



**Results of the 1997 Frog (Omakakii) and Toad
(Obiigomakakii) Survey in the Ceded Territory
of the Lake Superior Chippewa**

by
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Introduction

The Great Lakes Indian Fish and Wildlife Commission (GLIFWC) has been coordinating annual frog and toad surveys within the ceded territory of the Lake Superior Chippewa (Figure 1) since 1995 (Dlutkowski 1996, 1997). In 1997, GLIFWC again coordinated the survey and served as a repository for completed survey forms. Altogether, 6 frog and toad monitoring routes were surveyed during the spring and summer of 1997.

Frogs, toads, and other aquatic organisms are especially vulnerable to human uses and misuses of the land and water. Frogs and toads (collectively called anurans) are sensitive to changes in water quality and may be affected by environmental pollutants since they have permeable skin that can easily absorb both nutrients and contaminants from the water. Therefore, it is useful to understand the distribution and relative abundance of these animals since changes in their populations may alert us to changes in environmental quality.

There are 10 species of frogs and 2 toad species in the ceded territory (Table 1). Although a particular species may spend part of its life on land, all frogs and toads require water for breeding. Due to their specific breeding habitat preferences some species are found in temporary pools while others are found in more permanent bodies of water. Males call from their selected breeding waters to attract females and to initiate the breeding cycle. These distinctive calls were the auditory cues used by survey participants to determine the presence or absence of frogs and toads in a particular wetland.

Methods

The methods used for conducting frog and toad surveys in the ceded territories follow those described by Mossman and Hine (1984). Because frog and toad species have different calling chronologies due to their varying breeding behaviors, routes were surveyed on 3 separate nights (Table 2.). All frog and toad species detected at each site were identified by their calls and ranked into 1 of 3 abundance classes (Table 3). Standardized survey forms were used for recording call data, weather conditions, and miscellaneous comments to assist interpretation (Appendix A).

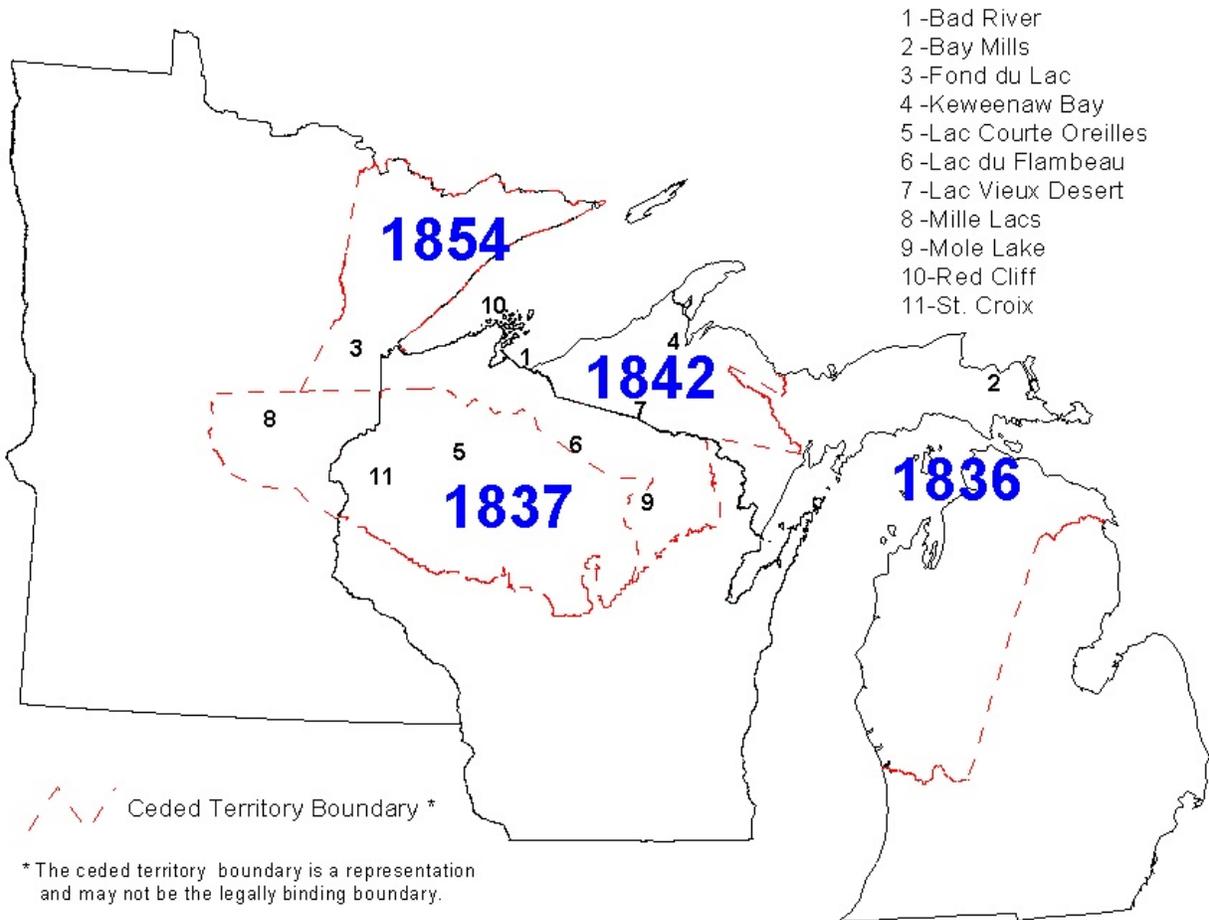


Figure 1. Location of GLIFWC member tribes and ceded territories.

Table 1. Natural history information on frog and toad species found in the ceded territory of the Lake Superior Chippewa. Adapted from Vogt (1981) and Harding and Holman (1992).

Species	Habitat	Breeding
Wood Frog (<i>Rana sylvatica</i>)	In or near moist wooded areas.	Mar - Apr
Western Chorus Frog (<i>Pseudacris triseriata</i>)	In or near shallow, often temporary bodies of water.	Mar - May
Northern Spring Peeper (<i>Pseudacris crucifer</i>)	Wooded areas with temporary or semi-permanent ponds, swamps, or marshes.	Mar - May
Pickerel Frog (<i>Rana palustris</i>)	Cool, clear waters of spring-fed lakes & streams.	Apr - mid-May
Northern Leopard Frog (<i>Rana pipiens</i>)	Lakes, streams, rivers, ponds, often far from standing water during the summer.	Apr - mid-Jun
Eastern American Toad (<i>Bufo americanus</i>)	Variety of moist & upland habitats.	Apr - Jun
Fowler's Toad (<i>Bufo woodhousii</i>)	Open woods & fields with sandy soils.	mid-May - mid-Jun
Eastern Gray Tree Frog (<i>Hyla versicolor</i>)	Trees or shrubs growing in or near water.	May - mid-Jul
Cope's Gray Tree Frog (<i>Hyla chrysoscelis</i>)	Trees or shrubs growing in or near water.	May - mid-Jul
Mink Frog (<i>Rana septentrionalis</i>)	Cool, permanent water where vegetation is abundant.	Jun - Jul
Green Frog (<i>Rana clamitans</i>)	All types of permanent bodies of water.	Jun - Jul
Bullfrog (<i>Rana catesbeiana</i>)	Permanent bodies of water.	Jun - Jul

Table 2. Species most likely to call during the three survey periods of the ceded territory frog and toad survey.

Survey Period	Species Likely To Call
Spring (15 Apr - 5 May)	wood frog, western chorus frog, northern spring peeper, northern leopard frog, pickerel frog, eastern American toad
Early-Summer (20 May - 10 Jun)	western chorus frog, northern spring peeper, northern leopard frog, pickerel frog, eastern American toad, eastern gray treefrog, Cope's gray treefrog, mink frog, green frog, bullfrog
Mid-Summer (1 Jul - 15 Jul)	eastern gray treefrog, Cope's gray treefrog, mink frog, green frog, bullfrog

Table 3. Criteria for determining call values for frog and toad surveys in the ceded territory.

Call Index	Criteria
1	Individuals can be counted. There is space between calls.
2	Calls of individuals can be distinguished but there is some overlapping of calls.
3	Full chorus. Calls are constant, continuous, and overlapping.

Tapes with calls of the various frog and toad species (composed by Ray Anderson, UW-Stevens Point) found in the ceded territory were distributed along with the survey materials. Cooperators were instructed to review the tapes to learn how to distinguish the calls from one another.

Each survey route consisted of at least 10 stops near different wetland sites. The main criteria for the selection of sites was that they were far enough apart from each other to ensure that the same individual frog or toad was not being counted from any 2 sites. Each survey route attempted to include a variety of wetland habitats to increase the probability of detecting the full range of anuran diversity in the area.

Surveys were conducted after dark under favorable weather conditions. Ideal survey conditions included little wind, steady or normal air and water temperatures, and no major weather outbursts. If heavy rain or high winds were encountered before the survey was completed the cooperator was advised to terminate the survey for the evening and complete it at the earliest possible date.

Results

Six frog and toad monitoring routes were surveyed in the ceded territory during the 1997 season. A total of 9 species were detected on the combined routes. Species detected were the wood frog, western chorus frog, northern spring peeper, northern leopard frog, eastern American toad, eastern gray tree frog, mink frog, green frog, and bullfrog.

Three species were not detected on any of the ceded territory routes during the 1997 season. These species were the pickerel frog, Cope's gray tree frog, and Fowler's toad. No routes were run in the restricted range of the Fowler's toad which encompasses the southern counties of Michigan's lower peninsula.

The relative frequency of detection (number of stops a species was detected at divided by the number of stops in each route) for each species ranged from 0 - 100% (Table 4). Each survey route consisted of 10 stops with the exception of the Mole Lake route which had 12 stops. The northern spring peeper, eastern gray tree frog, green frog, and wood frog were detected with the highest frequency for all 6 routes combined. Figure 4 shows the total number of species detected on each route. Fond du Lac, Lac Courte Oreilles, and Mole Lake detected the most with 8 species each.

Literature Cited

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- Harding, J.H. and J.A. Holman. 1992. Michigan frogs, toads, and salamanders: a field guide and pocket reference. Mich. State Univ. Museum, Lansing, Mich. 144pp.
- Mossman, M.J. and R.L. Hine. 1984. The Wisconsin frog and toad survey: establishing a long-term monitoring program. Wis. Dept. Nat. Resour. - Bureau Endanger. Resour. Rep. No. 9. 13pp.
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Table 4. Relative frequency of detection (%) for frog and toad species, 1997.

Species	Tribe					
	Bay Mills	Fond du Lac	Keweenaw Bay	Lac Courte Oreilles	Mille Lacs	Mole Lake
Wood frog	90	90	30	90	40	75
Chorus frog	30	20	20	100	50	8
Spring peeper	90	100	100	100	100	100
Leopard frog	0	40	0	40	0	8
Pickeral frog	0	0	0	0	0	0
American toad	40	80	90	80	0	25
E. gray tree frog	60	100	80	100	100	50
C. gray tree frog	0	0	0	0	0	0
Mink frog	10	10	0	0	0	8
Green frog	90	30	90	100	10	58
Bull frog	0	0	0	10	0	0

Call Index

Observer(s) names :

Run 1: _____

Run 2: _____

Run 3: _____

Year: _____

Cnty: _____

Stop Name

Water 50°F; April 15-May 5

FIRST RUN	
Water 50°F; April 15-May 5	
Date: _____	
Begin: _____	End: _____
Time: _____	Time: _____
Wind: _____	Wind: _____
Sky: _____	Sky: _____
Air Temp (F): _____	Air Temp (F): _____

SECOND RUN	
Water 50°F; April 15-May 5	
Date: _____	
Begin: _____	End: _____
Time: _____	Time: _____
Wind: _____	Wind: _____
Sky: _____	Sky: _____
Air Temp (F): _____	Air Temp (F): _____

THIRD RUN	
Water 50°F; April 15-May 5	
Date: _____	
Begin: _____	End: _____
Time: _____	Time: _____
Wind: _____	Wind: _____
Sky: _____	Sky: _____
Air Temp (F): _____	Air Temp (F): _____

Stop Name	Water	50°F	April	15-May	5															
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Call Index:

- 1 = individuals can be counted
- 2 = some overlapping of calls
- 3 = full chorus