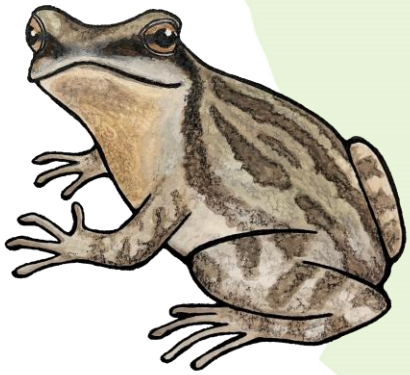
BLAZING STAR ENVIRONMENTAL

2025 Western Chorus Frog Survey Protocol



Initial Publication Date: March 8, 2020
Updated Publication Date: February 18, 2025

Acknowledgements

Blazing Star Environmental, Environment and Climate Change Canada would like to thank our many partners and supporters for conducting surveys, promoting the program, sharing data, and providing expertise.

The following individuals contributed to the creation of this protocol: Orixana Urquhart, Monique Aarts, Siobhan Galway, Tiera Zukerman, John Brett, David Seburn, Dennis Murray, Cayla Darling.

Introduction

The Western Chorus Frog (WCF) survey protocol has been updated to reflect Blazing Star Environmental' s (BSE) current project undertaken in collaboration with the Canadian Wildlife Service (CWS). This project's aim is to enhance our understanding of and identify threats to WCF subpopulations and their habitat within the Great Lakes - St. Lawrence - Canadian Shield (GLSLCS) population. This initiative aims to identify priority stewardship locations by assessing threats to known populations and refining knowledge of the species' distribution across its range. The protocol integrates two key components:

1. An auditory survey adapted from our long-term monitoring program, which was designed to assess WCF presence and track their distribution and range shifts over time.
2. A newly developed habitat assessment designed to evaluate habitat type, connectivity, and identify potential threats to local populations.

By combining these approaches, the 2025 surveys will provide critical data to support conservation efforts and inform future recovery actions for this federally Threatened species.

Site Selection

Blazing Star Environmental staff are coordinating site selection. We will provide you with the location(s) of potential breeding habitat at which to listen for calling chorus frogs during the breeding season and conduct a habitat assessment. If you have not already, please contact info@blazingstar.ca to obtain site(s).

Suitable habitat

Photo: Scott Gillingwater

Your site(s) must contain suitable breeding habitat to be included in this project. Breeding habitat includes temporary wetlands or shallow portions of permanent wetlands that typically have limited presence of aquatic predators (e.g., fish, dragonfly larva, etc.) (Environment Canada 2015). Suitable habitat typically includes the following plants species:

- Herbaceous plants: cattails, sedges, reed canary grass, etc.
- Occasional shrubs: speckled alder, red osier dogwood, willows, etc.
- Partially submerged trees: black willow, red maple, etc.

Examples of WCF habitat include flooded fields (A), swamps (B), ponds (C), drainage ditches (D), and marshes (E) (Environment Canada 2015).

A) Flooded field

B) Swamp

C) Pond

D) Drainage Ditch

E) Marsh

The temporary nature of WCF habitats is heavily influenced by the amount of snow melt and early spring rains. Collecting survey data on repeat sites is extremely important and will demonstrate this variation and contribute to our understanding of this species!

If you arrive at your site and suspect that there is no shallow, standing, or vegetated water within 100m of the site coordinates (no suitable habitat), you will need to choose a new location. Flip a coin to randomly decide to continue down the road or return the way you came. With the direction chosen, drive with your windows up (to avoid hearing chorus frogs calling) until you see suitable habitat (shallow, standing, or vegetated water). Conduct your survey at this newly located habitat. If you come to an intersection, please go straight through, and continue in the same randomly chosen direction. If the intersection is three-way and you cannot go straight through, please randomly choose which direction to follow by flipping a coin again.

Indicate in the 'notes' section of the data sheet that the original site was unsuitable and record both the **original and new** site coordinates. Please keep the same site ID. If you travel 10 km and do NOT find suitable habitat proceed to your next designated survey site provided by Blazing Star Environmental.

Before surveying, familiarize yourself with the survey protocol and how to distinguish the WCF call from other early-calling frog species. Review the training materials and data sheets found on the program website.

If you have any concerns with how to proceed, contact Blazing Star Environmental Ecologist, Cayla Darling at 705-930-7538.

Methods

Survey Timing

Photo: Scott Gillingwater

Blazing Star Environmental will communicate with participants about the onset of calling in your region.

All surveys should be conducted:

- When WCFs are calling in the region being surveyed.
- During the day, between **10 AM and 6 PM.**
- When most of the wetland surface is not frozen.
- When weather conditions are suitable (see below).

Observations of other early calling species including wood frog and spring peeper are a sign that the WCF season has begun or is about to begin. WCF calling usually lasts for 2-3 weeks at a given site and can last longer. Most years, calling begins in mid-March in southern latitudes and mid-April in more northern latitudes.

IMPORTANT NOTE

Not hearing WCF is just as important to WCF conservation as hearing them!

Every time you submit data from a valid survey where WCF are not heard you:

- Help us measure the features of high and low-quality breeding habitat!
- Improve our knowledge of call timing and weather conditions!
- Help us identify range declines!
- Alert the conservation community to respond to range declines!
- Help us measure our success in recovering this Threatened species!

Participants are also encouraged to regularly check the following Facebook pages beginning in early March for posts related to the onset of early spring frog calling. Consider using a local reference site where a reliable chorus is known to occur, if available, as an indication that calling has started in your area.

Ontario Reptile and Amphibian Atlas Facebook Page:
https://www.facebook.com/groups/75392295750/

Canadian Herpetological Society Facebook Page:
https://www.facebook.com/groups/CanadianHerpetologicalSociety/

Suitable Weather Conditions

Surveys should be conducted during the following conditions:

- Air temperature at least 10˚C at the time of your survey.
- Light or no wind (Beaufort scale 0-3) (appendix 1).
- No rain or light rain.

Survey Instructions

If there is more than one person present, the most experienced surveyor is the primary surveyor and should make all decisions on the data sheets. We encourage training of less experienced observers by allowing them to state the call code first. Where differences occur, please defer to the primary surveyor.

1. Before travelling to your first site, gather required equipment:
    a. Map(s) of each site.
    b. Data sheets and pencils.
    c. Device capable of recording latitude, longitude (GPS, smartphone with google maps).
    d. Device with timer function (stopwatch, smartphone, etc.).
    e. Charging wires, charging packs, or extra batteries for devices.
    f. Thermometer (kitchen or car thermometer, weather app, etc.).
    g. Recording device (smartphone, etc.).

2. Approaching the site:
    a. BSE will provide you with coordinates of your site location.
    b. Do NOT park right beside the site coordinates. Drive at least 50 m past the coordinate location to the nearest location that is safe to pull over.

c. Quietly get out of your car and begin to walk to the site coordinates. Get as close to the coordinates as possible while staying 40 m away from the location of suitable habitat (water).
d. If you need to get closer to confirm suitability of the habitat OR you disturb the frogs calling when you get out of the car (e.g., when closing car door) or as you approach, wait for previous calling intensity to resume (at least 3-5 minutes) before beginning your survey. Standing too close to the WCF habitat or making noise may disturb frogs and inhibit calling. If this happens, move back 10 m from the habitat and wait for previous calling intensity to resume.
e. The place where you stand during your survey is known as the **listening station**. For each individual site, please use the same listening station for all surveys.
f. Do not travel onto private land unless you have permission from the landowner.

3. While at each site, record the following:
    a. Date of survey.
    b. Primary surveyor name and experience level.
    c. Name(s) of other surveyors present for the survey.
    d. Site ID (if assigned to you by Blazing Star Environmental).
    e. Location of your listening station. There is space for up to six listening stations per survey datasheet. Use a GPS set to the datum NAD83, or google maps on a smart phone. Please record your location using latitude and longitude in decimal degrees with at least 5 decimals places (e.g., 45.12345°).
    f. Start time using 24-hour time (e.g., 2:00 pm = 14:00).
    g. Weather conditions including air temperature (°C), wind speed (Beaufort Scale, appendix 1), and precipitation.
    h. Background noise (appendix 2).
        i. If continuous loud noise is present at your site (e.g., from highway traffic, etc.) and restricts your ability to hear frogs, please take these extra steps. If the noise is likely to subside, complete the survey when the noise subsides. If it is unlikely to subside, complete to the survey to the best of your ability. Record the main source of background noise (e.g., traffic, animal calls, wind) in the notes section.
4. Conducting a survey:
    a. Listen until WCFs are detected or until 5 minutes has passed. If WCFs are detected, listen for at least 3 additional minutes from the time of initial detection (for a total possible survey time of 8 minutes).
    b. Record the highest call code detected (appendix 3).

c. If you are uncertain of the species of frog calling, and suspect it might be the WCF, record a sound clip or video of the call using any recording device (such as a smartphone).
d. Record the calling code of other frog species heard while listening for WCF (appendix 3). Do not extend the survey time as a result of hearing these other species.
e. Double check that all boxes are filled out on the data sheet OR that all fields are filled out if using the digital data entry system. Ensure the online form has been submitted properly. If you submitted data through the digital data entry system, please also record values on a paper copy as backup. **Please ensure your writing is printed clearly.**

5. Assessing the habitat at each site:
    a. For this portion of the survey please fill out one habitat assessment section of the datasheet for each habitat surveyed. There are six habitat assessment sections available per survey datasheet. Where possible habitat assessment locations should correspond with a listening station location recorded on the same survey datasheet.
    b. Identify the WCF suitable habitat type.
        i. Flooded field.
        ii. Swamp.
        iii. Pond.
        iv. Drainage Ditch.
        v. Marsh.
        vi. Other… (please specify).
    c. Specify how the habitat is accessed during surveys.
        i. Roadside.
        ii. Public access (e.g., public park or trails).
        iii. Private property.
    d. Identify the presence of any threats to WCF. Think about various types of ways that WCF can be impacted such as high noise levels, significant human presence, pollution through water or trash, etc.
        i. Proximity to roads
        ii. Invasive plant species are present in the habitat (e.g., common reed/exotic phragmites, buckthorn, and cattails)
        iii. Predators were sighted nearby (e.g., snakes, raccoons, certain bird species, larger amphibians, aquatic predators such as fish, giant water bugs, dragonfly larvae, etc.)
        iv. Other… (e.g., nearby sources of water pollution, proximity to agricultural fields, construction, heavy traffic, landfills, etc.).
    e. Take notes of any additional details that may be valuable towards assessing the habitat.
        i. What type of habitat surrounds the waterbody? Surrounding habitats will affect the likelihood of finding WCF.

ii. How much vegetative cover is there? WCF will rely on the presence of vegetation to hide from predators. They also require aquatic or emergent plants to lay their eggs.

6. At home:
    a. Keep all hard copy datasheets together.
    b. Submit your data through Blazing Star Environmental's website by entering data electronically or uploading a photo of your datasheet: https://www.blazingstar.ca/wcf-observation-submissions.

General questions about the program or protocol?

Contact:
info@blazingstar.ca

Thank you for helping monitor western chorus frogs!

This project was undertaken with the financial support of:
Ce projet a été réalisé avec l'appui financier de :
Environment and Climate Change Canada
Environnement et Changement climatique Canada

References

Environment Canada. 2015. Recovery Strategy for the Western Chorus Frog (*Pseudacris triseriata*), Great Lakes / St. Lawrence – Canadian Shield population, in Canada, Species at Risk Act Recovery Strategy Series, Environment Canada, Ottawa, vi + 50 pp

Appendix 1. Beaufort Scale

Beaufort Scale	Wind speed (km/h)	Description
0	0-2	Smoke rises vertically
1	2-4	Smoke drifts
2	6-11	Leaves rustle, wind felt on face
3	12-19	Leaves and small twigs in constant motion, light flag extends
4	20-28	Dust rises, small branches move

Appendix 2. Background Noise

Index	Description
0	No noise
1	Distant (traffic or animal calls including other frogs in distance)
2	Faint (few cars pass nearby, periodic animal calls, wind rustling grass or cattails)
3	Moderate (fairly consistent noise from cars passing, birds calling, wind rustling vegetation - frogs still heard well)
4	Consistent (continuous noise from animals, traffic or wind - frogs can be heard but not easily)
5	Loud (Continuous loud noise from highway traffic etc. - ability to hear frogs is severely compromised)

Appendix 3. Call Codes

Call code	Description
1	Calls not overlapping and number of calling males can be accurately counted.
2	Some calls overlapping, but number of calling males can be reliably estimated.
3	Full chorus, calls continuous and overlapping, number of calling males cannot be reliably estimated.

Appendix 4. Frequently Asked Questions

I heard frogs calling when it was less than 10°C. Why does the temperature need to be 10°C to survey?

For this study, it is critical that when the frogs are not calling the reason that they are not calling is due to habitat quality and not another factor like weather. Although WCF will call in temperatures below 10°C, calling will almost always occur at breeding sites when air temperatures are above 10°C, particularly at the beginning and end of the calling season. A period of cold weather can halt calling for a few days, however, once warmer temperatures return, males will resume calling. To maximize our ability to measure progress towards the recovery of this species, the minimum temperature for a valid survey is 10°C.

What is the best time of day to survey?

Unlike many species of frogs that call only during the night, WCF will call during both the day and the night! Our surveys are conducted during the day between 10 AM and 6 PM to reduce the chance that the calls of other frogs will interfere with hearing WCF and to maximize the number of people who are able to participate in the program. Remember to also make sure the weather conditions are suitable and that Blazing Star Environmental has informed you that WCF are calling in your area.

What does a "suitable" habitat look like?

For this program, a suitable WCF site will have any of the following within 100m of the site coordinates: standing water, temporary wetlands or shallow portions of permanent wetlands, ponds, marshes, swamps, drainage ditches, flooded fields, and basins/potholes.

How are the sites chosen?

Blazing Star Environmental uses geographic information and a statistical site selection process to selects sites. The method is complex but maximizes the quality of the results. It is very important to survey at the site provided and follow the instructions for locating a new site if your assigned site is unsuitable.

Does Blazing Star Environmental know what the sites look like before assigning them?

Blazing Star Environmental assigns hundreds of sites across Ontario using statistical and geographic information systems software. This means that most of the sites have never been visited in person. This is a strength of our design as it reduces human bias in site selection. However, this also means that occasionally unsuitable sites can be selected. Surveys at any sites with shallow or standing water are a key component of this study as we need to compare the habitat and site conditions from sites where WCFs are present to sites where WCFs are not present to better understand the breeding requirements of WCFs.

Why is it important to keep surveying my site even if I don't hear frogs?

While the primary goal of this project is to identify locations for stewardship of local WCF populations, we are working on several other sub-objectives to understand the habitat needs of this species. To achieve these goals, we not only need to know where they are, but where they are not. The lack of frogs during a survey can tell us just as much information as a survey where frogs are heard!

However, if you arrive to your site and there is no shallow or standing water (no suitable habitat), please follow the instructions for finding a new site nearby. If you are unsure of how to proceed, please email Blazing Star Environmental immediately at info@blazingstar.ca or call Cayla Darling at 705-930-7538.

Where should I park?

Since parking rules change from road to road and place to place, always watch for and obey signs that say you may not stop or which limit stopping, standing, or parking.

At your assigned site, we encourage you to look for local parking lots that may be used for quick roadside surveys. However, on roads that are not busy, we suggest parking along the side of the road, as long as it is safe to do so and there is enough space to pull completely off the road.

As a reminder, do not stop where you will block an entrance or other traffic, and remember to turn on your hazard lights, and park at least 50 m away from your listening station coordinates or the WCF habitat.