

## Collection Use Guidelines & Protocol for Handling Specimens

### McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History

The McGuire Center houses one of the world's most important collections of Lepidoptera, which is utilized by an increasing number of students and researchers every year. In order to ensure the long-term preservation of the specimens under our care, please adhere to these guidelines when using the collections or areas in the collection rooms.

#### General

This is primarily a **research collection**. Specimens are kept in the public trust according to State legislation. Although we have many specimens, many are unique for various reasons. Only curators and collections managers are authorized to remove specimens, whether for loans, exchanges, or deaccessioning. They must likewise approve destructive sampling, which follows a formal procedure. If few specimens of a species are available, photograph them before removing parts.

Our biggest challenge is to keep the collections pest-free. The climate-controlled rooms make this possible, but additional care is required to avoid creating an environment that may encourage pest species. Therefore, **no food** is allowed in the collection rooms. Beverages are permitted in the collection rooms only in a **spill-proof** container (at least must have a lid or cap top). Avoid bringing unnecessary **clothing or bags** (backpacks, etc.) into the collections whenever possible, to avoid unintended transport of pests. When such items must enter, place them on the floor, not on the tables, as we have very limited table space in the collection rooms.

Any specimens brought into the collection must be **fumigated or frozen** (72 hrs. at -20C or 24 hrs. at -80C) ahead of time. Exceptions may include specimens kept in well fumigated drawers but **must be inspected** by the Collection Manager or Coordinator of Collections first.

The collection is kept at 60°F and 40% humidity to inhibit the movement of pests should they get in. Dress warmly. Dehumidifiers are kept running all the time. You may turn them off to talk because they are noisy, but turn them back on when leaving the room. Watch for leaks in the hose and report them.

If a collection user identifies a potential pest infestation in the collection, please bring this to the attention of the Collection Manager, Coordinator of Collections, or a Curator as soon as possible.

The collections are a shared workplace. Please be businesslike and respect others' need to work and concentrate. Workers are often visible to the public, so please look and act professionally. Clean up after yourself for the next worker in that space.

The main floor collection room receives by far more traffic than other floors, and it is often used as a hallway. This is of particular concern given its proximity to the rearing lab. **Please avoid entering the main floor collection room unless you are accessing the collection.**

When you see a tour or presentation taking place in the top two floors of collections, **please use an alternate door** or wait until the group has departed before accessing the collection room- **do not cut through the group.**

When accompanying **visitors to the collection**, please remember to have them sign our **guest book**.

Because of the large number of collection users, it is important that everybody **cleans up** their work space after working in the collections. Please don't leave empty drawers, unit trays, stray labels, etc. in work spaces. Rusty old pins, bits of no-pest strips, and similar hazardous waste that turns up in new accessions should be disposed of properly. If paper fragments from label cutting hit the floor, sweep the area around your workspace before leaving. Return scissors, forceps, pins and other curatorial supplies to the site where you found them when finished; some of these items are personal property meant for common use.

Pins worth keeping are the 1 ½" (4cm) size, without rust or crust. Pins that are bent, rusty, or small sizes must be disposed of in a **sharps container**. Old, spent Dichlorvos (no-pest strips and yellow blocks) should be handled with gloves, bagged, and thrown out in regular trash (since UF does not deem it to be hazardous waste), but it must go into a sharps bucket if a pin or nail is driven through it. Know where the first aid kits and fire extinguishers are. Beware of splinters when handling drawers. Wear close-toed shoes.

If you need to keep equipment (e.g., books, photographic devices, etc.) in a collection room for an extended period, please coordinate this with the Collection Manager or Coordinator of Collections.

When rehousing new accessions out of old unit trays that are dirty or have inferior foam bottoms, hard bottoms, or odd dimensions (e.g., narrow trays), those should be kept and sorted separately from usable trays. Please consult the Collection Manager, Coordinator of Collections, or a Curator before disposing of inferior trays.

### **Compactors**

While our open-face compactor units provide the convenience of not having to deal with cabinet doors, they present several challenges. The biggest of these is keeping drawers from slowly inching out of a secure position as compactor units are repeatedly moved. Until we are able to secure each drawer from moving (this is being done with Velcro tabs in curated parts of the collection), we need to take great care to minimize movement of drawers and avoid having opposing drawer handles meet (this leads to broken drawers and specimens, and it happens about once a year). The **wooden blocks** on the floor in most aisles are there to provide extra distance between compactor units, please **do not remove** them.

When moving compactor aisles, please **move only one aisle at a time**. Make sure there are no people or open drawers in the aisle you are closing, and in the aisle you are opening, make sure no drawers have inched out of place, or are interlocked with an opposing drawer handle. As soon as you begin to open the adjacent aisle, make sure no drawer handles are interlocked. Most importantly, **very slowly ease the moving compactor unit to a stop**; if the compactor bumps the adjacent unit upon stopping, drawers will be jostled out of place. When the last aisle has been moved, engage the peg-lock mechanism to prevent aisles rolling back.

Even with great care, some drawer movement takes place when compactors are moved, so, as you are working in the collection, **whenever you see drawers that have inched out of place, in any aisle you are working in, please push them back to a secure position**.

The cranks of the compactors slowly loosen with time. They may be tightened with screwdrivers and are lubricated with graphite. Please ask staff for help.

### **Drawers**

If empty drawers are needed for any reason, please ask the Collection Manager, Coordinator of Collections, or a Curator. New drawers are often reserved for designated projects, so don't just take them from anywhere. Empty unit trays are usually available in open cardboard boxes; if none are to be seen, please ask help finding an unopened box or source.

When moving drawers, carry them slowly with **two hands** or place them on a cart; always watch your step in the collections, as extension cords or cables on the floor present a real hazard. When removing drawer lids, take particular care with tight-fitting lids to raise the lid very slowly, to avoid suction of air into the drawer, which could break wings. A penknife is useful for tight lids. Once removed, place the lid under the drawer, to make sure the correct lid is kept with each drawer, since drawer lids are not interchangeable between drawers. Please keep track of the front and back of each drawer lid when removing-replacing, since drawer lids often don't fit correctly if replaced backwards. Do not put lids on the floor, and do not leave them propped up vertically. **Only remove a few drawers at a time from the compactors and be sure to return all drawers to their original positions in the compactors.**

When working around specimens, please **secure all dangling jewelry, long hair, loose sleeves or other loose clothing**, and empty the contents of any shirt pockets to avoid accidents. Step-stools are available in the collections to reach high drawers. Open the stool fully, and be cautious when ascending/descending.

Lay drawers on a table to sort or examine specimens. If the tables are occupied and you must work in an aisle, put a drawer on another drawer that you have pulled out more than halfway. Keep the shelf below the middle divider open to receive the lid of the open drawer; **do not balance lids vertically on edge**. If you have to stack drawers while curating, stack them neatly so that every drawer rests on the frame of the drawer below it – not on the glass.

Cornell drawers (3" deep) belong in the basement, and the narrow McGuire (2 ½" deep) drawers belong on the first and second floors. Do not put McGuire drawers on the shelf immediately below the middle divider because the narrow drawers may tip and fall out more easily.

All drawers should have hardware (a knob and label holders) and at least one label. Bring those without hardware to the Collection Manager's attention for the installation of knobs, screws, and label brackets.

Our unit trays are "Cornell" dimensions, four columns across a drawer. Ideally, every drawer should be entirely filled with unit trays. If you must leave a gap among the unit trays, arrange the other trays so that they brace each other and do not slide around. Trays that are not suitable for holding specimens, such as hard-bottomed trays, may be kept for this purpose. A newly curated drawer should have at least one quarter with empty trays and space. This allows the next people to add specimens easily without having to move into the next drawer. Do not pack specimens tightly just to fit into a drawer.

Be careful to return drawers to their original places. There are open shelves for expansion, so do not accidentally put your drawer in the wrong shelf. We do not number the drawers because the collection is still very fluid, but it must be in a commonly understood order.

Most moths on Floor 1 follow Hodges (1983) catalog order for the Nearctic. Other regions may follow different lists or may be alphabetical by genus. Butterflies, Sphingidae, and Saturniidae follow global lists. Any new ordering must be approved by the curator of the family and the Collections Manager.

### **Specimens**

Since our institution is so new, the level of curation is highly variable within and between any given family. Some groups are well-curved, while others are in dire need of attention and resources. We encourage all collection users to help with the process of curation, in coordination with the Collection Manager, Coordinator of Collections or a Curator.

Please use great care when removing specimens from drawers. Take special care not to break adjacent specimens with the label of the specimen you are moving. Frequently, specimens that are loose on their pin will be secured in the drawer with **brace pins**, immediately in front of each forewing or against the sides of the abdomen. Remove the brace pins before attempting to remove the specimen from the drawer, and when replacing the specimen back into the drawer, make sure the brace pins are replaced securely against the specimen (usually along forewing costa or abdomens). Do not walk around with specimens in your hand -- keep them pinned in a unit tray as often as possible.

Also use brace pins to stabilize large microvials, large immature stages (such as inflated larvae), broken specimens in gelatin capsules, or anything else associated with a specimen that is pinned on a separate pin. Make sure they are removed together and properly associated in the same unit tray/drawer.

**Never leave specimens sitting out exposed** when you are not working with them. When leaving the room for whatever reason, always put specimens back into drawers and **replace drawer lids**.

When **replacing specimens** back into a drawer, please try to put them back exactly as they were before, in the same spot and order, with wings at the same angle, and pinned securely into the pinning substrate. Take care not to break legs or abdomens hanging unusually low and make sure that the wings are not touching the pinning substrate or side of the unit tray/drawer. In some cases, drawers may be packed very tight, with specimens closely shingled. Special care is required in these cases to avoid breakage of specimens, and it may be necessary to expand specimens into an additional unit tray or drawer in order to avoid breakage. Please do this in consultation with the Collection Manager, Coordinator of Collections, or a curator.

If a specimen or species is **moved** out of its established order, for whatever reason, please leave a note in the unit tray indicating where it was moved to and why it was moved. This includes noting material borrowed from curated series, because it facilitates their replacement when the loan is returned. Please make sure that any dissections in microvials that are associated with the specimen, and may be pinned somewhere in the drawer, are also transferred with the specimen.

Specimens are most commonly removed from their drawers for **photography**. Take special care when removing labels from specimens, so that legs or other body parts are not broken. Please use flat spade-tipped forceps and hold the label next to the pin when removing labels, and use existing pin holes when replacing labels- avoid making a new pin hole whenever possible. Use a thumbnail to flatten pinholes before replacing labels to reduce the hole size and prevent labels from slipping. Some pins are tapered or have irregularities, which widen the holes and make the labels spin around. If moving labels to view text, always slide labels down instead of up on pins to avoid enlarging the holes. When putting labels back on a pin, avoid moving them higher up the pin than they were originally. In rare cases when pins are rusted or labels otherwise difficult to remove, brace the pin in a foam tray while removing the label. We would appreciate copies of all images taken.

Whenever labels are removed from specimens, it is especially important that they are **replaced in the same order**. This should be locality label(s) first, determination label, if present should be second, any other misc. labels added by the original collector third, the MGCL/FSCA/Allyn Museum accession label next, then any database or digitization labels last. Try to save space below the specimen and the locality label so that the locality information can be read on the labels when the drawers are held at an angle.

When adding **determination labels**, please don't ever remove other workers' labels, but add your own below the older one(s). Please make sure your name and the year's date are on the label you affix, so later visitors will know whose label was added and when.

When adding new labels to specimens, ensure that the **margins of the labels do not extend beyond the margins of the spread wings**, to minimize the risk of damage to adjacent specimens. Similarly, for small moths, position the new label under the specimen parallel to existing labels. If the label is turned 90°, it must be clockwise to be read from the left. Use acid free 100% cotton rag paper for any new labels, preferably 30-80 lb. stock, or otherwise approved labels (*e.g.*, barcode labels used for digitization).

Barcode unique identifier labels are to be placed last in the stack with the number facing down. This allows easy access to numbers for scanning. New determination labels or dissection labels should be placed above unique identifiers. Barcode labels on small specimens should be trimmed to reduce blank space.

Consult a curator or collections manager before removing specimens to an office or lab for study. To avoid pest infestation, specimens must not stay outside the collection for more than a brief time without having to be frozen again before returning them. The Collections Manager and curator have the right to return specimens to the collection that were taken out without permission. Minus-twenty freezers are available for that purpose; write your name, date, etc. on the sheet when you put anything in a -20° freezer, and label your frozen item.

In the case of an **accident** resulting in a broken specimen, please consult the Collection Manager, Coordinator of Collections, a Curator, or other supervising staff member to determine the best way to repair or preserve the broken parts. Most often, **broken parts** (antennae, legs, abdomens) should be placed in gelatin capsules and affixed to the specimen's pin. In some cases, broken wings can be repaired with transparent Elmer's Glue by situating the specimen and wing on a spreading board. In

other cases, especially for smaller moths, fold Glassine paper around the broken wing and pin on a margin to avoid piercing the wing. If the wings are too large, consult a curator.

Specimens should have an identification (determination) label on the pin. Header ID labels are important but can get separated from specimens. Turn the first determination label so it can be read without lifting the specimen. The quality of identifications in the collection varies greatly, and series are often mixed. If you have any doubt, ask a curator.

Primary types (holotypes, lectotypes, neotypes) must be put into the locked type cabinets. In the unlikely event that you find one in the main collection, notify a curator or collections manager. Paratypes may be put in the main collection, and they are a priority for curation. Pseudotypes (designated but not published) stay in the main collection in separate research drawers for the curator.

Pest damage that is undoubtedly old and inactive may be cleaned by brushing dust off the labels with a dry paintbrush. Move the specimens into a clean unit tray. If you suspect that the damage may be active, immediately tell a collections manager or curator. The drawer and many adjacent drawers must be frozen.

### **Loans**

Loans may be issued by the Collection Manager, Coordinator of Collections, or a Curator. That said, we always encourage researchers to personally visit if at all possible, since they will benefit from being able to examine far more specimens than through a loan. All loans are subject to our Destructive Sampling Policy.

### **The fluid collection [to be expanded]**

The general policies above also apply to the fluid collection.

Vials are kept in a compactor in the back of John Heppner's room. Most of the FSCA specimens are in wooden racks with acetate plastic siding that is stapled on and brittle with age. Be very careful when moving these racks, lest the siding break and drop the vials on the floor.

When a stopper is put back in, the vials must be "burped" to release compressed air.

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