



# Understanding Biotic Interaction Data and Natural History Collections



**Terrestrial  
Parasite  
Tracker**

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# TPT Data Life Cycle

# Biotic Interaction Terms



How can GloBI help share your data?



# A biotic interaction is an interaction between 2 organisms

specimen



interactsWith



observation/specimen

We know a lot because we have 2 taxon names and a relationship

# Data Life Cycle

## Sharing Data



SCAN, VertNet - IPT and Darwin Core, spreadsheets, anything!

**TPT Collections**  
(Start Here)



**GBIF, GloBI, iDigBio**

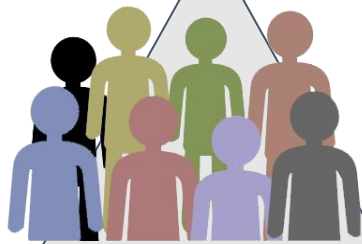


**Data Users**



Collection managers, Graduate Students, Ecologists, Evolutionary Biologists, Agencies, NGOs  
...many more





**GloBI**

**GBIF**

**VerNe**

**iDigBio**  
Integrated Digitized Biocollections

Users interact with the data through these services...

Services obtain datasets from many sources..

Ability to examine across datasets



**GloBI**





Only indexes records with  
**biotic interactions**

You want all TPT occurrence records?



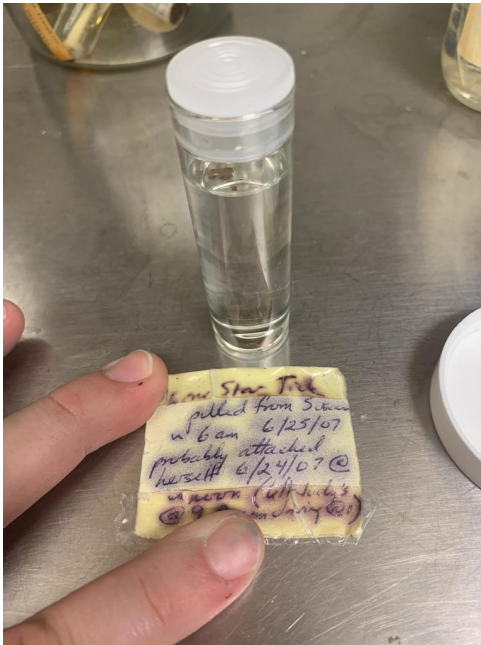


- GloBI indexes lots of data about biotic interactions (over 4 million)
- TPT collection data is combined with other sources (other research and digitization projects, literature, many other taxa, many other sources...)





# Every specimen creates a citation in GloBI and is evidence for a biotic interaction



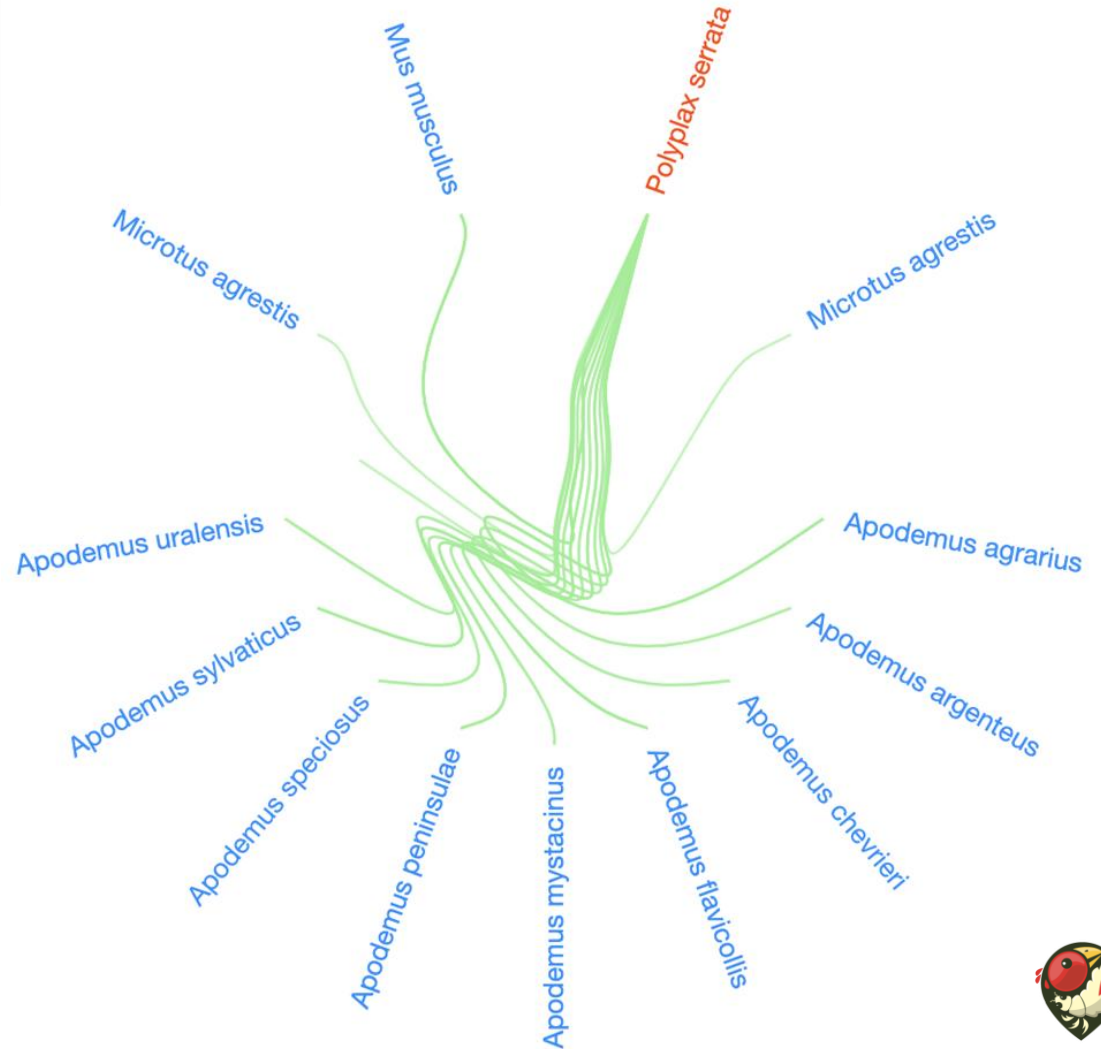


What kind of  do  interacts with  ?

house mouse louse  
(Polyplax serrata)



interacts with... plenty of things!



Biotic Interaction

Citations

house mouse louse  
(*Polyplax serrata*)

parasite of



Small Japanese Field Mouse  
(*Apodemus argentus*)

Supported by:

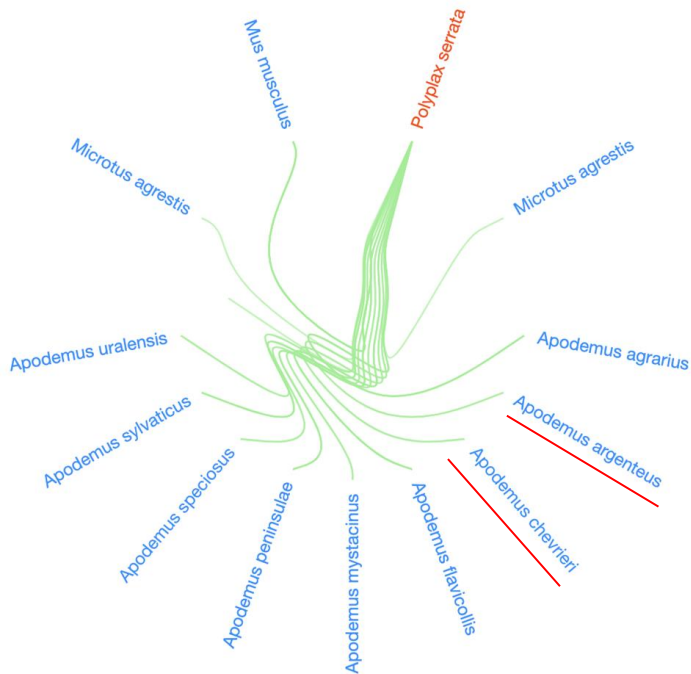
**Durden, Lance A., and Guy A. Musser. The Sucking Lice (Insecta, Anoplura) of the World : A Taxonomic Checklist with Records of Mammalian Hosts and Geographical Distributions. Bulletin of the AMNH ; No. 218. New York: American Museum of Natural History, 1994. Web. show** Provider: Sarah E Miller. 06/17/2015. Durden, Lance A., and Guy A. Musser. The Sucking Lice (Insecta, Anoplura) of the World : A Taxonomic Checklist with Records of Mammalian Hosts and Geographical Distributions. Bulletin of the AMNH ; No. 218. New York: American Museum of Natural History, 1994. Web. Accessed at <<https://github.com/jhpoelen/Lice/archive/7adc3eeb7a62bc83390a952217759e9da571864.zip>> on 19 Feb 2020.

**Durden, Lance A., and Guy A. Musser. The Sucking Lice (Insecta, Anoplura) of the World : A Taxonomic Checklist with Records of Mammalian Hosts and Geographical Distributions. Bulletin of the AMNH ; No. 218. New York: American Museum of Natural History, 1994. Web. show** Provider: Sarah E Miller. 06/17/2015. Durden, Lance A., and Guy A. Musser. The Sucking Lice (Insecta, Anoplura) of the World : A Taxonomic Checklist with Records of Mammalian Hosts and Geographical Distributions. Bulletin of the AMNH ; No. 218. New York: American Museum of Natural History, 1994. Web. Accessed at <<https://github.com/millirse/Lice/archive/82aeea4eac0281c202bf20b12c5c4d0947e7936a.zip>> on 19 Feb 2020.

Refuted by:

None.

**TPT specimen records will add more lines of evidence**



house mouse louse  
(*Polyplax serrata*)

parasite of

Chevrier's Field Mouse  
(*Apodemus chevrieri*)

Supported by:

**Ed Baker; Ian J. Kitching; George W. Beccaloni; Amoret Whitaker; Steen Dupont; Vincent S. Smith; John S. Noyes (2017). NHM Interactions Bank. <https://doi.org/10.5519/0060767>. Accessed at <<https://data.nhm.ac.uk/dataset/82e807f0-6273-4f19-be0a-7f7558442a25/resource/f84ad9f1-bd0c-4811-8108-8dcd83f224a4/download/nhminteractionsbank.csv>> on 19 Feb 2020. link show** Provider: Ed Baker; Ian J. Kitching; George W. Beccaloni; Amoret Whitaker; Steen Dupont; Vincent S. Smith; John S. Noyes (2017). NHM Interactions Bank. <https://doi.org/10.5519/0060767>. Accessed at <<https://data.nhm.ac.uk/dataset/82e807f0-6273-4f19-be0a-7f7558442a25/resource/f84ad9f1-bd0c-4811-8108-8dcd83f224a4/download/nhminteractionsbank.csv>> on 19 Feb 2020.

**Durden, Lance A., and Guy A. Musser. The Sucking Lice (Insecta, Anoplura) of the World : A Taxonomic Checklist with Records of Mammalian Hosts and Geographical Distributions. Bulletin of the AMNH ; No. 218. New York: American Museum of Natural History, 1994. Web. show** Provider: Sarah E Miller. 06/17/2015. Durden, Lance A., and Guy A. Musser. The Sucking Lice (Insecta, Anoplura) of the World : A Taxonomic Checklist with Records of Mammalian Hosts and Geographical Distributions. Bulletin of the AMNH ; No. 218. New York: American Museum of Natural History, 1994. Web. Accessed at <<https://github.com/jhpoelen/Lice/archive/7adc3eeb7a62bc83390a952217759e9da571864.zip>> on 19 Feb 2020.

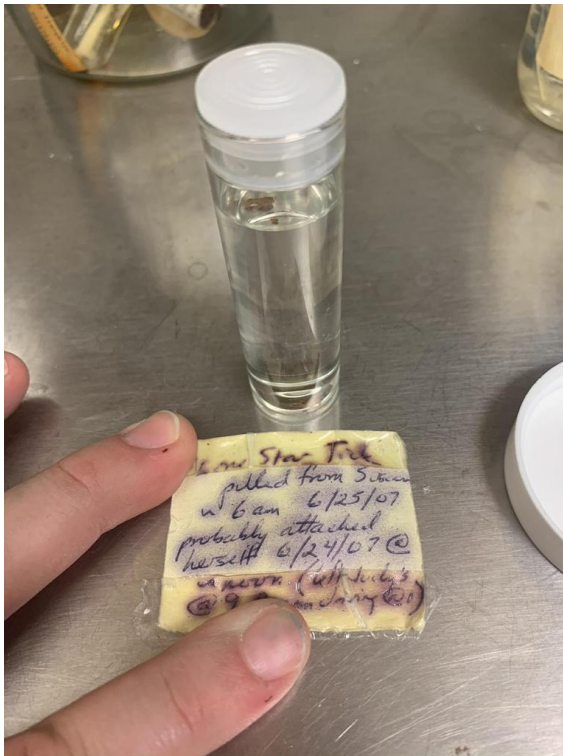
**Durden, Lance A., and Guy A. Musser. The Sucking Lice (Insecta, Anoplura) of the World : A Taxonomic Checklist with Records of Mammalian Hosts and Geographical Distributions. Bulletin of the AMNH ; No. 218. New York: American Museum of Natural History, 1994. Web. show** Provider: Sarah E Miller. 06/17/2015. Durden, Lance A., and Guy A. Musser. The Sucking Lice (Insecta, Anoplura) of the World : A Taxonomic Checklist with Records of Mammalian Hosts and Geographical Distributions. Bulletin of the AMNH ; No. 218. New York: American Museum of Natural History, 1994. Web. Accessed at <<https://github.com/millirse/Lice/archive/82aeea4eac0281c202bf20b12c5c4d0947e7936a.zip>> on 19 Feb 2020.

Refuted by:

None.



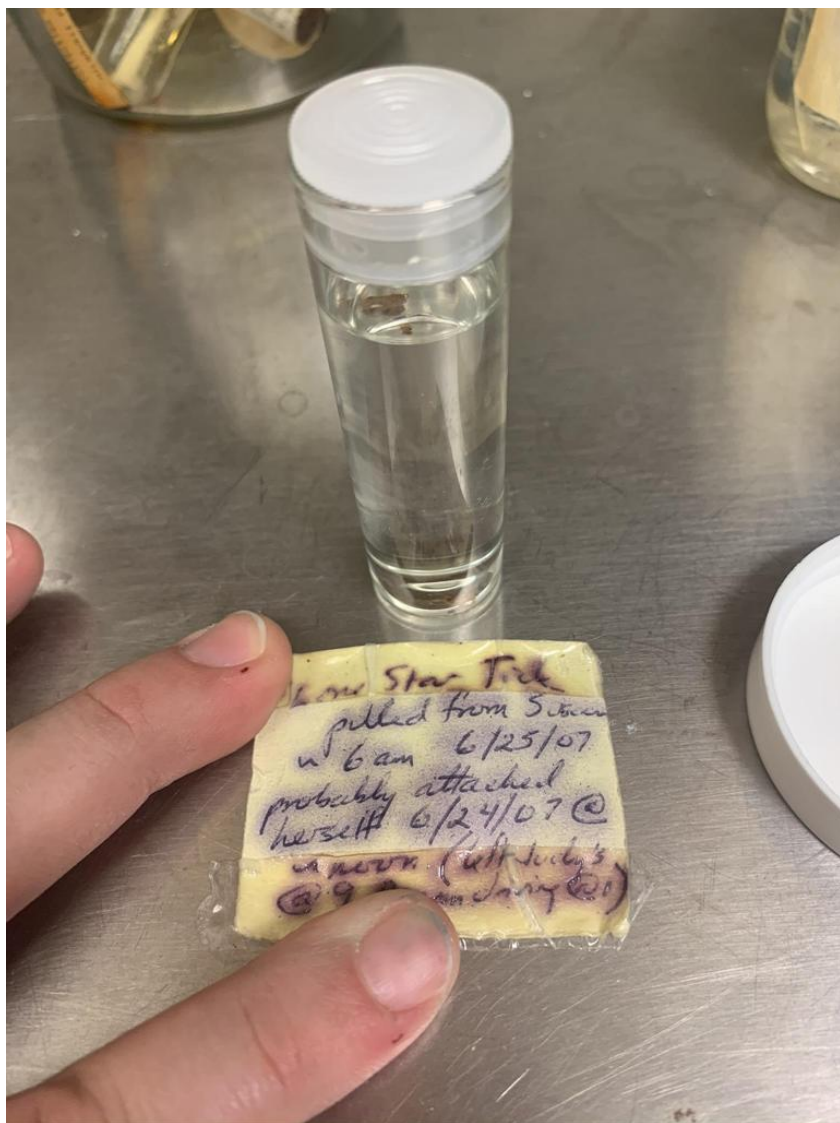
# Collection data contains a lot of evidence on labels of biotic interactions



Not filtered for vertebrate parasites\*







## Many challenges:

Old names

Bad handwriting

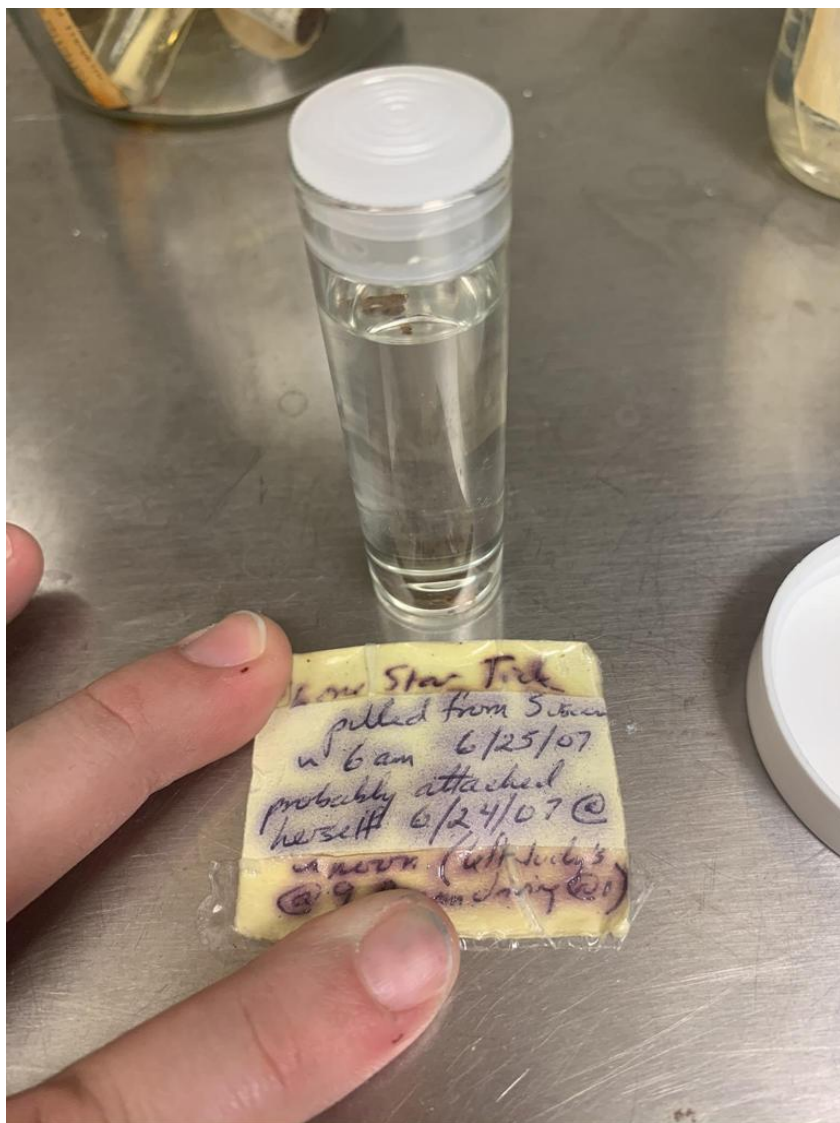
Volunteer and unskilled labor

Curation challenges

Incomplete information

Complex data!





**We do not know  
what interaction  
terms we will  
encounter along  
the way**





# Biotically Interacts With



**Interaction from  
collection labels  
Feb. 22, 2020**

on  
found on  
parasite of  
Host  
ex

**According to GloBI  
Feb. 22, 2020**

on = interactsWith

[http://purl.obolibrary.org/obo/RO\\_0002437](http://purl.obolibrary.org/obo/RO_0002437)

found on = interactsWith

[http://purl.obolibrary.org/obo/RO\\_0002437](http://purl.obolibrary.org/obo/RO_0002437)

parasite of = parasiteOf

[http://purl.obolibrary.org/obo/RO\\_0002444](http://purl.obolibrary.org/obo/RO_0002444)

has host = hasHost

[http://purl.obolibrary.org/obo/RO\\_0002454](http://purl.obolibrary.org/obo/RO_0002454)

ex = hasHost

[http://purl.obolibrary.org/obo/RO\\_0002454](http://purl.obolibrary.org/obo/RO_0002454)



**Biotically Interacts With**



**According to  
TPT?  
(Future date)**

**GloBI allows us to  
learn from our data**

**foundOn** (preferred term)

“specimen found in contact with surface of another organism”

synonymous\_with **ON**

subproperty\_of **InteractsWith**

[http://purl.obolibrary.org/obo/RO\\_0002437](http://purl.obolibrary.org/obo/RO_0002437)

**hasHost** (preferred term)

[http://purl.obolibrary.org/obo/RO\\_0002444](http://purl.obolibrary.org/obo/RO_0002444)

synonymous\_with **parasiteOf**

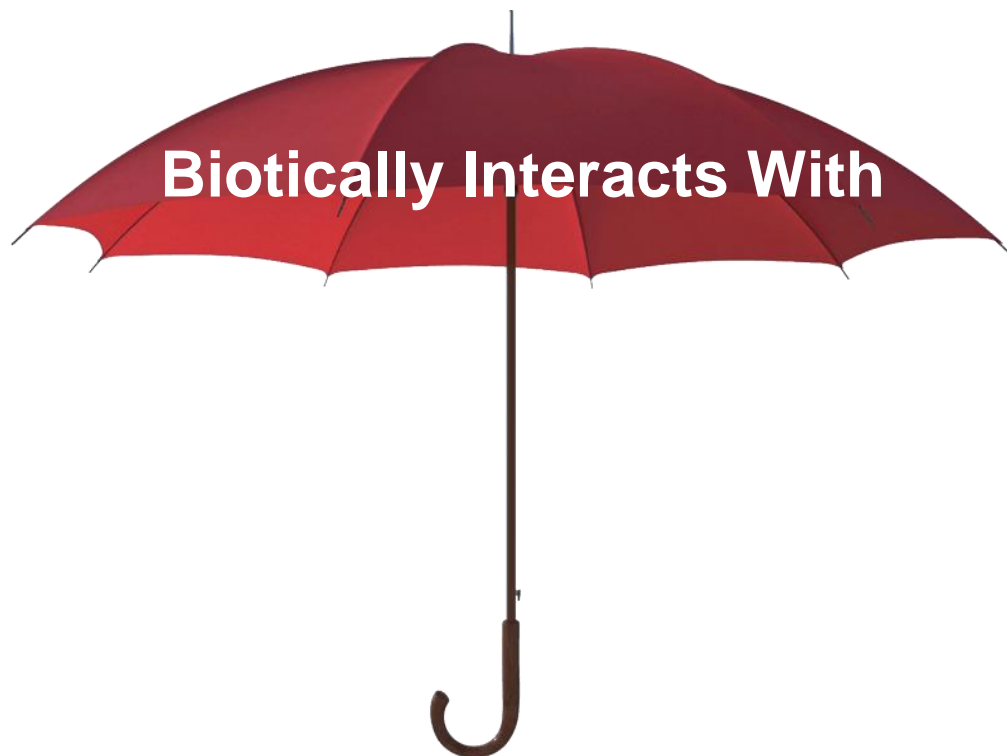
[http://purl.obolibrary.org/obo/RO\\_0002444](http://purl.obolibrary.org/obo/RO_0002444)

synonymous\_with **eX**

subproperty\_of **InteractsWith**

[http://purl.obolibrary.org/obo/RO\\_0002437](http://purl.obolibrary.org/obo/RO_0002437)





**Please share data  
quickly**

**Interested in  
your terms**



# Important Links

1. Parasite Tracker and GloBI information page  
<https://www.globalbioticinteractions.org/parasitetracker/>

## How can GloBI help share your data?

### TPT Collections Status

Click on badges to browse/download indexed records or inspect automated reviews.

[edit collection list](#)

GloBI BPBM / GloBI BYU / GloBI CAS / GloBI CUAC / GloBI FMNH / GloBI INHS / GloBI MSU / GloBI MPM / GloBI HWML / GloBI OSAL / GloBI PSU / GloBI PERC / GloBI TAMUIC / GloBI BRTC / GloBI ANSP / GloBI UCSB-IZC / GloBI UHIM / GloBI UMMZ / GloBI UMSP / GloBI UNH / GloBI MSB-PARA / GloBI MSB-HOST / GloBI PIPER / GloBI WIRC / GloBI UWSP / GloBI VB /

status	institution/collection	platform	contact
  	BPBM / Bishop Museum / Gressitt Entomology Collection	<a href="#">Specify</a>	Jim Boone, Neal Evenhuis
  	BYU / Brigham Young University Arthropod Museum / Monte L. Bean Museum of Life Science Museum Insects and Arachnids	<a href="#">SymbSCAN</a>	Michael Whiting

