

Caesar Kleberg Tracks

A Publication of the Caesar Kleberg Wildlife Research Institute

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

Caesar Kleberg Tracks

Volume 10 | Issue 1 | Spring 2026

In This Issue

3 From the Director

4 The First Reference Genome for the Texas Ocelot

7 Dr. Sandra Rideout-Hanzak Retires

8 Can I Improve Antler Size of My Deer by Culling Bucks?

12 The Living Map

16 White-Winged Doves are Thriving in Our Towns and Cities, but What are the Consequences?

19 The Unsung Heroes of Conservation

20 Donor Spotlight: CKWRI and the East Foundation - Better Together

23 Alumni Spotlight: Jessica Glasscock





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.

Visit our Website

www.ckwri.tamuk.edu

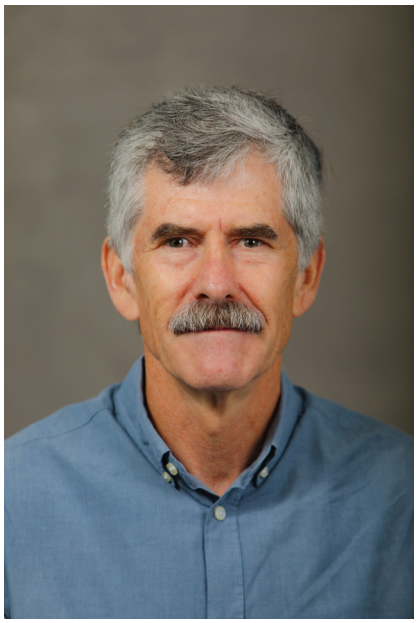
Caesar Kleberg Wildlife Research Institute
Texas A&M University-Kingsville
700 University Blvd., MSC 218
Kingsville, Texas 78363
(361) 593-3922

Follow us!

Facebook: @CKWRI Twitter: @CKWRI
Instagram: ckwri_official

Cover Photo by Shutterstock
Magazine Design and Layout by Gina Cavazos

FROM THE DIRECTOR



Studying wildlife and rangelands requires research that is both physically demanding and conceptually challenging. CKWRI personnel shiver in the cold and sweat in the heat while identifying, measuring, and sampling vegetation. They spend months in the field observing, capturing, sampling, and marking animals, establishing and managing vast camera grids, and counting wildlife while walking, boating, driving, or flying.

After their field work is complete, our students transition into a phase of their research that would seem mundane in comparison with their outdoor exploits. They move into laboratories and offices where they trade the Texas sun for the glow of a computer screen. This transition is essential because samples need to be processed, photos evaluated, and data analyzed. While less physically taxing, these activities are mentally and conceptually demanding. At this stage, students must be diligent, patient, and meticulous. This phase of the research is exhilarating because as data analysis proceeds, the results become clear and a story unfolds.

Telling this story is the last step in the science process. Creativity is important in every step of a research project, but is especially important when sharing results. Designing presentations, writing articles, and preparing scientific manuscripts requires students to be inventive, and to be both bold and nuanced, and also succinct and thorough. Because writing is a creative process, producing a thesis and journal articles is often the most challenging part of conducting research.

This issue of Tracks magazine shows how field work and cutting-edge technology come together to increase our understanding of Texas wildlife. From capturing animals and placing cameras in the field, to using satellite technology to track animals and measure habitat, to conducting laboratory analyses of animal genetics and forages, and finally to performing complex data analysis, CKWRI scientists and students draw on a diverse tool kit. When our students graduate, they go forth with practical knowledge of how to handle themselves in the pasture as well as expertise in the most advanced research techniques. They leave with experience sharing their research results in public and professional presentations, in scientific articles, and in articles for land stewards and the public, including those published in CKWRI's Tracks magazine.

The CKWRI and its supporters can take pride in 45 years of consistently producing knowledge and graduates, year after year. Enjoy this issue of Caesar Kleberg Tracks magazine and when you are done, share it with someone who is not familiar with CKWRI.

All the best,

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

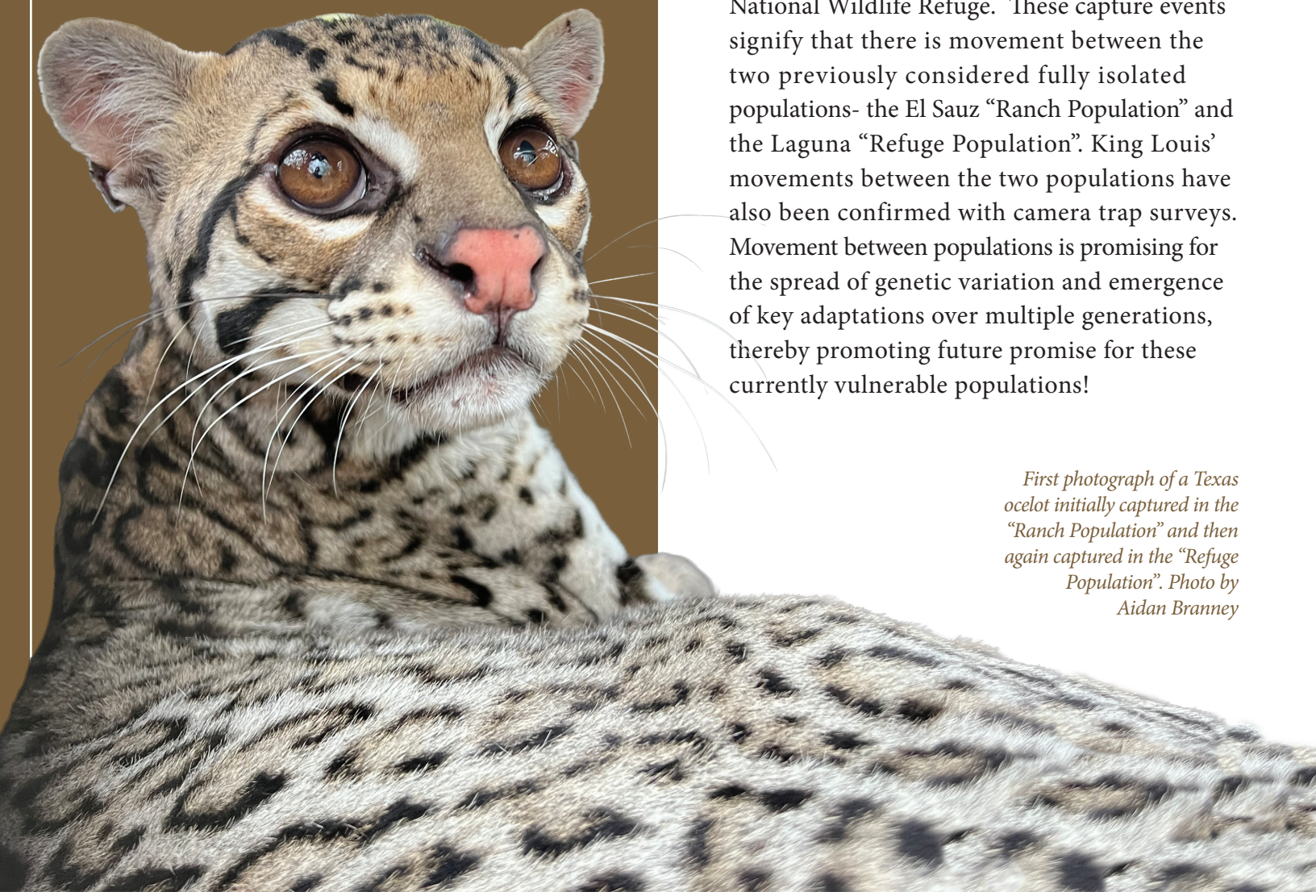
THE FIRST REFERENCE GENOME FOR THE TEXAS OCELOT:

What Genomes Can Tell Us About Wild Cat's Behavior Near Roads

by Jack Towson, Emma Brookover, and Michael Tewes

We have great news to share from the Small Wild Cat Program at Caesar Kleberg Wildlife Research Institute! Drs. Foley, Brookover, Tewes, and Murphy have released a chromosome-level genome assembly of the Texas ocelot (*Leopardus pardalis albescens*). This groundbreaking study provided a high-quality reference genome for the Texas ocelot, with a genome assembly that is 'near gapless', and 99.2% complete! As of right now, this is one of only two chromosome-level genome assemblies from the genus Leopardus.

You may be asking, how did we 'pick' which Texas ocelot to use for the reference genome? We chose an individual widely referred to as King Louis, shown here, a large young male who has been captured on both the East Foundation's El Sauz Ranch and at the Laguna Atascosa National Wildlife Refuge. These capture events signify that there is movement between the two previously considered fully isolated populations- the El Sauz "Ranch Population" and the Laguna "Refuge Population". King Louis' movements between the two populations have also been confirmed with camera trap surveys. Movement between populations is promising for the spread of genetic variation and emergence of key adaptations over multiple generations, thereby promoting future promise for these currently vulnerable populations!



First photograph of a Texas ocelot initially captured in the "Ranch Population" and then again captured in the "Refuge Population". Photo by Aidan Branney

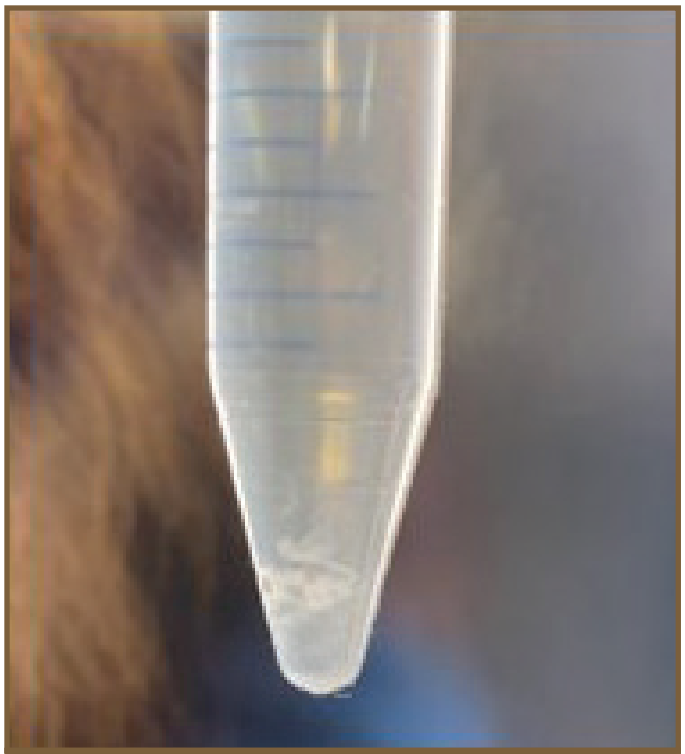


Photo of King Louis' genome

Genomics is fundamentally changing how we understand the world around us, at a very minute and profound level. It is the study of the entire set of genes, called a genome, rather than studying a set of specific genes. The study of a genome is like reading the molecular "recipe" of life, unlocking the 3 billion-lettered ingredients which determine how life operates.

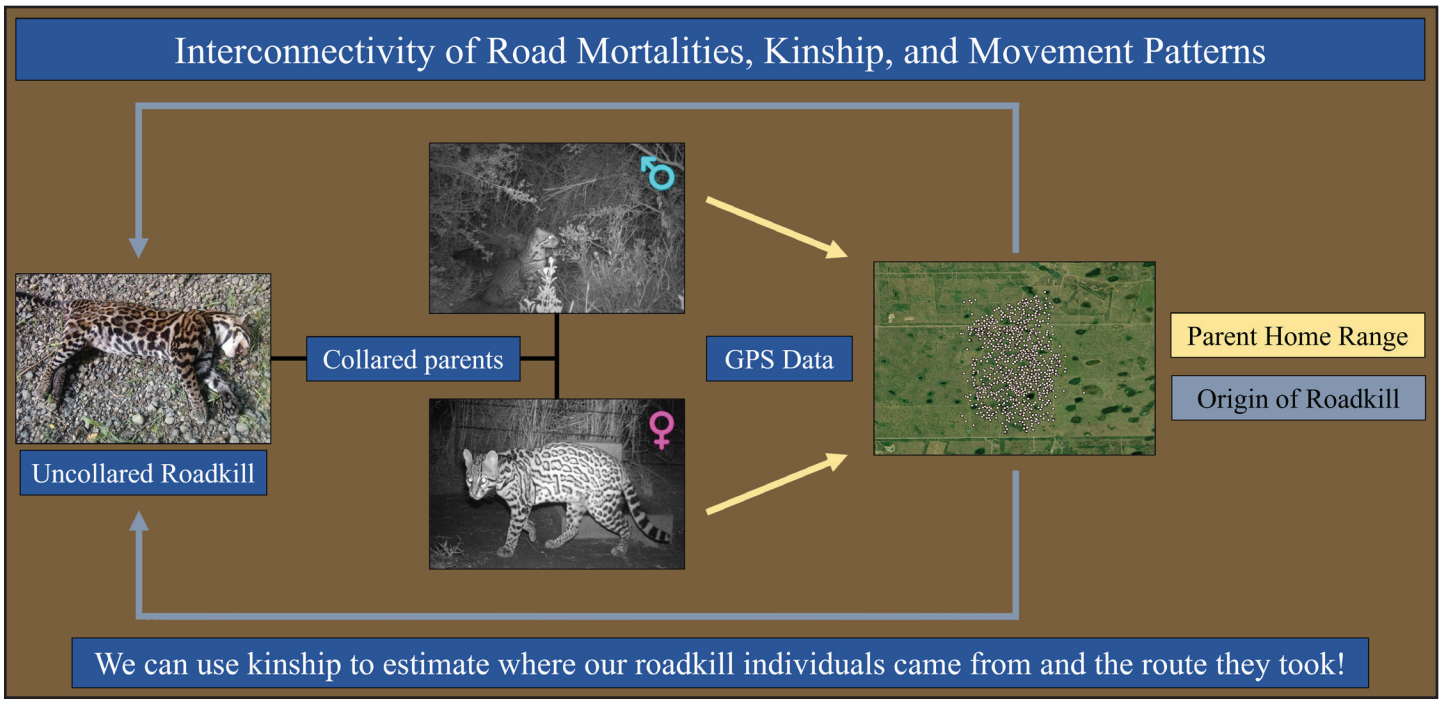
Because biodiversity is threatened worldwide, a research explosion has started to invent new ways to conserve and manage what species we have left and new ones we have yet to discover. The field of genomics is rapidly transforming wildlife biology, allowing researchers like us, to describe biodiversity, understand the dynamics of ever-changing populations, and ultimately monitor the health and conservation status of wildlife populations.

The modern interest in holistic genome-wide approaches, especially the development of species-specific reference genomes, is critical in conservation efforts of threatened species, such as the Texas ocelot. The applications of whole-genome sequencing technology are vast, and the nature of the small size of the contemporary Texas ocelot population results in a number of important conservation topics that can be informed using our genomic data. Genomic tools have the power to provide precise estimates of basic features of wildlife populations-such as population size, inbreeding, and population structure, particular variation that helps with adapting to the environment, and why current conservation strategies may not be effective.

These wild cats face multiple anthropogenic threats, all of which originate from human-induced landscape modification. We specifically have interest with our collaborators at the Texas Department of Transportation in understanding how road infrastructure influences fine-scale movement of Texas ocelots. Roadkill individuals provide evidence for attempted movement, so determining their origin and potential destination will help evaluate how much roads are barriers, as well as identify the genomic and environmental factors that shape barrier behavior.

To answer such questions, we will combine movement and genomic data to help identify such important individuals and their movement patterns. The Texas ocelot reference genome is used as a 'high-quality map' by which genome-wide variation is detected and unique genomic IDs, or genotypes, are assigned. We will be using these genotypes to construct pedigrees to identify familial relationships among individuals. Assigning genotypes and detecting familial relationships is critical to understanding movement ecology, especially in the case of a roadkill by which the only available movement datapoint is the location the roadkill was recovered.

In this circumstance, despite not having any movement data via GPS or VHF collaring, our pedigree could inform us of this roadkill's parents, and, if movement data are available for one or both parents, we can approximate the individual's origin.



Furthermore, we can estimate the route the cat took from its natal site to its mortality site and evaluate potential factors that influenced the spatial route they took prior to being hit by a vehicle, including terrain type or social interactions, see graphic above.

Moving forward, our use of the Texas ocelot reference genome and whole-genome sequencing will answer questions critical for Texas ocelot conservation, such as illuminating historical demography and current population structure, minimizing inbreeding, maximizing adaptive potential, and identifying the basis of important phenotypic traits (e.g., disease susceptibility, fitness-increasing behavior, reproductive potential and success). With the vulnerability of the remaining population, it is clearer than ever that the genomic link underlying Texas ocelot ecology and behavior must be understood to better inform management efforts, such as targeted wildlife crossing structure placement, in the midst of a rapidly urbanizing environment.

Knowing the total genome will be the basis for fantastic discoveries in ecology, disease biology, evolution, genetic/genomic management, and is remarkably transforming how we develop research questions and projects, how we inform stakeholders, and ultimately how we study the wildlife around us. 🐾

FELINE RESEARCH PROGRAM

The mission of the Feline Research Program is to conduct basic and applied research on wild cats that contributes to understanding their biology, management and conservation throughout South Texas and other landscapes around the world.

TO SUPPORT THE FELINE RESEARCH PROGRAM SCAN THE QR CODE OR VISIT OUR WEBSITE AT WWW.CKWRI.TAMUK.EDU.

DR. SANDRA RIDEOUT-HANZAK RETIRES

by David Hewitt

After 15 years as a faculty member at CKWRI, RWSC, and TAMUK, Sandra Rideout-Hanzak recently retired as a professor. She brought her broad ecological interests and expertise in wildfire and prescribed fire to the Institute in 2010. Sandra built a research program studying effects of fire on the flora and fauna of the region. Her projects ran the gamut from rangeland restoration and forage resources, to endangered plants, insects, and Texas tortoises. During her tenure in Kingsville, Sandra became the go to person for prescribed fire in South Texas. She was a founding member of the Association for Fire Ecology and served on its Board of Directors. She shared her knowledge and experiences with students through teaching 7 undergraduate classes and 4 graduate classes during her time at TAMUK. She has also taught a long list of prescribed fire courses and been active on the Texas Prescribed Fire Council.

Sandra's skill-set and contributions to CKWRI were much broader than conducting impactful research and teaching range and wildlife students. She has a gift for sharing research results with the public. Sandra was the recipient of the largest grant ever given by the Harvey Weil Sportsman Conservationist Award for her proposal to develop a podcast focusing on conservation issues in Texas. From this award, Dr. Rideout-Hanzak created *A Talk on the Wild Side*. Over a 3-year period, she produced 76 regular and bonus episodes that generated a lot of chatter and interest about conservation in Texas. The episodes had witty titles that helped them attract interest from people across Texas, the country, and the world. *A Talk on the Wild Side* won the Best Electronic Media Award from the Texas Chapter of The Wildlife Society in 2024.

In 2021, Sandra took on a huge task for CKWRI when she agreed to serve as editor for the Institute's Current Research Report, Wildlife Research newsletter, and various management bulletins. Sandra not only took on this effort but employed her creative flair to update and modernize them. These publications are the face of CKWRI to the public. I see them in offices, on coffee tables in living rooms, and in ranch houses across Texas. People give to CKWRI because of these publications and young people learn about the Institute through these publications. I know students who enrolled in graduate school in Range and Wildlife Sciences because of the publications.

While Sandra is retiring as a faculty member, she has graciously agreed to continue her editor position and publish the Current Research Report, Wildlife Research newsletters, and management bulletins. She was hired back earlier this year to keep the flow of information coming out of the Institute. We want to congratulate Sandra on a wonderful and impactful career at CKWRI and we look forward to her continuing to share the message of CKWRI's research.







CAN I IMPROVE ANTLER SIZE OF MY DEER BY CULLING BUCKS?

by Charles A. DeYoung and Don A. Draeger

Studies conducted in pens at the Kerr Wildlife Management Area by Texas Parks and Wildlife Department (TPWD) biologists led to recommendations that antler size could be improved by culling yearling (1.5-year-old) bucks. Spike bucks were first identified as genetically inferior, but biologists later recommended culling yearlings with fewer than 6 points. There was controversy over these recommendations in some circles, which led to a need to verify the pen research in the field. The first field study was done on the King Ranch from 1999-2005 and was designed by TPWD biologists and overseen by King Ranch biologist Mickey Hellickson. The King Ranch study was inconclusive and led to recommendations for future research to increase the culling harvest rate and use high-fenced study areas.

Photo by Randy DeYoung



After the King Ranch study ended, Donnie Draeger, manager of Comanche Ranch, designed a follow-up study, involving a "moderate" culling treatment area (19,716 acres) and a control area (5,251 acres) with no culling, both in high-fenced pastures. When TPWD biologists heard of these plans, they asked Comanche Ranch to add a third high-fenced pasture (3,716 acres) with an intensive culling treatment that they designed. In the moderate treatment, no yearlings or 2.5-year-olds were harvested; however, 3.5-4.5 year-olds with less than 9 points, and 5.5 year-olds or older with antlers scoring less than 145 gross Boone and Crockett (B&C) were to be culled. For the intensive treatment, yearling bucks with less than 6 points and 2.5-year-olds with less than 8 points were culled. For older deer in the intensive treatment, culling criteria were the same as for the moderate area.

We captured bucks with helicopters and net guns in each of the 3 areas for all 13 years of study. We culled bucks from 2006–2012, and then kept capturing during 2013–2018 to see if there were delayed reactions to the culling. All captured bucks were aged and measured for gross B&C. During the culling period, we culled bucks at capture with a captive bolt gun if they met culling criteria. Bucks exceeding the criteria were released after a microchip was inserted at the base of an ear for future identification.

We captured 6,675 bucks during the 13 years, of which about half were recaptures. In the intensive treatment, 365 bucks were culled during the 7 years of culling. For the moderate treatment, 878 bucks were culled. Buck numbers in both culling areas declined sharply, with the intensive area buck population declining 88%. The criterion of culling yearlings with less than 6 points, a criterion originating from the TPWD pen studies, did not appear viable for this population. We harvested 92% of the captured yearlings in the intensive area using the 6-point criterion, which was unsustainable. The average yearly harvest rate of culled bucks in the intensive area was 48%, while the rate in the moderate area was 22%.

In order for a population to show a genetic increase in a trait, the average size of the trait needs to increase in the sires. In the intensive area, compared to the control area, culling caused no change in average antler size of yearlings and 2.5-year-olds. Those 3.5–4.5 years old and greater than or equal to 5.5 years old, increased 9–10 B&C inches on average by the end of culling in 2012. In the moderate area, only those greater than or equal to 5.5 years old increased (about 4 inches) compared to control. Moderate 1.5, 2.5, and 3.5–4.5 did not increase. At the end of monitoring in 2018, compared to the control area, antler size was smaller in 1.5, 2.5, and 3.5–4.5 age classes in both culling areas, while the mature bucks showed no difference versus control. Thus, although culling increased average antler size in some age classes, 6 years past the end of culling, young deer were smaller, while mature deer were not different from control. These results showed no evidence that culling caused a genetic improvement in antler size.

However, in regard to benefits from culling, there was another important result from the Comanche Ranch study. Yearling bucks with smaller antlers for their age class were also smaller at maturity. This was not caused by genetics but by environmental factors affecting the young deer. Perhaps they were born late or in a drought. Maybe their mothers did not produce enough milk, or any of a variety of other factors. For managers, culling smaller young deer can be a good practice, but it is unlikely to cause genetic improvement in antler size.

So far, we have discussed culling to increase the average antler size by age class of the population. However, what if I have a big buck and just let him walk so he can breed? Won't that result in individual big-antlered offspring? The answer is maybe, but the chances of success of this practice



Photo by Randy DeYoung

are not great. We also conducted genetic research during the Comanche Ranch study. White-tailed deer have a breeding system whereby a buck forms a short-term tending relationship with a receptive doe. However, they cannot search for receptive does and form more than a few tending bonds in a rutting season. We found that bucks only produce, at best, a few male offspring per year. And, not many of the offspring produced survive to grow antlers. Does are not culled, but form half of the genetics for antlers in offspring. There is a broad array of alleles for antler size in the doe population. Therefore, the chances that a large buck will mate with a doe with good antler genes in a particular year are not great. Also, our genetic research at Comanche Ranch showed that some large-antlered bucks actually do not have good genes for antler size. So, the buck you let walk actually may not be a good breeder because environmental factors, rather than genetics, produced the large antlers. Bottom line: not harvesting a buck to let him breed another season involves sketchy odds that he will produce some good antlered offspring.

Culling inferior bucks can be a good practice for managers. There is no use carrying bucks on the property that you do not consider desirable for harvest. However, increasing antler size through genetic change from culling is unlikely. Protecting large bucks from harvest to potentially let them breed could possibly produce superior antlered offspring, but the chances for success are not great.

Charles A. DeYoung is a Research Scientist and Professor Emeritus at CKWRI. Don A. Draeger is manager, Comanche Ranch, and earned a M.S. degree through CKWRI at Texas A&M University-Kingsville.



Graduate student Rupesh Maharjan testing the drone at South Pasture.

THE LIVING MAP:
SYNTHESIZING TECHNOLOGY AND FIELD BIOLOGY FOR THE FUTURE OF SOUTH TEXAS

by Aditya Singh

For over four decades, the Caesar Kleberg Wildlife Research Institute has set the gold standard for wildlife research in semi-arid environments. The deep-rooted expertise of our scientists in tracking deer, trapping elusive felines, and monitoring avian populations has provided the foundational knowledge required to manage the Wild Horse Desert. However, as South Texas faces an era of intensifying environmental change characterized by prolonged droughts, invasive species encroachment, and emerging pathogens, management tools must evolve. At the CKWRI Spatial Analytics Laboratory and Technology hub (CSALT), we are advancing a vision of Ecosystem Intelligence. Our goal is to move beyond static maps created once a year to a dynamic, four-dimensional framework that interprets how ecosystems function in near-real time. By integrating global methodologies developed through NASA- and National Science Foundation-funded research with CKWRI's unparalleled field data, we aim to build an 'operating system' for the future of Texas conservation.



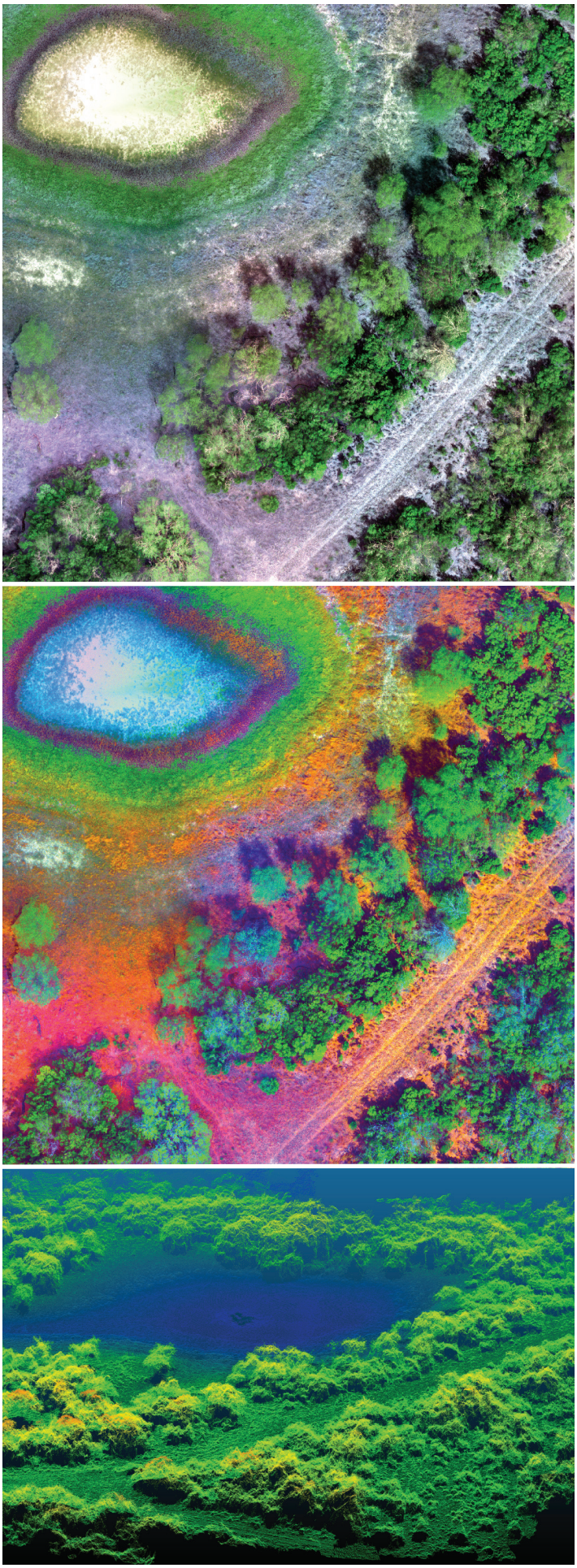
Scaling from Orbit to the Denning Site

Effective land management requires a strategy that operates at the same scales as the wildlife we protect. Biological processes are nested: a waterfowl migration spans continents, while an ocelot's survival may depend on the specific architecture of a single thornscrub thicket. CSALT utilizes a hierarchical mapping scheme to bridge these disparate scales, ensuring that no detail is lost in the transition from satellite to drone.

At the broadest scale, we use 'hypertemporal' satellite imagery from NASA (e.g., MODIS and VIIRS) to track the continental pulse of pasture phenology and related signals of drought and rainfall. With twice-daily return intervals, these spaceborne sensors allow us to monitor the pulse of the entire South Texas region. In an environment where rainfall is erratic, these spaceborne sensors allow us to track broad-scale patterns such as the timing and intensity of vegetation green-up across the thronscrub and pastures. For ranch-owning stakeholders, these data can serve as a regional early-warning system: by identifying the onset of moisture stress across thousands of acres, we can provide the lead time needed to adjust stocking rates or supplemental feeding programs well before the landscape reaches a critical tipping point.

To bridge the gap between the continent and the ranch, we employ moderate-resolution imagery from USGS's Landsat and the European Space Agency's Sentinel constellations. This middle tier is essential for mapping regional landcover and tracking long-term shifts in habitat composition. This regional view is vital for identifying the gradual encroachment of invasive woody plants or the loss of critical riparian corridors for our partners at the Texas Parks and Wildlife Department and the National Park Service. These 'meso-scale' data allow us to identify hotspots of vegetation decline that may signal a broader ecological threat, ensuring that management interventions are targeted with surgical precision.

The most transformative tier of our hierarchy occurs at the site level through the deployment of specialized Unmanned Aerial Systems (UAS, UAVs, drones).



While satellites provide the context, drones provide the fine-scaled anatomy of the habitat. We are exploring the simultaneous use of multiple modalities to study different parts of the same system: Hyperspectral Imaging (HSI): Going beyond what satellite sensors can see, hyperspectral sensors split the solar spectrum into hundreds of contiguous bands. Each pixel, therefore, forms a complete spectrum, each characterized by its own specific fingerprint of foliar biochemistry and canopy structure. This is the bleeding edge of remote sensing instrumentation and science. We aim to investigate how we can detect the chemical signatures of the brush, identify invasive species, and assess the nutritional quality (protein and moisture content) of forage. While HSI data allow us to understand canopy composition and biochemistry, Light Detection and Ranging (LiDAR) sensors can help investigate the structuring of these habitats. UAV-borne LiDAR scanners shoot laser pulses towards the landscape. The laser pulses penetrate the canopy and create a 3D representation of the vertical structure of habitats and the terrain underneath. These sensors could be used to characterize the internal skeleton of the brush, which is invisible to other technologies. Understanding the vertical structure of refugia is critical for conserving ground-nesting birds such as quail and turkey, and mesocarnivores such as bobcats and ocelots. Finally, we are evaluating the use of UAV-borne thermal sensors for the non-invasive monitoring of neonate survival. This technology holds the potential to detect kittens and fawns hidden deep within the brush, providing unprecedented insights into recruitment during the most vulnerable stages of life.

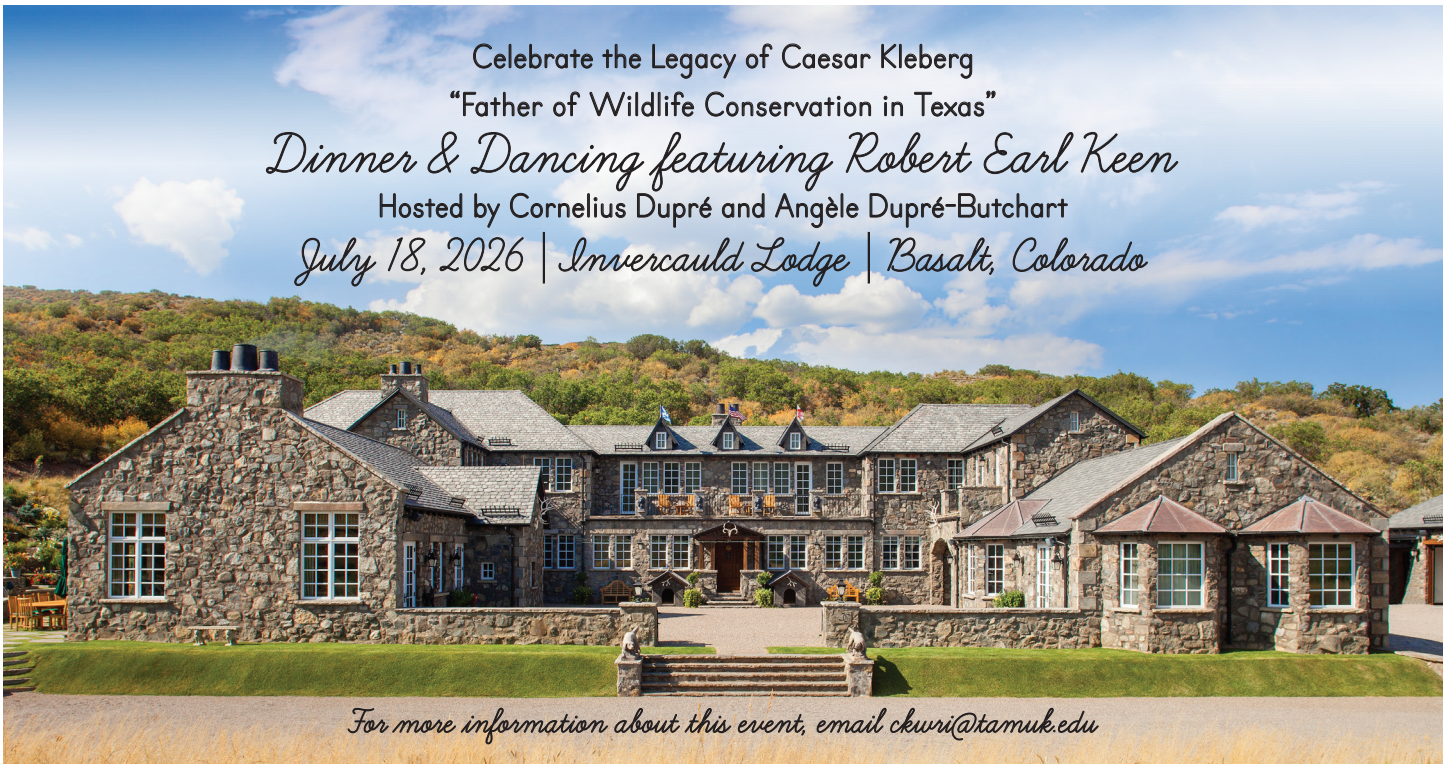
The true power of the Living Map is realized when it is synthesized with the ongoing, boots-on-the-ground research conducted by CKWRI.

Images on the left represent a comparison view of the same portion of South Pasture in various domains to understand the structuring of ecosystems . Top image represents a default, standard-camera view—essentially the kind one would normally expect from a typical camera. The middle image shows the same section with the spectral variation enhanced, highlighting how different species in any landscape are spectrally different, even though they may look the same to the naked eye. The bottom image is also the same location, this time looking into the third dimension using data from a drone.

By layering our digital intelligence over decades of biological data, we move from observing where animals are to understanding why they are there. CKWRI's extensive deer and quail telemetry programs generate thousands of GPS locations, showing us the paths these animals take across the landscape. However, a GPS point is only half the story. By integrating telemetry data with our high-resolution LiDAR and hyperspectral maps, we can add a new layer of realism to home range assessments. We are exploring how to correlate deer movement with nutritional green-up maps and how to relate quail nesting success to the thermal landscape. Understanding how a bobwhite uses specific 3D escape cover during peak summer heat helps us move toward precision habitat-restoration models.

Similarly, CKWRI's ongoing research on ocelots and bobcats relies heavily on sophisticated camera-trapping arrays. While these cameras reveal the presence and frequency of these elusive cats, our geospatial tools are being explored to explain the architecture of their success. By utilizing custom LiDAR to map the specific characteristics of denning microhabitats, we can quantify the exact density and structure required for ocelot reproduction. This prospective capability would allow us to identify and protect the corridors of concealment that these cats rely on to navigate a changing landscape, ensuring that infrastructure or land clearing does not inadvertently sever their lifelines. For migratory species, the challenge is scale. CKWRI's waterfowl research involves monitoring birds that move across vast flyways. Our hierarchical scheme is perfectly suited for this long-range monitoring. While satellite data tracks water availability across the region, our drone-based hyperspectral sensors are being evaluated for their ability to assess the caloric and nutritional value of aquatic vegetation in ephemeral wetlands. This allows us to predict when and where birds will land based on the forage available in the landscape.

The work being pioneered at CSALT is more than just a technological exercise; it is an investment in the long-term resilience of the South Texas frontier. By bridging the gap between global satellite data and local microhabitats, and by synthesizing these insights with the expert field biology of CKWRI, we are ensuring that our natural heritage is managed with the most sophisticated intelligence available. We are currently building partnerships and sensor systems that will define the next 50 years of Texas conservation. Together, we will build a future where the Living Map ensures the health and vitality of our land for generations to come.



White-Winged *Doves* Are Thriving In Our Towns And Cities, But What Are The Consequences?

by Jennifer Smith, Megan Spina, and Marianna Wharff

When one thinks of dove hunting in the United States, Texas likely immediately springs to mind. Routed in tradition, dove hunting brings together friends and family, providing opportunities for approximately 300,000 hunters per year in Texas alone. For many, it represents the first foray into the world of wing shooting, resulting in a life-long passion for gamebird hunting. Certainly, it is not hard to imagine why, given the action-packed excitement and camaraderie this pastime offers.

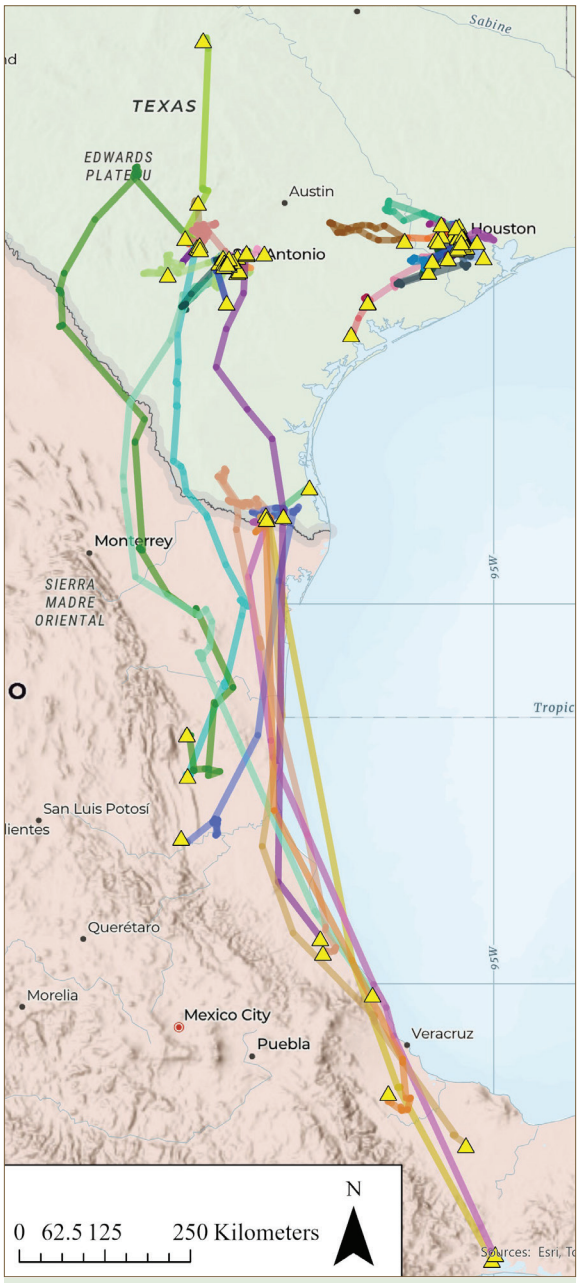
Some of the best dove hunting around occurs in South Texas starting in September when large flocks of dove pile into fields laden with crops such as sunflowers, sesame, and sorghum. In particular, South Texas provides exceptional hunting opportunities for White-winged Dove, a migratory species that breeds in the Southwestern US, including in Texas, and that winters in Mexico and into Central America. Historically, White-winged Doves in Texas were restricted to a handful of counties in the Lower Rio Grande Valley (LRGV). However, since the 1970s, White-winged Doves have undergone a pronounced northward range expansion to the extent that they now breed throughout much of Texas and the surrounding states. Over the same time period, they have also moved into our towns and cities, where they are commonly observed greedily hogging backyard bird feeders and cooing loudly 'who cooks for you'. In fact, estimates suggest that a staggering 84% of the White-winged Dove population in Texas currently resides in urban areas!



White-winged Dove wearing an aluminum band and backpack harness with a GPS-GSM solar-powered transmitter shortly after its release. Photo by Megan Spina

So, why have White-winged Doves become city-slickers? While the answer to this question is unclear, resources provided by humans may provide some insight. For example, White-winged Doves may be attracted to urban areas due to abundant and reliable food sources provided via backyard bird feeding, human-provided water sources, and due to the prevalence of ornamental trees that provide suitable nesting sites; the latter may be especially pertinent given the loss of suitable nesting habitat in their historic breeding grounds in the LRGV. However, despite the apparent ability for White-winged Doves to adapt to urban areas, little is known about the potential impacts of urbanization on this important gamebird species in Texas.

One way that urbanization may affect White-winged Doves is by influencing their movement patterns. For example, by providing predictable and readily available food via backyard bird feeders, doves may not need to travel as far to forage. As a result, White-winged Doves may be able to decrease the size of their home ranges (the areas used by an animal to carry out its regular activities). Heightened food availability via backyard bird feeding during fall and winter may also reduce the need for White-winged Doves to move beyond city limits to find resources elsewhere; certainly, recent evidence suggests White-winged Doves in Texas remain in urban areas year-round instead of undertaking seasonal migrations. Importantly for hunters, this may mean that urban White-winged Doves are less likely to travel into rural areas where hunting activities are permitted, and thus be less accessible for harvest.



Map showing movement trajectories of White-winged Doves between May 2025 and January 2026. All birds were trapped and fitted with small tracking devices in Houston, San Antonio, and the Lower Rio Grande Valley to assess the effects of urbanization on White-winged Dove movement patterns. Yellow triangles mark the last locations recorded.

Our research team at CKWRI is currently conducting research to test these ideas in Texas. Specifically, starting in May 2025, we trapped White-winged Doves during the breeding season across urban to rural gradients in Houston and San Antonio, and at a traditional breeding site in the LRGV. White-winged Doves were fitted with small solar-powered tracking devices weighing less than 3% of their body weight, allowing us to record their movements, and thus estimate home range sizes during the breeding season, and to determine whether they migrated. We also fitted White-winged Doves with metal leg bands, each of which is engraved with a unique number allowing us to identify individuals that are harvested, determine their origin, and thus assess the contribution of urban birds to the harvested population.

To date, the team has successfully fitted 76 White-winged Doves with tracking devices across our study sites. Our preliminary results suggest that breeding home range sizes are highly variable regardless of if White-winged Doves nested in rural or urban areas. However, interestingly, breeding home ranges tended to decrease as human population density increased, potentially suggesting that human-provided resources like bird food and water may be influencing how White-winged Doves move within their environment.

As expected, our results also suggest that not all White-winged Doves migrate, although the influence of urbanization on this behavior is unclear; of the 76 birds tagged, 11 migrated to southern Mexico. Of these, seven were tagged in the LRGV, four in San Antonio, and none in Houston. For those that remained in urban areas throughout the winter, the distance and direction traveled from where they were tagged during the breeding season differed substantially among individuals.

Our hope is that this research will improve understanding of the impacts of urbanization on the movements of White-winged Doves throughout the year. In so doing, our results will help inform management guidelines for this important gamebird in our towns and cities, while also increasing knowledge of how wildlife adapts to urbanization. Importantly, by providing insight into the contribution of urban birds to harvested populations, our results may also have important implications for hunting regulations.

With the return of spring, White-winged Doves who spent the winter in Mexico are beginning their journeys back, while doves already in Texas are busily building nests. At the same time, our team is gearing up for our second field season during which we will deploy more tracking devices and band more doves. In addition, we plan to address additional questions about the impacts of urbanization on the breeding performance and habitat selection of White-winged Doves.



White-winged Dove wearing a newly attached harness with a GPS-GSM solar-powered transmitter shortly before its release. Photo by Megan Spina



White-winged Dove nestling getting ready to fledge. Photo by Megan Spina

As we look forward to the next hunting season in Fall 2026, we encourage those lucky enough to harvest a banded bird to report their finding via www.Reportband.com and those who harvest a bird fitted with a tracking device to report their finding to Dr. Jennifer Smith (jennifer.smith@tamuk.edu). This reporting is essential as the data provided will help us address important questions about White-winged Doves in South Texas.

We close by thanking those who have supported this research, especially to the Texas Parks and Wildlife Department (TPWD) and U.S. Fish and Wildlife Service for funding. We also thank Owen Fitzsimmons of TPWD for continued support and to the many community partners and private landowners who provided access to their properties; we could not have done this without you. Last but not least, we thank the hard-working field technicians and volunteers who contributed to data collection.

THE UNSUNG HEROES *of Conservation*

by David Hewitt

There are many faces of conservation. Some are obvious, such as the land stewards, wildlife managers, ranchers, hunters, and others who enjoy wildlife. These people make decisions, spend money, and engage in advocacy that can bolster wildlife populations and invigorate the habitat upon which wildlife relies. The actions of all these people are evident whenever you are outdoors.

Other agents of conservation are less obvious. These people work behind the scenes and their influence often goes unnoticed. For much of its existence, the Caesar Kleberg Wildlife Research Institute's conservation efforts have benefitted from the thoughtful, purposeful, and effective management of its financial resources by the Texas A&M University -Kingsville Foundation. Under the leadership of Pete Wyro, Brad Walker, Jason Geiken and now Anne Thurwalker, the TAMUK Foundation has worked closely with the Institute's development team to raise money needed for CKWRI to fulfill its conservation mission.

Thanks to the partnership between CKWRI and the TAMUK Foundation, the Institute has a stable funding base. Funds managed by the TAMUK Foundation ensure graduate students have scholarships and other support necessary to succeed, both in college and later when working to further wildlife conservation. Other funds are used for faculty salaries, which enables CKWRI to have a deep bench of scientists with a broad range of expertise. This funding also ensures these scientists have the time to conduct the applied research for which the Institute is renown. Other funds are used to bolster research projects, taking them from good to great.

Because of the TAMUK Foundation, CKWRI supporters can honor a loved-one with an endowment that ensures CKWRI will always be focused on a specific area of research. For example, endowments support research into rangeland restoration, conservation and recovery of endangered species, and into the management of game species. Other funds support research into the small mammals, reptiles, carnivores, and hundreds of bird species that call Texas home.

Just as CKWRI's success is due to the individual students, staff, and scientists working toward a common goal, so too is the TAMUK Foundation more than just an organization. We were reminded of that this spring when Loraine "Lori" Russek passed unexpectedly. Lori had worked at the TAMUK-Foundation for 20 years, helping shepherd CKWRI endowments through an amazing growth period. Lori was always available to answer questions, obtain fund balances, arrange distributions, and help support CKWRI's needs with efficiency and a smile. We often sought her insight when faced with a novel donor desire, a detailed lease agreement, or a unique fund-raising opportunity. With an unparalleled work-ethic and finely-honed intellect, her guidance was always timely and valued. If she didn't know an answer, the broad network she had built over 20 years of treating people right enabled her to find the answers we sought.



Lori was a product of South Texas and understood the importance of South Texas to wildlife lovers in the region, across the state, and throughout the country. Lori, with her quiet, efficient, and engaging approach to her job, is another example of an unsung hero of conservation. We will miss her wry smile and welcoming demeanor as we continue to work on behalf of wildlife conservation. We are grateful that Anne Thurwalker and the entire TAMUK Foundation team are there to continue the Foundation's strong support of CKWRI and therefore of wildlife conservation in South Texas and beyond.



DONOR SPOTLIGHT:
CKWRI and the East Foundation - Better Together

By Lorie A. Woodward

The Caesar Kleberg Wildlife Research Institute and the East Foundation are better together. "We had a strong foundation, but this partnership has magnified our impact, credibility and reach," said. Dr. Dave Hewitt, CKWRI's Executive Director. "The same is true for the East Foundation; scientific credibility and peer-reviewed validation strengthen their work. Together, we're stronger."

Dr. Neal Wilkins, President and CEO of the East Foundation, concurred, "At the foundation, we have to have access to world-class scientists, and Caesar Kleberg is at the top of the list. If they didn't exist, we would've had to invent them."

He continued, "This partnership is integral to our mission—and working together, combining our expertise and leveraging our assets makes us both stronger organizations."

According to Wilkins, the partnership began during the East Foundation's formative days. Former CKWRI Executive Director Fred Bryant helped create the initial strategy for the foundation and served as a mentor. The institutional and personal relationships continued uninterrupted when Hewitt took CKWRI's reins.

"From the beginning, we've always remained completely aligned on what we're trying to get done," Wilkins said.

Early on, CKWRI scientists helped the East Foundation set up some key long-term research projects focusing on bird, large mammal and range monitoring. These long-term data sets have become valuable assets and signature projects for both institutions.

"When you're talking about projects involving hundreds of deer captures each year and datasets spanning 15 years across varied habitats, that is a massive draw for top-notch grad students and research scientists from across the country," Hewitt said. "The partnership has been good from the beginning, but it has grown in depth and scale over the years."

The Synergy

The synergistic relationship existing between CKWRI and the East Foundation is a natural outgrowth of the institutions' shared interests and complementary missions. CKWRI is a research and education organization, while the East Foundation is a land management, research, and education foundation.

In many cases, the interaction between the two organizations is driven by needs identified by the East Foundation's team as they strive to actively and responsibly manage 217,000 acres of rangeland in different environments across South Texas. The East Foundation brings a question or project to the CKWRI's scientists and says, "How can you help us?"

Because of the East Foundation's commitment to education, CKWRI has answered by enlisting the talents of top-notch graduate students and putting them to work in an expansive, private field laboratory.

Oftentimes, East Foundation scientists help shape the research projects and serve on graduate committees as well as co-leading projects and co-authoring papers.

"A private land lab with a direct focus on research, opens up opportunities that we wouldn't otherwise have," Hewitt said. "Other landowners have different objectives, and sometimes research fits and sometimes it doesn't, but the East Foundation is working ranch with a strong research focus. Because they can commit to long-term consistent and reliable management, we can establish research baselines that are unheard of elsewhere in Texas."

He continued, "Plus, our students gain real world exposure to the complexities that landowners face—balancing livestock, wildlife, infrastructure and income streams—which gives them an understanding of how private lands function and makes our research more practical and relevant."

Once insights are gleaned and answers are discovered, both organizations work to communicate the results in their respective circles that include both academics and landowners, showcasing their shared commitment to applied research.

"The idea is that we become a force multiplier," said Wilkins, noting that the East Foundation is the nation's first agricultural research organization. "We look out for each other's interests, even in areas that aren't strictly part of either organization's core responsibilities."

Conservation issues, both emerging and ongoing, are one area where the force is obviously multiplied. As part of state university system, strict rules govern CKWRI's activities in the public arena. As a private foundation, the East Foundation has more freedom and flexibility to get things done through advocacy as well as through informal channels.

"In policy leadership around statewide wildlife conservation issues, we can react quickly with a science-based approach," Wilkins said. "Sometimes that means advocacy, but often it's working behind the scenes with state and federal agencies in ways university faculty can't always do."

As East Foundation leadership crafts its response to ongoing and emerging challenges, Wilkins said they rely on CKWRI's "scientific horsepower" and bounce positions back and forth to ensure both groups are aligned. Sometimes CKWRI's scientific rationale makes the East Foundation rethink its assumptions, while other times the realities of landownership and economics experienced by the East Foundation prompt the CKWRI staff to expand their perspective beyond theoretical.

"East Foundation leadership is deeply engaged in the broader conservation and working lands landscape," said Hewitt, noting the East Foundation has helped bring CKWRI scientists into conversations about largescale issue like screwworm, cattle fever tick and ocelot policy. "Being a part of those discussions give us insight into policy challenges and information gaps, which helps identify and shape the research questions we pursue."

Asked why the partnership continues to succeed, Hewitt and Wilkins offered different answers. Not surprisingly, though, their reasons complemented each other and together painted a complete picture.

"Our success as partners comes down to like-minded leadership, aligned missions, cross-pollination between organizations and shared commitment to training the next generation of wildlife professionals who understand private lands and their stewardship," Hewitt said.

Wilkins added, "People. It started with personal trust, and that trust continues. People trust people. Organizations change, but strong relationships endure."



Pictured L-R: Dr. David Hewitt, CKWRI Executive Director and Dr. Neal Wilkins, President and CEO of the East Foundation

SIDEBAR

A Shining Example of Collaborative Conservation

CKWRI and the East Foundation's collaborative approach to ocelot reintroduction offers a shining example of the "better together" philosophy that drives the organizations' ongoing partnership.

Because of its location in the heart of historic ocelot habitat, CKWRI has been the epicenter of ocelot research in the United States. When Dr. Dave Hewitt arrived in 1996, the Institute team had already conducted 15 years of research focusing on ocelot ecology. Another 15 years of foundational research occurred garnering a greater understanding of the rare cat's biology and ecology, but recovery efforts languished.

"The East Foundation's vision, particularly under Neal [Wilkins], broke the logjam," Hewitt said. According to Wilkins, it was paramount that the East Foundation was involved with CKWRI on ocelot research centering on natural history and ecology. As time passed, though, the research process hit a critical juncture.

"Without a concerted push for recovery, both organizations were in danger of studying ocelots until they were extinct," Wilkins said. "With that in mind, I, on behalf of my team, proposed that either we all commit to recovery across private lands in South Texas, or we stop research all together."

Instead of reluctance or skepticism, CKWRI's scientists received the challenge with enthusiasm. They said, "Yes. Finally!"

Concurrently, the shy ocelot's profile rose. The stunning cat was the star of two feature films produced by Texan Ben Masters, which not only showcased the changing research priorities, but helped coalesce public support for ocelot recovery. Heightened awareness led to a coalition involving Texas A&M University, the Texas Parks and Wildlife Department and the U.S. Fish and Wildlife Service.

Rendering of the CKWRI Ocelot Conservation Facility



With a shared commitment to reintroduction, East Foundation leaders established a relationship with the USFWS and landowners surrounding the San Antonio Viejo Ranch. The foundation's largest ranch offered suitable inland habitat with no risk from coastal flooding and minimal risk from road fatalities, both of which threatened the remaining known wild populations. Eventually, this led to a Safe Harbor Agreement opening the way for reintroduction of the endangered species on private lands.

Once the possibility of reintroduction was a reality, the next hurdle was having enough ocelots to sustain a reintroduction effort. The remaining wild populations were not large enough or genetically diverse enough to provide an adequate number of animals for the effort.

The answer? An ocelot reproduction facility located on the Texas A&M-Kingsville University campus. CKWRI successfully raised the funding for the $18 million to $20 million facility through its long-time supporters. When the primary funder was hesitant to route money through state procurement, the East Foundation stepped in.

"We jointly concluded if the East Foundation leased the land and built the facility, we could do it faster and cheaper than the traditional university system," Wilkins said.

The foundation formed a subsidiary, hired the right people and is managing the project. Ground was broken on October 9, 2024 and construction began in early 2025. The anticipated opening is late autumn 2026.

"The East Foundation has been critical in bringing everything together—capacity, people and willingness," Hewitt said.

Once the lease expires, the university will own the facility. To further enhance the project's viability, the East Foundation hired Dr. Ashley Reeves, one of the nation's top experts in wild feline reproduction as its staff veterinarian after she finished her Ph.D. at the University of Tennessee in conjunction with CKWRI while working on foundation lands. She and Landon Schofield, a range and wildlife biologist for the East Foundation, are co-stationed at the university.

"Given Ashley's expertise in ocelot reproductive physiology, it made sense for her to work for us while collaborating closely with university faculty," Wilkins said. "When you see them working together, you can't tell who belongs to which institution—that's a true team."

ALUMNI Spotlight

Jessica GLASSCOCK

CKWRI Class of 2020
Assistant Professor
Stephen F. Austin
State University
Nacogdoches, TX

What is your background with the Institute?

From 2016 to 2020, I had the privilege of pursuing my Ph.D. through the Caesar Kleberg Wildlife Research Institute under the advisement of Dr. David Hewitt. My research explored the role of invasive juniper and mesquite, common on rangelands across the U.S., as an alternative, cost-stable fiber source in domestic and wild ruminant diets. This work provided me hands-on experience in both lab and field settings. I initially began my research at the Texas A&M AgriLife Research Center in San Angelo, Texas under the guidance of Dr. Travis Whitney. In 2016, I was accepted into Texas A&M University–Kingsville and concurrently awarded a Welder Wildlife Foundation Fellowship, which allowed me to continue my research under the co-advisement of Dr. David Hewitt. The remainder of my field research was conducted on the Welder Wildlife Refuge in Sinton, Texas.

What are you doing now?

I am currently an Assistant Professor of Forest Wildlife Management in the College of Forestry and Agriculture at Stephen F. Austin State University in Nacogdoches, Tx. I serve as an advisor for our student chapter of The Wildlife Society, mentoring the next generation of wildlife professionals. In February, I completed my term as President of the Texas Chapter of The Wildlife Society (TCTWS) which was an incredible opportunity to serve our state's wildlife conservation community. It is evident just how far-reaching the CKWRI network is as many fellow alumni actively serve on committees and in leadership roles with the TCTWS. My teaching and professional service continue to be inspired by the mentorship and collaborative environment I experienced at CKWRI.



Jessica Glasscock during her time with the Institute.



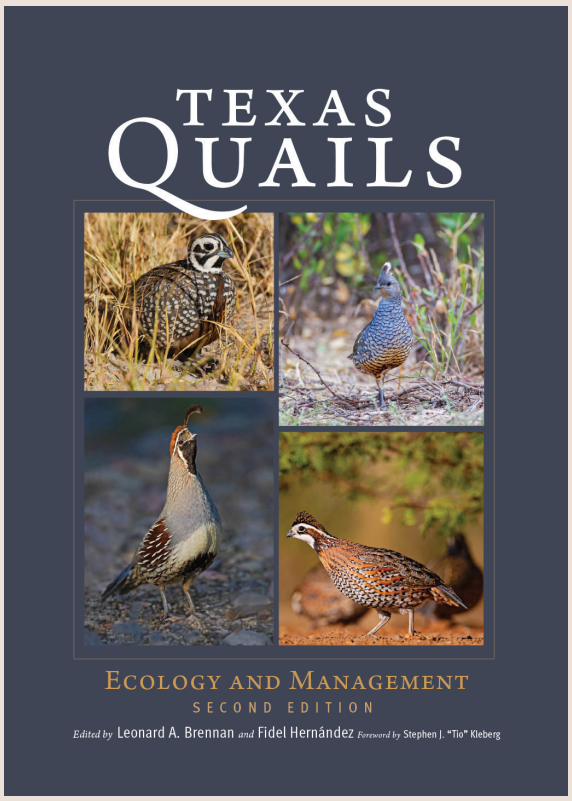
How does your time at CKWRI continue to affect you today?

My time at CKWRI continues to shape both my professional and personal life. The Institute is where I built some of my closest friendships, relationships that have grown into a strong network of colleagues, collaborators, and lifelong friends. I regularly share my experiences with students and encourage them to pursue opportunities with CKWRI, as I believe in the Institute's role in developing well-rounded wildlife professionals and advancing conservation. Being part of CKWRI was not just a chapter in my career, but the beginning of a lasting community that continues to support and influence me today.

Caesar Kleberg Wildlife Research Institute
700 University Blvd., MSC 218
Kingsville, Texas 78363

The Caesar Kleberg Wildlife Research Institute, a nonprofit organization, depends on charitable donations to support its work. By making a tax deductible contribution to the Institute, you will help us continue to provide science-based information for enhancing the conservation and management of Texas wildlife. Please consider making a gift today.

Learn more about how you can make a difference for the wildlife of Texas by visiting www.ckwri.tamuk.edu.



Now Available for Purchase

Texas Quails: Ecology and Management
Second Edition

Edited by Leonard A. Brennan and Fidel Hernández
Foreword by Stephen J. "Tio" Kleberg

Building on the successful first edition, published in 2007, this comprehensive update to *Texas Quails: Ecology and Management* provides an encyclopedic overview of the research and best practices that support quail management and conservation, an accessible as well as useful guide for wildlife and natural resource professionals. Written collaboratively by leading experts, this updated edition brings the results of cutting-edge research to those who manage, enhance, and restore quail populations. This new edition will inform and serve quail management, conservation, and research priorities in Texas for decades.

For details on how to purchase, visit **www.ckwri.tamuk.edu/publications**.