

# MEASURING HERPETOFAUNAL BIODIVERSITY IN SOUTHWEST MISSOURI

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## Introduction

The study site was Kellogg Lake in Carthage, Missouri, Jasper CO.

- The area is a man-made lake approximately 25 acres that is mostly used for recreational activities such as kayaking and fishing. Two of the four sides of the lake area are demarcated by the historical Route 66.
- The lake is surrounded by several small creeks and small wetland area that is filled by the Spring River.

The species records of SW Missouri have been historically lacking compared to the surrounding area.

- As a group we spent a total of 328 person-hours across 4 months (with 133 trap nights) describing and quantifying the amphibian and reptile diversity of the area.

We set out to better describe the area and to create community awareness of the biodiversity found in a well-known community resources.

## Central Question

What is the diversity and abundance of reptiles and amphibians found in the Kellogg Lake area of Carthage, Missouri?

- How does the diversity of what we find compare to that of the surrounding area?



Figure 1. Overhead view of Kellogg Lake. Spring River is to the South just below the wooded wetland.

## Capturing, Recording, and Analyzing

We used 58 traps. The traps were set out over night or for most of the day.

- 7 – 3ft hoop nets (Fig 2A)
- 37 – spring crab traps (Fig 2B)
- 14 – minnow traps (Fig 2C)
- Hand captures (hooks, grabbers, and hand nets)

After identifying the species and their sex we measured length (small digital caliper and/or cloth tape measure) and mass (spring balance and ziplock bag).

- Turtle measurements (Straight Carapace Length and Mass)
- Frog measurements (Mass)
- Snake measurements (Snout-vent Length and Mass)

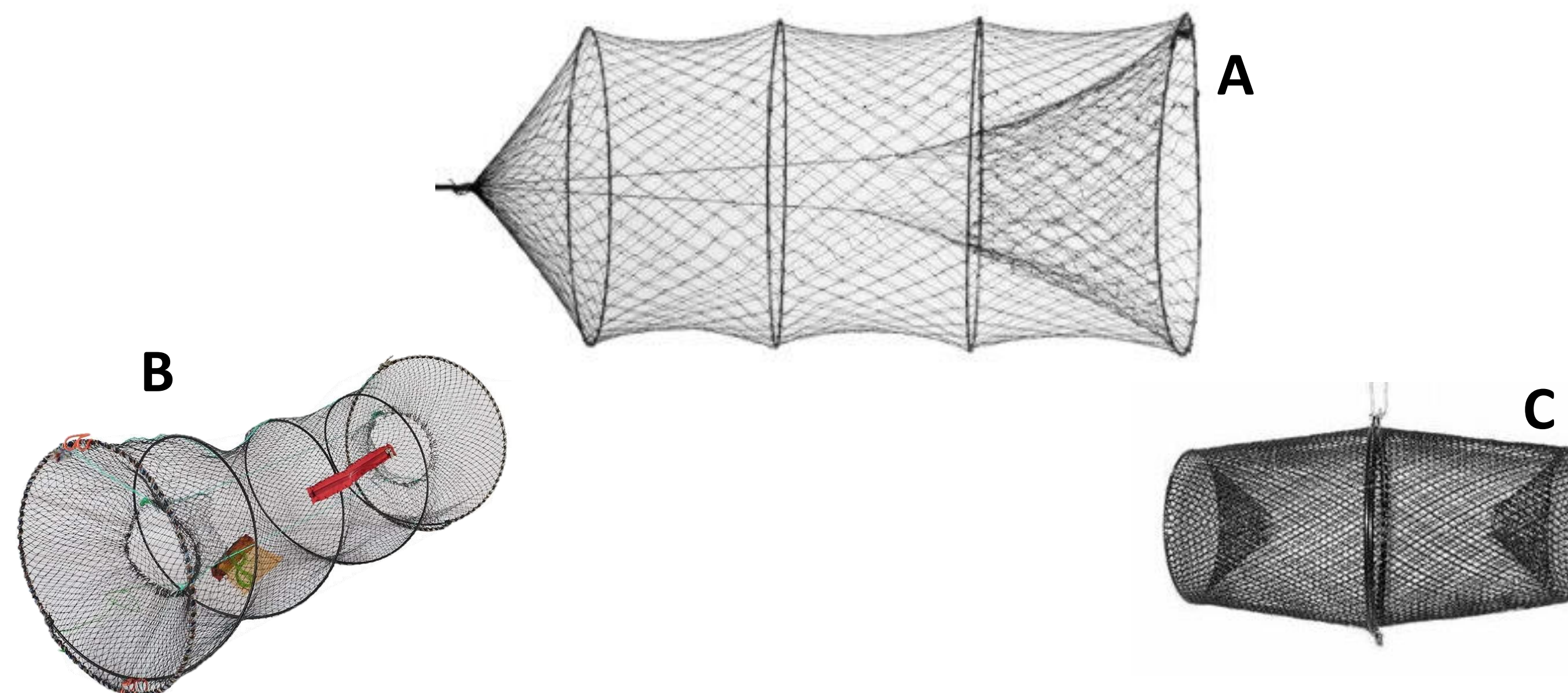


Figure 2. Trap types used 3 ft hoop net (A), spring crab trap (B), and minnow trap (C).

## Species Captured

In total, 3 *Bufo americanus* (American toads), 3 *Apalone spinifera* (spiny softshells), 8 *Rana catesbeiana* (bullfrogs), 1 *Lithobates sphenoccephalus* (S. leopard frog), 1 *Nerodia erythrogaster* (Y. bellied watersnake), 1 *Nerodia sipedon* (N. watersnake), 1 *Storeria dekayi* (dekey brownsnake), 15 graham's crayfish snake (B), 93 stinkpot turtles (A), and 48 red eared sliders (C) were caught over the span of May-August.



Figure 3. *Sternotherus odoratus* (A), *Regina grahamii* (B), and *Trachemys scripta* (C).

## Population Demographics

- From the data collected, female crayfish snakes (n=11, mean=311.82 ± 134.15) were significantly heavier than males (n=4, mean=96 ± 9.51).
- Based on Johnson (2000), we surpassed the previous state record for maximum length (largest female = 93 cm TL)
- Both male (n=27 mean=72.4 ± 31.69) and female (n=60, mean=82.8 ± 27.3) stinkpot turtle were not significantly different in their mass and length (Fig 4).
- Both male (n=17, mean=240.71 ± 138.11) and female (n=14, mean=456.36 ± 243.41) red eared sliders were not significantly different in their mass and length (Fig 4).

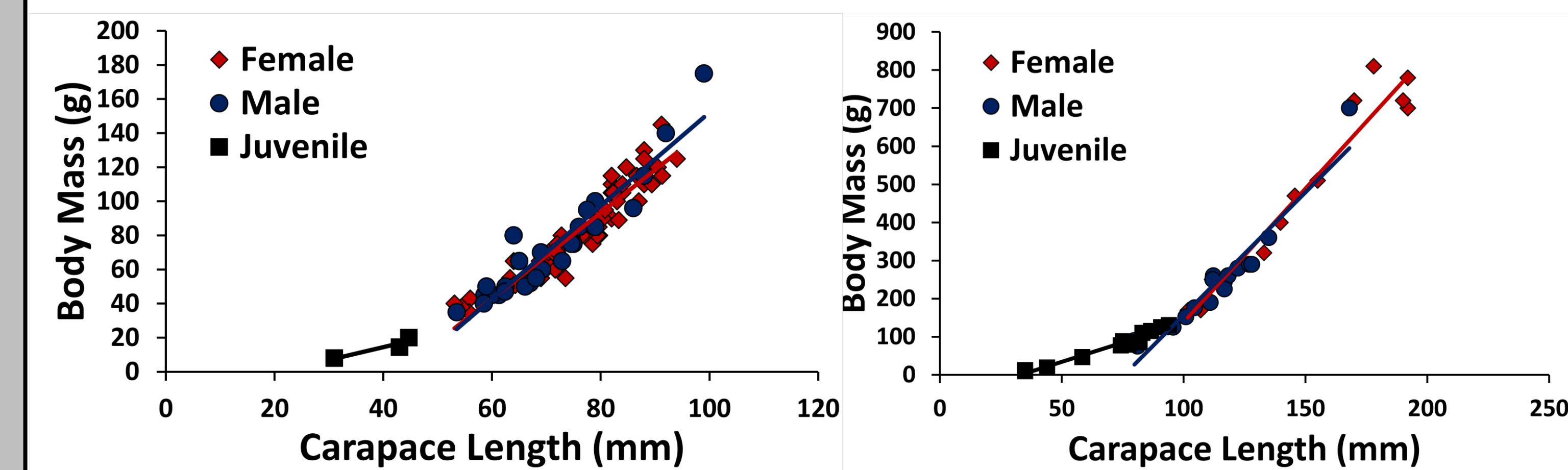


Figure 4. Scatterplots of body mass regressed against carapace length for *S. odoratus* (left) and *T. scripta* (right).

## Conclusions

The species in the area had sparse records for Jasper County.

- There is one record of a diamond back water snake from 1935
- A mention of a stinkpot in a book from 1911
- One record of a crayfish snake in 1906

### 13 species identified

- 174 animals captured and measured
- 51 additional animals sighted and recorded

Before something can even be listed as a threatened or endangered species, we need to get an idea of their abundance over time. Further surveys are needed to continue to gain a better understanding our local biodiversity.

## References and Acknowledgments

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