

Winter 2018-2019

ASNHC Newsletter



ASNHC

ANGELO STATE
NATURAL HISTORY COLLECTIONS



A Resource for Archival Research

Donor Wayne Milligan and Collections Manager Dianna Krejsa with Dr. Milligan's donation of more than 150 taxidermied specimens with accompanying data.

The ASNHC has received several important donations this year and will serve as a permanent archival home for these quality specimens with data.

Research collections like the ASNHC are important as educational entities for students and the community, but another central purpose is to serve as a repository for research speci-

mens - ones that have been examined for existing research questions and that wait to be used in questions yet unknown. The ASNHC has received several important donations this year

and will serve as a permanent archival home for these quality specimens with data. The following include several such donated collections and items, and at the discretion of the cu-

rators, we invite the donation of other such specimens! Read on for examples and case studies of what our collections offer, and what serving as an archival entity entails.

Archival Home for Chinese Specimens



Background to foreground: Fruit bat from Yunnan Province, Chestnut-bellied rat (*Niviventer fulvescens*) from Hong Kong and Murid rat from Guangdong Province.

The ASNHC accepted a collection of specimens from expeditions to China in the 1980s. Our collections already held some specimens from these trips, and in an effort to reunite preparations and parse out ambiguous data, all materials are being consolidated at the ASNHC and will be identified collaboratively with the other institutions that collected the specimens on these trips.

Salvage Opportunities



Amphibian and reptile preps (soon to be fluid specimens) prepared by spring 2018 Herpetology students.

Reptiles from Texas roadways, a bobcat from the MIR Center (Management, Instruction and Research Center run by the ASU Department of Agriculture), rehabilitation center birds from the Houston Museum of Nature and Science, a Kori bustard from the Fort Worth Zoo, and various specimens from the San Antonio Zoo have all made their way to the ASNHC this year. We are happy to make the most out of deceased animals in good condition and with great locality information.

Wayne Milligan Collection



Gray fox (*Urocyon cinereoargenteus*) and North American ducks.

More than 150 beautifully taxidermied specimens emphasizing Texas biodiversity have been donated to the ASNHC in the past six months.

In addition to an interesting array of Concho Valley mesocarnivores (skunk, gray fox, badger, opossum and ringtail among them), there is also a well-represented collection of tree squirrels of North America. Another main feature is the nearly complete representation of male-female pairs of every hunt-able species of North American duck (numbering 32 pairs) from localities ranging from the American Southwest up into the Canadian and Alaskan Arctic. Global biodiversity is also featured, with birds from Central America and specimens from New Zealand and Africa. It is a special collection that has already been used extensively in ASNHC outreach and displays (at the local public library and around the



Crested guan (*Penelope purpurascens*) and Ocellated turkey (*Meleagris ocellata*).

biology building). San Angelo State Park, the San Antonio Zoo and the Museum of Texas Tech have already made arrangements to receive loan specimens from this recent archival donation for use in their displays and outreach.

If your study involves collecting, archiving that material in a natural history collection aids in replicability of the work, which in turn adds to the study's reputability in publication. Archiving material also allows for an ever-expanding set of potential questions that could be asked of a record, which makes best use of an animal sacrifice. Also, creating specimens during a floral survey is a vital way to legitimize one's work through confirmed specimen identification, and again enables replicability through providing exact survey localities. The ASNHC looks forward to several more archival additions in the coming year.



The donated male African lion (*Panthera leo*) specimen on display in the Cavness Building during the 2018 ASNHC Open House.

African Specimens

Another important donation came to us this year from a private donor in Florida. After having taxidermies made of various African fauna and now retiring, the donor wanted the material to go to research or educational institutions. After contacting the National Museum in Washington, D.C., and then the Field Museum in

Chicago, the donor contacted the ASNHC (thanks to a referral from ASU alumnus and current collections manager at the Field Museum, Adam Ferguson). In great condition and with accompanying data, a male African lion and a 14-foot Nile crocodile now grace the holdings of the ASNHC.

Students Gain Field Experience and Add to Collections

In fall 2017, mammalogy students tried their hand at trapping for small mammals in the Davis Mountains and were hosted on the Martin Ranch. This granted students the experi-

ence of experimenting with trap type and finding ideal habitats for certain species, as well as testing their ability to camp in sub-zero (Celsius) temperatures!



Plant taxonomy students cinch plant presses while collecting in the field along Texas roadways in spring 2018.

Collections by the Numbers:

Sept. 2017 - Sept. 2018

Publications & Citations

11 publications and 351 citations

Loans

There have been **28 loan requests** and more than **1,400 loaned specimens!** Some highlights of loaned materials include:

- ▶ Texas Tech University borrowed a reticulated giraffe to use as a centerpiece for its Grasslands exhibit.
- ▶ Portuguese scientists requested a tissue loan of a rare African antelope (*Beatragus hunteri*; only 300 left in the wild) to aid in this imperiled species' conservation research.
- ▶ Chinese bats, rats and mongooses from the 1980s were loaned to Abilene Christian University to be used in teaching and to have species identification confirmed.

Outreach

- ▶ **Tours:** More than 12 groups, 700 visitors and 200 specimens!
- ▶ **Events:** 13 community events, exhibits and televised talks with more than 2,750 people and 103 specimens!
- ▶ **Classrooms:** 16 classroom and laboratory settings (four external to ASU), over 836 ASNHC specimens!

Specimen Totals

Herbarium	60,400
Tissues.....	24,462
Mammalogy	18,926
Herpetology	15,132
Ornithology	2,642



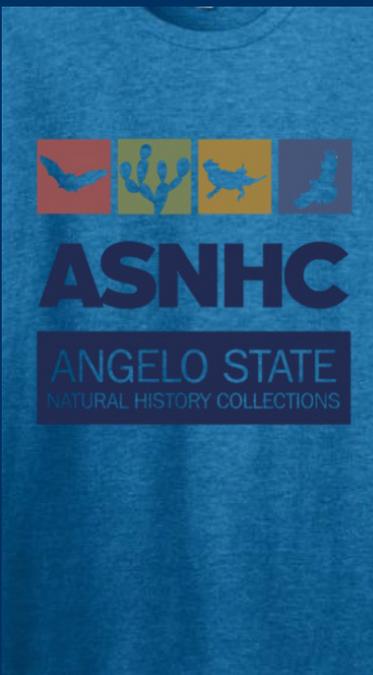
ASNHC

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ASNHC Shirt Fundraiser

FOR THE FIRST TIME EVER, the ASNHC has a shirt! You can get your own by donating \$15 or more to the Dr. Terry C. Maxwell Endowment in Natural History (which supports our collections' maintenance and growth, as well as student and faculty research) through the Development Office.

Contact the collections manager at dkrejsa@angelo.edu for information on how to donate and get your shirt! If you cannot pick it up locally, please add \$5 for shipping.



ASNHC Shirt.

Maxwell Endowment in Natural History Pushes Past \$100K

In our last newsletter, we announced that the endowment in support of the ASNHC had been renamed in memory of Dr. Terry C. Maxwell, who passed away in 2017.



Terry Maxwell with a friendly bird.

The curators made the decision in 1998 to grow the endowment to \$100,000 before beginning to use the interest generated for the ASNHC. We challenged the community to help us reach the goal of \$100,000 this year from the \$85,000 level at the time of the last newsletter. With the aid of an anonymous donor willing to match up to \$7,500, we surpassed that goal early in 2018. Thanks so very much to all of you who played a part in this achievement.

Our new initiative, with the blessing of Ann Maxwell, will be able to use some of Dr. Maxwell's original artwork as gifts for donors to the Maxwell Endowment. If you are one of the many former students, friends or colleagues of Dr. Maxwell, or just enjoyed his weekly column, "Naturally Texas," and would like to own a piece of his signed original art, see the enclosed flyer or see the availability of drawings on the ASNHC website.



Assorted Illustrations by Terry Maxwell.

Around the Collections

Bats Aren't Creepy

This year for Bat Week (Oct. 24-31), the ASNHC hosted an event for Girl and Boy Scouts led by Dr. Mike Dixon, curator of the Division of Amphibians and Reptiles. More than 315 people attended to learn the truth about bats and what ecosystem services they provide (like pest control and plant pollination). With several important but imperiled bats in Texas, as well as many bat researchers within the ASU Biology Department, bats were well represented at the event!



ASNHC student worker Rose Wilhoit with greater bulldog bat (*Noctilio leporinus*). Photo: Texas Southwest Council, Boy Scouts of America.

THANK YOU

THANK YOU TO ALL DONORS who, in the past year, helped boost the ASNHC Endowment to complete our 20-year goal last January, and thank you to all those continuing to donate to build this endowment. Thank you to Ann Maxwell (wife of Terry C. Maxwell) for usage and donation of his artwork. Thank you to various key departments across campus for their support of the ASNHC, including the contributions of artists and designers within the Communications and Marketing Office and the support and creative solutions of the Facilities Management and Materials Management staff.



ASNHC student worker Matt Hamilton instructs Scouts about mammalian morphology and taxonomy. Photo: Texas Southwest Council, Boy Scouts of America.

Mammal Study Merit Badge

San Angelo Boy Scout Troop 363 attended the ASNHC's first Mammal Study Merit Badge session on Sept. 18. A group of 37 troop members came to learn about taxonomy, mammalian characteristics, and the purpose and functions of a museum by touring the Angelo State Natural History Collections. More event nights for this merit badge will be offered in the future.

WE WOULD ALSO LIKE TO THANK Mr. and Mrs. Maurice A. Archer, Mr. James M. Atcheson, Dr. Royce E. Ballinger, Ms. Carisia Banda, Ms. Cynthia D. Belden, Ms. Bethany Chapman, Ms. Mercedes Curry, Mrs. Mary E. Creel, Ms. Helen Crews, Laurel Dane and Dr. Andy Dane, Ms. Sydney K. Decker, Mr. and Mrs. Randy Dews, Col. and Mrs. John R. Diggins III, Drs. Loren K. Ammerman and Michael T. Dixon, Mr. and Mrs. Thomas Dixon, Ms. Megan Dory, Dr. and Mrs. Robert Dowler, Ms. Carla Ebeling, Dr. Adam W. Ferguson, Mr. and Mrs. Bobby Fletcher, Dr. Laurel E. Fohn and Mr. Christopher Peterson, Mr. and Mrs. James J. Fulgham, Mr. Robert "Max" Goodwin, Mr. Matthew H. Hamilton, Mr. John D. Hanson, Dr. Connie Heimann, Mr. James C. Henderson, Ms. Heather Hillert, Mr. and Mrs. Lee W. Horton, Mr. Colby Ingram, Ms. Samantha Jackson, Mr. Jaret Jaklewicz, Ms. Hannah L. Jones, Ms. Ashley Kingsley, Dr. and Mrs. Phillip D. Kothmann, Ms. Kristen L. Kothmann and Mr. Sean M. Young, Mr. Harry Krejsa, Ms. Beverly B. Krejsa, Ms. Dianna M. Krejsa, Ms. Elizanette V. Lopez, Mr. Andrew S. MacPhie, Mr. and Mrs. Chester O. Martin, Mrs. Ann Maxwell, Ms. Jeanette McWilliams, Ms. M'Kayla G. Motley, Dr. Elisabeth L. Noelke, Dr. and Mrs. A. Michael Powell, Ms. Angela Rollins, Mr. Kellen Rowe, Mr. and Mrs. Ben O. Sims, Dr. Ben R. Skipper, Ms. Tori Solis, Mr. and Mrs. David A. Stinnett, Mr. Drew Sykes, Mr. and Mrs. Mark H. Thieman, Ms. T. Marie Tipps, Dr. and Mrs. Caleb Vosburg, Mr. Brent Wesley, and Ms. Rose Wilhoit. **And the anonymous donor who made our endowment goal attainable this past year!**

ASNHC Open House

On Nov. 8, the ASNHC hosted its annual Open House where members of the public are invited to tour our collections and attend a brief lecture by a member of the curatorial staff. This year, Collections Manager Dianna Krejsa gave a lecture on the usage and modern status of natural history collections worldwide. Her talk, "Why Our Museums Matter: plight and promise of natural history collections in the 21st century," saw an audience of more than 100 people, and wouldn't have been possible without the help of 18 ASNHC student staff and volunteers in preparation and execution of the successful event. Kids' activities, selfie stations, take-home natural history crafts and tours of the collections followed the talk.

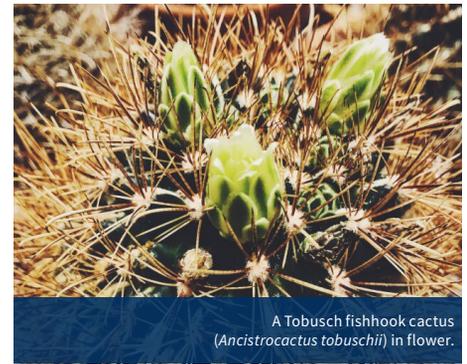


The crowd that attended Collection Manager Dianna Krejsa's talk in the Cavness Science Building auditorium.

Tobusch Cacti on ASU Campus

The brand new greenhouse at ASU's Department of Biology houses what may be the world's largest collection of Tobusch fishhook cactus, totaling about 500 cacti. This cactus is a threatened, endemic species found in only eight of the 254 counties of Texas. The plants now housed at ASU were harvested as mitigation

to habitat destruction from pipeline constructions. This includes approximately 360 plants that were in the care of the Ladybird Johnson Wildflower Center from previous pipeline projects. In fall 2018, we received additional plants collected from the pathways of two other pipeline projects. These plants provide multiple opportunities for learning more about the biology of the rare species, as well as for ongoing student-conducted research.



A Tobusch fishhook cactus (*Ancistrocactus tobuschii*) in flower.

BioBlitz Spring 2018



Group photo of spring 2018 BioBlitz attendees and surveyors.

In the spring of 2018, faculty from the Biology Department, ASU's Tri-Beta honor society, and 45 biology graduate and undergraduate students returned to the Head-of-the-River Ranch near Christoval to conduct a BioBlitz –

a one-day survey of all living things in a given area. This survey marked the first documented occurrence of several plants and animals on the ranch. In addition to documenting the current and changing flora and fauna of the

Concho Valley, ASU's BioBlitz serves to expose students to survey methodologies and plant and animal identification, and provides an opportunity for faculty and students to interact in and around nature.

Costa Rica 2018

Drs. Mike Dixon and Robert Dowler led the bi-ennial tropical biology study abroad program to Costa Rica. Eleven students, four ASU faculty and staff, and University of Costa Rica (UCR) graduate student Paula Ledesma traversed the country for four weeks. As in previous years, students learned about the natural history of plants and animals they encountered, and worked to identify the numerous vertebrates. This summer's trip came with a twist; a focus on field techniques in mammalogy. Students had the opportunity to trap and net mammals and learn how to identify them and turn them into holistic specimens. This entailed collecting ecto- and endo-parasites, nu-



The 2018 Costa Rica study abroad group representing ASU on the beaches of Tortuguero.

merous tissues and notes on reproductive status, and producing skins and skulls of 56 mammals. The specimens are currently housed at UCR, but we are making arrangements to

import a subset in trade to the ASNHC. Other trip highlights included spotting humpback whales, watching green sea turtles lay eggs and visiting a Boruca indigenous village.

Around the Department

Publications

Howells, R. G., N. E. Strenth, and M. P. Jones. 2018. A New Record of the Rio Grande Monkeyface, *Quadrula couchiana* (Lea 1860) from the Rio Salado, Mexico. *Elipsaria* 20(1):30-32.

Hughes, M. R., N. J. Negovetich, B. C. Mayes, and R. C. Dowler. 2018. Prevalence and intensity of the sinus roundworm (*Skrjabinylus chitwoodorum*) in rabies-negative skunks of Texas, USA. *Journal of Wildlife Diseases* 54(1):85-94.

Morgan C.N. and R. C. Dowler. 2017. Habitat suitability modeling and seasonal movements of *Peromyscus laceianus* (Lacey's white-ankled mouse) in Val Verde County, Texas. *Southwestern Naturalist* 62(4):270-277.

Pourshoushtari, R.D., B.P. Pauli, P.A. Zollner, and G.S. Haulton. 2018. Road and habitat interact to influence selection and avoidance behavior of bats in Indiana. *Northeastern Naturalist* 25(2):236-247.

Ruedas, L. A., and R. C. Dowler. 2018. *Sylvilagus robustus* (peer reviewed species account). Pp. 154-155, in: Lagomorphs: pikas, rabbits, and hares of the World (Smith, A. T., C. H. Johnston, P. C. Alves, and K. Hackländer, eds.). Baltimore, Maryland: Johns Hopkins University Press, xiii+266 pp.

Shaffer, A. A., R. C. Dowler, J. C. Perkins, A. W. Ferguson, M. M. McDonough, and L. K. Ammerman. 2018. Genetic variation in the eastern spotted skunk (*Spilogale putorius*) with emphasis on the plains spotted skunk (*S. p. interrupta*). *Journal of Mammalogy* 99(5):1237-1248.

Skipper, B. R. (2018) Mississippi kites: elegance aloft. In: Boal, C. and C. Dykstra eds. *Urban Raptors: Ecology and Conservation of Birds of Prey in Cities*. Academic Press.

Presentations

Ammerman, L. K. and M. T. Dixon. 2017. Fluctuations in the colony size of the endangered Mexican long-nosed bat over the past decade. North American Symposium on Bat Research, Knoxville, Tenn.

Chen, A. and L. E. Fohn. 2018. Development of RT-PCR primers for examination of cell proliferation and neural gene expression in mosquitoes. Angelo State University Undergraduate Research Symposium. San Angelo, Texas.

Chodacki, G. D., and B. R. Skipper. 2018. Partitioning of foraging habitat among kingfishers along the South Llano River, Texas. Texas Chapter of the Wildlife Society, San Antonio, Texas.

Decker, S. K., and L. K. Ammerman. 2018. Investigation of the phylogeographic structure of the subspecies of northern yellow bats (*Dasypterus intermedius*) by molecular analysis. Texas Society of Mammalogists, Junction, Texas.

Dowler, R. C., J. C. Perkins, A. A. Shaffer, J. P. Pierre, and B. Wolaver. 2018. Current status of the plains spotted skunk in Texas. Symposium presentation, The Wildlife Society, Cleveland, Ohio.

Hall, K. and L. E. Fohn. 2018. Folic acid supplementation and neurological function in a *Drosophila* model. Great Plains Honors Council Conference. Stillwater, Okla.

Hamilton, M. and R. C. Dowler. A systematic assessment of endemic Galapagos rodents: *Nesoryzomys fernandinae* and *Nesoryzomys swarthi*. Tri-Beta Regional Convention, Cedar Hill, Texas, and American Society of Mammalogists, Manhattan, Kan.

Presentations (cont.)

Jones, B. A., M. P. Holt, S. J. Harrison, L. K. Ammerman, and D. N. Lee. 2018. Assessing multiple paternity in eastern red bats, *Lasiurus borealis*, with microsatellite loci. Texas Society of Mammalogists, Junction, Texas.

Jones, H. L., R. C. Dowler, and N. J. Negovetich. 2018. Endoparasites of the Eastern Spotted Skunk (*Spilogale putorius*). American Society of Mammalogists, Manhattan, Kan.

Motley, M. 2018. A preliminary report on the seed dispersal of *Sclerocactus brevihamatus* ssp. *tobuschii*: an endemic cactus. Regional Beta Beta Beta Conference and National Beta Beta Beta Conference.

Perkins, J. C., A. A. Shaffer, N. W. Sharp, D. B. Sasse, and R. C. Dowler. 2017. Crowd-sourcing, citizen scientists, and collecting novel data: the search for the eastern spotted skunk. Annual meeting of the Wildlife Society, Albuquerque, N.M.

Persinger, K. A., and B. R. Skipper. 2018. Prevalence of avian trichomoniasis in 2 species of dove in and around the city of San Angelo, Texas, USA. Texas Chapter of the Wildlife Society, San Antonio, Texas.

Persinger, K. A., and B. R. Skipper. 2018. Prevalence and genetic analysis of avian trichomoniasis in urban columbiforms. Southwestern Association of Naturalists, San Marcos, Texas.

Pourshoushtari, R. D., E. R. Adams, and L. K. Ammerman. 2017. Monitoring site fidelity and seasonal activity of Mexican long-nosed bats at Emory Cave using PIT tags. North American Symposium on Bat Research, Knoxville, Tenn.

Pourshoushtari, R. D., E. R. Adams, and L. K. Ammerman. 2018. Monitoring site fidelity and seasonal activity of Mexican long-nosed bats at Emory Cave using PIT tags. Texas Society of Mammalogists, Junction, Texas, and Southwestern Association of Naturalists, San Marcos, Texas.

Shaffer, A. A., R. C. Dowler, J. C. Perkins, A. W. Ferguson, M. M. McDonough, and L. K. Ammerman. 2018. Genetic variation in subspecies of the eastern spotted skunk (*Spilogale putorius*) with emphasis on the plains spotted skunk (*S. p. interrupta*). Texas Society of Mammalogists, Junction, Texas, and presented in symposium at The Wildlife Society Conference, Cleveland, Ohio.

Shaffer, A. A., J. C. Perkins, R. C. Dowler, and L. K. Ammerman. 2017. Conservation genetics of an uncommon mesocarnivore, the eastern spotted skunk. Annual meeting of the Wildlife Society, Albuquerque, N.M.

Stone, Q. and L. E. Fohn. 2018. ZIKV in West Texas-seasonal prevalence of mosquitoes of San Angelo, Texas. Angelo State University Undergraduate Research Symposium. San Angelo, Texas.

Faculty Grants

Loren K. Ammerman. 2018. Binational Conservation of an Endangered Pollinator: Research, Protection, and Recovery for the Mexican Long-nosed Bat. Contract with Bat Conservation International, TPWD Section 6 funding.

Bonnie B. Amos. 2018. Transfer of Tobusch Fishhook Cactus Plants to ASU. Lady Bird Johnson Wildflower Center.

Robert C. Dowler, J. Clint Perkins, and R. D. Stevens. 2018. Spatial ecology of the plains spotted skunk. Contract with Texas Comptroller's Office, Endangered Species Research.

Ben R. Skipper. Geographic Variation in Mountain Chickadee (*Poecile gambeli*) Song within Texas and New Mexico. ASU Faculty Learning Commons Mini-Grant.

Student Grants

Angela Chen. Development of RT-PCR primers for examination of cell proliferation and neural gene expression in mosquitoes. Faculty-Mentored Research Grant, Faculty mentor: Laurel Fohn.

Kayli Hall. Folic acid supplementation and neurological function in a *Drosophila* model. Faculty-Mentored Research Grant, Faculty mentor: Laurel Fohn.

Sam Harrison. Genetic diversity in Southern yellow bats, *Dasypterus ega*. Faculty-Mentored Research Grant, Faculty mentor: Loren K. Ammerman.

Virginia Jaquish. Acoustic survey of bat species and seasonal activity level in the city of San Angelo, Texas. Graduate Research Fellowship, Faculty mentor: Loren K. Ammerman

Virginia Jaquish. An investigation of Agave flower visitation by *Antrozous pallidus* in the Big Bend region of Texas. Head of the River Ranch (HRR) Student Research Grant, Faculty mentor: Loren K. Ammerman.

Hannah Jones. Endoparasites of the Eastern Spotted Skunk (*Spilogale putorius*). Head of the River Ranch (HRR) Student Research Grant, Faculty mentor: Robert C. Dowler.

M'Kayla Motley. 2018. Ant-fruit interactions in Tobusch Fishhook Cactus. Beta Beta Beta Research Grants, Master Gardeners Research Grant, ASU Faculty-Mentored Undergraduate Research Grant, Faculty mentor: Bonnie B. Amos.

Kelly Persinger. Prevalence and genotyping of avian trichomoniasis in urban and exurban areas in and around the city of San Angelo, Texas. Graduate Research Fellowship and Head of the River Ranch (HRR) Student Research Grant, Faculty mentor: Ben R. Skipper.

Roxy Pourshoushtari. Assessment of the genetic variation of the Mexican long-nosed bat (*Leptonycteris nivalis*) using microsatellite markers. Head of the River Ranch (HRR) Student Research Grant, Faculty mentor: Loren K. Ammerman.

Victoria Solis. Extra-pair paternity in a sexually monomorphic passerine, the Bewick's wren. Graduate Research Fellowship, Faculty mentor: Ben R. Skipper.

Quint Stone. ZIKV in West Texas-seasonal prevalence of mosquitoes of San Angelo, Texas. Faculty-Mentored Research Grant, Faculty mentor: Laurel Fohn.

Awards

Loren K. Ammerman won an Outstanding Woman Leader Award from the West Texas Association of Women in Science.

Sydney K. Decker won the Clyde Jones Award given by the Texas Society of Mammalogists for best undergraduate poster presentation in mammalian molecular biology, evolution and systematics.

Roxy D. Pourshoushtari won the Robert L. Packard Award given by the Texas Society of Mammalogists for best overall oral presentation.

Roxy D. Pourshoushtari received the Howard McCarley Student Research Award from the Southwestern Association of Naturalists for her project, "Assessment of the genetic variation of the Mexican long-nosed bat (*Leptonycteris nivalis*) using microsatellite markers."

Alexandra A. Shaffer won the TSM Award given by the Texas Society of Mammalogists for best oral presentation in mammalian molecular biology, evolution and systematics.

R. Russell Wilke received the ASU Gary and Pat Rodgers Distinguished Faculty Award in August 2018.

Skunk Research Continues at ASU...

Through a generous donation of \$16,193 from Aspen Skunk Rabies Research Inc., Angelo State University is establishing a Skunk Research Fund that will provide research money for students and faculty conducting ongoing research on skunks.

The fund can accept additional donations for support of skunk research. Dr. Robert Dowler also was awarded a continuation of his contract to study spotted skunks through the Texas Comptroller's Of-

fice. This contract for \$421,611 is for research into the spatial ecology of the plains spotted skunk and will fund a Ph.D. student at Texas Tech University (J. Clint Perkins) and two M.S. students (Kamren Jefferson and Matthew Hamilton) at Angelo State University for the next two and a half years. This research will involve collaring spotted skunks with GPS and VHF radio collars to monitor their movements and denning habits at a site of remnant coastal prairie habitat west of Houston. We continue to seek information on sightings of spotted skunks and animals found dead. In the past year, we have had animals donated or loaned for parasite studies from Virginia, Alabama, Florida and Texas.



Western spotted skunk (*Spilogale gracilis*).

...and So Does Bat Research!

Several projects involving the nectar-feeding, endangered Mexican long-nosed bat (*Leptonycteris nivalis*) and pallid bats (*Antrozous pallidus*) are underway at ASU in collaboration with researchers from Mexico.

Graduate student Roxy Pourshoushtari is studying the level of genetic diversity in the species using micro-satellite markers. She is also assisting Dr. Loren Ammerman to obtain colony size estimates using thermal imaging video at a summer roost in Big Bend National Park. In addition, they are following seasonal and annual patterns of roost use by detecting bats marked with PIT tags (microchips) as they fly in and out of their cave roost. Some bats have returned to the cave each year for the last four years! This work is funded by a USFWS/TPWD grant awarded to Bat Conservation International and ASU.

In May 2018, Ammerman taught 12 students about bat biology, bat identification and field techniques for the study of bats during her "Natural History of Bats" field course. Data collected by the students in the course contributed to 22 years of capture data on the bat community of Big Bend National Park that can be used to track long-term trends in the abundance of the 22 bat species that occur in the park.



Roxy Pourshoushtari and Laura Baumann process a captured bat.

Although pallid bats are insectivores, they are frequently captured covered in pollen. Graduate student Virginia Jaquish is studying the interaction between pallid bats (*Antrozous pallidus*) and agave. She captured bats and collected pollen samples from their fur in the summer, and is using microscopy of the stained pollen grains to identify the species of plants they represent. Undergraduate Brent Wesley is working to identify a genetic marker that can be used to reliably identify agave species by examining DNA sequences from several genes. His data will be used to develop the best method to identify pollen samples collected from both pallid bats and Mexican long-nosed bats. In collaboration with Dr. Bonnie Amos, voucher specimens of plant species used in these studies were collected and deposited in the ASNHC Herbarium.



Mexican long-nosed bat (*Leptonycteris nivalis*). Photo by Rodrigo Medellín.

Angelo State Natural History Collections

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