

Amphibian Sampling in Headwater Streams Spoon Creek, October 14, 2004

Objectives:

Sample the stream channel and some upslope forest, looking in particular for:

- *Rhyacotriton olympicus* (Olympic torrent salamander)
- *Dicamptodon copei* (Cope's giant salamander)
- *Ascaphus truei* (tailed frog, which might also be upslope).

In upslope (riparian) forest, you may also find some plethodontids (lungless salamanders) and perhaps *Ambystoma* (Northwestern or long-toed salamanders, depending on species).

Each half of the class (morning or afternoon group) will split into three field groups of 6-8 people each. Each field group will work out among themselves how best to get all of the work, as laid out below, done in the time that they have. By the time that you go home, everyone in each field group should have all of the data that their field group collected, in order to answer one of the quiz questions for this week. Use the datasheets provided to fill in your data as you generate it—the datasheets are printed back and front, in case you find that one has become illegible.

Methods:

To sample the stream and environs for salamanders, each field group will survey two transects that are perpendicular to the stream, two meters wide, and extend one meter beyond the current water level of the stream.

Within each stream transect, work in twos or threes. In your quest for amphibians, one person should overturn every rock, while the other holds a D-net or large dipnet downstream of the rocks being flipped, in order to catch any escaping 'phibs. Be sure to put all substrate back exactly as you found it, and try not to stir up too much sediment as you flip rocks. A third person would be helpful to take down data (What species did you find? In what microhabitat?), and also to be another pair of eyes to catch any escaping animals.

Microhabitat should include things like: in running water, in splash zone, or on dry land. Size of cobble or woody debris that you found the animal in. Underneath or on top of substrate. In conjunction with any other rare feature of the environment.

In addition to the amphibian surveys, the following data should be taken for each stream transect:

- current stream width
- depth (as measured by taking depths at three equidistant points within transect, and averaging your data)
- canopy cover at edge of stream
- canopy cover at center of stream
- aspect of stream (compass direction that the slope is facing)
- gradient (slope of stream)
- position (relative to the falls, or the confluence)

In addition, each group should do one upslope transect of similar size (e.g. if one of your stream widths was 3 meters, your stream transect was therefore 5m long by 2m wide, so your upslope transects would be 5m x 2m as well). In addition to fully sampling the transect for amphibians, you should take data on: slope aspect, canopy cover, and gradient.

Supplies

With the following list of supplies, you should be able to obtain every kind of data requested. Each group should have a:

- Plumb bob
- Clinometer
- Hand level (Use this to level yourself when you're assessing gradient.)
- Transect tape (or two, if you're splitting into aquatic and terrestrial groups)
- Ziplocs and at least one small plastic box (to hold animals while surveys are being done)
- Compass
- Canopy grid (or two)
- D-net
- Corner stakes
- One or more small aquarium dipnets
- At least two pairs of polarized sunglasses
- Walkie-talkie

Follow-up

Everyone should have all the data that your group collected before going home today. You will need it to answer one of your quiz questions.

Additional questions to be thinking about:

- Why sample salamander populations?
- Will your activities today enable you to generate an estimate of population size for any of the species sampled?
- If so, what does having an estimate of population size for *Rhyacotriton olympicus* (or other species) do for us?
- What potentially more interesting questions does knowing population size help us answer?
- What hypotheses might we have been trying to test with today's exercise?
- What does your microhabitat data tell you about the species you were finding?

Names of people in group:

Date:

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|---|-----------------|-------------|------------|
| Stream Transect 1 (2 meters wide x _____ long) | | | Position: |
| Stream width | Aspect: | | |
| Canopy cover: edge | C-cover: center | Gradient: | |
| Depth: Data1 | Data2 | Data3 | Avg Depth: |
| Amphibian counts: | | | |
| Species | Microhabitat | Other Notes | |
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| Stream Transect 2 (2 meters wide x _____ long) | | | Position: |
| Stream width | Aspect: | | |
| Canopy cover: edge | C-cover: center | Gradient: | |
| Depth: Data1 | Data2 | Data3 | Avg Depth: |
| Amphibian counts: | | | |
| Species | Microhabitat | Other Notes | |
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|------------------------|------------------------------|-------------|
| Forest transect | (2 meters wide x _____ long) | Position: |
| Canopy cover | Aspect | Gradient |
| Amphibian counts: | | |
| Species | Microhabitat | Other Notes |
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