Minnesota Frog & Toad Calling Survey

1994 – 2007

Nongame Wildlife Program
Minnesota Department of Natural Resources

INTRODUCTION

For the past two decades there has been a growing concern over amphibian population declines worldwide. In Minnesota, our response was to develop the Minnesota Frog and Toad Calling Survey (MFTCS) in 1994 to monitor frog and toad populations throughout the state. The MFTCS uses the US Geological Survey's North American Amphibian Monitoring Program (NAAMP) protocol, and contributes Minnesota's data to NAAMP's eastern US regional monitoring program.

For the past several years, unusual weather conditions, including drought, early spring thaw, and sudden cold spells in late spring, have altered the timing of the calling periods of our frogs and toads. Some species may be calling for shorter periods at unpredictable times and may be missed by the MFTCS's survey intervals. These phenomena produce survey results that continue to be difficult to interpret.

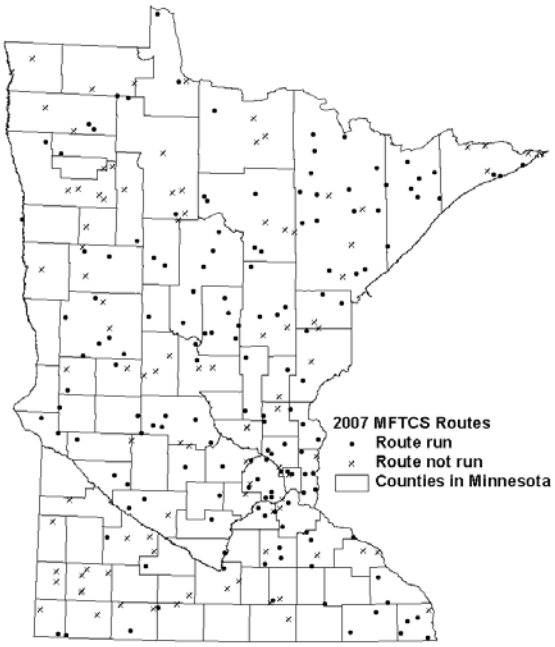

Figure 1. Routes run in the 2007 MFTCS

METHODS

Before the annual survey season begins, every volunteer is assigned a route and is provided with instructions, route maps, survey route descriptions, and field data sheets. New volunteers are given the *Call of Minnesota's Frogs and Toads* CD. Each route is run three times within designated time periods ("early spring," "spring," and "summer") to encompass the variation in calling periods among frog and toad species. Surveys are run after dark, under favorable weather conditions (water temperature is above a preferred minimum value, and wind is less than 8 mph). Frog calls are noted at each stop (10 stops/route, stops are a minimum distance of 0.5 miles apart). Volunteers listen at each stop for at least 5 minutes to distinguish all of the frog and toad calls heard, and record their data on the field data sheet.

Once the route has been completed for all three runs, the data sheets and maps are sent to the Nongame Wildlife Program to be compiled and analyzed. Rare or unusual records such as the endangered northern cricket frog or species outside of their distribution range require verification by tape recording, testimony of two experience observers, or a photo. Unusual calls that are not verified may not be counted.

Statistical trend analyses were performed on the 1998-2007 data (excluding the 1994-1997 data due to the small sample size of routes surveyed during that time period). Trends were assessed statewide, as well as within each of the four Ecological Classification System (ECS) Provinces of Minnesota. The ECS Provinces were used since they delineate Minnesota's major ecological regions, and many of Minnesota's frog and toad species distribution ranges follow these boundaries.

This was the second year NAAMP required volunteers to take an online frog and toad call identification quiz. Volunteers can take the quiz repeatedly until they reach a passing score of 65. The quiz only includes frog species which may occur on their route. All 113 volunteers who took the quiz and submitted data received a passing score (some volunteers are assigned to multiple routes). Thirty-one volunteers submitted data and did not attempt to take the quiz.

RESULTS

In 2007, 153 routes were run and the corresponding data sheets were returned to the Nongame Wildlife Program (Fig. 1). These routes were distributed statewide, which demonstrates how the MFTCS benefits from it's large base of volunteers.

While another year of atypical weather makes interpretation difficult, statewide population trends continue to be statistically significant for three species: the gray treefrog (*Hyla versicolor*), spring peeper (*Pseudacris crucifer*), and the American bullfrog (*Rana catesbeiana*) (Fig. 2).

Spring peeper and gray treefrog –

1998-2007 data showed a detectable decrease in the proportion of stops at which the gray treefrog and spring peeper were heard statewide.

American bullfrog –

The American bullfrog was the only species that was heard in significantly more stops statewide during the period 1998-2007. This species is considered invasive everywhere in the state except for it's native range in the southeastern corner of the state.

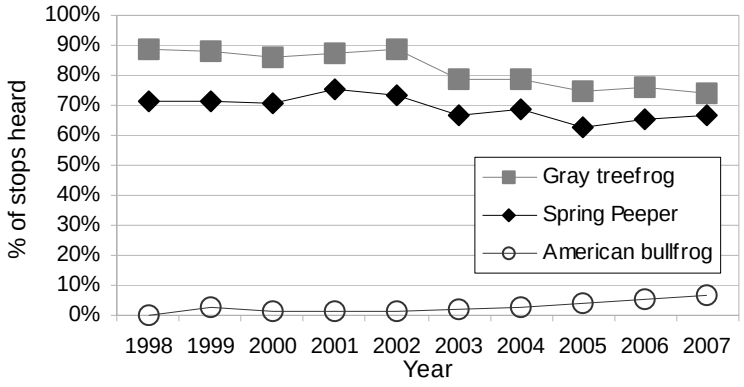

Figure 2. Trend in reports for three species in Minnesota

IN SUMMARY

The MFTCS is an important, volunteer-based monitoring program that is beginning to detect trends in Minnesota's frog and toad populations. Through NAAMP, our data will also help identify region-wide population trends in eastern North America. We are very proud of the growth and success of the MFTCS, and of the citizen scientists that are participating as volunteers. The data provided by the MFTCS are helping us identify potential threats to Minnesota's ecosystems, such as the spread of the American bullfrog across the state. With additional years of data, the DNR will be better able to make informed resource management decisions that address the trends in our frog and toad populations identified by the MFTCS.

Acknowledgments...

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 contributions to the Nongame Wildlife Checkoff on your Minnesota tax form or you can donate online at:
http://www.dnr.state.mn.us/ecological_services/nongame/checkoff.html

Please check the MFTCS website for information on volunteering, previous reports, and other information on Minnesota's frogs and toads:
http://www.dnr.state.mn.us/volunteering/frogtoad_survey/index.html