

Standard Operating Procedure

Amphibian Survey

Synopsis: A standardized method for collecting calling amphibian data according to Great Lakes Coastal Wetland Monitoring Program protocols

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Amphibian Calling Survey
Standard Operating Procedures

1. Samples: The calling survey for amphibians will be conducted 3 times (3 samples) per point on evenings with little or no wind and according to minimum nighttime temperatures. Surveys should occur within a reasonably short period of time after the minimum nighttime temperature has been reached. Samples are to be conducted no fewer than 15 days apart. Mist or light rain conditions are acceptable for conducting surveys.
 - a. 1st Sample: nighttime temperatures have reached 5 °C / 41°F.
 - b. 2nd Sample: nighttime temperatures have reached 10 °C / 50 °F.
 - c. 3rd Sample: nighttime temperatures have reached 17 °C / 63 °F.
2. Sampling period
 - a. Check local weather information for the official sunset time.
 - b. Sampling begins ½ hour after sunset.
 - c. Sampling ends 4 ½ hours after sunset.
 - d. Example: if sunset is 9:40pm, surveys will begin at 10:10pm and continue to 2:10am. This results in 4 hours of sampling time.
3. Wetland sites & sample points
 - a. A wetland site can contain from 1 to 6 sample points.
 - b. Sample points
 - i. Points are separated by a minimum of 500 meters.
 - ii. If the point location is already loaded onto GPS unit, proceed to the provided point location.
 - iii. If the point location needs to be determined, locate the point according to point selection protocol. Be sure to save it into your GPS unit as a waypoint using the appropriate point ID.
 - c. Full-circle sample points will be used, with distance intervals 0-50 meters, 50-100 meters and 100+ meters from the observer, as well as a line delineating the 180° semicircle areas in front of and behind the observer.
4. Conducting the survey
 - a. At each station, your arrival may cause a decrease in the number of amphibians calling. Wait quietly for 1-2 minutes before beginning the survey.
 - b. While waiting to begin the survey, fill out the following:
 - i. Point ID: Each point has an associated ID.
 - ii. Sample: Each point will be visited 3 times for repeat calling surveys.
 - iii. Date
 1. Format of MM/DD/YY (05/04/11).
 2. Be sure to advance the date for surveys conducted after midnight.
 - iv. Observer: Observer first initial and last name (D. Waters).
 - v. Weather: Circle the appropriate description: dry, damp/haze/fog, drizzle or rain.
 - vi. % Cloud Cover: Estimate the percentage of cloud cover in 10% increments.
 - vii. Wind
 1. Beaufort wind scale codes (see chart below).
 2. Only codes 0-3 are acceptable conditions for conducting the survey.
 - viii. Air Temperature
 1. Take at chest height.
 2. Record in °Celsius. See the conversion chart if needed.
 - ix. Noise: Assign & record the appropriate noise code (see chart below).
 - x. Bearing: Take the bearing while facing forward (toward the wetland).

BEAUFORT WIND SCALE

0	Calm; smoke rises vertically
1	Light air movement; smoke drifts; leaves barely move
2	Slight breeze; wind felt on face; small twigs move
3	Gentle breeze; leaves & small twigs in constant motion
4	Moderate breeze; small branches moving, raises dust & loose paper
5	Large branches & small trees sway

NOISE CODES

0	No appreciable effect (owl calling)
1	Slightly affecting sampling (distant traffic, dog barking, car passing)
2	Moderately affecting sampling (distant traffic, 2-5 cars passing)
3	Seriously affecting sampling (continuous traffic nearby, 6-10 cars passing)
4	Profoundly affecting sampling (continuous traffic passing, construction noise)

- c. Conduct the survey for 3 minutes.
 - i. Fill in the Start Time.
 - 1. Record in 24-hour format (8:43am is 0843; 2:56pm is 1456).
 - 2. Circle CDT (Central Daylight Time) or EDT (Eastern Daylight Time) accordingly.
 - ii. Start stopwatch or set timer.
 - iii. Using the appropriate species codes, individuals, small groups and choruses are mapped spatially within the appropriate distance interval(s) on the 360° map. NOTE: It is important to record observations within the lines (DO NOT WRITE ON ANY LINE) so it is clear in which distance interval the observation belongs, or whether it is in the “front” 180° semi-circle or the “back” semi-circle. For full choruses in multiple distance intervals, record in each distance interval as appropriate.

Examples:



INCORRECT



CORRECT

if group is within one interval



CORRECT

if group is spread amongst two intervals

- iv. For each species code recorded (e.g. CHFR), record the calling code underneath the species code (1, 2 or 3), then a hyphen, then the number of individuals (for codes 1 & 2 only) in all appropriate distance intervals (<50m, 50-100m, >100m).
 - 1. There may be more than one individual of a species in the same spatial location.
 - 2. For full choruses (code 3), it is impossible to estimate the number of individuals, so do not record anything except the calling code.

Examples:

CHFR
2-7

SPPE
3

NLFR
1-1

v. Water Temp

1. After the survey, take water temperature 1 meter from margin at 2cm depth, where safe to do so. Record in °Celsius. See the Reference Sheet for a conversion chart from °F to °C.

AMPHIBIAN SPECIES CODES

AMTO	American Toad
BCFR	Northern (Blanchard's) Cricket Frog
BULL	Bullfrog
CHFR	Chorus Frog (Western/Boreal)
CGTR	Cope's Gray Treefrog
FOTO	Fowler's Toad
GRTR	Gray Treefrog
GRFR	Green Frog
MIFR	Mink Frog
NLFR	Northern Leopard Frog
PIFR	Pickerel Frog
SPPE	Spring Peeper
WOFR	Wood Frog

CALLING CODES

1	Calls not simultaneous; individuals can be accurately counted
2	Some calls simultaneous; individuals can be reliably estimated
3	Full chorus, calls continuous & overlapping; not reliably estimated

5. Safety, Materials & Equipment

- a. For reasons of safety at night, each amphibian survey team should consist of two people, consisting of one observer and another "ride-along" person (does not need to be a qualified observer).
 - i. This survey is a single observer protocol—the ride-along is not to influence the survey in any way.
 - ii. If both people are qualified observers, it is fine to take turns; the same observer does not need to conduct the survey at all points.
- b. For reasons of driving safety and data quality, observers conducting amphibian surveys at night will not then conduct bird surveys the following morning. When amphibian surveys need to be conducted during the bird breeding season, the evening bird surveys are to be conducted during that time.
 - i. NOTE: This will necessitate a team of two splitting up to perform the evening bird surveys, then meeting back up again to then perform the evening amphibian surveys.

- c. Each team will be equipped with the following:
- i. Data sheets
 - ii. Clipboard
 - iii. Waterproof, permanent pens/markers (Rite in the Rain pen, ultra fine tip Sharpie marker)
 - iv. Stopwatch/timer
 - v. Compass
 - vi. Thermometer, in metal or plastic case
 - vii. Standard Operating Procedures
 - viii. Codes Reference Sheet
 - ix. Atlas (road map book)
 - x. Site/point map(s)
 - xi. GPS unit, with points loaded
 - xii. Headlamp
 - xiii. Pepper spray
 - xiv. Extra batteries
 - xv. Each crew will carry spare equipment & materials

Notes for data entry system:

1. Point ID
2. Sample: drop down list (1-3)
3. Date: can enter MM/DD and year is default?
4. Start time: 4 digits, no need for a ":"; drop down menu for CDT or EDT
5. Observer (First initial & full last name)
6. Weather: drop down list (see protocol or data sheet)
7. % Cloud Cover: 10% increments
8. Air Temp (Celsius)
9. Noise: drop down list (0-4)
10. Wind: drop down list, Beaufort Scale (0-4)
11. Water Temp (Celsius)
12. Bearing (0-360)
13. Sample records (for each observation):
 - a. Species code: drop down list (4-letter code, code list in protocol)
 - b. Calling code: drop down list (1-3)
 - c. # of individuals (calling codes 1 & 2 only; calling code 3 will not have a number)
 - d. Distance interval: drop down list (0-50, 50-100, 100+)
 - e. Location compared to observer (check box for "within front 180° semicircle")