

Amphibian Trapping Protocol



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Fraser Valley Conservancy

Placing lands in trust for our future

Introduction

This protocol directs trapping for amphibians in wetland, slough, ditch, and lake habitats. Trapping in fast-flowing streams and rivers will require alternative methods and/or traps. Trapping for fish also requires careful monitoring of dissolved oxygen content and temperature which is not addressed in this protocol.

The Fraser Valley Conservancy (FVC) conducts amphibian trapping for three main activities: 1. research and inventory; 2. salvage prior to a restoration project; 3. invasive species control as part of a larger site management plan. Each of these three activities have slightly different needs, just as each project will require site-specific considerations. The general guidelines listed below should be applied to all trapping projects undertaken by the FVC, and activity-specific considerations should be applied in consultation with qualified project leaders.

General Guidelines

Project Preparation

Before you begin a trapping project you must ensure the proper permits are in place. Consider which species may be encountered in the area, especially species at risk (SAR) and temperature-sensitive fishes. Pacific Water shrew (*Sorex bendirii*) occurrences and critical habitat should be noted, and trapping plans created to meet the [Best Management Practices for Pacific Water shrew](#) if necessary.

Trap Selection

The FVC typically uses two style of minnow traps for amphibian projects: soft-sided minnow traps or steel mesh Gee traps. To prevent amphibian mortality events in research and salvage projects the soft-sided minnow traps are fit with floatation devices. Foam from pool noodles are cut into 4" pieces and attached to each corner of the trap with a zip tie. Gee traps are not used for amphibian research or salvage due to the risk of drowning but can be used for invasive tadpole control without serious risk to non-target species if placed appropriately.



Figure 1. Left: Soft-sided minnow trap fitted with pool noodle pieces. Right: standard Gee style minnow trap.

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Invasive species removal projects are new to the FVC and will require field testing and protocol revisions in the winter of 2020. For American Bullfrog tadpole control, we aim to test Gee traps in known tadpole locations, as well as potential directional fencing and fyke nets. Refer to the following research by Loutette, Devisscher and Adriaens (2012) for more information: <https://link.springer.com/article/10.1007/s10344-012-0655-x>.

Field Preparation

All field gear, including waders, nets, and traps, must be clean prior to being used in a new site. The FVC defines site as an area outside of the previous watershed, and or distinctly disconnected from the previous water body. See the [Hygiene Protocols for field staff working in aquatic environments](#) for more information.

Traps that have been used recently at a different site must be washed of mud and plant material, including seeds, and disinfected with either bleach or Virkon¹. Traps that have been left to dry completely for no less than one week in a warm environment may be used without disinfecting if they are thoroughly washed of mud and plant materials.

Trap Placement

Traps must be set following these rules:

1. At least 1" of the top of the trap must be above the surface of the water.
2. The trap should have enough water to reach the bottom of the entry hole. Trapping in shallower water puts the frog at risk of overheating and desiccating in the summer or freezing in the winter/early spring.
3. Traps must be tied off in areas with fluctuating water levels.
4. In breeding season, traps must be set >2m from any laid egg mass.

Trap location coordinates should be recorded during trap setting and relocated traps should be logged in the database. The FVC uses UTM coordinates, NAD83 (zone 10,U). These coordinates should be mapped before the traps are removed from the wetland to ensure all coordinates are accurate.

Traps set in the spring during the amphibian breeding season should be placed around suspected breeding areas. Some areas may be too shallow for traps to be set properly or dry out over time. Adjust traps to ensure rules 1-4 of trap setting are always met. Traps should not be placed directly adjacent to egg masses, as disturbance to the surrounding water could affect development and deter communal breeding behaviour.

Traps set outside of the breeding window should be placed along the edges of water courses for the greatest success. In a linear system, traps should set amongst vegetation in the "Transition

¹ See concentrations in the Standard Operating Procedures: Hygiene Protocols for Aquatic Field Research, 2008. <http://www.cwhc-rcsf.ca/docs/miscellaneous/BC-DisinfectionProtocol-AquaticFieldResearchers-2008.pdf>

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Zone” (Figure 2). Traps set in the “Open Water” of these linear ditch systems tend to be dragged down by the flow or are quickly submerged when water levels rise after a rainfall event. In a more open wetland setting, the edges still tend to be the most productive areas. Look for transitions between habitat types (riparian to aquatic vegetation; floating aquatic to emergent aquatic vegetation).



Figure 2. Left: An example of a linear slough system with differentiated zones for trapping. Successful amphibian trapping most often occurs in the “Transition Zone” of these types of systems. Right: Soft-sided traps set along the edge of a shallow channel.

Checking Traps

Traps must be checked at least every 24 hours. Traps should be checked sequentially, and empty traps recorded, to ensure all traps have been checked at the end of the day.

Daily information, such as air and water temperatures, water levels, and weather should be recorded at the beginning and end of every trap check.

All invertebrates, fish, amphibians, and other animals must be removed from the traps daily. Species occurrence information will be recorded according to the needs of the project. Photographs should be taken of a few samples for each of the species to provide confirmation outside of the field and for site reference information.

If species at risk previously unknown to the site are encountered, be sure to take many photographs from various angles and contact the Province and the species recovery team as quickly as possible for confirmation of identification and steps on how to proceed. Of note is Pacific Water shrew encounters which may require a stop to the work or may require trap modifications and increased trap check frequency².

² Consult the Best Management Practices Guidelines for Pacific Water Shrew: <http://www.sccp.ca/sites/default/files/species->

Handling Amphibians

The FVC follows the [Frog Handling Protocol](#) created by the Oregon Spotted Frog Recovery Team, found here: <http://preciousfrog.ca/professional-resources>.

Invasive American Bullfrog and Green Frog (*Lithobates clamitans*) trapped must be humanely euthanized following the [FVC's protocols](#) (based on provincial and federal standards).

Activity-Specific Considerations

1. Research and Inventory

The FVC typically uses trapping to collect frogs for ongoing research projects such as radio telemetry or mark-recapture studies. Inventory projects may include exploratory trapping for SAR (e.g. surveying for Oregon Spotted Frog in new habitats) or site-use confirmation (e.g. presence of amphibian larval stages in wetlands of interest). Each of these projects have their own goals, site-specific considerations, timelines, and permits. Before engaging in trapping, ensure there is a plan to have the traps checked consistently and adequate identification and handling training is provided to all participants.

2. Salvage

Conducting amphibian salvage prior to a restoration project requires additional steps including exclusion fencing to prevent amphibians from re-entering the construction area and site plans for relocating captured amphibians. The [Best Management Practices for Amphibian and Reptile Salvages in British Columbia](#) (Ministry of Forests, Lands and Natural Resource Operations, 2016) should be consulted. FVC restoration projects will fit under the “Capture and Relocate (within project area)” category, and typically fall in the “Lentic Environments” classification.

3. Invasive Species Control

Using traps specifically for invasive species control is not recommended for sites unless it is part of a strategic management plan. For the FVC, invasive species management via trapping will be focused on the Ryder Lake area as part of the Bullfrog Control and Biodiversity Research project. As 2020 is the first year of this project, many of the protocols for invasive species control are still in early draft stages, building on the work of the Provincial American Bullfrog Action Team.

[habitat/documents/DRAFT%20Best%20Management%20Practices%20Guidelines%20for%20Pacific%20Water%20Shrew%20-%20Sept%202010.pdf](#)