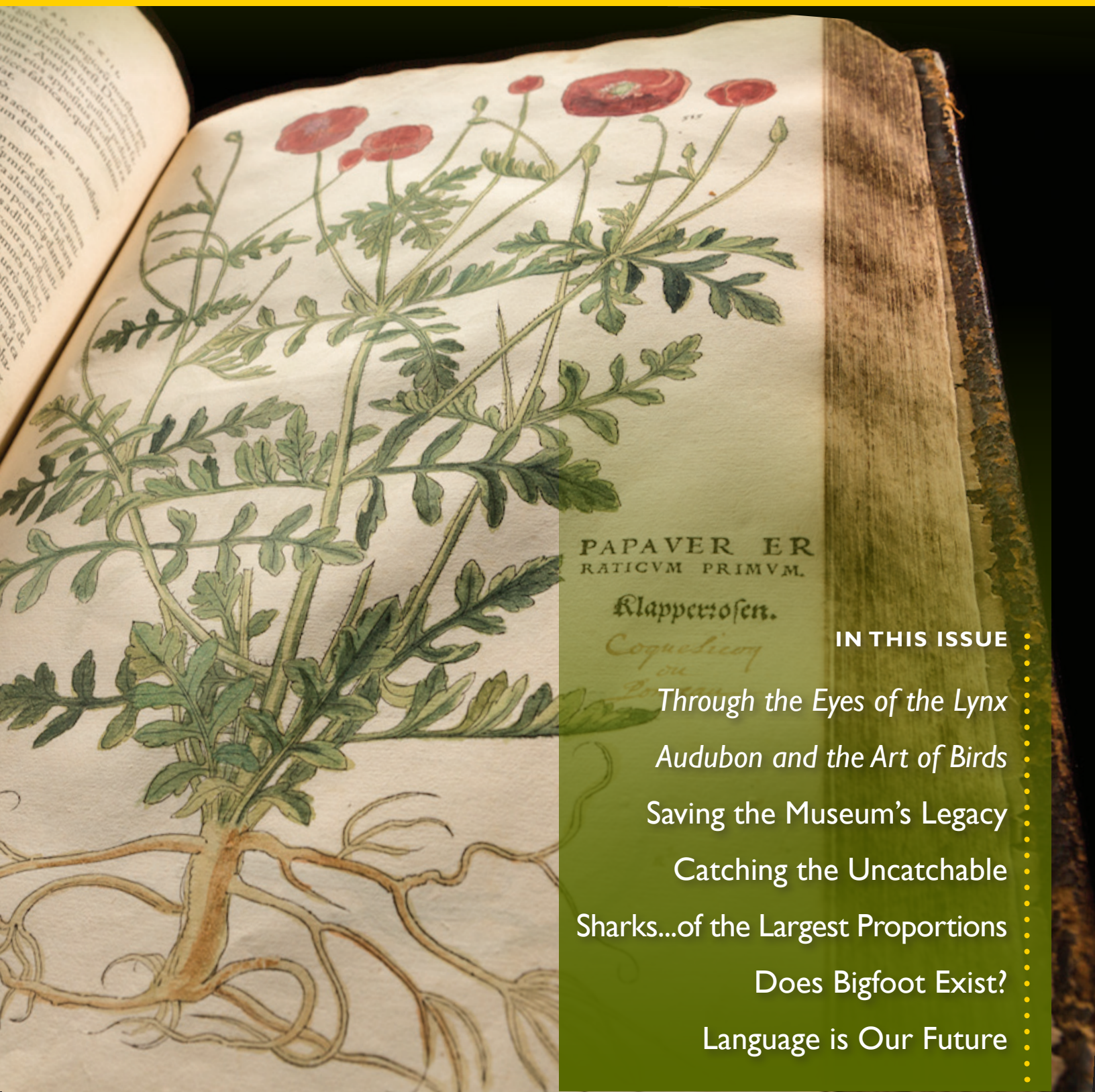
Sam Noble Museum

Tracks

Summer 2015 Newsletter Vol. 27, No. 2



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OUR MISSION

The Sam Noble Museum at the University of Oklahoma inspires minds to understand the world through collection-based research, interpretation and education.

OUR VISION

As one of the finest museums, we are at the heart of our community, collectively working to inspire understanding, appreciation and stewardship of the earth and its peoples.

TRACKS

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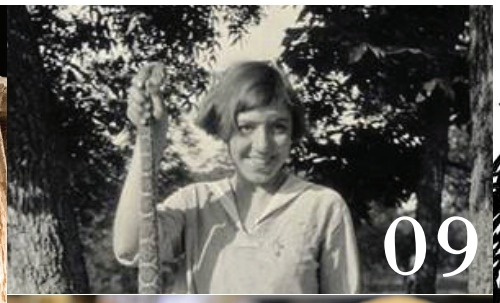
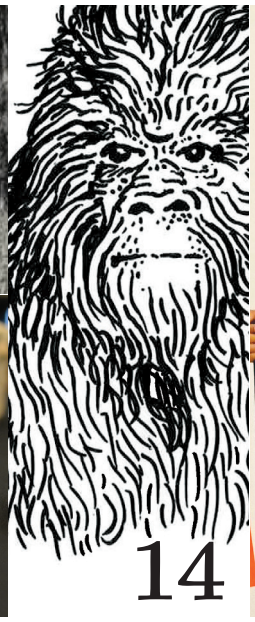




FEATURES AND DEPARTMENTS

ON THE FRONT AND BACK COVERS:

Leonhart Fuchs, De historia stirpium (Basel, 1542;"Natural History of Plants").

Thanks to our 2015 Corporate Sponsors: Love's Travel Stops and Country Stores, Sonic, America's Drive In, OKGazette, OK Bride, Arvest Bank, Republic Bank & Trust, 2GreenChicks, VisitNorman and Banc*First*.

From the Director

I recently attended a museum conference in Sydney, Australia, with colleagues from England, Canada, New Zealand, Australia and the United States. Australia is attempting to increase the scale and scope of services offered by its museums to their communities. The Sam Noble Museum's 2014 National Medal was news in Australia. The world of natural history museums is not large, even on a global scale, so I was asked to tell our story to the meeting of Australia's museums. They may pattern some of their museum development strategies and programs after what we accomplished in Oklahoma.

The development of the Sam Noble Museum has been an important story in many countries. I have discussed it with people from Portugal, England, Lithuania, Australia, Belgium, Finland, Russia, Ireland, Spain, Mexico, Brazil and Argentina. Ours is one of the great success stories told by museum people. The most frequent comment I hear is, "If Oklahoma can do this, why can't we?"

In so many places I see museums under threat, just as we were decades ago. Administrators and politicians question the value of collections, museum research, educational programs or outreach. Many have no sense of heritage, only a bottom line sense of money saved or money earned. It is a sad commentary on our supposed leaders. As Wordsworth wrote:

The world is too much with us; late and soon,
Getting and spending, we lay waste our powers;
Little we see in Nature that is ours;
We have given our hearts away, a sordid boon!

Our story has special significance in part because Oklahoma is one of the more economically challenged states in the nation. With the help of the people of Oklahoma, we saved our cultural and scientific heritage and now we share those treasures with everyone. Last year, scientists from more than 60 nations used our online data to help them conduct research. Our curators' publications are used throughout the world to buttress ongoing scientific studies. Each year we host dozens of visitors from throughout the world who come to Oklahoma specifically to work on materials and specimens in the collections. The Sam Noble Museum contributes on so many fronts, from education of college students to education of all the people

Above: Sydney Australia's Town Hall, location for the 2015 Museums Australia National Conference.

of the state. I believe that the museum makes Oklahoma a better place to live, a more cultured state, a place with people who are more informed about the cultural and scientific world.

Since Jan. 1, we have welcomed 74,620 visitors to the museum. Spring is the busiest time of year with spring break, school field trips, Volunteer Appreciation Week, the annual Board of Visitors meeting and the Oklahoma Native American Youth Language Fair. At the board meeting, we said goodbye to some very dedicated members – Lars Noble, Eric Sherburn and Carolyn Taylor. I greatly appreciate their time, energy and dedication. You can read about new board members in this issue.

In September I will be attending the World Heritage celebration of museums in Dubrovnik, Croatia. More than 50 winners of their particular national medals for museums will be in attendance at this UNESCO World Heritage site. The Sam Noble Museum was selected to be one of the top presentations made to this global gathering. We have come a long way from having the precious collections stored in crumbling buildings in Tornado Alley to representing the United States at a celebration of world culture and heritage. We could not have done this without your support, for which we are eternally grateful.

I hope you are proud of your museum and will make it a point to visit us this summer.

M. Mares

Michael A. Mares, Ph.D.
Director

Volunteer of the Year

BY ELYSSA MANN, PUBLIC RELATIONS

Ron Hayes is a world traveler, a veteran of the Vietnam War and, in a recent ceremony sponsored by Arvest Bank, named the recipient of the Sam Noble Museum's 2015 Tom Siegenthaler Volunteer of the Year Award.

Hayes' contributions to the museum are invaluable and began after retirement, when his natural curiosity led him to volunteer with the museum.

"It was an opportunity to stay involved with something and a constant learning experience," Hayes said. "I don't think a day goes by where I don't learn something new."

Hayes has been volunteering with the museum since January 2012, when he started as a docent in the galleries — specifically the Hall of the People of Oklahoma gallery. For the past two years he has moved on to work with the herpetology department and, thanks to his background with Moore Public Schools as a network administrator, the information technology department. Since his start in 2012, Hayes has contributed 906 hours of time to the museum.

When it came to his work in the galleries, Hayes loved the ability to interact with the public.

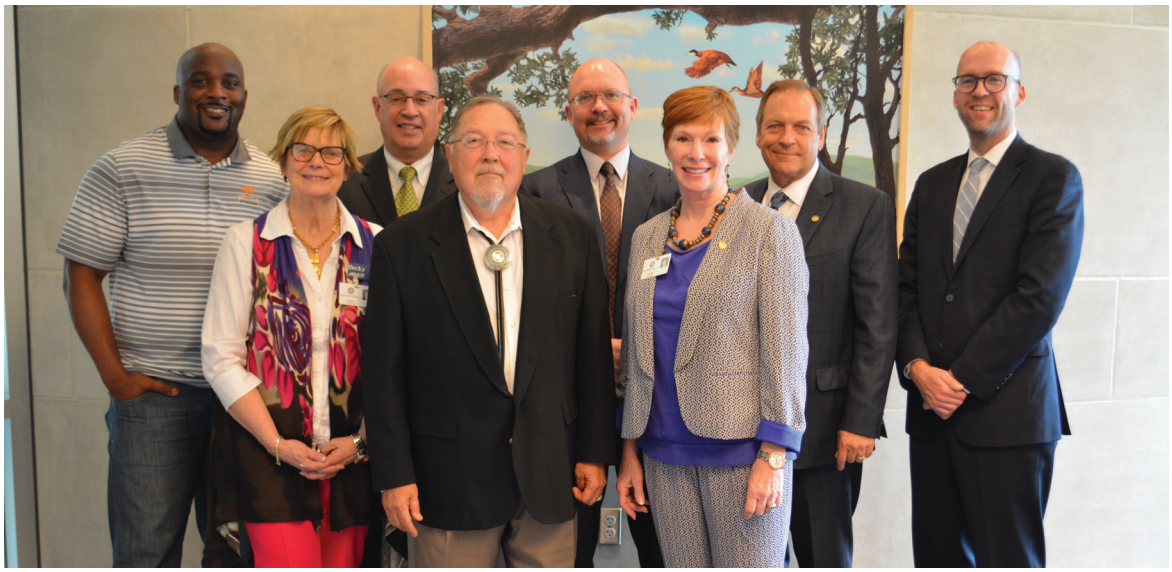
"It was enjoyable to come in and tell individuals about the museum and to have them tell you stories in return," he said.

Now that he mostly works with the herpetology department and IT, Hayes has had the opportunity to indulge in the curiosity that first drew him to volunteering at the museum by digitizing field notes from past expeditions. He's acted as an artifact detective. He's currently working on field journals that catalogue an expedition up a river in Brazil for the herpetology department and recently had a hand in getting the new website up and off the ground. The "Publications" sections of the new museum website were all meticulously curated by Hayes.

Above: Ron Hayes, 2015 Volunteer of the Year.

During his service in the Navy during the Vietnam War, Hayes had the opportunity to travel to Australia, New Zealand, Japan, Vietnam, Korea, the Philippines, Tasmania and Tahiti. He worked for TG&Y, a national variety store chain. He's lived in Norman for the past 22 years and has two daughters and five grandchildren.

The museum is honored to have Hayes as one of its volunteers and is grateful for his, and all volunteers', donation of time and energy to the Sam Noble Museum.



From left to right: Roy Williams, Becky Franklin, Ross Kirtley, museum director Michael Mares, Tim Munson, Elaine Hobson, David Nimmo and Jonathan Fowler.

Museum Welcomes New Board of Visitors

The Sam Noble Museum recently welcomed four new members – Ross Kirtley, Tim Munson, David Nimmo and returning member, Reggie Whitten, to its 15-member Board of Visitors.

BOV members are appointed by President David L. Boren. Each serves a term of three years and may serve up to two consecutive terms before cycling off. Current BOV members are: Jonathan Fowler (chair), Mary Beth Babcock, Bill Cameron, Kevin Easley, Gary England, Becky Franklin, Taylor Hanson, Elaine Hobson, Ross Kirtley, Xavier Neira, David Nimmo, Tim Munson, Reggie Whitten, Roy Williams and Zane Woods.

Each member brings a different mix of skills and experience. They play four roles:

Ambassadors: Board members represent the museum in their communities.

Sponsors: Board members help to ensure the financial health of the museum.

Consultants: Board members provide professional advice when called upon.

Advisors: Board members help to ensure that the museum's programs, exhibits and facilities effectively serve the community.

Kirtley is the chief operations officer for Gulfport Energy Corp. (an oil and gas exploration and production company), which is operational in Ohio, Texas, Colorado, Louisiana, Canada and Thailand.

Munson is the exploration manager for Spartan Resources, LLC (a private oil and natural gas exploration company) in Oklahoma City. He's been with the company since 1997. He also served as chairman of the Oklahoma Energy Resources Board.

Nimmo is chief executive officer of Chickasaw Nation Industries Inc., for which he has served as general counsel and adviser for 22 years. Prior to serving the Chickasaw Nation, he served as judge of general jurisdiction for the 22nd Judicial District.

Whitten is a cofounder and senior partner of the Whitten Burrage law firm in Oklahoma City. He is cofounder of ExplorOlogy® and Native Explorers, education programs and Pros for Africa.

Thank you to our entire Board of Visitors for your continued support and guidance.

Through the Eyes of the Lynx: Galileo, Natural History and the Americas

BY ELYSSA MANN, PUBLIC RELATIONS

Join us in celebration of the University of Oklahoma's 125th anniversary with a yearlong series of exhibitions, events and programs through *Galileo's World: An Exhibition without Walls*. Scheduled at seven locations across the three University of Oklahoma campuses, exhibits will go on display Aug. 1 at the National Weather Center and the Sam Noble Museum on the Norman campus, the Robert M. Bird Library at the OU Health Sciences Center and the Schusterman Library at OU-Tulsa.

The Sam Noble Museum will present the first of two exhibitions in the Dorothy C. Higginbotham Gallery. Developed in collaboration with the University Libraries and the History of Science Collections, *Through the Eyes of the Lynx: Galileo, Natural History and the Americas* showcases the written works of *The Academy of the Lynx,* one of the world's earliest scientific societies.

Founded by an Italian aristocrat Federico Cesi in 1603, the Accademia dei Lincei (*The Academy of the Lynx*) published the research of Francisco Hernandez, the court physician to King Philip II. Hernandez was one of the few scientists who had traveled across the ocean to explore the Americas in the 1500s. He was tasked by the king to describe the exotic environment of the New World. For six years, he and his son worked alongside Aztec physicians in Mexico, documenting the local flora and fauna. Their work described hundreds of plants and animals — and, perhaps most importantly, the medicinal and daily uses of each. Sadly, Hernandez died before his research could be published — which was where Cesi and the *Lynx* would come in.

Though the *Lynx* was founded by Cesi, its most well-known member was Galileo Galilei, who joined the *Lynx* in 1611, bringing his expertise in mathematics, engineering, literature, art and medicine. The work of Hernandez was published in 1651 as a massive, multi-volume publication titled "A New Natural History of the Plants, Animals, and Minerals of Mexico," which will be on display at the Sam Noble Museum, along with several other books published by members of the *Lynx*.

"*Through the Eyes of the Lynx* is a unique opportunity for the Sam Noble Museum to provide an authentic, all-encompassing experience for our visitors to witness how discoveries in the 16th century were made," said museum spokesperson Jen Tregarthen.

The exhibit explores not only the flora and fauna of the Americas but also the classical works that influenced members of the *Lynx* to experiment with

Above: Ulyssess Aldrovandi, "Serpentum, et Draconum Historiae" (Bologna, 1640) from the University of Oklahoma History of Science Collections.

their own theories — and the results are memorialized in the publications in the exhibit.

Through the *Galileo's World* series of exhibits, a total of 300 books will be displayed throughout the year. These include works of antiquity by Pliny the Elder, Ptolemy and Aristotle, as well as works by Galileo himself, Sebastian Munster, Giovanni Battista Ferrari and more. All of those on display will be digitized and available to the public, including the 12 first editions of Galileo's work, owned by the University of Oklahoma.

"*Galileo's World* brings worlds together," said Kerry Magruder, curator of the History of Science collections and co-curator of the *Galileo's World* exhibition. "The story of Galileo reveals the creativity and innovation of human achievement."

Information about *Galileo's World* exhibitions, programs, events and other resources is available on galileo.ou.edu.

Upcoming Events:

Through the Eyes of the Lynx: Galileo, Natural History and the Americas &
Collision and Creation: Indigenous Arts of the Americas 1890-2015
Friday, Aug. 28
5 p.m. members' preview and reception,
6 p.m. public opening
Complimentary admission.

Galileo's World Lecture Series and Sky Watch
Every second Thursday of the month November through July 2016.
The sky watch, hosted by the OU Observatory on the museum lawn, and lecture series are complimentary and open to the public.

Audubon and the Art of Birds

BY JEN TREGARTHEN, PUBLIC RELATIONS

John James Audubon (1785-1851) is one of the most enduring figures in American art, the conservation of nature and the study of birds.

This summer's exhibit, *Audubon and the Art of Birds,* traced Audubon's remarkable life and placed his work in context with examples of earlier bird illustrations, works by his contemporaries and the continuation of our ongoing fascination with birds.

This exhibit provided visitors the rare opportunity to view an extensive collection of the original "double-elephant" prints from *The Birds of America,* the work that made Audubon famous. Produced from 1826 to 1838, the images revolutionized our view of birds and nature.

"I like his work because they are not just paintings of beautiful birds on beautiful backgrounds but tell you stories of bird lives," said Tamaki Yuri, collection manager of ornithology and genetic resources.

These paintings showcased each bird drawn at full life size, sometimes bent into sinuous poses to fit within the pages. Each bird was brought to life with careful characterization and understanding of the species, flamingos feeding, gannets nesting, parakeets socializing or even blue jays thieving.

Audubon's works and those by 70 other artists, from before and after his time, were shown in this beautifully organized display which showcased the evolution of bird art from the 1500s to the present day and illustrated Audubon's unique genius. The exhibit included bird woodcuts, etchings and paintings by various artists from the Renaissance to the present.

Produced by the James Ford Bell Museum of Natural History, University of Minnesota, *Audubon and the Art of Birds* was sponsored by Love's Travel Stops and Country Stores.

Below left: John Woodhouse Audubon and Victor Audubon "Audubon the Naturalist" American Museum of Natural History Library. Below right: John James Audubon "American Flamingo" Plate 431 from The Birds of America, Bell Museum of Natural History.

Saving the Museum's Legacy

BY ELYSSA MANN, PUBLIC RELATIONS

Above: Photo taken of unknown person in 1926 by A. I. Ortenburger, Ph.D., assistant professor of zoology at the University of Oklahoma.

Registrar Elsbeth Dowd, Ph.D., is good at keeping records.

In addition to her role of keeping the museum legal by making sure the museum complies with the law in every conceivable way, she also oversees many of the museum's records—most of them institutional. There are dozens of different types of these records: photographs, letters, newsletters and the like. One of Dowd's largest projects is digitizing these records.

All of the digitization projects at the museum are focused on saving information for the future and making it more accessible, and the institutional records Dowd is working on are no different.

Curators and staff in the collections have been digitizing catalog and specimen/object data (data tags attached to various specimens and objects), photographs and field notes since the 1970s. Some of Dowd's records dovetail with the collections'—much of our institutional records include photographs, field notes, field catalogs, slides and letters by curators of days past.

"Everything that we have on paper needs to be digitized," Dowd said. "Without that information we lose so much value. Digitizing all that information is important, both so that we have a digital copy as a backup because paper does degrade over time, but also for the public and researchers who want to know more about a certain topic."

During this project, Dowd's had the opportunity to sift through some of the museum's most interesting files. One set of these files is a series of photos taken by A. I. Ortenburger, Ph.D., hired in 1924 as an assistant professor of zoology who actively collected specimens during a series of expeditions throughout Oklahoma in the 1920s and 1930s. The photos record the 1926 Oklahoma Wildlife Conference in the Wichita Mountains.

"I think finding the Ortenburger photo album has been really cool," Dowd said. "Just realizing that there were these women in science and biology at this time is quite important. I don't necessarily know who they are or what their roles were, but it's certainly something worth pointing out and learning more about."

Though the work is often tedious and time consuming, for Dowd and other staff members working on digitizing museum records, the reward of keeping our information safe and accessible is worth it. Each of these digital pioneers are involved in one of the museum's most important endeavors—preserving the Sam Noble Museum's story for years to come.

Catching the Uncatchable

BY ELYSSA MANN, PUBLIC RELATIONS

Above: Linda's Roadside Skipper. Photo courtesy of Nick V. Grishin, 2011.

Every year the Oklahoma Department of Wildlife Conservation supports projects involving species they believe need to be watched with extra scrutiny. Curators and staff in three of the museum's collection departments received grants for such projects this year: mammalogy, recent invertebrates and herpetology. Scientists in all three departments are facing daunting tasks — looking for animals, insects and diseases that are proving difficult to find.

The mammalogy collection's grant is sending them in search of *Dipodomys elator*, the Texas kangaroo rat. Michael Mares, Ph.D., Janet Braun, Ph.D. and Brandi Coyner Ph.D., the researchers conducting the search for the kangaroo rat, have already begun work in the field. Over the next two years, they will take 12 trips to seven Oklahoma counties in search of the elusive animal. It currently is unknown if the species still exists in Oklahoma.

"The known potential habitat range for this animal was probably never extensive in the first place," Braun said. "And almost all of that area [in Oklahoma] has been significantly converted to agriculture."

Unlike other kangaroo rat species that prefer desert environments with sandy soil, relatively warm temperatures and an open, clear area, *Dipodomys elator* lives in areas with clay soil where there's more cover — taller grasses, shrubs, bushes and possibly near mesquite trees.

Based on the indicators they find in the field, traps made specifically to accommodate *Dipodomys elator's* long tail are set in the late afternoon (Texas kangaroo rats are only active at night) and are checked in the morning.

"We've already trapped almost five times as much as all the previous surveys combined in 20 nights. Although we have yet to capture a Texas kangaroo rat, we have added a great deal to our knowledge of the distributions and natural history of other small mammals," Coyner said.

Katrina Menard, Ph.D., and Charles Boring, Ph.D., curator and collection manager, respectively, of the recent invertebrates collection also are in search of a needle in a haystack or, rather, a very wily, flighty butterfly in a very large field.

Specifically they're searching for Linda's Roadside Skipper, a small butterfly that may or may not still reside in the state of Oklahoma.

"I think it's going to be very difficult [collecting specimens] because we're looking at their host plant, which they only spend a fraction of their life on," Boring said. "For example, I know that grass doesn't

produce nectar, so they will be going somewhere else for food than where they lay their eggs, and locating them between those two parts of their daily cycle could be difficult."

According to the Xerces Society Red List, an organization that aims to protect wildlife through conservation efforts, there are most likely only 20 metapopulations of the butterfly in existence. The existence of the butterfly in Oklahoma has never been verified. Therefore, Menard and Boring are hoping to not only verify the roadside skipper's existence in Oklahoma, but also collect specimens.

"Specimens are for the future — and future students," Menard said. "They can use that same data and ask new questions that we never thought about. For example, in the future maybe they can find a way to scan the specimen for new information or maybe there's something in their proteins that leads to a new medicine."

The butterflies only lay their eggs on Indian wood oats grass when it's located in forests that contain free-flowing bodies of water, like rivers and streams — these areas are where they'll be focusing their search.

"Based on what we know so far, I know that they'll be very hard to find, but I know that they're there," Menard said. "It's just going to take a while to catch them and confirm it."

The grant-funded project being undertaken by the museum's herpetology collection is much broader in scope — instead of looking for a specific animal or insect, Cameron Siler, Ph.D., and Jessa Watters, M.S., curator and collection manager, respectively, are looking for signs of disease in any and all amphibians in Oklahoma. They're searching for Chytrid fungus (*Batrachochytrium dendrobatidis*) and a suite of ranaviruses, which have run rampant in the United States, attacking a host of amphibians and some turtles. These two diseases have already contributed to a global decline in amphibian species. In the Midwest, and Oklahoma especially, there's little to no information about the animals infected or how far the disease has spread.

"We know it's here," Siler said, "but outside of three sites and a handful of species surveyed, there's not much else that we know. We saw [this research] as a really critical step toward a statewide conservation assessment that the ODWC would be excited to collaborate with us on."

Siler and Watters want to specifically target species the ODWC has designated as being of "greatest conservation need" in Oklahoma — of which there are 16. When they start screening vouchered field samples for disease they plan to test any and every amphibian they come across.

"I think we're all expecting to find a lot of carriers," Siler said. "We worry that these pathogens have been here and are pretty widespread."

Siler and Watters have already conducted more than seven collection trips since receiving the grant.

Thanks to the grants from the ODWC, each team is able to expand the museum's information on wildlife across the state and enrich the entire state's knowledge of local flora and fauna.

Above: Acris blanchardi *(Cricket Frog). Photo courtesy of Janalee P. Caldwell, Ph.D.*

Sharks... of the Largest Proportions

BY ELYSSA MANN, PUBLIC RELATIONS

Above: Vertebra from Leptostyrax *shown on the left beside vertebra from present day mako shark on the right.*

On occasion, scientific discoveries happen completely by accident. Pharmacist John Pemberton was merely trying to find a cure for headaches when he invented the original recipe for Coca-Cola. Noah McVicker, a soap company employee, invented Play-Doh while trying to come up with a formula for wallpaper cleaner in the 1930s. Famously, even dynamite was discovered by accident when Alfred Nobel dropped nitroglycerin into a pile of sawdust.

Joseph Frederickson and his now-wife, Janessa Doucette-Frederickson, discovered three vertebrae from *Leptostyrax macrorhiza* while on a fossil-hunting trip near Fort Worth, Texas, with their University of Wisconsin-Milwaukee paleontology club. Doucette-Frederickson stumbled upon one of the vertebra that was exposed on the surface.

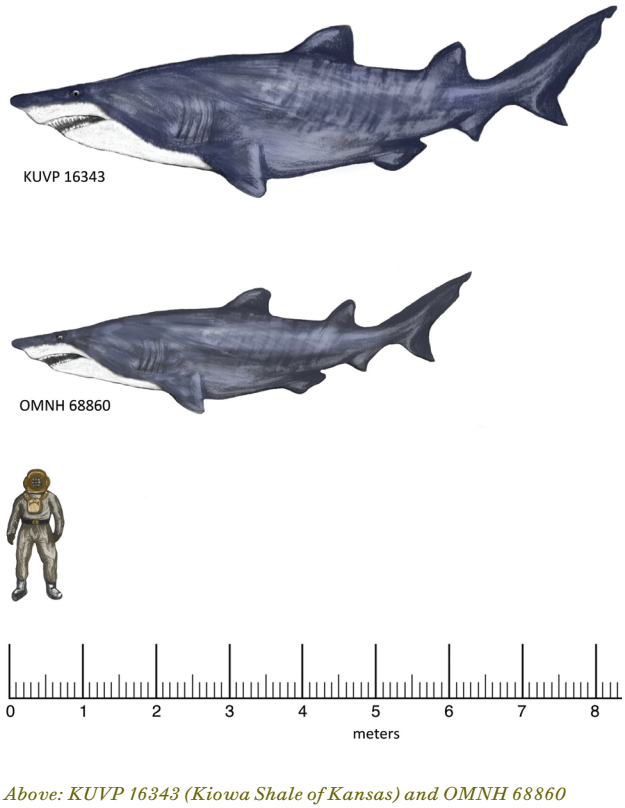
The fossils remained unidentified until 2014 when both Joseph and Janessa began their Ph.D. programs at the University of Oklahoma in the departments of biology and anthropology, respectively. Both work in collections at the Sam Noble Museum: Joseph in the vertebrate paleontology collection and Janessa in the ethnology collection.

The vertebrae were transferred to the Sam Noble Museum when Frederickson realized that it was the perfect research-based collection to house the specimens. Southern Oklahoma, like parts of Texas, also serves as home to the Duck Creek Formation, the rock formation in which the vertebrae were found, so bringing the vertebrae to the museum was almost a homecoming.

"Given the museum's history, state-of-the-art collections, world-class displays and highly professional research and education staff, I knew the fossils would be in the best care," he said. After transferring the specimens, Frederickson began studying them.

"At first we had the vertebrae, but no teeth, so we couldn't identify it," Frederickson said.

Above: Tooth from shark fossil found in the Kiowa Shale of Kansas.



Above: KUVP 16343 (Kiowa Shale of Kansas) and OMNH 68860 (Duck Creek Formation) are both reconstructed as Leptostyrax macrorhiza *and modeled after sand sharks. Both specimens represent the smallest calculated estimate. Artwork courtesy of Janessa Doucette-Frederickson.*

After extensive research, Joseph and Janessa, along with Scott Schaefer discovered that their specimens were quite similar to that of another shark fossil found in the Kiowa Shale of Kansas. And thus, Joseph, Scott and Janessa's *Leptostyrax macrorhiza* was identified. Their scientific paper on the findings, *A Gigantic Shark from the Lower Cretaceous Duck Creek Formation of Texas,* was published in PLOS ONE in June.

The shark itself is one of the largest to ever live in North America. The megalodon, perhaps the most famous of extinct giant sea sharks, may have reached a maximum of 24 to 25 meters — but it lived about 2.6 to 15.9 million years ago. *Leptostyrax* most likely would have been smaller than that. So far, the researchers' current estimates have it at around 20 feet long. That's a conservative estimate, however. According to Frederickson, that's the smallest they believe the shark could have been. In reality, it may have been several feet longer.

"The shark from the movie *Jaws* was 24 feet long," he said, comparing his specimen's size. "This one could have been the same size."

And unlike the megalodon, *Leptostyrax* lived about 100 million years ago, making it, most likely, the apex predator of the seas when it was alive. This means it would have sat at the top of the food chain, devouring species previously thought to be the apex predator, like the plesiosaur.

The scientific paper is a fount of information about the Duck Creek Formation, the area in Fort Worth where the vertebrae were found, and infinite details about the vertebrae themselves. However, they have lingering questions about their find and plan on publishing a second paper over the course of their search for answers.

A major question they've identified is why they haven't seen an example of Cope's Rule with this find. Cope's rule is the idea that population lineages have a tendency to increase in size over time, meaning animals get bigger as they evolve over time. *Leptostyrax*, however, doesn't seem to have any predecessors, so far, that gradually increase in size to the one it held at extinction.

"We didn't see a step up with this," Frederickson said.

The team hopes to include additional information from CT scans in future research. This fascinating discovery will further unfold as they continue their research at the Sam Noble Museum.

Does Bigfoot Exist?

BY MICHAEL MARES, DIRECTOR

Above: Sketch of Bigfoot courtesy of Coral McCallister.

As a specialist on mammals who has worked all over the world conducting field research on all types of species, especially rodents, marsupials and bats, people sometimes ask me what I think about Bigfoot. Does it exist? Since the class I teach to graduating seniors is called *Religion, Politics and Science,* we often deal with odd beliefs of people, whether one considers alien abductions, flying saucers, climate change deniers or Bigfoot.

Just what kind of evidence is there for Bigfoot and his supposed relatives that occur throughout the world? How likely is it that Bigfoot (a 7-foot primate) occurs practically everywhere, including Oklahoma? There are even television shows where Bigfoot "hunters" scare each other in the dark but never find anything.

Here are some things to consider about this supposed hidden primate. Is it impossible to discover new species of large mammals? Absolutely not! Each decade sees the discovery of a new whale (bus-sized mammal), deer, primate, carnivore, tapir, and of course, a host of smaller mammals. I have discovered more than a dozen mammals that are new to science. There are definitely new species out there waiting to be discovered by biologists who are searching for them in the field. What makes these species different from Bigfoot?

First, Bigfoot is said to be a North American species. Non-scientists have supposedly sighted it, but videos, photographs, bones, fur, skin, droppings and even DNA samples have never been scientifically authenticated, or have been shown to belong to known species. Its existence has never been verified by any trained mammal scientist or wildlife biologist. What "evidence" there is has often been part of a hoax on the public.

There are "cryptozoologists" who study the existence of creatures that have not been scientifically proven. Generally, these are non-biologists who make a good deal of money selling books about Bigfoot, giving lectures, running small Bigfoot museums or even having a supposed Bigfoot on display. The carvings or wax figures are fakes, but their profit is real and they become media sensations for a few days.

No mammalian biologist is studying Bigfoot. Why? For the same reason physicists are not studying ghosts and physicians are not searching for alien beings to examine. Science is based on reason, logic and evidence.

If there were even a small chance that Bigfoot existed, field biologists would be on its trail and would discover it very quickly. Why? Fame, for one thing. Scientists do not conduct research for profit, but the chance of becoming famous is a positive benefit of great discoveries. To be the biologist who discovered Bigfoot would catapult a scientist into the rarified air of national television appearances, films, recognition and other things that happen when a great discovery is made. Even the lure of the white-hot public spotlight is not enough for biologists to search for an imaginary creature.

Amazingly, Oklahoma is considered a hotspot for Bigfoot activity. Sightings have been reported in almost all Oklahoma counties, including Cleveland County, where Norman is located.

Not too long ago, a woman called me at the museum. She said a Bigfoot had jumped into the bed of her truck. Since I know Bigfoot is a myth, what were my first thoughts? The woman could be imagining it. Maybe it's a crank call.

She could have seen something in the dark and fear led her to see things that were not there. Perhaps she was driving in the dense forests of eastern Oklahoma and a deer jumped into the truck.

I asked, "Were you in the forests of eastern Oklahoma?" "Oh no," she replied. "I was in the Panhandle and it was broad daylight!"

Hmm. The Panhandle has very low desert-like vegetation, hardly the best habitat for a 7-foot primate.

"So you had a black, 7-foot-tall animal jump into your truck?" I asked. "No, it was more like 3 feet tall," she replied.

If she really saw something, perhaps it was a chow dog, which can look remarkably gorilla-like and could jump into a pickup. Maybe a young black bear got into the truck. There are few other black mammals in Oklahoma, especially species that could jump into a truck. I suggested the chow dog or bear scenarios but she wasn't budging on her belief in Bigfoot.

The last new species of mammal to be discovered in the United States was a small shrew (the New Mexican shrew) that was unrecognized because it was hidden within another species (they look alike and biologists had not been able to distinguish the two species). It was the first new mammal species discovered in decades in the United States. DNA analysis showed that it was different from a species of shrew that was described more than a century before. Think about it. The last new mammal to be found in our country lives hidden in dense forest vegetation along streams in northern New Mexico and is indistinguishable from a related species without genetic analysis. Yet this cryptic species was found by mammalogists. It weighs 5 grams, about the same as a nickel coin!

How about Oklahoma? As a co-author of the book, *The Mammals of Oklahoma,* I have a very good feel for the distribution of mammal species in Oklahoma. We have surveyed mammals across the state in all habitats. About 100 mammal species occur in the state, but only one new species of mammal has been described from Oklahoma. The mammal in question is also a shrew, Elliot's short-tailed shrew. It was named as a species in 1899. Nothing new has been described in Oklahoma since then.

Each day biologists are working in almost all habitats of the world, and certainly across the entire United States, where they have collected more than one million mammal specimens over 200 years. From grizzly bears to the rare spotted bat to gophers, black-footed ferrets, star-nosed moles and all other American mammals, scientists have verified all of these, including the genetically distinct, tiny and hidden shrew. If mammals as small as pennies and dimes were discovered, how could a 7-foot, 600-pound primate supposedly common in every state in the union be missed? These are the kinds of beliefs people hold when they do not understand science.

Is it possible that there is a Bigfoot equivalent somewhere in the world? South America has a lot of primates and new species of monkeys are discovered each year. However, these are species that derive from a colonization event that occurred more than 35 million years ago when their ancestors crossed into South America directly from Africa. New World primates are different from the Old World apes, which include our species and would include Bigfoot, so the New World is out for the evolution of a large ape.

Could a large primate be hidden somewhere in the Old World? There were several giant primates in Southeast Asia and China that went extinct between 9 and 5 million years ago and one species, a 10-foot ape (*Gigantopithecus blacki*) went extinct only 100,000 years ago. The gorilla, the largest living primate, inhabits dense forests in tropical Africa. These forests helped keep the gorilla unknown for many years, and it was not discovered until 1847. Exploration has continued throughout the world ever since its discovery. Have scientists just happened to miss finding anything related to Bigfoot or the many supposedly similar species? I seriously doubt it. Scientists deal in facts and probabilities, not romantic myths.

Finding a huge primate in Oklahoma has a probability so close to zero that it is, in effect, zero. Ditto for finding one in the continental United States, Alaska or South America. On a global scale, the probability goes up a tiny bit, but is still extremely low. So, the only answer a scientist can give to the first question in this paragraph is, probably not. But it's not impossible.

Language Is Our Future

BY ELYSSA MANN, PUBLIC RELATIONS

For years, native language speakers, community members and scholars have worked to revitalize and preserve Native languages — and succeeded. The Oklahoma Native American Youth Language Fair is the largest celebration of that revitalization in the world.

The fair was founded in 2003 at the Sam Noble Museum. What better place to celebrate Native language than within the walls of an institution that presents the history of so many Native American tribes?

"Oklahoma is the home of Native American language," said Christine Armer, fair coordinator and a Native language instructor at the University of Oklahoma.

The celebration of language is what drives the language fair. In its 13th year the fair has grown to staggering proportions — more than 1,300 students registered to compete in one or more category, including group or solo song performances, spoken language, posters, power point presentations and more. All participants perform, write or create works using only a language indigenous to North America. Students are always encouraged to be as creative as possible with their submissions.

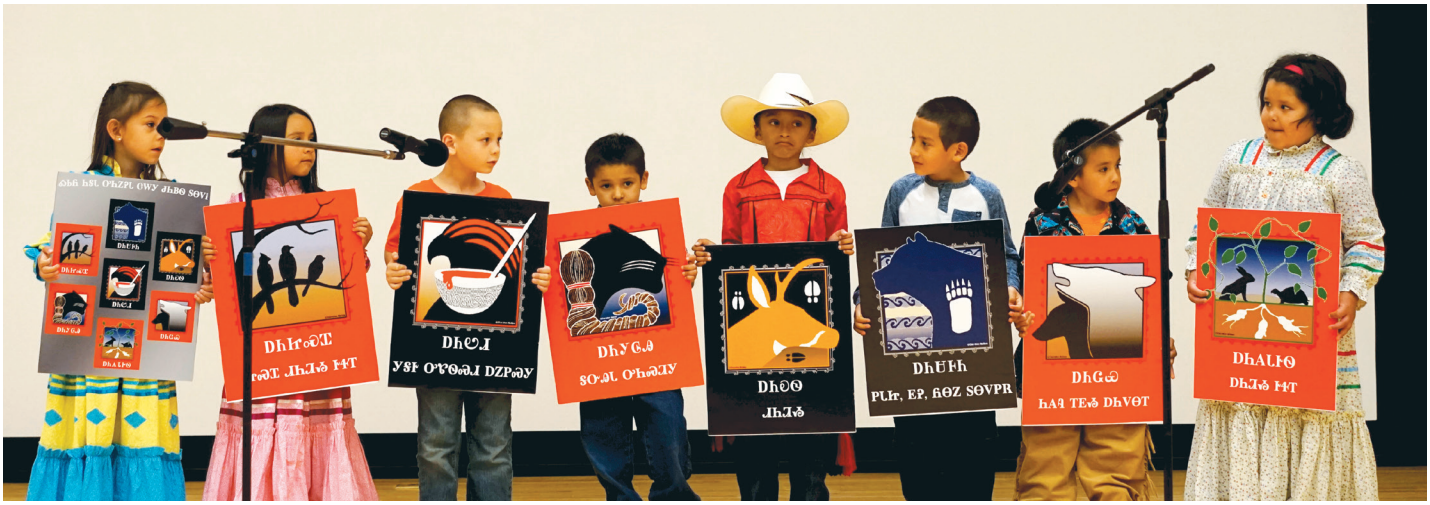
Unlike in years past, this year was without the guidance of Mary Linn, Ph.D., one of the fair's originators and former curator of the Native American Language department. In her stead, Daniel Swan, Ph.D., curator of ethnology and interim curator of Native American Languages, carried on the fair's success.

Said accomplishment is measured in the engagement of participants and their joy in learning and using their native language.

"I'm in it for the kids," Nancy Coleman, fair registrar said. "I don't usually get to see them perform, but seeing them here and excited is what it's all about."

Left: Blessing by Pat Kopesasah, Letha Peters and Kaye Cooper.

Far right: Blake Compton and Anevay Greenwood, ninth- grade small group spoken language winners.



Above: The Cherokee Immersion Charter School preforming in the third- through fifth-grade large-group spoken language category.

"I'm in it for the kids... seeing them here and excited is what it's all about."

The 2015 Language Fair marked the 13th anniversary of the event and drew some 2,600 visitors over two days to observe the work of 1,166 student participants from 90 different tribal, public school, community and family language teaching programs performed in 43 languages. Performances covered a broad spectrum — some students performed traditional songs, hymns and prayers in Native languages while dressed in traditional attire. Others performed short skits while dressed as the Teenage Mutant Ninja Turtles. Older students performed renditions of "It's a Hard Knock Life" from the musical *Annie* and "Let it Go," from the movie *Frozen*. Many families, all there to cheer on students as they performed, attended the fair.

"It's awesome that we have so many people and so much diversity and that the event is so successful in attendance and enjoyment," said Loren Hov, graduate research assistant in the Native American Languages collection and judging and volunteer coordinator for the fair.

Those who attend to encourage family members have a tendency to get involved in the process as well — not always as competitors.

"Grandparents and other speakers have gotten involved [in teaching] too," Armer said. "It's wonderful to see how homes are growing together."

Grandparents aren't the only ones getting involved, either. Inevitably, siblings will follow one another through competitions and contests in the fair.

"You'll see whole families that have siblings that rise through the ranks as they get older," Hov said. "Some families are household names for us at the fair."

Just as generations of Native Americans have passed along their languages, and traditions, so have the families who've participated each year in the Oklahoma Native American Youth Language Fair.

Through the fair, Native languages have a place to prosper and grow through use and interpretation. As we prepare to once again open our doors for this competition April 4-5, 2016, follow the museum and the Native American Languages collection on the website for updates and new information.

Sam Noble Museum

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Public Opening Reception!

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5 p.m. members' preview and reception, 6 p.m. public opening
Friday, Aug. 28, 2015
Complimentary admission