

## COPYRIGHT NOTICE

This material is made available under licence from *CANCOPY* (the Canadian Copyright Licensing Agency) for personal use only by registered members of the *Sistrurus Information Network*. Members may store the Digitized Readings on a personal computer or on a user-owned diskette for his or her personal use only, access and view the Digitized Readings, and print a single paper copy of a Digitized Reading for his or her personal study, all in connection with the purposes of the *Sistrurus Information Network*. Any alteration to the content or further distribution in any form is strictly prohibited. Any copying, use, distribution, selling, or licensing, whether in digital, paper, or any other form, of the Digitized Readings, other than as specifically permitted under this Agreement, shall be deemed to be an infringement of copyright. No linking, hypertexts, hyper-linking, framing or related uses of the Digitized Readings are permitted. These rights granted shall expire 2002 July 1.

---

## **Procedures for Sampling Blood from Snakes**

In order to secure DNA for conservation genetics research we require small samples of blood (0.1 cc or 100 uL) from individual snakes. The techniques for sampling blood are non-destructive, have been safely used on a variety of species (including members of the following genera; Epicrates, Nerodia, Coluber, Elaphe, Sistrurus, Crotalus) and are appropriate for all age-classes (neonates to adults). Note that the procedures outlined below have been approved by the Carleton University Animal Care Committee and are in accordance with the principles and guidelines of the Canadian Council of Animal Care.

We can provide fieldworkers with sample tubes that are pre-loaded with a blood preservative (Lysis Buffer). Insulin syringes are appropriate for sampling blood and are widely available at pharmacies. Details of the sampling procedure are outlined below. Please read through the procedures before you attempt to obtain a sample.

### **Blood Sampling**

- (1) Pull back and forth on the syringe plunger several times to ensure smooth action.
- (2) With an assistant holding the snake, clean the ventral surface of the tail with an alcohol swab.
- (3) Elevate the snakes body vertically so as to ensure blood flow toward the tail.
- (4) Hold the tail in one hand (with the snakes head facing away from you) and the syringe in your other hand - see attached photo print.
- (5) Gently insert the needle an angle of ca. 45o between the ventral scutes of the tail at a location between 5-10 cm from the tip of the tail. The closer to the mid-line of the ventral surface of the tail that you insert the needle the better your odds of hitting the centrally located caudal vein/artery. (Be prepared for the snake to flinch in your hand at this point).
- (6) Continue to slowly insert the needle until you feel a slight resistance from the caudal vertebrae, withdraw the needle slightly (i.e., 1-5 mm depending on species), and then gently draw back on the syringe plunger.
- (7) If you have hit the caudal vein/artery directly, then vacuum pressure alone should quickly fill the syringe tip with blood. Slowly draw back on the plunger until you secure an adequate blood sample (i.e., ~0.1 cc or 100 uL). (Depending on how the syringe is oriented in your hand, you should be able to draw back on the plunger with either your thumb or pinkie finger of the same hand, leaving your other hand free to secure the tail of the snake - again, see photo print attached).

(8) In the event that you do not get adequate blood flow immediately or the flow of blood stops you may have to either move the needle in and out slightly (i.e., a few mm) or rotate the needle until blood flow resumes. Alternatively, you may have to completely withdraw the needle and re-insert it at a new location before you hit the vein/artery dead-centre and get sufficient blood flow.

(9) Once an adequate blood sample has been collected, withdraw the needle and slowly deliver the blood into the lysis buffer (~800 uL) contained in the collection tube (an 1:8 ratio of blood to lysis buffer is best to ensure the preservation of DNA). Cap the tube securely and then gently swirl it to mix the blood sample with the lysis buffer. **DO NOT SHAKE THE TUBE.** Dispose of the syringe. Use a new syringe for each individual snake sampled.

(10) Have your assistant apply light pressure to the point on the tail from which blood was drawn in order to stem further blood flow, after which the snake can be released.

(11) Label tubes containing blood samples with a unique identification number and record the following information on an accompanying data sheet: sample identification number, species name, collection date, collection locality (e.g., direction and distance from nearest town or village and state), sex, weight, and SVL.

(12) Store labeled blood samples upright in the storage box, in a cool dark place prior to shipping.

(13) Mail the blood samples (contained in the shipping box inside a padded envelope), import permit (where required), and data sheet(s) to;

Kent Prior  
Canadian Wildlife Service  
Endangered Species Division  
Hull, Quebec  
CANADA K1A 0H3

phone - 819-994-2338  
e-mail - kent.prior@ec.gc.ca