

## WARM SPRINGS CONSERVATION GENETICS LAB

### Standard Operating Procedure

#### Collecting tissue samples for fresh water mussels using swabs

##### **Field notes**

Collections that lack precise documentation are almost worthless, and the Conservation Genetics Lab (CGL) reserves the right to refuse specimens that are not properly documented or preserved. Therefore, *proper field documentation is required for each collection submitted to CGL*. Such documentation is best achieved when the researcher responsible for each collection maintains a field note book. Field notes are a part of the specimen collection and are kept for reference by CGL; therefore while field notes are tedious and time consuming to compile, they are an invaluable reference source about the collection. Important information that should be recorded in field notes are *field number, state and locality data, sampling site, drainage, latitude and longitude (UTM data preferred), date, names of people and agencies who collected samples, genus and species, length (metric preferred), weight (metric preferred), tag number (when appropriate) and preservation type*.

##### **Species identity and vouchers**

Taxonomic certainty is required when identifying specimens from which tissues are taken. Voucher specimens should be associated with each tissue sample if doubts exist about species identification.

##### *Note on voucher specimens.*

A photograph or a shell serves as a suitable method to voucher species including larger specimens or specimens of species that are endangered or threatened. Each specimen should be anesthetized prior to being photographed (see below). Documenting references to size is very important. Size can be estimated from photographs if a tape measure, meter stick, or other calibrated item is placed next to the specimen in photo. In addition, physical documentation of the species name, field number, locality information, and date should accompany each photograph. For example, digital cameras or photographic processing software can be used to electronically add numbers and letters to digital images.

Voucher photographs will be used for specimen identification; therefore, the captured image should be as large as possible. Fill as much of the field of view as possible with the subject, and when using a digital camera, always choose the highest resolution setting. The CGL can serve as a repository for voucher specimens, but natural history museums are better equipped to handle digital or shell voucher material. Please contact CGL regarding more information on natural history museums in the southeast that may be willing to assist.

##### **Sampling protocol**

- Open mussel sample (we have found that anesthetizing first to relax mussel works best)
- Gently swab mussel making several passes with the swab tip over the foot if possible (3-4 passes is sufficient – try to avoid any dirt if possible)

- Deposit swab head in the collection tube by breaking the plastic applicator (at indentation point) on side of tube (see Fig.),



- Remove Dri-Capsule from its foil wrapper and placed in the tube above the swab (see Fig.).
- Secure tube with one of the caps (make sure it is secure), label tube with individual identifier (*we recommend that researchers preprint labels with waterproof ink or on laser printer using write-in-rain paper prior to field collection and either place tag inside tube or tape to outside of tube*).
- The tube containing the swab can be stored at room temperature for at least 5 months prior to extracting the DNA.
- How does it work? The capsule contains silica that dries the swab (including tissue); thus preserving the tissue and DNA.

### **Tissue sample contamination**

Care should be taken to prevent cross-contamination among tissue samples. Ideally, sterile surgical gloves should be worn to prevent contamination with human tissue, and instruments should be cleaned and sterilized after each use. However, such precautions are often inconvenient for field researchers. Contamination of fish tissue with human tissue is of little concern because the PCR primers, which have a sequence that is different from that of humans, will only work on closely related DNA sequences. Wiping the instruments (e.g., scissors or scalpel) after every use and ensuring that remnants of tissue or blood are not present before dissecting the next specimen will eliminate most sample contamination issues.

Contacts: Gregory R. Moyer  
Regional Geneticist  
Warm Springs Conservation Genetics Lab  
5151 Spring Street  
Warm Springs, GA 31830  
706.655.3382 ext. 1231  
Greg\_Moyer@fws.gov

Ashantye' Williams  
Geneticist/ Lab Manager  
Warm Springs Conservation Genetics Lab  
5151 Spring Street  
Warm Springs, GA 31830  
706.655.3382 ext. 1245  
Ashantye\_Williams@fws.gov