

Versioned Archive and Review of Biotic
Interactions and Taxon Names Found within
trias-project/eu-species-of-concern-interactions
hash://md5/020a562c2c03af835d747152e8dae9ef

by Nomer, Elton and Preston, three naive review bots
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<https://globalbioticinteractions.org/contribute>
<https://github.com/trias-project/eu-species-of-concern-interactions/issues>

2025-07-25

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 trias-project/eu-species-of-concern-interactions, has fingerprint hash://md5/020a562c2c03af835d747152e8dae9ef, is 283KiB in size and contains 590 interactions with 6 unique types of associations (e.g., eats) between 100 primary taxa (e.g., *Felis catus*) and 393 associated taxa (e.g., *Impatiens glandulifera*). This report includes detailed summaries of interaction data, a taxonomic review from multiple catalogs, and an archived version of the dataset from which the reviews are derived.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:

Quentin J. Groom. 2020. Species interactions of species on the List of invasive alien species of Union concern <https://github.com/trias-project/eu-species-of-concern-interactions/archive/462cab89adb83000313a53f96795feffdd6a54a2.zip> 2025-07-19T07:16:22.632Z hash://md5/020a562c2c03af835d747152e8dae9ef

For additional metadata related to this dataset, please visit <https://github.com/trias-project/eu-species-of-concern-interactions> 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	0.10.1
elton	0.15.13
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

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

```
# get versioned copy of the dataset (size approx. 283KiB) under review
elton pull trias-project/eu-species-of-concern-interactions

# generate review notes
elton review trias-project/eu-species-of-concern-interactions\
> review.tsv

# export indexed interaction records
elton interactions trias-project/eu-species-of-concern-interactions\
> interactions.tsv

# export names and align them with the Catalogue of Life using Nomer
elton names trias-project/eu-species-of-concern-interactions\
| nomer append col\
> name-alignment.tsv
```

or visually, in a process diagram.

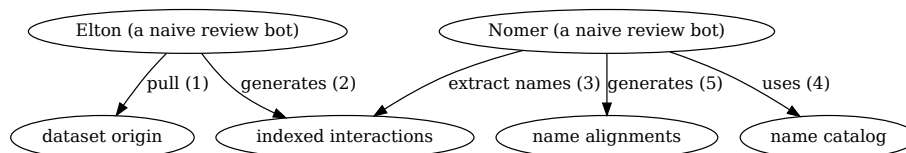


Figure 1: Review Process Overview

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

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
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)

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-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 Nomen 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-sample.csv	list of species interaction claims indexed from the dataset under review in gzipped comma-separated values format
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

filename	description
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
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

filename	description
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
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

filename	description
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
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

filename	description
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
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

filename	description
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
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

filename	description
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
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

filename	description
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
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)

filename	description
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

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 trias-project/eu-species-of-concern-

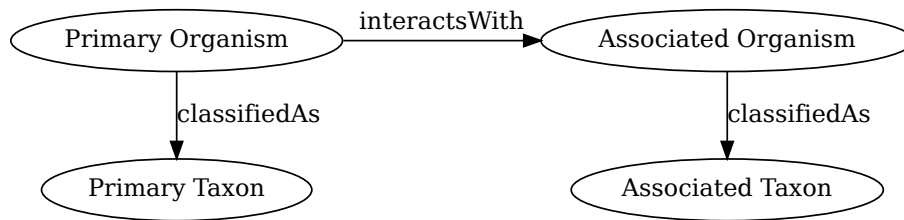


Figure 2: Biotic Interaction Data Model

interactions, has fingerprint hash://md5/020a562c2c03af835d747152e8dae9ef, is 283KiB in size and contains 590 interactions with 6 unique types of associations (e.g., eats) between 100 primary taxa (e.g., *Felis catus*) and 393 associated taxa (e.g., *Impatiens glandulifera*).

An exhaustive list of indexed interaction claims can be found in gzipped csv, tsv 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
Anthicus sp.	visitsFlowersOf	Impatiens noli-tangere	Vervoort, A., Cawoy, V., & Jacquemart, A. (2011). Comparative Reproductive Biology in Co-Occurring Invasive and Native Impatiens Species. International Journal of Plant Sciences, 172(3), 366-377.

sourceTaxonName	interactionTypeNam	targetTaxonName	referenceCitation
Abax sp.	visitsFlowersOf	Impatiens noli-tangere	Vervoort, A., Cawoy, V., & Jacquemart, A. (2011). Comparative Reproductive Biology in Co-Occurring Invasive and Native Impatiens Species. International Journal of Plant Sciences, 172(3), 366-377.
Lamprosoma concolor	visitsFlowersOf	Impatiens noli-tangere	Vervoort, A., Cawoy, V., & Jacquemart, A. (2011). Comparative Reproductive Biology in Co-Occurring Invasive and Native Impatiens Species. International Journal of Plant Sciences, 172(3), 366-377.

sourceTaxonName	interactionTypeName	targetTaxonName	referenceCitation
Plegaderus sp	visitsFlowersOf	Impatiens noli-tangere	Vervoort, A., Cawoy, V., & Jacquemart, A. (2011). Comparative Reproductive Biology in Co-Occurring Invasive and Native Impatiens Species. International Journal of Plant Sciences, 172(3), 366-377.

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

interactionTypeName	count
eats	282
kills	180
visitsFlowersOf	109
hostOf	15
parasiteOf	2
hasVector	2

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

sourceTaxonName	count
Felis catus	180
Callosciurus erythraeus	119
Nyctereutes procyonoides	64
Myocastor coypus	47
Threskiornis aethiopicus	43
Vespa mandarinia	5
Bombus hortorum	4
Rhingia campestris	3
Episyrrhus balteatus	3

sourceTaxonName	count
<i>Apis mellifera</i>	3
<i>Bombus lucorum</i>	3
<i>Bombus pascuorum</i>	3
<i>Camponotus</i>	3
<i>Chauliognathus marginatus</i>	3
<i>Formica</i>	3
<i>Forficula auricularia</i>	2
<i>Heleomyzidae</i>	2
<i>Melanostoma mellinum</i>	2
<i>Meliscaeva cinctella</i>	2

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

targetTaxonName	count
<i>Impatiens glandulifera</i>	31
<i>Impatiens noli-tangere</i>	30
<i>Mitrastemon yamamotoi</i>	28
<i>Ailanthus altissima</i>	23
<i>Philaenus spumarius</i>	8
<i>Impatiens parviflora</i>	5
<i>Quercus acutissima</i>	5
<i>Camellia japonica</i>	5
<i>Symplocos prunifolia</i>	5
<i>Eurya japonica</i>	5
<i>Daphniphyllum teijsmannii</i>	5
<i>Anas platyrhynchos</i>	4
<i>Myrica rubra</i>	4
<i>Dendropanax trifidus</i>	4
<i>Rhus succedanea</i>	4
<i>Quercus phillyraeoides</i>	4
<i>Cinnamomum camphora</i>	4
<i>Castanopsis cuspidata</i>	4
<i>Akebia trifoliata</i>	4

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

sourceTaxonName	interactionType	targetTaxonName	count
Callosciurus erythraeus	eats	Camellia japonica	5
Callosciurus erythraeus	eats	Symplocos prunifolia	5
Callosciurus erythraeus	eats	Eurya japonica	5
Callosciurus erythraeus	eats	Daphniphyllum teijsmannii	5
Callosciurus erythraeus	eats	Myrica rubra	4
Callosciurus erythraeus	eats	Dendropanax trifidus	4
Callosciurus erythraeus	eats	Rhus succedanea	4
Callosciurus erythraeus	eats	Quercus phillyraeoides	4
Callosciurus erythraeus	eats	Cinnamomum camphora	4
Callosciurus erythraeus	eats	Castanopsis cuspidata	4
Callosciurus erythraeus	eats	Akebia trifoliata	4
Callosciurus erythraeus	eats	Cupressus sp.	4
Bombus hortorum	visitsFlowersOf	Impatiens glandulifera	3
Chauliognathus marginatus	visitsFlowersOf	Ailanthus altissima	3
Formica	visitsFlowersOf	Ailanthus altissima	3
Callosciurus erythraeus	eats	Pinus thunbergii	3
Callosciurus erythraeus	eats	Anodendron affine	3
Callosciurus erythraeus	eats	Cedrus deodara	3
Bombus lucorum	visitsFlowersOf	Impatiens glandulifera	2

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.

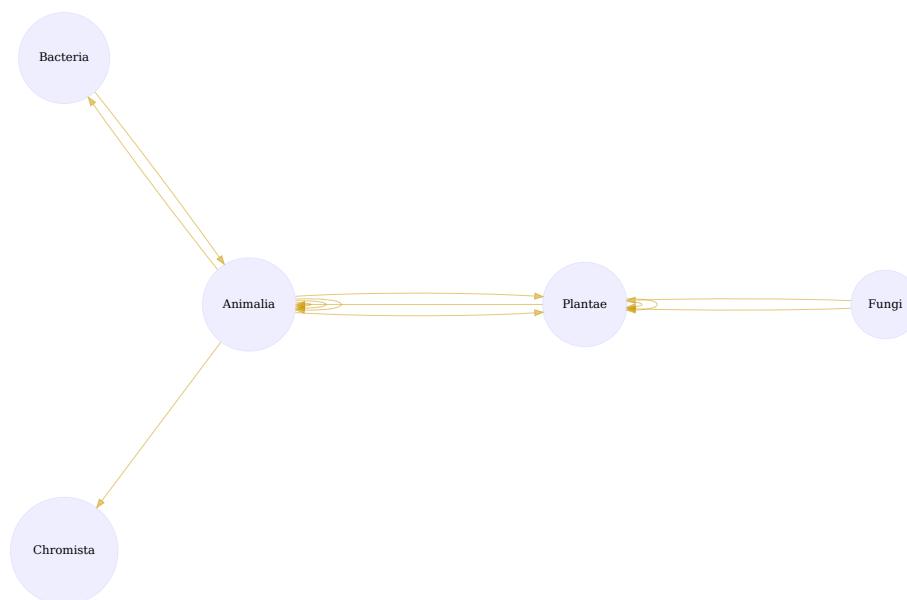


Figure 3: Interactions on taxonomic kingdom rank as interpreted by the Catalogue of Life download `svg`

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`

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.

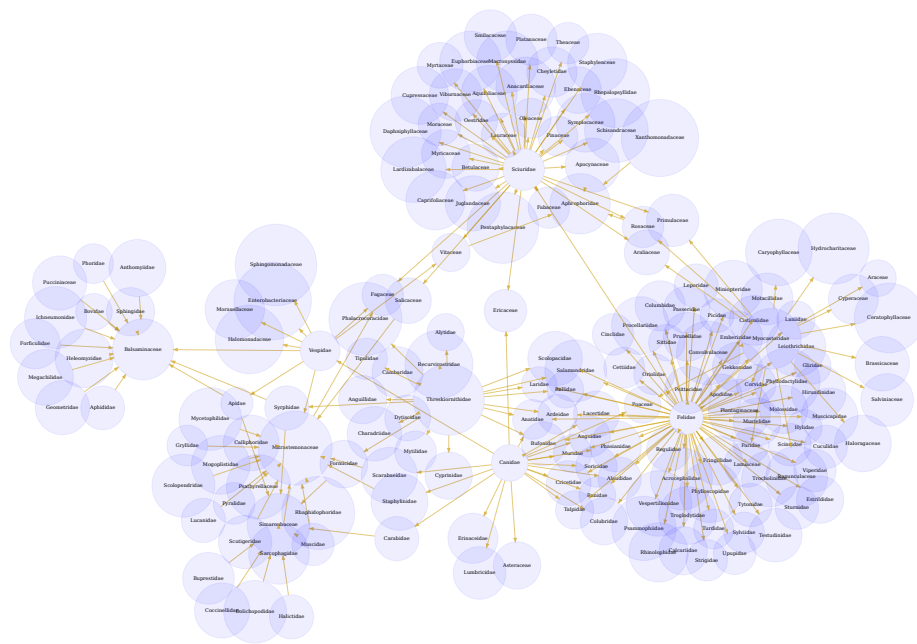


Figure 4: Interactions on the taxonomic family rank as interpreted by the Catalogue of Life. [download svg](#)

Table 8: Sample of Name Alignments

providedName	relationName	resolvedCatalogName	resolvedName
Betula pendula	HAS_ACCEPTED	col	Betula pendula
Cedrus deodara	HAS_ACCEPTED	col	Cedrus deodara
Cocculus	NONE	col	Cocculus
trillobusa			trillobusa
Cotoneaster	HAS_ACCEPTED	col	Cotoneaster
glaucophyllus			glaucophyllus

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	31
col	class	2
col	family	28
col	genus	44
col	infraorder	1
col	order	13
col	phylum	1
col	species	363
col	subfamily	1
col	subgenus	3
col	subspecies	7
col	tribe	2
col	variety	1
discoverlife	NA	481
discoverlife	species	8
gbif	NA	15
gbif	class	2
gbif	family	31
gbif	genus	49
gbif	order	13
gbif	phylum	1
gbif	species	382
gbif	subspecies	11
gbif	variety	2
itis	NA	75
itis	class	2
itis	family	29

resolvedCatalogName	resolvedRank	count
itis	genus	43
itis	infraorder	1
itis	order	13
itis	phylum	1
itis	species	322
itis	subfamily	1
itis	subspecies	2
mdd	NA	489
ncbi	NA	24
ncbi	class	2
ncbi	family	29
ncbi	genus	43
ncbi	infraorder	1
ncbi	order	13
ncbi	phylum	1
ncbi	species	370
ncbi	subfamily	1
ncbi	subgenus	5
ncbi	subspecies	4
ncbi	varietas	1
pbdb	NA	234
pbdb	class	2
pbdb	family	25
pbdb	genus	41
pbdb	infraorder	1
pbdb	order	14
pbdb	phylum	1
pbdb	species	169
pbdb	subfamily	3
pbdb	suborder	1
pbdb	unranked clade	2
tpt	NA	306
tpt	family	1
tpt	genus	6
tpt	order	4
tpt	species	172
wfo	NA	362
wfo	genus	20
wfo	species	106
wfo	subspecies	2
wfo	variety	2
worms	NA	239
worms	class	2
worms	family	27

resolvedCatalogName	resolvedRank	count
worms	genus	29
worms	infraorder	1
worms	order	13
worms	phylum	1
worms	species	178

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	445
col	NONE	31
col	SYNONYM_OF	88
discoverlife	NONE	488
discoverlife	HAS_ACCEPTED_NAME	8
discoverlife	HOMONYM_OF	2
gbif	HAS_ACCEPTED_NAME	543
gbif	SYNONYM_OF	148
gbif	NONE	15
itis	HAS_ACCEPTED_NAME	400
itis	NONE	75
itis	SYNONYM_OF	31
mdd	NONE	441
mdd	HAS_ACCEPTED_NAME	56
ncbi	SAME_AS	450
ncbi	NONE	24
ncbi	SYNONYM_OF	34
pbdb	NONE	235
pbdb	HAS_ACCEPTED_NAME	258
pbdb	SYNONYM_OF	24
tpt	NONE	314
tpt	HAS_ACCEPTED_NAME	182
tpt	SYNONYM_OF	4
wfo	HAS_ACCEPTED_NAME	115
wfo	NONE	368
wfo	HAS_UNCHECKED_NAME	22
wfo	SYNONYM_OF	26

resolvedCatalogName	relationName	count
worms	NONE	242
worms	HAS_ACCEPTED_NAME	243
worms	SYNONYM_OF	19

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
2025-07-24T22:04:27Z	note	failed to lookup [GEONAMES:2996114] because of: [resource [http://api.geonames.org/getJSON?formatted=true&geonameId=2996114&username=globi&style=full] not found]
2025-07-24T22:04:27Z	note	failed to lookup [GEONAMES:2996114] because of: [resource [http://api.geonames.org/getJSON?formatted=true&geonameId=2996114&username=globi&style=full] not found]
2025-07-24T22:04:27Z	note	failed to lookup [GEONAMES:2996114] because of: [resource [http://api.geonames.org/getJSON?formatted=true&geonameId=2996114&username=globi&style=full] not found]
2025-07-24T22:04:27Z	note	failed to lookup [GEONAMES:2996114] because of: [resource [http://api.geonames.org/getJSON?formatted=true&geonameId=2996114&username=globi&style=full] not found]

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
failed to lookup [GEONAMES:2996114] because of: [resource [http://api.geonames.org/getJSON?formatted=true&geonameId=2996114&username=globi&style=full] not found]	47

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 5: 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 6: 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 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

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 (2025-07-25) the version of the GloBI dataset index was available at <https://globalbioticinteractions.org/datasets>

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

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.

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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.

References

- Elliott, Michael, Jorrit Poelen, Icaro Alzuru, Emilio Berti, and partha04patel. 2025. “Bio-Guoda/Preston: 0.10.5.” Zenodo. <https://doi.org/10.5281/zenodo.14662206>.
- ICZN. 1999. “International Code of Zoological Nomenclature.” The International Trust for Zoological Nomenclature, London, UK. <https://www.iczn.org/the-code/the-code-online/>.
- Kuhn, Tobias, and Michel Dumontier. 2014. “Trusty URIs: Verifiable, Immutable, and Permanent Digital Artifacts for Linked Data.” In *The Semantic Web: Trends and Challenges*, edited by Valentina Presutti, Claudia d’Amato, Fabien Gandon, Mathieu d’Aquin, Steffen Staab, and Anna Tordai, 395–410. Cham: Springer International Publishing.
- Kuhn, Tobias, Jorrit Poelen, and Katrin Leinweber. 2025. “Globalbioticinteractions/Elton: 0.15.1.” Zenodo. <https://doi.org/10.5281/zenodo.14927734>.
- Poelen, Jorrit H. (ed.). 2024. “Nomer Corpus of Taxonomic Resources Hash://Sha256/ B60c0d25a16ae77b24305782017b1a270b79b5d1746f832650 F2027ba536e276 Hash://Md5/17f1363a277ee0e4ecaf1b91c665e47e.” Zenodo. <https://doi.org/10.5281/zenodo.12695629>.

- Poelen, Jorrit H., James D. Simons, and Chris J. Mungall. 2014. “Global Biotic Interactions: An Open Infrastructure to Share and Analyze Species-Interaction Datasets.” *Ecological Informatics* 24 (November): 148–59. <https://doi.org/10.1016/j.ecoinf.2014.08.005>.
- Poelen, Jorrit, Katja Seltmann, and Daniel Mitchen. 2024. “Globalbioticinteractions/Globinizer: 0.4.0.” Zenodo. <https://doi.org/10.5281/zenodo.10647565>.
- Salim, José Augusto, and Jorrit Poelen. 2025. “Globalbioticinteractions/Nomer: 0.5.15.” Zenodo. <https://doi.org/10.5281/zenodo.14893840>.
- Trekels, Maarten, Debora Pignatari Drucker, José Augusto Salim, Jeff Ollerton, Jorrit Poelen, Filipi Miranda Soares, Max Rünzel, Muo Kasina, Quentin Groom, and Mariano Devoto. 2023. “WorldFAIR Project (D10.1) Agriculture-related pollinator data standards use cases report.” Zenodo. <https://doi.org/10.5281/zenodo.8176978>.
- Wilkinson, Mark D., Michel Dumontier, IJsbrand Jan Aalbersberg, Gabrielle Appleton, Myles Axton, Arie Baak, Niklas Blomberg, et al. 2016. “The FAIR Guiding Principles for Scientific Data Management and Stewardship.” *Scientific Data* 3 (1). <https://doi.org/10.1038/sdata.2016.18>.