



COLLECTING AND SHIPPING SPECIMENS FOR DIAGNOSTIC TESTING

By: Debra L. Miller and Matthew J. Gray

Collecting Instructions:

Sample collection may include whole live animals, dead animals, sections of tissues, swabs of lesions or orifices, and environmental samples. It is important to wear disposable gloves when handling diseased animals, because certain pathogens are harmful to humans. Morbid or freshly dead amphibians are preferred, because herpetofauna decompose rapidly. We recommend that herpetofauna are collected live or within 24 hrs of death. Mummified carcasses usually have limited diagnostic usefulness.

Dead herpetofauna should be collected, put individually in sealable plastic bags (e.g., Nasco Whirl-Pak® bags or trash bags for larger animals), and placed on ice for transport. Live animals can be placed in separate plastic containers and humanely euthanized after returning from the field. Amphibians can be euthanized via transdermal exposure for 10 minutes to tricaine methanesulfonate (100 – 250 mg/L) or benzocaine hydrochloride (>250 mg/L). Tricaine methanesulfonate is available from Argent Laboratories (Redmond, WA), and over-the-counter benzocaine (20%) is available in Maximum Strength Oragel® (Del Pharmaceuticals). If euthanasia of reptiles is required, we recommend consulting the American Association of Zoo Veterinarians Guidelines for the Euthanasia of Nondomestic Animals (<http://www.aazv.org/>).

We recommend that freshly dead animals are shipped on ice overnight to a diagnostic lab. If this is not possible, specimens can be frozen in a standard freezer if stored for short duration (<1 month). Alternatively, samples can be preserved in 95% ethanol or 10% neutral buffered formalin. Fresh (i.e., not frozen or preserved) specimens are best for complete necropsy examination that will include histological examination, pathogen culture, and molecular testing. Preserved specimens can be used for histological examination and some molecular testing. Frozen specimens can be used for molecular testing and most cultures but are poor for histological examination.

Shipping Instructions:

Shipment of live, freshly dead or frozen specimens must be via an overnight courier and according to the specific courier guidelines. For preserved specimens, overnight shipment is

unnecessary. General guidelines for shipment include triple packaging and labeling each layer of packaging with a waterproof writing utensil. Commonly, the first package layer is a specimen in a sealable plastic bag or container. The second layer is a larger sealable plastic bag in which multiple specimens can be placed. If the first package layer contains liquid (e.g., ethanol), paper towel should be added to the second package to absorb any liquid if a spill occurs. The third package typically is a padded box or shipping cooler. For fresh specimens, adequate ice packs should be added around the secondary package. Dry ice should not be used for fresh specimens because freezing of tissues can occur and prevent histological analysis. For frozen specimens, ice packs or dry ice can be used. It is vital that the package contains a detailed list of all contents, a description of requested services, and the contact information of the shipper. The tracking information should be provided to the diagnostic lab prior to package arrival. We recommend calling the diagnostic laboratory prior to shipping for any specific instructions.

Shipment of specimens with ethanol, formalin or dry ice is regulated. If <500 mL (<30 mL per container) of ethanol or formalin are shipped a “Dangerous Goods in Excepted Quantity” label must be on the package. If >500 mL of these liquids is shipped, a Class III “Dangerous Goods Declaration” is required. Also, no more than 2.26 kg (5 lbs) of dry ice can be used. Couriers have different procedures for labeling and packaging these substances so check their guidelines prior to shipping. In addition, packages should be labeled, “Exempt Animal Specimen.” If specimens are fresh or frozen, “Refrigerate upon Arrival,” should be indicated.

Diagnostic Laboratories:

Laboratories within the southeastern United States include: The University of Georgia Veterinary Diagnostic and Investigational Laboratory, Tifton, Georgia (Dr. Debra Miller; 229-386-3340); the Southeastern Cooperative Wildlife Disease Study, Athens, Georgia (Drs. Michael Yabsley and Kevin Keel; 706-542-1741); and The University of Florida, College of Veterinary Medicine, Gainesville, Florida (Drs. April Childress and James Wellehan; 352-392-2226). Other laboratories in the United States that currently perform diagnostic testing on herpetofauna are: Colorado State University Veterinary Diagnostic Laboratory, Fort Collins, Colorado; National Wildlife Disease Laboratory, Madison, Wisconsin; Animal Disease Diagnostic Laboratory, Reynoldsburg, Ohio; and Pisces Molecular, Boulder, Colorado. Costs for pathogen testing vary among diagnostic labs, the type of tests, and the number of tests performed, but they usually range \$30 – \$100 per specimen. We recommend contacting diagnostic labs prior to shipping for an estimate of costs.

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