



ASNHHC

Angelo State Natural History Collections



MEMBER,
TEXAS TECH
UNIVERSITY
SYSTEM

MAR. 2012



Some people have no limits to their energy, and it shows.

Dr. Loren Ammerman, ASU associate professor of biology and curator of the ASNHHC Frozen Tissue Collection, is the lead author on the forthcoming second edition of *Bats of Texas*. She wrote the species accounts and then, over months of long nights and weekends, shepherded it through publisher edits with no reductions in her full-time teaching load, student research responsibilities or field trips to Big Bend with students. Oh, and she has a family.

Ammerman began the project, a thorough update of the 1991 first edition by David Schmidly, in early 2008. Her coauthors are Christine Hice, who wrote the introduction, and David Schmidly of the University of New Mexico. Former ASU students Carson Brown, Jay Packer and Rustin Tabor were also important contributors to the effort. Brown is the illustrator, and the quality of his work will certainly add to the book's appeal and utility. Tabor was critical to getting the extensive databases together at the start of the project. Packer, a master programmer, developed the upcoming *Bats of Texas* website, which will make available the 9,400 specimen records. Famous bat photographer Scott Altenbach gives the book a first-class appearance.

Ammerman and her coauthors added 2,828 specimens of bats from 15 museum collections to what was known in the first edition. She personally examined at least 2,700 of them.



winged ambition



Included are species accounts of 33 bats known to occur in Texas, and a section on five hypothetical species that occur within 100 km of Texas. Each species account includes distribution with a map, etymology, subspecies, description with a full color photograph, life history (including diet, reproduction and roosting habits), status and references. The encyclopedic referencing includes approximately 1,262 works that bring the literature on Texas bats up to date.

Ammerman says the four-year effort was exhausting and she doubts another book will happen. Knowing her drive however, leads her colleagues to doubt her doubt.

With all new illustrations, color photographs, revised species accounts, updated maps, and a sturdy flexible binding, this new edition of the authoritative guide to bats in Texas will serve as the field guide and all-around reference of choice. *Bats of Texas* will be released May 4, 2012 at most major retailers.



THANK YOU

A special thanks to donors Ernest Mayer, Clark Pfluger and Lawrence Ricci, who made it possible to replace the ultralow freezer used in pest management for the birds and mammals collections. Thanks also to all those contributors to the ASU Natural History Endowment, including Barbara L. Alford-Archer, Royce E. Ballinger, Robert and Paula Dowler, E. James Hindman, Robert E. Martin (in memory of George A. Moore), Lynn Simpson, David W. Steadman and Drew Sykes. Thanks also to Kara and Gary Byers who donated two black bear skulls from Alaska for the mammals collection.

Our thanks go out to Ryland Howard, Drew Sykes and Sandra Tweedy for use of their ranches for research and teaching associated with the Angelo State Natural History Collections. Thanks also to the many student volunteers in the ASNHC who helped with preparing specimens and assisting with collection duties. Katelynn Frei has been indispensable in the recycling effort for printer cartridges and cell phones to raise funds for the ASU Natural History Endowment—almost \$2,400 in the last two years. We especially thank Amy Bishop for volunteering in the collections and for her expertise and advice on upgrading the database for our collections.

Edith Anson Boulware

ASU BIOLOGY BENEFACTOR

Edith Anson Boulware was passionate about the ecology of her ranch in southern Tom Green County. Family ownership of the land at the head of the South Concho River was established by Boulware's father in the early 20th century. She welcomed and encouraged utilization by the ASU Biology Department of the ranch's exceptional biota for educational and research projects. Many class laboratories and research projects over the last several decades were accomplished at the Head of the River Ranch.

Beyond her hospitality and encouragement, Boulware donated considerable funds to the Biology Department. Student scholarships, travel awards for scientific meetings, and department equipment purchases and maintenance all benefitted from her generous contributions.

Edith Boulware died on June 5, 2011. The Biology Department and ASNHC lost a treasured friend and valuable benefactor. The ranch is now in the able hands of her son, Ryland Howard.

MISSION

The mission of the Angelo State Natural History Collections is to:

- Provide a permanent, well-maintained, active reference collection of the world with an emphasis on the flora and fauna of the Concho Valley and surrounding areas.
- Provide a learning laboratory for ASU students to facilitate and encourage research and education.
- Promote awareness, understanding and appreciation of global biodiversity.
- Contribute specimens and data for study by research scientists around the world.

SPECIMEN COUNTS

Plants	ca. 80,000
Amphibians and Reptiles	14,307
Birds	2,188
Mammals	14,568
Tissues	15,000 vials (ca. 9,000 individuals)



ASU biology students visited London, Paris, Berlin and Eichstaedt, Germany, on the History of Biology and Museums study abroad course last summer with Drs. Maxwell and Dowler. Here, Brittney Welchon, Stephen McNally and Paula Galloway are experiencing the Musée National d'Histoire Naturelle in Paris.



ASU biology students and faculty get a photo with Dr. David J. Schmidly (mammalogist and president of the University of New Mexico) at the 2011 Texas Society of Mammalogists meeting.

TEXAS WESLEYAN UNIVERSITY COLLECTIONS COME TO ASNHC

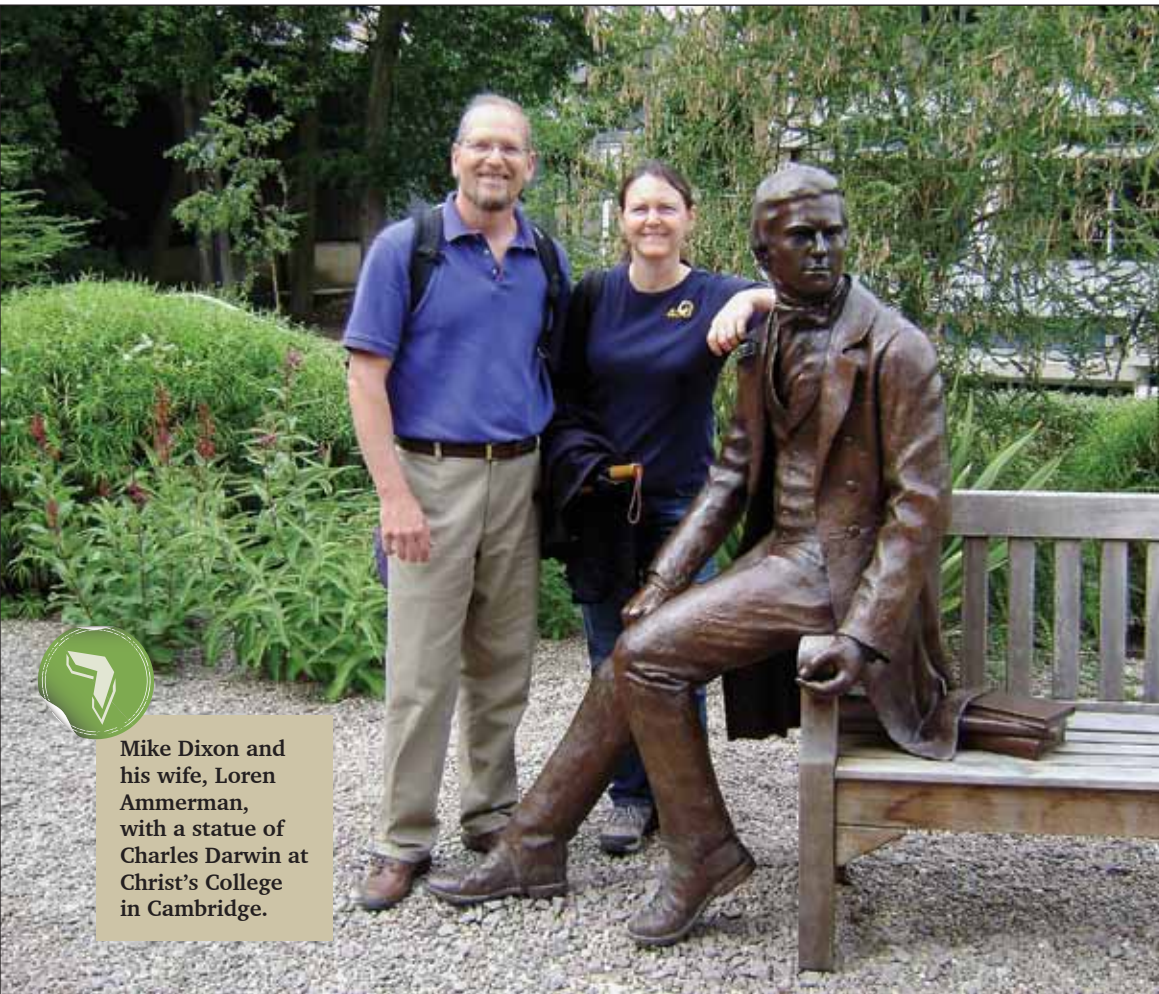


This past year, we adopted an orphan. Not a parentless waif, but an uncurated collection. Without regular maintenance, alcohol-preserved specimens dry out and study skins may be eaten by insects. Responsible institutions with collections that are no longer being cared for may look for new homes to protect the knowledge and investment inherent in their specimens.

Texas Wesleyan University, located in Fort Worth, had an active program in vertebrate natural history for several decades. It was run by Art Cleveland from 1965–89, and was continued during the 1990s by Michael Dixon. When Dixon left to come to ASU, the TWU Biology Department shelved the program, and recently decided to donate its collection of vertebrates to ASU.

In March, we drove to Fort Worth with a borrowed stock trailer to pack up and load cabinets, specimens in alcohol and taxidermy mounts. The trip was made without a hitch and we are still in the process of assimilating the specimens. Highlights include an estimated 400 specimens of mammals and a good diversity of reptiles and amphibians.

Thanks to Drs. Bruce Benz, Chitra Chandrasekaran and Mary Anne Clark of TWU's Biology Department and to Adam Ferguson, former M.S. student at ASU and currently a Texas Tech Ph.D. candidate, for helping this transaction take place.



Mike Dixon and his wife, Loren Ammerman, with a statue of Charles Darwin at Christ's College in Cambridge.

Dixon named curator of amphibians and reptiles



Dr. Michael Dixon, assistant professor of biology, has assumed the curatorship of amphibians and reptiles in the ASNHC. He replaces Dr. J. Kelly McCoy, who took a dean position in the College of Arts and Sciences at Georgia Southwestern State University.

Dixon has a B.A. in Zoology (1984) from Miami University (Ohio) and a Ph.D. in Zoology (1994) from the University of Texas at Austin. At the University of Miami (Florida) and shortly thereafter at UT-Austin, he was

the first graduate student in David Hillis' lab. He came to ASU in 2003 following 12 years at Texas Wesleyan University.

A native of Coral Gables, Fla., Dixon showed an early fascination with reptiles, and that interest has been sustained throughout his career. He and his wife, Dr. Loren Ammerman, led popular field trips to Costa Rica while he was at Texas Wesleyan. This year, along with Dr. Robert Dowler, Dixon will lead ASU students to Costa Rica and Panama.



▲ Attwater's Pocket Gopher (*Geomys attwateri*)



Curators Dowler and Dixon supervise the transfer of specimens from Texas Wesleyan University (with James Dixon doing all the work).



FACULTY GRANTS

Dr. Loren Ammerman

- ASU Research Enhancement Grant, “Defining species boundaries in *Myotis* bats using microsatellite DNA,” March 2011—\$16,427
- Faculty Development and Enrichment Grant, “Developing collaborative teaching/research programs with colleagues in Malaysia,” January 2010—\$8,220

Dr. Bonnie Amos

- Mitchell County Board of Economic Development Grant, “Reintroduction of the Texas Poppy Mallow”—\$5,000

Dr. Robert Dowler

- ASU President’s Circle Grant, “Wildlife Biology Research,” November 2010—\$10,000
- ASU Research Enhancement Grant, “Ecology of West Texas Wildlife,” January 2010—\$9,650

STUDENT GRANTS

2010

The following students were supported by ASU Carr Student Research Scholarships: Tyler Cochran, Hollie Laqua, Eric Pomposelli and Marie Tipps.

Candace Frerich

- Head-of-the-River Ranch Research Grant, “Characterization of microsatellite markers for use in *Myotis* bats (mouse-eared bats)”—\$1,000
- Faculty mentor: Loren K. Ammerman

Candace Frerich

- Texas Academy of Science Undergraduate Research Grant, “Genetic Analysis of the 5’UTR of Bovine Viral Diarrhea Virus”—\$1,500
- Faculty mentor: Loren K. Ammerman

Marie Tipps

- Texas Academy of Science Student Research Grant, “A molecular approach to the phylogenetic position of *Cheiromeles* (Molossidae: Chiroptera)”—\$2,000
- Faculty mentor: Loren K. Ammerman

2011

The following students were supported by ASU Student Research Fellowships: Sarah Bartlett, Wes Brashear, Katelynn Frei, Candace Frerich and Pablo Rodriguez-Pacheco.

Wes Brashear

- Texas Academy of Science Student Research Grant, “Influence of genetic relatedness on space use patterns in ringtails, *Bassariscus astutus*”—\$1,250
- Faculty mentor: Robert C. Dowler

Katelynn Frei

- Tri Beta Research Foundation Grant, “Patterns of habitat use and competition between nine-banded armadillos (*Dasypus novemcinctus*) and hog-nosed skunks (*Conepatus leuconotus*)”—\$250
- Faculty mentor: Robert C. Dowler

Candace Frerich

- Tri Beta Research Foundation Grant, “Investigation of Hat and Piggybac transposase activity in mouse-eared bats (genus: *Myotis*)”—\$600
- Faculty mentor: Loren K. Ammerman

Marie Tipps

- Texas Academy of Science Student Research Grant, “Investigating an unusual population of Townsend’s big-eared bat in West Texas using morphological and molecular data”—\$1,250
- Faculty mentor: Loren K. Ammerman

Marie Tipps

- Head-of-the-River Ranch Research Grant, “Investigating an unusual population of Townsend’s big-eared bat in West Texas using morphological and molecular data”—\$1,000
- Faculty mentor: Loren K. Ammerman

STUDENT PRESENTATION AWARDS

- **Wes Brashear** received the William B. Davis Award for best oral presentation in classical mammalogy at the 2011 Texas Society of Mammalogists meeting, and was selected to speak in the Wilks Award competition at the 2011 Southwestern Association of Naturalists meeting with his presentation “Den Site Selection of the American Hog-nosed Skunk, *Conepatus leuconotus*, in West-Central Texas.”
- **Katelynn Frei** received the Vernon Bailey Award for best poster presentation pertaining to classical mammalogy conducted at the organismal level at the 2011 meeting of the Texas Society of Mammalogists for her presentation “Use of camera trapping to determine patterns of habitat use by medium-sized mammals in West-Central Texas.”
- **Candace Frerich** received Second Place Oral Presentation at the 2011 Tri-Beta South Central Regional Convention for her presentation “Characterization of microsatellite markers for use in *Myotis* bats (mouse eared bats).”

- **Jason Strickland** received the Wilks Award at the Southwestern Association of Naturalists meeting in 2011 and received Third Place Graduate Oral Presentation at the 2011 annual meeting of the Texas Academy of Science for his presentation “Phylogeography of the cottonmouth, *Agkistrodon piscivorus*, using AFLP and venom protein profiles.”
- **Jason Strickland** was selected as the Distinguished Graduate Student for the ASU College of Sciences in 2011.
- **Marie Tipps** received the first place Frank G. Brooks Award at the Tri-Beta National Convention in 2010 and Second Place Oral Presentation at the 2010 Tri-Beta South Central Regional Convention for her presentation “A molecular approach to the position of *Cheiromeles* (Chiroptera: Molossidae).”

FACULTY AWARDS

2010

Loren Ammerman

- President’s Award for Excellence in Research/Creative Endeavor
- TTUS Chancellor’s Council Distinguished Research Award

2011

Robert Dowler

- President’s Award for Excellence in Research/Creative Endeavor
- TTUS Chancellor’s Council Distinguished Research Award

PRESENTATIONS AND PUBLICATIONS



PRESENTATIONS STUDENTS AND FACULTY

2010

- **Bonnie Amos, Jeff Masters and Kayla Erhman.** "Reproductive Biology of the Hill Country Wild Mercury (*Argythamnia aphoroides*, *Euphorbiaceae*)" at the Brown County 10th Annual Texas Plant Conservation Conference.
- **Loren K. Ammerman, Dana N. Lee and Marie Tipps.** "Molecular phylogeny of the family Molossidae based on nuclear and mitochondrial genes." Poster presentation at the International Bat Research Conference in Prague, Czech Republic.
- **Sarah Bartlett, Molly McDonough and Loren K. Ammerman.** "Relationships among bonneted bats (genus *Eumops*): a molecular test of morphological hypotheses." Poster presentation at the North American Symposium on Bat Research and to the Texas Society of Mammalogists in 2011.
- **Jackie Poole, Bonnie Amos, Minnette Marr, Cullen Hanks, David Sullivan, Marisol Sullivan, Karne Langridge, Hollie Laqua and Sean Watson.** "Rescuing the endangered Texas Poppy-mallow (*Callirhoe scabruiscula*)." 10th Annual Texas Plant Conservation Conference.
- **Jason Strickland, J. Kelly McCoy, Loren K. Ammerman and John Osterhout.** "Preliminary analysis of phylogeographic variation among Texas cottonmouths, *Agkistrodon piscivorus*, using nuclear AFLP markers and venom protein profiles." Poster presentation at the Southwestern Association of Naturalists meeting.

- **Marie Tipps, Loren K. Ammerman and Bonny Mayes.** "Five new county records of bats (Vespertilionidae and Molossidae) in Texas, identified using molecular and morphological techniques." Poster presentation to the Texas Society of Mammalogists.

2011

- **Loren K. Ammerman and Michael T. Dixon.** "Monitoring the colony size of the Mexican long-nosed bat (*Leptonycteris nivalis*) in Texas using thermal imaging." Poster presentation at the Southwestern Association of Naturalists meeting in Tyler, and the North American Symposium on Bat Research.
- **Katelynn Frei, Emily Wilkinson and Robert C. Dowler.** "Use of camera trapping to determine patterns of habitat use by medium-sized mammals in West-Central Texas." Poster presented at the Tri-Beta South Central Regional Convention and to the American Society of Mammalogists.
- **Candace Frerich and Loren K. Ammerman.** "Characterization of microsatellite markers for use in *Myotis* bats (mouse eared bats)." Poster presentation to the Texas Society of Mammalogists.
- **Andi Lewis and Loren K. Ammerman.** "Texas range extensions and county records for the southern yellow bat (*Lasiurus ega*), the northern yellow bat (*L. intermedius*), the Seminole bat (*L. seminolus*), the hoary bat (*L. cinereus*), and the silver-haired bat (*Lasionycteris noctivagans*)." Poster presentation at Texas Society of Mammalogists meeting in Junction.

- **Marie Tipps and Loren K. Ammerman.** "Morphological and molecular variation in Townsend's Big-eared Bat (*Corynorhinus townsendii*) in West Texas." Poster presentation to the Texas Society of Mammalogists and oral presentation at the North American Symposium on Bat Research.
- **Marie Tipps, Dana N. Lee and Loren K. Ammerman.** "A molecular approach to the phylogenetic position of the naked bat, *Cheiromeles* (Chiroptera: Molossidae)." Oral presentation to the Texas Academy of Science.

RECENT PUBLICATIONS

2010

- **Brashear, Wes A., Robert C. Dowler, Gerardo A. Ceballos.** "Climbing as an escape behavior in the American Hog-nosed Skunk, *Conepatus leuconotus*." *Western North American Naturalist* 70:258–260.
- **Dowler, Robert C., J. Kelly McCoy and L. J. Fohn.** "*Scaphiopus couchii* (Couch's spadefoot) Predation." *Herpetological Review* 41(4):480.
- **Lee, Dana N., Russell S. Pfau and Loren K. Ammerman.** "Taxonomic status of the Davis Mountains cottontail, *Sylvilagus robustus*, revealed by amplified fragment length polymorphism." *Journal of Mammalogy* 91 (6): 1472–1483.
- **Matthews, Amanda K., Sean A. Neiswenter and Loren K. Ammerman.** "Trophic ecology of the free-tailed bats *Nyctinomops femorosaccus* and *Tadarida brasiliensis* (Chiroptera: Molossidae) from Big Bend National Park, Texas." *The Southwestern Naturalist* 55 (3): 340–346.

- **McDonough, Molly M., Burton K. Lim, Adam W. Ferguson, Carson M. Brown, Santiago F. Burneo and Loren K. Ammerman.** "Mammalia, Chiroptera, Emballonuridae, *Peropteryx leucoptera* Peters, 1867 and *Peropteryx pallidoptera* Lim, Engstrom, Reid, Simmons, Voss and Fleck, 2010: Distributional range extensions in Ecuador." *Checklist 6* (4): 639–643.
- **Neiswenter, Sean A., Robert C. Dowler and John H. Young.** "Activity patterns of two sympatric skunk species (*Mephitis mephitis* and *Spilogale gracilis*) in Texas." *The Southwestern Naturalist* 55(1):16–21.
- **Padilla, M., Robert C. Dowler and C. C. Downer.** "*Tapirus pinchaque* (Perissodactyla: Tapiridae)." *Mammalian Species* 42(863):166–182.

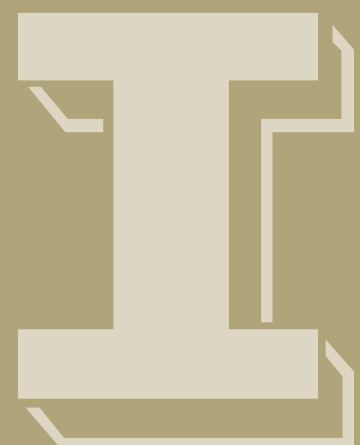
2011

- **Brashear, Wes A., R. Ann Maxwell, Terry C. Maxwell and Robert C. Dowler.** "Museum specimen records contributing to the known distribution of mammals in Texas." *Occasional Papers, Museum of Texas Tech University* 302: 1–7.
- **McDonough, Molly M., Adam W. Ferguson, Loren K. Ammerman, Carolina Granja-Vizcaino, Santiago F. Burneo and Robert J. Baker.** "Molecular verification of bat species collected in Ecuador: Results of a country-wide survey." *Occasional Papers, Museum of Texas Tech University* 301: 1–28.



Santa Elena Canyon, Big Bend National Park

Lachae Butler and Ryan Purdom keying bats during Maymester course.



In May 2011, 14 students enrolled in the Natural History of Bats course conducted fieldwork in Big Bend National Park. They also viewed the emergence of thousands of Mexican free-tailed bats and cave *myotis* from the Eckert James River Bat Cave near Mason. After coursework at ASU, the students spent five nights camping in the national park, learned how to capture bats and practiced their species identification skills. Overall, the students handled 456 bats of 13 species during the course with Dr. Loren Ammerman.

AROUND THE

Saving the Texas Poppy Mallow



■ During May 2011, **Bonnie Amos**, assisted by graduate student **David Sullivan**, assessed the size and vigor of the newly established endangered Texas Poppy Mallow (*Callirhoe scabriuscula*, at left) population at a dedicated site at the Mitchell County Sports Complex. After nearly 10 years of effort to establish this site, we are delighted to report that the population is self-perpetuating with second-generation plants now flowering and producing viable seed.

■ The investigation of the ethnobotany of the Masawal and Chan Maya of Belize continues. **David Sullivan**, graduate thesis student, began 2011 conducting interviews and learning more about which plants are used medicinally, the ailments for which they are used, and how the medicine is prepared. David will return to Belize this year to complete data gathering for his thesis.

■ In July 2010 and 2011, **Dr. Loren Ammerman** used a thermal imaging camera to conduct a census of the endangered Mexican long-nosed bat (*Leptonycteris nivalis*) at Emory Cave. **Sarah Bartlett, Marie Tipps, Austin Osmanski, Krysta Demere, Michael Dixon, James Dixon and Leanne Dixon** assisted with the field portion of this study. Totals of 1,790 and 2,091 were counted in each census, respectively.



BIOBLITZ AT KNICKERBOCKER RANCH

■ In September 2010 and 2011, more than 50 faculty and students conducted a BioBlitz at the Knickerbocker Ranch in western Tom Green County. This one-day effort each year to document all species of organisms on the site was

a chance for faculty to interact with interested students, many who were part of the ASU chapter of the Beta Beta Beta honor society. Specimens of mammals, reptiles, amphibians and plants became part of the ASNHC, and selected arachnid

specimens are to be deposited in the invertebrate collections of The Museum, Texas Tech University. Above, Terry Maxwell talks to Beta Beta Beta members participating in the BioBlitz at the Knickerbocker Ranch.

COLLECTIONS



■ **Dr. Ammerman** conducted fieldwork in Malaysian Borneo in May 2010 with colleagues from Texas Tech University (Robert Baker, Faisal Anwarali, Molly McDonough and

Ron Pine). The group was hosted by Dr. Mohd Tajuddin Abdullah and numerous students and staff from the University of Malaysia-Sarawak. In this biologically diverse region, they observed fascinating animals, such as long-tail macaque (left), proboscis monkeys, flying lemurs, tree shrews and mudskippers. They collected 233 specimens of 52 different species (primarily bats) during the trip that were deposited at each of the collaborating institutions.

■ **Dr. Robert Dowler** conducted field work in June 2010 with Dr. Scott Burt and Carla Ebeling in Wyoming after attending the annual meeting of the American Society of Mammalogists in Laramie. This past year, **Dowler** collected in Nevada with Dr. Duke Rogers of Brigham Young University en route to the annual meeting of the American Society of Mammalogists in Portland, Ore. **Dowler** is currently serving a two-year term as president of the Southwestern Association of Natural-

ists. The annual meeting of SWAN will be in Valle de Bravo, México.

■ A renewed Memorandum of Understanding was approved by Angelo State University and the San Antonio Zoo for salvage of specimens of mammals, birds and reptiles for the Angelo State Natural History Collections. The mammal collection recently received specimens of black rhinoceros, giraffe, warthog and South American tapir.

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10 YEARS OF SCIENCE DAYS



This year marks the 10th anniversary of Science Days on the Angelo State University campus. The Science Day program is designed to introduce grade school students to science in the hopes of sparking their interest in the scientific fields.

Former ASU assistant professor of chemistry Dr. Nick Flynn developed the program as a science outreach for fourth grade students from San Angelo and surrounding school districts.

Included in the program are hands-on activities in biology, chemistry, math, geology and physics. Student volunteers from both Central High School and ASU science programs assist with the individual programs. This gives them the opportunity to share some of their knowledge in an enjoyable and rewarding setting.

The Angelo State Natural History Collections curators have been involved since the inception of the program and offer, with student help, tours and presentations in the birds, mammals, amphibians/reptiles and plants collections.

With approximately 1,000 student participants each year, this program has provided an avenue to teach more than 10,000 fourth graders about natural history collections.



ASU NATURAL HISTORY ENDOWMENT

The ASU Natural History Endowment was established in 1998 to grow funds that will support the management of the Angelo State Natural History Collections and research by students and faculty. Our sincere thanks to all those who have helped build this endowment to more than \$41,000. Your donations will help future students and faculty conduct research, and help maintain and improve the natural history collections. An envelope for tax deductible donations accompanies this newsletter, or you can donate online at www.angelo.edu/services/giving and note ASU Natural History Endowment. You can also contact the Development Office of Angelo State University directly at 325-942-2116.

■ A new arrangement has been made with the Texas Department of Health Services to salvage specimens of rabies-negative specimens of skunks from the rabies testing laboratories in Austin and El Paso. Heads of the skunks will be used for tissue, skulls, parasites and disease studies.

■ A Tokyo film crew for NHK Broadcasting in Japan visited the Knickerbocker Ranch, where Wes Brashear and Eric Pomposelli have been conducting research on skunks. The goal of the film crew was to experience the scent of a skunk and film a reporter's response to the distinctive odor. After three days

of filming that included a session in the ASNHC mammal collection, the film crew definitely got what it came for.

■ Sarah Bartlett, Pablo Rodriguez-Pacheco, Katelynn Frei and Carla Ebeling collected bats in southeastern Arizona in June of 2011 with Loren

Ammerman for a study on gene flow and species boundaries in *Myotis ciliolabrum* and *M. californicus*.

■ A collection of amphibians from a study of Playa Lake fauna in the Texas Panhandle was deposited in the ASNHC by researchers at Texas Tech University.