

TEXAS SOCIETY OF MAMMALOGISTS



**PROGRAM, ABSTRACTS,
AND NEWSLETTER**
29th Annual Meeting
25-27 February 2011
Texas Tech University Center at Junction

Texas Society of Mammalogists

Officers, 2010-2011

President	Terry Maxwell	Angelo State University
President-Elect	Russell Pfau	Tarleton State University
Permanent Secretary	Lisa Bradley	Texas Tech University
Secretary-Treasurer	Loren K. Ammerman	Angelo State University
Editor	Russell Pfau	Tarleton State University

Past Presidents

Mike Tewes	Texas A&M Kingsville
David Ribble	Trinity University
John Bickham	Purdue University
Carleton J. Phillips	Texas Tech University
Thomas E. Lee	Abilene Christian University
Loren K. Ammerman	Angelo State University
Ron Van Den Bussche	Oklahoma State University
Robert D. Bradley	Texas Tech University
Phil Sudman	Tarleton State University
Robert C. Dowler	Angelo State University
Robert E. Martin	McMurry University (emeritus)
Kenneth T. Wilkins	Baylor University
Rodney Honeycutt	Pepperdine University
Steven Smith	Humboldt State University
Michael Haiduk	Lamar University
Meredith Hamilton	Oklahoma State University
Ira F. Greenbaum	Texas A&M University-College Station
Arthur G. Cleveland	California Baptist University
Herschel W. Garner	Tarleton State University
Robert J. Baker	Texas Tech University
Earl G. Zimmerman	University of North Texas
Brian R. Chapman	University of North Carolina Wilmington
Clyde Jones	Texas Tech University
David J. Schmidly	University of New Mexico
J. Knox Jones, Jr. (deceased)	Texas Tech University
Rollin H. Baker (deceased)	Michigan State University
Guy N. Cameron	University of Cincinnati

Honorary Members

Class of 1985	Class of 1992	Class of 1999	Class of 2006
W. Frank Blair (D)	J. Knox Jones, Jr. (D)	David J. Schmidly	Ann Maxwell
Walter W. Dalquest (D)	Class of 1995	Class of 2002	Terry Maxwell
William B. Davis (D)	Clyde Jones	Art Harris	Class of 2007
Robert L. Packard (D)	Class of 1997	Class of 2003	Guy Cameron
Class of 1986	Robert J. Baker	Arthur G. Cleveland	Earl Zimmerman
Rollin H. Baker (D)	Class of 1998	Class of 2004	Class of 2008
Class of 1991	James Scudday	Ira F. Greenbaum	John Bickham
Howard McCarley (D)	Herschel Garner	Robert E. Martin	Class of 2010
			Robert Dowler

Patron Members

Jo Actkinson	Arthur G. Cleveland	Ann Maxwell	Steve Smith
Loren K. Ammerman	Robert C. Dowler	Kevin McKinney	Phil Sudman
Robert Baker	Herschel Garner	Steve McReynolds	Michael Tewes
Rollin Baker (D)	Jim Goetze	Anne Merchant	Ron Van Den Bussche
John Bickham	Ira F. Greenbaum	Jim Patton	Christopher Walker
Lisa Bradley	Meredith Hamilton	Russell Pfau	Kenneth T. Wilkins
Robert Bradley	Steve Hooper	Carl Phillips	Don Wilson
Guy Cameron	Clyde Jones	Brenda Rodgers	Earl Zimmerman
Ron Chesser	Thomas E. Lee	Duke Rogers	
Scott Chirhart	Robert E. Martin	David J. Schmidly	

Cover illustration of a Gambian Pouched Rat (*Cricetomys gambianus*), by Terry Maxwell.

Texas Society of Mammalogists
29th Annual Meeting
25-27 February 2011

Table of Contents

Program and Abstracts

Program Schedule	1-5
Oral Presentation Abstracts	6-15
List of Posters	16-18
Poster Presentation Abstracts	19-30
2011 Business Meeting Agenda	31
Treasurer's Report for Calendar Year 2010	32

Newsletter

Patron Membership Announcement	34
Minutes of the 2010 Business Meeting	34-36
Research and Graduate Programs of TSM Members	36-50

2011 Program Schedule

Friday, 25 February

3:00-7:30pm	Registration	Dining Hall
6:00pm	Dinner (serving line open 6:00-6:30pm)	Dining Hall
7:00pm	Announcements/Welcome Address TSM President Terry Maxwell	Dining Hall
7:30pm	Poster Presentations	Dining Hall
8:30pm	Meeting of the Executive Committee	Academic Building

Saturday, 26 February

7:00am	Breakfast and Registration (serving line open 7:00-7:30am)	Dining Hall
8:00am	Introduction and Announcements TSM President Terry Maxwell	Packard Building

PAPER SESSION -- Packard Building

(Presenters' names are underlined)

Chair: Julie Parlos, Texas Tech University

Papers 1 – 8 are in competition for the William B. Davis Award.

- 8:05 Paper 1 – **BUILDING A PREDICTIVE ENERGY MODEL FOR OCELOTS IN TEXAS** Jennifer M. Korn¹, Michael E. Tewes¹, and David G. Hewitt². ¹Feline Research Center, Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville; ²Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville.
- 8:20 Paper 2 – **DEN SITE SELECTION OF THE AMERICAN HOG-NOSED SKUNK, *CONOPATIS LEUCONOTUS*, IN WEST-CENTRAL TEXAS** Wesley A. Brashear¹, Adam W. Ferguson², C. Eric Pomposelli¹, and Robert C. Dowler¹. ¹Department of Biology, Angelo State University; ²Department of Biological Sciences, Texas Tech University.

- 8:35 Paper 3 – **SEASONAL AND NIGHTLY BAT ACTIVITY PATTERNS IN ALPINE ASPEN (*POPULUS TREMULOIDES*) FORESTS** Thomas W. Pettit and Kenneth T. Wilkins. Department of Biology, Baylor University.
- 8:50 Paper 4 – **EFFECTS OF HIGH-INTENSITY WILDFIRE ON SMALL MAMMAL ABUNDANCE AND SPECIES RICHNESS** Mark J. Witecha¹, Andrea R. Litt², Timothy E. Fulbright¹, Susan M. Cooper³, and Daniel P. Walker⁴. ¹Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville; ²Department of Ecology, Montana State University; ³Texas AgriLife Research, Texas AgriLife Research and Extension Center at Uvalde; ⁴Chaparral Wildlife Management Area, Texas Parks and Wildlife Department.
- 9:05 **20 Minute Break**
- Chair: Molly McDonough, Texas Tech University**
- 9:25 Paper 5 – **SOCIOECOLOGY OF THE MARSH RICE RAT (*ORYZOMYS PALUSTRIS*) REVEALS TRANSMISSION ROUTES FOR BAYOU VIRUS** Tyla S. Holsomback¹, Christopher J. Van Nice², Rachel N. Clark², Nancy E. McIntyre¹, Alisa A. Abuzeineh³, and Jorge A. Salazar-Bravo¹. ¹Department of Biological Sciences, Texas Tech University; ²Department of Economics and Geography, Texas Tech University; ³Department of Biology, Aquatic Station, Texas State University.
- 9:40 Paper 6 – **MULTIPLE CAPTURES OF *REITHRODONTOMYS FULVESCENS* AND *BAIOMYS TAYLORI*: EVIDENCE FOR SHORT-TERM SOCIAL TRAVELLING** Nicholas S. Green¹, Laura K. Beard¹, Cathleen N. Early², and Kenneth T. Wilkins¹. ¹Department of Biology, Baylor University; ²Department of Biology, University of Mary Hardin-Baylor.
- 9:55 Paper 7 – **EFFECTS OF PRESCRIBED FIRES ON COMPOSITION OF THE FOREST-DWELLING BAT COMMUNITY IN SOUTHEASTERN PINEY FORESTS** Anica Debelica-Lee and Kenneth T. Wilkins. Department of Biology and Graduate School, Baylor University.
- 10:10 Paper 8 – **HYBRIDIZATION BETWEEN LYNX (*LYNX CANADENSIS*) AND BOBCAT (*L. RUFUS*) IN ATLANTIC CANADA: WHAT DOES IT PORTEND?** Howard M. Huynh^{1,2,3}, Kamal Khidas⁴, Donald F. McAlpine¹, and Roger D. Bull⁴, ¹Department of Natural Science, New Brunswick Museum; ²Department of Biology, Acadia University; ³Department of Biological Sciences, Texas Tech University; ⁴Vertebrate Collections, Canadian Museum of Nature.
- 10:25 **15 Minute Break**

Chair: Serena Reeder, Centers for Disease Control

Papers 9 - 13 are in competition for the TSM Award.

- 10:40 Paper 9 – **A NEW SPECIES OF *MICRONYCTERIS* (CHIROPTERA: PHYLLOSTOMIDAE) FROM SAINT VINCENT, LESSER ANTILLES AND IMPLICATIONS FOR SPECIES-LEVEL DIVERSITY WITHIN THE *M. MEGALOTIS* COMPLEX** Lizette Siles¹, Peter A. Larsen¹, Scott C. Pedersen², Gary G. Kwiecinski³, and Robert J. Baker¹. ¹Department of Biological Sciences and the Museum, Texas Tech University; ²Department of Biology and Microbiology, South Dakota State University; ³Department of Biology, University of Scranton.
- 10:55 Paper 10 – **TEMPORAL CHANGES OF MOUNTAIN LION, *PUMA CONCOLOR*, POPULATIONS IN TEXAS: A GENETIC EVALUATION** Joseph D. Holbrook¹, Randy W. DeYoung¹, Michael E. Tewes¹, and John H. Young². ¹Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville; ²Texas Parks and Wildlife Department.
- 11:10 Paper 11 – ***RATTUS* PHYLOGENY REVEALS NOVEL *R. TANEZUMNI* INVASION AND HYBRIDIZATION IN THE UNITED STATES** Justin B. Lack¹, Dan Greene², Meredith K. Hamilton¹, Michael A. Mares³, Janet K. Braun³, and Ronald A. Van Den Bussche¹. ¹Department of Zoology, Oklahoma State University; ²Florida Department of Fish and Wildlife; ³Sam Noble Oklahoma Museum of Natural History, University of Oklahoma.
- 11:25 Paper 12 – **ASSESSING THE POPULATION GENETIC STRUCTURE OF *GEOMYS ARENARIUS*** Ashley N. Hyatt, Philip D. Sudman, and Russell S. Pfau. Department of Biological Sciences, Tarleton State University.
- 11:40 Paper 13 – **MOLECULAR EVIDENCE FOR CRYPTIC SPECIES IN *PEROMYSCUS PECTORALIS* (CRICETIDAE: NEOTOMINAE)** Robert D. Bradley^{1,2}, Brian R. Amman³, Roy N. Platt III⁴, Nicté Ordóñez-Garza¹, and Howard M. Huynh¹. ¹Department of Biological Sciences, Texas Tech University; ²Museum of Texas Tech University; ³Centers for Disease Control and Prevention, National Centers for Zoonotic, Vector-borne and Enteric Diseases, Division of Viral and Rickettsial Diseases, Special Pathogens Branch, Medical Ecology Unit; ⁴Department of Biochemistry and Molecular Biology, Mississippi State University.

12:00 **Lunch** (serving line open 12:00-12:30pm)

1:15 **Group Photo** behind the Packard Building

PAPER SESSION – Packard Building

Chair: Carla Ebeling, Howard College

Papers 14 - 18 are in competition for the Rollin H. Baker Award.

- 1:45 Paper 14 – **DESCRIPTION OF A NEW SPECIMEN OF *ICTIDOSTOMA HEMBURYI* (THERAPSIDA; THEROCEPHALIA) AND THE PHYLOGENETIC RELATIONS OF THEROCEPHALIANS TO THE MAMMALIAN LINEAGE** Dallas Krentzel^{1,2}, Christian Kammerer², and John Flynn². ¹Department of Biology, Centenary College of Louisiana; ²Department of Vertebrate Paleontology, American Museum of Natural History.
- 2:00 Paper 15 – **THE MAMMALS OF THE ATILLO LAGOONS, SANGAY NATIONAL PARK, ECUADOR** Amy M. Scott¹, Thomas E. Lee, Jr.¹, and Carlos Boada-Teran². ¹Department of Biology, Abilene Christian University; ²Sección Mastozoología – Museo de Zoología, Pontifica Universidad Católica del Ecuador.
- 2:15 Paper 16 – **LOCATION OF THE HYBRID ZONE BETWEEN DIVERGENT LINEAGES OF THE HISPID COTTON RAT (*SIGMODON HISPIDUS*) IN ARKANSAS** Claire Gibson and Russell S. Pfau. Department of Biological Sciences, Tarleton State University.
- 2:30 Paper 17 – **GENETIC EVALUATION OF A *NEOTOMA MICROPUS*/*NEOTOMA FLORIDANA* HYBRID ZONE** Ethan B. Rowell and Michelle L. Haynie. Department of Biology, University of Central Oklahoma.
- 2:45 Paper 18 – **A SURVEY OF THE ACTIVITY PATTERNS OF MEDIUM TO LARGE MAMMALS IN THE SOUTHERN ROLLING PLAINS OF TEXAS** Erika Mitchell and Joel Brant. Department of Biology, McMurry University.

3:00 **15 Minute Break**

3:15pm	Business Meeting	Packard Building
	All members, including students, please attend!	

5:30-9:00pm	Annual Banquet and Auction	Dining Hall
5:30-6:30	Dinner (serving line open 5:30-6:00pm)	
5:30	Silent Auction opens for bidding	
6:30-7:00	Award Presentations	

7:00-8:00 Guest Speaker Address:

***Pouched Rats, Poxviruses, and Things That Cause
Bumps in the Night***

Dr. Darin S. Carroll

Lead Animal Studies and Ecology Unit, Poxvirus Program
Centers for Disease Control and Prevention
Atlanta, Georgia

8:00-9:00 Live Auction
Silent Auction ends 10 minutes after Live Auction

9:00pm-? Socializing and Dancing Dining Hall

Sunday, 27 February

7:30am Breakfast (serving line open 7:30-8:00am) Dining Hall

Oral Presentation Abstracts

Paper 1

BUILDING A PREDICTIVE ENERGY MODEL FOR OCELOTS IN TEXAS

Jennifer M. Korn¹, Michael E. Tewes¹, and David G. Hewitt². ¹Feline Research Center, Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville; ²Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville. (jennifer.korn@students.tamuk.edu)

Ocelots (*Leopardus pardalis*) are an endangered felid that occur from southern Texas to Argentina. Rodents are a large part of ocelot diets across the species' range and small mammals (<10 kg, but typically <1 kg) comprise as much as 84% of ocelot diets, in addition to birds and herpetofauna. Studies also estimate that ocelots need to eat 558-837 g of animal tissue per day. In Texas, two important prey items are hispid cotton rats (*Sigmodon hispidus*) and Mexican spiny pocket mouse (*Liomys irroratus*). Their biomass averages 115 and 48 g, respectively. According to published estimates, Texas ocelots would need to consume 4-7 cotton rats or 11-17 pocket mice daily. No previous research has sought to determine the amount of energy available to an ocelot population. Our objective was to create a model to predict energy available to ocelots during drought and high rainfall. Rodent abundances were estimated using mark-recapture on a private ranch in Willacy County. These estimates were then compared over time to precipitation patterns. We will determine average caloric density using bomb calorimetry and ether extract for male and female, juvenile and adult, and reproductive and non-reproductive rodents. These energy values and abundance estimates will be used to create a predictive available energy model that will assist the planning future ocelot translocations.

Paper 2

DEN SITE SELECTION OF THE AMERICAN HOG-NOSED SKUNK, *CONEPATUS LEUCONOTUS*, IN WEST-CENTRAL TEXAS Wesley A. Brashear¹, Adam W. Ferguson², C. Eric Pomposelli¹, and Robert C. Dowler¹. ¹Department of Biology, Angelo State University; ²Department of Biological Sciences, Texas Tech University. (wabrashear@gmail.com)

Den site selection is an important component of carnivore ecology; den sites aid in thermoregulation, provide shelter from abiotic factors, and protect against predation. We studied den site selection of 29 radio-collared American hog-nosed skunks, *Conepatus leuconotus*, in west-central Texas. Between July 2008 and December 2010, skunks were tracked to den sites a total of 996 times, yielding 611 unique den sites. These den sites were categorized as one of five types: 1) under rock, 2) burrows, 3) prickly pear (*Opuntia* spp.), 4) brushpiles, and 5) other. Den type selection differed between sexes ($n=996$, $\chi^2=50.91$, $d.f.=4$), and seasonally for both males ($n=386$, $\chi^2=49.97$, $d.f.=12$), and females ($n=610$, $\chi^2=83.05$, $d.f.=12$). Males showed a preference for burrows in the summer and winter, and brushpiles and large rocks in the spring and fall. Females preferred denning under rocks in the summer, burrows and rocks in the spring, and prickly pear in the winter. A random subset ($n=120$) of the located den sites were further analyzed, as well as an equal number of duplicate random plots. A principal component analysis (PCA) was conducted on the 18 habitat variables used to assess den sites and random plots. The first six factors of the PCA explained over 70% of the standardized variance, and were used to conduct multivariate analysis of variance tests and discriminant function analyses. These analyses showed that den sites differed significantly from random sites ($F=7.801$, Wilk's

$\lambda=0.833$, $d.f.=6,223$, $P<0.001$), and revealed den site selection differed between males and females ($F=8.125$, Wilk's $\lambda=0.681$, $d.f.=6,104$, $P<0.001$). A jackknifed classification analysis correctly assigned den sites to sex 73% of the time. This study represents the first examination of the denning ecology of this species.

Paper 3

SEASONAL AND NIGHTLY BAT ACTIVITY PATTERNS IN ALPINE ASPEN (*POPULUS TREMULOIDES*) FORESTS Thomas W. Pettit and Kenneth T. Wilkins.

Department of Biology, Baylor University. (tommy_pettit@baylor.edu)

Bats using alpine forests exploit a relatively short growing season for forage and other activities. In the 2500-2900 m elevation areas of Heber Valley, UT, bats begin using forest in late May or early June, and remain active through September, with their most active period during the first two weeks of August. We passively monitored bat activity with Anabat SD1 bat detectors during the liveliest portion of the alpine summer, from 10 July to 27 August, 2009. Comparison of passively-collected echolocation data to a library of known echolocation signals via classification and regression tree analysis (CART) suggests two main call guilds, one in the higher frequency range (>33.795), and one in the lower frequency range (<33.795). Mist net captures of two myotis species (*M. evotis*, *M. volans*) and active echolocation recordings from a larger bat spotlighted near nets suggest at least 3 species comprising the two groups. Passively-recorded bat activity levels show a massive spike of nearly an order of magnitude during approximately the first two weeks of August, then drop back down to pre-spike levels. Additionally, while nightly activity levels of high and low frequency bats showed no evidence of partitioning during early and late summer, nightly bat activity during midsummer shows evidence of temporal partitioning. While the cause of the midsummer activity spike remains unknown, nightly activity patterns suggest density-dependent temporal partitioning.

Paper 4

EFFECTS OF HIGH-INTENSITY WILDFIRE ON SMALL MAMMAL ABUNDANCE AND SPECIES RICHNESS Mark J. Witecha¹, Andrea R. Litt², Timothy E. Fulbright¹, Susan M. Cooper³, and Daniel P. Walker⁴. ¹Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville; ²Department of Ecology, Montana State University; ³Texas AgriLife Research, Texas AgriLife Research and Extension Center at Uvalde; ⁴Chaparral Wildlife Management Area, Texas Parks and Wildlife Department. (markjwitecha@yahoo.com)

Small mammals are influenced heavily by vegetation structure and heterogeneity. As a result, disturbances such as fire can alter diversity and abundance of these species. In March 2008, a wildfire occurred on the Chaparral Wildlife Management Area in South Texas, which presented an opportunity to quantify the effects of a large-scale, high-intensity wildfire on small mammals. In 2009, we established 15 1-ha plots, five for each of three levels of fire intensity (unburned, low-intensity, and high-intensity). We used 10x10 grids of Sherman traps and mark-recapture methods to sample small mammal populations in March-April and October-November of 2009 and 2010, and estimated species richness and abundance. We captured nine total species (average \pm confidence interval half-width = 5.6 ± 0.5 species/plot), but did not detect differences in species richness with varying fire intensity until fall 2010, when species richness decreased with fire intensity (Unburned = 7.4 ± 0.7 , Low = 7.0 ± 1.5 , High = 5.8 ± 1.0). Abundance of the

Merriam's pocket mouse (*Perognathus merriami*), a species that prefers open grassland, increased with fire intensity one year after fire (Unburned = 0.4 ± 1.2 , Low = 18.3 ± 23.2 , High = 28.2 ± 20.9 individuals/plot); however, these differences did not persist in subsequent field seasons. Abundance of the white-footed mouse (*Peromyscus leucopus*), a species that prefers woody cover, decreased with fire intensity in all seasons but spring 2010 (spring 2009: Unburned = 14.3 ± 7.1 , Low = 3.3 ± 3.3 , High = 3.5 ± 3.0 ; fall 2009: Unburned = 4.3 ± 2.7 , Low = 2.3 ± 2.3 , High = 0.7 ± 1.8 ; fall 2010: Unburned = 11.2 ± 8.4 , Low = 9.0 ± 2.6 , High = 2.0 ± 5.5). Abundance of the hispid cotton rat (*Sigmodon hispidus*), a species that prefers thick grass cover, increased with fire intensity in fall 2010 (Unburned = 13.4 ± 10.2 , Low = 46.7 ± 36.3 , High = 110.2 ± 47.1). Because the effects of fire are species-specific based on habitat requirements, varying intensity of fire can maximize heterogeneity in vegetation and diversity in small mammal communities.

Paper 5

SOCIOECOLOGY OF THE MARSH RICE RAT (*ORYZOMYS PALUSTRIS*) REVEALS TRANSMISSION ROUTES FOR BAYOU VIRUS Tyla S. Holsomback¹, Christopher J. Van Nice², Rachel N. Clark², Nancy E. McIntyre¹, Alisa A. Abuzeineh³ and Jorge A. Salazar-Bravo¹.

¹Department of Biological Sciences, Texas Tech University; ²Department of Economics and Geography, Texas Tech University; ³Department of Biology, Aquatic Station, Texas State University. (tyla.holsomback@ttu.edu)

Along the southeastern U. S. coast, the marsh rice rat (*Oryzomys palustris*) is the primary host for the hantavirus genotype Bayou. According to the socioecological model (SEM), for a territorial, polygamous species, females should be distributed across space and time by habitat resources and predation risks, whereas males should space themselves according to the degree of female aggregation and reproductive synchrony. However, little is known of the social structure or breeding behaviors of *O. palustris* across its distributional range, or how they may influence virus transmission. Our objectives were to describe the socioecology of adult *O. palustris* at multiple spatial scales, and to investigate specifically how females affect the male-male transmission paradigm of Bayou virus. Across a 30-month Texas study, rodents were captured, marked, and released in two macrohabitat types, and microhabitat cover variables were quantified around individual trap stations. A geodatabase was created from rodent capture and habitat data and analyzed in a Geographic Information System (GIS). The ratio of breeding to non-breeding females was ~1:1, with breeding females overly dispersed and non-breeding females randomly dispersed. Spatial analyses revealed both macro- and microhabitat preferences in females. Compared to seronegatives, higher proportions of seropositive males were found consistently within closer proximities to breeding females but not to non-breeding females, indicating that male locations were not driven simply by habitat selection. Activities to acquire dispersed receptive females could be an important driver of Bayou virus transmission among male hosts. The SEM has been applied primarily to disease cycles of primates and other larger-bodied, social mammals; it has received much less attention as an investigative framework, particularly coupled with GIS, to study pathogen dynamics in small, solitary mammals. Herein, we describe an interdisciplinary effort providing a novel approach to elucidate the complexity of hantavirus trafficking and maintenance in rodent populations of a coastal marsh ecosystem.

Paper 6

MULTIPLE CAPTURES OF *REITHRODONTOMYS FULVESCENS* AND *BAIOMYS TAYLORI*: EVIDENCE FOR SHORT-TERM SOCIAL TRAVELLING Nicholas S.

Green¹, Laura K. Beard¹, Cathleen N. Early², and Kenneth T. Wilkins¹. ¹Department of Biology, Baylor University; ²Department of Biology, University of Mary Hardin-Baylor. (nick_green@baylor.edu)

Multiple captures (finding >1 animal in a single trap) of arvicoline and cricetine small mammals are often used to infer pair-bonding activity. We analyzed captures of fulvous harvest mice (*Reithrodontomys fulvescens*) and northern pygmy mice (*Baiomys taylori*) from a 2-year trapping study (39,168 trap-nights) in native tallgrass prairie at Leonhardt Prairie, a Nature Conservancy property in Central Texas, to test the hypothesis that these species form heterosexual, long-term pair bonds. Overall, 34 out of 915 *R. fulvescens* capture events and 64 of 1040 *B. taylori* capture events were multiple captures. A significant majority of multiple captures in both species were heterosexual, but there was little evidence of long-term pair-bonding. Only 1 co-captured heterosexual pair was recaptured as a pair (in *R. fulvescens*) and several animals of both sexes in both species were co-captured with different individuals on different occasions. Animal mass did not significantly affect the frequency of multiple capture events. We measured our findings against published criteria for inference of social travelling and conclude that *R. fulvescens* and *B. taylori* co-travel with mates for short periods of time but that the length of associations is highly plastic.

Paper 7

EFFECTS OF PRESCRIBED FIRES ON COMPOSITION OF THE FOREST-DWELLING BAT COMMUNITY IN SOUTHEASTERN PINEY FORESTS Anica

Debelica-Lee and Kenneth T. Wilkins. Department of Biology and Graduate School, Baylor University. (Anica_Debelica@baylor.edu)

No studies to date assess how management practices for red-cockaded woodpeckers (*Picoides borealis*) affect mammalian communities in the forest. The aim of this study is to determine what if any impact management practices (prescribed burns) at Sam Houston National Forest (SHNF), Texas, have on the bat community. The majority of the western part of SHNF has been managed with prescribed burns for the red-cockaded woodpecker. Prescribed burns are meant to reduce understory clutter which red-cockaded woodpeckers are not able to tolerate. The eastern side of the forest has been excluded from these management practices. We hypothesize that the managed area will be dominated by clutter-intolerant bat species, whereas the non-managed area will be dominated by clutter-tolerant bat species. To test this hypothesis, we netted bats during summer 2009 and 2010 in managed and during summer 2010 in non-managed areas. We captured bats by using triple-high nets. Before releasing the bats, we determined their species, sex, reproductive stage, and age. We also took wing photographs and recorded echolocation calls of each bat so that we could compute wing indices and thereby to designate each species as clutter-tolerant or clutter-intolerant. During 2009, we captured 114 bats (8 species). During 2010, we captured 103 bats in non-managed (6 species) and 37 (6 species) in managed areas. We found significant statistical difference between the two sites based on bat community composition for 2010 data only and when 2 years were pooled (d.f. = 4, $p < 0.0001$ for both cases). Clutter-tolerant Seminole bats (*Lasiurus seminolus*) dominated the community in both

sites. Clutter-intolerant evening bats (*Nycticeius humeralis*) were second most numerous at managed, whereas clutter-intolerant big brown bats (*Eptesicus fuscus*) were second most dominant at non-managed sites.

Paper 8

HYBRIDIZATION BETWEEN LYNX (*LYNX CANADENSIS*) AND BOBCAT (*L. RUFUS*) IN ATLANTIC CANADA: WHAT DOES IT PORTEND? Howard M. Huynh^{1,2,3}, Kamal Khidas⁴, Donald F. McAlpine¹, and Roger D. Bull⁴, ¹Department of Natural Science, New Brunswick Museum; ²Department of Biology, Acadia University; ³Department of Biological Sciences, Texas Tech University; ⁴Vertebrate Collections, Canadian Museum of Nature. (howard.huynh@ttu.edu)

Lynx, *Lynx canadensis*, are an endangered species in Atlantic Canada. Bobcats, *L. rufus*, are a relatively new immigrant species to the region. Hybridization between these two congeners has recently been detected in Atlantic Canada in the province of New Brunswick and possibly in Nova Scotia. Herein, we present craniometric and external morphological data from identified lynx-bobcats hybrids. Qualitatively, lynx-bobcat hybrids inherit external characters from both parental species. Multivariate statistical analyses were performed on 17 craniodental characters recorded from examined hybrid, lynx, and bobcat skulls from several museum collections. Principal components analysis revealed that craniodental characters of hybrids are intermediate to those of the parental species, while discriminant function analysis demonstrated that hybrid skulls can be identified and separated from purebred lynx and bobcat skulls. However, molecular genetics in the form of microsatellite analysis currently remains the only method to positively identify hybrids. We also discuss the biological and conservation implications of lynx-bobcat hybridization and what it portends to the endangered populations of lynx in Atlantic Canada.

Paper 9

A NEW SPECIES OF *MICRONYCTERIS* (CHIROPTERA: PHYLLOSTOMIDAE) FROM SAINT VINCENT, LESSER ANTILLES AND IMPLICATIONS FOR SPECIES-LEVEL DIVERSITY WITHIN THE *M. MEGALOTIS* COMPLEX Lizette Siles¹, Peter A. Larsen¹, Scott C. Pedersen², Gary G. Kwiecinski³ and Robert J. Baker¹. ¹Department of Biological Sciences and the Museum, Texas Tech University; ²Department of Biology and Microbiology, South Dakota State University; ³Department of Biology, University of Scranton. (liz_siles@yahoo.com)

The Neotropical bat genus *Micronycteris* comprises at least nine species, partitioned into four subgenera. Of these, *Micronycteris megalotis* is traditionally viewed as the most widely distributed species. However, there is a lot of uncertainty regarding the taxonomic arrangements and possible unrecognized species diversity within this complex. We describe and formally name a species of big-eared bat within this complex, collected from the Lesser Antillean island of Saint Vincent. The new species is distinguished from its closest relative, *Micronycteris megalotis*, by its large size, distinct craniodental features, and by mitochondrial DNA variation. The distribution of the new species is restricted to the island of St. Vincent, southern Lesser Antilles. Relaxed molecular clock analyses indicate the most recent common ancestor between the St. Vincent species of *Micronycteris* and mainland populations of *M. megalotis* is less than 1 million

years. Rising sea levels during the late Pleistocene likely contributed to the geographic isolation and subsequent allopatric speciation of this new species. The recognition of this species creates further paraphyly of the *M. megalotis* complex, with the presence of at least four putative species-level clades, and a noteworthy phylogeographic structure among them.

Paper 10

TEMPORAL CHANGES OF MOUNTAIN LION, *PUMA CONCOLOR*, POPULATIONS IN TEXAS: A GENETIC EVALUATION Joseph D. Holbrook¹, Randy W. DeYoung¹, Michael E. Tewes¹, and John H. Young². ¹Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville; ² Texas Parks and Wildlife Department. (jholbrook@vandals.uidaho.edu)

Mountain lions, *Puma concolor*, were historically distributed statewide, but today breeding populations primarily occur in south and west Texas. During 1970 mountain lions in Texas were classified as nongame, allowing unrestricted take with no requirement to report harvest. As a result, there are few current demographic data available to help inform mountain lion management in Texas. Exploring mountain lion population trends with traditional techniques is difficult and expensive due to the lions' elusive nature. Therefore, we used genetic methods to evaluate temporal changes in mountain lion population differentiation, genetic diversity, and effective population size (N_e). Sixty-two historical and 208 contemporary mountain lions from Texas were sampled and genotyped at 11 microsatellite DNA loci. We used the genetic data to estimate population structure (F_{ST}), heterozygosity (H_e), allelic richness (A_r), and N_e . We found low historical structure ($F_{ST}=0.04$) between south and west Texas; however, current structure is 3 times greater ($F_{ST}=0.11$). Population structure increased due to the temporal changes exhibited by south Texas populations (historical vs. current $F_{ST}=0.14$), not west Texas (historical vs. current $F_{ST}=0.02$). Genetic diversity in south Texas has declined (current $H_e=0.40$, $A_r=3.3$; historical $H_e=0.52$, $A_r=3.8$), whereas genetic diversity in west Texas remained stable ($H_e=0.51$, $A_r=3.7$). Our N_e estimates show a 74% decline in south Texas, and that west Texas has stayed higher than south Texas. Our results indicate a loss of genetic diversity and reduction in south Texas N_e over the last 70 years, probably due to reduced gene flow and low census size. Genetic diversity of mountain lions in west Texas has remained constant. Currently, lions in west and south Texas represent 2 management units. Gene flow within Texas and among adjacent populations is an important consideration for future management plans. The genetic declines in south Texas populations warrant increased attention to ensure lion persistence in the region.

Paper 11

RATTUS PHYLOGENY REVEALS NOVEL *R. TANEZUMNI* INVASION AND HYBRIDIZATION IN THE UNITED STATES Justin B. Lack¹, Dan Greene², Meredith K. Hamilton¹, Michael A. Mares³, Janet K. Braun³, and Ronald A. Van Den Bussche¹. ¹Department of Zoology, Oklahoma State University; ²Florida Department of Fish and Wildlife; ³Sam Noble Oklahoma Museum of Natural History, University of Oklahoma. (justin.lack@okstate.edu)

Rattus are arguably the most destructive invasive species on the planet. Within the U.S., they are responsible for approximately 19 billion dollars in annual economic losses through the destruction of property, the spread of disease, and the contamination of food and agriculture. In spite of their enormous economic and public health importance, essentially nothing is known of the population structure and genetic diversity of invasive *Rattus* in the U.S., and every study

conducted to date has been limited to a small geographic scale (e.g., islands and individual cities). In addition, all individuals captured in the U.S. are considered to be either *Rattus rattus* or *Rattus norvegicus*, with little consideration given to other species that are morphologically similar to *R. rattus* and *R. norvegicus* and potentially entering the U.S. To examine the genetic diversity of invasive *Rattus* in the U.S., we sequenced the cytochrome *b* gene from individuals tentatively identified based on morphology as *Rattus*, as well as obtaining all previously published cytochrome *b* sequences from members of the genus *Rattus*. Our phylogenetic analyses revealed that the majority of individuals obtained within the U.S. were *R. rattus* or *R. norvegicus*; however, individuals from 2 localities in northern Florida were members of a cryptic species, *R. tanezumi*. In addition, nuclear DNA analyses indicate extensive hybridization between *R. rattus* and *R. tanezumi*. These results have important implications in managing *Rattus* invasions and rat-borne disease, as each species carries and transmits a unique suite of pathogens.

Paper 12

ASSESSING THE POPULATION GENETIC STRUCTURE OF *GEOMYS ARENARIUS*

Ashley N. Hyatt, Philip D. Sudman, and Russell S. Pfau. Department of Biological Sciences, Tarleton State University. (ahyatt86@aol.com)

We are studying the population structure of *Geomys arenarius*, the desert pocket gopher, which is distributed from West Texas to south central New Mexico along the Rio Grande Valley, and eastward along the Tularosa Basin in the vicinity of White Sands National Monument and Gran Quivira. Vicariant events have affected patterns of distribution and connectivity of this species and many other species throughout the desert landscapes of North America. To better understand how the population structure of this species has been affected by past events, and to possibly uncover evidence of past connectivity between currently disjunct populations, we are analyzing amplified fragment length polymorphism (AFLP) data. Preliminary results will be presented, as well as initial results of using the technique FIASCO to develop microsatellite primers for additional population genetic analyses of this species.

Paper 13

MOLECULAR EVIDENCE FOR CRYPTIC SPECIES IN *PEROMYSCUS PECTORALIS* (CRICETIDAE: NEOTOMINAE)

Robert D. Bradley^{1,2}, Brian R. Amman³, Roy N. Platt III⁴, Nicté Ordóñez-Garza¹, and Howard M. Huynh¹. ¹Department of Biological Sciences, Texas Tech University; ²Museum of Texas Tech University; ³Centers for Disease Control and Prevention, National Centers for Zoonotic, Vector-borne and Enteric Diseases, Division of Viral and Rickettsial Diseases, Special Pathogens Branch, Medical Ecology Unit; ⁴Department of Biochemistry and Molecular Biology, Mississippi State University. (nicte.ordonez-garza@ttu.edu)

Peromyscus pectoralis occupies foothills and mid-elevation montane areas of the Hill Country and Trans-Pecos regions of Texas throughout the Mexican Plateau and adjoining mountain ranges in north-central Mexico. *P. pectoralis* initially was described as a subspecies of *P. attwateri* (Osgood 1904) and later elevated to *P. pectoralis* by Bailey (1906). Schmidly (1972) supported the recognition of three subspecies (*collinus*, *laceianus*, and *pectoralis*). Using allozymic data, Kilpatrick and Zimmerman (1976) concluded that *P. pectoralis* represented an

unusual polytypic conspecific unit. Bradley (2007) compared cytochrome-*b* gene sequences found that *P. p. pectoralis* differed from samples of *P. p. laceianus* by 6.3 and 6.5% based on Kimura two-parameter genetic distances. Our goals were to examine genetic divergence among populations of *P. pectoralis*, determine the taxonomic status of the three subspecies, and test the utility of the genetic species concept. We examined DNA sequences obtained from the cytochrome-*b* gene in 19 individuals. Likelihood, Bayesian and Parsimony analyses were used to generate hypothesis concerned phylogenetic relationships of taxa. Analyses indicated significant genetic divergence between *P. p. laceianus* and *P. p. pectoralis*. This level of genetic divergence is greater than levels observed between other sister species of *Peromyscus*. We interpret these data evidence that *P. pectoralis* may contain two cryptic species.

Paper 14

DESCRIPTION OF A NEW SPECIMEN OF *ICTIDOSTOMA HEMBURYI* (THERAPSIDA; THEROCEPHALIA) AND THE PHYLOGENETIC RELATIONS OF THEROCEPHALIANS TO THE MAMMALIAN LINEAGE Dallas Krentzel^{1,2}, Christian

Kammerer², and John Flynn². ¹Department of Biology, Centenary College of Louisiana;

²Department of Vertebrate Paleontology, American Museum of Natural History.
(dkrentze@my.centenary.edu)

Synapsida is a clade of vertebrates that includes all amniotes more closely related to mammals than to reptiles and birds, or sauropsids. In the late Middle Permian, a group of small to large, primarily carnivorous synapsids, called therocephalians, appeared, followed in the upper late Permian by a distinct yet similar group with varying carnivorous and herbivorous forms, called cynodonts. Since the 1970s, there has been debate as to whether Cynodontia, from which we know mammals evolved, lies within Therocephalia, due to some therocephalians with cynodont-like characters. Family level relationships amongst therocephalians have also been disputed. Using computed tomography techniques, a new, almost complete therocephalian cranium is described from the Upper Permian (*Tropidostoma* Assemblage Zone) of the Karoo Basin, South Africa. The presence of a large septomaxilla, precanine teeth, and posterior processes of the nasals tentatively ally it with *Ictidostoma hemburyi*, thought to be a primitive hofmeyriid therocephalian. CT analysis revealed palatal teeth of the pterygoid, a pineal foramen anterior to the sagittal crest, lack of epipterygoid-prootic contact, and enlarged posteroventral transverse processes of the pterygoid. A large phylogenetic analysis yielded an exclusive clade between the new specimen and *Ictidostoma hemburyi*; however, the analysis placed *Ictidostoma* at the base of a clade between Whaitsiidae and Hofmeyriidae, supporting previous studies that have found *Ictidostoma* to be a basal non-akidnognathid whaitsioid. Therocephalia was found to be monophyletic, but with a poor bootstrap value. Experimentation with smaller taxon sampling, mimicking previously published analyses supporting a paraphyletic Therocephalia, yielded trees with and without a Therocephalia paraphyletic to Cynodontia. Further analyses with more robust character sets and more taxa are likely necessary to resolve Therocephalia's potential paraphyly more definitively; however, current data on therocephalian disparity favors the idea that cynodonts evolved from primitive eutheriodonts, not whaitsiid therocephalians.

Paper 15

THE MAMMALS OF THE ATILLO LAGOONS, SANGAY NATIONAL PARK, ECUADOR Amy M. Scott¹, Thomas E. Lee, Jr.¹, and Carlos Boada-Teran². ¹Department of

Biology, Abilene Christian University; ²Sección Mastozoología – Museo de Zoología, Pontificia Universidad Católica del Ecuador. (ams05o@acu.edu)

In 2010 a mammal survey was conducted in an ecotone region (including Páramo and Cloud forest) on the eastern slope of the Andes in Sangay National Park, Ecuador. Sherman traps, tomahawk traps, pitfall traps, and mist nets were used to collect mammal specimens at two sites (3400 m elevation and 2900 m elevation). A total of 169 specimens representing 14 species were collected from the survey area. These species that were collected include: *Caenolestes caniventer*, *Cryptotis montivaga*, *Akodon mollis*, *Microryzomys altissimus*, *M. minutus*, *Thomasomys aureus*, *T. baeops*, *T. cinnamomeus*, *T. paramorum*, *T. silvestris*, *Sturnira bidens*, *S. erythromos*, *Micronycteris megalotis*, *Myotis keaysi* and one additional species (*Mazama rufina*) was recorded photographically. A new national record of a parasitic beetle (*Amblyopinus colombiae*) was discovered on *T. aureus*.

Paper 16

LOCATION OF THE HYBRID ZONE BETWEEN DIVERGENT LINEAGES OF THE HISPID COTTON RAT (*SIGMODON HISPIDUS*) IN ARKANSAS Claire Gibson and Russell S. Pfau. Department of Biological Sciences, Tarleton State University. (claire.gibson@go.tarleton.edu)

Sigmodon hispidus, the hispid cotton rat, occurs throughout the south-central United States. Carroll et. al (2004) discovered that this species consists of two genetically unique lineages, one in the eastern United States and one in the western United States. Eastern and western lineages are morphologically identical, but can be identified by sequencing the mitochondrial cytochrome *b* gene. Phillips et al. (2007) documented the location of the contact zone in eastern Texas and demonstrated that the two lineages hybridize where they meet. However, the location of the contact zone elsewhere has not been documented. The goal of the current study is to document the location of the contact zone between the eastern and western lineage of *S. hispidus* further north. Numerous specimens were collected from multiple locations across the state of Arkansas or obtained from other researchers. Additionally, specimens were collected along a transect east of Little Rock, AR where we believed the contact zone might occur (based on preliminary results). The cytochrome *b* gene was sequenced to determine the lineage (eastern or western) to which each specimen belongs. Documenting the location of the hybrid zone is necessary in order to study genomic and environmental interactions at the hybrid zone. Specifically, geological and ecological factors may play a role in the location and maintenance of the hybrid zone. Once the location of the contact zone has been mapped, the relationship between the contact zone and natural barriers such as mountains or rivers, and ecological factors including climatic variables and vegetation, will be assessed.

Paper 17

GENETIC EVALUATION OF A *NEOTOMA MICROPUS*/NEOTOMA FLORIDANA HYBRID ZONE Ethan B. Rowell and Michelle L. Haynie. Department of Biology, University of Central Oklahoma. (erowell1@uco.edu)

The Southern Plains Woodrat (*Neotoma micropus*) and the Eastern Woodrat (*Neotoma floridana*) hybridize under natural conditions. An area just outside the town of Seiling,

Oklahoma provides a suitable environment in which these two species can produce hybridized individuals. Early hybridization studies on *N. micropus* and *N. floridana* have been done in this area using morphological data to identify hybrid individuals (Spencer 1968; Birney 1973). Not until recently, with a study done by Bradley et al. (unpublished data), have genetic markers been used to classify hybridization in the Seiling hybrid zone. Bradley et al. (unpublished data) found a high degree of hybridization (84.5%) in samples collected in 1988, using mitochondrial (cytochrome b) and nuclear (*Adh1-I2*, beta-fibrinogen) DNA datasets. The aim of this current project is to 1) determine the extent of the hybrid zone, 2) determine the directionality of hybridization, 3) determine the distribution of genotypes within the hybrid zone, 4) determine the frequency of hybrid individuals, and 5) compare the new findings to the results found by Bradley et al. (unpublished data). Additionally, specimens collected by Bradley et al. (unpublished data) will be reexamined, using microsatellite data.

Paper 18

A SURVEY OF THE ACTIVITY PATTERNS OF MEDIUM TO LARGE MAMMALS IN THE SOUTHERN ROLLING PLAINS OF TEXAS Erika Mitchell and Joel Brant.

Department of Biology, McMurry University. (mitchell.erica@students.mcm.edu)

Texas is a state known for biological diversity in both plant and animal life. This diversity is evident in the medium to large mammals that most Texans are familiar with. This study presents a survey of medium to large mammals on the Southern Rolling Plains of Texas using noninvasive methods. Camera traps were put out on two properties in Jones and Callahan counties, Texas, for a duration of ten months (March- December 2010). Each of the trap sites were scent baited and monitored weekly. A total of 301 animals were photographed including armadillo, bobcat, coyote, eastern fox squirrel, feral hog, opossum, raccoon, white tailed deer, and striped skunk. These data were used to characterize activity patterns in medium to large mammals in the Southern Rolling Plains of Texas. Linear regressions were used to show correlation and effect of day and night captures, moon phase, and seasonal changes.

POSTERS AT-A-GLANCE

1 - DEN SITE SELECTION OF RINGTAILS (*BASSARISCUS ASTUTUS*) IN WEST CENTRAL TEXAS

Andrew R. Tiedt

2 - A LONG TERM COMPARATIVE SURVEY OF SMALL MAMMAL POPULATION IN FOUR DIFFERENT MICROHABITATS IN NORTHERN MICHIGAN

Erin Q. Boyd

3 - INVESTIGATION ON MONOGAMOUS LIFESTYLES OF THE ROUND-EARED SENGI (*MACROSCELIDES PROBOSCIDEUS*) FROM SOUTH AFRICA

Dava Greenberg-Spindler

4 - MODELING MAMMALIAN GEOGRAPHIC RANGES USING GEOREFERENCED ENVIRONMENTAL DATA AND MATHEMATICAL MODELS

Sam Keller and Rick Simpson

5 - MORPHOLOGICAL AND MOLECULAR VARIATION IN DOMESTIC RABBIT BREEDS, *ORYCTOLAGUS CUNICULUS*, WITH A COMPARISON TO WILD STOCK Katy Estill

6 - TEXAS RANGE EXTENSIONS AND COUNTY RECORDS FOR THE SOUTHERN YELLOW BAT (*LASIURUS EGA*), THE NORTHERN YELLOW BAT (*LASIURUS INTERMEDIUS*), THE SEMINOLE BAT (*LASIURUS SEMINOLUS*), THE HOARY BAT (*LASIURUS CINEREUS*), AND THE SILVER-HAIRED BAT (*LASIONYCTERIS NOCTIVAGANS*)

Andrea M. Lewis

7 - A COMPARATIVE STUDY OF WING MORPHOLOGY AND ECHOLOCATION CALL CHARACTERISTICS AMONG SYMPATRIC BAT SPECIES IN SAM HOUSTON NATIONAL FOREST

Cory Hanks

8 - CIRCADIAN AND SEASONAL ACTIVITY PATTERNS OF HOG-NOSED (*CONEPATUS LEUCONOTUS*) AND STRIPED SKUNKS (*MEPHITIS MEPHITIS*) IN WEST-CENTRAL TEXAS

Tyler J. Cochran

9 - USE OF CAMERA TRAPPING TO DETERMINE PATTERNS OF HABITAT USE BY MEDIUM-SIZED MAMMALS IN WESTERN-CENTRAL TEXAS

Katelynn J. Frei

10 - PRELIMINARY ANALYSES OF A Y-CHROMOSOME MARKER AND MITOCHONDRIAL SEQUENCES INDICATE GENETIC INTROGRESSION IN GROUND SQUIRRELS (GENUS *SPERMOPHILUS*)

Cody W. Thompson

11 - PHYLOGENETICS AND PHYLOGEOGRAPHY OF THE *HIPPOSIDEROS BICOLOR* (CHIROPTERA: HIPPOSIDERIDAE) COMPLEX BASED ON MITOCHONDRIAL DNA, MORPHOLOGY AND ECHOLOCATIONS

Faisal Ali Anwarali Khan

12 - MORPHOMETRIC ANALYSIS OF *STURNIRA LUDOVICI* AND *STURNIRA OPORAPHILUM*

Anais Balledant

13 - MOLECULAR EVIDENCE TO SUPPORT THE PHYLOGENETIC POSITION OF *OTONYCTOMYS HATTI*

Megan S. Corley

14 - RELATIONSHIPS AMONG BONNETED BATS (GENUS *EUMOPS*): A MOLECULAR TEST OF MORPHOLOGICAL HYPOTHESES

Sarah N. Bartlett

15 - GENETIC VARIATION AT MAJOR HISTOCOMPATIBILITY COMPLEX (*MHC*) LOCI IN *NEOTOMA ALBIGULA*: POTENTIAL CLUES TO COEVOLUTION WITH ARENAVIRUSES

Sarah G. Hoss

16 - GENETIC DIVERSITY WITHIN THE NORTHERN GRASSHOPPER MOUSE (*ONYCHOMYS LEUCOGASTER*) IN SOUTHERN TEXAS

Michelle Gerlosky

17 - REEVALUATION OF AFRICAN *MUS* IN BOTSWANA USING DNA, CYTOGENETICS, AND MORPHOLOGY

Molly M. McDonough

18 - CHROMOSOMAL EVOLUTION OF MALAYSIAN WOOLLY BATS (*KERIVOULA*)

Cibele G. Sotero-Caio

19 - MORPHOLOGICAL AND MOLECULAR VARIATION IN TOWNSEND'S BIG-EARED BAT (*CORYNORHINUS TOWNSENDII*) IN WEST TEXAS

T. Marie Tipps

20 - MOLECULAR AND ECOLOGICAL INVESTIGATIONS OF A WOODRAT (GENUS *NEOTOMA*) HYBRID ZONE

Matthew R. Mauldin

21 - CHARACTERIZATION OF MICROSATELLITE MARKERS FOR USE IN *MYOTIS*
BATS (MOUSE EARED BATS)

Candace Frerich

22 - ASSESSMENT OF GENETIC DIVERSITY WITHIN POPULATIONS OF *NEOTOMA*
ALBIGULA (WHITE-THROATED WOODRAT) FROM ARIZONA, USING
MICROSATELLITE LOCI AND MITOCHONDRIAL D-LOOP SEQUENCE DATA

Amanda H. Eisemann and Shey R. Ramsey

Poster Presentation Abstracts

The following posters (1 - 9) are to be considered for the Vernon Bailey Award.

Poster 1

DEN SITE SELECTION OF RINGTAILS (*BASSARISCUS ASTUTUS*) IN WEST CENTRAL TEXAS Andrew R. Tiedt and Robert C. Dowler. Department of Biology, Angelo State University. (atiedt1@angelo.edu)

In August 2008, research was initiated to determine den site preference of the ringtail (*Bassariscus astutus*) in west central Texas. Since that time fourteen ringtails (9F:5M) were captured and radiocollared on the study areas of the Knickerbocker and Tweedy ranches, located near Knickerbocker, in Tom Green County, Texas. Diurnal resting sites were located via radio-tracking. Ringtails were found to be using owl nest boxes at the study site in addition to natural dens. A total of 286 den sites were located, with 105 being unique. Thirty-seven instances have been recorded of co-occupancy of a den site by multiple ringtails. Dataloggers were used to characterize thermal profiles of known den sites and controls from October 2008 - October 2009. Based on 286 den sites, den selection for both male and female ringtails revealed nest box preference more frequently in winter (80%) followed by spring (77%), and then fall (67%) months. During the summer months (Jun.-Aug.) males selected belowground dens over half of the time, and females selected non-nest box aboveground dens more frequently. There appear to be thermal advantages,, as well as protection from predators, for ringtails selecting nest boxes for dens. A shift to use of underground dens during the extreme high temperatures during summer months suggests that thermal advantages may outweigh predator avoidance during the summer season.

Poster 2

A LONG TERM COMPARATIVE SURVEY OF SMALL MAMMAL POPULATION IN FOUR DIFFERENT MICROHABITATS IN NORTHERN MICHIGAN Erin Q. Boyd and Thomas E. Lee, Jr. Department of Biology, Abilene Christian University. (eqbo7a@acu.edu)

A small mammal survey was conducted each year from 2002 to 2010 for four or five weeks during June and July at a research site in Kalkaska County, Michigan. The studies surveyed three microhabitats, a kettle bog, an old growth white pine (*Pinus strobus*) forest, a secondary growth pine forest. A fourth microhabitat was added to the study beginning in 2004, which consisted of an aspen forest. The study site is located 3.5 miles SE of Big Twin Lake (N 44° 47.147', W 84° 55.659'). Sherman traps and pitfalls were used in the trapping of the small mammals. An assessment of approximate population sizes, dominate species, species distribution and diversity were calculated for each year (2002 to 2010). The Shannon-Weaver diversity index for species diversity, and the Peterson-Lincoln equation for predicting the total population of an area, was used in the assessment. Throughout the entirety of the surveys, *Tamias striatus*, *Sorex cinereus*, and *Peromyscus leucopus* were the most numerous species in that respective order. The highest species diversity was seen in 2004, and the highest number of individuals caught was observed in 2007.

Poster 3

INVESTIGATION ON MONOGAMOUS LIFESTYLES OF THE ROUND-EARED SENGI (*MACROSCELIDES PROBOSCIDEUS*) FROM SOUTH AFRICA David Ribble¹, Melanie Schubert^{2,3}, Dava Greenberg-Spindler¹, and Sultana Peffley¹. ¹Biology Department, Trinity University; ²School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, Wits, South Africa; ³Department of Animal Physiology, University of Bayreuth, Bayreuth, Germany. (dgreenbe@trinity.edu)

The occurrence of monogamy in mammals is very rare, found in approximately 5-10% of species. Elephant-shrews or sengi are a unique clade of mammals composed of 18 species that are all suspected to be monogamous, yet no study to date has confirmed genetic monogamy in any sengi species. The objective of this study was to examine paternity of offspring in *M. proboscideus*, the Round-eared sengi from South Africa. Microsatellites were isolated from Round-eared sengi DNA, and polymerase chain reaction primers were designed for amplifying these microsatellites. Fourteen of these target loci were successfully amplified with fluorescently-tagged primers. Heterozygosity across all loci ranged from 0.43 to 0.90, indicating the usefulness of these markers for paternity analysis. Paternity was analyzed using two methods: maximum likelihood methods using the program Cervus and exclusion analysis. Results from the paternity analysis indicate that while the individuals may appear to be socially monogamous in the field, they are not genetically monogamous.

Poster 4

MODELING MAMMALIAN GEOGRAPHIC RANGES USING GEOREFERENCED ENVIRONMENTAL DATA AND MATHEMATICAL MODELS Sam Keller¹, Rick Simpson¹, Roberto Hasfura², Saber Elaydi², and David Ribble¹. ¹Department of Biology, Trinity University; ²Department of Mathematics, Trinity University. (skeller@trinity.edu, rsimpson@trinity.edu)

Niche modeling is an ecological tool used to predict species ranges based on sample species occurrence points and georeferenced environmental data, both biotic and abiotic. These predicted ranges are applicable in determining presence of endangered species, modeling habitat loss, and analyzing how changes in environment could affect populations. Our project focused on *Baiomys*, *Peromyscus*, and *Dipodomys* species in the southern U.S. and Mexico. Our goal was to create a model that could predict ranges in a geographical context and be widely applied to other animals. We also are developing a mathematical model that will predict the rate of growth and parameters for intra- and inter-specific competition. Species presence locations were collected from the MaNIS online animal database and plotted in ArcGIS (ESRI, Inc.) using georeferenced coordinates provided by the collecting researchers. These georeferenced points were combined with elevation, temperature, precipitation, land cover/land use, and plant growth data layers and analyzed by the openModeller Niche Modeling program. OpenModeller determined the environmental conditions present at each occurrence point and generated ranges based on similar conditions throughout the dataset. These ranges are being compared to previously-generated ranges by other researchers to analyze accuracy. The math model was developed from the Ricker Model, and tested using Maple to determine accuracy. While the accuracy is still being tested, we are working to integrate the math model into our modeling software in order to expand niche models to include growth and competition parameters.

Poster 5

MORPHOLOGICAL AND MOLECULAR VARIATION IN DOMESTIC RABBIT BREEDS, *ORYCTOLAGUS CUNICULUS*, WITH A COMPARISON TO WILD STOCK

Katy Estill¹, Eve Waters², Nate Sutter², and Monte Thies¹. ¹Department of Biological Sciences, Sam Houston State University; ²College of Veterinary Medicine, Cornell University. (katy.estill@shsu.edu)

Domestication of rabbits began 1,500 years ago with captive breeding of the European wild rabbit, *Oryctolagus cuniculus*. Selective breeding resulted in a high degree of variability in external morphology and pelage, with 47 breeds of rabbits currently recognized in the US. These breeds, designated by the American Rabbit Breeders Association (ARBA), are often inaccurately described in scientific literature and are commonly described by size alone, or with an incorrect breed name. Without correctly defining the breed being used, research cannot be reliably replicated. This study is focused toward answering several questions regarding the systematics of domestic rabbits. I hypothesize that: 1) significant variation among domestic rabbit breeds can be quantified through morphometric studies of the cranium; 2) measurable cranial variation will also be present among European rabbits and domestic breeds; and 3) variation among breeds may be identifiable by molecular methods. I will complete a comparison among domestic breeds and wild stock based on cranial morphology using standard cranial measurements, as well as a molecular investigation. Using calipers and digital photographs, measurements of crania will be taken for analyses using appropriate statistics methods. Currently there is no collection of domestic breeds and ARBA breed standards are only weakly defined.

Poster 6

TEXAS RANGE EXTENSIONS AND COUNTY RECORDS FOR THE SOUTHERN YELLOW BAT (*LASIURUS EGA*), THE NORTHERN YELLOW BAT (*LASIURUS INTERMEDIUS*), THE SEMINOLE BAT (*LASIURUS SEMINOLUS*), THE HOARY BAT (*LASIURUS CINEREUS*), AND THE SILVER-HAIRED BAT (*LASIONYCTERIS NOCTIVAGANS*)

Andrea M. Lewis and Loren K. Ammerman. Department of Biology, Angelo State University. (alewis8@angelo.edu)

We evaluated bats submitted to the Texas Department of State Health Services from the years 2005 through 2010 in order to study bat distributions in the state. Our analysis revealed numerous county records and new range extensions and herein we report on data from five species of bats: *Lasiurus ega*, *Lasiurus seminolus*, *Lasiurus cinereus*, *Lasiurus intermedius*, and *Lasionycteris noctivagans*. Specimens were considered county records if there were no previous publications reporting on the occurrence of the species in particular counties or if there were no known specimen vouchers. We identified 6 new county records for the Southern yellow bat, *Lasiurus ega*, and 6 new county records for the Northern yellow bat, *Lasiurus intermedius*. The Seminole bat, *Lasiurus seminolus*, had the most new county records identified (17). The Northern yellow bat, Southern yellow bat, and Seminole bat all display new range extensions, which we identified as greater than a 100 kilometer extension from the original range. We identified 8 new county records for the hoary bat, *Lasiurus cinereus*, and 10 new records for the silver-haired bat, *Lasionycteris noctivagans*. Specimens are all deposited in the Texas Tech Museum collection (Natural Science Research Lab). All specimens were identified

morphologically but some, such as the morphologically similar juvenile yellow bats, will need to be confirmed with molecular data.

Poster 7

A COMPARATIVE STUDY OF WING MORPHOLOGY AND ECHOLOCATION CALL CHARACTERISTICS AMONG SYMPATRIC BAT SPECIES IN SAM HOUSTON NATIONAL FOREST Cory Hanks, Anica Debelica, Thomas W. Pettit, and Kenneth T. Wilkins. Department of Biology and Honors College, Baylor University. (cory_hanks@baylor.edu)

Prescribed burn management can improve habitat conditions for certain forest-dwelling species (e.g., red-cockaded woodpecker). However, the effect of such management practices on the forest-dwelling bat community in southeastern piney forests is not well understood. Through comparative study of wing morphology, echolocation call characteristics, and the relationship between these two variables, we can better understand and address the limiting factors of interspecific resource partitioning in sympatric bats. We conducted our study in eastern Texas in Sam Houston National Forest (SHNF), a large tract of mixed pine-hardwood forest that characterizes much of the southeastern United States. The study was conducted during the summer of 2010 in managed (Kelly Pond) and unmanaged areas (Henry Lake Creek) of SHNF. We expected to find clutter-intolerant species (narrow ranged and low frequency calls, high wing loading and high aspect ratios) in higher numbers in managed areas, and clutter-tolerant bat species (broad band-width and high frequency calls, low wing loading and low aspect ratio) in higher numbers in non-managed areas. We netted bats using triple-high nets, identified them to species, and recorded their age, sex, and reproductive status. We took digital pictures of the wing and tail membranes and recorded echolocation calls. We captured 102 bats at Henry Lake Creek and 37 at Kelly Pond belonging to six species: Seminole bat (*Lasiurus seminolus*), evening bat (*Nycticeius humeralis*), eastern red bat (*Lasiurus borealis*), big brown bat (*Eptesicus fuscus*), tricolored bat (*Perimyotis subflavus*), and southeastern myotis (*Myotis austroriparius*). We lacked sufficient sample size for tricolored, southeastern myotis, and eastern red bat to include them in an analysis of wing and echolocation data, so we evaluated data only for Seminole, evening, and big brown bats. MANOVA analysis showed that these three bat species differed significantly in respect to wing loading, mean characteristic frequency, and mean duration ($P < 0.0001$).

Poster 8

CIRCADIAN AND SEASONAL ACTIVITY PATTERNS OF HOG-NOSED (*CONEPATUS LEUCONOTUS*) AND STRIPED SKUNKS (*MEPHITIS MEPHITIS*) IN WEST-CENTRAL TEXAS Tyler J. Cochran and Robert C. Dowler. Department of Biology, Angelo State University. (tcochran1@angelo.edu)

Presented are preliminary results of a continuing study on the circadian and seasonal activity patterns of hog-nosed (*Conepatus leuconotus*) and striped skunks (*Mephitis mephitis*), in west-central Texas. This study intends to document the average periods of activity for a population of skunks from Knickerbocker Ranch, 15 miles west of San Angelo, Texas. A total of 11 skunks are currently being monitored via radio telemetry over various periods throughout the circadian cycle to determine average times of activity for the population. An activity switch in the radio

transmitters changes pulse rate of the transmitter signal when an animal is inactive, thus allowing assessment of activity or inactivity when the signal is received. Sampling periods will cover the 24-hour in three or four-hour increments. Additional data on activity will be collected from a grid of 25 infrared game cameras which record time and date on the digital images. While still in the early stages of data collection, I have observed high frequency of nocturnal activity for nearly all individuals and a transition to inactivity shortly before or after sunrise. The preliminary nature of these data prevents any accurate conclusions from being made at this time. Continuation of this project will result in a more descriptive picture of the circadian and seasonal activity patterns and fluctuations over an extended period of time.

Poster 9

USE OF CAMERA TRAPPING TO DETERMINE PATTERNS OF HABITAT USE BY MEDIUM-SIZED MAMMALS IN WESTERN-CENTRAL TEXAS Katelynn J. Frei, Emily Wilkinson, and Robert C. Dowler. Department of Biology, Angelo State University. (kfrei@angelo.edu)

Previous studies have used infrared camera trapping to document animal distribution, habitat preferences, and behavior. We are conducting a study of the medium-sized mammal community at a study site near Knickerbocker in west-central Texas. The purpose of the on-going study is to document the occurrence of medium-sized mammals to assess the variation in community composition between two distinct habitats, a rocky upland habitat and a riparian zone, on the Knickerbocker Ranch in Tom Green Co., Texas. This study utilizes remote infrared camera traps (Moultrie 1-60 Game Spy) to capture images documenting the diversity and relative distribution of mammal species. We are using a 5 X 5 camera grid spanning both habitat types with cameras spaced 500 m apart. In four months of data collections, 19,286 images were captured with 1,365 mammals being recorded. Preliminary observations show that there are certain species that are found more frequently in one habitat type over the other. *Dasyus novemcinctus* was captured in 4.5% of the images, but was seen more often in the riparian habitat, as was *Sylvilagus floridanus* with 3.7%. *Erethizon dorsatum* was captured in 3.2% of the images, but was seen more often in the rocky upland habitat, as was *Bassariscus astutus* with 1.5%. *Procyon lotor* was the most commonly photographed mammal (52.6%) followed by *Urocyon cinereoargenteus* (12.1%), but they did not have a preference for either habitat. Rarely documented species include *Lynx rufus* (0.88%) and *Taxidea taxus* (0.66%). We hope to continue to collect data over the next 8 months using these remote cameras to assess seasonal patterns, in addition to characterizing community structure in the different habitats.

The following posters (10 - 21) are to be considered for the Clyde Jones Award.

Poster 10

PRELIMINARY ANALYSES OF A Y-CHROMOSOME MARKER AND MITOCHONDRIAL SEQUENCES INDICATE GENETIC INTROGRESSION IN GROUND SQUIRRELS (GENUS *SPERMOPHILUS*) Cody W. Thompson¹, Frederick B. Stangl, Jr.², and Robert D. Bradley^{1,3}. ¹Department of Biological Sciences, Texas Tech University; ²Biology Department, Midwestern State University; ³Natural Science Research Laboratory, Museum of Texas Tech University. (cody.thompson@ttu.edu)

Spermophilus mexicanus and *S. tridecemlineatus* are sister species that form a zone of sympatry across southeastern New Mexico and the Texas Panhandle (Cothran 1983; Cothran et al. 1977; Stangl et al., in prep). Though morphologically distinct (Howell 1938), allozymic (Cothran et al. 1977), karyotypic (Cothran and Honeycutt 1984; Nadler and Hughes 1966; Zimmerman and Cothran 1976), and morphologic data (Cothran 1983; Stangl et al, in prep) indicate that the 2 species hybridize. In addition, laboratory crosses of parental types have produced F₁ offspring verifying the ability for hybridization to occur between the 2 species. Recently, Stangl et al. (in prep) documented several locations of possible hybridization between *S. mexicanus* and *S. tridecemlineatus* in the southeastern portion of the Texas Panhandle. Initial morphological analyses confirmed the presence of hybrids; however, neither species were collected in sympatry and probably exist in parapatrically interdigitated populations throughout the putative zone of sympatry. To further investigate hybridization between these 2 species, we have obtained mitochondrial cytochrome-*b* (*Cytb*) sequences from nearly 250 individuals and have begun sequencing the structural maintenance of chromosomes-Y gene (*SmcY*). The *Cytb* data indicates a common mitochondrial genome for *S. mexicanus* and *S. tridecemlineatus* within the putative zone, as well as the immediate vicinity. These populations are genetically divergent from parental populations outside of the putative zone (i.e., north and south of Texas Panhandle), which may indicate an ancient introgression event. Preliminary data from the *SmcY* gene shows species-specific haplotypes and appears useful in delimiting species. The *SmcY* data will provide useful phylogeographic information in these male-biased dispersal species, especially in light of a potential common mitochondrial genome. In conjunction with amplified fragment length polymorphisms (in progress), these two datasets will help provide answers in identifying hybrids, determining directionality of hybridization, and discovering the evolutionary history of these 2 taxa.

Poster 11

PHYLOGENETICS AND PHYLOGEOGRAPHY OF THE *HIPPOSIDEROS BICOLOR* (CHIROPTERA: HIPPOSIDERIDAE) COMPLEX BASED ON MITOCHONDRIAL DNA, MORPHOLOGY AND ECHOLOCATIONS Faisal Ali Anwarali Khan¹, M. T.

Abdullah², Ibnu Maryanto³, Fahma Wijaya⁴, and Robert J. Baker¹. ¹Department of Biological Sciences and the Museum, Texas Tech University; ²Department of Zoology, Faculty of Resource Science and Technology, Universiti Malaysia Sarawak, Malaysia; ³Museum Zoologicum Bogoriense, Research Center for Biology, Indonesian Institute of Sciences (LIPI), Indonesia; ⁴Faculty of Science and Technology, Islamic University of Syarif Hidayatullah, Jakarta, Indonesia. (faisal.anwarali@ttu.edu)

Hipposideros bicolor Temminck, 1834 is a member of the *bicolor* species group, which encloses half of all named species in the genus *Hipposideros*, including representatives from Africa and Madagascar across southern Asia to Japan, and northern Australia. The taxonomy of *H. bicolor* is convoluted mainly due to cryptic diversity within the *bicolor* species group that was further complicated with poor description of the type specimen. Acoustic divergence has been hypothesized as the major mode of diversification within hipposiderids. This study investigates the taxonomy of *H. bicolor* and its allies, to uncover the diversity and evolutionary relationship within this group. We examined the morphology, acoustic and genetic differences within currently recognized *H. bicolor* and some other morphologically similar species from Malaysia (Peninsular Malaysia and Borneo) and Indonesia (Sumatera and Java). We sequenced 1140 base

pairs (bp) of cytochrome-b (Cyt-b) and 509 (bp) of NADH dehydrogenase subunit 2 (ND2) gene for *H. ater*, *H. atrox*, *H. bicolor*, *H. cineraceus*, *H. doriae*, and *H. dyacorum*. Our analyses recovered three phylogroups within *H. bicolor* (Kimura 2 parameter distance value [K2P] = 3-7%), three phylogroups within *H. ater* (K2P = 8-17%), three phylogroups within *H. cineraceus* (K2P=5-7%) and a single phylogroup for *H. atrox*, *H. doriae* and *H. dyacorum* respectively. Discriminant function analysis of these specimens able to correctly classify all the *H. bicolor* clades at 79%, 3 clades within *H. ater* (two of these occur only in Borneo and one only in Java) at 90-100%, *H. atrox* at 100%, all the cineraceus clades at 71%, *H. doriae* at 100%, and *H. dyacorum* at 100%. Echolocation call analysis suggests that all the *H. bicolor* phylogroups echolocate at ~129-131 KHz. Herein we discuss the taxonomic implication of the *bicolor* species group based on multiple dataset that accounts for geographic variations and comparison to the type description.

Poster 12

MORPHOMETRIC ANALYSIS OF STURNIRA LUDOVICI AND STURNIRA OPORAPHILUM Anais Balledant and Thomas E. Lee, Jr. Department of Biology, Abilene Christian University.

Morphometric analysis was performed on two congeneric species of *Sturnira* (*S. ludovici* and *S. oporaphilum*). *Sturnira ludovici* occurs west of the Andes and *S. oporaphilum* occurs east of the Andes. Morphological measurements were taken from four locations on both sides of the Andes. The morphologic data show the two species overlap in all measurements taken indicating that they are close sister taxa or are conspecific. These results contrast with those who concluded that the two taxa are distinct biological taxa.

Poster 13

MOLECULAR EVIDENCE TO SUPPORT THE PHYLOGENETIC POSITION OF OTONYCTOMYS HATTI Megan S. Corley¹, Nicté Ordóñez-Garza¹, and Robert D. Bradley^{1,2}.
¹Department of Biological Sciences, Texas Tech University; ²Natural Sciences Research Laboratory, Museum of Texas Tech University.

Otonyctomys hattii is a cricetid rodent endemic to the Yucatán Peninsula. Vouchers of this species are relatively rare in museum collections, most likely due to the species' arboreal nature making it difficult to collect. *Otonyctomys* has been hypothesized to be sister to *Nyctomys* based on morphological and karyotypic data; however, phylogenetic relationships of these rodents have remained unresolved, especially in relation to the other neotomine-peromyscine rodents. Historically, *Otonyctomys* and allies have been considered members of the subfamily Neotominae, but more recently have been moved to the subfamily Tylomyinae. Currently, there are 20 specimens housed in 6 museums in North America; however, no tissues were available for DNA sequencing until a single individual was collected from Petén, Guatemala in July 2010. Herein, we report the results of the first phylogenetic analysis of sequence data from *Otonyctomys hattii*. This study tested the hypotheses that *Otonyctomys* is sister to *Nyctomys* and that it is a member of the Tylomyinae.

Poster 14

RELATIONSHIPS AMONG BONNETED BATS (GENUS *EUMOPS*): A MOLECULAR TEST OF MORPHOLOGICAL HYPOTHESES Sarah N. Bartlett¹, Molly M. McDonough², and Loren K. Ammerman¹. ¹ Department of Biology, Angelo State University; ² Department of Biological Sciences, Texas Tech University. (sbartlett@angelo.edu)

The genus *Eumops* (bonneted bats) consists of 15 species and is more variable (both morphologically and karyotypically) than other genera in the family Molossidae. *Eumops* species range in forearm size from 37 to 83mm and the monophyly of the genus is supported by morphological data. The objective of our study was to use molecular data to test the relationships among *Eumops* species that have been proposed by cladistic analysis of morphological data. We included 12 species of *Eumops* and 4 outgroup genera (*Tadarida*, *Nyctinomops*, *Molossus*, and *Promops*) in our analysis. We analyzed DNA from the mitochondrial genome. A total of approximately 1674 base pairs from the ND1 gene (33 taxa studied) and cytochrome b gene (27 taxa studied) was collected. Bayesian analyses partitioned by codon position were performed on both individual and combined data sets. Divergences (GTR + I + G) ranged from 0.6% to 20.6% among the species of *Eumops*. Based on BEAST analysis of combined data, the genus originated around 15 MYA, divergence events between species ranged from 14.9 MYA (14.22-15.69) to 0.7 MYA (0.39-1.23), with most events occurring within the last 10 million years. Significant phylogenetic groupings were evaluated by Bayesian posterior probabilities for each gene. Disagreement between the two data sets was observed only in the position of *E. hansae*. Generally, the relationships supported by molecular data were not consistent with morphological hypotheses although some sister-groupings did agree with those previously proposed by morphological data. Our analyses provided additional resolution to the phylogeny of bonneted bats.

Poster 15

GENETIC VARIATION AT MAJOR HISTOCOMPATIBILITY COMPLEX (*MHC*) LOCI IN *NEOTOMA ALBIGULA*: POTENTIAL CLUES TO COEVOLUTION WITH ARENAVIRUSES Sarah G. Hoss and Michelle L. Haynie. Department of Biology, University of Central Oklahoma.

The major histocompatibility complex (*Mhc*) is a component of vertebrate immune responses. Genetic analysis at *Mhc* loci can provide information on susceptibility to certain viral strains. *Neotoma albigula* (white-throated woodrat) has been associated with at least three distinct strains of arenaviruses. Members of this virus family are known to cause severe febrile diseases in humans. Typically one viral strain is associated with one host species. Therefore, the association of *N. albigula* with three viral strains suggests an interesting coevolutionary history between the host and virus. In this study, we will be 1) analyzing the genetic variation (number of alleles, allele frequency, and heterozygosity) at *Mhc* loci in *N. albigula*, 2) determining if *Mhc* markers can be used to detect genetic subunits within *N. albigula* populations, and 3) determining if there is a correlation between virus strain susceptibility and *Mhc* alleles in *N. albigula* populations.

Poster 16

GENETIC DIVERSITY WITHIN THE NORTHERN GRASSHOPPER MOUSE (*ONYCHOMYS LEUCOGASTER*) IN SOUTHERN TEXAS Michelle Gerlosky¹ and Michelle Haynie². ¹Department of Biology, University of Central Oklahoma; ²Department of Biology, University of Central Oklahoma. (mgerlosky@uco.edu)

Nineteen samples of northern grasshopper mice (*Onychomys leucogaster*) were selected in a small study to examine genetic diversity within a population collected on the Chaparral Wildlife Management Area in southern Texas. DNA sequences specific to the control or d-loop region of the mitochondrial genome were used to examine population subdivision along maternal lineages (reverse primer 2340-5, Castro-Campillo et al. 1999 and forward primer Nmic5', Mendez-Harclerode et al. 2005). Standard PCR protocols were followed, and PCR products were sequenced in both directions on an ABI3130 Genetic Analyzer (Applied Biosystems Inc.). Phylogenetic trees were constructed to determine haplotype relationships, along with estimation of haplotype and nucleotide diversities and an index of population subdivision (F_{ST}).

Poster 17

REEVALUATION OF AFRICAN *MUS* IN BOTSWANA USING DNA, CYTOGENETICS, AND MORPHOLOGY Molly M. McDonough¹, Cibele G. Sotero-Caio¹, Patrick J. Lewis², Monte L. Thies², Matlhgonolo Tswiio³, and Robert J. Baker¹. ¹Department of Biological Sciences, Texas Tech University; ²Department of Biology, Sam Houston State University; ³Botswana National Museum. (molly.mcdonough@ttu.edu)

Two species of *Mus* (Subgenus: *Nannomys* Peters, 1876) are thought to occur in the country of Botswana. *Mus setzeri* Petter, 1978 exists within a narrow strip in the northwestern portion of the country as well as a disjunct population in southern Botswana. *Mus indutus* Thomas, 1910 has a countrywide distribution that extends into neighboring countries of Namibia, South Africa, and Zimbabwe. Using DNA sequences and cytogenetics, we document that a third species, *Mus minutoides* A. Smith, 1834 also occurs in Botswana. Two distinct lineages (5% divergent in cytochrome-*b* sequences) of *M. minutoides* and one lineage of *M. indutus* were collected from a single locality in the Koanaka Hills region, Ngamiland. Zoo-FISH with *Mus musculus* X chromosome paints and DAPI-banding revealed that these individuals of *M. minutoides* share the same sex-autosome translocation as *M. minutoides* from South Africa, indicating the presence of the translocation over a large geographic area or convergence; however data is lacking from other countries within this region to test these hypotheses. Currently, *M. minutoides* is known from the countries of South Africa, Mozambique, Zimbabwe, and Tanzania. Our data extend the species distributional range to northwestern Botswana, which indicates that this species might also be present in other regions of sub-Saharan Africa. Additionally, this research highlights the need for future work with African *Mus*.

Poster 18

CHROMOSOMAL EVOLUTION OF MALAYSIAN WOOLLY BATS (*KERIVOULA*)

Cibele G. Sotero-Caio, Faisal A. Anwarali, and Robert J. Baker. Department of Biological Sciences, Texas Tech University. (cibele.caio@ttu.edu)

The vespertilionid bat genus *Kerivoula* comprises around 23 species of woolly bats from Asia, Africa, and Australia and is thought to contain considerable cryptic diversity. In Malaysia, *Kerivoula* is represented by at least 10 out of the 12 species described for the Indomalayan region. Although there are some studies related to their systematic and taxonomic status, cytogenetic studies of this group are few. There is still no information about chromosomal evolution within this group and how karyotypes of extant species have diverged from the vespertilionid ancestral karyotype ($2n=44$). In a recent study it was demonstrated that this genus contain substantial karyotypic variability, and cytogenetic data could be used as diagnostic characters for *K. pellucida* ($2n=30$; FN=46) and *K. hardwickii* ($2n=26$; FN=46/48). We present herein detailed karyological information of five Malaysian *Kerivoula* species, including a new cytotype for three individuals identified as *K. papillosa* ($2n=36$; FN=50) from Borneo, but potentially an undescribed species. In order to better understand the karyotypic evolution within the genus, DAPI-banding analysis was performed to detect homologous chromosomes among species with different diploid numbers. In situ hybridizations with ribosomal genes have shown two major patterns of distribution of these sequences on *Kerivoula* genome. Further analyses with the use of whole chromosome paints are in progress and the integration of cytogenetic and molecular data will strengthen a description of the true history of *Kerivoula* chromosomes.

Poster 19

MORPHOLOGICAL AND MOLECULAR VARIATION IN TOWNSEND'S BIG-EARED BAT (*CORYNORHINUS TOWNSENDII*) IN WEST TEXAS

T. Marie Tipples and Loren K. Ammerman. Department of Biology, Angelo State University. (ttipples@angelo.edu)

During collection trips to Big Bend National Park (BBNP, Brewster Co.), several specimens of Townsend's big-eared bat (*Corynorhinus townsendii*) were captured and prepared for the Angelo State Natural History Collections. Upon further review, several of these specimens were found to display characteristics of both the Mexican big-eared bat (*C. mexicanus*) and Townsend's big-eared bat (*C. townsendii*), two species that live in sympatry in northern Mexico along the border with the United States. Additionally, of the five subspecies found in *C. townsendii*, the subspecies currently recognized in west Texas has been questioned. One study based on molecular data suggests that *C. t. australis* occurs in this area, but an older study using morphological data documented a zone of intergradation between *C. t. australis* and *C. t. pallescens* in west Texas. Thus, the first goal of this study is to determine the identity of these specimens from BBNP based on molecular data from the cytochrome *b* gene. The second goal of this study is to identify the subspecies of *C. townsendii* found in this region. The third and final goal is to illuminate possible morphological variation among the different populations of *C. townsendii* in west Texas. Preliminary analyses of morphological data show a possible intergradation between *C. townsendii* subspecies, but more samples are needed to confirm this hypothesis. Furthermore, preliminary cytochrome *b* data do not support the presence of *C. mexicanus* in BBNP. Both sets of data (molecular and morphological) will continue to be

collected to clarify the status of *C. townsendii* in west Texas and to describe morphological and molecular variation in specimens from this region.

Poster 20

MOLECULAR AND ECOLOGICAL INVESTIGATIONS OF A WOODRAT (GENUS *NEOTOMA*) HYBRID ZONE Matthew R. Mauldin¹ and Robert D. Bradley^{1,2}. ¹Department of Biological Sciences, Texas Tech University; ²Museum of Texas Tech University. (matt.mauldin@ttu.edu)

The parapatric distributions of two species of woodrats (*N. floridana* and *N. micropus*) parallel for over 2,200 kilometers, stretching from the Gulf of Mexico to southeastern Colorado. The only reported contact zone between these two species is a historically studied hybrid zone in western Oklahoma (Spencer 1968; Birney 1973; Bradley et al. unpublished data) measuring approximately 3 km². We hypothesize that additional areas of sympatry, possibly resulting in hybridization, occur throughout the paralleling distribution borders. To test this hypothesis, two independent methods of estimation will be used to locate areas ecologically suitable for additional contact zones. A manual estimation method utilizing literature review, museum records, and geographic maps to estimate possible zones of sympatry has been used. A computational method of estimation utilizing Geographic Information Systems and Ecological Niche Modeling Software is in the preliminary stages of data analysis. Collection trips have been made to multiple putative areas of sympatry, and genotypes of specimens are currently being established through the use of 4 molecular markers (1 maternally inherited [*Cytb*], 1 paternally inherited [Y-chromosome marker], and 2 biparentally inherited [*Fgb-I7* and *Adh1-I2*]). Molecular assays will be utilized to determine the full extent and directionality of the original hybrid zone, as well as any additional contact zones. After molecular analyses are complete, sampled areas will be classified as either positive or negative for evidence of hybridization. Accuracy and efficiency of both methods will be quantified and compared through statistical analyses. Results of this project will be used to advocate the most accurate and efficient method for detecting and examining hybrid zones.

Poster 21

CHARACTERIZATION OF MICROSATELLITE MARKERS FOR USE IN *MYOTIS* BATS (MOUSE EARED BATS) Candace Frerich¹ and Loren K. Ammerman². ¹Department of Biochemistry; ²Department of Biology, Angelo State University. (cfrerich4@angelo.edu)

The geographic distributions of both *Myotis ciliolabrum* and *Myotis californicus* cover extensive areas in western North America, with large areas of sympatry. Additionally, these bats are similar morphologically, sometimes making it difficult to distinguish between the two in a field situation. Studies suggest additional genetic analysis is needed to clarify the relationship between these bats. Microsatellite analysis identifies individuals using unique genotypes and can be utilized to study the degree of genetic variation and gene flow between these species. The reaction chemistry and thermal profile of primers from published literature have been optimized for use in *Myotis ciliolabrum* and *Myotis californicus*. Three primers originally designed for *Myotis leibii* have been optimized and preliminary scoring of eleven individuals indicates good variation, and reliable amplification. An additional seven primer pairs developed for *Myotis*

myotis have also been examined and preliminary results suggest that five will be useful for studies of *Myotis californicus* and *Myotis ciliolabrum*.

The following poster (22) is not competing for an award.

Poster 22

ASSESSMENT OF GENETIC DIVERSITY WITHIN POPULATIONS OF *NEOTOMA ALBIGULA* (WHITE-THROATED WOODRAT) FROM ARIZONA, USING MICROSATELLITE LOCI AND MITOCHONDRIAL D-LOOP SEQUENCE DATA

Amanda H. Eisemann¹, Shey R. Ramsey¹, Francisca M. Mendez-Harclerode², Robert D. Bradley³, Charles F. Fulhorst⁴, and Michelle L. Haynie¹. ¹Department of Biology, University of Central Oklahoma; ²Department of Biology, Bethel College; ³Department of Biological Sciences, Texas Tech University; ⁴Department of Pathology, University of Texas Medical Branch. (aeisemann@uco.edu, sramsey8@uco.edu)

Genetic variation among localities of *Neotoma albigula* (white-throated woodrat) from Arizona is being assessed using microsatellite loci and sequence data from the mitochondrial D-loop. Many members of the genus *Neotoma* are natural hosts for Tacaribe serocomplex arenaviruses. These viruses typically share long evolutionary histories with a single rodent host. *Neotoma albigula* recently has been linked to three or more independent strains and appears to be the natural host of these strains. Recent work suggests that the evolution of the virus in this species is occurring more rapidly than is seen in other species or, conversely, cryptic genetic units may be present within *N. albigula*, with each strain being associated with a separate genetic unit. The purpose of this research is to assess the level of diversity within and among localities of *N. albigula* to determine if cryptic genetic units are present. To date, seven microsatellite loci have been used to develop multilocus genotypes for 375 individuals collected from 32 localities throughout Arizona. An additional 90 samples currently are being genotyped. The complete mitochondrial D-loop has been sequenced for 34 samples, with an additional 106 to be sequenced. Preliminary data are presented here.

**Texas Society of Mammalogists
29th Annual Business Meeting
Texas Tech University Center
26 February 2011**

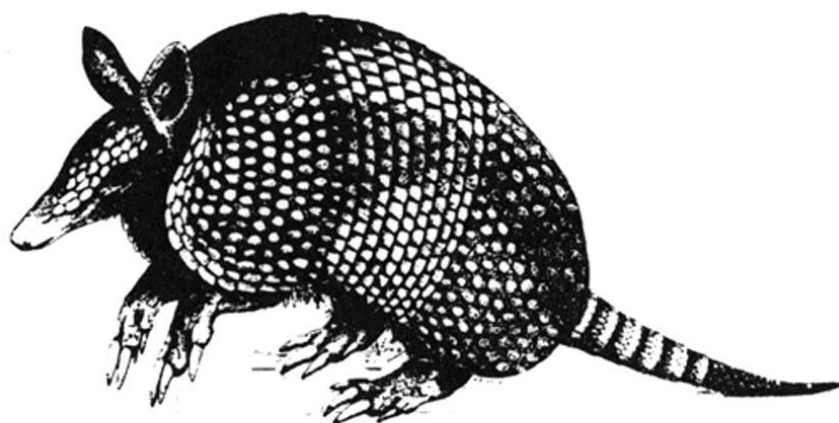
AGENDA

1. Approval of the Minutes of the 2010 Business Meeting
2. Report of Secretary-Treasurer, Loren Ammerman
3. Report of Permanent Secretary, Lisa Bradley
4. Report of Editor, Russell Pfau
5. Reports of Committees
 - a. Committee for Honorary Members, Phil Sudman
 - b. Committee on Conservation, Cathy Early
 - c. Student Honoraria, Russell Pfau
 - d. Government Liaison Committee, John Young
 - e. Auction Committee, Joel Brant
6. Election of President-Elect
7. Election of Secretary-Treasurer
8. Election of Editor
9. New Business
 - a. Selection of site for 2012 Annual Meeting
 - b. Revisions to the By-Laws
 - c. Other New Business
10. Closing Remarks of TSM President, Terry Maxwell

**Texas Society of Mammalogists
Treasurer's Report for Calendar Year 2010
Submitted by Loren K. Ammerman, Secretary-Treasurer**

Income and expenses of TSM for the 2010 calendar year are shown below. The checking account for TSM is held at Citibank. TSM's savings are held by Rydex/SGL.	
The checking account balance as of the first of the year was \$2820.60. Total income in 2010 was \$14,588.22 and total expenses were \$9555.30. The checking account had \$3,980.52 at the end of 2010. Our investment fund with Rydex/SGL grew by \$7,007.29 in 2010. The net gain in total assets for 2010 was \$12,040.21.	
Checking Account Balance as of 25 December 2009	\$2,820.60
Rydex/SGL Account balance 1 January 2010	\$46,994.26
Total TSM assets as of 1 January 2010	\$49,814.86
2010 Income	
2010 Annual Meeting income (registration, meals and lodging fees)	\$9,285.00
Membership Dues	\$276.00
T-shirts	\$840.00
Auction Income	\$3,362.00
Contributions	\$294.00
Patron membership donations	\$511.00
Meeting photos and artwork of Past-Presidents	\$6.00
Bank credit for fees charged in 2009	\$10.20
Checking account interest	\$4.02
Total income	\$14,588.22
2010 Expenses	
2010 Annual Meeting Expenses to TTU Center	\$6,223.00
Program copy charges (ASU print shop)	\$122.69
Student Awards	\$650.00
T-shirt charges (Gandy Ink)	\$709.00
Entertainment - DJ	\$550.00
Refreshments/Beverages	\$452.70
Speaker Honorarium	\$500.00
Shipping charge - tap	\$7.13
Supplies (badges, certificates)	\$107.97
Reimbursement - meeting registration	\$167.00
Bank fees	\$2.30
GKG.net charges for domain name and hosting web page (1 year)	\$46.63
Unaccounted expenses	\$16.88
Total expenses	\$9,555.30
<u>Transfer from checking to mutual fund - July 2010</u>	\$3,873.00
2010 meeting auction income (\$3362)+ patron memberships (\$511)	
Checking Account Balance 25 December 2010	\$3,980.52
Rydex/SGL Account balance 31 December 2010	\$57,874.55
Total TSM assets as of 31 December 2010	\$61,855.07

Texas Society of Mammalogists



Newsletter

2011

The 29th Annual Meeting

Patron Membership

Members are encouraged to consider becoming Patrons of the Society by donating \$100 (or more) to support the Society's student paper awards. A list of Patron members is published on the website and in the program. Regular Patron membership is achieved with a donation of \$100. Members who exceed \$100 in donations to the Society's student awards fund will receive a certificate recognizing their total donation level as follows: \$125, Ocelot Level; \$250, Bobcat Level; \$500, Puma Level; \$1000, Jaguar Level. Members can upgrade at any time, and all donations are cumulative. There is no time limit or minimum contribution requirement as a member works toward the next level. Donation levels are confidential.

Minutes of the 2010 Business Meeting

**Texas Society of Mammalogists
28th Annual Business Meeting
Texas Tech University Center
Junction, Texas
27 February 2010**

The meeting was called to order at 3:45 p.m. by President Michael Tewes in the Packard Building of the Texas Tech University Center at Junction. The minutes of the 2009 Annual Business Meeting as written in the 2010 annual meeting program for the Texas Society of Mammalogists (TSM) were approved.

Officers' Reports

Secretary-Treasurer Loren Ammerman encouraged members to pre-register for the meeting to help with planning of the meeting. She announced that there are 136 members of TSM in 2010 representing 34 institutions and 7 states. There was also one new patron member this year.

She thanked Russell Pfau for handling the audio visual needs of the speakers, Mike Dixon for handling T-shirt sales, Jason Strickland and Bob Dowler for dealing with the kegs, Marie Tipps for printing nametags, Lisa Bradley for putting the program together, Emily Wilkinson and Katelyn Frei for working at the registration table, and Cathy Early for bringing the poster stands this year. They received a round of applause from the members.

Ammerman reported that the meeting income covered the expenses for the 2009 meeting and she briefly summarized the Treasurer's Report for 2009 as printed in the 2010 meeting program.

Total assets at the end of 2009 were \$49,814.86. The checking account balance as of 1 January 2009 was \$3,154.48. In 2009, total income was \$13,000.54 and total expenses were \$9,667.42. The checking account ended the year with a balance of \$2,820.60. Our investment fund with Security Global Investors changed its name to Rydex/SGL. We invested income from the auction (\$2,889) and patron memberships (\$778) in July 2009 and losses from 2008 were generally recovered giving us a balance of \$46,994.26 at the end of 2009.

Permanent Secretary Lisa Bradley told the membership that she receives items for the TSM archives to be deposited at Texas Tech University and she has been taking photos throughout the meeting for historical purposes. She welcomes any TSM documents, correspondence, or photos to be archived.

Newsletter Editor Russell Pfau reported that the newsletter was printed with the program again this year and we will continue to use this format. The program/newsletter will be posted on the website. He also announced that our website moved to a new domain name this year (www.texasmammalogy.org).

Reports of Committees

Phil Sudman, for the Committee for Honorary Members, encouraged members of TSM to contact him about nominees for this award. Later at the banquet, Sudman announced that Robert Dowler from Angelo State University had been nominated and approved by the Executive Committee. Robert Dowler will receive his award for contributions to the science of mammalogy at the banquet next year.

Cathy Early, Chair of the Conservation Committee, reported that the committee was not able to work on updating the document of funding sources that was on the website this year. To help the committee decide if it needs updated, she would like to hear from members if they find this reference valuable. Early closed the report by asking for volunteers to serve on this committee.

The Committee for Student Honoraria gave their report at the banquet. President-Elect Terry Maxwell announced winners of the presentation awards after the banquet dinner. Each award winner received a certificate signed by TSM President Tewes and a cash prize (\$150 for the Packard Award and \$100 for all others). Maxwell thanked the committee members for their assistance with the judging process.

The award winners for oral presentations were:

1. Rollin H. Baker Award — Jeremy Wilkinson (Oklahoma State University)
2. TSM Award — Faisal Anwarali Khan (Texas Tech University)
3. William B. Davis Award — William Chad Stasey (Texas A&M University-Kingsville)
4. Robert L. Packard Award — Roxanne Larsen (Texas Tech University)

Poster presentation award winners were:

1. Clyde Jones Award — Harshad Mahadeshwar (Texas Tech University)
2. Vernon Bailey Award — Hugo Mantilla (Texas Tech University)

John Young (TPWD) reported for the *ad hoc* Government Liaison Committee. He notified members that the Texas Wildlife Action Plan is scheduled for updating through regional meetings over the next year. He encouraged members to be involved in these meetings. He announced that there is a petition that the Texas Kangaroo rat (*Dipodomys elator*) be listed with the USFWS and he requested information about relevant literature from the membership.

Joel Brant, on behalf of the *ad hoc* Auction Committee, thanked the membership for their support of the auction last year and their help raising \$2,889. There are 65 items this year for the silent and live auction. He thanked the members of the committee for their work throughout the year (Marcy Revelez, Adam Ferguson, Mandy Husak, Robert Bradley, and Meredith Hamilton).

Election of Officers

President Tewes announced that the Executive Committee had nominated Russell Pfau from Tarleton State University for President-Elect. The floor was opened for additional nominations. There were none. Pfau was elected by acclamation.

President Tewes announced that the Executive Committee had nominated Lisa Bradley from Texas Tech University to continue as Permanent Secretary. The floor was opened for additional nominations. There were none. Bradley was elected by acclamation.

New Business

President Tewes recognized Terry Maxwell for his contributions to the society in the form of artwork on the T-shirts and program. The membership gave Maxwell a round of applause.

The next item of New Business was the selection of a site for the 2011 meeting. It was moved and seconded to hold the meeting at TTU Center. Motion was approved and later the dates of the meeting were set for 25-27 February 2011.

John Young made a plea to the members of TSM to provide input into revision of the list of endangered species for the state of Texas. He could use help reviewing the list and getting recommendations for any changes to the current status of species.

President Tewes closed the meeting by thanking Lisa Bradley, Loren Ammerman, and Russell Pfau for their work on behalf of the society. The meeting was adjourned at 4:10 p.m.

Respectfully submitted,
Loren K. Ammerman
Secretary-Treasurer

Abilene Christian University

Department of Biology, Box 27868, Abilene Christian University, Abilene, Texas 79699

Tom Lee

Phone: 325-674-2574
Email: leet@acu.edu

Research Interests, Projects, and Grants:

Abilene Christian University Math/Science, Research Grant and Grant from the dean of Arts and Sciences for the summer of 2010.

Undergraduate Students and Their Research:

Amy Scott and I conducted research in the páramo of southern Ecuador in the summer of 2010. The results of this study will be presented at the meeting.

Additional Information:

Tyler Cochran and Emily Wilkinson have graduated and are now working for Dr. Bob Dowler at Angelo State on their masters.

Angelo State University

Department of Biology, Angelo State University, San Angelo, TX 76909

Loren K. Ammerman

Phone: 325-486-6643

Email: loren.ammerman@angelo.edu

Web page: www.angelo.edu/dept/biology/faculty_staff/lorenkammerman.html

Research Interests, Projects, and Grants:

I am interested in working with students to use molecular data to reconstruct evolutionary relationships of organisms and to investigate species boundaries. I am also interested in community structure and the ecology of bats, especially in Big Bend National Park and the Lower Canyons of the Rio Grande. This summer will be the fifth year to monitor the colony size of *Leptonycteris nivalis* in Emory Cave using thermal infrared imaging techniques.

Additionally, I have been working on a revision of “Bats of Texas” over the last 3 years with David Schmidly and Chris Hice. The book is due to be published at the end of 2011.

Graduate Students and Their Research:

- Jason Strickland – Phylogeographic variation in the cottonmouth, *Agkistrodon piscivorous*, in Texas using nuclear AFLP markers and venom protein profiles (MS thesis project, Fall 2009-present)
- Sarah Bartlett – Determining the bat species that prey on an important crop pest (corn earworm moth) in Texas using molecular analysis of feces (MS thesis project, Fall 2010-present)
- Marie Tipps — Molecular and morphological variation in *Corynorhinus townsendii* from Brewster County (MS thesis project, Fall 2010-present)
- Pablo Rodriguez Pacheco – Phylogenetic relationships of six rare members of the family Vespertilionidae (Chiroptera) from Malaysian Borneo (graduate research, Spring 2011)

Undergraduate Students and Their Research:

- Candace Frerich— Development of a microsatellite protocol to measure gene flow in populations of *Myotis californicus* and *Myotis ciliolabrum* (undergraduate research project, Fall 2010-present)
- Andi Lewis – Using molecular methods to confirm species identification of bats submitted to the Texas Department of State Health Services (undergraduate research project, Fall 2010-present)

Additional Information:

The Angelo State Natural History Collection has almost 14,000 mammal specimens and tissues from approximately 6000. The ASNHC databases are available for searching at <http://www.angelo.edu/dept/biology/asnhc/> Contact Loren Ammerman or Robert Dowler if you have any questions about the collection.

I will be offering a field course during the May 2011 intersession at ASU called the “Natural History of Bats”. Please talk to me if you would like more details about this course.

Robert C. Dowler

Phone: 325-486-6639

Email: robert.dowler@angelo.edu

Web page: www.angelo.edu/dept/biology/faculty_staff/robertdowler.html

Research Interests, Projects, and Grants:

My current research in Texas continues on the ecology of medium-sized carnivores. I recently received funding from Angelo State University for a radio-telemetry study of ringtails (*Bassariscus astutus*) and hog-nosed skunks (*Conepatus leuconotus*).

In addition to these projects I am working on a book entitled the Skunks of Texas with coauthors Jerry Dragoo and Adam Ferguson. For that project we are seeking any records of specimens of skunks from Texas, as well as visual or photo records, especially of the less common species of spotted skunks, hog-nosed skunks, or hooded skunks. I am also interested in the conservation biology of Galapagos rodents, collaborating with a colleague at the Brookfield Zoo in Chicago and with Cody Edwards at George Mason University.

Graduate Students and Their Research:

I currently have one M.S. student completing his thesis. Andrew Tiedt is finalizing his project on denning ecology of ringtails (*Bassariscus astutus*). I have three graduate students who are in the middle of their thesis research this year. Tyler Cochran is currently planning to working a comparison of activity patterns between striped skunks (*Mephitis mephitis*) and hog-nosed skunks (*Conepatus leuconotus*). Eric Pomposelli is studying maternal den site selection and use for hog-nosed skunks. Emily Wilkinson is comparing population densities and use of habitat by striped skunks and hog-nosed skunks using remote camera trapping. Emily is also doing an independent study of quill distribution and density on porcupines (*Erethizon dorsatum*). My newest graduate student, Wesley Brashear, is co-chaired by Loren Ammerman and will be addressing population structure and space use of ringtails, *Bassariscus astutus*. Wes recently completed data collection for his undergraduate project studying home range and den site selection in hog-nosed skunks.

Undergraduate Students and Their Research:

Reagan Noland is studying mammal records from owl pellets in west-central Texas. Katelynn Frei will be studying habitat selection of medium-sized mammals using remote camera trapping.

Baylor University

Dept. of Biology, One Bear Place #97388, Baylor University, Waco, TX 76798-7388

Kenneth T. Wilkins

Phone: 254 710-2126 (office), 254 710-2151 (lab)

Email: ken_wilkins@baylor.edu

Research Interests, Projects, and Grants:

Our projects generally relate to ecology and distribution of small mammals (primarily, rodents and bats) at the population and community levels in natural and urban settings.

Graduate Students and Their Research:

The BU mammalogy group includes 4 doctoral students and a number of undergraduates. Tommy Pettit's dissertation research relates to use of vertical and horizontal edges by bats in forest communities. He has concluded his field work in the Rocky Mountains of Utah and the pineywoods of eastern Texas and has begun analysis and writing . . . and expects to graduate this year! Anica Debelica completed the 2nd field season for her dissertation research which is related to foraging ecology in the bat

community of eastern Texas pineywoods; she anticipates a 2011 graduation as well. *Nick Green* is preparing for the 2nd field season in his dissertation research into the effects of habitat edges on the small-mammal community in Texas tallgrass prairies, as well as completing studies of small mammal behavior and morphological responses to climate change by cotton rats. *Han Li* has embarked on his dissertation study of urban ecology of bats; the field work will be conducted in Waco and vicinity.

Undergraduate Students and Their Research:

Two undergraduate Honors students, *Cory Hanks* and *Michael Weber*, are conducting their Honors thesis projects on bat ecology in connection with Anica Debelica's dissertation research.

Additional Information:

Recent publication: N.S. Green & K.T. Wilkins. 2010. Continuing range expansion of the northern pygmy mouse (*Baiomys taylori*) in northeastern Texas. *The Southwestern Naturalist*, 55:288-291.

Centenary College of Louisiana

2911 Centenary Blvd., Centenary College of Louisiana, Shreveport, LA 71104

Scott Chirhart

Phone: 318-869-5209

Email: schirhar@centenary.edu

Research Interests, Projects, and Grants:

Evolutionary Biology, including: Evolutionary/Population Genetics, Vertebrate Speciation and Systematics, Molecular Variation Undergraduate.

Houston Museum of Natural Science

Dept. of Vertebrate Zoology
5555 Herman Park Dr.
Houston, Tx 77030-1799

Dan Brooks

Phone: 713-639-4776

Email: dbrooks@hmns.org

Web page: www.hmns.org/index.php?option=com_content&view=article&id=64&Itemid=72

Research Interests, Projects, and Grants:

Although I do quite a bit of work with birds, research interests in Mammalogy span a variety of topics including community and behavioral ecology, biogeography and taxonomy, harvest patterns, natural history and conservation. I am particularly interested in Neotropical species in lowland regions

east of the South American Andes (especially the Peruvian Amazon, Paraguayan Chaco and eastern Bolivia). Additional regions of coverage include Texas, Middle America, Africa and the Philippines.

Current Mammalogy projects I'm involved in include:

- Description of new species of *Scotophilus* (Chiroptera) from Africa (with J. Bickham)
- Description of new species of *Micronycteris* (Chiroptera) from Bolivia (with L. Siles and R.J. Baker)
- Genetic and morphological variation of *Nycticeius humeralis* and *Tadarida brasiliensis* in SE Tx (with A. Bickham Baird)
- Size constraints of avian prey consumed by the Black Rat (*Rattus rattus*) (with G. Witmer)
- Biodiversity and habitat association of large mammals on a private reserve in the Tanzanian Serengeti (with R. Madewell)

Lab Associates:

Amy Bickham Baird is a Post-Doctoral Fellow. Her latest area of research (in collaboration with John Baird) will be allometric development of a parent-reared hominid (*Homo sapiens*), which will commence Spring 2011! Subsequent to and overlapping this research will be evolutionary aspects of bat species occurring in Tx, probably commencing Fall 2011?

Other current Associates include Preparator Janelle Case (M.Sc. 2007 TAMU-G), Cataloger Rael Sheikh (B.Sc. 2010 Univ. Houston) and Osteologist Miranda Ganguly (M.Sc. in prog.).

Graduate Students and Their Research:

Working at a museum, I don't have my own grad students but currently serve as an external committee member for several students. In terms of Mammalogy, there are currently two committees I serve on, both Ph.D. candidates working on Bolivian mammals:

- Liz Siles (Texas Tech Univ., R.J. Baker – Major Prof.) - Ecology, biogeography and systematics of Bolivian bats (Chiroptera)
- Kim Dingess (Indiana Univ., K. Hunt – Major Prof.) - Vocal communication of the Dusky Titi Monkey (*Callicebus donacophilus*)

Additional Information:

The primary driver of the Houston Museum of Natural Science is Education, including outreach. We educate every 4th and 7th grader in Houston Independent School District annually (approx. 700,000 students/yr), have nearly 2.5 million individuals come through the doors per annum, and are the 4th highest attended museum in the country; surpassed only by Smithsonian, AMNH and the MOMA, we are the highest attended US museum west of the Mississippi. Every year I tour college-level classes through our collections, African and Texas Wildlife Halls. If you have any interest in coming for a visit just touch base directly!

Purdue University

Center for the Environment and the Department of Forestry and Natural Resources, Purdue University, 266 Mann Hall, 203 S. Martin Jischke Dr., West Lafayette, IN 47907

John W. Bickham

Phone: 765-494-5146

Email: bickham@purdue.edu

Web pages: www.purdue.edu/DP/environment/, www.ag.purdue.edu/fnr/pages/bickham.aspx

Research Interests, Projects, and Grants:

Systematics, phylogenetics, phylogeography, conservation, ecotoxicology. Currently my lab is involved in genetic studies of Steller sea lions, bowhead whales, and bats. We are just beginning a new project funded by the North Slope Borough of Alaska called the “bowhead whale genome project” which will entail sequencing the transcriptome of the bowhead.

Graduate Students and Their Research:

Geoff Laban- Ecotoxicology: Evaluating sublethal effects of present and potential contaminants and other environmental stressors by developing molecular biomarkers of exposure and effects to these environmental contaminants, specifically silver nanoparticles on the growth and development of the Fathead Minnow.

Undergraduate Students:

Taylor Thompson, Heather Downing, Nick Storey

Research Scientists:

John Patton (jcpatton@purdue.edu): Evolutionary processes using mtDNA, X- and Y-chromosome loci as contrasted to autosomal loci. This design allows the determination of the contribution of males and females, respectively, in the evolutionary history of a species. Autosomal loci involved include those under selection (MHC and Toll genes) as well as loci thought to primarily evolve in a near neutral fashion. Current primary emphasis is description of patterns of reticulate evolution in mammals utilizing these genetic tools.

Tarleton State University

Department of Biological Sciences, Tarleton State University, Stephenville, TX 76402

Allan D. Nelson

Phone: 254-968-9158

Email: nelson@tarleton.edu

Web page: www.tarleton.edu/~biology/nelson/

Research Interests, Projects, and Grants:

My research interests are in the areas of floristics of the West Cross Timbers and Coastal Plain of Texas as well as the Ouachita Mountains of Oklahoma. I am interested in rare and endangered plants of Texas and Oklahoma. I am also interested in using vegetative ecology to examine habitat of rare animals. Dr. Jim Goetze and I have recently been awarded a section six grant proposal for funds to carry out a status survey for the Texas kangaroo rat (*Dipodomys elator*).

Graduate Students and Their Research:

Paige Cowley- Flora of Hunewell Ranch (Erath County, Texas)

Russell S. Pfau

Phone: 254-968-9761

Email: pfau@tarleton.edu

Web page: faculty.tarleton.edu/pfau/

Research Interests, Projects, and Grants:

I'm involved in several ongoing projects including:

- Development of microsatellite markers for the cotton rat (*Sigmodon hispidus*).
- Analysis of a hybrid zone between the shrews *Blarina hylophaga* and *Blarina brevicauda* using AFLP, mtDNA, and Y-chromosome analyses. This study is in collaboration with Cody Thompson (Texas Tech) and Elmer Fink (Fort Hays State University).
- Distribution of shrews in Arkansas, in collaboration with Matthew Connior (South Arkansas Community College) and Blake Sasse (Arkansas Game and Fish Commission).
- Design and testing of PCR primers to amplify a gene involved in sperm-egg recognition in the cotton rat.
- Population genetics of the Texas mouse (*Peromyscus attwateri*) across its geographic distribution in collaboration with Gregory Wilson (University of Central Oklahoma), Justin Lack (Oklahoma State University), and Terry Johnson (Ranger College).
- Population genetics of the pocket gopher (*Geomys breviceps*) across its geographic distribution in collaboration with Sam Kieschnick (BRIT) and Phil Sudman.

Undergraduate Students and Their Research:

- Claire Gibson is sequencing mtDNA to map the location of the hybrid zone between eastern and western lineages of *Sigmodon hispidus* in Arkansas.

Graduate Students and Their Research:

- Lee Richardson is using AFLP and Y-chromosome sequencing to characterize the hybrid zone of *Sigmodon hispidus*.
- Ben Stevens is considering a project to identify genetic lineages of the bacterium *Bartonella* in *Sigmodon hispidus*.
- Stephanie Painter is using RT-PCR to investigate the correlation between abundance of *E. coli* and *Naegleria fowleri* in Lake Granbury, TX.
- Timothy Huebner will be studying population genetics (using mitochondrial DNA sequencing) of the mud crab (*Rhithropanopeus harrisi*) which have recently become established in Texas reservoirs.
- Co-advised with Phil Sudman: Ashley Hyatt is investigating population structure of *Geomys arenarius* using AFLP.
- Co-advised with Christopher Higgins: Allison Love will be studying hybridization between black-tailed shiners and red shiners in the Paluxy River using AFLP.

Philip D. Sudman

Phone: 254-968-9154

Email: sudman@tarleton.edu

Web page: www.tarleton.edu/~sudman

Research Interests, Projects, and Grants:

Systematic and population genetic studies of pocket gophers; genetic analyses of vireos, specifically aimed at documenting extra-pair copulation; and collaborating with Dr. Alan Nelson on habitat requirements of the Texas kangaroo rat.

Graduate Students and Their Research:

- Ashley Hyatt – AFLP analysis and development of microsatellite primers of *Geomys arenarius*.

Texas A&M University-College Station

Department of Wildlife and Fisheries Sciences Texas Cooperative Wildlife Collection Texas A&M, College Station, TX 77843

Jessica Light

Phone: 979-458-4357

Email: jlight2@tamu.edu

Web page: wfsc.tamu.edu/lightlab

Research Interests, Projects, and Grants:

My research program is focused broadly in evolutionary biology. I am especially interested in studying systematics, phylogeography, population genetics, and coevolutionary associations between distantly related organisms, particularly mammals and their parasites.

Graduate Students and Their Research:

- Sarah Welborn is a second year Master's student studying population genetics of the Baird's pocket gopher (*Geomys breviceps*) and their chewing lice. Sarah's study will use a combination of microsatellites and mitochondrial data to examine gene flow among gopher and louse populations.
- John Andersen is a first year Master's student. For his thesis, John will examine the population genetics of kangaroo mice (Heteromyidae: *Microdipodops*). Prior to joining the lab as a graduate student, John completed an undergraduate research project investigating geographic variation in the hispid pocket mouse, *Chaetodipus hispidus* (in review at *Journal of Mammalogy*).

Undergraduate Students and Their Research:

- Marcy Ostroff's study examining the phylogeography of *Baiomys taylori* is in review at *Journal of Mammalogy*.
- There are currently three undergraduate students in the Light lab investigating population genetics of pocket gopher lice.

Additional Information:

The Texas Cooperative Wildlife Collection Mammal and Bird divisions received an NSF Collection Improvement Grant in 2010. We have purchased new cases with the awarded funds and we are currently moving specimens, reorganizing, and working to improve the collections. The TCWC Web page URL is: <http://www.wfsc.tamu.edu/TCWC/tcwc.htm>

Texas Tech University

Department of Biological Sciences, and Museum of Texas Tech University, Lubbock, TX 79409-3131

Jorge Salazar-Bravo

Phone: 806-742-1051 ext. 299

Email: j.salazar-bravo@ttu.edu

Web page: www.biol.ttu.edu/facultylist.aspx?id=j.salazar-bravo@ttu.edu

Research Interests, Projects, and Grants:

My research gravitates around two basic themes, (i) developing and testing phylogenetic hypotheses for mammalian taxa at various hierarchical levels and (ii) using first principles in ecology and systematics to understand what makes a species a good reservoir for disease. Research topics that I have pursued include: Systematics, biogeography, and evolution of Neotropical mammals, the Ecology and Evolution of virus/host co-evolution, and the interplay between ecology and disease. Along these lines, I have projects that involve long-term monitoring of rodent populations in Brazil [2007-2011, NIH] and recently got a small grant from the Colombian National Foundation [COLCIENCIAS, 2009-2010]. In addition, multigene systematics of various mammalian Neotropical taxa (e.g., *Sylvilagus*, *Proechimys*, *Microcavia*, the *Phyllotini* are under way.

Graduate Students and Their Research:

- Tyla Holsomback, PhD. Behavioral ecology of the marsh rice rat (*Oryzomys palustris*) in a Texas coastal prairie: Implications for the life-history strategy of Bayou virus (Bunyaviridae: Hantavirus) [expected graduation date: Summer 2011]
- Narayan Kandel, PhD. TBA

Undergraduate Students and Their Research:

- Audgusto Flores. Systematics of *Sylvilagus* from Central and South American based on mt and nuclear genes
- Merick Yamada. The systematics and biogeography of *Sylvilagus graysoni*, a Mexican endemic

Additional Information:

I am always looking for motivated, independent students with strong interest on small Neotropical mammals (e.g., rodents, shrews, marsupials).

Robert J. Baker

Phone: 806-742-2702

Email: rjbaker@ttu.edu

Web page URL: www.biology.ttu.edu; <http://www.nsrl.ttu.edu>

Research Interests, Projects and Grants:

Robert J. Baker is in his 43rd year as a faculty member at Texas Tech University. Plans to retire are still on hold, although 2 heart attacks in 2010 put some bumps in the road. Interests include: the Genetic Species Concept, Phyllostomid bats, and the effects of the Chernobyl environment on mammals, transcriptomes of submandibular glands are being studied to provide insights into the genetic mechanisms

that have facilitated diversification of Phyllostomid bats under the constraints of natural selection. Baker spent 3 weeks in the field in Borneo.

Graduate Students, Post Docs, and their Research:

- Faisal Ali Anwarali Khan is a third year PhD student and is all but dissertation. He is interested in the systematic and phylogeography studies that contribute towards the conservation effort in Southeast Asian mammals. He led a field trip to Borneo and published the 1st chapter of his PhD dissertation in the Oct issue of the Journal of Mammalogy on *Kerivoula*, Phylogenetics and zoogeography. Current projects include the systematic of the genus *Hipposideros*.
faisal.anwarali@ttu.edu
- Cibele Sotero-Caio is a third year PhD student. She obtained her Master's degree in March 2008 from Universidad Federal de Pernambuco, Recife – Brazil, where she developed a comparative chromosomal study among vampire bat species using chromosome painting. Her research interests include karyotypic evolution, as well as the use of cytogenetic approaches to the understanding of evolution, biogeography and systematics of mammals, with emphasis on bat species. Her current projects are the investigation of distributional patterns of repetitive sequences and single copy genes in bat chromosomes, as well as the use of chromosome paintings to assess karyotypic evolution of phyllostomid and vespertilionid bats. She is also working on the description of karyotypes of mammals from Kyrgystan, Ecuador, Panama, and Malaysia. cbele.caio@ttu.edu
- Matias Feijoo, Ph.D. Universidad de la República Montevideo, Uruguay, Co-chair Enrique Lessa. Matias is working on speciation in *Uroderma bilobatum* complex.
- Peter Larsen defended his dissertation and graduated in December of 2010. He has accepted a 1 year postdoctoral position in science diplomacy at Texas Tech and is currently a contractor for the US Department of State.
- Roxy Larsen is a fourth year PhD student and is all but dissertation. Her dissertation will focus on the biogeography and phylogenetics of Lesser Antillean bats, specifically the genera *Myotis* and *Ardops*. roxy.larsen@ttu.edu
- Hugo Mantilla-Meluk is a postdoctoral research associated at Robert J. Baker's laboratory in Texas Tech. His research interests include speciation, phylogeography, and systematics of Neotropical mammals. Current projects include systematics and phylogeography of Neotropical bats of the genera *Anoura*, *Lonchophylla*, *Uroderma*, *Desmodus*, *Eptesicus*, and *Histiotus*, the primate genera *Lagothrix* and *Cebus*, and the carnivore genus *Mustela*. In his work Hugo applied innovative approaches such as molecular analysis and Geographic Information Systems modeling techniques in combination with classical morphological analysis to elucidate modes of mammalian speciation in the Neotropics. Hugo is elected president of the Colombian Society of Mammalogists, director of the committee of evolution systematic and biogeography of the Colombian Program of Bat Conservation, part of the UICN group of experts on mammals, member of the International Committee of Zoological Nomenclature, the group of experts of Highland Mammals of Colombia, and the group of experts Wild-life management of the Chocoan Mammals. Hugo is also in charge of a program of cooperation between Texas Tech and Colombian institutions. hugo.mantilla@ttu.edu
- Howie Huynh is a 1st-year Ph.D. student co-supervised with Dr. Bradley (see below). Hailing from Toronto, Canada, Howie pursued his undergraduate biology degree at the University of Toronto and Royal Ontario Museum (under the tutelage of Dr. Mark Engstrom), and obtained a Masters of Science in mammalian systematics and biogeography (i.e., bats, shrews, sciurids, and felids) at Acadia University and the New Brunswick Museum where he holds the position of Research Associate in mammalogy. In the Baker lab, he is currently studying patterns of genomic divergence between polar bears (*Ursus martimensis*) and brown bears (*U. arctos*), an extension of his work with Canadian scientists studying developmental patterns and fluctuating

asymmetry in polar bear skulls.

- M. Raquel Marchán-Rivadeneira (PhD student, Co-chaired with Dr. Richard E. Strauss) started her PhD program in January 2009. Her work is focused on evaluating how environmental pressures influence species' morphology and ecology. Specifically, her project seeks to assess the effects of environmental stress on the morphological configuration of individuals and populations of small mammals, and relate how these effects influence their relationship with the environment. Her project consists of two separate studies, the first study focuses on the Neotropical fruit-eating bats of the genus *Artibeus* and tests whether distribution and habitat use constrain morphological variation in these bats; the second study focuses on bank vole populations of the species *Myodes glareolus* from Chernobyl, Ukraine, and tests the ecological effects of the Chernobyl Nuclear Plant disaster on morphological patterns of these populations. Currently, she is a Visiting Research Student at the University of Michigan. raquel.marchan@ttu.edu
- Molly McDonough is a second year Ph.D. student. She is interested in the systematics of African small mammals. Molly spent 3 weeks in the field in Borneo. molly.mcdonough@ttu.edu
- Julie Parlos is a third year Ph.D. student and is all but dissertation. Her projects include evaluating multiple markers for congruence among species of *Lonchophylla* and *Dermanura*. Another project involves investigating intraspecific variation among *Artibeus jamaicensis* collected from the Caribbean Islands. This fall she received the J. Knox Jones, Jr. Memorial Endowed Scholarship. julie.parlos@ttu.edu
- Caleb Phillips--mtDNA and nuclear molecular evolution, phylogeography of marine mammals, evo-devo of cranial morphology in phyllostomid bats, metagenomics, and genomics.
- Lizette Siles Mendoza is a third year Ph.D. student. She received her Bachelor's degree from Universidad Mayor de San Simon (Bolivia) and has worked extensively in conservation projects across Bolivia. Her interests focus on the conservation, systematics and distribution of Bolivian bats and to learn molecular techniques that could be used to elucidate the taxonomic status of some Neotropical bats that occur in Bolivia. Her current research is on the systematics of bats of the genera *Micronycteris*. liz.siles-mendoza@ttu.edu

Robert D. Bradley

Phone: 806-742-2710 ext. 298

Email: robert.bradley@ttu.edu

Web Pages: www.biol.ttu.edu, www.nsrl.ttu.edu

Research Interests, Projects, And Grants:

My research interests include: systematic relationships, molecular evolution, and natural history of mammals, particularly in the cricetid and geomyoid rodents; examination of hybrid zones between genetically distinct taxa; including isolating mechanisms and the dynamics of genetic introgression; exploring the utility and application of the Genetic Species Concept; examination of the origin and evolution of rodent-borne viruses, especially in the use of rodent phylogenies and genetic structure to predict the transmission and evolution of viruses; modeling predictions associated with epidemiology; and growth and utilization of natural history collections, especially those pertaining to mammals.

Current Projects:

- Systematics of the genus *Peromyscus*.
- Systematics and phylogenetic studies of *Peromyscus boylii* species group.
- Phylogenetic relationships of Neotomine and Reithrodontomyine rodents.
- Systematics and phylogenetic studies of the genus *Neotoma*.
- Systematics and phylogenetic studies of the genus *Geomys*.
- Ecology of hanta- and arenaviruses in the southwestern US and Mexico.

Graduate Students And Their Research:

- Cody W. Thompson (PhD student) is in his 4th year. Dissertation involves investigating hybridization between two species of *Spermophilus*.
- Nicté Ordóñez-Garza (PhD student) is in her 2nd year. Dissertation involves exploring the systematic relationships of *Peromyscus*.
- Matt Mauldin (MS student) is in his 2nd year. Dissertation involves investigating hybridization between two species of *Neotoma*.
- Ryan Duplechin (PhD student) is in his 2nd year. Dissertation to be determined.
- Kathy MacDonald (PhD student, Co-chaired with Dr. Richard Strauss) is in her 4th year. Dissertation involves modeling biological and genetic parameters of the *Catarina arenavirus* in *Neotoma micropus*.
- Hai Minh Howard Michael Huynh (Co-chaired with Robert J. Baker). Howie is in his first year (received his MS at Acadia University in Nova Scotia). Dissertation to be determined.
- Megan Corley (MS student) is in her 2nd year. Thesis involves determining phylogenetic relationships within the Neotominae.

Graduate Students:

- Sheri B. Westerman (MS student 2010). Research topic involved determining if the transferrin receptor in *Neotoma* is associated with binding arenaviruses. Sheri currently is a Forensic Scientist, Research and Development Division, Farmer's Branch, TX.

Undergraduate Students And Their Research:

Several undergraduate students (including 1 HHMI Undergraduate Fellow) are involved in various research projects in the Laboratory.

- Allie Clinton is isolating and characterizing the Muleshoe hantavirus.

Additional Information:

My teaching responsibilities include: Mammalogy, Natural History of the Vertebrates, Molecular Systematics and Evolution, and Mammalogy for Advanced Students. In addition, I teach Mammalogy at the Texas Tech University Center at Junction each May (referred to as the Intersession Semester). This is an excellent opportunity to receive credit at the Graduate or Undergraduate level. I also teach "Field Methods" for the Museum of TTU each summer.

Trinity University

Department of Biology, One Trinity Place, Trinity University, San Antonio, TX 78212

David O. Ribble

Phone: 210-999-8363

Email: dribble@trinity.edu

Web page: www.trinity.edu/dribble

Research Interests, Projects, and Grants:

I am interested in the evolutionary ecology of small mammals, primarily *Peromyscus* and elephant-shrews. My research in recent years has ranged from studies of social organization to mating

behavior to thermal ecology. We have started some new research with mathematics funded through a Math-Biology NSF grant, and a biodiversity study of the Bamberger Ranch Preserve in Blanco County.

Undergraduate Students and Their Research:

- Dava Greenberg-Spindler - Paternity in Round-eared Elephant-shrews (*Macroscelides proboscideus*).
- Richard Simpson and Samuel Keller – Modeling Mammal Distributions in Texas.

University of Central Oklahoma

Department of Biology, Edmond, OK 73034

Michelle L. Haynie

Phone: 405-974-5774

Email: mhaynie@uco.edu

Research Interests, Projects, and Grants:

My research interests lie in population genetics and molecular systematics. Currently, I have students examining genetic diversity in *Mephitis* populations in the central United States, *Neotoma* populations in Arizona and Oklahoma, and *Onychomys* populations in southern Texas. Additionally, I co-advise students examining genetic diversity in collared lizards and mud turtles. Funding for this research has been provided by the Office of Research and Grants at UCO. A NSF-MRI grant was obtained for acquisition of an automated DNA sequencer for the Department of Biology at UCO.

Graduate Students and Their Research:

- Michelle Gerlosky – Genetic variation in a population of *Onychomys leucogaster* in southern Texas
- Sarah Hoss – Genetic variation at Major Histocompatibility Complex loci in *Neotoma albigula*: potential clues to the evolution of North America Arenaviruses

Undergraduate Students and Their Research:

- Ethan Rowell – Molecular evaluation of hybridization between *Neotoma floridana* and *N. micropus* along a contact zone in Oklahoma; senior
- Winnifred Pipken – Genetic variation in striped skunk (*Mephitis mephitis*) populations in the central United States; freshman
- Shey Ramsey – mtDNA d-loop variation in *Neotoma albigula* populations in Arizona; freshman
- Amanda Eisemann – Microsatellite variation in *Neotoma albigula* populations in Arizona; freshman

Additional Information:

I am in the process of writing the “Mammals of Oklahoma” with Bill Caire and Lynda Loucks. Any information you have regarding Oklahoma mammals would be greatly appreciated.

University of Mary Hardin-Baylor

Dept of Biology, Box 8432, 900 College Street, Belton, TX 76513

Cathleen Early

Phone: 254-295-5041

Email: cearly@umhb.edu

Research Interests, Projects, and Grants:

Current focus outside of the classroom is helping equip and manage UMHB's Science Education Resource Center (SERC), which serves to assist Bell Co. K-12 educators in teaching science. This fall we had our 2nd annual Science Saturday which provides hands-on activities and demonstrations in Biology, Chemistry, Math, Physics, Psychology, and Robotics for elementary aged children. All proceeds go to the SERC to purchase materials that teachers can borrow.

Additional Information:

Currently serving as vice-president of the Texas Academy of Science 2010-11; will be President Elect for 2011-12.

The University of Texas at Austin

Texas Natural Science Center, 2400 Trinity St. Austin, TX 78705

Pamela R. Owen

Phone: 512-232-5511

Email: p.owen@austin.utexas.edu

Web pages:

Texas Natural Science Center: www.utexas.edu/tmm/

Paleo Lab: www.utexas.edu/tmm/paleo/index.html

DigiMorph: www.digimorph.org/about/pamelaowen.phtml

Research Interests, Projects, and Grants:

- Natural science education and outreach
- Evolutionary history of American badgers (Taxidiinae)
- Morphology, evolution, and systematics of Carnivora
- Late Cenozoic mammalian faunas

Additional Information:

Public education and outreach are my focus with TNSC. I have been a co-leader of TNSC's *Evolution Professional Development* programs and held workshops for secondary science teachers on mammalian skeletal and dental anatomy. I am the lead scientific consultant for an integrated life and earth sciences teacher training program funded for the next 2 years by IMLS. I continue to provide

annual training in mammalogy for the Capital Area Chapter of the Texas Master Naturalists and serve as an ASM Associate Editor (Fossil Record section) for *Mammalian Species*.

The University of Texas-Permian Basin

Diane Post

Phone: 432-413-6756

Email: post_d@utpb.edu

Web page: cas.utpb.edu/academic-departments/biology/faculty/diane-post/

Research Interests, Projects, and Grants:

Effects of humans on small mammal populations across the wildland-urban interface. The development of *Neotoma micropus* as a model for the study of type 2 diabetes in human populations.

Graduate Students and Their Research:

- Brandon Hawkins: Detrimental effects of wildland-urban interface proximity on *Neotoma micropus* activity and physiology
- Kristin Bingham: Comparative biological field survey of the La Junta de los Rios regions of West Texas
- JoAnna Hernandez: A comparison of hematological values of *Neotoma micropus* field populations and captive animals on a "western" diet.

Undergraduate Students and Their Research:

- Niray Bhakta: A comparison of alpha and beta cell structure and function of *Neotoma micropus* field populations and captive animals on a "western" diet.

Additional Information:

I am always looking for qualified Master's level graduate students. Some competitive graduate assistantships are available.

STUDENT AWARDS

The Texas Society of Mammalogists annually recognizes student presenters for excellence in research and presentation abilities by granting the following awards. These awards are made possible by the generous donations of the Society's members and by fundraising activities.

Robert L Packard Award – The Robert L. Packard Award was first awarded in 1985 for the best student presentation. In 1990, when the TSM Award was established, the Packard Award was designated for the best presentation in classical mammalogy. Since 1998, the Packard Award has been designated for the Best Overall oral presentation. Currently, this award includes an honorarium of \$300. The award was named in honor of Robert L. Packard (1928-1979), the founder of the Texas Society of Mammalogists.

TSM Award – This award was established in 1990 and is awarded to the student with the best oral presentation in studies pertaining to mammalian cytology, evolution, and systematics. This award includes an honorarium of \$200.

William B. Davis Award – This award was established in 1998 and is granted to the student with the best oral presentation in classical mammalogy at the organismal level. This award includes an honorarium of \$200. The award is named in honor of William B. Davis (1902-1995), a leading mammalogist in Texas and the first Head of the Department of Wildlife and Fisheries Sciences at Texas A&M University. Davis authored or co-authored five editions of "Mammals of Texas" (1947, 1960, 1966, 1974, 1994).

Rollin H. Baker Award – This award was established in 2002 for the best overall oral presentation by an undergraduate student. This award includes an honorarium of \$200. The award was established in honor of Rollin H. Baker (1916-2007), president of the Society in 1984-85 and an active member of TSM from 1984 until his death in 2007.

Vernon Bailey Award – This award was established in 2004 for best poster presentation in classical mammalogy at the organismal level. This award includes an honorarium of \$200. The award was named for Vernon Bailey (1864-1942), Chief Field Naturalist and Senior Biologist for the Department of Agriculture's Bureau of Biological Survey from 1897 to 1933. Bailey conducted the first and most complete biological survey of Texas, from 1889 to 1905.

Clyde Jones Award – This award was established in 2004 for best poster presentation in studies pertaining to mammalian cytology, evolution, and systematics. This award includes an honorarium of \$200. The award was named in honor of Clyde Jones, who is currently Horn Professor Emeritus at Texas Tech University. Jones has been an active member of TSM since its inception in 1983 and was President of the Society in 1987-88.