

Click to Jump to a Section









From the Director

March 2020

Dear museum members,

It is my great pleasure to present the 2019 annual report for the Sam Noble Museum Oklahoma Museum of Natural History at the University of Oklahoma. The museum had a great year and I am excited to share some highlights.

The museum has a successful year of public engagement through a diverse schedule of exhibitions and programs. The year began with the Winged Tapestries: Moths at Large exhibition. The opening of the exhibition included a member's only event that featured a wonderful lecture by Jim Des Rivières, curator of the exhibition, on the process he used to capture the incredible images on display. This was followed by *Under the Arctic:* Digging into Permafrost. This exhibit explored important research sites in Alaska where scientists are working to better understand the important ecological role of permafrost and the impact of its decline in the face of climate change. We finished the year with the exhibition A Giving Heritage: Wedding Clothes and the Osage Community. This exhibit was developed by the museum's Department of Ethnology in collaboration with the Osage Nation Museum and the Wahzhazhe Cultural Center. The museum hosted a member's breakfast and a public program on the meanings and protocols associated with a traditional dressing of an Osage bride. The exhibition was previously displayed at the Mathers Museum of World Cultures at Indiana University (2017) and the Osage Nation Museum in Pawhuska, Oklahoma (2018).

Our Education Department delivered a number of new and expanded programs to meet the interests and needs of diverse audiences. The revamped Museum Discovery Kits continued a strong record of circulation to public and private schools in Oklahoma. These kits support objectbased learning and provide opportunities for hands on experiments and discovery activities. The museum continued the popular Adults Only Night programs and implemented new Summer Day Camps. Our signature ExplorOlogy™ programs provided unique opportunities for students to interact with museum scientists in their fieldwork and research programs. I want to thank the Whitten-Newman Foundation, the Oklahoma Energy Resource Board, the Bilby Foundation and our donor members for their continued support of education and public programs at the museum.

The Research and Collections Division had an active year of fieldwork, lab research and scholarly publication. In January we welcomed Dr. Dahiana Arcila as Assistant Curator of Ichthyology and Assistant Professor of Biology. Prior to joining our staff, Dr. Arcila earned her Ph.D. at George Washington University (2017) and completed a postdoctoral research appointment at the National Museum of Natural History, Smithsonian Institution (2018). Dr. Marc Levine gained tenure and a promotion to Associate Curator of Archaeology and Associate Professor of Anthropology. Dr. Levine's recent work includes the first use of remote sensing methods at Monte Albán, a World Heritage Site in Oaxaca, Mexico. Dr. Raina Heaton, Assistant Curator of Native American Languages and Assistant Professor of Native American Studies, initiated field work in the Chaco region of Paraguay to document previously undescribed Enenlhet language groups. The Herpetology Department and the Dr. Cameron Siler Lab continues important research programs in the Philippines, Belize and Oklahoma. Dr. Hayley Lanier and the graduate students in the Department of Mammalogy conducted field research in Alaska and Wyoming to investigate the evolution and conservation of small mammals. Drs. Janet Braun, Brandi Coyner and Hayley Lanier initiated research on the current dispersion and health of Oklahoma bat populations. Drs. Richard Lupia, Associate Curator of Paleobotany and Richard Cifelli, Curator of Vertebrate Paleontology, initiated a collaborative research project to investigate the effects of rapid changes in CO2 concentrations and climate on dinosaurs, mammals and plants during the Cretaceous period. Dr. Steve Westrop, Curator of Invertebrate Paleontology, continued his research on the paleoecology and macroevolution of Cambrian and Ordovician trilobites. The research conducted by our curators and their labs continues a long tradition of scholarly excellence at the museum. This activity supported numerous undergraduate research projects, Masters theses and Doctoral dissertations. Museum curators, research associates and graduate students published numerous articles in scholarly and popular outlets. A list of 2019 publications is appended to this report.

I hope to see you at the museum in the coming year.

Sincerely,

Daniel C. Swan, Ph.D. Interim Director Professor of Anthropology



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Exhibits

2019 Schedual

Winged Tapestries: Moths at Large Jan 26 through May 12

Under the Arctic: Digging into Permafrost May 25 through Sept. 2

A Giving Heritage: Wedding Clothes and the Osage Community

Sept. 14 through Dec. 8

Winged Tapestries: Moths at Large

Jan 26 through May 12

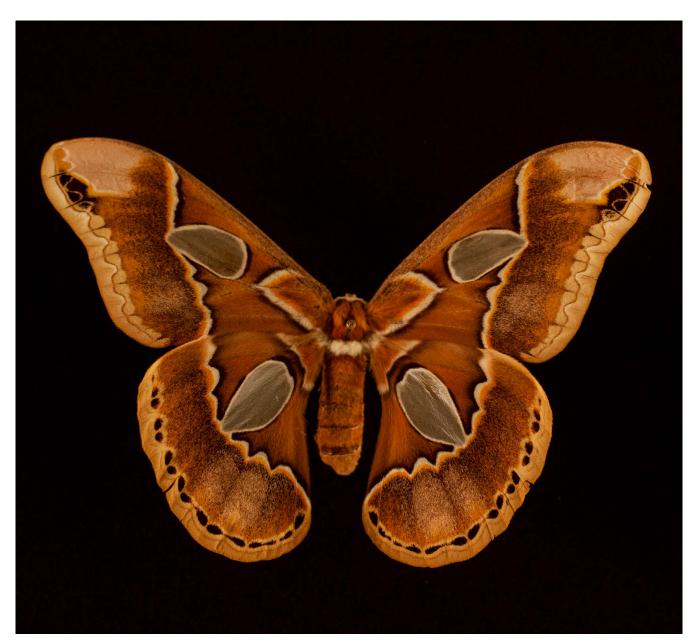
Enter a beautiful world of wings with the newest temporary exhibit, *Winged Tapestries: Moths at Large*. The exhibit showcases over 40 largeformat prints of various species of moths. Each print originated from a photograph of a moth specimen, taken by Ottowa photographer Jim des Rivières. Enlarged at a high resolution, each print allows visitors to view all the delicate details of a moth in a way rarely seen before.

In addition to the prints, the exhibit also has a display of moth specimens dedicated to the species that are native to Oklahoma. Approximately 29 of the moth species featured in the exhibit are native to Oklahoma, and at least 14 of the 29 species are local to Norman.

Winged Tapestries: Moths at Large, featuring the art of Jim des Rivières, is produced by the Canadian Museum of Nature.













Under the Arctic: Digging into Permafrost

May 25 through Sept. 2

Have you ever seen a mammoth tooth up close? What does the Ice Age smell like? Step into the shoes of climate science researchers, piece together clues and solve engineering challenges posed by thawing permafrost in our newest temporary exhibit, *Under the Arctic: Digging into Permafrost*. This interactive exhibit weaves together real narratives from people whose lives have been impacted by the changing global climate, highlighting the resiliency and ingenuity of everyday communities. Incorporating the sights and smells of the Western Hemisphere's only permafrost research tunnel and Ice Age fossils, this exhibit is an immersive experience for all ages.









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A Giving Heritage: Wedding Clothes and the Osage Community

Sept. 14 – Dec. 8

"A Giving Heritage" explores the history of bridal attire among the Osage, a Native American community centered in northeastern Oklahoma. The exhibition features the beautiful wedding coats and hats that have a special place among the Osage people. Military jackets and top hats, originally used as gifts from the U.S. Government for Osage chiefs and leaders, were repurposed as the bridal attire worn in a traditional Osage wedding.

As traditional Osage weddings ceased to be held in the 1930s, these special wedding clothes were incorporated into the llonshka—the Osage form of the Plains Grass Dance. Bridal coats and hats were used in the "paying for the drum" ceremony of the llonshka. The wedding clothes symbolize the transfer of leadership in the dance and celebrate the virtues of hospitality and generosity.



A Giving Heritage Wedding Clothes and the Osage Community

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Education



Through a variety of programs, the Sam Noble Museum engages Oklahomans onsite and across the state in high-quality science education experiences. The museum seeks to provide the community and learners of all ages with opportunities to expand their curiosity of the natural world.

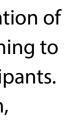
In collaboration with the OU Department of Astronomy, the museum started activities funded by a National Science Foundation CAREER Award to develop educational resources for K-12 students focusing on solar system development. Using information gained from the Department of Astronomy's research, the museum will create two new classroom programs to be facilitated for visiting school groups during field trips to the museum and activities for the Discovery Kit program, which will travel to schools across the state.

New in 2019, the Sam Noble Museum created day-long youth camps hosted onsite during Spring Break and summer in order to further diversify program offerings to meet the needs of our community. Additionally, Adults Only Night was launched to provide a unique opportunity for adult audiences to explore the museum afterhours. With over 200 participants enjoying trivia games, gallery discovery and refreshments, Adults Only Night reached new audiences and proved to be a success. Through such on-site events and programs, including field trips, summer camps, family programs and

Continuing the highly successful experience of bringing teachers and students to the field to actively engage with scientists and science, ExplorOlogy[®] completed its 12th year. Through a combination of summer field science programs and providing outreach programming to schools during the school year, ExplorOlogy[®] reached 4,597 participants. Additional outreach activities, including the Discovery Kit program, included a total of 30,307 participants.

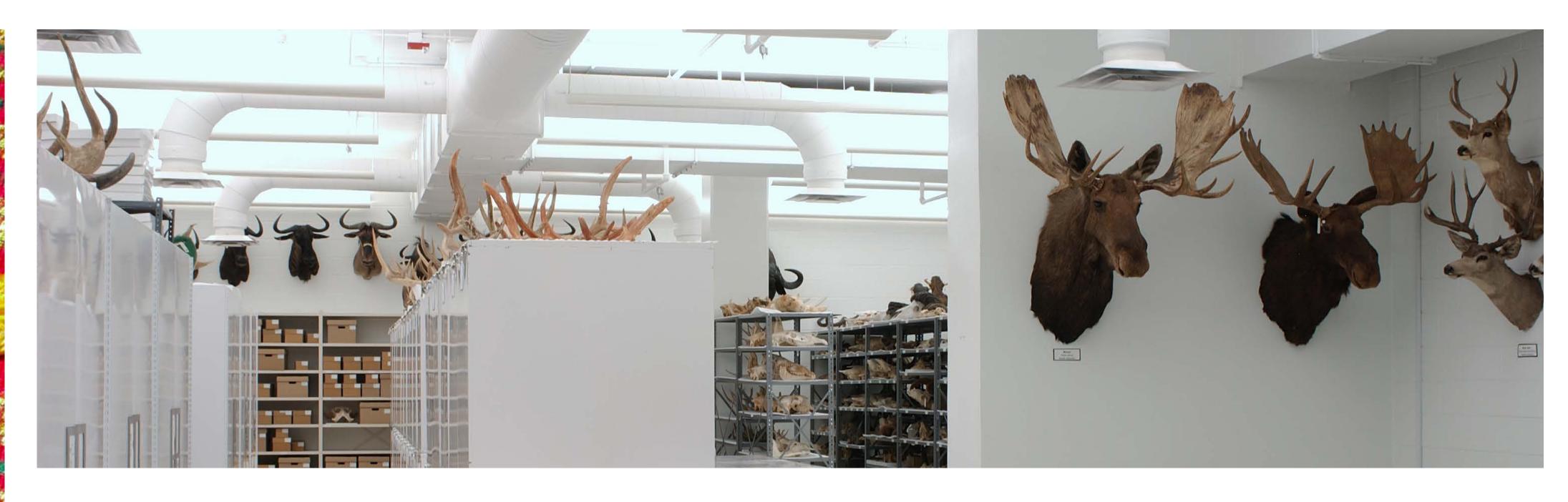
ExplorOlogy:

Paleo Expedition Participants	12	
Oklahoma Science Adventure Participants	14	
Science Institute Participants	10	
ExporOlogy [®] In Motion Participants	4,524	
School Programs:		
Field Trip Participants	15,172	
Classroom Programs Facilitated	271	
K-12 Students	4,818	





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Research and Collections

Overview

The Sam Noble Oklahoma Museum of Natural History began in 1899 as a Territorial Museum (one room) with one unpaid curator ("professor of biological and kindred sciences") at the then University of the Territory of Oklahoma. In 2019, with 13 curators of diverse sciences, the museum continues its mission of "continuing the geological and scientific survey of this Territory" by making and stewarding its collections, conducting research and disseminating results to "aid in the diffusion of knowledge" (Territory of Oklahoma, Session Laws of 1899).

In 2019, curators and collection staff published over 40 articles, 40 abstracts and one book, and curated an exhibit documenting and increasing the understanding of the natural world while actively working on over \$2,000,000 in grants from diverse agencies, including the National Science Foundation, Oklahoma Department of Wildlife Conservation, Department of Defense, Army Corp of Engineers, Oklahoma Energy Resource Board among others, and mentoring 55 undergraduate and graduate students. In 2019, curators and collection staff were also busy cataloging over 130,000 specimens/objects, sending 80 loans and over 1,600 specimens/objects out for use by other researchers, engaging with 1,441 visitors to collections

and responding to over 2,600 information requests from the public and peers.

With much gratitude and sincere appreciation, the Division of Collections and Research recognizes and thanks the 118 adult and student volunteers who gave thousands of hours to support and advance our mission.

Archaeology

In 2019, the Archaeology Department was awarded a Native American Graves Protection and Repatriation Consultation/Documentation grant for \$90,000 (the fifth in a row). The department also published four Notices of Inventory Completion in the Federal Registrar for a total of 236 sets of human remains, 18,097 associated funerary objects and 483 unassociated funerary objects. A report was also presented to the National NAGPRA Review Committee at the Museum of the North at the University of Alaska. Since 2015, notices have been published or submitted for 700 sets of human remains and 23,322 cultural items in the federal register. During the past year, the Archaeology Department held its first "Artifact Blitz" with the Oklahoma Anthropological Society, which included 16 volunteers who spent two days processing collections. Finally, Archaeology Collection





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Annual Report 2019

Manager Susie Fishman-Armstrong was elected as a board member at large to the Mountain-Plains Museum Association.

Ethnology

The Department of Ethnology completed a national tour of the exhibition, A Giving Heritage: Wedding Clothes and the Osage Community, with a venue at the Sam Noble Museum from Sept. 14 to Dec. 8.

Herpetology

The department received two new, three-year research grants awarded by the Oklahoma Department of Wildlife Conservation totaling \$199,042 in research support over the next three years. Sierra Smith, Ph.D. graduate student, was awarded a Fulbright Fellowship to spend nine months studying amphibian infectious diseases and skin microbial communities in the Philippines in the upcoming year, marking this the third straight year that the Siler Lab has had a graduate student receive a prestigious Fulbright Fellowship. The Siler Lab was also responsible for the discovery and description of one new genus and eight new species of amphibians and reptiles, as well as four new species of parasites in 2019.

Ichthyology

In 2019, a publication was featured in a special issue of the *Boletim* Sociedade Brasileira de Ictiologia about the history of the Sam Noble Museum Ichthyology Collection. The issue was inspired by the burning of the Brazilian Natural Museum in 2018. The issue includes summaries of major freshwater fish collections in the world. The Ichthyology Collection also increased its diversity from 348 to 448 species during the fieldwork expedition to Puerto Rico and the Mona Channel. A total of 448 new fish tissues samples were deposited during 2019, increasing the tissue sampling diversity from one to 138 species. In the past year, there was also digitization of over 3,000 pages of field notes from Jimmy Pigg expeditions. Finally, there was comprehensive compilation of data for 99 fish species distributed in Oklahoma for undergoing Oklahoma Fish App.

Invertebrate Paleontology

The Invertebrate Paleontology Department continued working on imaging and documenting Cretaceous fossils for a National Science Foundation collection grant on faunas of the Western Interior Seaway. This project has enabled the employment of several undergraduate students to assist in imaging and other curation tasks. Work also has continued in

georeferencing localities with the help of volunteer David Westrop. Our other volunteer, Steve Vanlandingham, continues to collaborate with UT emeritus Dr. Jim Spinkle on Bromide Fm. echinoderms, and has discovered significant new material.

Mammalogy

The park at the corner of Chautauqua Avenue and Timberdell Road was named in honor of Dr. Michael A. Mares. Dr. Hayley C. Lanier received the Species Survival Commission Chair's Citation of Excellence, the International Union for the Conservation of Nature Species Survival Commission's award for outstanding contributions. Undergraduate student Robert Beers received an American Society of Mammalogists' undergraduate honoraria award for research he presented at the 99th annual meeting in Washington, D. C. Addison Allen, M.S. student, received the award for best master's student presentation at the annual meeting of the Central Plains Mammal Society. A misidentified and federally endangered Ozark Big-eared Bat (Corynorhinus townsendii ingens) was discovered in in the Sam Noble Museum Education Collection. Only the fourth vouchered specimen from Oklahoma; it was transferred to the Mammalogy Department and added to the museum's priority specimen list.

Native American Languages

This year, the department has focused on making preparations to make its collections materials available online. This includes applying and reapplying for infrastructure and web development grants to give the department the digital infrastructure upgrades it needs to continue to curate the now mostly digital collection. This has also involved doing an audit of the entire collection, to make sure that all permissions, digital master and access copies, metadata, etc. is in a state ready for public viewing. The Native American Languages Department plans to finish that part of the process in the next year, and by then it will hopefully have obtained development funds for website creation. The department has also continued to expand its collection through ongoing donations and filled thousands of patron requests.

Oklahoma Collection of Genomic Resources

The collection currently contains 22,127 samples and 49,310 aliquots from 667 genera and 1,161 species. The entire collection continues to be housed in liquid nitrogen freezers.

Ornithology

The department has made major advances in genomic ornithology this year. This includes generating the first high-quality genome assembly for a woodpecker, and resequencing more than 100 whole genomes from woodpeckers, hummingbirds and Panamanian lowland birds for cuttingedge research in comparative avian genomics.

Paleobotany

The department developed and held training sessions in the spring and fall for paleobotany volunteers to bring in 14 additional volunteers to assist with photographing pteridophytes. This allowed 22 individuals (including both students and volunteers) to assist in digitizing (through either photography or data entry) pteridophytes representing 4,192 total photographs (1,345 photographs of overall specimens and an estimated 2,767 taxa).

Vertebrate Paleontology

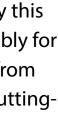
Dr. Cifelli and crew, including colleagues Brian Davis from University of Louisville Kentucky, Michael D'Emic and a graduate student from Adelphi University, and OU vertebrate paleontology graduate student Greg Wilbert, collected 28 field jackets of vertebrate fossils in the Cretaceous Lakota Formation of South Dakota including opening a quarry with a large iguanodontian, and then went to the Morrison Formation in Utah to collect rare microvertebrates in the Jurassic. Museum volunteers Erin and Kay have begun preparation of some of the fossils.

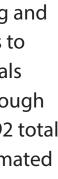
IPM

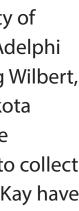
Integrated Pest Management inspected 1,319 and treated 1,211 objects and artifacts, and conducted 243 inspections. The IPM technician assisted security, special events, exhibits and operations, and worked alongside collections management staff in four collections, providing over 807 hours of direct support to these departments and collections.

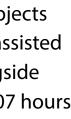
Registration

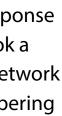
Registrar Tracy Bidwell attended the Heritage Emergency and Response training at the Smithsonian Institution in Washington D.C .and took a seat on the Oklahoma Museums Association Disaster Response Network upon her return. She created and implemented a system for numbering













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Annual Report 2019

and tracking individual loans brought in for exhibition, developed an incident report form for collections and established a license agreement for regional exclusivity in perpetuity with Karen Carr.

Grants

- **Allen, A.** How do Forest Fires Impact a Small Mammal Community? Robberson Research Grant, University of Oklahoma. **\$500**.
- Allen, A. How is the Ecology of a Small Mammal Impacted by Fire Succession? The Role of Diet in Small Mammal Species in Response to Fire-induced Habitat Change. Adams Summer Research Scholarship, Department of Biology, University of Oklahoma. \$3,400.
- Allen, A. Investigating the Cumulative Effects of Altered Fire Regimes on Community Diversity. Grants-in-Aid of Research Program, American Society of Mammalogists. \$1,500.
- Allen, A. The Role of Diet in Small Mammal Species in Response to Fireinduced Habitat Change. Graduate Student Senate Research Grant, University of Oklahoma. \$375.
- Allen, A. The Role of Fire Succession in Dietary Competition Among Small Mammal Species. Travel Award, American Society of Mammalogists. **\$500**.
- Allen, A. Travel for Wyoming Fieldwork. College of Arts and Sciences Travel Assistance Program, University of Oklahoma. \$750.
- Arcila, D. From Caves to Evolutionary Mechanisms: Understanding Convergent Evolution in Teleost Blind Cavefishes using Comparative Genomics. University of Oklahoma. **\$7,000**.
- Beers, R. Shifting Small Mammal Community Diversity due to Wildfire Succession in the Greater Yellowstone Area. Undergraduate Honoraria Award, American Society of Mammalogists. **\$1,500**.
- Braun, J. K., H. C. Lanier, and B. S. Coyner. Survey of the Distribution, Habitat, and Current and Historical Presence of White-nose Syndrome in the Tri-colored Bat in Oklahoma. Oklahoma Department of Wildlife Conservation. **\$89,960**.
- Ellsworth, E. D. Ecology and Conservation of the Central American River Turtle. American Turtle Observatory. **\$1,000**.

Ellsworth, E. D., and C. D. Siler. Research Grant. Oklahoma City Zoo and Botanical Gardens. **\$10,000**.

Ellsworth, E. D. Graduate Research Fellowship. Oklahoma City Zoo and Botanical Gardens. \$13,164.

Freitas, E. S. Molecular Phylogenetics of Lizards in Myanmar. Graduate Student Senate Spring Research Grant, University of Oklahoma. \$630.

Freitas, E. S. Historical Biogeography of Supple Skinks (Squamata: Scincidae) across the Old World Tropics. M. Blanch Adams and M. Frances Adams Scholarships in Biology, University of Oklahoma. **\$3,400**.

Freitas, E. S. The Phylogenetics, Biogeography, and Diversity of Skinks in the genera Lygosoma, Mochlus, Riopa, and Subdoluseps (Squamata: Scincidae). Nancy Mergler Dissertation Completion Fellowship, University of Oklahoma. **\$20,000**.

Hanna, M. Genetic Variation in the Woodhouse's Toad (*Anaxyrus woodhousii*) Across Environmental Gradients in Oklahoma and the Surrounding States. Undergraduate Research Opportunity Program, Honors College, University of Oklahoma. **\$800**.

Hudson, R., C. D. Siler, E. D. Ellsworth, J. Marlin, H. Barrett, T. Pop, D. Lawson, and T. Rainwater. Ecology, Conservation, and Reintroduction of the Critically Endangered Central American River Turtle (Dermatemys mawii) in Belize. Mohamed bin Zayed Species Conservation Fund.

\$12,500.

Kaspari, M., C. D. Siler, M. Weiser, K. Marshall, 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.**

Landis, M., and R. A. Lupia. Digitization TCN: Collaborative Research: The Pteridological Collections Consortium: An Integrative Approach to Pteridophyte Diversity Over the Last 420 million Years. National Science Foundation. **\$38,937**.

Freitas, E. S. Robberson Research Grant, University of Oklahoma. \$850.

Heaton, R. Enenlhet Language Documentation Fieldwork in Paraguay. University of Oklahoma Junior Faculty Fellowship. **\$7,000**.

Lanier, H. C. Bank Vole Genome Sequencing Collaboration. Institute of Animal Physiology and Genetics, Czech Academy of Sciences. **\$90,278**.

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. Five-year Contract for Curation of Archaeological Materials from Camp Gruber at the Sam Noble Oklahoma Museum of Natural History. National Guard Bureau, Oklahoma Military Department. 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. **\$90,000**.

Lupia, R., and R. L. Cifelli. Collaborative Research: Time of Transformation: Integrating the Dynamic Geologic, Climatic and Biotic Systems of North America During the Early to Late Cretaceous Transition. National Science Foundation. **\$491,953**.

McLaughlin, J. F., and M. J. Miller. Sutton Scholarship for work in Panama. \$6,000.

Miller, M. J. Genomic Assessment of Isolation and Connectivity Among Black-capped Vireo Populations in Oklahoma. Oklahoma Dept. of Wildlife and Conservation. **\$15,202**.

Miller, M. J. Surveying birds on the Mollie Spencer Farm. Kirkpatrick Family Fund. **\$3,500**.

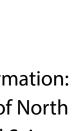
Ramos, G. Tolentino. Collared Pikas and Climate Change. L.G. Hill Biology Excellence Fund, Department of Biology, University of Oklahoma. \$400.

Ramos, G. Tolentino. Field Research on Collared Pikas and Climate Change. College of Arts and Sciences Travel Assistance Program, University of Oklahoma. **\$1,000**.

Ramos, G. Tolentino. Field Supplies for Research on the Collared Pika. Graduate Student Senate Research Grant, University of Oklahoma. **\$487**.























2019

- Ramos, G Tolentino. NSF-LAMP Bridge to the Doctorate Fellowship. \$34,000.
- Ramos, G. Tolentino. Source or Sink? Evaluating Population Structure in Collared Pikas. Grants-in-Aid of Research Program, American Society of Mammalogists. **\$1,500**.
- Ramos, G. Tolentino. Source or Sink? Evaluating Population Structure in Collared Pikas. Robberson Research Grant, University of Oklahoma. **\$1,000**.
- Ramos, G. Tolentino. Upward to Heaven? Climate Change Risks and the Future for Collared Pikas. Travel Award, American Society of Mammalogists. **\$500**.
- **Ratliff, L.** Establishing a Definitive Historical Foundation for the Presence of White Nose Syndrome in the Tri-colored Bat in Oklahoma. Undergraduate Research Opportunities Program, Honors College, University of Oklahoma. **\$693**.
- Siler, C. D., and S. J. Eliades. Head-start Program for Texas Horned Lizards at the Oklahoma City Zoo and Botanical Garden. National Science Foundation Non-Academic Research Internship (INTERN). \$40,287.
- Siler, C. D., and J. L. Watters. Monitoring Population Health, Spatial Ecology, and Microbiome Diversity of the Texas Horned Lizard on Tinker Air Force Base, Oklahoma. Department of Defense, Great Plains Cooperative Ecosystems Studies Unit. **\$141,827**.
- Siler, C. D., J. L. Watters, and K.A. Marske. Assessment of Texas Horned Lizard Population Status in Western Oklahoma. Oklahoma Department of Wildlife Conservation. \$89,972.
- 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.
- Smith, K., E. Miller, and N. J. Czaplewski. Guiding American Indians in Medical and STEM Career Awareness through Native Explorers. Mellam Family Fund. **\$10,000**.

Smith, S. N. Interrelationships Between Invasive Species and Wildlife Disease in the Philippines. Fulbright Fellowship. **\$11,900**.

Smith, S. N. First Characterization of Microbial Diversity within the Mouths and Guts of Venomous Snakes. Undergraduate Research Opportunity Program, Honors College, University of Oklahoma. **\$800**.

Swan, D. C. Oklahoma Native American Youth Language Fair, Sam Noble Museum. Program Grant, Anonymous Donor. \$5,000.

Swan, D. C., and J. Cole. ExplorOlogy Sam Noble Museum. Program Grant, Oklahoma Energy Resource Board. **\$30,000**.

Swan, D. C., and R. Heaton. Oklahoma Native American Youth Language Fair, Sam Noble Museum. Program Grant, Chickasaw Nation. **\$2,500**.

Swan, D. C., and R. Heaton. Oklahoma Native American Youth Language Fair. Program Grant, Osage Casinos and Hotels, Pawhuska. \$3,000.

Watters, J. L. Staff Development Fund. University of Oklahoma. \$400.

Watters, J. L. Staff Development Fund. University of Oklahoma. \$400.

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**.

Smith, K., and N. J. Czaplewski. Exploration and Collection of Fossil Vertebrates from the Morrison Formation Near Kenton, Oklahoma, and Ogallala Formation in Western Counties of Oklahoma. This project was funded by tribal nations (Chickasaw, Cherokee, and Choctaw), Native Explorers Foundation, and the Whitten-Burrage Law Firm. \$44,009.

Swan, D. C. Museum Support. Education Programs, Sam Noble Museum. Bilby Foundation. **\$24,000**.





Public **Relations &** Marketing

Facebook Followers	14,402
Twitter Followers	3,591
Instagram Followers	2,475

Over the past year, the department continued its transition to digital methods of marketing. Publications such as *Tracks*, the museum newsletter, incorporated video elements to enhance the content and the museum's social media channels started featuring more motion graphic videos to increase engagement.

The year started with the Winged Tapestries: Moths at Large exhibit, created by Jim Des Rivières. The museum hosted a members-only event, where the department was able to capture video footage to include in the Spring 2019 edition of *Tracks*.

In the summer, the museum hosted the traveling exhibit Under the Arctic: Digging into Permafrost. The exhibit inspired the Cold Days of Summer giveaway promotion, where museum visitors could enter to win a Yeti cooler, cooling neck towels and gift certificates to the Excavations, the museum store. Over 1,000 visitors entered the giveaway with many explicitly stating they only came to see the exhibit so that they could enter the promotion.

The marketing and public relations department also had a chance to visit the Black Mesa region of Oklahoma this summer. The department



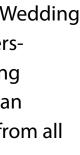
joined the ExplorOlogy[®] program in the panhandle in July, shadowing participants and documenting their experiences. Over eight hours of footage was collected and turned into a promotional piece for next year's program.

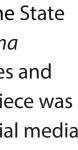
In the fall, the museum featured the exhibition, A Giving Heritage: Wedding Clothes and the Osage Community. The museum hosted a membersonly breakfast event, followed by a public demonstration of dressing a traditional Osage bride. The event drew in members of the Norman community, as well as members of Native American communities from all over the state of Oklahoma.

Towards the end of the year, the museum was featured in one of the State of Oklahoma Tourism Department's new series called: The Oklahoma *Road Trip*. A camera crew spent half a day filming in various galleries and interviewing one of the museum's education staff members. The piece was later featured on the State of Oklahoma Tourism Department's social media channels and web page.





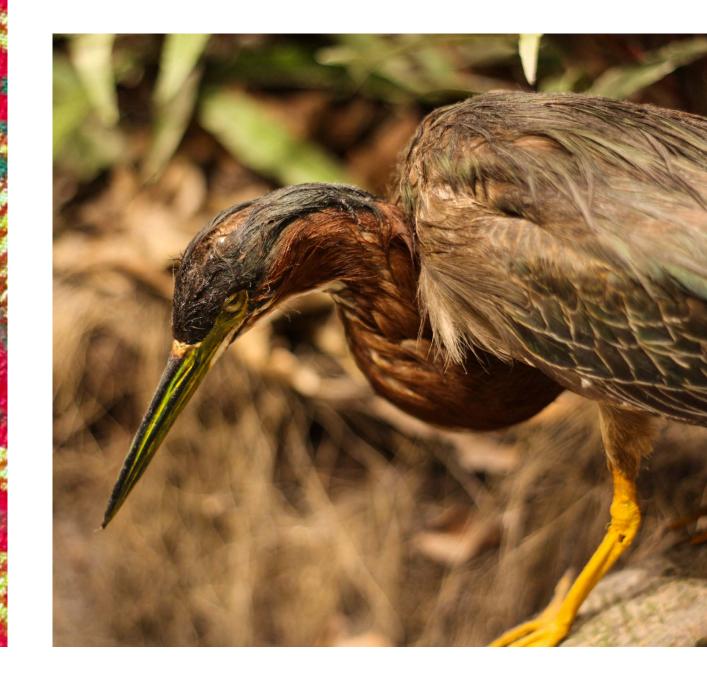








Financials



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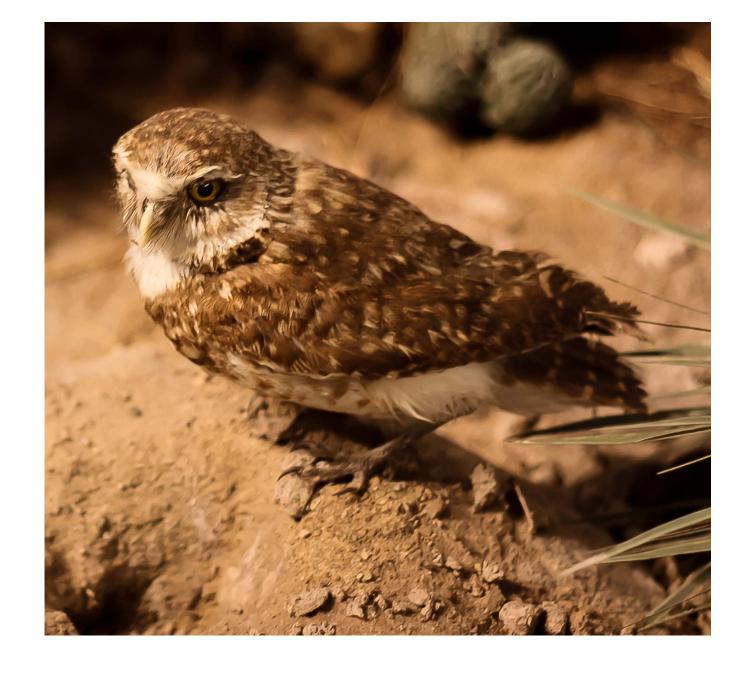
enue from Birthday Parties, Number of Participants	\$5,777 / 479
enue from Museum Store	\$252,005
enue from Grants and Contracts	\$453,340
enue from Program Fees and hber of Visitors/Participants	\$110,291 / 15,123
enue from Admissions and I Number of Attendees	\$228,555 / 98,387
enue from Special Events	\$109,122
enue from Memberships	\$39,970
enue from Donations/Gifts	\$115,347
l Revenue	\$3,794,374
l Expenses	\$3,976,047







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Museum Publications

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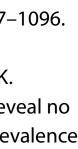
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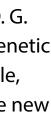
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12447

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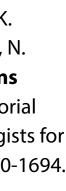
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744

Annual Report 2019

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Gibson, Robert Gilliam, Jim Goble, Carla Godsey, Taylor Goldston, Nathan Gossard, Nathan Graf, Mackenzie Grant, Delfar Green, Briten Gregg, Mason Gunning, Tom Haines, Howard Hall, Spencer Hamblin, Max Hammond, Marilyn Hanna, Kenzie Hanson-Regan, Will Hapke, Daniel Hendricks, Kristi Hill, Freddy Hill, Percy Hodges, Mary Holley, James Hooten, Karen Hough, Dan Huber, Sara Hull, Zac Hutton, Carol Jennings, Jill Jensen, Susan Johnston, Norman Johnston, Sally Mae Kaib, Lindsey

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Sue Madison

Messer, Bryce Meyer, Becky Middleton, Audrey Miller, Bill Miller, Janelle Miller, Shannon Mizikar, Elizabeth Monroe, Cara Morton, Patrick Mullenix, Murphy Nath, Abhinandan Nickell, Cassidy Nimmo, Isabella Norris, Jordan O'Neil, Wanda Owen, Kayci Pailes, Roberta Perry, John Pool, Samuel Reeves, Matt Roberts, Erin Robinson, Erika Ross, Nance Rowe, Jayme Rubin, Diane Scott, Donovan Shell, Rodger Simpson, Joanna Smith, Brandon Spence, Bronwyn Steponavic, Joseph Stice, Sarah Stills, Derek





Total Hours 17,751.43

Number of Volunteers 193

Average per Volunteer 91.98

Teen Volunteers

Baker, Mason Baker, Ryland Combs, Evelyn Goldston, Nathan Nimmo, Isabella Stills, Derek Sturges, Leah Truong, Solon Valadez, Zackery Wilson, Jacob

Total Hours 333.75

Number of Volunteers 10

Average per Volunteer 33.38

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