

## Terrestrial Salamander Monitoring Procedures



### Before picking up the Coverboard (CB) or Natural Cover Object (NC or NCO):

1. Before you begin, complete ALL info at the top of the data sheet. Decide which teams will sample which object #'s (which CB #'s, which NC #'s) and areas. **WRITE LEGIBLY – IN PENCIL!**
2. Do not use the same data sheet for multiple site. Use a new data sheet(s) for each new site.
3. For each site, record the Total Minutes Surveyed (for NCO's), # of survey teams, survey time per team (based on Francl et al., 2010 survey methods)
4. Before lifting the CB or NC, record the **Type-Site-#** code on the data sheet (e.g., CB-FP-35 or NC-QN-1)
5. If CB is missing or broken, enter the CB code and record this info as a line of data. If a CB is missing, search the immediate area thoroughly – they often get hidden under leaves.

### Now you are ready to pick up the CB or NCO:

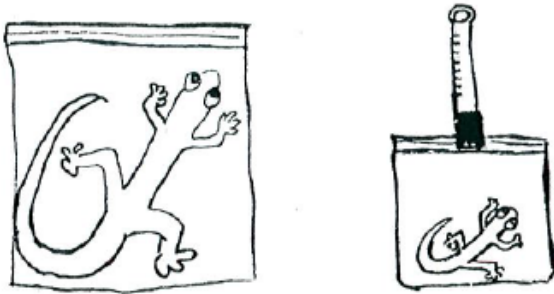
6. Have 2 or 3 people ready before moving the CB or NCO. Have Ziploc and camera ready before lifting CB or NCO. (Be ready to snap a photo & catch sally in case it moves away quickly!)
7. GENTLY, catch salamanders using Ziplocs. **See the reverse side of this sheet for diagrams.**
8. Identify the salamander. If you are uncertain, note this on the data sheet. (Use a second or third data line to enter notes). Be sure to take a picture if you are uncertain.
9. Take a picture of each salamander\*\*. A second picture showing the CB # or number of Ziploc with object number will help to link salamander to data sheet.
10. Measure and record the snout-vent length and total length in mm. Weigh the salamander in grams. (See reverse side of this sheet for instructions).
11. Record any other species you found under the cover object.
12. **IMPORTANT: Place the CB or NCO back exactly as you found it – making full contact with the ground.\*\*\***
13. Once the salamander is processed, let it go *beside* the object – not under it!
14. Weigh the empty bag (including debris). Subtract to determine actual salamander weight.

### Additional measurements:

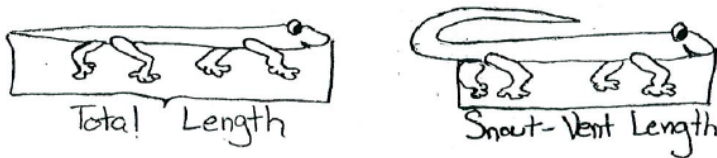
1. Record **soil surface temp** under each cover object by holding IR thermometer about 6" above the ground. Also, record the **subsoil temp**. Record both measures in Celsius.
2. Record **soil moisture**. Pick up a small clump of soil and rub it between your fingers. 1 = dry (sandy/dusty), 2 = semi-moist (holds together in a ball), 3 = wet (muddy).
3. From each site location (Quad N, Quad S, Elbow, FP), collect 3 from the bottom and 3 samples from the side of each sinkhole (environments similar to coverboard sites). At Frog Pond, collect 3 soil samples adjacent to pond and 3 samples at 5 m from the pond edge.
4. Place each sample *separately* in small labeled Ziploc bags. Ziploc bag should be filled half way with loose soil (not compacted). Label the bag with a Sharpie -- including full date (MDY), site name, location (bottom vs. side of SH; close or far from Pond Edge), and collector's last name.

## How to Process Salamanders:

**Step 1:** Gently, catch salamander in Ziploc bag and zip bag shut. Grab surrounding leaf litter and/or soil to avoid injury to salamander. Attach the spring scale to the bag and hold the scale by the loop at the top. Read the weight of the bag with the salamander inside. (Or, place bag with salamander in Tupperware box, place on field balance, and record weight.)



**Step 2:** Gently try to straighten the salamander inside the bag to get an accurate measurement of its length. Using a ruler or calipers, measure length from the tip of snout to the tip of tail (Total length) and from the tip of its snout to its vent (just behind the rear legs, close to the tail = Snout to vent length). Record all measurements in *millimeters* (mm).



**Step 3:** Identify and photograph the salamander while it is in the bag.

**Step 4:** Release the salamander carefully. Remember to set it beside the cover object, not underneath it.



**Step 5:** Using the spring scale once again, weigh the empty bag (with leaf litter or soil). Subtract this number from the weight of the bag and salamander combined (from Step 1) to get the mass of the salamander.

