Caesar Kleberg Tracks

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CAESAR KLEBERG
WILDLIFE RESEARCH INSTITUTE
TEXAS A&M UNIVERSITY - KINGSVILLE®

Caesar Kleberg Tracks

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In This Issue

Learn More About CKWRI

The Caesar Kleberg Wildlife Research Institute at Texas A&M University-Kingsville is a Master's and Ph.D. Program and is the leading wildlife research organization in Texas and one of the finest in the nation. Established in 1981 by a grant from the Caesar Kleberg Foundation for Wildlife Conservation, its mission is to provide science-based information for enhancing the conservation and management of Texas wildlife.

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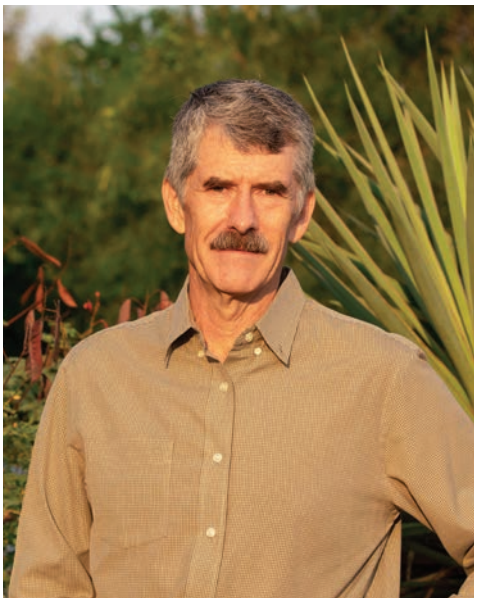
FROM THE DIRECTOR

The "Secret" Sauce



Caesar Kleberg Wildlife Research Institute is unique in the world of wildlife conservation. We are one of only a couple of privately-funded research units integrated in a public university. CKWRI is housed at Texas A&M University- Kingsville, an amazing partner. The Institute has the trust of private landowners and is blessed to conduct research on their ranches. We have a long list of donors who support us in a multitude of ways.

Colleagues and others interested in wildlife conservation often ask, "What makes CKWRI so successful? What is the secret sauce?" I'm always intrigued by such queries because I do not feel our sauce is a secret at all. In fact, looking over the articles in this issue of Tracks Magazine, I can formulate the recipe of CKWRI's success.

That success starts with hard-working, dedicated people. Our team under-promises and over-delivers. Our Graduate Student Spotlight section on page 26, features brothers who each earned their master's degrees at CKWRI. In fact, Marc was one of my first graduate students and he essentially completed two research projects for his M.S. degree. He definitely over-delivered. This issue of Tracks magazine also has an article about two professors who trusted CKWRI with big portions of their careers (page 24). They both came with national prominence and continued to build on that base to be at the top of their fields at retirement.

The next ingredient is research that addresses the needs of managers and is of interest to our supporters. Ocelots, deer, quail, and managing native habitat are all topics that are important to people across Texas. By conducting relevant research, we maintain our focus on important issues in wildlife conservation and serve the needs of the land stewards who are conserving habitat and wildlife.

The final ingredient, the glue that holds the Institute together, are those land stewards who are passionate about wildlife conservation and the Institute's role in furthering it. These people trust CKWRI with their ideas and observations, the combinations to their gates, and their financial support. Their passion energizes everyone at the Institute.

As you read the articles about the Dupre's and the Terry's, you will be moved to learn what motivates their devotion to wildlife, habitat, and CKWRI. We are fortunate to have a long list of supporters just like them that make CKWRI what it is today.

All the best,

Dr. David Hewitt
Leroy G. Denman, Jr. Endowed Director of Wildlife Research

LINKING ANIMAL COMMUNICATION WITH CONSERVATION:

What Vocal Behaviors Of Scaled Quail Tell Us About Their Habitat In South Texas Rangelands

by Caleb M. McKinney, Evan P. Tanner, Katherine A. Travis, Ashley M. Tanner, Leonard A. Brennan, Fidel Hernández, Humberto L. Perotto - Baldivieso, David G. Hewitt, David. B. Wester, Ryan Luna, John McLaughlin

Animal behavior is a complex combination of actions structured by physical and social environments. One of the most fundamental behaviors animals make is to communicate with other animals. Animals may vocalize for a variety of reasons, including, attracting mates, territory defense, announcing the presence of food, or alerting other animals to the presence of a potential predator. Although communication is a key behavior and is beneficial to animals in many ways, it is not without risks. Every time an animal vocalizes to other individuals, it also potentially exposes its location to competitors and/or predators.

Given an inherent risk in communication, animals may make decisions on whether or not to vocalize from cues of other individuals. However, these social cues are lacking if other individuals are not present. Therefore, the likelihood of a bird calling may be density dependent, in which individuals in areas of low densities may not communicate because the risks associated with this vocalization may outweigh the benefits of communicating to other individuals. Understanding patterns of animal communication and the role that habitat characteristics and population density can play in influencing this behavior are important, because many of our survey and monitoring designs for wildlife are based on detecting animal vocalizations.

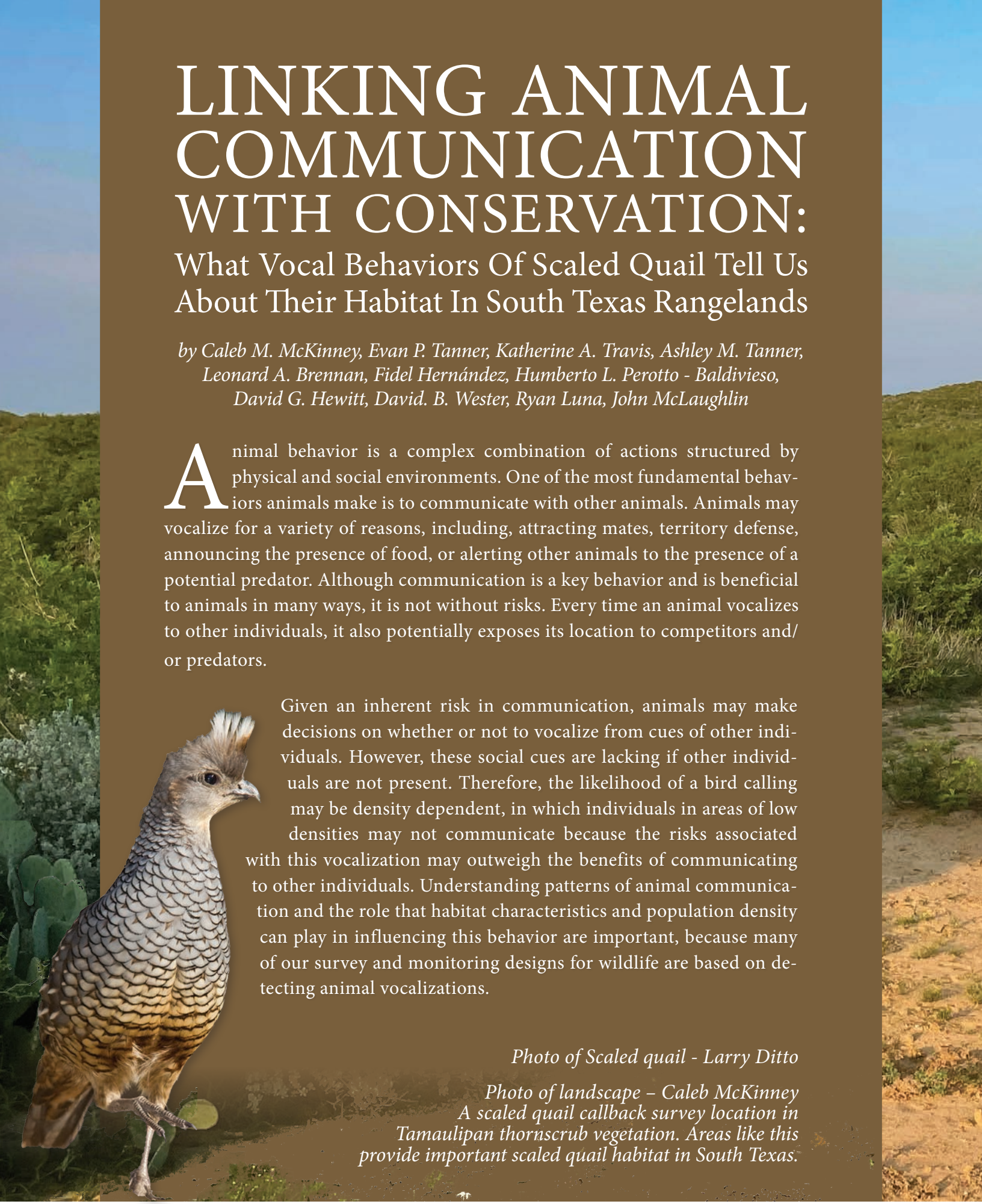


Photo of Scaled quail - Larry Ditto

Photo of landscape – Caleb McKinney
A scaled quail callback survey location in Tamaulipan thornscrub vegetation. Areas like this provide important scaled quail habitat in South Texas.

Top: the understory of a patch of Tamaulipan thornscrub taken at the height of a quail. Bottom: a patch of buffelgrass taken from the height of a quail. We want to understand how quail vocal behavior changes in different environments such as these. Photo credit – Katherine Travis/Caleb McKinney

For species of quail, vocalizations are not only an iconic sound in Texas, but they also provide information for researchers and managers about population trends and habitat associations. Yet, quail are more inclined to whistle and let us know they are there if other males are calling (something researchers call "conspecific cues"). This fact introduces potential biases in using male whistle surveys, particularly if surveys are being conducted in areas of marginal habitat with low bird densities.

To address these potential biases, we are conducting research on survey methodology for chestnut-bellied scaled quail (*Callipepla squamata castanogastris*; hereafter "scaled quail") on private ranches in Dimmit and Duval counties, Texas. Specifically, we are testing the effectiveness of traditional point counts (i.e., male whistle counts) in conjunction with whistle playback surveys, in which we broadcast scaled quail calls to elicit a vocalized response to detect scaled quail. Moreover, we are examining if our ability to detect scaled quail during callback surveys varies among different vegetation types. Such refinement of survey techniques is critical towards informing science-based management, because scaled quail are experiencing distribution-wide population declines and a contracting distribution. Improving monitoring efforts for this species may allow for a better understanding of what environmental factors influence where this species is found, and what management actions can be taken to stem this decline.

In South Texas, the scaled quail is strongly tied to the Tamaulipan thornscrub vegetation community. Tamaulipan thornscrub is a dense and diverse plant community of short statured trees and shrubs with a high percentage of bare ground beneath the shrubs. Scaled quail are almost entirely ground-dwelling birds, only flying during periods of extreme distress. They also benefit from the high percentage of bare ground underneath shrubs to move quickly to escape predators. The dense shrub canopy above is also important because it provides shade and screening cover from aerial predators. However, many areas of Tamaulipan thornscrub are being lost because of conversion to agriculture, energy development, and the spread of invasive plant species. In particular, increasing coverage of non-native grasses and the potential spread of taller trees (i.e., invasive honey mesquite) ap-

Scaled Quail often vocalize from elevated perches like fence posts. Photo credit - Evan Tanner

pear to be negatively affecting scaled quail populations. While these types of vegetation communities may be marginal scaled quail habitat, they could be important in promoting dispersal and connectivity between increasingly fragmented patches of Tamaulipan thornscrub. Ultimately, testing the efficacy of these survey approaches in these marginal areas will be important if current land use trends continue to fragment and remove patches of Tamaulipan thornscrub within the scaled quail's distribution.

In May 2022 we established whistle count and playback surveys for scaled quail at 170 randomly selected locations at two study sites. Each location was surveyed three times at least one week apart for a total of 1,020 surveys per year. Traditional male whistle counts were 5-minutes in length and were immediately followed by a 2-minute playback survey where pre-recorded scaled quail vocalizations were played intermittently using speakers.

Preliminary data are promising; we detected scaled quail during 16.8% of whistle count surveys, and total scaled quail detections increased to 28.5% after the inclusion of playback surveys. Playback surveys increased detection rate of scaled quail across all vegetation types. However, the percentage increase was greater in vegetation communities that are typically considered to provide marginal habitat for scaled quail in South Texas, such as grassland areas and riparian woodlands dominated by taller trees.

Our preliminary results indicate that playback surveys improve detection rates when compared to standard male whistle counts, which could have implications towards population monitoring for this species. Calling patterns in marginal areas may offer important insights into the relationship between scaled quail vocalizations and density dependence. By doing callback surveys to elicit a vocalized response, we likely detected scaled quail in areas in which they may have remained silent without an audible stimulus (playback survey). Now, finishing our second year of data collection with over 2,000 surveys, we will continue to investigate how these callback surveys inform us towards quantifying marginal space for scaled quail in South Texas. This investigation will improve estimates of population indices while also informing larger habitat connectivity models that will guide regional management efforts.

THE POWER of PASSION

by Lorie A. Woodward

Cornelius and Celia Dupré of Houston, long-time friends and supporters of CKWRI, believe education can change lives—and the world. To empower the next generation of land stewards, they created the "*Celia and Cornelius Dupré Program in Wildlife Education and Outreach*" endowment in 2020.

"The endowment is focused on increasing awareness of wildlife conservation and stewardship principles as well as promoting civic engagement and inspiring young people to pursue careers in ranching, wildlife and conservation fields," Cornelius said. "In our modern world, we often forget that our entire way of life is based on the health and well-being of our natural resources, so we need visionary, practical leaders in this crucial field as we move through the 21st century."

Celia is equally passionate about equipping the next generation of conservationists with the tools and knowledge they need to navigate our increasingly complicated world.

"It's not a cliché to say that young people are our future," Celia said. "They are inheriting our issues, our challenges as well as our opportunities. If we can fuel their curiosity, feed their passion and illuminate their thinking through science and experience, we will all be better off."

South Texas Ranch Brigade (STRB) is just one example of the life-changing experiences that have been made available to youngsters through the endowment. Held each summer on the Killam family's Duval County Ranch, STRB is a five-day intensive, hands-on conservation and leadership camp for high school students ages 13 to 17 that prepares young people to go back to their communities as land stewardship ambassadors.

During the five days, the students get classroom instruction from professors at CKWRI and King Ranch Institute as well as leading professionals from through the cattle industry. The classroom instruction lays the foundation for field work that ranges from range plant collection and identification to chuteside cattle working. The experience is top-dressed by communication and leadership training as well as team building and friendly competition. The students also complete professional posters on technical subjects to support their outreach.

"While we call our five days together a camp, that's a misnomer," said Jeff Petter, president of Texas Brigades. "It's more like college mini-mester where students are drinking information from a firehose."

Each lesson and experience builds on the next. Instructors, parents and the students themselves are surprised by the changes that are wrought when young people are pushed to get beyond their comfort zones and held to standards of excellence.

"It's not hyperbole to say Texas Brigades is life-changing," said Petter.

Top photo (l-r): Fred Bryant, Celia Dupré, Cornelius Dupré, Janell Kleberg, and Tio Kleberg; Right photo: Range Brigade participants

He cites the example of Zoe B-D, a young woman who was reared in Chicago and Austin in a family of vegetarians. She was interested in conservation, so her mother encouraged her to attend STRB. Before coming to STRB, she had never eaten a steak or set foot on a ranch. Initially, she was the proverbial fish out of water, but after a discussion about grazing and carbon sequestration, she began to swim as her understanding of the world and land stewardship's role in it changed. Today, she is a freshman at UC-Davis studying sustainable agriculture and food systems.

"For us, it's a joy to get young people off the concrete and into the outdoors," said Celia, who is often moved to tears by her passion for natural resource education for youngsters. "There is no better teacher than Mother Nature and no better classroom than wide open spaces."

THE POWER *of* FRIENDSHIP

Just as they value education, the Duprés value people and long-term relationships. They became friends of CKWRI after becoming friends with Tio and Janell Kleberg.

As the story goes, Cornelius attended the famed "South Texas Charity Weekend" in the early 2000s. (In 2016, he was honored as *South Texan of the Year* due to his involvement throughout the region.) During that weekend, he was paired with the Klebergs for a day of quail hunting on King Ranch. When they emerged from the field that evening, a friendship had been born. The Duprés credit the Klebergs with introducing them to CKWRI and its mission of applied research.

The Duprés, who own land in South Texas, were drawn to the Institute because it provides science-based information that is applicable to enhancing conservation and wildlife management.

"The Institute asks pertinent questions, finds relevant answers and puts tools in the hands of land stewards enabling them to manage their resources more effectively," said Cornelius, who was reared in Louisiana where the outdoors was central to his life beginning in childhood. "The researchers there are authorities when it comes to best practices and impactful management related to healthy habitat and wildlife."

As the couple became more involved with CKWRI, they wanted to do more to support its mission and spread the word about its impact. Putting their heads together, they conceived the perfect "friendraiser," an annual social held at their Basalt, Colorado home during the summer.

Since it's inception in 2018, the event has not only spread the word about the Institute among the Texans and others who summer in the mountains but has inspired many friends to create their own endowments. In and of itself, the event has raised over $350,000 to date for CKWRI's work.

With that background, it was fitting that the Duprés chose the event in 2020 to announce their own endowment.

"Celia and Corny are generous, giving people who put their passion to work and make good things happen," said Dr. Fred Bryant, Director of Development at CKWRI.

"At the Institute, we're honored to call them friends and have them carry our banner for conservation."

HOW THE TIMING OF RAINFALL INFLUENCES THE QUALITY OF WHITE-TAILED DEER OFFSPRING

by Miranda Hopper and Michael Cherry

There are two types of people in this world: the spenders and the savers. The 'spenders' are the type of people who spend money as quickly as they earn it. They go out to eat often; they always seem to have the latest fashions and newest gadgets. However, when it comes to long-term investments, like saving up for a vacation, they often say they cannot afford it. 'Savers', on the other hand, never spend any money until they absolutely must. They live on a strict budget, never indulging themselves in unnecessary purchases, but somehow, they are spending the holidays in Europe this year. People vary in how they choose to spend their money, and each strategy has its benefits and costs. When it comes to big life events though, like say, having a baby, most people would agree it is best to save up ahead of time and prepare yourselves (and your bank account) for the new addition.

White-tailed deer fawns at the East Foundation's San Antonio Viejo Ranch. Photo by Walker D'Agostini.

In wildlife, there are spenders and savers. However, in ecology, we call this income and capital breeding. Income breeders are the spenders. They take in resources through their food, and immediately put those resources to use in meeting their energetic requirements. Income breeders tend to live "paycheck to paycheck". Conversely, capital breeders are savers. Capital breeders take in resources, but rather than using those resources immediately, they put them into energetic stores and save them for later when their energetic demands are at their highest. Many species are income breeders, but there are extreme examples of capital breeders. For example, baleen whales will travel to areas with limited resource availability and forgo food for weeks for a predator-free calving area, existing exclusively off of banked capital reserves. However, most species exist on a spectrum between these two extremes. For example, white-tailed deer tend to be what we call a "flexible capital breeder", meaning they use both income and capital strategies to meet their nutritional needs for reproduction.

Many species differ in how they use these strategies, and there are costs and benefits to either route. Having access to energetic stores enables wildlife to be more resilient to environmental variation. If an unexpected drought occurs, they can rely on energetic stores to get them through the drought period when forage resources are depleted. However, utilizing energetic storage results in a net energy loss, because there are energetic costs associated with building, maintaining, and mobilizing stores; thus, capital breeders cannot devote all acquired energy to reproduction alone. Income breeders, on the other hand, can put that energy directly towards reproduction and regular day-to-day maintenance. This is why, in completely predictable environments, income breeding is often considered the better strategy. However, a completely predictable environment doesn't really exist in nature. We can expect some level of uncertainty in most natural systems.

We know that breeding strategy influences how animals acquire resources, but it also impacts when they most need resources to be available to meet their requirements. For income breeders, resources need to be available when the animal's requirements are at their highest. For females, this often corresponds to the final stages of gestation and lactation. For capital breeders though, resources should be available at some point prior to these highly demanding periods, so that they may build up their stores ahead of time. Thus, the timing when resources become available is important, and as wildlife managers, we are interested in timing of resource availability because of how it affects population performance. For example, previous research

White-tailed deer fawn at the East Foundation's San Antonio Viejo Ranch. Photo by Walker D'Agostini.

has shown that spring rainfall is positively related to fawn survival and antler scores of white-tailed deer living in South Texas.

South Texas is an extremely unpredictable environment, and white-tailed deer living in this system are unique because their population is considered to be density independent. This means that population dynamics are driven by environmental factors, like rainfall, as opposed to factors that are dependent on density, like competition for resources. Rainfall is highly variable in the region. A drought year may be followed by a year with 30 inches of rainfall, and in the year with 30 inches of rainfall, 20 of it may have occurred in the month of September. Because rainfall varies so significantly, resource availability is also often unpredictable. Deer must cope with environmental uncertainty, while still reproducing successfully and raising healthy offspring. This is easier said than done, considering juveniles are often the most vulnerable to environmental change.

With collaborators at the East Foundation, we set out to determine when resource availability was most important for promoting offspring quality. In this case, offspring quality refers to the body mass of fawns and yearlings. We were interested in body mass, because for white-tailed deer specifically, body mass is positively related to survival and a faster time to first breeding. We chose to focus on rainfall, because rainfall is a primary driver of resource availability for deer. To answer our question, we assessed how seasonal rainfall affected body mass of fawns and yearlings. Specifically, we captured 480 fawns and 571 yearlings using helicopters every fall from 2011 to 2021. For each deer, we recorded body mass and a location where they were captured. We then determined the total amount of rainfall each individual experienced in seven time periods that we predicted would have an impact on offspring quality. Those seasons represented periods when energetic requirements for deer were at their highest, like lactation, and we also included seasons that were important for plant growth, like the early growing season, or April in our study system.

Overall, we found that early growing season rainfall had the strongest effect on both fawn and yearling body mass. Specifically, we found that for every 1-inch increase in early growing season rain, fawn and yearling body mass increased by 1.22 and 1.61 lbs., respectively. This suggests that white-tailed deer are likely employing a capital breeding strategy to meet their needs for reproduction. In this system, the early growing season occurs about one month prior to the onset of the final trimester of gestation. Early growing season rain has both immediate and lagging effects on plant productivity. Deer are able to capitalize on the initial flush of vegetation growth following rain, allowing them to build up energetic stores in preparation for late gestation and lactation, while leveraging their income capabilities to take advantage of prolonged improvements in forage quantity and quality during the fawning season.

"This study... sheds light as to how deer in this dynamic system cope with environmental unpredictability."

This study demonstrates the importance of spring resources for deer in meeting their energetic requirements during reproduction. It also sheds light as to how deer in this dynamic system cope with environmental unpredictability. By utilizing energetic stores, deer are able to withstand some level of uncertainty in their resources. Importantly, we found evidence that timing of resource availability does matter for deer. Income resources are useful. However, if we want to see improvements in offspring quality, the resources available to females prior to their final trimester and lactation are critical. All in all, deer are both spenders and savers, but when it comes to having a baby, does like to be prepared ahead of time.

OCELOTS IN SOUTH TEXAS: Coming Back from the Brink

by Lisanne Petracca

With the believed recent extirpation of the jaguarundi (*Herpailurus yagouaroundi*) from the United States, the ocelot (*Leopardus pardalis*) is the lone remaining endangered felid in the country – and happens to have its home in South Texas. The Caesar Kleberg Wildlife Research Institute (CKWRI) has long been a leader in ocelot research, and to that end recently brought in a $12.2 million contract from the U.S. Fish and Wildlife Service (USFWS) to help support ocelot recovery. A key part of this funding opportunity is introduction of a third wild ocelot population, a venture that would not be possible without support from personnel and expertise at the East Foundation, the Cincinnati Zoo, the Texas A&M Natural Resources Institute, USFWS, Texas Parks and Wildlife, and private donors.

The reintroduction of ocelots into South Texas has been a long time coming. The chosen reintroduction site, a 140 mi (89,600 acres) area of habitat located in Jim Hogg and Starr Counties, was chosen following an analysis that prioritized areas with intact Tamaulipan thornscrub, distance away from high-traffic roads and storm surge areas, and land ownership values aligned with wildlife conservation. In total, 47.99 sq mi (30,715 acres) of this habitat patch are located on the San Antonio Viejo Ranch, a working cattle ranch managed by the East Foundation.

The State of Texas is >95% private lands, which makes relationships with private landowners critical to securing a future for ocelots in the United States. To that end, the East Foundation, with technical support from USFWS and Texas A&M Natural Resources Institute, led the creation of a proposed Programmatic Safe Harbor Agreement and associated Enhancement of Survival permit. The East Foundation can recruit interested landowners to be a part of this agreement through issuance of a certificate of inclusion. In mid-September 2023, the East Foundation officially submitted its proposal to the USFWS. A public comment period on the proposal then ran until October 16. The USFWS is currently in the process of reviewing the proposal and public comments to make a determination on issuing the East Foundation the permit and approving the agreement.

Left: One of 30 box traps set to capture ocelots and bobcats on El Sauz Ranch, managed by the East Foundation. Photo by Lisanne Petracca.

Right: Louis the Ocelot, a young male captured on El Sauz Ranch on March 20, 2023. This male was processed by the capture team and released back into the wild. Photo by Aidan Branney.

Caesar Kleberg Wildlife Research Ins1tute intern Georgia Harris (L) and Master's student Tyler Bostwick (R) prepare to place a box trap in thick thornscrub. These traps are intended to capture ocelots and bobcats, though they also capture raccoons, opossum, coyotes, and rabbits, which are quickly released."

Photo by Lisanne Petracca.

What will the Safe Harbor Agreement and associated Enhancement of Survival permit entail? First, the agreement and permit will give the East Foundation the ability to release ocelots into identified habitat on the San Antonio Viejo Ranch. Other landowners, meanwhile, will be able to allow released ocelots and their descendants to disperse into habitat found on their lands. Second, the Enhancement of Survival permit allows for incidental take of reintroduced ocelots, normally prohibited under the Endangered Species Act, but permitted here so long as it is consistent with normal land uses or conservation activities listed under the agreement. As such, Landowners who participate in the agreement will be able to persist in their current land uses, whether it be ranching, agriculture, energy development, etc., so long as there are management actions by the landowner that result in a "net conservation benefit" for ocelots. At the least, these management actions must include allowing released ocelots and their descendants to disperse onto one's property. Additional management actions benefitting ocelots would not be required but are encouraged. They may include, but are not limited to, wildfire mitigation practices, minimization of brush clearing, habitat restoration, or construction of supplemental drinking sources.

Importantly, participation in the agreement is entirely voluntary for landowners and a landowner can withdraw from the Safe Harbor Agreement at any time, at which point the landowner can return their land to the agreed-upon baseline conditions of zero ocelots, if they so choose. The East Foundation has worked with the USFWS to also assure that any landowners within 31 miles of the San Antonio Viejo Ranch and who are not participating in the agreement or who choose to withdraw from the Agreement will also be exempt from incidental take prohibitions on ocelots. This assures all landowners in the proximity of the reintroduction site that the ocelot reintroduction will not result in any restrictions on land uses. Private landowners in and around the reintroduction site are welcome to liaise with personnel at the East Foundation to learn more about this opportunity.

Beyond the proposal of the Safe Harbor Agreement, there is an additional swirl of activity around reintroduction plans. Two key pieces are breeding ocelots that can be released into the wild, as well as constructing an Ocelot Conservation Facility on the Texas A&M – Kingsville campus. Captive propagation of ocelots will be led by Dr. Ashley Reeves, DVM, Ph.D., Research Veterinarian at the East Foundation, who is a leading expert in the subject. Dr. Reeves has already completed a few artificial insemination procedures, using zoo females and sperm from wild Texas males. It will be a number of months before success of those procedures is known. Another potential avenue is to procure live individuals from Mexico and use those individuals to complement the captive breeding program.

The goal is for the Ocelot Conservation Facility to be complete by 2025, at which point CKWRI and partners will have a state-of-the-art facility to breed ocelots. Researchers will also continually monitor individuals for disease and desired behavioral traits, such as natural hunting ability and aversion to human presence. Ocelots at the facility will be exposed to humans as little as possible in order to increase individuals' success upon release to the wild. Current program goals are to release into the wild ocelots who have at least 75% South Texan or Mexican genetics and therefore will be well-adapted to surviving in the environmental conditions of South Texas.

Dr. Lisanne Petracca, Principal Investigator of the Spatial and Population Ecology of Carnivores (SPEC) Lab at CKWRI, will lead research into reintroduction success. Reintroduction success may take time, but the goal is to have a permanent population of ocelots that is breeding and hunting without assistance or supplementation by people. Ocelot movements will be closely monitored via GPS collars, giving Dr. Petracca and colleagues much-needed insights into how these cats are moving through the landscape and when/where they establish home ranges. Main priorities are to assess habitat use, survival probability, and reproductive events in this newly established population, as well as to monitor growth of the population over time.

East Foundation technician and CKWRI Master's graduate Aidan Branney (L) and CKWRI Master's student Tyler Bostwick (R) take measurements from a male ocelot. Photo by Lisanne Petracca.

This is an exciting time for ocelot recovery in South Texas, as the previously far-off dreams of ocelot reintroduction are now taking shape and gaining momentum with a growing team of research scientists, veterinarians, policy specialists, and graduate students at the helm. This opportunity gives CKWRI an extraordinary chance to serve as a national leader in felid reintroduction and recovery, and the hope is that the almighty ocelot will thrive once again in South Texas.

Student Highlight

Calvin Ellis, Master of Science Candidate
Boone and Crockett Club Fellowship in Ungulate Research

Project: Interaction between Mule Deer Spatial Ecology and CWD Epidemiology

Calvin grew up just outside of Athens, GA, spending most of his time enjoying nature through hunting, fishing, or hiking. After receiving his bachelor's degree in Wildlife Science from the University of Georgia, he spent some time on technician jobs before accepting a M.S. position at the Caesar Kleberg Wildlife Research Institute as the Boone & Crockett Club Research Fellow. His career goals are to obtain his Ph.D and return to academia as a professor focusing on spatial ecology of ungulates & predator-prey ecology in the Northwestern United States.

THE PERMIAN BASIN/PANHANDLE NATIVE SEED PROJECT

Updates from a New Project Region for Texas Native Seeds

by Jameson Crumpler

INTRODUCTION

In 2017, the Permian Basin-Panhandle Native Seeds Project (PBPNS), the newest project region under Texas Native Seeds (TNS) Program, was established. Since its inception the program has focused on making new native seed collections, and evaluating species in collaboration with the West Texas Native Seeds project region at the shared site near Odessa. Jameson Crumpler was hired as a new Assistant Director in November of 2022. Jameson brings a wealth of knowledge previously working for TNS in West Texas, and an eagerness to really expand the reach of the PBPNS north into the Panhandle.

OUTREACH AND PROGRAM UPDATES

Staff within the PBPNSP have been busy this year with outreach activities making people aware of the newest TNS project region. Updates and introductions to the PBPNSP were presented at two national level conferences this year. The first conference was in March at the National Native Seed Conference in Washington, D.C. The second conference was America's Grasslands Conference in Cheyenne, Wyoming in August.

The National Native Seed Conference was well-attended and demonstrated multiple entities and agencies are working toward solutions and strategies to address the national native seed shortage.

Sand bluestem in native habitat. Photo by Jameson Crumpler

Attendees included federal agencies, commercial seed industry, traditional ecological practitioners, and many iterations of regional native seed partnerships. Texas Native Seeds was well-represented and presented in symposium. America's Grasslands Conference was well-attended by practitioners and producers, and PBPNSP was seemingly well-received during the individual talk session.

Additionally, PBPNSP staff have been attending field days coordinated by the Ogallala Commons, as part of their Stewarding Natural Resources Program. Playa lakes are critically important to the function of the Ogallala Aquifer, upon which all of the High Plains lies on. PBPNSP plans to develop plant materials which can be used in seeding mixes compatible with the restoration of playa lakes. These outreach events help to make PBPNSP a known entity in the project region.

Earlier this summer, PBPNSP staff met with personnel at West Texas A&M University in Canyon to discuss potential for collaboration and partnership. The talks resulted in a tentative agreement to establish a new evaluation site east of Canyon, near the edge of the Caprock. This new evaluation site will serve the PBPNSP well in its germplasm evaluation, and firmly establishes PBPNSP as a true Panhandle native seed development project. The Canyon site will also be the northernmost evaluation site in the TNS program. Groundwork for the new evaluation site is expected to begin in Winter 2023-2024.

Presently, a large, multi-species evaluation is planned for Spring 2024. This evaluation will include all commercial releases of native seeds ever used in, or developed in the state of Texas and adjacent regions. Data will be collected on this evaluation for 2-3 years, and the data will be used to refine seeding recommendations for the Panhandle region and to inform work needed on future native species evaluations. Currently, only one native seed source originates from the Panhandle, Cottle County Germplasm sand bluestem, a release from the Knox City Plant Materials Center in Knox City, TX.

GERMPLASM EVALUATIONS

To date, PBPNSP is working on germplasm evaluations for 3 native plant species: Sand bluestem, purple coneflower, and Canada wildrye. Sand bluestem and purple coneflower are finishing up their second growing season under evaluation. A data analysis at the end of the year will inform if a third growing season evaluation is needed for these two species.

Sand bluestem is an important climax species of the Great Plains, and is especially important for erosion control and upland bird habitat in sandy rangelands and prairies. Purple coneflower is a common forb of varied habitats in the Great Plains, and is entirely dependent on seed production for recruitment and survival of populations. Many populations of purple coneflower are on the decline due to conversion of prairie to non-grassland systems and root digging, due the medicinal nature of the plant. The evaluation for these species consists of 25 accessions and 23 accessions, respectively.

Canada wildrye is an advanced evaluation of 13 accessions, down from 60 in the initial evaluations. Four accessions show great plant performance and pleasing phenotypic traits. Seed quality testing is pending. Future species evaluations are planned for 2024 and beyond.

RESEARCH PROJECTS

PBPNSP has been involved in ongoing research plantings with ExxonMobil since May 2023. In these projects, ExxonMobil is wanting to learn if it is possible to establish green carbon storage in the region. The majority of these research plantings are in the Permian Basin region in Andrews, Crane, Ector, and Gaines Counties. For PBPNSP (and TNS), these research plantings provide us with real-world data by which we can fine tune our seeding recommendations and best practices for reseeding on the hot and arid sites typical of the Permian Basin. The oil and gas industry is one of the largest consumers of native seeds, and our work and lessons learned from these plantings helps TNS maintain its position as the primary knowledge source for native seeds and reseeding in Western Texas.

CONCLUSION

As 2023 winds down, PBPNSP staff will be hard at work chasing the slowly ending growing season while keeping an eye on current and future priorities to help meet the increasing demand for native seed sources in both the Permian Basin and the Panhandle regions of Texas.

DONOR SPOTLIGHT:
Mary and Mike Terry - MT7 Ranch

by Lorie A. Woodward

MT7: A Commitment to Excellence

The MT7 Ranch, established by Mike and Mary Terry of Dallas, is a living laboratory for applied conservation that is fueled by curiosity and entrepreneurship, shaped by excellence and undergirded by faith that inspires generosity.

"When it comes to giving back, I'm reminded of the verse, 'To whom much is given much is required,'" Mike said. "We've been richly blessed, so it's incumbent to give back—and education is a game changer, so it's one of the things we support in all its forms."

And like education itself, their support takes many forms. At CKWRI, the couple created the *Mike and Mary Terry Family Endowed Fellowship for Habitat Research*. As other examples, they provide two scholarships for seniors graduating from Breckenridge High School, the small Texas town closest to the ranch. All the fifth graders from Breckenridge Elementary are hosted for a daylong annual field day, where many of the students catch their first fish.

Gates are flung open for adult workshops and field days with a host of partnering agencies. Ranch staff, including Manager Ty Bartoskewitz, who earned his Master's degree in wildlife management from Texas A&M University-Kingsville as a student of the Institute, serve as leaders in conservation organizations across the state.

The ranch, which is in Stephens County, sits at the convergence of three ecoregions between the Brazos and its Clear Fork and boasts 30 miles of creek corridors, which create a bounty of biodiversity. The MT7 Ranch has been the site of research projects conducted by universities across Texas and beyond including Texas Tech, Texas A&M and Louisiana State.

Currently, the ranch staff and CKWRI scientists are exploring opportunities for research in North Texas that include the MT7 Ranch along with some other notable ranches in the area. The complementary goals are answering questions specific to the region and increasing the visibility of the Institute in another wildlife-rich, sprawling part of Texas. Early on Dr. Fred Bryant and more recently Dr. Dave Hewitt and staff from Native Texas seeds have visited the ranch and offered insights.

"In my estimation, CKWRI is the premier research group in the state," said Mike, noting Bryant explained the Institute's mission and mindset soon after the Terrys became landowners. "We're drawn to its commitment to excellence because excellence is what we strive for on the ranch."

He added, "On the ranch, we've embraced a set of core values that include 'Learn something. Teach something.' It just all works together…"

Bringing the Laboratory Back to Life

In 2008, the Terrys purchased their first property in Stephens County, which was founded as the Veale Ranch and then sold to Steve Jorns. The Veale's brand was a 7 and the Jorns' brand was J7, so in the first of many nods to the area's history the Terrys chose MT7 to keep the legacy alive.

"It is fascinating to me that this land has only had three owners in the past 150 years," Mike said.

The first order of business was finding a ranch manager. A friend of the Terrys suggested, they talk with Bartoskewitz, who was working as a technical guidance biologist for the Texas Parks and Wildlife Department. At the end of the ranch visit, each family knew they'd found a match.

"We talked about everything, and it became clear we wanted the same thing. We both wanted to create one of the best examples of wildlife habitat, land stewardship and conservation-driven value creation that exists anywhere in the world," Mike said.

Because the duo was committed to elevating the habitat for whitetails, turkey, dove, quail and waterfowl in concert with a profitable cattle operation, the shared value proposition was generalized by design.

"Our goal—and focus—was moving everything to an A-quality," said Mike. "We have a commitment to excellence in all things."

Working from that core value proposition, they conducted 24 real estate transactions over the next seven years to create the 19,300-acre MT7. Many of the ranches came from families whose roots in the area stretched back three generations. Most of the ranches, they acquired had been overstocked and overgrazed historically, so the land came into the family with its worn-out work clothes on.

As new land was acquired, it was integrated into the overall business plan and management system and pastures, pens and other landmarks were named to honor the people who had worked that land before them. In most cases, the designation was informal, but in the case of the outlaw Sam Bass, there is a

Mike and Mary Terry



Texas State Historical Commission marker. Bass, purportedly buried the loot from one of his gang's infamous robberies, somewhere on a non-descript knoll known as Sam Bass Hill, located on the former Walker Buckler Ranch that now marks the MT7's northern periphery.

Once a property was acquired and evaluated, restoration via rest was generally the first prescription as the ranch's infrastructure was upgraded. From the beginning, the team created grazing exclosures and several photo points. In 2010, they established a stratified range monitoring program that now numbers 130 sites/photo points. When the rest indicated a period of diminishing returns on plant vigor and diversity, they introduced rotational grazing, which continues today.

Initially, the team ran a "mismatched herd of broke mouth sale barn cows" as if they were stockers, selling them off at the end of the grazing period, which was January to May to help rectify the imbalance of cool season and warm season grasses. When the Terrys took over the ranch, cool season grasses made up about 90 percent of the annual grass cover; today, the coverage is close to 50:50.

In 2015, the ranch was complete from an acreage standpoint and the individual parcels had begun to reflect the team's cohesive management. At that point, they purchased a herd of Red Angus cattle and now run a profitable cow-calf operation that is an income stream and effective land management tool.

At the same time, they tackled the issue of brush encroachment, relying most heavily on mechanical treatment followed up by IPT; prickly pear was also sprayed. While the brush density in the ranch-wide mosaic varies from pasture to pasture, it averages out to about 50:50. As areas were cleared and treated, they were re-seeded with native grasses and forbs to take advantage of the sun, rain, diversify the plant community and cover any bare spots.

Water was another priority on the ranch which lies in 24-inch rainfall belt. To date, they have enhanced or constructed 40 lakes and ponds, 30 of which are stocked to create a variety of fishing opportunities, created more than 200 water spots and installed three moist soil areas for waterfowl.

The riparian areas are also monitored by a system of photo points. In addition, they hold 125-acre feet of annual Brazos River water rights that they access from a 36-inch water line that originates in Lake Possum Kingdom and traverses through the ranch for eight miles. They have installed at least 25 miles of piping.

"We have the ability to put water where we need it, which is something that others don't have," Mike said. "Our goal is to make every acre usable for cattle, wildlife and people."

In addition, they supplement the whitetails' native diet with year-round protein from 65 feeders and 50-60 cottonseed baskets. The feeding regimen also includes 110 corn feeders. The team has data from every feeder since 2010, allowing the team to spot consumption trends.

Feed output and consumption is just one example of the ongoing data collection that occurs on the MT7.

"Anything you can think to ask us, we have the data to answer the questions," said Bartoskewitz, noting



that the team has use, hatching and fledging rates for all the bluebird and wood duck boxes, which total about 80. "Accurate data helps us grow in the right direction and spot any mistakes we might be making before it's too late to turn them around."

While their management practices are based on science, supported by data and refined by trial-and-error application to make them most effective for their landscape, every decision is driven by the Terrys' overarching desire to create sustainable value by making the land better for cattle, wildlife and people.

The Ongoing Outcomes

A survey of the data or the landscape proves the ranch is headed in the right direction. Pockets of open rangeland boasting diverse native grasses and forbs are interspersed with diverse brush. The amount of cover far exceeds bare ground even at the height of this summer's extreme heat and drought. The buck:doe ratio, which was originally 1:4 is now 1:1.5 and the bucks average 170" – 180" with some over 200."

"When we started out up here, a 120-inch buck was famous," Mike said. "Last year, we took one that was over 200 inches."

The turkey population, which numbered 35 at the first survey, now stays between 500 and 600. In 2015, they counted two geese and now they have upwards of 80 geese year-round. Non-game species have boomed as well and now include bald eagles, swans, beavers and the first river otters ever reported in Stephens County.

"I've seen it since day one and I can't express how satisfying it is to see this land go from its worst to what it is now, moving ever closer to its native state," Mike said. "Every time we see or hear something new, it's exciting because it's another indication that we're doing something right."

Just as the land has changed, so has its relationship with the family. While first and foremost an investment and ranching business, over the years MT7 Ranch has offered unique opportunities to the Terry family. It has become a treasured place where generations of family gather and unite in their passion for land stewardship and love of nature. One question is a constant in the Terrys' conversations with their six grandchildren. They all ask, "When are we going to the ranch?"

Against the backdrop of nature, they learn together, play together and worship together. On a portion of the ranch designated for the family, Mary initiated the construction of a family chapel that looks as if it's born to the land. An artisan friend of the family created 14 stations of the cross that lead up to the hilltop chapel. Every Easter, the family gathers at the ranch. Every Terry from oldest to the youngest reads a scripture as part of the journey to the chapel where they close in collective prayer. It is a tradition that has become as cherished as the land itself.

"When Mike and I were first married and living out at Lake Dallas, we used to drive around, see fences. wonder what life was like behind them and imagine being part of it," said Mary, noting they have been married 48 years. "This land and this life are bigger than what we ever imagined.

"What good is it if we keep it to ourselves? For it to be good, we have to share it with others."

BRENNAN & WESTER
Hang-up Their Field Boots

by Lorie A. Woodard

After 36 years of combined, exemplary service to CKWRI, its students, and partners, Dr. Lenny Brennan and Dr. David Wester have retired. Brennan and Wester, who both served as professors and research scientists, joined the Institute in 2001 and 2011, respectively.

"I feel blessed knowing that the Institute can attract nationally recognized scientists like Lenny and David and create an atmosphere that encourages talented people to stay and continue contributing through the years," said Dr. Dave Hewitt, Executive Director of CKWRI. "It's an honor that they chose to trust their careers to the Institute, and they will certainly be missed as colleagues, educators, and friends."

Brennan, a native of Connecticut, became passionate about nature as a youngster camping, canoeing, and hiking through the Northeast. Thanks to a visionary high school guidance counselor, he turned his teenage ambition to "get paid to walk in the woods" into an actionable college plan that led him to career in wildlife research that concluded with him "getting paid to walk in the brush and count birds." At the time of his retirement from the Institute, he held the C.C. "Charlie" Winn Endowed Chair for Quail Research.

His interest in birds was kindled as an undergraduate in an ornithology class where he first encountered quail, which he decided would be "an interesting bird to know more about." He completed his master's work studying mountain quail in California.

He came to the Institute after first serving as a research scientist at Mississippi State University, where he was introduced to South Texas quail as a guest on the Norias Division of King Ranch in the early 1990s. It was a boom year. "I'd never seen coveys of quail landing and flushing others," said Brennan, noting it was a memory that stuck with him and helped make the decision to come to South Texas and the Institute easy when Dr. Fred Bryant called him in 2000 because "I knew just how beautiful it could be."

Brennan left Mississippi State in 1993 to become Director of Research at the Tall Timbers Research Station in Tallahassee, Florida. Of his myriad of contributions to the body of knowledge on wild quail, he considers his 11 books, particularly "Texas Quails: Ecology and Management" as his largest and most significant. With that said, his most satisfying achievement is the strategic plan that he wrote for the third National Quail Symposium that eventually evolved into the National Bobwhite Quail Conservation Initiative. "It has become a 'game changer' for quail conservation across the nation," Brennan said.

The national impact of Brennan's work is recognized by quail enthusiasts and colleagues alike. "He is a deep thinker, both scientifically and in the classroom, who always demonstrated an inherent ability to see the big picture on what needed to be addressed," Hewitt said. "Lenny's national presence in the game bird world created a strong platform to share the insights gleaned at the Institute."

Stuart Stedman, a member of the Institute's Advisory Board who owns the Faith Ranch in Dimmitt, Webb and Maverick counties, credits the breadth and depth of Brennan's experience as one of the reasons for his success. "Lenny combines the experience of working in the Southeast at Tall Timbers with his research in South Texas—the two most productive areas for bobwhite quail in the world, and two entirely different ecosystems that have to be managed completely different for bobwhite quail," Stedman said. "His experiences are unique in the quail world and give him an understanding of quail biology that is simply unmatched."

Interestingly Brennan describes CKWRI, a private research institute embedded in a public university, as unmatched

Dr. Leonard A. "Lenny" Brennan

in the world of research organizations. In his estimation, the tremendous public and private support combined with the academic freedom to pursue answers and applications instead of an agenda is a rarity.

"We're unapologetic about studying game species," Brennan said. "Nationally the amount of time and effort being spent on game species is declining, and we would be leaving an important conservation opportunity on the table if we didn't pursue answers to questions that help landowners and land managers do what's best for the species that are important for so many."

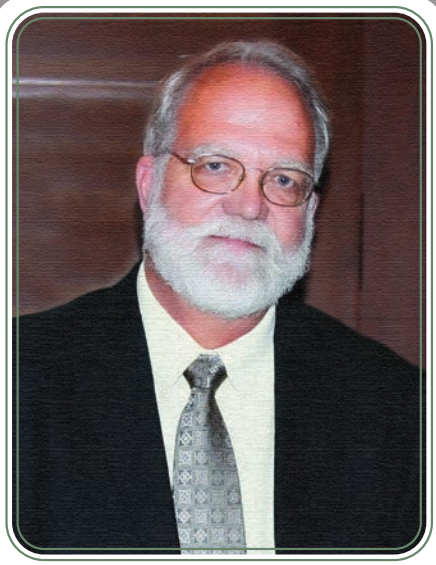
Wester grew up in Colorado as part of an outdoor-loving family that embraced hiking, camping, fishing and the other active pursuits of the Rockies. As it came time for college, his parents, recognizing his love of the outdoors, suggested he become a forest ranger. Unlike most teenagers, Wester listened and was pleased to discover a range forest management degree at Colorado State University. "I just picked it out of the catalog, but I loved it," Wester said.

As an undergrad, a professor whom he had queried about graduate school hired him as a student worker and promptly told him to design his own research project. The professor oversaw it. The results were published in a journal. Wester was hooked.

Texas Tech was next—and his stint there was pivotal. Wester earned his M.S. and Ph.D. at TTU where he first met Dr. Fred Bryant. He also discovered a knack and passion for applied statistics and joined Texas Tech's faculty. In addition to his own teaching and research in range science, he was also tasked with providing statistical assistance to grad students in the Range and Wildlife Sciences Department and serving as a statistics consultant for his colleagues in the departments of Animal Science and Plant and Soil Sciences."For me the best part of my job has always been the interaction with students and colleagues," Wester said. "I enjoy asking, 'How can I help?'"

Over time, Wester's responsibilities at Tech had realigned and service was a smaller portion of his workload. In 2011, Bryant called with an opportunity Wester couldn't refuse: an appointment that was 50 percent service, 25 percent teaching, and 25 percent research. "For me, it was chance to go back full circle in my career to concentrate on all the things that inspire me," Wester said. "If I have made an impact, it will be through interactions with students and colleagues."

According to Hewitt, Wester's passion for helping was indeed a boon to the Institute. Grad students sought out his statistics classes, which were often the toughest, and his help. Colleagues relied on his expertise to ensure the accuracy of statistical analysis, which is the foundation of credibility in academic circles.


Dr. David B. Wester

"I think Dave's career here was marked by his extreme dedication to his students, his colleagues and our shared mission," Hewitt said. "David is an exceptional rangeland ecologist, but his biggest contribution was teaching statistics to grad students and advising colleagues on statistical analysis. He had a gift for taking material that was difficult and explaining it in a way that people could get their arms around."

To landowners and managers working to restore rights-of-way or large swaths of native grasses, Wester's impact was felt far beyond the classroom. His acumen regarding rangeland has been applied to innumerable challenges ranging from understanding and managing the effects of wildfire and prescribed fire to containing invasive tanglehead. He's also been an instrumental part of the Texas Native Seeds growing research activities.

"Because of the Institute's unique organization and mission, I also got the opportunity to work with landowners, which has been one of the very best experiences of my time here," Wester said. "Again, it's always been about the people for me."

Peter Swenson, who along with his wife Fran, created the Swenson Endowed Chair for Rangeland and Restoration Research, which supported Wester's work, spoke for many when he said, "David is a remarkable man who cares so much about his students. His background in statistics and rangeland restoration was a huge plus for CKWRI. He has been a positive influence in the lives of so many and we are extremely grateful for the role he served at the Caesar Kleberg Wildlife Research Institute."

ALUMNI *Spotlight:*

Ty BARTOSKEWITZ

CKWRI Class of 2000,
MT7 Ranch Manager,
M Terry Enterprises
Breckenridge, Texas

What is your background with the Institute?

From January 1995 to June 1997, I worked for the Texas Agricultural Extension Service as an Extension Associate based in Kingsville at CKWRI under Extension Wildlife Specialist Dr. Will Cohen. This was in a unique partnership with TAMUK and CKWRI to obtain my MS degree. My primary job responsibility was to interview waterfowl outfitters, farmers, landowners, and ranchers in the middle and upper gulf coast of Texas to learn about the economics and operations of their waterfowl hunting enterprises. From January to March of 2000, I worked for the Institute under Dr. Mike Tewes in his Feline Research Program as a research technician. We were trapping bobcats and ocelots in the Rio Grande Valley on private lands to understand habitat overlap between species and monitor radio collared cats.

What are you doing now?

For the past 15 years, I have been the ranch manager for the Mike and Mary Terry family on their 19,500 acre MT7 Ranch in Breckenridge, Texas. My job responsibilities are all encompassing but I spend most time with operational and capital improvement projects, cattle, wildlife, and habitat management practices, risk management, strategic business planning, and outreach and education opportunities for MT7 Ranch. MT7 Ranch focuses on land stewardship, a cow/calf Red Angus operation, research and education, and wildlife management. Outside the gate, I serve on the Breckenridge Economic Development Committee, Texas Wildlife Association's Big Game Advisory Committee, and just finished 11 years of service on the TPWD Private Lands Advisory Committee. Prior to MT7, I spent 10 years as a technical guidance and private lands biologist with Texas Parks and Wildlife in north and south Texas.

How does your time at CKWRI continue to affect you today?

I spent almost 3 years in Kingsville as a student and then another 7 years in south Texas as a private lands biologist working with students and staff at CKWRI. There is no question the relationships and contacts built over those three years and thereafter are present today.

We had a great group of graduate students during my time in Kingsville and we all willingly worked on and helped out each other with field work and classes. I have worked with many of them during my time at TPWD and many others in the private land management field in Texas. At MT7, we have an internship program that allows us to mentor and train aspiring biologists. It's been fun to back door reference a surprising number of them with friends from CKWRI that are now faculty at universities all over the US. I've also had some of our interns go on and work for several of my friends from CKWRI.

I would also say the professors and staff at CKWRI that I had the opportunity to learn from in the classroom and also in the field still impact me today. Many of these have been mentors far after my time in Kingsville. I have actively worked with CKWRI faculty here at MT7 on potential research projects, conservation boards, advisory committees, and many of them have been on the ranch for field days or special ranch outreach opportunities. Most all of them continue to invest in us far beyond our short 3 years on campus.

Bartoskewitz Brothers

Marc BARTOSKEWITZ

CKWRI Class of 2001,
General Manager,
Rees-Jones Ranches
Ranger, Texas

What is your background with the Institute?

I was working for Bass Enterprises on their San Jose Island when I became aware of and applied for a graduate research opportunity at the Institute. In the spring of 1998, I was accepted and began my Master of Science assistantship. Over the next two and a half years, I spent most of my time at 3 south Texas ranches, including a portion of the famed King Ranch, studying supplemental feed use by free-ranging white-tailed deer. An additional chapter of my thesis observed the effect of micronutrient concentrations, specifically Copper and Zinc, on antler growth, body mass, and immune response in captive white-tailed deer at the university's deer research facility.

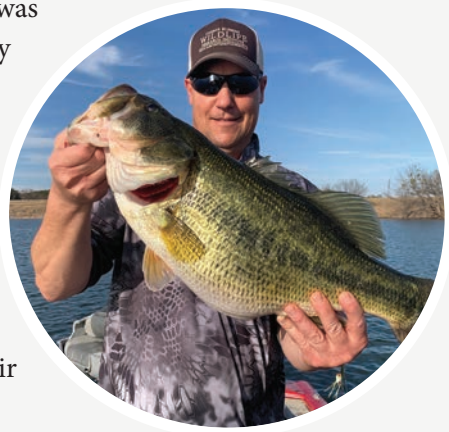
What are you doing now?

I am General Manager of the Rees-Jones family ranches, which include two ranches in North Central Texas and one in the Paradise Valley of Montana, totaling 105,000 acres. While our main focus is to ensure family enjoyment of the natural resources, we manage and maintain multiple hunting lease operations, a commercial cattle operation, several grazing lease contracts, irrigated farming, fisheries management programs, native wildlife management of multiple species with focus on white-tailed deer and bobwhite quail, and the conservation and preservation of multiple African Game species.

We are currently constructing a facility that will allow us to continue to focus on and expand our interest in various youth and adult hunting opportunities, field days with local schools, and undergraduate and graduate level research programs for applied science ranch and resource management.

How does your time at CKWRI continue to affect you today?

The Institute has been a foundation for my career path through the relationships I developed with my advisors, professors, other graduate students, and the private landowners and managers where my research was conducted. Even before I became a graduate student, I was mentored and influenced by a graduate of the institute and now successful wildlife biologist/manager, Bob Zaiglin. My two main advisors, Dave Hewitt and Fred Bryant have been some of the greatest mentors along my journey and I continue to value their leadership and friendship. I would not have met the legendary Butch Thompson, much less spent 11 years under his leadership and mentorship at King Ranch, without the influence and opportunities the Institute provided. The applied science knowledge gained from the Institute still resonates in my everyday approach to managing the wildlife and natural resources on the Rees-Jones ranches. I am proud to say that we support the Institute through their Caesar Kleberg Partner program and I will always be an advocate.



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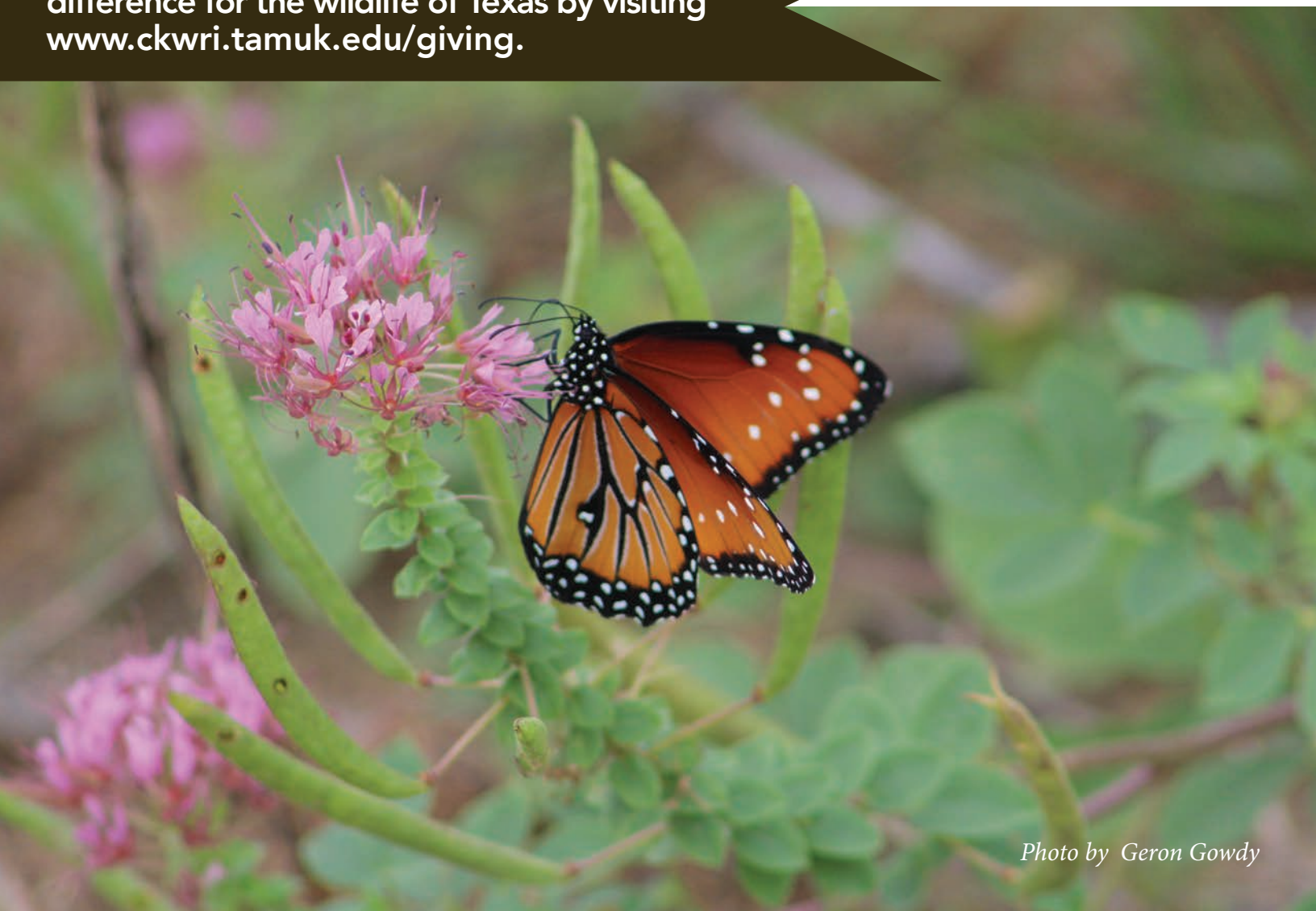

Photo by Geron Gowdy