

Biodiversity Research and Teaching Collections
Department of Wildlife and Fisheries Sciences
Texas A&M University, College Station, TX 77843 979.845.5783
brtc.tamu.edu

BRTC Skeletonizing Procedure

1. Specimens destined for skeletonization should be placed in individual bags, labeled with a specimen tag tied to the specimen denoted with preparator initials and number (e.g., HLP 901). These bags should be placed in the appropriate box in the walk-in freezer (“Ready for Bugs” box). Specimens taken to the beetle colony should be tagged with a metal tag, logged, and placed into the bin within its own inner box to prevent mixing of small bones from multiple specimens (see example below).

Bug Room Log					
Date In	Bin (L, C or R)	Prep No.	Metal Tag No.	Notes	Date out
8/9/2017	Left	HLP 901	123456	Cranium only.	

2. The Beetle Colony room should be kept between 75° and 80° utilizing the space heater and wall AC unit. Keep the space clean and free of excess waste.
3. Spritz specimens with water every other day, keep spray off of the substrate. Substrate should be changed every 6 months or as needed. To change substrate, move partially eaten specimens to a clean container. Bait beetles into glass jars with fresh specimens so that you move as many beetles as possible to the clean box. Dispose of old substrate in dumpster outside of building.
4. Once skeletal material is clean, remove skeleton from bugs. Knock as many bugs off the skeleton as possible and place bones in a Ziploc bag. Bagged specimens should be placed in the walk-in freezer (box is labeled “Ready to be Soaked”).
5. Soak skeletons in a 10-15% diluted ammonia solution for 12 hours (note: soaking small skeletons for longer than 12 hours may result in soft bones that break easily when rinsing) to rehydrate any remaining tissue so it can be picked clean with forceps. For larger specimens, longer ammonia soaking followed by soaking in water can be used to help loosen tissue to be removed by hand (forceps). Ammonia solution is located near the wet lab; the side door may be opened when working with the solution to provide air flow. Soaking specimens should be placed on a cart in the prep room.
 - Ammonium hydroxide solution: Mix 1 bottle of Ammonium hydroxide with 3 bottles of water. CAUTION! Ammonium hydroxide vapors are extremely strong and can

severely irritate the soft tissue of the nose, throat and eyes. Mix the solution in a well-ventilated area and use the goggles and respirators.

6. After soaking, pour the solution through mesh wire back into the master solution container. The ammonia solution in the master container can be used for up to three soaks before becoming contaminated enough to inhibit proper cleaning. Pick off remaining tissues (if any) with forceps and rinse thoroughly with water over sieve. Skeletons are ready to be dried when they no longer hold residual tissue and are not slimy to the touch.
7. Air dry. It may take 24-48 hours for small specimens to completely dry, depending on size. Do not attempt to freeze wet specimens as this may cause damage.
8. Specimens are then to be boxed or placed in vials using the smallest container that will accommodate the specimen without damaging it. The box top is to be labeled neatly in pencil with the preparator initials and number. If the specimen is placed in a vial, the preparator tag should be placed at the very top of the vial so it is easily readable and retrievable.
9. Once skeletal material is fully processed, place in specimen cabinet in freezer for fumigation for at least 10 days. Label tray with date in the freezer and your initials. Allow specimens to thaw to room temperature (30 minutes), and then freeze again for at least 10 days.
10. After freezer fumigation, place in designated holding case in mammal or bird range. Once material is matched with skin (if necessary), assign TCWC number, number bones, and install specimen into collection.

Skin Material

1. Leave skin in drying case until skin is fully dry.
2. Once skin is dry, place in freezer for 7-10 days. Allow specimens to warm to room temperature, then freeze again for 7-10 days (some pests can survive one freeze cycle).
3. After freezing, place in holding case in mammal range. Once skin is matched with skeletal material (if necessary), assign TCWC number, number bones, print and attach labels. Hold specimen for 1 month to verify that there are no bugs. After 1 month install specimen into collection.

General Maintenance of Mammal Collection

1. Check all cases for bugs every 6 months. Bug checks involve lifting every specimen and checking for debris. Clear any debris (dustbuster, blow, or bang into trash) and check for bug damage. If live bugs are found, remove infected specimen(s), place in a bag, and into the freezer until case is available. Place ethyl acetate in the case (in glass bowl covered with cotton balls) and seal the case for a minimum of 1 week. After case is opened, complete inspection and cleaning. For specimens in the freezer, after 7-10 days pull specimens out and allow them to return to room temperature. Then refreeze because some pests can survive one freeze cycle. After the second freezing, allow specimen to return to room temperature then gently bang off debris and dead bugs and re-install into the collection.
2. Place moth balls in all cases. Check status of moth balls every 6 months (at the same time of bug checks)
3. Anytime anyone is working in the collection, have them keep an eye out for bugs. If they see any bugs they should report to a faculty curator, curatorial assistant, or staff curator
4. Once a year, treat all cases with ethyl acetate for a minimum of 1 week.

Loan returns

All loan returns, including skeletal material goes into the freezer for fumigation for 7-10 days, allow specimens to warm to room temperature, then freeze again for 7-10 days (some pests can survive one freeze cycle) before being returned to the collection.

Teaching specimens

All specimens borrowed for teaching purposes also need go into the freezer for fumigation for 7-10 days. Allow specimens to warm to room temperature, then freeze again for 7-10 days (some pests can survive one freeze cycle) before being returned to the collection.

What to do in case of infestation

If live bugs are found, remove infected specimen(s), place in a bag, and into the freezer until case is available. Place ethyl acetate in the case (in glass bowl covered with cotton balls) and seal the case for a minimum of 1 week. After case is opened and allowed to air out, complete inspection and cleaning. For specimens in the freezer, after 7-10 days pull specimens out and allow them to return to room temperature. Then refreeze because some pests can survive one freeze cycle.

After the second freezing, allow specimen to return to room temperature then gently bang off debris and dead bugs and re-install into the collection.