv.gz	taxonomic names found in the dataset under review aligned with Discover Life bee species checklist as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped comma-separated values format
indexed-names-resolved-discoverlife.html.gz	taxonomic names found in the dataset under review aligned with Discover Life bee species checklist as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped html format
indexed-names-resolved-discoverlife.tsv.gz	taxonomic names found in the dataset under review aligned with Discover Life bee species checklist as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped tab-separated values format
indexed-names-resolved-discoverlife.parquet	taxonomic names found in the dataset under review aligned with Discover Life bee species checklist as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in Apache Parquet format
indexed-names-resolved-gbif.csv.gz	taxonomic names found in the dataset under review aligned with GBIF Backbone Taxonomy as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped comma-separated values format
indexed-names-resolved-gbif.html.gz	taxonomic names found in the dataset under review aligned with GBIF Backbone Taxonomy as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped html format

filename	description
indexed-names-resolved-gbif.tsv.gz	taxonomic names found in the dataset under review aligned with GBIF Backbone Taxonomy as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped tab-separated values format
indexed-names-resolved-gbif.parquet	taxonomic names found in the dataset under review aligned with GBIF Backbone Taxonomy as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in Apache Parquet format
indexed-names-resolved-itis.csv.gz	taxonomic names found in the dataset under review aligned with Integrated Taxonomic Information System (ITIS) as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped comma-separated values format
indexed-names-resolved-itis.html.gz	taxonomic names found in the dataset under review aligned with Integrated Taxonomic Information System (ITIS) as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped html format
indexed-names-resolved-itis.tsv.gz	taxonomic names found in the dataset under review aligned with Integrated Taxonomic Information System (ITIS) as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped tab-separated values format
indexed-names-resolved-itis.parquet	taxonomic names found in the dataset under review aligned with Integrated Taxonomic Information System (ITIS) as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in Apache Parquet format

filename	description
indexed-names-resolved-mdd.csv.gz	taxonomic names found in the dataset under review aligned with the Mammal Diversity Database as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped comma-separated values format
indexed-names-resolved-mdd.html.gz	taxonomic names found in the dataset under review aligned with Mammal Diversity Database as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped html format
indexed-names-resolved-mdd.tsv.gz	taxonomic names found in the dataset under review aligned with Mammal Diversity Database as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped tab-separated values format
indexed-names-resolved-mdd.parquet	taxonomic names found in the dataset under review aligned with Mammal Diversity Database as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in Apache Parquet format
indexed-names-resolved-ncbi.csv.gz	taxonomic names found in the dataset under review aligned with the NCBI Taxonomy as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped comma-separated values format
indexed-names-resolved-ncbi.html.gz	taxonomic names found in the dataset under review aligned with the NCBI Taxonomy as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped html format

filename	description
indexed-names-resolved-ncbi.tsv.gz	taxonomic names found in the dataset under review aligned with the NCBI Taxonomy as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped tab-separated values format
indexed-names-resolved-ncbi.parquet	taxonomic names found in the dataset under review aligned with the NCBI Taxonomy as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in Apache Parquet format
indexed-names-resolved-pbdb.csv.gz	taxonomic names found in the dataset under review aligned with the Paleobiology Database as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped comma-separated values format
indexed-names-resolved-pbdb.html.gz	taxonomic names found in the dataset under review aligned with Paleobiology Database as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped html format
indexed-names-resolved-pbdb.tsv.gz	taxonomic names found in the dataset under review aligned with Paleobiology Database as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped tab-separated values format
indexed-names-resolved-pbdb.parquet	taxonomic names found in the dataset under review aligned with Paleobiology Database as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in Apache Parquet format

filename	description
indexed-names-resolved-tpt.csv.gz	taxonomic names found in the dataset under review aligned with the Terrestrial Parasite Tracker (TPT) Taxonomic Resource as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped comma-separated values format
indexed-names-resolved-tpt.html.gz	taxonomic names found in the dataset under review aligned with the Terrestrial Parasite Tracker (TPT) Taxonomic Resource as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped html format
indexed-names-resolved-tpt.tsv.gz	taxonomic names found in the dataset under review aligned with the Terrestrial Parasite Tracker (TPT) Taxonomic Resource as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped tab-separated values format
indexed-names-resolved-tpt.parquet	taxonomic names found in the dataset under review aligned with the Terrestrial Parasite Tracker (TPT) Taxonomic Resource as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in Apache Parquet format
indexed-names-resolved-wfo.csv.gz	taxonomic names found in the dataset under review aligned with the World of Flora Online as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped comma-separated values format
indexed-names-resolved-wfo.html.gz	taxonomic names found in the dataset under review aligned with the World of Flora Online as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped html format

filename	description
indexed-names-resolved-wfo.tsv.gz	taxonomic names found in the dataset under review aligned with the World of Flora Online as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped tab-separated values format
indexed-names-resolved-wfo.parquet	taxonomic names found in the dataset under review aligned with the World of Flora Online as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in Apache Parquet format
indexed-names-resolved-worms.csv.gz	taxonomic names found in the dataset under review aligned with the World Register of Marine Species (WoRMS) as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped comma-separated values format
indexed-names-resolved-worms.html.gz	taxonomic names found in the dataset under review aligned with the World Register of Marine Species (WoRMS) as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped html format
indexed-names-resolved-worms.tsv.gz	taxonomic names found in the dataset under review aligned with the World Register of Marine Species (WoRMS) as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in gzipped tab-separated values format
indexed-names-resolved-worms.parquet	taxonomic names found in the dataset under review aligned with the World Register of Marine Species (WoRMS) as accessed through the Nomer Corpus of Taxonomic Resources (J. H. (ed.). Poelen 2024) in Apache Parquet format
indexed-names-sample.csv	first 500 taxonomic names found in the dataset under review in comma-separated values format

filename	description
indexed-names-sample.html	first 500 taxonomic names found in the dataset under review in html format
indexed-names-sample.tsv	first 500 taxonomic names found in the dataset under review in tab-separated values format
interaction.svg	diagram summarizing the data model used to index species interaction claims
nanopub-sample.trig	first 500 species interaction claims as expressed in the nanopub format (Kuhn and Dumontier 2014)
nanopub.trig.gz	species interaction claims as expressed in the nanopub format (Kuhn and Dumontier 2014)
process.svg	diagram summarizing the data review processing workflow
prov.nq	origin of the dataset under review as expressed in rdf/nquads
review.csv.gz	review notes associated with the dataset under review in gzipped comma-separated values format
review.html.gz	review notes associated with the dataset under review in gzipped html format
review.tsv.gz	review notes associated with the dataset under review in gzipped tab-separated values format
review-sample.csv	first 500 review notes associated with the dataset under review in comma-separated values format
review-sample.html	first 500 review notes associated with the dataset under review in html format
review-sample.tsv	first 500 review notes associated with the dataset under review in tab-separated values format
review.svg	a review badge generated as part of the dataset review process
zenodo.json	metadata of this review expressed in Zenodo record metadata

Archived Dataset

Note that *data.zip* file in this archive contains the complete, unmodified archived dataset under review.

Biotic Interactions

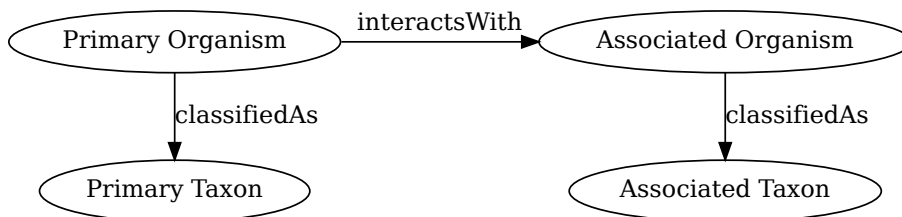


Figure 2: Biotic Interaction Data Model

In this review, biotic interactions (or biotic associations) are modeled as a primary (aka subject, source) organism interacting with an associate (aka object, target) organism. The dataset under review classified the primary/associate organisms with specific taxa. The primary and associate organisms The kind of interaction is documented as an interaction type.

The dataset under review, named `globalbioticinteractions/pensoft-ipt`, has fingerprint hash: `//md5/c0a02a50770e919ffc597faeca53b278`, is 63.7MiB in size and contains 38,773 interactions with 4 unique types of associations (e.g., `interactsWith`) between 201 primary taxa (e.g., *Hydrocharis morsus-ranae* L.) and 765 associated taxa (e.g., `NULL`).

An exhaustive list of indexed interaction claims can be found in gzipped `csv`, `tsv`, `geopackage` and `parquet` archives. To facilitate discovery, a preview of claims available in the gzipped `html` page at `indexed-interactions.html.gz` are shown below.

The exhaustive list was used to create the following data summaries below.

Table 3: Sample of Indexed Interaction Claims

sourceTaxonName	interactionType	targetTaxonName	referenceCitation
Erica grandiflora subsp. grandiflora	adjacentTo	south facing hillside	314
Erica glandulipila Compton	adjacentTo	south facing hillside in shade of rock	321
Erica arcuata Compton	adjacentTo	north facing hillside	323

sourceTaxonName	interactionTypeName	targetTaxonName	referenceCitation
Clinopodes vesubiensis Bonato, Iorio & Minelli, 2011	adjacentTo	limestone	R2034

Table 4: Most Frequently Mentioned Interaction Types (up to 20 most frequent)

interactionTypeName	count
interactsWith	38580
adjacentTo	121
hasHost	71
visits	1

Table 5: Most Frequently Mentioned Primary Taxa (up to 20 most frequent)

sourceTaxonName	count
Hydrocharis morsus-ranae L.	4050
Bombus bifarius	2689
Lacerta viridis	2564
Lacerta agilis	2389
Natrix natrix	2009
Podarcis taurica	1349
Anthidium utahense	1130
Testudo graeca	1109
Bombus vosnesenskii	966
Anguis fragilis	958
Bombus mixtus	944
Anthidium mormonum	910
Bombus flavifrons	908
Testudo hermanni	881
Natrix tessellata	760
Lacerta vivipara	694
Bombus centralis	626
Emys orbicularis	597
Vipera berus	597

Table 6: Most Frequently Mentioned Associate Taxa (up to 20 most frequent)

targetTaxonName	count
NULL	5038
Withheld	4702
Lacerta viridis	2564
Lacerta agilis	2389
Phragmites australis	2101
Natrix natrix	2009
Podarcis taurica	1349
Testudo graeca	1109
Anguis fragilis	958
Testudo hermanni	881
Natrix tessellata	760
Lacerta vivipara	694
Typha sp.	686
Emys orbicularis	597
Vipera berus	597
Podarcis muralis	543
Phacelia sp.	525
Coronella austriaca	488
Cirsium sp.	482

Table 7: Most Frequent Interactions between Primary and Associate Taxa (up to 20 most frequent)

sourceTaxonName	interactionType	targetTaxonName	count
Lacerta viridis	interactsWith	Lacerta viridis	2564
Lacerta agilis	interactsWith	Lacerta agilis	2389
Hydrocharis morsus-ranae L.	interactsWith	Phragmites australis	2101
Natrix natrix	interactsWith	Natrix natrix	2009
Podarcis taurica	interactsWith	Podarcis taurica	1349
Bombus bifarius	interactsWith	NULL	1253
Testudo graeca	interactsWith	Testudo graeca	1109
Anguis fragilis	interactsWith	Anguis fragilis	958
Testudo hermanni	interactsWith	Testudo hermanni	881
Anthidium utahense	interactsWith	Withheld	813
Natrix tessellata	interactsWith	Natrix tessellata	760

sourceTaxonName	interactionType	targetTaxonName	count
Anthidium mormonum	interactsWith	Withheld	745
Lacerta vivipara	interactsWith	Lacerta vivipara	694
Hydrocharis morsus-ranae L.	interactsWith	Typha sp.	686
Bombus vosnesenskii	interactsWith	NULL	686
Emys orbicularis	interactsWith	Emys orbicularis	597
Vipera berus	interactsWith	Vipera berus	597
Bombus mixtus	interactsWith	NULL	552
Podarcis muralis	interactsWith	Podarcis muralis	543

Interaction Networks

The figures below provide a graph view on the dataset under review. The first shows a summary network on the kingdom level, and the second shows how interactions on the family level. It is important to note that both network graphs were first aligned taxonomically using the Catalogue of Life. Please refer to the original (or verbatim) taxonomic names for a more original view on the interaction data.

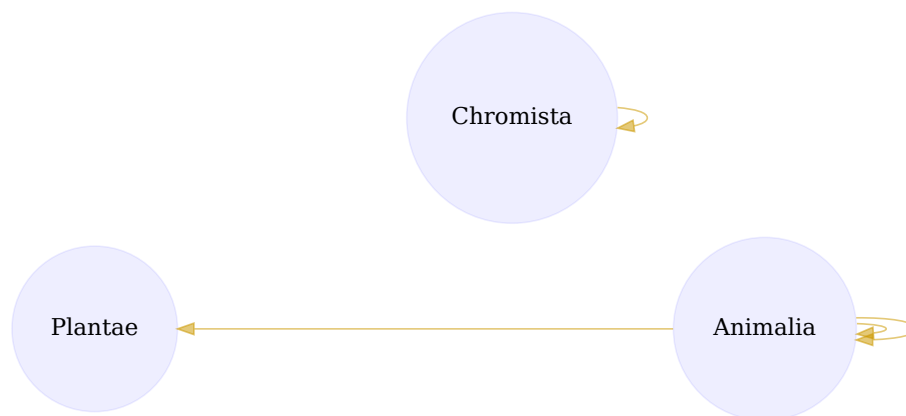


Figure 3: Interactions on taxonomic kingdom rank as interpreted by the Catalogue of Life download svg

You can download the indexed dataset under review at [indexed-interactions.csv.gz](#). A tab-separated file can be found at [indexed-interactions.tsv.gz](#)

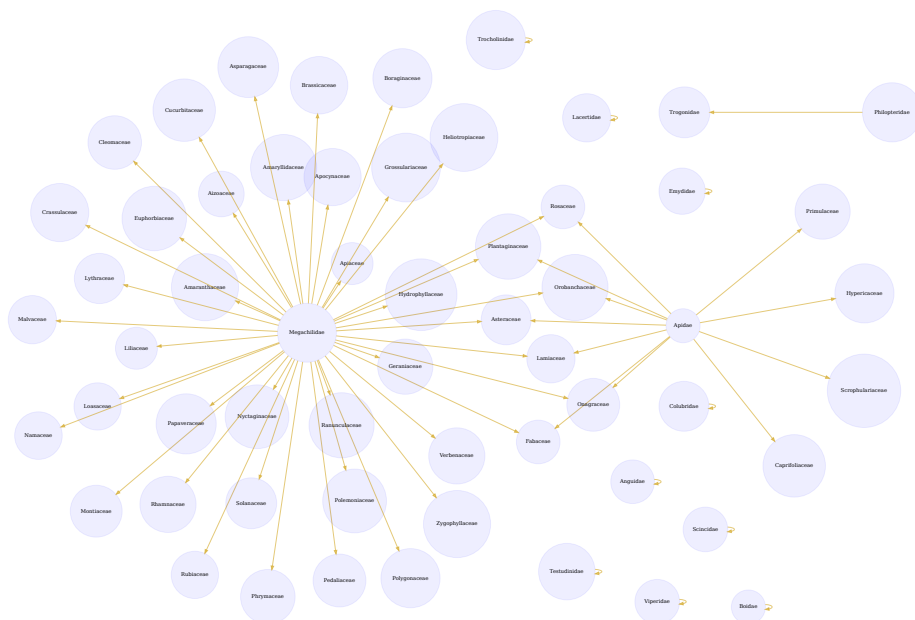


Figure 4: Interactions on the taxonomic family rank as interpreted by the Catalogue of Life. [download svg](#)

Geospatial Distribution

If geospatial information was extracted from the dataset under review, the map below will show their distribution.

Associated data can be found in the geopackage files at indexed-interactions.gpkg for point data and indexed-interactions-h3.gpkg for data clustered in geospatial h3 hexagonals.

Learn more about the structure of this download at GloBI website, by opening a GitHub issue, or by sending an email.

Another way to discover the dataset under review is by searching for it on the GloBI website.

Taxonomic Alignment

As part of the review, all names are aligned against various name catalogs (e.g., col, ncbi, discoverlife, gbif, itis, wfo, mdd, tpt, pldb, and worms). These alignments can help review name usage or aid in selecting of a suitable taxonomic name resource.

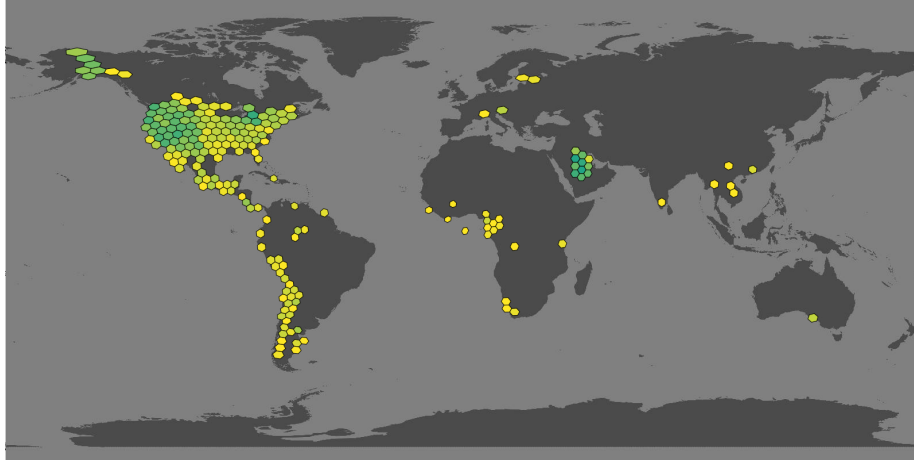


Figure 5: Hexagonal grid cells indicate that interactions claims are available for selected geospatial area: light yellow means relatively fewer claims, dark green relatively more claims.

Table 8: Sample of Name Alignments

providedName	relationName	resolvedCatalogName	resolvedName
Cistanche phelipaea	NONE	col	Cistanche phelipaea
Phlomis lanata	HAS_ACCEPTED_NAME	col	Phlomis lanata
Halophila stipulacea	HAS_ACCEPTED_NAME	col	Halophila stipulacea
Ebenus cretica	HAS_ACCEPTED_NAME	col	Ebenus cretica

Table 9: Distribution of Taxonomic Ranks of Aligned Names by Catalog. Names that were not aligned with a catalog are counted as NAs. So, the total number of unaligned names for a catalog will be listed in their NA row.

resolvedCatalogName	resolvedRank	count
col	NA	156
col	family	8
col	genus	180
col	kingdom	1
col	species	535
col	subgenus	1
col	subspecies	20

resolvedCatalogName	resolvedRank	count
col	subterclass	1
col	variety	16
discoverlife	NA	807
discoverlife	species	102
gbif	NA	120
gbif	family	8
gbif	genus	183
gbif	kingdom	1
gbif	species	561
gbif	subspecies	27
gbif	variety	28
itis	NA	201
itis	family	8
itis	genus	176
itis	kingdom	1
itis	species	475
itis	subspecies	14
itis	superorder	1
itis	variety	35
mdd	NA	908
ncbi	NA	274
ncbi	family	8
ncbi	genus	179
ncbi	species	441
ncbi	subgenus	2
ncbi	subspecies	6
ncbi	superorder	1
ncbi	varietas	1
pbdb	NA	797
pbdb	class	1
pbdb	family	8
pbdb	genus	68
pbdb	informal	1
pbdb	kingdom	1
pbdb	order	1
pbdb	species	31
pbdb	tribe	1
pbdb	unranked clade	1
tpt	NA	899
tpt	genus	2
tpt	species	7
wfo	NA	311
wfo	family	7
wfo	genus	173

resolvedCatalogName	resolvedRank	count
wfo	species	400
wfo	subspecies	8
wfo	variety	16
worms	NA	669
worms	family	8
worms	genus	120
worms	kingdom	1
worms	species	107
worms	subterclass	1
worms	variety	4

Table 10: Name relationship types per catalog. Name relationship type “NONE” means that a name was not recognized by the associated catalog. “SAME_AS” indicates either a “HAS_ACCEPTED_NAME” or “SYNONYM_OF” name relationship type. We recognize that “SYNONYM_OF” encompasses many types of nomenclatural synonymies (ICZN 1999) (e.g., junior synonym, senior synonyms).

resolvedCatalogName	relationName	count
col	NONE	166
col	HAS_ACCEPTED_NAME	747
col	SYNONYM_OF	232
discoverlife	NONE	911
discoverlife	HAS_ACCEPTED_NAME	100
discoverlife	SYNONYM_OF	8
discoverlife	HOMONYM_OF	5
gbif	NONE	128
gbif	HAS_ACCEPTED_NAME	932
gbif	SYNONYM_OF	378
itis	NONE	217
itis	HAS_ACCEPTED_NAME	691
itis	SYNONYM_OF	131
mdd	NONE	1007
ncbi	NONE	290
ncbi	SAME_AS	684
ncbi	SYNONYM_OF	60
pbdb	NONE	854
pbdb	HAS_ACCEPTED_NAME	152
pbdb	SYNONYM_OF	8
tpt	NONE	998
tpt	HAS_ACCEPTED_NAME	9

resolvedCatalogName	relationName	count
wfo	NONE	354
wfo	HAS_ACCEPTED_NAME	559
wfo	SYNONYM_OF	145
wfo	HAS_UNCHECKED_NAME	38
worms	NONE	716
worms	HAS_ACCEPTED_NAME	281
worms	SYNONYM_OF	55

Table 11: List of Available Name Alignment Reports

catalog name	alignment results
col	associated names alignments report in gzipped html, csv, and tsv)
ncbi	associated names alignments report in gzipped html, csv, and tsv)
discoverlife	associated names alignments report in gzipped html, csv, and tsv)
gbif	associated names alignments report in gzipped html, csv, and tsv)
itis	associated names alignments report in gzipped html, csv, and tsv)
wfo	associated names alignments report in gzipped html, csv, and tsv)
mdd	associated names alignments report in gzipped html, csv, and tsv)
tpt	associated names alignments report in gzipped html, csv, and tsv)
pbdb	associated names alignments report in gzipped html, csv, and tsv)
worms	associated names alignments report in gzipped html, csv, and tsv)

Additional Reviews

Elton, Nomer, and other tools may have difficulties interpreting existing species interaction datasets. Or, they may misbehave, or otherwise show unexpected behavior. As part of the review process, detailed review notes are kept that document possibly misbehaving, or confused, review bots. An sample of review notes associated with this review can be found below.

Table 12: First few lines in the review notes.

reviewDate	reviewCommentType	reviewComment
2026-01-28T22:09:41Z	summary	https://github.com/globalbioticinteractions/pensoft-ipt/archive/4ad4b47978324681289e36f8c2b247b1bcc97b
2026-01-28T22:09:41Z	summary	38773 interaction(s)
2026-01-28T22:09:41Z	summary	0 note(s)
2026-01-28T22:09:41Z	summary	4811 info(s)

In addition, you can find the most frequently occurring notes in the table below.

: Most frequently occurring review notes, if any.

For additional information on review notes, please have a look at the first 500 Review Notes in html format or the download full gzipped csv or tsv archives.

GloBI Review Badge

As part of the review, a review badge is generated. This review badge can be included in webpages to indicate the review status of the dataset under review.



Figure 6: Picture of a GloBI Review Badge ³

Note that if the badge is green, no review notes were generated. If the badge is yellow, the review bots may need some help with interpreting the species interaction data.

GloBI Index Badge

If the dataset under review has been registered with GloBI, and has been successfully indexed by GloBI, the GloBI Index Status Badge will turn green. This means that the dataset under review was indexed by GloBI and is available through GloBI services and derived data products.



Figure 7: Picture of a GloBI Index Badge ⁴

If you'd like to keep track of reviews or index status of the dataset under review, please visit GloBI's dataset index ⁵ for badge examples.

³Up-to-date status of the GloBI Review Badge can be retrieved from the GloBI Review Depot

⁴Up-to-date status of the GloBI Index Badge can be retrieved from GloBI's API

⁵At time of writing (2026-01-28) the version of the GloBI dataset index was available at

Discussion

This review and archive provides a means of creating citable versions of datasets that change frequently. This may be useful for dataset managers, including natural history collection data managers, as a backup archive of a shared Darwin Core archive. It also serves as a means of creating a trackable citation for the dataset in an automated way, while also including some information about the contents of the dataset.

This review aims to provide a perspective on the dataset to aid in understanding of species interaction claims discovered. However, it is important to note that this review does *not* assess the quality of the dataset. Instead, it serves as an indication of the open-ness⁶ and FAIRness (Wilkinson et al. 2016; Trekels et al. 2023) of the dataset: to perform this review, the data was likely openly available, **F**indable, **A**ccessible, **I**nteroperable and **R**eusable. The current Open-FAIR assessment is qualitative, and a more quantitative approach can be implemented with specified measurement units.

This report also showcases the reuse of machine-actionable (meta)data, something highly recommended by the FAIR Data Principles (Wilkinson et al. 2016). Making (meta)data machine-actionable enables more precise processing by computers, enabling even naive review bots like Nomer and Elton to interpret the data effectively. This capability is crucial for not just automating the generation of reports, but also for facilitating seamless data exchanges, promoting interoperability.

Acknowledgements

We thank the many humans that created us and those who created and maintained the data, software and other intellectual resources that were used for producing this review. In addition, we are grateful for the natural resources providing the basis for these human and bot activities. Also, thanks to <https://github.com/zygoballus> for helping improve the layout of the review tables.

Author contributions

Nomer was responsible for name alignments. Elton carried out dataset extraction, and generated the review notes. Preston tracked, versioned, and packaged, the dataset under review.

<https://globalbioticinteractions.org/datasets>

⁶According to <http://opendefinition.org/>: “Open data is data that can be freely used, reused and redistributed by anyone - subject only, at most, to the requirement to attribute and sharealike.”

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