

The Clear Lake Turtle Project

Introduction:

Western Painted Turtles (*Chrysemys picta bellii*, Gray 1830) are small, omnivorous, habitat generalists. They are semi-aquatic and prefer living in slow-moving water.



Because they are cold-blooded, painted turtles are diurnal and bask on available surfaces. They lay eggs in June to mid-July that hatch in the fall. In Northern latitudes such as here in South Dakota, turtles remain in the nest over the winter and emerge in the spring. Sex-determination in painted turtles is temperature dependent with males being produced at cooler temperatures. Although they are widespread across North America and locally common, they haven't been well-studied in our unique Prairie Pothole ecosystem and long-term studies are not common. We began a long-term population survey in 2009 and plan to continue this work into the foreseeable future. Our initial research questions included:

- How are turtle populations changing over time?
- Are human interactions influencing population dynamics?
- How can we accurately census the population?

Every summer we gain information about how the population is changing over time and also discover new research questions including:

- Do turtle demographics and populations differ between May and June sampling and between Site 1 and Site 2?
- How do turtles utilize and move through their habitat?
- Is there genetic differentiation between Site 1 and Site 2 or between May and June sampling?
- Can we use plastron patterns to identify turtles between years?
- How do short-term weather and long-term climate variables affect the turtle population and our capture probability?
- Is there variation in carotenoid expression between sites or sampling periods?
- Does gene expression vary with reticulate melanism?
- Do hematological values vary with morphological or physiological variables?
- Can we determine hematological reference values?
- What does the parasite load look like in our turtles?
- Do painted turtle tissues contain microplastics?

The location:

We have two sampling sites. Study site 1 is on the SE corner of Clear Lake in the inlet pond from South Red Iron Lake. Study Site 2 is on the N end of Clear Lake in the inlet pond from Long Lake.

Personnel:

Principle Investigators: [Dr. Amy Dolan](#), Northern State University and [Dr. Heather Wayne](#), University of Minnesota Morris

Statistician/Data Analyst: [Dr. Peter Dolan](#), University of Minnesota Morris

Undergraduate Researchers: This is a fantastic project to train the next generation of scientists as it has both lab and field components. So far, approximately 20 undergraduate students have worked with us on different facets of this project.

