

THE PTERANODON

OCTOBER 2023

LATEST NEWS & UPCOMING EVENTS



FORT HAYS STATE UNIVERSITY'S
STERNBERG MUSEUM
OF NATURAL HISTORY



The photos included with this article are just a small sampling of the many displays this exhibit has to offer. It is a remarkable visual and educational experience.



EXPEDITION DINOSAUR EXHIBIT NOW OPEN THROUGH DEC. 21

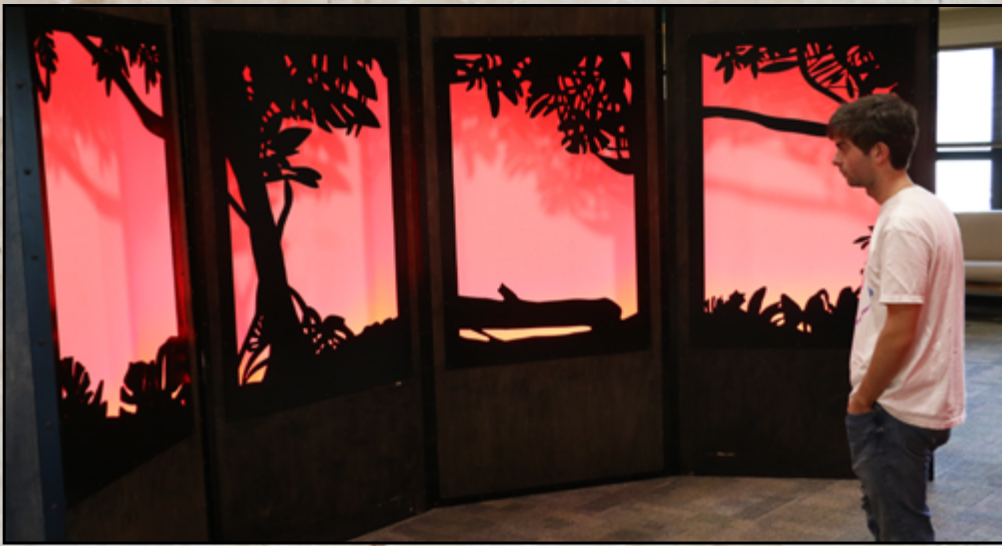


Sternberg visitors will have the opportunity to trek back in time 66 million years and explore the world that dinosaurs once ruled in the museum's upcoming traveling exhibition: "Expedition Dinosaur: Rise of the Mammals."

The exhibit, which is curated by renowned working paleontologist, Thomas Williamson, was created by Stage 9 Exhibits and is distributed by Exhibits Development Group. It is scheduled to open Sept. 29 and close Dec. 21

"I'm extremely enthusiastic about bringing this blockbuster exhibit featuring dinosaurs, the asteroid impact that led to their demise, and the mammals that arose from the extinction event to dominate the earth," said Reese Barrick, Sternberg Museum director.

The exhibition combines prehistoric reptiles with an interactive educational experience for visitors of all ages. It turns the



clock back to the Cretaceous Period, 66 million years ago, when dinosaurs ruled the Earth and explains how mammals evolved to become the dominant species after the downfall of the dinosaur era.

Featuring life-size and lifelike animatronic dinosaurs and mammals with realistic movements and sound, museum goers will have the opportunity to venture into the time when some of the most iconic dinosaurs ruled the Earth: Tyrannosaurus Rex, Triceratops, Edmontosaurus, Ankylosaurus, Pachycephalosaurus, and the curious oviraptor-saur Anzu. Giant Pterosaurs flew through the skies with 40-foot wing spans and marine lizards such as the plesiosaurs thrived in the oceans.

In addition to standing face-to-face with life-sized dinosaurs and prehistoric mammals, visitors will have the opportunity to have their picture taken in the jaws of a T-Rex and study fossils that are as many as 300 million years old.

Young paleontologists-in-training will hone their budding archeology skills by extracting dinosaur bones from a fossil dig pit.

Included in the nearly 6,000 square-foot exhibition

- Dinosaur fossil hunters' Jeep truck and tools
- Interactive Dinosaur draw and animation station
- Ten (10) full-motion, animatronic dinosaurs and mammals with realistic movements & sounds
- Full size T-Rex skull replica
- Geology interactive with augmented reality sand play
- Large Dinosaur mouth photo op
- Day of the Event Comet Puzzle
- Video fossil scanning station with interactive display.
- A Dinosaur fossil dig.

STAR WARS DAY BIG SUCCESS

418 people
attend day's
activities

Star Wars Day at the Museum on Sept. 9 turned out to be a big success as 418 people attended the day's activities.

"It was a really cool team effort and that's the big reason it was successful," said Ian Trevethan, Sternberg education outreach director and organizer of the event. "I was hoping for 500 people, and we got pretty close to that. On average on a good day, we might get 150 people through the doors, so we were able to bring our monthly numbers up, which is great. That's the entire point – to get people through the door and get them excited about coming to Sternberg Museum."

Taking place throughout the day was the appearance of several Star Wars characters from the 501st Star Wars Rebel Legion of Kansas City.

"We had a Darth Vader. We had a couple of troopers. We had a couple of pilots," Trevethan said. "I was a clone trooper for part of the afternoon."

The Zoology of Star Wars took place throughout the museum, as did a Star Wars Creature Hunt. Star Wars collectibles were also on display in the lobby.

Jake Mishoulam, outreach coordinator at Hays Public Library presented a Jedi Academy in the lobby in the morning and again in the afternoon.

"Jake was a graduate student within the geosciences area and his focus was our museum education program, so he worked with me very closely," Trevethan said. "I knew he had done a Jedi Academy at the library earlier this year and it was well attended, so I asked him to do another at the museum. He's



really good with kids and he plays the part well.”

Dr. Laura Wilson and her students were also on hand to present a morning and afternoon demonstration of species named for Star Wars characters and actors in the museum gallery. Visitors also had the opportunity to create origami in the Expeditions classroom in the morning and Star Wars character masks in the afternoon. A costume contest for the kids was also among the activities.

“It really was a huge group effort,” Trevethan said. “We had a bunch of volunteers, lots of students, and of course, the staff here. I think people had a good time. I’m certain that the guys in costume had a good time. I think everybody who participated in the activities had a good time. Overall, I was very pleased with the outcome.”

**STAR WARS DAY
AT THE MUSEUM**

10:00am: OPENING

10:00am – Noon: Star Wars Species – in the Gallery by the Paleo Lab

10:00am – Noon: Origami – in the Expeditions Classroom

11:00am: Jedi Academy – presented by the Hays Public Library - in the Lobby

1:00pm: Childrens’ Costume Contest - Lobby

2:00 – 4:00pm: Star Wars Species – in the Gallery by the Paleo Lab

2:00 – 4:00pm: Star Wars Character Masks – in the Expedition Classroom

2:00pm – Jedi Academy – presented by Hays Public Library - in the Lobby

ALL DAY

- 501st Star Wars Rebel Legion – 2nd floor and throughout the Museum
- Zoology of Star Wars – throughout the Museum
- Star Wars Creature Hunt – throughout the Museum
- Collectibles on Display - Lobby



Visitors take part in a Jedi Academy, which was presented by the Hays Public Library. It was offered twice during the day.



TOP: Hannah Trevethan, daughter of education and outreach director Ian Trevethan, came dressed as Ahsoka Sano, Ahsoka Tano was introduced in the 2008 Clone Wars animated film (serving as a pilot for the television series of the same name) as a 14-year-old Padawan apprentice, assigned by Yoda to Anakin Skywalker to teach him responsibility.

ABOVE: Costume contest participants line up with guest Star Wars characters.

PALEONTOLOGY CHIEF

As chief curator, Dr. Laura Wilson is involved in multiple areas of the museum, including research, collections, education, outreach and exhibit projects

While the title of chief curator might indicate it comes with specific job responsibilities, that simply isn't the case for Dr. Laura Wilson.

In fact, the opposite is true. Wilson's duties as chief curator involves a wide variety of responsibilities, and she wouldn't have any other way.

"My favorite thing is getting to be a part of so many different things in a museum," she said. "I enjoy working with the collections and the collection staff and getting to collaborate on education, outreach and exhibit projects, rather than just to being a researcher. I also get to work with young people and develop their minds and get them excited about what they are doing. The other thing I appreciate about the museum is the non-traditional, non-classroom based education. I enjoy working

K through 12 audiences and I enjoy getting to talk to adults in an academic, non-classroom setting. Yes, I do traditional things like lecturing and lab and readings and seminars and discussions, but then, I also get the hands-on exploratory."

Wilson, who joined Sternberg's staff in 2012, received her M.S. from Montana State University (2006) and her Ph.D. from the University of Colorado, Boulder (2012).

Her research focuses on reconstructing ecosystems from Cretaceous Western Interior Seaway, with a particular interest in using bone histology to study vertebrate paleobiology.

The position of curator, Wilson explained, depends on the type of museum and/or the size of the museum.

"Many times, it is a research role, so you're doing or facilitating primary research, and I do that as part of my responsibilities," she said. "I also oversee collections care. We have collection managers and undergrad and graduate student employees who might be doing more the day-to-day hands on, such as care and archiving of

data of the physical specimens."

Wilson also is heavily involved in grant writing to help pay for student labor as well as archival supplies. Student mentorship is also a large part of her responsibilities, which goes hand-in-hand with her teaching responsibilities at Fort Hays State University. Here, she teaches half time in the Department of Geosciences; the other half serving as curator of Sternberg.

"I work directly with graduate students as their main supervisor and work to provide professional development opportunities to all of our students who have an interest in paleontology specifically, but also collections and museum work in general," Wilson said. "There are also a couple of education outreach events, like National Fossil Day and Darwin Day, that I oversee specifically,

but I get to help out with things that the education team might be doing. I also get to work with exhibits by helping provide content or access to specimens."

It's important to note that Sternberg Museum is comprised of two distinct but related areas. The majority of museum patrons are familiar with the exhibit area, which includes the extensive fossil collection along with the live animals. The other area is devoted to research collections,

which are located in the lower level of the museum and not accessible to the public.

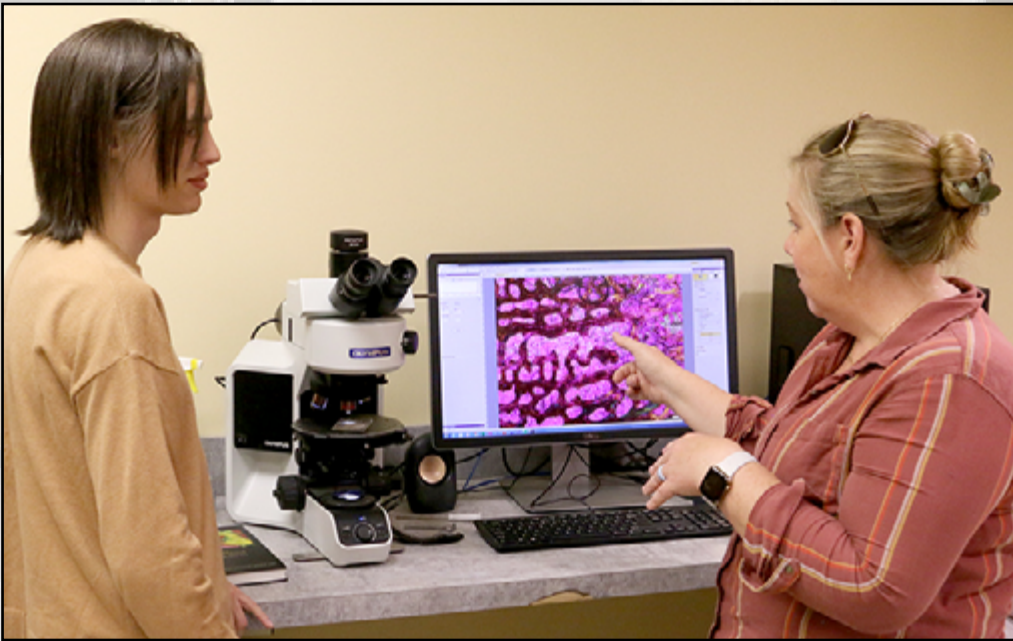
The research collections contain thousands of zoology and paleontology specimens that benefit researchers from throughout the world.

Wilson oversees the vertebrate paleontology and the invertebrate paleontology collections, which she says contains around 25,000 specimen or lot numbers.

"One lot number might be a complete animal that has hundreds of bones," she explained. "And another might



Sternberg Museum Chief Curator Dr. Laura Wilson



Graduate student Carson Cope and Dr. Laura Wilson look at a thin section through a fossil sea turtle bone to better understand how they grew and lived their lives. The computer is connected to a microscope so that they can view and photograph the bone under magnification.

be one specimen number for a jar of shark's teeth that are all from the same species. So, in terms of individual elements, we have hundreds of thousands, but we have about 25,000 that we've given unique identifying numbers."

The collections in general enable scientists to monitor present and past biodiversity. Sternberg Museum specifically focuses on the Great Plains region.

"It gives us a sampling of what we have now and what we've had in the past," Wilson said. "It provides an understanding how modern ecosystems work and how ancient ecosystems worked, which helps us preserve what we have today and into the future.

"That's essentially the main part of a research collection. For example, you wouldn't go study one human and think that individual is a representation of the entire species. Thus, we like to have multiple examples of a single species so that we can see the diversity within that particular species."

Wilson said the collections not only provide research value but also are used for the exhibit area of the museum and for educational and outreach events.

"So, there's the educational value as well, which is just as important if not more important than the primary research," she said. "We try to reach as large of an audience as possible and share what we have in the collection."

Not only are the collections beneficial to area patrons, the museum also hosts research visitors from around the world.

"Since I've been here, we've had researchers from Brazil, Germany, England, Mexico, Canada, Japan and China, and that's just off the top of my head," Wilson said. "They come to see the specimens in person, to take measurements, and make observations. We definitely have a worldwide draw for the fossils that we have in our

collection, which for the most part, are fossils found in western Kansas."

Wilson said having a high caliber museum like Sternberg associated with the university the size of Fort Hays is unique and beneficial to western Kansas.

"Having a resource like the Sternberg here in western Kansas in a more rural part of the state and part of the country is hugely important for science, education and outreach and development of science, technology, engineering and mathematics skills within the within the area," Wilson said. "We are very fortunate to have Sternberg here because university museum are often times located at larger universities.

"The University of Kansas, for example, also has great collections and they have tons of curators who mostly do research because they are at a big research university. They tend to be more visible because of their size and their ability to publish their research. We do research here, but we are largely a teaching institution so more of our time goes into classroom and student support."

Part of that educational support goes beyond traditional college students looking for careers in geology or paleontology.

"We use a lot of our resources for the summer camp program, which is second or third grade through high school," Wilson said. "So, we definitely hit a lot of those K through 12 targets during the summer through the camp program.

"I also have had a lot of Fort Hays students, both undergrad and graduate students, that have opportunities to work as volunteers or who get paid in collections and in the prep lab. Some of them want to go into museum work after their undergraduate or graduate studies, so that's giving them hands on training. They understand what happens in a museum, they've been a part of research projects. Those are huge things."



Hays Public Library outreach coordinator Jake Mishoulam stands amongst the many books in the library's book mobile.

From One Collection To Another

Jake Mishoulam applies skills learned at Sternberg at Hays Public Library

As Jake Mishoulam reflected on the skills he acquired at Sternberg Museum and how they apply to his job as outreach coordinator at Hays Public Library, he noted something museum director Reese Barrick recently told him: “What’s a library, but a book museum? And what’s a museum? But an artifact library?”

“Being that I was here for so many years and I have this museum training, I’m able to regard my collection of books a little differently,” Mishoulam said. “I do regard it almost like a collection, like a museum collection. And so, I care for them in a in a different way and regard them more specially, and have this mentality of yes, we protect the books, but we also need to make sure that they’re accessible, which is a big deal in libraries, making sure that everybody can access anything at any given time.”

Mishoulam took on the job of outreach coordinator at the library after working as a graduate student at the

museum and completing its museum studies curriculum. While completing coursework, he worked closely with exhibits director Greg Walters and education and outreach director Ian Trevethan.

“With Greg, I learned how to present things in certain ways, which has really helped me with when I go out to events, and I have things to set up. I still have this mentality that Greg has given me that if I set things up properly, then I can have the proper flow that I need for people to get around and actually find what they want. So really, everybody that I worked with and under has given me something that I’m still able to continue to take with me and build upon to make my outreach for the library better.”

A California native, Mishoulam first came to Hays in 2018 to enter graduate school at Fort Hays State University. He earned an undergraduate degree at the South

Dakota School of Mines and Technology in Rapid City in 2016. After graduation, he worked at the Mammoth Site in Hot Springs, S.D., for a year before coming to Hays.

"I had worked with previous grad students that recommended the program to me and I initially wanted to research on mosasaurs, but when I got here and started with Reese, I decided to focus more on education."

Upon arriving in Hays, Barrick was his grad adviser and he worked at Sternberg while attending graduate school.

"I worked under him and Greg in developing a traveling exhibit that is still under construction due to COVID pushing everything back," he said. "I worked under Greg for a while as exhibits assistant and I helped put together exhibits and do maintenance. I then started taking all of the museum studies courses."

After completing his museum certificate, he transitioned from the exhibits area and started working with Trevethan as education and outreach assistant.

"We would go and do programs all across the state," Mishoulam said. "We would go to conventions and conferences, and I helped him design and build several of his programs literally from the ground up."

Upon graduation from FHSU in 2020, COVID struck and Mishoulam found himself unemployed for the next two years. He returned home to California but kept in contact with Barrick via periodic Zoom calls.

In May of 2022, he was offered a temporary summer position at the museum to help with the "In Search of Earth's Secrets" exhibit.

"I kind of slipped back into my role as Ian's assistant, and after a while, Ian decided to give me more responsibilities," Mishoulam said. "And so, he let me take over the education and outreach events and doing the programming while he was able to stay back and manage the scheduling and the paperwork. So, we were to divide the work and that worked really well, and it gave me a great opportunity to be able to kind of build myself up a little bit."

In June of 2022, while moving an exhibit into the library, one of the employees informed him that its outreach coordinator had just left and that he should apply. In July he began working at the library on a half-time basis while finishing up work at the museum. In August of 2022, he began working full-time at the library.

"I was originally only supposed to be in Kansas for three months for the temporary museum job and that was 16 months ago," he said. "And I'm still here and I have no regrets. I really enjoy my job. And now that I have spent a year here and become more comfortable with my position, I can see all of the different things that I've done at Sternberg and how they translate to the library."

As outreach coordinator, Mishoulam said one of his biggest responsibilities in the library's bookmobile,

"It's basically a mobile library," he said. "I have the responsibility of deciding where it goes and what kind of programs it's involve in. And since being with Ian and going from place to place and city to city, I kind of have this mentality of okay, when I go somewhere, what can I bring? What kind of service can I offer that makes people want me to come back? So, I'm trying to make it more than just the mobile library. I want it to be something that people actively want to see."

Mishoulam has also started doing several educational programs and community events at which participants can have fun while learning a few things along the way.

"I picked that up from both Ian and Reese – that we are here to learn but also have fun. But sometimes you have to trick people into learning things whether they know it or not."

In addition to library activities, Jake continues to volunteer at the museum by offering library resources such as the bookmobile as well as participating in Star Wars Day and the very popular Snake Day.

"Yes, Snake Day is incredibly successful at the library," he said. "I did it for the first time as a student while I was working at Sternberg. Being that a I had already done it from the museum side and because I was one of the only members of the library staff who was very comfortable with snakes, I was put in charge of that program."

While the museum and the university has provided the foundation for his present employment, Mishoulam said there's another important aspect that keeps him in Hays.

"For me a place is its people," he said. "While I miss mountains and the ocean, I am happy here because I'm surrounded by people who I enjoy."



Mishoulam leads a Jedi Academy at the museum's Star Wars Day.

CONTORTRO...WHAT?!?

Copperheads & cancer: Protein found in venom found to halt breast cancer progression

by Jackson Roberts, PHD
Sternberg Museum Zoology Collections Manager

October is here. For many of us (me included), we have already had more than enough pumpkin flavored beverages for three lifetimes. The start of October also begins the start of Breast Cancer Awareness month.

My family and I have been in Hays now for little over a month, and we love this town, the Sternberg, and the people.

What most do not know is that one week after accepting my dream job as the Zoology Collections Manager of the Sternberg Museum last October, my amazing wife was diagnosed with breast cancer.

She has been braving cancer treatment for a year and has entered her last phase of active treatment (YAY!!!). Many of you may be reading this and asking, “Why is this in our Sternberg newsletter?”

Well, my family and I hate breast cancer, we love snakes, and one of our amazing live snake specimens here at the Sternberg embodies both these sentiments.

Meet Copper the Copperhead (*Agkistrodon contortrix*). Copper can be found living a comfortable life on the third floor at the Sternberg in the Discovery Room. Copperheads are found in the eastern third of Kansas, and outside the state they are found south down to the Texas coast, and eastward to the Atlantic coast and north through the Northeastern United States.

Copperheads exhibit fascinating behaviors and morphology; juveniles love to eat cicadas, they are masters of camouflage, and visually they are stunning animals with an almost velvet appearance to their back scales.

However, in this month of October, I want to talk about a special protein in Copperhead venom: contortrostatin. This protein is a type of disintegrin (a type of protein found in viper venom) that has been shown to halt breast cancer progression and metastasis.

In 2000, Qing Zhou and colleagues at the Keck School

of Medicine and Norris Comprehensive Cancer Center at University of Southern California reported for the first time that contortrostatin from the Copperhead, *A. contortrix*, administered daily to lab mice with breast cancer inhibited the growth of primary tumors, reduced the numbers of both lung metastases from the primary tumor and micro-metastases to other parts of the body¹. In addition, contortrostatin inhibits a process called angiogenesis in breast cancer, which is the process that tumor cells use to create new blood cell “highways” to spread cancer cells.

Copper the Copperhead is not the only snake with venom that is leading to promising new cancer treatments. To date, the venoms of the Brazilian Whitetail Lancehead (*Bothrops leucurus*), the Blunt-Nosed Viper of North Africa

(*Macrovipera lebetinus*), the Siberian Pitviper (*Gloydius halys*), the European Viper (*Vipera berus*), the Indian Cobra (*Naja naja*), the Chinese Bamboo Pitviper (*Trimeresurus stejnegeri*), and the Western Diamondback Rattlesnake (*Crotalus atrox* – which we also have here at the Sternberg Museum!) have all shown promising antitumor and cancer-fighting abilities².

It is amazing how much we still need to learn from these amaz-

ing animals. And I do not mean what we still don't know about their behavior, natural history, or evolution. We are learning new things annually about these misunderstood venomous animals that will directly save human lives.

The next time you or a loved one hear, “Only good snake is a dead snake” or that “Venomous snakes are bad snakes,” I ask that you take a second to remind them that these animals deserve respect for their role in our ecosystems, and their new roles in human health.

If you have any more questions or just want to talk snakes, please come on by the Sternberg Museum and say hello!

References:

1. Zhou, Qing, et al. “Contortrostatin, a dimeric disintegrin from *contortrix contortrix*, inhibits breast cancer progression.” *Breast cancer research and treatment* 61 (2000): 249-259.
2. Li, Li, Jianzhong Huang, and Yao Lin. “Snake venoms in cancer therapy: past, present and future.” *Toxins* 10.9 (2018): 346.



VOLUNTEER SPOTLIGHT

*Rose Windholz, Malachi Chance
- Animal Care & Discovery Room*

Taking care of the approximately 100 animals at Sternberg is a big job. That's why naturalist Alicia Gaede is thankful for the help of student volunteers, including two high school students Rose Windholz and Malachi Chance.

The two volunteers, along with other part-time employees, assist Gaede with feeding, cleaning and maintenance of the museum's four aquariums. In addition, volunteers help raise the insects and mice that are fed to the animals.

Windholz, who attends Hays High School, said she works several days a week during the summer, but is more limited during the school year, primarily working birthday party events.

She indicated she wants to work in the biology field, and Sternberg "gives me the perfect opportunity to learn more about the animals I may work with in the future."

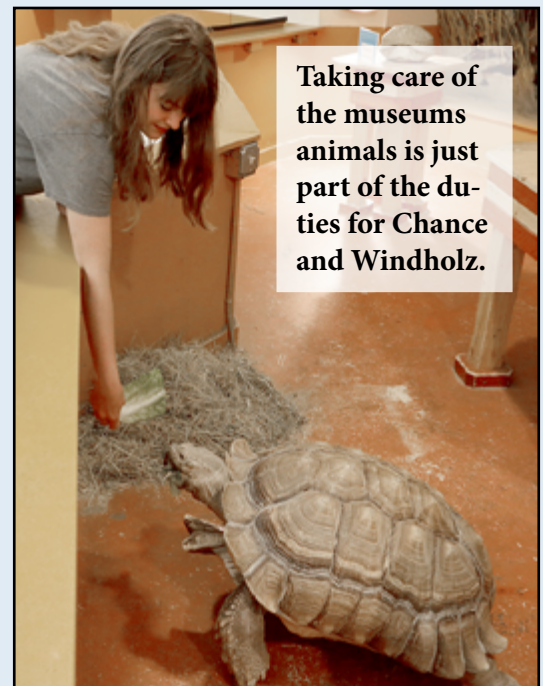
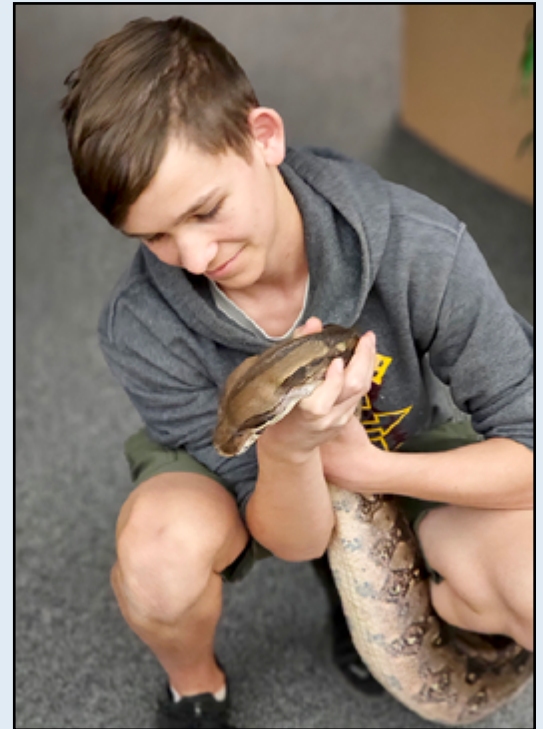
Windholz has volunteered at the museum for approximately four years.

"Volunteering here is a very fun experience, and I hope to continue it," she said.

Chance is also a Hays High School student who volunteers approximately 20-25 hours a week in the summer and for special events during the school year.

He said he has been volunteering since 2012.

"I volunteer because animals are great and I have amazing co-workers," he said.



Rose Windholz looks after the mice while Chance takes care of the crickets that are fed to the animals in the museum.





WARNING



**YOU MAY BE
INFECTED!**

**FOR YOUR SAFETY PLEASE REPORT
TO THE STERNBERG MUSEUM!**

**SURVIVE THE ZOMBIE OUTBREAK IN STYLE WITH GAMES,
SNACKS, AND OUR ANIMALS!**

QUARANTINE INSTRUCTIONS

MONDAY OCTOBER 30TH, 2023

3:00P.M. - 6:00P.M.

COST: \$10 FOR ADULTS, \$7 FOR KIDS

KIDS 3 AND YOUNGER ARE FREE

KIDS MUST BE ACCOMPANIED BY AN ADULT



FOR INFORMATION CONTACT: 785-628-4286 • sternberg.fhsu.edu

**FORT HAYS STATE UNIVERSITY'S
STERNBERG MUSEUM
OF NATURAL HISTORY**

