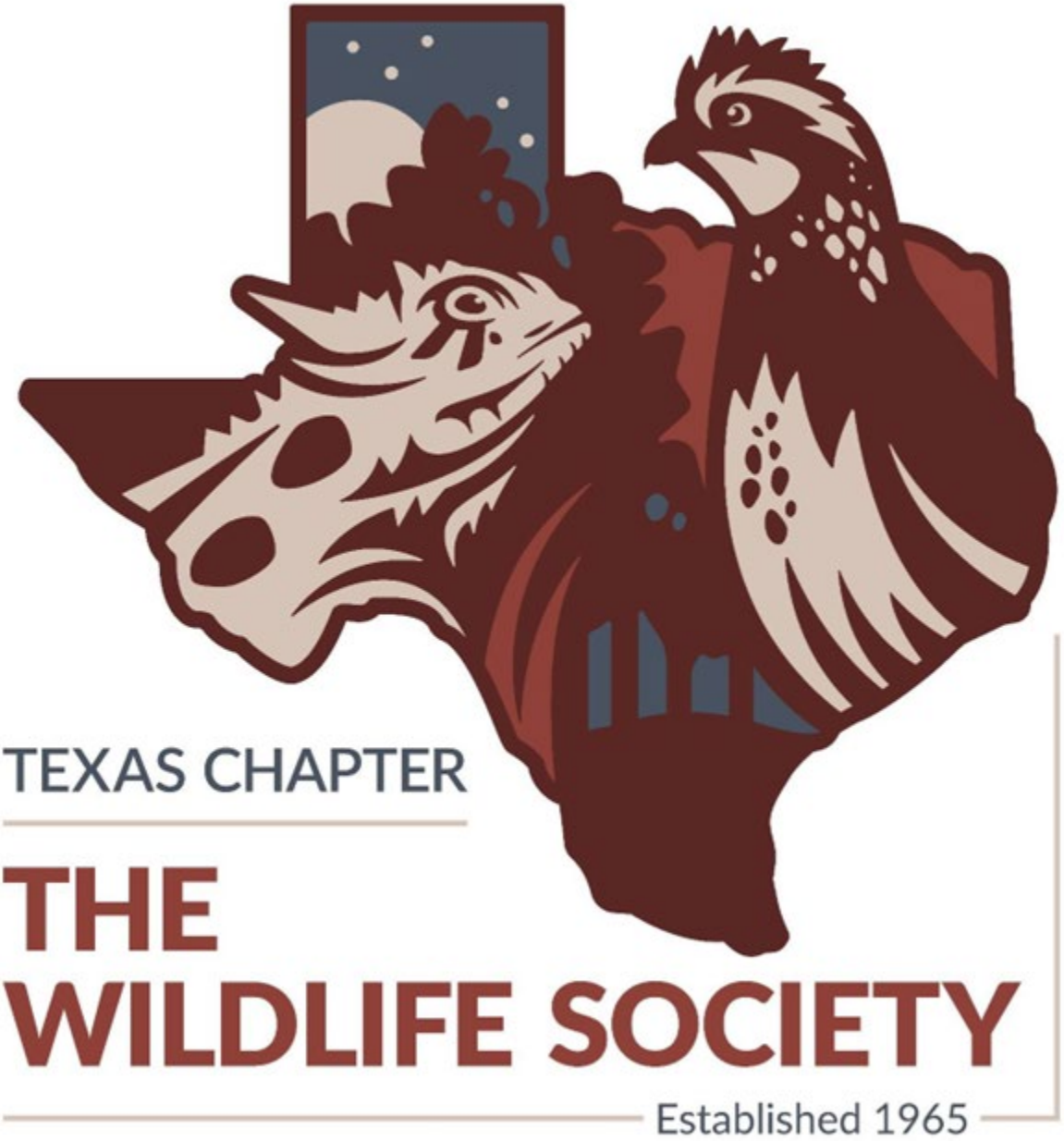
61st Annual Texas Chapter of The Wildlife Society Meeting



"Conservation Conflict – Working It Out"

Denton, TX

February 19-21, 2025

2024-2025 Executive Board

Executive Director	**Matt Wagner**
President	**Mary Pearl Meuth**
President-elect	**Jessica Glasscock**
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Program

Olivia Gray, Benjamin Olson, Daniel Price, Kristyn Murphy, and Megan Granger

Local Arrangements

Hope Zubek and Mikaela Egbert

Student Activities & Posters

Sarah Turner and Heather Mathewson

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The Nature Conservancy

Wednesday, February 19, 2025

6:00 AM - 9:00 AM	Hotel Breakfast	Lobby Bar
7:00 AM - 5:00 PM	Exhibits Hall	Universities and Triangle Foyers
8:00 AM - 1:00 PM	Photo & Art Submission	Business Center Foyer
7:00 AM - 5:00 PM	Registration	Universities Foyer
8:00 AM - 12:00 PM	R Statistical Software: From Start to Finish	Pioneer I
8:00 AM - 12:00 PM	An Extension of Land Pond Management	Pioneer II
8:00 AM - 12:00 PM	Bee-Haw: Texas Bees	Pioneer III
8:00 AM - 12:00 PM	Wild Side of Urban Life: Wildlife Management in Texas' Cities	Triangle Ballroom
8:00 AM - 12:00 PM	Occupancy Models for Wildlife Research in R	Arabian I
8:00 AM - 12:00 PM	Survey 123: Being Happy with Your Data Collection	Arabian II
10:00 AM - 11:00 AM	TWA Hunting Heritage Programs	Arabian III
8:00 AM - 12:00 PM	Mounting a Deer from Start to Finish	Quarter
8:00 AM - 12:00 PM	Introduction to Complex Networks	O'Rielly
8:00 AM - 5:00 PM	Raffle	Palomino
8:00 AM - 5:00 PM	Practice Room & Quiet Area	Wicklow
1:00 PM - 3:00 PM	Executive Board Meeting	Triangle Ballroom
3:00 PM - 4:30 PM	Plant ID Competition	Quarter and Appaloosa
4:00 PM - 5:30 PM	Student Poster Competition	Eagles, Chilton, Kincaid
5:00 PM - 8:00 PM	Welcome Dinner & Plenary Session	Eagles, Chilton, Kincaid
5:30 PM - 7:00 PM	Hotel Evening Reception	Lobby Bar
8:00 PM - 10:00 PM	Welcome Reception	Eagles, Chilton, Kincaid, Universities Foyer

Thursday, February 20, 2025

6:00 AM - 9:00 AM	Hotel Breakfast	Lobby Bar
7:00 AM - 8:00 AM	Student Breakfast	Grand Ballroom
7:00 AM - 5:00 PM	Exhibits Hall	Universities and Triangle Foyers
8:00 AM - 10:00 AM	Membership Meeting	Triangle Ballroom
8:00 AM - 5:00 PM	Registration	Grand Foyer
8:00 AM - 5:00 PM	Photo & Art Competition	Business Center Foyer
8:00 AM - 5:00 PM	Naturalist Contest	Appaloosa Ballroom
8:00 AM - 5:00 PM	Practice Room & Quiet Area	Wicklow
8:00 AM - 5:00 PM	Raffle	Palomino Ballroom
9:30 AM - 12:00 PM	Cottom Awards	Eagles, Chilton, Kincaid
12:00 PM - 1:30 PM	Past Presidents Lunch	Arabian
1:30 PM - 3:00 PM	Conservation & Ecology of Mammals I	Pioneer I
1:30 PM - 3:00 PM	Conservation & Ecology of Birds I	Pioneer II
1:30 PM - 3:00 PM	Natural Resources Management	Pioneer III
3:00 PM - 3:30 PM	Coffee Break	Universities and Triangle Foyers
3:15 PM - 4:30 PM	Conservation & Ecology of Mammals II	Pioneer I
3:15 PM - 4:30 PM	Conservation & Ecology of Birds II	Pioneer II
3:15 PM - 4:30 PM	Biometrics, Population Monitoring, & Citizen Science	Pioneer III
4:30 PM - 5:30 PM	Women of Wildlife Reception	Pioneer IV
4:30 PM - 6:00 PM	East Foundation Reception (Invite Only)	Quarter
4:30 PM - 6:00 PM	Noncompetitive/Professional Poster Competition	Eagles, Chilton, Kincaid
5:30 PM - 7:00 PM	Hotel Evening Reception	Lobby Bar
6:00 PM - 8:00 PM	Dinner & Professional Awards Presentation	Eagles, Chilton, Kincaid
8:00 PM – 10:00 PM	After Awards Reception	Eagles, Chilton, Kincaid, and Universities Foyer

Friday, February 21, 2025

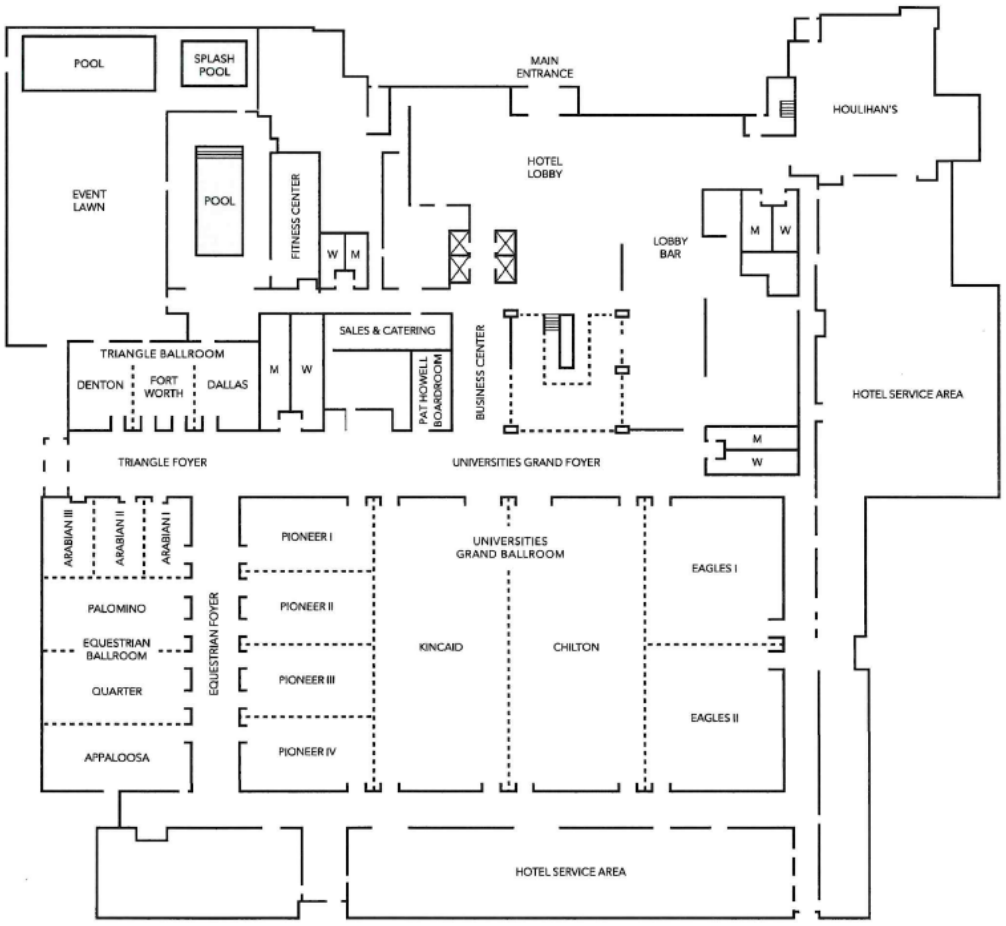
6:00 AM - 9:00 AM	Hotel Breakfast	Lobby Bar
7:00 AM - 8:00 AM	Fellowship of Christian Conservationists	Appaloosa
7:00 AM - 3:00 PM	Photo & Art Competition	Business Center Foyer
7:00 AM - 5:00 PM	Exhibits Hall	Universities and Triangle Foyers
8:00 AM - 10:00 AM	Conservation Affairs Meeting	Triangle Ballroom
8:00 AM - 12:00 PM	Naturalist Contest	Appaloosa
8:00 AM - 5:00 PM	Raffle	Palomino
8:00 AM - 5:00 PM	Practice Room and Quiet Area	Wicklow
9:00 AM - 10:30 AM	Conservation & Ecology of Mammals III	Pioneer I
9:00 AM - 10:30 AM	Conservation & Ecology of Birds III	Pioneer II
9:00 AM - 10:30 AM	Conservation & Ecology of Reptiles & Amphibians	Pioneer III
10:45 AM - 12:00 PM	Conservation & Ecology of Mammals IV	Pioneer I
10:45 AM - 12:00 PM	Conservation & Ecology of Birds IV	Pioneer II
10:45 AM - 12:00 PM	Habitat & Wildlife Communities	Pioneer III
11:00 AM - 12:00 PM	TPWD Led Presentation/Discussion on Future Research Needs	Triangle Ballroom
12:00 PM - 1:30 PM	Student Leadership Lunch	Arabian
1:00 PM - 3:00 PM	Human Dimensions/Conservation Communication/Entomology	Pioneer II
1:00 PM - 3:15 PM	Conservation & Ecology of Mammals V	Pioneer I
1:00 PM - 3:15 PM	Wildlife Disease & Toxicology	Pioneer III
1:30 PM - 3:30 PM	Executive Board Meeting	Triangle Ballroom
3:00 PM - 3:30 PM	Coffee Break	Universities and Triangle Foyers
3:00 PM - 4:00 PM	SWAP Panel Discussion	Pioneer II
4:00 PM - 6:00 PM	Quiz Bowl	Eagles, Chilton, Kincaid
4:30 PM - 6:00 PM	BRI/Sul Ross Reception	Pioneer IV
4:30 PM - 6:00 PM	TAMU Reception	Quarter
5:30 PM - 7:00 PM	Hotel Evening Reception	Lobby Bar

6:00 PM - 8:00 PM	Student Awards/Dinner	Eagles, Chilton, Kincaid
8:00 PM - 10:00 PM	After Awards Reception	Eagles, Chilton, Kincaid and Foyer

Saturday, February 22, 2025

6:00 AM - 9:00 AM	Hotel Breakfast/Check Out	Lobby Bar

FIRST FLOOR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PIONEER I
UNIVERSITIES GRAND BALLROOM
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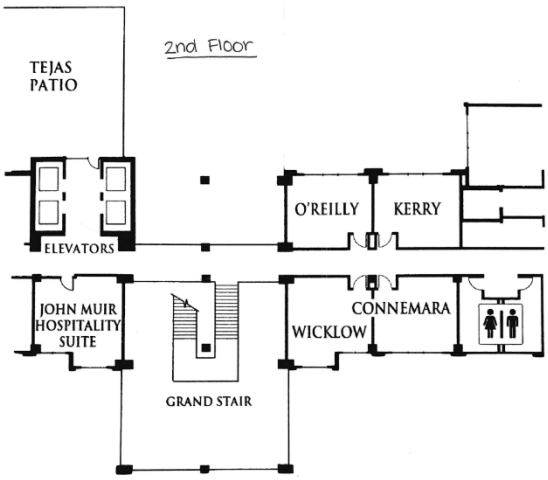
APPALOOSA
PIONEER IV
HOTEL SERVICE AREA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WICKLOW
GRAND STAIR

Conservation Conflict - Working It Out

2025 Texas Chapter of The Wildlife Society Conference Plenary
Wednesday February 19th, 2025 – 6:00pm – 7:30pm

Conflict is a common challenge in conservation, but collaboration and innovation can help resolve these issues while balancing wildlife needs with stakeholder interests. This plenary session will explore conservation conflict as a continuum, from long-standing debates to emerging challenges and future concerns. Experts will share lessons learned and strategies for fostering productive dialogue, voluntary conservation efforts, and stakeholder partnerships.

Opening Remarks: Conservation Conflict – Working It Out
Leo Miranda-Castro, Executive Director, Conservation Without Conflict
Leo Miranda-Castro is the Executive Director of **Conservation Without Conflict**, an organization dedicated to fostering collaborative conservation solutions. With decades of experience in wildlife policy and conservation leadership, he has played a key role in advocating for voluntary and partnership-driven conservation efforts across the United States.

Endangered Species Management in Texas
Neal Wilkins, CEO, East Foundation
Neal Wilkins is the CEO of the **East Foundation**, an organization focused on advancing land stewardship and conservation practices in Texas. With a background in wildlife science and land management, he has worked extensively to bridge the gap between conservation and private landowners.

Chronic Wasting Disease (CWD) – Collaboration in Disease Management
Johnathan Letz, President, Texas Wildlife Association
Johnathan Letz serves as **President of the Texas Wildlife Association**, an organization dedicated to conserving Texas' wildlife resources through education, policy, and stewardship. His leadership focuses on bridging gaps between landowners, hunters, and policymakers in wildlife conservation efforts.

Mountain Lion Management – Old Issue, New Conflict
Greg Simons, Wildlife Biologist, Wildlife Systems Inc.
Greg Simons is a **wildlife biologist and owner of Wildlife Systems Inc.**, specializing in wildlife management and conservation strategies. His expertise in land stewardship and species management makes him a leading voice in addressing emerging wildlife conflicts.

Water Rights in Texas – A Future Conflict in Resource Management
Stacey Steinbach, Executive Director, Texas Water Association
Stacey Steinbach is the **Executive Director of the Texas Water Association**, where she works on water policy, conservation planning, and stakeholder collaboration to address water resource challenges across Texas.

Conclusion & Discussion: Moving Forward
Matt Wagner, Executive Director, TCTWS
Matt Wagner will lead a discussion recapping the session's key takeaways, opening the floor for **audience Q&A**, and discussing how the principles of **Conservation Without Conflict** can shape future conservation solutions. Panelists will reflect on past conservation challenges and **provide insights for the next generation of wildlife professionals.**

Wednesday, February 19, 2025

Student Poster Competition

Eagles/Chilton/Kincaid, February 19, 2025
4:00 PM – 5:30 PM

1. **Conservation Without Borders: Research On Desert Bighorn Sheep, Carmen Mountain White-tailed Deer, And Elk in Mexico**
   Ivan Lozano; E. Alejandro Lozano-Cavazos; Dylan Stewart; Stephen Webb

2. **An Introduction to the Native and Non-native Plant-insect Interactions and Potential Pollinators of Puerto Williams and Yendegaia, Cabo De Hornos, Chile**
   Carmen Burkett; Sara Joseph; Andrew Gregory

3. **When Bats Take Wing: Environmental Influences of Cave myotis and Tri-colored Bat Activity Patterns**
   Cerise Mensah; Carly Naundorff; Madison Gover; Madison Nadler; Sarah Fritts

4. **American Alligator (*Alligator mississippiensis*) Spatial Ecology and the Extent of Nest Depredation by Wild Pigs (Sus scrofa) in Coastal Texas**
   Alyssa Freeman; John M. Tomecek; Wade Ryberg; Ben Wu; Jonathan Warner

5. **Texas Tortoise's Movement Patterns Across Chapparal WMA**
   Shelby Green

6. **Evaluating Livestock Tank Forage and Cover Availablility for Overwintering Grassland Birds in the Trans-Pecos.**
   Will Massa; Emily Blumentritt; Daniel Collins; Justin French; Ty Goodwin; Audrey Taulli; Maureen Frank

7. **Midcontinent Cackling Goose *(Branta hutchinsii)* Migratory Connectivity**
   Jack Rogers; Daniel Collins; Jay VonBank; Kevin Kraai; Bart Ballard

8. **The Role of Soil Type and Grazing Systems in Shaping Desert Grassland Ecosystems**
   Ty Goodwin; Lalo Gonzalez; Silverio Avila; Justin French

9. **Scale-dependent Patterns of Woody Plant Encroachment and Grassland Fragmentation on the Welder Wildlife Refuge**
   Miranda Peterson; Hsiao-Hsuan Wang; William Grant

10. **Combining Local Ecological Knowledge and Standardized Driving Surveys to Estimate Abundance and Density of Recently Translocated Populations of Wild Turkey in East Texas**
Clarissa Molina; Andrew Gregory; Stephen Webb; Blake Grisham

11. **Can Eyeworm and Cecal Worm Burden Drive Quail Population Dynamics?**
Maedean Cardenas; Fidel Hernandez; Liza Soliz; Andrea Montalvo; Stephanie Shea; Andrew Olsen; Stacie Villarreal; Nicole Traub; Alan Fedynich; Dale Rollins; Ryan Luna; Alynn Martin

12. **Applying Machine Learning to Interpolate Movement Trajectories of Desert Bighorn Sheep**
John Paul Acosta; Seong Won Park; Dylan Stewart; E. Alejandro Lozano-Cavazos; Stephen Webb; Toryn Schafer

13. **Evaluating The Precision of Imagej for Wildlife Morphometry: A Comparison with Traditional Methods for Measuring Amphibians**
Lee Cottle; Caleb Mullins; Cord Eversole

14. **Establishment of Blood Reference Intervals for Nilgai from South Texas**
Miguel Palermo; Alynn Martin; Ashley Reeves; Tiffany Pope

15. **Patterns of Population Structure and Gene Flow in a Fragmented Environment: How Road Infrastructure Impacts Bobcat and Ocelot Dispersal**
Jack Towson; John Young; Emma Brookover; Sean Kiernan; Daniel Scognamillo; Will Stephens; Hunter Vasquez; Thomas Yamashita; Michael Tewes

16. **Ocelot Guzzler Utilization on Laguna Atascosa National Wildlife Refuge**
Hunter Vasquez; Michael Tewes

17. **Role of Invasive Plants in Shifting Vegetative Communities Across a South Texas Rangeland**
Duston Duffie; Andrew Mullaney; Cord Eversole; Scott E. Henke; Gabriel Andrade-Ponce; Fidel Hernandez

18. **Analyzing the Effects of Pine Plantation Developmental Stage on Wildlife Diversity Using a Multi-taxa Approach**
Ethan Menzel; Kathryn R. Kidd; Cord Eversole; Jessica Glasscock; Reuber Antoniazzi

19. **Feathers in the Frame: Exploring the Opportunities and Limitations of Camera Traps in Avian Research**
Lilly White; Ethan Menzel; Reuber Antoniazzi; Jessica Glasscock

20. **Evaluating Native Bee Communities in Habitat Restored for Upland Game Birds in East Texas**
Kimi Birrer; Daniel Bennett; Reuber Antoniazzi; Gabriel Andrade Ponce; Jessica Glasscock; Christopher Schalk

21. **Winter Is Coming: Understanding Winter Activity Patterns and Occupancy Status of Tricolored Bats Throughout Texas**
Carly Naundorff; Cerise Mensah; Madison Gover; Madison Nadler; Sarah Fritts

22. **Sustainable Grazing Effects on Spider Communities in North-central Texas Rangelands**
Nadia Castanon; Adam Mitchell; Heather Mathewson; Darrel Murray; James Muir

23. **Exploring Mycorrhizal Dynamics: A Comparative Analysis of Rotational vs. Continuous Grazing Systems**
Asia Cornelius; Lalo Gonzalez; Silverio Avila; Justin French; Maureen Frank

24. **Assessing Presence of Microplastics in Mississippi Kites**
Madison McGinnis; Scott Collins; Clint W. Boal

25. **Utilizing Blood Analysis to Evaluate Health of Collared Peccary**
Clayton Dube; Stephen Webb; Walter Cook; Abigail Dwelle; Edward Tomassetti; Jacob Dykes; Marcus Blum; Emily Masterton; Daniel Benson; Whitney Gann; Logan Thomas

26. **Exploring Beetle Community Dynamics Following Long-Term Grassland Restoration Efforts in a New England Grassland**
Naomi Zahn

27. **Identifying Plant-pollinator Networks Associated with Native Grasses in North-Texas**
Isabella Szebelledy

28. **Is There a Relationship Between Temperature and Songbird Egg Mass?**
Carolyn Hurta; Lindsey Willingham; Alexander Hoxie; Britt Heidinger; Heather Mathewson

29. **Comparing Methodologies for Assessing Herpetofauna Diversity in Southern Pine Stands**
Vincent Jolley; Ethan Menzel; Cord Eversole; Reuber Antoniazzi

30. **Green-green Dilemma: Prioritizing Mitigation Efforts for Bats and Wind Energy**

Maria Ramirez; Madison Nadler; Madison Gover; Sarah Fritts

31. **Influencing the Next Generation of Land Stewards Through High School Engagement and Beyond**
Mayrena Lugo

32. **Texas Wildlife and the Border Barrier System: How Species Are Moving Through a Large-scale Anthropogenic Barrier**
Katherine McDaniel; Chloe Nouzille; Robert Alonso; David Hewitt; Randy DeYoung; Levi Heffelfinger; Clayton Hilton; Dana Karelus; Grant Harris; Michael Cherry; Lisanne Petracca

33. **Assessing The Use of Drones to Monitor Pronghorn Herd Dynamics**
Maggie Rector; Celine Rickels; Michael Cherry; Colter Chitwood; Marlin Dart; Randy DeYoung; W. Sue Fairbanks; Robert Lonsinger; Evan Tanner; Matthew Turnley; George Wang; Levi Heffelfinger

34. **Influence of Nest Insulation on Hatching Success During Extreme Heat**
Jordan Morgan; Alexander Hoxie; Lindsey Willingham; Gracie Gold; Britt Heidinger; Heather Mathewson

35. **Body Size Diversity and Correlation Among Characiformes Fish in the Essequibo River, Guyana**
Adair Hernandez

36. **Avian/Solar Interactions During Fall Migration Through the Central Flyway**
Emily Stelling; Maria Ramirez; Sarah Fritts

37. **Painted Bunting (Passerina ciris) Nesting Success in North Texas**
Ashley Giron; Jason Bohenek; James Bednarz

38. **Classifying Wintering Roost Sites of American Kestrels in North Texas**
Brooke Prater; James Bednarz; Andrew Gregory

39. **The Impacts of Imidacloprid Exposure on Ring-necked Pheasant Growth and Survival**
Madison Ramsey; Warren Conway; Courtney Ramsey; C. Brad Dabbert; Cade Coldren

40. **Occurence of Cryptic-Owl Species in the Fort Davis Mountains**
Syndilyn Maguglin

41. **A Systematic Review of Extreme Climatic Events and Their Impacts on Avifauna**

Kyndra McGovern; Ashley Tanner; Evan Tanner; Bart Ballard; Laura Beck; Michael Barrett; Marlin Dart; Raziel Flores; Joseph McGovern; Caleb McKinney; Dakota Moberg; Maydeliz Ramos; Michael Stewart; Levi Sweeten; Katherine Travis; Emma Weber; Jordan Giese; Jack Rogers

42. **Comparing Presence/Absence Methods for Detecting Montezuma Quail**
Curtis Martin; David Tonnessen; Lalo Gonzalez; Maureen Frank; Ryan Luna

43. **Dispersal Movements of Marked Harris's Hawks Among Territories in South Texas**
Alex Kent; James Bednarz; Brooke Poplin

44. **Differential Sex-based Winter Foraging Strategies of American Kestrels in North Texas**
Audrey Pellacani; Brooke Prater; James Bednarz

45. **Factors Influencing the Body Condition of American Kestrels During the Winter in Denton County, Texas**
John Morrow; Brooke Prater; James Bednarz

46. **Predator Identity Shapes the Diversity of Larval Amphibians in Ponds from East Texas**
Tatiana Suarez Joaqui; Daniel Saenz; Cory Adams; Toby Hibbitts; Kathryn R. Kidd; Reuber Antoniazzi; Christopher Schalk

47. **Assessing Potential Exposure Of Northern Bobwhite to Microplastic Pollution**
Brianna Garza; Fidel Hernandez; Jennifer Smith

48. **Painted Bunting Distribution: A Spot Map Report for LLELA Nature Preserve, 2024**
Isabella Kimbrow

49. **Effects of Particulate Matter2.5 on Monarch Butterfly Oviposition Preference**
Iman Haddad

50. **Population and Spatial Ecology of Collared Peccary in the South Texas Plains**
Abigail Dwelle; Daniel Benson; Emily Masterton; Edward Tomassetti; Marcus Blum; Walter Cook; Paul Lukacs; Jacob Dykes; Whitney Gann; Stephen Webb

51. **Factors Influencing Diets of Wild Pigs (Sus scrofa) in the Neches River Basin of the Piney Woods Region of Texas**

Hallie Halstead; John M. Tomecek; Jeffrey Wiegert; Doug Tolleson; Steve Jack; Robert Sanders

52. **Unified Approach to Managing Wild Pigs in Us National Parks: Evaluation, Review, And Implementation.**
Anna Racey; John M. Tomecek

53. **Economic Assessment of Losses to Bird Predation on Aquaculture Farms in Texas**
Sarah Goodman; John M. Tomecek; Shraddha Hegde; Brian Dorr; Delbert Gatlin

54. **Progressing Rangeland Management Through Drone-Based Data Acquisition for Vegetation Cover Structure**
Kylie Perez

55. **Is Bigger Always Better? Comparison Of GPS Collars and Solar-powered GPS Ear Tags for Animal Movement Studies**
Dylan Stewart; Egleu Mendes; Kiju Lee; Marcus Blum; Luis Tedeschi; Stephen Webb

56. **Calling Behavior of the American Woodcock in Eastern Texas**
Cory Adams; James Childress; jeremy Mcmurrin; Rusty Plair; Daniel Saenz; Clifford Shackelford; Hope Zubek

57. **How Are Environmental Factors Influencing Hatching Failure in House Sparrows *(Passer domesticus)* Along a Latitudinal Gradient?**
Lindsey Willingham; Heather Mathewson; Britt Heidinger

58. **Call Me A Peccary or Javelina but Do Not Call Me A Pig**
Kasey Pirkle; Jacob Dykes; Stephen Webb; Whitney Gann

59. **The Isotopic Niche of Alligator Snapping Turtles In East Texas**
Christopher Schalk; Luke Micek; Josh Pierce; Carmen Montana; Jessica Glasscock

61. **American Kestrel Nesting Habitat and Nestling Provisioning in the West Gulf Coastal Plain**
Richard Schaefer

62. **Terrestrial Observations of Alligator Snapping Turtles in Texas**
Josh Pierce; Jessica Glasscock; Cord Eversole; Matt Buckingham; Christopher Schalk

63. **Variations in Species Temporal Partitioning Based on Bat Community Structure**

Madison Gover; Madison Nadler; Maria Ramirez; Sarah Fritts

64. **Does Restoration of a Riparian Area Affect Songbird Populations and Communities?**
Cameron Starnes; Zachary Bellows; Heather Mathewson

65. **Grassland Habitat for Pollinators Under Various Mowing Regimes at the Fort Davis National Historic Site**
Eliana Dykehouse; Maureen Frank; Justin French

66. **Fast Food or Fine Dining? Foraging Behavior of Male White-tailed Deer During the Rut**
Ethan Garcia; Aaron Foley

Thursday, February 20, 2025

Clarence Cottom Award Presentations

Universities Grand Ballroom, Feb 20, 2025
Moderator: Stephen Webb

9:30 **Species Richness and Genetic Diversity: Continental Patterns of Bird Diversity Correlations Across the United States**
Carmen Burkett; Pantea Tehari; Arianna Azubryt; Gabriella Burkett; Alyssa Herrera; Zacchaeus G. Compson; Andrew Gregory

9:50 **Using Apple Airtags to Track Urban Raptors**
Brooke Poplin; James Bednarz; Andrew Gregory

10:10 **Addressing Assumptions of Nonlethal Monitoring of Microplastic Contamination in Nestling House Sparrows**
Alexander Hoxie; Rajani Srinivasan; Adam Mitchell; Britt Heidinger; Heather Mathewson

10:30 **Conflict, Conservation, and Coexistence: Texans' Views on Mountain Lions**
Pourya Sardari; Danial Nayeri; Benjamin Ghasemi; Daniel Pilgreen; Gerard Kyle

10:50 **Population Structure of Alligator Snapping Turtles Along a Fishing Pressure Gradient**
Luke Micek; Christopher Schalk; Cord Eversole; David Stewart; Jessica Glasscock

11:10 **Migratory Patterns of the Orange-crowned Warbler Wintering in Central Mexico and southern United States**
Dileka Kariyawasam; Evan Farese; Ian Becker; Mark Conway; José Luis Alcantara Carbajal; Andrea Contina

11:30 **Plasticity and Peril: Niche Adaptations of Desert Bighorn Sheep Facing Competition and Disease**
Elle Sutherland; Justin French; Lalo Gonzalez; Michael Cherry; Froylan Hernandez; Shawn Gray

Conservation & Ecology of Mammals I

Pioneer I, Feb 20, 2025

Moderator: Austin Killam

1:30 **Spatial Interactions of Axis and White-tailed Deer in the Edwards Plateau Ecoregion of Texas**
MacKenzie Hoffman; Ty Werdel; Jacob Dykes; Humberto Perotto; Walter Cook

1:45 **Seasonal Dynamics of Browse Nutritive Value in the Southern Cross Timbers and Prairies of Texas**
Alex Pearson; Shaelyn Rainey; Caitlyn Cooper-Norris; Nichole Cherry; Levi Heffelfinger; Jhones Sarturi; James Muir; Aaron Norris

2:00 **Competition with Wild Pigs Alters Predator-Prey Dynamics Between Coyotes and White-tailed Deer**
Parker Trifiletti; L. Mike Conner; Steve Jack; Michael Cherry

2:15 **Should I Stay or Should I Go: Behavioral Plasticity Breeds Success in Dynamic Environments**
Miranda Hopper; Kevin Lovasik; Bryan Spencer; Randy DeYoung; Aaron Foley; Poncho Ortega; David Hewitt; Landon Schofield; Tyler Campbell; Michael Cherry

2:30 **Identifying Drivers of Radio-linked Neonate Collar Performance**
Marlin Dart; Evan Tanner; Matthew Turnley; Celine Rickels; Robert Lonsinger; W. Sue Fairbanks; Colter Chitwood; Levi Heffelfinger; Randy DeYoung; George Wang; Michael Cherry

2:45 **Understanding Drivers of Recruitment of White-tailed Deer in South Texas**
Kevin Lovasik; Miranda Hopper; Bryan Spencer; Randy DeYoung; Aaron Foley; Poncho Ortega; David Hewitt; Landon Schofield; Tyler Campbell; Michael Cherry

Conservation & Ecology of Birds I

Pioneer II, Feb 20, 2025

Moderator: Hunter Scoggins

1:30 **The Value of Pricklypear and Diverse, Native-plant Communities as Nesting Habitat for Scaled Quail**
Fidel Hernandez

1:45 **The Plight of the Northern Bobwhite: Do Habitat and Rainfall Impact Population Growth in Texas?**
Kristyn Stewart-Murphy; Fidel Hernandez; Jon Horne; Alison C. Ketz; Sabrina Szeto; Alejandra Olivera-Mendez; Angela Guerrero

2:00 **Survival and Cause-specific Mortality of Northern Bobwhite Translocated to the Pineywoods**
Trey Johnson; Bradley Kubecka; C. Brad Dabbert

2:15 **Release Timing Does Not Influence Nesting of Translocated Northern Bobwhite**
Trey Johnson; Bradley Kubecka; C. Brad Dabbert

2:30 **Leveraging Breeding Bird Survey Data to Assess Factors Influencing Northern Bobwhite Population Stability Across the Species Range**
Ben Hendrickson; Andrew Gregory

2:45 **Autumn Roadside Surveys for Norhtern Bobwhite in Southern Texas: Efficacy and Modifications**
Alejandro Bazaldua; Fidel Hernandez; Andrea Montalvo; Aaron Foley; Kristyn Stewart-Murphy; David Wester

Natural Resources Management

Pioneer III, Feb 20, 2025

Moderator: Jane Duke

1:30 **Vegetation Responses After Disturbance from Ashe Juniper Removal**
Zachary Bellows; Heather Mathewson; Darrel Murray

1:45 **Exploring Mycorrhizal Dynamics: A Comparative Analysis of Rotational vs. Continuous Grazing Systems**
Asia Cornelius; Lalo Gonzalez; Silverio Avila; Justin French; Maureen Frank

2:00 **The Role of Soil Type and Grazing Systems in Shaping Desert Grassland Ecosystems**
Ty Goodwin; Lalo Gonzalez; Silverio Avila; Justin French

2:15 **Trincheras In the Digital Age: Remote Sensing for Soil Sediment Accumulation Monitoring**
Gray Hancock; Kevin Urbanczyk; Lalo Gonzalez; Silverio Avila; Justin French

2:30 **The Potential Impact of Climate Change on Herbicide Use in Natural Resource Management**
Kelley Mundy; Humberto Perotto; Evan Tanner; Annalysa Camacho; Hannah Moreno; Garrison Trichel

2:45 **Occupancy and Habitat Associations Among Owls on the Texas Coastal Bend Region**
Amaris Shammaa; Clint W. Boal; Brent Bibles; Dale James; Cade Coldren; Philip Smith

Conservation & Ecology of Mammals II

Pioneer I, Feb 20, 2025

Moderator: Reuben Gay

3:15 **Diel and Seasonal Behavioral Patterns of the Newly Recolonizing West Texas Black Bear Population**
Nicole Dickan; Justin French; Dana Karelus; Matt Hewitt; Amanda M. Veals Dutt; Louis Harveson

3:30 **Identifying the Optimal Survey Design for Estimating Black Bear Density Using Simulated SECR Models**
Matt Hewitt; Justin French; Dana Karelus; Amanda M. Veals Dutt; Louis Harveson

3:45 **Effects of a Large, Linear, Political, Anthropogenic Barrier on Large Carnivore Movement Behavior**
Chloe Nouzille; Katherine Mcdaniel; Robert Alonso; David Hewitt; Grant Harris; Dana Karelus; Claudia Wultsch; Randy Deyoung; Levi Heffelfinger; Clayton Hilton; Michael Cherry; Lisanne Petracca

4:00 **Drivers of Adult Pronghorn Survival Near the Species' Geographic Extent**

Celine Rickels; Michael Cherry; Colter Chitwood; Marlin Dart; Randy DeYoung; W. Sue Fairbanks; Derek Hahn; Robert Lonsinger; Evan Tanner; Matthew Turnley; George Wang; Levi Heffelfinger

4:15 **Functional Response of Pronghorn Space Use Relative to Anthropogenic Landscape Factors**
Bailey Kleeberg; Timothy Fulbright; Michael Cherry; Warren Conway; Marlin Dart; Randy DeYoung; Shawn Gray; David Hewitt; Gary Mizer; Anthony Opatz; Evan Tanner; Levi Heffelfinger

Conservation & Ecology of Birds II

Pioneer II, Feb 20, 2025

Moderator: Matt Reidy

3:15 **Using Geographic Information Systems to Examine the Potential Impact of Wind Turbines on Grassland Birds**
Drew Berdo; Joseph Veech

3:30 **Avian Community Response to Removal of Encroaching Woody Vegetation in Trans-Pecos Grasslands**
Audrey Taulli; Lalo Gonzalez; Justin French; Maureen Frank

3:45 **Linking Cross-scale Dynamics in Landscape Patterns to Declines in a Ground-nesting Galliform**
Caleb McKinney; Katherine Travis; Evan Tanner; Ashley Tanner; Leonard Brennan; Fidel Hernandez; David Hewitt; David Wester; Humberto Perotto-Baldivieso; Ryan Luna; John McLaughlin

4:00 **Current Recovery Efforts for the Attwater's Greater Prairie-chicken**
Jim Mueller; Brooke Burrows; David Stewart

4:15 **Management of Attwater's Greater Prairie-chickens Infected with Reticuloendotheliosis Virus**
Jim Mueller; Brooke Burrows; Megan S. Kirchgessner; Bianca R. Sicich

Biometrics, Population Monitoring, & Citizen Science

Pioneer III, Feb 20, 2025

Moderator: Angela Lewellan

3:15 **5 Years of Gem: Lessons Learned from Polishing the Grassland Effectiveness Monitoring Program**
Alex Nelson; Rebekah Rylander; Anna Matthews; Daniel Bunting; Michael C. Duniway; James Giocomo; Anna Knight; Adriana Leiva; Robert Perez; Kourtney Stonehouse; Derek Wiley; Don Wilhelm

3:30 **Use of eBird Community Science Data to Predict the Distribution of Wintering Grassland Songbirds in the Western Cross Timbers Ecoregion**
Catalina Berry; Lindsey Willingham; Autumn Patterson; Adam Mitchell; Heather Mathewson

3:45 **Outcome-based Monitoring for Assessing Fall and Winter Surface Water Availability for Waterfowl Habitat in the Texas Gulf Coast Region**
Stephen DeMaso; Joseph Lancaster; Nicholas Enwright; Michael Brasher; Mark Parr; William Vermillion; Barry Wilson; Tyler Morvant

4:00 **Did You Hear That? Counting Quail Using Autonomous Recorders and Hierarchical Models**
David Pearce; Toryn Schafer; Humberto Perotto; Ty Werdel; Stephen Webb

Noncompetitive/Professional Poster Competition

Eagles/Chilton/Kincaid, February 20, 2025
4:00 PM – 6:00 PM

1. **Resource Selection of a Recolonizing Population of Black Bears in a Desert Landscape**
   Caitlin Camp; Amanda M. Veals Dutt; Justin French; Levi Heffelfinger; David Hewitt; Louis Harveson

2. **Environmental Drivers and Habitat Preferences of Breeding American Alligators *(Alligator mississippiensis)***
   Brandon Gross; Gabriel Andrade Ponce; Cord Eversole

3. **Comparative Survival of Sympatric Chestnut-bellied Scaled Quail and Northern Bobwhite Within the Tamaulipan Biotic Province**
   Levi Sweeten; Caleb McKinney; Maydeliz Ramos; Katherine Travis; Evan Tanner; Leonard Brennan; Fidel Hernandez; David Hewitt; Ryan Luna; John McLaughlin; Humberto Perotto; Ashley Tanner; Lisanne Petracca; David Wester

4. **Everything That Glitters Is Not Gold: Investigating Solar-powered Gps Ear Tags for Wildlife Research**
   Edward Tomassetti; Dylan Stewart; Abigail Dwelle; Emily Masterton; Walter Cook; Marcus Blum; Jacob Dykes; Whitney Gann; Stephen Webb

5. **Quantifying Greater Sandhill Crane Migratory and Population Connectivity Using Molecular Techniques**
   Haley Ditzenberger; Blake Grisham; Daniel Collins; M. Cathy Nowak; Justin Russell

6. **Unlocking The Potential of Canopy Camera Traps to Enhance Vertebrate Surveys in Urban Areas**
   Reuber Antoniazzi; Devin Stage; Kyle Hughes; Gabriel Andrade-Ponce

7. **Hatch Or Fail: Northern Bobwhite Quail & Scaled Quail Attempt at Multiple Nests at RPQRR**
   Kyndal Underwood; Adam Vonderschmidt; Dan Foley; Ryan O'Shaughnessy

8. **Wildlife Disease Research in Texas: Trends Over the Past Three Decades**
   Scott E. Henke; Jamie Benn; Alynn Martin

9. **Status and Trend of Texas Horned Lizards in the United States From 2014 – 2024**
   Javier Robledo; Scott E. Henke

10. **Attitudes of Wildlife Specialists Pertaining to Ownership of Dangerous Wild Animals**
Harry Rakosky; Sandra Rideout-Hanzak; Alynn Martin; Scott E. Henke

11. **Evaluating Caterpillar Use of Drought-Tolerant Landscape Perennials Under Water Restrictions in North-Central Texas**
Addison Singleton; Adam Mitchell; Heather Mathewson

12. **Seasonal Dynamics of Anuran Skin Microbiomes at Wild Basin Wilderness Preserve: A Longitudinal Metagenomic Study**
Ava Perry; Amelia Valencia

13. **Assessing Seasonal Phenology of Ocelot Ranch Population Thornshrub Cover**
Emma McMillian; Thomas Yamashita; Evan Tanner; Brian K. Loflin; Michael Tewes; Emma Brookover

14. **How Does Foraging Enrichment Reduce Maladaptive Behavior in Captive Giraffes?**
Grace Soechting; Luke Linhoff; Molly Shea; Heather Mathewson

15. **Evaluating Microplastic Pollutants and Macroinvertebrate Response in the Greater Matagorda Bay Area, Texas**
Grace Millsap; Adam Mitchell

16. **Exploring The Impact of Extrafloral Nectaries (EFNS) And Beneficial Arthropods on the Performance of a Common Rangeland Forage Legumes *(Fabaceae)***
Gabby Candelario; Adam Mitchell; Nadia Castanon

17. **Assessing Invertebrate Diversity and Abundance Among Rio Grande Wild Turkey Habitats in the Edwards Plateau Ecoregion Using Traditional and Molecular Techniques**
Joseph Richards; William Stewart; Ian Mack; Warren Conway; Annie Farrell; Mark Hatfield; Jason Hardin; Blake Grisham; Scott Longing

18. **An Automated Approach to Monitoring Herpetofauna on Texas Military Department Installations**
Corey Fielder; Wade Ryberg; Toby Hibbitts; Danielle Walkup; Kathryn Steffen; William Thompson

19. **Effects Of Vegetative Composition and Structure on Avian Presence and Diversity in the Rolling Plains**
Shaelyn Rainey; Caitlyn Cooper-Norris; Aaron Norris

20. **How Flight Behavior Responses of Eastern Fox Squirrels Differ Between Rural and Synurbanized Populations in College Station, Texas**
kayla art; Ty Werdel

21. **White Tailed Deer Population Size and Habitat Use in Urban Parks That Differ in Area and Habitat Structure**
Karla Pedraza; Israel Adame; Vijayan Sundararaj

22. **Evaluating Avian Community Response to Spatial Regime Shifts in the Tamaulipan Biotic Province**
Maydeliz Ramos; Levi Sweeten; Katherine Travis; Caleb McKinney; Ashley Tanner; Evan Tanner; Leonard Brennan; Fidel Hernandez; David Hewitt; David Wester; Jennifer Smith; John McLaughlin; Humberto Perotto; Caleb Roberts

23. **Nocturnal vs Diurnal Use of Riparian Areas by Feral Pigs in North-central Texas**
Liliana Navar; Cameron Starnes; Zachary Bellows; Ricky Garibay; Heather Mathewson

24. **Arthropod Response to Grazing of Southern Plains Bison at Caprock Canyons State Park, Texas**
Gaven Sanders; Ty Cosper; Molly Koeck; Donald Beard; Adam Mitchell; Heather Mathewson

25. **Survival of the Generalist? A Comparison of Kitten Survival and Reproduction in Bobcats and Ocelots**
Victoria Locke; Evan Tanner; Clayton Hilton; Ashley Reeves; Julie Young; Lisanne Petracca

26. **Seasonal Abundance and Site Use of Three Waterfowl Species in North-central Texas**
Chloe Delahoussaye; Zachary Bellows; Cameron Starnes; Ricky Garibay; Heather Mathewson

27. **Evaluating Efficacy of Pollinator Sampling Techniques for Comparison with Novel Molecular Methods: Preliminary Findings**
Ethan Shaw; Addison Singleton; Heather Mathewson; Adam Mitchell

28. **Microbiome and Virome of Ocelots in South Texas: Insights into Population Health**
Mauricio Rued; Alynn Martin; Ashley Reeves; Lisanne Petracca; Christopher Kozakiewicz

29. **Genetic Evaluation of Texas Nilgai: Understanding Their Origins and Effects of Introduction**

Megan Guerra

30. **Examining Floral Rewards and Insect Pollinator Behavior in Response to Drought in North-central Texas**
Blake Liggett; Adam Mitchell; Addison Singleton

31. **Assessing Saprophagous Insect Community Response to Anthelmintics in Texas Grassland Ecosystems**
Lavender Blackston; Adam Mitchell

32. **Experimental Approaches to Improve Survival and Conservation of Swift Fox *(Vulpes velox)***
Fergus Bradbury; John M. Tomecek; Clint W. Boal

33. **Habitat Preferences of Northern Bobwhite and Scaled Quail: Unraveling Nesting Site Selection in Conservation Reserve Program and Pasture Lands**
Emily Thornock; Adam Vonderschmidt; Mitchell Riggs; Dan Foley

34. **Habitat Use and Movement of Collared Peccaries Associated with the U.S.-Mexico Border Barrier System**
Emily Masterton; Edward Tomassetti; Daniel Benson; Abigail Dwelle; Jacob Dykes; Walter Cook; Whitney Gann; Stephen Webb; Marcus Blum

35. **Monitoring Biodiversity of Pollinating Insects Along North-Central Texas Roadway**
Abigail Simpson; Adam Mitchell; Darrel Murray

36. **Flight Distance and Preferred Cover of Northern Bobwhite Quail and Scaled Quail**
Simeon Poehlman; Dan Foley

37. **Evaluating Rates of Fire Spread in Various Grass Species for Safer Texas Roadways**
Summer Aguilar; Sandra Rideout-Hanzak; Anthony Falk

38. **Quantifying the Spatial Distribution of Macartney Rose Using Very Fine-scale Imagery**
Shanna Gleason; William Longoria; Jacob Lucero; Javier Osorio Leyton; William Rogers; Humberto Perotto

39. **Evaluating Field-based Learning and Its Role on the Expressions of Self-identified Wildlife Value Orientation During a Natural Resource Management Degree Curriculum**
Caitlin Castro; Beth Silvy; David Matarrita-Cascante

40. **An Experimental Test of Delayed Plumage Maturation Hypotheses in Painted Buntings**
Victoria Langham; Christine Gurley; James Bednarz; Andrew Gregory

41. **Cackling Geese Selection of Roost Sites During the Non-Breeding Period**
Javier Segovia; Alynn Martin; Kevin Kraai; Bart Ballard

42. **Mule Deer in the Trans-Pecos: How Habitat Selection Affects Survivability and the Effectiveness of Brush Management in Improving Mule Deer Habitat**
Kevin LeGrow; Justin French; Shawn Gray; Lalo Gonzalez; Louis Harveson

43. **Transboundary Occupancy of the American Black Bears: Implications for Metapopulation Dynamics Between the US and Mexico**
Jesse Ellgren; Caitlin Camp; Amanda M. Veals Dutt; Justin French; Louis Harveson

44. **An Introduction to Environmental Consulting**
Paula Pohler

45. **Determining Optimal Segmentation Parameters for Object-based Classification of Woody Species Using Fine-scale Resolution**
William Longoria; Shanna Gleason; Alexandria DiMaggio; Humberto Perotto-Baldivieso

46. **Differences in Ambient vs Internal Trap Temperatures: Implications for Safe Protocol for Trapping Black Bears in West Texas**
Madison Vastine; Matt Hewitt; Nicole Dickan; Clayton Hilton; Amanda M. Veals Dutt; Justin French; Louis Harveson

47. **An Assessment of Heavy Metal Concentrations in South Texas Raptors**
Abigail Nichols; Ashley Tanner; Evan Tanner; Michael Kalisek; Christine Hoskinson; Michael Stewart

48. **South Texas Bobcat Interactions with Wildlife Crossings Structures and Other Wildlife**
Spencer Ferguson; Thomas Yamashita; John Young; Michael Tewes

49. **Fire, Forage, and Facilitation: Interspecies Interactions of Native and Exotic Ungulates in Managed Rangelands**
Daniel Woolsey; Michael Cherry; Ashley Tanner; Marlin Dart; Evan Tanner

50. **The Effect of Landscape and Human Infrastructure on Mammal Occupancy in the Jaguar´s Protection Corridor, Guaviare, Colombia**

Gabriel Andrade Ponce; Eduardo Molina Gonzalez; Jaime Andrés Cabrera

51. **Predicting Habitat for Bumble Bees in Texas Based on Floral Availability and Seasonality**
Hannah Atkinson; Ethan Shaw; Addison Singleton; Adam Mitchell; Heather Mathewson

52. **Determining Nesting Effort by Female Northern Pintails Remotely**
Madison Garvin; Jordan Giese; Joseph McGovern; Emma Weber; Bart Ballard

53. **Spatial Ecology in a Fragmented Landscape: How Roads Impact Ocelot and Bobcat Movement and Connectivity**
Sean Kiernan; Jack Towson; Daniel Scognamillo; John Young; Emma Brookover; Will Stephens; Thomas Yamashita; Hunter Vasquez; Michael Tewes

54. **Presence of Microplastics in Arthropods Ingested by House Sparrows**
Ashley Bratten; Heather Mathewson; Alexander Hoxie; Lindsey Willingham; Addison Singleton; Britt Heidinger; Rajani Srinivasan

55. **Environmental Degradation of Ivermectin in Deer Fecal Pellets and Comparison of Blood and Fecal Concentrations of Ivermectin**
Kelly Persiner; Tammi Johnson; Roel Lopez

56. **Dung Beetle Diversity in Grazing Regimes of Desert Grasslands**
Christopher Mott; Ty Goodwin; Asia Cornelius; Lalo Gonzalez; Silverio Avila

57. **A Standardized Comparison of Camera Trap Efficacy Across Price Points and Behavioral States Using a Novel Model "Species"**
Ben Hendrickson; Sara van der Leek; Carmen Burkett; Jonothon Cantu; Evan Brown; Corrine Finley; Jahziel Garcia; Lexee Klamer; Delilah Nguyen; Reese Swaim; Andrew Gregory

58. **Distribution Of High-elevation Owls in the Davis Mountains, Texas**
Shelby duPerier; Maureen Frank; Romey Swanson

59. **Total Inventory and Genomic Monitoring to Inform Ocelot-Transportation Ecology and Conservation Decision-making**
Emma Brookover; Alynn Martin; Trevor Black; Elizabeth Grunwald; Thomas Langschied; Daniel Scognamillo; Will Stephens; Hunter Vasquez; Thomas Yamashita; Michael Tewes

60. **Effects of Urbanization on White-winged Dove Movement and Breeding Ecology in Texas**
Megan Spina; Mari Wharff; Owen Fitzsimmons; Bart Ballard; Jennifer Smith

61. **Effects of Invasive Guineagrass on Northern Bobwhite Space Use**
Benjamin Oswald; Aaron Foley; Fidel Hernandez; David Hewitt; Jennifer Smith

62. **Quantifying Cattle Movement Through Identified Pastural Trails Using Unmanned Aerial Vehicles**
Delilah Bernal; Humberto Perotto

63. **Spatiotemporal Patterns in Sex Ratios of Bat Fatalities at Wind Turbines in the United States**
Sara Weaver; Amanda Hale; David Nelson; Sarah Fritts; Todd Katzner; Austin Chipps; Jennifer Korstian; Sarah LiCari; Juliet Nagel; Dean Williams

64. **Ecological Impact of Varying Vegetation Management Strategies Employed on Solar Farms**
Daniel Ramirez; Stacy Hines; Ty Werdel; Nuria Gomez-Casanovas; Morgan Treadwell; Humberto Perotto

65. **Habitat Selection of Bighorn Sheep in Southwestern Montana**
Tyler Teeter

66. **Does Small-mammal Herbivory Reduce Likelihood of Native-grass Establishment in Rangeland Restoration**
Logan Liesman

Friday, February 21 , 2025

Conservation & Ecology of Mammals III

Pioneer I, Feb 21, 2025
Moderator: Elise Spain

9:00 **Niche Separation Between a Sympatric Specialist and Generalist Felid in Tamaulipan Thornscrub**
Shayla Haiflich; James Helferich; Alexandria Hiott; Landon Schofield; Lisanne Petracca

9:15 **Genetic Diversity of Federally Endangered Ocelots in the United States**
Tyler Bostwick; Randy DeYoung; Matthew Smith; Alynn Martin; Ashley Reeves; Lisanne Petracca

9:30 **From Co-occurrence Patterns to Trophic Interactions: A Meta-analysis of Spatial and Temporal Co-occurrence in Carnivora Mammals and Their Preys**
Gabriel Andrade Ponce; Juan Camilo Cepeda-Duque; Gabriela Palomo-Muñoz; Eva López-Tello; Yolotli Morales-Góngora; Alan Suárez- López; Wesley Dáttilo; Verónica Farías-González; José Jiménez; Fernando Ocampo-Saure; Mariano Avedaño-Diaz; Victor Castelazo-Calva; Carlos Hernandez; Estefania Salazar-Giraldo; Jessica Duran-Antonio; Salvador Mandujano

9:45 **Drought Events Alter Endangered Ocelot Movement and Niche Overlap with Bobcats at Their Northern Range Boundary in South Texas**
Matthew Smith; Lisanne Petracca

10:00 **First Recorded Between-population Dispersal of a Male Ocelot in South Texas: Its Significance for Planning the Recovery of the Species the United States**
Daniel Scognamillo; Ashley Reeves; Landon Schofield; Lindsay Martinez; Brandon Jones; Laura de la Garza; Michael Tewes

10:15 **Connectivity and Urban Greenspaces: Evaluating the Role of Landscape Factors on Urban Carnivore Occupancy in Denton, Texas**
Issabella Serrani Gallego; Andrew Gregory

Conservation & Ecology of Birds III

Pioneer II, Feb 21, 2025

Moderator: Jordan Giese

9:00 **Diversity of Migrating and Wintering Birds at Livestock Tanks in the Trans-Pecos**
Emily Blumentritt; Justin French; Daniel Collins; Maureen Frank

9:15 **Avian Community Science on American College Campuses Across the Central Flyway**
Ian Becker; Dileka Kariyawasam; Andrea Contina

9:30 **Space Use and Movements of Inland Wintering Whooping Cranes in the Aransas-Wood Buffalo Population**
Katrina Fernald; Carter Crouch; Andrew Caven; Matti Bradshaw; Matthew Butler; Michael Kalisek

9:45 **Energy Expenditure of Northern Pintail in Response to Climatic Variation During Spring Migration**
Joseph McGovern; Evan Tanner; Georgina Eccles; Kevin Kraai; Daniel Collins; Paul Link; Cory Overton; Michael Casazza; Mason Cline; Dale James; Clayton Hilton; Bart Ballard

10:00 **Influence of Hunting on Waterfowl Diel Use of Texas Wetlands**
Emma Weber; Bart Ballard; Rachel Fern; Jordan Giese

10:15 **Factors Influencing Waterbird Preferred Habitat Use of the Zandmotor Beach, Monster, Netherlands**
Amanda Hackney

Conservation & Ecology of Reptiles & Amphibians

Pioneer III, Feb 21, 2025

Moderator: Samra Bufkins

9:00 **Herpetofaunal Impediment and Entanglement Risks in Erosion Control Products**
Hannah Abelein; Ty Cosper; Adam Mitchell; Jun Xu; Jie Huang; Fei Wang; Heather Mathewson

9:15 **Texas Tortoise Movement Ecology in a Fire-managed Rangeland**
Camryn Kiel; Stephen Webb; Danielle Walkup; Sandra Rideout-Hanzak; Evan Tanner; Ashley Tanner; David Wester; Andrea Montalvo; Toby Hibbitts

9:30 **Changes in Herpetofauna Communities Across a Gradient of Native and Invasive Vegetation**
Duston Duffie; Andrew Mullaney; Cord Eversole; Scott E. Henke; Gabriel Andrade-Ponce; Fidel Hernandez

9:45 **Effect of Chinese Tallow Leaf Fall on Amphibian Oviposition Site Selection in East Texas**
Caleb Mullins; Christopher Schalk; Daniel Saenz; Reuber Antoniazzi; Matthew McBroom; Cord Eversole

10:00 **Using Herpetofauna to Determine Wetland Health and Function in the Red River Watershed**
Shelby Rodriguez-Edwards; Lance Williams; Jared Dickson; Marsha Williams

10:15 **Spatio-temporal Patterns of Environmental Dna Detectability for the Alligator Snapping Turtle (Macrochelys Temminckii), A Species of Greatest Conservation Need in Texas**
Kyra Woytek; William Lutterschmidt; Christopher Schalk; Daniel Saenz

Conservation & Ecology of Mammals IV

Pioneer I, Feb 21, 2025

Moderator: Rusty Wood

10:45 **Behavioral Interactions Between Native and Non-native Ungulate Species in the Southern Great Plains**
Calvin Ellis; Michael Cherry; Molly Koeck; Colter Chitwood; Anna Moeller; Robert Lonsinger; W. Sue Fairbanks; Levi Heffelfinger

11:00 **Weather Variables Predicting Mule Deer Parturition Timing and Birth Site Characteristics**
Austin Ibarra; Calvin Ellis; Michael Cherry; Colter Chitwood; W. Sue Fairbanks; Molly Koeck; Robert Lonsinger; Anna Moeller; Levi Heffelfinger

11:15 **Spatial Ecology of Aoudad and Mule Deer: Responses to Population Management Efforts**
Andrew Dotray; Justin French; Lalo Gonzalez; Levi Heffelfinger; Shawn Gray; Froylan Hernandez

11:30 **Seasonality of Competition Potential Between Desert Bighorn and Mule Deer on Elephant Mountain Wildlife Management Area**
Hailey Barton; Justin French; Lalo Gonzalez; Levi Heffelfinger; Froylan Hernandez; Shawn Gray

11:45 **Is Anyone There? Resident Conspecifics Influence Behavior of Translocated Desert Bighorn Sheep**
Dylan Stewart; E. Alejandro Lozano-Cavazos; Marcus Blum; Stephen Webb

Conservation & Ecology of Birds IV

Pioneer II, Feb 21, 2025

Moderator: Melanie Schcuhart

10:45 **Exposure of Terrestrial Birds to Microplastic: The Effects of Ecological Traits**
Alexis Baum; Heather Prestridge; Zachary Tonzetich; Jennifer Smith

11:00 **The Full Annual Cycle and Migration Patterns of American Kestrels Wintering in North Texas**
James Bednarz; Brooke Prater; Madeleine Kaleta; Kelsey Biles

11:15 **Gray Hawk Nest Success and Diet in Urban and Natural Landscapes in South Texas**
Evan Farese; Karl Berg; William Clark

11:30 **Assessing Microplastics as an Environmental Justice Issues Through Avian Ecology and Community Engaged Research**
Mariel Ortega; Amelia King-Kostelac; Jennifer Smith

11:45 **An Assessment of Fine Scale Microclimate Conditions in Purple Martin Artificial Housing and its Influence on Productivity**
Lauren Spjut; Daniel Greene; Nate Smith; Rachel Clostio; Elizabeth Sigler; Wendy Tori; Laurie Doss; Andrea Montalvo; James Ray; Joe Siegrist; Blake Grisham

Habitat & Wildlife Communities

Pioneer III, Feb 21, 2025
Moderator: Fran Witte

10:45 **Outcompeting The Invader: Enhancing Native Species in Lehmann's Lovegrass (Eragrostis Lehmanniana) Dominated Rangelands**
ANDRES SOLORIO; Lalo Gonzalez; Justin French; Silverio Avila; Louis Harveson

11:00 **Using Vegetation Communities to Compare Natural and Constructed Wetlands**
Kennedi Davis; Lance Williams; Jared Dickson

11:15 **Are Seed Predators Filtering Mesophytic Tree Species Encroachment on Upland Sites?**
Christopher Schalk; John Willis; Josh Pierce; Edward Andrews

11:30 **National Ecological Observatory Network (NEON): Open Data and Samples for Understanding Changing Ecosystems**
Abigail Rankin

11:45 **Understanding Seasonal Phenology and Community Composition of Aerial Invertebrates in Rio Grande Wild Turkey Habitat in the Edwards Plateau Ecoregion**
William Stewart; Joseph Richards; Ian Mack; Warren Conway; Annie Farrell; Mark Hatfield; Jason Hardin; Blake Grisham; Scott Longing

Conservation & Ecology of Mammals V

Pioneer I, Feb 21, 2025

Moderator: Krysta Demere

1:00 **Seasonal and Spatial Variation of Bat Communities in Texas**
Madison Nadler; Madison Gover; Maria Ramirez; Donald Solick; Samantha Leivers; Sarah Fritts

1:15 **Investigating Bat Drinking Activity in Response to Variability in Water Surface Area**
Peyton Harper; Victoria Bennett

1:30 **Reducing Bat-Turbine Collision Risk While Optimizing Wind Energy Production**
Amanda Hale; Michael True; Rhett Good; Paul Rabie

1:45 **Validating a Bat Fatality Detection System at Wind Turbines**
Sara Weaver; Jon Ritter; Alexis Commiskey; JD Garcia; Brogan Morton

2:00 **White-Nose Syndrome Impacts on Myotis velifer Populations in Central Texas**
Samantha Leivers; Jonah Evans; Melissa Moreno; Alexander Buckel; Nathan Fuller

2:15 **Daytime Hurricane Arrival Changes Daytime, but Not Nighttime Mammal Activity**
Ann Cheek; Courtney Hall; Michael Iacampo; Mailin Castro; Jackson Berg; Julia Cabello; Quynh Le; Abigail Mendoza; Carolina Rodriguez; Julia Samuel; Valentina Urdaneta-Hernandez; Mariah Velez

2:30 **Novel Survey Methodology for One of North America's Most Elusive Mammals**
Derek Malone; Clint W. Boal; Dana Karelus

2:45 **Evaluating Small Mammal Biodiversity Using Camera Traps**
Amanda Laboy; Ty Werdel; Roel Lopez

3:00 **Influence of Small-mammal Herbivory on Rangeland Restoration Success in Western Texas**
Herbert Magobwe; Fidel Hernandez; Anthony Falk; Benjamin Turner; Alejandro Bazaldua

Human Dimensions/Conservation Communication/Entomology

Pioneer II, Feb 21, 2025

Moderator: Jessica Alderson

1:00 **Charisma and Texas Waterbirds: What's the impact?**
Abby Meeks; Christopher Serenari

1:15 **Urban Wildlife Information Network**
Natasia Moore

1:30 **Toward Coexistence: Exploring Human Dimensions of Mountain Lion Management in Texas**
Danial Nayeri; Benjamin Ghasemi; Daniel Pilgreen; Pourya Sardari; Gerard Kyle

1:45 **Status and Trends of Texas Working Lands: 25-year Update**
Addie Smith; Roel Lopez; Alison Lund; Brittany Wegner

2:00 **Lizards and Legends: Culture and Komodo Dragon Conservation**
Rachel Lane

2:15 **Arachnid Response to Erosion Control Blankets: An Experimental Approach**
Ty Cosper; Heather Mathewson; Adam Mitchell; Hannah Abelein; Jie Huang; Jun Xu; Fei Wang

2:30 **Assessment of Graminoid Floral Resources to Enhance Habitat for Social and Solitary Bees in North-Central Texas**
Matthew Sato; Adam Mitchell

2:45 **Using Targeted Poisoning of Red Imported Fire Ants to Improve Texas Horned Lizard (Phrynosoma Cornutum) Habitat**
Kira Gangbin; Rachel Alenius; Madison Upton; Diane Barber; Nathan Rains; Mark Mitchell; Dean Williams

Wildlife Disease & Toxicology
Pioneer III, Feb 21, 2025
Moderator: Susan Pohlen

1:00 **Different Drivers, Same Tick: Effect of Host Traits, Habitat, and Climate on the Infestation of *Peromyscus leucopus* And *Onychomys leucogaster* by Larval Dermacentor Ticks**
Gabriel Andrade Ponce; Brandi Giles; Brent C. Newman; Andres López-Pérez; Cord Eversole

1:15 **Impact of Short Versus Long Prescribed Burning Intervals on Tick Density in Southern Texas Gulf Coast Prairies and Marshes Ecoregion**
Rachel Walters; Sandra Rideout-Hanzak; Scott E. Henke; Tammi Johnson; Ashley Reeves; Alynn Martin

1:30 **Nilgai Antelope Are Not Susceptible to Infection with the Causative Agents of Bovine Babesiosis**
Kelly Persiner; Naomi Taus; Sara Davis; Karen Poh; Lowell Kappmeyer; Jacob Laughery; Janaína CapelliPeixoto; Kimberly Lohmeyer; Massaro Ueti; Pia Olafson; Tammi Johnson

1:45 **Talkin' Toxo: T. Gondii seroprevalence and Demographic Impacts on White-tailed Deer in South Texas**
Kendall Bancroft; Alynn Martin; Tyler Campbell; Randy DeYoung; Aaron Foley; David Hewitt; Miranda Hopper; Kevin Lovasik; Poncho Ortega; Landon Schofield; Bryan Spencer; Jason Sawyer; Michael Cherry

2:00 **Assessing Potential Biases Introduced by Common Assumptions in Chronic Wasting Disease Predictive Modeling**
Ashlyn Halseth-Ellis; Alynn Martin; Michael Cherry; Warren Conway; Randy DeYoung; Justin French; Shawn Gray; Courtney Ramsey; Levi Heffelfinger

2:15 **Let's Talk Sh…poop! Assessment of Endoparasitism in Free-ranging Felids of Southern Texas**
Tiffany Pope; Alynn Martin; Ashley Reeves

2:30 **Using Animal Movement Models to Understand Potential Disease Transmission Dynamics Among Wild Felids**
Alexandria Hiott; Alynn Martin; Mason Fidino; Clayton Hilton; Ashley Reeves; Lisanne Petracca

2:45 **The Influence of Distance to Water on Oral Rabies Vaccine Bait Consumption in the South Texas Plains**
Haley Sloan; John M. Tomecek; Tyler Campbell

3:00 **Quail and Parasitic Helminths: Status of Knowledge and Should We Be Concerned?**
Liza Soliz; Andrea Montalvo; Stephanie Shea; Andrew Olsen; Stacie Villarreal; Nicole Traub; Maedean Cardenas; Alan Fedynich; Dale Rollins; Ryan Luna; Fidel Hernandez; Alynn Martin

Abstracts: Clarence Cottam Awards Competition

Universities Grand Ballroom, Feb 20, 2025
Moderator: Stephen Webb

9:30 Species Richness and Genetic Diversity: Continental Patterns of Bird Diversity Correlations Across the United States

Carmen Burkett, University of North Texas, Denton, TX, USA
Pantea Tehari, University of North Texas, Denton, TX, USA
Arianna Azubryt, Southern Illinois University, Carbondale, Carbondale, IL, USA
Gabriella Burkett, Southern Illinois University, Carbondale, IL, USA
Alyssa Herrera, University of North Texas, Lewisville, TX, USA
Zacchaeus G. Compson, University of North Texas, Denton, TX, USA
Andrew Gregory, University of North Texas, Denton, TX, USA

Abstract: Species richness (SR) and genetic diversity (GD) are fundamental aspects of biodiversity. Each plays a unique role in maintaining ecosystem stability. Literature suggests that species richness and genetic diversity may be spatially correlated and co-vary at different scales. However, research on SR×GD correlations remains equivocal. Some studies find positive correlations between SR and GD, whereas others report negative or no correlation. Understanding relationships between SR and GD is fundamental to elucidating the complex dynamics of biodiversity maintenance considering ongoing climate change and anthropogenic land use intensification. Using data synthesis and meta-analysis, we explored spatial correlations between bird SR and GD among species across the continental United States. Using Bird Banding Station (BBS) data, we estimated species richness, rarity weighted richness, and Shannon's diversity across >3,800 BBS routes from 2013 to 2022. We then used spatial statistics in ArcGIS to identify regional hotspots in bird SR. Next, we performed a detailed meta-analysis of published literature across approximately 200 papers for estimates of bird GD. We estimated hotspots of GD using the published accounts of bird GD with mapped sample locations. Using Multiple Response Permutation Procedure, we found that several areas of bird GD significantly overlapped areas of bird SR. Geographically Weighted Regression analysis identified areas where bird SR significantly predicts bird GD, which were concentrated along coastal areas of the eastern US. These areas may be critical targets for protection, as they seem to be areas that support diversity across multiple scales important to maintaining the future adaptive potential of wildlife.

9:50 Using Apple Airtags to Track Urban Raptors

Brooke Poplin, University of North Texas, Denton, TX, USA
James Bednarz, University of North Texas, Denton, TX, USA
Andrew Gregory, University of North Texas, Denton, TX, USA

Abstract: Accurate tracking of the movement of wildlife is important for understanding the behavior, spatial use, and resource selection of a species. We evaluated the effectiveness of Apple Airtags, a Bluetooth tracking device that can be purchased for

US $22.50-$29.00, for tracking Harris's Hawks in the Rio Grande Valley, Texas. We tagged eleven urban hawks with Airtags, and we have been tracking their movements for over 9 mo. Airtags have yielded 1,448 locations (approximately 132 locations per hawk) with all Airtag data being collected remotely at a cost of $0.25 per location. We recorded juvenile dispersal and exploratory movements for all six juveniles tagged, and one adult dispersal. Average juvenile exploratory foray distance was 9.65 km (range: 2-50.05) and the adult dispersed 48.8 km. We also analyzed home range using the Kernel Density Estimation (KDE) method. For the ten Harris's Hawks equipped with Airtags that provided sufficient data for analysis (>25 locations), we estimated a 95% KDE home range of 389.4 ha for five adults and 133.5 ha on average for nine juvenile natal and dispersal territories. Core 50% KDE home ranges yielded an adult range of 47.7 ha and juvenile ranges averaging 40.3 ha. We conclude that Apple Airtags can be used for tracking urban wildlife, allowing analysis of home range areas and spatial use patterns. Despite limitations such as reliance on proximity to Apple devices and finite battery life, Airtags offer a low-cost alternative for researchers working with medium-sized and large species in areas with human activity.

10:10 Addressing Assumptions of Nonlethal Monitoring of Microplastic Contamination in Nestling House Sparrows

Alexander Hoxie, Tarleton State University, San Antonio, TX, USA
Rajani Srinivasan, Tarleton State University, Stephenville, TX, USA
Adam Mitchell, Tarleton State University, Stephenville, TX, USA
Britt Heidinger, North Dakota State University, Fargo, USA
Heather Mathewson, Tarleton State University, Stephenville, TX, USA

Abstract: Microplastics (MPs) are an emerging pollutant with growing concern for their effect on wildlife health; however, songbirds remain understudied. As many songbirds are experiencing declines across the U.S., nonlethal methods of evaluating MP contamination warrant consideration. We conducted a study on house sparrows (*Passer domesticus*) from 3 study sites in Stephenville, Texas, Fargo, North Dakota, and Easton, Pennsylvania in 2023 and 2024. Our objectives were to evaluate the use of fecal sacs for MPs as an alternative to lethal methods and to address two potential assumptions for studies using fecal sacs, those being variation in MPs across nestling development and variation within broods. We collected fecal samples and GI tracts from nestlings aged 10 days. To examine assumptions, we collected fecal samples from the same nestlings at age 4 days and 10 days, and we collected fecal samples from all nestlings in broods with ≥3 nestlings. We processed all samples to chemical digestion using 30% H_2O_2, vacuum filtration, and examination under a stereomicroscope. We found that 74.1% of fecal samples contained MPs (n = 321) and all GI tracts samples contained MPs (n = 16), but they were not correlated. We found little difference in contamination across development. We conducted an intra-class correlation test (repeatability score; R package rptR) and determined that variation within brood is high (R = 0.151, P = 0.036). This study on house sparrows, a model species, informs future MP research and provides a broader insight into the abundance of MPs in songbirds.

10:30 Conflict, Conservation, and Coexistence: Texans' Views on Mountain Lions

Pourya Sardari, Texas A&M University - College Station, College Station, TX, USA
Danial Nayeri, Texas A&M University - College Station, College Station, TX, USA
Benjamin Ghasemi, Ohio, Columbos, OH, USA
Daniel Pilgreen, Texas A&M, College Station, USA
Gerard Kyle, College Station, TX, USA

Abstract: Large carnivores like mountain lions (*Puma concolor*) often evoke intense emotions due to their involvement in livestock predation, human attacks, and generating fear. Managing these predators is particularly challenging due to diverse stakeholder interests in wildlife conservation. While mountain lions are classified as "least concern" by the IUCN, their population status varies regionally. Texas, which hosts an estimated 7% of the U.S. mountain lion population, may overestimate numbers due to their nongame status, unregulated harvesting, and high mortality rates, raising conservation concerns. To address these challenges, a Qualtrics survey of 1,069 Texans assessed their knowledge, attitudes, and preferences toward mountain lion management. Participants included hunters, livestock producers, and urban and rural residents. Results showed 43% viewed mountain lions as rare but not endangered in Texas, while 31% correctly identified them as nongame animals without hunting restrictions. Over half (52%) had heard of mountain lion-human interactions; 27% reported personal sightings, and 22% noted household encounters. Livestock like sheep, goats, deer, and cattle were seen as most at risk. Respondents agreed mountain lions are vital to ecosystems (mean score: 4.0) and expressed support for their survival (3.93), with moderate endorsement for protection (3.63), monitoring (3.70), and management planning (3.61). Lethal control was supported after attacks on humans (41%), pets (37%), or livestock (33%), with hunters and producers favoring aggressive responses. Rural residents generally supported stronger actions than urban residents. These findings emphasize the need for inclusive policies to balance conservation and coexistence with mountain lions.

10:50 Population Structure of Alligator Snapping Turtles Along a Fishing Pressure Gradient

Luke Micek, Stephen F. Austin State University, Nacogdoches, TX, USA
Christopher Schalk, USDA Forest Service, Nacogdoches, TX, USA
Cord Eversole, Stephen F. Austin State University, Nacogdoches, TX, USA
David Stewart, U.S. Fish and Wildlife Service, Albuquerque, NM, USA
Jessica Glasscock, Stephen F. Austin State University, Nacogdoches, TX, USA

Abstract: Passive fishing gear (e.g., trotlines, limblines, juglines) is a prominent threat to the alligator snapping turtle (*Macrochelys temminckii*). However, this threat has yet to be quantified in Texas. Our goal was to quantify the density and persistence of passive fishing gear in east Texas streams, as well as to quantify demographic parameters of *M. temminckii* in sites that vary in passive fishing pressure. We surveyed for passive fishing gear and *M. temminckii* at three east Texas sites: Alazan Bayou Wildlife Management

Area (unfished), Attoyac River (fished), and Shawnee (fished) from June 2023–August 2024. We found a total of 84 passive fishing devices at Attoyac and 67 at Shawnee, with 92.9% and 83.6% appearing abandoned, respectively. No devices had legal gear tags. Seasonal density estimates of passive fishing gear were highest in Fall 2023 but declined by Summer 2024. Detection probabilities of passive fishing gear decreased with time, river discharge, and gage height but increased with precipitation. Catch per unit effort (CPUE) of *M. temminckii* from hoop nets and acoustic receivers was highest at Alazan, compared to Attoyac and Shawnee. The demographic structure of *M. temminckii* at Alazan, unlike Attoyac and Shawnee, appears to be similar to that of robust *M. temminckii* populations (e.g., higher proportion of adults than juveniles, near equal sex ratio). Given the potential impacts of passive fishing gear on *M. temminckii* populations, management efforts should prioritize the removal of these abandoned devices, especially during periods of low river discharge and gage height.

11:10 Migratory Patterns of the Orange-crowned Warbler Wintering in Central Mexico and southern United States

Dileka Kariyawasam, University of Texas Rio Grande Valley, Brownsville, TX, USA
Evan Farese, University of Texas Rio Grande Valley, Brownsville, TX, USA
Ian Becker, University of Texas Rio Grande Valley, Ft. Worth, TX, USA
Mark Conway, Rio Grande Avian Research, Harlingen, TX, USA
José Luis Alcantara Carbajal, Colegio de Postgraduados, Área de Fauna Silvestre PREGP-Ganadería, Campus Montecillo, Texcoco, MEX
Andrea Contina, University of Texas Rio Grande Valley, Brownsville, TX, USA

Abstract: Migration is a crucial strategy for many avian species, allowing them to access optimal resources despite significant energy costs and predation risk. The Orange-crowned Warbler (Leiothlypis celata) is a small migratory songbird that breeds across Canada and western United States. This species is known to migrate southward for the winter, with large populations wintering in Central Mexico and the southern United States. However, little is known about the geographic origins of these wintering populations, as multiple breeding populations may converge on these shared wintering grounds. We investigated the migratory connectivity of the Orange-crowned Warblers using hydrogen stable isotope (δ^2H) extracted from feathers of individuals captured at wintering sites in Mexico and the southern United States. We implemented a Bayesian approach to identify individual geographic origins, revealing diverse breeding grounds across the northern region of North America. Additionally, we used morphometric measurements, including mass, wing chord, and tail length from long-term banding data from the Lower Rio Grande Valley in south Texas to confirm the subspecies. The morphometric data suggest that two subspecies, L.c.celata and L.c.orestera utilize this region during winter, with L. c. celata being more prevalent. These findings provide key insights into the timing, distribution, and winter behavior of Orange-crowned Warblers, improving our understanding of their migratory patterns and their response to environmental change.

11:30 Plasticity and Peril: Niche Adaptations of Desert Bighorn Sheep Facing Competition and Disease

Elle Sutherland, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Justin French, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Lalo Gonzalez, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Michael Cherry, Caesar Kleberg Wildlife Research Institution, Kingsville, TX, USA
Froylan Hernandez, Texas Parks & Wildlife Department, Alpine, TX, USA
Shawn Gray, Texas Parks & Wildlife Department, Alpine, TX, USA

Abstract: Desert bighorn sheep (*Ovis canadensis nelsoni)* co-occur with invasive aoudad (*Ammotragus lervia*) in Trans-Pecos, Texas. Research has demonstrated that aoudad and desert bighorn niches overlap in optimal habitat, raising concern about disease transmission risk and potential for competition. It is essential to understand how desert bighorn niches may shift in the face of competition, particularly as we seek to manage populations in a disease landscape. I explored variation in niche breadth, position and configuration among seven desert bighorn populations and 12 population years in the Trans-Pecos to determine whether desert bighorn exhibit niche plasticity. The populations had significant variation in niche size, the difference in niche volume between the largest and smallest niche (BGWMA and BBRSP respectively) was log(D) = 19.64. BBRSP:Diablos had the smallest distance between niche centroids (MD =0.51), the farthest distance between centroids was EMWMA:Diablos (MD = 5.23). Niche dissimilarity was greatest between EMWMA:Diablos (BD =11.42) and smallest between BBRSP:Diablos (BD = 1.44). BGWMA individuals had the greatest average distance from the population centroid (MD, m = 4.86, σ = 4.52), and Diablos the smallest (MD, m = 4.37, σ = 2.10). Individuals with greater distance from their population centroid had a higher risk of death (b = 0.209, p = 0.0000443). These results suggest constrained potential for desert bighorn to respond to aoudad competition via niche shifting and provide a framework for predicting how niche partitioning may result in shifts in desert bighorn sheep geographic distributions, social structure, and consequent changes in disease risk.

Abstracts: General Sessions

Conservation & Ecology of Mammals I

Pioneer I, February 20, 2025
Moderator: Austin Killam

1:30 Spatial Interactions of Axis and White-tailed Deer in the Edwards Plateau Ecoregion of Texas

MacKenzie Hoffman, Texas A&M University - College Station, Cedar Park, TX, USA
Ty Werdel, Texas A&M University - College Station, College Station, TX, USA
Jacob Dykes, Texas A&M University - College Station, Kingsville, TX, USA
Humberto Perotto, Texas A&M University, College Station, TX, USA
Walter Cook, Texas A&M University - College Station, College Station, USA

Abstract: Axis deer (*Axis axis*) are a free-ranging, exotic species of ungulate in Texas with a similar ecological niche as native white-tailed deer (*Odocoileus virginianus*). Axis deer, which are considered livestock rather than game animals, persist on private lands in Texas primarily because of their year-round hunting value which generates significant economic benefits for landowners. The co-occurrence of axis and white-tailed deer may lead to competition for resources. Increasing abundance in free-ranging populations of axis deer poses ecological concerns regarding dietary overlap, habitat degradation, and displacement of native species. White-tailed deer, which contribute billions of dollars annually to the Texas economy through hunting and management activities, are particularly vulnerable to competition for forage and space availability. This study aims to quantify the spatial and temporal interactions between axis and white-tailed deer using data collected by GPS Iridium collars attached to 15 white-tailed deer and 10 axis deer on a private property (3415.03 ha) located in the Edwards Plateau ecoregion. We will assess the home range, habitat preferences, and spatial overlap between the two species using Kernel Density Estimation (KDE) and Resource Selection Function (RSF) modeling to evaluate competition between the species. Our findings will guide management decisions to mitigate competition between the species and help balance economic interests with conservation goals.

1:45 Seasonal Dynamics of Browse Nutritive Value in the Southern Cross Timbers and Prairies of Texas

Alex Pearson, Texas Tech University Student Chapter of The Wildlife Society, Lubbock, TX, USA
Shaelyn Rainey, Texas Tech University, Lubbock, TX, USA
Caitlyn Cooper-Norris, Texas Tech University, Lubbock, TX, USA
Nichole Cherry, Texas A&M AgriLife Research, Stephenville, TX, USA
Levi Heffelfinger, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Ransom Canyon, TX, USA
Jhones Sarturi, Texas Tech University, Lubbock, TX, USA

James Muir, Texas A&M AgriLife Research, Stephenville, TX, USA
Aaron Norris, Texas Tech University, Lubbock, TX, USA

Abstract: In the Southern Cross Timbers and Prairies Region of Texas, white-tailed deer (*Odocoileus virginianus*) are a recreationally and economically valuable resource. As selective browsers, white-tailed deer consume diets with greater forage value than the surrounding vegetation. During winter and drought periods, browse can become the primary food source, but nutritive value and availability varies among and within growing seasons and years. To better understand browse nutritive value year-round, browse samples were collected bimonthly from a ranch located near Cross Plains, TX starting in May 2023. Browse samples of six different species (chittamwood, elbowbush, winged elm, post oak, live oak, and skunkbush) were collected from two different ecological sites, loamy bottomland, and clay loam. Nutritional constituents of browse samples were determined, including crude protein, neutral detergent fiber, acid detergent fiber, lignin, and protein precipitable phenolics (PPP). Ruminal digestibility was estimated using in vitro true digestibility methodology (IVTD). Both IVTD and crude protein had a significant month effect ($P < 0.01$). Browse IVTD differed during periods of growth and dormancy with the greatest digestibility and least fibrous constituents in the spring and summer. Additionally, the three species with the highest concentrations of PPP, skunkbush, live oak, and post oak, were also assessed to determine the effect of varying PEG inclusion rates on IVTD. Results indicated a trend of increased digestibility with the addition of PEG, particularly for fibrous components. This could be due to seasonal alteration in carbohydrate form and availability and/or the effect of PPP on the associated rumen microbiome.

2:00 Competition With Wild Pigs Alters Predator-Prey Dynamics Between Coyotes and White-tailed Deer

Parker Trifiletti, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
L. Mike Conner, The Jones Center at Ichauway, Newton, GA, USA
Steve Jack, Boggy Slough Conservation Area - T.L.L. Temple Foundation, Lufkin, TX, USA
Michael Cherry, Caesar Kleberg Wildlife Research Institution, Kingsville, TX, USA

Abstract: Predator-prey dynamics are shaped by numerous factors, including the distribution of resources and interactions with other species. Behaviors exhibited by prey to reduce interactions with competitors can influence the probability of encountering their predators. Invasive species can have substantial impacts on native food web dynamics, often altering species' behavior and disrupting established predator-prey relationships. We examined how competition with invasive wild pigs (*Sus scrofa*) influenced white-tailed deer (*Odocoileus virginianus*) behavior, and subsequently interactions with coyotes (*Canis latrans*). During July – August 2024, we conducted an experiment in eastern Texas using passive and baited camera surveys to quantify how deer modified their diel activity in response to competition with pigs at areas with concentrated resources. At passive sites, without concentrated resources,

deer-pig temporal overlap was high (Δ=0.896, CI=0.860 - 0.934). However, at baited sites with pig activity, deer decreased nocturnality and increased diurnal activity, resulting in lower temporal overlap with pigs (Δ=0.639, CI=0.559 - 0.718). This behavioral flexibility allowed deer to capitalize on important resources while minimizing competition. This response also had cascading effects on predator-prey interactions, potentially lowering predation risk for deer. Deer-coyote temporal overlap was significantly lower at baited sites with pig activity (Δ=0.474, CI=0.397 - 0.550) than at sites without pig activity (Δ=0.680, CI=0.571 - 0.788). Our findings suggest the behavior used to minimize competition also lowered predation risk; however, increased diurnal activity likely induced thermoregulatory costs. More broadly, our work demonstrates that prey behaviors induced by competition with invasive species can disrupt native predator-prey dynamics.

2:15 Should I Stay or Should I Go: Behavioral Plasticity Breeds Success in Dynamic Environments

Miranda Hopper, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Lubbock, TX, USA
Kevin Lovasik, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Bryan Spencer, Ceaser Kleberg Wildlife Research Institute - Texas A&M University Kingsville, Kingsville, TX, USA
Randy DeYoung, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Aaron Foley, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Poncho Ortega, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
David Hewitt, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Landon Schofield, East Foundation, Kingsville, TX, USA
Tyler Campbell, East Foundation, San Antonio, TX, USA
Michael Cherry, Caesar Kleberg Wildlife Research Institution, Kingsville, TX, USA

Abstract: Adaptive decision-making allows individuals to maximize performance in the face of environmental uncertainty by leveraging past experience to inform behavior. We evaluated whether previous experience influenced maternal behavior and reproductive success. From 2020 to 2023, we captured pregnant white-tailed deer (*Odocoileus virginianus*) and equipped them with vaginal implant transmitters to track parturition events and collar neonates at birth sites. We monitored neonates daily until a mortality event occurred and considered females reproductively successful if they had at least one neonate survive the first 14 days of life (i.e., limited mobility period where neonates employ a “hider strategy”). We quantified site fidelity as the Euclidean distance between birth sites of the same individual in consecutive years. We identified 29 consecutive birth site pairs from 21 individuals. We used linear mixed effects models to examine the effect of recent success on site fidelity in the subsequent fawning season. We then used

a Cox proportional-hazards model to identify site fidelity's effect on neonate survival. We found that recent success significantly influenced site fidelity. Specifically, females who were unsuccessful in the previous fawning season selected a birth site approximately 0.23 km farther from their previous birth site, suggesting females employed a "win-stay: lose-switch" strategy in site fidelity. Additionally, site fidelity significantly affected reproductive success in that females who moved farther from their previous birth site experienced a 61% reduction in neonate mortality risk. Our results suggest that females learned from experience and adapted their behavior to promote success in the future.

2:30 Identifying Drivers of Radio-linked Neonate Collar Performance

Marlin Dart, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Evan Tanner, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Matthew Turnley, Oklahoma State University, Stillwater, OK, USA
Celine Rickels, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Robert Lonsinger, Oklahoma State University, Stillwater, OK, USA
W. Sue Fairbanks, Oklahoma State University, Stillwater, OK, USA
Colter Chitwood, Oklahoma State University, Stillwater, OK, USA
Levi Heffelfinger, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Ransom Canyon, TX, USA
Randy DeYoung, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
George Wang, East Central University, Ada, OK, USA
Michael Cherry, Caesar Kleberg Wildlife Research Institution, Kingsville, TX, USA

Abstract: Monitoring neonatal survival is critical for understanding population dynamics. However, traditional tracking methods pose logistical challenges that hinder neonate monitoring. Integrating ultra high frequency radio chipsets into global positioning system collars that monitor paired very high frequency units has improved neonatal monitoring capabilities, enabling practitioners to explore novel questions. Framing these questions requires an accurate characterization of what constitutes an adult-neonate contact and the factors that influence connection success. We fitted mixed-effects logistic regression models to examine the influence of terrain ruggedness, vegetation structure, collar height, and adult-neonate collar distance on collar connection success in a shortgrass prairie during Jul−Aug of 2024. The odds of connection decreased with increasing terrain ruggedness (β: −0.79, *SE*: 0.07, $p < 0.001$) and greater collar distance (β: −0.04, *SE*: 0.002, $p < 0.001$). The negative effect of collar distance was stronger at greater terrain ruggedness. At a terrain ruggedness (i.e., mean difference in elevation between a focal and neighboring cells in m) of 0, probability of connection was >0.97 across all distances tested (20–185 m). However, at a terrain ruggedness of 5.8, probability decreased to 0.50 at ~100 m. We did not detect an effect of vegetation structure or collar height. Our results highlight how terrain ruggedness influences proximity

estimates. We also provide some of the first estimates of the distances at which adult and neonate collars can connect, showing that successful connections simply indicate the adult is within 100 m or more, complicating reliable identification of true adult-neonate contacts.

2:45 Understanding Drivers of Recruitment of White-tailed Deer in South Texas

Kevin Lovasik, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Miranda Hopper, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Lubbock, TX, USA
Bryan Spencer, Ceaser Kleberg Wildlife Research Institute - Texas A&M University Kingsville, Kingsville, TX, USA
Randy DeYoung, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Aaron Foley, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Poncho Ortega, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
David Hewitt, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Landon Schofield, East Foundation, Kingsville, TX, USA
Tyler Campbell, East Foundation, San Antonio, TX, USA
Michael Cherry, Caesar Kleberg Wildlife Research Institution, Kingsville, TX, USA

Abstract: Rangelands are often managed for cattle production and wildlife. Understanding the effects of cattle on wildlife relative to other factors, such as precipitation, is key to effective multiuse management. We experimentally manipulated cattle management on East Foundation's San Antonio Veijo Ranch in South Texas where white-tailed deer (*Odocoileus virginianus*) are not exposed to harvest or supplemental feed. We measured recruitment indices using evidence of lactation in autumn from 284 adult female deer captured from 2011-2023 and known fate survival to 12-weeks of 90 neonates monitored during 2020-2023. We characterized capture locations of adult females and birth sites of neonates based on landscape attributes, precipitation, and cattle management. We fit generalized linear mixed models predicting the lactation status (yes or no) as a function of these covariates. We fit Cox-proportional hazards models to predict mortality hazard of neonates as a function of the same predictors. We found the presence of cattle during the fawning season (June-August) reduced the probability of lactation in adult females and increased the odds of neonate mortality. We also found both recruitment indices increased strongly with spring rain and moderately with brush density. Our results demonstrate a benefit of the rotational grazing treatment, such that deer recruitment improved where cattle were absent during the fawning season. While rainfall patterns strongly influenced recruitment, manageable factors including cattle grazing and brush density offer potential approaches to manipulate deer recruitment. Our results highlight the utility of managing these factors to achieve deer recruitment objectives.

Conservation & Ecology of Birds I

Pioneer II, February 20, 2025
Moderator: Hunter Scoggins

1:30 The Value of Pricklypear and Diverse, Native-plant Communities as Nesting Habitat for Scaled Quail

Fidel Hernandez, Texas A&M University - Kingsville, Kingsville, TX, USA
Abstract: Habitat loss has been implicated in the decline of chestnut-bellied scaled quail (*Callipepla squamata castanogastris*) in southern Texas. Although a general affinity of the subspecies for native thornscrub is known, little information exists on its specific habitat requirements and demography. We conducted a study (*n* = 5 ranches; LaSalle and McMullen counties) to 1) quantify survival, reproduction, and occupancy of chestnut-bellied scaled quail and 2) characterize its nesting habitat. We radio-collared individuals (*n* = 137) during Mar–Aug 2013 and 2014 to estimate survival and reproduction and conducted call-count surveys (*n* = 60 points) during May–August of both years to estimate occupancy and detection probability. We measured vegetation at nest sites (*n* = 53 nests) and paired random points to document habitat use. Seasonal survival (0.68–0.85), clutch size (10–11 eggs), and nest success (38–59%) were within values reported in past literature. However, relative abundance (0.14–0.25 calling males/point), occupancy (0.56–0.73), and probability of detection (0.10–0.32) were low. Pricklypear (*Opuntia engelmannii*) was the most common nesting substrate (68%; *n* = 53 nests), with pricklypear (95% CI β = 0.992–1.105; P < 0.09), woody plants (95% CI β = 1.001–1.042; P < 0.04), and native grasses (95% CI β = 0.993–1.129; P < 0.08) being important variables distinguishing nests from random sites. Nest survival was negatively influenced by non-native grass cover (95% CI β = -0.115 – -0.006). Preservation of diverse native-plant communities should receive high consideration when planning brush management in southern Texas if conservation of chestnut-bellied scaled quail is a goal.

1:45 The Plight of the Northern Bobwhite: Do Habitat and Rainfall Impact Population Growth in Texas?

Kristyn Stewart-Murphy, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Sinton, TX, USA
Fidel Hernandez, Texas A&M University - Kingsville, Kingsville, TX, USA
Jon Horne, Idaho Department of Fish and Game, Boise, ID, USA
Alison C. Ketz, Funga PBC, Austin, TX, USA
Sabrina Szeto, Sabrina Szeto Consulting, Isen, GER
Alejandra Olivera-Mendez, Colegio de Postgraduados, San Luis Potosi, Salinas de Hidalgo, San Luis Potosi, MEX
Angela Guerrero, Queensland University of Technology, Brisbane, AUS

Abstract: Wildlife today face many challenges such as habitat loss, fragmentation, climate change, and consumptive use. Northern bobwhite (*Colinus virginianus*) is a gamebird that inhabits semi-arid rangelands, whose persistence depends on large

habitat tracts and adequate rainfall. Habitat loss and fragmentation have been hypothesized as potential factors influencing the bobwhite decline at large spatial scales; however, long-term changes in weather (i.e. rain, temperature, and soil moisture) traditionally have not been considered as contributing factors. The objective of our study was to evaluate the hypothesis that habitat loss, connectivity, and long-term weather trends influence bobwhite population growth in northern and southern Texas. We used historical (1978–1992) and projected (1992–2022) land cover data from the United States Geological Survey to assess bobwhite habitat connectivity and configuration. We also used data from the National Centers for Environmental Information to quantify weather within each region using Palmer Modified Drought Index (PMDI) and breeding season temperature (BST) values. Here we report on the influence of habitat (amount [%] and clumpiness [0-1]) and weather (PMDI and BST) on bobwhite population growth and discuss the relative importance of each. Our findings will 1) provide a better understanding of the degree to which habitat loss, connectivity, and weather influence bobwhites in Texas and 2) help guide species conservation at regional scales.

2:00 Survival and Cause-specific Mortality of Northern Bobwhite Translocated to the Pineywoods

Trey Johnson, Texas Tech University, Ponder, TX, USA
Bradley Kubecka, Tall Timbers Research, Inc., Magnolia, TX, USA
C. Brad Dabbert, Texas Tech University, Lubbock, TX, USA

Abstract: Northern bobwhite (*Colinus virginianus*) have largely disappeared from the Pineywoods of Texas due to a multitude of landscape changes. Translocation is an effective method for restoring bobwhite populations in the southeastern United States following habitat restoration. We radiomarked and translocated 240 wild bobwhite – 60 bobwhite in January 2023, March 2023, January 2024, and March 2024 – from Florida to a 3,622-ha area in Polk County, Texas. We monitored bobwhite daily to estimate survival rates and determine mortality causes. During 6 January to 1 October 2023, period survival was 48.1% (95% CI = 37.2-59.2%) and 35.3% (95% CI = 25.4-46.5%) for January and March cohorts, respectively. During 11 January to 3 October 2024, period survival was 33.5% (95% CI = 23.2-45.7%) and 21.6% (95% CI = 13.5-32.9%) for January and March cohorts, respectively. In 2024, avian predation risk was greater (HR = 2.66, 95% CI = 1.61-4.37), mammalian predation was lower (HR = 0.30, 95% CI = 0.13-0.69) and snake predation was lower (HR = 0.12, 95% CI = 0.03-0.45) than 2023. Additionally, March released bobwhite experienced greater avian predation risk (HR = 1.94, 95% CI = 1.20-3.12) and lower mammalian predation (HR = 0.34, 95% CI = 0.15-0.78) than January released bobwhite. Though survival was lower in 2024, among both years, survival was 1) similar or higher than source populations and 2) higher for January translocated bobwhite. Our findings suggest there is flexibility in release timing when considering bobwhite translocations with potential advantages to January releases in eastern Texas.

2:15 Release Timing Does Not Influence Nesting of Translocated Northern Bobwhite

Trey Johnson, Texas Tech University, Ponder, TX, USA
Bradley Kubecka, Tall Timbers Research, Inc., Magnolia, TX, USA
C. Brad Dabbert, Texas Tech University, Lubbock, TX, USA

Abstract: Northern bobwhite (*Colinus virginianus*) have largely disappeared from the Pineywoods of Texas due to a multitude of landscape changes. Translocation is an effective tool for restoring bobwhite populations in the southeastern United States following habitat restoration. Typically, translocations are conducted just prior to the breeding season to maximize breeding potential; however, translocations are logistically intensive and flexibility in release timing would mitigate this difficulty. We radiomarked and translocated 240 wild bobwhite – 60 in January 2023, March 2023, January 2024, and March 2024 – from Florida to a 3,622-ha area in Polk County, Texas. We monitored bobwhite during Apr 15–Oct 15 to estimate reproductive rates. We estimated nest incubation rates (nests/bird alive at the onset of nesting season) and nest success using Poisson and binomial regressions, respectively. We found 74 nests and 45 nests in 2023 and 2024, respectively; incubation rates were higher in 2023 (β_{2024} = -0.44, 95% CI = -0.81–-0.07, P = 0.02), higher for females (β_{Males} = -0.99, 95% CI = -1.39–-0.58, P < 0.001), but did not differ between release cohorts (β_{Mar} = 0.03, 95% CI = -0.33–0.39, P = 0.88). Nest success was higher in 2024 (β_{2024} = 0.84, 95% CI = 0.05–1.63, P = 0.04) but did not differ by release cohort (β_{Mar} = -0.31, 95% CI = -1.05–0.44, P = 0.42) or sex (β_{Male} = -0.07, 95% CI = -0.91–0.77, P = 0.86). Our findings suggest there is flexibility in release timing when considering bobwhite translocations.

2:30 Leveraging Breeding Bird Survey Data to Assess Factors Influencing Northern Bobwhite Population Stability Across the Species Range

Ben Hendrickson, University of North Texas, Lewisville, TX, USA
Andrew Gregory, University of North Texas, Denton, TX, USA

Abstract: Despite the overall decline of Northern Bobwhite quail (*Colinus virginianus*), some population strongholds remain, spread patchily across the species range and encompassing multiple different ecoregions and habitat types. To successfully arrest the decline of Northern Bobwhite, identifying areas where quail are succeeding, where they are in decline, and what factors are driving quail population dynamics across their range is critical. Furthermore, it is important to conduct these analyses across a large spatiotemporal scale to account for annual stochasticity in environmental conditions and structural variation in quail habitat. Although local count data is typically considered a more accurate index of quail abundance by state wildlife agencies, there exists significant variation in data collection methodology among state agencies, which makes comparing these estimates across time and large geographic areas difficult. Because Breeding Bird Survey (BBS) data collection protocols are nationally standardized, population estimates based on BBS data can be easily compared between ecoregions across the species' range. We used Northern Bobwhite BBS data from 1,717 BBS

routes to conduct an Emerging Hotspot Analysis with the objective of identifying areas of high (HotSpot) and low (ColdSpot) quail population productivity during a 20-year period from 2000-2019. We then employed Random Forests to examine the influence of landscape composition and configuration, land-use change, plant phenology, weather, drought severity, and human influence on quail population productivity around HotSpots and ColdSpots. We also introduce SaveBirds (www.savebirds.app), a web application designed for wildlife science professionals to mine and format BBS data.

2:45 Autumn Roadside Surveys for Norhtern Bobwhite in Southern Texas: Efficacy and Modifications

Alejandro Bazaldua, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Fidel Hernandez, Texas A&M University - Kingsville, Kingsville, TX, USA
Andrea Montalvo, East Foundation, Hebbronville, TX, USA
Aaron Foley, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Kristyn Stewart-Murphy, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Sinton, TX, USA
David Wester, Texas A&M University - Kingsville, Kingsville, TX, USA

Abstract: Northern bobwhites (*Colinus virginianus*) are an iconic game species that are of increasing concern to wildlife managers due to their erratic populations in southern Texas. Roadside surveys are a common technique used by state agencies and landowners to monitor bobwhite populations. However, these surveys generally assume detection probability is constant across space and time thereby limiting their reliability. Our objectives were to 1) evaluate the influence of landscapes characteristics (e.g., habitat and energy infrastructure) and weather on bobwhite relative abundance, and 2) estimate detection probability during roadside surveys as a function of survey-level covariates (e.g., starting time, date of survey, temperature). We conducted quail roadside surveys on ranches in southern Texas during August–September 2022 (13 sites; *n* = 28 total routes) and 2023 (21 sites; *n* = 43 total routes). Surveys were repeated 4–6 times, and we remotely collected data for landscape covariates (e.g., habitat, energy infrastructure, and vegetation cover) and weather covariates (e.g., seasonal and annual precipitation, summer temperature, and drought indices) at multiple scales: region (50-km and 16-km window) and site (400-m). We used N-mixture models to evaluate the influence of covariates on abundance and detection probability. Perennial forb and grass cover had the strongest influence on my bobwhite relative abundance model at the site scale (400-km). In addition, we documented a negative relationship between detection probability and date of survey. Our results highlight the importance of perennial herbaceous cover for bobwhite abundance and the need to account for detection probability during roadside surveys to improve data reliability.

Natural Resources Management

Pioneer III, February 20, 2025
Moderator: Jane Duke

1:30 Vegetation Responses After Disturbance from Ashe Juniper Removal

Zachary Bellows, Stephenville, TX, USA
Heather Mathewson, Tarleton State University, Stephenville, TX, USA
Darrel Murray, Tarleton State University, Stephenville, TX, USA

Abstract: Woody encroachment of Ashe juniper (*Juniperus ashei*) is an ongoing problem in many Texas riparian areas. Restoration through mechanical removal of woody encroached species can have unpredictable results on re-establishment of herbaceous and woody species due to soil disturbance, time since removal, the preexisting seed bank, and other environmental factors. Our objective was to examine the response of riparian vegetation after physical removal of Ashe juniper without additional planting of saplings but with reseeding of the herbaceous ground cover. Our study occurs at a tract of riparian land undergoing restoration in north-central Texas in the Western Cross Timbers ecoregion. A contracted company initiated mechanical removal of Ashe juniper within multiple riparian areas along both ephemeral and intermittent streams. In removal areas, we measured stem counts of woody species designated by size class, canopy cover, and herbaceous cover. We reseeded the removal areas with native herbaceous seeds but have allowed woody plants to naturally re-establish. Our study is a before-after treatment design that we analyzed using a two-way ANOVA. Preliminary results from 4 years post-removal data suggest trends towards woody vegetation recovery. We will present results that evaluate juniper regrowth, native and invasive grass recovery, influences of canopy cover on herbaceous cover, and the variation in woody seedling growth across the study area. Our results inform immediate restoration activities, such as herbaceous reseeding, woody planting, and removal of litter, and provide more understanding about community-level responses to Ashe juniper removal.

1:45 Exploring Mycorrhizal Dynamics: A Comparative Analysis of Rotational vs. Continuous Grazing Systems

Asia Cornelius, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Lalo Gonzalez, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Silverio Avila, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Justin French, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Maureen Frank, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA

Abstract: Desert ecosystems are vital in supporting ranching by providing essential ecosystem services despite their fragility. In regions where ranching, grazing, and wildlife management are viable, understanding how land management practices affect the ecosystem is essential. Desert grasslands are vulnerable to degradation, particularly those dominated by blue grama (Bouteloua gracilis). Management practices can significantly influence plant communities and overall ecosystem health. Different grazing systems were developed to improve ecosystem health and productivity, though their effectiveness is debatable. Blue grama helps maintain productivity in ranching operations as its health closely relates to underground processes, such as the symbiotic relationship with arbuscular mycorrhizal fungi (AMF). AMF enhances water and nutrient uptake and supports plant resilience. This study examines how different grazing systems – continuous and rotational – affect AMF communities in blue grama across two distinct soil types – Marfa and Musquiz clay loams. Mycorrhizal colonization was evaluated using the magnified gridline intersection method after staining roots to assess these differences. Statistical analyses, including ANOVA, were conducted to evaluate mycorrhizal colonization across plots with continuous and rotational grazing on Marfa and Musquiz clay loams. Rotational grazing resulted in higher mycorrhizal colonization than continuous grazing, suggesting that rotational grazing creates more favorable conditions for mycorrhizal fungi. For landowners and ranchers in the Chihuahuan Desert, this study emphasizes the importance of adopting sustainable land management practices that support the health of mycorrhizal communities. By prioritizing rotational grazing, ranchers can reduce soil compaction, maintain vegetation cover, and support the symbiotic relationship between plants and mycorrhizal fungi.

2:00 The Role of Soil Type and Grazing Systems in Shaping Desert Grassland Ecosystems

Ty Goodwin, Sul Ross State University, Alpine, TX, USA
Lalo Gonzalez, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Silverio Avila, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Justin French, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA

Abstract: Desert grasslands are critical ecosystems that support diverse wildlife species and provide valuable resources for livestock production. However, the Trans-Pecos is subjected to habitat degradation if managed incorrectly because of the variable precipitation in desert grasslands. The choice of grazing system has long been debated as to which has the most benefits in meeting a landowner's goal and sustaining healthy rangelands. The two most common grazing systems, rotational and continuous, can modify and sustain rangeland health. Therefore, this project aims to identify and compare grass species cover, annual standing crop production, species composition, forage nutrition, and soil moisture between a long-term rotational, continuous, and deferred grazing system in a desert grassland of the Trans-Pecos. Grasses were collected at the end of the 2023 and 2024 growing season. Random stratified sampling

was used to place 690 0.5 m^2 plots in all grazing regimes confined to two soil types (Marfa-clay-loam and Musquiz-clay-loam). Volumetric soil moisture was taken along with all other floristic data at each plot. Linear regression analysis showed that a continuous system will increase soil moisture between all systems overall and has the greatest increase on Musquiz-clay-loam with little to no effect on Marfa-clay-loam. A rotational system with higher overall unique species decreases soil moisture on both soil types compared to the deferred and continuous. With further analysis, this study will reinforce the importance of considering soil types when developing grazing systems and allow for grazing to be used as a management tool to conserve and restore grasslands.

2:15 Trincheras in the Digital Age: Remote Sensing for Soil Sediment Accumulation Monitoring

Gray Hancock, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Kevin Urbanczyk, Sul Ross State University, Alpine, TX, USA
Lalo Gonzalez, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Silverio Avila, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Justin French, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA

Abstract: Abstract: Wind and/or rainfall weather events displace topsoil in undulating topography when ground vegetation cover is scarce, leading to rangeland degradation and limiting the cycle of ecological processes. Understanding how and where soil erosion occurs is essential for targeting efficient management strategies for restoring rangeland ecological processes and vegetation communities. Remote sensing using fine scale imagery has accelerated rangeland research and presents an opportunity to monitor soil erosion processes. Our research goal is to explore the effectiveness of fine scale remote sensing in measuring displacement of topsoil volumetric data in drainage channels. We did this by estimating soil sediment accumulation within drainage channels using imagery acquired from a cellphone device. To test the accuracy of this method, we added 41.4 liters of soil on the ground and took measurements before and after for comparison. We captured oblique angle imagery from multiple channel perspectives before and after soil placement using a cellphone device. We then constructed a 3D model using SFM (Structure-from-Motion) image processing to create surface and terrain models from before and after soil placement. We then used the surface and terrain models to calculate soil sediment accumulation. We estimated controlled soil addition within 0.1 liters, with 99.998% accuracy. Following the feasibility test, we will estimate soil accumulation in 100 trincheras across 20 stream channels. This methodology can provide volumetric data of soil accumulated at trinchera locations and guide land stewards to fine scale their management improvements in places where erosion control structures can maximize the efficiency of soil retention.

2:30 The Potential Impact of Climate Change on Herbicide Use in Natural Resource Management

Kelley Mundy, Texas A&M University - College Station, Luling, TX, USA
Humberto Perotto, Texas A&M University, College Station, TX, USA
Evan Tanner, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Annalysa Camacho, Texas A&M University - Kingsville, N/A, USA
Hannah Moreno, Texas A&M University, Breckenridge, TX, USA
Garrison Trichel, Texas A&M University - College Station, College Station, TX, USA

Abstract: Climate change is affecting the abundance and distribution of plant species globally. These changes result in variation of forage quality and quantity, woody plant encroachment, loss of species diversity, and altered soil properties. Herbicides are valuable in natural resource management as they are used for controlling undesirable species and increasing different vegetation types. Recommendations for efficient application of post-emergent herbicides range between 18.3– 29.4 °C. With increasing temperatures, herbicide application windows will be affected, and their use outside those ranges will negatively impact their effectiveness. The purpose of this study was to quantify how management practices may be affected by climate change at the county level across Texas, USA. To model the changes in the application ranges for herbicide, we used 30-year average temperature data from 1990-2019 and ensemble models with projections from 2021 to 2040. Our data projections show that the number of counties within the application threshold will decrease from 247 to 229 in June, 232 to 177 in July, and 225 to 159 in August by 2040. Therefore, temperature is projected to be a limiting factor during the growing season, especially as temperatures may modify plant phenology and herbicide effectiveness. These results can be applied to other management practices including pesticide application and drone use which also have operational temperatures. For herbicide application to remain a viable management tool, there is a need to develop herbicides or techniques that can be applied during the dormant season or with a wider range of operational temperatures.

2:45 Occupancy and Habitat Associations Among Owls on the Texas Coastal Bend Region

Amaris Shammaa, Texas Tech University, SAN ANTONIO, TX, USA
Clint W. Boal, US Geological Survey, Lubbock, TX, USA
Brent Bibles, Unity College, New Gloucester, ME, USA
Dale James, Rob and Bessie Welder Wildlife Foundation, Sinton, TX, USA
Cade Coldren, Plant and Soil Science, Lubbock, TX, USA
Philip Smith, Department of Environmental Toxicology, Lubbock, TX, USA

Abstract: The nocturnal and elusive behavior of owls makes them challenging species to study. This has resulted in a poor understanding of community structure and distribution among species. This is especially true in the Coastal Bend region of Texas where little research has been conducted on owl communities. Our objectives are to

determine owl species-specific occupancy, spatial distributions, and extent of overlap of owl species on the Welder Wildlife Refuge (WWR) in Texas. We used audio playback surveys and passive acoustic monitoring (PAM) to better understand the distribution of four owl species: the eastern screech-owl (Megascops asio), American barn owl (Tyto furcata), barred owl (Strix varia), and great horned owl (Bubo virginianus). We have conducted three rounds of call-playback surveys for each species at 30 points on the WWR across the array of land cover types it offers. Early occupancy modeling with playback survey data has shown little significance in the relationship between land cover types and occupancy with three out of the four owl species. The barred owl was the only species to show a significant relationship between occupancy and land cover types. This implies a possible generalist behavior among the other owls that may give insight to their land use preferences. PAM recorded data are currently undergoing analyses. Our final results will assess patterns of species-specific occupancy and habitat associations across the refuge. This will allow for a deeper assessment of regional owl population distributions along the Coastal Bend region and possible management implications.

Conservation & Ecology of Mammals II

Pioneer I, February 20, 2025
Moderator: Reuben Gay

3:15 Diel and Seasonal Behavioral Patterns of the Newly Recolonizing West Texas Black Bear Population

Nicole Dickan, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Justin French, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Dana Karelus, Texas Parks & Wildlife Department, Austin, TX, USA
Matt Hewitt, Borderlands Research Institute - Sul Ross State University, Alpine, USA
Amanda M. Veals Dutt, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Louis Harveson, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA

Abstract: Black bears (Ursus americanus) began recolonizing the sky island-desert ecosystem in western Texas in the 1980s after being extirpated from the state. Despite their current status as a state-threatened species, little is known about this population or their behavioral patterns. Therefore, we collared 23 bears (14 M, 9 F) with GPS collars programmed with 2-hour fix rates. Using hidden Markov models, we segmented the movement paths into behavioral states based on step lengths, turning angles, residence times, and revisitation rates. We then evaluated the influence of sex, seasonality, and time of day on activity budgets. We found evidence of four states, consistent with resting, foraging, traveling, and a distinctive behavior when using point attractants (e.g. deer feeders). The resting and attractant states represented localized movement behaviors, but the attractant state had disproportionally high residence times and revisitation rates ($\bar{x}_{RT}$ = 40.9hrs ± 0.6(SE), $\bar{x}_{RV}$ = 8.5 ± 0.1). Bears exhibited a crepuscular activity schedule with foraging and traveling peaking between 16:00-22:00h and 04:00-10:00h; however, there was increased nocturnal activity during summer. Traveling peaked during summer, particularly for males who spent nearly 50% of their time traveling in July. The attractant state was most prevalent during hyperphagia, but females had an additional peak in this state post-denning. These activity patterns provide a window into bear bioenergetic budgets, as well as their behavioral adaptations to this unique and highly dynamic desert ecosystem. Flexibility in these patterns may be crucial as they continue to encounter novel abiotic and biotic conditions throughout their recolonization.

3:30 Identifying the Optimal Survey Design for Estimating Black Bear Density Using Simulated SECR Models

Matt Hewitt, Borderlands Research Institute - Sul Ross State University, Alpine, USA
Justin French, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Dana Karelus, Texas Parks & Wildlife Department, Austin, TX, USA
Amanda M. Veals Dutt, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Louis Harveson, Borderlands Research Institute - Sul Ross State University, Alpine, USA

Abstract: A recent increase in the number of black bears (*Ursus americanus*) naturally immigrating into western Texas has raised concerns about potential increases in human-bear conflicts. However, with no current information regarding patterns or concentrations in population density, it is unknown when or where to concentrate management action. We intend to use spatially explicit capture recapture (SECR) models and genetic information collected from hair snares (detectors) to estimate density along a ~350-km stretch of the Rio Grande River in western Texas, buffered 50-km on the Texas side to encompass any potential gradient of recolonization. This will help identify density hotspots, any spatial or temporal patterns in density, and any potential leading edge of recolonization. However, due to the areas' large extent (16,629 km^2), ruggedness, and remoteness a traditional survey of randomly selected locations will not be logistically feasible. Therefore, to identify a spatial sampling design that will be logistically possible while still producing an accurate estimate of density, we employed the 'secrdesign' R package to simulate fitted SECR models to test how different spatial layouts of detectors changed the accuracy and reliability of the produced density estimate. Six hundred and sixteen designs successfully produced results and showed that 40 4x4 grids spaced 10-km apart with detectors spaced 1-km apart surveyed for 8 1-week occasions will produce an accurate density estimate (CV = 12.66) while still being logistically possible in the field. This spatial layout will be used in all future black bear density estimation efforts in western Texas.

3:45 Effects of a Large, Linear, Political, Anthropogenic Barrier on Large Carnivore Movement Behavior

Chloe Nouzille, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Katherine McDaniel, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Robert Alonso, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
David Hewitt, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Grant Harris, U.S. Fish and Wildlife Service, Albuquerque, NM, USA
Dana Karelus, Texas Parks & Wildlife Department, Austin, TX, USA
Claudia Wultsch, City University of New York, New York, NY, USA
Randy DeYoung, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA

Levi Heffelfinger, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Ransom Canyon, TX, USA
Clayton Hilton, Texas A&M University-Kingsville, Kingsville, TX, USA
Michael Cherry, Caesar Kleberg Wildlife Research Institution, Kingsville, TX, USA
Lisanne Petracca, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, USA

Abstract: Anthropogenic structures like fences, walls, or highways can have profound influences on wildlife via impeded movement and genetic isolation. Such research is particularly pressing considering the construction of the ~1500-km border barrier system separating the United States and México. Infrastructure defining property or political boundaries often negatively affects large, mobile, or specialist species. Although segments of the barrier have crossing structures, it is unclear if they are used. Given concern for the viability of large, mobile species in Texas, we quantified behavior of a large carnivore around this potential barrier to connectivity so we can identify areas of successful and unsuccessful crosses. We fit mountain lions (*Puma concolor*) in South Texas with GPS collars that increase the fix rate from 1-hr to 10-min when the lion comes withing 1-km of the border barrier. We used this fine-scale data in the spatially explicit Barrier Behavior Analysis developed by Xu et al. (2020) to categorize individual lion movement behavior as normal or altered and quantify how often lions approach the barrier. Preliminary results show one individual can circumvent the border barrier system while another has only shown altered movements. Neither individual has used available crossing structures. Of 14 barrier encounters (within 100-m), 11 movements were categorized as altered. On average, individuals encountered the barrier 3 times a month. Our work suggests that the border barrier can affect large carnivore movements. Continued behavior monitoring around the border barrier will inform mitigation and management strategies locally and provide inference for at-risk carnivore populations globally.

4:00 Drivers of Adult Pronghorn Survival Near the Species' Geographic Extent

Celine Rickels, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Michael Cherry, Caesar Kleberg Wildlife Research Institution, Kingsville, TX, USA
Colter Chitwood, Oklahoma State University, Stillwater, OK, USA
Marlin Dart, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Randy DeYoung, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
W. Sue Fairbanks, Oklahoma State University, Stillwater, OK, USA
Derek Hahn, Oklahoma State University, Stillwater, OK, USA
Robert Lonsinger, Oklahoma State University, Stillwater, OK, USA
Evan Tanner, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Matthew Turnley, Oklahoma State University, Stillwater, OK, USA
George Wang, East Central University, Ada, OK, USA

Levi Heffelfinger, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Ransom Canyon, TX, USA

Abstract: Adult female survival often has the greatest contribution to population trajectory in large mammals. Factors influencing adult survival can be exacerbated in populations living near their geographic extent. Pronghorn (*Antilocapra americana*) vital rates vary geographically, and evidence suggests a population decline at the southeastern extent in Oklahoma. We examined drivers of adult pronghorn survival in Oklahoma to gain insight on population status. In 2022–2024, we captured and GPS-collared 209 pronghorn (150 females and 59 males) in western Oklahoma. We fit Kaplan-Meier survival curves to quantify inter-annual and sex-specific survival rates and assessed drivers of survival via Cox-proportional hazard models including sex, year, and landscape variables. Overall annual pronghorn survival was 74.8% (95% CI: 69.7–80.3%). Female survival was 76.7% (95% CI: 71.1–82.8%) and male survival was 67.8% (95% CI: 55.8–82.4%). Exclusion of hunter-harvested individuals increased survival estimates by 2.6% and 8.9% for females and males, respectively. Though we did not detect an effect of sex or year, pronghorn that exhibited greater grassland use experienced reduced mortality risk (hazard ratio: 0.18; 95% CI: 0.05–0.69) in contrast to increased mortality risk with greater cropland use (hazard ratio: 5.16; 95% CI: 1.30–20.50). Compared to pronghorn populations at their geographic core, our adult survival estimates are lower on average. Our results highlight the importance of native grassland communities and the potential negative effects of cropland encroachment.

4:15 Functional Response of Pronghorn Space Use Relative to Anthropogenic Landscape Factors

Bailey Kleeberg, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Lubbock, TX, USA
Timothy Fulbright, Texas A&M University - Kingsville, Kingsville, TX, USA
Michael Cherry, Caesar Kleberg Wildlife Research Institution, Kingsville, TX, USA
Warren Conway, Texas Tech University, Shallowater, TX, USA
Marlin Dart, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Randy DeYoung, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Shawn Gray, Texas Parks & Wildlife Department, Alpine, TX, USA
David Hewitt, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Gary Mizer, Texas Tech University, Lubbock, TX, USA
Anthony Opatz, New Mexico Department of Game and Fish, Santa Fe, NM, USA
Evan Tanner, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Levi Heffelfinger, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Ransom Canyon, TX, USA

Abstract: Anthropogenic infrastructure (e.g., row-crop agriculture and roads) may alter connectivity or access to important resources. The impact of these anthropogenic features to grassland-dependent wildlife, such as pronghorn (*Antilocapra americana*), may be dynamic. Pronghorn numbers have declined but persisting populations in mixed-use landscapes may be supplemented by crops. Roads are associated with cropland, but avoidance of roads is well documented in pronghorn throughout North America. Our objective was to assess relationships between pronghorn use of cropland and roads in the form of a functional response. We GPS-collared 75 pronghorn from 2017 to 2019 in the Texas Panhandle and modeled how use changed with availability. We estimated pronghorn home ranges (mean = 80.5 km^2, SD = 75 km^2) and found pronghorn used cropland in proportion to its availability but had higher use than available when home ranges contained ~25 - 60% cropland. Further, pronghorn had high proportional use of cropland when their home range was ≤ 2 km from cropland, but had little use when living > 2 km away. Pronghorn used paved roads less than was available, with declining use as availability increased. Pronghorn used unpaved roads slightly less than available, and had almost no use at lower levels of availability. A pronghorn ecological paradox may exist between the nutritive value of row-crops versus habitat loss and fragmentation via row-crop agriculture and roads. Row crops may reduce native habitat but diversify nutritional resources, although this benefit may be unpredictable as proximity and availability of cropland was highly influential in pronghorn use.

Conservation & Ecology of Birds II

Pioneer II, February 20, 2025
Moderator: Matt Reidy

3:15 Using Geographic Information Systems to Examine the Potential Impact of Wind Turbines on Grassland Birds

Drew Berdo, Texas State University, San Marcos, TX, USA
Joseph Veech, Texas State University, San Marcos, TX, USA

Abstract: Wind energy is a known way for humans to reduce emissions from the use of fossil fuels. However, there is limited public discourse and research on how wind energy impacts birds and other wildlife. Grassland birds are one of the most threatened groups of avifauna in North America and the geographic ranges of many species overlap the majority of current and future wind energy capacity in the United States. We used data from the North American Breeding Bird Survey (BBS) and the United States Wind Turbine Database to examine the potential impact of wind turbines on abundance and diversity of grassland birds. Using ArcGIS Pro, we created a Turbine Proximity Index (TPI) that quantitatively assesses wind energy development along BBS routes. This index takes into account the number of turbines within a set distance of the route, 10km and 2.5km. We then employed a Before-After-Control-Impact study design to examine the change in abundance and species richness in relation to TPI for routes within the study region. Land cover composition along the routes was also taken into account in the BACI analysis. Our study provided limited evidence that wind turbines have a detectable negative effect on abundance and species richness of grassland birds at a landscape scale. However, some of the regression models used in the BACI design had relatively low statistical power. Further research is warranted particularly with regard to testing for effects of turbines on specific species.

3:30 Avian Community Response to Removal of Encroaching Woody Vegetation in Trans-Pecos Grasslands

Audrey Taulli, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Lalo Gonzalez, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Justin French, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Maureen Frank, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA

Abstract: The grasslands of North America are one of the fastest declining habitat types on the continent. This is due to a variety of reasons, including energy conversion, livestock grazing, and woody plant encroachment. As a result of this habitat loss,

grassland-obligate bird species are in steep decline across the continent. An estimated 88% of migratory grassland birds overwinter in the Chihuahuan Desert. Woody plant encroachment within the Chihuahuan Desert has decreased available grasses, leading to a reduction in winter food availability and nocturnal thermal cover. Encroached woody vegetation also provides more habitat and perching opportunities for avian predator species, such as loggerhead shrikes (*Lanius ludovicianus*) and American kestrels (*Falco sparverius*). Grassland restoration efforts typically involve brush removal using herbicide, mechanical removal, and fire. In the Trans-Pecos, we are studying sites within the Marathon and Marfa grasslands where herbicide and mechanical removal have been used on mesquite varieties (*Prosopis glandulosa* Torr. var. *glandulosa* and *Prosopis glandulosa* Torr. var. *torreyana*), creosote bush (*Larrea tridentata*), and tarbush (*Flourensia venus*). We are conducting non-breeding bird surveys and vegetation surveys across a control site, a site 3 years post-herbicide treatment, and a site that used mechanical removal 4 years after having been treated with herbicide. Preliminary results indicate reduction in brush greenness after treatments and variation in target bird abundance across years. Ultimately, this project will help inform broad-scale restoration that will hopefully result in population increases for species currently listed as Species of Greatest Conservation Need.

3:45 Linking Cross-scale Dynamics in Landscape Patterns to Declines in a Ground-nesting Galliform

Caleb McKinney, Texas A&M University - Kingsville, Kingsville, TX, USA
Katherine Travis, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Evan Tanner, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Ashley Tanner, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Leonard Brennan, Kingsville, TX, USA
Fidel Hernandez, Texas A&M University - Kingsville, Kingsville, TX, USA
David Hewitt, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
David Wester, Texas A&M University - Kingsville, Kingsville, TX, USA
Humberto Perotto-Baldivieso, Texas A&M University - College Station, College Station, TX, USA
Ryan Luna, Sul Ross State University, Alpine, TX, USA
John McLaughlin, Texas Parks and Wildlife Department, Lubbock, TX, USA

Abstract: Ecosystem dynamics and landscape heterogeneity can cause organisms to respond to novel pressures at different spatial and temporal scales. Organisms are expected to have disparate responses to ecological factors across different spatio-temporal scales depending on landscape context and functional traits of the organism. In semi-arid systems, resources and conditions frequently change in distribution and abundance based on, but not limited to, climatic patterns. Additionally, these systems are increasingly altered by anthropogenic activity that may functionally change the

ecosystem over longer temporal scales. In South Texas, the chestnut-bellied scaled quail (*Callipepla squamata castanogastris*; hereafter: “quail”) population have experienced distribution-wide declines in recent decades broadly believed to be a result of land use change and fragmentation. However, understanding responses to scales of effect of these novel pressures are lacking. To assess this, we used 30-years of quail abundance data from the Texas Parks and Wildlife Department’s annual quail survey along with landscape data from the Rangeland Analysis Platform to assess variation in the scale of effect for landscape dynamics across a broad temporal extent. Specifically, we used generalized additive models to identify scale of effects for nine predictive landscape variables, and modeled their effect on relative quail abundance. We found positive, nonlinear trends in relative quail abundance for woody cover. We also identified potential directional thresholds in the effects of tree and bare ground cover on relative abundance. Our results illustrate the cross-scale dependency of landscape dynamics on long-term relative abundance trends of this culturally important gamebird.

4:00 Current Recovery Efforts for the Attwater’s Greater Prairie-chicken

Jim Mueller, U.S. Fish and Wildlife Service, Burnet, TX, USA
Brooke Burrows, U.S. Fish and Wildlife Service, EAGLE LAKE, TX, USA
David Stewart, U.S. Fish and Wildlife Service, Albuquerque, NM, USA

Abstract: The Attwater’s greater prairie-chicken (*Tympanuchus cupido attwateri*, APC) was listed as endangered with extinction in 1967. Its numbers continued to decline over the following 25 years, and a captive breeding program was initiated in 1992 to preserve genetic diversity and provide birds for supplementing populations and re-establishing extirpated populations. Herein we provide an update of recent recovery efforts. In 2024, APC were reared at four facilities: Fossil Rim Wildlife Center, Houston Zoo, Caldwell Zoo, and Sutton Avian Research Center. These facilities bred 61 hens and produced 607 chicks that survived to 8 weeks. Two wild populations exist at Attwater Prairie Chicken National Wildlife Refuge (APCNWR), Colorado County, Texas, and on private lands in Goliad and Refugio counties. We surveyed booming grounds in March and April 2024 and tallied 20 males at APCNWR and 53 in Goliad County; this represented a 1-year decrease of 4 males at APCNWR and increase of 8 males on the leks surveyed in Goliad County. In 2023, an additional 3 leks were surveyed in Goliad County with 19 males on a ranch that was not available for surveying in 2024. We released 259 APC at APCNWR and 284 APC in Goliad County in June–September 2024. Current recovery efforts are focused on identifying new release sites, identifying most impactful habitat management strategies, and improving survival of newly released APC.

4:15 Management of Attwater’s Greater Prairie-chickens Infected with Reticuloendotheliosis Virus

Jim Mueller, U.S. Fish and Wildlife Service, Burnet, TX, USA
Brooke Burrows, U.S. Fish and Wildlife Service, EAGLE LAKE, TX, USA

Megan S. Kirchgessner, U.S. Fish and Wildlife Service, Blacksburg, VA, USA
Bianca R. Sicich, U.S. Fish and Wildlife Service, Eagle Lake, TX, USA

Abstract: Reticuloendotheliosis virus (REV) has hampered recovery efforts of the Attwater's greater prairie-chicken (*Tympanuchus cupido attwateri*, APC) since it was first reported in APC in 1998. REV commonly occurs in wild bird populations of many species at low prevalence but is rarely associated with clinical disease in wild birds. REV is incurable, and chronic infection in captive birds eventually results in lower productivity and health. Thus, U.S. Fish and Wildlife Service has worked with captive breeding facility managers to maintain an REV-free captive flock by culling individual birds that test positive. However, this strategy entails risks. First, this approach can result in the loss of a large portion of the breeding population; for example, 16 of 19 breeders tested positive and were culled from one flock from November 2023 through January 2024. Second, APC can thrive for several years with REV, and these individuals may have genetic traits for disease resistance that could benefit the species. Third, APC in the current captive breeding facilities cannot be completely isolated from vectors of REV that transmit the disease from wild birds, resulting in frequent incidences of REV-infected APC. Finally, APC in the wild have low survival, and thus additional mortalities due to REV may be inconsequential. For these reasons, we asked subject matter experts to assess the likelihood and severity of risks associated with four options for management of APC infected with REV. We review the biology of this disease and the responses we received regarding perceived risks for these management options.

Biometrics, Population Monitoring, & Citizen Science

Pioneer III, February 20, 2025

Moderator: Angela Lewellan

3:15 5 Years of Gem: Lessons Learned from Polishing the Grassland Effectiveness Monitoring Program

Alex Nelson, Rio Grande Joint Venture/Oaks and Prairies Joint Venture, Wichita Falls, TX, USA
Rebekah Rylander, Rio Grande Joint Venture - American Bird Conservancy, Rockport, TX, USA
Anna Matthews, American Bird Conservancy, New Braunfels, TX, USA
Daniel Bunting, Science Applications, U.S. Fish and Wildlife Service, Southwest Region, Austin, TX, USA
Michael C. Duniway, Southwest Biological Science Center, U.S. Geological Survey, Moab, UT, USA
James Giocomo, American Bird Conservancy, Durand, IL, USA
Anna Knight, Southwest Biological Science Center, U.S. Geological Survey, Moab, UT, USA
Adriana Leiva, Gulf Restoration Program, U.S. Fish and Wildlife Service, Corpus Christi, TX, USA
Robert Perez, OPJV/ABC, La Vernia, TX, USA
Kourtney Stonehouse, Partners for Fish and Wildlife Program, U.S. Fish and Wildlife Service, Falls Church, VA, USA
Derek Wiley, Texas Parks and Wildlife Department/Oaks and Prairies Joint Venture, Throckmorton, TX, USA
Don Wilhelm, Partners for Fish and Wildlife Program, U.S. Fish and Wildlife Service, Arlington, TX, USA

Abstract: Grasslands are an imperiled ecosystem in North America, with 2/3 of the historical distribution of this critical habitat lost to shrub encroachment, agricultural conversion, overgrazing, and other disturbances. In response, habitat restoration programs implement practices like brush management, prescribed fire, herbicide treatment, and prescribed grazing. About $2.8 million/year is spent implementing these practices on private lands by U.S. Fish and Wildlife's Southwest Region's Partners for Fish and Wildlife program, and millions more is spent by other federal/state programs. However, consistent monitoring data is scarcely available to assess habitat outcomes at large scales. The tiered Grassland Effectiveness Monitoring (GEM) protocol is demonstrating success in quantifying changes in various vegetation metrics. Between 2021 and 2024, GEM has been implemented by the Oaks and Prairies and Rio Grande Joint Ventures (among other partners) in three U.S. states (Texas, Oklahoma, and New Mexico) and in Chihuahua, Mexico. In 2025, the Chickasaw Nation in Oklahoma plans to use GEM to assess grassland projects. Though sophisticated data analyses are still underway, the GEM team has learned valuable lessons about data collections across large geographies, data organization using Survey123 and R platforms, storing and making data available to end-users, and how to best advertise and make GEM products

available for those interested in using these protocols. Thus, GEM data applications towards research and land management decisions are many, but expanding capacity to support data storage and analysis remains a focus of the program's development.

3:30 Use of eBird Community Science Data to Predict the Distribution of Wintering Grassland Songbirds in the Western Cross Timbers Ecoregion

Catalina Berry, Tarleton State University, Laredo, TX, USA
Lindsey Willingham, Tarleton State University, Stephenville, TX, USA
Autumn Patterson, Tarleton State University, Stephenville, USA
Adam Mitchell, Tarleton State University, Stephenville, TX, USA
Heather Mathewson, Tarleton State University, Stephenville, TX, USA

Abstract: Grassland songbirds are one of the most threatened groups of birds in North America and under-researched in their wintering range. Community science projects such as eBird collect useful data for creating species distribution models, but can be biased towards human-dense regions, highly detectable species, and breeding or migratory seasons. Savannah sparrows (*Passerculus sandwichensis*) are declining grassland songbirds that overwinter in north-central Texas but are rare on eBird in this area. Our objective was to use eBird data to predict encounter rate and distribution of savannah sparrows across the Western Cross Timbers ecoregion. We will also obtain predictions for increasing encounter rates. We obtained 10 years (2014–2024) of complete eBird checklists (*n* = 9,171) between October to March within the study area and created a detection/non-detection dataset (*n* = 571 detections). We used a random forest model with checklist location, presence-absence, landcover data, elevation, and effort variables as predictors of savannah sparrow distribution. We evaluated model performance using sensitivity, specificity, Precision-Recall AUC, F1 score, and Matthews correlation coefficient. Our preliminary results show that the top-performing model had an AUC = 0.15, suggesting further refinement is needed. The top landcover predictors are length of edge of grasslands and percent landcover of parkland. Variables for survey effort indicated that surveys from December to February, with increased search area, and for a minimum of 2 hr will increase encounter rates in our area. This modeling approach can inform species distribution models of uncommon bird species using community science data.

3:45 Outcome-based Monitoring for Assessing Fall and Winter Surface Water Availability for Waterfowl Habitat in the Texas Gulf Coast Region

Stephen DeMaso, USFWS - Gulf Coast Joint Venture, Lafayette, LA, USA
Joseph Lancaster, Gulf Coast Joint Venture, Lafayette, LA, USA
Nicholas Enwright, Gulf Coast Joint Venture, Lafayette, LA, USA
Michael Brasher, Ducks Unlimited, Memphis, TN, USA
Mark Parr, FWS, Shepherdstown, WV, USA
William Vermillion, Gulf Coast Joint Venture, Lafayette, LA, USA
Barry Wilson, Gulf Coast Joint Venture, Lafayette, LA, USA
Tyler Morvant, Gulf Coast Joint Venture, Lafayette, LA, USA

Abstract: Migratory Bird Joint Ventures use a partnership-based approach to deliver geographically- specific bird population and habitat objectives. The Texas portion of the Gulf Coast Joint Venture (GCJV) provides suitable habitat for migrating and wintering waterfowl. The GCJV uses bioenergetic models to translate winter waterfowl population targets into habitat objectives for this important region. Through annual assessments of fall and winter surface water availability, the GCJV evaluates progress toward habitat objectives and informs conservation priorities. Remotely sensed imagery (e.g., Landsat) was used to quantify abundance of fall and winter waterfowl habitat on inland agricultural lands in the Texas portion of the GCJV during three periods of its fall-winter planning window. The GCJV quantified waterfowl inland agricultural habitat abundance for 38 fall-winter periods (1985–2024), revealing significant inter- and intra-annual variation in habitat abundance within and among Texas Initiative Area planning regions. Inland agricultural waterfowl habitat objectives were achieved 48–60% of early period assessments and 8–70% of mid-late period assessments across Texas Initiative Areas. These data depict the spatial and temporal variation in waterfowl habitat across the Texas portion of the GCJV landscape. We will demonstrate how outcome-based monitoring contributes to assessing progress toward habitat objectives. Targeted wetland delivery programs, like the Texas Prairie Wetlands Project can contribute to achieving fall-winter, inland agricultural GCJV waterfowl habitat objectives.

4:00 Did You Hear That? Counting Quail Using Autonomous Recorders and Hierarchical Models

David Pearce, Texas A&M University - College Station, College Station, TX, USA
Toryn Schafer, Texas A&M University - College Station, College Station, TX, USA
Humberto Perotto, Texas A&M University, College Station, TX, USA
Ty Werdel, Texas A&M University - College Station, College Station, TX, USA
Stephen Webb, Texas A&M Natural Resources Institute, College Station, TX, USA

Abstract: Autonomous recording units (ARUs) are increasingly used in avian research and management due to their ability to survey large spatial extents across long temporal periods. However, a drawback of ARUs is the ability to process data accurately and efficiently, but recent developments in acoustic classifiers show promise in expediting acoustic data workflows. To investigate the efficacy of ARUs for avian species management, we deployed 27 ARUs across La Copita Demonstration Ranch and Research Area in southern Texas during the northern bobwhite quail (*Colinus virginianus*; hereafter, quail) breeding season (May-July) to estimate abundance. To process the acoustic data, we used two acoustic classifiers: BirdNET, an open-source classifier, and a quail-specific classifier. We implemented a Bayesian hierarchical model to estimate quail abundance that accounts for: 1) false positives, 2) detection, and 3) and factors influencing abundance. We collected 1,249 hours of acoustic data across 93, thirty-minute morning surveys and used 54 hours (4 days) which detected 2,038 quail calls. To validate the acoustic model, we conducted point counts at 10 sites using mental capture-recapture and detected 69 quail across 4 survey periods. We will assess whether estimates of quail abundance from the acoustic models are comparable to

estimates obtained from the point count model and determine a acoustic classifier's false positive rate influence on precision. Our findings will present a workflow for using ARUs as a method for avian monitoring and management.

4:15 Optimizing Spatially Explicit Capture-recapture Study Design Across Varying Animal Movement Strategies

James Helferich, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Beth Gardner, University of Washington, Seattle, WA, USA
Lisanne Petracca, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, USA

Abstract: How animals move through space is an important consideration when designing studies to estimate wildlife population parameters. When estimating population density using closed capture-recapture models, heterogeneity in animal movement and home range location can bias detection probabilities. However, spatially explicit capture-recapture (SECR) models improve density estimates by incorporating the spatial scale of an individual's movement and the location of an individual's home-range center relative to trap locations. Advances in GPS collars have also expanded our ability to identify animal movement models and integrate them into SECR frameworks. While simulation studies have provided several optimizations for SECR detector array designs, accounting for different animal movement patterns remains a knowledge gap. Our objective was to use simulations to determine the optimal detector array design across five animal movement models: random-walk, nomadic, central place, habitat-driven, and territorial. Each movement pattern was simulated 100 times under an evenly-spaced, random, and clustered trap array design, with encounter histories created under the Poisson encounter model. We further assessed the impact of selecting detector locations based on habitat configuration. We evaluated bias, coverage, and root mean square error and found that evenly-spaced arrays generally perform well across metrics and movement patterns. We found that random arrays often also perform almost as well but that clustered arrays can have high error and low precision, especially under more complex movement. These results can be used by researchers to determine the ideal array design for multiple known movement models and the most versatile design when movement patterns are unknown.

Conservation & Ecology of Mammals III

Pioneer I, February 20, 2025
Moderator: Elise Spain

9:00 Niche Separation Between a Sympatric Specialist and Generalist Felid in Tamaulipan Thornscrub

Shayla Haiflich, Texas A&M University - Kingsville, Corpus Christi, TX, USA
James Helferich, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Alexandria Hiott, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, KINGSVILLE, USA
Landon Schofield, East Foundation, Kingsville, TX, USA
Lisanne Petracca, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, USA

Abstract: Similarly-sized animals with overlapping ranges and natural histories have the potential to have competitive interactions, which can lead to spatial or temporal segregation in resource use. In South Texas, two mesocarnivores of similar size, ocelots (Leopardus pardalis) and bobcats (Lynx rufus), coexist in Tamaulipan thornscrub. It has been demonstrated that the endangered ocelot is a closed canopy specialist, relying on dense thornscrub cover, while bobcats are habitat generalists and are able to adapt to a variety of mixed and open canopy cover environments. Using a two-species occupancy model, we sought to better understand the drivers in the probability of use of thornscrub cover and other vegetative communities to understand the niche separation between bobcats and ocelots. To achieve this, we deployed a 1-km2 camera grid on the East Foundation's ~ 109-km2 El Sauz ranch with data collected from February through July 2024. We hypothesized that ocelots would be more likely to occur at sites where bobcats are also present and where percent thornscrub cover is more extensive, reflecting their dense thornscrub specialization. Conversely, we predicted that bobcats would be more likely to occur independently of ocelots and where there are mixed or open canopy vegetation types. Our results will assist in better understanding the spatial dynamics of bobcats and ocelots and will have important implications for endangered ocelot recovery in South Texas.

9:15 Genetic Diversity of Federally Endangered Ocelots in the United States

Tyler Bostwick, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Randy DeYoung, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Matthew Smith, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Alynn Martin, Caesar Kleberg Wildlife Research Institute, KINGSVILLE, TX, USA
Ashley Reeves, East Foundation, San Antonio, TX, USA

Lisanne Petracca, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, USA

Abstract: Managing for genetic diversity in endangered species is critical, given that low genetic diversity can reduce fitness and impact population viability. Small populations at the peripheries of their range are particularly susceptible to loss of diversity via genetic drift and inbreeding. Ocelots (*Leopardus pardalis*) are a widely distributed felid species in the Americas, but listed as endangered in the United States. Currently, there are as few as 100 individuals in two isolated populations in South Texas, one on privately-owned ranchlands, and the other on the Laguna Atascosa National Wildlife Refuge. To improve long-term viability of ocelots in South Texas, a new federally-supported reintroduction program has been initiated, making baseline information on the current state of genetic diversity a critical need. We genotyped 170 wild ocelots sampled from 1990 to 2024 and grouped them into six geographic and temporal groups based on capture year and location. We used whole genome sequencing and microsatellite analysis to estimate indices of genetic diversity, quantify inbreeding, assess divergence among populations, and identify potential dispersers. Pairwise F_{ST} increased between the Ranch and Refuge populations across time, indicative of genetic drift and accumulation of inbreeding. Individuals in both populations had longs runs of homozygosity, reflective of recent inbreeding. We detected the first dispersal events between the populations in > 30 years, as two individuals caught in the Refuge population were genetically assigned to the Ranch population. Our results showed recent connectivity between these two populations and suggests the potential for natural gene flow to aid species recovery.

9:30 From Co-occurrence Patterns to Trophic Interactions: A Meta-analysis of Spatial and Temporal Co-occurrence in Carnivora Mammals and Their Preys

Gabriel Andrade Ponce, Stephen F. Austin State University, Nacogdoches, TX, USA
Juan Camilo Cepeda-Duque, Tiger Cats Conservation Initiative, Dosquebradas, Risaralda, Colombia
Gabriela Palomo-Muñoz, Environmental Science and Technology, University of Maryland, Maryland, MD, USA
Eva López-Tello, Red de Biología y Conservación de Vertebrados, Instituto de Ecología A.C, Xalapa, Veracruz, MEX
Yolotli Morales-Góngora, Instituto de Ecología A.C., Xalapa, Veracruz, MEX
Alan Suárez- López, Escuela Nacional de Estudios Superiores, Universidad Nacional Autónoma de México, Morelia, Michoacin, MEX
Wesley Dáttilo, Red de Ecoetología, Instituto de Ecología A.C., Xalapa, Veracruz, MEX
Verónica Farías-González, Facultad de Estudios Superiores Iztacala, Universidad Nacional Autónoma de México, Estado de Mexico, Mexico, MEX
José Jiménez, Instituto de Investigación en Recursos Cinegéticos (IREC) (CSIC-UCLM-JCCM), Ciudad Real, Ciudad Real, Spain
Fernando Ocampo-Saure, Posgrado, Instituto de Ecología A.C.,, Xalapa, Veracruz, MEX
Mariano Avedaño-Diaz, Instituto de Neuroetología, Universidad Veracruzana., Xalapa,

Veracruz, MEX
Victor Castelazo-Calva, Center of Applied Ecology and Sustainability (CAPES), Pontificia Universidad Católica de Chile, Santiago, Region Metropolitana de Santiago, Chile
Carlos Hernandez, Independent researcher, Mexico, Distrito Federal, MEX
Estefania Salazar-Giraldo, Grupo Mastozoología & Colección Teriológica, Universidad de Antioquia, Medellin, Antioquia, Colombia
Jessica Duran-Antonio, Independent researcher, Campeche, Campeche, MEX
Salvador Mandujano, Red de Biología y Conservación de Vertebrados, Instituto de Ecología A.C., Xalapa, Veracruz, MEX

Abstract: Empirical assessment of antagonistic interactions in mammals is challenging. Therefore, most studies have relied on indirect evidence such as the spatial or temporal species co-occurrence patterns, to make inferences about interactions. The suitability of co-occurrence patterns hinges on the assumption that factors influencing interaction intensity would reflect on the spatial and temporal distribution of species. However, previous assessments of mammal co-occurrence patterns have shown context-dependence and controversial results. We conducted a systematic literature review and meta-analysis to elucidate how the morphological and behavioral traits of species and environmental factors affect mammal's spatial and temporal co-occurrence patterns. To examine the relationship of co-occurrence patterns with species traits and latitude, we employed a generalized linear mixed model approach. We selected a total of 152 peer-reviewed studies published between 2010 and 2022. We found evidence of how body mass ratio, latitude, and hunting strategy, contribute to explaining pairwise co-occurrence patterns of predator-prey species. Nonetheless, the alignment between these drivers and co-occurrence patterns did not match expectations for predator-prey interactions. Furthermore, the importance and direction of relationships between the variables and co-occurrence patterns changed contingent upon the analyzed dimension (spatial or temporal), and predator family identity. Overall, we found body mass ratio and hunting strategy can be useful for inferring predator-prey interactions from co-occurrence patterns. The variables and relationships identified in this study, when approached within a suitable conceptual and analytical framework, have the potential to foster valid interpretations from mammalian co-occurrence data.

9:45 Drought Events Alter Endangered Ocelot Movement and Niche Overlap with Bobcats at Their Northern Range Boundary in South Texas

Matthew Smith, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Lisanne Petracca, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, USA

Abstract: Ongoing environmental change is altering climatic conditions globally, with pronounced effects on the ecology of species and communities. Consequently, conservation and management are increasingly challenged with recovering species in systems that are dissimilar to historical baselines. Climate extremes (e.g., drought) can

be challenging for animals both physiologically and behaviorally when resources are limited and the cost to forage, avoid predators, and find mates increases. However, few studies have quantified how abiotic extremes affect activity patterns, space use, and ultimately energetic demands in the context of species recovery. To better understand the role climate extremes have on species recovery, we estimated daily movement rates and habitat selection of the federally endangered ocelot (*Leopardus pardalis*) and a sympatric carnivore (bobcat *Lynx rufus*) across periods of drought in South Texas, USA between 2017 and 2024. We used GPS telemetry to calculate energy expenditure and predicted the physiological cost of alternate climatic scenarios. We found the extreme drought conditions increased niche overlap between ocelots and bobcats in space and time. In addition, we found ocelots increased their daily distance traveled during periods of drought and consequently increased daily energy expenditure. Extreme abiotic conditions pose difficult challenges for management with limited tools to mitigate climate, but understanding behavioral changes and physiological limitations is critical to evaluate progress toward species recovery and promote long-term persistence.

10:00 First Recorded Between-population Dispersal of a Male Ocelot in South Texas: Its Significance for Planning the Recovery of the Species the United States

Daniel Scognamillo, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Ashley Reeves, East Foundation, San Antonio, TX, USA
Landon Schofield, East Foundation, Kingsville, TX, USA
Lindsay Martinez, Weslaco, TX, USA
Brandon Jones, U.S. Fish and Wildlife Service, Los Fresnos, TX, USA
Laura de la Garza, U.S. Fish and Wildlife Service, Alamo, TX, USA
Michael Tewes, Texas A&M University - Kingsville, Kingsville, TX, USA

Abstract: In the United States, two known breeding endangered ocelot (*Leopardus pardalis*) populations remain, with both found in southern Texas. The smaller Refuge Population is in Cameron County and occupies the Laguna Atascosa National Wildlife Refuge (LANWR) and surrounding areas, while the larger Ranch Population occurs to the north on private lands in Willacy and Kenedy Counties. For the past 40 years that ocelots have been studied in Texas, lack of evidence led researchers to believe that these populations were isolated from each other. Nevertheless, in March 2024, a research team from the Caesar Kleberg Wildlife Research Institute at Texas A&M University – Kingsville captured at LANWR a male ocelot with a pit tag that corresponded to an individual captured a year earlier by the East Foundation in the Ranch Population. This ocelot, LAO04M-24, traveled at least 37 kilometers between capture locations. Bloodwork and physical examination did not reveal any clinically significant impacts to health after dispersal, and the ocelot's present movements suggest a resident status in the Refuge Population with a core area of space use established in LANWR. New genetic evidence from a concurrent study indicates that ocelot dispersal has occurred between these populations in recent years, and the recorded dispersal of ocelot LAO04M-24 offers a time frame for dispersal and

information about the individual's physiological conditions before and after dispersal. This recorded dispersal and current research on ocelot movements has implications for ocelot recovery planning, especially surrounding strategies to promote population connectivity or conduct augmentation of the populations.

10:15 Connectivity and Urban Greenspaces: Evaluating the Role of Landscape Factors on Urban Carnivore Occupancy in Denton, Texas

Issabella Serrani Gallego, University of North Texas, Krum, TX, USA
Andrew Gregory, University of North Texas, Denton, TX, USA

Abstract: Urban greenspaces can provide multiple services: from positive outdoor recreation to a conduit of protection for urban species across an urban matrix. Connectivity plays an important role for urban carnivore persistence along a fragmented landscape, with green spaces aiding in travel and/or to acquire resources. Although connectivity depends on many landscape factors, recent studies suggest that interconnectedness of an urban green space is an important attribute to consider for urban carnivores. Identifying which landscape factors hold an ecological importance for certain species is critical to understand urban carnivore persistence in a human-dominated landscape. For my study, I investigate how land attributes of the urban landscape in Denton, Texas impact patterns of occupancy for bobcats (*Lynx rufus*) and coyotes (*Canis latrans*) in urban greenspaces. Density estimations were captured via double-camera stations (59, 118) across six different study sites from June-November 23'& 24', using spatially explicit capture-recapture (SECR) analysis. Each site was classified by degree of isolation and spatially modeled via land cover variables like land use, patch size, and least cost path (LCP), to determine their linkage in the landscape. Primary data show coyotes are present in all sites, while bobcats had a high probability of detection in all sites except one. The greenspace with low bobcat detection also has a high degree of isolation and low connectivity based on LCP and flow analysis. Results suggest that the availability of corridors is important for bobcat intensity of use of a greenspace, along with the land use and management of this landscape.

Conservation & Ecology of Birds III

Pioneer II, February 20, 2025
Moderator: Jordan Giese

9:00 Diversity of Migrating and Wintering Birds at Livestock Tanks in the Trans-Pecos

Emily Blumentritt, Borderlands Research Institute - Sul Ross State University, Manor, TX, USA
Justin French, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Daniel Collins, U.S. Fish and Wildlife Service, Albuquerque, NM, USA
Maureen Frank, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA

Abstract: Birds overwintering in the Chihuahuan Desert grasslands have declined by 70% since 1970. In the harsh climate of the arid southwest, dirt livestock tanks could be an important source of water, food, and shelter for migratory bird species. Our study documents which migrating and wintering birds of the Trans-Pecos utilize dirt livestock tanks and evaluates how characteristics such as tank size, brush density, and water level relate to bird diversity and abundance. We are using double-observer point count surveys and automated recording units (ARUs) to determine what bird species are present at dirt livestock tanks and how they are utilizing them. Point count survey results have shown significant diversity of birds actively using livestock tanks, with 52 species of birds across 22 families and 9 orders detected from September 2023 through March 2024. Birds represented in the results include raptors, shorebirds, warblers, sparrows, flycatchers, and ducks, and 14 out of the 52 bird species are grassland specialists. Most of the grassland habitats in the Trans-Pecos are privately owned and cattle are often used to manage these habitats (e.g., enhancing plant biodiversity through grazing). The goal of this study is to produce management recommendations for dirt livestock tanks, such as maximum levels of brush and optimum tank size, that will allow private landowners to meet their bird conservation goals while supporting their livestock operations.

9:15 Avian Community Science on American College Campuses Across the Central Flyway

Ian Becker, University of Texas Rio Grande Valley, Ft. Worth, TX, USA
Dileka Kariyawasam, University of Texas Rio Grande Valley, Brownsville, TX, USA
Andrea Contina, University of Texas Rio Grande Valley, Brownsville, TX, USA

Abstract: Rapid urbanization is altering native ecosystems at alarming rates creating a growing necessity to understand habitat usage in urban areas. Of chief concern are migratory birds who are currently experiencing unprecedented declines numbering in the billions. These birds require high quality habitat for stopover sites in order to refuel and rest, which is becoming more scarce due to habitat loss and fragmentation. One

often overlooked source of habitat are college and university campuses. These habitat patches not only provide the opportunity to evaluate unique human-wildlife interactions but also house native vegetation in many urban areas. Due to the lack of effective sampling, we don't possess the power to analyze these campuses on a macro level. Using community science we analyze the sampling effort of 368 college campuses along the North American Central Flyway, one of four major avian migratory routes through the United States. We consider multiple landscape variables such as urbanization, light pollution, and vegetation cover in conjunction with institutional characteristics to elucidate these relationships. Our results indicate associations with multiple anthropogenic environmental variables as well as interactions with institutional attributes. In this talk, we will discuss these results and how they influence our idea of what composes an active biodiverse campus. Understanding the environmental relationships between campus and ecosystem will allow for more effective conservation practices as well as development of wide-scale biodiversity monitoring.

9:30 Space Use and Movements of Inland Wintering Whooping Cranes in the Aransas-Wood Buffalo Population

Katrina Fernald, International Crane Foundation, Corpus Christi, TX, USA
Carter Crouch, International Crane Foundation, Rockport, TX, USA
Andrew Caven, International Crane Foundation, Baraboo, WI, USA
Matti Bradshaw, International Crane Foundation, Rockport, TX, USA
Matthew Butler, U.S. Fish and Wildlife Service, Albuquerque, NM, USA
Michael Kalisek, Garwood, TX, USA

Abstract: Aransas-Wood Buffalo Population (AWBP) whooping cranes are increasingly using inland areas for a portion of the winter. There have been individuals near Granger Lake during 5 of the last 13 winters and 11 of the last 13 winters in Colorado and Wharton counties, Texas, USA. At least 11 individuals used Colorado/Wharton counties in 2022–2023 and 18 in 2023–2024. We utilized data from all whooping cranes with active transmitters from 2009-2018, and from 3 additional inland wintering individuals from 2017–2022. We compared 95% auto-correlated kernel density estimates (AKDE) and daily distance movements for coastal wintering cranes and those that spent a portion of their winter inland. We also examined daily movement patterns in relation to wintering range use (inland or coastal) considering demographic and temporal factors with Generalized Linear Mixed-Effects Models (GLMM). Six marked birds across 10 bird-winters from 2011–2021 spent between 3.1-99.3% of their winter at inland areas. Inland wintering birds had AKDE home ranges that were 3.1 times as large as coastal wintering birds. Additionally, the top GLMM predicted that spending a portion of the winter at inland areas equated to a 92.0±4.2% increase in daily movement during the winter. We found that several other factors influenced daily movement patterns, which warrant consideration when comparing between the groups. Daily movements followed a quadratic temporal pattern with greater movements in the late fall and early spring. Continued use of inland areas has implications for how we manage, monitor, and plan for this population's recovery.

9:45 Energy Expenditure of Northern Pintail in Response to Climatic Variation During Spring Migration

Joseph McGovern, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Evan Tanner, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Georgina Eccles, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, USA
Kevin Kraai, Texas Parks & Wildlife Department, Canyon, TX, USA
Daniel Collins, U.S. Fish and Wildlife Service, Albuquerque, NM, USA
Paul Link, Id, Grand Chenier, LA, USA
Cory Overton, USGS, Dixon, CA, USA
Michael Casazza, U.S. Geological Survey, Dixon, CA, USA
Mason Cline, New Mexico Department of Game and Fish, Santa Fe, NM, USA
Dale James, Rob and Bessie Welder Wildlife Foundation, Sinton, TX, USA
Clayton Hilton, Texas A&M University-Kingsville, Kingsville, TX, USA
Bart Ballard, Texas A&M University - Kingsville, Kingsville, TX, USA

Abstract: Thermal extremes during spring migration compound energetic costs to birds already under selective pressure to maximize fitness by balancing time and energy requirements, which may carry implications for their fitness. Under projected climate change scenarios, increased incidence of extreme weather events and warming trends may further constrain activity patterns and energetics during migration. However, individual trait variation and thermal refugia may allow individuals to better cope with these stressors. The northern pintail (*Anas acuta*; hereafter, “pintail”) is a circumpolar species of dabbling duck. Pintails arrive earlier than most dabbling duck species to breeding areas of the Prairie Pothole Region of North America. This likely exposes individuals to the species’ lower thermal limits. Pintails also demonstrate earlier migration related to spring warming trends. We will use spring migration-track data from female pintails fitted with GPS transmitters, equipped with accelerometers, in their Southwestern U.S. winter range (*n* = 280; 2019-2023). We will examine the constraints thermoregulation may place on migratory activity under present and projected climatic conditions. We will model the relationship between standard metabolic rate (based on microclimate model-predicted air temperatures and mass) and overall dynamic body acceleration (energy expenditure) using generalized additive models to identify thresholds in activity responses. We expect our novel approach in a migratory wetland bird will provide a mechanistic understanding of avian migration energetics given climatic variation and inform adaptive conservation planning under climate change.

10:00 Influence of Hunting on Waterfowl Diel Use of Texas Wetlands

Emma Weber, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Bart Ballard, Texas A&M University - Kingsville, Kingsville, TX, USA
Rachel Fern, Texas Parks & Wildlife Department, Fischer, TX, USA

Jordan Giese, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA

Abstract: Sanctuaries (i.e., non-hunted wetlands) are important for waterfowl during the hunting season and have been shown to increase local waterfowl abundance and diversity. The Texas Coast Waterfowl Sanctuary Program, created by Texas Parks and Wildlife Department, aims to enroll private wetland sites to serve as waterfowl sanctuaries in areas with high hunting pressure. In the presence of hunting disturbance, some waterfowl preferentially use sanctuaries during the day and increase use of hunted wetlands at night. Understanding the dynamics of species presence and diel use patterns for different waterfowl species can help inform habitat management. Traditional waterfowl survey techniques provide incomplete coverage across the diel cycle and introduce potential biases and disturbances to birds. Autonomous recording units (ARUs) have become increasingly common in avian research but to date, applications for surveying waterfowl have been limited. Our objective is to examine diel occupancy of waterfowl in sanctuaries and hunted wetlands using ARUs. We deployed ARUs using a paired comparison design in wetlands along the Texas coast from November 2023 to March 2024. We used BirdNET, a machine learning classifier, to detect vocalizations of snow geese (*Anser caerulescens*), American wigeon (*Mareca americana*), and green-winged teal (*Anas crecca*). Results will be used to investigate how wetland characteristics impact waterfowl use of wetlands throughout the entire 24-hour cycle. Our study will help inform the strategic placement of waterfowl sanctuaries on the Texas coast and offer guidance for acoustic monitoring of waterfowl in wetland systems.

10:15 Factors Influencing Waterbird Preferred Habitat Use of the Zandmotor Beach, Monster, Netherlands

Amanda Hackney, Black Cat GIS and Biological, Pearland, TX, USA

Abstract: Building with Nature solutions that provide waterbird habitat have added benefits to socio-ecological systems including supporting ecosystem services, providing enhanced erosion control, and encouraging recreation opportunities, among others. By understanding habitat parameters that attract birds, managers can replicate these conditions in other areas. This study seeks to determine what variables affect the presence of waterbirds in habitat created by the Sand Motor, a Dutch beach mega-nourishment project. Lessons learned in the Netherlands can be used to benefit future coastal resiliency projects in Texas' Galveston Bay system. Data on waterbird use of the Zandmotor Beach were collected during field surveys in May/ June 2024. Variables were both field observed (species, behavior, microhabitat, hours to low tide, etc.) and GIS generated (beach width, land cover within 100 m buffer, etc.). Of the 499 birds recorded, 82.6% were actively roosting while the remaining 17.4% were observed in feeding behavior. Observations were analyzed for statistical significance using Poisson regression to determine which factors predicted the number of expected waterbirds (R2 value= 0.43, Chi2= 0). Significant variables included daytime temperature (+), wind speed (+), count of recreational users (-), percentage habitat classified as mud flat (+)/ sand (+)/and moist sand (+). This study on the Sand Motor 13 years after construction,

provides conclusive evidence of the importance of manmade habitat to vulnerable bird populations in addition to its function as coastline protection. Knowledge of variables driving habitat selection will allow new coastal resiliency structures to be built with added features to support more waterbirds.

Conservation & Ecology of Reptiles & Amphibians

Pioneer III, February 20, 2025
Moderator: Samra Bufkins

9:00 Herpetofaunal Impediment and Entanglement Risks in Erosion Control Products

Hannah Abelein, Tarleton State University, Stephenville, TX, USA
Ty Cosper, Stephenville, TX, USA
Adam Mitchell, Tarleton State University, Stephenville, TX, USA
Jun Xu, Tarleton State University, Stephenville, TX, USA
Jie Huang, University of Texas at San Antonio, San Antonio, TX, USA
Fei Wang, Mississippi State University, Starksville, MS, USA
Heather Mathewson, Tarleton State University, Stephenville, TX, USA

Abstract: Urbanization in Texas has increased road construction projects, contributing to the number of deployed erosion control products (ECPs). These ECPs include erosion control blankets composed of synthetic or organic mesh and matrices, which may create risks of entanglement and mortality to wildlife. Anecdotal reports exist of herpetofauna experiencing entanglement and mortality in ECPs, creating concern that ECPS may affect threatened and endangered taxa. Our objective is to evaluate risks that ECPs may pose to herpetofauna in Texas. We selected frog and toad (Anura), lizard (Squamata, “Lacertilia”), and turtles and tortoises (Testudines) as proxy species to represent wild or at-risk taxa. We obtained 12 ECPs with differing materials, netting, and matrices. We conducted field trials by installing ECPs either in a controlled area or an experimental arena (3.0 x 1.5 x 0.9 m). We recorded behaviors, impediments, and entanglement to gauge potential risks posed by each product. We measured body sizes and recorded ECP composition. Preliminary results suggest that smaller reptile species or individuals [three-toed box turtle (*Terrapene triunguis*), Texas tortoise (*Gopherus berlandieri*), Texas alligator lizard (*Gerrhonotus infernalis*)] may experience more frequent and moderate impediments (n = 22; 11 mild, 9 moderate, 2 severe) and entanglements (n = 10; 6 mild, 2 moderate, 1 severe) than larger individuals. Amphibians experienced fewer impediments and no entanglements. Frequency and severity of impediment and entanglement varied between ECP types. These trials are part of a larger project studying risks that different ECP materials pose to various wild taxa in Texas.

9:15 Texas Tortoise Movement Ecology in a Fire-managed Rangeland

Camryn Kiel, Texas A&M University - College Station, College Station, TX, USA
Stephen Webb, Texas A&M Natural Resources Institute, College Station, TX, USA
Danielle Walkup, Texas A&M University - College Station, Bryan, TX, USA
Sandra Rideout-Hanzak, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Evan Tanner, Caesar Kleberg Wildlife Research Institute - Texas A&M University -

Kingsville, Kingsville, TX, USA
Ashley Tanner, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
David Wester, Texas A&M University - Kingsville, Kingsville, TX, USA
Andrea Montalvo, East Foundation, Hebbronville, TX, USA
Toby Hibbitts, Texas A&M University Natural Resources Institute, College Station, TX, USA

Abstract: Fire is a natural ecological process that structures many ecosystems globally. Prescribed fire can be used to mimic historical fire regimes in areas where fire has been suppressed by humans, which in turn alters vegetation species composition and structure. Thus, it is important to examine the effects of fire on wildlife species to understand the implications for species conservation. In southern Texas, prescribed fire is used to manage woody plant encroachment and improve quality of forage for cattle and wildlife in the Tamaulipan biotic province, which is inhabited by Texas tortoises (*Gopherus berlandieri*). We assessed the movement and resource use of Texas tortoises in response to prescribed fire on a coastal rangeland in southern Texas. Rangeland sites ≥200 ha were randomly assigned to winter or summer prescribed fire at 3- or 5-year fire return intervals. In treatment and control sites, we equipped 30 tortoises with GPS tags and iButton temperature loggers. We also collected surface temperature using iButtons. Using GPS locations, landcover classification, and temperature data, we conducted resource selection analyses to compare tortoise ecology before and after fires. During the summer, the area (ha) used by tortoises increased post-fire for 6 weeks, whereas space use did not change during winter. Net squared displacement data indicated tortoises showed site fidelity during both seasons. These data and findings describe how fire affects Texas tortoise ecology, which will aid in developing strategies for integrating fire into holistic management plans to minimize the impact on tortoises while benefiting other wild and domestic animals.

9:30 Changes in Herpetofauna Communities Across a Gradient of Native and Invasive Vegetation

Duston Duffie, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Andrew Mullaney, Stephen F. Austin State University, Nacogdoches, TX, USA
Cord Eversole, Stephen F. Austin State University, Nacogdoches, TX, USA
Scott E. Henke, Texas A&M University-Kingsville, Kingsville, TX, USA
Gabriel Andrade-Ponce, Stephen F. Austin State University, Nacogdoches, TX, USA
Fidel Hernandez, Texas A&M University - Kingsville, Kingsville, TX, USA

Abstract: Nonnative and invasive plants are considered a conservation threat to native ecosystems. As ecosystems are invaded, invasive plants can replace native plant species resulting in changes in the vegetative structure, which may serve as an ecological filter. Additionally, this replacement may negatively impact ecosystem function by altering trophic systems as a bottom-up control mechanism. Herpetofauna species can serve as indicators of ecosystem health due to the multiple trophic roles

these species fill; however, little is known of their response to invasive vegetation and habitat change in southern Texas. To evaluate impacts of invasive vegetation on herpetofauna communities, we sampled herpetofauna at the Welder Wildlife Refuge in San Patricio County, Texas, USA. We sampled across six plots: two native, two invasive, and two intermediate vegetative communities. We collected data during 2020-2023, and we recorded 530 captures of 31 reptile species and 6,370 captures of 12 amphibian species. We compared beta diversity of herpetofauna among vegetative communities and sampling years. Beta diversity differed between native and invaded vegetation communities for reptiles, but not for amphibians. For both groups, beta diversity differed between drought years and years with normal or above average rainfall. Drought conditions can impact overall vegetative conditions and microhabitat conditions. The level of invasive vegetation along with drought conditions may drive differences in herpetofauna community structure. This work will provide information on herpetofauna community responses to invasive vegetation which has implications for health and conservation of grassland ecosystems.

9:45 Effect of Chinese Tallow Leaf Fall on Amphibian Oviposition Site Selection in East Texas

Caleb Mullins, Stephen F. Austin State University, Nacogdoches, TX, USA
Christopher Schalk, USDA Forest Service, Nacogdoches, TX, USA
Daniel Saenz, USDA Forest Service, Nacogdoches, TX, USA
Reuber Antoniazzi, Stephen F. Austin State University, Nacogdoches, TX, USA
Matthew McBroom, Stephen F. Austin State University, Nacogdoches, TX, USA
Cord Eversole, Stephen F. Austin State University, Nacogdoches, TX, USA

Abstract: Amphibian reproductive success is closely tied to oviposition site selection, and highly influenced by environmental factors and habitat quality. Adults assess multiple factors (e.g., predation risk, resource availability) to optimize offspring fitness. Invasive plants (e.g., Chinese tallow (*Triadica sebifera*)), can alter habitat characteristics by influencing nutrient dynamics, often to the detriment of amphibians. We investigated how Chinese tallow and two native species, Loblolly Pine (*Pinus taeda*) and Shumard Oak (*Quercus shumardii*) leaf litter influence amphibian oviposition site selection. We hypothesized that amphibians initially select sites with favorable water quality, such as higher dissolved oxygen and neutral pH, but avoid them at high conspecific densities due to priority effects, with later arriving eggs facing increased risk of cannibalism. Using a factorial design, we tested leaf litter species and concentrations in aquatic mesocosms, and monitored the presence of adults, amplexic pairs, eggs, tadpoles nightly, tadpole relative abundance, and water quality parameters. Tadpole abundance was higher in Loblolly Pine and Shumard Oak mesocosms. Mesocosms containing Chinese tallow leaf litter, particularly at higher concentrations, revealed the most pronounced changes in water quality, with significantly lower pH and dissolved oxygen levels and higher specific conductivity and total dissolved solids. Turbidity and temperature were not significantly influenced by leaf litter treatments. These findings indicate that leaf litter species influence water quality, affecting amphibian oviposition preferences. The observed impacts of Chinese tallow highlight the need for its

management in wetland habitats, as its presence alters environmental conditions critical for amphibian reproductive success.

10:00 Using Herpetofauna to Determine Wetland Health and Function in the Red River Watershed

Shelby Rodriguez-Edwards, University of Texas at Tyler, Longview, TX, USA
Lance Williams, University of Texas at Tyler, Tyler, TX, USA
Jared Dickson, University of Texas at Tyler, Tyler, TX, USA
Marsha Williams, University of Texas at Tyler, Tyler, TX, USA

Abstract: Wetland restoration efforts have become more prevalent as the ecological processes and benefits of these systems are more understood. Ecological services provided by wetlands include flood attenuation, nutrient cycling, sediment stabilization, and improved water quality. Wetlands also provide unique habitats for both aquatic and terrestrial organisms. Reptiles and amphibians are commonly used as indicator species in wetlands due to their increased sensitivity to environmental conditions and fast responses to change due to their short generation cycles. Through the Agriculture Conservation Easement Program, ACEP, private landowners can help protect, restore, and enhance wetlands that have been affected by agricultural uses. This project will evaluate reptile and amphibian communities in reconstructed and natural wetlands within the Red River Basin of Northeastern Texas and Northwestern Louisiana. There will be five natural wetlands sampled to create a working baseline for wetland functionality. In addition, thirty reconstructed wetlands will be sampled over a two-year period, starting February 2024. Data will be collected through visual encounters and standard trapping protocols to understand herpetofauna species and abundance.

10:15 Spatio-temporal Patterns of Environmental Dna Detectability for the Alligator Snapping Turtle (Macrochelys temminckii), A Species of Greatest Conservation Need in Texas

Kyra Woytek, Sam Houston State University, Huntsville, TX, USA
William Lutterschmidt, Sam Houston State University, Huntsville, TX, USA
Christopher Schalk, USDA Forest Service, Nacogdoches, TX, USA
Daniel Saenz, USDA Forest Service, Nacogdoches, TX, USA

Abstract: The alligator snapping turtle (*Macrochelys temminckii*), a large freshwater turtle native to the southeastern United States, is a species of greatest conservation need (SGCN) in Texas and a candidate for listing as threatened under the Endangered Species Act. Information on its status across its range is limited because of its cryptic behavior and low detectability. Environmental DNA (eDNA) has recently emerged as a valuable and minimally-invasive tool to determine the presence of rare or cryptic species, particularly in aquatic environments. Here we present data from a 12-month sampling period of 9 sites where alligator snapping turtles are known to occur in east Texas, plus a negative control site outside of their range. Water samples were collected with abiotic measurements (including water temperature, pH, flow velocity, and

dissolved oxygen), to evaluate their potential influence on eDNA detectability. The majority of positive samples came from lotic sites, with almost half of all detections occurring from October-December. On average, positive samples were collected from sites with lower temperatures, higher levels of dissolved oxygen, and higher turbidity. These results demonstrate the potential influence of environmental variables on eDNA results and what considerations are needed in predicting the presence of absence of turtles, especially in areas where they are known to be present. Results from this study may help to inform methods for a more targeted sampling effort for this species by determining optimal conditions for collecting eDNA samples, thus more accurately reflecting occurrence of alligator snapping turtles.

Conservation & Ecology of Mammals IV

Pioneer I, February 20, 2025
Moderator: Rusty Wood

10:45 Behavioral Interactions Between Native and Non-native Ungulate Species in the Southern Great Plains

Calvin Ellis, Caesar Kleberg Wildlife Research Institute, Kingsville, TX, USA
Michael Cherry, Caesar Kleberg Wildlife Research Institution, Kingsville, TX, USA
Molly Koeck, Oklahoma State University, Stillwater, OK, USA
Colter Chitwood, Oklahoma State University, Stillwater, OK, USA
Anna Moeller, Oklahoma State University, Stillwater, OK, USA
Robert Lonsinger, Oklahoma State University, Stillwater, OK, USA
W. Sue Fairbanks, Oklahoma State University, Stillwater, OK, USA
Levi Heffelfinger, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Ransom Canyon, TX, USA

Abstract: Non-native ungulates can have adverse effects on native ungulates, providing an opportunity to examine asymmetrical competition. We examined behavioral interactions between cattle (*Bos taurus*) and two native deer species: mule deer (*Odocoileus hemionus*) and white-tailed deer (*O. virginianus*). In March 2024, we randomly deployed 91 cameras across 7,537 ha in western Oklahoma. Across 5,551 trap nights, we recorded independent detections of cattle (n = 449), mule deer (n = 238), and white-tailed deer (n = 347). We investigated the potential for temporal niche partitioning by estimating diel activity patterns and overlap in activity (Δ_4) between species. Mule deer and cattle (Δ_4 = 0.74, 95% CI: 0.63-0.75) had similar overlap of diel activity patterns to white-tailed deer and cattle (Δ_4 = 0.70, 95% CI: 0.61-0.71). Cattle presence resulted in a 7% change in mule deer diel activity and a 14% change in white-tailed deer diel activity. In the absence of cattle, mule and white-tailed deer expressed more similar activity patterns (Δ_4 = 0.91, 95% CI: 0.88-1.0) than in the presence of cattle (Δ_4 = 0.84, 95% CI: 0.77-0.99). Compared to mule deer, white-tailed deer had lower diel activity overlap with cattle and responded more strongly to cattle presence. We offer evidence that cattle influence time budgets for native deer species, providing one behavioral mechanism for competition between livestock and wildlife. Understanding the mechanisms of competition is essential to identifying methods to mitigate the effects of competition and promoting compatibility between non-native and native ungulates in rangeland systems.

11:00 Weather Variables Predicting Mule Deer Parturition Timing and Birth Site Characteristics

Austin Ibarra, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Lubbock, TX, USA
Calvin Ellis, Caesar Kleberg Wildlife Research Institute, Kingsville, TX, USA
Michael Cherry, Caesar Kleberg Wildlife Research Institution, Kingsville, TX, USA
Colter Chitwood, Oklahoma State University, Stillwater, OK, USA

W. Sue Fairbanks, Oklahoma State University, Stillwater, OK, USA
Molly Koeck, Oklahoma State University, Stillwater, OK, USA
Robert Lonsinger, Oklahoma State University, Stillwater, OK, USA
Anna Moeller, Oklahoma State University, Stillwater, OK, USA
Levi Heffelfinger, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Ransom Canyon, TX, USA

Abstract: The influence of environmental variables on life-history characteristics has implications for species management. Spatial variation in population performance of mule deer (*Odocoileus hemionus*) can be related to environmental variables. Our goal was to determine how weather factors 1–7 days prior to mule deer parturition affected timing throughout the reproductive season in western Oklahoma. Further, we tested how weather factors 0–12 hours prior to parturition affected timing within the diel cycle and birth site attributes. Using vaginal implant transmitters, we documented timing, location, and site characteristics of 32 parturition events. We used multiple linear regression to model weather influences on parturition timing throughout the reproductive season and birth site characteristics, and we used generalized additive models to assess parturition timing within the diel cycle. Covariates were centered and scaled. Averaging the 7 days prior to parturition, greater atmospheric pressure (β =2.36, 95% CI=1.84–2.88) and humidity (β =0.75, 95% CI=0.33–1.17) were predictive of birth occurring later in the reproductive season. Generally, greater average humidity in the 12 hours prior was predictive of later parturition events within the diel cycle (β =2.61, 95% CI=0.45–4.77). Greater wind speeds were associated with birth sites characterized by shallower slopes (β =-9.76, 95% CI=-19.35– -0.16) and less canopy cover (β =-24.97, 95% CI=-48.93– -1.02). On windy days, birth sites with less canopy cover and slope may aid in thermal regulation and open sightlines for enhanced vigilance.
Linkages between weather and the parturition process potentially shed light on behavioral strategies that could influence recruitment rates.

11:15 Spatial Ecology of Aoudad and Mule Deer: Responses to Population Management Efforts

Andrew Dotray, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Justin French, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Lalo Gonzalez, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Levi Heffelfinger, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Ransom Canyon, TX, USA
Shawn Gray, Texas Parks & Wildlife Department, Alpine, TX, USA
Froylan Hernandez, Texas Parks & Wildlife Department, Alpine, TX, USA

Abstract: The interactions between non-native aoudad (Ammotragus lervia) and native mule deer (Odocoileus hemionus) are poorly understood. However, they are presumed to compete at greater population densities and may shift space use to mitigate resource

competition. We sought to understand how aoudad population reduction via aerial gunning affects the space use of both species. We predicted that aoudad would shift their space use to lower elevations following population reduction, increasing potential interactions with mule deer. In April 2023, we captured and collared 40 aoudad and 40 mule deer in the Chinati and Quitman Mountain ranges in the Trans-Pecos. Global Positioning System (GPS) collars were set to record locations every 2 hours. To assess aoudad and mule deer interactions, lethal aoudad removal (n= 5,773) occurred in the Chinati Mountains in August 2024. We estimated monthly space use patterns of both species using dynamic Brownian bridge movement models and compared space use pre- and post-aoudad removal. Aoudad had greater space use (ℝ?̄±SD; 5.99±3.50 km2, 5.62±3.64 km2) compared to mule deer (2.74±2.14 km2, 2.67±2.16 km2) in the Quitman and Chinati Mountains, respectively. In the Chinati Mountains, aoudad space use was similar pre- and post-aoudad removal (5.63±3.68 km2, 5.5±3.17 km2). However, mule deer reduced their range size following aoudad removal from 2.77±2.19 km2 to 1.78±1.63 km2. Results suggest these two species have differential responses to the lethal removal of aoudad. Additionally, aoudad range size remaining stationary following a removal event demonstrates that management efforts will not negatively impact areas that profit from aoudad hunting revenue.

11:30 Seasonality of Competition Potential Between Desert Bighorn and Mule Deer on Elephant Mountain Wildlife Management Area

Hailey Barton, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Justin French, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Lalo Gonzalez, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Levi Heffelfinger, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Ransom Canyon, TX, USA
Froylan Hernandez, Texas Parks & Wildlife Department, Alpine, TX, USA
Shawn Gray, Texas Parks & Wildlife Department, Alpine, TX, USA

Abstract: Elephant Mountain Wildlife Management Area (EMWMA) supports desert bighorn sheep (Ovis canadensis) and mule deer (Odocoileus hemionus), both crucial for desert ecosystems. Managing healthy populations of both species is essential due to their shared habitat and potential resource competition. However, seasonal shifts in space use by each species may exacerbate or curtail competition. Our goal was to analyze animal movements in relation to water availability and vegetation quality, examining how the movement patterns of both species shift seasonally and the extent to which their spatial distributions overlap or diverge in relation to these resources. In March 2023, we deployed Global Positioning System collars on 30 bighorn and 24 mule deer on EMWMA. We then mapped all troughs, guzzlers, tanks, and springs (n = 69). We layered the Modified Soil Adjusted Vegetation Index from satellite images for each month over the area to observe seasonality of vegetation quality. We then fit monthly Brownian bridge utilization distributions (UDs) to the movement path of each individual,

and combined them to produce monthly UDs at the species level. We then modeled how each species overlaps the other monthly using the McArthur-Levins analysis. Finally, we modeled seasonality of overlap between groups with periodic beta regression models. We found evidence of seasonality in spatial overlap, with maximum overlap during July and minimum overlap during October. Our results suggest seasonality of bighorn space use is driven by social behaviors (e.g. rut) but may mitigate potential for resource competition with mule deer at EMWMA.

11:45 Is Anyone There? Resident Conspecifics Influence Behavior of Translocated Desert Bighorn Sheep

Dylan Stewart, Texas A&M University - College Station, College Station, TX, USA
E. Alejandro Lozano-Cavazos, Universidad Autónoma Agraria Antonio Narro, Saltillo, Coahuila, MEX
Marcus Blum, Texas A&M University Natural Resources Institute, College Station, TX, USA
Stephen Webb, Texas A&M Natural Resources Institute, College Station, TX, USA

Abstract: Translocation is a primary tool for restoring bighorn sheep (*Ovis canadensis*) populations to their historical range. However, ~50% of reintroductions are considered unsuccessful, necessitating investigation into behavioral strategies of sheep that increase the probability of population establishment. Our objectives were to quantify behavioral states following release and determine behavior-specific habitat selection of translocated desert bighorn sheep (*O. c. mexicana*) in Sonora, Mexico. We captured and fitted 16 bighorn sheep (9 females, 7 male) with GPS collars in November 2022. We used nonparametric Bayesian methods to identify latent behavioral states, validated behavioral states using social networks and video footage from collars, and predicted habitat selection using a random forest model. We identified three behavioral states: 1) unsettled and settled 2) close or 3) farther away from the release site but grouped the two settled states for further analyses. On average, female and male bighorn sheep shifted from unsettled to settled states within 4.3 days (± 1.3 SE) and 6.4 days (± 4.0 SE) after the day of translocation, respectively, which was related to when sheep integrated into native herds. Bighorn sheep selected higher elevations when in a settled state, which was not observed when in an unsettled state, because sheep were likely moving more at lower elevations to maximize the viewshed for locating resident conspecifics. Once located, sheep integrated with resident conspecifics at higher elevations. Overall, our results suggest that integration of translocated bighorn sheep into native herds will reduce search time, which may increase the probability of survival.

Conservation & Ecology of Birds IV

Pioneer II, February 20, 2025
Moderator: Melanie Schuchart

10:45 Exposure of Terrestrial Birds to Microplastic: The Effects of Ecological Traits

Alexis Baum, University of Texas at San Antonio, San Antonio, TX, USA
Heather Prestridge, Texas A&M, College Station, TX, USA
Zachary Tonzetich, University of Texas at San Antonio, San Antonio, TX, USA
Jennifer Smith, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA

Abstract: Microplastics (<5mm) have been found extensively in marine organisms including seabirds and have harmful effects on birds. Despite plastic pollution being pervasive in terrestrial ecosystems, relatively little is known about the potential exposure of terrestrial birds to microplastics. Moreover, whether bird species are differentially exposed based on ecological traits is largely unknown. This study aims to (1) investigate the exposure of terrestrial birds to microplastics by examining gastrointestinal contents and (2) explore potential relationships between microplastic exposure, diet types, and foraging strategies. Birds (n = 114) representing a broad range of distinct diet types and foraging strategies were opportunistically collected during bird-building collision surveys in Texas, including the Ruby-throated Hummingbird (*Archilochus colubris),* Cedar Waxwing (*Bombycilla cedrorum*), Common Yellowthroat *(Geothlypis trichas),* Nashville Warbler *(Leiothlypis ruficapilla),* Black-and-white Warbler *(Mniotilta varia*), Great-tailed Grackle (*Quiscalus mexicanus),* House Wren *(Troglodytes aedon),* and White-throated Sparrow *(Zonotrichia albicollis).* The esophagus through the intestines was removed from bird carcasses and digested in a 10% potassium hydroxide solution. The resulting solution was filtered and microplastics were individually extracted, characterized, and counted under a stereomicroscope. To ensure accurate identification, Fourier-transform infrared spectroscopy (FTIR) was employed to verify polymer type. Results suggest that the majority of birds assessed were exposed to microplastics, with ground-feeding birds that have omnivorous and granivorous diets ingesting the greatest quantities of microplastics. This research contributes valuable insights into the underexplored realm of microplastic exposure in terrestrial avian populations.

11:00 The Full Annual Cycle and Migration Patterns of American Kestrels Wintering in North Texas

James Bednarz, University of North Texas, Denton, TX, USA
Brooke Prater, University of North Texas, Lewisville, TX, USA
Madeleine Kaleta, University of North Texas, Denton, TX, USA
Kelsey Biles, Houston Audubon Society, Denton, TX, USA

Abstract: Concern for declining populations of American Kestrels (*Falco sparverius*) has triggered investigations into the patterns and challenges of their life history annual cycle. We deployed 75 Lotek PinPoint 40 GPS/VHF trackers with a remote data download function and two FlickerGPS-4-BK GSM transmitters (Cellular Tracking Technologies) on kestrels wintering in Texas. With effort, we successfully obtained the data from four kestrels (two via remote download) with Lotek devices a year or more after deployment. At least 15 other kestrels with the Lotek devices returned to their winter territories, but the download function failed. The Flicker devices transmitted location data for one full annual cycle and one spring migration route. Including one band recovery, we obtained the spring migratory route for six kestrels, breeding locations for seven kestrels, and fall migration data for three birds. The migration routes of all birds were in a north-northwesterly direction (mean = 342 degrees) and covered 640 to 1344 km (Kansas to South Dakota) distances from their wintering territories. The mean distance covered/day was 125 km in spring and 71 km/day in autumn, with 2–5-day stopovers during both the spring and fall migrations. Our data suggest some longitudinal migratory connectivity between the breeding and wintering destinations and that management of grassland habitats north of wintering ranges that facilitates the provision of adequate uncontaminated prey and suitable roost sites is a key to maintaining viable populations of American Kestrels.

11:15 Gray Hawk Nest Success and Diet in Urban and Natural Landscapes in South Texas

Evan Farese, University of Texas Rio Grande Valley, Brownsville, TX, USA
Karl Berg, University of Texas Rio Grande Valley, Brownsville, TX, USA
William Clark, Raptours, Harlingen, TX, USA

Abstract: Urban development has the potential to negatively impact wildlife, including birds of prey, which occupy higher trophic levels. As urban development continues, it is important to understand how species will react to novel environments to predict how they will fare. The Gray Hawk (*Buteo plagiatus*) is a neotropical raptor whose range extends north into the Lower Rio Grande Valley (LRGV) of south Texas. The LRGV is one of the fastest growing regions of the United States; the population of the area doubled between 1980 and 2013. Though the Gray Hawk is a widespread raptor, there is a dearth of information about the species, especially regarding the use of urban habitats and its ecology in the subtropics. This study examines breeding success and diet in urban areas in the LRGV and how they compare to nearby natural areas. During the 2023 and 2024 breeding seasons, 43 natural and 45 urban Gray Hawk nests were monitored for nest success. We found no difference in nest success between habitat types ($P = 0.85$). We documented and identified prey deliveries to 15 nests and found the diet of hawks nesting in urban areas differed from those nesting in natural areas ($P < 0.0001$). 52% of urban prey deliveries to nests consisted of avian prey, while 52% of prey deliveries to natural nests were mammals. The ability of Gray Hawks to exploit prey that is concentrated in urban areas might explain why they can survive and even have success producing young in urban landscapes.

11:30 Assessing Microplastics as an Environmental Justice Issues Through Avian Ecology and Community Engaged Research

Mariel Ortega, University of Texas at San Antonio, San Antonio, TX, USA
Amelia King-Kostelac, University of Texas at San Antonio, San Antonio, TX, USA
Jennifer Smith, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA

Abstract: The Urban Bird Project (UBP) is a transdisciplinary project that aims to assess microplastic (plastics 1mm-5mm; MP) pollution as an environmental justice issue through avian ecology and community-engaged research in San Antonio, Texas. Specifically, UBP investigates MP pollution by assessing the prevalence of MPs and their potential impacts on backyard bird breeding success across a socioeconomic gradient. We hypothesized that areas with a lower socioeconomic status would have higher burdens of MP pollution due to historical and potentially continuing discrepancies in solid waste management across neighborhoods of different socioeconomic status. Thus, we predicted that birds in lower socioeconomic status areas would face higher MP exposure compared to their conspecifics in higher socioeconomic areas. In addition, because chemicals associated with MPs act as endocrine disruptors, we predicted that these birds would experience reduced breeding success. Between March and July 2024, community scientists in three areas of the city varying with socioeconomic status hosted nestboxes and monitored breeding attempts following a modified NestWatch protocol. Permitted research team members collected nestling fecal sacs and nests to assess the exposure of birds to MPs. In contrast to our predictions, our preliminary results suggest that avian exposure to MPs does not vary across a socioeconomic gradient. Plastics in nests made up, on average, 2.5% of the total nest weight (n=19) with no significant difference between our study areas. Continuing efforts will focus on increasing sample size, assessing routes of plastic exposure, and engaging with community members to address issues of environmental justice.

11:45 An Assessment of Fine Scale Microclimate Conditions in Purple Martin Artificial Housing and its Influence on Productivity

Lauren Spjut, Texas Tech University, Lubbock, USA
Daniel Greene, Weyerhaeuser Company, Columbus, MS, USA
Nate Smith, Texas Parks & Wildlife Department, Mountain Home, TX, USA
Rachel Clostio, The University of New Orleans, New Orleans, LA, USA
Elizabeth Sigler, The University of New Orleans, New Orleans, LA, USA
Wendy Tori, Earlham College, Richmond, IN, USA
Laurie Doss, Marvelwood, Kent, CT, USA
Andrea Montalvo, East Foundation, Hebbronville, TX, USA
James Ray, Kyle, TX, USA
Joe Siegrist, Purple Martin Conservation Association, Erie, PA, USA
Blake Grisham, Texas Tech University, Lubbock, TX, USA

Abstract: Aerial insectivores are experiencing significant long-term population declines throughout their ranges. The eastern subspecies of Purple Martin (*Progne subis subis*) are particularly vulnerable as they are almost entirely dependent on provisioned artificial nesting cavities. The decline in Purple Martin populations emphasizes the importance of provisioned housing for the eastern subspecies and is crucial to the long-term conservation of the species. Our goal is to better understand the influence of microclimate (defined as temperature and relative humidity conditions inside artificial cavities) on egg and chick survival across the range of the eastern Purple Martin among six different artificial housing types and 14 study areas across the eastern United States. Our objectives to reach our goal are: 1) assess microclimate among six unique house types without the presence of nests or birds and, 2) five–seven randomly selected artificial houses with active nests at each site, 3) compare internal microclimate conditions to external, ambient conditions within objectives 1 and 2, 4) conduct weekly nest status checks per Purple Martin Conservation Association's Project MartinWatch Citizen Science protocols. We collected approximately 1.9 million and 2.1 million temperature and relative humidity readings for objectives 1 and 2, respectively, March-August 2023, and approximately 2.5 million temperature and 1.5 million relative humidity readings for objectives 1 and 2, March-August 2024. Preliminary analyses are in progress. Our findings will enhance our understanding of Purple Martin artificial housing options and provide quantitative data to maximize nest survival for this declining species across its entire distribution.

Habitat & Wildlife Communities

Pioneer III, February 20, 2025
Moderator: Fran Whitte

10:45 Outcompeting the Invader: Enhancing Native Species in Lehmann's Lovegrass *(Eragrostis lehmanniana)* Dominated Rangelands

Andres Solorio, Borderlands Research Institute- Sul Ross State University, Alpine, Tx, Usa
Lalo Gonzalez, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Justin French, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Silverio Avila, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Louis Harveson, Borderlands Research Institute - Sul Ross State University, Alpine, USA

Abstract: Lehmann lovegrass (*Eragrostis lehmanniana*) was introduced into the U.S. for erosion control and cattle forage because of its resilience to drought, fire, and pests. However, its invasive nature often results in monocultures outcompeting native plant species, reducing biodiversity and negatively impacting wildlife. This study aims to restore native plant species and control Lehmann lovegrass in the Chihuahuan Desert. Research was conducted on Nine Point Mesa Ranch in Brewster County, Texas. We established 200 plots with four treatments: seeding (S), soil disturbance (SD), combination of both (SD+S), and control (C). Data were collected from 2022 to 2024 using line intercept transects to measure vegetation cover. Results showed that controls had more bare soil, while litter increased across treatments by winter 2023-2024. Plant diversity improved with S and SDS compared to controls. Lehmann lovegrass was the second most abundant of 23 introduced species at the site. In fall 2022 and winter 2022, and 2023, redundancy analysis showed positive native plant species and negative Lehmann lovegrass relationships across treatments, while controls had more presence of the invader. In fall 2023, native plant species and Lehmann lovegrass showed a positive relationship with S and SD+S, with the invasives keeping a positive response with controls. In winter 2023 and 2024, Lehmann lovegrass showed positive response on controls and better response to SD, while native plant species presented positive relationships with S and SD+S. Overall, S and SD+S enhanced natives competitiveness with Lehmann lovegrass, demonstrating potential for balancing restoration efforts despite the species' persistent invasive behavior.

11:00 Using Vegetation Communities to Compare Natural and Constructed Wetlands

Kennedi Davis, University of Texas at Tyler, Tyler, USA
Lance Williams, University of Texas at Tyler, Tyler, TX, USA
Jared Dickson, University of Texas at Tyler, Tyler, TX, USA

Abstract: Wetland vegetation provides an abundance of ecosystem services such as water quality regulation, flood control, and habitat space for fish, amphibians, and macroinvertebrates. Plants also act as excellent indicators of wetland conditions as dominant vegetation types are often used as biological criteria for classifying wetlands and other habitats (Cowardin & Golet, 1995). This project will assess the structure of vegetation communities in five natural wetlands and 35 constructed wetlands in the Red River drainage basin across northeastern Texas and Louisiana. The purpose of this project is to create a national-scale ecological monitoring and assessment framework for wetland structure and function using vegetation. A Relevé plot method will be used to generate a species list to conduct a Floristic Quality Assessment Index (FQAI) for each site and a Vegetation Index of Biotic Integrity (VIBI) for each dominant plant community. Data from this project will help us determine if constructed and restored wetlands are functioning as their natural counterparts.

11:15 Are Seed Predators Filtering Mesophytic Tree Species Encroachment on Upland Sites?

Christopher Schalk, USDA Forest Service, Nacogdoches, TX, USA
John Willis, USDA Forest Service, Auburn, AL, USA
Josh Pierce, USDA Forest Service, Nacogdoches, TX, USA
Edward Andrews, USDA Forest Service, Auburn, AL, USA

Abstract: In the southeast, fire exclusion has led to encroachment of bottomland trees species into upland forests. In addition, these species may be experiencing a release from seed predation in these upland habitats, further facilitating their establishment. We conducted a field experiment to quantify seed predation of four fire sensitive species (sweetgum, loblolly pine, red maple, and winged elm) in bottomland and upland stands in spring, summer, and fall. To explore the role of predator type (vertebrate vs. invertebrates), seeds of each species were placed in two types of containers that controlled predator access. Hardware cloth was installed on the sides of containers to exclude vertebrate predators. Red maple was predated more heavily in the uplands than the bottomlands across all seasons. In the bottomland forests, winged elm was predated more heavily than red maple. In the uplands, all three hardwoods were consumed more frequently than loblolly pine. Temporally, seed predation was highest in the summer for all species. Invertebrates were likely the primary seed predators as seed predation did not vary by container type. The warmer temperatures coupled with the low availability of seeds during the summer, may underlie intra-annual variation in seed predation. In conclusion, seed predation may actually be a barrier to establishment of bottomland hardwoods, in contrast to our hypothesis. However, loblolly pine seeds exhibited very little predation in both forest types. Restoration efforts should seek to remove seed sources of loblolly pine while implementing other management activities (e.g., prescribed fire) to restore upland forests.

11:30 National Ecological Observatory Network (NEON): Open Data and Samples for Understanding Changing Ecosystems

Abigail Rankin, National Ecological Observatory Network, Denton, TX, USA

Abstract: To answer pressing questions in ecology and understand how U.S. ecosystems are changing, researchers need data collected consistently across long time scales. The National Ecological Observatory Network (NEON), funded by the U.S. National Science Foundation and operated by Battelle, is a continental-scale observatory that collects long-term, open access ecological data from 81 field sites located across the continental U.S., Puerto Rico, and Hawaii over a 30-year timeframe. NEON collects data at both terrestrial and aquatic sites through three data collection systems: Airborne Remote Sensing, Automated Instruments, and Observational Sampling. Collection methods are standardized to ensure long-term comparability of patterns and processes spatially and temporally. All samples and data collected by NEON are publicly available and can be accessed digitally through the NEON website. By providing free and open standardized data—along with data analysis tools, tutorials, and educational resources—NEON is engaged in the global effort to expand the scope of science and make scientific data access easier for all. This presentation will introduce NEON and demonstrate the resources available to access and use NEON data and samples for research, curriculum development, or land management. The presentation will highlight examples of NEON data and sample use in organismal and habitat research and provide an overview of NEON's research support services, which makes available certain components of NEON's infrastructure to members of the community to support their own research or other activities.

11:45 Understanding Seasonal Phenology and Community Composition of Aerial Invertebrates in Rio Grande Wild Turkey Habitat in the Edwards Plateau Ecoregion

William Stewart, Texas Tech University, Lubbock, TX, USA
Joseph Richards, Texas Tech University, Boerne, TX, USA
Ian Mack, Texas Tech University, Junction, TX, USA
Warren Conway, Texas Tech University, Shallowater, TX, USA
Annie Farrell, National Wild Turkey Federation, Edgefield, SC, USA
Mark Hatfield, National Wild Turkey Federation, Edgefield
Jason Hardin, Texas Parks & Wildlife Department, Austin, TX, USA
Blake Grisham, Texas Tech University, Lubbock, TX, USA
Scott Longing, Texas Tech University Student Chapter of The Wildlife Society, Lubbock, TX, USA

Abstract: The watersheds of the North and South Llano River supports diverse aquatic and terrestrial ecosystems, while providing freshwater to major urban areas, sustaining ranching industry, and facilitating outdoor recreation. This region is also home to the greatest densities of Rio Grande Wild Turkey (Meleagris gallopavo intermedia; RGWT) in Texas. While aquatic and terrestrial invertebrate communities likely contribute to RGWT nutrition, aerial invertebrates associated with RGWT nesting and brood-rearing activities remain unknown. We examined species' availability, community composition,

phenologies, and biomass of aerial invertebrate communities in upland and riparian RGWT habitats. Within these habitats, invertebrate communities were systematically sampled along 40 m transects located on the South Llano River and North Llano River, from April to July in 2023 and 2024. These two river systems exhibit contrasting flows, with the south fork being perennial and the north fork intermittent with extended periods of zero flow. Preliminary results show that riparian habitats support higher invertebrate biomass and diversity than upland sites. Distinct seasonal peaks in abundances were observed for Hexagenia spp. and lepidopteran species, which aligned with RGWT mating seasonality. Our findings improve what is known about invertebrate communities co-occurring with RGWT in our study region, which supports further studies to determine potential food resources for RGWT among two key habitats.

Human Dimensions/Conservation Communication/Entomology

Pioneer II, February 21, 2025
Moderator: Jessica Alderson

1:00 Charisma and Texas Waterbirds: What's the impact?

Abby Meeks, Texas State University, San Marcos, TX, USA
Christopher Serenari, Texas State University, San Marcos, TX, USA

Abstract: Charismatic megafauna tend to receive increased focus from research and funding due to their aesthetic and eliciting an emotional response from observers. However, not all species are afforded equal standing in the eyes of wildlife officials or the public. Waterbirds are island-dwelling birds that are not considered charismatic but critically important to coastal ecosystem health. Yet, subjective judgments about waterbirds based on appearance may be detrimental to their viability because a lack of long-term investments made by critical actors. To further understand how charisma relates to waterbird conservation, we developed a tripartite conceptual model to examine drivers of pro-waterbird conservation as a function of charisma. We examined the drivers of intended behavior underlying recreational disturbance to waterbirds on the Texas coast, home to over 200 species of waterbirds. We surveyed Texas coastal recreationists via intercept, email, and postal mail. Results from 615 completed surveys indicate that likeability of waterbirds did not significantly impact stated compliance. The belief there are a sufficient regulations for waterbirds had a significant negative impact on indicated compliance. Therefore, the belief that there are enough regulations for waterbirds leads people to be less willing to comply, indicating a feeling of overregulation. Additionally, those recreating longer in an area were more likely to follow regulations. Waterbird managers can utilize this information to foster a culture of compliance with long-term recreationists invested in protecting the resource for continued use. Through the investment of recreationists, wildlife agencies can have effective long-term management and reduce bird decline in Texas.

1:15 Urban Wildlife Information Network

Natasia Moore, Texas Parks and Wildlife Department, Austin, TX, USA

Abstract: The Urban Wildlife Information Network (UWIN) was established in 2017 by the Lincoln Park Zoo's Urban Wildlife Institute. Since then, UWIN has expanded into an international network focused on collecting urban wildlife camera trap data for use among its partners, including Fort Worth, Austin, Houston, and El Paso. The objective of the UWIN network is to gather camera trap data from participating cities to develop, grow, and compare data across the network, uncovering patterns and differences in animal ecology and behavior along the rural to urban gradient. Data is collected seasonally through camera traps that are set in the same location four times per year: January, April, July, and October. Cameras are spaced approximately 1km apart, set up at the beginning of each survey month, and collected at the end of each survey month. The data are uploaded to the UWIN database, where photos are tagged and made

available for the UWIN partners' research. According to the UWIN website, 25 papers, including graduate and undergraduate research, have been published using the UWIN database. These studies examine topics such as wildlife distribution across urban landscape, how wildlife interact with humans, and the impact of human activities on urban wildlife populations. The findings can then be applied to urban planning, design, and wildlife management, helping cities become part of the solution to the biodiversity crisis.

1:30 Toward Coexistence: Exploring Human Dimensions of Mountain Lion Management in Texas

Danial Nayeri, Texas A&M University - College Station, College Station, TX, USA
Benjamin Ghasemi, Ohio, Columbos, OH, USA
Daniel Pilgreen, Texas A&M, College Station, USA
Pourya Sardari, Texas A&M University - College Station, College Station, TX, USA
Gerard Kyle, College Station, TX, USA

Abstract: Mountain lion (*Puma concolor*) is an apex predator in north America. Although its national status is "least concern" its population status varies across its range. In Texas, lions are considered a "non-game" species meaning the state has very little in place to monitor their abundance and distribution. Should the state consider more active engagement in mountain management, an understanding of the drivers of Texas residents' preferences for managing mountain lions would be needed. We administered an online questionnaire through Qualtrics residents from across the state (*n* = 1,069). Our objective was to assess how wildlife value orientations (WVOs), coexistence, attitudes, trust, and perceived risk influence respondents' preferences for managing mountain lion interactions across 11 scenarios. Our modeling results revealed respondents tended to perceive less risk if they had a more positive attitude toward mountain lions. Also, if they were more mutualist in their WVO, they were more accepting of coexistence measures. We also observed that if a mountain lion was reported to have attacked a person or attacked livestock, mutualist respondents preferred non-lethal option (e.g., do nothing). However, traditionalist respondents were more accepting of killing mountain lions. Before implementing a more engaged management plan for mountain lions, it would be wise for the state to understand factors that shape residents' attitudes toward mountain lion management.

1:45 Status and Trends of Texas Working Lands: 25-year Update

Addie Smith, Texas A&M University Natural Resources Institute, Smithville, TX, USA
Roel Lopez, Texas A&M University Natural Resources Institute, College Station, TX, USA
Alison Lund, Leavenworth, KA, USA
Brittany Wegner, Texas A&M University Natural Resources Institute, College Station, TX, USA

Abstract: Texas working lands or privately-owned farms, ranches, and forests, are under increasing land conversion (i.e., non-agricultural development) pressure driven by unprecedented economic and population growth. The Texas A&M Natural Resources Institute's *Texas Land Trends* program has informed state agencies, land managers, citizens and other decision-makers about our state's working lands and has served to guide conservation efforts and natural resource policy development over the last 25 years. With 25-years of trend data, this 5-year report, in its sixth iteration, provides essential insights into the ongoing transformation of population growth, land value, ownership patterns, and land uses across the state. Shifting economies and new industry opportunities, byproducts of the global pandemic, magnified the downward trajectory of working land loss in our state. The last five years have seen continued loss in working lands and population increases unlike any other period. Through the power of a "good map", the *Texas Land Trends* program provides insights to these key issues and examines the latest trends in urban development and working land loss to better understand changes to Texas rural landscapes.

2:00 Lizards and Legends: Culture and Komodo Dragon Conservation

Rachel Lane, Tarleton State University, stephenville, TX, USA

Abstract: Komodo dragons (*Varanus komodoensis*), the largest extant lizard species with the smallest home range of any large carnivore, face growing conservation challenges due to habitat loss, human encroachment, and climate change. While ecological factors are well-studied, the intricate relationship between humans and Komodo dragons within Komodo National Park remains relatively underexplored. We will explore how cultural and social factors shape island communities' perspectives on Komodo dragons, their conservation, and how these perspectives, in turn, influence the species and their environment. Our research will examine the interconnectedness of culture, conservation, and ecosystem health through the reciprocal relationship between humans and Komodo dragons. Employing a mixed-methods approach, we will conduct quantitative surveys to assess attitudes toward Komodo dragons and their conservation, and qualitative semi-structured interviews to uncover deeper cultural insights. We will conduct a thematic analysis of interview data and a statistical analysis of survey responses to reveal nuanced differences and similarities in community perspectives and how cultural narratives and social structures shape human-Komodo dragon interactions. Our findings will contribute to a culturally informed framework for conservation strategies that integrate local knowledge, promote coexistence, and support the well-being of Komodo dragons and their habitat. Our research will bridge ecological and sociocultural perspectives to address critical research gaps and promote a holistic understanding of Komodo dragon conservation. It will emphasize the importance of empowering local voices to create inclusive and sustainable conservation strategies.

2:15 Arachnid Response to Erosion Control Blankets: An Experimental Approach

Ty Cosper, Stephenville, TX, USA
Heather Mathewson, Tarleton State University, Stephenville, TX, USA
Adam Mitchell, Tarleton State University, Stephenville, TX, USA
Hannah Abelein, Tarleton State University, Stephenville, TX, USA
Jie Huang, University of Texas at San Antonio, San Antonio, TX, USA
Jun Xu, Tarleton State University, stephenville, TX, USA
Fei Wang, Mississippi State University, Starksville, MS, USA

Abstract: Erosion control blankets (ECBs) are used along roadsides that receive heavy soil and vegetation disturbance. These products consist of nettings made from plastic or natural materials that remain in the environment as vegetation regrows. Although anecdotal observations suggest that small mammals, reptiles, and amphibians can become entangled or entrapped in ECBs, little information exists regarding the threat to invertebrates. Our objective was to evaluate how ECBs might impact arachnids, particularly tarantulas (Aphonopelma) and whipscorpions (Mastigoproctus giganteus) in Texas; although not designated as species of concern in Texas, arachnids are experiencing declines at global scales due to habitat fragmentation, urbanization, and overharvest in exotic pet trade, prompting a need to explore mechanisms of decline at local and regional scales. We obtained 12 ECBs with differing materials, netting, and matrix. We conduct two behavioral tests associated with movement across the ECBs, free-roaming and coerced. For our trials we place 12 tarantulas and 4 vinegarroons, individually within an experimental arena (3.0 x 1.5 x 0.9 m) and record behavior (e.g., avoidance, burrowing, impediment to movement, degree of entanglement). We recorded body and appendage measurements to evaluate morphological relationships associated with behavior and measurements of the ECBs. From preliminary free-roaming trials, we observed 3 tarantula entanglements, 14 impediments to movement of tarantulas. Vinegarroons have exhibited no negative movement responses. This study is part of a larger study that includes other species, tensile strength, and biodegradation tests that aim to increase our understanding of the risk of ECBs to wildlife in Texas.

2:30 Assessment of Graminoid Floral Resources to Enhance Habitat for Social and Solitary Bees in North-Central Texas

Matthew Sato, Tarleton State University, Stephenville, TX, USA
Adam Mitchell, Tarleton State University, Stephenville, TX, USA

Abstract: Projected increases in climate and weather stochasticity in the Southern Great Plains over the coming decades are likely to result in an increase in drought pressure throughout the region. As a result, flowering dicots may decrease production of floral resources, resulting in increased food scarcity for many pollinators. Our study seeks to assess the resource quality and availability of drought-tolerant forage, in particular flowering grasses within family Poaceae (grasses). Warm-season grasses, both native and nonnative, have adaptations which confer drought resistance and allow plant growth and floral production to persist under water stress. Anecdotal cases exist for the utilization of grass pollen by pollinator insects, but forage quality and composition has not been assessed. In this study, we plan to assess the pollen quality of big

bluestem (Andropogon gerardii), yellow Indiangrass (Sorghastrum nutans), and Johnsongrass (Sorghum halepense) as common and abundant roadside grasses throughout the region. We will collect pollen from our target taxa and utilize Fourier-transform infrared spectroscopy (FTIR) to assess nutrient composition. This will be paired with feeding trials in four Western honeybee (Apis mellifera) hives in order to understand the impacts of grass pollen feed on bee health in context. We seek to provide a basis for quantifying the feasibility for grass pollen as forage for pollinating insects which can then inform management and planting practices within Texas grasslands and pocket prairies to promote pollinator health and resilience under projected water deficits for the climate of the Southern Great Plains.

2:45 Using Targeted Poisoning of Red Imported Fire Ants to Improve Texas Horned Lizard (Phrynosoma Cornutum) Habitat

Kira Gangbin, Texas Christian University, Fort Worth, TX, USA
Rachel Alenius, Texas Christian University, Fort Worth, TX, USA
Madison Upton, Fort Worth Zoo, Fort Worth, TX, USA
Diane Barber, Fort Worth Zoo, Fort Worth, TX, USA
Nathan Rains, Texas Parks & Wildlife Department, Cleburne, TX, USA
Mark Mitchell, Texas Parks & Wildlife Department, Mason, TX, USA
Dean Williams, Texas Christian University, Fort Worth, TX, USA

Abstract: The spread of red imported fire ants (*Solenopsis invicta*; RIFA) has often been included as one of the drivers of the decline of the Texas horned lizard (*Phrynosoma cornutum*; THL). There have been two primary hypotheses for this: 1) direct lizard mortality at the hands of RIFA, and 2) displacement of their main food source, harvester ants (*Pogonomyrmex* spp.) by RIFA. A third hypothesis suggests that the invasion of RIFA could be causing a decline in hatchling THL food resource. Hatchling THL are too small to consume Pogonomyrmex and must rely on smaller species of ants for food. Many studies have attempted widespread treatment of RIFA, however this could have unintended consequences for non-target ant species THL depend on for food. Using a targeted application method, I sought to directly reduce RIFA populations while minimizing poison exposure to non-target ants. Experiments were conducted over the summers of 2022 and 2023 at four sites located at Mason Mountain Wildlife Management in central Texas, a locality with an ongoing THL reintroduction program. Poisons were applied monthly May – August in 2022 and 2023. Effects of each targeted poisoning were evaluated using hot dog baits and pitfall traps. Pitfall trapping was likely a more accurate estimate of ant abundance and revealed that treatment decreased RIFA abundance for both years and had variable effects on hatchling THL prey abundance. In 2024 - 2026, I am continuing this research with the primary objective of seeing how horned lizard survival varies between poisoned and non-poisoned sites.

Conservation & Ecology of Mammals V

Pioneer I, February 21, 2025
Moderator: Krysta Demere

1:00 Seasonal and Spatial Variation of Bat Communities in Texas

Madison Nadler, Texas State University, San Marcos, TX, USA
Madison Gover, Texas State University, Burleson, TX, USA
Maria Ramirez, Texas State University, New Braunfels, TX, USA
Donald Solick, Vesper Bat Echolocation Specialists, Fort Collins, CO, USA
Samantha Leivers, Texas Parks & Wildlife Department, Austin, TX, USA
Sarah Fritts, Texas State University, San Marcos, TX, USA

Abstract: Bats are diverse and face many natural and human-induced threats, making this taxon ideal bioindicators of anthropogenic change. Texas's large size and diverse habitats and weather conditions make it a model system for our goal of assessing bat community responses to seasonal and spatial variation. Texas is also at an intersection of two main threats to bats, white-nose syndrome and wind turbines. We deployed acoustic detectors at 97 sites across the state from Fall 2020 to Summer 2023 and used a combination of manual vetting and automatic classification to identify species. We divided Texas into eight ecoregions representing distinct habitats and combined seasons across the three years. Additionally, we examined bat community composition in relation to landcover at three spatial scales, 10 km, 25 km, and 50 km. Weather differed among season and ecoregion and landcover among ecoregion. Bat diversity was greatest in summer (H=1.789) and lowest in early spring (H=1.214); diversity was greatest in the Pineywoods (H=1.865) and lowest in the Cross Timbers (H=1.102). Species richness was similar among seasons (R=17-18) but varied among ecoregions (R=8-15). Bat communities differed in winter from spring and summer (p-value<0.001) and among most ecoregions (p-value<0.001). Of the three spatial scales, landcover at 25 km explained the most model variance with most variance explained by ecoregion and season, followed by barren, urban, forest, and crop. Results serve as baseline data in bat community composition that can be used for conservation and management as white-nose syndrome and wind energy development continue to threaten Texas bats.

1:15 Investigating Bat Drinking Activity in Response to Variability in Water Surface Area

Peyton Harper, Tarleton State University, FORT WORTH, USA
Victoria Bennett, Texas Christian University, Fort Worth, TX, USA

Abstract: Biodiversity in urban areas provides essential ecosystem services, yet cities are often not designed to support wildlife. To encourage a diversity of wildlife, the resources they require must be available and accessible. Water is an essential resource for wildlife, but the availability and accessibility of water sources vary, particularly between taxa. For example, bats access water sources on the wing by swooping down to the surface of the water to drink. Therefore, the accessibility of water sources by bats

may be influenced by the surface area. This study investigated the relationship between water surface area and bat drinking activity at six ponds in Fort Worth, Texas. Using a drone to record aerial views of each survey site, we determined four surface area metrics that could influence bat drinking activity: 1) fundamental surface area, 2) realized surface area, 3) maximum patch size, and 4) longest continuous stretch. We conducted behavioral observation and acoustic monitoring surveys to record bat activity at each survey site. We found that the longest continuous stretch showed the strongest positive relationships with bat activity, specifically drinking activity. We found that clutter, such as algae, litter, and vegetation, fragmented the water's surface, creating patches with shorter stretches of water that hindered bat drinking activity. Thus, surface area did influence water accessibility, highlighting that long continuous stretches of water uninterrupted by clutter would encourage bat drinking activity. Therefore, the removal of clutter has the potential to support an abundance and diversity of bats and aid in their conservation.

1:30 Reducing Bat-Turbine Collision Risk While Optimizing Wind Energy Production

Amanda Hale, Western EcoSystems Technology, Inc. (WEST), Fort Worth, USA
Michael True, Western EcoSystems Technology, Inc., Cheyenne, WY, USA
Rhett Good, Western EcoSystems Technology, Inc. (WEST), Cheyenne, WY, USA
Paul Rabie, Western EcoSystems Technology, Inc. (WEST), Cheyenne, WY, USA

Abstract: Around the globe, wind turbine-related bat mortality is a conservation challenge for wildlife managers and the wind energy industry. These mortalities are an important issue for threatened and endangered bat species and may threaten population persistence of the common and widespread hoary bat (*Lasiurus cinereus*). Given the increasing demand for wind energy to meet decarbonization goals, coupled with increasing evidence that bats are attracted to wind turbines, developing cost-effective and practical impact minimization strategies is imperative. “Smart curtailment” strategies incorporate site-specific information to identify high-risk periods for bats, with the potential to provide more conservation value for less power loss compared to traditional blanket curtailment methods. Optimized Smart Curtailment (OSC), developed by WEST, reduces bat fatalities while maximizing power production by curtailing wind turbines when a Bayesian decision tree model indicates higher risk conditions for bats and lower energy production potential. In this talk, we will present an analysis of OSC model runs and demonstrate a cost-benefit analysis at an operating wind facility. We will also highlight key considerations when implementing smart curtailment and discuss the evolving regulatory context and acceptance surrounding this strategy.

1:45 Validating a Bat Fatality Detection System at Wind Turbines

Sara Weaver, Bowman Consulting, San Marcos, TX, USA
Jon Ritter, Wildlife Imaging Systems, Hinesburg, VT, USA
Alexis Commiskey, Bowman Consulting, Austin, TX, USA

JD Garcia, Bowman Consulting, San Marcos, Texas, TX, USA
Brogan Morton, Wildlife Imaging Systems, Hinesburg, VT, USA

Abstract: Researchers investigating conditions associated with bat fatalities at wind turbines have historically used nocturnal video monitoring focused on the rotor swept area (RSA) to detect the moment of fatality. However, detecting a bat fatality in the RSA is difficult for a variety of reasons, and traditional equipment and analyses have been cost prohibitive reducing the feasibility for some facilities to conduct such studies. Our objective was to test and validate a cost-effective camera technology with a field of view (FOV) aimed below the RSA to measure the exact timing of bat fatalities occurring at wind turbines. This study was meant as a proof-of-concept to validate the system could capture and identify the data stated above for widespread use in future research related to minimization strategies. We equipped two wind turbines in Zapata County, Texas with two Axis Q1952-E thermal ground-based camera systems each with the FOV below the RSA. Videos were processed with a proprietary machine learning algorithm to detect bats that fell to the ground, presumably from being struck by a blade. We further conducted post-construction bat fatality monitoring at these turbines four days a week from July 15th to October 31st, 2022 for comparison to the camera system detections. Overall, the thermal camera system detection rate was 88.5% when compared to human searchers. An unanticipated result of our study was high bat activity rates previously undocumented in the airspace below the RSA, an important observation for minimization strategies. This system is optimal for research at wind turbines, particularly offshore.

2:00 White-Nose Syndrome Impacts on Myotis velifer Populations in Central Texas

Samantha Leivers, Texas Parks & Wildlife Department, Austin, TX, USA
Jonah Evans, Texas Parks & Wildlife Department, Boerne, TX, USA
Melissa Moreno, Texas Parks & Wildlife Department, Austin, TX, USA
Alexander Buckel, Texas Parks & Wildlife Department, Austin, TX, USA
Nathan Fuller, USFWS, Hadley, MA, USA

Abstract: White-nose syndrome (WNS) is a disease caused by the psychrophilic fungus *Pseudogymnoascus destructans* that affects hibernating bats. Since its discovery in North America, millions of bats have died and it remains one of the most pressing conservation issues of our time. In March of 2020, a mass mortality event of cave myotis (Myotis velifer) was attributed to WNS throughout Central Texas. We quantify population declines of cave myotis at several Central Texas maternity roosts compared to historic counts after the confirmation of WNS. In four of the five roosts, cave myotis numbers have declined by over 90% compared to historic counts. The population declines presented herein – combined with anecdotal evidence from several other southwestern states – stress the need and urgency to assess the conservation status of cave myotis. Continued surveys and WNS surveillance at known winter and summer roosts across the species' range will be imperative to tracking the potentially cryptic population declines, and the discovery of new roosts (particularly in WNS-

negative regions) should be prioritized to facilitate the collection of baseline population data and to inform recovery efforts.

2:15 Daytime Hurricane Arrival Changes Daytime, but not Nighttime Mammal Activity

Ann Cheek, University of Houston, Houston, TX, USA
Courtney Hall, Memorial Park Conservancy, Houston, Afghanistan
Michael Iacampo, University of Houston, Houston, TX, USA
Mailin Castro, University of Houston, Houston, USA
Jackson Berg, University of Houston, Houston, USA
Julia Cabello, University of Houston, Houston, USA
Quynh Le, University of Houston, Houston, USA
Abigail Mendoza, University of Houston, Houston, USA
Carolina Rodriguez, University of Houston, Houston, USA
Julia Samuel, University of Houston, Sugar Land, TX, USA
Valentina Urdaneta-Hernandez, University of Houston, Houston, TX, USA
Mariah Velez, University of Houston, Houston, USA

Abstract: The impact of natural disasters on urban mammals is poorly understood. This study aimed to find out how a hurricane affects urban mammal activity. We hypothesized that mammal activity would decrease as a hurricane approached and resume after the eye passed over. Thirty five camera traps were deployed in parks, cemeteries, golf courses, and nature preserves along two transects stretching southeast and northeast from the center of Houston. We compared mammal activity in the period from 48 hrs before until 48 hrs after the passage of Hurricane Beryl on July 8, 2024 to activity during the same time period in 2023. The eye of Hurricane Beryl passed over Hobby Airport at approximately 1400 hr on July 8, 2024. Fox squirrels (*Sciurus niger*) and Eastern gray squirrels (*Sciurus carolinensis*) were hardly detected during the day before the hurricane. Compared to the same time period in 2023, both squirrel species delayed activity until several hours after the hurricane passed. Raccoon (*Procyon lotor*), armadillo (*Dasypus novemcinctus*), cottontail rabbit (*Sylvilagus* sp), and opossum (*Didelphis virginiana*) activity during the nights before and after Hurricane Beryl was similar to the same time period in 2023. The short-term impact of a hurricane on mammal activity may depend on whether it arrives during the active period of a particular species.

2:30 Novel Survey Methodology for One of North America's Most Elusive Mammals

Derek Malone, Texas Tech University, Lubbock, TX, USA
Clint W. Boal, US Geological Survey, Lubbock, TX, USA
Dana Karelus, Texas Parks & Wildlife Department, Austin, TX, USA
Abstract: Historically, the Texas kangaroo rat (*Dipodomys elator;* TKR) was known from 11 counties in Texas and two in Oklahoma. Currently, it is believed to occur only in five counties in Texas. The reduction in their geographic range is thought to be a result

of declining population levels, driven by anthropogenic factors leading to habitat fragmentation and degradation. In 2016 and 2017 surveys along 2,371 km and 1,348 km of county roads resulted in 96 and 78 TKR detections, respectively. Subsequently, in 2024, similar surveys for TKR during August along ~58 km of county roads resulted in 6 TKR detections. In response to the low TKR detections during road surveys, we tested a new survey methodology in which we used thermal monoculars to conduct point counts for TKR. We conducted 5-minute point counts at 74 points spaced 200 meters apart, over the course of 26 nights. This resulted in a total of 63 detections on 31 of our 74 points. We used the package Distance in R to estimate detection probability and incorporated environmental covariates. The results indicated a detection probability of 0.39, a density estimate of 0.10 individuals per ha, and an estimated 158 individual TKR within the 1,499 ha sampled area. We then used general additive models in the package dsm in R to generate a density surface model to extrapolate the density of TKR beyond the sampled region. This resulted in a modeled estimate of 248 individuals within the 2,392 ha study area.

2:45 Evaluating Small Mammal Biodiversity Using Camera Traps

Amanda Laboy, Texas A&M University - College Station, College Station, TX, USA
Ty Werdel, Texas A&M University - College Station, College Station, TX, USA
Roel Lopez, Texas A&M University Natural Resources Institute, College Station, TX, USA

Abstract: The small mammal community within the Post Oak Savanna Ecoregion of the Ecological and Natural Resource Teaching Area at Texas A&M University has been historically understudied. Despite the forthcoming management interventions aimed at combating woody encroachment through techniques like fire, herbicide, and mechanical removal, little is known about the composition of this small mammal community. Our research aims to fill this gap by establishing an efficient survey method for small mammal richness and diversity in correlation to different land cover types. In our pilot study, we deployed ten modified bucket camera traps, each equipped with two cameras: one facing downward and the other outward. Half of these traps were baited to investigate potential increases in detection compared to un-baited sites. Preliminary findings indicate a greater detection rate for baited sites among species such as white-footed mice, armadillos, fox squirrels, and opossums. By extending the duration of our study and expanding the number of baited camera trap sites, we aim to comprehensively assess small mammal richness and diversity before and after the implementation of management practices. Through this approach, we expect to observe changes within site occupancy, richness, and diversity of small mammal communities in this Post Oak Savanna and how the small mammal community responds to woody encroachment management, offering contributions to the ecological understanding and conservation strategies in similar ecosystems.

3:00 Influence of Small-mammal Herbivory on Rangeland Restoration Success in Western Texas

Herbert Magobwe, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Fidel Hernandez, Texas A&M University - Kingsville, Kingsville, TX, USA
Anthony Falk, Texas Native Seeds, Ceasar Kleberg Wildlife Research Institute, Kingsville, TX, USA
Benjamin Turner, Texas A&M University - Kingsville, Kingsville, TX, USA
Alejandro Bazaldua, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA

Abstract: Rangeland restoration is an important tool for recovering rangeland health. Restoration is conducted to improve biodiversity, ecological integrity, and ecosystem resilience. Restoration success can be hindered by overgrazing from herbivores, climate change, desertification, and invasive species. A factor that has not been considered in past studies is the herbivory of small mammals (e.g., *Lepus californicus and Rodentia*) on rangeland restoration efforts. The purpose of this study was to evaluate the influence of small-mammals herbivory on rangeland restoration success in western Texas. Specifically, our objectives were 1) to identify the relative abundance of small mammals in the restored rangelands in western Texas, and 2) to evaluate the influence of small mammal herbivory on plant species composition, richness and biomass in western Texas. I established 40 small mammal enclosures (n = 40) on 2 rangeland restoration sites located within Ector (Goldsmith site) and Gaines (Seminole site) counties of western Texas. Small mammals exclosures were established within subplots that received a restoration treatment consisting of a high diversity + cover mix. We collected species composition and biomass within small herbivore exclosures and matching control points to quantify evidence of small mammals' herbivory at the restoration sites. We also conducted rodents trapping by using Sherman traps to identify rodent species composition and burrow counts for rodent relative abundance within restoration sites. Preliminary results indicated that herbivory by small mammals exerts great pressure on rangelands restoration success. In conclusion, herbivory by small mammals can be considered in strategic planning for sustainable rangeland restoration success.

Wildlife Disease & Toxicology

Pioneer III, February 21, 2025
Moderator: Susan Pohlen

1:00 Different Drivers, Same Tick: Effect of Host Traits, Habitat, And Climate on the Infestation of *Peromyscus leucopus* and *Onychomys leucogaster* by Larval Dermacentor Ticks

Gabriel Andrade Ponce, Stephen F. Austin State University, Nacogdoches, TX, USA
Brandi Giles, Texas A&M International University, Laredo, TX, USA
Brent C. Newman, National Center for Emerging and Zoonotic Infectious Diseases, Fort Collins, CO, USA
Andres López-Pérez, Inecol, Xalapa, Veracruz, MEX
Cord Eversole, Stephen F. Austin State University, Nacogdoches, TX, USA

Abstract: Tick-borne diseases (TBDs) pose a growing concern for both public and wildlife health. Understanding how host traits and environmental factors influence tick infestation in small mammals is critical for improving TBD management strategies. We investigated the prevalence and load of *Dermacentor* spp. larvae on two rodent species: *Peromyscus leucopus* and *Onychomys leucogaster*, in the arid brushland ecosystem of South Texas. We used generalized linear models to quantify how host, habitat structure, and climatic variables impact tick presence and load. Our results show that different drivers influenced tick infestation across species; *O. leucogaster* experienced higher tick loads in smaller individuals and habitats with more leaf litter, whereas *P. leucopus* was more susceptible to ticks during reproductive periods, particularly at temperatures between 15–23°C. These findings highlight the importance of considering species-specific interactions between host traits and environmental factors for the study of the dynamics of ticks and rodents. Our results contribute to a growing body of evidence on the complexity of tick-rodent host dynamics and offer insights for predicting changes in parasitism patterns and managing wildlife health in response to a changing environment in South Texas.

1:15 Impact of Short Versus Long Prescribed Burning Intervals on Tick Density in Southern Texas Gulf Coast Prairies and Marshes Ecoregion

Rachel Walters, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Sandra Rideout-Hanzak, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Scott E. Henke, Texas A&M University-Kingsville, Kingsville, TX, USA
Tammi Johnson, Texas A&M AgriLife Research, Uvalde, TX, USA
Ashley Reeves, East Foundation, San Antonio, TX, USA
Alynn Martin, Caesar Kleberg Wildlife Research Institute, KINGSVILLE, TX, USA

Abstract: In southern Texas, prescribed fire is used to improve forage for livestock, prevent wildfires, and combat woody encroachment. Additionally, fire may serve as a

method to suppress the abundance of pest species [TJ1] such as ticks. Studies on prescribed fire as a tick control method are limited, especially in this region; therefore, this study seeks to evaluate the efficacy of prescribed fires in decreasing tick density and tick-borne pathogen abundance. We hypothesize that tick density and pathogen abundance? will be reduced by prescribed burning, and that shorter, 3-year fire return intervals be more effective at reducing ticks than longer, 5-year return intervals. This study uses three randomly assigned prescribed fire treatments on ≥200 ha patches in the Gulf Prairies and Marshes ecoregion: winter short-interval burns, winter long-interval burns, and non-burned control treatments, each with two replicates. The vegetation in each patch is sampled monthly for questing ticks via dragging a 1-m2 cloth across two landscape types: around tree mottes (n = 3-4 per patch) and through open range (n = 2 × 750 m2 transects per patch). Woody tree mottes are expected to support higher tick density due to both high host-utilization, and more favorable microhabitat conditions including increased shade and moisture. After collection, ticks will be identified to species and screened for pathogens. Results of this study will help to determine if prescribed fire is an effective component of integrated tick management in southern TX, and will inform rangeland managers of best fire-based practices for tick control.

1:30 Nilgai Antelope Are Not Susceptible to Infection with the Causative Agents of Bovine Babesiosis

Kelly Persiner, Texas A&M AgriLife Research, Uvalde, TX, USA
Naomi Taus, USDA, ARS, Animal Disease Research Unit, Pullman, WA, USA
Sara Davis, USDA, ARS, Animal Disease Research Unit, Pullman, WA, USA
Karen Poh, USDAARS, Animal Disease Research Unit, Pullman, WA, USA
Lowell Kappmeyer, USDA, ARS, Animal Disease Research Unit, Pullman, WA, USA
Jacob Laughery, USDAARS, Animal Disease Research Unit, Pullman, WA, USA
Janaína CapelliPeixoto, Department of Veterinary Microbiology and Pathology, Washington State University, Pullman, WA, USA
Kimberly Lohmeyer, USDAARS, Livestock Arthropod Pests Research Unit, Kerrville, TX, USA
Massaro Ueti, USDAARS, Animal Disease Research Unit, Pullman, WA, USA
Pia Olafson, USDAARS, Livestock Arthropod Pests Research Unit, Kerrville, TX, USA
Tammi Johnson, Texas A&M AgriLife Research, Uvalde, TX, USA

Abstract: In the mid-1950s cattle fever ticks (CFT), *Rhipicephalus microplus* and *R. annulatus*, vectors of bovine babesiosis-causing parasites, were considered eradicated from the US except for a permanent quarantine zone along the Texas-Mexico border. Nilgai antelope (*Boselaphus tragocamelus*) are a common alternative host for CFT. To date, there have been no studies evaluating the role that nilgai antelope may play in the transmission of bovine babesiosis-causing parasites. The objective of this research was to evaluate susceptibility of nilgai antelope to infection with *Babesia* sp. and to assess their propensity to serve as sources of infections for tick vectors. We hand reared nilgai antelope calves to 4-5 months of age and then challenged them via intravenous inoculation with virulent strains of *Babesia bovis* or *B. bigemina*. Nilgai calves and control beef calves were assessed for clinical signs of infection by

measuring PCV and body temperature, as well as molecularly via PCR and serology. In vivo and in vitro inoculation and culturing provided further evidence that nilgai are not susceptible to infection with either *Babesia* sp. Given the overlapping habitat of these alternative hosts with primary cattle hosts, it is imperative to understand the impacts of these exotic species, which are a new addition to the ecology and epidemiology of this disease system. Although nilgai may not be susceptible to infection with bovine babesiosis-causing parasites, it is crucial to continue to develop alternative treatments to treat nilgai and other wildlife for CFT infestations to prevent the spread of this economically important livestock pest.

1:45 Talkin' Toxo: T. gondii seroprevalence and Demographic Impacts on White-tailed Deer in South Texas

Kendall Bancroft, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, SPOKANE, WA, USA
Alynn Martin, Caesar Kleberg Wildlife Research Institute, KINGSVILLE, TX, USA
Tyler Campbell, East Foundation, San Antonio, TX, USA
Randy DeYoung, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Aaron Foley, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
David Hewitt, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Miranda Hopper, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Lubbock, TX, USA
Kevin Lovasik, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Poncho Ortega, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Landon Schofield, East Foundation, Kingsville, TX, USA
Bryan Spencer, Ceaser Kleberg Wildlife Research Institute - Texas A&M University Kingsville, Kingsville, TX, USA
Jason Sawyer, East Foundation, San Antonio, TX, USA
Michael Cherry, Caesar Kleberg Wildlife Research Institution, Kingsville, TX, USA

Abstract: Toxoplasmosis (causative agent *Toxoplasma gondii*) is a zoonotic disease that causes significant morbidity in animals and humans. In wildlife, *T. gondii* infection may influence reproduction and behavior, including induced abortion, increased aggression, and abnormal movement; however, prevalence and sublethal impacts are poorly understood. To investigate *T. gondii* influence on white-tailed deer population dynamics, we used four years of biological and known fate data from a deer population in South Texas to determine *T. gondii* prevalence and survival of does and their offspring as a function of doe serostatus. Serology revealed 29 of 59 (49%) does had a titer of ≥1:25 on a modified agglutination test, and were considered seropositive for *T. gondii*. From 2020-2023, Kaplan-Meier annual survival of seropositive and seronegative does ranged from 70-100% and 85-100%, respectively. Adult survival was high except

in 2022, a year with harsh winter and drought conditions, when survival of seropositive does was lower than that of seronegative does (70% vs. 85%, respectively). Across all years, survival of fawns from seropositive and seronegative does did not differ. However, in 2021, a year with above average rain, fawns born to seropositive does had lower survival (20% vs 46%). These trends suggest that *T. gondii* infection may compound the effects of external stressors on adult white-tailed deer when conditions are poor, but have a more noticeable influence on fawn survival when conditions are optimal. Further understanding of sublethal effects of *T. gondii* infection is needed to assess potential impact on survival and recruitment in wildlife populations.

2:00 Assessing Potential Biases Introduced by Common Assumptions in Chronic Wasting Disease Predictive Modeling

Ashlyn Halseth-Ellis, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Lubbock, TX, USA
Alynn Martin, Caesar Kleberg Wildlife Research Institute, KINGSVILLE, TX, USA
Michael Cherry, Caesar Kleberg Wildlife Research Institution, Kingsville, TX, USA
Warren Conway, Texas Tech University, Shallowater, TX, USA
Randy DeYoung, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Justin French, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Shawn Gray, Texas Parks & Wildlife Department, Alpine, TX, USA
Courtney Ramsey, Texas Tech University, Lubbock, TX, USA
Levi Heffelfinger, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Ransom Canyon, TX, USA

Abstract: Chronic Wasting Disease (CWD) is a fatal prion disease that infects some members of the Cervidae family. Agent-based models (ABM) are a common tool used to simulate and predict CWD dynamics to inform management decisions; however, despite the complexity of both CWD and host behavior, ABMs often make broad assumptions about these processes. We evaluated the magnitude of biases introduced by common assumptions made in ABMs used for CWD. We developed a baseline ABM for the Texas Panhandle CWD area using data collected from GPS-collared juvenile (*n* = 29) and adult (*n* = 146) mule deer (*Odocoileus hemionus*) throughout the Texas Panhandle following the same assumptions as in previously published ABMs. We then expanded upon our baseline model to create three additional ABMs that each addressed one current knowledge limitation or assumption: (1) inclusions of exploratory juvenile movement, (2) addressing differences in host movement post-infection, and (3) including all three CWD-susceptible species found in the region with species-specific movement parameters. The baseline and the model incorporating host movement post-infection had negligible differences, with prevalence ranging between 0.4% and 3.0%. In contrast, the three-species model had multiple peaks in prevalence throughout the year with maximum prevalence reaching 8.3%. The exploratory juvenile movement model had a steady increase in prevalence throughout the year with a maximum of 32.1%. These findings highlight the importance of testing and refining common assumptions

in ABMs for CWD as incorporating empirical field data on often-ignored processes can substantially alter predictions of disease prevalence across space or time.

2:15 Let's Talk Sh…poop! Assessment of Endoparasitism in Free-ranging Felids of Southern Texas

Tiffany Pope, Texas A&M University - Kingsville, Kingsville, TX, USA
Alynn Martin, Caesar Kleberg Wildlife Research Institute, KINGSVILLE, TX, USA
Ashley Reeves, East Foundation, San Antonio, TX, USA

Abstract: Parasites have varying physiological effects on their hosts including reduced nutrient absorption, decreased blood cell activity, and damage to host tissues. These impacts from parasite presence can be compounded by other internal (e.g., genetic inbreeding) and external (e.g., environmental) factors, which may increase morbidity. In southern Texas, the last remaining populations of the nationally endangered ocelot (*Leopardus pardalis*) persist. These populations exhibit low genetic diversity and are susceptible to stochastic events (e.g., drought), but no baseline understanding of health risks from disease and parasitism exists. Other sympatric species exist in this landscape, including bobcats (*Lynx rufus*), which may harbor and share parasites with ocelots. Our objectives for this ongoing study are to determine endoparasite profiles and identify parasites of greatest concern for these two wild felid species. Further, we aim to understand the overlap of parasite communities between bobcats and ocelots. Fecal flotation was conducted on 48 felids (ocelots, n=17; bobcats, n=31) spanning four years (2019-2022). Helminths were observed in 100% of ocelots and 94% of bobcats, while protozoa were observed in 59% of ocelots and 55% of bobcats sampled. Skin mites (*Demodex* spp.) were coincidentally found in 18% of ocelots and 35% of bobcats, suggesting ingestion during grooming. The most common intestinal parasites observed were the helminths *Toxascaris leonina* (roundworm) and *Ancylostoma* spp. (hookworm), both of which are considered pathogenic in felines. These findings provide a better understanding of the felid population's susceptibility to parasitism and assist in planning strategies that aid in reducing or preventing transmission of parasites.

2:30 Using Animal Movement Models to Understand Potential Disease Transmission Dynamics Among Wild Felids

Alexandria Hiott, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, KINGSVILLE, USA
Alynn Martin, Caesar Kleberg Wildlife Research Institute, KINGSVILLE, TX, USA
Mason Fidino, Lincoln Park Zoo Department of Conservation and Science, Chicago, IL, USA
Clayton Hilton, Texas A&M University-Kingsville, Kingsville, TX, USA
Ashley Reeves, East Foundation, San Antonio, TX, USA
Lisanne Petracca, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, USA

Abstract: Disease can have profound impacts on wildlife populations, and insights into animal movement are important for understanding disease spread. Integrated step selection analysis (iSSA) simultaneously estimates movement and resource selection and explicitly incorporates information about velocities, turning angles, and environmental covariates that may affect movement and selection. Our research investigates the space use of sympatric ocelots (*Leopardus pardalis)* and bobcats (*Lynx rufu*s) on a private ranch in South Texas, as well as the implications of this space use on potential disease transmission. Our hypothesis is that the generalist bobcat is using a wider range of habitats compared to the federally endangered ocelot, a dense canopy specialist, and that bobcats could be serving as a vector of ocelot disease transmission. We used iSSA to estimate movement and resource selection of ocelots and bobcats and hypothesized that certain environmental covariates (e.g., habitat type, percent canopy cover, distance to highway) would impact these processes. We found that while both species select for thornscrub habitat, bobcats are also found in more open habitat. These findings have important implications for disease transmission dynamics, and will lead to future research into the directionality of disease transmission among sympatric felids.

2:45 The Influence of Distance to Water on Oral Rabies Vaccine Bait Consumption in the South Texas Plains

Haley Sloan, Texas A&M University - College Station, Wimberley, TX, USA
John M. Tomecek, Texas A&M University, Austin, TX, USA
Tyler Campbell, East Foundation, San Antonio, TX, USA

Abstract: Oral Rabies Vaccine (ORV) baits have been aerially dropped along the US-Mexico border since 1995 for canine rabies. However, there is little information on the fate of baits once they are deployed across the landscape. Because the vaccine in these baits is only stable for a short window of time, it is important to understand how many baits are consumed during the timeframe they are viable. Our goal is to determine the influence of distance to water on ORV bait consumption by coyotes or non-target species once the bait is deployed in the South Texas Plains. We used ArcGIS Pro to generate eight 25 ha grids with 18 camera traps in each grid. We hand applied one ORV bait per camera trap site in two grids per each application trip. We collected data from 144 camera trap sites for roughly four consecutive weeks during each calendar season on the East Foundation's San Antonio Viejo Ranch. We generated a logistic regression and used Tukey's HSD to do a pairwise comparison of water centered vs randomly generated grids. We found that there was not a significant difference in ORV bait consumption at water centered grids vs randomly generated grids($p<0.5$). The results from this study will help better inform ORV programs management practices for future ORV deployments.

3:00 Quail and Parasitic Helminths: Status of Knowledge and Should We Be Concerned?

Liza Soliz, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingville, TX, USA
Andrea Montalvo, East Foundation, Hebbronville, TX, USA
Stephanie Shea, University of Maine, Orono, ME, USA
Andrew Olsen, Intermountain West Joint Venture, Missoula, MT, USA
Stacie Villarreal, Texas A&M Agrilife Extension, Bellville, TX, USA
Nicole Traub, Huntington Learning Center of Georgetown, Georgetown, TX, USA
Maedean Cardenas, Texas A&M University - Kingsville, Alice, TX, USA
Alan Fedynich, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Dale Rollins, Rolling Plains Quail Research Foundation, San Angelo, TX, USA
Ryan Luna, Sul Ross State University, Alpine, TX, USA
Fidel Hernandez, Texas A&M University - Kingsville, Kingsville, TX, USA
Alynn Martin, Caesar Kleberg Wildlife Research Institute, KINGSVILLE, TX, USA

Abstract: North American quail have been experiencing population declines likely due to habitat loss and changing weather. However, even in areas with ample habitat and years of above-average precipitation, quail populations still exhibit below-expected abundance. Parasitic helminths, such as eyeworms (Oxyspirura petrowi) and cecal worms (Aulonocephalus pennula), have been hypothesized as potential contributors to quail declines. A general trend arising from over a decade of research suggests that a spatial gradient exists in eyeworm prevalence, with prevalence decreasing from northern Texas to southern Texas, and no such gradient observed for cecal worms. Beyond this spatial trend, no study has searched for other trends in the data differentiating northern and southern Texas. We conducted a meta-analysis to explore quail parasitism trends between northern and southern Texas. We collated a 10-year dataset (2007–2019) of hunter-harvested and live-trapped northern bobwhites and scaled quail using raw data from past studies. Histograms of prevalence (% infected) and intensity (no. worms/infected bird) were generated by region and through time. Our data supported the spatial gradient in eyeworm prevalence between northern (54%) and southern (4%) Texas; however, intensity was low in both regions (most birds infected with <10 worms). Prevalence of cecal worms was relatively high in both regions (65% northern Texas and 81% southern Texas), as well as intensity (few birds possessing low worm burdens <10). These data call into question whether eyeworms should be of greater concern than cecal worms.

Abstracts: Student Poster Competition

Eagles/Chilton/Kincaid, February 19, 2025
4:00 PM – 5:30 PM

1. Conservation Without Borders: Research on Desert Bighorn Sheep, Carmen Mountain White-tailed Deer, and Elk in Mexico

Ivan Lozano, Texas A&M University - College Station, College Station, TX, USA
E. Alejandro Lozano-Cavazos, Universidad Autónoma Agraria Antonio Narro, Saltillo, Coahuila, MEX
Dylan Stewart, Texas A&M University - College Station, College Station, TX, USA
Stephen Webb, Texas A&M Natural Resources Institute, College Station, TX, USA

Abstract: Transboundary wildlife conservation is extremely challenging yet crucial for species that span across international borders because of habitat loss, security issues, and resource disparities. Effective conservation requires detailed ecological knowledge and collaboration to manage large mammal species that have large ranges, thus potentially crossing political boundaries and impacting conservation efforts. The story is no different in Mexico, which is rich with species diversity, but lacks detailed knowledge and information to effectively conserve ecologically and economically important species. Recently, we developed a binational collaboration between Mexico and the United States to conserve and manage large mammal species in Mexico. We focus our research and conservation efforts on desert bighorn sheep (*Ovis canadensis mexicana*), Carmen Mountain white-tailed deer (*Odocoileus virginianus carminis*), and elk (*Cervus canadensis*). These projects aim to enhance our understanding of movement ecology, habitat use, and population dynamics with the goal of developing conservation strategies to manage mobile species across their ranges, and that can cross jurisdictional boundaries. While the United States has a long history of wildlife research and more established conservation programs, similar efforts in Mexico have been fewer, leading to knowledge gaps that hinder effective cross-border conservation. These projects will contribute to a holistic approach to wildlife management and cross-border conservation. The findings will enhance conservation strategies and efforts essential for the protection of these species and their habitats. Additionally, this collaboration can be a model for future, international research and how to engage landowners with research to help meet their conservation goals.

2. An Introduction to the Native and Non-native Plant-insect Interactions and Potential Pollinators of Puerto Williams and Yendegaia, Cabo de Hornos, Chile

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Abstract: The Magellanic sub-Antarctic ecoregion of southern Chile represents one of the last remaining pristine areas on Earth, but there are knowledge gaps concerning the biodiversity and interactions of the regions' flora and fauna. The Cape Horn Biosphere

Reserve contains a wealth of native biodiversity but is also now home to many non-native species that have been introduced to the area. Non-native insect species like *Bombus terrestris* and *Vespula vulgaris* are known to have detrimental influence on native populations through competition for resources/nesting habitat, larvae predation, and foreign pathogen introduction. However, their interactions with the native and non-native plants in the region and between introduced species are unknown. During a two-week field intensive survey January 1-16th 2024 (austral summer) we recorded observations of floral visitors and their floral hosts in Puerto Williams and Yendegaia in the southernmost tip of Chile. and mapped these interactions in a preliminary visitation network. We found that the invasive *B. terrestris* was both present and abundant in Yendegaia where it was previously unrecorded. We found that both non-native and native floral visitors were visiting non-native plant species. Interestingly, *B. terrestris* was only observed visiting non-native plant species. Finally, we recorded observations of two species that are either extremely rare or previously unreported in the area in just two weeks of observation. This study overall highlights the importance of further investigations documenting the region's biodiversity, native and non-native species interactions, and local pollinators.

3. When Bats Take Wing: Environmental Influences of Cave myotis and Tri-colored Bat Activity Patterns

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Abstract: Bats are keystone species that serve many ecological roles including plant pollination, insect predation, and seed dispersal. However, wind energy development and white-nose syndrome (WNS) threaten bat populations. To understand how environmental conditions influence activity patterns of cave myotis (Myotis velifer; MYVE) and tri-colored bats (Perimyotis subflavus; PESU), we conducted a three-year acoustic monitoring study (July 2020 – July 2023) using paired acoustic detectors across 49 sites in Texas. We analyzed bat activity during six, four-day periods across fall months (September-November), incorporating temperature data from the National Oceanic and Atmospheric Administration (NOAA) and utilized land cover variables at multiple scales (10, 25, 50 km). Linear regression analyses will examine correlations between bat activity (counts) and landcover and weather variables, including maximum and minimum temperatures. Preliminary analyses indicate that peak activity coincides with the warmest day within each sampling period for each species. Additionally, we will report the influence of landcover and weather on occupancy at sites across the state. This research will provide critical insights for management strategies that can help conserve bat species impacted by both WNS and wind energy developments throughout Texas.

4. American Alligator (Alligator mississippiensis) Spatial Ecology and the Extent of Nest Depredation by Wild Pigs (Sus scrofa) in Coastal Texas

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Abstract: This study focused on the American Alligator (*Alligator mississippiensis*) in the upper coast of Texas, addressing gaps in current knowledge regarding their spatial ecology and effects of nest site selection on nest success. By employing GPS telemetry, the research aimed to elucidate breeding alligators' spatial patterns, including their fine scale measurements of daily movement. The study also examined how habitat features influence nest success and vulnerability to predation by wild pigs. A linear mixed model identified sex as a significant predictor of daily cumulative distance traveled, with males moving farther than females. Additionally, temperature and rainfall positively influenced cumulative movement while SVL, wind speed, and UV index did not have significant effects. This study utilized generalized linear models to assess factors influencing alligator nest success. Overall, the most significant predictors of nest success were distance to headquarters and distances to trees with a greater distance from both having negative effects on nest success. From 2022 to 2023, cameras were placed at 28 alligator nests, revealing wild pigs at 19 nests, with 17 of these experiencing depredations. Evidence of nest depredation and hatchling liberation both occurring was recorded at 7 sites. The use of generalized linear model analysis revealed distance to road and distance to headquarters to be significant, suggesting that greater distance from roads decreases predation risk, while nests further from headquarters face higher predation risk.

5. Texas Tortoise’s Movement Patterns Across Chapparal WMA

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Abstract: Texas tortoise (*Gopherus berlandieri)* is found across portions of South Texas and Mexico, with a part of the population being found on the Chapparal Wildlife Management Area (WMA). This is an important portion of the population because it has been systematically studied for over a decade, providing species indicators and trends. This study examines how habitat is utilized and how the Texas tortoise movement trends fluctuates from month to month. Over a 14-year period employees of the Chaparral WMA performed opportunistic captures of Texas tortoise, and recorded weight and length measurements, capture location information, and marked the shell with a unique identification code. This data was then analyzed in excel functions. It was found sex ratios were fairly even across the property, and tortoises were most active between April and October. During these months tortoises experienced increased length and mass growth, due to forage availability. Habitat preference correlated with moderately rocky soils, and greater spacing between vegetation types, specifically less

dense brush. Site fidelity was observed in a majority of recaptures, with females having a higher tendency to remain in a small area. The northwest portion of the Chaparral WMA was more heavily utilized than other portions due to meeting more of the observed habitat preference markers. While the data collected in this study is beneficial, more research is needed to truly understand how Texas tortoise utilizes its habitat. In future studies it would be beneficial to collect temperature, precipitation, and any foraging behavior observed.

6. Evaluating Livestock Tank Forage and Cover Availability for Overwintering Grassland Birds in the Trans-Pecos.

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Abstract: Overwintering bird species in the Chihuahuan Desert grasslands have been undergoing population declines due to various forms of habitat degradation. Livestock tanks in the region could increase the odds of survival for birds by providing a source of food and water in an otherwise resource- limited region. Even when dry, tanks contain plant life that is unique from the typical grassland plant species surrounding them, offering a diverse location that acts as an attractant to overwintering birds. This study will identify the plants found in livestock tanks and outline their importance in terms of foraging value and cover to overwintering birds through Chihuahuan Desert grasslands. Methods include half-meter-squared quadrat sampling of vegetation seed production, line-intercept methods to outline brush coverage, and a seed bank inventory from each tank. Collecting forage value inside and outside the tanks as well as cover percentages may assist in making management decisions for both wintering birds and livestock.

7. Midcontinent Cackling Goose (Branta hutchinsii) Migratory Connectivity

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Abstract: Migratory species make impressive movements between breeding and nonbreeding areas annually, but the capability to track species throughout the annual cycle at fine spatiotemporal scales is the result of recent technological innovations. Advances in animal tracking allow for more accurate tracking of migratory species, more frequent datapoint collection, and over longer periods of time. This can reveal aspects of the annual cycle in greater detail than previously possible. Cackling Geese (*Branta hutchinsii*) migrate thousands of miles annually between breeding, molting, and wintering sites. In their seasonal movements between wintering and breeding localities, numerous stopover sites are used to rest and refuel. The importance of stopover sites to migratory birds like Cackling Geese cannot be overstated, yet there is a significant lack of knowledge to inform management on where the key stopover areas are for most species, making conservation efforts less impactful. In December-February of 2022-2024, we deployed 142 GPS-GSM transmitters on female Cackling Geese wintering in the southern Great Plains; ultimately, we plan to deploy devices on ~350 geese. We aim to quantify fine-scale movement patterns and identify areas of conservation importance throughout the annual cycle. We plan to apply network analysis and graph theory to create a network model for midcontinent Cackling Geese. We expect that results from this project will provide important information to help guide managers on where to invest in conservation efforts.

8. The Role of Soil Type and Grazing Systems in Shaping Desert Grassland Ecosystems

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Abstract: Desert grasslands are critical ecosystems that support diverse wildlife species and provide valuable resources for livestock production. However, the Trans-Pecos is subjected to habitat degradation if managed incorrectly because of the variable precipitation in desert grasslands. The choice of grazing system has long been debated as to which has the most benefits in meeting a landowner's goal and sustaining healthy rangelands. The two most common grazing systems, rotational and continuous, can modify and sustain rangeland health. Therefore, this project aims to identify and compare grass species cover, annual standing crop production, species composition, forage nutrition, and soil moisture between a long-term rotational, continuous, and deferred grazing system in a desert grassland of the Trans-Pecos. Grasses were collected at the end of the 2023 and 2024 growing season. Random stratified sampling was used to place 690 0.5 m^2 plots in all grazing regimes confined to two soil types (Marfa-clay-loam and Musquiz-clay-loam). Volumetric soil moisture was taken along with all other floristic data at each plot. Linear regression analysis showed that a

continuous system will increase soil moisture between all systems overall and has the greatest increase on Musquiz-clay-loam with little to no effect on Marfa-clay-loam. A rotational system with higher overall unique species decreases soil moisture on both soil types compared to the deferred and continuous. With further analysis, this study will reinforce the importance of considering soil types when developing grazing systems and allow for grazing to be used as a management tool to conserve and restore grasslands.

9. Scale-dependent Patterns of Woody Plant Encroachment and Grassland Fragmentation on the Welder Wildlife Refuge

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Abstract: Woody plant encroachment is a threat to grasslands globally. The Welder Wildlife Refuge in the south Texas Gulf Coast Prairie has transitioned from a tall grass prairie to a brush-grass complex due to woody plant encroachment. The use of georeferenced spatial data (e.g., satellite data) to describe the ecological characteristics of such changing landscapes can help identify scale-dependent patterns of woody plant encroachment and grassland fragmentation. Our objective is to identify the scale-dependent ecological patterns that characterize woody plant encroachment and grassland fragmentation across the Welder Wildlife Refuge. We will use satellite imagery to estimate changes in woody plant and herbaceous cover from 2000 to 2024 and analyze landscape patterns that emerge at different spatiotemporal scales using landscape metrics and a lacunarity analysis. To do so, we downloaded USDA Landsat Collection 2 Level-2 surface reflectance data from Earth Explorer collected in August 2000 and August 2024. Using the surface reflectance data, we calculated five indices which highlight landscape features. To reduce redundancy in the data, we performed a principal component analysis. We then used the principal components which explained more than 99% of the variance for land cover classification. Lastly, we calculated the percentage of landscape, area, largest patch index, a connectance index, and lacunarity using the classified data. We hypothesize that woody plant cover has dominated the landscape, and that herbaceous cover will have significantly decreased and has become more fragmented. We hope our study can improve understanding of the process of woody plant encroachment.

10. Combing Local Ecological Knowledge and Standardized Driving Surveys to Estimate Abundance and Density of Recently Translocated Populations of Wild Turkey in East Texas

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Abstract: Roost surveys for wild turkey (Meleagris gallopavo) are an established method for estimating population parameters locally. Meanwhile, road surveys are recommended for calculating density and abundance on a regional scale. However, road surveys may not be suitable for estimating turkey numbers in the Post Oak and Piney Woods ecoregions of eastern Texas due to the presence of dense understory vegetation which may limit detection of turkeys. In this study, we implemented an approach that incorporates standardized driving surveys and roost surveys informed by the local ecological knowledge (LEK) of property managers and compared their relative success in detecting wild turkey. We conducted 7 targeted roost surveys based on local property managers' prior knowledge regarding turkey roosting activity. We also conducted 4 driving surveys along predetermined routes and stopped at 1 km intervals to listen for and observe turkeys. Driving surveys occurred in the morning and late afternoon to look for turkeys leaving and returning to roosts. The roost surveys informed by LEK have yielded more successful wild turkey detections (5 roost site detections and 2 flock sightings) than the driving surveys (0 roost site detections and 0 flock sightings). These findings indicate that while standardized methods are a crucial component of study design, combining these with LEK will provide a more robust assessment of population parameters in wild turkey.

11. Can Eyeworm and Cecal Worm Burden Drive Quail Population Dynamics?

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Abstract: Over the last decade, northern bobwhite (*Colinus virginianus*) populations across Texas have experienced perceived declines despite good climatic conditions. The abnormal response of quail populations to favorable environmental drivers, such as precipitation, has led to speculation that other factors may be driving quail population dynamics. Rising concerns surrounding quail species' stability in Texas have fueled research efforts focused on identifying the cause of declines, and two parasitic helminths— eyeworms (*Oxyspirura petrowi*) and cecal worms (*Aulonocephalus pennula*)—have been implicated. However, no data exist linking helminth presence to disease or compromised condition in quail. We leverage ten years of helminth data from Oklahoma, northern Texas, and southern Texas to analyze trends between quail body

mass and eyeworm and cecal worm burden. Body mass is an indicator of individual condition and can be used as a proxy for health status. These results will represent a foundation on which to build our understanding of the impact of helminths on quail and their role in driving population dynamics.

12. Applying Machine Learning to Interpolate Movement Trajectories of Desert Bighorn Sheep

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Abstract: Global positioning system (GPS) tracking devices have advanced wildlife studies related to movement, migration, and resource selection. However, two forms of bias plague most analyses, which include missed GPS fixes and inaccuracy of location estimates. These forms of bias result from technological failures, the arrangement of satellites, behavior of the animal, and environmental factors such as canopy cover and topography. We initiated a translocation study of desert bighorn sheep (*Ovis canadensis mexicana*) in Sonora, Mexico as a part of a long-term restoration study to sustain populations and harvest. Preliminary analysis of GPS data revealed missing fixes, especially at certain times of the year and day (i.e., warmer months during the middle of the day); video from GPS collars shows that sheep use caves as temperatures increase. The cave, topography, and behavior of the sheep led to reduced GPS fixes, so we explored various analytical methods to account for or interpolate missing locations. We modeled, fit, and simulated GPS fixes using treed Gaussian processes, generalized linear models, generalized additive models, Bayesian additive regression trees, and random forest models. We will report results of the statistical models and how these analytical methods can be used to reduce bias in resource selection and movement studies as the result of missed fixes and inaccurate locations. However, static testing of collars before deployment, or simulation with empirical data, will be necessary to improve accuracy of model results.

13. Evaluating the Precision of Images for Wildlife Morphometry: A Comparison with Traditional Methods for Measuring Ampibians

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Abstract: The measurement of wildlife species' morphology can be time-consuming. Traditional methods of morphometric measurement, such as by hand with calipers, can

divert time away from other research activities. Advancements in camera technology and digital analysis tools like ImageJ, a free digital analysis software, provide potential alternatives. While ImageJ has been used for wildlife morphometrics, its accuracy compared to calipers has been underexplored, particularly for larval amphibians. In this study, we assessed the accuracy of ImageJ in comparison to digital calipers via measurements of snout-vent length (SVL), total body length (TBL), and head width (HW) of larval and metamorphosed spotted salamanders (*Ambystoma maculatum*) and southern leopard frogs (*Lithobates sphenocephalus*). Due to previous research demonstrating a correlation between surface area and tadpole mass, we used TBL and HW to calculate elliptical surface area. We found that morphometrics assessed using ImageJ were not significantly different from data collected via calipers ($t = 1.21$, $P > 0.05$), and that mass and elliptical surface area found were highly correlated ($r = 0.936$, $P < 0.001$). High correlation between mass and elliptical surface area suggests that a proportionality constant could be used to predict mass from elliptical surface area of larval amphibians. Traditional methods require removal of larvae from water and blotting them dry, which may elevate stress and mortality rates. However, our results demonstrate that ImageJ offers a non-invasive alternative to traditional methods of determining mass. Therefore, we recommend the use of ImageJ as an alternative to the use of traditional methods of wildlife measurements.

14. Establishment of Blood Reference Intervals for Nilgai from South Texas

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Abstract: Nilgai (*Boselaphus tragocamelus*) are an invasive antelope species brought into the United States to private ranchlands in southern Texas around the 1920s from India as an exotic game species. Since their introduction, the nilgai range and population size has increased, and they are now found throughout southern Texas, with continued northward expansion. Nilgai are still an important source of income for landholders, as they are popular for recreational harvest and their products are sold commercially for culinary use. However, nilgai have been implicated as the main driver of cattle fever tick and babesiosis dynamics in southern Texas, which has health and economic implications for cattle operations. Understanding nilgai health is important for managing agricultural bovid species in the landscape. This study aims to quantify blood reference intervals for nilgai in southern Texas to establish baseline health metrics and allow for health surveillance. Whole blood and serum samples were taken from 146 female nilgai, identified as at least one year of age, following harvest for complete blood counts and serum chemistry analysis. We compare these intervals to other ungulates in the family Bovidae, including domestic cattle (*Bos taurus)* and the common eland (*Taurotragus oryx*).

15. Patterns of Population Structure and Gene Flow in a Fragmented Environment: How Road Infrastructure Impacts Bobcat and Ocelot Dispersal

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Abstract: 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.

16. Ocelot Guzzler Utilization on Laguna Atascosa National Wildlife Refuge

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Abstract: Laguna Atascosa National Wildlife Refuge provides vital habitat for the endangered ocelot (Leopardus pardalis), with artificial water sources (guzzlers) serving as important resources for the species. Recent camera surveys have identified 21 individual ocelots within the refuge, with notable activity observed at guzzlers. This study aims to investigate guzzler utilization patterns to understand their role in ocelot habitat use and inform conservation strategies. Fourteen guzzlers were monitored using two cameras per station, totaling 28 cameras. Cameras were checked monthly over a 10-month period, and ocelot activity was recorded. Ocelots were not observed at every guzzler, indicating potential habitat preferences or territorial behaviors. We will analyze visitation frequency, duration, and seasonal variations, correlating these data with environmental factors such as temperature and precipitation. We anticipate that ocelot visitation to guzzlers increases during drier months, reflecting reliance on artificial water sources when natural water is scarce. Understanding these patterns will aid in optimizing the placement and maintenance of guzzlers, contributing to improved management practices aimed at supporting the recovery of this endangered population.

17. Role of Invasive Plants in Shifting Vegetative Communities Across a South Texas Rangeland

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Abstract: Grassland ecosystems are threatened by land use conversion and fragmentation. Grasslands can be fragmented by encroachment of native woody species and the spread of nonnative and invasive grasses. These processes can lead to shifting vegetation structure that may impact vegetative communities and the wildlife species that occupy them. We evaluated the impacts of woody encroachment and invasive grasses on the coverage of vegetative communities at the Welder Wildlife Refuge in San Patricio County, Texas, USA. We measured vegetative structure and species composition across 145, 10 m diameter, plots spaced 500 m apart in 2024. We determined coverage of vegetative communities using supervised classification of aerial imagery and validated these classifications using field data. We compared these generated classifications of vegetation communities across the property to maps of historical vegetation communities. A combination of previous research results and remotely sensed datasets indicated that woody encroachment (e.g., species such as Honey Mesquite (*Neltuma glandulosa*) and Huisache (*Vachellia farnesiana*)), had increased during the past 4 decades. Invasive grasses like Old World bluestems (*Dichanthium spp.* and *Bothriochloa spp.*) became established on the property during the 1980’s and are now dominant species in areas containing clay soils. This work will

be used to evaluate the drivers behind vegetative invasion across rangelands and provide managers information on where to focus efforts to control invasive vegetation.

18. Analyzing the Effects of Pine Plantation Developmental Stage on Wildlife Diversity Using a Multi-taxa Approach

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Abstract: Timber plantations in the Southeastern U.S. are predominantly composed of loblolly pine, forming monocultures of this species in forests across the region. As pine plantations are continually being replanted, grown, and harvested, different developmental stages can be found across the landscape. Our goal was to utilize a multi-taxa approach to better understand the effects of developmental stage on wildlife diversity by sampling insect floral visitors, amphibians, reptiles, birds, and mammals within loblolly pine plantations to determine diversity in wildlife assemblages among early establishment (EE) and mid-rotation (MR) stands. Twelve sites, with each containing one EE (0-4 years old) and one MR (18-29 years old) pine stand, were sampled, i.e., a paired-plot sampling design. The following techniques were utilized for sampling wildlife: automated recording units, blue vane traps, camera traps, coverboards, and opportunistic encounter surveys. We hypothesized EE pine stands to have significantly higher species richness levels for insect floral visitors and reptiles, while MR pine stands would have significantly higher species richness levels for amphibians with both stand types having similar avian and mammalian richness levels. We additionally expected significant differences in the species compositions between all taxa, apart from the mammals. Results from our study showed that no taxa groups had significantly different species richness levels between either developmental stage. However, species compositions between both developmental stages were more variable for some taxa. In conclusion, while diversity levels between stand types were non-significant, managers should still provide multiple stages of pine stand development to maximize wildlife diversity.

19. Feathers in the Frame: Exploring the Opportunities and Limitations of Camera Traps in Avian Research

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Abstract: Camera traps are non-invasive tools used to monitor wildlife across a wide range of ecological applications. Researchers utilize camera traps to assess wildlife distributions, diversity, population trends, and behavior. Camera traps are typically used for mammalian research, but avians are occasionally documented through bycatch. Larger birds were expected to be more likely to trigger camera traps and stay in the frame long enough to identify. Additionally, it was expected that species who forage near the ground, such as upland game birds, were to be captured more often compared to species that forage within the canopy. The documentation of avian activity and diversity levels may facilitate ways to prioritize crucial habitats for breeding, feeding, and migration stop-overs. For this study, 24 camera traps were deployed over six months across 12 sites throughout East Texas, each yielding one early establishment (0-4 years of age) and one mid-rotational (18-29 years of age) stand of loblolly pine (Pinus taeda) plantation, i.e., a paired plot sampling design. To determine the efficacy of utilizing camera traps in documenting avians, the occurrence and diversity of these avians were evaluated, along with the likelihood of capture based on life history traits (i.e., ground-nesting birds). Out of over 20,000 wildlife captures, >5% of captures were of avians. In total, 12 species were documented. Larger species and species with ground-associated life history traits were most captured on camera . The most documented species was the American crow (Corvus brachyrhynchos) and small passerines were the least documented.

20. Evaluating Native Bee Communities in Habitat Restored for Upland Game Birds in East Texas

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Abstract: Bees are responsible for the reproduction of many wild flowering plants and about 85% of crops. Some bee populations have experienced major declines in recent years. Habitat management can be an effective tool to mitigate the stressors impacting bee populations. Management tools such as return of natural disturbance regimes (e.g., prescribed fire), planting native plants, and mowing can help restore habitat to historical conditions. My research aimed to investigate how upland game birds may act as umbrella species in management for native bees. I compared *Bombus* spp. assemblages in sites that had been restored as habitat for upland game birds and those that had remained unrestored from June to August 2024 in five counties in East Texas using blue vane traps. I also measured habitat characteristics and floral abundance and diversity at each site. I conducted a GLM using a negative binomial distribution to examine *Bombus* spp. abundance across restored and unrestored sites. The analysis revealed a statistically significant difference in bee abundance, with restored sites supporting a greater abundance of bees compared to unrestored sites. Habitat in

restored sites was typically characterized by greater floral abundance and diversity, lower vegetation density, lower canopy cover, and a greater abundance of grasses. These results can guide landowners in effectively managing habitat for bees within the scope of established management plans for other species such as upland game birds.

21. Winter is Coming: Understanding Winter Activity Patterns and Occupancy Status of Tricolored Bats Throughout Texas

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Abstract: Tri-colored bats (*Perimyotis subflavus*; PESU) were once one of the most common and widely distributed bat species across the United States. However, populations have experienced great declines since the introduction of white-nose syndrome (WNS) in 2006 – ultimately leading to its proposed Endangered status. In 2024, WNS was detected on PESU in Texas, further highlighting the species' vulnerability. Bat activity was once widely believed and accepted as uncommon during the winter, but recent research has demonstrated that many bat species remain active. However, little is known about PESU winter behavior outside of hibernacula. To better understand acoustic activity of PESU across temperature and latitudinal gradients during the winter, we recorded nightly echolocation calls using the North American Bat Monitoring Program (NABat) protocol. We used 49 NABat grid cells, each 10 km2 with two detectors, across the state of Texas from December through March 2020–2023. We selected two 4-day periods per winter month (i.e., 8 periods/year, 24 total) for multi-season occupancy analysis. We assessed the influence of landcover at 10-, 25-, and 50-km radii around each recorder. Additionally, we examined the influence of daily minimum and maximum temperatures to explore winter temperature thresholds. Preliminary results indicate that PESU remain active throughout the winter despite daily low temperatures of -5.6°C, though this may be infrequent. Knowledge of winter ecology is essential to develop effective conservation action plans for imperiled bat species whose populations are at-risk from WNS.

22. Sustainable Grazing Effects on Spider Communities in North-central Texas Rangelands

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Abstract: Arthropods contribute ecosystems services to rangelands, such as pollination, nutrient cycling, pest regulation, and as a food source for other wildlife species. Spiders (Arachnida: Araneae) play a crucial role in top-down regulation of herbivorous insect prey that otherwise reduce availability of forage for wildlife and livestock; however, spider assemblages could be negatively affected by unsustainable rangeland practices, such as intensive grazing by domesticated livestock. The purpose of our study was to determine the influence of grazing on spider communities in north-central Texas. Specifically, we sought to: 1) quantify changes in vegetation communities in rangelands under different grazing pressures; 2) determine the relationship between grazing pressure, spiders, and their arthropod prey; and 3) identify the best range management practice to promote occupancy and biodiversity of spider communities. Field sites include ungrazed, previously grazed (0.8-1.0 AUM/ha), and overgrazed (> 1.0 AUM/ha) pastures in Erath Co., Texas. We sampled vegetation and arthropods every two weeks from late April to late October 2024. We measured vegetation cover, density, and height along 30-m line-intercept transects. We sampled arthropods with one pitfall trap every 3 m and vacuum sampling every 5 m along the transects. Preliminary results suggest previously grazed areas may reduce species diversity and prey composition, with similar reductions in predatory arthropods. We hope to guide sustainable management practices and enhance biodiversity for spiders and other arthropods within rangelands and other working lands in the southern Great Plains.

23. Exploring Mycorrhizal Dynamics: A Comparative Analysis of Rotational VS. Continuous Grazing Systems

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Abstract: Desert ecosystems are vital in supporting ranching by providing essential ecosystem services despite their fragility. In regions where ranching, grazing, and wildlife management are viable, understanding how land management practices affect the ecosystem is essential. Desert grasslands are vulnerable to degradation, particularly those dominated by blue grama (Bouteloua gracilis). Management practices can significantly influence plant communities and overall ecosystem health. Different grazing systems were developed to improve ecosystem health and productivity, though their effectiveness is debatable. Blue grama helps maintain productivity in ranching operations as its health closely relates to underground processes, such as the symbiotic relationship with arbuscular mycorrhizal fungi (AMF). AMF enhances water and nutrient uptake and supports plant resilience. This study examines how different grazing

systems – continuous and rotational – affect AMF communities in blue grama across two distinct soil types – Marfa and Musquiz clay loams. Mycorrhizal colonization was evaluated using the magnified gridline intersection method after staining roots to assess these differences. Statistical analyses, including ANOVA, were conducted to evaluate mycorrhizal colonization across plots with continuous and rotational grazing on Marfa and Musquiz clay loams. Rotational grazing resulted in higher mycorrhizal colonization than continuous grazing, suggesting that rotational grazing creates more favorable conditions for mycorrhizal fungi. For landowners and ranchers in the Chihuahuan Desert, this study emphasizes the importance of adopting sustainable land management practices that support the health of mycorrhizal communities. By prioritizing rotational grazing, ranchers can reduce soil compaction, maintain vegetation cover, and support the symbiotic relationship between plants and mycorrhizal fungi.

24. Assessing Presence of Microplastics in Mississippi Kites

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Abstract: Plastic pollution poses a substantive risk for environmental, animal, and human health. Microplastics (<5mm) are especially prevalent in aquatic systems. Microplastics may more easily enter the food web and transfer from prey to predators associated with these systems. We assessed microplastic burdens in Mississippi kite (*Ictinia mississippiensis*) specimens (n = 18; 11 adult, 7 nestling) provided by the South Plains Wildlife Rehabilitation Center in Lubbock, TX. Locally, the primary prey of Mississippi kites are dragonflies (Odonata) and cicadas (Hemiptera), each of which has a life history that includes occupancy of water bodies and adjacent moist soils, respectively. Mississippi kites specimens were stored at -20° C until thawed for analyses. To minimize risk of contamination by plastic microfibers during tissue harvest, researchers wore cotton clothing, lab coats, and nitrile gloves, and all work took place on a covered table or under a fume hood. We collected breast and liver tissue from each bird, wrapped each tissue sample in aluminum foil, labeled the sample, and froze it until further processing. Prior to tissue digestion, we weighed the wet mass of each sample to the nearest gram. Bird tissues were digested in 10% potassium hydroxide solution for 24 hours and then placed in an oven at 50° Celsius. Following digestions, we filtered samples to capture plastics. Each filter was dried, then observed under a microscope with a UV light and microplastics were counted, measured, and features (color, shape) were recorded. Analyses are ongoing and final results will be presented.

25. Utilizing Blood Analysis to Evaluate Health of Collared Peccary

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Abstract: Collared peccary (Pecari tajacu) once ranged over much of Texas, but today, they are primarily found in southern and western Texas with smaller populations in the Hill Country and Rolling Plains ecoregions of Texas. Until recently, a paucity of data has been available on collared peccary with most research dating back nearly 30 years. To learn more about peccary behavior, health, and population status, several large studies were initiated in southern Texas, so as part of these studies, we will assess peccary health using body measurements and blood panel evaluation. We evaluated total white blood cell (WBC) and red blood cell (RBC) counts, total plasma protein, and relative neutrophil count due to their associations with physiological stress and nutritional status. To date, we have captured >60 peccary and analyzed blood panels for five peccary; additional results are forthcoming. We found that WBC counts (9.06-14.1 K/μL), plasma proteins (8.5-9.0 g/dL), and fibrinogen (200-500 mg/dL) were within previously reported ranges for captive collared peccary in moderate to good nutritional condition whereas RBC counts (4.5-5.92 M/μL) appeared lower than those of even nutrient-restricted individuals. Considering these values and assessment of body condition (e.g., body mass, morphometrics, age, etc.), most peccary appeared healthy. These assessments will help elucidate the interdependent relationships among peccary health and survival, reproduction, population dynamics, resource selection, and habitat quality.

26. Exploring Beetle Community Dynamics Following Long-Term Grassland Restoration Efforts in a New England Grassland

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Abstract: Arthropods are undergoing unprecedented declines in biodiversity across the globe, but the scope of these declines vary in space and time, justifying a need for examining management and conservation efforts at local scales. Some factors that contribute to arthropod declines include habitat loss and degradation and the introduction of invasive plants. Our study examines the relationship between beetle (Coleoptera) diversity and restoration efforts in a restored grassland in Suffolk Co, New York. Our study site is Fishers Island, an island 3 km off the coast of southeastern Connecticut, where 49 ha of property is managed to improve grassland diversity and reduce dominance of invasive plants since 2010. We surveyed vegetation and arthropods in summer 2024 in 15 50-m transects with 1-m2 quadrats placed at 5-m intervals. We estimated plant species richness and horizontal canopy cover within each quadrat; we also sampled beetles using pitfall traps and an insect vacuum within the same quadrat. We will identify beetles to family and assign each to a functional group. We predict that beetle family richness will positively correlate with native plant canopy

cover. We also will present associations between beetles and plant species richness, based on taxonomic and functional groups. In future analyses we will explore additional arthropod taxa and their responses to long-term restoration and compare current biodiversity to past studies. We hope to provide insight on how to promote ecological resilience for arthropods undergoing declines in landscapes dominated by invasive plants and to encourage conservation efforts of arthropods at local scales.

27. Identifying Plant-pollinator Networks Associated with Native Grasses in North-Texas

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Abstract: Long-term studies report declines in pollinator abundance and sustainable land use at global scales, highlighting the need to enhance conservation efforts at local scales. Concurrently, North American grassland ecosystems have declined, with concomitant effects on pollinator communities. Despite being primarily wind-pollinated, grasses play a crucial role to pollinators by providing nesting structure and supplemental pollen when other floral resources are limited, particularly during drought. Arbuscular mycorrhizal fungi (AMF) associate with plant roots, uptaking nutrients and priming plant health, thereby influencing components of plant reproduction. We seek to assess the efficacy of AMF on pollinator communities associated with Texas grasslands by addressing the following objectives: (1) quantify insect pollinator networks associated with a suite of native grasses with AMF infection during the flowering period in North-Central Texas, and (2) assess AMF infection on grass pollen productivity and nutritive value at early and late flowering stages. We used a randomized split plot design under 4 treatment combinations: mycorrhizal inoculum (treated with either mycorrhizae or fungicide), nutrient load (fertilizer added or absent), and 5 species of native warm-season perennial grasses. We collected data on soil, pollen, flower visitors, and floral characteristics. We monitored activity every two weeks during the flowering period. Preliminary data suggest the majority of insect visitors consisting of true flies (Diptera) and greatest visitation observed on sideoats gramma (Bouteloua curtipendula) compared to other grasses ($p<0.001$). We seek to provide a baseline for understanding aboveground-belowground trophic interactions and guide pollinator conservation initiatives in Texas grassland ecosystems.

28. Is There a Relationship Between Temperature and Songbird Egg Mass?

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Abstract: Climate change is causing global temperature increases and may consequently have negative effects on songbird reproduction. Studies have shown that birds with greater mass on hatch day have a higher survival rate. However, higher

temperatures can negatively affect egg mass, resulting in smaller clutch mass. We monitored house sparrow (*Passer domesticus*) breeding colonies in Stephenville, TX, and Fargo, ND from March through August 2022, 2023, and 2024. Our objective was to investigate the potential relationship between temperature and variation in egg mass. We predicted that egg mass would be smaller in Texas than in North Dakota, and that as temperatures within a site increase, clutch mass would decrease. We weighed each clutch after confirming clutch completion (1 day after the last egg is hatched). We calculated egg mass (g) by dividing the mass of the total clutch (g) by the total number of eggs in the clutch. We calculated mean daily temperature during the incubation period for each nest at each site using temperature data from the nearest weather station to each site. We will examine the relationship between egg mass and mean daily temperature during the laying period for each nest. By evaluating the patterns of variation in egg mass correlated with temperature we can conclude that increasing temperature may contribute to reduced reproductive success in songbirds with implications for how birds may respond to climate change.

29. Comparing Methodologies for Assessing Herpetofauna Diversity in Southern Pine Stands

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Abstract: Herpetofauna are vitally important to every ecosystem they inhabit. Documenting herpetofaunal diversity can be used to assess ecosystem health and functionality, which can be a complicated task. The ability to detect reptiles and amphibians is influenced by environmental and behavioral variables, which often result in inaccurate estimates of diversity when only a single method is utilized. For this project, herpetofaunal richness was documented using a paired-plot sampling design across 12 sites. Each site contained two plots, one early establishment (0-4 years old) and one mid-rotation (18-29 years old) stand of loblolly pine (*Pinus taeda*). To evaluate the efficacy of sampling methodologies in determining the diversity of herpetofauna, we employed coverboards (used to document fossorial and cryptic herpetofauna), automated recording units (ARUs, used to record the calls of anurans), and opportunistic encounters (OEs, based on direct observations to record any chance-encountered herpetofauna). Coverboards resulted in the fewest species detections, while ARUs and OEs provided greater species observations. However, each methodology used observed unique species. Our study highlights the value of employing several methodologies when evaluating the species richness of herpetofaunal communities.

30. Green-green Dilemma: Prioritizing Mitigation Efforts for Bats and Wind Energy

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Abstract: As renewable energy expands, bats, especially red (*Lasiurus borealis/blossevilli,* hereafter 'red bats'*)* and hoary (*Lasiurus cinereus;* LACI) bats, are increasingly threatened by collisions with wind turbine blades. This issue poses a serious risk of population declines or even extinction for these species. This conservation challenge is exacerbated by a lack of baseline data on bat activity and occupancy across the nation. To address the risks posed by wind energy development, it is essential to integrate mitigation strategies with data on bat occupancy and activity. This study investigates seasonal bat activity and occupancy in Texas from Fall 2020 to Summer 2023, using two acoustic detectors at each of 49 sites to collect echolocation calls. We aimed to identify weather variables that may influence activity in the fall, as this season aligns with the greatest wind energy-related fatalities. Results suggest significant season-specific weather variables that influenced bat activity. Humidity positively influenced LACI activity during the fall. For red bats, both temperature and humidity influenced activity, with a positive influence from temperature and a negative influence from humidity. In the future, we will integrate wind turbine locations in Texas and their MW capacity with bat occupancy data to pinpoint "hotspots" where bats may be most vulnerable. Understanding bat occupancy and activity and the factors that may influence both can facilitate informed and effective wildlife management decisions. This knowledge not only benefits bat conservation efforts but may also assist landowners in creating a cost-effective approach to regulating wind turbine operations.

31. Influencing the Next Generation of Land Stewards Through High School Engagement and Beyond

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Abstract: The Land Stewardship Ambassador program was created through a partnership with East Foundation and The Witte Museum. The goal of the program is to increase awareness of land stewardship principles, promote civil engagement in today's youth, and inspire students to obtain careers that support land stewardship. High school students were selected through a rigorous evaluation process and are admitted into a 10-week reading and writing intensive course. Three cohorts of students hailing from San Antonio (Bexar County), Brownsville (Cameron County), and Laredo (Webb County) in Texas are concurrently enrolled, totaling forty-five students. This program, which emphasizes writing and reading proficiency, necessitates students to synthesize their understanding of weekly readings focused on exemplars of land stewardship. Moreover, students participate in place-based learning at The Witte Museum, Lake Casa Blanca State Park and the San Antonio Viejo Ranch, where they acquaint themselves with the historical significance of these sites and partake in collaborative endeavors designed to cultivate a heightened awareness of land stewardship across various domains.

Based on the data from the aforementioned cohorts, 174 out of 220 alumni answered an alumni post-survey. Of the alumni polled, 67.7% reported adopting a more land-stewardship-focused awareness (ISA), 44.5% reported engaging in civic and community activities (COM), and 48.6% said they pursued a degree or career in land stewardship (CA). The degree tracks were a great discovery based on the numbers, but the program's actual success in implementing land stewardship awareness was made clear by the alumni exit surveys, exit essays, and alumni surveys.

32. Texas Wildlife and the Border Barrier System: How Species are Moving Through a Large-scale Anthropogenic Barrier

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Abstract: Landscape-scale barriers can influence wildlife population demographics and individual behaviors. Anthropogenic barriers, like fencing and highways, have been shown to impede movement and ultimately contribute to decreased rates of dispersal, gene flow, and overall connectivity between metapopulations. This loss of connectivity can create isolated populations, exacerbating the risk of inbreeding and local extirpation. Our study evaluates the potential impacts of the nine-meter-tall transboundary border barrier system between Texas and Mexico, which by definition acts as a barrier. It may be a semi-permeable barrier however, as animals are able to use openings in the fence to cross. To investigate how the barrier may be influencing movement and connectivity, we will analyze six months of camera data from 22 printer-paper-sized wildlife crossing structures and 10 inadvertent openings in the barrier structure. We will analyze the amount of animal crossings as a function of structure type, species, distance to stream corridors, and time of day using a linear regression model. To date, we have recorded the crossing structures being used by coyote (Canis latrans) and the inadvertent openings in the barrier being used by mountain lion (Puma concolor), white-tailed deer (Odocoileus virginianus), feral hog (Sus scrofa), javelina

(Tayassu tajacu), coyote, bobcat (Lynx rufus), raccoon (Procyon lotor), and striped skunk (Mephitis mephitis). Understanding the interactions of wildlife with the border barrier system and its crossing opportunities will help to inform effective mitigation strategies, ensuring that barrier systems can perform their intended purpose while allowing for some wildlife movements.

33. Assessing the Use of Drones to Monitor Pronghorn Herd Dynamics

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Abstract: Drones offer a promising future in wildlife research, monitoring, and management. We assessed the use of drones to monitor herd size and composition of pronghorn (*Antilocapra americana*) in western Oklahoma, comparing data collected from the DJI Matrice 210 V2 (hereafter Matrice) with the Zenmuse Z30 camera (30x optical zoom) and the DJI Phantom 4 Pro V2 (hereafter Phantom) with the onboard camera. We conducted 48 flights over pronghorn in July 2024 at heights of 120, 90, and 60 meters above ground level. For each flight, we performed ground composition and herd size counts to compare with drone composition (Matrice) and herd size counts (Matrice and Phantom). We used mean difference and standard error to compare ground and aerial counts for juvenile and male proportions within each group and total herd size. Further, we tested for composition differences between herds that did or didn't flee from the drone. When comparing ground counts to Matrice counts, differences (mean difference ± SE) were negligible for juvenile proportions (0.05 ± 0.03), male proportions (0.16 ± 0.07), and herd size (-0.08 ± 0.32). However, when compared to ground counts, Phantom counts underestimated herd size (-2.13 ± 0.83). When comparing herds that fled to herds that didn't, juvenile proportions (-0.02 ± 0.07) and male proportions (-0.18 ± 0.16) didn't appear to influence reaction to the drone. Our results indicate that the Matrice provides information similar to ground counts while the Phantom is less accurate. Further investigation is needed to refine flight parameters while maxing data collection.

34. Influence of Nest Insulation on Hatching Success During Extreme Heat

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Abstract: Nests are essential for a bird's reproductive success, with substantial energy invested into their construction. Nest design varies in size, shape, placement, and material, and during extreme temperatures these characteristics may influence reproductive success by providing insulation. Our study evaluates house sparrow (*Passer domesticus*) hatching success in Stephenville, Texas associated with nest site characteristics and temperature. Under the hypothesis that nest boxes and nest material have insulator properties to maintain temperature, we predicted hatching success will be higher in boxes with high amounts of nest material and in boxes located in cooler sites. We monitored nests during the March–August 2024 breeding season. We measured hatching success as the proportion of hatched eggs surviving to post-hatch day 2 relative to initial clutch size. We quantified nest size using a 1–5 scale, and we recorded solar orientation, shade (scale of 1-3), and box mounting structure (e.g., stone or metals). We recorded internal nest temperature on incubation days 4–8 and ambient temperature across the study area using iButtons. Preliminary results (n = 38 nest boxes) showed mean nest temperature was lower than mean ambient temperature for most boxes, but nest site characteristics did not explain mean nest temperatures. Additionally, as temperatures increased across the season, there was a greater reduction in box temperatures relative to ambient, which supports the assumption that nests buffer high ambient temperatures. This study will increase our understanding of how nest characteristics of cavity-nesting birds influence hatching success with implications for climate change.

35. Body Size Diversity and Correlation Among Characiformes Fish in the Essequibo River, Guyana

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Abstract: The order Characiformes includes ecologically and morphologically diverse fishes that occupy various habitats in Neotropical rivers. It contains well-known species like piranhas and tetras, which display a wide range of trophic specializations and body sizes. Given this diversity, we aimed to explore the distribution of body sizes in characiform fishes from the Essequibo River near Iwokrama Forest, Guyana. Fish surveys were conducted in May 2024 using various fishing gear to sample different habitats, including the main channel, floodplain lakes, and creeks. Characiforms were identified to the lowest taxonomic level (genus or species), counted, and the body size

of five individuals was measured when available. In total, 58 species from 31 genera and 12 families were collected, with most species coming from the main channel and creeks. The families Serrasalmidae (piranhas) and Characidae (tetras) had the greatest species richness. Species in the Serrasalmidae exhibited the most variability in body shape and size, while the largest individuals collected were in the family Cynodontidae (payara or vampire fish). A few species were collected from unique habitats; for example, the hatchetfish (Gasteropelecidae) and the wolf characin Hoplias (Erythrinidae) were found in shallow creeks with leaf litter and vegetation, while the pinktail surface-dweller characin Chalceus (Chalceidae) was only collected in the marginal shallow areas of the main channel. Future research will focus on quantifying the trophic position of Characiformes using stable isotope analysis of Carbon and Nitrogen to examine body size and trophic position across families and habitats in the Essequibo River.

36. Avian/Solar Interactions During Fall Migration Through the Central Flyway

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Abstract: As the development of photovoltaic (PV) solar power facilities expands throughout Texas, and because Texas is part of the Central Flyway migration path, there is an inherent need to understand how solar facilities affect avian functional diversity as birds migrate through Texas. To investigate relationships, we will compare community composition during fall migration between PV solar facility sites and reference sites with habitat comparable to solar sites prior to development. To collect data, we will assign transect plot locations at each site for trail cameras and acoustic recorders, and we will program acoustic recorders to record bird calls daily for 4 hours, starting after sunrise, and trail cameras to capture multiple images once they are triggered. We will collect data for 12 weeks during fall migration, August 15 – November 8. To compare avian functional diversity between solar and reference sites, we will determine the functional richness, functional evenness, and functional divergence of all sites using community composition data and determining how traits of species observed effect their ecosystem (i.e. functional effect traits). Because anthropogenic change and solar development have been linked to reduced species abundance, richness, and functional diversity in birds, we predict that avian functional diversity will be lower at the solar sites compared to the reference sites. Determining avian functional diversity can assist solar site managers in making informed decisions on how to manage/improve site quality for wildlife for current and future PV solar facilities.

37. Painted Bunting (Passerina ciris) Nesting Success in North Texas

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Abstract: Painted Buntings (*Passerina ciris)* is a species of conservation concern, as populations have faced declines over the past several decades. We aimed to analyze the nesting success of Painted Buntings in North Texas and recorded 115 active nests during the breeding season from May through August in the years 2020-2024. We observed variables such as nest height, substrate height and species, and month found across two study grids at Lake Lewisville Environmental Learning Area (LLELA) in Lewisville, TX. Of the 115 nests, 40 (34.78%) were recorded as successful. Brown-headed Cowbirds (*Molothrus ater*) parasitized 15% of active nests, but success between parasitized and non-parasitized nests was relatively insignificant (P = 0.9706). Painted Buntings in our study preferred to nest in Cedar Elm (*Ulmus crassifolia*), with 47 out of 115 nests found within this substrate. The average substrate choice height was 4.64 m, and the average nest height was 1.47 m. Additionally, Painted Buntings preferred Bison Range, the grid with the most open habitat, to our more dense, woody study grid, Barn Owl Ridge. Data on Painted Buntings in the western population, specifically on nesting success, has been understudied. As Painted Buntings face threats like illegal bird trade and habitat loss, it is crucial to determine what factors are most important to Painted Buntings for their nesting success. Areas like North Texas have faced increasing development, which may harm avian populations such as Painted Buntings. Understanding these variables could provide insight into conservation efforts for Painted Buntings to prevent further population declines.

38. Classifying Wintering Roost Sites of American Kestrels in North Texas

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Abstract: American Kestrel (*Falco sparverius*) populations have been steadily declining since the 1960s. Many studies within their breeding grounds have attempted to understand this decline, yet the cause remains unknown. Here, we present data and examine roost use by American Kestrels within their wintering territories in north Texas. Using radiotelemetry, we tracked kestrels to their roost sites at dusk in Denton County, Texas. Our observations suggest kestrels predominantly roosted in manmade sites (88.9%) compared to natural sites (11.1%). Among the manmade roosts, 50% roosted in the hollow arms of electric transmission poles, with the remainder in barns and within holes or gaps under the rafters of buildings. Additionally, based on a limited sample (n = 7), kestrels used the same roost site during successive nights and entered their roosts on average 34.8 min before sunset (range = 172 min before sunset – 69 min after sunset). Cavity roosts were located on average 156.4 m from the nearest foraging location (a 95% MCP point) and 664.3 m from the nearest core foraging location (a 50% MCP point). These observations, though preliminary, suggest that the availability of winter roost sites may limit winter habitat use by American Kestrels. We suggest that high quality roost sites may be a limiting factor for kestrels and that kestrels must make tradeoffs between roost site quality and territory quality when establishing a home range.

39. The Impacts of Imidacloprid Exposure on Ring-necked Pheasant Growth and Survival

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Abstract: Ring-necked pheasants (*Phasianus colchicus*) are important upland gamebirds experiencing population declines throughout portions of its U.S. range. In the Southern High Plains of Texas, > 95% of the landscape is in industrialized agriculture, with ubiquitous neonicotinoid insecticide use on corn, soy, wheat, and cotton seeds prior to planting. Free-ranging pheasants commonly consume waste grains and exist in relatively constant contact with these insecticides. Therefore, we are examining impacts of Imidacloprid on pen-raised pheasants, using three levels of treated feed to examine how ingestion of Imidacloprid affects pheasants during the first 22 weeks of life. We are using 64 pheasants starting at 16 weeks old, and one group of 32 starting at 7 weeks old, all with an equal sex ratio. We collected body mass and condition, red blood cell count, white blood cell differential, hematocrit, and blood serum chemistry profile data every two weeks until termination. Mass spectroscopy will be used to measure Imidacloprid concentrations in feathers, liver, and kidney tissues. To date, body mass varied among treatments, some individuals lost mass during the first week of elevated exposure, while controls gained mass through the feeding trials. Preliminary blood chemistry data indicate mean total protein as 3.5 g/dL, while individuals exposed to medium or high-level treatment had greater chances of total protein concentrations falling < 3.0, indicating liver or kidney issues. This research will provide baseline information on impacts of Imidacloprid on pheasant growth and development, which may be useful for both free-ranging and captive-reared populations.

40. Occurrence of Cryptic-Owl Species in the Fort Davis Mountains

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Abstract: Several cryptic owl species are present in the Davis Mountains but have only been detected occasionally. Flammulated owls (*Psiloscops flammeolus*) are a rare migratory species that are thought to arrive in West Texas during the summer and are found primarily in dry forests with tall coniferous trees. Northern saw-whet owls (*Aegolius acadicus*) may occur year-round and prefer dense coniferous forests. Western screech-owls (*Megascops kennicottii) occur year-round in the Davis Mountains and are adaptable to a wide range of habitats. Elf owls (Micrathene whitneyi) are found only in the summer in the western part of the state. They nest in tree and cactus cavities in desert woodlands and pine-oak forests. To detect these four species, we placed* automated recording units (*ARUs) in suitable owl habitat within the Davis Mountains Preserve (DMP), which is owned by The Nature Conservancy. The ARUs were set to*

record from 18 June until 17 July 2023. We are using BirdNet and Kaleidoscope software to detect species based on their unique calls. Of the nine ARU locations analyzed so far for the month of June, we have detected flammulated owls, northern saw-whet owls, and western screech-owls at six locations each, and elf owls at two locations. Each location had at least one target species present, and three locations had three target species detected. *Ongoing work will include analyzing the rest of the data and conducting field surveys at the DMP to confirm owl presence at each ARU location.*

41. A Systematic Review of Extreme Climatic Events and Their Impacts on Avifauna

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Abstract: Extreme climatic events (ECEs), defined as climatic events where conditions occurring are rare relative to the distribution of those conditions and also result in an extreme negative biological response, are increasing in frequency and severity as a result of pressures from global climate change. Research investigating extreme climatic events on biological communities can disagree or even ignore an operating definition of an ECE, resulting in possible ambiguity in determining impacts of true ECEs. To highlight these challenges, we sought to determine the current state of research on ECEs relative to avifaunal species at a global extent. More specifically, we performed a systematic review of literature focused on avian responses during ECEs to better understand: 1) how the literature is defining ECEs (correctly or incorrectly), and 2) are there biases in reporting ECE impacts on birds? In June-July of 2024, we collected published literature from the Web of Science and Scopus using a Boolean search string that was established with the R package *litsearchr.* All articles identified from a naïve search went through an initial abstract review with systematic inclusion criteria (*n* = 630), and a subsequent full-text review with improved inclusion criteria (*n* = 237). Ultimately, we identified 123 articles meeting our inclusion criteria. Research on avifauna responses to ECEs spanned 50 countries, and included events such as hurricanes, droughts, and sub-freezing winter storms. Data gathered from these articles will provide refined criteria on researching ECEs and biases in reporting specific bird groups, types of ECEs, or geographical regions.

42. Comparing Presence/Absence Methods for Detecting Montezuma Quail

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Abstract: Montezuma quail (*Cyrtonyx montezumae*) are one of the most understudied gamebird species in North America. They can be found mainly in Mexico but also in certain areas of Arizona, New Mexico, and the Edwards Plateau and Trans-Pecos regions of Texas. Their unique coloration and behavior of crouching or flushing at the last second makes them difficult to study. We assessed 2 different presence/absence survey methods to determine which has a greater detection rate. The first method was the use of autonomous recording units (ARUs) to obtain acoustic recordings. The second method was visual detection of digs. The study was conducted on the Davis Mountains Preserve in Jeff Davis County. We randomly selected locations to place 20 ARUs. Each ARU recorded every day at 10 minute per hour intervals for 3 hours beginning at sunrise. We walked transects within a 200m-diameter circle around each ARU and documented dig presence. We used BirdNET to analyze ARU data that was recorded 3 days prior to each dig survey. Out of the 20 ARUs, we checked 16 of them twice and 4 of them once. There were a total of 22 detections, 8 of which had only

vocalizations, 9 had only digs, and 5 had both detection methods. Using the Jaccard index statistic, we calculated a 0.227 similarity between vocalization and dig presence. Therefore, combining both methods is the best approach for evaluating the presence of Montezuma quail.

43. Dispersal Movements of Marked Harris's Hawks Among Territories in South Texas

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Brooke Poplin, University of North Texas, Denton, TX, USA

Abstract: Previous research has demonstrated that juvenile Harris's Hawks (*Parabuteo unicinctus*) throughout their range delay dispersal and remain in their natal territory for 12 to 36 mo. We have captured Harris's Hawks with bal-chatri traps and marked them with coded anodized bands in south Texas since 2018. Also, at accessible nests, we banded nestlings with coded bands. In most years (2018-2023), we attempted to census territories in both spring/summer and winter and re-sight banded hawks. We have documented that some juvenile and adult auxiliary Harris's Hawk group members do not remain with the groups in which they were originally marked. We have observed the apparent integration of (43) hawks into different groups from 2018 to 2023. When comparing mean distances moved for the hawks related to age, we found that the average dispersal distance for nestlings was 8.30 km (range of 3.54-17.86 km, sample size of 5), the average distance moved for juveniles was 8.90 km (range of 1.45-20.12 km, sample size of 12), and the average distance moved for adults was 11.82 km (range of 1.61-71.94 km, sample size of 26). There was no significant difference in the average distance moved between nestlings/juveniles and that of adults (P = 0.784). Males dispersed further (mean = 11.92 km) than females (mean = 7.76 km), but this difference was not significant (P= 0.362). Our findings seem contrary to the reported male-biased philopatry observed in most species of birds.

44. Differential Sex-based Winter Foraging Strategies of American Kestrels in North Texas

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James Bednarz, University of North Texas, Denton, TX, USA

Abstract: American Kestrels (*Falco sparverius*) exhibit sexual dimorphism, with females being about 10% larger than males. Previous studies have highlighted the ecological implications of sexual dimorphism in birds, particularly in relation to foraging behavior. However, the specific winter foraging strategies influenced by sex in American Kestrels remain unclear. In this study, we utilized radio telemetry to track kestrels within their wintering home ranges in Denton County, Texas and conducted 30-min spot-observation sessions on marked individuals. We recorded data on six males during 30 spot-observation sessions and five females during 44 observation sessions. Analysis

revealed females made a mean of 4.7 foraging attempts/30 min, while males made a mean of 3.4 attempts. Additionally, females exhibited a higher average foraging success rate, with 26.2% of foraging attempts resulting in prey capture, compared to a 25.8% average success rate for males. Prey selection differed between sexes. Males preferred invertebrates (90%) as well as taking rodents (5%) and birds (5%). Crawfish made up half of the invertebrates from one male. Meanwhile, females predominantly chose invertebrates (95.5%), while rarely preferring birds (4.5%). Invertebrates constituted a substantial part of both male and female kestrel's diet. Our results are somewhat contrary to the intersexual-competition hypothesis proposed to explain reverse sexual dimorphism in raptors, as both sexes appear to employ a generalist and efficient foraging strategy in the winter. Quantifying sex-specific foraging behaviors in the winter is essential for understanding the ecological and population dynamics of this declining species.

45. Factors Influencing the Body Condition of American Kestrels During the Winter in Denton County, Texas

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Abstract: American Kestrels (Falco sparverius) are in decline across North America. Here, we examined how selected variables may affect the condition of the American Kestrels over their wintering period. We captured primarily wintering migratory kestrels between 2017 and 2023 from December through February with Bal-chatri traps. We trapped, marked, and measured the wing chord and mass of 125 male and 164 female kestrels. A simple condition index (mass/wing chord) was used to examine how the body condition of kestrels varies through their time wintering in north Texas. We found that month and sex have a significant ($P < 0.001$) influence on condition index values. Females on average had a higher condition index value (0.63 – 0.68) than males (0.60–0.63), while both sexes of kestrels (female $R^2 = 0.987$, male $R^2 = 0.964$) exhibited a decline in condition over the course of winter. As documented in the literature, female kestrels secure higher-quality open grassland habitats compared to males. As females dominate males and secure higher-quality winter territories, this may explain their ability to maintain a higher winter condition than males. The body condition of both sexes declined by 5 – 7% over the winter season. Kestrels in our north Texas study area migrate north in early March; thus, declining winter body conditions could place kestrels at risk during their energetically demanding spring migration and have negative carry-over effects on their nesting success.

46. Predator Identity Shapes the Diversity of Larval Amphibians in Ponds from East Texas

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Abstract: Predation and environmental conditions shape populations and communities across ecosystems and have carry-over effects across time. Here, we explored the impact of different top predator regimes (TPR) and abiotic factors (AF) on tadpole species richness (SR) over time, by comparing historical (2007 – 2008) and contemporary (2021 – 2023) surveys, and seasons (spring, summer, fall, winter). We evaluated four TPR: Largemouth bass (B), Green sunfish (G), B and G combined (BG), and salamander/invertebrate predators (SI), and five AF, such as woody debris, canopy cover, vegetation, pond area and depth in 25 ponds in East Texas. In total, we found tadpoles belonging to 11 amphibian species. Ponds with G predators consistently exhibited the lowest SR in all seasons compared to ponds with SI, BG, and B predators. Fall and winter presented lower SR compared to spring and summer. When evaluating the TPR and AF using a multi-model approach, we found that the predator regime is the most influential variable explaining SR variation, outperforming models containing AF. These findings highlight the importance of top predator identity in structuring larval amphibian communities. Ponds with SI predators and to a lesser extent BG and B serve as a biodiversity reservoir for amphibians. From a management perspective, managing the predator identity for larval amphibians has important implications for the overall anuran community and ecosystem. Specifically, managing G ponds is important to mitigate their detrimental effect on tadpole SR, while maintaining SI or even B and BG predators might promote amphibian resilience across the landscape.

47. Assessing Potential Exposure of Northern Bobwhite to Microplastic Pollution

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Abstract: Recently, exposure of wildlife to microplastic (MP) pollution has received increasing attention. Ingestion of MPs may result in physical effects including obstruction of the digestive tract leading to a false sense of satiety. Concomitantly, chemicals associated with MPs may serve as endocrine disruptors with the potential to alter behavior, breeding success, and survival. Most research in this regard has focused on marine birds, yet relatively little is known about the exposure of terrestrial birds to MPs and the associated effects. Moreover, of the limited studies conducted in terrestrial systems, most have considered birds in human-disturbed areas where MP pollution is presumably relatively high. Given atmospheric deposition is likely a major transportation pathway for MPs, birds in less-disturbed areas far from point sources of MP pollution may also be exposed. In South Texas the Northern Bobwhite (*Colinus virginianus*; bobwhite) inhabits relatively undisturbed rangelands. Yet, whether bobwhite are

exposed to, and potentially negatively affected by MP pollution is unknown warranting further investigation. As a first step to addressing this knowledge gap, we will evaluate MP exposure of bobwhite in South Texas by examining MP loads in digestive and respiratory tracts from hunter-harvested birds, thereby exploring multiple pathways of exposure (i.e., ingestion and inhalation). By providing insight into (1) whether bobwhite are at risk from MP pollution, and (2) the potential pathways by which bobwhite are exposed, results from this project can be used to inform future studies that evaluate the consequences of exposure for this economically important species in South Texas.

48. Painted Bunting Distribution: A Spot Map Report for LLELA Nature Preserve, 2024

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Abstract: The painted bunting (Passerina ciris) is a brightly colored songbird native to the southeastern United States, Mexico, and Central America. Males of the species display vivid plumage in shades of blue, red, and green, while females and juveniles have more muted colors, showcasing sexual dimorphism. Male painted buntings exhibit highly territorial behavior during the breeding season, using a combination of vocalizations, displays, and physical confrontations to establish, maintain, and defend their territories. To better understand the species' territorial boundaries and population density, as well as social patterns like overlap, clustering, and isolation, sixteen spot maps were created—eight for each of two grid systems within the LLELA Nature Preserve. Data for these maps were collected by recording vocalizations of Passerina ciris during the early morning hours, shortly after sunrise, which aligns with the species' peak activity. During the 2024 summer season, territories often overlapped slightly, with males coexisting at the edges of their territories. Sustainable habitat conditions within the grid systems resulted in areas with high territory density. In the Barn Owl Ridge grid, the densest territories were found between lines Z–C (horizontal) and 4–8 (vertical). In the Bison Ridge grid, the highest density occurred between lines C–F (horizontal) and 3–6 (vertical). These dense pockets are likely due to suitable habitat and proximity to observation feeders. Understanding the dynamics of painted bunting male territories provides valuable insight into their breeding ecology and can inform conservation efforts, especially in areas where habitat destruction threatens their populations.

49. Effects of Particulate Matter$_{2.5}$ on Monarch Butterfly Oviposition Preference

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Abstract: Monarch butterflies (*Danaus plexippus*) have experienced considerable population decline in the United States and Mexico, but the primary factor for their decline is heavily debated. Particulate matter ($PM_{2.5}$), which primarily comes from the combustion of gas, oil, and fuel has been shown to impact the oviposition preferences of other herbivorous insects. Our goal was to find if particulate matter levels around urban greenspaces impacted site preference for oviposition of monarchs. We measured the number of neonates per milkweed (the preferred host plant for monarchs) from 15

sites in the Chicagoland area, surveying common milkweed (*A. syriaca*), swamp milkweed (*A. incarnata*), and prairie milkweed (*A. sullivantii).* Each site was visited twice, and the average $PM_{2.5}$ level from the week of data collection was drawn from the air quality monitoring database on Purple Air's website. Analysis in R-Studio found a statistically insignificant positive correlation between observed $PM_{2.5}$ and Monarchs/Plant at a site ($r^2 = 0.097$, $p = 0.094$). This surprising positive correlation may be due to fewer available green spaces and/or milkweeds in areas with the greatest pollution. Since the monarch population fluctuates annually, using data that spans many years will better indicate the relationship between $PM_{2.5}$ and monarch health. Future goals include using more air quality monitors to allow for a greater data pool and observe the impacts of other aspects of air quality, such as other forms of particulate matter and ozone, on monarchs.

50. Population and Spatial Ecology of Collared Peccary in the South Texas Plains

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Abstract: Collared peccary (*Pecari tajacu*), also known as javelina, are a game species occurring in certain parts of Texas. Despite being a game species, information needed to guide collared peccary management is sparse. There is evidence that populations may be declining in Texas, and the reasons are not well understood. Our work includes four focal areas aimed at improving our understanding of collared peccary ecology and increasing public interest in the species, which will aid research and conservation efforts. First, we will evaluate cameras, roadside, and helicopter survey methods for estimating abundance of collared peccary in South Texas. Second, we will develop models of population dynamics as it relates to population abundance, harvest, survival, and reproduction. Third, we will develop habitat suitability models for collared peccary across South Texas using spatially referenced data collected during camera and helicopter surveys and from GPS collared animals at six study sites. Fourth, we will develop educational media to elicit public interest in collard peccary management. These efforts will identify factors related to distribution, survival, reproduction, and abundance of collared peccary, create user friendly tools (e.g. maps and web-based population models), and allow Texas Parks and Wildlife Department biologists and private landowners to effectively manage collared peccary.

51. Factors Influencing Diets of Wild Pigs (Sus scrofa) in the Neches River Basin of the Piney Woods Region of Texas

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Abstract: Few studies have observed the diet composition, diversity of diets, and range use of wild pigs (*Sus scrofa*) in the United States, and most have had specific objectives towards agriculture production. Our objectives were to document the diet composition of wild pigs in the Neches River Basin of the Piney Woods region of Texas seeking to make specific inference about factors prompting changes in diet among animals throughout the year to determine influence of environmental factors throughout each calendar season and determine influence of age, sex, and pregnancy status on diets as a method of better understanding range and habitat use in this region. We collected samples of stomach contents from wild pigs harvested by personnel at the Boggy Slough Conservation Area, and neighboring property. A total of 84 wild pigs were sampled spread across a 12-month sampling period, March 2023-February 2024. All samples were processed to identify the diversity of items consumed and the abundance of each food item consumed from each individual sampled. We found that seasonal factors had a significant impact (P=0.001) on the diets of individuals across all wild pigs. As temperatures increased, the diversity of diets decreased, but the abundance of all food items varied throughout the sampled population. Results also showed that age had significance (P=8.206e-05) in the diversity of a wild pig's diet, with sub-adults and juveniles' diets being less diverse than those of adults. There was no significant difference found in diets between males and females or bred and non-bred females (P-values).

52. Unified Approach to Managing Wild Pigs in US National Parks: Evaluation, Review, and Implementation.

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Abstract: Invasive species are in direct opposition to the mission of the National Park Service (NPS) to conserve nature and history. One species in particular, the wild pig (*Sus scrofa*), significantly damages ecological, cultural, and historical resources as well as impacts visitor experience and NPS operations. Wild pigs are expanding their presence in North America, both in range and abundance. Successful management relies on a well-developed and structured plan, coordination with the public, and a

constant eye on invasion. With a total of 431 properties across the nation and about 40 of those reporting the presence of wild pigs as of 2023, efforts to manage wild pigs have been inconsistent and disjunct across parks. We aim to create a unified approach for wild pig management in NPS; we will achieve this by reviewing the presence of wild pigs in NPS, assessing park experience with wild pig management–focusing on successes and obstacles–and evaluating the relationships between park attributes and successful management methods. Several pilot parks who represent a diversity of ecosystems, resource and administrative capacities, and management priorities will test the unified management plan, helping us finalize it to ensure it has the flexibility to adapt to the variety of park attributes. This project will unify wild pig management within NPS and contextualize the use of an adaptable natural resource management plan across a diversity of public lands.

53. Economic Assessment of Losses to Bird Predation on Aquaculture Farms in Texas

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Abstract: Bird predation poses a significant economic challenge to aquaculture producers in Texas where avian species target fish stocks. This wildlife damage complicates the conservation of such avian species, as well as sustainable, farmed production of fish species for human consumption. It is essential to rigorously examine impacts to aquaculture production from specific piscivorous bird species to provide for precision wildlife damage management. Most research to date focuses on aquaculture in the southeastern United States. By contrast, this project aims to identify the most problematic species affecting coastal aquaculture farmers and estimate the economic losses on those farms. We evaluate the costs associated with bird predation on Texas coastal aquaculture farms using an economic modeling approach that considers estimates of abundance of fish-eating birds, with diet analysis across fish-eating bird species on a variety of aquaculture production operations on the middle gulf coast of Texas to ensure an accurate representation of avian predation to aquaculture in this region. This project covers a wide range of properties, ranging from more inland to directly on the coast, which in turn will provide an opportunity to sample a variety of piscivorous birds. By quantifying the consumption patterns and economic impact of bird predation on aquaculture operations, this research provides valuable insights for farm managers to develop efficient strategies for managing avian predation in aquaculture settings, thereby ensuring the long-term viability of the industry in Texas.

54. Progressing Rangeland Management Through Drone-Based Data Acquisition for Vegetation Cover Structure

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Abstract: Over the past 50 years, remote sensing has advanced rangeland studies, with recent high-resolution satellites capturing data with greater spatial and temporal detail. Drones have further revolutionized monitoring by linking satellite imagery to fieldwork, enabling precise measurements of vegetation cover, forage biomass, vegetation changes, and wildlife habitats. Drone-derived 3D models and technologies like LiDAR allow for detailed land cover analysis and insights into fine-scale ecological processes. However, evaluating how drone-based sensors interact and integrating their data into rangeland metrics remains a challenge. This study aims to assess the relationship between field vegetation data and drone remote sensors (e.g., hyperspectral, multispectral, LiDAR). Research will be conducted at La Copita Demonstration Research Area (Jim Wells County) and K Bar D Ranch (Bosque County), focusing on land cover types and vegetation structure (e.g., plant height, density). Approximately 80-100 locations will be marked using satellite imagery, followed by drone-based image collection. Field vegetation cover data will be gathered using traditional techniques, supplemented by 3D vegetation structure captured via a terrestrial mobile station. These results will inform methods to help ranchers and managers use drone data more efficiently to assess rangeland productivity and sustainability.

55. Is Bigger Always Better? Comparison of GPS Collars and Solar-Powered GPS Ear Tags for Animal Movement Studies

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Abstract: Animal-borne tracking systems have provided unique insights into when, where, why, and how animals move and interact with the environment. GPS neck collars have been the standard for animal tracking studies, especially for mid to large-size mammals. However, new technological developments have helped to miniaturize tracking devices (e.g., GPS ear tags), including battery size and longevity (e.g., using solar panels). We initiated this study to quantify the difference in horizontal error and data loss between GPS Vectronic Aerospace collars and solar-powered GPS mOOvement version 1 ear tags during stationary testing and while deployed on beef cows (*Bos taurus*). Mean horizontal error was 41 m (± 1.8 SE) and 2 m (± 0.1 SE) for GPS ear tags and collars during stationary testing, respectively; during animal testing, the distance between paired ear tag and collar locations was 59.2 m (± 3.3 SE). Fix acquisition was 99.8% ± 0.2 SE for collars and 99.3% ± 0.3 SE for ear tags during stationary testing. During animal deployment, fix acquisition changed to 100% and 30.7% (± 9.1 SE) for collar and ear tags, respectively. Lower acquisition rates, driven by loss of battery life, and greater horizontal error of GPS ear tags, while on animals, may

introduce bias into estimates of movement and space use; GPS collars appear to be less sensitive to these forms of bias. However, mOOvement GPS ear tag systems are more economical than commercially manufactured GPS collars. Therefore, budgetary constraints, data resolution, and study objectives will dictate which technology to use.

56. Calling Behavior of the American Woodcock in Eastern Texas

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Clifford Shackelford, Birdscapes Wildlife Consulting, Nacogdoches, TX, USA
Hope Zubek, Texas Parks & Wildlife Department, New Waverly, TX, USA

Abstract: The American woodcock (*Scolopax minor*) is found in forested habitats across eastern North America, with eastern Texas representing the southwestern most part of their breeding range. The woodcock has a unique courtship display which begins with “peent” calls and continues with a spiraling flight that is audible to the human ear. We utilized ARUs (automated recording units) to record American woodcock vocalizations and flight displays on the Sam Houston National Forest Wildlife Management Area in eastern Texas from 19 January through 25 March 2023 and from 15 November 2023 through 14 February 2024. In early 2023, we detected American woodcock at 19 of 20 sites and in late 2023/early 2024 we detected American woodcock at 17 of 18 sites. Peent calls and courtship flights were detected at 16 of 20 sites in 2023 and 15 of 18 sites in late 2023/early 2024. Although our ARUs were not deployed in time to determine the date of first calling in 2023, the last vocalization of the season was detected on 5 March 2023. In late 2023/early 2024, the first detected vocalization was on the first day ARUs were deployed, November 15, 2023. This represents a potential 110-day window of display activity for American woodcock. In our study, woodcock were detected at nearly all our survey sites suggesting that the species was common and widespread across the Sam Houston National Forest in 2023 and 2024. Future work should focus on the effects of abiotic factors and forest management on woodcock habitat use.

57. How are Environmental Factors Influencing Hatching Failure in House Sparrows (*Passer domesticus*) Along a Latitudinal Gradient?

Lindsey Willingham, Tarleton State University, Stephenville, TX, USA
Heather Mathewson, Tarleton State University, Stephenville, TX, USA
Britt Heidinger, North Dakota State University, Fargo, USA

Abstract: Hatching failure is a common phenomenon in wild birds, with an average 10% of produced eggs failing to hatch due to either fertilization failure or embryo mortality. The mechanisms behind wild passerine embryo mortality remain complex. For optimal embryonic development, eggs require a relatively constant internal temperature

of 36º–40° C. However, ambient environmental conditions may vary across development and have a strong influence on embryo growth. When temperatures remain above the optimal temperature, embryo growth and mortality is often influenced. Due to climate change, temperature and the frequency of extreme weather events are predicted to increase, which could result in reduced reproductive success in passerines. In this study, we investigated hatching failure using a model species, the house sparrow (*Passer domesticus*), across 4 sites along a latitudinal gradient in the USA from Texas to North Dakota. We predicted that hatching failure would be higher in the lower latitudes due to higher mean daily temperatures, less rainfall, and increased relative humidity. We examined site-specific environmental differences during the incubation period such as temperature, precipitation, and humidity, distinguished between infertility and early embryo mortality, and used embryonic staging to estimate the embryos death date. We will run logistic regression mixed models to examine the influence of temperature, precipitation, and humidity on hatching failure across latitudes. This study will address how environmental fluctuations could contribute to reduced reproductive success in a model species with conservation management implications in response to climate change.

58. Call Me a Peccary or Javelina but Do Not Call Me a Pig

Kasey Pirkle, Texas A&M University - College Station, College Station, TX, USA
Jacob Dykes, Texas A&M University - College Station, Kingsville, TX, USA
Stephen Webb, Texas A&M Natural Resources Institute, College Station, TX, USA
Whitney Gann, Texas Parks & Wildlife Department, Austin, TX, USA

Abstract: Collared peccary (*Dicotyles tajacu*; family Tayassuidae), also called javelina, are a native game species in Texas, New Mexico, and Arizona. Despite being a game species, javelina are not well studied and are often confused with non-native feral hogs (*Sus scrofa*). To educate the public about javelina ecology and management, we are developing extension materials such as fact sheets, posters, and technical articles that can be distributed widely. In Texas, javelina are distributed across the South Texas Plains, Trans Pecos, Edwards Plateau, and Rolling Plains ecoregions. Javelina are characterized by a ring of white and gray hair around their neck, which resembles a collar, giving rise to the name, collared peccary. Javelina weigh 48-50 pounds when mature, breed year-round starting at 11 months if conditions are favorable, and have a 145-day gestation period, producing up to two litters of typically two young. Javelina are omnivores, feeding on prickly pear (*Opuntia sp.*), roots, mesquite beans (*Prosopis sp.*), forbs, and insects. Javelina are semi-territorial with home ranges that typically cover 90 to 364 ha, depending on the vegetation community and forage availability. Increasing awareness and appreciation for javelina will aid the Texas Parks and Wildlife Department in managing the species by fostering greater involvement and support from the public. Additionally, this will also provide valuable data on population dynamics, helping estimate size, trends, and changes over time. We summarize this information in a new Texas A&M AgriLife fact sheet, which will be made available to conference attendees using a QR code.

59. The Isotopic Niche of Alligator Snapping Turtles in East Texas

Christopher Schalk, USDA Forest Service, Nacogdoches, TX, USA
Luke Micek, Stephen F. Austin State University, Nacogdoches, TX, USA
Josh Pierce, USDA Forest Service, Nacogdoches, TX, USA
Carmen Montana, Stephen F. Austin State University, Nacogdoches, TX, USA
Jessica Glasscock, Stephen F. Austin State University, Nacogdoches, TX, USA

Abstract: The alligator snapping turtle (*Macrochelys temminckii*) occurs across the southeastern United States, but fundamental aspects of its ecology, such as its trophic ecology, are still lacking across much of its extensive range. Stable isotope ratios of carbon (δ13C) and nitrogen (δ15N) are elemental tracers that can be used to track energetic pathways and infer trophic position of consumers within food webs. We contributed to the knowledge on the trophic ecology of *Macrochelys temminckii* by using stable isotope ratios of δ13C and δ15N in tissues collected from basal resources and consumers (fishes, turtles) in three streams in East Texas (Alazan Wildlife Management Area, Shawnee, and Attoyac) where the focal species is known to occur. Tissue collections occurred from May to August 2023, including from 31 individuals of *M. temminckii* (average straight line carapace length = 36.0 cm; range =13.0 to 58.4 cm). *Macrochelys temminckii* collected from Alazan appeared to occupy a narrower isotopic niche compared to individuals collected from Shawnee and Attoyac. Stable isotope ratios of carbon suggest that *M. temminckii* are supported by autochthonous (e.g., seston) rather than allochthonous (e.g., terrestrial plants) basal resources. Based on vertical position occupied by centrarchids, catfishes, and turtles, and their nitrogen ratios enrichment, these consumers appear to be important prey supporting *M. temminckii*. Sampling across broader spatial and temporal extents will provide context as to the variability in their isotopic niche. The isotopic niche variation across sites suggests that *M. temminckii* is a generalist consumer in their habitats.

61. American Kestrel Nesting Habitat and Nestling Provisioning in the West Gulf Coastal Plain

Richard Schaefer, USDA Forest Service, Nacogdoches, TX, USA

Abstract: Both migrant and resident populations of the American Kestrel (*Falco sparverius*) occur in the West Gulf Coastal Plain (WGCP). Migrants/winter residents belong to the nominate subspecies *sparverius*. They arrive in the WGCP in late August to early October and are mostly gone by late April. The resident population belongs to the subspecies *paulus* of the southeastern United States, and reaches the western limit of its range in the WGCP. This subspecies, known as the Southeastern American Kestrel, has declined in many areas, and there has been little research in the western portion of its range. Most kestrel nests (84%) were located in forest stands managed for the endangered Red-cockaded Woodpecker (*Dryobates borealis*). We compared nest site (*n* = 44) and random site (*n* = 44) habitat variables. Kestrel nesting habitat contained fewer canopy and midstory trees, less canopy and midstory closure, greater herbaceous and woody ground cover, and less bare soil and leaf litter. Shrub height

was similar between nest sites and random sites, but shrub density was greater around nest sites. These habitat characteristics are typical of sites where forest thinning and prescribed fire are used to manage Red-cockaded Woodpecker habitat. We recorded 509 prey deliveries (males = 269, females = 240) to nest sites by breeding kestrels. Most vertebrate prey was delivered by males (81%), with green anoles (*Anolis carolinensis*) being the most common prey item (*n* = 140). Females delivered mostly invertebrates (87%), and grasshoppers were the most common prey item (*n* = 76).

62. Terrestrial Observations of Alligator Snapping Turtles in Texas

Josh Pierce, USDA Forest Service, Nacogdoches, TX, USA
Jessica Glasscock, Stephen F. Austin State University, Nacogdoches, TX, USA
Cord Eversole, Stephen F. Austin State University, Nacogdoches, TX, USA
Matt Buckingham, US Fish and Wildlife, Nacogdoches, USA
Christopher Schalk, USDA Forest Service, Nacogdoches, TX, USA

Abstract: Despite being the largest freshwater turtle in North America, observations of terrestrial activity of the Alligator Snapping Turtle (*Macrochelys temminckii*; AST) are limited. This species is highly aquatic, with terrestrial movements most often attributed to nesting activity of females. The U.S. Fish and Wildlife Service recently proposed to list AST as federally threatened under the Endangered Species Act. The use of terrestrial habitats has implications for identifying nesting habitat and movement corridors for the species. This can have implications for establishing buffer areas to protect nesting animals and habitat, for example. Thus, we synthesized reported terrestrial AST observations in Texas, in the context of time of year (day), distance to water (m), and distance to nearest road (m). To date, we have collected 34 potential terrestrial observations, 3 of which are confirmed nesting attempts. The majority of (~76%) the observations were during April–June, with ~74% being <60m of water (range = 0–295m). Thirty-two percent of the observations were documented on roads. These data have implications for mitigation of proposed activities such as timber harvest or infrastructure construction or maintenance in or near AST habitats.

63. Variations in Species Temporal Partitioning Based on Bat Community Structure

Madison Gover, Texas State University, Burleson, TX, USA
Madison Nadler, Texas State University, San Marcos, TX, USA
Maria Ramirez, Texas State University, New Braunfels, TX, USA
Sarah Fritts, Texas State University, San Marcos, TX, USA

Abstract: Niche partitioning minimizes interspecific competition among sympatric species across multiple dimensions. Insectivorous bats exhibit evolutionary adaptations in foraging strategies, prey selection, echolocation, and wing morphology. Species further partition spatially and temporally. In Texas, Brazilian free-tailed bats (*Tadarida brasiliensis*; TABR) form colonies often numbering millions. We investigated whether sympatric bats adjust their temporal acoustic activity in areas with dense TABR calls.

We hypothesized that insectivorous bats sharing airspace with large TABR populations adjust their activity to reduce competition. We studied four sympatric species: two that often roost with TABR - cave myotis (*Myotis velifer*; MYVE) and tri-colored bat (*Perimyotis subflavus*; PESU) and two that rarely do - evening bats (*Nycticeius humeralis*; NYHU) and hairy-tailed bats (*Lasiurus* spp.; REDS) Sites were categorized by TABR echolocation call density: ≥50% or <50% of total calls. Using passive acoustic monitoring, we surveyed bats across 48 locations with 84 acoustic monitors across Texas over three summers (2021-2023). We classified bat calls to species and then examined acoustic activity between species' calls using kernel density functions and overlap coefficients. Results suggest varying degrees of temporal overlap and behavioral shifts between TABR density categories, suggesting MYVE and PESU may alter their temporal activity to avoid high traffic airspace compared to the tree-roosting NYHU and REDS. Activity time distributions differed across species and years with adequate sample sizes ($p < 0.001$). This may suggest that REDS and NYHU are altering their airspace usage in response to TABR density, albeit their diel activity is not as affected.

64. Does Restoration of a Riparian Area Affect Songbird Populations and Communities?

Cameron Starnes, Tarleton State University, Kyle, USA
Zachary Bellows, Stephenville, TX, USA
Heather Mathewson, Tarleton State University, Stephenville, TX, USA

Abstract: Restoration of riparian and grassland areas is necessary to remove woody vegetation encroachment; however, this restoration can cause substantial disturbance to a system. This disturbance, or change in land cover, could negatively or positively affect species such as songbirds. Some bird species might benefit from opening the canopy and increasing edge habitat, but others might require the dense canopy cover. Our objective is to evaluate how disturbance from habitat restoration might affect songbird populations, species richness, and community diversity in riparian areas adjacent to a juniper-encroached grassland system. We conducted our study at Palo Pinto Mountains State Park, located in Palo Pinto and Stephens County, Texas from 2019–2024. The park is approximately 1,971 ha and is actively managed for increased stream flow through the removal of Ashe juniper (*Juniperus ashei*) along riparian areas and re-seeding efforts of native forbs and grasses. We have a treated site where juniper was removed in 2020 and 2021 and a control site that has received no disturbance. We conduct avian point counts during the spring, summer, and late fall early winter. At each point, we survey for 10 minutes and record species detections, both audio and visual, as well as distance and direction of the detections, and weather conditions such as temperature, wind speed, humidity, and cloud cover. This study will help us better understand how necessary restoration efforts affect songbird populations.

65. Grassland Habitat for Pollinators under Various Mowing Regimes at the Fort Davis National Historic Site

Eliana Dykehouse, Sul Ross State University, Alpine, TX, USA
Maureen Frank, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Justin French, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA

Abstract: Habitat loss and fragmentation are contributing to the global decline of pollinators, and species native to fragile desert ecosystems such as the Chihuahuan Desert are especially susceptible to these changes. Pollinators require structural heterogeneity for shelter, native flowering plants for pollen and nectar, and specific host plants for egg laying and larval rearing. Mowing, which removes floral resources and reduces structural diversity, is a management practice used to improve safety and visibility in areas of interest for tourism. Deferred or reduced mowing, however, can benefit pollinators and other insects. Managers at the Fort Davis National Historic Site are interested in balancing tourism goals with natural resource conservation through mowing regimes. Four treatment areas have been implemented at the site: deferred mowing, mowed regularly during monsoon season and as needed, mowed once in the fall, and deferred mowing with prescribed fire and mechanical brush removal. Our study objective is to quantify the impacts of the various mowing regimes on grassland vegetation and pollinator communities. We evaluated plant and insect pollinators at 75 plots across the four treatments in the summers of 2023 and 2024. To survey bees and beetles, we used bee bowl traps placed at the center of each plot and collected them after a 24-hour period. We caught caterpillars using sweep nets, and to measure butterfly density, we used remote cameras programmed to take 10-second videos twice an hour. To determine how insect community composition varies among treatments, we will analyze our data using principal coordinate analysis.

66. Fast Food or Fine Dining? Foraging Behavior of Male White-tailed Deer During the Rut

Ethan Garcia, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Alice, TX, USA
Aaron Foley, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA

Abstract: Male white-tailed deer (Odocoileus virginianus) are capital breeders in a scramble competition mating system characterized by competitive mate-searching. The accumulation of endogenous fat reserves prior to the rut allows for the reduction in time spent foraging during the breeding season. Mature males have completed skeletal growth and are able to store more fat than young males, which partially explains why mature males sire most offspring. Despite the evidence that reduction in foraging time translates into increases in breeding success, there is insufficient empirical data on male foraging behavior during the rut which limits the ability to further inferences. To improve our understanding of male foraging behavior, we placed 10 trail cameras in a 92-ha high-fenced site in Kingsville, Texas, USA that is dominated by a native shrub community. Cameras were programmed to record motion-triggered videos and will be

deployed for the duration of the breeding season (November 2024 – January 2025). Each camera was positioned in front of multiple browse species, with and without thorns, that are preferred forage for white-tailed deer. The variety of preferred browse species with a gradient of plant processing time within the same viewshed should provide insight into male foraging strategies. We will examine the change in proportion of time spent foraging by male age class and whether proportion of time spent foraging differed between brush species with and without thorns. Our results will provide insights into the trade-off between energy intake and reproductive effort.

Abstracts: Noncompetitive/Professional Poster Competition

Eagles/Chilton/Kincaid, February 20, 2025
4:00 PM – 6:00 PM

1. Resource Selection of a Recolonizing Population of Black Bears in a Desert Landscape

Caitlin Camp, Sul Ross State University, Manchaca, TX, USA
Amanda M. Veals Dutt, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Justin French, Borderlands Research Institute - Sul Ross State University, Alpine, TX, USA
Levi Heffelfinger, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Ransom Canyon, TX, USA
David Hewitt, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Louis Harveson, Borderlands Research Institute - Sul Ross State University, Alpine, USA

Abstract: Black bears (*Ursus americanus*) once occurred throughout most of North America, but because of predator control and habitat fragmentation populations declined in the early 1900s. With improved public attitudes, demographic adaptability, and effective management practices, black bear populations persisted in forested areas and temperate, montane regions with high cover. Black bear populations in Texas, however, differ as they occur in a desert environment in the western part of the state, where foraging opportunities are seasonally limited. Further, bears are naturally recolonizing Texas after decades of absence and are returning to a significantly human-altered landscape. To better understand how bears are using available resources in this altered landscape, we sought to examine resource selection by capturing and fitting GPS collars on 32 black bears in west Texas from 2022–2024. We hypothesize that resource availability is seasonally influencing black bear movements with a particular focus on climatic, habitat, and anthropogenic variables. Specifically, we hypothesize that bears will select high-quality vegetative resources, and that resource selection will vary between foraging seasons, and be influenced by drought. Lastly, we hypothesize that bears will demonstrate functional responses to anthropogenic features, such as roads and more developed areas. Black bears face numerous challenges as they continue to recolonize Texas, including a changing climate, increased security measures along the US-Mexico border, and increased access to anthropogenic resources. Understanding resource selection can greatly inform management decisions to increase human-bear coexistence.

2. Environmental Drivers and Habitat Preferences of Breeding American Alligators (*Alligator mississippiensis*)

Brandon Gross, Stephen F. Austin State University, Nacogdoches, TX, USA
Gabriel Andrade Ponce, Stephen F. Austin State University, Nacogdoches, TX, USA
Cord Eversole, Stephen F. Austin State University, Nacogdoches, TX, USA

Abstract: Reproductive ecology is one of the most heavily researched aspects of a species' life history, as reproductive success is crucial to their development, distribution, and survival. In the case of American alligators (*Alligator mississippiensis*), researchers have shown that the characteristics of breeding and nesting habitats play a significant role in their presence within wetland ecosystems. Environmental factors influence alligator distribution, and during the breeding season, their reproductive behavior is marked by highly vocal courtship rituals, making them one of the most vocal crocodylian species. Such vocalizations have yet to be recorded with autonomous recording units (ARUs) to evaluate distribution and habitat use of breeding individuals. Using vocalizations to identify breeding alligators and assess habitat presence can be used for understanding the environmental factors that drive breeding behavior and habitat selection. Therefore, the objective of our study is to determine the efficiency and preferred habitat of breeding American alligator vocalizations in Texas. In this study we will focus on three main questions: 1) Are ARUs effective methods for detecting and documenting American alligator vocalizations; 2) Where does American alligator breeding occur, and how do habitat characteristics vary across these specific breeding sites, and finally 3) What are the environmental drivers of alligator breeding behavior? To answer these questions, we will place 30 ARUs at three study sites and record data on various abiotic and biotic variables (e.g., temperature, humidity, barometric pressure, water depth and typology, vegetation cover, salinity, TDS) to determine the breeding habitat preferences of alligators through occupancy modeling.

3. Comparative Survival of Sympatric Chestnut-bellied Scaled Quail and Northern Bobwhite within the Tamaulipan Biotic Province

Levi Sweeten, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Caleb McKinney, Texas A&M University - Kingsville, Kingsville, TX, USA
Maydeliz Ramos, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Katherine Travis, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Evan Tanner, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Leonard Brennan, Kingsville, TX, USA
Fidel Hernandez, Texas A&M University - Kingsville, Kingsville, TX, USA
David Hewitt, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Ryan Luna, Sul Ross State University, Alpine, TX, USA
John McLaughlin, Texas Parks and Wildlife Department, Lubbock, TX, USA
Humberto Perotto, Texas A&M University, College Station, TX, USA
Ashley Tanner, Caesar Kleberg Wildlife Research Institute - Texas A&M University -

Kingsville, Kingsville, TX, USA
Lisanne Petracca, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, USA
David Wester, Texas A&M University - Kingsville, Kingsville, TX, USA

Abstract: Scaled quail (*Callipepla squamata*) and northern bobwhite (*Colinus virginianus*; hereafter “bobwhite”) are two quail species suffering distribution-wide declines that occur sympatrically at the eastern and western periphery of their respective distributions. Influences of demographic rates are better understood for bobwhite than for scaled quail, and studies quantifying survival of both species in areas of sympatry are limited. Understanding how environmental variables influence different species within shared space is essential to conservation biology. Consequently, sympatric populations provide valuable opportunities for survival studies, as biological and environmental factors may have disparate effects on interacting species. In South Texas, the chestnut-bellied scaled quail (C. squamata castanogastris) is sympatric with bobwhite throughout much of the Tamaulipan Biotic Province, a system characterized by a patchwork of densely populated and diverse thornscrub shrublands. This system has undergone extreme fragmentation and degradation, likely resulting in decreased demographic rates. We conducted a capture-mark-recapture study at two sites within areas of sympatry to explore comparative survival for chestnut-bellied scaled quail and bobwhite, as well as to identify key biological and environmental covariates that influence their survival. From 2022 to 2024, we captured 967 scaled quail and 263 bobwhite, of which 469 scaled quail and 127 bobwhite were recaptured in subsequent sampling periods. We will integrate these data into a hierarchical Bayesian version of Pollock’s Robust Design model to estimate survival. These results will augment existing knowledge of survival dynamics between scaled quail and bobwhite, providing insight relevant to conservation and management strategies in the fragmented thornscrub ecosystem.

4. Everything that Glitters is not Gold: Investigating Solar-powered GPS Ear Tags for Wildlife Research

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Dylan Stewart, Texas A&M University - College Station, College Station, TX, USA
Abigail Dwelle, Texas A&M University - College Station, Bryan, TX, USA
Emily Masterton, Texas A&M University - College Station, College Station, TX, USA
Walter Cook, Texas A&M University - College Station, College Station, USA
Marcus Blum, Texas A&M University Natural Resources Institute, College Station, TX, USA
Jacob Dykes, Texas A&M University - College Station, Kingsville, TX, USA
Whitney Gann, Texas Parks & Wildlife Department, Austin, TX, USA
Stephen Webb, Texas A&M Natural Resources Institute, College Station, TX, USA

Abstract: Global positioning system (GPS) technology has become a widely adopted tool in wildlife monitoring and research. Spatial location data can provide unique insights into animal behavior, resource selection, movement patterns, and species interactions.

However, GPS data are often flawed by data loss (missing fixes due to failed GPS attempts) and horizontal error (discrepancy between recorded and true locations), which, if not accounted for, can lead to biased estimates of space use, movement, and resource selection. We evaluated the performance of solar-powered GPS ear tags (mOOvement, Brisbane, Queensland, Australia) during stationary tests in southern Texas to determine their efficacy for wildlife research. Using generalized linear mixed models, we examined the effects of woody cover (%) and the distance (m) between tags and the long-range wireless antenna on fix success (%) and horizontal error (m). At site 1, fix success was negatively correlated with distance to antenna and percentage of woody cover, but unaffected by these covariates at site 2. Horizontal error was influenced by distance to the antenna at site 2 whereby horizontal error decreased as the distance between the antenna and tag increased. When a subset (n = 6) of tags was deployed on collared peccary (Pecari tajacu), all tags ceased sending fixes after eight days and averaged only 35% fix success. Our findings highlight practical considerations for using solar-powered GPS ear tags for wildlife research. We suggest researchers consider the landscape and ecological characteristics of the study species before deploying GPS units, especially those relying on solar power.

5. Quantifying Greater Sandhill Crane Migratory and Population Connectivity Using Molecular Techniques

Haley Ditzenberger, Texas Tech University, Lubbock, TX, USA
Blake Grisham, Texas Tech University, Lubbock, TX, USA
Daniel Collins, U.S. Fish and Wildlife Service, Albuquerque, NM, USA
M. Cathy Nowak, Oregon Department of Fish and Wildlife, Union, OR, USA
Justin Russell, Oregon Department of Fish and Wildlife, La Grande, OR, USA

Abstract: Greater Sandhill Cranes (*Antigone canadensis tabida*) in the Intermountain West are managed as three separate populations: Central Valley (CVP), Lower Colorado River Valley (LCRVP), and Rocky Mountain (RMP). Telemetry data from over 120 tagged cranes show significant overlap in summer, migration, and wintering areas, but this approach is limited by scale, cost, and logistical constraints. The goal of this study is to use molecular techniques to assess population overlap and migratory connectivity among the CVP, RMP, and LCRVP in the Intermountain West. Our objectives are to: 1) quantify connectivity and genomic overlap using microsatellite markers to determine population structure and interactions; 2) compare molecular data with geospatial data from tagged cranes; 3) assess whether stable isotope signatures can identify areas of population overlap; and 4) determine sex ratios to better understand population dynamics. Samples include secondary feathers from 25 crane colts and 356 adults collected from 2015-2024. We hypothesize that: 1) microsatellite markers will identify distinct genetic clusters with defined connectivity patterns; 2) molecular and geospatial data will strongly correlate enabling precise geographic mapping of genetic variation; 3) stable isotopes signatures will effectively pinpoint geographic overlap areas, reflecting movement and habitat use; and 4) DNA analysis will reveal balanced sex ratios, providing insights into population dynamics and social structure. Preliminary data and literature support the first two hypotheses, and ongoing

efforts focus on quantifying genetic overlap and validating objectives two and three. This integrative approach will enhance understanding of population connectivity and inform conservation strategies.

6. Unlocking the Potential of Canopy Camera Traps to Enhance Vertebrate Surveys in Urban Areas

Reuber Antoniazzi, Stephen F. Austin State University, Nacogdoches, TX, USA
Devin Stage, Stephen F. Austin State University Student Chapter of The Wildlife Society, Garrison, TX, USA
Kyle Hughes, Stephen F. Austin State University, Nacogdoches, TX, USA
Gabriel Andrade-Ponce, Stephen F. Austin State University, Nacogdoches, TX, USA

Abstract: Camera traps provide key information for wildlife management and conservation. However, camera traps have been traditionally restricted to ground level. In the last decade, researchers started using camera traps in the canopy, a frontier in vertebrate knowledge. These seminal publications revealed interesting findings, such as a significant increase in overall mammal inventories. From our knowledge, no previous research in urban areas in the US used camera traps in the canopy. Previous studies using camera traps on the ground of the urban regions in the US revealed lower activity of some animals when it was expected otherwise, e.g., the Virginia opossum. We aim to demonstrate the complementarity of camera traps for wildlife surveys for mammals in a small town in Deep East Texas. We expect similar species richness on the two strata but with different foraging activities. We will also evaluate the effectiveness of recording wildlife detections depending on the camera position and height. We selected five trees (two Southern red oaks, one water hickory, one pecan tree, and one water oak) in an urban park and a residential area. We climbed the trees using the single rope technique and installed two to three cameras in the canopy and one on the understory right below the selected tree. The cameras in the canopy were positioned towards the horizontal view and the ground, the latter to capture animal activity when climbing. With our results, we will provide new insights into habitat use when monitoring and managing wildlife in urban areas.

7. Hatch or Fail: Northern Bobwhite Quail & Scaled Quail Attempt at Multiple Nests at RPQRR

Kyndal Underwood, Rolling Plains Quail Research Foundation, Fort Worth, TX, USA
Adam Vonderschmidt, Rolling Plains Quail Research Foundation, Rotan, TX, USA
Dan Foley, Rolling Plains Quail Research Foundation, Rotan, TX, USA
Ryan O'Shaughnessy, Rolling Plains Quail Research Ranch, Rotan, TX, USA

Abstract: This study examines the nesting behavior and success rates of multiple attempts by Northern bobwhite quail (Colinus virginianus) and scaled quail (Callipepla squamata) at the Rolling Plains Quail Research Ranch (RPQRR) over a 10-year period (2014–2024). Quail typically will nest from early spring to fall. Our primary objective was to determine whether subsequent nesting attempts were influenced by prior success or

failure, to assess preferred nesting substrates, and to analyze the temporal gap between successive nests. We hypothesize that differences will exist in substrate selection and nesting success across attempts. We analyzed data from 210 quail nests, including 167 bobwhite and 43 scaled quail. Of these, 99 birds attempted a second nest, and 9 attempted a third nest. Results indicate no significant differences in the substrates selected for nesting. Success rates were 49.02% for first nests, 46.46% for second nests, and 66.67% for third nests. These findings suggest that while the success rate of second nesting attempts was slightly lower than first attempts, some quail at RPQRR did achieve successful third nesting attempts. These results contribute to our understanding of quail reproductive ecology and will inform management strategies related to habitat and predator control

8. Wildlife Disease Research in Texas: Trends Over the Past Three Decades

Scott E. Henke, Texas A&M University-Kingsville, Kingsville, TX, USA
Jamie Benn, Caesar Kleberg Wildlife Research Institute - Texas A&M University - Kingsville, Kingsville, TX, USA
Alynn Martin, Caesar Kleberg Wildlife Research Institute, KINGSVILLE, TX, USA

Abstract: Texas encompasses a unique geographical region that spans ten ecoregions and hosts a diversity of wildlife. It is also a central point for major bird migratory flyways, hosts > 1930 km of international border with high movement of people and animals, and is situated in a climatic region expected to warm significantly in the next few decades. These factors make Texas a region of interest for understanding wildlife disease emergence and zoonotic disease risk. Here, we reviewed three decades of literature reporting wildlife diseases in Texas to understand regional and temporal trends. We utilized the Web of Science platform to perform a literature review using the following search terms and Boolean operators: “disease” AND “wildlife” AND “Texas”, which returned 772 primary research articles as of September 2023. These were filtered by a strict set of criteria to identify >90 primary articles. We noted a gradual increase in disease research in Texas with most studies focused on cervids, feral species (e.g., *Sus scrofa*), and species at the urban-wild interface (e.g., coyotes [*Canis latrans*] and raccoons [*Procyon lotor*]). Pathogens that were most prevalent in the literature were vector-borne, including *Trypanosoma cruzi* (Chagas disease) and *Borrelia burgdorferi* (Lyme disease). Zoonotic diseases comprised >50% of the literature reviewed. We acknowledge that, in part, this trend reflects researcher interests and funding opportunities; however, it shouldn’t diminish the importance of Texas as a geographically important region with species distributions shifting northward (e.g., the northward movement of vampire bats) and vectors experiencing less seasonality with climate change.

9. Status and Trend of Texas Horned Lizards in the United States from 2014 – 2024

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Abstract: Texas horned lizards (THL; *Phrynosoma cornutum*) are an iconic reptile species native to the southwestern United States. We surveyed state wildlife agencies within the distributional range of Texas horned lizards to determine their legal status, current relative abundance, population trends, and distribution of Texas horned lizards during 2014 and 2024. Historically, Texas horned lizards were found within nine south-central states; however, currently (2024), they are found in six states, having been extirpated from Missouri, Arkansas, and Louisiana. The legal status of Texas horned lizards did not change within individual states during the past decade. Texas horned lizards are listed as state threatened in Texas, protected in Colorado and Oklahoma, and as non-game in New Mexico and Kansas. However, their abundance and population trend did change. In 2014, about 36%, 19%, 29%, and 16% of the THL population was considered increasing, stable, decreasing, and extirpated, respectively, from its historic range. Today, THL population was considered 9%, 41%, 20%, and 30% increasing, stable, decreasing, and extirpated, respectively, from its historic range. The overall population trend of THL during the past decade was a 12% decline from increasing to stable status, 12% decline from stable to decreasing status, and 16% of the population extirpated. If current trends hold for THL through time, then <2% of the THL population will be increasing, while 17% and 22%, respectively, will be exhibiting stable and decreasing trends, and 60% of the THL population will be extirpated within 75 years. Federal listing within the ESA is suggested.

10. Attitudes of Wildlife Specialists Pertaining to Ownership of Dangerous Wild Animals

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Abstract: The novelty and thrill of owning an exotic animal often stimulates people to acquire one. Laws within most states affirm that dangerous, exotic animals can be privately owned as long as the owner has registered the animal with a state registration agency. However, some people believe that certain exotic animals are too dangerous to be allowed as pets and that such animals pose a threat to the community in which they are kept. We questioned if the average person has sufficient knowledge of potential attack behavior, possible sustained injuries, and risk of zoonotic disease potential from captive wildlife. Therefore, we surveyed 137 wildlife experts who have knowledge and experience with wildlife handling and disease issues to ascertain information about potential of attack, injury, and zoonotic risk. We categorized species (N = 120) that have been known to be or confiscated as pets and placed species into one of 17 animal categories (i.e., big cats, small cats, canid, big bear, small bear, raccoon, weasel, mongoose, ape, prosimian, New world monkey, Old world monkey, ungulate, constrictor, venomous, and crocodile). Experts were consistent in rankings

across all animal categories in their beliefs. Nearly two-thirds (64%) of those surveyed believed a likely or high likeliness that all animal categories have potential to attack humans, and 80% believed that if any animal across all categories attacked, it would require hospitalization and be life-threatening. About half of those surveyed (64/137; 47%) believed a zoonotic disease risk exists from wild animal ownership.

11. Evaluating Caterpillar Use of Drought-Tolerant Landscape Perennials Under Water Restrictions in North-Central Texas

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Abstract: Caterpillars (Lepidoptera) are a major food source for many wildlife species. Most caterpillars are specialized to plants with which they share an evolutionary history. This specialization is primarily due to specific adaptations to tolerate, circumvent, or utilize secondary compounds and defense strategies produced by plants. Declines in insects are documented across the globe with contributing factors including urbanization, intensive agriculture, and climate change. Current climate models predict increased frequency and severity of drought in north-central Texas, where increasing urban populations will exacerbate water limitations in combination with drought; as such, drought-tolerant landscape perennials have been identified to reduce water consumption but caterpillar response to these hosts in the north-central Texas region remains unknown. We seek to examine caterpillar use of drought-tolerant commercially available landscape perennials and determine how caterpillar presence changes across water restrictions. We established 4, 8.5 x 14-m plots with 3, 2 x 14-m rows containing 20 perennial plant taxa. In 2022, we irrigated plants using evapotranspiration rate and a plant factor (PF) of 0.6 for establishment; in 2023 and 2024, we implemented 3 irrigation levels within each block: high (PF = 0.6), low (PF = 0.3), and no supplemental irrigation. In 2024, we conducted bi-weekly caterpillar counts on each plant in each block using a total search approach and identified caterpillars to lowest taxonomic unit. Our findings will identify commercially available perennials that provide resources for caterpillars in landscapes prone to water limitations due to drought and other anthropogenic factors.

12. Seasonal Dynamics of Anuran Skin Microbiomes at Wild Basin Wilderness Preserve: A Longitudinal Metagenomic Study

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Abstract: The microbial community that inhabits the skin of frogs (the skin microbiome) has been demonstrated to be a critical component of their innate immune system. Disruption of this community (dysbiosis) is associated with susceptibility to pathogenic infection. Environmental stress in the form of prolonged periods of heat and drought can induce dysbiosis and weaken the immune system. During summers in the Texas Hill Country, anurans may be more susceptible to disease due to the coincidence of a

weakened immune system, altered microbiome, and conditions that favor the spread of disease. We sampled the microbiome of the native Gulf Coast toad (*Incilius nebulifer)* and Rio Grande leopard frog (*Lithobates berlandieri)* across the year to evaluate the relationships among richness, evenness, transience, and variability of the microbiome while also noting the sex, age, and health condition of each individual frog. Collectively, this data will be assessed in the context of climatic change and time of year. Preliminary demographic data concluded relatively high captures of *I. nebulifer* with high body condition scores and low *L. berlandieri* captures in the earlier weeks of the year. Vice versa in the later weeks of the year associated with prolonged drought and lower temperatures indicating variance in health of anurans across the year.

13. Assessing Seasonal Phenology of Ocelot Ranch Population Thornshrub Cover

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Abstract: Drones (Unmanned Aerial Vehicles, UAVs) are remote operated devices that can be equipped with sensors and aerial imagery technology which can be used as a more affordable way to gather high-resolution data. This project plans to use the drone's ability to use LiDAR sensors and a Multispectral camera to examine temporal and spatial changes in vegetation that happen between the winter season and the summer season. This research will explore the seasonal differences in cover, by measuring the changes to the vegetation structure and environment that the seasons bring to the ocelot ranch population's thornshrub cover. Ocelots (Leopardus pardalis) are a federally endangered species in Texas that have a primary habitat of dense brush areas. Ocelots in Texas are confined to two small regions in South Texas. This data gathered will provide a detailed assessment of the habitats suitability for ocelots based on the vegetation at fine spatiotemporal scales. This study aims to compare these ecological parameters of vegetation cover of the established habitat during the winter and summer and how the quality of the habitat changes with the seasons. By mapping the differences in the vegetation density, temperature change, and the spatial cover, we will evaluate the sustainability for future restoration efforts and develop strategies that will allow us to enhance the quality of these patches to hold larger populations for ocelots. The findings will inform conservation strategies aimed at improving habitat restoration to support sustainable ocelot populations in South Texas.

14. How Does Foraging Enrichment Reduce Maladaptive Behavior in Captive Giraffes?

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Abstract: The giraffe (*Giraffa camelopardalis*) is the largest ruminant and the world's tallest terrestrial animal. Native to sub-Saharan Africa's savannas, grasslands, and open woodlands, giraffes primarily browse leaves, fruits, and flowers from a variety of trees. Giraffes spend over half of their time feeding in the wild and do so hourly. In contrast, giraffes in zoos feed for less time and are usually fed alfalfa and manufactured concentrated feeds, with only occasional browsing. This increases their consumption rate, which limits the exercise of facial muscles and may result in the display of maladaptive behaviors, particularly oral stereotypic behavior. Oral stereotypic behaviors in captive giraffes are repetitive, unvarying patterns in their feeding behaviors that serve no apparent purpose or function in the context in which they occur. These behaviors do not usually occur naturally in the wild. Zoos are still seeking methods for lowering consumption rates and optimizing enrichment techniques for captive giraffes, so their feeding behavior mimics wild populations to a greater degree. We will perform behavioral observations to examine and compare husbandry methodologies at the Fossil Rim Wildlife Center in Glen Rose, Texas. This study will be minimally invasive, and it will consist of visually monitoring giraffe behavior through in-person observation and video to compare enrichment methods. We hope this project will help improve giraffe husbandry and welfare for many institutions holding this charismatic species.

15. Evaluating Microplastic Pollutants and Macroinvertebrate Response in the Greater Matagorda Bay Area, Texas

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Abstract: Macroinvertebrates (e.g., insects, crustaceans, and gastropods) account for over 75% of all described animal taxa and a play pivotal role in supporting ecosystem integrity; in estuarine environments, macroinvertebrates facilitate water filtration, nutrient cycling, and serve as a crucial food source for wildlife at higher trophic levels. Given their short generation times and sensitivity to environmental perturbance (i.e., changes in turbidity, dissolved oxygen, and pollution), macroinvertebrates serve as bioindicators of change in aquatic ecosystem health, as well as identifying mechanisms contributing to loss of ecosystem structure and function. Microplastic pollution (plastic materials <5 mm) is ubiquitous in aquatic environments, but the long-term effects on estuarine food webs remain unclear. We seek to investigate the multi-trophic impact of microplastics on macroinvertebrate and plant communities, using the greater Matagorda Bay area as a focal system. We collected water, sediment, and tissue samples from macrophytes and macroinvertebrates in Matagorda Bay and adjacent waterways in 2024 and will be analyzed using Fourier-transform infrared spectroscopy (FTIR) to determine the presence, type and concentration of microplastic pollutants. Additionally, we will

implement a microcosm experiment to assess how macroinvertebrates respond to different densities and concentrations of microplastics at different trophic levels (herbivore, detritivore, and predator). By elucidating how macroinvertebrates interact with and are influenced by microplastic pollution, we seek to identify mechanisms to mitigate the impacts of anthropogenic disturbances on estuarine ecosystems. Ultimately, we hope that our findings will inform future conservation strategies to incorporate macroinvertebrate biomonitoring in estuarine systems undergoing restoration following microplastic pollution.

16. Exploring the Impact of Extrafloral Nectaries (EFNs) and Beneficial Arthropods on the Performance of a Common Rangeland Forage Legumes (Fabaceae)

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Abstract: Extrafloral nectaries (EFNs) are accessory glands that can be found on the outer parts of the plant and promote mutualistic relationships with arthropods; the plant provides nectar to ants (Hymenoptera: Formicidae) and other predatory arthropods in return for protection from herbivorous insects. A common rangeland plant family of which EFNs may be found are the legumes (Fabaceae), which have high protein content and are common browse species for wildlife; vetch (Vicia spp.) are reliable source of forage for white-tailed deer (Odocoileus virginianus) and other ungulates during the winter. Our study seeks to explore the relationship between EFNs, herbivorous insects, and beneficial arthropods and how EFNs contribute to plant performance for rangeland forage species. We will establish plantings of three species (Vicia sativa, V. villosa, and Chamaecrista fasciculata) at Tarleton State University's Agricultural Center in Erath Co. and apply a sealant to block EFNs as a treatment. We will record observations of predatory, herbivorous, and pollinating arthropods that visit plants and compare differences in visitation, abundance, and richness between sealed and unsealed plants and among species. We will also record changes in plant and floral characteristics associated with sealed or unsealed EFNs. Arthropods contribute important ecosystem services to rangelands, such as pollination, nutrient cycling, pest regulation; we seek to bring awareness of the importance of EFNs and their relationship with beneficial arthropods in rangeland ecosystems to improve habitat conditions for wildlife that depend on arthropods, or the forage arthropods impact, for survival.

17. Assessing Invertebrate Diversity and Abundance Among Rio Grande Wild Turkey Habitats in the Edwards Plateau Ecoregion Using Traditional and Molecular Techniques

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Abstract: Rio Grande wild turkeys (Meleagris gallopavo intermedia; RGWT) require invertebrate prey to fulfill protein and energetic demands associated with critical life periods. In the Edwards Plateau Ecoregion, variable environmental flows create habitat conditions in aquatic and terrestrial ecosystems that facilitate terrestrial, semi-aquatic, and aquatic invertebrate availability and biomass. No current information exists on the baseline ecological invertebrate components nor invertebrate forage selection by RGWT. We established two paired 40-m transects across upland and riparian habitats at five sites with occurrences of RGWT, three on the South Llano River and two on the North Llano River within the Edwards Plateau Ecoregion of Central Texas. These rivers have contrasting environmental flows; the South fork is perennial while the north fork is intermittent and can experience extended periods of zero flow or complete drying. Sampling transects included three sticky traps, nine pitfall traps, and a 20-m sweep net sample in vegetation, collected every 13-15 days from April – August in 2023 and 2024. We detected more individual invertebrates in riparian habitat and a similar number of invertebrate families among different sampling methods at riparian and upland sites (175 > 165; riparian > upland) with nearly 76% of all collected individual invertebrates represented by three orders (Coleoptera, Hemiptera, and Hymenoptera respectively; excluding Isopoda). DNA meta-barcoding will be used to compare species occurrences in RGWT fecal samples to potentially relate to community data. Our research findings will inform strategies for conservation of RGWT, while background invertebrate biodiversity data supports further research and long-term monitoring.

18. An Automated Approach to Monitoring Herpetofauna on Texas Military Department Installations

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Abstract: The Texas Military Department (TMD) is responsible for the stewardship of approximately 55,000 acres of training land throughout Texas. The TMD is required to develop and implement an integrated natural resources management plan (INRMP) that is consistent with the military mission while simultaneously maintaining the ecological

integrity of the resources within. For military installations under the TMD, the INRMP requires monitoring surveys to manage amphibian and reptile (herpetofauna) populations to ensure the military mission does not threaten the long-term persistence of these species. To aid this process, we were tasked with developing long-term standardized survey protocols at four TMD installations. To accomplish this, we deployed 5 IR-triggered camera trapping arrays and 5 automatic recording devices (ARDs) at each installation. To supplement the automated survey equipment, we also conducted visual encounter surveys (VES) during the spring and fall seasons. During the 2024 season, the cameras captured a total of 3699 snake images (22 species), 1927 lizard images (12 species), 281 anuran images (7 species), and 81 turtle images (1 species) with 662, 414, 46, and 8 unique observations contributing to each group, respectively. The ARDs detected the presence of 27 anuran species. In comparison, the VES yielded 78 snake observations (21 species), 84 lizard observations (10 species), 31 turtle observations (5 species), 105 anuran observations (17 species), and 5 salamander observations (3 species). Here, we expand on our preliminary results and compare the efficacy of different survey methods at detecting herpetofauna at four TMD installations during the 2024 season.

19. Effects of Vegetative Composition and Structure on Avian Presence and Diversity in the Rolling Plains

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Abstract: A large number of grassland-obligate bird species are considered Species of Greatest Conservation Need (SGCN), due to declining numbers and rarity. The declines can be attributed to habitat loss and fragmentation of native rangelands, largely due to brush encroachment or conversion to cropland/monocultures. In an effort to evaluate the effects of brush encroachment and vegetation diversity on grassland-obligate species in the Texas Rolling Plains, we deployed audio recording units (ARUs) on a property near Crowell, Texas. The ARUs are located in an unmanaged and ungrazed portion of the ranch, which has been greatly encroached by mesquite (*Prosopis glandulosa*) and juniper (*Juniperus pinchotii*). In the Rolling Plains, grassland-obligate bird species will utilize grasslands year-round, if adequate habitat and resources are available. However, brush encroachment may reduce presence of grassland-obligate birds. Prior to planned brush management activities (chemical treatment), the deployed ARUs will record presence and composition of grassland-obligate species at the site, or the lack thereof. This data will serve as our pre-management baseline. At each ARU location, habitat analysis will be conducted to enable evaluations of avian species presence and diversity relative to vegetative attributes. Throughout the brush management process, the ARUs will remain in place, enabling monitoring of changes in avian presence over time relative to alterations in brush density and the herbaceous community. We anticipate that avian presence and diversity will increase as a result of brush management.

20. How Flight Behavior Responses of Eastern Fox Squirrels Differ Between Rural and Synurbanized Populations in College Station, Texas

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Abstract: The risk-allocation hypothesis states that a tradeoff exists between engaging in antipredator behaviors and foraging. Thus, flight decisions are often based on weighing the cost of remaining and the cost of fleeing. However, animals in urban settings are continually exposed to non-lethal, anthropogenic stimuli, resulting in behavioral plasticity and learning that reduces their antipredator responses in a process called habituation. In order to delineate the effects of habituation, direct observation was utilized to examine the flight behavioral responses of two distinct populations of Eastern fox squirrels (*Sciurus niger*) by quantifying alert distance (AD) and flight initiation distance (FID). AD is the distance at which an individual is aware of an approaching object, while FID is the distance at which an individual begins to flee. These metrics may be affected by ecological factors such as distance to cover, cover type, and canopy cover, as well as anthropogenic factors such as method of approach. To differentiate between these factors, four treatments, the approach of a single walker, a group, a cyclist, and a dog, were implemented at a rural site, encompassing three different ecoregions, and at an urban site during both winter and spring. Though still in the process of data collection, understanding a species' habituation to humans and how it affects their behavior and life history strategy are important as human development continues to directly and indirectly affect wildlife. Understanding both the extent of human-wildlife interaction and the species-specific response becomes critical in the management and conservation of species.

21. White-tailed Deer Population Size and Habitat Use in Urban Parks that Differ in Area and Habitat Structure

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Abstract: The urban areas are not typically built with wildlife in mind, but they do contain patches of natural habitats that are suitable for varieties of flora and fauna. For organisms, the city ecosystem provides a mosaic of highly patchy habitats that encompass stream corridors, transportation corridors, forest fragments in parks and residential neighborhoods, golf courses, traffic islands, patchy green spaces, and open recreational areas. In this ongoing research, we ask how these organisms survive and persist in landscapes where there is extreme variation in habitat heterogeneity in terms of habitat structure, shelter, and food resources. This ongoing research is aimed at gaining a better understanding of population size, habitat selection, and foraging behavior of a large mammal in urbanized ecosystems that differ in patch sizes and habitat structure. We have been evaluating white-tailed deer *(Odocoileus virginianus)* habitat use and foraging behavior in five Urban parks in Laredo City, TX, since August

2024. We used camera traps (22 in total) along with habitat structure measurements to document the deer habitat use and activity patterns and to quantify population characteristics. We will present our preliminary results on population sizes, deer habitat use, and foraging patterns in these parks. Understanding spatial and temporal habitat use of the fragmented urban landscapes will be an essential component in the creation of effective urban deer management programs in Laredo City.

22. Evaluating Avian Community Response to Spatial Regime Shifts in the Tamaulipan Biotic Province

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Abstract: Regime shifts are characterized by a sudden, persistent change in ecosystem structure and function, which is difficult to reverse and can alter the provision of ecosystem services. In South Texas, the Tamaulipan Biotic Province has undergone abrupt changes, driven by land-use change, brush management, and introduction of invasive grasses. The Tamaulipan thornscrub has shifted into an alternative stable state, with reduced shrub diversity and a dense understory of invasive grasses. Native shrubland obligates, such as chestnut-bellied scaled quail (Callipepla squamata castanogastris; hereafter “scaled quail”), are vulnerable to these changes as they rely on thornscrub. We evaluated the impacts of spatial regime shifts on the distribution of scaled quail and the associated avian community across 19 counties in South Texas. Using data from the Rangeland Analysis Platform, we identified 3 disturbance categories: high, medium, and low indicative of state transitions within this region. Classifications were based on covariance values between woody and herbaceous

cover, where negative covariance indicated greater disturbances. From May-July 2024, we conducted 1,010-point counts and recorded 111 species. Medium disturbance areas had the highest species richness (93 species), compared to high (85) and low (86). While alpha diversity was consistent across categories, beta diversity was greatest with medium disturbance (0.644), suggesting moderate disturbances may create vegetation conditions that support diverse avian communities. Scaled quail detection rates were notably low (0.02%), underscoring challenges in monitoring this species. Understanding spatial regime dynamics and avian community patterns is crucial for addressing landscape-scale changes and developing conservation strategies for shrubland-dependent species.

23. Nocturnal vs Diurnal Use of Riparian Areas by Feral Pigs in North-central Texas

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Abstract: Feral pigs (Sus scrofa) are widespread invasive ecosystem engineers whose behavior can result in significant damage to valuable landscapes, such as riparian areas. Feral pig activity may vary daily and across seasons. Our study area is part of an on-going restoration site in Palo Pinto Mountains State Park that will soon open to the public. Understanding feral pig activity patterns could assist with future management of the riparian areas and the species. Our study investigated feral pig daily activity patterns by season in riparian areas in the Western Cross Timbers ecoregion in north-central Texas. We used 20 game cameras placed at 250 m intervals from January 2022 to July 2024 to monitor feral pig activity. We positioned each camera 51 cm above the ground and used 24 h motion detection with a 1 min delay. We obtained approximately 8,000 detections of feral pigs in our study area. We will use Timelapse 2.0 to analyze images, and overlap and kernel density packages in R statistical software, to examine daily activity patterns and how they change with seasons. We hope to increase our understanding of feral pig behavior to assist with future conservation initiatives for maintaining a balanced, healthy ecosystem within Palo Pinto Mountains State Park.

24. Arthropod Response to Grazing of Southern Plains Bison at Caprock Canyons State Park, Texas

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Abstract: In 1997, Texas Parks and Wildlife Department (TPWD) relocated 36 Southern Plains bison (Bison bison bison) to Caprock Canyons State Park (6,070-ha) in Briscoe County, Texas. In 2011, TPWD released another 80 captive bison and present-day estimates are approximately 250 bison in the park. For management of the herd and the ecosystem, it is important to understand the impact, if any, bison have on vegetation and arthropods. Our objective was to determine how bison grazing impacts the diversity and abundance of arthropods. In summer 2018, TPWD established 18, 3x3-m2 grazing-exclusion plots. Monthly from September 2020 to August 2022, we surveyed vegetation and arthropods within each exclusion plot paired with an adjacent grazed plot 30-m away. At each grazed and non-grazed plot, we deployed one pitfall trap (0.27-L cup) and one bee bowl trap (0.53-L cup). We randomly selected the color of the bee-bowl trap (i.e., fluorescent yellow, white, or blue) because of arthropod color preferences. We baited both trap types with ethylene glycol and deployed traps for 24 hours. We identified arthropods to the ordinal level (Diptera, Hymenoptera, Lepidoptera, Orthoptera, Coleoptera, Araneae, and Other). Preliminary investigations of our data suggest that grouping at the order level likely masked interactions among arthropods, vegetation, and southern plains bison. For future studies, we propose identification of arthropods to lower taxonomic resolutions to improve identification of interactions. We hope to encourage additional metrics of biodiversity monitoring for arthropods at local scales to improve conservation efforts.

25. Survival of the Generalist? A Comparison of Kitten Survival and Reproduction in Bobcats and Ocelots

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Abstract: Estimating reproductive rates is critical to understanding population dynamics. Where generalist and specialist species are sympatric, competition may limit access to resources. This may lead to temporal and/or spatial segregation of denning sites or timing of reproductive events. Bobcats (*Lynx rufus*) are resource generalists and federally listed ocelots (*Leopardus pardalis*) are dense canopy specialists in the northern part of their range. Both species are similar-sized, sympatric felids that likely partition resources to maximize individual- and population-level fitness. Our proposed research will assess: (1) first-year survival of bobcats and ocelots in South Texas; (2) timing and frequency of reproductive events; and (3) contrasting bobcat and ocelot den site selection. Survival data will be collected from expandable VHF collars on kittens and analyzed in a known-fate Bayesian framework. Multivariate linear regression and

resource selection functions will be used to assess what factors affect reproductive timing/frequency and den site selection, respectively. We predict that, in both species, (1) mother's age and previous experience will affect kitten survival; (2) time of year, monthly rainfall, and vegetation cover will impact reproductive timing and frequency; and (3) patch configuration, vegetation composition, and distance from roads will influence den establishment. We predict that bobcats will generally select den sites with less dense vertical cover compared to ocelots. Insights into reproduction of these two species will elucidate resource partitioning between two sympatric carnivores, and will ultimately inform models of population dynamics to guide ocelot recovery in the United States.

26. Seasonal Abundance and Site Use of Three Waterfowl Species in North-central Texas

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Abstract: Numerous studies have been conducted to enhance land management strategies to support waterfowl populations; however, minimal research has focused on monitoring waterfowl migration patterns within the Cross Timbers ecoregion. Palo Pinto Mountains State Park is within the Cross Timbers ecoregion and hosts multiple bodies of water including stock tanks, intermittent rivers, and ephemeral streams that are used by various waterfowl during wintering. Our study aims to investigate how waterfowl species overlap in water resource use through seasonal activity patterns, abundance, and site use of stock tanks and streams within Palo Pinto Mountains State Park. We focus on three of the most observed ducks: American wigeon (*Mareca americana*), gadwall (*m. strepera*), and ring-necked ducks (*Aythya collaris*). To address our aim, we will identify arrival and departure timing, fluctuations in species abundance across the season, and how the three species might be partitioning use of the area through preferences for sites or variations in activity. We placed 3 24-hr motion-activated, infrared game cameras at each of 2 stock tanks, and 10 cameras distributed at intervals 150–200 m apart along the stream in 2023 and 2024. Additionally, we conduct in-person waterfowl surveys twice a month from fall to spring 2022–2024. Implications of this study will further our understanding of seasonal and wintering habitat use and activity within a predominantly hardwood, riparian ecosystem in north-central Texas.

27. Evaluating Efficacy of Pollinator Sampling Techniques for Comparison with Novel Molecular Methods: Preliminary Findings

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Heather Mathewson, Tarleton State University, Stephenville, TX, USA
Adam Mitchell, Tarleton State University, Stephenville, TX, USA

Abstract: Pollinators provide vital ecosystem services which are imperiled by increasing rates in pollinator decline. Efforts to effectively monitor pollinator health and diversity are becoming increasingly important factors in local conservation efforts. As part of a project testing the efficacy of a novel method of pollinator monitoring, which will use environmental DNA (eDNA) to determine presence and abundance of the rare variable cuckoo bumble bee (*Bombus variabilis*), and its host the American bumble bee (*B. pensylvanicus*), we are conducting traditional methods of monitoring across the state of Texas as a point of comparison. We will collect data throughout the growing seasons (spring to fall) 2024-2026 in sites that align with the historical distribution of the two species. We established 14 study clusters (150-km radius) comprising of state parks, natural areas, and wildlife management areas across Texas. In each cluster, we will run 30-m transects and sample vegetation and pollinators within 3 0.5 m^2 quadrats every 10 m along the transects. We will sample plant species richness, height, and horizontal canopy cover within each quadrat. Additionally, we will sample pollinators along transects using an insect vacuum. We will combine our eDNA surveys with knowledge of flora from the transects to elucidate plant-pollinator interactions occurring across the state of Texas. This information will also provide insight into the integrity of ecosystem service across the state, as well as demonstrating the advantages and limitations of the novel eDNA to monitor for rare or cryptic pollinators in Texas.

28. Microbiome and Virome of Ocelots in South Texas: Insights into Population Health

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Abstract: The ocelot (Leopardus pardalis), an endangered mesocarnivore in South Texas, is limited to two relatively small and geographically disparate populations that are susceptible to stochastic events, including disease outbreaks. Understanding disease dynamics, including identifying pathogens of concern and factors that influence host susceptibility, is critical for conserving this species. Studying the microbiome (diversity of microorganisms) and virome (diversity of viruses) of ocelots can provide valuable insights into ocelot health and resilience against disease. The gastrointestinal microbiome plays a vital role in immunity, digestion, metabolism, and resistance to infections. Disruptions to the microbiome–which may be caused by stress, environmental changes, or pathogen exposure–can influence immune response and susceptibility to infection. The virome allows for the identification of viruses present in ocelot populations, whether harmful or benign. Describing the virome will allow for the identification of emerging diseases that could threaten ocelots, as well as other wildlife,

domestic animals, and humans, in the region. We propose using next-generation sequencing of blood and semen samples to describe the gastrointestinal microbiome and virome of ocelots from South Texas rangelands related to host and demographic factors such as body condition, disease status, age and sex, and ecological factors such as density of other species in the habitat. Our findings will provide detailed knowledge of host-pathogen interactions in order to design effective management and conservation strategies for the prevention of infectious disease outbreaks.

29. Genetic Evaluation of Texas Nilgai: Understanding Their Origins and Effects of Introduction

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Abstract:
Nilgai antelope (*Boselaphus tragocamelus*), commonly known as blue bull, are native to India. Nilgai were introduced to South Texas in the 1930s and now have a free-ranging population exceeding 30,000, forming a significant presence in the region. Despite their numbers and popularity as a game animal, little is known about their ecological role or genetic diversity, complicating effective management strategies.
The primary goal of this study is to trace the geographic origins of the Texas nilgai population and understand how they were introduced. The study has three main objectives: (1) trace the population's origins, (2) assess genetic diversity to evaluate potential genetic bottlenecks and drift, and (3) examine genetic variation to assess disease risk. DNA samples were collected from hunter-harvested nilgai throughout South Texas, focusing on sequencing mtDNA cytochrome b and nuclear prion protein genes. Genetic diversity will be analyzed and compared to publicly available DNA sequence data to identify the origin of founding stocks and variations in the prion protein gene that may indicate susceptibility to prion diseases like chronic wasting disease.
The study also raises awareness of the effects of introducing exotic species, even in small numbers, and how they can alter local ecosystems. Using the Texas nilgai as an example, the research highlights how such introductions can lead to rapid population growth, affecting local wildlife, agriculture, and biodiversity. Understanding their genetic diversity will guide more informed management strategies and contribute to broader discussions on non-native species' impacts.

30. Examining Floral Rewards and Insects Pollinator Behavior in Reponse to Drought in North-central Texas

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Abstract: Global plant and insect diversity is in decline; climate change, urbanization, and habitat loss are among the factors contributing to this decline. In Texas, current climate projections suggest the arid line shifting eastward to the Dallas-Fort Worth

metroplex by 2050, as well as increased frequency and severity of drought. Drought may have negative effects on the quality, quantity, and availability of floral rewards, influencing insect pollinators' behavior; this encourages a need to incorporate drought-tolerant plants into urban and natural environments as a strategy to conserve insect pollinators. We seek to examine differences in floral rewards (nectar) and insect pollinator response to drought-tolerant plants under different water deficits as a simulation of drought. Our study will be a two-factorial garden experiment arranged in a randomized complete split-block design with irrigation (Factor 1) imposed as a split plot while plant species (Factor 2) are randomized within blocks (three replicates each) to account for soil differences. We will measure the response of floral rewards (nectar production, nectar volume, nectar concentration, and nectar sugar content), and insect pollinators' abundance, richness, plant preference, and flower visitation throughout the growing season. Our study will provide essential information into sustainable practices for both urban and natural environments by identifying drought-tolerant plant species that provide floral rewards during periods of water-deficit, as well as retain insect pollinators and the essential ecosystem service they provide for North-Central Texas and the Southern Great Plains.

31. Assessing Saprophagous Insect Community Response to Anthelmintics in Texas Grassland Ecosystems

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Abstract: Grassland ecosystems are experiencing declines in biodiversity at regional scales, prompting further study to refine local conservation and management. Saprophagous (decomposer) insects, particularly dung beetles (Coleoptera: Scarabaeidae) play an essential role in grassland ecosystem health by aiding in nutrient cycling, bioturbation, improving soil quality, and secondary seed dispersal. Conversely, these saprophagous taxa are experiencing declines in density and biodiversity across grassland ecosystems; although many factors contribute to these declines, widespread use of anthelmintics such as Ivermectin in livestock management may have negative consequences for saprophagous populations and, by extension, ecosystem processes they provide. Our study investigates the effects of Ivermectin-treated dung on saprophagous insect abundance, diversity, and activity, with particular emphasis on dung beetles. We hypothesize that Ivermectin and other anthelmintic residues in dung will reduce saprophagous abundance and alpha diversity. We will survey saprophagous insects across managed grassland settings in Erath, Somervell, and Mills counties by establishing transects lined with pitfall traps baited with dung treated with and without anthelmintics. We will collect pitfall traps after 48 hours and measure saprophagous insect abundance and richness. Furthermore, we will conduct laboratory experiments using reared dung beetle colonies and expose dung beetles to treated and untreated dung in choice and no-choice testing to assess behavior, survival, and reproduction. We seek to provide insights into the potential unintended consequences of livestock treatments on non-target species, with recommendations for conservation practices that promote sustainable regenerative grassland practices.

32. Experimental Approaches to Improve Survival and Conservation of Swift Fox (*Vulpes velox*)

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Clint W. Boal, US Geological Survey, Lubbock, TX, USA

Abstract: The swift fox (*Vulpes velox*) has been a species of conservation concern for the last 30 years across the entirety of its range. The species holds the status of S1 'Critically Imperiled' in Texas where there is currently only one functional population remaining in Dallam County. As short-grass prairie specialists, swift foxes have suffered from a lack of suitable habitat as prairie is converted to cropland. Additionally, land management practices have resulted in increased vegetation height that facilitates increased predation risk from coyotes (*Canis latrans*), the primary cause of mortalities. We will be evaluating a novel approach to reduce coyote predation on swift foxes by deploying livestock guardian dogs (hereafter LGDs) with grazing cattle (*Bos taurus*) within known swift fox areas. LGDs have been used to reduce predation on livestock and recent research has demonstrated that LGDs do not negatively influence foxes. We will capture and attach GPS collars to swift foxes and coyotes in the Rita Blanca National Grasslands in the first year of the study to obtain pre-treatment spatial data. From the second year onwards, we will repeat this process and add LGDs to the landscape. We will compare pre- and post-treatment space use and changes in swift fox survival.

33. Habitat Preferences of Northern Bobwhite and Scaled Quail: Unraveling Nesting Site Selection in Conservation Reserve Program and Pasture Lands

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Abstract: We investigated the nesting preferences of Northern Bobwhite Quail (Colinus virginianus) and Scaled Quail (Callipepla squamata) in Conservation Reserve Program (CRP) areas and Pastures across a 4,800-acre study area, where CRPs constituted 11% (527.2 acres) and Pastures 89% (4,272.8 acres) of the total landscape. The null hypothesis was that quail do not exhibit a preference for nesting in CRPs versus Pastures, and this was tested using a Chi-Square analysis to compare observed and expected bird distributions. Results indicated a significant difference in nesting distribution ($\chi^2 = 10.21$, $p = 0.0014$), leading us to reject the null hypothesis. Adjusting for the proportional area of CRPs and Pastures, the expected counts were recalculated based on the proportional availability of each habitat. Bobs were overrepresented in CRPs and underrepresented in Pastures, whereas Blues were underrepresented in CRPs and overrepresented in Pastures. These findings suggest that habitat preferences of quail were not solely driven by the proportional area available. Bobs

exhibited a preference for nesting in CRPs despite the larger area of Pastures, whereas Blues showed a strong preference for Pastures. The results highlight the role of factors beyond area size, such as habitat quality, in determining nesting site selection. These insights have important implications for wildlife habitat management, suggesting that conservation strategies should consider the specific habitat preferences of different species, rather than solely focusing on habitat availability.

34. Habitat Use and Movement of Collared Peccaries Associated with the U.S.-Mexico Border Barrier System

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Stephen Webb, Texas A&M Natural Resources Institute, College Station, TX, USA
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Abstract: The construction of border barrier systems along international boundaries may have ecological impacts on wildlife populations and their habitats. Research on species such as jaguars (*Panthera onca*) and ocelots (*Leopardus pardalis*) indicate that border barriers can restrict movement and connectivity. However, limited empirical data exist on the effects of linear barriers on mid-sized ungulates like the collared peccary (*Pecari tajacu*). These barriers may alter collared peccary movement and habitat selection, potentially affecting survival and connectivity. To address this knowledge gap, we will determine the effects of the United States-Mexico border barrier system on collared peccary movement patterns, home range characteristics, and habitat selection. Collared peccaries were captured at sites close to the barrier, and two individuals per squadron were fitted with GPS collars. Using GPS data, we will assess direct impacts, such as habitat loss and fragmentation caused by the physical barrier, and indirect effects that may be related to noise, artificial lighting, and human activity. Findings from this study will contribute to the growing knowledge of how large-scale infrastructure affects wildlife and transboundary connectivity. By quantifying these ecological effects, the research will offer insights into balancing infrastructure development with biodiversity conservation. Finally, results will be spatially explicit, enabling conservation practitioners and policymakers to identify and prioritize mitigation measures to reduce potential impacts on wildlife.

35. Monitoring Biodiversity of Pollinating Insects Along North-Central Texas Roadway

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Abstract: Monitoring Biodiversity of Pollinating Insects Along North-Central Texas Roadways. Multiple factors contribute to pollinator decline, loss of floral resources through land conversion, particularly urbanization. Where roadsides are argued as suitable habitat for pollinators. However, roadsides may also reduce pollinator diversity through low-quality floral resources, introduction of invasive flora, and reduced mortality by vehicles. Our study focused on assessing roadsides for pollinator biodiversity in North-Central Texas. We surveyed 58.1 km of U.S. Route 377 within the Erath Co., between 2020-2022. We sampled vegetation and pollinators at 1 km intervals on the side of the road every two weeks starting the second week of February and ending the second week of May, for a total of 464 points over eight collecting periods each year. We sampled between 08:00-10:30 or between temperatures of 12.8-32.2°C. Within each sampling point, we would survey vegetation along a 10-m transect and measure plant density and species richness. We sampled pollinators along the same transect with a modified leaf-vacuum for 30 seconds. We seek to record the presence, species and composition of native pollinator communities at varying traffic densities to determine changes in native pollinator diversity over time to improve conservation strategies in pollinator health under increasing urbanization in North-Central Texas

36. Flight Distance and Preferred Cover of Northern Bobwhite Quail and Scaled Quail

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Abstract: This study investigates the behavior of northern bobwhite quail (Colinus virginianus) and scaled quail (Callipepla squamata), focusing on their flight distances and cover preferences after being flushed by a researcher. Specifically, I hypothesize that bobwhite quail will exhibit longer flight distances than scaled quail, and that both species will prefer woody cover types over grassy cover types. Data was collected by flushing radio-collared birds and marking landing sites. Straight-line flight distances were calculated using OnX. Preliminary results from 28 flushes (14 per species) revealed no significant difference in flight distances between bobwhite (avg. 79 m) and scaled quail (avg. 99 m) ($p = 0.103$), supporting the null hypothesis. In terms of cover preference, bobwhite quail sought shelter in woody cover 11 of 14 times, while scaled quail did so 12 of 14 times, showing a stronger preference for woody cover than available in the environment. Bobwhite quail most commonly selected prickly pear (Opuntia spp.) (3 of 14 flushes), while scaled quail preferred honey mesquite (Prosopis glandulosa) (3 of 14 flushes). These findings offer valuable insights for wildlife management. Understanding flight distances can inform habitat planning, such as determining appropriate woody shrub densities for quail habitats. Additionally, knowledge of cover preferences can guide the selection of plant species to manage for,

helping reduce predation risks and promoting quail population growth by ensuring access to suitable cover types.

37. Evaluating Rates of Fire Spread in Various Grass Species for Safer Texas Roadways

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Abstract: The Texas Department of Transportation (TxDOT) is mandated by the Clean Water Act to seed areas disturbed by construction activities. In an effort to be good neighbors and environmental stewards, TxDOT has made a commitment to use native grasses that will become established quickly along highways and roadsides at the completion of road construction. These grasses are important for protecting newly-constructed roadsides by holding the soil in place, particularly during rain events. Unfortunately, wildfires commonly start along roads or highways as people discard cigarettes, or pull over to the side in a disabled vehicle, etc. Our project is investigating the rates of fire spread through several grass species that TxDOT currently uses, including silver bluestem (*Bothriochloa laguroides*), sideoats grama (*Bouteloua curtipendula*), southwestern bristlegrass (*Setaria scheelei*), spike lovegrass (*Eragrostis spicata*), whiplash pappusgrass (*Pappophorum vaginatum*), and little bluestem (*Schizachyrium scoparium*). We are burning 0.10-acre monoculture plots of various grass species with HOBO dataloggers placed at 5-m intervals throughout the plot to record fire temperature and rates of spread. Our results will help TxDOT choose species that may slow the spread of unintended fires, helping firefighters control roadside wildfires more quickly and keep drivers safe from smoke-related accidents.

38. Quantifying the Spatial Distribution of Macartney Rose Using Very Fine-scale Imagery

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Jacob Lucero, Texas A&M University - College Station, College Station, TX, USA
Javier Osorio Leyton, Texas A&M AgriLife Research, Temple, TX, USA
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Humberto Perotto, Texas A&M University, College Station, TX, USA

Abstract: Invasive plants can rapidly dominate a landscape and homogenize plant communities by displacing native species. One invasive species affecting Southeast Texas rangelands is Macartney Rose *(Rosa bracteata* J.C. Wendl.). There is an increasing need for controlling this species to increase space and resources for ranching operations. It is essential to quantify the extent of an invasion when

implementing control techniques. Drone imagery enables efficient data collection by increasing sampling coverage and reducing labor requirements. The objective of this study is to quantify the spatial distribution of Macartney rose using an image classification applied to high-resolution imagery on a cattle ranch in Northwest Harris County, Texas. We applied a supervised image classification technique to 1.3 cm resolution RGB drone imagery to separate Macartney rose individuals from other vegetation and land cover types. Ground-verification points of the cover type present are used to assess the accuracy of the classification. The class and patch level data from the classifications is used to compute metrics that quantify the distribution of the Macartney rose. We expect to achieve an overall accuracy greater than 75%, and a Macartney rose classification accuracy greater than 85% towards generating accurate estimates of the spatial extent of Macartney rose invasion at our study area. We also expect to see differences in patch metrics for Macartney rose across the pasture due to variation in cover concentrations. These results offer methods for quantifying invasive woody species which can improve our ability to implement control techniques, monitor stands, and understand species behavior.

39. Evaluating Field-based Learning and its Role on the Expressions of Self-identified Wildlife Value Orientation During a Natural Resource Management Degree Curriculum

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Abstract: Education, specifically applied and experiential learning, has been proven to contribute to the adoption of pro-environmental behaviors. However, limited research evaluates the connection between applied learning and its impact on the expression of wildlife value orientations (WVOs). WVOs have been used to predict people's attitudes and behaviors in relation to environmental management and perceived environmental impacts. The Cognitive Hierarchy Theory reveals that values and value orientations are expressed extensively through attitudes and behavioral intentions. Knowing this, this study aims to explore the role of an applied and experiential learning focused curriculum in promoting pro-environmental attitudes, behavioral intentions, and ultimately, expressions of self-identified WVOs among recent college graduates and college students nearing graduation. It further aims to identify teaching methodologies that contributed to a self-identified change in expression across WVOs. To achieve this goal, data will be collected from recent graduates of the Texas A&M University Department of Rangeland, Wildlife, and Fisheries Management (RWFM) and its senior seminar course. Participants will complete a three part quantitative survey by rating statements on a Likert scale, recalling how they felt before enrolling in RWFM, and how they feel upon the program's completion. Consenting participants will expand upon their responses in a follow-up qualitative interview, which will allow for participants to identify in-depth the reasoning behind self-identified changes. We hypothesize that students will identify experiential learning and applied activities as the most influential in developing pro-

environmental attitudes, and shifts in behavioral intentions and expressions of self-identified WVOs.

40. An Experimental Test of Delayed Plumage Maturation Hypothesis in Painted Buntings

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Abstract: Painted Buntings, Passerina ciris, display delayed plumage maturation, wherein young males retain green plumage, almost identical in appearance to the plumage of juveniles and females, despite being capable of reproduction. The primary driver of delayed plumage maturation is unknown, though previously believed to be the result of a molt constraint. To experimentally test hypotheses related to delayed plumage maturation, we first captured adult and juvenal males using mist nets. These males were color-banded for individual identification. Experimental males were then temporarily put in a cage and placed within an established, adult male's territory. We used playback to call in focal males, and quantified the aggression of the focal male to the caged, experimental male during a 10-minute observation period. We tallied the number of songs, calls, approaches, wing quivers and "attacks" of the responding male. Attacks were defined as a territorial male landing on or flying within 0.5 m of the simulated intruder cage. We found territorial males were significantly more likely to attack adult males than juvenal males, as no juvenal males were attacked in trials ($p= 0.007$, $n=23$). Interestingly, the rate of singing for focal males did not vary by age class. Additionally, these experiments yielded interesting anecdotal results, with territorial males occasionally displaying towards juvenal males as if they were females. A future study is planned to implement trials comparing the response of territorial males to the simulation of intruding females and young males.

41. Cackling Geese Selection of Roost Sites during the Non-Breeding Period

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Abstract: The selection of roost sites is of great ecological importance during the non-breeding period of waterfowl. Roost sites provide safety from predators and are within energetically appropriate distance from forage. The Cackling goose (*Branta hutchinsii*) is gregarious during the nonbreeding period, roosting in large flocks in open water bodies at night and traveling to surrounding land during the day to feed. The primary objective of this study is to determine roost site selection and the environmental factors that drive roost site choice. We deployed GPS telemetry collars on female cackling geese wintering in the southern Great Plains region (Colorado, Kansas, New Mexico,

Oklahoma, and Texas) of the USA. After nocturnal locations of geese are used to determine roost sites, we will measure the longest distance traveled to foraging sites by each individual. We will use the longest average distance across individuals as a radius to delineate landscapes around roost sites and extract biologically meaningful landscape metrics using Fragstats. We will randomly identify 50 wetlands of similar type within each state and apply the radius to delineate same-sized landscapes. Using logistic regression, we will compare metrics between random and used landscapes to understand drivers of selection. By understanding the environmental factors which drive roost site selection, this research will help identify priority areas for nonbreeding habitat management of cackling geese wintering in the southern Great Plains.

42. Mule Deer in the Trans-Pecos: How Habitat Selection Affects Survivability and the Effectiveness of Brush Management in Improving Mule Deer Habitat

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Abstract: Mule Deer (Odocoileus hemionus) are a species of management concern in Texas because of their economic importance, and declining populations. While many factors may contribute to population declines, brush encroachment degrades mule deer habitat quality throughout their range. I will study the influences of brush encroachment on habitat selection within a population of mule deer in the Trans-Pecos region of Texas and the consequences of that selection for individual survival. From 2015 to 2019, 144 mule deer were translocated to Black Gap Wildlife Management Area (BGWMA), with 67 animals fitted with GPS collars, and a capture at BGWMA in 2023, with 29 animals fitted with GPS collars. I will be using Integrated Step Selection Analysis (iSSA) as the framework to analyze the GPS data, incorporating elevation, slope, TPI (topographic position index), and TRI (terrain ruggedness index), derived from a 30-m digital elevation model, and brush density. To estimate brush density, I will use a novel approach combining field vegetation data, rasters of the modified soil adjusted vegetation index (MSAVI), and Functional Principal Component Analysis (fPCA) to relate vegetation dynamics to brush canopy cover. I hypothesize mule deer will select for low to intermediate levels of brush cover and that deer selecting for sub-optimal levels of brush cover will experience greater mortality. If so, higher populations of mule deer could be maintained with lower brush density and adequate plant species composition. This framework could then be used to monitor mule deer habitat quality via satellite, facilitating mule deer habitat improvements.

43. Transboundary Occupancy of the American Black Bears: Implications for Metapopulation Dynamics between the US and Mexico

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Abstract: An increase in border infrastructure in Texas, and elsewhere in the world, has been documented to increase habitat fragmentation, decrease population connectivity, and gene flow in transboundary wildlife populations, especially affecting large ranging carnivore species. Since the first resident population of the American black bear (*Ursus americanus*) returned to Big Bend National Park, Texas in 1988, their range has slowly expanded over the last four decades. This has coincided with an increase in border infrastructure development along the US-Mexico border. Of the 254 counties in Texas, 36 counties have had credible black bear sightings, six of which being noted as having established breeding populations. The bears in these six southwest Texas counties, are a part of the greater Southwest (Southwest Texas and Northern Mexico) black bear metapopulation and are supplemented by bears moving northward through the Chihuahuan desert and sky island archipelago landscape across the Texas-Mexico border. Estimating black bear occupancy will inform metapopulation dynamics and will help managers prioritize movement corridors for long term population sustainability. We will deploy 50 trail cameras in a randomized camera occupancy grid design, buffered at 4, 8, and 12km distances from the Rio Grande River, across Val Verde, Kinney, and Maverick counties. Each randomly selected grid, evenly split between all buffers, will host a camera to estimate current black bear occupancy and identify potential corridors of transboundary movement that might be affected by current and future border infrastructure and activity.

44. An Introduction to Environmental Consulting

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Abstract: Gather insight into the world of environmental consulting and the opportunities available in the field. Environmental consultants work with a variety of developers and government agencies to help them understand potential impacts and level of impacts to wildlife species. Some of the key responsibilities they undertake include wildlife research and monitoring, environmental permitting, statistics and biometrics, technology, vegetation & reclamation, and wetlands and water. Consulting for renewable energy such as wind and solar developments can include initial resource evaluation, analysis of environmental issues, permitting and construction planning, and operation and post-construction monitoring. Knowledge of laws, regulations, and guidelines for developments all play a role in successful wildlife consulting. Permits

often require studies that must begin well before permit applications are submitted. Knowledge and skills as biologists, mammologists, and ecologists can be utilized to help developers to minimize and mitigate potential impacts to species. To understand what species may be impacted by a proposed project, consultants use a variety of tools including government websites, state agency sites, natural history databases, books and field guides, citizen-science databases, spatial databases and more. The field of wildlife consulting holds a variety of potential career paths including wildlife biologist, GIS specialist, species expert, and statistician. Developing your skills and gaining experience through field work, writing, joining working groups, volunteering, and contributing to citizen science are some of the steps that can lead to a job in consulting .

45. Determining Optimal Segmentation Parameters for Object-based Classification of Woody Species Using Fine-scale Resolution

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Abstract: Macartney rose (*Rosa bracteata* J.C. Wendl.) is an invasive evergreen woody species that poses a significant threat to the biodiversity of Texas rangelands. Remote sensing technology, including drones and the National Agriculture Imagery Program (NAIP), offers a unique approach in detecting this species. Segmentation is a novel approach to supervised classification of land cover. Image segmentation groups neighboring pixels that share similar characteristics in shape, texture, and color. However, there is very little information on how to use segmentation to classify Macartney rose. We have observed a high degree of variance in previous studies for spectral resolution, spatial resolution, and the minimum segment size. Therefore, our objective is to select different segmentation sizes to optimize classification of Macartney rose with two remote sensing platforms: Drone-acquired and NAIP imagery. To achieve this goal, we classified Macartney Rose into groups depending on the number of pixels within a motte. Mottes that are <5 m2 in area are classified as small, >5-20 m2 are classified as medium, and >20 m2 are classified as large. These mottes are then classified using a range of segmentation settings. Once classified, accuracy assessments were conducted using a confusion matrix. These results will improve the methodologies for segmentation by providing a range of settings according to the size of the patches to be identified and improve overall classification of patches of Macartney rose in pastures affected by this invasive species. With improved vegetation monitoring techniques, we can more effectively address habitat concerns.

46. Differences in Ambient vs Internal Trap Temperatures: Implications for Safe Protocol for Trapping Black Bears in West Texas

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Abstract: In recent years, black bears (*Ursus americanus*) have begun recolonizing their historical ranges in West Texas by migrating north from Mexico. To better understand their population dynamics, ecological behavior, and how best to manage them in the future, information gathered at capture events will be invaluable. However, there are many animal safety concerns when trapping and handling wildlife, particularly in harsh environments, such as arid West Texas. With little shade and high daytime temperatures hyperthermia is a serious risk during the capture process. To mitigate this risk, careful consideration of ambient temperatures during trapping is critical to prevent physiological harm. We examined the ambient and internal temperature of four trap types at 10-minute intervals using I-button temperature loggers during the summer of 2024 with the goal of assessing how internal temperature differs given trap type. A significant difference between internal and ambient temperatures could necessitate adjustments to trapping and handling protocols. We used a generalized linear model to examine the influence of ambient temperature, trap material, trap volume, and trap material interacting with ambient temperature on internal trap temperature. We found an influence of trap type on internal temperature, with aluminum traps exhibiting lower internal temperatures than steel. Ambient temperature had a positive effect (β=0.86, SE =0.002, p<0.001), and trap volume had a negative effect (β=-0.68, SE =0.03, p<0.001) on internal temperature. The findings from this study are crucial for refining trapping methods and ensuring effective long-term management of black bears in west Texas.

47. An Assessment of Heavy Metal Concentrations in South Texas Raptors

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Abstract: Heavy metals, such as lead, have become pervasive environmental toxicants, affecting both human and wildlife health globally. As predators and scavengers, raptors are particularly susceptible to accumulating heavy metals from the environment through their prey to the detriment of both individuals and populations.

Given their ecological role and sensitivity to anthropogenic pollutants, raptors can serve as sentinels of environmental contamination. From 2022-2023, we collected blood, heart, and liver samples from black vultures (*Coragyps atratus*; n = 36) to assess heavy metal contamination in South Texas. Zinc had the highest accumulation across the liver and heart samples with averages of 24.1 µg/g wet weight and 21.67 µg/g wet weight, respectively. We did not detect significant amounts of thallium but did detect arsenic and cadmium accumulation in both the liver and heart. Lead accumulation was observed in the blood (0.07-2.17 µg/mL), liver (0.06-8.16 µg/g wwt), and heart (0.04-0.81 µg/g wwt). Building on this work, we aim to understand the presence and extent of heavy metal exposure in other raptor species in South Texas that have foraging strategies beyond scavenging. Sampling will focus on red-tailed hawks (*Buteo jamaicensis*), Swainson's hawks (*Buteo swainsoni*), and Harris's hawks (*Parabuteo unicinctus*). Results will be compared to the existing vulture data, providing insights into the vulnerability of different raptor species based on their diet and foraging strategies. These findings are essential for understanding the broader ecological effects of heavy metal pollution and guiding conservation efforts.

48. South Texas Bobcat Interactions with Wildlife Crossings Structures and Other Wildlife

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Abstract: The bobcat (*Lynx rufus*) is a common cat in the United States, native to southern Canada to southern Mexico. Bobcat populations have fluctuated over time. This has been associated with hunting, agricultural broadening, and habitat fragmentation. Roads are a major source of fragmentation and have wide ranging impacts on wildlife, including bobcats. Researchers at Texas A&M University - Kingsville have monitored five wildlife crossings on Farm-to-Market 1847 in Cameron County, Texas. For this study, we will assess how bobcat interactions at crossings are affected by intraguild competition, prey detections, and seasons. To do this, we collected data for two years after construction of the crossings and used a grading system to distinguish the different types of interactions with each crossing site. We predict that bobcat and canid interactions at crossings are inversely related, where the detection of bobcats increases when there is a decrease in coyote detections. The changes associated with monthly usage, for bobcats and coyotes, were thought to be used more during the winter months and during the spring months due to darker days and seeking shelter. The prey detections will likely increase during spring and summer months due to the increase in vegetation and the desire for warmer climates. Lastly, we expect a higher prey species abundance will reveal an increase in bobcat density per location. Our study would provide information on fluctuations of bobcat wildlife crossing usage depending on surrounding food sources, competitors, and potentially, seasons.

49. Fire, Forage, and Facilitation: Interspecies Interactions of Native and Exotic Ungulates in Managed Rangelands

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Abstract: Exotic ungulates, like nilgai (*Boselaphus tragocamelus*) and blackbuck (*Antilope cervicapra*), are increasingly common on South Texas rangelands, forming novel assemblages of large herbivores. Initially introduced to enhance hunting opportunities and diversify ranch income, exotic ungulates have created new ecological dynamics that may alter vegetation and habitat use by native species like white-tailed deer (*Odocoileus virginianus*). Understanding the impact of exotics on rangelands and native wildlife is essential for sustainable rangeland management. We deployed a systematic grid of camera traps on a 3,500-hectare ranch near Hebbronville, Texas, with approximately 10 exotic ungulate species alongside native species, such as white-tailed deer, to monitor spatial and temporal habitat use patterns and interspecies interactions following prescribed fire. Prescribed fire is typically used to alter forage availability and vegetation structure, which may influence ungulate activity and competition. In February 2022, 79 hectares were burned in 4 distinct units within our study area. Cameras were deployed immediately following the prescribed fire, collecting images every 10 minutes during the day and as triggered at night. Animal activity in burned and unburned units has been monitored for the last ~2.5 years following prescribed fire treatments, with over 230,000 images collected so far. We are leveraging these data to explore how native and exotic ungulates interact, focusing on temporal partitioning through diel activity patterns, shifts in habitat use over time since fire, and resource partitioning reflected in their spatial distribution. Insights from this study will guide mixed-species grazing management and help mitigate potential competition between native and exotic ungulates.

50. The Effect of Landscape and Human Infrastructure on Mammal Occupancy in the Jaguar´s Protection Corridor, Guaviare, Colombia

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Abstract: The Jaguar Protection Corridor in Guaviare, Colombia, is a process of community conservation and reconciliation of livelihoods with nature. As part of this

process, we seek to identify the effect of the landscape and human infrastructure on the populations of jaguars and other mammals that inhabit the corridor area. The corridor management area (496,000 ha) is located along the Guaviare River in the departments of Guaviare and Meta, Colombia. To identify how variables and at what spatial scale affect mammal species in the corridor, we used four camera trap surveys conducted between 2021 and 2024. The camera trap data were fitted to multi-species occupancy models using the following variables: forest patch size, fragmentation index, distance to human areas, road types, and access to water. Of the 36 species analyzed, 20 were affected by the selected variables. Both jaguar and prey occupancy were related to greater forest size and lower fragmentation index. Variables associated with human infrastructure did not have a strong effect on jaguar occupancy. However, the jaguar did show higher occupancy in flood zones. Our results provide a detailed view of the species-specific response to landscape characteristics and possible human disturbances. This allows us to identify priority areas to recover the ecological connectivity and to take appropriate management measures to ensure the permanence of the jaguar in the corridor, as well as that of the associated mammal community.

51. Predicting Habitat for Bumble Bees in Texas Based on Floral Availability and Seasonality

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Abstract: Pollinating insects are declining across the globe; however, the magnitude of this decline varies across taxa, space, and time, requiring improved strategies to monitor pollinators at local scales. We seek to evaluate the availability of floral resources that would support populations of bumble bees (*Bombus spp.*) across the state of Texas. This project is part of a larger study assessing the distribution and conservation status of American bumble bee (*B. pensylvanicus*) and variable cuckoo bumble bee (*B. variabilis*) in Texas. In summer and fall 2024, we surveyed vegetation in state parks and wildlife management areas across multiple ecoregions in Texas and recorded species richness, horizontal canopy cover, and plant height for each species. We also used community aggregate databases (e.g., iNaturalist) and county checklists to identify distribution and blooming periods of plant species reported to serve as floral hosts for bumble bees in Texas. We will develop predictor models to identify landscapes with the greatest likelihood of bumble bee occupancy based on host plant density and distributions within and across seasons. We hope that these predictor models will help refine current management strategies to survey rare and cryptic bumble bees within Texas ecoregions.

52. Determining Nesting Effort by Female Northern Pintails Remotely

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Abstract: The northern pintail (*Anas acuta*) is a species of concern and has remained below population objectives over the last 30 years. Part of the reason the population has declined is thought to be due to low nesting success from changes in farming practices within their breeding range, and increased rates of nest failure due to depredation. Our goal was to describe nesting behavior of northern pintails to understand nesting effort. We deployed 535 GPS/GSM-ACC tracking devices on female northern pintails across their wintering range in the southern U.S. (2019-2023). This allowed us to sample pintails settling on their breeding areas in the Prairie Pothole Region of the Great Plains, in the Boreal Region to the north, and in Alaska. Tracking devices were programmed to record a location (18-m accuracy) every hour, and a 3-second burst of accelerometer data every 15 minutes. We identified potential nest locations by considering fixes in terrestrial land-cover types (pintails spend the majority of time in wetlands but nest on land), where device speed was < 5 m/s, and that showed > 2 return visits. Nesting activity was investigated using the accelerometer data to identify incubating and active periods. A successful nest was identified when incubation behavior lasted > 22 days. Understanding nesting behavior of the northern pintail across its broad breeding range will provide new insights into their nesting ecology. This will also allow us to link reproductive success to temporal and spatial factors within their breeding distribution.

53. Spatial Ecology in a Fragmented Landscape: How Roads Impact Ocelot and Bobcat Movement and Connectivity

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Abstract: 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 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 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.

54. Presence of Microplastics in Arthropods Ingested by House Sparrows

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Abstract: Plastic pollution has increased at astounding rates across the globe and plastic waste and debris can potentially degrade into smaller pieces called microplastics (MPs). MPs have been detected in many bird species, but contamination routes remain poorly understood. One possibility could be trophic transfer. Through previous research, we found that nestlings in a house sparrow (*Passer domesticus*) colony in Stephenville, Texas contain MPs. Our objective was to determine if arthropods foraged by adult sparrows for feeding nestlings were a potential source for MP transfer to nestlings. In 2024, we collected arthropods using a sweep-netting method along a 10-m transect from 5 locations at our study site where we observed adult sparrows foraging. We recorded nest boxes on days 5-7 post-hatch, using video cameras placed on tripods

approximately 2 m from the nest for 4 h, between 0630-1130, to identify food items delivered by parents. We identified all arthropods collected in the field and those we observed on the video cameras to taxonomic family. We analyzed arthropod samples using a chemical digestion of 30% H_2O_2 and identified MPs using Motic Panthera C2 trinocular compound microscope, with 4k digital video camera. We analyzed the percentage of contaminated individuals by family, MP/individual arthropod, and MP/gram of organic matter. Preliminary results show that approximately 37.5% (*n* = 17) of arthropods sampled contained MPs. The study will allow for further understanding of the presence of MPs in terrestrial environments and the potential for trophic transfer to songbirds.

55. Environmental Degradation of Ivermectin in Deer Fecal Pellets and Comparison of Blood and Fecal Concentrations of Ivermectin

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Abstract: Tick-borne diseases have increased in incidence and expanded geographically in recent decades due to multiple factors including land-use changes, suburban development, and climate shifts. White-tailed deer (*Odocoileus virginianus*; WTD) and other wildlife species are natural hosts for ticks, however options for the treatment of wildlife for tick infestations are limited. One proven method is the delivery of ivermectin via oral baiting stations. To be effective, adequate amounts of ivermectin must be delivered to each animal. Here, we explored the utility of using non-invasive fecal sampling as a method to determine ivermectin consumption and thus level of treatment. This study aimed to: (1) evaluate the correlation between ivermectin concentrations in plasma and feces after subcutaneous injection, and (2) determine the environmental degradation rate of ivermectin in WTD feces. Ivermectin was administered subcutaneously to WTD (n = 11; 200µg/kg). Paired blood and fecal samples were collected at days 3, 7, 14, and 21 post-injection. Fecal pellets were also collected at peak serum levels (3-days post-injection) and exposed to environmental conditions for degradation analysis over time. Ivermectin concentrations in feces were significantly higher than in plasma ($p < 0.001$) and strongly correlated with plasma ($R^2 = 0.7726$, $F(1,53) = 180.1$, $p = <0.0001$). In the environment, ivermectin concentrations in fecal samples degraded linearly with time, however, levels were still > 1000 ppb after 30 days of environmental exposure. These findings highlight the potential of fecal analysis as a non-invasive quality control measure to ensure effective dosing through ivermectin-treated bait, supporting integrated tick management strategies.

56. Dung Beetle Diversity in Grazing Regimes of Desert Grasslands

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Abstract: Dung beetles (family *Scarabaeidae*) are keystone species and are ecological assessors of rangelands. Dung beetles decompose feces by actively breaking down dung pats by burying and processing dung through tunneling underground. Ultimately, incorporating nutrients into the soil, a crucial process for nutrient cycling in ecosystems. These invertebrates are significant to livestock operations as their coexistence with grazing ruminant's is necessary to improve the overall health of grassland ecosystems. This study took place at the Mimms Ranch Unit of the Dixon Water Foundation, a 6,474.97 hectare property nestled in the Marfa Grasslands of Far West Texas. The ranch has rotational grazing regimes, with a control continuous grazing pasture. Allowing for the opportunity to compare the response of dung beetles to different grazing systems. Therefore, this study examines the presence and diversity of dung beetles between the different grazing systems. Beetles were collected in 120 randomized pitfall traps across two different soil types within each of the two grazing systems. We used an Analysis of Variance to see if there was a difference in amount of Bettles between treatments ($P > 0.05$). Results suggest there is a difference between treatments with rotational regime having a higher number of dung beetles. While the data collected from this study shows there is a difference in response of beetles, further research is needed to correlate the relationship between grazing systems, vegetation, and dung beetles properly.

57. A Standardized Comparison of Camera Trap Efficacy Across Price Points and Behavioral States Using a Novel Model "Species"

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Abstract: Remote photography, or camera trapping, is an increasingly popular tool for studying wildlife because it is often less time-consuming, invasive, and costly than alternative methods, particularly for large, elusive, or difficult-to-capture species. As the popularity of camera trapping has grown, so has the variety of camera traps available to consumers. These range from professional-grade traps with high resolution and

detection capabilities to cameras designed for recreational use. Given the multitude of cameras on the market with varying price points and quality, selecting the appropriate model for a specific objective can be challenging. While numerous studies have compared camera traps in field settings, we are aware of no studies that have evaluated camera efficacy at standardized distances using a single aposematic organism across behavioral states. To address this gap, we used a member of the University of North Texas Student Chapter of The Wildlife Society outfitted in a large, anthropomorphic Northern Bobwhite (*Colinus virginianus*) costume to assess the efficacy of five camera traps varying in price and specifications at a restored Blackland Prairie in Denton County, Texas. Detection probabilities of each camera ($20–$750) were measured at 10%, 30%, 60%, and 100% of the maximum focal distance of the camera trap with the longest range, across three distinct gaits. We present these detection probabilities alongside a cost-benefit analysis considering detection consistency and price and provide practical recommendations for landowners and wildlife professionals.

58. Distribution of High-Elevation Owls in the Davis Mountains, Texas

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Abstract: Several mountain ranges within the Chihuahuan Desert receive more precipitation and experience cooler temperatures than the surrounding lowland desert. This “sky island” effect allows for more diverse ecosystems within the mountain range, including canyon watersheds and pine forests, which support high-elevation bird species uncommon to the area. Due to the rugged and remote nature of the Chihuahuan Desert mountains, the distribution and occurrence of high-elevation species is poorly understood, especially for nocturnal birds. This study aims to evaluate the occurrence of nocturnal bird species in the Davis Mountains, particularly flammulated (*Psiloscops flammeolus*), northern saw-whet (*Aegolius acadicus)*, and Mexican spotted (*Strix occidentalis lucida*) owls. Data collection will occur at the Davis Mountains Preserve between March and August, which spans the breeding seasons of the target species, when calls are more frequent. Data collection began in 2024 and will continue through 2025. Owls will be surveyed using autonomous recording units (ARUs). ARUs will be placed in locations where owls are expected to be, based on previous placement, terrain, and vegetation. There are 25 ARUs total, which will be set to record during peak call times (2-3 hours after sunset and before sunrise). Preliminary results show detections of all 3 target species at the Davis Mountains Preserve. Following analysis, ARU recording times and placement can be honed further based on frequency of owl calls and species/habitat associations.

59. Total Inventory and Genomic Monitoring to Inform Ocelot-Transportation Ecology and Conservation Decision-making

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Abstract: Highways and other transportation facilities can act as effective barriers to the movement and dispersal of organisms, reducing the exchange of individuals between roadside populations, and possibly causing genetic subdivision. In addition, transportation facilities can lead to strikingly high numbers of road fatalities. In both cases, these barriers can reduce gene flow, accelerate the loss of genetic variation, increase inbreeding changes, and potentially lead to deleterious effects on a species' population, such as population decline or local extinction. The above process is exacerbated in species of conservation concern. Thus, maintaining biological connectivity in the presence of transportation facilities, such as wildlife crossings, is required to inform about ocelot transportation ecology and therefore conservation decision-making. Recent advances in genomics and bioinformatics have revolutionized the ability to identify and monitor distinct individuals of a species, predict the origin of a given population, and map possible movement pathways of individuals. In addition, effectively characterizing genetic connectivity across the landscape will assist in properly locating, designing, and monitoring cost-effective wildlife crossings as well as develop other mitigation measures. Using a morphological (spot patterns) and genomics (next-generation sequencing) combinatorial approach, we will identify and monitor individual ocelots as they are photographed and collected in new areas, and road-killed. Origin, diversity, and structure within populations, kinship, and individual movement pathways will be inferred from this information, and thus, more of the ecological pieces of the ocelot-transportation puzzle can be illuminated.

60. Effects of Urbanization on White-winged Dove Movement and Breeding Ecology in Texas

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Abstract: The white-winged dove (*Zenaida asiatica*) is an economically important game species in Texas, yet relevant information about demographic parameters and space use patterns that are important informants of management plans are lacking. White-winged doves currently breed in ~200 counties versus <10 in 1980 and only 16% of the white-winged dove breeding population in Texas occurs in the traditional breeding sites in the Lower Rio Grande Valley. Outside of the historic range, white-winged doves are predominately selecting for urban environments and preliminary evidence from Texas suggests most white-winged doves breed in the residential core of cities which has unknown impacts on reproduction, survival, resource selection, and movements. This study will address these knowledge gaps using a coordinated telemetry and banding program in conjunction with a study of breeding productivity across urban-rural gradients in the San Antonio and Houston areas, and at traditional breeding sites in the Lower Rio Grande Valley. Results from the study will be used to inform sustainable management decisions for white-winged doves at the same time as shedding light on adaptions of wildlife to urbanization.

61. Effects of Invasive Guineagrass on Northern Bobwhite Space Use

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Abstract: Guineagrass (*Megathyrsus maximus*), an invasive bunchgrass has a wide range of ecological and agronomic impacts, yet relatively little is known about the effects on Northern Bobwhite (*Colinus virginianus*, hereafter bobwhite), a species of significant economic importance in South Texas. Guineagrass forms dense stands which may hinder the movement of bobwhite. It also reduces species and structural diversity of local vegetation communities by increasing shade and through the release of allelopathic compounds. As a result, guineagrass is posited to affect the space use patterns of bobwhite, and thus ultimately have implications for processes that drive population size and dynamics. This project seeks to explore these ideas by comparing space use of bobwhite across a gradient over which guineagrass density varies. Space use of bobwhite will be assessed through a combination of spatial-mark-recapture and GPS-telemetry approaches that allow estimations of local population densities and that

permit the collection of fine-scale movement data. In so doing, this project will generate baseline data that sheds light on the effects of guineagrass on the space use, resource selection, and behavior of bobwhite. By conducting our study across a gradient of guineagrass density, our study will identify thresholds at which bobwhite are impacted by guineagrass. Thus, results from this study have important implications for the management of guineagrass and bobwhite in South Texas.

62. Quantifying Cattle Movement through Identified Pastural Trails using Unmanned Aerial Vehicles.

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Abstract: The movement of livestock and wildlife through pastures often follows established paths or grazing routes, as animals typically select routes of least resistance between frequently used areas. Over time, these repetitive movements create distinct trails. Traditional remote sensing platforms (>1 m pixel resolution) cannot identify those trails. However, drone-acquired imagery (<5 cm pixel size) allows the identification of these trails. Therefore, our objectives are to 1) determine the feasibility of quantifying livestock and wildlife trails in a pasture, and 2) quantify trail density as a potential indicator of animal use, utilizing high-resolution imagery. To achieve our goal, we selected a study site on a 95.5-hectare private ranch in Jim Hogg County, Texas, USA. We acquired imagery for the pasture during three time periods in 2020 (July, September, and November) and generated orthomosaics, digital elevation models, and digital terrain models. The latter was used to generate a canopy height model to estimate differences in grass height across the pasture. We are in the process of digitizing the trials and estimating the canopy height models. Once these are complete, we will compare them between time periods to assess if there has been a change in trail density and grass height. Our study aims to provide new insights into how drone-based imagery can enhance pasture management by monitoring livestock and wildlife as tools for disturbance, ultimately supporting sustainable grazing practices and wildlife conservation.

63. Spatiotemporal Patterns in Sex Ratios of Bat Fatalities at Wind Turbines in the United States

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Abstract: Climate change and wind turbines are major threats to bat populations worldwide. Consequently, understanding how to minimize bat fatalities, especially for adult females, while maximizing wind energy production has become a priority for bat conservation and energy development. Reproductive-aged females are particularly important to the population dynamics and stability of bat populations due to their life history characteristics, but morphological sex identification methods have resulted in inaccurate reporting of sex ratios. We used molecular techniques to determine the sex of 6,059 carcasses of Brazilian free-tailed (Tadarida brasiliensis), evening (Nycticeius humeralis), hoary (Lasiuruscinereus), eastern red (Lasiurus borealis), northern yellow (Lasiurus intermedius), silver-haired (Lasionycteris noctivagans), and southern yellow (Lasiurus ega) bats found during turbine searches at 21 wind energy facilities in ten states in the U.S.A. between 2009 and 2022. Overall, there were more fatalities of females than males for silver-haired ($p_{female} = 0.579$, $p = 0.008$) and southern yellow ($p_{female} = 0.630$, $p = 0.009$) bats, but not the other species ($p > 0.05$). The sex ratio of Brazilian free-tailed bats was female skewed in late summer, whereas female skew occurred in spring for eastern red bats and in spring and early fall for evening bats. In Texas, the state with the largest sample size, hoary bats had female-skewed sex ratios in the middle of summer, whereas female skew occurred in the middle of spring and late summer for silver-haired bats. The observed spatial and temporal patterns of fatalities can help inform strategies to reduce female fatalities at wind energy facilities.

64. Ecological Impact of Varying Vegetation Management Strategies Employed on Solar Farms

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Abstract: Texas is projected to be one of the top producers of solar-generated power, with one-third of the utility-scale projects being constructed in Texas during 2021-2023. Land conversions to solar farms may be perceived as leading to habitat loss and fragmentation, which is the main stressor to declines in biodiversity. The ecological impact of solar farms on biodiversity is not well studied, and peoples' perceptions of solar farms are mostly based on 'hypothetical' information with little empirical evidence to substantiate their hypotheses. The newly constructed Brightside Solar Facility in Live Oak County, Texas is an ideal location to investigate the solar-native vegetation community ecological impacts on biodiversity. After construction in 2021, it was re-seeded with native grassland vegetation and models predict that solar farms with native grasslands will improve ecosystem services and increase pollinator biodiversity. The goal of this research is to obtain empirical data on the ecological impact of the current

vegetation management strategies—sheep grazing, occasional mowing, paired with herbicide application—on the biodiversity at the Brightside solar facility. Specifically, investigating the ecological factors from below the ground, up, with a focus on bottom-up drivers. The empirical evidence will serve as a valuable resource to help guide vegetation management strategies that will benefit biodiversity in solar-native vegetation facilities.

65. Habitat Selection of Bighorn Sheep in Southwestern Montana

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Abstract: Recovery of a population of bighorn sheep (Ovis canadensis) in the Highland Mountains of southwestern Montana is thought to be limited by the presence of the bacteria *Mycoplasma ovipneumoniae* (*M. ovi*), which causes respiratory disease in sheep. This bacteria can cause mass die-offs which decrease lamb survival rates and subsequent population growth. Because M. ovi must be directly transmitted between individuals, habitat selection decisions made by individuals may place them in proximity to each other and put them at risk of transmitting the bacteria. Thus, understanding of the distribution of highly selected habitats as well as the strength with which they are selected may be important for identifying possible hotspots of pathogen transmission. This project seeks to model habitat selection of bighorn sheep in southwestern Montana using resource selection functions (RSFs). We will leverage data from GPS collars deployed on bighorn sheep in the Highlands as well as spatially distributed terrain and vegetation information from the study area. We will evaluate a suite of models containing combinations of variables including land cover, terrain ruggedness, proximity to roads, etc.

66. Does Small-mammal Herbivory Reduce Likelihood of Native-grass Establishment in Rangeland Restoration

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Abstract: Many factors such as drought, soil conditions, and disturbances influence the success of rangeland restoration. However, the impact of small-mammal herbivory by species such as jackrabbits (*Lepus c. texianus*), gophers (*Geomys bursarius*), and rodents (*Rattus rattus, Peromyscus megalops, Dipodomys elator*) on native plant establishment has been understudied in western Texas. With advancing technology, drones offer a promising yet underutilized method for monitoring small-mammal populations and their effects on vegetation. This study aims to evaluate the effectiveness of drones in detecting small-mammal herbivory and their potential for assessing plant biomass and species composition. Additionally, we will explore whether correlations exist between small mammal density, plant biomass, and plant diversity. By addressing these questions, we hope to provide insights into the role of small mammals in rangeland restoration and the feasibility of drones as a tool for ecological monitoring.