GIS Observations of Missouri Amphibian Diversity

Katherine Townsend

Lindenwood University, 209 S. Kingshighway Street, St. Charles, MO 63301

INTRODUCTION

Amphibian populations have been declining rapidly in the United States since roughly the 1960's with an approximate 3.79% decline occurring annually[2].The cause of this phenomenon cannot be narrowed down to just one issue, and as amphibians are highly sensitive to changes in their environment, each issue presents its own unique challenges for conservationists and researchers to tackle.

Missouri is no exception to this concern, and the amphibian populations here are beginning to feel the consequences of wavering ecosystem health. Various programs have been introduced to the public as a means of bringing attention to this issues and offering citizens a way to be directly involved in conservation of local species. The Frog Watch STL and iNaturalist observations are now being utilized to encourage citizens to collect data that will further assist researchers in analyzing amphibian populations.
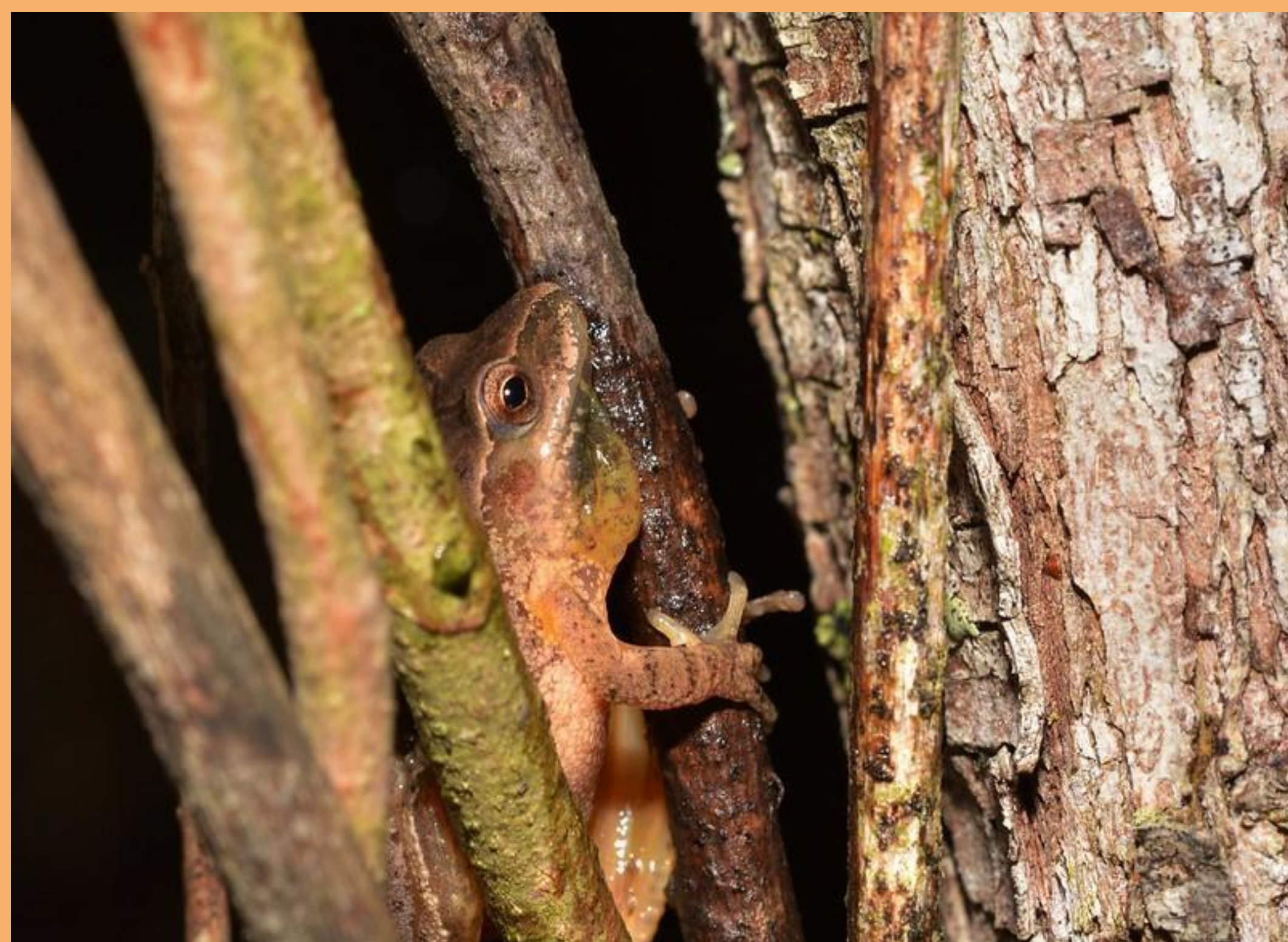
AT RISK SPECIES IN MISSOURI

Image 1: Spring peeper photo taken by Andy Reago & Chrissy McClarren

Image 2: Ozark hellbender photo taken by Brian Gratwicke

PROJECT GOALS

The goal of this project is to create an interactive dataset of Missouri amphibian through the use of ArcGIS Story Maps and iNaturalist observations that is both educational and appealing to both researchers and those who want to become involved in conservation.

METHODS

A basemap was selected from the ArcGIS catalog and then layered with other pertinent information including state boundaries and amphibian observation points. Amphibian observation points were retrieved from iNaturalist data as a zipfile and uploaded as a layer to ArcGIS. Each point represents a research-grade observation made in Missouri.
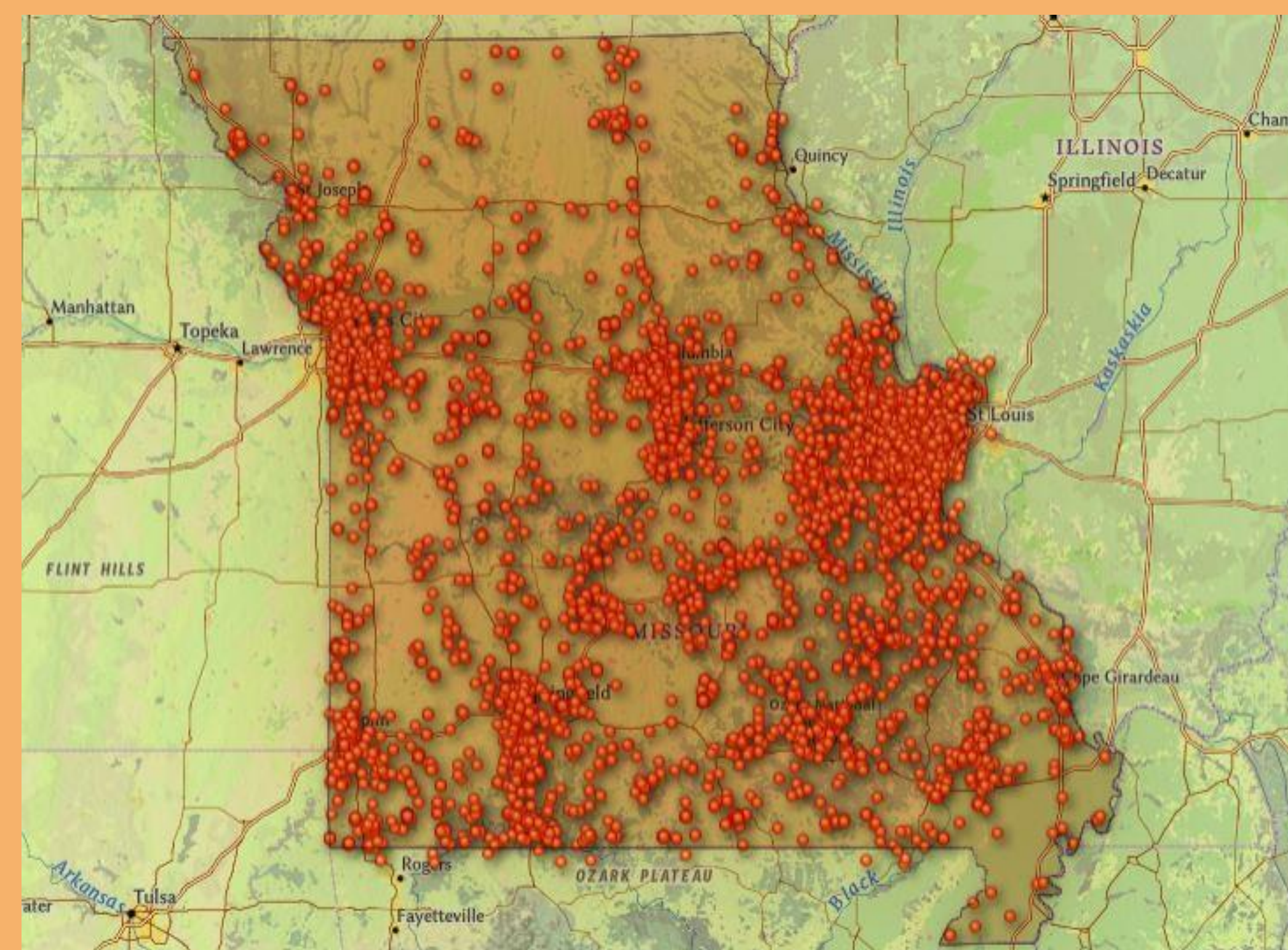

Image 3: Image of GIS map containing iNaturalist observations

This map has been embedded in an ArcGIS Story Map and each data point may be clicked on to reveal a real observation of various amphibians that has been positively identified by professionals.

RESULTS

This is project is currently a work in progress but has been published and is viewable.

Image 4: QR code for The Decline of Amphibian Diversity in Missouri Story Map

COMING UPDATES

As the project continues, data points will be color-coded based on classification, and both images and audio will be available by selecting a data point.

REFERENCES

1. Hellbender salamander. The Nature Conservancy. (n.d.). Retrieved March 29, 2023, from https://www.nature.org/en-us/get-involved/how-to-help/animals-we-protect/hellbender-salamander/

2. Initiative, A. R. and M. (n.d.). The state of amphibians in the United States. State of the Amphibians. Retrieved March 29, 2023, from https://armi.usgs.gov/sota/

3. Spring peeper program. frogwatchstl.com. (n.d.). Retrieved March 29, 2023, from https://www.frogwatchstl.com/spring-peeper-program