Versioned Archive and Review of Biotic Interactions and Taxon Names Found within globalbioticinteractions/fungaltraits hash://md5/c3ea43277f83927a5c9a9fc553c78ca7

by Nomer, Elton and Preston, three naive review bots
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https://globalbioticinteractions.org/contribute
https://github.com/globalbioticinteractions/fungaltraits/issues

2026-03-30

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/fungaltraits, has fingerprint hash://md5/c3ea43277f83927a5c9a9fc553c78ca7, is 660MiB in size and contains 34,958 interactions with 4 unique types of associations (e.g., hasHost) between 26,163 primary taxa (e.g., Russula) and 2,389 associated taxa (e.g., Glycine max). This report includes detailed summaries of interaction data, a taxonomic review from multiple catalogs, and an archived version of the dataset from which the reviews are derived.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 :

> Põlme, S., Abarenkov, K., Henrik Nilsson, R. et al. FungalTraits: a user-friendly traits database of fungi and fungus-like stramenopiles. Fungal Diversity 105, 1–16 (2020). https://doi.org/10.1007/s13225-020-00466-2 https://github.com/globalbioticinteractions/fungaltraits/archive/edac5137e67e2a30b0ae188 2026-03-28T01:30:54.500Z hash://md5/c3ea43277f83927a5c9a9fc553c78ca7

For additional metadata related to this dataset, please visit https://github.com/globalbioticinteractions/fungaltraits 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	0.16.7
nomer	0.6.2
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.  660MiB) under review
elton pull globalbioticinteractions/fungaltraits

# generate review notes
elton review globalbioticinteractions/fungaltraits\
 > review.tsv

# export indexed interaction records
elton interactions globalbioticinteractions/fungaltraits\
 > interactions.tsv

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

or visually, in a process diagram.

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

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

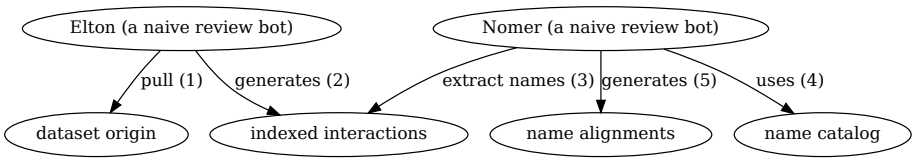

Figure 1: Review Process Overview

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
indexed-citations.tsv.gz	list of distinct reference citations for reviewed species interaction claims in gzipped tab-separated values format

[2] Disclaimer: 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-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 kingom 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.map	mapserver configuration to plot species interaction claims indexed from the dataset under review 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

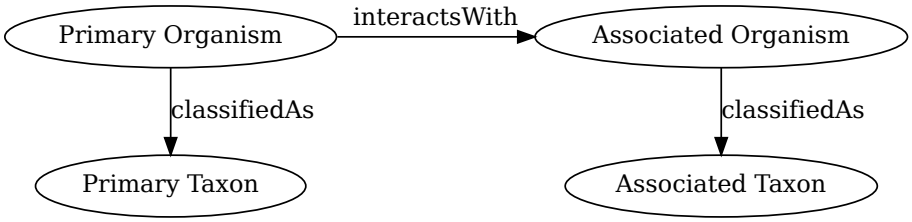

Figure 2: Biotic Interaction Data Model

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/fungaltraits, has fingerprint hash://md5/c3ea43277f83927a5c9a9fc553c78ca7, is 660MiB in size and contains 34,958 interactions with 4 unique types of associations (e.g., hasHost) between 26,163 primary taxa (e.g., Russula) and 2,389 associated taxa (e.g., Glycine max).

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	interactionTypeName	targetTaxonName	referenceCitation
Tricholoma	hasHost	Quercus crassifolia	Morris,M.H., Perez-Perez,M.A., Smith,M.E. and Bledsoe,C.S.; Multiple species of ectomycorrhizal fungi are frequently detected on individual oak root tips in a tropical cloud forest; Mycorrhiza 18 (8), 375-383 (2008)
Tricholoma	hasHost	Quercus crassifolia	Morris,M.H., Perez-Perez,M.A., Smith,M.E. and Bledsoe,C.S.; Multiple species of ectomycorrhizal fungi are frequently detected on individual oak root tips in a tropical cloud forest; Mycorrhiza 18 (8), 375-383 (2008)

sourceTaxonName	interactionTypeName	targetTaxonName	referenceCitation
EU563479	hasHost	Quercus crassifolia	Morris,M.H., Perez-Perez,M.A., Smith,M.E. and Bledsoe,C.S.; Multiple species of ectomycorrhizal fungi are frequently detected on individual oak root tips in a tropical cloud forest; Mycorrhiza 18 (8), 375-383 (2008)
EU563480	hasHost	Quercus crassifolia	Morris,M.H., Perez-Perez,M.A., Smith,M.E. and Bledsoe,C.S.; Multiple species of ectomycorrhizal fungi are frequently detected on individual oak root tips in a tropical cloud forest; Mycorrhiza 18 (8), 375-383 (2008)

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

interactionTypeName	count
hasHost	19780

interactionTypeName	count
pathogenOf	14465
interactsWith	576
parasiteOf	137

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

sourceTaxonName	count
Russula	707
Inocybe	584
Phakopsora pachyrhizi	486
Cortinarius	481
Sebacina	456
Glomeraceae Glomus	450
Thelephoraceae	319
Piloderma	162
Amphinema	158
Verticillium dahliae	151
Lactarius	148
Tuber	145
Tomentella	108
Cenococcum geophilum	104
Glomeraceae	102
Clavulina	96
Funneliformis	96
Claroideoglomus	94
Laccaria	92

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

targetTaxonName	count
Glycine max	3100
Picea abies	1010
Angiospermae	929
Zea mays	768
Quercus	744
Homo sapiens	700
Pseudotsuga menziesii	591
Solanum tuberosum	511

targetTaxonName	count
Pinus sylvestris	482
Citrus × sinensis	462
Fagaceae	365
Quercus liaotungensis	358
Salix arctica	348
Dryas octopetala	329
Daucus carota	318
Plantago lanceolata	299
Dryas integrifolia	294
Vitis vinifera	293
Bistorta vivipara	273

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

sourceTaxonName	interactionTypeName	targetTaxonName	count
Phakopsora pachyrhizi	pathogenOf	Glycine max	486
Russula	hasHost	Oreomunnea mexicana	136
Sebacina	hasHost	Bistorta vivipara	115
Amphinema	hasHost	Picea abies	99
Glomeraceae Glomus	hasHost	Jacobaea vulgaris	94
Thelephoraceae	hasHost	Bistorta vivipara	88
Thelephoraceae	hasHost	Dryas octopetala	88
Glomeraceae Glomus	hasHost	Prunus africana	86
Piloderma	hasHost	Picea abies	74
Pseudocercospora eumusae	pathogenOf	Musa	73
Guignardia citricarpa	pathogenOf	Citrus × sinensis	72
Cortinarius	hasHost	Pseudotsuga menziesii	63
Cortinarius	hasHost	Salix arctica	59
Inocybe	hasHost	Dryas integrifolia	56
Inocybe	hasHost	Pseudotsuga menziesii	53
Cortinarius	hasHost	Dryas octopetala	51
Macrophomina	pathogenOf	Cicer arietinum	48
Sebacina	hasHost	Dryas integrifolia	46
Guignardia mangiferae	pathogenOf	Citrus latifolia	45

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.

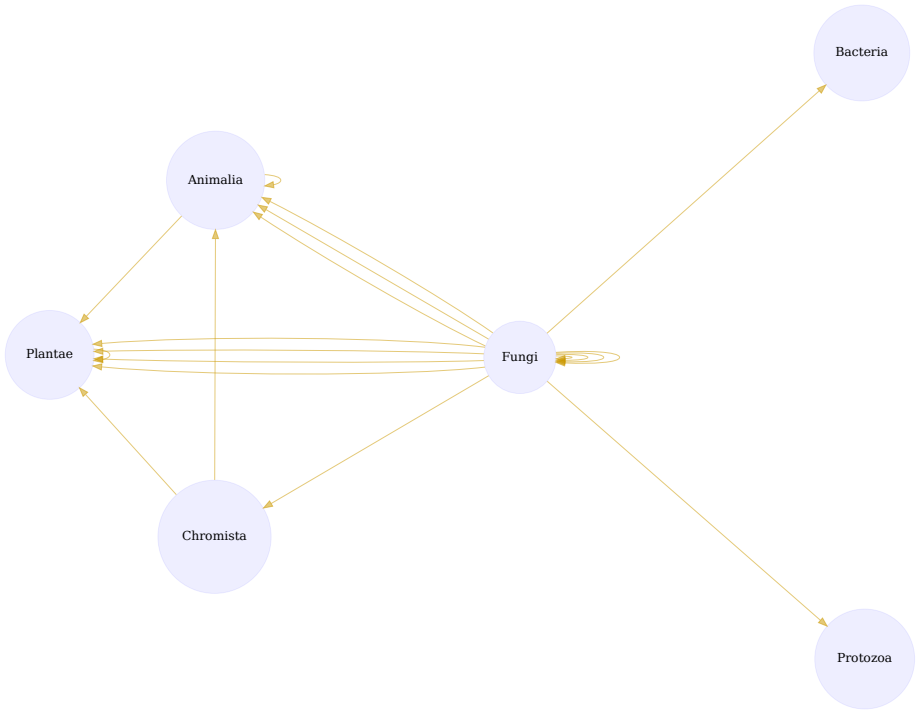

Figure 3: Interactions on taxonomic kingdom rank as interpreted by the Catalogue of Life download svg

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

Geospatial Distribution

If geospatial information was extracted from the dataset under review, the map below will show their distribution. These maps were generated using MapServer (McKenna et al. 2025) tools configured via map configuration indexed-interactions.map :

```
MAP
  SIZE 1600 800
  EXTENT -180 -90 180 90
  PROJECTION
    "init=epsg:4326"
  END
  LAYER # MODIS WMS map from NASA
```

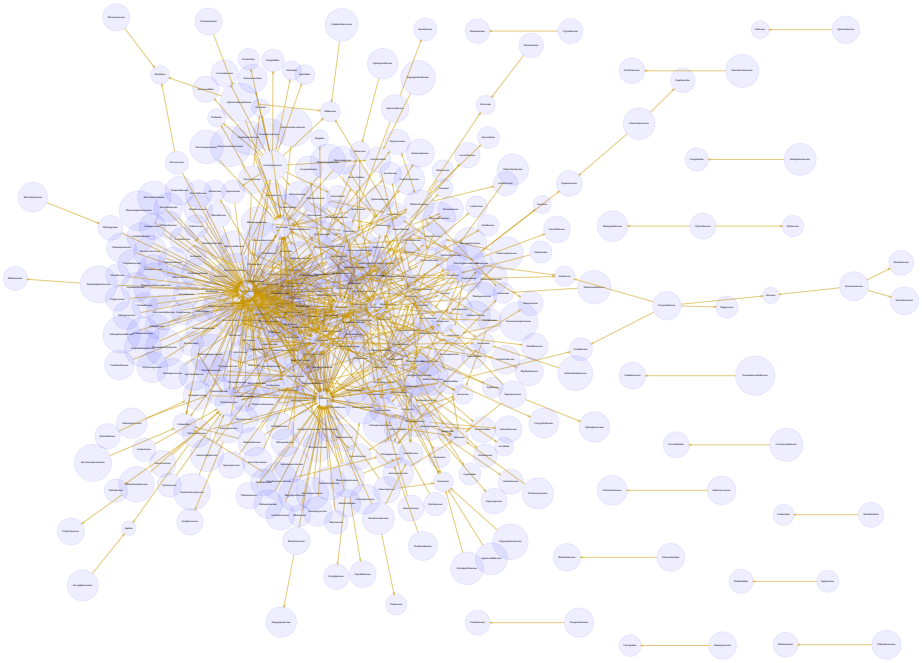

Figure 4: Interactions on the taxonomic family rank as interpreted by the Catalogue of Life. download svg

```
    NAME         "modis_nasa"
    TYPE         RASTER
    OFFSITE      0 0 0
    STATUS       ON
    CONNECTIONTYPE WMS
    CONNECTION "https://gibs.earthdata.nasa.gov/wms/epsg4326/best/wms.cgi?"

    METADATA
      "wms_srs" "EPSG:4326"
      "wms_name" "OSM_Land_Water_Map"
      "wms_server_version" "1.1.1"
      "wms_format" "image/jpeg"
    END
    CLASS
      STYLE
        COLOR        232 232 232
        OUTLINECOLOR 32 32 32
      END
    END
  END
  LAYER
    NAME "indexed-interactions"
    TYPE POLYGON
    STATUS ON
    CONNECTIONTYPE OGR
    CONNECTION "indexed-interactions-h3.gpkg"
    DATA "indexed-interactions-h3"
    CLASS
      STYLE
        COLORRANGE 253.0 231.0 37.0 32.0 164.0 134.0
        DATARANGE 0.3010299956639812 2.7427251313046983
        RANGEITEM "log_number_of_records"
        OUTLINECOLOR 0 0 0
      END
    END
  END
END
```

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.

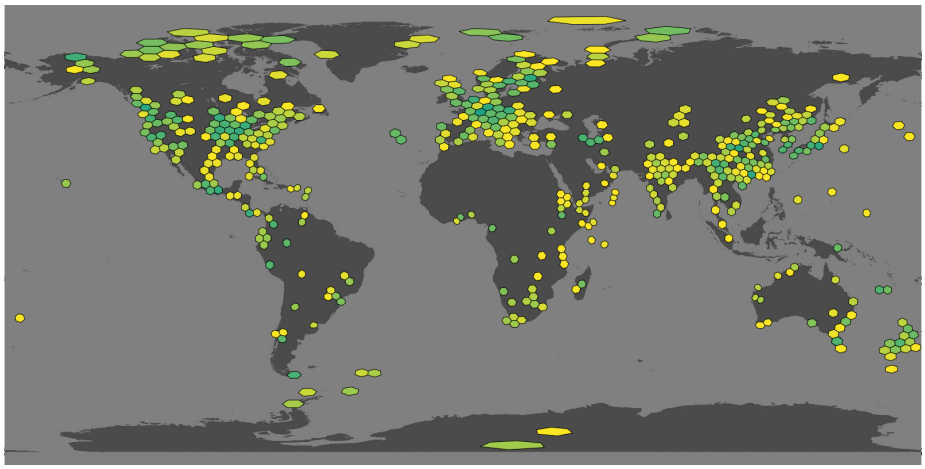

Figure 5: Hexagonal grid cells indicate that interactions claims are available for selected geospatial area: light yellow means relatively fewer claims, dark green relatively more claims.

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, pbdb, and worms). These alignments can help review name usage or aid in selecting of a suitable taxonomic name resource.

Table 8: Sample of Name Alignments

providedName	relationName	resolvedCatalogName	resolvedName
AB115705	NONE	col	AB115705
AB115706	NONE	col	AB115706
AB115707	NONE	col	AB115707
AB115708	NONE	col	AB115708

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	24842
col	class	17
col	family	122

resolvedCatalogName	resolvedRank	count
col	genus	1383
col	gigaclass	1
col	kingdom	2
col	order	47
col	phylum	9
col	section	1
col	species	1998
col	subclass	1
col	subfamily	2
col	subgenus	11
col	suborder	1
col	subspecies	76
col	subterclass	1
col	superfamily	3
col	superorder	1
col	tribe	1
col	variety	23
discoverlife	NA	28464
discoverlife	species	1
gbif	NA	24748
gbif	class	17
gbif	family	130
gbif	form	1
gbif	genus	1435
gbif	kingdom	2
gbif	order	47
gbif	phylum	9
gbif	species	2058
gbif	subspecies	94
gbif	variety	31
itis	NA	26689
itis	class	17
itis	division	5
itis	family	124
itis	genus	511
itis	infrakingdom	1
itis	kingdom	2
itis	order	47
itis	phylum	4
itis	species	1037
itis	subclass	3
itis	subdivision	1
itis	subfamily	3
itis	subgenus	2

resolvedCatalogName	resolvedRank	count
itis	suborder	3
itis	subspecies	6
itis	superclass	2
itis	superfamily	3
itis	superorder	3
itis	variety	7
mdd	NA	28464
ncbi	NA	25057
ncbi	clade	4
ncbi	class	17
ncbi	cohort	1
ncbi	family	126
ncbi	genus	1185
ncbi	kingdom	1
ncbi	order	48
ncbi	phylum	10
ncbi	section	1
ncbi	species	1982
ncbi	subclass	1
ncbi	subfamily	4
ncbi	subgenus	4
ncbi	suborder	2
ncbi	subphylum	1
ncbi	subspecies	17
ncbi	superclass	1
ncbi	superfamily	3
ncbi	superorder	2
ncbi	varietas	3
pbdb	NA	27936
pbdb	class	15
pbdb	family	79
pbdb	genus	289
pbdb	informal	2
pbdb	infraclass	1
pbdb	infraorder	1
pbdb	kingdom	3
pbdb	order	23
pbdb	phylum	8
pbdb	species	98
pbdb	subclass	1
pbdb	subfamily	4
pbdb	suborder	3
pbdb	superclass	3
pbdb	superfamily	3

resolvedCatalogName	resolvedRank	count
pbdb	superorder	1
pbdb	tribe	1
pbdb	unranked clade	7
tpt	NA	28450
tpt	family	2
tpt	genus	4
tpt	species	7
tpt	specificepithet	1
tpt	subspecificepithet	1
wfo	NA	26712
wfo	family	44
wfo	genus	362
wfo	order	3
wfo	phylum	1
wfo	section	1
wfo	species	1319
wfo	subspecies	28
wfo	variety	11
worms	NA	27532
worms	class	14
worms	family	99
worms	genus	427
worms	gigaclass	1
worms	infraorder	1
worms	infraphylum	1
worms	kingdom	2
worms	order	43
worms	phylum	7
worms	phylum (division)	4
worms	species	327
worms	subclass	2
worms	suborder	1
worms	subspecies	8
worms	subterclass	1
worms	superorder	1
worms	variety	2

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	24845
col	HAS_ACCEPTED_NAME	3496
col	SYNONYM_OF	779
discoverlife	NONE	28540
discoverlife	HAS_ACCEPTED_NAME	1
gbif	NONE	24749
gbif	HAS_ACCEPTED_NAME	4295
gbif	SYNONYM_OF	1378
itis	NONE	26719
itis	HAS_ACCEPTED_NAME	1704
itis	SYNONYM_OF	201
mdd	NONE	28523
mdd	HAS_ACCEPTED_NAME	2
ncbi	NONE	25074
ncbi	SAME_AS	3312
ncbi	SYNONYM_OF	212
pbdb	NONE	27978
pbdb	HAS_ACCEPTED_NAME	557
pbdb	SYNONYM_OF	42
tpt	NONE	28509
tpt	HAS_ACCEPTED_NAME	19
wfo	NONE	26753
wfo	SYNONYM_OF	386
wfo	HAS_ACCEPTED_NAME	1616
wfo	HAS_UNCHECKED_NAME	159
worms	NONE	27559
worms	HAS_ACCEPTED_NAME	1022
worms	SYNONYM_OF	86

Table 11: List of Available Name Alignment Reports

catalog name	alignment results
col	associated names alignments report in gzipped html, csv, and tsv)

catalog name	alignment results
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
2026-03-30T11:36:34Z	note	source taxon name missing: using institution-Code/collectionCode/collectionId/catalogNumber/occu as placeholder
2026-03-30T11:36:34Z	note	missing interaction type
2026-03-30T11:36:34Z	note	source taxon name missing: using institution-Code/collectionCode/collectionId/catalogNumber/occu as placeholder
2026-03-30T11:36:34Z	note	missing interaction type

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

Table 13: Most frequently occurring review notes, if any.

reviewComment	count
source taxon name missing: using institution-Code/collectionCode/collectionId/catalogNumber/occurrenceId as placeholder	594928
target taxon name missing	396635
found [54] column definitions, but only [51] values: assuming undefined values are empty.	287922
missing interaction type	261155

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 succesfully 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]

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

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.

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-ness[6] 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 procesing 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.

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

[5] At time of writing (2026-03-30) the version of the GloBI dataset index was available at https://globalbioticinteractions.org/datasets

[6] According 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."

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.

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