

Frog and Toad Call Survey Results for Iowa, 2025

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ABSTRACT

Since 1991, volunteers across the state of Iowa have collected data on the frogs and toads in Iowa wetlands. In 2025, call data was collected at 893 sites and 15 different frog and toad species were identified. The four most common species recorded on the survey were Chorus frog (*Pseudacris maculata*), Cricket Frog (*Acris blanchardi*), American toad (*Anaxyrus americanus*), and Eastern Gray Treefrog (*Hyla versicolor*) both in the number and percentage of sites they were detected on. Data collected from 2013 to the present suggests that American bullfrog green frog and cricket frog have notable positive trends while eastern gray treefrog, spring peepers and American toads exhibit slight negative trends.

INTRODUCTION

The first volunteer-based frog and toad call survey in Iowa took place in 1984 but it did not become a permanent yearly event until 1991. Iowa was one of the earliest states to adopt this survey, which was developed by the Wisconsin DNR in response to the alarm regarding amphibian declines. These alarm bells have only grown louder over the past 30+ years of the survey and this long-term dataset is more important than ever.

The survey has evolved over the years. Training workshops were offered for the first time in the early 2000s and these became a requirement in 2008. Up until 2007, monitors listened for 10 minutes per site, per survey but that was shortened to 5 minutes starting in 2008. Analysis has indicated that while this change may have impacted the detection for a couple of species, this change made the survey easier to perform for the volunteers and did not have a significant impact on the overall data. The three leopard frog species in Iowa were not identified by species in the survey until 2009. Finally, in 2010, Iowa started participating in the USGS' North American Amphibian Monitoring Program (NAAMP) which added 84 randomly placed routes needing survey. In 2015, USGS discontinued NAAMP but Iowa has absorbed these routes into our traditional survey and database.

STUDY AREA

The frog and toad call surveys are conducted on routes statewide. An effort is made to have the surveyed routes evenly spread across the state, though western and southern Iowa could use additional survey effort (Figure 1). The sites represent a mix of wetland types from roadside ditches to relatively pristine marshes to large areas of open water and riverine systems.

In 2025, a total of 164 routes were assigned to volunteer monitors. Of those assigned, 135 routes covering 893 wetland sites were surveyed (Figure 1). This is a small decline from 2024 which had the highest level of participation in the survey's history. However, sites were more spread out this year with surveyors collecting data in 70 out of 99 counties.

METHODS

The frog and toad call surveys are conducted by volunteers at night on routes that are repeatedly surveyed each year. Routes contain a collection of 5-10 "wetland" sites and there are two different types of routes. Traditional survey routes are not random, having sites which were chosen by a volunteer surveyor, and they follow no set driving route. They contain anywhere between 5-10 sites with the sites being at least 0.5 mile apart, though there are a few exceptions to the distance rule. The second type of route are the randomly placed NAAMP routes added in 2010. The NAAMP routes have a set 15-mile route to drive, along which are 10 survey stops that must be at least 0.5 miles apart from one another.

To conduct the survey, volunteers are assigned to a route which they are annually responsible for until they retire from the survey. They are instructed to collect data on their route three times each year during month-long survey windows, each with a minimum temperature requirement:

3 Run Windows	Minimum Temperature	Dates
Run 1	5.6° C (42° F)	Apr.1 -May 1
Run 2	10° C (50° F)	May 7 - June 7
Run 3	12.8° C (55° F)	June 13 - July 13

The structure of the survey, with three survey windows, is designed to capture data on all of the possible anuran species using a wetland regardless of their timeline for breeding. To maximize the ability to detect all frogs, the survey is run at night, starting at least 30 minutes post-sunset when the wind is calm and preferably after a rain, or even during a light rain event. Air temperature, sky condition, and wind are collected at the start and end of the survey. Days since rain is also recorded. At each wetland stop, the surveyor records the time, whether the site is wet or dry, whether the moon is visible, how many cars pass and if there are any noise interferences.

At each stop the volunteers stand and listen quietly for 5 minutes. They record all the species of frog and toad they hear calling during that time and estimate abundance of each species using the following index:

Relative Call Index Codes
0- No individuals heard.
1- Individuals can be counted. There may be space between calls.
2- Calls of individuals can be distinguished, but there is some overlapping.
3- Full chorus of calls. Constant, continuous, and overlapping.

Since 2008, volunteers have been required to go through a training workshop if they don't have previous experience with the survey or with identifying frogs and toads by sound.

The data is recorded in an online database by the end of August each year. The data are then summarized to produce annual naïve trends in species occurrence by examining the percentage of surveyed wetlands where each species is detected and the average call index. The data also gives useful information about species distribution and their breeding chronology.

RESULTS

Environmental variables taken during the survey (air temperature, wind speed, sky conditions and days since rain) all indicate that surveys were done within recommended parameters. Surveys were done on average within 1.98 days of a rain event which was about the same as in 2024. The number of days since rain was highest during the second survey window (May 7- June 7), and lowest in survey window 3 (June 13- July 13). The average temperatures recorded during the survey were all in line with previous years and for all survey windows were well above the minimum temperature requirement.

Chorus frogs, American toads, cricket frogs and eastern gray treefrogs were the four most common species recorded on the survey. All of these species have a statewide distribution and can use many different types of wetlands for breeding, with the exception, perhaps, of the gray treefrog. One notable trend among these very common species is that eastern gray treefrogs and to a lesser extent American Toads have slight declining trends since 2013.

Cricket frogs, which are of conservation concern in nearby states, appears to have an increasing trend in Iowa (Figure 2). These trends need to be investigated further to assess whether they are the result of bias or not. For example, there is a high concentration of volunteers and routes in urban areas so might these trends be reflecting something that is happening in urban environments and not across the board.

For those species for which we have enough data, the two additional species with the strongest trends over the last 13 years besides the eastern gray treefrog and cricket frog is American bullfrog which has a positive trend (Figure 2). The

bullfrog's trend in particular has become more strongly positive. There are some weak trends also by green frog (+), spring peeper (-) and American toad (-). Most other species show a mostly flat trend (Figure 2).

There were three species not detected on the survey in 2025; the state endangered, likely extirpated Crawfish frog, the Wood frog, which is possible in the state but has never been detected, and the Plains Spadefoot which has a sporadic breeding habit that can make it challenging to detect. The rarest species detected on the survey were the pickeral frog, great plains toad and Woodhouse's toad. The only other species to be detected at 10 or fewer sites was Fowler's toad. All of these species are range restricted.

The most abundant species when found, based on the average call index, was the cricket frog followed closely by the chorus frog and eastern gray treefrog (Table 1).

DISCUSSION

Wetland occupancy in 2025 was very similar to 2024 though for most species the numbers were slightly lower while the average index of abundance across species and sites was essentially the same. While there was very little change for most species there were some species whose 2025 numbers differed notably from the previous 10-year average; bullfrogs and chorus frogs were higher while Eastern gray treefrogs and spring peepers were lower.

Trends since 2013 indicate notable trends in six species. First, bullfrogs, green frogs, and cricket frogs have increasing trends. Large parts of Iowa were experiencing drought from 2020 through May of 2024, so you would expect bullfrog and green frog, which overwinter in water and need permanent, relatively deep waterbodies, would not have done well. American bullfrogs did have lower occurrence rates in 2021 and 2022 while green frogs saw a dip in 2023 and 2025. One thing that may be skewing these data is the type of sites being surveyed. These two species require specific types of waterbodies and perhaps those types of waterbodies have become a larger proportion of the sites surveyed. We will continue to monitor these species.

Blanchard's cricket frog also has a positive trend. This species is considered endangered in Minnesota and Wisconsin so it is notable that it is one of the most detected and abundant species in the Iowa survey. There is some evidence that the species is increasing in Wisconsin as well (Kitchell et al. 2023) so perhaps this is a range wide trend. The U.S.G.S. is currently performing a more detailed assessment of this species in MN, WI, IL and IA (<https://www.usgs.gov/centers/upper-midwest-environmental-sciences-center/science/status-and-trends-blanchards-cricket>).

American toad, eastern gray treefrog and spring peeper all exhibit a slight decreasing trend since 2013. The spring peeper and gray treefrog are both treefrogs and use wetlands associated with woodland to breed. They also both overwinter on land using a form of glucose to keep their body from freezing. The eastern gray treefrog trend may also be attributed to volunteers getting better at distinguishing between the two species of *Dryophytes sp.*, because at the same time *D. versicolor* has been decreasing, *D. chrysoscelis* has been increasing slightly. When all gray treefrogs are combined, the trend is flat. It's unclear whether this is a true dynamic with these two species or if it is a result of surveyor's abilities or even the types of sites that are being surveyed.

The American toad is generally very adaptable and in some analyses was the only species to not be impacted negatively by increasing development. If a true decline in this species is being detected it is unclear of what might be the cause but this trend will be monitored and further investigated if warranted.

ACKNOWLEDGEMENTS

This survey is one of the longer running surveys on amphibians in North America and certainly in Iowa. This accomplishment would not have been possible without an army of volunteers over the years, some of whom have been involved with the survey for a staggeringly long time. We had 140 monitors participate this year, 33 of which were new volunteers. Thank you and WELCOME! A huge thank you to all of the volunteers who have braved the night time country roads to further Iowa's frog and toad conservation efforts.

LITERATURE CITED

Christianson, JL and RM Bailey. 1991. The Salamanders and Frogs of Iowa. Nongame Technical Series 2, Iowa Department of Natural Resources. 24pp.

Kitchell, J, A Badje and R Paloski. 2023. Wisconsin Department of Natural Resources Frog and Toad Survey. <https://wiatri.net/inventory/frogtoadsurvey/SurveyInfo/summaries.cfm>

FIGURES

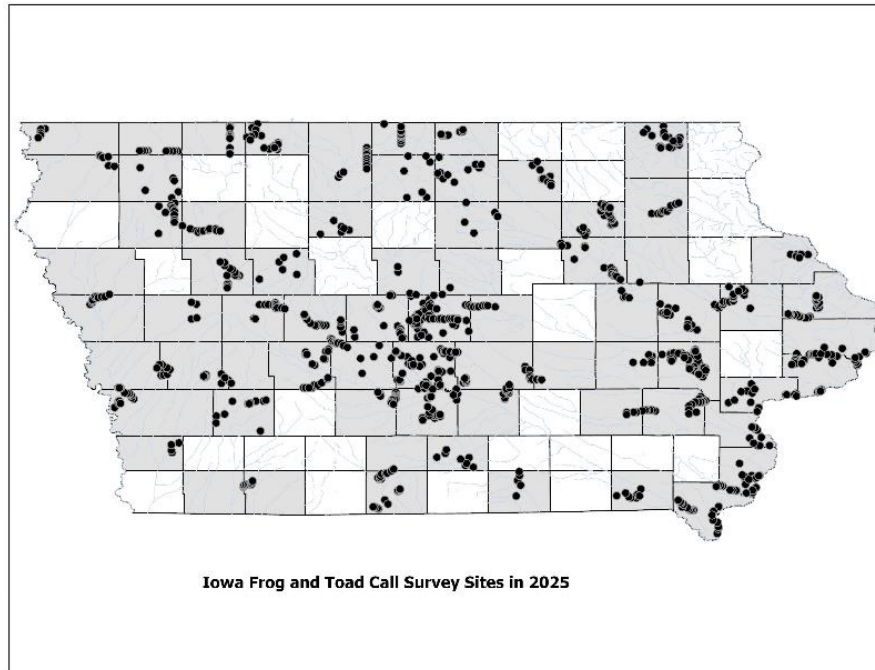


Figure 1. Wetland sites and counties surveyed in 2025. A total of 893 sites were surveyed.

Table 1. 2025 Summary of data collected by volunteer monitors on Iowa's Frog and Toad Call Survey

Species	Total Sites Detected	Total Possible sites	% Sites Detected	Sites Run 1	Sites Run 2	Sites Run 3	Total Visits Detected	Average Call Index
Chorus Frog	670	893	75.0	634	212	138	984	2.19
American Toad	489	893	54.8	235	299	160	694	1.68
Cricket Frog	470	893	52.6	10	370	394	774	2.21
Eastern Gray Treefrog	341	893	38.2	44	245	266	555	2.01
So. Leopard Frog	14	73	19.2	12	1	3	16	2
Cope's Gray Treefrog	276	893	30.9	22	199	202	423	1.64
Bullfrog	278	893	31.1	4	107	254	365	1.3
Spring Peeper	136	633	21.5	126	27	5	158	1.89
Green Frog	104	586	17.7	1	65	83	149	1.38
Northern Leopard Frog	161	893	18.0	140	33	14	187	1.43
Fowler's Toad	3	73	4.1	0	1	2	3	2
Great Plains Toad	1	38	2.6	0	1	0	1	1
Unknown Gray Treefrog	106	893	11.9	19	45	75	139	1.94
Plains Leopard	20	415	4.8	8	7	6	21	1.24
Woodhouse's Toad	1	189	0.5	0	1	0	1	1
Leopard Frog	35	893	3.9	23	11	3	37	1.3
Plains Spadefoot	0	38	0.0	0	0	0	0	0
Pickeral Frog	1	209	0.5	0	1	0	1	1
Crawfish Frog	0	NA	NA	0	0	0	0	0

Figure 2. Charts showing the trends from 2013 to 2025 for frog and toad species detected regularly in 2025.

