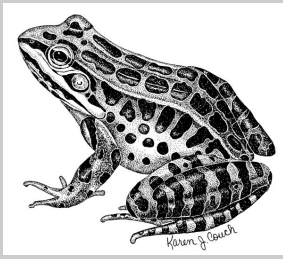


1994-2015

2015 Survey Report



Minnesota Frog & Toad Calling Survey (MFTCS)

NONGAME WILDLIFE PROGRAM

For over three decades there has been growing concern over amphibian declines worldwide. In 1994, the Minnesota Department of Natural Resources (DNR) responded by developing the Minnesota Frog and Toad Calling Survey (MFTCS) to monitor frog and toad populations throughout the state. The MFTCS uses the U.S. Geological Survey's North American Amphibian Monitoring Program (NAAMP) protocol, and contributes our data to NAAMP's U.S. monitoring program*.

For a number of years, abnormal weather conditions (e.g., unprecedented early ice-outs or unusually late snowfalls) has influenced the timing of peak frog and toad breeding activity. As a result, some species may have called for shorter periods at atypical times and may have been missed by the MFTCS's survey intervals. While these phenomena contribute to high variability of annual survey results, the MFTCS is detecting significant trends in two of Minnesota's frog and toad species.

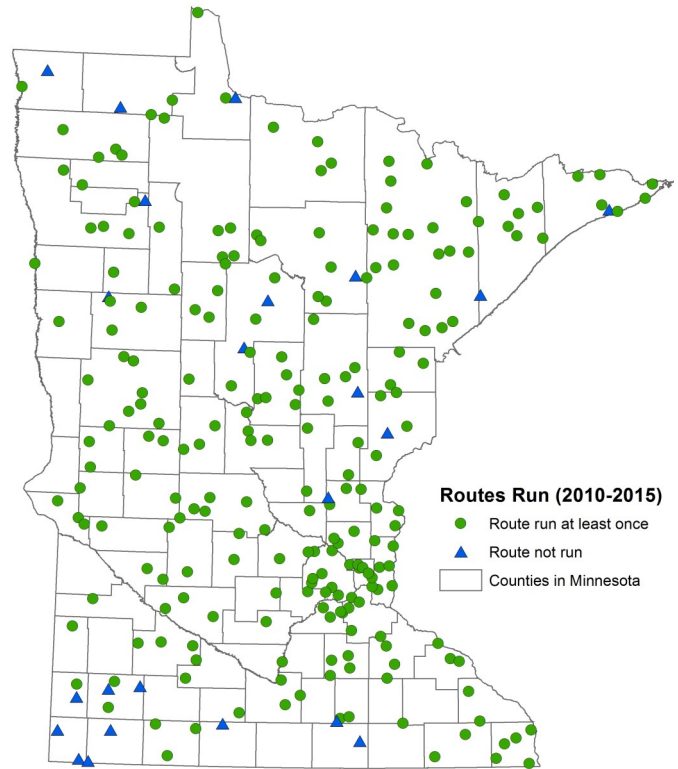


Figure 1. MFTCS routes surveyed at least once between 2010 - 2015.

Methods

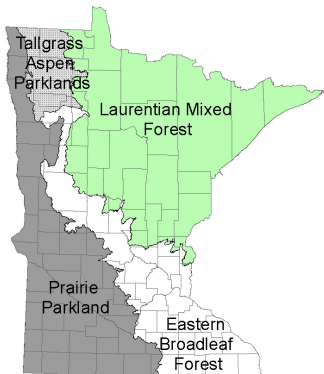


Figure 2. The four ECS Provinces in Minnesota.

Before the annual survey began, volunteers were assigned a route (Fig. 1), provided instructions, route maps, route descriptions, and field datasheets. Volunteers were asked to complete NAAMP's online frog and toad call identification quiz which only included species that may occur on a volunteer's route and could be taken multiple times to reach a passing score*. New volunteers were given the *Calls of Minnesota's Frogs and Toads* CD. Each route was run three times within designated periods (early spring, late spring, and summer) to encompass the variation in calling periods among frog and toad species. Surveys were run after dark under favorable weather conditions (water temperature was above a preferred minimum value and wind was less than eight mph). Calls were noted at each stop (10 stops/route, stops are a minimum distance of 0.5 miles apart). Volunteers listened at each stop for at least five minutes to distinguish calls of all the species heard, and recorded their data on the field datasheet.

Once the route was completed for all three runs, the datasheets were sent to the DNR to be compiled and analyzed. Rare or unusual records such as the endangered Blanchard's cricket frog or species outside of their distribution range required verification by audio recording, testimony of two experienced observers, or a photo. Unusual calls that were not verified were not counted.

Statistical trend analyses were performed on the 1998-2015 data (the 1994-1997 data were excluded due to the small sample size of routes surveyed during that time period). Trends were assessed statewide as well as within each of the Ecological Classification System (ECS) Provinces of Minnesota (Fig. 2). The ECS Provinces were used since they delineate Minnesota's major ecological regions, and the distribution of many frog and toad species follow these boundaries.

*In 2015, the U.S. Geological Survey discontinued support of NAAMP.

Results

In 2015, 129 routes were run and corresponding datasheets returned to the DNR. Since the last survey report in 2009, 91% of Minnesota's survey routes were run at least once (Figure 1). These routes were distributed statewide, demonstrating how the MFTCS benefits from its large base of volunteers. The majority of unsurveyed routes were located either in the southwest corner of the state or the northernmost tier of counties.

Statewide population trends have changed since the 2009 analysis. Previously-detected population declines for spring peepers and gray treefrogs as well as increases for American bullfrogs are no longer statistically significant ($p = 0.11$, $p = 0.40$, and $p = 0.38$ respectively). Instead, two new species trends have emerged (Figure 3).

Green frog (*Lithobates clamitans*) and Cope's gray treefrog (*Hyla chrysoscelis*) – Survey results indicate a significant increase in the proportion of routes where the green frog was heard ($p = 0.03$) and a marginally-significant increase in the proportion of routes where the Cope's gray treefrog was heard ($p = 0.06$) statewide between 1998 and 2015.

No statewide trends were detected in the other 12 species of frogs and toads in Minnesota, indicating that overall populations of these species are stable.

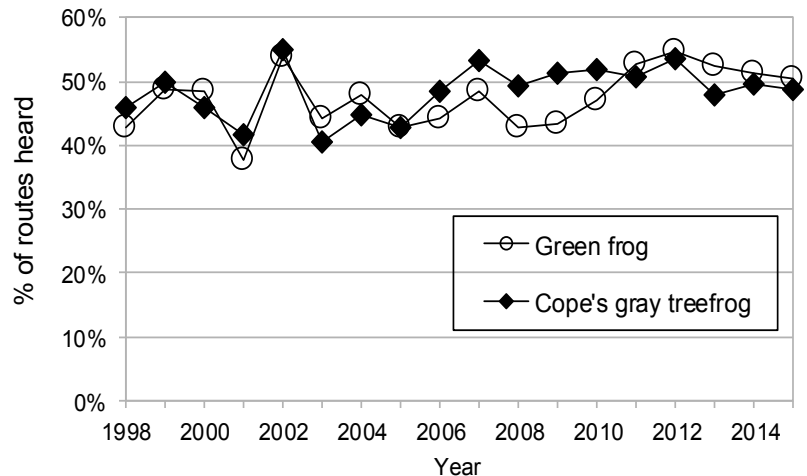


Figure 3. Trend in frog and toad reports for two species in Minnesota during the 1998-2015 MFTCS.

Changes Ahead

NAAMP, our national partner with the U.S. Geological Survey, shut down in 2015 due to resource constraints and will no longer serve as the national coordinator for individual state's frog monitoring programs. In response to this change, DNR created an online sign-up system for volunteers and is in the process of building a more functional website, a database to house all survey information, and other technology pieces needed to manage volunteers, routes, and survey data previously handled by NAAMP. We are also in the process of revamping our annual data analysis to better deal with complexities in the survey data such as year-to-year shifts in the timing of peak breeding activity, especially the record-early and record-late calling patterns of early-spring breeders such as wood frogs, spring peepers, and chorus frogs in recent years. We hope to have a more complete analysis done in 2017.

THANK YOU MFTCS VOLUNTEERS!!!

We extend our heartfelt thanks to the hundreds of volunteers who continue to make the MFTCS a success. Without your persistence and hard work, the DNR would be without a means of reporting on the health of our frog and toad populations. We and Minnesota's amphibians appreciate your commitment!

The MFTCS is supported by the State Wildlife Grants program and by contributions to the Nongame Wildlife Checkoff on your Minnesota tax form. You can donate online at: mndnr.gov/checkoff

WE ARE LOOKING FOR MFTCS VOLUNTEERS!

For more information on volunteering, current route availability, previous reports, or other resources on Minnesota's frogs and toads, please visit our website at: mndnr.gov/volunteering/frogtoad_survey or contact **Janine Kohn, MFTCS Coordinator** at Janine.Kohn@state.mn.us.

Report Author: Krista Larson, Nongame Research Biologist

