Versioned Archive and Review of Biotic Interactions and Taxon Names Found within globalbioticinteractions/maps hash://md5/0fb903d71d4726ee95b0ede8f1f895de

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

2026-03-31

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/maps, has fingerprint hash://md5/0fb903d71d4726ee95b0ede8f1f895de, is 91.3MiB in size and contains 99,542 interactions with 2 unique types of associations (e.g., arbuscularMycorrhizalHostOf) between 1,336 primary taxa (e.g., Pinus_sylvestris) and 1,716 associated taxa (e.g., Glomus). This report includes detailed summaries of interaction data, a taxonomic review from multiple catalogs, and an archived version of the dataset from which the reviews are derived.

Contents

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 :

> Kivlin et al. 2025. Microbial Atlas of Predicted Species (MAPS): Arbuscular Mycorrhizal Fungi Records Derived from GenBank. Personal Communication.; Kivlin et al. 2025. Microbial Atlas of Predicted Species (MAPS): Ectomycorrhizal Fungi Records derived from GenBank. Personal Communication. https://github.com/globalbioticinteractions/maps/archive/c936283d782c06a677099c48a496a2c57dcd2e44 2026-03-28T03:22:31.761Z hash://md5/0fb903d71d4726ee95b0ede8f1f895de

For additional metadata related to this dataset, please visit https://github.com /globalbioticinteractions/maps 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. 91.3MiB) under review
elton pull globalbioticinteractions/maps

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

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

# export names and align them with the Catalogue of Life using Nomer
elton names globalbioticinteractions/maps\
 | 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/maps) before being able to generate reviews (e.g., elton review globalbioticinteractions/maps), extract interaction claims (e.g., elton interactions globalbioticinteractions/maps), or list taxonomic names (e.g., elton names globalbioticinteractions/maps)

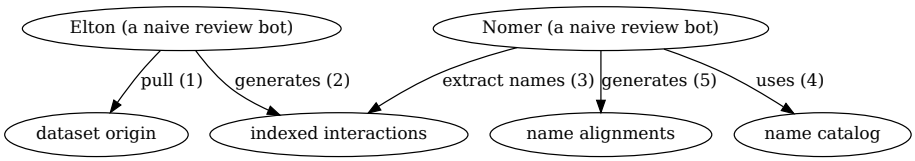

Figure 1: Review Process Overview

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

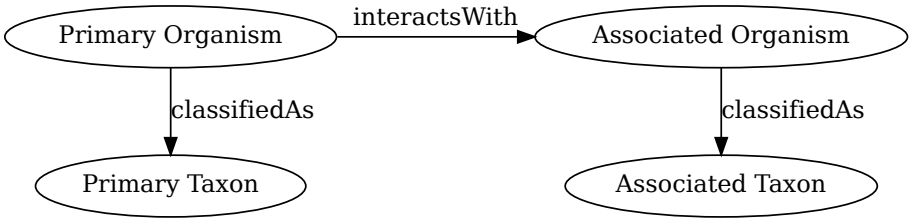

Figure 2: Biotic Interaction Data Model

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/maps, has fingerprint hash://md5/0fb903d71d4726ee95b0ede8f1f895de, is 91.3MiB in size and contains 99,542 interactions with 2 unique types of associations (e.g., arbuscularMycorrhizalHostOf) between 1,336 primary taxa (e.g., Pinus_sylvestris) and 1,716 associated taxa (e.g., Glomus).

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
Acacia_erioloba	arbuscularMycorrhizalHostOf	Glomus	Opik, M, M Zobel, JJ Cantero, J Davison, JM Facelli, I Hiiesalu, T Jairus, JM Kalwij, K Koorem, ME Leal, J Liira, M Metsis, V Neshataeva, J Paal, C Phosri, S Polme, U Reier, U Saks, H Schimann, O Thiery, M Vasar and M Moora, Global sampling of plant roots expands the described molecular diversity of arbuscular mycorrhizal fungi. Mycorrhiza 23:411-430. (2013). doi:10.1007/s00572-013-0482-2

sourceTaxonName	interactionTypeName	targetTaxonName	referenceCitation
Acacia_erioloba	arbuscularMycorrhizalHostOf	Glomus	Opik, M, M Zobel, JJ Cantero, J Davison, JM Facelli, I Hiiesalu, T Jairus, JM Kalwij, K Koorem, ME Leal, J Liira, M Metsis, V Neshataeva, J Paal, C Phosri, S Polme, U Reier, U Saks, H Schimann, O Thiery, M Vasar and M Moora, Global sampling of plant roots expands the described molecular diversity of arbuscular mycorrhizal fungi. Mycorrhiza 23:411-430. (2013). doi:10.1007/s00572-013-0482-2

sourceTaxonName	interactionTypeName	targetTaxonName	referenceCitation
Acacia_erioloba	arbuscularMycorrhizalHostOf	Glomus	Opik, M, M Zobel, JJ Cantero, J Davison, JM Facelli, I Hiiesalu, T Jairus, JM Kalwij, K Koorem, ME Leal, J Liira, M Metsis, V Neshataeva, J Paal, C Phosri, S Polme, U Reier, U Saks, H Schimann, O Thiery, M Vasar and M Moora, Global sampling of plant roots expands the described molecular diversity of arbuscular mycorrhizal fungi. Mycorrhiza 23:411-430. (2013). doi:10.1007/s00572-013-0482-2

sourceTaxonName	interactionTypeName	targetTaxonName	referenceCitation
Acacia_erioloba	arbuscularMycorrhizalHostOf	Glomus	Opik, M, M Zobel, JJ Cantero, J Davison, JM Facelli, I Hiiesalu, T Jairus, JM Kalwij, K Koorem, ME Leal, J Liira, M Metsis, V Neshataeva, J Paal, C Phosri, S Polme, U Reier, U Saks, H Schimann, O Thiery, M Vasar and M Moora, Global sampling of plant roots expands the described molecular diversity of arbuscular mycorrhizal fungi. Mycorrhiza 23:411-430. (2013). doi:10.1007/s00572-013-0482-2

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

interactionTypeName	count
arbuscularMycorrhizalHostOf	50344
ectomycorrhizalHostOf	49198

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

sourceTaxonName	count
Pinus_sylvestris	3399
Picea_abies	3243
Fagus_sylvatica	2405
Pinus_cembra	2336
Zea_mays	1736
Manihot_esculenta	1261
Pinus_tabuliformis	1242
Prunella_vulgaris	1090
Pseudotsuga_menziesii	1086
Abies_sachalinensis	1085
Pinus_radiata	1056
Quercus_ilex	1030
Festuca_rubra	1006
Betula_nana	978
Tsuga_heterophylla	895
Pinus_ponderosa	856
Abies_alba	824
Alnus_glutinosa	813
Cryptomeria_japonica	809

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

targetTaxonName	count
Glomus	40760
Tomentella	3000
Claroideoglomus	2827
Acaulospora	2156
Diversispora	1265
Archaeospora	1025
Russula	974
Sebacina	951
Paraglomus	949
Scutellospora	894
Meliniomyces	675
Clavulina	580
Rhizopogon	575
Amphinema	530
Cortinarius	512

targetTaxonName	count
Tylospora_fibrillosa	505
Tuber	484
Tomentella_stuposa	454
Tylospora_asterophora	443

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

sourceTaxonName	interactionTypeName	targetTaxonName	count
Zea_mays	arbuscularMycorrhizalHostOf	Glomus	1338
Manihot_esculenta	arbuscularMycorrhizalHostOf	Glomus	986
Festuca_rubra	arbuscularMycorrhizalHostOf	Glomus	922
Prunella_vulgaris	arbuscularMycorrhizalHostOf	Glomus	860
Cryptomeria_japonica	arbuscularMycorrhizalHostOf	Glomus	778
Briza_media	arbuscularMycorrhizalHostOf	Glomus	637
Vitis_vinifera	arbuscularMycorrhizalHostOf	Glomus	623
Hevea_brasiliensis	arbuscularMycorrhizalHostOf	Glomus	483
Asclepias_speciosa	arbuscularMycorrhizalHostOf	Glomus	478
Narcissus_nevadensis	arbuscularMycorrhizalHostOf	Glomus	456
Malus_domestica	arbuscularMycorrhizalHostOf	Glomus	418
Potentilla_erecta	arbuscularMycorrhizalHostOf	Glomus	418
Rosmarinus_officinalis	arbuscularMycorrhizalHostOf	Glomus	401
Plantago_lanceolata	arbuscularMycorrhizalHostOf	Glomus	383
Araucaria_araucana	arbuscularMycorrhizalHostOf	Glomus	376
Potentilla_chiloensis	arbuscularMycorrhizalHostOf	Glomus	368
Achillea_millefolium	arbuscularMycorrhizalHostOf	Glomus	366
Festuca_pallescens	arbuscularMycorrhizalHostOf	Glomus	353
Rubus_sp	arbuscularMycorrhizalHostOf	Glomus	321

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.

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

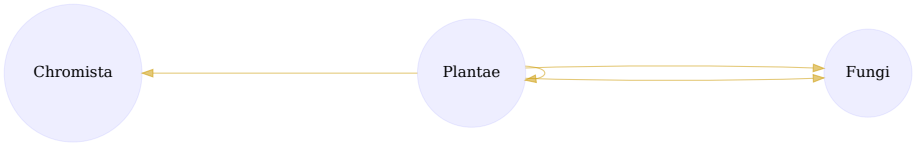

Figure 3: Interactions on taxonomic kingdom rank as interpreted by the Catalogue of Life download svg

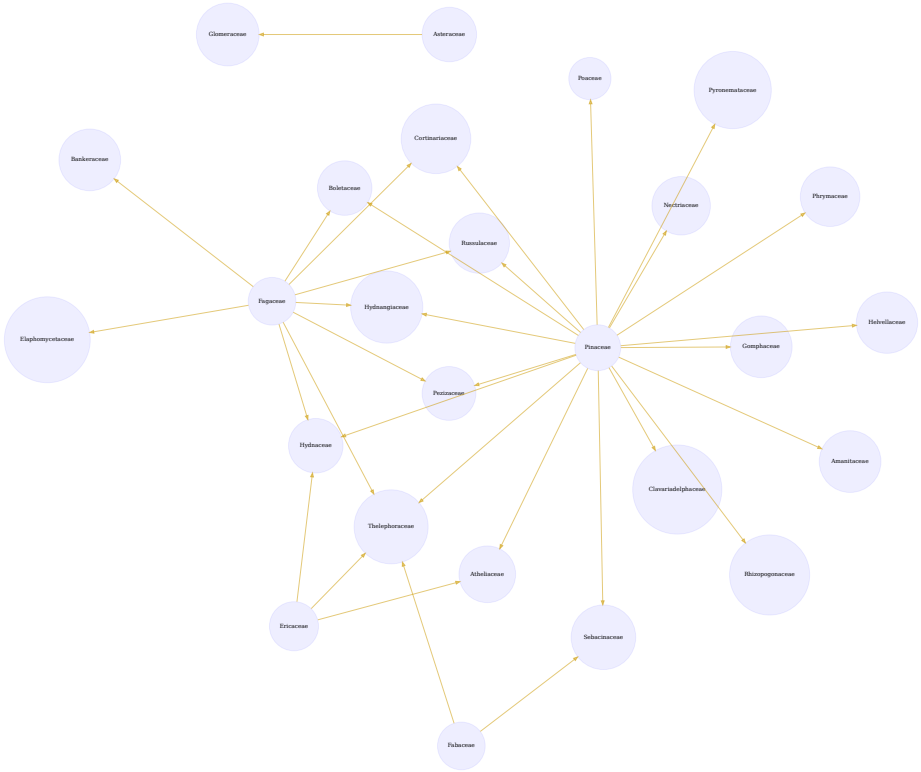

Figure 4: Interactions on the taxonomic family rank as interpreted by the Catalogue of Life. download svg

Geospatial Distribution

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

```
MAP
  SIZE 1600 800
  EXTENT -180 -90 180 90
  PROJECTION
    "init=epsg:4326"
  END
  LAYER # MODIS WMS map from NASA
    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 3.587598729721245
        RANGEITEM "log_number_of_records"
```

```
        OUTLINECOLOR 0 0 0
      END
    END
  END
END
```

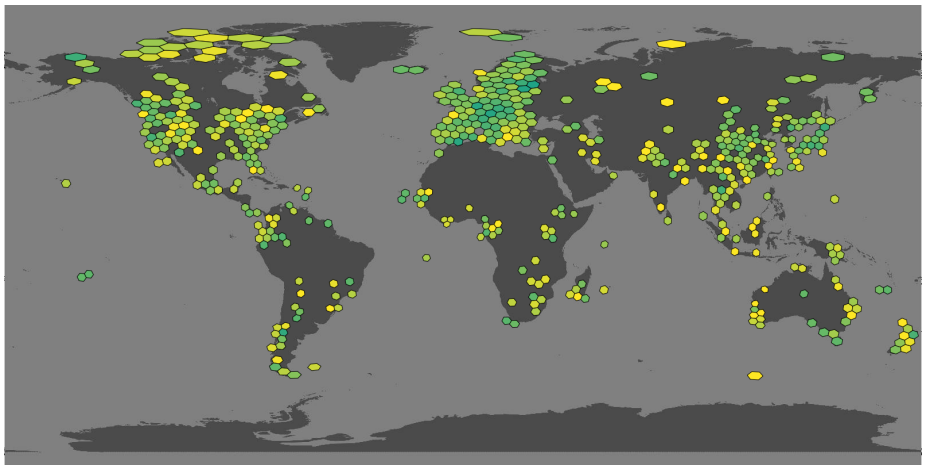

Figure 5: Hexagonal grid cells indicate that interactions claims are available for selected geospatial area: light yellow means relatively fewer claims, dark green relatively more claims.

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, 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
Abies alba	HAS_ACCEPTED_NAME	col	Abies alba

providedName	relationName	resolvedCatalogName	resolvedName
Abies balsamea	HAS_ACCEPTED_NAME	col	Abies balsamea
Abies fabri	HAS_ACCEPTED_NAME	col	Abies fabri
Abies fargesii	HAS_ACCEPTED_NAME	col	Abies fargesii

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	95
col	family	9
col	genus	235
col	order	1
col	section	1
col	species	2644
col	subgenus	2
col	suborder	1
col	subspecies	52
col	variety	20
discoverlife	NA	3014
gbif	NA	52
gbif	family	10
gbif	form	1
gbif	genus	237
gbif	order	1
gbif	species	2686
gbif	subspecies	66
gbif	variety	30
itis	NA	2235
itis	class	2
itis	family	10
itis	genus	89
itis	order	1
itis	species	668
itis	suborder	1
itis	subspecies	5
itis	variety	7
mdd	NA	3014
ncbi	NA	230
ncbi	clade	1
ncbi	class	1

resolvedCatalogName	resolvedRank	count
ncbi	family	9
ncbi	genus	236
ncbi	infraorder	1
ncbi	order	1
ncbi	species	2515
ncbi	subspecies	14
ncbi	tribe	1
ncbi	varietas	6
pbdb	NA	2869
pbdb	class	1
pbdb	family	7
pbdb	genus	69
pbdb	order	2
pbdb	phylum	1
pbdb	species	65
pbdb	subfamily	1
pbdb	suborder	1
pbdb	unranked clade	1
tpt	NA	3014
wfo	NA	1750
wfo	family	8
wfo	genus	97
wfo	order	1
wfo	species	1137
wfo	subspecies	22
wfo	variety	12
worms	NA	2750
worms	family	7
worms	genus	70
worms	order	1
worms	species	184
worms	subclass	1
worms	suborder	1
worms	subspecies	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	HAS_ACCEPTED_NAME	2737
col	SYNONYM_OF	551
col	NONE	96
discoverlife	NONE	3088
gbif	HAS_ACCEPTED_NAME	3323
gbif	SYNONYM_OF	1052
gbif	NONE	53
itis	HAS_ACCEPTED_NAME	780
itis	NONE	2253
itis	SYNONYM_OF	98
mdd	NONE	3088
ncbi	SAME_AS	2652
ncbi	NONE	232
ncbi	SYNONYM_OF	218
pbdb	NONE	2918
pbdb	HAS_ACCEPTED_NAME	167
pbdb	SYNONYM_OF	12
tpt	NONE	3088
wfo	HAS_ACCEPTED_NAME	1233
wfo	SYNONYM_OF	221
wfo	HAS_UNCHECKED_NAME	122
wfo	NONE	1765
worms	HAS_ACCEPTED_NAME	308
worms	NONE	2802
worms	SYNONYM_OF	43

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)

catalog name	alignment results
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
2026-03-30T23:51:44Z	note	target taxon name missing
2026-03-30T23:51:44Z	note	target taxon name missing
2026-03-30T23:51:44Z	note	target taxon name missing
2026-03-30T23:51:44Z	note	target taxon name missing

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	156601
target taxon name missing	44873
found malformed doi [None]	3723
found malformed doi [none]	139

reviewComment	count

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]

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

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

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

[5] At time of writing (2026-03-31) the version of the GloBI dataset index was available at https://globalbioticinteractions.org/datasets

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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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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[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."

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