

Data Entry Procedures for Essig Web Data Portal

The Essig Database can be used to manage collection records and track individual specimens. All specimen records entered into the database should represent physical specimens stored in, or destined for, an institutional collection (eg. Essig Museum of Entomology Collection). The “Catalog ID Number” used by the database to uniquely identify individual specimens (eg. EMEC 12345) should be attached to the specimen at the time of data entry (or before). The database can also be used to print collecting labels as well as the individual Catalog ID Number labels. Finally, if latitude and longitude information is provided during data entry, specimen records can be mapped on-the-fly with one-click of the mouse.

A username and password are required to enter data into the Essig DB. However, all records (unless marked as “not public”) can be queried by the general public through the database portal (essigdb.berkeley.edu). Contact Joyce Gross, Gordon Nishida, or Peter Oboyski for a username and password.

Legacy Specimens

Legacy specimens are those already in collections that have no associated electronic data. Back-capturing these records is much more time-consuming and challenging than a collector entering his or her own records. The following instructions are intended for capturing legacy specimen data, but the same rules apply to new specimen collections.

Specimens with Existing Electronic Data

For existing collections with spreadsheet (or other format) data files it is possible to integrate these data into the database without retyping. However, it is likely that considerable data validation and normalization will be required. Also, the proper Catalog ID Numbers need to be added to each of the specimens. Contact Joyce Gross or Peter Oboyski for further information.

New Specimen Collections

It is highly preferable that all new specimen records being entered into the Essig DB be organized by “Collecting Events” (see below). This minimizes data entry time, increases query options, and makes editing far easier than entering collection information (location, date, collectors) into the “Specimen Table”. It also allows users to take advantage of the label printing function of the database.

The two main tables of the database are Collecting Events and Specimens. The **Collecting Events table** manages the who, when, where, and how of any collection effort, while the **Specimens table** manages the identity, quantity, and whereabouts of the individual specimens collected during an event. Once the location, date(s), collector name(s), host/habitat associations, and collection method have been entered for a collecting event it need never be entered again – for each specimen, one simply refers to the Collecting Event ID that is automatically generated by the database for each new collecting event. If you use your own “lot numbers” or collecting event identifiers in the field (highly recommended) you can enter these under “Other Event ID” and query them later.

Therefore, users should first enter their collecting events using the “Add/Update Collecting Events” function, then add the individual specimens from each event using the “Add a New Specimen Record” function.

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Catalog ID Number: By default this required field is automatically filled in with the next available catalog number. If you are working from an assigned block of numbers be sure to change this field to match your EMEC number.

1. **Institution:** This required field is automatically filled in with Essig Museum. Change this field only when working with specimens deposited in other museums.
2. **Verbatim Locality Data:** Enter label data verbatim (exactly as it is on the label, errors included).
3. **Verbatim ID Data:** This will be in the form of an identification label. For example: for an identified specimen of the house fly
Musca domestica L.
Det. G.M. Nishida, 2010
4. Copy and paste data from verbatim fields into derived fields. Correct the derived fields as necessary. Derived fields for locality data are:
 - a. **State** (if a US state, only the state needs to be selected, higher fields such as country will automatically fill),
 - b. **County** (please add "County" to county name). There is a separate drop down pick list for California Counties.
 - c. **Locality** (add information from largest geographical unit to smallest (e.g. if label data says "CALIF. Mariposa Co., Frog Lake, 1.3 miles N Wawona" Select "California" in the State field, select "Mariposa County" in the county field, enter "Frog Lake, 1.3 miles north of Wawona" note that "N" is modified to "north of." This is to differentiate from a section of Wawona, North Wawona and north of the town of Wawona. The phrase "1.3 miles north of Wawona is a modifier, further defining where Frog Lake is. If however, the label reads "CALIF. Mariposa Co., 1.3 miles N Wawona (without the more specific "Frog Lake"), then the locality entry will be "Wawona, 1.3 miles north of" since "1.3 miles north of" is a phrase that modifies Wawona.
 - d. **Habitat/Host** is the location for any ecological information, for example "ex carrion" or "flying around flowers of Ceanothus." If a collecting method is indicated (beating, at light, blacklight, blacklight trap, etc.), add to **Collection Method**. If the specimen is reared (reared from Ceanothus), add "reared" to Collection Method and add the rearing information to Collecting Label Notes.
 - e. **Collector** (select from drop-down list, or enter new name.
 - f. **Year –Month–Day** in the form YYYY-MM-DD, 0's in front of single digits are not necessary. If there is a range of dates on the label, the second date is entered into Coll Date 2.
 - g. **Collection Method** (see d, Habitat/Host).
 - h. **Elevation in Meters**. If the label data includes the elevation in meters (m), add data to elevation in Meters 1st. The second field is for an elevational range, e.g. 100-200m, the higher elevation goes into the 2nd field . If the elevation is offered in feet , e.g. 300-400' or ft., then the elevation (300-400') is entered into the Elev. Text field and the converted numbers are entered into the Elevation in Meters fields. On-line converters such as Digital Dutch are readily available and you should probably have an extra window open to do look ups as necessary.

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- i. **Depth in Meters.** Rarely used, but occasionally specimens may have been collected in ponds or rivers and the depth of collection may be printed on the label. Enter same as Elevation in Meters.
 - j. **Verbatim Lat/Lon.** This field is for labels that indicate the latitude and longitude. For example, if the label has 37° 52" 18' N, 122° 16" 22' W, enter this number into the lat field in this format: 37 52 18 N and the lon field as 122 16 22 W. The program will automatically convert this into decimal degrees. If decimal degrees are provided, e.g. 37.8716, -122.2728, enter directly into **Decimal lat and lon** fields. Note the “-” sign is extremely important, otherwise the coordinates will map to the wrong side of the equator or meridian.
5. Derived data for the Verbatim ID label are the taxonomic fields (**Class, Order, Family, Genus, Species, Subspecies**). Cut and paste the Genus (*Musca*) and species (*domestica*) names into the appropriate fields. Note that the genus is capitalized and the species is lower case. If the name is in the Essig dictionary, all the other fields will be filled out. If not, a red line will appear above the **Catalog ID Num** field stating name not found in Essig database, would you like to add it? Click on add it and fill in the fields as best you can. Before adding a new name, however, be sure that you have typed it correctly. You can “Query Species at Essig Museum” from the Essig DB portal on a separate tab to be sure your species is not already in the database. Do not forget that after you add a new name, the **Submit Record** button must be clicked on again for the record to be written. Note: an individual specimen only represents one species, therefore use “sp.” for unknown species, not “spp.”.
 6. **IdentifiedBy.** The identification label may have the person who identified the specimen. After the name of the species and the author and date, there may be a phrase “det. By XXX”. The name of the person goes in the IdentifiedBy box and the date identified is parsed into the Date Ident fields. For legacy data (ie. Pre-existing museum collections) that do not have determination (or “det”) labels, note the source of the taxonomic information in this field using square brackets. For example: [Tray Label] when specimens are from a unit tray with a species header label, or [Drawer Label] when all the specimens from a drawer are the same species but there are no unit tray labels.
 7. The final fields to fill out are:
 - a. **Prep Type** (a drop down list is provided), this will usually be “pin.”
 - b. **Type Status** (drop down list), the label may indicate the specimen is a “Paratype” for example. Click on proper entry from drop down list. You will rarely see Type labels, in which case leave this field blank.
 - c. **Life Stage** (drop down list). For pinned specimens this will most likely be adult. If immature, select from drop down list.
 8. The final item to add is **Individual Count** which is the 3rd field from the top of the left column. Enter the number of specimens on the mount (pin). Some groups have more than one specimen mounted per pin. Enter the value for this field last. This field does not carry over to the next record (to avoid accidentally submitting the record before you are ready).
 9. Click on **Submit Record**.
 10. If there are any problems, reminders will show up in red above the Catalog ID Num field. Correct and resubmit. If you think you have made a mistake in entering a record you can use the “Update” functions available from the Essig DB portal (essigdb.berkeley.edu).

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Capturing data labels as images

Images of data labels may be used as a substitute for the verbatim field for legacy data. Images may be taken before, during, or after data entry. If taken before data entry, the images can be linked to the specimen record and used to enter the label data at a later time. Images may be captured by any number of digital imaging methods (eg. digital camera, digital microscope, etc.). Dino-Lite digital microscopes are available in the Essig Museum for this purpose. The Dino-Lite software for different platforms may be downloaded from the manufacturer's website. Please use the following best practices when capturing and saving images.

1. The captured image should include the specimen (or part of the specimen for large specimens) and ALL labels oriented so that they can be read clearly in the image. This may require using forceps to space labels appropriately on the pin and angling the labels and/or the pin to see the full labels. Labels may need to be removed temporarily from the pin and laid in front of the specimen for all labels to be clearly visible.
2. Include the Catalog ID Number (eg. EMEC 700,431) label in the photo.
3. If possible, add the genus and species name to the image. If using Dino-Lite, mouse over the image thumbnail on the left and paste the genus and species name into the image "header".
4. Save the file in JPEG format (with Dino-Lite, right-click the thumbnail and choose "Save as").
5. Name the image with the Catalog ID Number (no spaces or punctuation) and the genus and species name (with a space between each). **See examples below.**
 - a. Add subspecies if appropriate.
 - b. If one or more labels are printed on both sides take two photos (one of each side) and label the image files with 0 and 1 after the EMEC number.
 - c. For unidentified species use "sp." (never "spp.").
 - d. For other qualifiers (sp.nr., ?, poss., cf., etc.) see examples below.
6. If working for the CalBug project on one of the Essig Museum computers, leave the images in your folder in the Label Images folder on the desktop for Pete Oboyski to collect. Otherwise, the collection of images should be sent to Gordon Nishida or Joyce Gross to be linked to the database record.

Example filenames for image files (please note the use of spaces and punctuation):

EMEC12346	Bembix americana.jpg	(for Bembix americana)
EMEC12346	Bembix sp.jpg	(for Bembix sp. or Bembix spp.)
EMEC12346	Bembix americana hamata.jpg	(for Bembix americana ssp. hamata)
EMEC12346	Bembix americana _aff.jpg	(for Bembix aff. americana)
EMEC12346	Bembix americana _cf.jpg	(for Bembix c.f. americana)
EMEC12346	Bembix americana _sp. nr.jpg	(for Bembix sp.nr. americana)
EMEC12346	Bembix americana _sp. nr.jpg	(for Bembix near americana)
EMEC12346	Bembix americana _poss.jpg	(for Bembix poss. americana)
EMEC12346	Bembix americana _U.jpg	(for Bembix americana ?)
EMEC12346.0	Bembix americana.jpg	(for 1 st image of labels for EMEC12346)
EMEC12346.1	Bembix americana.jpg	(for 2 nd image of labels for EMEC12346)
EMEC12346.2	Bembix americana.jpg	(for 3 rd image of labels for EMEC12346)