Data Entry Guide

For the [Bat Eco-Interactions Database](#)

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Note: The database functions best when using Google Chrome.

1. Check if the publication is in the database

- Before entering a new interaction, use the different views and filters on the database to check if the article and specific interaction have previously been entered. An easy method is to select "Group Interactions by: Source" and "View: Publications" in the search options.

- Occasionally you may have an article which has already been added, but cites interactions that aren't yet entered into the database. The database used to only account for bat interactions with plants and arthropods, but now that we include other "realms", such as birds and fish, we can enter these into the database as well!

- To create a new entry, log in and click the "Database" tab at the top of the page. Then click on the blue "New" button on the top right of the page. The New Interaction form will pop up. There is a tutorial available at the top right of the form called Interaction Form Tutorial.
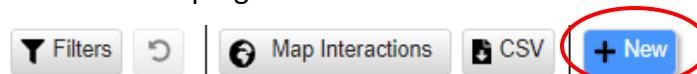
2. Publication and citation information

Publication:

- Click on the "Select Publication" drop down menu. Either scroll or begin typing the publication name (i.e. Journal of Mammalogy). If the publication is already in the database you can select it from the drop down menu.
- If this is a new publication not already in the database, select "Add a new Publication" from the top of the list, which will prompt a new section to appear where you can add the publication title and type. Click "Create Publication" to finish.
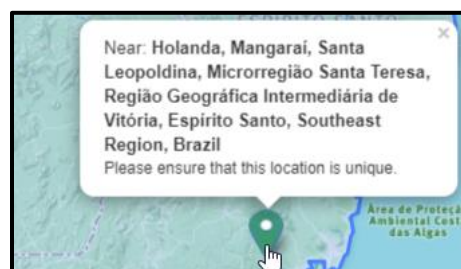

Citation:

- The next drop-down menu is for the citation. Click "Select Citation" and either scroll or begin typing the title, and then select the correct citation. If you're adding new interactions from an existing article, the title will be in the list. If you're creating a new citation, select "Add a new Citation", which will open a new section of the entry form. There is a tutorial available for this form at the top right, called "Citation Form Tutorial".
- Enter all the information available, as entered. Text can be copy and pasted from the article to reduce spelling errors. You can use a text document like Notepad to remove formatting.
  - Try to find any missing information online. The journal's website often has more info.
  - Some authors are already in the menu because they are an author on other papers. If not, select "Add a new Author" at the top of the list, which opens a new section. Enter full names if provided, and click "Create author". Once an author has been entered, an option for a 2nd author will appear. Add all of the authors listed on the publication.
  - If the article is published online, paste the URL into the Website field. Abstract-only is OK. Prioritize quality websites, such as the journal's website or academic libraries.
  - Click "Create Citation" to finish.

3. Location information

- Country/Region: select the country or region where the interaction took place from the menu.

- Location: some generic locations are provided, but you'll likely need to create a new location. The goal is to be as specific as possible. There is a tutorial available on the top right of this form called "Location Form Tutorial".

  - First, select "Add a new Location" from the drop-down to open a new form section.

  - If provided, enter the latitude and longitude of the study site. They will need to be converted into decimal form: FCC.gov converter.

    - If your publication provides you with a range you can use an intermediate value.

    - You can also use Google Earth google.com/earth to find the coordinates of a location on the bottom right of the screen.
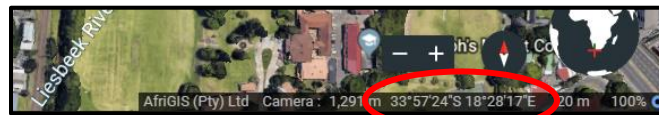

- Display name: This is a name that is as specific as possible to the study site. You can use nearby towns or landmarks to help make the name unique. For example, if a study takes place near a landmark in a national park, you can include a landmark in the display name since national parks can be large. This prevents contradiction if another study took place in a different section of that park with different coordinates.

  - You can use this string of descriptions as a guide:

    [Habitat type] "near" [Landmark], [Town/City], [Province or State]

    - ❖ Example: Forest near Shinyan Cave
    - ❖ Example: Shrubland south of Sierra Vista, Arizona

  - If you entered coordinates, a green pin will be on the map. Hovering over it will show a helpful name suggestion.

- Habitat type: Definitions of habitat types can be found at https://www.batplant.org/definitions. Choose the habitat that seems most dominant. You can use Google Earth or ecosystem type maps if not provided by authors.
- Enter the elevation data if provided (in meters). If provided with a fixed number or average, use the "Elevation (m)" field. If provided with a range, use both elevation fields. You can use Google Earth (google.com/earth) to find the elevation of a location if not provided by the authors. Hover over a point with your cursor and the elevation will be in the bottom right of the window.
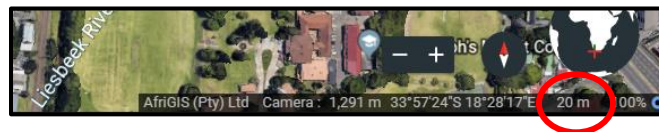
- Notes: Add any information that you think is important to this particular site.
    - Full GPS coordinate range range
    - Other habitat types present
    - Any other descriptions that didn't go into the name
- Lastly, be sure that the map shows a green pin pointing to the correct location. If no coordinates were entered, click the icon that looks like a map on the left side, and then click the specific location on the map to place the pin.
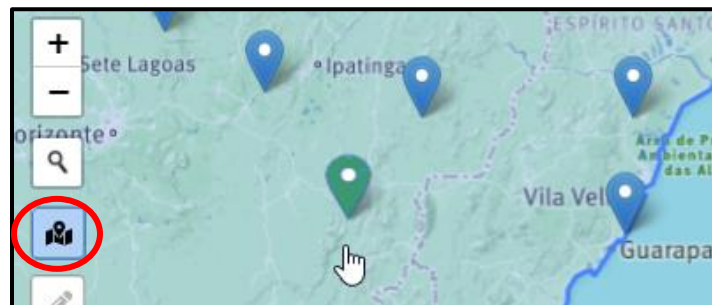
- Select "Create Location".

4. Subject (the bat)

- Click "Select Subject" to open a new section of the entry form.
- Many species already exist in the database. To check, start with the Species drop box and begin typing. If found, select it and the other fields will auto populate. Click "Select Taxon" to finish.
- If the species is not already listed, first verify with www.batnames.org that the taxonomic information provided by the publication is correct and without spelling errors or the use of old taxonomy (refer to the Taxonomic Changes Sheet.) After confirming the taxonomy is correct, ceheck the Genus drop-down menu and check if it is listed. If not, check if the family is listed.
    - Once you've selected or created a Family name, continue to Genus. If you had to add a new Family name, you'll also have to add the Genus and Species levels.
    - When the Family and Genus names are selected or created, you can finally add a new species. Enter the display name as: Genus species
- There is an option to "Select Unspecified" if the type of bat is unknown. However, the interactions in the database should be as informative as possible. Currently, we would like to reserve the use of "unspecified' bat entries for interactions that are uncommon. If you can make a confident guess at what family the bat might be in, it's preferred that you list it as such and make a note in the Notes field of the New Interaction form that the authors didn't identify the type of bat.

5. Object (what the bat interacted with)

- First, select which "Realm" the object is in (Plant, Arthropod, etc.) The process to enter the taxonomic information will be the same as for the "Subject" taxon.
- If you need to add a new Family, Genus, or Species, use www.tropicos.org to verify taxonomy of plants. For other realms, use www.catalogueoflife.org . You can also refer to the Taxonomic Changes Sheet.
  This form also has a "Select Unspecified" option, where the same guidelines from the Subject section apply.
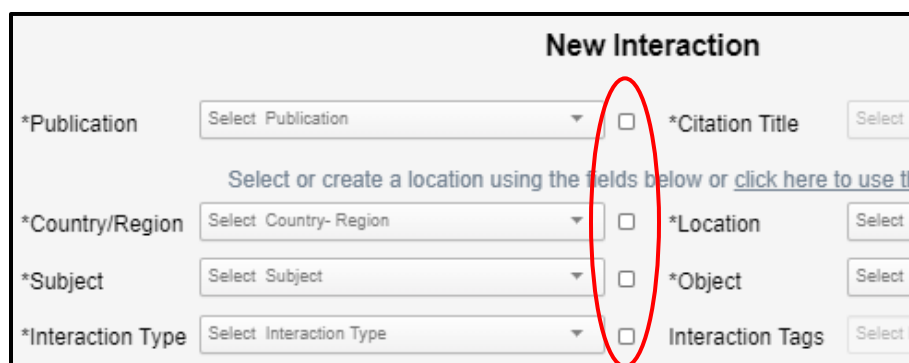
Note: Class → Order → Family → Genus → Species

6. Interactions types and tags

- Use the definitions from [the Definitions Doc](#) and the Conceptual Data Map below to help you determine the correct combination of interaction type and tags.

- Select an interaction type from the menu, and then choose one or more interaction tags to further describe the interaction, if necessary.

  - Ex. The bat may consume the *fruit*, or the bat roosts in an *external* part of a tree.

  - The <u>Secondary</u> tag is used to specify an interaction that the author(s) did not witness, but instead are citing from someone else's work. Attempt to find the cited work and enter it independently, but use the Secondary tag if you can't access it.

7. Notes and finishing entry

- Add any notes you think are necessary. For example, if the publication used an old taxonomic term, you can note "Plant cited as 'F. trigonatia'; entered as 'F. trigona' per Tropicos".

- If you are only adding one interaction, you can click "Create Interaction" to finalize the entry. If there are multiple interactions in the publication, you can click the small gray boxes to the right of each of the drop-down menus that you'd like to reuse.

  - Ex. If *Anoura geoffroyi* dispersed seeds of more than one species, you could check every box except the one next to the "Object" drop-down before hitting "Create Interaction". This will submit the interaction, and have the new form pre-populated with the information you want to reuse.

- Once you are finished, you can select Close at the bottom right, and the interaction(s) you entered will appear in the database.

8. Completed publications

- Once you've entered all interactions from a publication, move the PDF file to the "Completed" folder in *your* Drive folder: Editor Documents. This allows an administrator to store a copy of the publications that are in the database. It's also helpful in keeping our "to-do list" updated.
- If the publication is a hard copy, scan it to a PDF if you can.
- If you can't scan the document or if you have restricted online access, add the citation information to the Completed citations with no PDF Sheet in Google Drive.

9. Editing mistakes

If you find a mistake on an interaction you've entered, you can edit most fields:

- *Note*: Once you create a location, citation, subject, etc., that the entity will exist in the database even if you haven't submitted the interaction form.
- To make an edit, set the database search options according to what field needs to be edited (Ex. If the issue is with the location, "Group Interactions by: Location"). Locate the row that contains the entity you need to edit, and click the blue pencil button. A form will open allow you to edit various fields about the location you created.
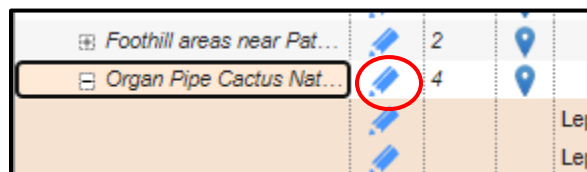
- To change a field of the interaction to something else entirely, select the blue pencil in the same column as the interaction to bring up a form similar to the New Interaction form.
- Make sure the change you make doesn't cause two or more identical interactions. If you notice, duplicates, or you aren't sure how to fix an error, contact Kelly or Sarah.

10. Links and other information

- There is a tutorial at the top right of the New Interaction, Citation, and Location forms that contain a lot of helpful information in this guide.

- Hovering over certain fields with your cursor shows hints and descriptions.

- If you experience an error with the forms or site, use the reporting feature at the top right of the database. Be as descriptive as possible, and take screenshots if they might help. This sends a notification to the software developers.

- If you have other questions or issues, you can contact the software developers at:

  dev@batbase.org

Links:

Editor Documents

Tropicos

Bats of the World

Catalogue of Life

FCC Coordinate Converter

11. Conceptual Data Map (next page)

Conceptual Data Map

BAT ECO-INTERACTIONS

Citation
- Author
- Title
- Journal
- Year
- Other info.

Location
- Region
- Country
- Habitat
- GPS
- Elevation

Bat Interaction

Plant
- Consumption: *Flower, Leaf, Seed, Fruit*
- Roost: *Internal, External*
- Visitation: *Flower*
- Pollination: *Flower*
- Seed Dispersal
- Transport: *Bryophyte fragment*

Arthropod
- Predation
- Prey
- Transport: *Arthropod*
- Host
- Cohabitation

Bird
- Predation
- Prey
- Hematophagy
- Cohabitation

Reptile
- Predation
- Prey

Amphibian
- Predation
- Prey

Fish
- Predation
- Prey

Fungi
- Host
- Consumption

Bacteria
- Host

Mammal
- Predation
- Prey
- Hematophagy
- Cohabitation

Virus
- Host

Other Parasite
- Host: *Endoparasite, Ectoparasite*

Coming soon!