

TERRAPENE TIMES



Adopt-A-Turtle Newsletter
January 2022 Volume 2, Issue 1

WASHBURN
UNIVERSITY

Biology Department

Research, education, outreach, & conservation

Trail cameras & potential predators

When Sean K approached me to do research with me I was excited for several reasons. Sean is an avid outdoorsman, hunter, and also is nearly done with his training to be a pilot. Although Sean's interests are more aligned with deer and mammalian carnivores he was still interested in getting research experience with turtles. As it turns out, Sean's knowledge and interests aligned perfectly for a project I was

hoping to begin in the Fall 2021 semester: using trail cameras to assess mammalian diversity and abundance at each of our field sites (x3). Why should turtle biologists care about mammalian diversity? Let's back-track to two other projects. Sally B's project was my first student to work on our pattern recognition archive for Kansas turtles and Jake H later worked on those same pictures to assess shell damage. Turtles are unique in that their shells serve as a historical record of predation events (via tooth marks and scratches), fire (via burned scutes), and altercations with machinery (cars, mowers, plows, tillers, etc.). A recent research article on eastern box turtles (sister species to ornate box turtles) tried correlating shell damage to other characteristics of the turtle, including degree of boldness). The hypothesis would be that bolder, more active, and/or more exploratory animals would be more likely to experience predation attempts and have more run-ins with people, machinery, and potentially fire. Biotic forces, such as predators will leave tooth and scratch marks on turtles; however, it can be difficult to identify the (continued on page 2)



Senior Highlight

Mason C is graduating this Spring semester (2022) and he will be missed by the rest of the WU turtle team. Mason has contributed to a number of research projects, including several he has taken lead roles in. Mason lived at Cedar Point Biological Station (NE) for 6 weeks 33 tracking turtles daily with his research partner Samantha K (see Issue 4 for details on Samantha). Mason, amongst other things, aspires to be a wildlife

photographer. At CPBS, Mason was able to balance collecting data for his research project while also finding the time and energy to get some truly amazing photographs including those of landscapes, sunsets, flowers, and animals. Given Mason's interest in photography, he had an affinity for using pictures for our pattern recognition software project. He's taken and edited hundreds of photos for this archive to date! Congrats on graduating Mason!

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←The Adopt-A-Turtle fund and a WTE helped cover the cost of equipment for this project!

*"ALL HIS SLOW LIFE HE KEPT
HIS SECRET WELL
OF WHAT HE LOVED AND HATED
AND BELIEVED;
IT DIED WITH HIM, AND WE WHOM
HE DECEIVED
INTERROGATE IN VAIN HIS
EMPTY SHELL"
-GEORGE WHALLEY*



A happy mason after finding a <2-year-old box turtle at our new field site! It is always a good sign to find juvenile turtles.

Trail cameras and potential predators continued...

exact species that left those markings on the turtle's shell. To help pinpoint which species are most likely interacting with box turtles at each of our sites Sean and I devised a camera trap project that could be used to confirm which mammalian mesopredators (raccoons, foxes, coyotes, bobcats, badgers, opossums) were at each field site. Sean and I wrote a Washburn Transformation Experience (WTE) grant which helped provide funding for purchasing trail cameras. With these initial funds we were able to purchase 9 cameras and we put three at each site. For three months now Sean has been diligently checking each camera once a week, downloading and resetting the memory cards, swapping batteries, and organizing photos based on camera and location. It's been an amazing amount of time and work for Sean to go to all of these field sites every



week to check the cameras, service them, and organize the pictures but the results have been invaluable in expanding our overall understanding of the ecology of each field site. We've captured one of the most elusive mammals (bobcats) at every field site and we've gotten a badger several times on camera at our northern-most study site. In addition to our predator assessment, we've also gotten birds (turkey, great blue heron), rabbits, and deer (including some massive bucks).

We hope to expand the number of camera traps in use in the future to capture more animal diversity, including purposefully targeting areas where other types of animals (more aquatic based) would be found. We also hope to use trail cameras to monitor turtle nests although this may require higher resolution cameras that are more sensitive to movement. Any old trail cameras laying around? Feel free to donate them to the turtle research cause!

Student Perspective: Samantha Kim Discusses Research

"My name is Samantha Kim, and I am a sophomore biology major at Washburn University. I had the amazing opportunity to learn and research ornate box turtles led by Dr. Reed at Cedar Point Biological Station (CPBS, Nebraska) last summer. At first, I volunteered to help because I found turtles to be cute but during my time at CPBS I learned ornate box turtles had so much more to offer than appearances alone. By tracking the turtles every day using radio telemetry I learned each turtle had

Upload your photos of ornate box turtles and three-toed box turtles here:

<https://forms.gle/XfuRp4q42GBbang>

Right: Samantha Kim finds her first adult male turtle in early June 2021. Samantha was an integral part of the 2021 research team and will continue to be so in 2022.

its own unique personality and it became fun and exciting to see how each individual turtle had their own distinct reactions. Some turtles where docile and were not bothered by my presence while others were more aggressive and would hiss. It then became interesting to see how these personalities translated on their behavioral assay scores. I also became familiarized with patterns and preferences in the area where each turtle preferred to live. By the end of the summer, I felt the turtles had become my friends instead of only a research sample and I gained more respect and appreciation towards wildlife as a result of my research experiences. Researching box turtles also opened many other opportunities including being able to present a poster over the research at the Kansas Herpetology Society conference as well as gaining

valuable experience in research for future endeavors. I am grateful for the opportunities the Adopt-A-Turtle program has afforded me and plan to continue researching ornate box turtles during my studies at Washburn University."

-Samantha Kim



Major Milestone: 101 turtle personalities

By the end of September, the WU turtle research team had successfully completed turtle behavior assays on 101 unique turtles. These turtles were measured for their tendency towards being bold, active, and exploratory in three respective assays. They were assayed in these three assays twice to check for behavior repeatability. Each assay was ten minutes with 6 total trials per turtle resulting in 6,060 total trial minutes or 4.2 days of trials. This was the single largest research project I have ever spear-headed with students. These turtles were assayed from our Nebraska, Iowa, and Kansas populations. Logistically, managing students, food, housing, turtle research protocols, data collection, data synthesis, and analysis were all challenging but well-worth the effort. Ten



In addition to conducting behavior assays all turtles are also weighed, measured, photographed and transmitters removed/replaced/added as necessary. Pictured: Samantha K (L) and Kaylyn H (R).

researchers contributed to the project! From a turtle perspective, how cool is it that we were able to collect and assay 101 turtles? Most people won't see anything close to 101 ornate box turtles in their lifetime and I know people who have written dissertations and master's theses without seeing as many turtles as we got to work with. Not only was the number of turtles so large but so too was

the diversity of turtle personalities and morphological traits we observed. Working with 4 large populations has really provided the students (and myself) an extremely unique perspective into turtle ecology, the impact of the environment on turtle behavior, and more. Our hope is to duplicate and expand our efforts in 2022 by assaying as many of the turtles we did in 2021 (to check for year-to-year repeatability) and by working with new populations as well. Got turtles? Interested in helping with assays? Please contact me! (Contact info on last page)

Unique Box Turtle Behavior

One of my favorite questions I am asked about box turtles is: "What are some cool behaviors you observe while studying them?" Box turtles display a wide range of different behaviors you might not expect, ranging from how they nest, overwinter, capture food, thermoregulate, and even how they walk. In this section I want to

highlight a behavior I observed while hiking in turtle habitat with Dr. John DeLong (director of UNL's Cedar Point Biological Station). We were not tracking turtles, simply walking through the prairie when we came across a dead deer. With my trained eye I spotted just a sliver of turtle shell in the carcass. Upon further

investigation I quickly realized the turtle was eating the dead deer! We can officially add deer to the voracious diet of the ornate box turtle. Ecologically this is important as carrion feeding helps reduce the spread of bacteria and disease, yet another reason to want healthy box turtle populations throughout their range.

Long-time Turtle Expert: Whit Gibbons

Dr. Whit Gibbons is a retired professor formerly of the University of Georgia (UGA) gave the key-note presentation at the Kansas Herpetological Society meetings (Nov 5th thru 7th). According to Dr. Gibbon's website, he has published over 25 herpetology/ecology books and 250 research articles. For any aspiring or current herpetologist, Dr. Whit Gibbons is the gold standard of what it means to be successful. He's well known for his intense support of outreach events, including giving talks at schools and live animal demos to interested schools. I

(Benjamin Reed) have really modeled my early career after Whit. I agree with Whit wholeheartedly the importance of inspiring kids and adults alike to appreciate their natural surroundings (hence newsletters like this one). It was amazing to hear Whit talk about the long-term impacts his outreach has had on students much later in life. Beyond outreach, Whit has been super productive in terms of research and training aspiring herpetologists at both the undergraduate and graduate level. Whit writes a

weekly newsletter called *Ecoviews* for the public about science. These articles are nationally syndicated and picked up by newspapers around the country. For me, it was a life achievement simply to have Whit ask if he could write about our team's research at Washburn for his weekly *Ecoview* article. The article he wrote (published 1/23/22) is linked here: <http://archive-srel.uga.edu/outreach/ecoviews.html>

We're on the Web!

<https://wu-turtle.weebly.com/>

Word Scramble

Can you rearrange the letters to make a word relevant to this newsletter and its topics?

Difficulty: Hard!

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1. LTXUBTEOR (2 words)
2. YOCTEO
3. NIBWIBGHTOS (2 words)
4. NIOVREM
5. HVSYAAAEBRDOI (2 words)
6. EGABDR
7. IASTAMKMHNA (2 words)
8. ARMAIATRCCEL (2 words)
9. OCARNO
10. RMSPDTAEEOR
11. NMOAS
12. SMEANTLIO
13. VCWEEIOIS
14. THAOYN
15. FNCREOEENC

Answers:

1. Box turtle
2. Coyote
3. Whit Gibbons
4. Omnivore
5. Behavior assay
6. Badger
7. Samantha Kim
8. Trail camera
9. Raccoon
10. Mesopredator
11. Mason
12. Milstone
13. Ecoviews
14. Anthony
15. Conference



Fall/Winter 2021 Highlights

These newsletters tend to have lots of text, perhaps too much. Thus, I have created a website (link above) where a collage of photos can be seen on the homepage.

Below is a summary of the WU Turtle Team Fall 2021 highlights:

- 14(!) people affiliated with Washburn University and the Box Turtle Research program attended the Kansas Herpetological Society Meetings at Pittsburg State University November Nov 5th thru 7th.
 - WU Professors Benjamin Reed, Tracy Wagner, Paul Wagner + Coe professor/collaborator Danny Hughes
 - WU Field Station (Karlyle Woods) caretaker Janeen Walters and WU Biology Lab Supervisor Kaylyn Hobelman
 - Seven (!) WU students: Mason C, Samantha K, Chelsea A, Aubrey G, Colin N, Anthony H, Patience W, plus Farah S (Coe College).
- Huge shoutout to Anthony H for winning a poster presentation 2nd place award! He was competing amongst graduate students.
- Benjamin Reed won the Joe and Suzanne Collins award for best photograph of a Kansas Herp (reptile, amphibian, turtle) (picture above). Mason C (WU) won second place in this every-other-year competition! A turtle sweep!
- Sean K, Anthony H, and Mason C earned individual WTE research scholarships! Congrats!

