Machine Tagging Tutorial

Step 1: Sign in or create an account

You will need to sign-in to your personal Flickr account. If you do not yet have an account, you will need to "Sign up" by completing the linked registration form to create an account.

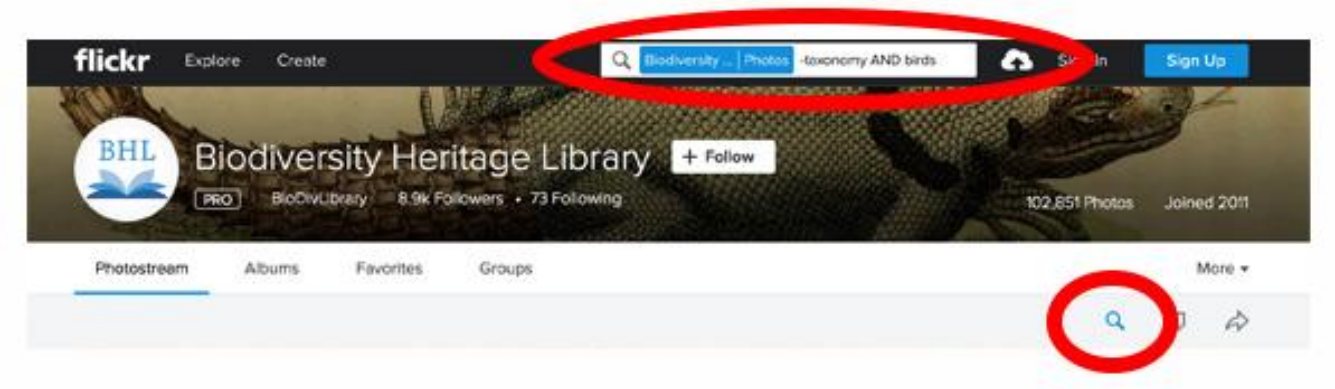
Step 2: Find images to work on

Visit the BHL Flickr site to find images to tag: www.flickr.com/photos/biodivlibrary/

You can filter BHL's Flickr by all images without taxonomic machine tags here:

http://s.si.edu/BHLImagesWithoutTags

You can further filter by images without tags in a certain subject by going to BHL's Flickr photostream page (www.flickr.com/photos/biodivlibrary/), clicking the "search" icon, and typing "-taxonomy AND [enter subject]" into the search box (see below).



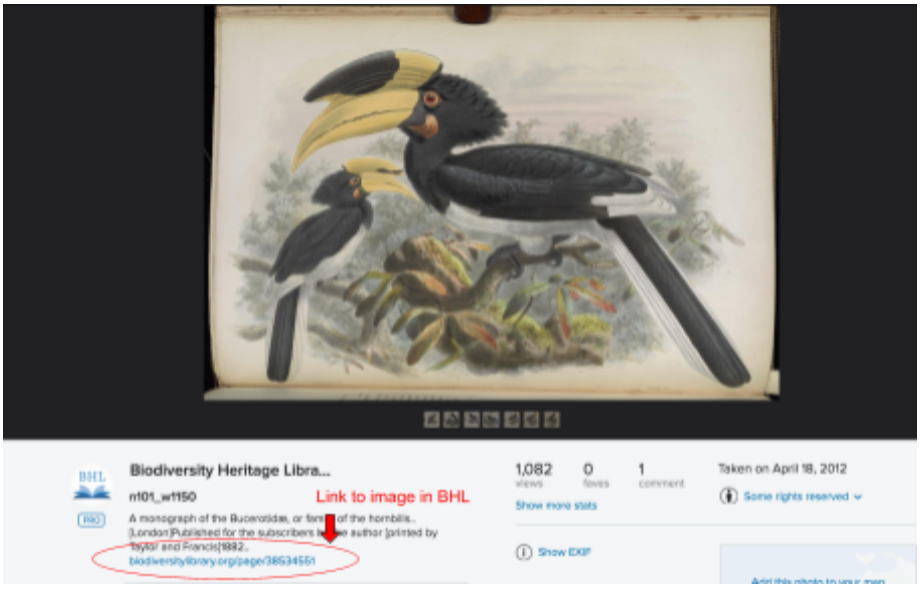
Step 3: Determine the name of the species depicted in the image

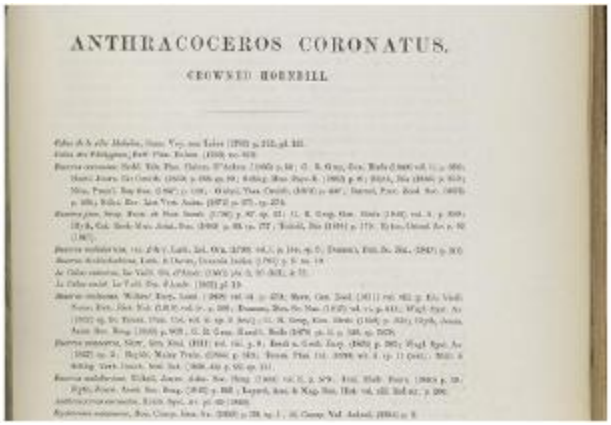
3.1 Level One:

Many images will have a scientific name right on the image. You may have to look at the large version of the image to be able to read it. For example, the image to the left has the name *Sonerila hirsutula* at the bottom of the scanned sheet.

3.2 Level Two:

If there is no name on the sheet, you need to go hunting for the name in the original work on the BHL web site. For example, the image below does not have any text on the scanned sheet. However, in the image description, there is a link to the relevant page in the scanned book. When you follow this link, you see that the image is associated with a description of the species *Anthracoceros coronatus*.




ANTHRACOCEROS CORONATUS.

CROWNED HORNBILL

3.3 Level Three:

For extra credit (i.e., karma points), you can add a hunt for the current accepted name of organisms in BHL plates to your workflow and tag the image with **both** the name on the plate and the current accepted name.

Since most BHL images are scanned from old literature, many of the names will be out of date. It's great if taggers do a little bit of detective work to find the current name for the taxon in the BHL plate. **See page 9 for steps you can follow to find current taxon names**.

We encourage users to add tags for any synonyms **as well as** the current accepted name of the organism to the plate. This allows people to find the image no matter what name they search under.

Step 4: Tag the image

4.1 Level One: Taxonomic Machine Tagging

Use the "tags" feature in Flickr to add the machine tag in the form:

"taxonomy:binomial=Genus species"

Always spell out the taxonomic names in full; do not use abbreviations for any of the names. (e.g. *YES, DO THIS =* taxonomy:binomial="Plectrophenax nivalis" | *NO, DON'T DO THIS =* taxonomy:binomial="P. nivalis").

Remember that you must put quotes around any tags that have spaces in them.* *Are you having trouble with multi-word tags breaking up into separate tags even though quotation marks are used? Please see FAQ question #13 on page 16 for troubleshooting.*

*Note: Make sure that you are using the straight-up-and-down quotation mark style " rather than the angled quotation mark style “. Flickr treats these two quotation marks differently, and only the " style will work correctly when used to designate multi-word tags.

Tags are not case sensitive. You can add tags one at a time or use a comma to separate multiple tags (e.g. **bird,taxonomy:binomial=Sagittarius serpentarius,** will add two separate tags to an image — one for **bird** and one for **taxonomy:binomial=Sagittarius serpentarius**). If you do use a comma to separate multiple tags, you do not need to use quotation marks on multi-word tags (but make sure to add a comma after the final tag in your text string).

If you can only find the name of the genus or family, you can tag the image with whatever name you find. If you are uncertain about a species designation, tag the image to the lowest taxonomic level you feel comfortable (such as family or genus). If there are several organisms shown in the same image, you can add tags for all organisms.

We encourage users to add machine tags both for the species name (binomial) as well as higher taxonomic levels (such as family, genus, etc.), common names (plural and singular, e.g. butterfly and butterflies), and synonyms. This allows users to find the image no matter what they are searching under.

For more information, see page 12 of this document for Frequently Asked Questions about machine tags.

4.2 Level Two: Additional Machine Tags

In addition to taxonomic machine tags, we also encourage users to add tags for additional information, such as artist or geo locations. See the list of additional machine tags that we support and details below:

Artists

You can add **machine tags for the artists** who created the illustrations or photographs. Artist-related tags for a variety of different roles are supported for BHL tagging. The machine tag formats for these names are:

artist:name="[Givenname Middlename Familyname]"

engraver:name="[Givenname Middlename Familyname]"

lithographer:name="[Givenname Middlename Familyname]"

colorist:name="[Givenname Middlename Familyname]"

photographer:name="[Givenname Middlename Familyname]"

Note: The lithographer designation should be used for both lithography and chromolithography.

The artist tag should be used for the individual who created the original artwork upon which the plate is based. The engraver, lithographer, and colorist tags should only be used for the individuals who engraved, lithographed, or colored the plate. If the image is a photograph, use the photographer tag to designate the name of the individual who took the photo.

Please only use the more specific role designations (i.e. engraver, lithographer, colorist, photographer) if you can confirm that this is the role the individual played in the creation of the image. Captions on the plate may sometimes provide abbreviations designating the role each individual played. This page provides definitions for the various role abbreviations you might encounter.

For example, the abbreviations on this plate indicate that it was painted by Nicolet and engraved by Lebrun. Therefore, you would use the tags: "artist:name=Hercule Nicolet" and "engraver:name=Lebrun".

If in doubt as to the individual's specific role, or if you do not have time to research the roles of each individual, please use the more generic "artist:name" tag for the individual(s), regardless of their role.

Remember to put quotation marks around the entire name. *Are you having trouble with multi-word tags breaking up into separate tags even though quotation marks are used? Please see FAQ question #13 on page 17 for troubleshooting.*

You can also add the **VIAF numbers for the artist, engraver, lithographer, photographer and/or colorist** as a machine tag. A VIAF number is a unique identification number for a person. Learn more about VIAF numbers here. The format for artist VIAF machine tags is:

artist:viaf=[VIAF number]

engraver:viaf=[VIAF number]

lithographer:viaf=[VIAF number]

colorist:viaf=[VIAF number]

photographer:viaf=[VIAF number]

The following resources are helpful for researching artist/engraver/colorist names and VIAF numbers:

- DSI Database of Scientific Illustrators: http://www.uni-stuttgart.de/hi/gnt/dsi2/index.php?function=show_static_page&id_static_page=1&table_name=dsi
- VIAF (Virtual International Authority File): http://viaf.org/
- Getty Research Institute's Union List of Artists Names Online: http://www.getty.edu/research/tools/vocabularies/ulan/
- V&A National Art Library (UK): http://catalogue.nal.vam.ac.uk/ipac20/ipac.jsp?profile
- Library of Congress Authorities: http://authorities.loc.gov/
- Wikidata: https://www.wikidata.org/wiki/Wikidata:Main_Page

Geo Locations

You can add machine tags for the geographic location(s) where the illustrated species can be found. The following geo machine tags are supported (remember to place quotation marks around multi-word location names):

geo:lat=[latitude]

geo:lon=[longitude]

geo:continent="[value]"

geo:country="[value]"

geo:state="[value]"

geo:county="[value]"

geo:locality="[value]"

E.g. geo:country="United Kingdom" OR geo:state=Maryland

You can also replace the text “value” for the tags with the GeoNames URL for the location (see example below).

geo:locality=http://www.geonames.org/2635167/

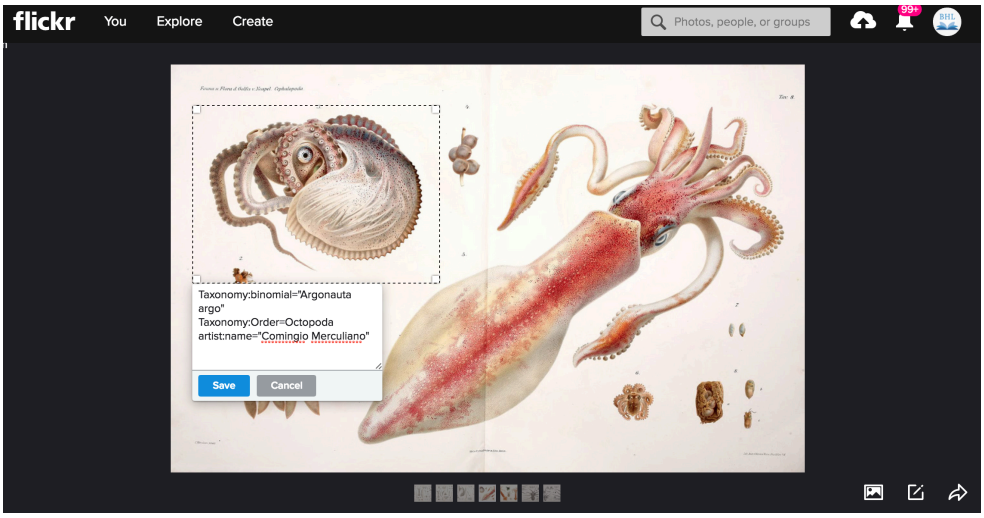
We encourage you to add geo tags with both text values as well as GeoNames URLs. Find GeoNames URLs here.

Are you having trouble with multi-word tags breaking up into separate tags even though quotation marks are used? Please see FAQ question #13 on page 17 for troubleshooting.

4.3 Level Three: Box Tagging Multi-Species Images

You can use box tagging for multi-species images. To add these tags, click and drag your cursor to form a box around the specimen on the plate that you want to tag (note: make sure you are not in “zoom” mode, or you will not be able to draw a box). In the box, where it says “add a note,” add your tags using the same machine tag formats as discussed in Levels 4.1 and 4.2. Separate each individual tag in the box using a **hard return**. Hit save.

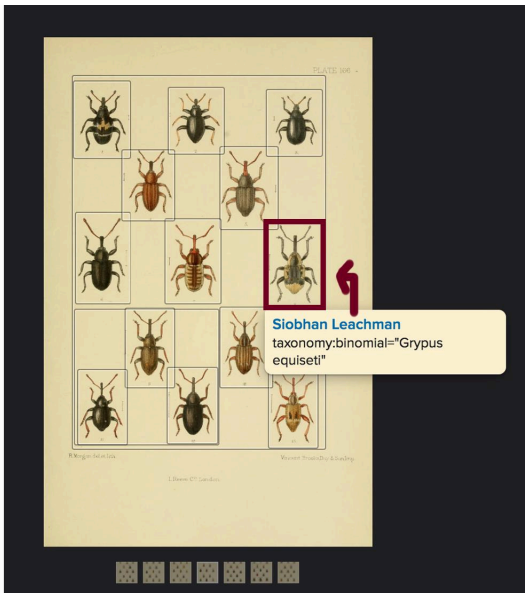
Note: Quotation marks should always be used for multi-word tags added via the box tagging method. Do NOT use the trailing comma workaround discussed in FAQ question #13 for box tagging via the “add a note” method.



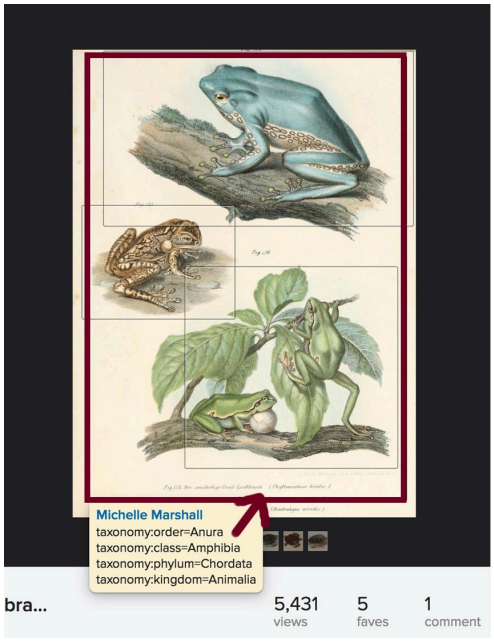
Box tagging should **only be used for multi-species plates**. While box tagging is preferred

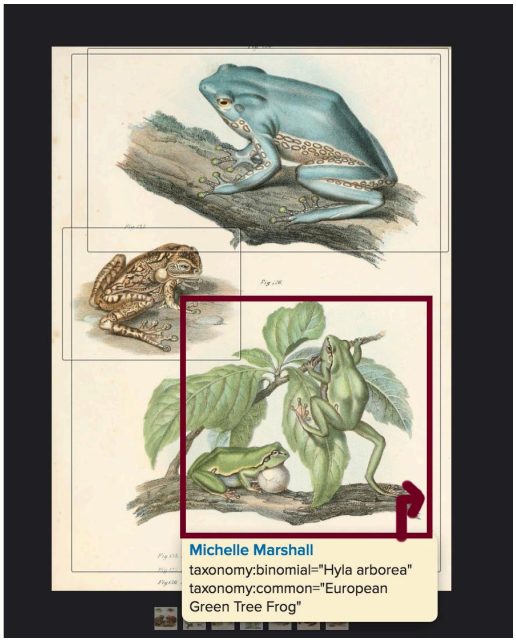
for multi-species plates, traditional machine tags (following the instructions in level 4.1) are also acceptable.

You can draw a box around each individual species, as well as larger boxes around related species with common ancestry (see below).



Each box should only be tagged **down to the lowest common taxonomic level.** For example, if you draw a box that includes three species from the same family but different genera, that box should only be tagged down to the family level. Smaller boxes should be drawn around each individual species, with pertinent tags added to those boxes.





We suggest that you choose either box tagging or traditional tags for multi-species images. You do not need to apply both methods to each multi-species plate, although doing so will not break our system. If a multi-species image has already been tagged using the method in Level 4.1, you can still enhance the image by tagging it with this box-tagging method.

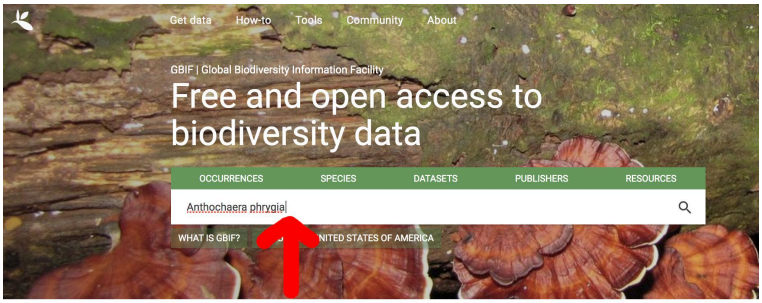
Steps for Finding Current Taxon Names for BHL Images

Step 1: Search GBIF for the name as presented in the original work (i.e. name as determined via steps 3.1 or 3.2)

Type the name in the GBIF search box at gbif.org. Click on the name results to see if the name is listed as “accepted” or is a “synonym” of another name. Tag the image with the “accepted” name as determined through this search.

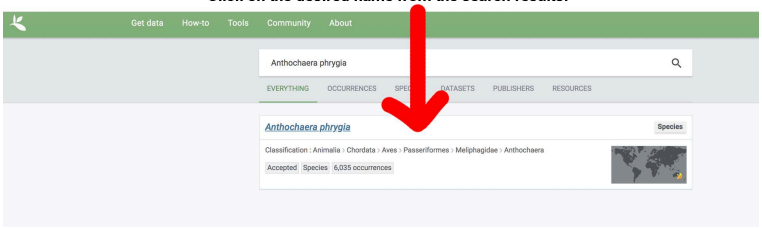
Note: You are also encouraged to tag the image with any synonyms that are recorded for a given name.

SCENARIO ONE: Name that you searched for is the current, accepted name.



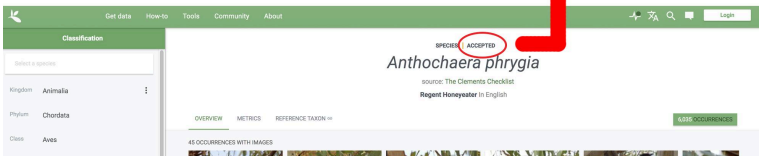
Search for a name at gbif.org.

Click on the desired name from the search results.



If the name is listed as “accepted”, this is the current name.

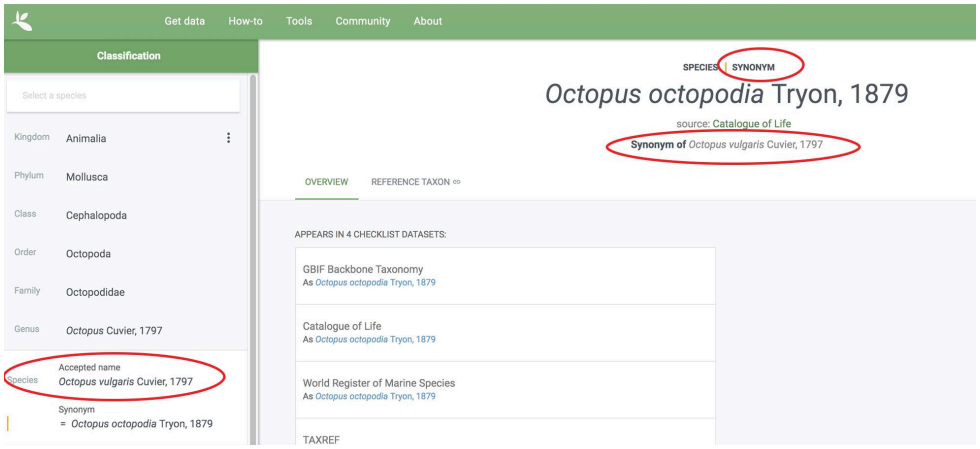
Add this name as a tag to the image.



SCENARIO TWO: The name that you searched for is a synonym of a current, accepted name.

If the name you searched for is listed as a synonym, GBIF will indicate the current taxonomic name in the "Synonym of" summary and "Accepted Name" taxonomic tree.

Tag the image with the accepted name AND any synonyms listed.



Step 2: Check other sources for names that are not in GBIF

If you cannot find the name of the organism in GBIF, it's time to seek help from other sources. Here are some sites that provide information about names and synonyms for different organisms:

- The Plant List – Plants (http://www.theplantlist.org/)
- Species Fungorum – Fungi (www.speciesfungorum.org/Names/Names.asp)
- World Register of Marine Species (WoRMS) - Everything that lives in, on, and near the sea (http://www.marinespecies.org/)
- Marine Species Identification Portal - Has some names that are missing from WoRMS (http://species-identification.org/)
- AlgaeBase - Terrestrial, marine and freshwater algae (http://www.algaebase.org/)
- FishBase – Fish (http://www.fishbase.org/search.php)
- Amphibian Species of the World - Frogs, Toads, Salamanders, Caecilians (http://research.amnh.org/vz/herpetology/amphibia/)
- The Reptile Database - Lizards, Snakes, Crocodiles, Turtles (http://reptile-database.reptarium.cz/advanced_search)
- Mammals Species of the World – Mammals (http://www.departments.bucknell.edu/biology/resources/msw3/browse.asp)
- Avibase – Birds (http://avibase.bsc-eoc.org/avibase.jsp?lang=EN)
- World Odonata List - Dragonflies & Damselflies (http://www.pugetsound.edu/academics/academic-resources/slater-museum/biodiversity-resources/dragonflies/world-odonata-list2/)

- Orthoptera Species File Online - Grasshoppers, Katydids, Crickets (http://orthoptera.speciesfile.org/HomePage/Orthoptera/HomePage.aspx)
- Blattodea Species File Online – Cockroaches (http://blattodea.speciesfile.org/HomePage/Blattodea/HomePage.aspx)
- Mantodea Species File Online – Mantids (http://mantodea.speciesfile.org/HomePage/Mantodea/HomePage.aspx)
- Phasmida Species File Online - Walking Sticks http://phasmida.speciesfile.org/HomePage/Phasmida/HomePage.aspx
- Aphid Species File Online - Aphids (http://aphid.speciesfile.org/HomePage/Aphid/HomePage.aspx)
- Psocodea Species File Online - Bark lice & parasitic lice (http://psocodea.speciesfile.org/HomePage/Psocodea/HomePage.aspx)
- Global Butterfly Names - Butterflies (http://www.ucl.ac.uk/taxome/gbn/)
- Hymenoptera Name Server - Bees, Wasps, Ants (http://atbi.biosci.ohio-state.edu/)
- World Spider Catalog - Spiders (http://research.amnh.org/oonopidae/catalog/)
- FishWise Professional- fish (http://www.fishwisepro.com)
- Catalogue of Life - animals, plants, fungi, and micro-organisms (http://www.catalogueoflife.org/)
- Global Names - animals, plants, fungi, and micro-organisms (https://globalnames.org/)
- Catalog of Fishes - fish (http://www.calacademy.org/scientists/projects/catalog-of-fishes)
- Butterflies of America - American butterflies (http://butterfliesofamerica.com/intro.htm)
- Insectoid - insects and arachnids (http://insectoid.info)
- Coreoidae Species Files Online - Coreoidae (http://coreoidea.speciesfile.org/HomePage/Coreoidea/HomePage.aspx)
- Insects - If you're having trouble identifying an insect and you have a Twitter account, Morgan Jackson (@BioInFocus) has compiled a list of insect identification experts on Twitter that may be able to help (https://docs.google.com/spreadsheets/d/1aN9WfAQLa4TvMsTbwVNAXohrGV8dQePy7mRLUjbVs4s/edit?usp=sharing)
- NBN Gateway - British Biodiversity (https://data.nbn.org.uk)

For example, if you have a mystery name for a plant, go to the The Plant List and type in the name. With some luck, The Plant List will tell you that the name is a synonym of some other name, and you can then tag the image with both the synonym and the current accepted

name.

If you tag an image based on information from another site, it would be great if you could leave a comment on the image explaining where the name in the machine tag came from.

Step 3: Search the web for clues

If all else fails, do a simple web search to see if there is any web site out there that may provide further information about the name from the original work.

Step 4: Try to identify the organism(s) in the picture as best you can

If nothing else, simply tag the image with the taxon you recognize. For example, if it's a mammal, you can use taxonomy:class=mammalia and if it's a moth, you can use taxonomy:order=lepidoptera. This will at least make the image searchable at higher taxonomic levels.

Frequently Asked Questions

1. What is a machine tag?

A machine tag is just like a normal tag, but it follows a special format. Machine tags always have 3 parts:

namespace:predicate=value

The namespace indicates the type of tag (i.e. taxonomic, artist, etc.). The predicates provide information about what kind of a name is provided in the machine tag, and the value is the actual name.

2. How Can I see all images that have taxonomic machine tags in BHL's Flickr?

Follow this link to see all images from BHL's Flickr that already have taxonomic machine tags: http://s.si.edu/BHLImagesWithTags

3. Should I add tags for the genus, family, etc.?

In addition to the binomial tag, we encourage you to provide tags for other taxonomic ranks

above the species level.

The following supra-specific ranks are supported:

taxonomy:kingdom=*

taxonomy:phylum=*

taxonomy:class=*

taxonomy:order=*

taxonomy:family=*

taxonomy:genus=*

Replace the * with the name of the taxon.

Instead of using the binomial tag to indicate the species, you can also use a genus tag in combination with a species tag, e.g.:

taxonomy:genus=Panthera

taxonomy:species=tigris

If you are uncertain about a species designation, tag the image to the lowest taxonomic level you feel comfortable (such as family or genus).

4. Should I use a machine tag for common names?

Please use machine tags for common names, e.g.,

taxonomy:common=tiger

5. Can I add machine tags for common names in languages other than English?

You can use the common name machine tag format (taxonomy:common=*) for names in languages other than English. However, please make sure that a tag for the English common name is **also** applied to the image if you are adding tags for common names in other

languages.

For example, you can enter tags for the common name of “tiger” in other languages as follows:

taxonomy:common=tigre
taxonomy:common=ਟਾਈਗਰ
taxonomy:common=호랑이

However, if you do so, make sure you **also** add a tag for the common name in English, e.g.,

taxonomy:common=tiger

6. What about subspecies, varieties, cultivars, etc.?

You can use the **trinomial tag** for a subspecies:

taxonomy:trinomial="Panthera tigris sumatrae"

We do not support machine tags for varieties or cultivars, and these are not formally recognized in all nomenclatures. If an image uses a cultivar or variety identification, it is best to do some research to determine if the “variety” or “cultivar” in the text is now recognized as a distinct species or subspecies (see “Steps for Finding Current Taxon Names for BHL Images” on page 9 for tips on how to conduct this research). Tag the image with the current species (i.e. binomial) or subspecies (i.e. trinomial) name for the organism, based on this research.

If you do not have the time to do this research, if in doubt about the current classification, or if you cannot find a current, accepted species or binomial name, tag the image only to the genus level. If your research reveals that the variety or cultivar is still formally accepted today, tag the image only to the lowest verified taxonomic level accepted by BHL (e.g. genus, binomial).

7. Should I include the subgenus in my tags?

You may come across instances where a subgenus is included in an image’s species identification. The subgenus is an interpolation, not part of the species binomial, and should not be included in the tag.

Note that the subgenus will always be in parentheses () and with the first letter capitalized, such as *Nereis (Hediste) diversicolor*. In this case, you would only add a tag for “*Nereis*

diversicolor" as:

taxonomy:binomial="Nereis diversicolor"

Note that a three-part trinomial indicating a subspecies is distinctly different from a subgenus designation. A subgenus will always be indicated via parenthesis. You **should** add tags for trinomials, as indicated in FAQ question #6.

8. What if there is a question mark next to the scientific name as printed in the image's source book?

You may find instances where the author was not certain about the identification for the organism depicted in an image and includes a question mark with their identification. In these instances, please go ahead and add a tag for the name as it is printed in the text (minus any question marks).

For example, on this page the author identifies fig. 2 and 3 as *Helminthopsis ? labyrinthica*.

For the associated image in Flickr, you would add the following tag:

taxonomy:binomial="Helminthopsis labyrinthica"

As another example, on this page the author identifies fig. 1 as *Callocardia? (Pitaria?) kincaidii*.

For the associated image in Flickr, you would add the following tag:

taxonomy:binomial="Callocardia kincaidii"
Note: In this example, "(Pitaria?)" indicates a subgenus, which is an interpolation, not part of the species binomial. It should be omitted from your taxonomic tags. See FAQ question #7 for more information.

You may also add tags for any synonyms and current names for these names (if applicable / available) as you might for any other taxonomic tag.

9. What if there is inconsistency between the name printed on the plate and the name on the plate's descriptive text page?

If the name printed on the plate differs from the name on the plate's descriptive text page, if

you can determine which name is correct, add a tag only for the name that is clearly correct.

If it is not possible to ascertain which is correct, add tags for both names as printed in the volume.

Example: The descriptive text for plate LXXVI in this volume identifies figures 1-1b as “Pisaster brevispinus”, while the plate identifies those figures as “Pisaster papulosus”. If you cannot ascertain which is correct, add tags for both names.

You may also add tags for any synonyms and current names for these names (if applicable / available) as you might for any other taxonomic tag.

It is also helpful to add a comment to the image articulating the inconsistencies and why you added the tags you did.

10. What if there is more than one species in the photo?

You can tag more than one organism in your photo. Ideally, you would provide the binomial for all species. If you don't know the binomial for all of the organisms, you can add tags for whichever taxonomic ranks you can identify for those organisms.

To better associate tags with individual specimens on multi-species plates, you can use box tagging to draw boxes around each individual specimen and add tags to each box. Each box should be tagged down to the lowest-common taxonomic rank. See Section 4.3 for more information.

11. What are the guidelines for tagging albums from field notes?

Some of our Flickr albums represent pages from field notes that contain photographs and/or sketches (Example: https://www.flickr.com/photos/biodivlibrary/albums/72157673522177046). When you are tagging these pages, only add taxonomic name machine tags for species that are visually represented on the page (such as through a photograph or sketch). Do NOT add machine tags for taxa that may be mentioned elsewhere in the text on the page but are not also illustrated or photographed.

To identify the taxa photographed or illustrated on the page, read through the surrounding text for clues or see if the author has added a caption to the photo or sketch. If you are unable to tag the species at the binomial level, add a tag for the most specific taxonomic rank

that you can.

12. How do I keep my machine tags from breaking into several pieces?

Make sure to put quotes around the tags if they have spaces in them. For example, use "taxonomy:binomial=Panthera tigris" or taxonomy:binomial="Panthera tigris"

If you just enter taxonomy:binomial=Panthera tigris without the quotes, you will get two tags: taxonomy:binomial=Panthera AND tigris.

Note: Make sure that you are using the straight-up-and-down quotation mark style " rather than the angled quotation mark style “. Flickr treats these two quotation marks differently, and only the " style will work correctly when used to designate multi-word tags.

NOTE: If you’re having trouble with multi-word tags breaking up into separate tags even though quotation marks are used, see the FAQ question below (#13).

13. I’m having trouble with my multi-word tags breaking into separate tags even when quotation marks are used. What should I do?

Some users are reporting issues with multi-word tags breaking up into separate tags in Flickr even though quotation marks are used. Flickr is investigating this issue but has provided a workaround in the meantime: Instead of using quotation marks, place a comma at the end of multi-word tags.

Examples:

- taxonomy:binomial=zea mays,
- artist:name=Elizabeth Gould,
- geo:country=germany,

NOTE: This workaround should only be used for tags added via the “add tags” option in Flickr (described in steps 4.1-4.2). The comma should NOT be used for the box tagging method described in step 4.3. For tags added via box tagging, always use quotation marks and separate each individual tag by a hard return.

14. Should I use diacritics in my tags?

If the term you are adding via a tag includes diacritics, please use those diacritics in your tag. This is true for any type of tags (e.g. taxonomy tags, artist name tags, common name tags, geo location tags, etc.).

YES, do this:	**NO, don't do this:**
artist:name="Henrik Grönvold"	artist:name="Henrik Gronvold"

15. Should I use ligatures in my tags?

Do not use ligatures in your tags, even if they are used in the printed work. Instead, separate the single glyph into two separate letters.

YES, do this:	**NO, don't do this:**
taxonomy:binomial="asplenium filix-foemina"	taxonomy:binomial="asplenium filix-fœmina"

16. Should I add keyword tags to Flickr images?

While our tagging priority is machine tags, you are also free to tag our images with keyword tags. Each keyword added should relate to the content of the image. Our focus is on helping our community find images of particular organisms, so tags that help us do that are our priority.

For example:

- You can add generic keywords about the type of organism depicted. Example: On an image of the Costa's and Ruffed Hummingbirds, you can add generic keyword tags for "hummingbird" and "hummingbirds". *Note: It is useful to add both singular and plural forms of common names (e.g. butterfly and butterflies).*
- On an image of an African lion, you could add keyword tags for "cat" and "African mammal". Example.
- Ecosystem-related tags are also helpful, such as tags for "jungle", "forest", or "lake", as appropriate. Example.
- You can also use keyword tags for portraits (formal depictions of people) by adding a tag for "portraits" and another with the name of the subject of the portrait. Example:

Portrait of Charles Darwin tagged with “portraits” and “Charles Darwin”.

17. How often does BHL ingest tags added to Flickr images?

We currently ingest tags from Flickr on a monthly basis. These tags are currently stored on BHL servers with the intention to one day make them searchable within the BHL portal itself.