



STATE OF MICHIGAN

DEPARTMENT OF NATURAL RESOURCES  
LANSING

JENNIFER M. GRANHOLM  
GOVERNOR

REBECCA A. HUMPHRIES  
DIRECTOR

Dear Frog Enthusiast:

Thank you for your request for more information concerning the Michigan Frog and Toad Survey. Enclosed are the instructions on how to set up your route and how to do the survey. Please read the instructions carefully and if anything is unclear, please feel free to call me.

Also enclosed is a survey route description form on which you will be describing your route. Please complete this form according to the instructions and include a map of your route with all your sites indicated and numbered. Upon return of the completed form, I will send you the rest of the observer's packet which includes a cassette tape of frog calls and other forms and documents you will need. If someone has already registered a route where you would like yours to be, I will contact you to discuss changes. You will not be included in my database for future mailings unless you have registered a survey route with me or have expressed interest in just receiving data summaries.

Thanks for your interest and I hope you will participate in our survey. If you have any questions, again, please feel free to contact me.

Sincerely,

Lori G. Sargent  
Natural Heritage Specialist  
Wildlife Division  
(517) 373-9418

enclosures

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**MICHIGAN FROG AND TOAD SURVEY**  
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## INSTRUCTIONS

### Background and Purpose

Michigan is home to 13 native species of anurans (frogs and toads). In recent years, many observers have been concerned with the apparent rarity, decline, and/or population die-offs of several of these species. This concern was not only for the species themselves, but also for the ecosystems on which they depend. Frogs and toads, like many other aquatic organisms are sensitive to changes in water quality and adjacent land use practices, and their populations undoubtedly serve as an index to environmental quality.

As a result, the Michigan Frog and Toad Survey was initiated in 1988 on a limited basis to increase our knowledge of anuran abundance and distribution, and to monitor populations over the long term. A statewide permanent system was developed and initiated in 1996. Each route consists of ten wetland sites which will be visited three times annually -- in early spring, late spring, and summer -- by a volunteer observer. At each site, the observer identifies the species present on the basis of their breeding season calls or songs, and makes a simple estimate of abundance for each species, using a call index value of 1, 2, or 3. Miscellaneous observations can also be made from locations other than the permanent survey routes.

This cooperative survey is modeled after the very successful Wisconsin Frog and Toad Survey, which was begun in 1981. Over the years, the Michigan Frog and Toad Survey will provide a wealth of information on the status of Michigan frog and toad populations, and help monitor the quality of our environment.

### Establishing a New Route

1. Determine a route consisting of 10 wetland sites. All sites must be easily accessible at night, preferably along roadsides. Avoid sites that require trespass on private lands. Participating with this survey does not give you the right to trespass. The route should extend no more than approximately 35 miles, and may be quite short (for example, your route may be contained within a particular State Game Area or city). Stops should be a minimum of 1/2 mile apart. You should not be able to hear the same individual frogs or toads from adjacent sites. Stay within county boundaries, if convenient.

It is best to draw a tentative route on a map first, then drive the route and stop where wetlands can be seen from the road. Make those wetlands your sites. **Sites should not be decided upon on the basis of the frog population status at that wetland.** Sites should be determined by wetland suitability to provide frog habitat, not if frogs are present or absent. Consider large vs. small, open vs. shrubby vs. wooded, stagnant vs. flowing, permanent vs. temporary, natural

vs. artificial, and remote vs. agricultural vs. urban sites. **See the Wetland Types sheet included with these instructions for definitions.** Do not avoid ponds that dry up during the year, for they are often productive during spring. Do avoid swift streams, and deep or denuded shores of lakes. Also, avoid areas with heavy background noise, such as busy streets or highways, certain industrial sites, and farms with barking dogs.

Cooperators sometimes find that one or more of the sites originally chosen turn out to be unsuitable breeding habitat or are poor sites because of unforeseen background noise, access problems, etc. In these cases, it is usually necessary to replace the problem site with a new site sometime after the first survey run, thus voiding the first year's monitoring data. To avoid this, it is recommended that you begin with 11 or 12 sites for the first year and choose only the 10 most reliable sites for the permanent route. At the end of the first year, report results only for the 10 permanent sites. However, wetland breeding sites for amphibians come and go. It is expected that some sites will be better over time (ie. beavers put in a new pond), and others will disappear (ie. construction of a new mini-mall). These are to be expected and the **stops should not be changed to incorporate new sites or eliminate sites that are no longer available.**

If you want to run more than one route, please feel free to do so. However, if you cannot complete all three surveys on each route, select one route on which to make all three surveys and cover the other routes if you have time. Information from the additional sites will be useful as incidental information.

2. Describe your route. Prior to the first year the route is run, send us the locations of your sites clearly marked on a map. If you do not have access to a county map or other suitable map which can be photocopied, contact the Wildlife Division. Carefully mark the precise locations of your 10 sites on the maps, being sure that the marks you make are not so large as to make the location of the site unclear. Describe each listening point and wetland on the Survey Route Description Form. Describe the wetlands using the terms defined on the Wetland Types sheet enclosed with these instructions. Sites should be numbered in a convenient route sequence. **Return the map route description before conducting your surveys**, to make sure your route is not overlapping someone else's. A route number will be assigned to your route.
3. Enlist one or more additional observers who will become familiar with the route and survey procedures, and who can run the route in the event that you are temporarily or permanently unable to do so.

## SURVEYING A NEW OR ESTABLISHED ROUTE

1. Review the instructional material and data forms. You will receive a packet of materials that includes a cover letter, instructions, survey route description form, field data sheet, miscellaneous observations form, natural history information, a poster of all the native species of frogs and toads, and a tape or CD of frog and toad calls.
2. Know the calls, phenology, and general ranges of Michigan anurans. All cooperators are required to have a cassette tape or other recording that includes the calls of all Michigan's anurans (frogs). The first cassette sent to an observer will be at no charge but there may be a nominal fee for subsequent tapes.

New and experienced observers will find it both helpful to review the tape periodically and to take it along during surveys to help identify uncertain calls. New observers can learn the calls gradually by starting with those species that may be calling during the early spring survey period (wood frog, spring peeper, leopard frog, chorus frog, and pickerel frog), followed by those that begin calling in late spring (American toad, Fowler's toad, cricket frog, and both tree frogs), and finally those species that begin calling during the summer (mink frog, green frog, and bullfrog). It is highly recommended that new observers practice distinguishing calls in the field with the help of a more experienced observer.

Your instructional materials also include a natural history packet which summarizes the geographic range, status, calls, biology, and morphology of each species in Michigan. Use this information to help determine which species are likely to occur in a given region, habitat, and season. Although it is entirely possible that, for example, you may find an unusually early or late singer, or a breeding population outside a species' previously documented range, you should be aware that these unusual occurrences may require special scrutiny or verification.

3. Run the route three times, once during each designated period. The timing of the survey with the phenology of frog calling is essential. In most areas, failing to make one of the three survey runs or failing to survey all ten sites will severely limit or invalidate the entire year's data for monitoring purposes. Consider minimum air temperatures, especially for the early spring survey period, before running your route. When deciding whether or not to conduct a survey, consider the air temperature first. If air temperature is not approaching the minimum suggested temperature, wait until it does, but not much past the recommended dates listed below. The recommended dates serve as a guideline. The earliest time of the date range will be the most appropriate for the most southern parts of the state, and vice versa. For example, if you live in the Upper Peninsula you may have to wait until the end of April for appropriate temperatures to start your survey while in the southern Lower Peninsula frogs may start calling as early as the last week of March. Even though weather conditions determine good surveying time better than dates, there are date limits as well. Observers in the southern Lower Peninsula should never do a survey into July and observers in the Upper Peninsula may go into the first week or two of July. Waiting until after the second week of April will almost certainly result in missing calling wood frogs in the Lower Peninsula. **Allow at least two weeks between survey periods.**

**Survey Period – Zones 1 & 2**

**Range of Dates**

**Minimum Air Temperature**

- 1. Early Spring
- 2. Late Spring
- 3. Summer

- March 25 – April 30
- May 1 – May 31
- June 1 – June 30

- 45°F
- 55°F
- 65°F

**Survey Period – Zones 3 & 4**

**Range of Dates**

**Minimum Air Temperature**

- 1. Early Spring
- 2. Late Spring
- 3. Summer

- April 1 – May 5
- May 6 – June 10
- June 11 – July 10

- 45°F
- 55°F
- 65°F

4. Run surveys after dark, under favorable conditions. Choose an evening when air temperatures are above the minimums stated above and when wind is less than 8 mph. Warm, cloudy evenings with little or no wind and high humidity (even drizzle) are ideal. Humidity and cloud cover are not critical, but temperature is. A sudden drop in air temperature will cause most anurans to cease calling. If part way through a survey run you find that conditions deteriorate significantly (e.g. rain begins, temperature drops, or wind increases), stop the survey and complete it at the next possible opportunity, within 2-3 days if possible.

5. Listen for calls at each site. Approach a listening point so as to cause minimal disturbance. The arrival of a car or a person may cause frogs to stop calling for a short time. Listen for a minimum of 3 minutes after the frogs start calling again, up to 10 minutes if necessary, to be certain of all calls. Listen to all calls audible from your listening point, not just those emanating from a particular pond, one side of the road, etc. Some calls may be drowned out by others, especially by the full chorus of spring peepers or chorus frogs. Where you suspect this to be the case, and after carefully listening and recording your initial data, you may try to silence the chorus by make a loud noise with horn, car door, or voice. Then listen for the less conspicuous species as the calling gradually resumes.

A tape recorder will enable you to record questionable situations that can be listened to and confirmed at a later time or date. Prescription hearing aids are helpful for listeners who have volume or frequency impairment.

6. Record your observations on the field data sheet. Include county, date, route number, observers' names and addresses, weather conditions, time and additional comments on noise levels, attempts to silence loud choruses, changes in habitat since previous visits, etc. At each site, record the call index value for each species heard, according to the following:

**Call Index Value**

**Criteria**

- 1
- 2
- 3

- Individuals can be counted. There is space between calls (1-5 individuals).
- Calls of individuals can be distinguished but there is some overlapping of calls (6-12 individuals).
- Full chorus. Calls are constant, continuous, and overlapping, unable to count.

7. Verify records of rare species and those that are outside their documented range. Observations of the **Blanchard's cricket frog** and the **Cope's gray treefrog** are required to be verified the first year you hear them. Verification in subsequent years will not be necessary. For species outside their range (not including the occasional undocumented county within the heart of the range),

verification is also encouraged. Verification can be accomplished by: a) making a tape recording of the frog(s) in question, b) obtaining verification from 2 additional experienced observers, or c) making a good quality photograph(s) of the animal such that identifying characteristics are visible. Submit tapes and photographs with your data sheets at the end of the summer.

*Taking a specimen should be considered a last resort and is not encouraged, especially for the cricket frog.*

8. Return data sheets and recordings/photos by August 15, but keep a copy of the field data sheet for your records. **Do not** return a copy of your route description unless there are changes.
9. Important! Maintain one or more alternate observers whom you feel will be able to produce results comparable to yours, should you not be able to run the survey temporarily or permanently. The alternate(s) should accompany you on the survey periodically and be familiar with the calls, route, and procedure.

### **Contributing Miscellaneous Observations**

Other sight or sound observations of anurans or other reptiles and amphibians should be submitted on the Miscellaneous Observations Form. If you wish to run non-permanent survey routes of several wetlands in an area, you may submit the data on a separate copy of the Field Data Sheet, along with a clear description of the locality of each site.

### **Recommendations for Future Improvements**

Your evaluation of the materials and procedures would be greatly appreciated. The first year of this survey was established as a pilot project in order to work out as many potential problems as possible prior to opening the survey to general public participation. Field forms, survey periods, procedures, and natural history information have been closely patterned after the Wisconsin program, often with only essential changes having been made. The idea was not to reinvent the wheel, but simply to modify it to our needs.

### **??? QUESTIONS ???**

If you have any questions, please don't hesitate to call: Lori Sargent, MDNR Wildlife Division, (517) 373-9418 or e-mail: [SargenL2@michigan.gov](mailto:SargenL2@michigan.gov).  
website: <http://www.michigan.gov/dnr/>. Click on "Wildlife and Habitat" then "Research Projects" then "Frog and Toad Survey".

**THANKS** for your help conducting this survey and have an enjoyable field season!

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Michigan Department of Natural Resources  
Wildlife Division - Natural Heritage Program

# FROG SURVEY ROUTE DESCRIPTION

BY AUTHORITY OF PART 439, OF PA 451 OF 1994

Year established \_\_\_\_\_

County \_\_\_\_\_

Name(s) of observer(s) completing this form: \_\_\_\_\_

Route No. \_\_\_\_\_

Route Name \_\_\_\_\_

Address: \_\_\_\_\_

## SITE DESCRIPTIONS

*Please include a map with these sites marked and numbered.*

Site No.	Location of Listening Point (Town/Range/1/4 section, road names, where to stand)	Description of Wetland
1.	T _____ R _____ Sec _____ 1/4	
2.	T _____ R _____ Sec _____ 1/4	
3.	T _____ R _____ Sec _____ 1/4	
4.	T _____ R _____ Sec _____ 1/4	
5.	T _____ R _____ Sec _____ 1/4	
6.	T _____ R _____ Sec _____ 1/4	
7.	T _____ R _____ Sec _____ 1/4	
8.	T _____ R _____ Sec _____ 1/4	
9.	T _____ R _____ Sec _____ 1/4	
10.	T _____ R _____ Sec _____ 1/4	

## WETLAND TYPES

### Definitions for the Michigan Frog and Toad Survey

#### 1. VERNAL POND

Vernal ponds are small bodies of standing water that form in the spring from meltwater and are often dry by mid-summer or may even be dry before the end of the spring growing season. Many vernal ponds occur in depressions in agricultural areas, but may also be found in woodlots. Wetland vegetation may become established but are usually dominated by annuals.

#### 2. WET MEADOW

Wet meadows usually look much like a fallow field except that they are dominated by waterloving grasses and sedges. They will contain nearly 100% vegetative cover with very little or no open water. Any surface water present is temporary or seasonal and only during the growing season in the spring. Wet meadows often form a transition zone between aquatic communities and uplands with soils that are often saturated and mucky.

#### 3. BOG OR FEN

Bogs are found on saturated, acid peat soils that are low in nutrients. They support low shrubs, herbs and a few tree species on a mat of sphagnum moss. Some bogs are totally overgrown and some consist of open water surrounded by floating vegetation. Acid-tolerant plants found in and around bogs include woody plants such as labrador tea, poison sumac, tamarack, and black spruce. Many species of orchids prefer bog habitats, as do insect-eating sundews and pitcher plants. Bogs are usually only found in the northern part of Michigan.

Fens are similar to bogs except that the soils are more alkaline because they result from water passing through calcareous deposits. Fens have a higher plant diversity than bogs due to higher nutrient levels. Fens can be found in the southern part of Michigan.

#### 4. MARSH

Marshes have standing water from less than an inch up to 3 feet deep. The amount of water can fluctuate seasonally or from year to year. They are dominated by soft-stemmed emergent plants such as cattails and rushes. Vegetative cover is usually around 50%. In Michigan, marshes can be found at the edge of some rivers and lakes, in lowlands and depressions, and in swales between sand dunes.

#### 5. WOODED SWAMP

Wooded swamps are aptly named because they are dominated by woody plants such as shrubs and/or trees. The soil is saturated throughout the growing season. Some may become dry during the summer months. In Michigan, trees and shrubs found in wooded swamps include red and silver maple, cedar, balsam, willow, alder, black ash, elm and dogwood. They often occur along streams or on floodplains, in flat uplands or shallow lake basins.

#### 6. POND

Ponds are open bodies of water that are less than 20 acres in size and that do not dry up during summer months. There is little emergent vegetation but some floating vegetation may occur around the edges.

#### 7. OTHER

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