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SAM NOBLE MUSEUM ANNUAL REPORT 2017

FROM THE DIRECTOR

In 2017, the Sam Noble Museum celebrated its 30th anniversary as the state of Oklahoma's natural history museum. On July 1, 1987, Gov. Henry Bellmon signed the bill that made the "Stovall Museum of Science and History" the state's designated natural history museum. We designed a campaign of vintage Tracks newsletters and published three issues spanning the three decades from 1987 to 2017. We selected special stories on the history of the museum, the campaign for a new building, the groundbreaking, and packing up the collections. We also looked back at the move into the new museum building, the grand opening, special exhibits, research, collection growth, national and international museum awards and much more.

During July, we used highlights from the past three decades in a "30 Years in 30 Days" social media campaign. We also unveiled a 44-foot-long mural in the Will Rogers World Airport in Oklahoma City. The natural history inspired mural, "Hidden Treasures," was a gift from the museum and found its temporary home in the airport in mid-June.

In May 2017, the Sam Noble Museum was named one of the top 50 most impressive college museums, according to College Values Online. Among both private and public colleges listed, the University of Oklahoma is the only school in Oklahoma that was selected, joining the ranks of other universities such as Dartmouth, Harvard, Princeton and Yale.

The year was exciting for museum curators, education, exhibits and collections. Rich Cifelli, Ph.D., curator of vertebrate paleontology, was honored with the prestigious Joseph T. Gregory Award for outstanding service to the welfare of the Society of Vertebrate Paleontology. Cameron Siler, Ph.D., assistant curator of herpetology, received the Irene Rothbaum Award for Outstanding Assistant Professor in the University of Oklahoma's College of Arts and Sciences. Siler is the museum's first faculty curator to receive the prestigious award. Marc Levine, archaeology curator, conducted fieldwork at the Main Plaza at Monte Alban in Oaxaca, Mexico: a Zapotec capital from 500 BCE to 850



Museum director Michael Mares

CE. Janet Braun, Ph.D., head curator, studied kangaroo rats and other small mammals in Southwest Oklahoma, along with Brandi Coyner., Ph.D.

Two new curators joined the staff in summer 2017: Hayley Lanier, Ph.D., and Raina Heaton, Ph.D., Lanier is a curator for the mammal department and Heaton is a curator of Native American languages. Previously, Lanier was an assistant professor at the University of Wyoming and Heaton graduated from the University of Hawaii. The museum is completing the long process of having a full curatorial team in place again after numerous retirements.

We hosted 5,000 visitors during spring break and 2,000 visitors at the 15th annual Oklahoma Native American Youth Language Fair. Exhibits included: "Roots of Wisdom. Native Knowledge. Shared Science," "Ugly Bugs: Celebrating 20 Years of the Oklahoma Microscopy Society's Ugly Bug Contest," "Comets, Asteroids, Meteors: Great Balls of Fire!" and "Explore Evolution." By the end of 2017, the museum had more than 2.6 million visitors...

There will always be a need to protect the priceless collections, teach students and serve the people of Oklahoma. Thousands of people and numerous organizations played an important role in making the Sam Noble Museum what it is today: a gem for the state of Oklahoma and for the university. I write these words as I prepare to retire in two weeks after 37 years with OU and 50 years of teaching students. Long after I am gone, this great museum will stand as a testament to the vision and generosity of the people of Oklahoma, a state with a remarkably rich heritage that is the highlight of the Sam Noble Museum.

Michael A. Mares, Ph.D.

M Mares

Director



Sam Noble Museum mid-construction

EXHIBITS



Fred E. and Enid Brown Gallery:

01/28/2017- 5/7/2017 Roots of Wisdom

Overcoming environmental and cultural challenges can make for unexpected partnerships that result in extraordinary outcomes. The "Roots of Wisdom: Native Knowledge, Shared Science" exhibit demonstrated how the knowledge of Native peoples combined with Western science provide insights into how we could improve our relationship with the natural world.

"Roots of Wisdom" featured stories from four indigenous communities and gave visitors real-life examples of how traditional knowledge and Western science provide complementary solutions to the ecological and health challenges we face today. Through the voices of elders and youth, engaging interactive videos and hands-on games, visitors were able to gather resources, examine data and take part in the growing movement toward sustainability and the reclamation of age-old practices.

5/20/2017 - 9/10/2017 Great Balls of Fire

The dinosaurs were wiped out 60 million years ago when a massive asteroid or comet struck the Earth. Are we due for another extinction event from a massive rock hurtling through space? How can we detect it before it happens? If we find it, how could we stop it?

These and other questions were examined in the exhibit "Great Balls of Fire," created by the Space Science Institute in Boulder, Colo. with funding from the National Science Foundation and NASA. This high-tech interactive exhibit allowed our visitors to try to design stable orbits of multiple bodies around a sun, see how photography is used to compare star fields to search for moving objects, and attempt to save the Earth from certain doom with explosives. (Virtually, of course!)



Great Balls of Fire



9/23/2017 - 1/1/2018 Explore Evolution

This exhibit offered a glimpse at the evolution of life on Earth, from rapidly evolving viruses to whales that once walked. Visitors explored seven interpretive areas that focused on cutting-edge scientific research illustrating how the evolutionary principles of variation, inheritance, selection and time worked in different organisms.

How did one species of fruit fly turn into 800? How did environmental changes and differing food supply cause finches' bills to change size and shape? Funded by the National Science Foundation, this exhibit was created by the Sam Noble Museum as part of a consortium of six museums across the country.

Dorothy C. Higginbotham Gallery:

2/11/2017 - 9/4/2017 Ugly Bugs

The Sam Noble Oklahoma Museum of Natural History and the Oklahoma Microscopy Society celebrated 20 years of the Oklahoma Ugly Bug contest with this exhibition that featured a rogues' gallery of arthropods collected by elementary school students, captured on a scanning electron microscope or SEM.

Open to all Oklahoma elementary schools, the annual "ugly bug" competition is designed to get students interested in microscopy and entomology at a young age. The rules are simple: each school can submit one bug (the uglier, the better) and a complete scientific description of the insect. Entries are processed at SEM labs across the state, including Oklahoma State University, Phillips 66 and the Samuel Roberts Noble Microscopy Laboratory on the University of Oklahoma campus,



Explore Evolution



and are imaged by a scanning electron microscope. The school with the winning entry, judged by a group of OMS members, receives a Leica stereomicroscope.

Museum Lobby:

12/7/16 - 1/17/2017 Native Voices: Native Peoples' Concepts of Health and Illness

This traveling exhibit explored the interconnectedness of wellness, illness and cultural life for Native Americans, Alaskan Natives and Native Hawaiians. The exhibition was developed by the U.S. National Library of Medicine and was displayed from 2011 to 2015 at the Library of Medicine in Bethesda, Maryland. Through a partnership with the American Library Association public programs office, the exhibition tours across the country to public libraries, academic libraries, tribal libraries, tribal college libraries and special libraries.



Native Voices

E D U C A T I O N



Overview

The Sam Noble Museum is an important resource for science education. The museum seeks to provide the community and learners of all ages with opportunities to expand their curiosity of the natural world.

In 2017, the museum completed a grant-funded project known as "Bringing Oklahoma Natural History to the Classroom" in partnership with the Institute of Museum and Library Sciences to make quality science resources accessible to all K–12 students and teachers in Oklahoma. Twelve mobile kits featuring museum specimens and curricula traveled to schools across the state, bringing Oklahoma's natural history to the classroom. Over 70 percent of tested student groups reported increases in content knowledge and positive attitudes toward science after interacting with the kits. During the project period, the kits were utilized 187 times by 9,534 students and teachers statewide. The project received a 2017

Honorable Mention award from the Oklahoma Museums Association in the "Outreach or Education" category.

Through on-site events and programs, including field trips, summer camps, family programs, scout programs and outreach into the community, the museum had over 41,000 participants with educational activities.

ExplorOlogy® completed its 10th year of success with bringing teachers and students to the field for active engagement with natural science. Through a combination of summer field science programs and providing outreach programming to schools during the academic year, ExplorOlogy® had 3,258 participants.





SCHOOL PROGRAMS



17,156

 $Field\ Trip\ Participants$

6,813

Education Class
Participants

116

Teacher Workshop Participants
Science Institute

OKLAHOMA SCIENCE ADVENTURE

Walk on the Wild Side program



VOLUNTEERS

In 2017. our unique group of dedicated volunteers provided the museum with 18,432 hours of service. The museum's volunteer program provided training sessions, lectures and field trips to 201 adult and teen volunteer participants.



200

Adult Volunteers
Contributed 18,514 hours

20
Teen Volunteers
Contributed 806 hours

Volunteer, Mary Leblanc, paints faces at the Sam Noble Museum's annual Holiday Happening event



2017 Volunteer of the Year KASIMIR
MACKEY





Overview

As noted by Director Michael Mares in the Fall 2017 newsletter, "The heart of the museum: the driving intellectual force of research, exhibits, education and programs, comes from the curators." In August 2017, the museum welcomed Raina Heaton, Ph.D., as the new curator of Native American languages and Hayley Lanier, Ph.D., as the new curator of mammals. This brought the total number of curators to 13. These 13 individuals, with their staff and students, will bring continued success in research, curation, exhibits and education in the present and in the future.

The Sam Noble Museum is mandated to collect and maintain objects for research while conducting and disseminating research to increase knowledge. In fulfilling our mandate to provide long-term stewardship of the collections that we hold in trust for the people of Oklahoma, infrastructure projects were completed in 2017 for the collection of recent invertebrates (NSF) and the collection of genomic resources (IMLS). inventory. These cataloging and digitization projects also are in progress in many of the museum's collections with the support of contracts and grants from federal agencies such as the NSF and the National Park Service and Museum funds. In 2017, 526,345 objects were cataloged and/or digitized, including

15,081 invertebrates, 484,343 archaeological objects and 10,355 fish. To date, more than 65,000 mammal tags have been imaged.

Curators, staff and graduate and undergraduate students conducted research in nine states, including Arizona, Louisiana, Montana, New Mexico, Oklahoma, Texas, Utah, Virginia and Wyoming, the District of Columbia and 10 countries, including Bolivia, Canada, China, Fiji, Guatemala, Mexico, New Zealand, Philippines, Scotland and Thailand. New collection objects and those already in collections were used in scientific research and education by museum curators, staff, students and researchers from throughout the world to develop a greater understanding of natural resources and human cultural heritage. In 2017, 14 new species were described: four amphibians and reptiles, five trilobites, one fossil bat and four fossil lungfish.

Part of the Sam Noble Mumseum's mission is to educate and mentor the next generation. In 2017, 41 undergraduate students and 48 graduate students were given opportunities to discover, learn and participate in research and collections management activities with the support from grants, contracts, internships, assistantships, awards and scholarships.



AMERICAN PIKA Whole genome sequenced

Grants

During 2017, curators, staff and students conducted research throughout Oklahoma and the world. Approximately \$5.8 million in new and continuing multi-year grants supported field and laboratory research, collections and exhibitions. These include:

- Braun, J. K., C. D. Siler, and B. S. Coyner. Environmental improvement for the Genetic Resources Collection. Institute of Museum and Library Services. \$272,071.
- Braun, J. K., M. A. Mares, and B. S. Coyner. Assessment and Survey of the Presence, Distribution, and Habitat of the Texas Kangaroo Rat, *Dipodomys elator*, in Oklahoma. Oklahoma Department of Wildlife Conservation. \$69,936.
- Brown, J. C. Conservation of the Critically Endangered Fijian Crested Iguana of Monuriki Island Through a Captive Breeding Head-start Program. IUCN Iguana

Specialist Group Travel Grant. \$750.

- Brown, J. C. Conservation of the Critically Endangered Fijian Crested Iguana of Monuriki Island Through a Captive Breeding Head-start Program. University of Oklahoma, Department of Biology Travel Grant. \$250.
- Brown, J. C. Conservation of the Critically Endangered Fijian Crested Iguana of Monuriki Island Through a Captive Breeding Head-start Program. University of Oklahoma, Robberson Conference Presentation & Creative Exhibition Travel Grant. \$1,025.
- Brown, J. C. Ecology and Conservation of the Critically Endangered Philippine Crocodile. Christmas CrocFest Conservation Award. \$12,000.
- Brown, J. C. Ecology and Conservation of the Critically Endangered Philippine Crocodile. Golf For Wildlife Conservation Award. \$500.
- Brown, J. C. Ecology and Conservation of the Critically Endangered Philippine Crocodile. Oklahoma City Zoo and Botanical Garden CARE Grant. \$5,000.

67
Active Grants
totaling \$5,800,000

35
Publications
21 in press

70+
Presentations

- Brown, J. C. Ecology and Conservation of the Critically Endangered Philippine Crocodile. The National Geographic Society Early Explorer Grant. \$9,000.
- Brown, J. C. Ecology and Conservation of the Critically Endangered Philippine Crocodile. United States
 Fulbright-Hays Scholar Grant, Philippines. \$14,000.
- Brown, J. C. Ecology and Conservation of the Critically Endangered Philippine Crocodile. University of Oklahoma Hill Grant. \$500.
- Brown, J. C. USGS and San Diego Zoo Global Fiji Internship. \$15,000.
- Cifelli, R. L., and B. M. Davis. Vertebrate Fossils in Utah's Jurassic Dunes. Canyonlands Natural History Association. \$9,415.
- Czaplewski, N. J. Partial travel funds to attend Society of Vertebrate Paleontology annual meeting in Calgary, Alberta. University of Oklahoma, OU Staff Senate, Staff Professional Development Fund. \$400.

- Davis, B. M., and R. L. Cifelli. Continued Excavation of the Grey Hills Site: A Rich, Small Vertebrate Locality in the Upper Jurassic Morrison Formation. Canyonlands Natural History Association. **\$12,545**.
- Doucette, J., and D. C. Swan. Dissertation Research Grant. Oklahoma Educators Evolve. OSU-EPSCoR, National Science Foundation. \$23,935.
- Fishman-Armstrong, S. Scholarship/Grant. Oklahoma Museum Association. \$195.
- Freitas, E. S. Investigating Amphibian Chytridiomycosis Across Environmental Gradients in Thailand. University of Oklahoma, Graduate Student Senate. \$600.
- Freitas, E. S. Investigating Amphibian Chytridiomycosis Across Environmental Gradients in Thailand. University of Oklahoma, Loren G. Hill Fund. \$500.
- Freitas, E. S. Investigating Amphibian Infectious Diseases Across Environmental Gradients. United States Fulbright Student Fellowship, Thailand. \$15,200.



Drone-aided mapping Monte Alban (Oaxaca, Mexico)

- Gamble, T., C. D. Siler, J. Daza, and M. Heinicke.
 Collaborative Research: From Exaptation to Key Innovation–Evolutionary Insights from Gliding Geckos.
 National Science Foundation. \$1,102,367; \$323,239 to OU.
- Gilman, R., M. J. Miller, and J. R. Loaiza. Fogarty D43
 Training Grant: Infectious Diseases Training Program
 in Bolivia: South-South Training with Peru. National
 Institutes of Health. \$54,000.
- Hawkins, K. Frank M. Chapman Grant. \$2,000.
- Hawkins, K. Population Genetics and Species
 Boundaries in the *Melanerpes* Woodpecker Complex.
 University of Oklahoma, George Miksch Sutton
 Scholarship. \$3,000.
- Kaspari, M. C. Siler, K. Marshall, M. Weiser, and M. J.
 Miller. Testing Abiotic Drivers of Activity, Abundance,
 and Diversity of Ground-dwelling Arthropod
 Communities at a Continental Scale. National Science
 foundation. \$1,207,398.

- Lanier, H. C., Z. P. Roehrs, and R. S. Seville. Are All Burns Created Equal? The Role of Fire Interval on Community Structure in the Greater Yellowstone Ecosystem. University of Wyoming/National Park Service. \$5,000.
- Levine, M. Funding Investment Program. University of Oklahoma, Office of the Vice President of Research.
 \$14,423.
- Levine, M. Monte Albán's Main Plaza: Geophysical Prospection in the Heart of Oaxaca's First City.
 National Geographic Society/Waitt Grant. \$10,922.
- Levine, M., and S. Fishman-Armstrong. Archaeological Curation Services at the Sam Noble Oklahoma Museum of Natural History. U.S. Army Tulsa District, Corps of Engineers, 2015-2020. \$254,139.
- Levine, M., and S. Fishman-Armstrong. Bureau of Reclamation Cooperative Agreement, 2016-2021. \$135.531.
- Levine, M., and S. Fishman-Armstrong. National Guard



Sampling for environmental DNA

Bureau, Oklahoma Military Department for Curation of Archaeological Materials from Camp Gruber at the Sam Noble Oklahoma Museum of Natural History, 2016-2021. **\$12,710**.

- Levine, M., and S. Fishman-Armstrong. Native American Graves Protection and Repatriation Consultation/ Documentation Grant. National Park Service, U.S. Department of the Interior. \$89,996.
- Levine, M., and S. Fishman-Armstrong. Native American Graves Protection and Repatriation Consultation/ Documentation Grant. National Park Service, U.S. Department of the Interior. \$90,000.
- Levine, M., and S. Fishman-Armstrong. Native American Graves Protection and Repatriation Consultation/ Documentation Grant. National Park Service, U.S. Department of the Interior. \$90,000.
- Loaiza, J. R., and M. J. Miller. Demographic Connectivity and Gene Flow Among the Mosquito Vectors of Dengue and Chikungunya Viruses: Aedes aegypti

and Aedes albopictus in Panama. Senacyt (Panamá). **\$65.000**.

- López, K. Tracking Drivers of Disease Across Tropical Sylvatic to Urban Landscape Gradients. University of Oklahoma, George Miksch Sutton Scholarship \$8,000.
- Menard, K. L., and C. A. Boring. A Biological Survey of the Imperiled Linda's Roadside Skipper Butterfly, Amblyscirtes linda H. Freeman (Lepidoptera: Hesperiidae). Oklahoma Department of Wildlife Conservation. \$81.633.
- Menard, K. L., and C. A. Boring. CSBR: Natural History Collections: Curation, and Re-housing of the Insect Collection of Recent Invertebrates. National Science Foundation. \$368,695.
- O'Grady, W., and R. Heaton. Comparative Language Input Project (Part of a Larger Collaboration Between the University of Hawai'i and the Smithsonian).
 \$20,000.
- Oaks, J., C. D. Siler, L. Grismer, and P. Wood Jr.

Reasearch
was conducted in:

9 States

10

Native American



ative mentorship

Generalizing Bayesian Phylogenetics to Infer Shared Evolutionary Events. National Science Foundation. **\$551,169**; no direct funds allocated to OU.

- Olson, L. E., and H. C. Lanier. Sequencing the Hoary Marmot Genome. Dovetail Genomics End-of-Year Matching Funds Grant. \$10,000.
- Russello, M., and H. C. Lanier. Genomic Resources for the American Pika: Shared Tools for Studying and Monitoring Mammalian Sentinel Species' for Climate Change. Dovetail Genomics Research Impact Award. \$20,300.
- Siler, C. D., J. L. Watters, T. Yuri, and L. Souza. Detecting Native Aquatics Network (DNANet): A Novel

Biodiversity Freshwater Monitoring Program for Native Aquatic and Semi-Aquatic Species using Environmental DNA. Oklahoma Department of Wildlife Conservation. \$134,235.

- Siler, C. D., P. Bergmann, D. Irschick, and G. Wagner.
 Collaborative Research: Developmental and Functional Mechanisms of Complex Trait Re-evolution: Limb Loss and Gain in Skink Lizards. National Science Foundation.
 \$665,963.
- Siler, C.D., and J. L. Watters. Tracking the Emergence of Infectious Disease Among Amphibian Species of Greatest Conservation Need: Amphibian Surveys of Wildlife Management Areas in Oklahoma to

- Determine Current Distribution, Status, and Health of Native Communities. Oklahoma Department of Wildlife Conservation. **\$89,560**.
- Smith, K. S., and N. J. Czaplewski. Exploration and Collection of Fossil Vertebrates from the Morrison and Ogallala Formations in Western and Panhandle Counties of Oklahoma. Cherokee and Chickasaw Nations, Native Explorers Foundation, and the Whitten-Burrage Law Firm. \$35,024. (4 awards)
- Smith, K. S., and N. J. Czaplewski. Guiding American Indians in Medical and STEM Career Awareness Through Native Explorers and Native OKStars. Mellam Family Fund. \$10,000.
- Smith, S. N. Detection of Ranavirus in Central Oklahoma Amphibians. University of Oklahoma, Mentored Research Fellowship. \$1,000.
- Smith, S.N. Assessment of Infectious Disease in Philippine Amphibians. University of Oklahoma, Undergraduate Research Opportunity Program. \$981.

- Smith, S.N. Development of Species Detection Methods for an Oklahoma Salamander. University of Oklahoma, Undergraduate Research Opportunity Program. \$961.
- Swan, D. C. Program Grant, Native American Youth Language Fair, Quapaw Industries, Quapaw, OK.
 \$2,500.
- Swan, D. C. Program Grant, Oklahoma Native American Youth Language Fair, Chickasaw Nation, Sam Noble Museum. \$2,500.
- Swan, D. C. Program Grant, Oklahoma Native American Youth Language Fair, Sam Noble Museum, Wichita and Affiliated Tribes. Oklahoma. \$250.
- Swan, D. C. Program Grant, Oklahoma Native American Youth Language Fair, Sam Noble Museum, Sac and Fox Nation, Oklahoma. \$1,000.
- Swan, D. C. Publication Grant, Fields Family Exhibition Catalog, Osage Nation Foundation, Southlake, TX.
 \$15,000.



Trilobite

- Swan, D. C. Travel Award, American Anthropological Association, Washington, DC. University of Oklahoma, Committee A, Sam Noble Oklahoma Museum of Natural History. \$1,010.
- Swan, D. C. Travel Award, American Anthropological Association, Washington, DC. University of Oklahoma, Department of Anthropology. \$1,010.
- Swan, D. C., A. Minks, and J. Nelson. Community
 Archiving of Native American Music: Best Practices for
 Institutional Facilitation. National Endowment for the
 Humanities. \$39,838.
- Terhune, C. et al. (R. L. Cifelli listed as Senior Personnel). MRI: Acquisition of a Micro-computed Tomography System for Advanced Imaging and Interdisciplinary Multi-user Access for the University of Arkansas and the US Interior Highlands. National Science foundation. \$687,161.
- Wang, K. Phylogenetics and Biogeography of Mountain Dragons of the Genus Japalura Sensu Lato from the

- Hengduan Mountain Region of Southwest China. East Asia and Pacific Summer Institute for US Graduate Students, National Science Foundation. **\$5,000**.
- Wang, K. Phylogenetics and Biogeography of Mountain Dragons of the genus *Japalura* Sensu Lato. Graduate Research Followership, National Science Foundation.
 \$46,000.
- Wang, K. Taxonomic Review of Chinese Draconinae Lizards: Current Challenges and Future Directions.
 University of Oklahoma, Department of Biology, Graduate Student Travel Fund. \$250.
- Wang, K. Taxonomic Review of Chinese Draconinae Lizards: Current Challenges and Future Directions.
 University of Oklahoma, Graduate Student Senate Student Travel Funds. \$750.
- Westrop, S. R. Digitization PEN: Expanding and Enhancing a TCN Digitizing Fossils to Reconstruct Evolving Ecosystems the Cretaceous Western Interior Seaway. National Science Foundation. \$102,369.



Undergraduate and graduate students in the field

Archaeology

In 2017, the archaeology department won three new curation contracts with federal agencies and received grants for Native American Graves Protection and Repatriation Act-related collections work and archaeological research. Nineteen volunteers and six interns assisted department staff with adding more than 484,000 artifacts to a database. Marc Levine, Ph.D., carried out fieldwork at Monte Albán, a pre-Hispanic capital and UNESCO World Heritage site in Oaxaca, Mexico. The research team used geophysical prospection techniques, including ground-penetrating radar, electrical resistance and gradiometry, to "see below" the surface. They also used a drone to create a digital map of the site.

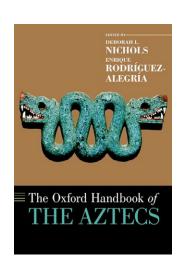
Ethnology

In 2017 the Ethnology Department staff developed and curated the exhibition, A Giving Heritage: Wedding Clothes

and the Osage Community. The exhibition initiated its tour with a venue at the Mathers Museum of World Cultures at Indiana University (August-November 2017). The department also acquired 179 Mayan textiles from Mexico and Guatemala through donation and transfer. This enhanced the museum's position as a major repository for the study and preservation of historic Mayan weavings.

Native American Languages

In August, the museum welcomed Raina Heaton, Ph.D., as assistant curator of Native American languages and assistant professor of Native American studies, as well as seven new interns and volunteers. The database and website were significantly re-structured to expedite the accession process, and several plans were put in motion to dramatically increase the accessibility and usability of the collection. Staff worked with tribes and researchers to accession 10 new deposits to the collection, which are dramatically expanding the holdings of the collection.



Levine, MN. Chapter 35 in The Oxford Handbook of the Aztecs

New Species Described

Invertebrate Paleontology

Stephen Westrop, Ph.D., received a grant from the NSF ADBC Program to collaborate with 10 other institutions to digitize specimens that lie within the paleogeographic extent of the Western Interior Seaway, which bisected North America during the late cretaceous period (65-100 million years ago). Three volunteers and seven students assisted department staff with collection management and research activites.

Paleobotany and Micropaleontology

Paleobotany accessioned 61 pollen samples from a 6-meter section through the Cretaceous Cloverly Formation in Montana, as well as the largest collection of petrified wood from the Jurassic Morrison Formation, also in Montana (21+ samples). Study of both of these samples will begin in 2018. Department staff also located 187 holotype specimens and 43 paratypes. New outreach features of the website include "Noteworthy Specimens"

that highlights rare or unusual specimens in the collection (e.g., Keye's Meteorite) and the ability to query the collection database.

Vertebrate Paleontology

Department staff, including Kyle Davies, assisted in re-opening the old WPA quarry 8. Four new species of fossil lungfish were described by graduate student Joseph Frederickson and Richard Cifelli, Ph.D., and one new species of fossil bat was described by Nicholas Czaplewski, Ph.D. The collection and research activities of the department were supported by the help of 35 adult and seven student volunteers, four graduate students and 11 undergraduate students.

Herpetology

Two new NSF grants were awarded to Cameron Siler, Ph.D., and collaborators. Several graduate students in

COLLECTION GROWTH

How do we grow the collections?

- Field collections
- Repository agreement depositions
- Donations
- Inter-institutional transfers

526,345

 $Cataloged\ or\ Digitized$

15,081

Recent Invertebrates

484,343

Archaeology

Undergraduate and Graduate Students Mentored

the Siler Lab spent all or part of 2017 abroad. Elyse Freitas spent most of the year in Thailand on a Fulbright Fellowship, Joey Brown spent part of the year in Southeast Asia, and Kai Wang spent part of the year in China. Four new species of amphibians and reptiles were described in 2017. The Amphibian Infectious Disease Citizen Science Project continued for another year, with plans for a statewide implementation in 2018.

Ichthyology

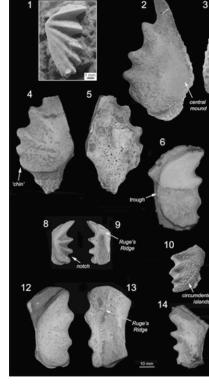
The Ichthyology department staff, with the assistance of 13 volunteers, continued a collection-wide inventory that began in 2016. This is the first inventory of the collection to be done since the move into the new museum building. The project includes a reorganization of the collection to maximize space and to create a system for better finding individual lots, data clean-up and addressing issues of failing gaskets and low alcohol levels.

Mammalogy

The museum welcomed Hayley Lanier, Ph.D., as assistant curator in August. Brandi Coyner, Ph.D. graduated from the first OU Staff Leadership Council. More than 65,000 images of specimen labels have been added to the database. After three years of field work (15 surveys, 93 nights, 266 localities, 9,094 trap nights and more than 20,000 miles driven), the Texas Kangaroo Rat project was completed. Although more than 2,100 individuals of 18 mammal species were captured and 12 additional species were collected and/or observed, no Texas Kangaroo Rats were captured or observed and this species of special concern is likely extirpated from the state of Oklahoma.

Oklahoma Collection of Genomic Resources

The Institute of Museum and Library Services-funded project to move the collection from -80 C freezers to the liquid nitrogen freezers was completed. The



Frederickson, JA, and RL Cifelli. New Cretaceous lungfishes (Dipnoi, Ceratodontidae) from western North America. Journal of Paleontology.

collection continues to grow in size and taxonomic diversity. It currently contains 19,416 samples and 44,028 aliquots from 538 genera and 939 species.

Ornithology

In 2017, the staff led several collecting trips in Oklahoma and Texas. They collected 268 specimens and salvaged/acquired 172 birds for a total of 86 species. Collecting-based research projects span from hybridization of Oklahoma birds, including *melanerpes* woodpeckers and *plegadis* ibises, and differential expression studies of migratory and non-migratory warblers to disease ecology of arboviruses transmitted by birds. In the collection, Oklahoman and non-Oklahoman specimens were combined and re-arranged according to a recent taxonomic order based on large-scale genetic studies.

Recent Invertebrates

The three-year NSF-funded collection revitalization project was completed in July. One of the final steps included the creation and installation of identifier cards that required more than two pounds of steel pins, eight pounds of paper and three toner cartridges. New specimens of invertebrates from the Philippines and Wyoming; ants, acanthocephala (parasitic worms), millipedes and centipedes and taxonomically valuable paratypes of beetles were added to the collection. Staff participated in broader public engagement projects such as the Monarch Waystation, BioBlitz and the Galileo and Ugly Bug exhibits.

IPM

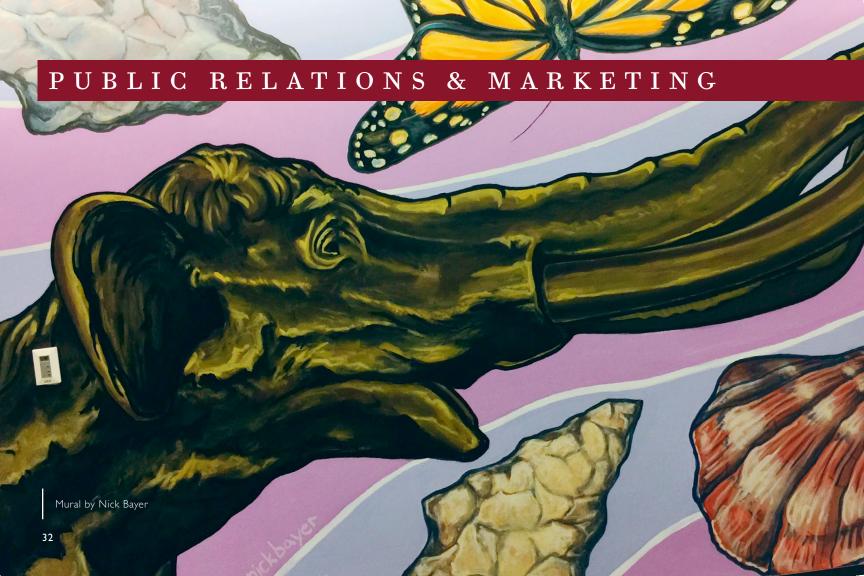
The museum welcomed Andy Estrada as the new IPM technician in April. In 2017, more than 1,400 objects entered Isolation and more than 900 were treated. During six pest trapping cycles, 4,567 insects were identified, 585 of which were classified as museum pests. IPM inspections included 99 events, five incoming exhibits and 137 Discovery Kits.

Registration

Several museum permits and policies were revised and renewed, including the Museum's Collection Response and Recovery Plan, Facility Report, three USDA APHIS permits (with an on-site inspection), three USFWS permits and one CITES permit. Collections records were updated, including 134 new accessions, 467 record modifications and 22 Deeds of Gift. Work continues on updating loan records, institutional archives (images and metadata) and the exhibit history of specimens and objects.



Volunteers visit Ornithology



Celebrating the 30th Anniversary

In 2017, the department collaborated on several projects to celebrate the Sam Noble Museum's 30th anniversary as the state of Oklahoma's natural history museum.

#30YearsIn30Days was a social media campaign and celebration that included historic museum photos and captions detailing each year from 1987 to 2017, one day at at time, during July, the month in which the bill was signed in 1987.

Three special, vintage editions of the museum's newsletter, Tracks, were developed and printed in addition to a spring and fall issue. Each vintage edition covered one decade of the museum's history and were filled with photos of the museum from its groundbreaking in 1996, to opening day in 2000, to the present day.

Working with the Will Rogers World Airport in Oklahoma City, we selected local artist Nick Bayer to create and paint a 44-foot-long mural in the airport's baggage claim area. All of the mural's images are among the museum's collection and on display in the public galleries. Along the adjacent wall, there is an art marker designed by the museum's graphic designer that names each of the objects or specimens in the mural.

For the first time, the museum hosted a Yelp Elite event for more than 60 participants. The evening included behind-the-scenes tours of vertebrate paleontology and herpetology with curators Rich Cifelli and Cameron Siler, respectively. Oklahoma City and Norman reviewers provided the museum with a positive event review on Yelp and fantastic high-resolution photos of the museum.

During the past year, the public relations and marketing department won first-and second-place awards for best newswriting out of more than 60 entries at the Oklahoma College Public Relations Association's annual conference.

MARKETING IMPACT



11,710 Facebook fans



3,304
Twitter followers
14% increase



1,707 Instagram subscribers 34% increase



2017 NUMBERS

■107,703 **■** Museum Visitors

167K Active Grants and Contracts Awarded to Museum Staff

■12,237**■** Followers on Facebook

■15,081■

Items added to the Recent Invertebrates collection

Special Exhibits

■3,425■

Followers on Twitter

■ 526,345 **■**

Collection Objects Cataloged

235 C

Papers Published by
Museum Staff

■1,299

Spooktacular Visitors

Conference Presentations Given
by Collections Staff

■4,593■

Spring Break Escape Visitors

2,795 Cobjects and Specimens Loaned

■4,474

Blue Star Museum Visitors

2,061

 $ONAYLF\ Participants$

2017 FINANCIALS

■ \$8,220 **■**

Birthday Parties
968 participants

\$5,800,000

Grants and Contracts
67 active contracts

\$265,785

Museum Store

■\$90,101**■**

Program Fees
13,489 visitors

■\$168,236■

Gifts

■\$202,053**■**

Admissions
107.703 total attendance

■\$51,109**■**

Memberships
1,336 memberships

■\$140,923**■**

Special Events
17,979 participants

TOTAL REVENUE: \$3.9 Million TOTAL EXPENSES: \$3.9 Million

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SELECTED MUSEUM PUBLICATIONS

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2017 BOARD OF VISITORS

Norman

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Volunteer with pot

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