

Amphibian Protocol

The survey protocols below are from BC Frog Watch:

<http://www.env.gov.bc.ca/wld/frogwatch/frogwatching/how.htm>

Because populations fluctuate each year in relation to climatic conditions, such as snowpack or spring rains, long-term data are required to accurately assess the status of a species or the productivity of a wetland. There are a number of techniques that can be used to monitor amphibians. The two described below can be used alone or in combination.

Please note: Any protocol that involves wading in a wetland must consider the possibility of the transmission of infection from one area to another. Consult the BC Disinfection Protocol.

Call Surveys

This technique is used to survey frogs and toads, species which vocalize during the breeding season. Surveyors visit the monitoring site(s) in spring and [listen for calling males](#), (this is a link to a recording of each species' breeding call) recording the species and approximate number of each. Repeat surveys increase the probability that species will be detected.

Define a survey transect along or through your wetland. Describe in enough detail that someone else can follow the same route. It can be along the edge of open water or any other route that makes sense. Use GPS locations to confirm the route if possible. Follow the same transect on each survey.

This technique is relatively easy, inexpensive, and takes little training, but only one life stage can be surveyed and the technique is only effective for some species and geographic locations (see Table 1 below).

Questions you can answer with this technique:

- What species of frog and toad call at this site in any given year?
- Do the same species breed at the site each year?
- Approximately how many males are in the breeding population at this site in any given year?
- When does breeding take place at this site each year and how long does it last?

Visual Surveys

All life stages can be surveyed visually at breeding sites or along roads and much information is gleaned from this survey technique. However, greater time and skill are required to survey amphibians visually. Surveyors monitor breeding site(s) during the active season (spring to fall), walking the shoreline of a wetland recording all species and life stages encountered. These include egg masses, tadpoles and adults. Repeat surveys increase the probability that species will be detected. This technique requires

some training, but all life stages can be surveyed (at wetlands) and the technique is effective for all species and geographic locations. Approximate numbers of each life stage are recorded. If you are able to count (adults, tadpoles, egg masses) then record the actual number. If it is not possible to count, estimate to the nearest order of magnitude (i.e. 20, 300, 1000, etc.).

In addition to the questions above, you can also answer these questions with visual surveys:

- How many amphibian species breed at this wetland site?
- Approximately how many females lay eggs at this wetland site in any given year?
- When are eggs laid and when do tadpoles metamorphose at this site each year?
- Does each species have successful breeding at this wetland site (i.e., do individuals complete metamorphosis)?

Table 1. Survey techniques that can be used to monitor each amphibian species in B.C.

Species	Call Survey	Visual Survey
Northwestern Salamander		✓
Long-toed Salamander		✓
Blotched Tiger Salamander		✓
Roughskin Newt		✓
Pacific Giant Salamander		✓
Western Redback Salamander		✓
Wandering Salamander		✓
Common Ensatina		✓
Coeur d'Alène Salamander		✓
Coastal Tailed Frog		✓
Rocky Mountain Tailed Frog		✓
Western Toad	✓*	✓
Great Basin Spadefoot	✓	✓
Pacific Chorus Frog	✓	✓

Boreal Chorus Frog	✓	✓
Northern Red-legged Frog		✓
Oregon Spotted Frog	✓	✓
Columbia Spotted Frog	✓	✓
Northern Leopard Frog	✓	✓
Wood Frog	✓	✓
Bullfrog	✓	✓
Green Frog	✓	✓

* Western Toads do not appear to produce an advertisement call consistently throughout their range.