1994-2005

Minnesota Frog & Toad Calling Survey (MFTCS)

NONGAME WILDLIFE PROGRAM

2005 Results

The Minnesota Frog and Toad Calling Survey (MFTCS) was developed in response to concern over the potential for population declines in Minnesota's fourteen frog and toad species. The MFTCS uses the North American Amphibian Monitoring Program (NAAMP) methods, which are designed to detect trends in the state's frog and toad populations over time. Trend analyses with multiple years of data help adjust for differences resulting from abnormal weather years. Spring weather was atypical in 2005 in Minnesota, with uncharacteristically cold periods throughout the state that may have affected the frog and toad calling periods this year.

The MFTCS owes it's ongoing growth and success to a large base of participants from throughout the state. Without the interest and dedication of these generous volunteers, this project would not be possible.

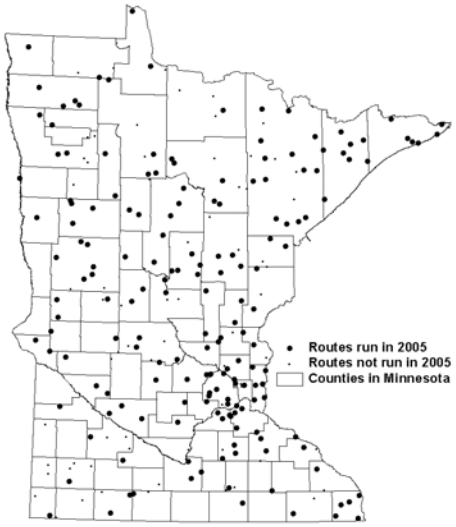

Figure 1. MFTCS Routes 2005.

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 datasheets. New volunteers are given the *Call of Minnesota's Frogs and Toad*s cassette tape or 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 datasheet.

Figure 2. The four ECS Provinces in Minnesota.

Once the route has been completed for all three runs, the datasheets and maps are sent to the Nongame Wildlife Program of the Minnesota Department of Natural Resources (DNR) to be compiled and analyzed. Rare or unusual records such as the endangered northern cricket frog or species outside of their distribution range are tagged for verification by tape recording, testimony of 2 experienced observers, or a photo. Unusual calls that are not verified may not be counted.

This year, statistical trend analyses were performed on the 1998-2005 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 in Minnesota (Fig. 2). 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.

Results

In 2005, 229 routes were assigned to volunteers, and we received data sheets for 177 of these routes (Fig. 1). The routes that were run in 2005 were distributed statewide, although we are still lacking volunteers in the southwestern part of the state. Thirteen of the fourteen species of Minnesota's frogs and toads were heard on at least one route in 2005; the only species not verified was the endangered northern cricket frog.

For the first time, trends were observed statewide for two species: the American toad and spring peeper. The American toad demonstrated a significant increase in number of locations heard statewide, while the spring peeper decreased slightly in the number of locations heard. Significant trends were also found for five Minnesota species within one or more of the four ECS Provinces (Figs. 3-7). However, this may be the result of abnormally cold weather conditions during the spring of 2005. One third of the routes (n = 58) reported that during the "early spring" run, they either: heard no frogs, didn't complete the run, or ran the run at a later date than the survey window. Additional years of data will clarify if the observed trends reflect actual population changes, or if they are artifacts of the unusual 2005 spring weather patterns.

Trends in frog & toad species heard during the MFTCS - 1998-2005.

Legend

Significant increase in locations where heard 1998-2005
Significant decrease in locations where heard 1998-2005
No change 1998-2005

Figure 3. AMERICAN TOAD— An increase in locations where American toads were heard was detected in both the Laurentian Mixed Forest and the Eastern Broadleaf Forest Provinces.

Figure 4. GRAY TREEFROG— A decrease in locations where gray treefrogs were heard in the Eastern Broadleaf Forest Province was detected.

Figure 5. SPRING PEEPER— A decrease in locations where spring peepers were heard in the Eastern Broadleaf Forest Province was detected.

Figure 6. NORTHERN LEOPARD FROG— A decrease in locations where northern leopard frogs were heard was detected in the Prairie Parkland Province.

Figure 7. WOOD FROG—A decrease in locations where wood frogs were heard in the Laurentian Mixed Forest Province was detected.

THANK YOU MFTCS VOLUNTEERS!!!

We extend our heartfelt thanks to the hundreds of volunteer observers 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 NOW DONATE ONLINE AT:

http://www.dnr.state.mn.us/ecological_services/nongame/checkoff.html

*We would also like to thank the **Minnesota Herpetological Society** for assisting with funding of the MFTCS.*

WE ARE LOOKING FOR MFTCS VOLUNTEERS!

Every year we have available MFTCS routes, so if you are interested in volunteering, please check our website in February through March for route availability at:

http://www.dnr.state.mn.us/volunteering/frogtoad_survey/index.html

Or contact:
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The MFTCS survey begins on April 15th!

In Summary....

The MFTCS is now accumulating enough data to detect trends in species heard. This year is the first time we have detected changes statewide in two species, although the results may have been influenced by the abnormal 2005 spring weather. Both positive and negative trends were found among five species within several ECS provinces. As additional years of data are collected on routes run repeatedly, our ability to detect statewide population trends will increase in accuracy. There are many possible explanations for the trends described in this report including volunteer experience increasing over the years, habitat changes, and as we mentioned, a cool spring. Additional years of data will allow us to reevaluate these observed trends.