# **Wisconsin Frog and Toad Survey**

# **Mink Frog Survey Manual**



Wisconsin Department of Natural Resources Bureau of Natural Heritage Conservation Bureau of Science Services

2023



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# Wisconsin Frog and Toad Survey Mink Frog Survey Manual

The Wisconsin Frog and Toad Survey (WFTS) – Mink Frog Survey is a volunteer-based program coordinated by the Bureau of Natural Heritage Conservation and the Bureau of Science Services at the Wisconsin Department of Natural Resources (WDNR), in cooperation with the U.S. Geological Survey (USGS) and the North American Amphibian Monitoring Program (NAAMP). The primary purpose of the Mink Frog Survey is to determine the distribution and calling patterns of the mink frog, a Wisconsin Species of Special Concern. The WFTS was initiated in 1981 in response to known and suspected declines in several Wisconsin species, particularly northern leopard frogs (*Lithobates pipiens*), Blanchard's cricket frogs (*Acris blanchardi*), pickerel frogs (*Lithobates palustris*), and American bullfrogs (*Lithobates catesbeianus*). The WFTS began annual statewide surveys in 1984 and is now one of the longest running amphibian monitoring projects in North America.

WFTS Contact Information: Wisconsin Frog and Toad Survey Bureau of Natural Heritage Conservation Wisconsin Department of Natural Resources P.O. Box 7921 Madison, WI 53707-7921 <u>WFTS@wisconsin.gov</u> <u>http://wiatri.net/inventory/frogtoadsurvey/</u>

#### **Acknowledgements:**

The original materials for the Wisconsin Frog and Toad Survey ("Natural History" packets) were written by Ruth Hine and Mike Mossman, based on protocols developed by Ray Anderson and Debra Jansen. These existing WFTS materials were combined and updated into the "Wisconsin Frog and Toad Survey Phenology Survey Manual" by Rori Paloski, Tara Bergeson, Andrew Badje, Mike Mossman, and Bob Hay. These materials were further combined and updated into the "Wisconsin Frog and Toad Survey Mink Frog Survey Manual" by Emma Pauly-Hubbard, Rori Paloski, Andrew Badje, Richard Staffen, Tara Bergeson, and Eva Lewandowski. We would also like to thank Jill Rosenberg for her assistance with this manual and associated updates to the WFTS website.

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#### **INTRODUCTION**

Mink frogs (*Lithobates septentrionalis*) are listed as a Species of Special Concern in Wisconsin, which means they are considered rare and additional information is needed on the species and their abundance in the state. Mink frogs are approximately 2-3 inches long and closely resemble green frogs and bullfrogs, but lack dorsolateral and tympanic ridges. Mink frogs also have a distinct musk-like odor when handled.

Mink frogs most often inhabit ponds, lakes and wetlands within forested or semi-forested habitats, but they will also utilize streams and rivers. This species is often associated with bogs and other wetlands and waterbodies that contain significant amounts of floating, emergent, and submergent vegetation. The mink frog is a highly aquatic species and rarely leaves the water. Mink frog tadpoles take 1-2 years to reach metamorphosis, which means the species only inhabits permanent bodies of water (which is required for adult and larval overwintering).

Due to its habitat requirements and life history traits, the mink frog is considered a boreal species, with its global range including portions of southeastern Canada, as well as portions of Wisconsin, Minnesota, Michigan, New York, Vermont, New Hampshire and Maine in the United States. In Wisconsin, mink frogs are limited to the northern third of the state.

The breeding call of the mink frog resembles the sound made by horses' hooves on a cobblestone street. Many frog species are easily detectable through evening breeding call surveys, the same survey method used by the Wisconsin Department of Natural Resources' Frog and Toad Survey (WFTS). However mink frogs often call during the day, a time period not captured by the WFTS and other standard breeding call surveys. As a result, this project was created to conduct targeted breeding call surveys in Wisconsin to better determine the mink frog's 1) distribution in the state and 2) calling pattern during the day.

#### **METHODS**

#### 1. Read through survey methods.

The Mink Frog Survey will follow similar survey methods to the Wisconsin Frog and Toad Survey (WFTS) protocol (<u>http://wiatri.net/inventory/frogtoadsurvey/Volunteer/manual.cfm</u>). It will be useful to read through this protocol before starting the surveys even if you are already familiar with the WFTS methods because this survey is targeted to mink frog monitoring.

#### 2. Print off data sheets

Please print off the Mink Frog Survey datasheets located at: <u>http://wiatri.net/inventory/frogtoadsurvey/Volunteer/Mink/</u>. At the end of the survey period, we request that the completed datasheets be scanned and emailed to <u>DNRWFTS@wi.gov</u> or mailed to:

Wisconsin Frog and Toad Survey Bureau of Natural Heritage Conservation Wisconsin Department of Natural Resources P. O. Box 7921 Madison, WI 53707-7921

3. Know the calls, phenology, and general ranges of Wisconsin anurans.

Although the survey is targeted towards mink frogs, we would also like information about any additional frog calls heard. All cooperators are required to have listened to and learned the Wisconsin anuran calls prior to conducting their first survey, with particular emphasis on mink frog call identification. At no charge, new cooperators can learn calls by visiting the U.S. Geological Survey Frog Quiz Website:

USGS Frog Quiz http://www.pwrc.usgs.gov/frogquiz/index.cfm?fuseaction=main.lookup

For more information, volunteers can view the Wisconsin Frog and Toad Survey's species videos to learn all of Wisconsin's anuran breeding calls as well as their ecology and statewide distribution:

Wisconsin Frog & Toad Survey Videos http://wiatri.net/inventory/frogtoadsurvey/WIfrogs/

In addition, if cooperators would also like to receive a CD or cassette tape of "Wisconsin Frogs and Toads," this can be purchased through:

Madison Audubon Society 1400 E. Washington Ave. #170 Madison, WI 53703 608-255-2473 madisonaudubon.org/store/wisconsin-frogs-and-toads-soundtrack-and-guide New and experienced observers will find it helpful to review the calls periodically and to take recordings along during surveys to help identify uncertain calls. It is highly recommended that new observers practice distinguishing calls in the field with the help of a more experienced observer.

This survey manual includes a "natural history" section that summarizes the geographic range, physical description, breeding habitat, breeding phenology, call, and status of each species in Wisconsin. Although it is entirely possible that 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. To help us document unusual species in your area, please audio record the calls and submit them for verification.

4. One mink frog breeding call route has been established within 21 counties within the species' Wisconsin range. Similar to the WFTS, each route contains 10 sites; however the sites for this survey were only selected if they contained suitable habitat specifically for the mink frog. You do not need to be able to physically reach every stream, wetland, etc., but you do need to be close enough to each site that you are confident you will be able to hear every species calling. Please do NOT trespass on private lands to get to any of the established sites.

#### 5. Run each route 2 times.

**Calling surveys must be conducted between June 6 and July 15. One survey must be conducted during the day (7:00 am – 5:00 pm), and one must be conducted in the evening (survey may begin 1/2 hour after sunset). Daytime and evening visits may be conducted on the same day.** Although routes should be run a total of 2 times minimum, volunteers may complete more than the requested minimum runs; these additional runs can be completed any time of the day between June 6 and July 15. The additional runs do not have to include all the sites in a route. Although the WFTS requests water temperature to be recorded during survey runs, this is not necessary for the Mink Frog Survey.

#### 6. Run surveys after dark, under favorable weather conditions.

Choose a survey time when wind is less than 12 mph (wind code value of 0, 1, 2, or 3). However, a wind speed of 7 mph or less is preferred (wind code value or 0, 1, or 2). Warm, cloudy evenings with little or no wind and high humidity (even drizzle) are ideal. However, surveys should not be conducted during a steady rain. 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 rerun the survey at the nearest opportunity within the survey period. All 10 sites on a route must be surveyed during the same run for surveys to be valid. Sites do not have to be visited in the same order for each run, and sites do not need to be visited in the order indicated by the numbers.

#### 7. Listen for calls at each site.

Approach a listening point with minimal disturbance. The arrival of a car or a person on foot may cause frogs to stop calling for a short time. If this occurs, wait until the frogs begin calling again to start your 5 minute survey. Listen for 5 minutes and record all calls audible from your listening point, <u>not</u> 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 making a loud noise with the horn, car door, or your voice. Listen for the less conspicuous species as the calling gradually resumes. A tape recorder will enable you to record questionable calls that can be listened to and confirmed at a later time or date. You can also record sound on a smartphone.

8. <u>Record your observations on the field data sheet.</u>

Include year, county, observers' names, date, times (**indicate AM or PM**), weather conditions, air temperatures, and additional comments. Additional comments may include information on noise levels, attempts to silence loud choruses, changes in habitat since previous visits, site observations, or additional species observed. These data will be used to track and summarize all volunteer contributions for the WFTS. At each site record the abundance value for each species heard, according to the call index (Table 1). For species not calling, do not record a 0; instead leave the space blank.

Call Index	Criteria
1	Individuals can be counted; there is space between calls (no overlapping of calls).
2	Calls of individuals can be distinguished but there is some overlapping of calls.
3	Full chorus. Calls are constant, continuous, and overlapping; individual calls cannot be distinguished

Table 1. Wisconsin frog call index.

#### 9. Verify records of rare or extralimital occurrences.

Verification is required for any species found outside its previously documented range as indicated by the range maps. Verification can be accomplished by: a) an audio recording, b) testimony of 2 experienced observers, or c) a photograph. After an observer has verified a species, future verification of that particular species in the area may not be required.

In addition, we ask all volunteers to collect one audio recording of a mink frog per route per season if possible. This will enable us to verify the species' presence on the route and add the locations to our rare species database.

#### 10. Return your completed data sheet(s) by August 15th.

Be sure to keep one copy of the field data sheet for your records (this is especially important if the data are lost in the mail). If you would like copies of other materials, please photocopy them or download information from the WFTS website (<u>http://wiatri.net/inventory/frogtoadsurvey/</u>).

11. Important: Maintain one or more alternate observers.

These observers should be able to produce results comparable to yours in case you are not able to run the survey temporarily or permanently. The alternate(s) should accompany you on the survey periodically and be familiar with the frog calls, route, and survey methods.

#### NATURAL HISTORY

#### CHARACTERISTICS OF WISCONSIN FROGS AND TOADS

There are 12 frog and toad species, collectively called "anurans", native to Wisconsin. Most Wisconsin anurans are generally present throughout the state: American toad, spring peeper, gray treefrog, Cope's gray treefrog, boreal chorus frog, green frog, northern leopard frog, pickerel frog, wood frog, and American bullfrog. However, the mink frog is only found in the northern part of the state, and the Blanchard's cricket frog is currently known only from southwestern Wisconsin. It would be extremely unlikely to be heard in the northern part of the state.

Even though some Wisconsin anurans spend part of their life cycle on land, all 12 species require water for breeding and have specific breeding habitat requirements. Some anurans breed in temporary waters while others require permanent bodies of water. Anurans may utilize woodland pools, cool waters of spring-fed seeps, water that accumulates in agricultural field depressions, cattail marshes, or shallow margins of lakes and streams. Eggs are laid in the water by the female and are fertilized by the male while clasping her. The eggs hatch into tadpoles that metamorphose into young frogs or toads in varying lengths of time, dependent upon the species.

Detailed information on Wisconsin anurans is presented by Vogt (1981). Additional information is also located on our website, <u>http://wiatri.net/inventory/frogtoadsurvey/</u>. For quick reference, a brief general description of each Wisconsin anuran including its status, physical description, breeding habitat, breeding phenology, call description, and distribution is presented here.



Figure 2. Anuran structures referred to in general descriptions.

WOOD FROG Lithobates sylvaticus

Status:

Common

#### Physical Description:

1.5-2.75 inches (3.8-7.0 cm); pink, tan, or dark brown; dark mask through the eye; prominent dorsolateral ridges; light stripe on upper lip.

#### Breeding Habitat:

Temporary bodies of water within or adjacent to moist wooded areas.

#### Breeding Phenology:

Late March through early May (short-term breeder, typically only calls for 2 weeks during this period)

#### Call:

A hoarse, subtle quacking with little carrying power.





#### **BOREAL CHORUS FROG**

Pseudacris maculata

<u>Status:</u> Common

#### Physical Description:

0.75-1.25 inches (1.9-3.2 cm); greenish-gray to brown; 3 dark stripes down the back; light stripe on upper lip; small, round toe pads.

Breeding Habitat: A variety of shallow, often temporary, bodies of water.

#### Breeding Phenology: Late March through May

#### Call:

A "creek" lasting 1 or 2 seconds; similar to the sound of a fingernail running along the teeth of a fine-toothed comb.





## SPRING PEEPER

Pseudacris crucifer

<u>Status:</u> Common but declining

<u>Physical Description</u>: 0.75-1.25 inches (1.9-3.2 cm); tan, brown, or gray; a dark, often imperfect, "X" on the back; modest toe pads.

#### Breeding Habitat:

Temporary or semi-permanent marshes, swamps, and ponds within or adjacent to wooded areas.

Breeding Phenology: Late March through May

#### Call:

A high ascending "peep", sometimes with a short trill; a full chorus resembles the jingling of bells.





#### NORTHERN LEOPARD FROG

Lithobates pipiens

#### Status:

Species of special concern, common but significantly declining

#### Physical Description:

2.0-3.5 inches (5.1-8.9 cm); green, brown, or tan; rounded dark spots, often with light borders; light stripe on upper lip; dorsolateral ridges extend to the groin.

#### Breeding Habitat:

Lakes, streams, rivers, ponds; often far from standing water (the "meadow frog") during the summer.

#### Breeding Phenology: Late March through mid-June

#### Call:

A deep, rattling, broken snore interspersed with "chuckling"; resembles the sound of a thumb rubbing against a balloon; somewhat similar to the call of the pickerel frog.





#### PICKEREL FROG

*Lithobates palustris* 

<u>Status:</u> Species of special concern

#### Physical Description:

1.75-3.25 inches (4.4-8.2 cm); brown or tan; rectangular spots, without light borders, in parallel rows down the back; bright yellow or orange coloring on underside hind legs; light stripe on upper lip; dorsolateral ridges extend to the groin.

#### Breeding Habitat:

Cool, clear waters of spring-fed lakes, ponds, and streams; adjacent warm water habitats.

### Breeding Phenology:

Mid-April through mid-June

#### Call:

A steady, low-pitched, short and constant snore with little carrying power; somewhat similar to the call of the northern leopard frog.

#### AMERICAN TOAD

Anaxyrus americanus

<u>Status:</u> Common

#### Physical Description:

2.0-4.5 inches (5.1-11.4 cm); brown, red, or olive with darker warts; dry, rough skin; paratoid glands located behind each eye.

Breeding Habitat: A variety of shallow water habitats.

#### Breeding Phenology:

Late April through mid-July (often an explosive breeder with the majority of individuals breeding in a 1-3 day period)

#### Call:

A musical trill lasting up to 30 seconds; considerable individual variation in tone.









#### **GRAY TREEFROG**\*

(formerly EASTERN GRAY TREEFROG) Hyla versicolor

<u>Status:</u> Common

#### Physical Description:

1.25-2.0 inches (3.2-5.1 cm); green, gray, or brown and capable of changing color based on environmental conditions; darker blotches usually present; bright yellow or orange coloring on inner thighs; large toe pads.

#### Breeding Habitat:

A variety of permanent and semi-permanent bodies of water within or adjacent to wooded areas.

# Breeding Phenology:

Late April through mid-July

#### Call:

A short, loud trill lasting up to 10 seconds; slower and more melodic than the call of the Cope's gray treefrog.

#### COPE'S GRAY TREEFROG\*

Hyla chrysoscelis

<u>Status:</u> Common but declining

#### **Physical Description**:

1.25-2.0 inches (3.2-5.1 cm); green, gray, or brown and capable of changing color based on environmental conditions; dark blotches often present; bright yellow or orange coloring on inner thighs; large toe pads.

#### Breeding Habitat:

A variety of permanent and semi-permanent bodies of water in open areas and adjacent to wooded areas.

#### Breeding Phenology: Late April through mid-July

Call:

A short, loud, raspy call lasting up to 1 second; faster and harsher than the gray treefrog. A nasally "wa-a-a-a-a".

\**Few consistent physical differences exist between the gray treefrog and Cope's gray treefrog; however their calls are distinct.* 









#### **BLANCHARD'S CRICKET FROG**

Acris blanchardi

<u>Status</u>: Endangered, extremely rare

#### Physical Description:

0.75-1.5 inches (1.9-3.8 cm); brown, tan, gray or green and capable of changing color based on environmental conditions; darker brown, green or red dorsal stripe may be present; dark triangle between eyes sometimes present; rough skin; longitudinal dark stripe on back of thigh.

#### Breeding Habitat:

A variety of semi-permanent and permanent bodies of water with submergent and emergent vegetation.

#### Breeding Phenology:

Late May through mid-August

#### Call:

Resembles the clicking of pebbles or steel marbles; first increasing in speed and then sharply dropping off.

#### MINK FROG

Lithobates septentrionalis

Status: Locally common

#### Physical Description:

1.75-2.75 inches (4.4-7.0 cm); green to brown often with spots or mottling on the back, sides, and legs; dorsolateral ridges absent; skin produces a musky, mink-like odor.

#### Breeding Habitat:

Cool, permanent water with abundant vegetation; often associated with bogs along lakes and streams.

Breeding Phenology: June through mid-August

Call:

Resembles the sound of horses' hooves trotting over a cobblestone street.









GREEN FROG Lithobates clamitans

<u>Status:</u> Common

#### Physical Description:

2.25-3.5 inches (5.7-8.9 cm); green to brown; small dark spots often present on back, especially in younger individuals; dorsolateral ridges end on the body, do not reach groin; green on upper lip.

<u>Breeding Habitat:</u> All types of permanent bodies of water.

Breeding Phenology: Late May through mid-August

<u>Call:</u> Similar to the twang of a loose banjo string; usually given as a single note.





#### AMERICAN BULLFROG

Lithobates catesbeianus

#### Status:

Species of special concern, locally common

#### **Physical Description:**

3.5-6.0 inches (8.9-15.2 cm); green to brown; dark markings often present on body; no dorsolateral ridges on the back, but obvious tympanic ridge.

<u>Breeding Habitat:</u> All types of permanent bodies of water.

<u>Breeding Phenology:</u> Late May through mid-August

Call:

Deep bass notes similar to a foghorn; resembles the sound made by drawing a bow across a bass fiddle; "jug-o-rum".





#### <u>Wisconsin Frog and Toad Survey – Mink Frog Field Data Sheet</u>

Bureau of Natural Heritage Conservation Wisconsin Department of Natural Resources P.O. Box 7921 Madison, WI 53707-7921

Observer name(s)	Run 1:	County:
	Run 2:	Year:
	Run 3:	
	Run 4:	

**Instructions:** Use this voluntary form to record call index values of species heard at each of the 10 listening sites along the designated routes. Conduct two daytime surveys (7:00 am -5:00 pm) and two evening surveys (may begin  $\frac{1}{2}$  hour after sunset) for 5 minutes, during the period June 6 – July 15. **IMPORTANT – Please return to the above address by 15 August.** 

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te #	<b>MINK FROG</b>	CHORUS FROG	SPRING PEEPER	LEOPARD FROG	<b>PICKEREL FROG</b>	AMERICAN TOAD	<b>GRAY TREEFROG</b>	COPE'S GRAY	<b>GREEN FROG</b>	BULLFROG	MINK FROG	CHORUS FROG	SPRING PEEPER	LEOPARD FROG	<b>PICKEREL FROG</b>	AMERICAN TOAD	<b>GRAY TREEFROG</b>	COPE'S GRAY	<b>GREEN FROG</b>	BULLFROG	MINK FROG	CHORUS FROG	SPRING PEEPER	LEOPARD FROG	<b>PICKEREL FROG</b>	AMERICAN TOAD	<b>GRAY TREEFROG</b>	COPE'S GRAY	<b>GREEN FROG</b>	BULLFROG	MINK FROG	CHORUS FROG	SPRING PEEPER	LEOPARD FROG	<b>PICKEREL FROG</b>	AMERICAN TOAD	<b>GRAY TREEFROG</b>	COPE'S GRAY	<b>GREEN FROG</b>	BULLFROG	
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\* The call index is a rough estimate of the number of calling males of a particular species, according to the following index values:

1 = Individuals can be counted; there is space between calls (no overlapping of calls).

2 = Calls of individuals can be distinguished but there is some overlapping of calls.

3 = Full chorus. Calls are constant, continuous, and overlapping; individual calls cannot be distinguished.

#### Enter sky and wind codes on front of data sheet:

County:	
Year:	

	Wind Speed	
Wind Code	(miles per hour)	Indicators of Wind Speed
0	Less than 1	Smoke rises vertically
1	1-3	Wind direction shown by smoke drift
2	4-7	Wind felt on face; leaves rustle
3	8-12	Leaves and small twigs in constant motion; wind extends light flag
4	13-18	Wind raises dust and loose paper; small branches moved

<u>Sky Code</u>	Sky Condition
0	Clear or a few clouds
1	Partly cloudy or variable
2	Cloudy (broken) or overcast
4	Fog
5	Drizzle

6 Showers

#### Additional Comments (difficulties, background noise levels, uncertain calls, unexpected frog calls, etc.)

\*\*\*IMPORTANT: Documentation required for all records of any species outside unknown range; see Wisconsin Frog and Toad Survey Manual for details\*\*\*

Run 1: _	
Run 2:	
Run 3:	
- Run 4:	

# Wisconsin Frog and Toad Survey – Mink Frog Field Data Sheet Observer name(s) Run 1: Jeff Smith County: Chippewa Bureau of Natural Heritage Conservation Run 2: Jessica Smith Pessica Smith Year: 2018 Wisconsin Department of Natural Resources P.O. Box 7921 Run 4: Jessica Smith, Jeff Smith Year: 2018 Madison, WI 53707-7921 Instructions: Use this voluntary form to record call index values of species heard at each of the 10 listening sites along the designated route. Conduct two

**Instructions:** Use this voluntary form to record call index values of species heard at each of the 10 listening sites along the designated route. Conduct two daytime surveys (7:00 am -5:00 pm) and two evening surveys (may begin  $\frac{1}{2}$  hour after sunset) for 5 minutes, during the period June 6 – July 15. **IMPORTANT – Please return to the above address by 15 August.** 

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\* The call index is a rough estimate of the number of calling males of a particular species, according to the following index values:

1 = Individuals can be counted; there is space between calls (no overlapping of calls).

2 = Calls of individuals can be distinguished but there is some overlapping of calls.

3 = Full chorus. Calls are constant, continuous, and overlapping; individual calls cannot be distinguished.

#### Enter sky and wind codes on front of data sheet:

Wind Code	Wind Speed (miles per hour)	Indicators of Wind Speed
0	Less than 1	Smoke rises vertically
1	1-3	Wind direction shown by smoke drift
2	4-7	Wind felt on face; leaves rustle
3	8-12	Leaves and small twigs in constant motion; wind extends light flag
4	13-18	Wind raises dust and loose paper; small branches moved

<u>Sky Code</u>	Sky Condition
0	Clear or a few clouds
1	Partly cloudy or variable
2	Cloudy (broken) or overcast
4	Fog

- 5 Drizzle
- 6 Showers

#### Additional Comments (difficulties, background noise levels, uncertain calls, unexpected frog calls, etc.)

#### \*\*\*IMPORTANT: Documentation required for all records of any species outside unknown range; see Wisconsin Frog and Toad Survey Manual for details\*\*\*

- Run 1: Site #9 is close to the road and there was heavy traffic today. Site #2 had a Great Blue Heron wading in it. Frogs might have been more reluctant to call because of it.
- Run 2: There was less traffic at Site#9 today, but still enough that I occasionally had difficulty hearing the frogs.
- Run 3: Site #9 has much less traffic at night, and a surprising number of frogs were calling. I heard an Eastern Screech Owl at Site #6.
- Run 4: We saw a Common Gartersnake on the road near Site #6. We also heard an Eastern Screech Owl near Site #5.

County:	Chippewa
Year: _	2018

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Wisconsin Frog and Toad Survey Website: http://wiatri.net/inventory/frogtoadsurvey/





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