

THE CALLING FROG SURVEY

*Chicago Academy of Sciences
Peggy Notebaert Nature Museum*



Frog Monitoring Protocol

INTRODUCTION

Welcome to the calling frog survey for the Chicago wilderness region. Before The Calling Frog Survey began, very little was known about the distribution and status of amphibians within the region. Now the survey is providing important information to scientists and land managers, who can use the data we collect to conduct management and research that benefits amphibian populations.

We are developing a regional profile of frog and toad species -- their geographic distributions and relative abundances. This profile is possible only because of our network of dedicated frog monitors.

The volunteer “citizen scientists” who monitor the frogs and toads in our region are at the heart of The Calling Frog Survey program. Along with area scientists and land managers, we collect the data, analyze the results, and share what we’ve learned with the public. We thank you for participating, and we look forward to another fun, productive year of monitoring.



WHAT IS A CALLING FROG SURVEY?

A calling frog survey is a rather simple endeavor. Participants only need to learn the unique calls of the 13 species of frogs and toads that occur in the Chicago wilderness region. Observers attend one educational meeting and then listen for frogs on three separate evenings in the spring, each lasting for about one to two hours. Monitors will soon become amazed by the vast richness of amphibian life at night.



WHAT HAPPENS TO THE DATA?

- 1) Data from the Calling Frog Survey is first entered into an online database. Please enter the data yourself, and send a handwritten copy to Jamie Forberg, the director of the survey.
- 2) The information is passed on to the appropriate land owning agency, such as the county forest preserve district, to aid in the land management process.
- 3) Individual researchers, herpetologists, planning agencies, and students can access the data for research and planning projects.
- 4) The result is that the information is widely shared, so that scientists will have access to it when planning studies, and will be alerted to areas in need of research.

PHENOLOGY OF FROG AND TOAD BREEDING

Each frog and toad species has a specific period in which chorusing and mating are most likely to occur. The timing of the breeding period is influenced by a combination of factors such as daily rainfall, soil, water and air temperatures, and photoperiod. In northern Illinois, there are three distinct periods in which different species can be expected to breed. Monitors must conduct at least one survey for each of these periods. These periods, and the species that breed in them, are as follows:

- 1) Early Spring (February 25- April 20) - In most years this period begins in the final two weeks of March and lasts until mid-April. Species which chorus during this period includes: western chorus frog, spring peeper, wood frog, northern leopard frog and pickerel frog.
- 2) Mid-Spring (May 10 - May 30) - In most years this period begins in early May and lasts throughout that month. Species include: American toad, Fowler's toad, eastern gray treefrog, and Cope's gray treefrog.
- 3) Late Spring/ Early Summer (June 20 - July 10) - In northern Illinois, this period usually begins around the first week of June, lasting through July or early August. Species include: cricket frog, green frog, and bullfrog.

Some species, especially the American toad, western chorus frog, and northern leopard frog, occasionally chorus well after their normal breeding seasons are completed. This is most likely to happen during the cold weather of fall, or when cold summer weather systems stimulate early spring breeders.

The length of the breeding season varies from year to year and from species to species. The wood frog, for example, is an explosive early spring breeder. Wood frogs may begin chorusing at any time after the spring thaw, but all breeding activity is completed in two weeks or less (often just one to three days). Other species such as the western chorus frog, American toad, and northern leopard frog may chorus during all three breeding periods.

It is very important to be aware of weather conditions and be somewhat flexible when planning which nights to be in the field, especially during the early spring period. Volunteers may wish to sign up for the frog monitoring Facebook group: The Calling Frog Survey, so that they can learn from other volunteers about the best nights to conduct surveys. Ideal weather conditions for most frogs and toads can best be described as seasonably warm, moist (light rain or foggy), with no more than light winds.

INSTRUCTIONS FOR MONITORS

Before the Survey:

Learning

Attend a workshop to learn the frog and toad species of the area, their calls, and the monitoring procedure. Workshops are offered in most Chicago wilderness counties, in February. Plan to attend a workshop each year that you monitor in order to brush up on your skills and learn of other amphibian or reptile monitoring projects that are happening.

Make a commitment to learn the frog and toad calls before the first survey. It is acceptable to bring a copy of the CD or your phone w/ the downloaded calls to help you identify what you hear. If you want to listen to the calls, please use ear buds or play the calls in the car, so that you do not encourage the real frogs to call.

For active monitors, compact disk recordings of frog and toads calls are available free of charge. If you do not already have a CD and do not receive one at a workshop, please contact the Peggy Notebaert Nature Museum so that we may send you one (773-755-5164; jforberg@naturemuseum.org).

You can also download the calls of the native species at The Calling Frog Survey website, frogsurvey.org and listen to them on your phone or computer.

Establishing a Monitoring Route

If you are a returning monitor, it is best for you to continue monitoring the same **sites, or routes**, as last year. Feel free to add new routes to your list if you want to do more.

For those who need to establish a new monitoring route, the workshops are the place to do so. Experts familiar with your area will be present at the workshops to help. They can suggest sites that are of high priority for scientific or land management reasons. If you have a particular forest preserve in mind, please check w/ your coordinator to see if it is available and appropriate for monitoring.

Frogs and toads breed in ponds, swamps, lakes, etc., with a preference for temporary or semi-permanent waters. Although a temporary water body that usually dries up in a few months may appear to be a poor choice for breeding, it may in fact be an excellent choice because of the absence of tadpole predators such as fish.

Within your monitoring route(s), we recommend that you pick five **listening points, or locations**, for monitoring. If your site (route) is relatively small, then adjust the number of listening points accordingly. This will require one or two hours of your time on each night you monitor. If you choose more than five locations (listening points) you may not be able to sustain the effort in the future. It is important that you choose locations that are **at least 200 meters apart**. If you do not have a handheld GPS unit, the best alternative is your smart phone. Apple and Droid each have a free distance meter App that you can use to determine this distance accurately. If possible, try to include several habitat types (for example, a temporary woodland pond, or a marsh, or a shallow area of a lake) on your route.

Each land agency has its own procedures for allowing us night access to the preserves. You can learn the procedures by attending the workshop within the appropriate county.

Terminology - Route vs. location: Remember that we are using the term *route* to describe your overall site, or your entire monitoring area. We are using the term *location* to describe the individual listening points within each route. You may certainly choose more than one route, but please notify your coordinator if you do.

Roadside Monitoring

In rural, mixed suburban-rural, and even some forest preserve areas it is possible to establish a route by driving down roads and spotting bodies of water, which are often less than a mile apart. The route you explore should have as little automobile traffic as possible so you have a good chance of hearing breeding calls later when you are monitoring. If you can safely park your car at or near a water body at night, you can monitor it. Pick a location (listening point) where you can listen for calls each time you monitor. That spot should be no more than 100-200 feet from the water in order to be able to hear weaker mating calls (i.e. from leopard frogs). If you must leave the roadside in order to get to the listening point, it is essential that you obtain advance permission of the landowner.

Routes in Completely Developed Areas

In completely developed urban or suburban areas it is unlikely that you will be able to establish a roadside route. Although there are scattered stormwater retention ponds, corporate estate ponds, lawn ponds decorating newer subdivisions, and ponds or lagoons in city parks, most of the appropriate water bodies will be found in the forest preserves. It is best to use maps to locate water bodies within these heavily developed areas.

Finding the GPS coordinates for each of the locations (listening points)

When you record your data, you'll need to write down the GPS coordinates for each monitoring location. The two best ways to do this are to use a hand held GPS unit or Google Earth on your smart phone. If you do not have access to either, and need to estimate the coordinates, please use the Internet sites that we discuss below.

Note: Enter the GPS coordinates as positive numbers. Our longitude is negative, but we include the W label to designate this.

To get coordinates w/o a phone or GPS unit:

1) Find them by moving the marker on the map on the Locations page in the data entry website.

2) You may also visit this website: <http://www.google.com/maps?t=k>.

Click on "Get Directions" in the upper left of the Google screen. In the box labeled "A", type in your address or some other address that will get you to the Chicago region.

- o Click on button titled "Get Directions." A thumbtack labeled "A" should appear on the map.
- o Drag the "A" thumbtack to a new location, and its GPS coordinates should appear in box "A" in the upper left.

3) Other websites such as Google Earth also can find GPS coordinates for you. Please use decimal degree format if you are offered a choice – this looks like 44.4444, for example.

Conducting the Survey:

When suitable weather conditions for monitoring have arrived, time your arrival at the first location (listening point) so you can begin monitoring **one half hour after sunset**.

Suitable weather conditions for amphibians will generally be weather conditions deemed to be marginally suitable for humans. These include periods following a rain or periods of high humidity. Warmer days are good times for monitoring, especially in early spring.

Guidelines for Suitable Monitoring Weather

Period	Minimum Air Temperature (degrees Fahrenheit)
February 25- April 20	45
May 10-30	55
June 20- July 10	65

Note that these are guidelines. If the air temperature is a few degrees below the guidelines and the frogs appear to be actively chorusing, go ahead anyway. We have to make our decision on when to monitor on the basis of a weather forecast. However, the male amphibians may be stimulated to call on the basis of the water temperature. Once the sun has set, the air cools more rapidly than the water, and the frogs may still be responding to the heat of the afternoon. For this reason, air temperature is probably not the best indicator of calling activity. But measuring water temperature is something that can only be done upon arrival; and sometimes can't be done at all if there is no access to the shoreline. If air temperature is not approaching the minimum suggested temperature, wait until it does, even if it is past the recommended date.

Beaufort Wind Scale

Monitoring should not be conducted when the Beaufort wind scale exceeds 3.
Strong winds will affect your ability to hear the calls of frogs and toads.

Beaufort Wind Scale	Wind Speed (mph)	Description
0	<1	CALM: smoke rises vertically
1	1-3	LIGHT AIR: rising smoke drifts, weather vane inactive
2	4-7	LIGHT BREEZE: leaves rustle, can feel wind on face
3	8-12	GENTLE BREEZE: leaves and twigs in constant motion, small flags extend
4	13-18	MODERATE BREEZE: moves small branches, raises dust and loose paper (too windy to monitor)
5	19-24	FRESH BREEZE: small trees in leaf begin to sway (way too windy to monitor)

Other Preparations

Be sure that you are following any required access procedures. These vary from county to county. You will learn of any required procedures at the training workshops.

Bring the appropriate equipment --- data sheets, rubber boots or old shoes, rain gear, camera (optional), phone (do not play calls as they may stimulate frogs to call), thermometer, pencils (more than one!), flashlight, GPS unit (optional), permit (if required in your county). If you are entering forest preserve land, a whistle (in case you and your partner become separated) and a cell phone are important aids.

Since you will be conducting these surveys in the dark, you are encouraged to bring an assistant along to share in the experience. This person can help you find the sites, document some kinds of information, and substitute for you in case of an illness.

Recording Weather Data

The Data Sheet provides blank spaces for all of the necessary data:

At each location (listening point), record the wind strength using the Beaufort wind scale.

At each location, record the time and measure air temperature (if you do not have a thermometer, use weatherbug or another free weather app on your phone).

At each location, record the percent cloud cover.

While you are waiting to record the temperature, note the appropriate Weather Bureau Sky Code.

Note that if conditions do not change during the evening, you may use your initial wind scale, cloud cover, and Sky Code estimates for all locations, rather than taking the time to re-estimate at each location.

Weather history within the past 48 hours (rain and temperatures- above freezing or below freezing) should also be recorded.

Weather Bureau Sky Code

CODE	DESCRIPTION
0	Few clouds
1	Partly cloudy (scattered) or variable sky
2	Cloudy (broken) or overcast
4	Fog or smoke
5	Drizzle
7	Snow
8	Showers

Recording Optional Data

Optional additional information to note at each location:

- 1) A general evaluation of water level in the wetland at the time of the survey (if possible).
- 2) Any major changes to the breeding site since the previous survey.
- 3) Any major changes to the habitats adjacent to the monitoring location since the previous survey.

Listening for Calls

When you come to each location, let the frogs become acclimated to your presence for a minute. Then listen at each station for **five minutes** and record the Call Index (call intensity) for each species on the data sheet. If noise from traffic or other sources interferes with listening, extend the listening period an additional five minutes.

Call Index Definitions

- 1 Individual calls can be counted; there is space between calls.
- 2 Some calls are overlapping; but individuals are still distinguishable.
- 3 Chorus is constant, continuous and overlapping; impossible to count individuals.

The symbol “OB” can be used to indicate that a species was seen (observed) but not heard during the survey.

Difficult Species to Identify

Scientists involved with this project recommend that we report the two gray tree frog species generically as "gray tree frog" because of the known difficulty in distinguishing their calls. Volunteers must record the tree frog calls and send them to their county coordinator and/or the Peggy Notebaert Nature Museum (jforberg@naturemuseum.org) for further identification. It is very important to **include the air temperature** (and water temperature if possible) when submitting your recording. This will help scientists determine which tree frog species you have recorded.

A number of other species are of special concern because of their rarity. If you think you have heard **wood frogs, Fowler's toad, cricket frogs, pickerel frogs or plains leopard frogs** it is strongly recommended that you record the calls and/or take a photograph and submit as outlined above. Also, email or call your county coordinator and/or the Peggy Notebaert Nature Museum **right away** in order to give the scientists an opportunity to visit the site during breeding activity.

Any time that documentation of a species is made by photos or audio recordings, please denote under the “Comments” section of the datasheet.

After the Survey:

Entering the data

The deadline for entering your data is **August 31**. Please do not forget to enter or send in your data – we can't use it if we don't have it!

The best way for you to enter your data is to use our interactive database, at frogsurvey.org. Data entry instructions are provided on the website, and you may also have received a copy at your training workshop. If you do not already have a login name and password, contact your county coordinator to get one (or contact The Peggy Notebaert Nature Museum: jforberg@naturemuseum.org). This site is easy to use, but first-time users sometimes encounter some idiosyncrasies that foil their data entry attempts. If you encounter difficulties with the site, **please do not hesitate to call The Peggy Notebaert Nature Museum for help!** We can quickly get you back on track and alleviate possible frustration.

When you enter or send in your results, it is important to describe the route in a manner that will allow others to know precisely where your locations (listening points) are located and where the wetland is in relation to the location. The best way to do that is to describe your walking route and provide GPS coordinates for each location. It is very helpful to indicate landmarks, such as road intersections, streams, bends in roads, or buildings, and include their relations to the listening points.

Indicate the type of wetland; for example, is it a vernal pool (ie temporary pond), a pond in a wood lot, a marsh, a bog, a fen, a creek, a slough, a farm pond, a retention pond, a city park pond, etc.

We recommend that you draw a map of your entire route for your own use in getting from one stop to the next.

VERY IMPORTANT FINAL NOTES:

Do NOT harass, take, or move any animals while monitoring. It is important to disturb the area as little as possible and to be aware that taking animals from forest preserves without a permit is punishable by law.

Please report any illegal activity related to rare animal or plant taking to your county coordinator or to The Peggy Notebaert Nature Museum (773-755-5164).

County Coordinators

Illinois Counties

Cook County, IL

FPCC	Mary Busch	773-631-1790 x16	Mary.Busch@cookcountyl.gov
Southeast	Laura Milkert	312-665-7444	lmilkert@fieldmuseum.org
Chicago Parks	Aaron Hammond	773-883-7275	ahammond@lincolnparkconservancy.org
<u>DeKalb County, IL</u>	Peggy Doty	815-732-2191	psdoty@illinois.edu
<u>DuPage County, IL</u>	Cindy Hedges	630-876-5929	chedges@dupageforest.com
<u>Kane County, IL</u>	Pam Otto	630-513-4346	potto@stcparks.org
<u>Kendall County, IL</u>	David Guritz	630-553-4131	dguritz@co.kendall.il.us
<u>Lake County, IL</u>	Gary Glowacki	847-968-3264	gglowacki@lcfpd.org
	Ellen T. McKnight		eltmck@gmail.com
<u>McHenry County, IL</u>	Sara Denham	815-728-8307	Sdenham@mccdistrict.org
<u>Will County, IL</u>	Glen Buckner	815-722-9881	gbuckner@fpdw.org
	Jason Buss	815.722.8191	jbuss@fpdw.org
<u>Winnebago County, IL</u>	Kim O'Malley	815-877-6100	KOMalley@WinnebagoForest.org

Indiana Counties

Lake, Porter, LaPorte, IN Sarah Barnes 219-242-8558 sbarnes@heinztrust.org

Any Questions??

For general questions, please contact the survey director, Jamie Forberg at jforberg@naturemuseum.org or 773-755-5164. You can also contact your county coordinator or pose your question on Facebook, if you join the FB Group: The Calling Frog Survey. Thanks for your help in conducting this survey and have an enjoyable field season!



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