TEXAS SOCIETY OF MAMMALOGISTS

PROGRAM, ABSTRACTS, AND NEWSLETTER

43rd Annual Meeting

14-16 February 2025

#TSM2025

Texas Society of Mammalogists

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Cover illustration: Jaguar by Krysta Demere.

Texas Society of Mammalogists
43rd Annual Meeting
14-16 February 2025

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MENU 2025

Friday:
6:00 pm DINNER
Build your own burger, macaroni and cheese, fries, desert, and salad

Saturday:
7:00 am BREAKFAST
Breakfast tacos, hash browns, cinnamon rolls, assorted cereal, and fruit

9:35 am Break
Coffee, tea, water, scones, muffins, granola bars, fruit

Saturday:
12:00 pm LUNCH
Potato bar, corn salad, taco salad, salad bar, broccoli spears, cornbread, brownies, and ice cream

3:15 pm Break (in Packard Building)
Coffee, tea, water, cookies, trail mix, fruit

Saturday:
5:30 pm BANQUET DINNER
Chicken fried steak, mashed potatoes, cream gravy, green beans, salad bar, wheat dinner rolls, chocolate pie

Sunday:
7:30 am BREAKFAST
Pancakes, bacon, hash browns, blueberry muffins, English muffins, assorted cereals, and fruit

RULES FOR USE OF THE TEXAS TECH UNIVERSITY CENTER AT JUNCTION'S LLANO RIVER FIELD STATION

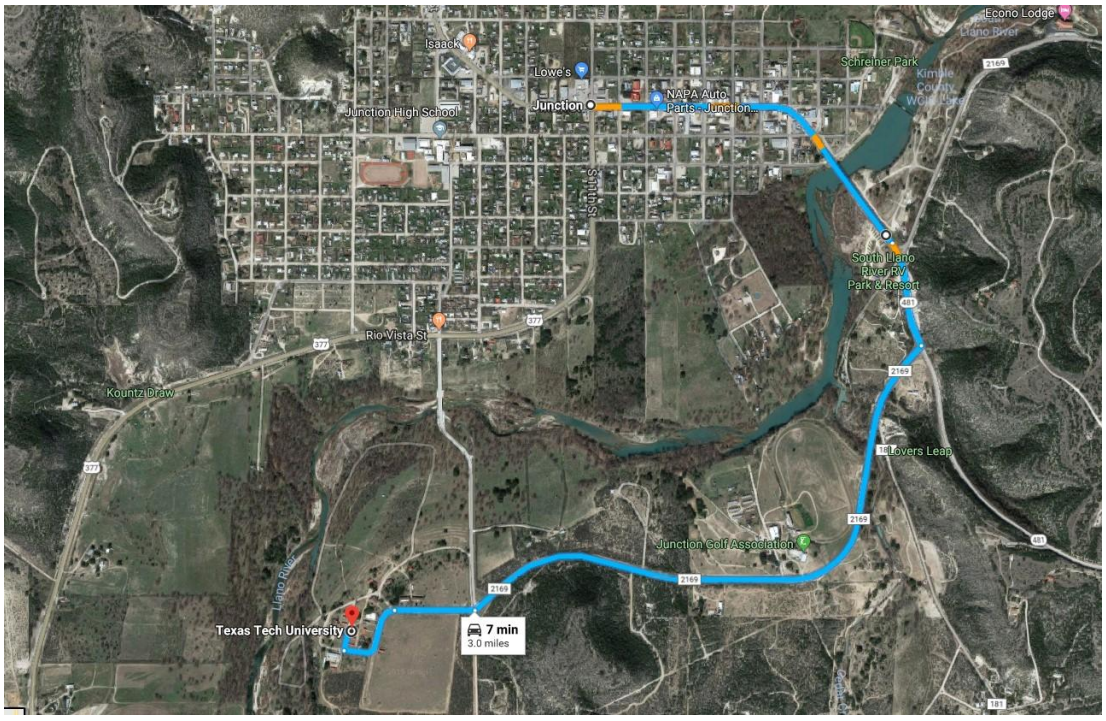
- Drugs and alcohol are strictly prohibited at the center*. Unauthorized use of either will result in immediate eviction with no refund. (*see exception below for TSM social hours)
- Do NOT drive on the grass. Stay on designated roads and out of unauthorized areas.
- Do NOT secure any items to the walls and/or doors without prior approval. This includes the use of tape, nails or screws.
- Do NOT remove or dismantle ANY furniture in the buildings, including beds and mattresses, clocks, other wall hangings or fixtures. DO NOT sit or stand on tables.
- Please remove all your event signs and/or posters before you depart.
- Pets, firearms, and camping are not allowed on campus.
- Fires are allowed ONLY with prior permission and ONLY in designated fire pit areas. The field station adheres to the Kimble County Burn Bans.
- Use of electric skillets, hot plates and other electrical cooking appliances is prohibited in all lodging areas. This also applies to electric heaters.
- Smoking is strictly prohibited inside **any** building.
- All plants and wildlife are protected at the field station and are not to be harvested or removed.
- Use of recreational vehicles is strictly prohibited on center.
- Do not prop open doors in ANY building

Any infractions, disregard, and/or negligent behavior resulting in the damage to the facilities, furniture, or equipment will be assessed a fee of no less than $1000.00. This includes outside areas as well as tampering with thermostats in locked boxes. This damage/tampering fee will to be added to the Society's final bill.

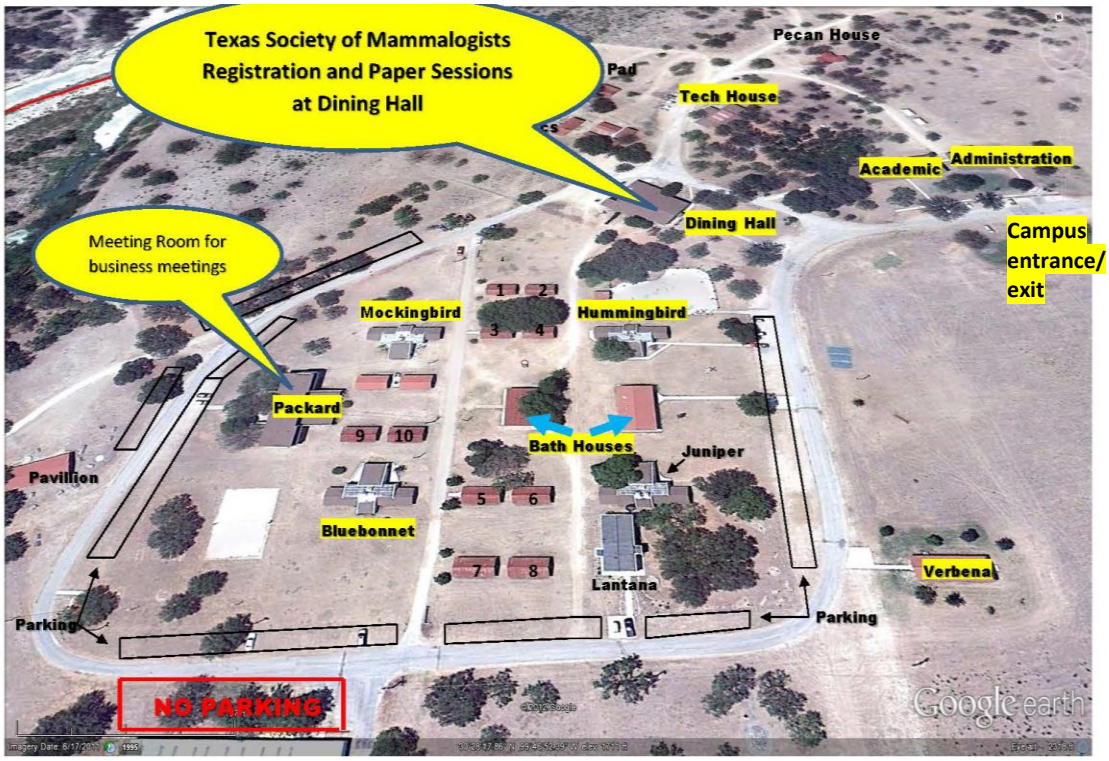
***Alcohol Rules for Texas Society of Mammalogists: Consumption of alcohol by persons over 21 years of age is permitted only in the Dining Hall from 7 pm to 12 midnight Friday and Saturday night. Attendees must show their ID at registration to receive a wrist band that will verify their legal age and two drink tickets. A licensed bartender will be present to distribute up to two alcoholic beverages per attendee wearing a wrist band. A Security Officer will be present on campus to monitor and respond to any illegal activities or safety concerns. Please follow the rules and behave yourselves so TSM can continue to meet at the Junction Center each year! Thank you!**

DIRECTIONS TO TTU LLANO RIVER FIELD STATION FROM JUNCTION

The bridge via the "back way" to campus has not been replaced. Please use the route shown below.



CAMPUS MAP



Note: There are two single-stall restrooms available in the Dining Hall. In the case of long lines, or the restrooms being out of order, the Bath House restrooms are available for use.

Luna Blue Farms – Rachael Connally

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The Creative Visualist – Jonathan Rice

Sunrise Grove

Desert Dada – Carolyn Schmitz

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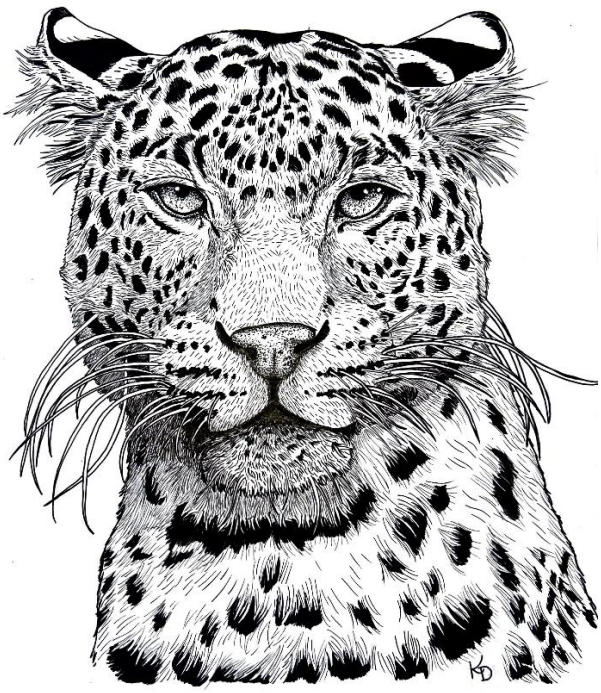
THANK YOU FOR YOUR DONATION

The 7 student presentation awards offered by Texas Society of Mammalogists are made possible by the generous donations of the society's members and many external businesses to our annual live and silent auctions. The support of our donors ensures that we have the resources to recognize and reward current students and future professionals in the academic, state, and national wildlife fields for excellence in mammalian research.



2025 Program Schedule

Friday, 14 February

3:00–7:30 pm	Registration	Dining Hall
4:30–6:00 pm	Meeting of the Executive Committee	Packard Building
6:00 pm	Dinner (serving line open 6:00–6:30 pm)	Dining Hall
7:00 pm	Announcements/Welcome Address TSM President Dara N. Orbach	Dining Hall
7:30–9:30 pm	Poster Presentations	Dining Hall
9:30 pm	Meeting of the Student Honoraria Committee	TBD

Saturday, 15 February

7:00 am	Breakfast and Registration (serving line open 7:00–7:30 am)	Dining Hall
8:00 am	Introduction and Announcements TSM President Dara N. Orbach	Dining Hall

PAPER SESSION 1

(Presenters' names are underlined)

Moderator: Dara N. Orbach, Texas A&M University – Corpus Christi

Papers 1–4 are to be considered for the TSM Award.

8:15 Paper 1 – **THE EVOLUTIONARY AND ECOLOGICAL CONSTRAINTS ON NORTH AMERICAN ARTIODACTYL ACTIVITY PATTERNS** Brian T. McElligott and Ivan Castro-Arellano

8:30 Paper 2 – **ECOLOGICAL DISTURBANCE IN THE ANTHROPOCENE: LEGACY EFFECTS OF ORPHANED WELLS ON VEGETATIVE COMMUNITIES AND METABOLIC PHENOTYPE OF FREE-LIVING RODENTS** Jess Warr, Richard Dolman, and Christopher Goodchild

8:45 Paper 3 – **A GENOMIC AND MORPHOLOGICAL ASSESSMENT OF THE PINYON DEERMOUSE, *PEROMYSCUS TRUEI* (CRICETIDAE: NEOTOMINAE)** Javier E. Colmenares-Pinzón, Caleb D. Phillips, Robert D. Bradley, and Joseph D. Manthey

9:00 Paper 4 – **DETECTING *LEPTONYCTERIS NIVALIS* AT EMORY CAVE USING AIRBORNE ENVIRONMENTAL DNA** Ashley E. Loehn and Loren K. Ammerman

Papers 5-6 are to be considered for the Bobby Baker Award.

9:15 Paper 5 – **GENETIC DIVERSITY IN THOMASOMYS HUDSONI AND THOMASOMYS CINNAMEUS FROM ECUADOR** Yourim Cho, Joshua M. Brokaw, and Thomas E. Lee, Jr.

9:30 Paper 6 – **FLYING UNDER THE RADAR: A STUDY OF ADENOVIRUS PREVALENCE AND GENETIC VARIATION IN OKLAHOMA'S BAT POPULATIONS** Solomon K. Meraz, Honey E. C. Peters, and Dana N. Lee

9:45 **30 Minute Break**

PAPER SESSION 2

Moderator: Joel G. Brant, McMurry University

Paper 7 is to be considered for the Rollin Baker Award.

10:15 Paper 7 – **DIET ECOLOGY AND PELLET MORPHOMETRY AMONG NATIVE AND EXOTIC NEW MEXICAN UNGULATES** Scott C. Spencer, Carson P. Hedberg, and Felisa A. Smith

Papers 8-15 are to be considered for the William B. Davis Award.

10:30 Paper 8 – **FORAGING HABITAT AND BEHAVIOR OF MEXICAN LONG-NOSED BATS IN BIG BEND NATIONAL PARK** Flor A. Calderón and Loren K. Ammerman

10:45 Paper 9 – **EFFECTS OF ROADWAYS ON BAT ACTIVITY AND DISTRIBUTION IN EAST TEXAS** Amanda N. Newman, Makani L. Fisher, Lauren Young, and Richard D. Stevens

11:00 Paper 10 – **FRAGMENTATION EFFECTS ON THE FUNCTIONAL AND PHYLOGENETIC DIVERSITY OF NEOTROPICAL BATS** Tatiana Velásquez-Roa and Oscar E. Murillo-García

11:15 Paper 11 – **DECLINING DETECTIONS OF THE PLAINS SPOTTED SKUNK IN KANSAS: CONSERVATION IMPLICATIONS FOR THE CENTRAL GREAT PLAINS** Daniel Benson, Jenell de la Peña, Zackary Cordes, Caleb Durbin, Andrew D. George, Christine C. Rega-Brodsky

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

1:15 **Group Photo** in front of the Dining Hall – All members, please attend and please be on time! ☺

PAPER SESSION 3

Moderator: Thomas E. Lee., Jr., Abilene Christian University

1:45 Paper 12 – **UTILIZING NATURAL HISTORY COLLECTIONS TO INVESTIGATE THE RELATIONSHIP BETWEEN CRANIAL MORPHOLOGY AND HABITAT** Brandy A. Craft, Haley N. Ellis, Grace L. Martindale, Sharon A. Jansa, and Jessica E. Light

2:00 Paper 13 – **COMPARATIVE SHAPE DIFFERENTIATION IN LIMB MORPHOLOGY ACROSS HABITATS IN THE PEROMYSCUS MANICULATUS SPECIES COMPLEX** Haley N. Ellis, Brandy A. Craft, Grace L. Martindale, Sharon A. Jansa, and Jessica E. Light

2:15 Paper 14 – **INTRASPECIFIC DIEL TEMPORAL NICHE CONSERVATISM IN ASIAN EUUNGULATES: INSIGHTS FOR ECOLOGY AND EVOLUTION** Namrata Bhandari and Ivan Castro-Arellano

2:30 Paper 15 – **INTRASPECIFIC DIEL TEMPORAL NICHE CONSERVATISM IN AFRICAN UNGULATES: ECOLOGICAL AND EVOLUTIONARY IMPLICATIONS** Brier Klossing and Ivan Castro-Arellano

2:45 pm Meeting of the Student Honoraria Committee TBD

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

5:30–9:00 pm **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:

What Cat Genomes Teach Us About Speciation and Hybridization

Bill Murphy
James E. Womack University Professor of Genetics
Texas A&M University

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

9:00–12:00 pm Socializing and Dancing Dining Hall

Sunday, 16 February

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

Oral Presentation Abstracts

Papers 1–4 are to be considered for the TSM Award.

Paper 1
THE EVOLUTIONARY AND ECOLOGICAL CONSTRAINTS ON NORTH AMERICAN ARTIODACTYL ACTIVITY PATTERNS Brian T. McElligott and Ivan Castro-Arellano - Department of Biology, Texas State University (brianmcelligott@txstate.edu)

Energy dynamics can shape ecological patterns and impact the evolutionary trajectory of a species. The metabolic theory of ecology links body mass to multiple ecological traits. This study seeks to extend these insights to activity patterns at a macroecological scale, using the large repository of camera trap dataset to explore the relationship between body mass and diel patterns of activity of North American artiodactyls. Artiodactyla, a diverse mammalian order, reflects episodes of rapid evolution driven by climate volatility, resulting in a wide range of body sizes and morphologies. Utilizing the wide range of body masses to investigate intraspecific diel temporal niche conservatism, overlap of populations within a species, will help us understand the evolutionary drivers of activity patterns and how energetics may play a role. Activity was defined as homogenous, low directionality with activity more common around the 24-hour period, or heterogenous, high directionality with peaks of activity at different times of the 24-hour period. We found that as the strength of intraspecific diel temporal niche conservatism increases, the directionality of activity decreases in artiodactyls. Concurrently, as we saw an increase in body masses of artiodactyl species, we found the directionality of activity increased. Larger species tend to exhibit heterogenous activity, while smaller species will tend exhibit homogenous activity. This supports the hypothesis of a negative relationship between body mass and intraspecific diel temporal niche conservatism. This study contributes to a previously unexplored aspect of macroecology relationships at a continental-scale approach by addressing the relationship between body mass and activity patterns in North American artiodactyls within the context of intraspecific diel temporal niche conservatism.

Paper 2
ECOLOGICAL DISTURBANCE IN THE ANTHROPOCENE: LEGACY EFFECTS OF ORPHANED WELLS ON VEGETATIVE COMMUNITIES AND METABOLIC PHENOTYPE OF FREE-LIVING RODENTS Jess Warr, Richard Dolman, and Christopher Goodchild - Department of Biology, University of Central Oklahoma (jtredway@uco.edu)

Persistent organic pollutants have been studied intently for the last thirty years, and many are known to be mutagenic, with recent studies focusing on the more carcinogenic compounds. Polycyclic aromatic hydrocarbons (PAHs) are commonly studied environmental organic contaminants. There are 16 PAHs listed by the United States Environment Protection Agency (US EPA) as priority contaminants of concern. Hazardous PAHs are naturally occurring components of crude oil and can remain in the environment long after crude oil spills have occurred. While catastrophic large marine oil spills often receive considerable media attention, smaller-scale inland spills occur much more frequently, resulting in legacy PAH contamination. Oklahoma has over 15,965 documented orphaned, unplugged oil wells (UOWs). Oklahoma Energy Resources Board (OERB) is working diligently to plug orphaned wells however, lasting effects on surrounding ecosystems are not well understood. Using two study locations in Cushing, Oklahoma, multiple ecosystem parameters will be observed. To assess site-specific disturbance, we will conduct vegetative surveys to generate Floristic Quality Assessments (FQAs). Soil samples contaminant concentrations will be measured. Resident deer mice metabolic rates and hematological indices will be collected. In accordance with substantial data showing PAH exposure causes mammalian hematological damage, altered immune function, and metabolic rate shifts, we hypothesize legacy PAH contamination will lead to physiological differences in free-living *Peromyscus* individuals collected most proximal to UOWs. We will measure white blood cell differentials, packed cell volume, hemoglobin

concentration, and organismal resting metabolic rate. Collectively, this data will allow us to evaluate legacy effects of unplugged oil wells on multiple ecosystem components.

Paper 3

A GENOMIC AND MORPHOLOGICAL ASSESSMENT OF THE PINYON DEERMOUSE, *PEROMYSCUS TRUEI* (CRICETIDAE: NEOTOMINAE) Javier E. Colmenares-Pinzón[1], Caleb D. Phillips[1], Robert D. Bradley[1], and Joseph D. Manthey[1] - [1]Department of Biological Sciences, Texas Tech University (jacolmen@ttu.edu)

The Pinyon Deermouse, *Peromyscus truei*, is a widely distributed Cricetid rodent inhabiting the western United States. The taxonomy of this species has been contentious, with populations historically oscillating between subspecies and species status. Currently accepted but outdated hypotheses recognize 11 subspecies, distinguishable by limited phenotypic traits. However, Cytochrome-b analyses reveal that these subspecies are not monophyletic and instead suggest the species comprises two highly divergent haplogroups, likely representing distinct species. To address these taxonomic and evolutionary questions and assess conservation implications, we expanded from single-marker analyses to whole-genome sequencing, complemented by a geographically extensive multivariate morphometric study. We generated the first chromosome-level genome assembly for the species, revealing genomic stability compared to other *Peromyscus* species. Genome-wide analyses across the species' range reveal population structure, with some genetic clusters potentially shaped by geographic barriers such as rivers and mountains. Multivariate analyses of 35 craniodental and external measurements partially align with these genetic patterns. The only threatened subspecies, *P. truei comanche*, emerges as genetically distinct and isolated, with reduced genetic diversity and higher levels of homozygosity compared to neighboring populations. These findings reinforce its conservation status and underscore the need for targeted management strategies. However, its stable effective population size in recent times and relatively low genetic load offer promising prospects for its long-term survival.

Paper 4

DETECTING *LEPTONYCTERIS NIVALIS* AT EMORY CAVE USING AIRBORNE ENVIRONMENTAL DNA Ashley E. Loehn and Loren K. Ammerman - Department of Biology, Angelo State University (aloehn@angelo.edu)

Leptonycteris nivalis is an endangered species of bat known to seasonally occupy Emory Cave in Texas. Although this species' endangered status necessitates regular monitoring, disturbances by researchers may have a negative impact on bats. In recent years, it has been shown that it is possible to collect environmental DNA (eDNA) from the air in order to characterize terrestrial vertebrate communities with minimal disturbance, but little is known about airborne eDNA sampling in a natural setting. Our aim was to use airborne eDNA samples from Emory Cave to evaluate eDNA retention inside a bat roost and use metabarcoding to characterize the vertebrate community inside the cave. We found eDNA from five bat species, three non-bat mammal species, and two bird species known to use the habitat around the cave. Our results suggest that the amount of eDNA recovered varies based on the length of time since last occupation by the target species and the placement of samplers within the roost. We were able to detect *L. nivalis* DNA inside the cave over 255 days after the bats had vacated, demonstrating the extreme sensitivity of this method. These results indicate that airborne eDNA sampling can provide useful information about cave-roosting species, particularly if used in conjunction with other monitoring methods, but secondary transfer and contamination from humans and domestic animals must always be considered. We recommend further research into the environmental factors that affect airborne eDNA retention and collection in a cave environment.

Papers 5-6 are to be considered for the Bobby Baker Award.

Paper 5

GENETIC DIVERSITY IN THOMASOMYS HUDSONI AND THOMASOMYS CINNAMEUS FROM ECUADOR Yourim Cho, Joshua M. Brokaw, and Thomas E. Lee, Jr. - Department of Biology, Abilene Christian University (cxy21a@acu.edu)

Thomasomys is a large genus of cricetid rodents in the subfamily of Sigmodontinae that currently includes 56 species. This genus is endemic to the northern Andes at elevations from 1150 to 4600 meters, primarily occurring in montane forests. This study focuses on the genetic variation as well as the morphological differences between two species: *Thomasomys hudsoni* and *T. cinnameus*. *Thomasomys hudsoni* was known only from type locality in southern Ecuador, but in this study, we present the first record outside of the type location, Sangay National Park, Ecuador, which is in southeastern Ecuador while *Thomasomys cinnameus* specimens are from Guandera Forest Preserve, Ecuador. Twenty one morphological differences were measured by the digital caliper and the measurement values were run in a PCA to compare the two species. Through the PCA scatter plot, it is evident that there are two clear clusters between the two species which means that these two species indeed have some morphological differences. Based on the sequences collected from mtDNA (CO1 and CytB) and the nuclear DNA (RAG1) of the two *Thomasomys* species that were plugged into the existing phylogeny tree, we can show that these species form distinct clades.

Paper 6

FLYING UNDER THE RADAR: A STUDY OF ADENOVIRUS PREVALENCE AND GENETIC VARIATION IN OKLAHOMA'S BAT POPULATIONS Solomon K. Meraz, Honey E. C. Peters, and Dana N. Lee - Department of Agriculture, Biology, and Health Sciences, Cameron University (solomon.meraz@cameron.edu)

Bats carry more zoonotic viruses per species than any other mammal, so it is necessary to identify the viruses bats are carrying to track or prevent the spread of potentially harmful diseases. *Mastadenovirus* is an adenovirus genus with a low mutation rate exclusive to mammals and found commonly in many species of bats, so our goals of this study were to estimate the frequency bats in Oklahoma carry adenovirus and compare these viruses to other published viruses. We gathered intestinal tissue from 37 *Eptesicus fuscus,* 11 *Nycticeius humeralis,* and 8 *Lasiurus borealis* bats that were submitted for rabies testing to the Oklahoma State Department of Health and deposited in the University of Central Oklahoma Natural History Museum. Of the 56 samples collected, a portion of the Adenoviridae DNA polymerase gene was successfully amplified in 11 *E. fuscus*, 1 *N. humeralis*, and 1 *L. borealis* samples respectively (23.2% positive). These samples were sequenced and compared to bovine, canine, human, turkey, and other bat adenovirus sequences found on GenBank. The tested sequences were then included in a phylogenetic analysis to study evolutionary relationships among our experimental samples. The analysis helped confirm our samples belong to the genus *Mastadenovirus*, with 8 samples having identical amino acid sequences to each other with a ~13% amino difference to relative viruses found in *Antrozous pallidus* and *Tadarida brasiliensis* (12.5% difference), and from a virus found in *Myotis velifer (*14.7% difference). The other 5 samples were identical to each other, with their amino acid sequences being most closely related to canine adenovirus (13.6% difference) and a virus found in *Vespertilio sinesis* (14.7% difference). According to the International Committee on Taxonomy of Viruses, the designation of a *Mastadenovirus* species requires a 10-15% difference in amino acid sequence, which all samples detected in this study have.

Paper 7 is to be considered for the Rollin Baker Award.

Paper 7

DIET ECOLOGY AND PELLET MORPHOMETRY AMONG NATIVE AND EXOTIC NEW MEXICAN UNGULATES Scott C. Spencer, Carson P. Hedberg, and Felisa A. Smith - Department of Biology, University of New Mexico (scottspencer21@unm.edu)

The extinction and extirpation of megafauna has greatly impacted the landscape of the United States. Since the introduction of African oryx (*Oryx gazella*) and other exotic species to New Mexico in the 1970s, the diets and interactions between native and exotic ungulates have been under review. This has been done to preserve the landscape and protect native floral and faunal species. This research aims to understand the ecological roles of these non-native ungulates in the Southwestern US, focusing on diet characterization and the potential correlation between pellet size and body size. The first question asked is "Are there dietary trends that correlate with pellet size, reflecting intraspecific differences in body size?" The second question asked is "How does oryx diet compare to native ungulate diets, and how does dietary overlap change seasonally?" To answer these, we measured pellet dry weight and volumetrics of ungulate scat samples from the Armendaris Ranch using calipers and an ellipsoid equation to approximate area. Stable isotope analysis (SIA) was then used to calculate heavy carbon and nitrogen ratios to determine the types of plants consumed. Pellet size was seen to correlate with ungulate body size, reflecting one possible intraspecific difference in dietary behavior between either sex or age class in African oryx. We found that oryx diet overlapped more with bison due to similar body size and ecological niche. Oryx diet also overlapped with native ungulates during dry seasons due to food scarcity. However, none of these results prove a visible competition between oryx and native ungulates. Understanding oryx diet will aid in managing the introduced species and may reveal if oryx fill niches similar to extinct or extirpated megafauna. Additionally, the scat measurement methods used could potentially identify sex and age without direct observation, advancing our understanding of pellet morphometry use for other ungulates.

Papers 8-15 are to be considered for the William B. Davis Award.

Paper 8

FORAGING HABITAT AND BEHAVIOR OF MEXICAN LONG-NOSED BATS IN BIG BEND NATIONAL PARK Flor A. Calderón and Loren K. Ammerman - Department of Biology, Angelo State University (fcalderon3@angelo.edu)

Identifying foraging habitat is essential for understanding a species' ecology and guiding conservation strategies. This study focuses on *Leptonycteris nivalis* (Mexican long-nosed bat), a migratory and nectarivorous bat listed as federally endangered. This species relies on *Agave havardiana* as a food source in the Chisos Mountains of Big Bend National Park, Texas, where the only known maternity roost exists in the United States. In summer 2024, GPS tracking was used to identify core foraging areas of 12 adults and 9 juveniles. We hypothesized that both adults and juveniles would forage predominantly where *A. havardiana* is abundant, with juveniles potentially exploring larger areas. Adults generally traveled shorter distances from the roost and spent less time in flight compared to juveniles. High-elevation foraging clusters were observed, particularly within the Chisos Basin and primarily within 8 km of the roost. The mean adult home range was 8,968.6 ha (SD ± 23,868.2), while juveniles averaged a larger home range of 49,735.5 ha (SD ± 94,578.6), likely due to more exploratory movements. Core ranges (60%) averaged 34.8 ha (SD ± 76.3) for adults and 43.7 ha (SD ± 91.0) for juveniles. Additionally, some individuals ventured as far as the Sierra del Carmen, suggesting possible undiscovered roosts. Maximum flight distances of over 255 km and speeds of 73 km/h were recorded, underscoring this species' high mobility. These findings are crucial for habitat preservation and restoration efforts, especially as *L. nivalis* populations face threats from climate change and habitat loss.

Paper 9

EFFECTS OF ROADWAYS ON BAT ACTIVITY AND DISTRIBUTION IN EAST TEXAS

Amanda N. Newman[1], Makani L. Fisher[1], Lauren Young[2], and Richard D. Stevens[12] - [1]Department of Natural Resources Management, Texas Tech University; [2]Natural Science Research Laboratory, Museum of Texas Tech University (amanda.n.newman@ttu.edu)

The impact of roadways on wildlife behavior has been of long-standing interest among scientists and policy makers alike. However, effects of road types on bat activity and distributions have not been extensively explored. We investigated if road type and proximity to roadways had a significant effect on bat activity. We deployed acoustic detectors along different road types within Texas national forests. Each site consisted of two subsites, one at the forest edge along the roadside and the second within the forest interior. From May to September of 2024, we collected 1,790,972 audio files from 36 sites across four national forests. Audio files were processed using Kaleidoscope to identify the number of passes from each of the eleven bat species known to occur within the four forests. We examined differences among road types, subsites and their interaction using a Two Way ANOVA based on Generalized Least Squares. The analysis indicated that the response to road type and subsite was species dependent. We found the activity of *Tadarida brasiliensis* and *Lasionycteris noctivagans* to be significantly impacted by road type, and the activity of *Lasiurus borealis, Lasiurus seminolus, Nycticeius humeralis and Perimyotis subflavus* to be significantly affected by subsite, with greater activity either at edge or interior subsites depending on species. Additionally, there was no significant interaction between subsite and road type suggesting that patterns of bat activity reflected individual species habitat preferences. Our findings help to inform bat conservation efforts and species habitat associations. We suggest that future efforts focus on better understanding the habitat requirements of individual species.

Paper 10

FRAGMENTATION EFFECTS ON THE FUNCTIONAL AND PHYLOGENETIC DIVERSITY OF NEOTROPICAL BATS

Tatiana Velásquez-Roa[1,2] and Oscar E. Murillo-García[2] - [1]Department of Biology, Texas State University; [2]Department of Biology, Universidad del Valle, Colombia (yxh11@txstate.edu)

Fragmentation alters multiple dimensions of diversity by homogenizing fauna and flora. Although bats show a heterogenous response to environmental change, there is little information on how fragmentation affects the functional traits of bat species. Therefore, this study investigated the effect of fragmentation on the functional and phylogenetic diversity of bats. To this end, bats were captured in 10 tropical dry forest remnants in the north-central region of Valle del Cauca, Colombia, between December 2019 and September 2021. A total of 36 bat species (1142 individuals) were captured, of which 19 species were frugivorous. Functional diversity and phylogenetic indices of seed-dispersing bat species were calculated. Similarly, the characterization of each remnant was carried out using landscape metrics and related to the functional and phylogenetic diversity of bats. The results show that fragmentation affects bat functional and phylogenetic diversity at the three scales considered. Cranial functional diversity was found to increase with the average area and the area/perimeter ratio of the patches. In addition, wing functional diversity was found to increase with increasing patch area and decrease with decreasing landscape heterogeneity. Similarly, phylogenetic diversity was found to increase with area and decrease with decreasing area/perimeter ratios and landscape heterogeneity. Fragmentation, by altering the proportions of different cover types and their geometric arrangement at different scales (both at the remnant and landscape level), affects the diversity of groups of fruit bats. This leads to a decrease in the ecological and evolutionary diversity of these groups, as forests break up into smaller fragments and species assemblages become more uniform.

Paper 11

DECLINING DETECTIONS OF THE PLAINS SPOTTED SKUNK IN KANSAS: CONSERVATION IMPLICATIONS FOR THE CENTRAL GREAT PLAINS Daniel Benson[1], Jenell de la Peña[1], Zackary Cordes[2], Caleb Durbin[1], Andrew D. George[1], Christine C. Rega-Brodsky[1] - [1]Department of Biology, Pittsburg State University; [2]Kansas Department of Wildlife and Parks (dbenson6@tamu.edu)

Although once abundant across central North America, the Plains Spotted Skunk (*Spilogale interrupta*) has experienced range-wide population declines, resulting in its listing as a conservation priority species in several Midwestern and Great Plains states. Our research objectives were to document the Plains Spotted Skunk in Kansas and describe its habitats to inform state conservation efforts. We conducted a comprehensive camera trap survey at over 1,367 locations from 2016–2023, with targeted efforts focusing on state agency-designated spotted skunk critical habitat and historical detection locations in 29 counties. Even as one of the largest Plains Spotted Skunk studies to date in terms of spatial and temporal scope, we only detected the species at 6 locations in 2017, 2019, and 2020, all in 1 county along the Arkansas River floodplain in Kansas. We only detected spotted skunks at locations with local woody cover, and in landscapes with more grasslands and less row crop agriculture. Intensive efforts to resample locations with past detections yielded no spotted skunks in 2021–2023. The lack of recent Plains Spotted Skunk detections suggests that conservation actions may be warranted to prevent extirpation from the central Great Plains.

Paper 12

UTILIZING NATURAL HISTORY COLLECTIONS TO INVESTIGATE THE RELATIONSHIP BETWEEN CRANIAL MORPHOLOGY AND HABITAT Brandy A. Craft[1], Haley N. Ellis[1], Grace L. Martindale[1], Sharon A. Jansa[2], and Jessica E. Light[1] - [1]Texas A&M University; [2]University of Minnesota (bcraft@tamu.edu)

The *Peromyscus maniculatus* species complex spans nine species, whose ranges extend from Alaska and Canada south to Mexico, inhabiting diverse environments such as rainforests, scrublands, and deserts. Due to intraspecific and interspecific variation, the *P. maniculatus* species complex is a model system for various evolutionary and ecological studies. This preliminary investigation examines how habitat influences skeletal morphology within this complex. Biting proficiency, influenced by craniomandibular morphology, affects the ability to utilize food resources. Thus, it is presumed that skull shape is correlated with diet. Being generalized omnivores, *P. maniculatus* may vary their diet. Subsequently, craniomandibular morphology may reflect this across habitats based on food availability. Using computed tomography (CT) scanning technology on fluid-preserved specimens from natural history collections, we employ geometric morphometric analyses to test the hypothesis that *P. maniculatus* exhibit shape variation in craniomandibular morphology in correlation with the environment. We expect to see different skull shapes between forested and non-forested areas due to varied food resources. We analyzed 3D shape data from 37 landmarks positioned along homologous regions of the skull, comparing cranial shapes between forested and non-forested habitats. Our preliminary findings reveal a correlation between habitat and shape change, specifically associated with a medial shifting of the zygomatic arch near the maxillary bone and elongation of the rostrum, suggesting the *P. maniculatus* species complex may exhibit biological adaptations to specific environments.

Paper 13

COMPARATIVE SHAPE DIFFERENTIATION IN LIMB MORPHOLOGY ACROSS HABITATS IN THE PEROMYSCUS MANICULATUS SPECIES COMPLEX

Haley N. Ellis[1], Brandy A. Craft[1], Grace L. Martindale[1], Sharon A. Jansa[3], and Jessica E. Light[1] - [1]Texas A&M University; [2]University of Alaska Fairbanks; [3]University of Minnesota (haleyellis@tamu.edu)

The *Peromyscus maniculatus* species complex has a vast geographic distribution across North America, from northwestern Canada and Alaska throughout the continental United States to central Mexico. This species inhabits diverse ecological gradients ranging from tropical and temperate rainforests to arid deserts and alpine habitats. Variable morphology may result from environmental pressures produced by each of these environments. Previous research found that forest-dwelling *P. maniculatus* have longer and additional vertebrae than those from non-forested environments, leading to longer tails. The objective of this study was to explore how environmental gradients influence the morphology of long bones within the *P. maniculatus* species complex. We hypothesized that individuals would exhibit shape variation in fore- and hindlimbs in association with habitat type, where we anticipate species that inhabit dense forested regions will display distinct limb variation compared to those in non-forested regions. We used computed tomography (CT) technology to scan fluid-preserved specimens sourced from natural history collections and implemented 3D morphometrics to compare shape change across long bones. Our analysis focuses on landmark data obtained from the fore- and hindlimbs. We used an analysis of variance to statistically assess morphological differences between rodents in forested and non-forested habitats. This study highlights the importance of examining postcranial elements concurrently in the study of ecomorphology.

Paper 14

INTRASPECIFIC DIEL TEMPORAL NICHE CONSERVATISM IN ASIAN EUUNGULATES: INSIGHTS FOR ECOLOGY AND EVOLUTION Namrata Bhandari and Ivan Castro-Arellano - Department of Biology, Texas State University (lzy18@txstate.edu)

Intraspecific diel temporal niche conservatism (Intra-DTNC) occurs when individuals from different populations of a species tend to maintain similar diel activity patterns. Also, species body mass is a likely driver of these activity patterns, through metabolic and thermoregulatory processes. To meet energy demands large herbivores presumably spend longer time foraging and tend towards being cathemeral (i.e., low activity directionality), whereas small herbivores likely spend less time foraging and are time specialists (i.e., high activity directionality). We aim to evaluate the influence of body mass on Intra-DTNC on Asian euungulates using time-stamped camera trap data from a large data repository that covers sites across Asia. Six species from the families Bovidae, Cervidae, Tragaulidae and Suidae from six Asian countries were selected for analysis using the R packages (Activity and Overlap) and a null model approach to compare diel activity patterns and assess overlaps among populations of each species. To quantify activity pattern directionality (i.e., measure the peak of activity), Hermans-Rasson test was used utilizing R packages “circular” and “CircMLE”. Small euungulates exhibit similar activity patterns (bimodal) across tested sites. Medium and large species populations located near each other show similar activity patterns, but populations from geographically distant sites differed (random). This suggests small ungulates evince Intra-DNTC whereas medium and large-sized euungulates show activity pattern variation. This study will highlight influence of body mass on activity patterns at local and global scales, providing insights into the ecological and evolutionary dynamics of Asian euungulates.

Paper 15

INTRASPECIFIC DIEL TEMPORAL NICHE CONSERVATISM IN AFRICAN UNGULATES: ECOLOGICAL AND EVOLUTIONARY IMPLICATIONS

Brier Klossing[1] and Ivan Castro-Arellano[1] - [1] Texas State University (vtg22@txstate.edu)

Until recently, mammalian activity patterns were poorly studied due to the challenges of collecting and analyzing large-scale temporal data. Advances in trail camera technology, the development of statistical methods for interpreting activity data, and the creation of open-source data platforms have revolutionized this field, enabling broader geographic and ecological insights. Open-source trail camera data from diverse African sites has opened the possibility to study activity patterns across a large geographic range. Our study included six species of African Euungulates, ranging from small antelopes like blue duikers to larger ungulates like African buffalo, to capture a spectrum of body masses as one of our goals was to determine the relations between activity and body mass. We analyzed activity patterns using R statistical programming with packages such as 'Activity,' 'Overlap,' and 'Circular,' alongside a null model approach (ROSARIO algorithm). Larger herbivores that depend on abundant low nutrition resources exhibited cathemeral activity with low activity directionality. In contrast, smaller herbivores whose diets focus on high-nutrition resources tended to be time specialists, concentrated activity within shorter time periods, resulting in high activity directionality. We also addressed whether different populations within a species maintain homogeneous daily activity patterns (i.e., Intraspecific Diel Temporal Niche Conservatism, Intra-DTNC). We identified a significant negative relationship between body mass and Intra-DTNC. Smaller herbivores demonstrated consistent activity patterns across sites, suggesting greater temporal niche specialization, while larger herbivores exhibited more activity pattern variation among sites. These findings highlight the importance of understanding natural activity patterns and their adaptive capacity in the face of environmental changes. Identifying species constrained by Intra-DTNC and phylogenetic legacies is crucial for guiding conservation efforts, as these species may have limited adaptability to environmental changes, especially in the face of climate change.

POSTERS AT-A-GLANCE

Competing for the Vernon Bailey Graduate Award (Posters 1-8):

1 – THE IMPACT OF MATERNAL GREY SEAL DIET ON REPRODUCTIVE ENERGETICS: A STABLE ISOTOPE INVESTIGATION
Annaleigh Laine

2 – A COMPARISON OF GRAY FOX (*UROCYON CINEREOARGENTEUS*) SEASONAL FOOD HABITS BETWEEN URBAN AND RURAL LANDSCAPES
Samantha L. Lamb

3 – PATTERNS OF POPULATION STRUCTURE AND GENE FLOW IN A FRAGMENTED ENVIRONMENT: HOW ROAD INFRASTRUCTURE IMPACTS BOBCAT (*LYNX RUFUS*) AND OCELOT (*LEOPARDUS PARDALIS*) DISPERSAL
Jack Towson

4 – SPATIAL ECOLOGY IN A FRAGMENTED LANDSCAPE: HOW ROADS IMPACT OCELOT (*LEOPARDUS PARDALIS)* AND BOBCAT (*LYNX RUFUS)* MOVEMENT AND CONNECTIVITY
Sean Kiernan

5 – BATS AND CARNIVORES IN THE NEOTROPICS: A COMPARATIVE REVIEW OF THEIR ACTIVITY PATTERNS
Kaitlyn Patterson

6 – SESAMOID ELEMENTS OF BAT WINGS: PHYLOGENY OR MOBILITY
Katelyn M. Albrecht

7 – THE USE OF BRIDGES AS DAY ROOSTS BY BATS (*ORDER CHIROPTERA*) IN EAST TEXAS
Jayme E. Czap

8 – TRENDS IN SMALL MAMMAL POPULATIONS AFTER SEVEN YEARS OF MARK-RECAPTURE RESEARCH IN THE GYPSUM HILLS OF WESTERN OKLAHOMA
Claire Wiley

Competing for the Vernon Bailey Undergraduate Award (Posters 9-15):

9 – EFFECT OF SWIM-WITH-DOLPHIN TOURISM ON COMMON DOLPHIN (*DELPHIUS DELPHIS*) SWIMMING SPEED
Soleil Delorge

10 – DETECTION OF PARASITE AND MICROPLASTIC PRESENCE IN RODENT FECAL PELLETS
Lillian R. Gunelson

11 – THE FREQUENCY OF MICROPLASTICS IN THE BATS OF OKLAHOMA
Honey E. Peters

12 – POPULATION FLUCTUATIONS IN RODENTS FROM CALLAHAN COUNTY, TEXAS, 2019-2024
Caleb Dale

13 – THE DIVERSITY OF MEDIUM TO LARGE MAMMALS WITHIN THE CROSSTIMBERS OF CENTRAL CALLAHAN COUNTY, TEXAS
Sunshyne Gwinn

14 – RELATIVE ABUNDANCE OF THE MAMMALS OF ABILENE STATE PARK, TAYLOR COUNTY TEXAS IN 2024
Taylor A. Hickman

15 – MAMMALIAN ASSEMBLAGE ECOLOGY USING CAMERA TRAPPING AT ABILENE STATE PARK, TAYLOR COUNTY TEXAS 2019-2024
Lyndsey K. Klein

Competing for the Clyde Jones Undergraduate Award (Posters 16-18):

16 – THE DIET OF PALLID BATS
Teanna Doleman

17 – WHAT SCORPIONS ARE ON THE MENU FOR PALLID BATS?
Ivette Sarabia

18 – USE OF DDRAD SEQUENCING TO DIAGNOSE CRYPTIC SPECIES WITH LOW INTERSPECIFIC MITOCHONDRIAL DIVERGENCE
Halle Summers

Competing for the Clyde Jones Graduate Award (Posters 19-23):

19 – UNRAVELING THE MECHANISMS OF MORPHOLOGICAL CHANGES IN CAPTIVE RED WOLVES (*CANIS RUFUS*)
Alyssa Arguijo

20 – TEMPORAL NICHE CONSERVATISM: BODY MASS AND DIEL ACTIVITY PATTERNS OF NEOTROPICAL RODENTS
Alexandra Lofland

21 – CRYPTIC SPECIES-LEVEL TAXA IN THE *SYLVILAGUS BACHMANI* SPECIES COMPLEX
Cindy A. Lopez

22 – CHARACTERIZATION OF VIRAL ZOONOSES IN A COMMUNITY OF NATIVE MAMMALS
Emily A. Schmalzried

23 – PHYLOGENETIC RELATIONSHIPS AMONG TAXA IN THE *THOMOMYS MAZAMA* (RODENTIA: GEOMYIDAE) SPECIES COMPLEX SUGGEST THE PRESENCE OF CRYPTIC TAXA
Jessica K. St. Michael

Poster Presentation Abstracts

Posters 1-8 are to be considered for the Vernon Bailey Graduate Award.

Poster 1

THE IMPACT OF MATERNAL GREY SEAL DIET ON REPRODUCTIVE ENERGETICS: A STABLE ISOTOPE INVESTIGATION Annaleigh Laine[1], Nell den Heyer[2], Michelle Rivard[3], Damian Lidgard[2], Priyanka Varkey[2], Molly Grossman[1], Greg Breed[4], Michelle Shero[5], Seth Newsome[6], and Jennifer Burns[1] - [1]Department of Biological Sciences, Texas Tech University; [2]Bedford Institute of Oceanography; [3]Sealife Response, Rehab, and Research; [4]Institute of Arctic Biology, University of Alaska Fairbanks; [5]Woods Hole Oceanographic Institute; [6]Center for Stable Isotopes, University of New Mexico (annaleigh.laine@ttu.edu)

In capital breeders like the grey seal (*Halichoerus grypus*), foraging success pre-parturition determines reserves available to nursing pups and, by extension, mom and pup fitness. To assess the influence of maternal diet on maternal condition and pup provisioning, we handled 31 grey seal mom-pup pairs from 2022-2024, measured their mass (kg) and body composition, and collected tissues to estimate diet with bulk carbon and nitrogen stable isotope analysis ($d^{13}C$, $d^{15}N$). There were no significant differences in adult female masses at the start or end of lactation among study years (mean±SE; start of lactation: 195.7±4.1kg, p=0.397; end of lactation: 154.8±3.9kg, p=0.525). Pups' birth masses and their percent of maternal mass were also similar across year (mean±SE; 22.3±0.5kg, 11.5±0.3%), but nursing pup growth rates (kg/day) were lower in 2024 than in 2022 and 2023 (mean±SE; 1.5±0.1, 1.8±0.1, 1.7±0.1kg/day, p=0.215) and, therefore, pups were weaned 7% lighter in 2024. We hypothesize that cooler Scotian Shelf bottom water temperatures in late 2023 caused a shift in female diet during the last trimester of pregnancy and reduced the amount of energy females could provide to their pups. Maternal diet will be determined from $d^{13}C$ and $d^{15}N$ values of whisker samples collected at the start of lactation, and isotopic values for 6 preferred prey species. We will use a combination of isospace metrics, such as convex hull area, and Bayesian mixing models in SIBER and MixSIAR to quantify dietary variation and composition. This will enable us to distinguish whether females in 2024 consumed more low-fat (e.g., white hake (*Urophycis tenuis*) than high-fat (e.g., sandlance (*Ammodytes dubius*)) prey compared with earlier years, or if trophic niche remained consistent and biomass consumption decreased. Individual and across-year variability in pup provisioning likely has implications for postweaning survival.

Poster 2

A COMPARISON OF GRAY FOX (*UROCYON CINEREOARGENTEUS*) SEASONAL FOOD HABITS BETWEEN URBAN AND RURAL LANDSCAPES Samantha L. Lamb and Leila Siciliano-Martina - Department of Biology, Texas State University (sll101@txstate.edu)

The rate of urbanization has increased substantially over the past century, causing novel environmental conditions and changing the way animals interact with their environment. Urbanization can lead to differences in the diets and seasonal resources available to wildlife, and has been associated with changes in mesocarnivore diets due to supplemented food items and seasonal food resources becoming strained. Gray foxes (*Urocyon cinereoargenteus*) have a highly opportunistic diet that varies geographically and seasonally. They have a wide geographic range and can be found in environments ranging from rural to urban landscapes. These ecological characteristics make them an ideal study species to assess how anthropogenically changed areas can impact mesocarnivore ecology, however; the effects of urbanization have not been fully explored in the species. To evaluate how anthropogenic land use affects gray fox diets, we will assess differences between urban and rural locations and whether their diets follow patterns of seasonal change. We will achieve this by integrating gray fox food habits from urban and rural areas, sourced from the CarniDiet.v1.0 database, with newly collected diet data from our local area (San Marcos, Texas). Food items will be identified using manual scat analysis to standardize with the methods

used in previous studies, and this will also serve to update the database with a new location and record. Given the difference in the availability of dietary resources, we expect urban and rural diets to differ, and that urban areas will disrupt seasonal diets. This study will continue to augment our understanding of how anthropogenic land use impacts mesocarnivore ecology and how natural resource use might be influenced by humans.

Poster 3

PATTERNS OF POPULATION STRUCTURE AND GENE FLOW IN A FRAGMENTED ENVIRONMENT: HOW ROAD INFRASTRUCTURE IMPACTS BOBCAT (*LYNX RUFUS*) AND OCELOT (*LEOPARDUS PARDALIS*) DISPERSAL Jack Towson[1], John Young[2], Trevor Black[1], Emma Brookover[1], Elizabeth Grunwald[1], Jan Janecka[3], Thomas Langschied[1], Sean Kiernan[1], Daniel Scognamillo[1], William Stephens[1], Hunter Vasquez[1], Thomas Yamashita[1], and Michael Tewes[1] - [1]Caesar Kleberg Wildlife Research Institute, Department of Rangeland and Wildlife Sciences, Texas A&M University – Kingsville; [2]Texas Department of Transportation; [3]Duquesne University, School of Science and Engineering (jack.towson@students.tamuk.edu)

Roads, as critical infrastructures of modern society, pose significant barriers to wildlife movement, impeding gene flow and impacting local genetic population structure. Genetic consequences of urbanization include reduced effective population size, decreased adaptive potential, and genetic stochasticity. Habitat fragmentation, coupled with varying levels of stochasticity, threatens the long-term genetic viability of local species populations. We will investigate how urbanization, specifically the presence of roads, affects the population genetics of bobcats (*Lynx rufus*) and endangered ocelots (*Leopardus pardalis*) living in a heavily fragmented environment. We will examine neutral genetic diversity and connectivity as well as kinship diversity among bobcats and ocelots in southern Texas using a combinatorial genetic approach including microsatellite, mitochondrial, and genomic markers. We predict that roads will diminish bobcat and ocelot dispersal patterns and thus generate contemporary restrictions of gene flow, limiting heterogeneity and genomic diversity within and between distinct populations. Attenuated population structure and connectivity will persist, and an elevated magnitude of inbreeding will be observed in fragmented populations, ultimately resulting in notable genetic erosion and further population decline. The expected minimal movement through the fragmented landscape and the associated absence of gene flow imply that roads hinder felid spatial patterns. Thus, continued road development will exacerbate this problem further and threaten the long-term persistence and recovery of the existing gene pool for both felid species. Our approach will provide insight for regulating the interconnectivity between local biodiversity and road infrastructure, and effective conservation management strategies will be applied to small, fragmented populations facing similar anthropogenic pressures.

Poster 4

SPATIAL ECOLOGY IN A FRAGMENTED LANDSCAPE: HOW ROADS IMPACT OCELOT (*LEOPARDUS PARDALIS)* AND BOBCAT (*LYNX RUFUS)* MOVEMENT AND CONNECTIVITY Sean Kiernan[1], John Young[2], Trevor Black[1], Emma Brookover[1], Elizabeth Grunwald[1], Tom Langschied[1], Daniel Scognamillo[1], William Stephens[1], Jack Towson[1], Hunter Vasquez[1], Tom Yamashita[1], and Michael Tewes[1] - [1]Caesar Kleberg Wildlife Research Institute, Department of Rangeland and Wildlife Sciences, Texas A&M University of Kingsville; [2]Texas Department of Transportation (seankiernon3011@gmail.com)

The ocelot (*Leopardus pardalis)* has become a conservation priority in southern Texas due to significant habitat loss and population decline during the 20th century. As a key component of the Tamaulipan thornscrub ecosystem, ocelots help control local small mammal and bird populations. Only two known small populations of ocelots remain in the U.S., and these populations face primary threats from habitat loss and genetic inbreeding within fragmented populations. Currently, there is no evidence of connectivity between these populations, with roads serving as the leading source of mortality. Ocelot recovery will

depend on improving habitat connectivity and establishing safe passages to facilitate movement between thornscrub habitats. Bobcats (*Lynx rufus)*, which share similar life-history traits to ocelots, offer insights into the effects of road crossings and inform potential mitigation efforts. This study uses long-term GPS telemetry data for both bobcats and ocelots to analyze fine-scale movement patterns, with a focus on how roads influence movement decisions. I will apply resource selection functions under a step-selection function framework to identify movement patterns across a fragmented landscape. Additionally, I will identify road crossing sites and integrate roadkill data, landscape features, and highway variables to investigate factors influencing crossing behavior and mortality risk. Dynamic Brownian Bridge Movement Models (dBBMM) will be used to assess animal movement and predict crossing probabilities while accounting for spatial and temporal variability. This study will contribute to conservation strategies aimed at enhancing landscape connectivity, reducing mortality risks, and informing road management policies to support ocelot recovery and long-term population sustainability.

Poster 5

BATS AND CARNIVORES IN THE NEOTROPICS: A COMPARATIVE REVIEW OF THEIR ACTIVITY PATTERNS Kaitlyn Patterson[1], Tatiana Velásquez-Roa[1], Ivan Castro-Arellano[1], and Michael Willig[2] - [1]Department of Biology, Texas State University; [2]University of Connecticut (kap153@txstate.edu)

Diel temporal activity patterns are a species characteristic describing their timing and intensity of motion throughout a daily cycle. The study of activity patterns in Neotropical mammals has evolved over time, with a steady increase in research since the 1960's. The purpose of this study was to compare the level of research for two major mammalian orders found in the Neotropics: Carnivora and Chiroptera, which represent contrasting ecological niches. Despite bats making up roughly 50% of the region's mammalian species, the number of studies on bat activity patterns in the region was found to be less than two-thirds of the number found for carnivores. The methodology for data capture of the two orders might play a large role in the disparity between the number of studies. Mist-nets have remained the main method for data capture of bats since the introduction of mist-netting in the 1950's. While acoustic detectors have been utilized in more recent years, both methods for bat data capture come with multiple limitations and biases. However, advancements in data capture methods for carnivores, such as camera traps, have allowed the collection of data on the activity of these species to become more accessible and readily available. The results from this study help identify gaps and areas for advancement in the research and methodology into the study of diel activity patterns.

Poster 6

SESAMOID ELEMENTS OF BAT WINGS: PHYLOGENY OR MOBILITY Katelyn M. Albrecht[1]; Robert D. Bradley[1,2]; Cody W. Thompson[3]; and Richard D. Stevens[3,4] - [1]Department of Biological Sciences, Texas Tech University; [2]Natural Science Research Laboratory, Museum of Texas Tech University; [3]University of Michigan, [4]Deparmtent of Natural Resources Management, Texas Tech University (katelyn.albrecht@ttu.edu)

Sesamoid elements are any discrete morphological structure associated with tendons and ligaments. Their size, shape, and presence vary considerably among a variety of vertebrate taxa and differ across both ecological specializations and evolutionary descents. Given the close association between sesamoids and locomotor ability, sesamoid composition within bats (Order Chiroptera) should, therefore, vary among species that employ different rates of quadrupedal locomotion. High-resolution CT (computed tomography) scans of adult individuals (n=39) representing 39 species across 8 families (Molossidae, Mormoopidae, Mystacinidae, Noctilionidae, Phyllostomidae, Pteropodidae, Thyropteridae, Vespterilionidae) were visualized in Slicer and morphologically scored for the presence or absence of sesamoid elements in forelimbs. Species were selected based on affinity for terrestrial movement and mobility within roosts (e.g. crawling) and included broad taxonomic coverage. 17 sesamoids were identified (i.e. appeared in at least one of the 39 specimens examined) and morphologically scored.

Specific elements varied across and within families, with some families (e.g. Molossidae and Phyllostomidae) containing sesamoids unique relative to other families. Across Chiroptera, phyllostomid bats contained the highest number of sesamoids overall, with *Desmodus rotundus* containing the most of any species. Overall, the presence or absence of forelimb sesamoid elements appear to be more consistent with phylogenetic relationships, with character state tracing following trends within specific families, as opposed to specialization for quadrupedal locomotion. However, the highly specialized vampire bats (Family Phyllostomidae) did follow patterns of increased sesamoid occurrence similar to that of specialized traits associated with sanguivory. The association between sesamoid presence or absence and mobility may be further explored by further expanded taxonomic coverage and incorporation of elements associated with the hindlimbs.

Poster 7

THE USE OF BRIDGES AS DAY ROOSTS BY BATS (*ORDER CHIROPTERA*) IN EAST TEXAS

Jayme E. Czap[1], Makani L. Fisher[1], Lauren Young[2] and Richard D. Stevens[1,3] - [1]Department of Natural Resources Management, Texas Tech University; [2]Texas Department of Transportation; [3]Natural Science Research Laboratory, Museum of Texas Tech University (jczap@ttu.edu)

Understanding resource selection is crucial when making management decisions. For bats, one of the most important forms of resource selection is deciding where to roost. Bats have been increasingly reported using highway infrastructure, such as bridges and culverts, indicating that road management (e.g. their structure and location) may impact roosting decisions. However, little is known about how bridge and roadway characteristics affect bat distribution. For this study we aimed to determine if certain bridge characteristics such as bridge and roadway types promoted bat day-roosting by bats. For one winter and one summer from 2023 to 2024, we surveyed 320 randomly selected bridges across the piney woods and post-oak savannah ecoregions of east Texas. Bridge characteristics were recorded to describe bridge type, dimensions and attributes that may be utilized as roosts. Roadway information such as road type and the number of lanes were also recorded in addition to the habitat type surrounding the bridge. We used generalized least squares to determine if the number of bats was related to the bridge characteristics we measured. We recorded 5 species of bats utilizing bridges in east Texas: *Tadarida brasiliensis, Eptesicus fuscus, Myotis austroriparius, Perimyotis subflavus*, and *Corynorhinus rafinesquii*. Average bridge height was significantly related to bats roosting under bridges (average heights ranged from 1.6-5.1 meters in occupied bridges). We also found that bats were found most often in prestressed concrete box girder bridges. Although bats were found in other bridge types, they were not significantly related to any other bridge types, emphasizing the importance of box girder bridges for bat conservation. With these results, we hope to aid in future conservation management decisions by providing recommendations for bridge construction that promote use of highway infrastructure as roosts by bats.

Poster 8

TRENDS IN SMALL MAMMAL POPULATIONS AFTER SEVEN YEARS OF MARK-RECAPTURE RESEARCH IN THE GYPSUM HILLS OF WESTERN OKLAHOMA

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The purpose of this project is to monitor changes in small mammal populations and communities over multiple generations to determine what factors affect how the populations and communities change over time. In March of 2018, a permanent trapping web was established at the University of Central Oklahoma's Selman Living Lab (SLL). Two additional permanent webs were established in June of 2018. The SLL is located in the gypsum hills of Woodward County in western Oklahoma. Surveys of the 3 webs are conducted for 3 nights, 4 times a year, and include collection of mammalian and vegetation data. Climate data also is obtained for each day of the trip; monthly and yearly climate data also will be assessed. To date, 25 mammalian and 24 vegetation surveys have been conducted. Based on preliminary

data, seasonal and habitat trends have been detected in mammalian populations, with the lowest capture numbers occurring in summer and reaching peak numbers in spring. The trapping web located on mixed, slightly disturbed habitat has the most diverse community and the most number of captures/recaptures. In the future, the animal, climate, and vegetation data will be used to build mathematical models that can be used to determine which factors have the largest impact on population and community persistence.

Posters 9-15 are to be considered for the Vernon Bailey Undergraduate Award.

Poster 9

EFFECT OF SWIM-WITH-DOLPHIN TOURISM ON COMMON DOLPHIN (*DELPHIUS DELPHIS*) SWIMMING SPEED Soleil Delorge[1], Fadia Al Abbar[2,3], Lorenzo Fiori[1], and Dara N. Orbach[1] - [1]Department of Life Sciences, Texas A&M University-Corpus Christi; [2]Department of Wildlife, Ecology and Conservation & Department of Behavioral Ecology, Wageningen University; [3]Azores Delphis Project (sdelorge@islander.tamucc.edu)

Common dolphins (*Delphinus delphis*) are frequently approached by tourists for in-water interactions off the Azores Islands, Portugal. In other regions, boat approaches can trigger dolphin avoidance behaviors such as increased swimming speed, causing long-term negative effects from elevated energy expenditure. We investigated how different boat maneuvers during Swim-With-Dolphin (SWD) activities influenced the swimming speed of common dolphins. An unoccupied aerial system (UAS) video-recorded dolphins swimming between August-October 2022 off São Miguel, Azores. Focal group follows of the dolphins were recorded before, during, and after boats used parallel and J approaches. Each parallel approach of a dolphin group was followed by up to three consecutive J approaches to simulate typical SWD operations. Video segments in which dolphins swam in a straight line at a consistent speed were used to calculate and compare swimming speeds across the before, during, and after approach contexts. The effects of boat type and number were assessed. The mean swimming speed during the first J approaches was significantly higher than before the approaches. This suggests that J approaches elicit a stronger avoidance response from the dolphins. No significant differences were observed between the before and parallel approaches. Similarly, no differences were found between the parallel approaches and the first J approaches, indicating that parallel approaches may cause less disturbance overall. Further analysis will assess whether repeated boat approaches increase swimming speed, indicating heightened avoidance. This research aims to establish baseline data to inform guidelines for minimizing SWD disturbances in dolphins.

Poster 10

DETECTION OF PARASITE AND MICROPLASTIC PRESENCE IN RODENT FECAL PELLETS Lillian R. Gunelson, Wayne D. Lord, Michelle L. Haynie, Joshua D. Walker, and Liliana Ballon - Department of Biology, University of Central Oklahoma (lgunelson@uco.edu)

The purpose of this project is to identify parasite species and the presence or absence of microplastics within small mammal communities in western Oklahoma. In March of 2018, a permanent trapping web was established at the University of Central Oklahoma's Selman Living Lab (SLL). Two additional permanent webs were established in June of 2018. The SLL is located in the gypsum hills of Woodward County in western Oklahoma. Surveys of the 3 webs are conducted for 3 nights, 4 times a year, and include collection of mammalian and vegetation data. Climate data also is obtained for each day of the trip; monthly and yearly climate data also will be assessed. To date, 19 mammalian surveys have been conducted. Fecal pellet collection began in January 2024. From fecal samples collected, three genera of internal parasites have been identified in the Selman rodent population. *Monocystis* has been observed in three species of rodents, *Syphacia* has been observed in one, and *Trichuris* has been observed in two species. Of the 70 samples that have been processed, microplastics have been detected in 42. Fecal samples will continue to be collected and processed to increase the dataset, and analysis will be used to determine the influence of microplastic presence on parasite populations.

Poster 11

THE FREQUENCY OF MICROPLASTICS IN THE BATS OF OKLAHOMA Honey E. Peters, Solomon K. Meraz, and Dana N. Lee - Department of Agriculture, Biology, and Health Sciences, Cameron University (honey.peters@cameron.edu)

Our research sought to measure the prevalence of microplastics within the bat populations of Oklahoma and see if there was a significant difference in plastic accumulation between bat species. The bats used were acquired from different parts of Oklahoma from 2023-2024. These bats were submitted to the Oklahoma State Department of Health for rabies testing and then deposited in the University of Central Oklahoma Natural History Museum, where we were able to dissect them and collect their feces. The feces of 40 bats were examined under a microscope, in search of any form of microplastics. Reference images of microplastics were used to identify possible plastics. Our results showed that 25 (62%) of the samples examined had some form of particulate plastic and when the samples were categorized by species, we found that there was a significantly higher percentage of evening bats (*Nycticeius humeralis*) contaminated with microplastics then other species of bats examined (eastern red bat, *Lasiurus borealis*, and big brown bats, *Eptesicus fuscus*). This poses a questionable concern on where these bats are consuming these microplastics and how these microplastics have impacted their health. While extensive research has been conducted on the transport of particulate plastics through fresh water, all three bat species included in our research are insectivores, so it could be possible that some microplastics were transferred from invertebrates to the bats. Microplastics have also been detected within the atmosphere, and this could have led to the bats being contaminated while flying. We conclude that further research needs to be conducted on the modes of microplastic transfer and how exposure to these microplastics could potentially affect not just bat health, but human health as well.

Poster 12

POPULATION FLUCTUATIONS IN RODENTS FROM CALLAHAN COUNTY, TEXAS, 2019-2024 Caleb Dale, Sunshyne Gwinn, and Joel Brant - Biology Department, McMurry University, Abilene, Texas (dale.caleb@mcm.edu)

Documenting population fluctuations and comparing to local climate data gives us a better understanding of environmental changes on local communities. From 2019-2024 we analyzed the fluctuations in rodent populations at Firebase Libby; a 160-acre property in Callahan County, Texas owned by McMurry University. Firebase Libby contains approximately 60-acres of grassland and 100-acres of oak forest. Using a capture and release method and wagon-wheel arrays of Sherman live traps, we tagged individuals with RFID chips. In the wooded biome we caught seven species of small mammal with *Peromyscus attwateri* being the most abundant. In the grassland we caught eight species with *Baiomys taylori* and *Reithrodontomys montanus* being the most common. During the five years of trapping we noticed that *Baiomys taylori* and S*igmodon hispidus* were abundant in the grasslands in 2021 and 2022, began to decline in early 2023, and have nearly disappeared through 2024. Species once in the margins such as *Chaetodipus hispidus* have moved in to potentially fill the niches vacated by these species. Environmental factors such as: lack of rainfall in 2022 causing a sharp decline in vegetation, and predation by the high number of predators may be the primary causes of this decline.

Poster 13

THE DIVERSITY OF MEDIUM TO LARGE MAMMALS WITHIN THE CROSSTIMBERS OF CENTRAL CALLAHAN COUNTY, TEXAS Sunshyne Gwinn, Melinda Seibert, and Joel Brant - Department of Biology, McMurry University, Abilene, Texas (gwinn.sunshyne@mcm.edu)

This study seeks to document the medium to large mammal diversity in central Callahan County, Texas. Eight Moultrie A900 camera traps were deployed on Firebase Libby (a 160-acre property owned by McMurry University) from 2020-2024. The camera traps were set in two habitat types: Crosstimbers Post Oak Woodland (100 acres) and the Crosstimbers Savannah Grassland (60 acres). Once the camera traps

were established batteries and SD cards were changed monthly. The footage was analyzed to identify species with the criteria that only one individual for each species identified each day would contribute to our analysis. Diversity indices (Margalet's richness, Simpson's evenness, and Shannon's diversity) were calculated for the overall property and each habitat type. White-tailed deer (*Odocoileus virginianus*) and feral pigs (*Sus scrofa*) were by far the most abundant species on the property, regardless of habitat type. Coyotes (*Canis latrans*) and raccoons (*Procyon lotor*) were the most abundant carnivores. Cottontails (*Sylvilagus sp.*), fox squirrels (*Sciurus niger*), and opossums (*Didelphis virginiana*) were most commonly found in the wooded area. The wooded area was significantly more diverse than the grassy area.

Poster 14

RELATIVE ABUNDANCE OF THE MAMMALS OF ABILENE STATE PARK, TAYLOR COUNTY TEXAS IN 2024 Taylor A. Hickman[1], Lydia Szabo[2], Lyndsey Klein[2], and Thomas E. Lee, Jr.[2] - [1]Department of Agriculture and Environmental Sciences, Abilene Christian University; [2]Department of Biology, Abilene Christian University (tah20a@acu.edu)

The purpose of this study is long-term monitoring of wildlife with cameras placed in the same areas at the same time of year to document the mammalian biodiversity of Abilene State Park, Texas. This study was done in conjunction with SNAPSHOT USA and our data were uploaded into Wildlife Insights. A total of fourteen species of mammals were recorded in 2024. Each camera was placed 50 cm off the ground and at least 200 m apart. The number of camera trap days/nights was 756. AI was used to identify species by Wildlife Insights. This year there was a noticeable improvement from past years with AI's ability to identify species. We converted our capture data to a Relative Abundance Index by the formula: number of species-specific captures/camera trap days. In addition to documenting mammal species present in Abilene State Park, some interesting natural history findings were recorded. The species photographed in 2024 in order of relative abundance include: *Odocoileus virginianus, Sus scrofa, Procyon lotor, Canis latrans, Sylvilagus sp., Erethizon dorsatum, Didelphis virginiana, Dasypus novemcinctus, Sciurus niger, Lynx rufus, Neotoma sp., Felis catus, Canis lupus familiaris*, and *Mephitis mephitis*. Three camera locations had nine or more species recorded. Conservation issues with regard to invasive species are discussed.

Poster 15

MAMMALIAN ASSEMBLAGE ECOLOGY USING CAMERA TRAPPING AT ABILENE STATE PARK, TAYLOR COUNTY TEXAS 2019-2024 Lyndsey K. Klein[1], Lydia J. Szabo[1], Taylor A. Hickman[2], and Thomas E. Lee, Jr.[1] - [1]Department of Biology, Abilene Christian University; [2]Department of Agriculture and Environmental Sciences, Abilene Christian University (ljs22f@acu.edu)

For the past six years Abilene Christian University has partnered with SNAPSHOT USA and Wildlife Insights on a nationwide study. The question we are trying to answer through long-term monitoring is: are there changes in relative abundance and mammalian biodiversity at Abilene State Park? A total of 18 species have been photographed over the six years of the study. These species can be place in four categories base on their relative abundance. Animals photographed all six years at high relative abundance are: *Odocoileus virginianus, Sus scrofa, Procyon lotor, Canis latrans*, and *Sciurus niger*. Animals photographed all six years at low relative abundance are: *Dasypus novemcinctus, Lynx rufus, Mephitis mephitis* and *Sylvilagus* sp. Animals photographed more than one year, but not all six, at low relative abundance are: *Didelphis virginiana, Urocyon cinereoargenteus, Erethizon dorsatum, Felis catus, Canis lupus familiaris* and *Neotoma* sp. Animals photographed only in one year at low relative abundance are: *Castor canadensis, Peromyscus* sp. and *Lepus californicus*. Interestingly, we have never photographed: *Bassariscus astutus, Taxidea taxus, Conepatus leuconotus* and *Spilogale interrupta* even though there are specimens collected within 20 km of Abilene State Park.

Posters 16-18 are to be considered for the Clyde Jones Undergraduate Award.

Poster 16

THE DIET OF PALLID BATS Teanna Doleman[1], Ivette Sarabia[1], Halle Summers[2], Loren Ammerman[2], and Dana Lee[1] - [1]Department of Agriculture, Biology, and Health Sciences, Cameron University; [2]Department of Biology, Angelo State University (teanna.doleman@cameron.edu)

The pallid bat, *Antrozous pallidus*, occurs in the western United States, from Canada to Mexico. Our research goal was to better understand the diet of this species. Previous studies identified this species mainly consumes species in Coleoptera and Orthoptera. However, a shortcoming of these studies is that identifications are rarely made to species level because only culled body parts under a roost or insect remains in guano are examined. These types of studies can also be biased towards hard-bodied prey. To address these issues, we performed a molecular analysis of prey DNA found in bat guano. We collected fecal pellets from 28 bats and 24 pooled samples from pallid bat roosts, in Texas, New Mexico, Utah, California, and Arizona. We sequenced a CO1 gene fragment using arthropod specific primers. DNA sequences were compared to the Barcode of Life Data System and GENBANK to identify prey items. We obtained 1575 Molecular Operational Taxonomic Units (MOTUs) from 22 orders which included 101 different prey species. The species most often consumed were *Diplotaxis brevicollis*, *Gryllus veletis*, and *Shelfordella lateralis*. Most individual bat samples had ≤ 5 MOTUs identified to at least order level but 2 bats had greater than 21 MOTUs identified. We agree with previous research that pallid bats consume most of their food from the orders Orthoptera and Coleoptera, because 16% and 26.5% of our identified MOTUs belonged to these orders, respectively but we also found 19.5% of MOTUs belonging to Hemiptera. Prey items from additional orders were identified suggesting pallid bats are opportunistic and take a wide variety of prey including centipedes (10.3%), praying mantis (4.7%) and cockroaches (6.3%). We were able to get a better representation of the pallid bat's diet by using DNA methods and added 96 new prey items to their known diet.

Poster 17

WHAT SCORPIONS ARE ON THE MENU FOR PALLID BATS? Ivette Sarabia[1], Teanna Doleman[1], Halle Summers[2], Loren Ammerman[2], and Dana Lee[1] - [1]Department of Agriculture, Biology, and Health Sciences, Cameron University; [2]Department of Biology, Angelo State University (ivette.sarabia@cameron.edu)

Previous studies state pallid bats, *Antrozous pallidus*, eat scorpions and are immune to scorpion venom; however which species are consumed is not well documented. There are more than 50 species of scorpions found in the southwestern U.S. Our goal was to determine what species of scorpions pallid bats eat. Fecal samples from 28 individual bats and 24 pallid bat roosts were collected from Texas, Arizona, New Mexico, California, and Utah. We sequenced a CO1 fragment from the samples using arthropods specific primers. Resulting DNA sequences were compared to the Barcode of Life Data System (BOLD) and Genbank with 5 potential matches to order Scorpiones. Two sequences matched Scorpiones with ≥ 93% and 3 sequences matched at 78-81%. Since BOLD and Genbank have minimal representation of southwestern scorpions, we sequenced DNA from 7 scorpions that were absent from these databases. Phylogenetic analysis of scorpions from the U.S. in Genbank, the additional 7 we sequenced, and our 5 potential scorpions found in pallid bat fecal material indicated that 4 sequences from bat fecal material are scorpions but one is likely not a scorpion and instead a close relative. Sequence AP63 was 100% identical to *Centruroides sculpturatus*. Sequence AP82 was only 93% identical to *C. vittatus* thus we think sequence AP82 is from a species of *Centruroides* not included in our analysis. Sequence AP10 and AP28 cluster together but are only 72% identical to each other. Their placement is within other scorpion clusters but the specific taxon is unknown. Sequence AP41 had a 75% match indicating it is likely not from a taxon within order Scorpiones. We conclude that pallid bats do incorporate scorpions into their diet, however the databases are greatly lacking in scorpion representation so it is difficult to identify what specific scorpion species are consumed by pallid bats.

Poster 18

USE OF DDRAD SEQUENCING TO DIAGNOSE CRYPTIC SPECIES WITH LOW INTERSPECIFIC MITOCHONDRIAL DIVERGENCE Halle Summers and Loren Ammerman - Department of Biology, Angelo State University (hsummers@angelo.edu)

Sister species that have diverged from each other recently can appear similar morphologically but typically have genetic features that can distinguish them. In the case of two sympatric species of bat (*Myotis californicus* and *M. ciliolabrum*) that are cryptic, they can be distinguished by features of their echolocation call, but no genetic marker has been discovered that can easily distinguish them. A simple diagnostic genetic marker, like a DNA sequence barcode, would assist researchers to characterize the presence or absence of these species from wing punches or fecal pellets from a roost without the need to collect the bat. Despite research on their mitochondrial genome from specimens across their range, a barcoding approach does not work for this complex. We tested the hypothesis that these two species are genetically distinct using a genomic approach. We used reduced representation genome sequencing (ddRAD-seq) to identify and analyze single nucleotide polymorphisms (SNPs) from individuals of *M. californicus* (n=20) and *M. ciliolabrum* (n=22). We will determine if the SNP panel will be able to diagnose the two currently recognized cryptic species through cluster and network analyses. Our data will be explored as a possible molecular tool that could be used to screen DNA samples and identify these two species.

Posters 19-23 are to be considered for the Clyde Jones Graduate Award.

Poster 19

UNRAVELING THE MECHANISMS OF MORPHOLOGICAL CHANGES IN CAPTIVE RED WOLVES (*CANIS RUFUS*) Alyssa Arguijo[1] and Leila Siciliano-Martina[2] - [1]Department of Biology, Texas State University; [2]Department of Biology, Texas State University **(**Mzf19@txstate.edu)

Animal morphology is strongly influenced by environmental conditions, with traits shaped by both evolutionary mechanisms (e.g., natural selection, genetic drift) and the differential expression of traits in varying conditions (e.g., phenotypic plasticity). Captivity introduces animals to a novel environment, which can influence their morphological traits, leading to changes that may impact their functionality. However, the mechanisms that drive these changes are still relatively unknown. In this study, we investigated the variations in cranial morphology of captive, wild, and reintroduced critically endangered red wolves (*Canis rufus*) to explore the potential drivers of morphological differences. Given the difference between the captive and wild environment, we hypothesize that captive red wolves will be morphologically different in size and shape than wild red wolves. We also expect the reintroduced red wolves to be more similar in size and shape to the wild red wolves due to their similar environments, suggesting that these changes are driven more strongly by phenotypic plasticity than evolutionary mechanisms. We assessed the cranial size and shape of 29 red wolf specimens using 2D geometric morphometric techniques. Captive specimens exhibited significantly different skull shapes compared to their wild counterparts, characterized by a wider zygomatic breadth, a truncated toothrow, and a longer basilar occipital bone. Reintroduced individuals were more morphologically similar in cranial shape to captive individuals than to wild individuals. However, the difference between reintroduced and wild individuals was not significant. We did not detect a significant difference in cranial size among the groups. The morphological similarity between captive and reintroduced specimens may suggest that the changes we observe in captivity may be related to an evolutionary mechanism rather than phenotypic plasticity alone. Understanding the extent and mechanisms of these changes can give us an insight into how we can prevent them, ensuring that these critical functional traits are preserved.

Poster 20

TEMPORAL NICHE CONSERVATISM: BODY MASS AND DIEL ACTIVITY PATTERNS OF NEOTROPICAL RODENTS Alexandra Lofland and Ivan Castro-Arellano - Department of Biology, Texas State University (a.lofland@txstate.edu)

With increasing anthropogenic activity negatively impacting fauna worldwide, mammal activity patterns are of major conservation and research importance. Among the factors influencing activity, body mass plays a potentially critical role through its potential relationship with energy processes as predicted by the metabolic theory of ecology. This study is addressing the potential relationship between body mass and diel activity patterns in three closely related families of Neotropical rodents—Caviidae, Cuniculidae, and Dasyproctidae— which exhibit a wide range of body masses and diverse ecological environments. We aim to determine if populations of each species maintain similar activity patterns despite environmental variations, which is a phenomenon referred to as intraspecific diel temporal niche conservatism (intra-DTNC). Using a large repository of camera trap data, we are addressing activity patterns of focal species. Analyses being used include the statistical program R with Activity and Overlap packages, the circular statistics software Oriana, and the null model algorithm ROSARIO to determine activity patterns and their intraspecific overlap. In congruence with the metabolic theory, we expect larger species to exhibit longer and more generalized active times (lower activity directionality) in diel cycles to allow for foraging and to exhibit more consistent activity patterns across sites (high intra-DTNC). In contrast, we expect smaller species to exhibit shorter and more specialized active times (higher activity directionality) in diel cycles with shorter foraging times and to be less consistent across sites (low intra-DTNC). Our findings will advance understanding of temporal niche ecology by linking body mass to activity patterns on a macroecological scale.

Poster 21

CRYPTIC SPECIES-LEVEL TAXA IN THE *SYLVILAGUS BACHMANI* SPECIES COMPLEX Cindy A. Lopez and Luis A. Ruedas - Department of Biology and Museum of Vertebrate Biology, Portland State University (cinlopez@pdx.edu)

Public genetic databases have enabled biologists to undertake phylogenetic analyses at little to no cost. One consequence of the ability to carry out these analyses is that species previously cryptic based on morphological methods are being uncovered and identified using molecular techniques. This is leading to the suggestion that previous morphological approaches may no longer be considered best practice in taxonomy and systematics; instead, an integrative approach using multiple approaches, including morphological, molecular, and ecological, is more likely to arrive at answers to complex taxonomic questions. The focus is turning to taxa that have been hypothesized as constituting a species complex: reviewing and identifying any cryptic taxa within the species. In this study, I assess the taxonomy and systematics of the Brush Rabbit (*Sylvilagus bachmani*), a potential species complex currently constituted by 14 named subspecies. *Sylvilagus bachmani*, one of the smaller species of cottontail, is a non-vagile habitat specialist, with a distribution ranging from the Colombia River on the Oregon-Washington border to Baja California in Mexico. With such a large—but narrow East-West—geographic distribution, *S. bachmani* is a prime candidate for potentially being a cryptic species complex. Preliminary morphological and molecular data suggest that subspecies of *S. bachmani*, particularly those that are endemic to islands, have evolved in specialized ecological habitats and therefore bring into question whether *S. bachmani* is one, or many species.

Poster 22

CHARACTERIZATION OF VIRAL ZOONOSES IN A COMMUNITY OF NATIVE MAMMALS

Emily A. Schmalzried[1], Caleb D. Phillips[1,2], Roy N. Platt[3], and Robert D. Bradley[1,2] - [1]Department of Biological Sciences, Texas Tech University; [2]Natural Science Research Laboratory, Museum of Texas Tech University; [3]Texas Biomedical Research Institute (emily.schmalzried@ttu.edu)

More than 70% of infectious diseases identified today are of a zoonotic origin, and it is thought that 60% of all identified zoonoses are viral diseases. Many mammals act as reservoirs for zoonotic diseases, making them a point of interest in the study of viruses to further explore the diversity, variability, breadth, and evolution of viral zoonoses at a community level. Given the troubling rate at which zoonotic diseases are being identified, researchers are working to decipher the best route for identifying and characterizing viral zoonoses in the environment. The primary goal of my project is to create a novel diagnostic tool to identify viruses in the environment of native mammals, utilizing pool-based, RNA-depletion sequencing of multiple individuals simultaneously, by blocking the individual's RNA to explore and identify the remaining viral RNA. The first pool of individuals (n = 12) contains four species from the genus *Peromyscus*, with three individuals per species (*P. leucopus, P. sonoriensis, P. attwateri, and P.truei*). RNA extractions were done on lung and liver samples from each individual, and subsequent RNA qualification processes, such as gel electrophoresis, NanoDrop, and RIN score evaluation were done to determine the concentration and volume of each individual that should be added to the overall pool. The pool was sent off for sequencing to Genohub, from the Admera Health company, where the host DNA is depleted. Upon alignment of the sequence reads from the first pool, it tentatively appears that four different rodent RNA viruses were present: Hepatovirus KEF121Sigmas2012, Human endogenous retrovirus K113, Human Mastodensovirus C, and Abelson Murine Leukemia Virus. These four viruses are in low frequencies and further analysis will be needed to determine the validity of the depletion sequencing.

Poster 23

PHYLOGENETIC RELATIONSHIPS AMONG TAXA IN THE *THOMOMYS MAZAMA* (RODENTIA: GEOMYIDAE) SPECIES COMPLEX SUGGEST THE PRESENCE OF CRYPTIC TAXA

Jessica K. St. Michael and Luis A. Ruedas - Department of Biology and Museum of Vertebrate Biology, Portland State University (stmic@pdx.edu)

The population genetic structure and geographic distribution of the genus *Thomomys* (Rodentia: Geomyidae), lends itself to speciation events. Conserved morphology and high rates of molecular evolution may increase their chances of allopatric speciation, thereby contributing to the presence of morphologically cryptic taxa. In light of these patterns of evolution, we assessed genetic divergence and phylogenetic relationships among taxa in the *Thomomys mazama* complex to test the hypothesis that *T. mazama* is a single species. A Bayesian Poisson Tree Processes (bPTP) analysis using data from the mitochondrial Cytochrome *b* gene, suggested that five species were present within *T. mazama*. Geographic data analyzed in a geographic information system framework (ArcGIS) were used to test for ecological discontinuities and geographic barriers congruent with genetic breaks uncovered in the course of testing for genetic breaks. Ecological niche modeling using the Presence-only Prediction (MaxEnt) function in ArcGIS Pro was undertaken for the entire *T. mazama* clade. Preliminary results indicate high variability in habitat distribution and suitability congruent with genetic distance data. Taxonomic designations directly inform the conservation and management status of species under the U.S. Endangered Species Act, highlighting the need for taxonomic revision where suitable, including subsequent recognition of species. While formerly widespread, the distribution. of *T. mazama* has diminished substantially in area due to anthropogenic impacts. Although *T. mazama* currently is classified as a single species, the results of our preliminary analyses of genetic distance data and ecological niche modeling indicate the presence of multiple species in *T. mazama*.

Texas Society of Mammalogists
43rd Annual Members Business Meeting
15 February 2025

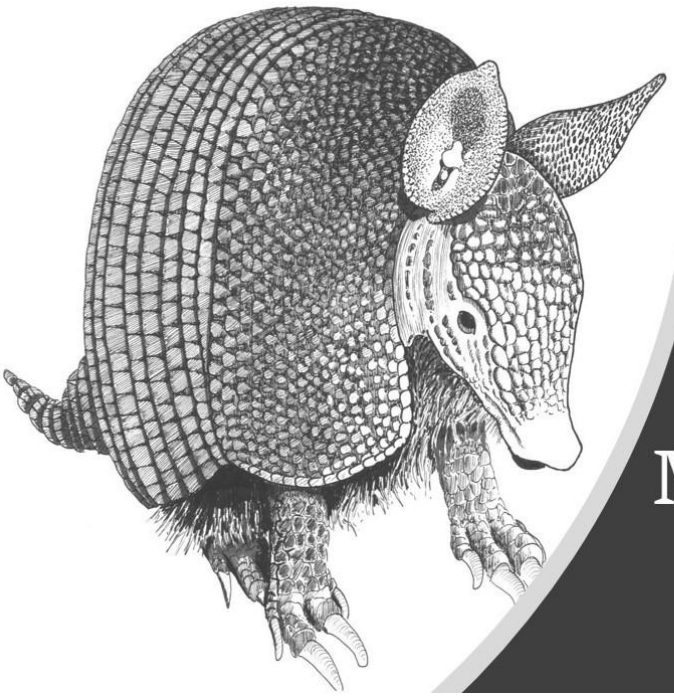
AGENDA

1. Call to Order
2. Approval of the minutes of the 2024 Member's Business Meeting
3. Officer Reports
    a. Secretary-Treasurer, Cathy Early
    b. Permanent Secretary, Joel Brant
    c. Editor, John Hanson
4. Committee Reports
    a. Report of Honorary Membership Committee, Phil Sudman
    b. Report of Financial Advisory Committee, Phil Sudman
    c. Report of the Student Honoraria Committee, Ivan Castro-Arellano
    d. Report of the Committee on Conservation, Michael Tewes
    e. Report of the *ad hoc* Informatics Committee, John Hanson
    f. Report of the *ad hoc* Committee on Human Diversity, Ivan Castro-Arellano
    g. Report of the *ad hoc* Conduct Committee, Dana Lee
    h. Report of the *ad hoc* Auction Committee, Krysta Demere
5. Officer Elections
    a. President-Elect
    b. Permanent Secretary
6. Old Business
7. New Business
    a. Selection of site for 2026 Annual Meeting
8. Closing Remarks of TSM President, Dara Orbach
9. Adjourn

Texas Society of Mammalogists
Treasurer's Report for 2024 Calendar Year
Submitted by Cathy Early, Secretary-Treasurer

Income and expenses of TSM for the 2023 calendar year are shown below. Our checking account was transferred from the Bank and Trust of San Angelo to Extraco Bank in Belton. Our investments are handled by Morgan Stanley. For most of the year (1 April – 31 December) the checking account balance was $882.84. TSM total assets at the end of 2024 were $120,476.49. The value of the investment fund increased $4,480.53.

Checking Account Balance as of 1 January 2024	$3,360.16
Investment Account (Morgan Stanley) balance 1 January 2024	$115,113.12
Total TSM assets as of 1 January 2024	**$118,473.28**
2024 Income	
2024 Annual Meeting income (registration, meals and lodging fees)	
Student Registration	$255.00
Late Registration	$0.00
Non-Student Registration	$1,530.00
Late fees	$0.00
Meals	$3,380.00
Lodging & linens	$1,975.00
2024 Membership dues	$1,120.00
2024 Patron Memberships	$769.00
Cash Repaid to Checking Account	$220.00
T-shirts (113 ordered)	$870.00
Auction Income	$4,554.71
Transfer from Morgan Stanley account	$7,700.00
Total income	**$22,373.71**
2024 Expenses	
2024 Annual Meeting Expenses to TTU Center	$15,256.00
Event Insurance	$172.00
Keynote Speaker	$1,316.39
Entertainment	$750.00
Bartender – stipend, hotel, travel	$300.00
Refreshments, Beverages, Kegs	$464.35
Security	$280.00
Office Supplies	$184.67
Printing Name Tags	$44.10
Printing Programs	$356.60
Student Awards	$3,700.00
T-shirts	$1,288.45
Stripes Fees	$48.94
Postage & Wire Transfer Fees	$63.53
Reimbursements	$126.00
Cash on Hand for the Meeting	$500.00
Money Returned to Morgan Stanley Investment Account	$0.00
Total Expenses	**$24,851.03**
Checking Account Balance 31 December 2024	$882.84
Investment Account (Morgan Stanley) Balance 31 December 2024	$119,593.65
Total TSM Assets as of 31 December 2024	**$120,476.49**



Texas Society of Mammalogists

Newsletter
2025
The 43rd Annual Meeting

2025 Guest Speaker

Dr. Bill Murphy is the James E. Womack University Professor of Genetics in the Department of Veterinary Integrative Biosciences at Texas A&M University. He also holds a joint appointment as a Professor in the Department of Biology. Dr. Murphy was born in Illinois and attended Illinois State University where he earned his B.S. degree in Biological Sciences. He received his Ph.D. in Biological Sciences in 1997 from The University of Tulsa, where he studied molecular phylogenetics and chromosome evolution of oviparous killifishes under Dr. Glen Collier. He then joined the Laboratory of Genomic Diversity, National Cancer Institute, NIH, as a postdoctoral fellow under the supervision of Dr. Stephen J. O'Brien where he studied mammalian comparative genomics. Murphy joined the faculty of Texas A&M University in 2004. The research questions Dr. Murphy's lab investigates are about the evolution of mammalian species, their genomes, and the genetic architecture that underlies their phenotypic diversity. His laboratory integrates knowledge of genome organization with phylogenetic methods to resolve evolutionary relationships across the mammal family tree. Murphy's contributions include establishing the phylogenetic framework for mammalian comparative genomics that aided in interpreting the human genome. Within this framework, his lab answered fundamental questions about how chromosomes break and evolve, when and how pivotal events in Earth's history influenced the diversification of placental mammals, and the impacts of hybridization on evolutionary inference and adaptation. Murphy has focused most of his career on developing and applying comparative genomic resources for the cat family Felidae to advance basic and biomedical science research in genetic disease, trait mapping, and wildlife conservation. Murphy is a fellow of the American Association for the Advancement of Science and an elected National Academy of Sciences member.

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.

News & Announcements

Students Wanted!

We would like to encourage students to become more actively involved in the society. One of the ways you can do this is to join a committee. Below are the committees that are open for participation. If you are interested in joining a committee, please let us know while you are at the meeting. You also can email TXmammals@gmail.com with the name of the committee(s) you would like to join. We will pass your name along to the committee chair and they will be in touch with you. In addition to committee work, we are looking for volunteers to assist at the meeting every year (e.g., help with registration, etc.). If you are willing to assist at the meeting, please email TXmammals@gmail.com and indicate when you would be available to help and what you would like to do.

Conservation Committee

The role of this Committee is to monitor governmental and other activities that relate to conservation of mammals in Texas; advise officers and membership of the Texas Society of Mammalogists on issues of concern; and respond to the issues via formal resolutions. This Committee is intended to serve as a clearinghouse for information on all aspects of conservation of Texas mammals and to maintain the capacity to respond promptly and effectively in crises.

Ad hoc Auction Committee

The role of this Committee is to request and collect donations, set up and help conduct the live and silent auctions at the meeting, and help collect payments at the end of the auctions. If you are interested in helping, please contact Krysta Demere

Ad hoc Government Liaison Committee

The role of this Committee is to facilitate interactions between the Texas Parks and Wildlife Department and TSM regarding issues that might affect mammalian conservation and research in Texas. It is similar to the Conservation Committee but is aimed specifically at communicating with TPWD.

Ad hoc Informatics Committee

The role of this Committee is to update and maintain the web and social media presence of the society. TSM currently has Facebook and X (Twitter) accounts.

Website Updates

We continue to work on updating the society website and are seeking requests for information you would like to see included on the site. Please send your suggestions and requests to John Hanson (j.delton.hanson@gmail.com; Editor).

Abilene Christian University

Department of Biology, 1600 Campus Court, Abilene, TX 79699

Tom Lee
Phone: 325-370-4442
Email: leet@acu.edu

Research Interests, Projects, and Grants:
In 2024, I used my Clark Stevens endowed professorship funds to travel to the American Society of Mammalogists meetings in Boulder, Colorado. I presented Data on a survey of mammals of Cerro de Arcos, Loja, Ecuador that was present as TSM in 2024.

Furthermore, I conducted research in the lab on sequencing DNA and examining the morphology of members of the genus *Thomasomys* this past summer. The study was on T*homasomys cinnameus* and *Thomasomys hudsoni* and these data will be presented at TSM 2025 by Cindy Cho.

I now have all of the equipment for digitization and cataloging of the Abilene Christian Natural History Collection. This means I cataloged and photographed a lot of insects over the summer.

Undergraduate Students and Their Research:

My student Cindy Cho and I are finishing a study on a better characterization of two species of *Thomasomys* using both morphologically and genetics.

My students Taylor Hickman, Lydia Szabo, and Lyndsey Klein conducted a camera trapping survey at Abilene State Park in 2024. This project is the sixth camera trapping year for the Abilene State Park. This study is part of the SNAPSHOT camera-trapping program and Wildlife Insights. These data will be presented at TSM. Data from the camera trapping of Abilene State Park have been combined with national and international studies and published in Nature ecology and evolution, Ecology and Diversity and Distributions in 2024.

Angelo State University

Department of Biology, San Angelo, TX 76909

Edson F. Abreu
Phone: 325-486-6656
Email: Edson.abreu@angelo.edu
Web page: https://eabreu.weebly.com/

Research Interests, Projects, and Grants:
I am a Brazilian mammalogist and an Assistant Professor in the Department of Biology at Angelo State University (ASU), where I also serve as the Curator of Mammals at the Angelo State Natural History Collections (ASNHC). My research focuses on the discovery and recognition of mammalian diversity at multiple scales, from intraspecific genetic and morphological variation to taxonomic classification and community assemblages. I am particularly interested in the evolutionary and ecological processes that generate and maintain the extraordinary biodiversity of the Neotropics. My research integrates fieldwork, museum-based taxonomy, and molecular systematics to elucidate cryptic diversity and evolutionary relationships within mammals. Recent efforts have centered on tree squirrels, utilizing genomic data from museum specimens and field-collected samples to investigate phylogenetic relationships, diversification patterns, and historical biogeography.

I maintain research associate appointments with the University of São Paulo (Piracicaba, Brazil), the Center for Conservation Genomics at the Smithsonian Institution (Washington D.C.), and the American Museum of Natural History (New York).

Additional Information:
My research spans macroevolutionary studies of globally distributed taxa, investigations of intraspecific genetic and morphological variation, and disciplines such as molecular phylogenetics, historical biogeography, and comparative morphology.

Loren K. Ammerman
Phone: 325-486-6643
Email: loren.ammerman@angelo.edu
Web page: www.angelo.edu/content/profiles/75-loren-k-ammerman

Research Interests, Projects, and Grants:
I am interested in bats and other mammals. I work with students to use molecular data to reconstruct evolutionary relationships of organisms, to investigate genetic diversity, and to understand diet. I also am interested in distribution, community structure, and the ecology of

bats, especially in Texas. Most recently I have been monitoring seasonal roost use, movements, and colony size fluctuation of *Leptonycteris nivalis* in Big Bend National Park.
See my ResearchGate profile https://www.researchgate.net/profile/Loren-Ammerman for recent publications.

Current Graduate Students and Their Research:

- **Kennedy Berry** – MS thesis student, Bat activity in west Texas based on acoustic detections along a transect (Graduate Assistant, Fall 2023 – present)
- **Flor Calderón** – MS thesis student, Foraging behavior of Mexican long-nosed bats (*Leptonycteris nivalis*) in the Chisos Mountains of Texas (Graduate Research Assistant, Summer 2023- present)
- **Ashley Loehn**– MS thesis student, Factors influencing detection of *Leptonycteris nivalis* in Emory Cave using airborne eDNA (Graduate Research Fellow, Fall 2023 -present)

Current Undergraduate Students and Their Research:

- **Daniela Childress** – DNA barcoding of *Peromyscus* specimens from high elevations in Texas (Undergraduate Research, Fall 2024-present)
- **Halle Summers** – Exploring species boundaries in cryptic species (*Myotis californicus* and *M. ciliolabrum*) using a genomic approach (ASU Undergraduate Research Scholar, Fall 2024-present)

Additional Information: The Angelo State Natural History Collection has over 21,000 mammal specimens and over 35,000 tissue specimens. The collection is searchable via Arctos at https://www.angelo.edu/dept/asnhc/collections.php and on VertNet and GBIF. You can contact me if you have any questions about the collection.

Robert C. Dowler (Retired)

Phone: 325-486-6639
Email: robert.dowler@angelo.edu

Research Interests, Projects, and Grants:
My research interests in retirement continue to be on spatial ecology of skunks in Texas. I am currently finishing up projects with Clint Perkins and Richard Stevens on the plains spotted skunk (*Spilogale interrupta*) in Texas, as well as assessing the status of hooded skunks (*Mephitis macroura*) in Trans-Pecos Texas. I continue to have interest in all skunk species in Texas, porcupine dermatophytosis, and the conservation biology and systematics of Galapagos endemic rodents.
Graduate Students and Their Research:

- J. Clint Perkins, former M.S. student is now a Ph.D. student at Texas Tech University working on the spatial ecology of populations of plains spotted skunks at the Katy Prairie. I am co-advisor with Dr. Richard Stevens at TTU.

Baylor University

Department of Biology, Waco, TX 76798

Kenneth T. Wilkins (Retired)
Phone: (254) 709-7211
Email: ken_wilkins@baylor.edu

After 39 years on the faculty at Baylor University, including 24 years in administration, I have retired. We have taken the Oregon Trail to the Pacific Northwest. We now live in Bend, a vibrant community situated in an ecotone spanning the Ponderosa forest of the lower slopes of the Cascade Range to the juniper scrub of the High Desert at the western extent of the Great Basin. The book written by fellow mammalogists BJ Verts and Leslie Carraway is a tremendous guide to landforms, flora and the mammals of Oregon!

Of interest to Texas mammalogists is that the Department of Biology mammal collection has been transferred to a location on the Baylor campus that should ensure its care in perpetuity and its availability to researchers. The collection is now housed in Mayborn Museum, a larger museum complex that incorporates the former Strecker Museum.

A teaching collection remains with the Department of Biology, but the research caliber materials transferred to Mayborn Museum. The research collection comprises c. 2,000 specimens (predominantly skin & skull preparations of rodents and bats) mainly from Texas. The specimens represent vouchers from an array of projects: surveys on Texas Parks & Wildlife properties (Fort Parker State Park, Lake Fairfield State Park, Hill Country State Natural Area), population and community studies on Texas Nature Conservancy properties (Clymer Meadow, Leonhardt Prairie), and numerous master's theses and doctoral dissertations conducted at these and other locations. There are a few specimens from Mexico, collected in association with teaching and research at Chapala Ecology Station in Jalisco from 1992 through 2001. Inquiries related to the collection should be directed to Ms. Anita Benedict, Collections Manager at Mayborn Museum.

Cameron University

Lawton, OK 73505

Dana N. Lee
Phone: 580-591-8009
Email: dalee@cameron.edu

Research Interests, Projects, and Grants:
I primarily study bats and am interested in all aspects of their ecology, genetics, and evolutionary relationships; although, I use molecular biology tools to study the genetic variation of other wildlife populations. Undergraduate students in my lab are currently working to determine the diet of the ghost-faced bat and the pallid pat using molecular analysis. We are also screening bats for adenoviruses and microplastics.

Centenary College of Louisiana

2911 Centenary Blvd., 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

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 URL: www.hmns.org/exhibits/curators

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, SubSaharan Africa, and more recently Southeast Asia.

Current mammalogy projects I'm involved with include:

- The Houston Urban Wildlife Project (HUWP) features a section on urban mammal projects that we're involved in (www.hmns.org/huwp).
- Tim McSweeny and I are partnering with Buffalo Bayou Partnership inventorying mammals through film bytes of camera traps, with accounts on specific natural history information. We are amazed that coyotes, beavers, otters, etc can be found < 1 mile west of downtown Houston!

Additional Information: The primary driver of the Houston Museum of Natural Science is Education, including outreach. We educate every 4th and 7th grader in the 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 and permanent wildlife exhibit halls. If you have any interest in coming for a visit just touch base directly!

Interquest Environmental Consultants

Ray E. Willis
Phone: 806-787-0283
Email: raywillis.interquest@gmail.com

Research Interests, Projects, and Grants:
Private Wildlife Contracts and Surveys. After spending thirteen years in academia, I decided to switch my focus to private wildlife contracts with an emphasis on surveys for business and large ranches. Additionally, I provide solutions for urban wildlife problems and land management for newly developed rural neighborhoods. I am expecting to expand in the future and will need qualified vertebrate biologists for potential subcontracting opportunities.

McMurry University

Department of Biology, Abilene, TX 79697

Joel G. Brant
Phone: 325-793-3875
Email: brant.joel@mcm.edu

Research Interests, Projects, and Grants:
My research interests are primarily concerned with the natural history of mammals, particularly in Texas and the Chihuahuan Desert. My current research program focuses on the natural history & ecology of mammals in the Southern Rolling Plains, northern Edwards Plateau, and northeastern Chihuahuan Desert. My current projects include a survey of the mammals of the Southern Rolling Plains, specifically Taylor County & surrounding areas (with Tom Lee); assessing the ecological impacts of wind farms on bat diversity; and various mammal, herp, and bird projects associated with Firebase Libby, a property owned by McMurry University located in Callahan County, Texas.

Purdue University

West Lafayette, IN

J. Andrew DeWoody
Phone: 765-496-6109
Email: dewoody@purdue.edu
Web page: https://web.ics.purdue.edu/~dewoody/DeWoody/wordpress/

Research Interests, Projects, and Grants:
Evolutionary genetics and genomics; molecular ecology and evolution; natural history; conservation biology; wildlife and fisheries management. Our research occurs at the intersection of ecology, evolution, conservation, and genomics. Ongoing or recent projects have centered on the distribution of genomic diversity in threatened or endangered (T&E) fishes, herps, birds, and a variety of mammals including marsupials, rodents, and cetaceans.

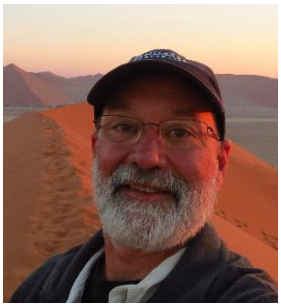
Graduate Students and Their Research:
My graduate students and postdocs work on a variety of questions in ecology and evolution, including important conservation issues related to T&E species (e.g., gray whale population structure). Students matriculate through either the Biology program or a Wildlife program.

Undergraduate Students and Their Research:
My undergraduates are all mentored by graduate students or postdocs. Most start as "assistants," but the best students develop their own research projects.

Additional Information:
I am always looking for bright, motivated students so please contact me if you are interested in an immersive experience at a top-notch graduate school. See my webpage for more details.

Tarleton State University

Department of Biological Sciences, Stephenville, TX 76402



Philip D. Sudman (Retired)
Phone: 254-968-9154
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Web page URL: faculty.tarleton.edu/sudman/

Research Interests, Projects, and Grants:
After retiring last July, I have been busy chasing our dog, golfing, fishing, camping and brewing beer. I remain active as Secretary-Treasurer and Trustee of the American Society of Mammalogists, and I hope to spend time over the next several months compiling data from past research and

submitting a few mammal related notes. I am also hopeful that I will be able to continue working with Tarleton's study abroad program – the past two summers I have spent several weeks with students trapping small mammals in the central Kalahari of Botswana (elephant shrews, gerbils, fat mice, pouched mice and rock rats to name a few). It has been a great way to end my career and I am always game to learn new things!

Russell S. Pfau

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Web page: faculty.tarleton.edu/pfau/

Research Interests, Projects, and Grants:
My main research focus is population and evolutionary genetics—often with a focus on conservation biology. Small mammals have been the primary subject of my research, but my taxonomic coverage has recently included crustaceans, fish, plants, frogs, and insects. Ongoing projects include:

- Documentation and assessment of contact zones between *Geomys bursarius* and *G. breviceps* in southern Oklahoma and northern Texas
- Population genetics and soil-type correlations of *Geomys texensis*.
- Distribution of shrews (*Blarina*) in the southern Great Plains region using mtDNA sequencing (for identification) and morphometric analysis to examine geographical patterns of variation
- Species status of two bumblebees in Texas
- Phylogenetics and species discovery among Texas anemones (windflowers)
- Conservation genetics of the crawfish frog

Recent publications:

- Beckham, J. L., Johnson, J. A., & Pfau, R. S. (2024). Molecular data support *Bombus sonorus* and *Bombus pensylvanicus* (Hymenoptera, Apidae) as distinct species. Journal of Hymenoptera Research, *97*, 895-914.
- Pfau, R. S., Kozora, A. N., Gatica-Colima, A. B., & Sudman, P. D. (2023). Population genetic structure of a Chihuahuan Desert endemic mammal, the desert pocket gopher, *Geomys arenarius*. Ecology and Evolution, 13(10), e10576.

Jenna R. Grimshaw

Phone: 254-968-9158
Email: jgrimshaw@tarleton.edu

Research Interests, Projects, and Grants:
My main research interest is analyzing transposable elements (TEs) in mammalian genomes from a macroecological perspective. As TEs vary in diversity and distribution within and among genomes, TEs may behave similarly as species in ecological communities. Therefore, common macroecological analyses such as species abundance distributions and co-

occurrence analyses may provide insights on how TEs interact with each other and their genomic environment. My other research interest is in bat population genetics especially *Myotis septentrionalis*.

Recent Publications:
Grimshaw, JR., Donner, D., Perry, R., Ford, W.M., Silvis, A., Garcia, C.J., Stevens, R.D., and Ray, D.A. (2024). Disentangling genetic diversity of *Myotis septentrionalis*: population structure, demographic history, and effective population size. Journal of Mammalogy, 105(4): 854-864.

Texas A&M Natural Resources Institute

1919 Oakwell Farms Parkway, Suite 100, San Antonio, Texas 78218

Stephanie Martinez-Brewer
Phone: N/A
Email: Stephanie.martinez@ag.tamu.edu
Web page: https://nri.tamu.edu/people/research/stephanie-brewer/

Research Interests, Projects, and Grants:
I am a senior research and policy associate for Texas A&M Natural Resources Institute. I support the conservation of nationwide declining, threatened and endangered species by working with the U.S. Fish and Wildlife Service and state and other federal partners to build Species Status Assessments (SSAs) and other Endangered Species Act (ESA) documents such as five-year reviews, and aiding in species range and habitat mapping. I primarily dedicate my work efforts to GIS-centered analysis for these projects. Since entering policy work in 2018, I have been a part of several assessment core teams, one being for the plains spotted skunk (*Spilogale interrupta*) in 2021-2022. In 2023, I conducted the GIS work for a "high-profile" species assessment (decision under the ESA still in progress), for which I built a range-wide habitat suitability model. Since summer of last year, I have been reworking and updating the GIS and analysis for 18 narrow endemic species for southern Florida. In addition to that project, I am assisting Region 8 (West Coast) in building recovery assessments for already-listed species under the ESA. I'm currently preparing to work the GIS for another narrow endemic for northwest Florida.

I have previous experience with DoD Natural Resources programs for Texas military lands in environmental monitoring efforts that aid in the mitigation of negative urban-wildlife interactions, particularly those that pose as aircraft strike hazard risks on Air Force installations.

I received a Bachelor of Science in biology from Abilene Christian University in 2013, and a Master of Science in biology from Angelo State University in 2015. During my education, I worked almost exclusively with Mexican free-tailed bat urban populations.

My research interests include urban wildlife ecology, and how human development influences behavior and species adaptation. I completed a project for DoD in 2022 that focused on urban Rio Grande ground squirrels (*Ictidomys parvidens*) in west Texas; I am currently interested in landscape-level impacts for vulnerable and threatened species. Outside of work, I enjoy the outdoors by birdwatching, hiking, and marathon training.

Texas A&M University-College Station

Department of Ecology and Conservation Biology, Biodiversity Research and Teaching Collections, Texas A&M University, College Station, TX 77843

Thomas E. Lacher, Jr. (Professor Emeritus)
Phone: 979-255-6131
Email: tlacher@tamu.edu
Web page (*not recently updated*):
https://biodiversitylabtamu.wordpress.com/

Research Interests, Projects, and Grants:
Ecology and conservation of macaw species in Peru; livestock, Mammalian biodiversity, and local communities in Huascaran National Park in Peru; Transboundary conservation of bats and agaves in the Texas and northern Mexico; Acoustic biology of nectar-feeding bats in northern Mexico; Models of white-nose transmission in bats in Texas and Mexico; Payment for ecosystem services and mammalian conservation on a landscape matrix in Costa Rica; Spatial ecology of sloths in Costa Rica; Fragmentation and mammalian biodiversity in Costa Rica; Population and community ecology of bats in the southern Brazilian Atlantic Forest; Cacao plantations and marmoset ecology in the Brazilian Atlantic Forest; Climate change and land-use impacts on amphibians in Colombia; Assessment and monitoring of globally threatened species of Rodentia, Eulipotyphla, and Scandentia.

Graduate Students and Their Research:

- Jessica Gilbert, Ph.D. The impacts and dynamics of the socio-ecological system of livestock grazing on biodiversity in the Huascaran Biosphere Reserve. Major Advisor.

Additional Information:

- Recipient of the Aldo Leopold Award from the American Society of Mammalogists
- Co-Chair IUCN Small Mammal Specialist Group
- Member, IUCN Climate Change Specialist Group
- Associate Conservation Scientist, Re:wild, Austin, Texas
- Co-Editor, Volumes 6 and 7, Handbook of the Mammals of the World and Volumes 1 and 2 of the Illustrated Checklist of the Mammals of the World

Jessica Light

Phone: 979-458-4357
Email: jessica.light@ag.tamu.edu
Web page: https://lightjessica.weebly.com/

Research Interests, Projects, and Grants:

I am an evolutionary biologist with a focus on phylogenetic, population genetic, and ecological interactions between parasites and their hosts. To address these broad research interests, I employ a variety of tools such as molecular (multiple genes, population genetic loci, or genomic data) and morphological data from field-collected and museum specimens. My lab is currently funded by the National Science Foundation on three separate projects: 1) Mid-career OPUS to study *Peromyscus* systematics; 2) Collaborative research exploring sucking louse phylogenetics and genomic and morphological selection; and 3) Thematic Collections Network to digitize mammal trait data from western North America.

Graduate Students and Their Research:

- Ayomiposi Abraham is a 3rd-year Ph.D. student interested in host-parasite associations, particularly those between pocket gophers and their chewing lice.
- Oluwaseun David Ajileye is a 3rd-year Ph.D. student interested in disease ecology, and tick and filarial worm associations.
- Brady Craft is a 3rd-year M.S. student pursing cranial morphology evolution in *Peromyscus* for her thesis research.
- Haley Ellis is a 3rd-year M.S. student pursuing limb morphology evolution in *Peromyscus* for her thesis reearch.
- Ali Lira is a 4th-year Ph.D. student interested in Neotropical bat flies, bats, and host-parasite coevolution.
- Grace Martindale is a 2nd-year M.S. student interested in *Peromyscus* external trait morphological evolution.

Undergraduate Researchers:

For the Spring 2025 semester, we have 10 undergraduate students assisting with various projects. Projects and undergraduate researchers include:

- Gopher-louse research: Katelyn Barlett
- Tick-filarial worm research: Holden Carey and Carlo Gonzalez-Soto
- *Peromyscus*: Connor Hastcoat, Katy Steakley, and Abigail Torres
- Bat flies: Connor Hastcoat and Abigail Torres
- Ranges digitization: Nicklaus Brawner, Avery Collazo, AnneMarie Johnston, Priscilla Solis

Staff and Technicians:

- Heather Prestridge is the lead collections manager of mammals at the Biodiversity Research and Teaching Collections

- Emily Coyote is our lead technician working on the RANGES project. Emily spends a lot of time in the collections recording specimen data and obtaining accurate georeference information.
- Danielle Dillard is investigating interactions between the giant kangaroo rat and a trombiculid mite. She also is interested in porcupine range expansions, lice parasitizing pocket gophers, and several other projects ongoing in the Light lab.
- Amanda Moehring is a curatorial volunteer in the Biodiversity Research and Teaching Collections.

Biodiversity Research and Teaching Collections:
The mammal division in the Biodiversity Research and Teaching Collections (http://brtc.tamu.edu) currently has over 68,500 specimens. Our data are available online through VertNet, iDigBio, and GBIF. The collections are currently staffed by Heather Prestridge, with the help of several volunteers and research interns.

Texas A&M University-Corpus Christi

Department Life Sciences, Texas A&M University- Corpus Christi, Corpus Christi, TX 78412

Dara Orbach
Phone: 361-825-3217
Email: dara.orbach@tamucc.edu
Web page: https://daraorbach.weebly.com/

Research Interests and Projects:
My research interests are the functional anatomy and behavioral ecology of marine mammals. My lab explores the evolutionary drivers of diverse genital morphology and coevolution between the sexes, health of dolphins, and population biology of local dolphins. My lab is particularly interested in how anthropogenic disturbances (e.g., vessel traffic, fishing interactions, contaminants) alter dolphin behavior, habitat use, and physiology. We use a variety of field-based techniques (e.g., photo-identification, theodolite tracking, unoccupied aerial systems, remote biopsy, passive acoustic monitoring) and laboratory tools (computer-assisted sperm analysis, geometric morphometrics, mass spectrometry) to advance science.

Postdoc Research:
- Lorenzo Fiori, Ph.D. Microbiome of marine mammals; body condition of bottlenose dolphins in different foraging contexts.

Graduate Student Research:

- Jackie Rich, Ph.D. student. Sperm biology of bottlenose dolphins
- Makayla Guinn, Ph.D. student. Metabolomics of and contaminants in bottlenose dolphins
- Emily McGhee, M.S. student. Acoustics of bottlenose dolphins in different foraging contexts

Undergraduate Student Research:

- Leala Punjabi, Honors/LSAMP student. Bottlenose dolphin behaviors in proximity to industrial facilities
- Madison Hallmark, Honors student. Heavy metal contaminants in bottlenose dolphins
- Michelle Rodriguez, Honors student. Bottlenose dolphin whistles
- Soleil Delorge, LSAMP student. Swim tourism impacts on common dolphin swimming
- Taylor Rausch, Honors student. Site fidelity of bottlenose dolphins
- Aiden Adapathya, Honors student. Population estimates of bottlenose dolphins.

Additional Information:

- I am the current president of the Texas Society of Mammalogists
- I have supervised > 140 undergraduate students from groups historically underrepresented in STEM disciplines and serve as a faculty mentor to four professional organizations
- I do extensive public outreach that highlights the historic gender bias in the field of genital evolution

Texas A&M University-Kingsville

Feline Research Program, Caesar Kleberg Wildlife Research Institute

Michael Tewes (Retired)
Phone: 361-593-3972
Email: michael.tewes@tamuk.edu
Web page: https://www.ckwri.tamuk.edu/research-programs/feline-research-program

Research Interests, Projects, and Grants:
Small cats – ocelot, bobcat, jaguarundi, margay, clouded leopard, Asiatic golden cat, leopard cat, marbled cat; not-so-small: cougar and jaguar

Graduate Students and Their Research:

- Amanda Veals: Ph.D. student; examining resource selection and landscape connectivity of the ocelot in South Texas with the aim to help the Texas Department of Transportation plan for wildlife crossing structures to mitigate vehicle collisions for this endangered species

- Jason Lombardi: Ph.D. student; Factors of Ocelot Occupancy in South Texas (Collaborative Effort with East Foundation); Ocelot-Road Monitoring Project on FM 1847 in Cameron County, TX (Collaborative Effort with TXDOT)

Texas Parks and Wildlife Department

District 1 Diversity Biologist, Alpine, TX 79830

Krysta D. Demere
Phone: 432-244-9945
Email: Krysta.demere@tpwd.texas.gov

Research Interests, Projects, and Grants:
As a Diversity Biologist for Texas Parks and Wildlife, I supervise non-game research projects, provide technical guidance to private landowners regarding management and effective conservation actions for rare and threatened species, conduct outreach programs for landowners and the public, and conduct surveys for nongame species across the ~25 million acres that encompass the 16 counties of the Trans-Pecos Wildlife District. My efforts within the discipline of mammalogy for the past year have primarily focused on compiling a comprehensive database for historical and recent black bear observations, establishing a genetic tissue collection for black bear samples retrieved within west Texas, monitoring overwintering western bat species for the presence of Pd and potential development of white-nose syndrome, and investigating disease outbreaks in local lagomorphs. I have had the honor of serving as the official artist for TSM since 2018 and look forward to representing the society each year.

Texas State University

Department of Biology, San Marcos, TX 78666

Ivan Castro-Arellano
Phone: 512-245-5546
FAX: 512-245-8713
Email: ic13@txstate.edu
Webpages:
https://www.bio.txst.edu/faculty-staff/ivan-castro-arellano.html
http://www.researchgate.net/profile/Ivan_Castro-Arellano

Research Interests, Projects, and Grants:
I use my background and training as an ecologist to address questions to understand the ecology of zoonotic diseases and invasive species. Because mammals are natural reservoirs for many

zoonotic diseases, most of my work has been devoted to this taxonomic group, especially rodents and bats. Beyond my interest in disease ecology, I also have done research on theoretical aspects of community ecology, specifically on the analysis of assemblage-wide temporal niche overlap and elements of metacommunity structure. I address these questions using a variety of approaches that include modelling, null models, and analyses of both published and empirically data generated at my lab. Although my research interests are wide, they are intertwined and my goal is to integrate the study of community level dynamics in mammalian hosts to understand the dynamics of pathogen transmission.

Current Projects:
Although I have worked on multiple research topics and new ones develop based on new collaborations, I currently have three main lines of research at my lab:

1) Ecology and evolution of activity patterns. Using publicly available large databases and fieldwork my lab is addressing multiple questions related to the ecological determinants of activity patterns and how this information can be used to understand the structure of mammalian assemblages worldwide. Another topic within this line is how anthropogenic changes can affect mammalian activity patterns and the implications for the ecology of these species.
2) Host-vector ecology of *Ornithodoros turicata* in Central Texas. The ecology of soft ticks is a little known despite these tick species being vectors of zoonotic pathogens. At my lab, we are trying to ascertain which wild mammals serve the role of reservoirs for the pathogens vectored by these ticks and what role these have to disperse ticks among sites.
3) Ecology of TX Kangaroo rat. With funding from TPWD and USFWS and in collaboration with Dr. Joe Veech (Texas State University), we have worked on different questions related to the ecology and conservation of this rodent species endemic to TX. This species is currently being considered for ESA listing and the generation of new knowledge is focused on the management for the conservation of this species.

Graduate Students and Their Research:

Current and recent graduate students

- Stoneham, Margaret (M.Sc. 2022). Temporal overlap among common mesocarnivores throughout the neotropics.
- Bergmanson, Stephanie (M.Sc. 2022). Comparison of Tapir species activity patterns across multiple sites in the neotropics.
- Reagan, Cassidy (M.Sc.). Elements of Metacommunity Structure for Bat Assemblages Across Elevational Gradients Worldwide.
- Ramirez, Rosa (M.Sc.). Integrating Host Community Ecology into the Disease Ecology of a Tick-Borne Relapsing Fever Vector.

I AM CURRENTLY SEEKING WELL QUALIFIED MS AND PhD STUDENTS THAT ARE INTERESTED IN THE TOPICS WE DO RESEARCH AT MY LAB. PLEASE CONTACT ME AT MY EMAIL IF INTERESTED.

Select past students

- Matt Milholland (PhD. 2017). Matt's dissertation work was centered around the ecological correlates for hantavirus seroprevalence at different spatial scales.

- Sara Weaver (PhD. 2019). Sara worked on the effects wind energy production has on populations of bats at wind farm in south Texas.
- Madison Torres (M.Sc.). Madison's thesis was on the home range dynamics of the invasive Small Asian Mongoose (*Herpestes aeropunctatus*) in Puerto Rico.
- Kathryn Michelle Benavidez (M.Sc. 2016). Michelle's research was also in Puerto Rico and centered on the potential role of mongooses and commensal rodents as reservoirs of *Leptospira*, a zoonotic pathogen that has human health concern.
- Bradford Westrich (M.Sc.). Brad's work was related to a NIH-funded grant centered about the population genetic dynamics and vector ecology of *Ixodes scapularis*. His thesis centered on the role of small and meso-mammals as hosts for this tick in eastern Texas.

Leila Siciliano-Martina

Email: sicilia77@txstate.edu
Webpage: https://leilamartina.weebly.com/

Research Interests, Projects, and Grants:

My lab is focused on the relationship between animal traits and environmental conditions, particularly the ways in which human-modified systems (e.g., captivity, urbanization, changing climates) can influence organismal performance and phenotype. We explore functional traits (related to dietary, locomotor, physiological, and behavioral function) at the population and community-level to understand baseline trait-environment relationships as well as the ways in which traits can be modified by disturbances, and what this can tell us about species ecology, evolution, and conservation. We assess these topics using a combination of morphological size and shape analyses (e.g., traditional and geometric morphometric techniques), spatial analyses, and ecological modeling.

Graduate Students and their research:

- **Sam Lamb** – MS thesis student – Fall 2023 to present - Morphological and dietary variation of gray foxes (*Urocyon cinereoargenteus*) across urban gradients
- **Alyssa Arguijo** – MS thesis student – Spring 2024 to present – Morphological differentiation of red wolves (*Canis rufus*) in captivity.
- **Matt Bushell** – Ph.D. student – Fall 2024 to present – Evolution of hypercarnivorous trait morphology in carnivorans.

Texas Tech University

Department of Biological Sciences, and Natural Science Research Laboratory, Museum of Texas Tech University, Lubbock, TX 79409

Robert D. Bradley
Phone: 806-834-1303
Email: robert.bradley@ttu.edu
Web page: https://www.depts.ttu.edu/biology/people/Faculty/Bradley/, https://www.depts.ttu.edu/nsrl/directory/faculty_curators/bio/robert-bradley.php

Research Interests, Projects, and Grants:

My research interests include: systematic relationships, molecular evolution, genomics, and natural history of mammals, particularly in the cricetid and geomyoid rodents; determining the genetic basis for adaptation in *Peromyscus*; examination of hybrid zones between genetically distinct taxa; understanding 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; various wildlife diseases such as chronic waste disease in deer, pneumonia in bighorn sheep, modeling predictions associated with epidemiology and the impacts of climate change; diets, genetics, and conservation of Texas Black Bears and Mt. Lions, and growth and utilization of natural history collections, especially those pertaining to mammals.

Current Projects:

- Systematics of the genus *Peromyscus*
- Use of genomic methods to investigate speciation and adaptation in *Peromyscus*
- Effects of the zonadhesin gene in speciation of mammals
- Hybridization between white-tailed and mule deer
- Detection methods of Chronic Wasting Disease in cervids
- Genetics of transplanted populations of bighorn sheep in Texas
- Phylogenetic relationships of Neotomine and Reithrodontomyine rodents
- Systematic and genome studies of the genus *Cratogeomys*, *Geomys*, and *Thomomys*
- Ecology of hanta- and arenaviruses in the southwestern US and Mexico
- Morphology, landscape genomics and effective population size of the Palo Duro Mouse, *Peromyscus truei comanche*
- NSF funded project “A Partnership to Facilitate Scientific Inquiry into the Vast Functional Trait Diversity of Phyllostomid Bats” (Richard Stevens – project PI)
- NSF funded project “Advancing Digitization of Biodiversity collections: Collaborative Research: Ranges: Building Capacity to Extend Mammal Specimens from Western North America” (Richard Stevens – project PI)
- Use of next-gen methods for detecting zoonoses
- Detection of novel viruses using metagenomics in *Sylvilagus*
- Detection of pneumonia in bighorn and aoudad in Texas

- Taxonomic catalogs of terrestrial vertebrates described exclusively from Texas (David J. Schmidly and Lisa Bradley - PIs)
- Illustrated key to the Mammals of Texas (David J. Schmidly, Richard Stevens, Lisa Bradley, Robert Dowler, and Katelyn Albrecht Co-PIs)
- Detection of prion disease genes across Mammalia

Graduate Students and Their Research:

- Joanna Bateman (PhD candidate) is in her 7th year and is using genomic methods to determine speciation and evolutionary processes in heteromyid rodents.
- Macy Krishnamoorthy (PhD candidate) is in her 8th year and is co-chaired by Dr. Richard Stevens. Macy is examining bat feeding and pollination impacts on baobab trees, and other bat questions.
- Katelyn Albrecht (MS student – but transitioning to a PhD student) is in her 3nd year and is co-advised by Dr. Richard Stevens. Katelyn is using 3D scans of bats to learn more about wing variation in Phyllostomids.
- Sufia Akter Neha (PhD student) is in her 3nd year. Her research project will involve microbiome analyses of bear and mountain lions.
- Emily Schmalzried (MS student) is in her 2nd year. Her thesis will involve next-gen methods for detecting zoonoses.
- Brendan Amman (MS student) is in his 1st year.

Undergraduate Students and Their Research:

- Last year, 5 undergraduate students worked in the research lab.

Researcher Technician:

- Georgina Brugette is the Lab as a technician and is spearheading the project involving the use of next-gen methods for detecting zoonoses. In addition, she is assisting on several other mammal projects.

Additional Information:

· I retired as a faculty member from the Department of Biological Sciences and am working part-time in my role as Director of the Natural Science Research Laboratory. I will be appointed Professor Emeritus soon, so I can finish my graduate students.

· As Director of the Natural Science Research Laboratory, Museum of Texas Tech University, I would be pleased to address questions about loans, visits, or resources.

· In addition, I am editor of the publication series (*Occasional Papers* and *Special Publications*) at the Natural Sciences Research Laboratory, Museum of Texas Tech University. We are seeking to increase the number of contributions to these two series, so please, send us your manuscripts!

Of interest to TSM members

· In the Summer of 2024, the updated checklist for Texas Mammals was published. Schmidly, David J., Robert D. Bradley, Franklin D. Yancey, II, and Lisa C. Bradley. Comprehensive Annotated Checklist of Recent Land and Marine Mammals of Texas, 2024, with Comments on their Taxonomic and Conservation Status. Special Publications, Museum of Texas Tech University 80:1-76.

· In the Summer of 2023, a catalog of Texas vertebrates was published. Schmidly, David J., Bradley, Robert D., Lisa C. Bradley, and Franklin D. Yancey II (editors). Taxonomic catalogs for the recent terrestrial vertebrates (species and subspecies) described from Texas. 2023. Special Publications, Museum of Texas Tech University 77:iii+1-385.

· In the Summer of 2022, *Texas Natural History in the Twenty-first Century*, by David J. Schmidly, Robert D. Bradley, and Lisa C. Bradley was published by Texas Tech University Press. This book provides an updated synopsis of Texas natural history. In this version, an effort was made to include information for amphibians, reptiles, and birds as obtained by members of the Bureau of Biological Survey. In addition, the information for mammals was updated and expanded.

· In the Fall of 2019, the Memorial Volume for the Dr. Robert J. Baker was completed and provides a synthesis of the career of one of the most ardent supporters of TSM. It is available on the NSRL website and is cited as follows: Bradley, Robert D., Hugh H. Genoways, David J. Schmidly, and Lisa C. Bradley. 2019. Overture. Pp. v-ix in From field to laboratory: A memorial volume in honor of Robert J. Baker (R. D. Bradley, H. H. Genoways, D. J. Schmidly, and L. C. Bradley, eds.). Special Publications, Museum of Texas Tech University 71:xi+1-911.

· In 2019, Dr. Robert Dowler and I were invited to write a summary of North American Mammalogical Research for the Centennial Issue of the *Journal of Mammalogy*. This manuscript (see below) provides useful information for students and faculty who are interested in the history of mammalian research methods. Bradley, Robert D., and Robert C. Dowler. 2019. A century of mammal research: changes in research paradigms and emphases. Journal of Mammalogy, Centennial Issue 100:719-732.

· In 2017, David Schmidly led an effort to publish a timeline of important events in North American Mammalogy; this effort resulted in the manuscript (see below) that provides useful information for students (think qualifying exams), faculty, and historians. Schmidly, David J., Robert D. Bradley, Lisa C. Bradley, and Richard D. Stevens. 2017. A timeline of significant events in the development of North American mammalogy. Special Publications, Museum of Texas Tech University, 66:1-37.

Caleb D. Phillips

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Research Interests, Projects, and Grants:

The Phillips laboratory studies metagenomes, genomes, craniofacial development, as well as some morphology and molecular mammalogy. The lab is currently supported by Texas Parks and Wildlife Department, the NIH, and NSF.

Graduate Students and Their Research:

- Rebecca Gabrilska (PhD student): Chronic wound microbiomes and how they are influenced by human genetics

- Khalid Omeir (MS student): Microbiome-transcriptome-wide association of bacteria in chronic wounds
- Jacob Ancira (MS student): Structural equation modeling to predict wound healing time based on wound microbial composition
- Hendra Sihaloho (PhD student): Community assembly of microbiomes of forest interior bats of Malaysia
- Sufia Akter Neha (PhD student, co-advised with Robert Bradley): Microbiomes of black bears

Additional Information:
My teaching responsibilities include Bioinformatics, Metagenomics and Organic Evolution. These courses are offered at both graduate and undergraduate levels. I am also Curator of Genetic Resources at the Natural Science Research Laboratory.

Richard D. Stevens

Department of Natural Resources Management, Lubbock TX 79409
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Research Interests, Projects, and Grants:

- Patterns of biodiversity of New World bats.
- Conservation of Atlantic Forest bat communities.
- Metacommunity structure of rodents of the Mojave Desert.
- Dispersal and metapopulation dynamics of Texas Kangaroo rats.
- Use of Highway Structures by Bats in the Trans-Pecos and East Texas.
- Trans-Pecos bat community structure

Graduate Students and Their Research:

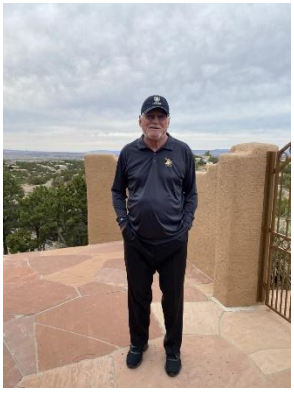
- Garret Langlois was a Ph.D. student working on the roosting ecology and behavioral network structure of great fruit-eating bats (*Artibeus lituratus*) in Atlantic Forest of Paraguay. Garret has graduated and currently works for the Lubbock Arts & Intersections Research (LAIR) group.
- John Stuhler—John is a Ph.D. student that completed his M.S. at the University of Wisconsin. He is interested in the ecology/conservation biology of Texas kangaroo rats and is conducting an intensive study of habitat preferences. He is also interested in large-scale diversity patterns in heteromyid rodents. He is currently the Collections Manager of Mammals at the University of Wisconsin-Madison Museum of Zoology.
- Jenna Grimshaw is a Ph.D. student co-advised by David Ray and me. She earned an M.S. at Tarleton State University studying patterns of phylogenetic diversity of Mexican bats. Her current research is to identify patterns of genetic structure in three species of critically-imperiled Louisiana bats: *Myotis austroriparius*, *M. septentrionalis*, and *Eptesicus fuscus*. More specifically, she aims to determine if each of these three species comprise a single population or multiple genetic subpopulations with little gene flow. She is also interested in the distribution of transposable elements among

mammalian genomes from a genomic ecological perspective. She is currently a Visiting Instructor at Tarleton State University.

- Holly Wilson—Holly is a Ph.D. student earned her M.S. from Fort Hays State University under Elmer Birney. She is interested in how bats use highway structures as day-roosts in the Trans-Pecos of Texas.
- Clint Perkins—Clint is a Ph.D. student who recently earned his M.S. from Angelo State University under Bob Dowler. His project revolves around population and spatial ecology of the plains spotted skunk, *Spilogale putorius interrupta*.
- Macy Madden—Macy is a Ph.D. student co-advised by Robert Bradley and me. She is interested in plant-pollinator interactions between baobab trees and *Rousettus aegyptiacus* and *Epomophorus* species in South Africa and Kenya.
- Angela Alviz—Angela is a Ph.D. student who received her M.S. in Biology from the Pontificia Universidad Javeriana. Angela is interested in Tapir metapopulation dynamics in Colombia.
- Emma Sanchez was recruited into the lab to do her M.S. on use of culverts as day roosts by bats in east Texas. She graduated and is currently working for the Texas A&M Natural Resources Institute
- Amanda Newman joined the lab as a M.S. stuent last year after completing her B.S. at TTU. She is interested in how bats use highway right-of-ways as habitat.
- Jayme Czap also joined the lab last year after completing her B.S. at TTU and is working on her M.S. She is interested in how bats select bridges as day roosts in east Texas.
- Manuel Quispe Lopez is from Peru and just started in the lab. He will be working on bat community structure in the Trans-Pecos.

Texas Tech University/University of New Mexico

60 Homesteads Rd., Placitas, New Mexico 8704



David J. Schmidly
Retired President and Professor Emeritus
Phone: 505-288-9722 (cell)
Email: djschmidly@gmail.com

Research Interests: Natural History, Systematics, and Conservation of Texas Mammals

Projects: In 2024 I joined with colleagues Robert D. Bradley, Frank Yancey, and Lisa Bradley to publish a "*Comprehensive Annotated Checklist of Recent Land and Marine Mammals of Texas, 2024, with Comments on Their Taxonomic and Conservation Status*." A total of 206 species are included in the checklist, including 148 native terrestrial species, 28 domestic, feral, and introduced species, and 30 marine mammals that have stranded on Texas beaches or been observed in the state's offshore waters. This is the first checklist publication to include information on all three of these groups of mammals.

Publications planned for 2025 include “The Type Localities of Texas’ Species and Subspecies of Mammals,” and “William Blaney Richardson (1868-1927): Natural History Explorer and Specimen Collector in Latin America.” For another 2025 publication, I have co-authored with Robert Bradley and Frank Yancey species accounts for the 11 taxa in the *Peromyscus boylii* species complex to be included in a new book “Handbook of the Mammals of Middle and South America: Rodentia—Cricetidae” that is being edited by Dr. Livia Leon-Paniagua and some of her Mexican colleages for publication in a book by Springer Nature.

My website www.davidschmidlyphd.com continues to highlight the books and publications I have produced over the years as well as other aspects of my career.

Aside from this work, I will continue recovering from cancer treatment.

Trinity University

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

David O. Ribble
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Research Interests, Projects, and Grants:
I am interested in the evolutionary ecology of small mammals, including *Peromyscus* and elephant-shrews. My research in recent years has ranged from studies of social organization to mating behavior to thermal ecology. I have recently been leading a course in Costa Rica where we are monitoring the elevational distribution of small mammals on the Pacific Slope from Monteverde to the coast. I now serve as Dean of the newly established D. R. Semmes School of Science at Trinity. While my own research agenda has diminished, I am enjoying supporting and promoting others at Trinity University.

Washington and Lee University

204 W. Washington St., Lexington, VA 24450

Jessica Healy-La Price
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Research Interests, Projects, and Grants:
My primary area of study is the physiological ecology of ground squirrels that hibernate. Using both laboratory and field populations of thirteen-lined ground squirrels, I investigate interactions between hormones that control food intake and reproduction. A current project involves understanding sex differences in estradiol function in early active season hibernators. Another collaborative project involves investigating the latitudinal differences in hibernation patterns in thirteen-lined ground squirrels from Texas to Canada.

Undergraduate Students and Their Research:

- Kylee Cross & Brian Lee – Physiological regulation of hibernation to active season transition in ground squirrels
- Christina Ziccardi & Whitney Obialor – Hormone secretion profile of active-season ground squirrels

Additional Information:

- I teach a variety of undergraduate courses in ecophysiology and field mammalogy, including a travel term course to Panama.
- I'm currently Secretary of the Board of the International Hibernation Society.

University of Central Oklahoma

Department of Biology, Center for Wildlife Forensic Science and Conservation Studies, Edmond, OK 73034

Michelle L. Haynie
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Research Interests, Projects, and Grants:
My research focuses on mammalian evolution biology, primarily in population genetics and molecular systematics. I am interested in using genetic markers to address conservation and evolutionary questions, with most of my research focusing on comparative hybrid zone studies

and the identification of cryptic species. I also am interested in factors that impact how small populations and communities change over time.

My current projects include:

- An evaluation of bobcat genetic diversity and structure in Oklahoma
- A long-term small mammal mark-recapture survey at UCO's Selman Living Lab to identify factors that impact population and community persistence (with Francisca Mendez-Harclerode, Gloria Caddell, Chad King, Sean Laverty, Richard Dolman, and Chris Goodchild)
- A survey of mammals at an old oilfield site and comparison of species diversity and richness between this site and a paired site in Cushing, Oklahoma

Graduate Students and Their Research:

- Claire Wiley – Hantavirus survey of small mammals at Selman Living Lab; genetic identification compared to field identification of small mammals at Selman Living Lab
- Nadiya Cavallo - A comparison of species richness, species diversity, and trap success on disturbed lands in Cushing, Oklahoma; genetic diversity in *Peromyscus* populations across Oklahoma

Undergraduate Students and Their Research:

- Kayli Newport – Assisting Claire with genetic species identification of Selman rodents, focusing on *Peromyscus*
- Savannah Glidewell – Assisting Claire with genetic species identification of Selman rodents
- Lillian Gunelson – Identification of internal and external parasites from small mammals at Selman Living Lab (in association with Dr. Wayne Lord); graduated December 2024
- Liliana Ballon – Identification of internal and external parasites from small mammals at Selman Living Lab; identification of microplastics in rodent fecal pellets
- Joshua Walker – Identification of internal and external parasites from small mammals at Selman Living Lab; identification of microplastics in rodent fecal pellets

Additional Information:

- After many years, Mammals of Oklahoma, Second Edition is finally complete! It became available for purchase in July 2024.

Vicki Jackson

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Research Interests, Projects, and Grants:
My research interests include spatial ecology and captive wild animal care.

My current projects and grants include:

- Mesocarnivore survey of riparian corridors and gorges in Creek County, OK
- Development of wildlife forensics curriculum to use in higher education

Undergraduate Students and Their Research:

- Efficacy of bait to lure carnivores and herbivores in camera surveys
- Identification of important characteristics to identify bobcat fur through microscopy

University of Mary Hardin-Baylor

Department of Biology, Box 8432, UMHB Station, Belton, TX 76513

Cathleen Early
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Research Interests and Projects:
I am a field biologist primarily interested in behavioral ecology. I am also interested in STEM education research, especially how to improve curriculum to be more effective for first generation students.

While I am not currently conducting research or mentoring research students, I support student research by helping judge student presentations at conferences I attend. I bring undergraduate students to the Texas Academy of Science meeting every year, including students who are not presenting that year.

Additional Information:
I am passionate about making science fun and approachable for all age groups. In 2006, I helped establish the annual Science Saturday event at UMHB, a hands-on STEM event for K-5th grade. I continue to serve as the coordinator of this event and would be happy to share tips with anyone thinking about setting up something similar at their campus.

University of Michigan

Museum of Zoology, 3600 Varsity Drive, Ann Arbor, Michigan 48109

Cody W. Thompson
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Web page: codythompson.org

Research Interests, Projects, and Grants:
I consider myself a classically trained mammalogist, and as such, I use knowledge gained from observations made during fieldwork and through the examination of museum collections to answer questions about mammalian diversity. My research program focuses broadly on investigating the evolutionary patterns and processes that generate mammalian diversity. I also leverage natural history collections in the context of the extended specimen to examine museum voucher specimens in new and novel ways, e.g., emerging infectious diseases. My lab currently is funded by the National Science Foundation (Awards #2101909 and 2228389) and the National Institute of Health (Project # 1R15AI80994-01). We are also funded by the Belmont Forum.

Students and Their Research:
- Josie Anderson – Mammalian Trait Data
- Paloma Calvin – Mammalian Trati Data
- Ava Fraleigh – Bat Immunology
- Sam Henry – Bat Development
- Katie Kinney – Rodent Morphology

Other Lab Personnel:
- Nepsis Garcia – Graduate Curatorial Assistant
- Ramon Nagesan – CT Lab Manager
- Haley Martens – CT Lab Technician

Additional Information:
I joined the Mammal Division at the University of Michigan Museum of Zoology (UMMZ) in June 2013. The UMMZ is administered by the Department of Ecology and Evolutionary Biology (EEB). I serve as the UMMZ Mammal Collections Manager and maintain a research appointment in EEB. With these two roles, I am fully involved in all aspects of the UMMZ Mammal Division, and I enjoy the challenge of integrating my experience working in museum collections with my own research program.

The University of Texas at Austin

Texas Memorial Museum, 2400 Trinity St. Stop D1500, Austin, TX 78712

Pamela R. Owen
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Web page: https://sciencemuseum.utexas.edu/

Research Interests, Projects, and Grants:

- Evolutionary history of American badgers (Taxidiinae).
- Late Cenozoic mammalian faunas: I continue work on late Pleistocene mammal remains from the Slaughter Creek Site in southeastern Travis County. There are some intriguing taxa from this site, including: antilocaprids *Capromeryx* and *Antilocapra*, a llama-like camelid, canids (*Canis dirus*, *C. latrans*, and *C. lupus*), and a machairodont felid. Other taxa identified include *Bison*, *Odocoileus*, and *Equus*.

Additional Information:
As Associate Director of Texas Science & Natural History Museum, I am focused on updating and developing new exhibits and experiences as part of a revitalization effort for the museum, which reopened in September 2023. I continue to serve as an Associate Editor for *Mammalian Species* (fossil record section) and provide annual training in mammalogy for several chapters (Balcones Canyonlands, Capital Area, Gideon Lincecum, Good Water, Hays County, Highland Lakes, Lindheimer, and Lost Pines) of Texas Master Naturalists.

University of Houston—Downtown

Department of Natural Sciences, 1 Main Street, Houston, TX 77002

Amy Baird
Phone: 713-222-5301
Email: BairdA@uhd.edu
Web page: https://bairdlab.wordpress.com/

Research Interests, Projects, and Grants:
My research interests include molecular phylogenetics, phylogeography, and speciation of mammals. Current projects include molecular phylogenetics and taxonomy of lasiurine bats, including phylogeography of the Hawaiian Hoary bat; population genetics of bowhead whales (grant funded through the North Slope Borough); and genetic identification of bowhead whale parasites. I am partially funded by a grant from the North Slope Borough (PI) and an Organized Research and Creative Activities grant through UHD (PI)

Undergraduate Students and Their Research:

- Junior Tankoh, Alexandra Hernandez, and Alexandria Estimable are examining population genetics of bowhead whales

U.S. Centers for Disease Control and Prevention

CDC Biorepository, Atlanta, GA 30345

Marcia (Marcy) A. Revelez
Phone: 404-498-1665
Email: mrevelez@cdc.gov
Web page URL: https://www.cdc.gov/csels/dls/cdc-biorepository.html

Research Interests, Projects, and Grants:
I have over twenty years of experience working in natural history collections, primarily with mammal and genomic collections. I am now the Lead and Collections Manager for the CDC Biorepository, which is made up of approximately 6.6 million specimens from research, surveillance, and emergency response efforts at CDC, including the COVID-19 response. My role is to modernize the biorepository, with emphasis on policy and collection stewardship. Research interests revolve around best practices, collections management, data management, and IPM. I am part of a new endeavor to create a preparedness repository for CDC, to facilitate public health response to emergency outbreaks in the U.S.

Additional Information:
Member, Federal Interagency Working Group of Scientific Collections (IWGSC); member, Enviro-Bio Group for International Society of Biological and Environmental Repositories; member, Biobanking standards for International Organization for Standardization (ISO); member, workgroup National Plan for digitization of biodiversity collections (Network Integrated Biocollections Alliance (NIBA)), Biodiversity Collections Network (BCoN); member, Diversity and Equity Committee, Society for the Preservation of Natural History Collections (SPNHC); member, Systematics Committee, American Society of Mammalogists (ASM)

Fellows and Their Research:

- Taylor Soniat, Collections Specialist - Taylor is examining optimal storage conditions and sample viability at the CDC Biorepository
- Elizanette Lopez, Biorepository Fellow – Elizanette is examining sample management as it applies to the CDC Biorepository
- James Austin, Biorepository Fellow – Jamie is also examining sample management and best practices as it applies to sample disposition at the CDC Biorepository
- George Xiang, Communications Specialist – George is examining ways to improve communications and project management as it relates to sample management at CDC

Texas Society of Mammalogists
Members' Business Meeting
17 February 2024

The meeting was called to order by President Jessica Healy-La Price at 2:00 pm. The minutes of the 2023 Members' Business Meeting were approved.

Officers' Reports

Secretary-Treasurer. Secretary-Treasurer Tom Lee reviewed the Treasurer's Report for 2023. Tom began his report by pointing out that for most of the year (April -November) there is no real activity in our checking account (the account held $2,647.36 for this period). Tom suggested we might want to move our fiscal year from the calendar year to one beginning during this down time. From December to March our accounts are fairly active as we take in registration funds and pay out meeting expenses. Tom also suggested that TSM's operating procedures have traditionally been that the Secretary-Treasurer is the sole signatory for our accounts. Tom has wrestled with a nagging fear that if something were to happen to the Secretary-Treasurer, the society would not be able to function, especially if something happened just before the meeting. Tom recommended that the society add a signatory to the accounts, specifically the Permanent Secretary. The beginning balance was $2,736 in the checking account and $102,364.05 in the investment account, for total assets of $105,364.05 to begin 2023. At the end of 2023, the balances were $3,360.16 in checking and $115,113.12 in the investment account, with total assets of $118,473.28. The motion to approve the 2023 Treasure's Report was moved and seconded. Motion passed.

Permanent Secretary. Permanent Secretary Joel Brant briefly described the role of the position as the historian of the society, which is why he has been stalking everyone with a camera all weekend. Joel requested that anyone who had taken any pictures this weekend that they were willing to share to please email them to him. Joel reported that there are ~120 registrants for this year's meeting. Of those 120 registrants, 40 are "non-student" members and 80 student members. There are ~70 members who are attending for the first time. Joel invited everyone to return next year for the 43rd meeting.

Editor. Newsletter Editor Michelle Haynie reported that she prepares the Newsletter of the Society and maintains the website of the Society. She asked that those with research programs please contact her each year to update (or maintain) their profiles in the Newsletter. She also said that any announcements or news that members feel would be appropriate to post to the website or print in the Newsletter should be sent to her.

Reports of Committees

Phil Sudman, Chair of the Honorary Membership Committee, briefly described what Honorary Membership entailed and noted that his report would continue at the awards ceremony just before the banquet. Phil mentioned that we do not have any nominations for Honorary Membership this year. Phil encouraged members who wish to nominate someone for Honorary Membership to contact any of the Executive Committee members.

Phil Sudman, Chair of the Financial Advisory Committee, reported that the investment account began the year with $102,628.05 and ended the year with $115,113.12. This represents a gain of about $13,000. The society did pull some funds from the investment account to cover society expenses but Phil commented that that was normal and expected. Phil commented that the purpose of the investment account is to enable the society to operate and to keep the cost of the meeting down. This is the least expensive meeting by far and we want to keep it that way. The only way to ensure we can keep this

meeting inexpensive is to make sure that our fund is growing (or at least staying level). There are many ways to accomplish this. One way is to bid at the auction after the banquet, so bring your wallet and bid often. Patron membership is another way to donate to the society. Phil thanked everyone who contributed to the society and praised the student focus of TSM.

Michelle Haynie is stepping in as the Chair of the Student Honoraria Committee as Dara Orbach could not attend. Michelle announced that she would be giving her report during the awards ceremony immediately before the banquet speaker.

Mike Tewes, Chair of the Conservation Committee, reported that TPWD had created a stakeholder advisory group to explore the status of mountain lions in Texas in response to a petition from several organizations. This advisory group met 3-4 times in 2023 and developed several recommendations: 1) Texas needs more research data on mountain lions, 2) canned hunting of mountain lions should be illegal, & 3) there should be regulations on mountain lion hunting that requires a 36-hour limit to "hold" a mountain lion and requires mandatory reporting of any captured mountain lions. Mike brought a copy of the report from this stakeholder advisory group for members to review if desired. TPWD commissioners met in January 2024 and proposed two actions that will now move to public comment before a May decision by the commissioners. The two actions are: 1) to ban canned hunting of mountain lions & 2) to make it illegal for mountain lions to be left in traps for days or weeks, requiring "regularly checking" traps for mountain lion captures (i.e. a 36-hour trap check). Mike noted that this is a controversial subject that has been brought to TPWD before, with no resolution. This is the fourth time this subject has been raised and this is the farthest that potential action has progressed. Mike encouraged everyone, if they are interested, to contribute during the public comment period. The documents provided by Mike are also available on the TPWD website.

Michelle Haynie, Chair of the *ad hoc* Informatics Committee, reported that her committee is in charge of the TSM website and social media accounts. She asked that members send her any information that they would like to see included. Jessica Light has been active on this committee but has asked to step down so Michelle asked for volunteers for folks who are a little more active on social media. Michelle thanked John Hanson for help with the website and the abstract and registration forms.

The report of the *ad hoc* Conduct Committee was delivered by Jessica Light. Jessica reminded everybody that the society has a Code of Conduct which can be found on the website. The society has appointed 3 Ombudspersons (Dana Lee, Jessica Light, & Russel Pfau) who the membership can bring issues to and who will address conduct violations. Jessica celebrated that this will be her final year of her 3-year term so she will be rotating off and will be replaced by Cody Thompson. Jessica encouraged anyone who has questions regarding the Code of Conduct or would like to report a violation of the Code, please seek out the Ombudspersons.

Krysta Demere, Chair of the *ad hoc* Auction Committee, reviewed the auction report from 2023. The live auction included 29 items that generated $2,940. The silent auction included 39 items that generated $1,012. Several folks added monetary donations to bring the total generated by the auction to $4,988.15. Krysta thanked all those who helped facilitate the auction. Krysta encouraged anyone who wanted to take an active role in the committee to contact her. Krysta did mention that the committee has some items that have been held over from previous meetings, especially books. Krysta solicited mammal themed artwork or knick-knacks for the auction.

Election of Officers

President Healy-La Price announced that the Executive Committee had nominated Ivan Castro-Arellano (Texas State University) for the office of President-elect. The floor was opened for additional nominations. No additional nominations were put forward. Ivan was elected by acclimation.

President Healy-La Price thanked Tom Lee for his years of service as Secretary-Treasurer. She then announced that the Executive Committee had nominated Cathy Early (University of Mary Hardin-Baylor) for the office of Secretary-Treasurer. The floor was opened for additional nominations. No additional nominations were put forward. Cathy was elected by acclimation.

President Healy-La Price thanked Michelle Haynie for her years of service as Editor. She then announced that the Executive Committee had nominated John Hanson for the office of Editor. The floor was opened for additional nominations. No additional nominations were put forward. John was elected by acclimation.

New Business

President Healy-La Price brought to the society a proposal to create an *ad hoc* Committee on Human Diversity. The purpose for this committee is to monitor the demographic make-up of the society and to ensure that there are no barriers to participation in the mission of TSM. The goal of the committee is to ensure the opportunity for active participation in the society by all members regardless of race, ethnicity, sex, age, physical disability, gender identity, or sexual orientation. As such it will identify and, if there are any, work to remove barriers to participation in both the society and the annual meeting by mammalogists of diverse backgrounds, particularly those underrepresented in the sciences. In aid of this the aims of the committee will be to:

a. Gather data as to the current demographics of the society and that of past participation at annual meetings to the extent possible
b. To investigate and initiate efforts to help recruit and encourage participation in society events of mammalogists from diverse backgrounds, including seeking grant or fundraising support for underrepresented participant travel where necessary

Ivan Castro-Arellano has agreed to chair this committee. Ivan commented that thus far the volunteers to serve on this committee all come from Texas State University and he would like a broader diversity of voices on this committee. Ivan encouraged anyone with an interest in this committee from a breadth of backgrounds to contact him about serving on the committee.

It was moved and seconded to hold the 2025 TSM meeting at the TTU Center at Junction. Motion passed. The 2025 meeting will be held February 14-16.

John Hanson noted that he was going to be would be updating the website over the next year and asked for help and support.

President Jessica Healy-La Price praised the quality of the student presentations this year. She thanked all the students and faculty who presented their research as well as all the folks who participated in the logistics of the meeting.

The Members' Business Meeting was recessed at 2:27 pm.

The Members' Business Meeting was reconvened at 6:30 pm.

Phil Sudman, Chair of the Honorary Membership Committee, continued his report from the Members Business Meeting. Phil began by providing the certificates for the 2020 class of Honorary Members (Marcia Revelez & Thomas E. Lee, Jr.). Phil continued by presenting the certificates to the 2023 class of Honorary Members (Michael T. Dixon, John D. Hanson, & Russell S. Pfau). Phil closed his comments by encouraging members to bring nominations for Honorary Membership to any member of the Executive Committee.

Michelle Haynie, Chair of the Student Honoraria Committee, announced the winners of the presentation awards. Each winner received a cash award ($500 for the Packard Award and $400 for all others) and was recognized by the society with applause. Michelle congratulated all the presenters for their presentations and encourage everyone to submit abstracts next year.

Oral presentation award winners were:
1. Robert L. Packard Award — Anya Isabella Ocampos, Texas A&M University – Corpus Christi
2. TSM Award — Sufia A. Neha, Texas Tech University
3. William B. Davis Award — Angela Alviz, Texas Tech University
4. William B. Davis Award — Ashley E. Loehn, Angelo State University
5. Bobby Baker Award — Jadance L. Black, Cameron University

Poster presentation award winners were:
1. Clyde Jones Award (graduate) — Nuria Bernal-Hoverud, Texas Tech University
2. Vernon Bailey Award (graduate) — Tatiana Velasquez-Roa, Texas State University
3. Clyde Jones Award (undergraduate) —Duncan M. Vick, Texas A&M University
4. Vernon Bailey Award (undergraduate) — Alexandra Moya, Cameron University

Kenneth Bader announced the winners of the Mammal Challenge. Thomas Yllander of Texas A&M University won the Student category of the Mammal Challenge. Jessica Light of Texas A&M University won the Non-Student category of the Mammal Challenge.

The Members' Business Meeting was adjourned at 6:50 pm.

Respectfully submitted,
Joel G. Brant
Permanent Secretary

STUDENT 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 is presented for the Best Overall oral presentation. Eligibility is open to any student who has not previously received this award. This award currently includes an honorarium of $500.

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. The award was named in honor of Robert L. Packard (1928-1979), the founder of the Texas Society of Mammalogists.

TSM Award – The TSM Award is presented for the best oral presentation in mammalian molecular biology, evolution, and systematics by a graduate student. Eligibility is open to any graduate student who has not previously received this award. This award currently includes an honorarium of $400.

The TSM Award was established in 1990.

William B. Davis Award – The William B. Davis Award is presented for the best oral presentation in classical mammalogy at the organismal level by a graduate student. Eligibility is open to any graduate student who has not previously received this award. This award currently includes an honorarium of $400.

The William B. Davis Award was established in 1998 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 *The Mammals of Texas* (1947, 1960, 1966, 1974, 1994).

Bobby Baker Award –The Bobby Baker Award is presented for the best oral presentation in mammalian molecular biology, evolution and systematics by an undergraduate student. Eligibility is open to any undergraduate student who has not previously received this award. This award currently includes an honorarium of $400.

The Bobby Baker Award was established in 2013 in honor of Bobby Baker (1986-2012), who was an active and award-winning undergraduate member of the Texas Society of Mammalogists.

Rollin H. Baker Award – The Rollin H. Baker Award is presented for the best oral presentation in classical mammalogy at the organismal level by an undergraduate student. Eligibility is open to any undergraduate student who has not previously received this award. This award currently includes an honorarium of $400.

The Rollin H. Baker Award was established in 2002 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.

Clyde Jones Awards – The Clyde Jones Awards are presented for the best poster presentations by one graduate student and one undergraduate student in mammalian molecular biology, evolution, and systematics. Eligibility is open to any student who has not previously received the award at the respective academic level.

The initial Clyde Jones Award was established in 2004 in honor of Clyde Jones (1935-2015), Horn Professor of Biological Sciences at Texas Tech University. Jones was an active member of TSM since its inception in 1983 until his death in 2015, and was President of the Society in 1987-88.

Vernon Bailey Awards – The Vernon Bailey Awards are presented for the best poster presentations by one graduate student and one undergraduate student in classical mammalogy at the organismal level. Eligibility is open to any student who has not previously received the award at the respective academic level.

The initial Vernon Bailey Award was established in 2004 in honor of Vernon Bailey (1864-1942), Chief Field Naturalist and Senior Biologist for the Department of Agriculture's Bureau of Biological Survey (1897-1933). Bailey conducted the first and most complete biological survey of Texas, from 1889 to 1905.

TEXAS SOCIETY OF MAMMALOGISTS

Honorary Members

Class of 1985
W. Frank Blair (D)
Walter W. Dalquest (D)
William B. Davis (D)
Robert L. Packard (D)

Class of 1986
Rollin H. Baker (D)

Class of 1991
Howard McCarley (D)

Class of 1992
J Knox Jones, Jr. (D)

Class of 1995
Clyde Jones (D)

Class of 1997
Robert J. Baker (D)

Class of 1998
James Scudday (D)
Herschel Garner

Class of 1999
David J. Schmidly

Class of 2002
Art Harris

Class of 2003
Arthur G. Cleveland

Class of 2004
Ira F. Greenbaum
Robert E. Martin

Class of 2006
Ann Maxwell
Terry Maxwell (D)

Class of 2007
Guy N. Cameron
Earl G. Zimmerman

Class of 2008
John Bickham

Class of 2010
Robert C. Dowler

Class of 2011
Ron Pine

Class of 2013
Fred Stangl (D)

Class of 2015
Rodney Honeycutt

Class of 2017
Michael Tewes

Class of 2018
Lisa Bradley
Robert D. Bradley

Class of 2019
Loren K. Ammerman
Philip D. Sudman

Class of 2020
Thomas E. Lee
Marcia Revelez

Class of 2023
Michael T. Dixon
John D. Hanson
Russell S. Pfau

Patron Members

Jo Actkinson
Loren K. Ammerman
Amy Baird
Robert Baker (D)
Rollin Baker (D)
John Bickham
Lisa Bradley
Robert Bradley
Joel G. Brant
Jorge Salazar-Bravo
Dan Brooks
Guy Cameron
Darin Carroll
Brian Chapman (D)
Ron Chesser
Scott Chirhart
Arthur G. Cleveland
Danielle Dillard
Michael Dixon
Robert C. Dowler
Cathy Early
Carla Ebeling
Herschel Garner
Jim Goetze
Ira F. Greenbaum
Meredith Hamilton
John Hanson
Michelle Haynie
Steve Hoofer
Mandy Husak
Michael Husak
Clyde Jones (D)
Stephen Kasper
Thomas E. Lee
Jessica Light
Robert E. Martin
Ann Maxwell
Terry Maxwell (D)
Kevin McKinney
Steve McReynolds
Anne Merchant
Chris Montag
Jim Patton
Clint Perkins
Russell Pfau
Caleb Phillips
Carl Phillips
Brenda Rodgers (D)
Duke Rogers
Kent Rylander
David J. Schmidly
Stephanie Shelton
Steve Smith
Phil Sudman
Michael Tewes
Ron Van Den Bussche
Christopher Walker
Kenneth T. Wilkins
Don Wilson
Ray Willis
Bernd Wursig
Earl Zimmerman