Terrapene Times

Adopt-A-Turtle Newsletter

June 2022 Volume 2, Issue 2

Research, education, outreach, & conservation

House Bill 2479

Typically, I use the main page to highlight a new or interesting student-led research project happening at the time of writing each newsletter. This time, however, I decided to focus this article a bit more on turtle conservation in celebration of World Turtle Day which just passed (May 23rd).

Kansas House Bill 2479 was a proposed bill to reduce the total number of box turtles a person could legally have in their possession at one time from 5 to 0. I was asked to testify on behalf of the box turtles of Kansas which I happily and proudly did. I even got Twitter famous for 15 minutes (see screenshot on left). The bill was met with fierce opposition as Turtle Races throughout Kansas would be in jeopardy if nobody could legally pick up and possess a box turtle. As currently practiced, turtle races are generally considered terrible for box turtles due to turtles often being mishandled, mistreated, kept as pets afterward and not returned to spot where originally found. All of these factors, plus disease spread, are likely interacting to reduce box turtle populations statewide (and beyond). Those in favor of box turtle races and supporting the collection of turtles from the wild to keep as pets claim that these are great educational experiences that will help convert kids into future herpetologists, conservations, and conscientious voters. While as a teacher myself I agree education is of vital importance. However, it is also vitally important we are always educating our kids in the best possible manner. What are we teaching our kids when we pluck an animal from the wild, claim it as our

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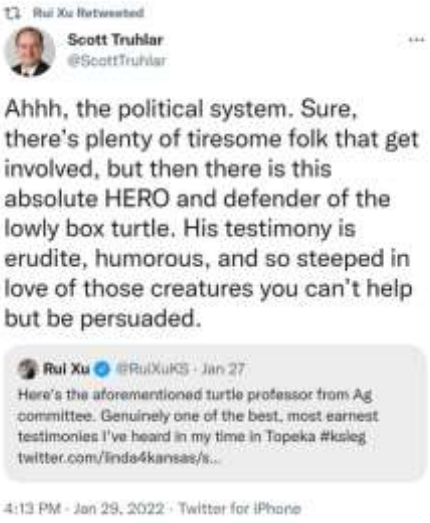

Senior Highlight

Anthony H is graduating this Fall semester (2022) and his leadership and expertise will be sorely missed. Anthony has been an exceptionally hardworking researcher over the past year. Anthony was instrumental in establishing our new North Topeka site last year (2021) and is now a leader of a team of five students working out there this summer (2022). Anthony' presented his first years' worth of research at Kansas Herpetological Society Meetings in Pittsburg, Kansas and got an award for his poster! Anthony's poster presentation focused on the demographics of our new population, as well as the dynamic relationships turtles have with cattle. Anthony is also conducting a project where we swab turtle shells to see if they can be used as a bionidicator of the health of the ecosystem. Today, like many days, Anthony found a new box turtle and I hope he keeps his tradition of creative names alive.

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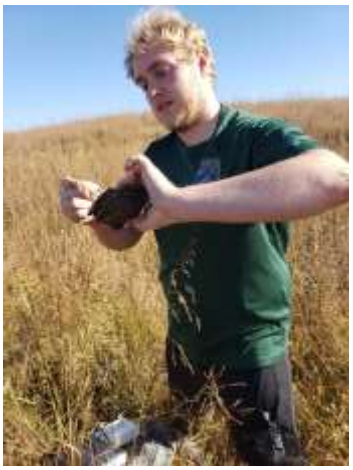
←This House Bill has now been shifted to the KDWP for deliberation.

According to a Persian proverb:

"Contempt penetrates even the shell of the tortoise"

Upload your photos of ornate box turtles and three-toed box turtles here: https://forms.gle/XfuRp4q42GBbanqu5



Anthony swabbing the understand (plastron) of a box turtle for our field assay of microbiota found on the shells of turtles.

HB2479 continued…

own, and keep it in a glass aquarium for only as long as the kid/parent remain interested? What do we learn about the ecology of a box turtle by watching it sit in a box? I firmly believe the best way to educate kids (and adults) is through field observations, hands-on encounters (in the field) or with turtles that can no longer be released back to the field (such as those that are in conservation centers after rehabilitation from a traumatic event). Parents can take children to their local zoo and observe box turtles while simultaneously getting quality information about the specie's ecology, behavior, evolution, and conservation status. Taking an animal from the wild does not make the parent the expert, so who is teaching the kid the specific needs and requirements of the animal?

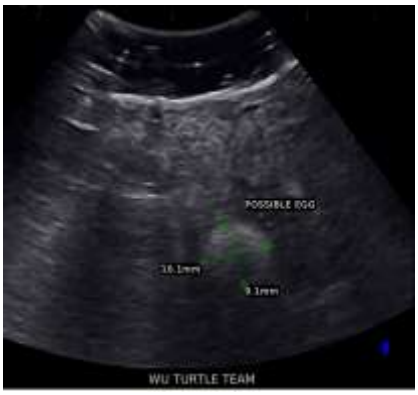
Turtles being held for a turtle race. Photo taken from Turtle Race Task Force group led by Alex Heeb. Conditions during these races can be extremely stressful and dangerous for turtles.

House Bill 2479 was intended to reduce the number of turtles collected from the wild in an effort to stave off (or slow down) population decline in the state of Kansas. Are populations actually declining in the state? All of the AZA accredited zoos in Kansas, in collaboration with myself, are collecting demographic data now to objectively determine if populations are on the decline. However, we know box turtle populations are declining in all surrounding states, so it is not unreasonable to assume that Kansas is not somehow immune to the plight of the box turtle. For now, this bill is intended to help safeguard the box turtle for the future. The Bill's status remains in hiatus, but at least more people are thinking about the plight of the box turtle due to human-induced reasons. I will note that it is clear that a 5 to 0 shift will likely never happen and thus we may have to settle for a 5 to 1 for now. Of course, researchers, educational facilities, rehabilitators, etc, should also have a clause to ensure they are protected by the law as well. I know for certain I will continue to engage in projects and endeavors aimed at turtle conservation beyond just our Turtle Team's research at Washburn University and I hope positive change can be enacted now as later will be too late.

WU Turtle Team Gets Portable Ultrasound!

Sometimes dreams come true, even when most unexpected. Ever since I started teaching and researching at Washburn University I have wanted a portable ultrasound device for use by my lab team. A portable ultrasound is a quick, non-invasive tool for monitoring internal conditions of an animal, particularly whether the animal is egg-bearing or not. From a student development perspective, being able to provide students with an opportunity to use an ultrasound for research would massively augment their CV's for veterinary, medical, and graduate school. As luck would have it, funding became available, my application request was granted, and the lab now has a portable ultrasound to use! This summer, at our CPBS field site in Western Nebraska Katie B, Keaton M, and others will be monitoring turtles and follicular (egg) development for 7 weeks.

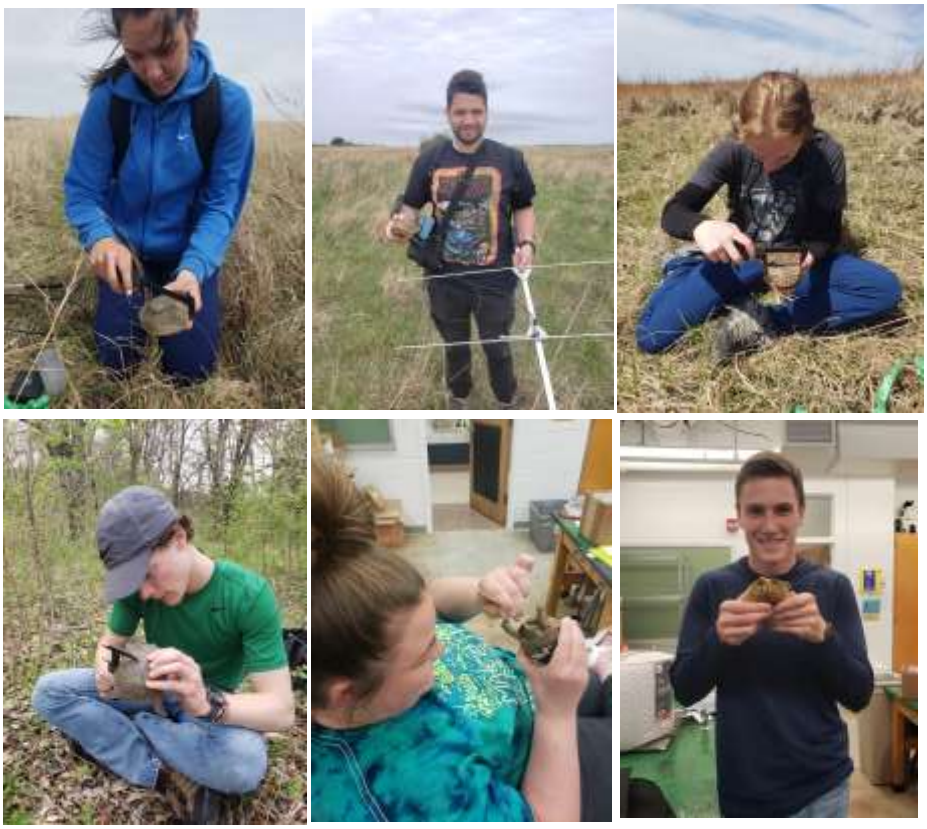
I have seen a similar device (older model) used by my lab mate Abby during my dissertation work under Dr. Gwen Bachman but at the time I was not focused on the reproduction ecology of box turtles and thus my knowledge of ultrasound use was limited. Fortunately, students Katie and Aubrey set up a 2-day hands on seminar with a veterinarian that works for the company we bought the ultrasound from. We had a great time and learned so much about the device, sonography, and interpretation. All of the students even got to find the liver/kidney of Kelty my golden retriever. Now, we have begun ultrasounding candidate turtles as they come into the lab, and we have found at least three turtles with eggs so far! This type of knowledge is useful for a variety of reasons, particularly if we also simultaneously monitor the animal in the field to determine what types of conditions appear best for egg production vs conditions that do not lead to egg development. Targeted individual management and protection of reproductively active males and females will also be essential for effective population management/conservation.



Right: Picture of female turtle with a possible egg using our new ultrasound device.

The Many Faces of the Turtle Research Team

The past two years have been full of major obstacles, trials, and tribulations but the one thing that has remained constant to students at Washburn University is that our box turtles continue to need to be tracked and worked on. This year (2022) I have seen an explosion of students working on turtle projects across all of my field sites and across many sub-disciplines of biology (forensic biology, behavior, ecology, physiology, genetics, cognition, entomology, parasitology, etc). With that in mind, I wanted to first thank all of the donors to the Adopt a Turtle program for your generous donations to help make it possible for me to have enough supplies, equipment, and turtles with transmitters for my team to work with. To the right I am showing you the many new (and some old) faces of the 2022 turtle research team.



Top left to bottom right: Irene SG, Timothy C, Bri W, Keaton M, Abby T, Logan S. These researchers are working at Lawrence, CPBS, and North Topeka, and the lab this summer.

These students highlight just 6 of the 20 plus(!) students working on turtle projects this year. Six students will be living at a field station (CPBS) in western Nebraska for 7 weeks. Five other students are working on projects at our North Topeka field site and three more are working at our Lawrence field site. Another three are focused primarily on lab work directly in my lab while two other students are working on projects in collaboration with other faculty (Dr. Smith, and Dr.'s Wagners). I also have 4 returning students that will be helping/working on projects throughout the summer. Although preparation, training, organizing, and facilitating so many student projects this summer has been well more than a full-time job, I am thrilled there is so much student interest in field ecology and that I am in a position where I can provide these unique experiences to students (and interested community members). Here's to a great and productive field season!

The Other Turtle of Kansas: Three-Toed Box Turtles

Although the state reptile is the Ornate Box turtle that does mean it is the only box turtle of Kansas. Kansas is lucky in that it has not one but two species of box turtles right under our noses! The second species, the three-toed box turtle has undergone so many name changes, taxonomic affiliations, and genetic studies that is no one wonder it sometimes gets lost in the structure. This species (pictured to the right, one in each hand of student Layne) is beautiful counterpart to the ornate box turtle.

On the whole, three-toed box turtles seem much calmer, less aggressive, less active, and less willing to bite at our mouth swabs (to collect DNA) yet they are also much larger and have striking head and leg coloration. Layne, I, and others have seemed to potentially find a hybrid zone, or at least a sympatric zone (overlapping species ranges) of three-toed and ornate box turtles and we are now tracking three-toed box turtles in addition to our regular ornate box turtles. We are excited for the countless doors our new discovery will open!

We're on the Web!

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

Which two turtles below are the same?

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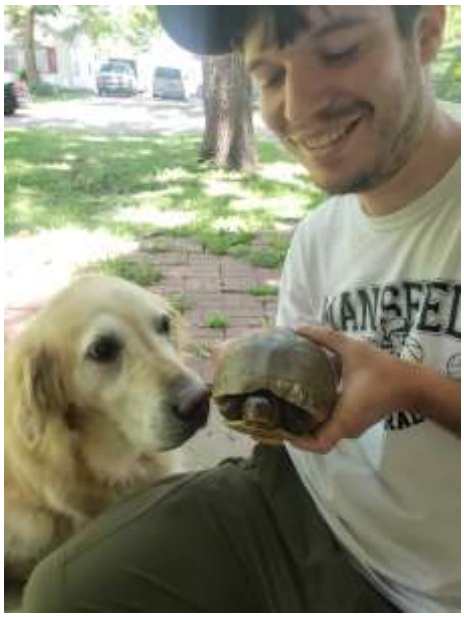
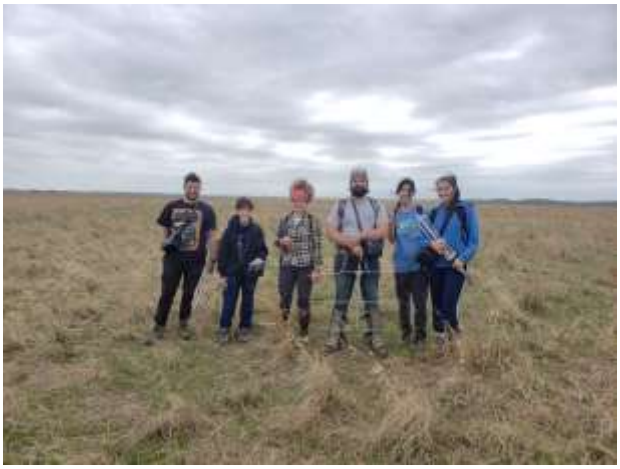


Spring 2022 Highlights

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 Spring 2022 highlights:

- Adopt-A-Turtle Day on Washburn's Annual Day of Giving was a massive success, raising $7,000 for student research. Without these funds, I could not possibly facilitate so many different student projects (see page 3) this summer.
- Kaylyn Hobelman, Daniel Hughes, and Benjamin Reed publish a Journal Note together
    - Focuses on same sex mounting of ornate box turtles, never observed in wild before (same issue had a similar observation for the first time ever in eastern box turtles!)
- 6 students presented at Washburn's Student Research symposium Apeiron
    - Way to go Aubrey, Samantha, Mason, Katie, Sean, and Jaelyn!



- Samuel Wagner, Daniel Hughes, Benjamin Reed (and others) submitted a journal article to the Journal of Herpetology
    - Focuses on the mating phenology (including season) of ornate box turtles
- Dr. Joshua Smith and Benjamin Reed awarded Faculty Major Grant for our joint and ongoing genetic/telemetry project
- Eggs are found using new ultrasound!