Versioned Archive and Review of Biotic Interactions and Taxon Names Found within AgentschapPlantentuin-Meise/ashForestInteractions hash://md5/d9a4990079c43138a370b64cd14b6892

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2026-06-03

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 AgentschapPlantentuinMeise/ashForestInteractions, has fingerprint hash://md5/d9a4990079c43138a370b64cd14b6892, is 2.94MiB in size and contains 5,638 interactions with 20 unique types of associations (e.g., epiphyteOf) between 1,744 primary taxa (e.g., Capreolus capreolus italicus) and 952 associated taxa (e.g., Fraxinus excelsior). This report includes detailed summaries of interaction data, a taxonomic review from multiple catalogs, and an archived version of the dataset from which the reviews are derived.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 :

> Groom, Q.J., Maarten De Groot, M. & Marčiulynienė, D. (2020) Species interation data manually extracted from literature for species . https://github.com/AgentschapPlantentuinMeise/ashForestInteractions/archive/fd9c3fade7c5b 2026-06-02T13:42:59.914Z hash://md5/d9a4990079c43138a370b64cd14b6892

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	0.16.11
nomer	0.6.5
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. 2.94MiB) under review
elton pull AgentschapPlantentuinMeise/ashForestInteractions

# generate review notes
elton review AgentschapPlantentuinMeise/ashForestInteractions \
 > review.tsv

# export indexed interaction records
elton interactions AgentschapPlantentuinMeise/ashForestInteractions \
 > interactions.tsv

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

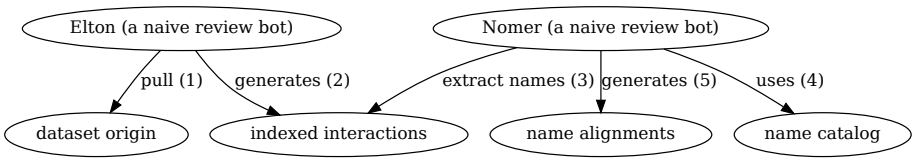


Figure 1: Review Process Overview

Results

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

Files

An extensive list of files produced as part of the review process can be found in Appendix A. Review Files.

Archived Dataset

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

Biotic Interactions

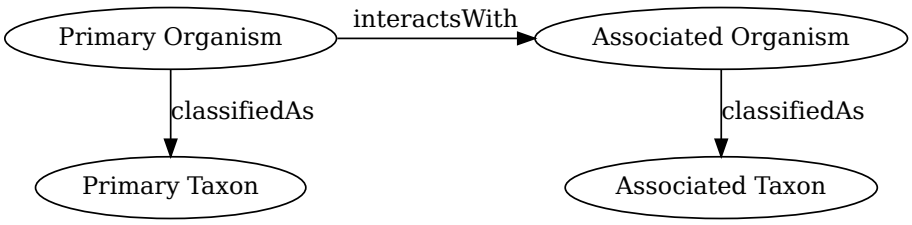


Figure 2: Biotic Interaction Data Model

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 AgentschapPlantentuinMeise/ashForestInteractions, has fingerprint hash://md5/d9a4990079c43138a370b64cd14b6892, is 2.94MiB

[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.

in size and contains 5,638 interactions with 20 unique types of associations (e.g., epiphyteOf) between 1,744 primary taxa (e.g., Capreolus capreolus italicus) and 952 associated taxa (e.g., Fraxinus excelsior).

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 2: Sample of Indexed Interaction Claims

sourceTaxonName	interactionTypeName	targetTaxonName	referenceCitation
Dendrocopos syriacus	eats	Lepidoptera	Michalczuk, J., & Michalczuk, M. (2017). Diet variability of Syrian Woodpecker Dendrocopos syriacus nestlings in the rural landscape of SE Poland. North-Western Journal of Zoology, 13(2).
Dendrocopos syriacus	eats	Coleoptera	Michalczuk, J., & Michalczuk, M. (2017). Diet variability of Syrian Woodpecker Dendrocopos syriacus nestlings in the rural landscape of SE Poland. North-Western Journal of Zoology, 13(2).

sourceTaxonName	interactionTypeName	targetTaxonName	referenceCitation
Dendrocopos syriacus	eats	Melolontha melolontha	Michalczuk, J., & Michalczuk, M. (2017). Diet variability of Syrian Woodpecker Dendrocopos syriacus nestlings in the rural landscape of SE Poland. North-Western Journal of Zoology, 13(2).
Dendrocopos syriacus	eats	Arthropods	Michalczuk, J., & Michalczuk, M. (2017). Diet variability of Syrian Woodpecker Dendrocopos syriacus nestlings in the rural landscape of SE Poland. North-Western Journal of Zoology, 13(2).

Table 3: Most Frequently Mentioned Interaction Types (up to 20 most frequent)

interactionTypeName	count
epiphyteOf	1868
eats	1734
hasHabitat	573
interactsWith	409
parasiteOf	342
coOccursWith	142
hasHost	128
visitsFlowersOf	122
createsHabitatFor	120

interactionTypeName	count
hasEndoparasite	93
hostOf	40
ectoparasiteOf	22
kills	15
hasPathogen	13
hasEctoparasite	6
acquiresNutrientsFrom	5
preysOn	2
laysEggsOn	2
endoparasiteOf	1

Table 4: Most Frequently Mentioned Primary Taxa (up to 20 most frequent)

sourceTaxonName	count
Capreolus capreolus italicus	117
Vulpes vulpes	105
Erithacus rubecula	103
Turdus merula	99
Pyrrhula pyrrhula	83
Bombus terrestris	81
Sylvia atricapilla	77
Dendrocopos major	71
Accipiter nisus	63
Parus major	46
Dendrocopos minor	45
Psittacula krameri	39
Ixodes ricinus	39
Dendrocopos medius	37
Araneus diadematus	37
Viscum album	36
Argiope bruennichi	32
Adalia bipunctata	30
Phlyctis argena	28

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

targetTaxonName	count
Fraxinus excelsior	1631

targetTaxonName	count
Alnus glutinosa	273
Quercus robur	210
Tilia cordata	201
Carpinus betulus	163
Acer platanoides	130
Populus tremula	118
Corylus avellana	104
Betula pendula	103
Picea abies	82
Sorbus aucuparia	72
Ulmus glabra	71
Fraxinus	50
Crataegus monogyna	49
Prunus spinosa	49
Ulmus laevis	45
Sambucus nigra	36
Sylvia atricapilla	36
Alnus incana	35

Table 6: Most Frequent Interactions between Primary and Associate Taxa (up to 20 most frequent)

sourceTaxonName	interactionTypeName	targetTaxonName	count
Turdus merula	eats	Crataegus monogyna	5
Atethmia centrago	eats	Fraxinus excelsior	4
Maniola jurtina	visitsFlowersOf	Centaurea jacea	4
Turdus philomelos	eats	Crataegus monogyna	4
Dendrocopos major	createsHabitatFor	Fraxinus excelsior	4
Dendrocopos minor	eats	Lepidoptera	4
Prays fraxinella	eats	Fraxinus excelsior	3
Parmelia sulcata	epiphyteOf	Fraxinus excelsior	3
Cladonia coniocraea	epiphyteOf	Fraxinus excelsior	3
Lecanora carpinea	epiphyteOf	Fraxinus excelsior	3
Buellia griseovirens	epiphyteOf	Fraxinus excelsior	3
Lobaria pulmonaria	epiphyteOf	Fraxinus excelsior	3
Acrocordia gemmata	epiphyteOf	Fraxinus excelsior	3
Bacidia rubella	epiphyteOf	Fraxinus excelsior	3
Arthonia radiata	epiphyteOf	Fraxinus excelsior	3
Opegrapha rufescens	epiphyteOf	Fraxinus excelsior	3
Pertusaria pertusa	epiphyteOf	Fraxinus excelsior	3
Chrysothrix candelaris	epiphyteOf	Fraxinus excelsior	3
Peltigera praetextata	epiphyteOf	Fraxinus excelsior	3

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.

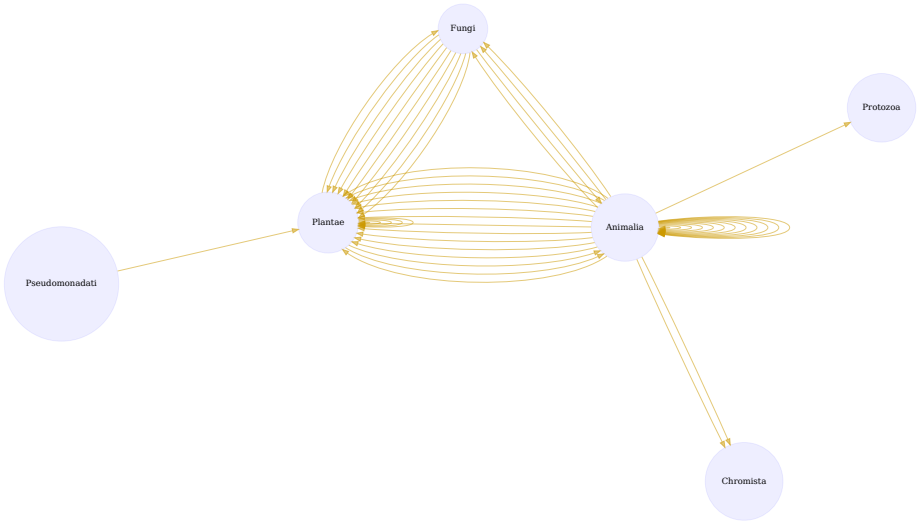


Figure 3: Interactions on taxonomic kingdom rank as interpreted by the Catalogue of Life download svg

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
    NAME         "modis_nasa"
```

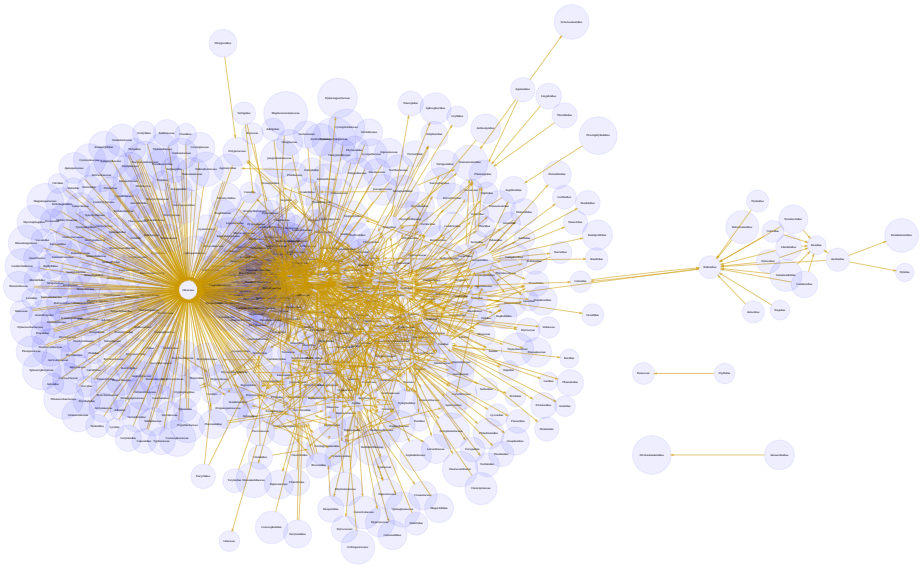


Figure 4: Interactions on the taxonomic family rank as interpreted by the Catalogue of Life. download svg

```
    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 3.0409976924234905
        RANGEITEM "log_number_of_records"
        OUTLINECOLOR 0 0 0
      END
    END
  END
END
```

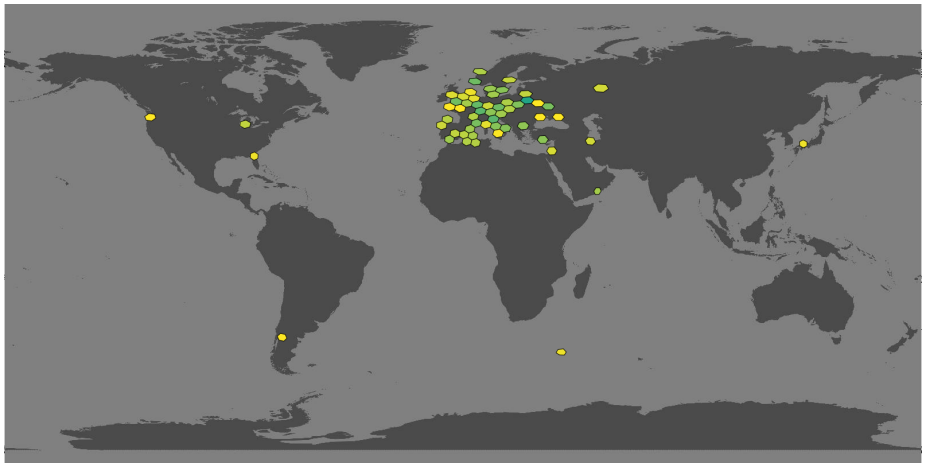


Figure 5: Hexagonal grid cells indicate that interactions claims are available for selected geospatial area: light yellow means relatively fewer claims, dark green relatively more claims.

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 7: Sample of Name Alignments

providedName	relationName	resolvedCatalogName	resolvedName
Acalitus stenaspis	HAS_ACCEPTED_NAME	col	Acalitus stenaspis
Aceria cephaloneus macrorhynchus	NONE	col	Aceria cephaloneus macrorhynchus
Aceria erineus	SYNONYM_OF	col	Aceria erinea
Aceria fagineus	SYNONYM_OF	col	Aceria nervisequa

Table 8: 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	166
col	class	7
col	family	50
col	form	1
col	genus	212
col	gigaclass	1
col	kingdom	1
col	order	16
col	phylum	1
col	species	2031
col	subfamily	3
col	subgenus	7
col	suborder	3
col	subspecies	80
col	superfamily	1
col	tribe	3
col	variety	8
discoverlife	NA	2509
discoverlife	species	2
gbif	NA	139
gbif	class	7
gbif	family	50
gbif	form	7
gbif	genus	218

resolvedCatalogName	resolvedRank	count
gbif	kingdom	1
gbif	order	16
gbif	phylum	1
gbif	species	2056
gbif	subspecies	78
gbif	variety	34
itis	NA	1303
itis	class	6
itis	family	50
itis	genus	168
itis	kingdom	1
itis	order	16
itis	phylum	1
itis	species	945
itis	subclass	1
itis	subfamily	1
itis	suborder	3
itis	subspecies	9
itis	superclass	1
itis	superfamily	1
itis	superorder	1
itis	variety	4
mdd	NA	2511
ncbi	NA	452
ncbi	class	7
ncbi	family	50
ncbi	genus	200
ncbi	kingdom	1
ncbi	order	16
ncbi	phylum	1
ncbi	species	1768
ncbi	subfamily	2
ncbi	subgenus	5
ncbi	suborder	2
ncbi	subspecies	7
ncbi	superclass	1
ncbi	superfamily	1
ncbi	superorder	1
ncbi	tribe	1
ncbi	varietas	1
pbdb	NA	2124
pbdb	class	7
pbdb	family	50
pbdb	genus	118

resolvedCatalogName	resolvedRank	count
pbdb	infraorder	1
pbdb	kingdom	1
pbdb	order	18
pbdb	phylum	1
pbdb	species	185
pbdb	subclass	1
pbdb	subfamily	3
pbdb	suborder	2
pbdb	superclass	1
pbdb	superfamily	1
pbdb	superorder	1
pbdb	tribe	1
pbdb	unranked clade	3
tpt	NA	2286
tpt	family	4
tpt	genus	24
tpt	order	2
tpt	species	195
wfo	NA	1873
wfo	family	5
wfo	genus	83
wfo	species	539
wfo	subspecies	18
wfo	variety	4
worms	NA	1924
worms	class	6
worms	family	44
worms	genus	118
worms	gigaclass	1
worms	kingdom	1
worms	order	16
worms	phylum	1
worms	species	396
worms	subclass	1
worms	suborder	2
worms	subspecies	6
worms	variety	1

Table 9: 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	2633
col	NONE	170
col	SYNONYM_OF	1256
discoverlife	NONE	3159
discoverlife	HAS_ACCEPTED_NAME	2
gbif	HAS_ACCEPTED_NAME	3219
gbif	NONE	145
gbif	SYNONYM_OF	1385
itis	NONE	1568
itis	HAS_ACCEPTED_NAME	1493
itis	SYNONYM_OF	132
mdd	NONE	3082
mdd	HAS_ACCEPTED_NAME	77
mdd	SYNONYM_OF	2
ncbi	NONE	504
ncbi	SYNONYM_OF	246
ncbi	SAME_AS	2424
ncbi	COMMON_NAME_OF	1
pbdb	NONE	2668
pbdb	HAS_ACCEPTED_NAME	487
pbdb	SYNONYM_OF	49
tpt	SYNONYM_OF	40
tpt	HAS_ACCEPTED_NAME	308
tpt	NONE	2887
wfo	NONE	2341
wfo	SYNONYM_OF	163
wfo	HAS_ACCEPTED_NAME	774
wfo	HAS_UNCHECKED_NAME	220
worms	NONE	2418
worms	HAS_ACCEPTED_NAME	740
worms	SYNONYM_OF	55

Table 10: 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 11: First few lines in the review notes.

reviewDate	reviewCommentType	reviewComment
2026-06-03T16:06:30Z	note	found unsupported interaction type with id: [http://purl.obolibrary.org/obo/RO_0002559] and name: [causally influenced by]

reviewDate	reviewCommentType	reviewComment
2026-06-03T16:06:30Z	note	found unsupported interaction type with id: [http://purl.obolibrary.org/obo/RO_0002559] and name: [causally influenced by]
2026-06-03T16:06:30Z	note	found unsupported interaction type with id: [http://purl.obolibrary.org/obo/RO_0002559] and name: [causally influenced by]
2026-06-03T16:06:30Z	note	found unsupported interaction type with id: [http://purl.obolibrary.org/obo/RO_0002559] and name: [causally influenced by]

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

Table 12: Most frequently occurring review notes, if any.

reviewComment	count
found unsupported interaction type with id: [http://purl.obolibrary.org/obo/RO_0002226] and name: [develops in]	30
found unsupported interaction type with id: [http://purl.obolibrary.org/obo/RO_0002559] and name: [causally influenced by]	21

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 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).

[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 (2026-06-03) 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."

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.

Acknowledgements

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

Author contributions

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

Appendix A. Review 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

filename	description
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)
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

filename	description
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
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

filename	description
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
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

filename	description
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
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

filename	description
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
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

filename	description
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
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

filename	description
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
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

filename	description
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
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

filename	description
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)
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

filename	description
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

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.

McKenna, Jeff, Steve Lime, Thomas Bonfort, Jérome Boué, Howard Butler, Seth Girvin, Tom Kralidis, et al. 2025. "MapServer." Zenodo. https://doi.org/10.5281/zenodo.17807263.

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 Mietchen. 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.