

# CAESAR KLEBERG Tracks

— A Publication of the Caesar Kleberg Wildlife Research Institute —



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

# CAESAR KLEBERG *Tracks*

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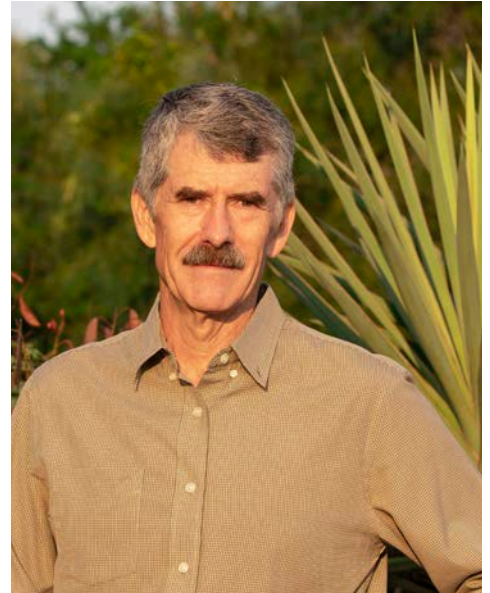
Magazine Design and Layout by Gina Cavazos

# FROM THE DIRECTOR

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Why do we enjoy the outdoors? Part of the allure is what I think of as wonder. In this instance, I am thinking about wonder as “a feeling of surprise mingled with admiration, caused by something beautiful, unexpected, unfamiliar, or inexplicable”. Wonder is the feeling you get when seeing a deer fawn tucked into the grass, a green jay hopping into the morning sun, or a black, roiling cloud bank at the lead edge of a blue norther. People feel wonder when confronted with a vast field of wildflowers, a quail nest tucked under a cactus, or the vast coastal prairies abutting the Laguna Madre.

There are people who recognize wonder in nature and effectively capture that magic in pictures. In mid-May, I spent two days in Tucson at the North American Nature Photography Association’s (NANPA) biennial meeting. It was a gathering of some of the most talented photographers whose work appears in books, calendars, galleries, online, and countless other creative outlets. Their photographs of nature, from tiny flowers to vast landscapes, are fascinating to say the least. The images draw you in and make you think. Through their captivating art of photography, these photographers share the wonder and awe in nature. Many of the images left me speechless, while making me proud to be working in the service of the natural world and everyone who cares about it.



There were several presentations at the NANPA meeting in which the photographers explained how their photos benefitted conservation. A photographer from Denver helped turn a cold-war industrial site into a National Wildlife Refuge that is now enjoyed by tens of thousands of people each year. Another documented polar bear research and the challenges polar bears face as sea ice retreats. They demonstrated the power of photography in wildlife conservation.

The reason I attended the NANPA meeting was to inform this influential crowd about CKWRI’s nature photography program. Our program, which offers a minor in wildlife photography, trains our students to take high-quality photographs and how to use them to tell a story. Those stories may be tied to their research by documenting methods, quantifying results, and demonstrating applications. Or, photography may help our students share their experiences and help others enjoy nature. Finally, photography is an engaging hobby that can engage everyone in the outdoors, and for me, provides a reason to get outdoors in between hunting seasons.

CKWRI’s Tracks magazine is exquisitely designed in-house by Gina Cavazos. She effectively uses photos that capture the beauty and mystery of nature. I hope you enjoy this issue of Tracks and that CKWRI’s research, and our students’ photos, fill you with wonder.

All the best,

A handwritten signature in black ink that reads "David Hewitt".

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



## ONLINE

Learn more about the TAMUK  
Wildlife Photography Program by visiting  
[www.ckwri.tamuk.edu/wildlife-photography](http://www.ckwri.tamuk.edu/wildlife-photography)

# WILDLIFE DISEASE IN SOUTH TEXAS: Conservation Perspectives and Threats in a Unique Region

*by Alynn Martin*

**T**exas is an extraordinarily unique region of the United States: its nearly 267,000 square mile area spans ten ecoregions, encompassing desert, subtropical, and temperate climates. South Texas—the region of Texas south of highway 90, including and extending south of San Antonio—is also diverse in landscape and habitat type. The range of climates, soil types, and landforms observed across this region support a wide diversity of plants and animals. But, with a great diversity of wildlife hosts comes broad risk for disease.



*Photo by Larry Ditto*

Incentives to keep wildlife populations healthy include conservation of wildlife, enjoyment and recreational use (e.g., hunting, photographing, and observing), and human and domestic animal health. Seventy percent of the emerging infectious zoonotic diseases—or, diseases that can be transmitted between animals and humans—impacting humans have originated in wildlife. Further, many of these are shared among domestic and wild animals. In South Texas—with expansive ranchlands and 4.96 million people living in the region—preventing spillover (or, transmission) of pathogens among wildlife, domestic animals, and humans is a priority. The geographic location and climate of South Texas presents unique challenges and opportunities with regards to wildlife diseases, conserving wildlife populations, and maintaining healthy livestock and human communities.

### INVASIVE SPECIES DYNAMICS

It's estimated that Texas has more than 800 invasive species—or, species of animals, plants, fungi, or microorganisms that were introduced and have established outside of their naturally occurring distribution—with some causing extensive environmental harm (e.g., zebra mussels and feral hogs). In addition to threatening local ecosystems, invasive species are often contributors to wildlife disease dynamics. The mechanism by which invasive species contribute to disease ranges from the direct transmission of pathogens (e.g., invasive aoudad sheep transmitting pneumonia-causing pathogens to native bighorn sheep), to degradation of the environment resulting in more susceptible hosts due to limited resource availability (e.g., invasive grasses reducing quality of grazing habitat).

In South Texas, the exotic and invasive nilgai antelope is contributing to disease issues at the wildlife-livestock interface. Since their introduction,

nilgai have become common in coastal counties in South Texas and in Northern Mexico. Nilgai present a readily available host in the landscape for cattle fever ticks: the two tick species primarily responsible for transmission of bovine babesiosis—a disease that can cause near 90% mortality in naïve hosts—to cattle. Due in part to nilgai establishment and movement across the landscape and international borders, the previously eradicated ticks have been reintroduced, resulting in the creation of quarantine zones along the South Texas border.

### A SHIFTING CLIMATE

The shifting climate—specifically, warmer summers, milder winters, and changes in precipitation—is expected to have impacts on wildlife diseases. Over the next fifty years, the average daily maximum temperature in South Texas counties is predicted to increase between 4–10°F<sup>1</sup> from averages observed in the late 1900's. Warmer climates in South Texas may allow for species that were previously limited by cooler climates and winter freeze events to expand their distributions northward. For example, it is expected that vampire bats—which are not currently documented in the U.S.—will expand their distribution into the Rio Grande Valley within the next two decades. This brings new concerns regarding rabies in South Texas, as vampire bats act as a reservoir—or, a species or population where a pathogen can be maintained—and may result in transmission events into wild animals and livestock that they parasitize.

Warmer temperatures may also alter the distribution and phenology (or, life cycle timing) of vectors of infectious disease, such as ticks and mosquitoes. Active periods for these species may no longer have perceivable—though marginal—peaks and troughs in South Texas, and instead may be abundant year-round, shifting

Disease	Human Cases in TX: 2014-2019	Vector	Pathogen	Local Transmission in TX
Typhus	1587	Flea	Bacteria ( <i>Rickettsia typhi</i> )	Yes
West Nile Disease	1191	Mosquito	Virus ( <i>Flavivirus</i> sp.)	Yes
Malaria	523	Mosquito	Parasite ( <i>Plasmodium</i> sp.)	No
Zika Virus Disease	372	Mosquito	Virus ( <i>Flavivirus</i> sp.)	Not since 2016-17
Spotted Fever Rickettsiosis	371	Tick	Bacteria ( <i>Rickettsia</i> sp.)	Yes
Lyme Disease	273	Tick	Bacteria ( <i>Borrelia</i> sp.)	Yes
Dengue	228	Mosquito	Virus ( <i>Flavivirus</i> sp.)	Yes (rare)
Chikungunya	223	Mosquito	Virus ( <i>Alphavirus</i> sp.)	Yes (rare)
Brucellosis	151	Sheep, goats, feral hogs	Bacteria ( <i>Brucella</i> sp.)	Yes
Chagas Disease	100	Triatomine bug ("kissing" bug)	Parasite ( <i>Trypanosoma cruzi</i> )	Yes

Table 1. Top ten reported zoonotic diseases in humans in Texas from 2014–2019. Data reported by Texas Health and Human Services. Local transmission refers to cases acquired within the state.

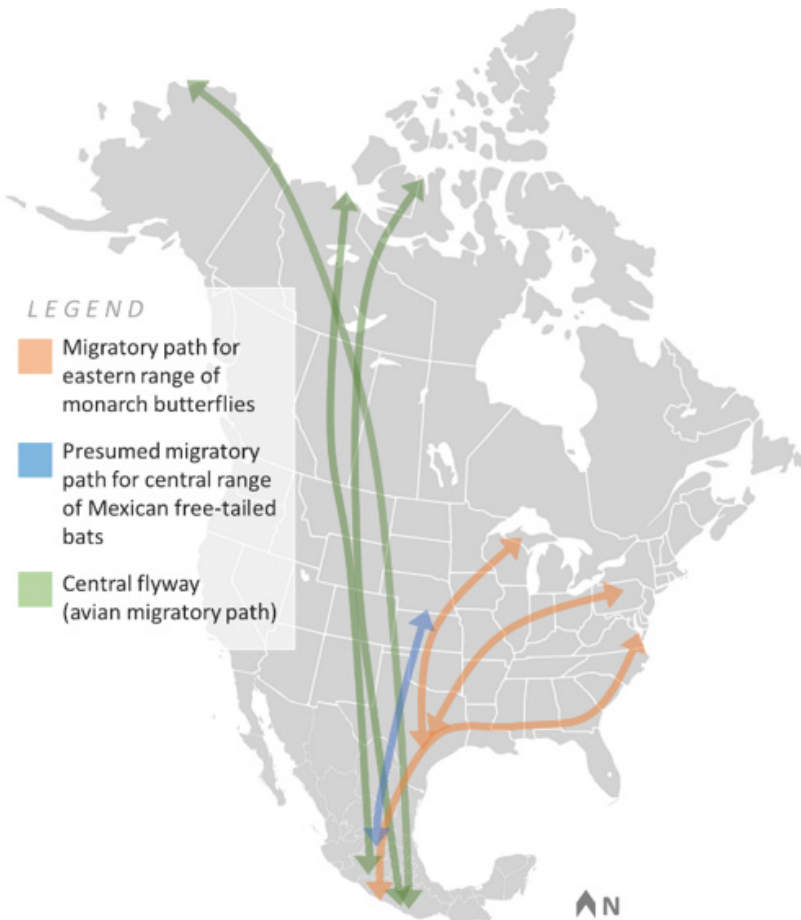


Figure 1. Migratory pathways that concentrate in southern Texas.

seasons of risk. Further, milder winters with fewer frosts may result in greater inter-annual survival of vectors. This has implications for human disease in Texas because nine of the ten most reported zoonotic diseases in humans are transmitted by vectors<sup>2</sup> (Table 1).

## MIGRATORY PATHWAYS

South Texas is a stop-over region for seasonal migrations undertaken by insects, mammals, and birds (Figure 1), as species funnel through this region en route to their overwintering grounds in Mexico and Central America. Migration can reduce disease prevalence, as individuals that are unhealthy may not be able to perform large-scale movements. However, for diseases where a host—or, infected individual—is asymptomatic (meaning, infected but not showing signs of illness) or can survive for prolonged periods while simultaneously being infectious, migration and congregations at stop-over locations can facilitate disease spread among groups that would otherwise be geographically distinct.

The central flyway is a route used by more than 400 bird species that connects summer habitats as far north as Alaska and northern Canada (Yukon, Northwest Territories, and Nunavut) to winter ranges in central Mexico. Hundreds of thousands of birds from raptors (predatory birds) to waterfowl congregate in South Texas during this time. For disease threats such as highly pathogenic avian influenza (HPAI), the concentration of birds in this region puts both wild and domestic (e.g., poultry) species at risk of exposure and infection. The 2022-23 outbreak of HPAI resulted in the loss of >58 million domestic birds (hobbyist and commercial poultry flocks). While most cases—in both wild and domestic species—during this outbreak event have occurred outside of South Texas, the ecological importance of this region makes it vulnerable to similar outbreaks.

## BINATIONAL CHALLENGES FOR DISEASE SPREAD

Texas shares 1,254 miles and 28 international bridges and border crossings with Mexico. Three of the

top ten busiest U.S. border crossings are located in South Texas: Laredo, ranked 4th; Hidalgo, ranked 6th; and Brownsville, ranked 7th (Figure 2). Border crossings can be sites for invasive species and pathogen introductions through the movement of people, and commercial and agricultural products. Two of the top five trade routes used to move live animals and animal products from Latin America (including Mexico and the Caribbean) from 2005-2014 are in Texas (El Paso, ranked 1st; Laredo, ranked 3rd). Combined, these crossings were used for nearly 35% of shipments. Diseases that can be transported on animal products and by people are highest risk.

African swine fever (virus) has yet to be documented in the U.S., but can unintentionally be transported on pork products (even if they are cured) and on people who have recently spent time in areas with infected pigs. While this disease doesn't affect humans, it could have devastating impacts on commercial pig production. Further, spillover of this disease into large, feral hog populations in the southern U.S. (including South Texas) may facilitate maintenance of the disease in wild populations, complicating control and eradication.



*Male American dog tick searching for a host.*

## THREATS ON THE HORIZON

Chronic wasting disease (CWD) is an infectious prion disease impacting cervid populations (deer, elk, and moose) across the United States. The first documentation in Texas was in 2012, with relatively few cases to date and most associated with captive breeding facilities. Ongoing efforts to reduce CWD spread into Texas include hunter check stations, establishment of CWD surveillance zones, and limits on human-movement of deer.

White-nose syndrome is a devastating disease of hibernating bats caused by a fungal pathogen. The fungus was first documented on hibernating bats in Texas in 2017, but no associated disease has been observed in Texas bats to date.

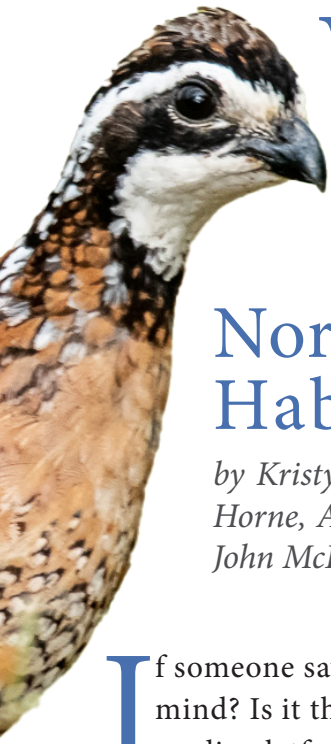
CKWRI researchers are on the forefront of disease research, both through inter-institutional collaborations and with projects developed, led, and maintained at the institute. These projects include disease surveillance and testing efforts, disease mitigation strategies, and understanding geographic trends and spread dynamics of diseases. Current wildlife-disease systems being investigated by CKWRI include chronic wasting disease in deer; parasite burdens in game birds; respiratory disease in endangered reptiles; and tickborne diseases, among others. 🕷️

Footnotes:

- 1 The Climate Explorer: <https://crt-climate-explorer.nemac.org/>
- 2 Texas Health and Human Services: <https://www.dshs.texas.gov/animal-safety-zoonosis>



Figure 2. Major border crossing locations in Texas, including three in South Texas.



# WHAT IS THE COST?

## Northern Bobwhites and Habitat Fragmentation

by Kristyn Stewart, Fidel Hernández, Sabrina Szeto, Jon Horne, Alejandra Olivera-Mendez, Angela Guerrero, and John McLaughlin

If someone says the word “network”, what pops into your mind? Is it the phone in your hand? The various social media platforms? Or maybe the social circle of friends you keep? The truth is, we are surrounded by all different kinds of networks in daily life.

A network is a structure that is comprised of two things: nodes and links. A node can be any object, and a link is a connection between the objects. For example, in a banking network, the banks are the nodes and the financial exchanges occurring among them are the links. In a social network, the people represent the nodes, and relationships among them are the links. Given this structure, networks can be viewed as highly connected if many links exist among the nodes, or as disconnected if only a few links exist among the nodes. Such a “network” perspective has been very useful in better understanding phenomenon occurring in a diversity of disciplines such as engineering, economics, biology, and more recently, ecology, where researchers have begun to view habitat as a network.

When habitat is lost due to urbanization, agriculture, or other factors, the landscape is transformed from a single, contiguous patch of habitat into many, isolated habitat patches. In this scenario, the habitat patches are viewed as nodes and if the patches are close enough to permit animal movement among them, then wildlife travel can occur between habitat patches thereby establishing a link. If the distance is too great to permit travel, then the habitat patches are not connected. Thus, habitat on a landscape can be viewed as a network, and such a habitat network can experience high connectivity or low connectivity depending on the distance between patches and the dispersal ability of the species in question.



*Bobwhite quail habitat*



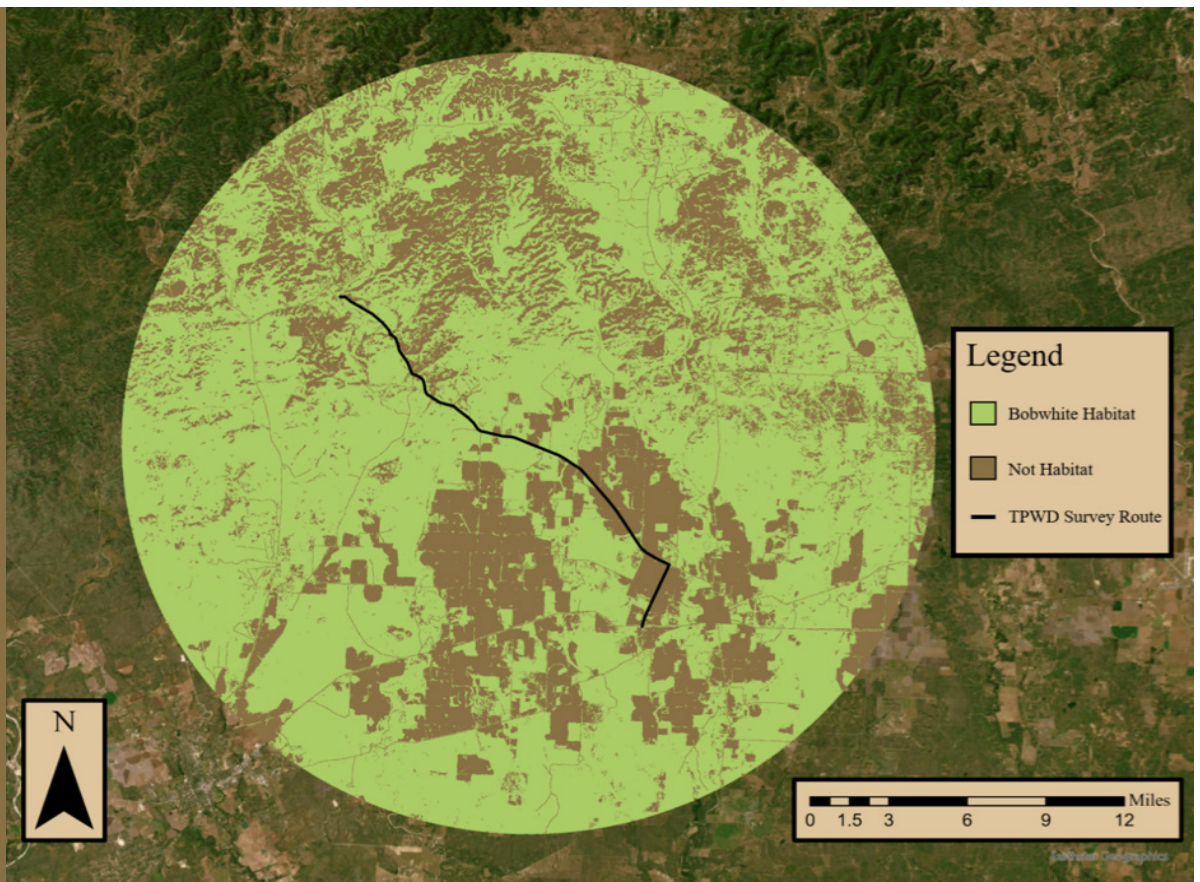


Northern bobwhite have been declining across their geographic range for many decades, and habitat loss and habitat fragmentation are considered the ultimate cause of the bobwhite decline. Although bobwhites in Texas are doing relatively better than in other parts of the species' range, bobwhite populations in the northern part of the state appear to be performing worse than in the southern portion, and habitat loss and fragmentation have been proposed as a possible explanation. However, to date, no one has quantified or compared the amount of bobwhite habitat between these regions. Thus, we wanted to apply a network perspective to bobwhite habitat and compare habitat characteristics (amount and connectivity) between northern and southern Texas and relate those metrics to bobwhite abundance.

To do this, we first created a map of bobwhite habitat to identify individual patches of habitat within our study regions. We used National Land Cover Database (NLCD) and CropScape landcover data to produce a map of bobwhite habitat.

These databases consist of many landcover classes, such as urban, water, grassland, crop, etc. Thus, we reclassified and reduced the original NLCD and CropScape landcover classes into just two classes (bobwhite habitat or not-habitat) based on our knowledge of the species' ecology. To estimate bobwhite abundance, we used the roadside surveys conducted by Texas Parks and Wildlife Department (TPWD) every August. For the routes that occurred within northern (Rolling Plains and Cross Timbers ecoregions) and southern (Rio Grande Plains and Gulf Prairies) Texas, we identified the centroid of each route and buffered it to a radius of about 16 miles (Figure 1). We utilized these circular areas as our focal landscapes and quantified the amount of bobwhite habitat existing within each landscape. We then used a method called least cost path analysis to produce the paths of least resistance (or cost) to a bobwhite from habitat patch to patch in each focal landscape. This analysis allowed us to produce the possible routes that a bobwhite could take, given the different types of landcover (farm fields, urban

*Figure 1. Example of a focal landscape displaying bobwhite habitat (light green) and not habitat (brown) occurring within a 16-mile buffer around a Texas Parks and Wildlife quail survey route in South Texas.*



Variable	Southern Texas	Northern Texas
No. of routes	36	71
Habitat amount (%)	85	73
Mean patch area (ac)	5,410	391
Mean path distance (yds)	234	265

Table 1. Summary of habitat characteristics between southern and northern Texas.

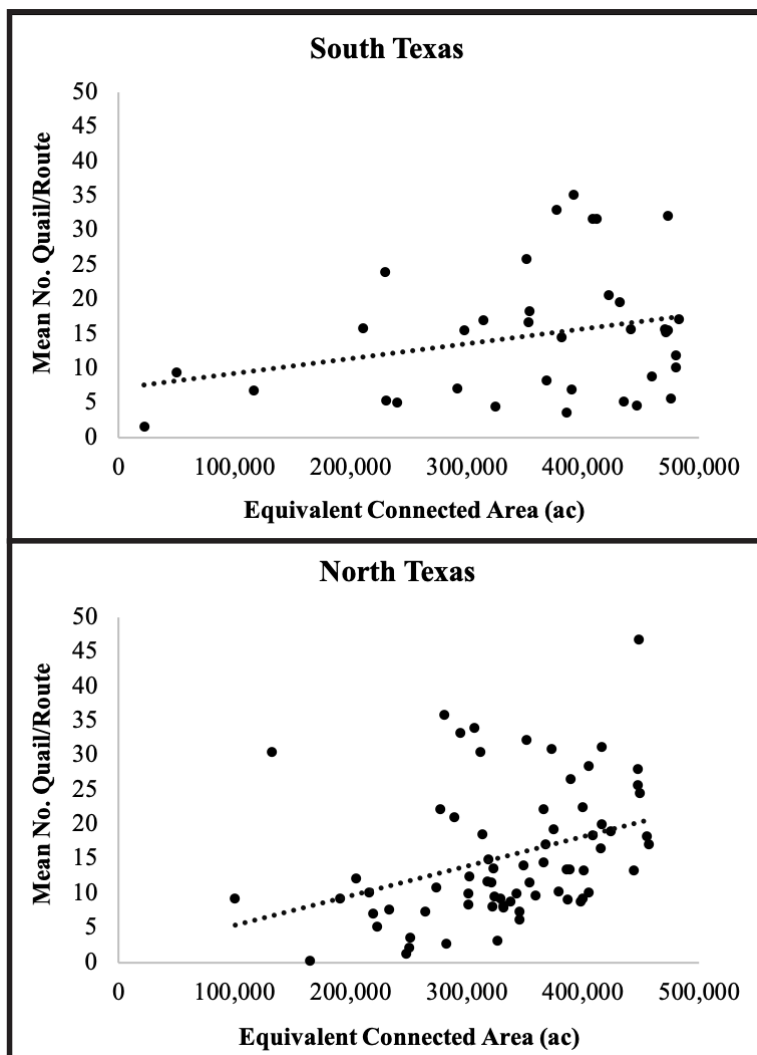


Figure 2. Relationship between a measure of habitat connectivity (Equivalent Connected Area; ac) and mean quail abundance in northern and southern Texas. The larger the ECA value, the higher the habitat connectivity.

areas, rangeland, etc.) and the different types of roadways (highway, county road, caliche path, etc.) which could help or hinder quail movement. We then quantified the degree of habitat connectivity within each buffered route and related this to the mean number of quail counted on these routes.

We collected habitat data (amount and connectivity) from 71 routes in northern Texas and 36 routes in southern Texas. We documented that the area surrounding routes in southern Texas had more habitat (80%) than routes in northern Texas (72%). In addition, our habitat-network analysis indicated that southern Texas had larger habitat patches, shorter distances between patches, and higher habitat connectivity than northern Texas (Table 1). Moreover, we documented a positive relationship between mean bobwhite abundance and habitat connectivity (Figure 2).

Our preliminary analysis provides supporting evidence that habitat connectivity could be a possible factor explaining population differences between northern and southern Texas. In the future, we will relate other metrics of population performance (e.g., population growth) to habitat connectivity to assess whether the same patterns are documented. We also plan to quantify the social network of quail stakeholders' perspectives, and use information from all three components (habitat, quail populations, and people) to link them into a larger, social-ecological network. This project is a first approximation analysis of the bobwhite decline as a social-ecological system and will provide a framework for management conservation that can be used with other species.

Just maybe the next time you hear the word "network", hopefully, you will think "bobwhites!". ↓





# GRAY HAWKS: AN URBAN SUCCESS STORY?

*by Michael T. Stewart and Ashley M. Tanner*

**I**t would be difficult to find a more striking raptor than the Gray Hawk. Adults are a beautiful shade of gray with fine barring across their breast and a black- and white-banded tail. Juveniles resemble many other raptor species, but with a rather distinct facial pattern and u-shaped white patch on their rump. Though they are fairly common in their Mexican and Central American range, extending south to northern Costa Rica, they are an uncommon raptor in the United States. The northern portion of the Gray Hawk's distribution extends into small portions of only three states: Arizona, New Mexico, and Texas.

In Texas, Gray Hawks are frequently observed in two different regions of the state: West Texas, in Big Bend National Park and the Davis Mountains area, and in South Texas, south of Laredo in the Lower Rio Grande Valley. Gray Hawks migrating from Central and South America begin arriving to West Texas in February to breed, establishing and defending territories, constructing nests, and caring for young throughout the spring and summer. In contrast, most Gray Hawks in the Lower Rio Grande Valley call this region home year-round, electing not to migrate and instead spending their time in the complex urban matrices of Brownsville, Harlingen, and McAllen. On July 18th, 1977, Texas listed the Gray Hawk as threatened, designating them a Species of Greatest Conservation Need. Despite this designation, there has been no research focused on Gray Hawks that could be used to guide conservation efforts in Texas.

*Photo caption: An adult Gray Hawk perched in a tree along US Highway 281 (Military Highway). These hawks can be incredibly hard to locate, or other times sitting right in the open in high-traffic areas.*



*Adult male Gray Hawk wearing a GPS-GSM transmitter with a backpack-type harness. The transmitters obtain spatial data from the Global Positioning System (GPS) satellites and then transmit this information using the Global System for Mobile Communications (GSM).*

Urban environments create unique challenges for wildlife. Some species avoid these areas entirely, deterred by the sights, sounds, and smells of urban living. However, other species, such as coyotes, Bewick's wrens, and Texas spiny lizards, have adapted to life with humans. Watered lawns, feeders full of seed, and easily accessible kitchen refuse attract wildlife, who to access these resources, must also navigate busy roadways, risk exposure to harmful chemicals, and distinguish food from plastics. Gray Hawks have become an urban-adapted species in the Lower Rio Grande Valley, establishing home ranges in small subdivisions and building nests in abandoned lots with trees. If they are adapting well in these areas, understanding their requirements, and managing for them, may benefit many other species of wildlife, giving us insights into what is needed to successfully adapt to our increasingly urban world.

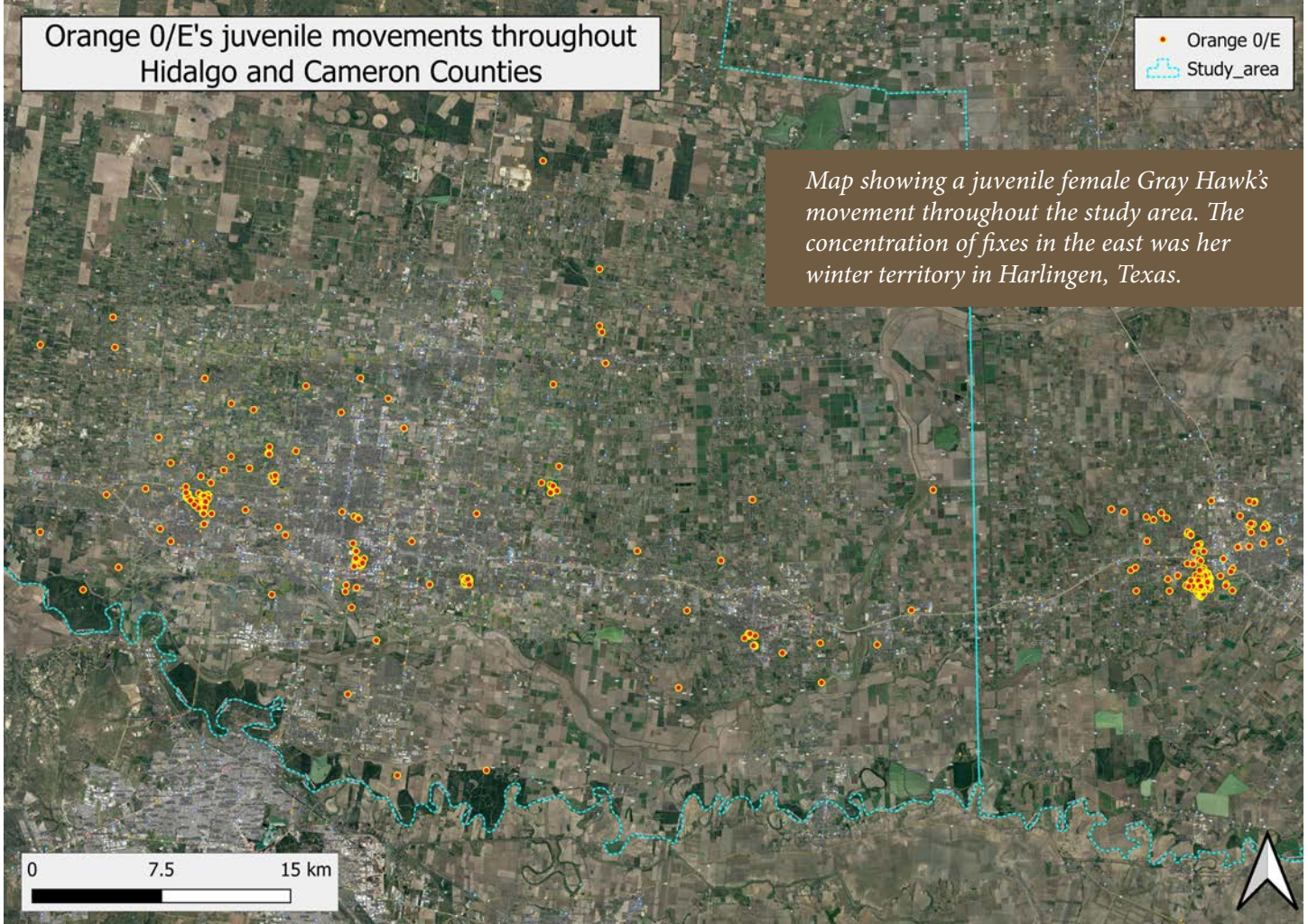
In 2019, we began to capture and fit transmitters to Gray Hawks in the Lower Rio Grande Valley in order to better understand their survival, habitat requirements, and reproductive success in this urban matrix. Hawks were fitted with cod-

ed, aluminum color bands and federal bands that allow researchers to recognize individual birds. During capture, we took measurements of each bird that helped identify the larger females (banded with orange bands) from the smaller males (banded with black bands). Some hawks were also fitted with a backpack-style harness, which communicates with satellites and the cell phone network to take a Global Positioning System (GPS) location every 30 minutes. To date, we have banded 185 Gray Hawks and fit 60 individuals with transmitters and currently, we are monitoring the movements of 22 individual hawks (11 male, 11 female) in the Lower Rio Grande Valley.

Our research efforts have given us insight to some fascinating, and sometimes unexpected behaviors of Gray Hawks. For example, we banded and attached a transmitter to a young female Gray Hawk in 2020, Orange 1K, from a nest in a Mexican ash tree in a Harlingen resident's front yard. This area offers a stark contrast to the tall cottonwoods along the Rio Grande River in the remote Big Bend National Park, where some Gray Hawks are choosing to nest. She migrated to El Salvador in the fall of 2020, where she spent her first winter. Of the 60 individuals that we have tracked, she is one of only 4 to have made the trip to Central America from the Lower Rio Grande Valley. After this first year, she elected not to migrate and to remain in Hidalgo County for the next two winters, spending her time in the City of Alamo where she attempted to breed last summer. It is unusual for an individual animal to switch from migrating to becoming a resident, and extremely rare for that event to be captured with a transmitter. Her story is just one example of many fascinating things we are learning about this population.

Using the information collected to date, plus new information gathered daily, we will determine what the habitat requirements are for Gray Hawks in the Rio Grande Valley of Texas. By comparing environmental factors at locations hawks are using to the same information at random locations available to them but not being used, we can examine what habitat features are important to them when they are selecting a home range. Moreover,

## Orange 0/E's juvenile movements throughout Hidalgo and Cameron Counties



this information will allow us to explore how birds are navigating urban and more rural environments within this region. Small conservation efforts, such as maintaining tall trees when building and maximizing connectivity between green spaces, may make a significant difference to this species.



Gray Hawk nestlings, a male and a female, in a tract of the Lower Rio Grande Valley National Wildlife Refuge.

After identifying what constitutes Gray Hawk habitat, we plan to use these environmental variables as inputs to a species distribution model that will use Geographic Information System (GIS) mapping software to identify other areas in this region that are suitable for Gray Hawks. These additional areas can then be the focus of conservation efforts to preserve or expand their range. The Lower Rio Grande Valley is undergoing rapid development which, coupled with habitat loss along the international border, make it all the more critical we understand what the species needs to survive and reproduce so we can effectively guide conservation efforts.

The final piece of successfully managing for this species is understanding current population trends. Through regular surveys of color-banded hawks, including some with transmitters, we will study this population's demographics to fill critical information gaps about Gray Hawk survival, reproductive productivity, and the current population growth rate. We hope to find a healthy population that is not just surviving, but thriving with us in the Valley. ✎

# DONOR SPOTLIGHT:

## *Peter Swenson*



**F**or Peter Swenson, South Texas has always been his querencia. His love of the land and love of South Texas began at the tender age of six when for two months of every summer he came to his grandparent's ranch at Tilden.

It was a whole new world as Peter spent most of his growing up years on the East Coast, though the family lived for a time in Orange, Texas and also in Norway. His father, originally from North Dakota, was career military, serving in the Navy. His father met Frances "Evelyn" Wheeler at the end of World War II. She too was military, a member of WAVES. They met when he was at the Brooklyn Naval Yard and she was at graduate school at Columbia University.

Peter's ties to South Texas lie with his mother's side of the family. The Wheeler family set roots in Tilden in 1869, shortly after the Civil War ended. It was here that his mother was born.

Peter's grandfather, James "Clifton" Wheeler Sr., did a little of everything from ranch hand to working for relatives in the mercantile business. When working for others did not suit, he borrowed \$100 from his two uncles to pursue a teaching certification from Southwest Texas Teacher's College at San Marcos. He secured a job teaching in the Mexican school at Tilden for \$50 a month for a five-month school year, "a princely sum in those days."





*Fran and Peter Swenson*

James worked hard, saved his money, and by 1919 he had enough to buy an interest in one of his uncle's mercantile stores in Tilden. He became hunting friends with the Oppenheimer brothers who were in the banking and mercantile business as well.

Young Wheeler eventually accumulated enough money to purchase some land from the Oppenheimers. The initial purchase encompassed some 2,700 acres, part of his grandfather's original ranch, for \$7 an acre. Over time, he accumulated some 40,000 acres in all. Wheeler was fortunate in that the oil business was just beginning to get a toehold in South Texas. He secured a mineral lease for a dollar an acre with a \$5 per acre bonus and paid off the ranch in two years.

“He was never sure that he could pay for the property he purchased out of the income from the property, but hard work and good luck allowed him to get ahead,” says Peter.

Wheeler continued in the mercantile business as well. He was also the postmaster, the county judge and was on the school board.

When young Peter began making his summer trek to South Texas in the 1950s, McMullan County, population some 450, was the least populated county in the state. It was a completely different world from where he was raised on the East Coast. However, those summers spent with his grandparents were idyllic in that for two months the city kid turned country kid took in all the hunting and fishing he could possibly want, a pastime that both of his grandparents thoroughly enjoyed as well. “It was a golden opportunity and a paradise for hunting and fishing,” says Peter.

Every afternoon he went out with his grandfather to check his properties. “We always carried a .22 rifle, and we'd shoot anything that would move.” And though his grandfather hunted most everything from deer to turkey, he hunted mostly for pleasure and food. “He enjoyed it, but the food was a secondary benefit.”

By the time Peter entered high school, his father had retired from the Navy and moved the family from the East Coast to San Antonio, where he established a law practice.

Outside of hunting and fishing, Peter had a mind for math and science. He originally had interest in attending MIT, California Institute of Technology or Rice in some STEM subject. “That was when there was a big push in the United States for training scientists because of Sputnik,” Swenson explains. In the end Rice accepted him early which suited him fine as he was able to continue his passion for hunting and fishing a lot more easily than if he had been on

*Pictured from left to right: Fran Swenson, David Wester (CKWRI researcher and the Frances and Peter Swenson Chair in Rangeland Restoration Research), Peter Swenson, Fred Bryant (CKWRI Director of Development), David Hewitt (CKWRI Executive Director).*



the East Coast. At Rice, he studied biochemistry and was in the NROTC.

Following in his father's footsteps, he entered the Navy and did two tours during the Vietnam war. He spent his time on an aircraft carrier in the Gulf of Tonkin, in the northwestern portion of the South China Sea. "That was mostly what the Navy did except for those in the Brown Water Navy. They patrolled the rivers on boats," he says. Before Vietnam, Peter had secured a full free ride to study under Nobel laureate Salvador Luria at MIT. They generously agreed to hold that position for him until his military obligation was completed. However, when Peter finished active duty overseas, he realized that research was probably not his thing. Medical school seemed a better fit.

"Research results were too far down the line and too uncertain and I preferred immediate feedback," he explains.

He chose the University of Texas in San Antonio for medical school in part because of the proximity to the ranch. He was a pediatrician for about a year before becoming an anesthesiologist.

The early oil wells on the ranch were drilled by Humble Oil, now known as Exxon. Though they were still producing up until the 1980's, it wasn't until the Eagle Ford boom decades later that oil

and gas really took off in McMullen County.

Peter says the geologists all knew about the Eagle Ford as they had drilled through it, but it wasn't productive enough for a vertical well. When horizontal drilling and hydraulic fracturing came along, everything changed. It didn't just change the economics of the county; the landscape changed as well.

Peter became acquainted with the Caesar Kleberg Wildlife Research Institute through the annual research bulletin. Today he and his wife, Fran are patrons of CKWRI. Their particular focus has been rangeland restoration through their support of the work being done by the South Texas Native Seeds program. In fact, Peter and Fran have generously endowed the Frances and Peter Swenson Chair in Rangeland Restoration Research held by Dr. David Wester.

They use the native seed developed by STN and sold through commercial dealers on all of the pipeline easements and other restoration work on the ranch. Using native seed is a requirement that is stipulated in the leasing arrangements be it for an oil and gas pipeline easement or a power company.

Habitat management for the wildlife is another of Peter's interests. He understands and appreciates that there is no wildlife without good habitat and

that managing that habitat is of utmost importance. That includes integrating a sound grazing management plan into a wildlife management plan as well as managing for a diverse native plant community.

Early on while still in his medical practice, big game hunting was his primary interest. Today he garners more pleasure from dove and quail hunting. "As I've aged, climbing mountains in pursuit of a big game animal doesn't have quite the appeal."

He leases the ranch for commercial hunting of which the big moneymakers remain turkey and white-tailed deer. For the latter, protein feed is part of the management protocol as it's deemed to provide the most bang for the buck and it protects the fragile plant community from overuse. "We manage for the moneymakers, but essentially proper management benefits all wildlife," says Peter.

In South Texas, water is really the major issue, so in their management they are particularly cognizant of that.

The work that CKWRI is doing to educate young scientists is another reason why the Swensons have chosen to support the ranch. They are also supportive of their public/private cooperative type model.

Peter says that the general population these days is so urbanized that many don't really even understand where their food comes from much less what does or doesn't benefit wildlife. "We see that same sort of dynamic all over the world," he notes. "I would say that the basic problem is that most have first order thinking. They have this idea that if we don't allow people to kill these animals, then there will be more of them and that will be good, all of which are questionable propositions." Peter says he looks to Aldo Leopold's point of view in that it all has to balance.

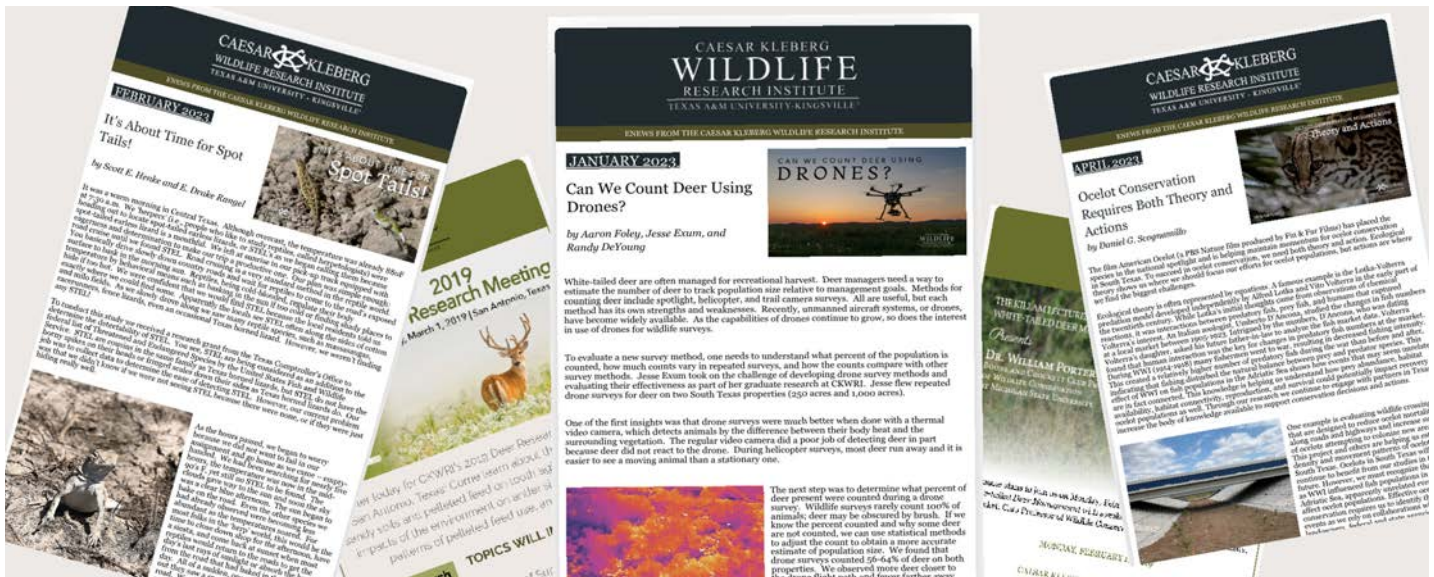
Twelve years ago after retiring from medicine, the Swensons moved to the ranch full-time. Peter has always preferred the ranch over San Antonio. In retirement it's no different. Admittedly during the long, hot summer months, they spend their time at their place near Meeker, in northwestern Colorado.

Peter and Fran have two daughters. One daughter and her husband handle the hunting on the ranch. Peter expects the ranch to remain in the family for at least another generation, and he's confident it will be left in great hands. 🌱

### ONLINE



Get the latest research news from CKWRI delivered directly to your inbox. Visit our website at [www.ckwri.tamuk.edu](http://www.ckwri.tamuk.edu) to sign up today!



# Quail ASSOCIATES 2.0

## QUAIL RESEARCH AT CKWRI

The Richard M. Kleberg, Jr. Center for Quail Research at Caesar Kleberg Wildlife Research Institute (CKWRI) has developed the most comprehensive and productive quail research program in the country. By any standard, be it breadth of research topics, number of books and other scientific publications produced, or number of graduate students awarded advanced degrees, the quail research program has earned the enviable reputation as being first among equals, and much of this success is a result of programs such as the *Quail Associates*.

## HISTORY OF QUAIL ASSOCIATES

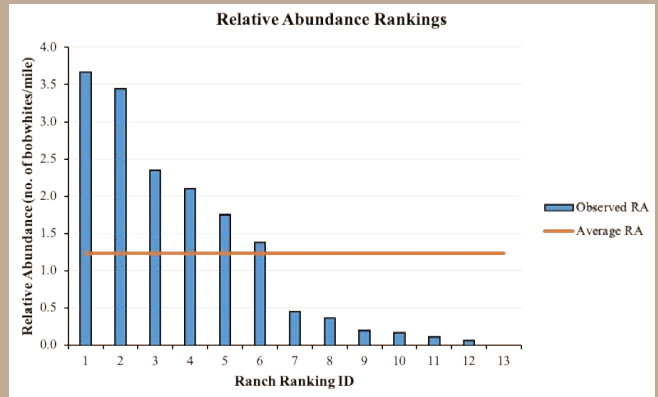
The *Quail Associates* Program at the Richard M. Kleberg, Jr. Center for Quail Research was designed and organized by John Kelsey and Fred Bryant in 2001. It was dedicated to providing a landscape look of quail populations and their productivity over the course of ten years (2001-2011). Until this study, it was almost unheard of in the science world to have the ability to conduct such a long-range and large-scale study, and the novel findings on genetics, hunting dynamics, and productivity set CKWRI apart. The two overall goals were: (1) create a network of “citizen scientists” who contribute data from hunter-harvested bobwhites for annual landscape-scale assessments of quail productivity in South Texas and (2) raise funds to help support quail research. The *Quail Associates* Program succeeded at meeting both of these important goals during the study, and it is with great excitement that we are launching what we are affectionately calling *Quail Associates 2.0*.



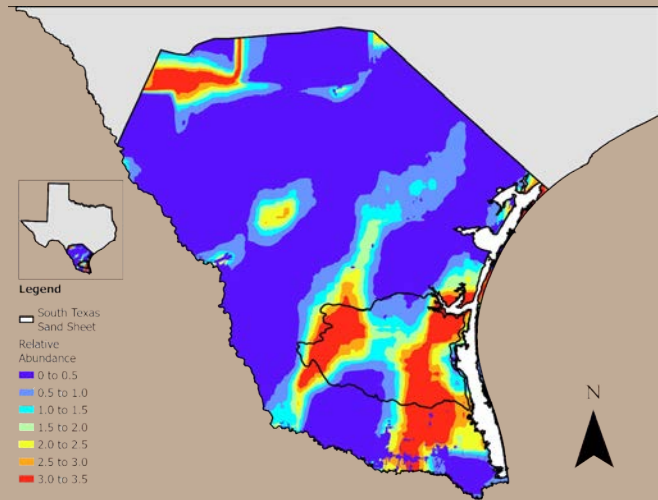
Photo by Larry Ditto

## QUAIL ASSOCIATES 2.0

Like the original *Quail Associates*, members of *Quail Associates 2.0* will be asked to contribute data including summer roadside counts, hunting success (covey flushes/hour), and productivity (adult/juvenile harvest ratios). Not only will the members be acting as citizen scientists, but their financial support will also be providing important funding for quail research that will help predict and shape the future of quail. CKWRI's Dr. Fidel Hernandez, along with a dedicated research team, will provide participants with exclusive communications updating them on pre-season predictions, a post-season recap, as well as personalized findings specific to their property. The overall findings will be shared with the membership group (with specific ranch information removed).



Sample comparison of bobwhite relative abundance among participating properties in the Quail Associates Program, August–September 2022. (Ranch X was ranked 4 of 13).



Sample Map of predicted bobwhite relative abundance for South Texas, August–September 2022.

Site	Total Bobwhites Observed	Total Miles Driven	Relative Abundance (no. bobwhites/mile)	Ranking (Out of 13 sites)
Ranch X	163	77.64	2.1	4

Sample bobwhite relative abundance (no. bobwhites/mile) of Ranch X, August–September 2022.

## MEMBERSHIP

This exclusive group of dedicated quail enthusiasts will be at the forefront of Texas quail research, and membership is not limited to those who are contributing data. For those who want to participate in the next long-range quail research study by providing funding, we welcome you as a member!

Membership benefits will provide: a hunting season forecast based on roadside counts that are submitted by participating ranches, on-the-ground data on how the hunting season progressed in the region (i.e., # of covey finds/hr.) following the end of the season, a personalized ranch report that also provides overall participant findings (you will be the only one who receives specific ranch information for your ranch, assuming you submit data), electronic notifications of new research findings in quail ecology and management, an invitation to an exclusive annual meeting (1/2 day with lunch) where members will learn of the latest research findings and management techniques, and program gifts (two *Quail Associates* shell bags and hats).

*Join today* VISIT [WWW.CKWRI.TAMUK.EDU](http://WWW.CKWRI.TAMUK.EDU) TO LEARN MORE



# CONSERVATION OF NESTING WATERBIRDS ALONG THE TEXAS COAST

*by Jordan Giese and Bart Ballard*

The coastal bays of Texas provide nesting islands for large gatherings of waterbirds, a group that has declined by 22% since 1970. These islands are often separated from the mainland from large stretches of open water, providing isolation and protection from potential nest predators. Several species of egrets, herons, pelicans, skimmers, terns and others gather in dense colonies in the middle of coastal bays and lagoons to breed. Some species, such as the Reddish Egret and Tricolored Heron, are high priority for conservation due to recent population decreases. Others, like the Great Egret, have been identified as an indicator of ecosystem health in the Gulf of Mexico.

There is a growing concern among resource managers along the Texas Gulf Coast regarding the degradation of coastal islands due to erosion from sea level rise, storm surges, and wakes from ship traffic. Large financial investments have been made to rehabilitate islands that provide critically-important nesting habitat for waterbirds.



*The authors attaching a tracking device to an adult great egret.*

With more than 200 colonial islands along the Texas coast, designation of high-priority areas is necessary for efficient rehabilitation and management of islands. Up to this point, prioritization has relied on expert opinion and data showing past years' bird numbers. Characteristics such as predator abundance, proximity to foraging areas, and human disturbance, are not measured directly and can have large impacts on whether an island is a quality-nesting colony or not. A conservation plan is needed that prioritizes islands based on biological, physical, and economic considerations.

In partnership with the Harte Institute for Gulf of Mexico Studies and the Coastal Bend Bays and Estuaries Program, we will prioritize the network of colonial islands along the Texas Coast for rehabilitation and management based on their potential for increasing waterbird populations.

Beginning in April 2023, we will fit Caspian Terns, Black Skimmers, Great Egrets, and Tricolored Herons with tracking devices to investigate habitat selection and foraging behavior of birds nesting in colonies from Upper Laguna Madre to Aransas Bay. The foraging behavior component of our study will identify the number of nests each bay system can support, the location of important foraging areas, and the likelihood birds will use an area based on structural components of islands. After refining our methodology in this scaled-down pilot study, our prioritization tool will be applied to the entire Texas coast.

At a time when sea-level rise, habitat degradation, and human disturbance are having compounding effects on waterbirds along the Texas Coast, a creative strategy is needed to reverse the declining population trajectories of these charismatic species. The results of our research will improve the ability of resource managers to effectively sustain breeding populations of waterbirds along the Texas coast with minimal management investment. ♪





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FOR MORE INFORMATION ABOUT THIS EVENT,  
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## TEXAS PARKS & WILDLIFE FOUNDATION

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Stewards of the Wild, Texas Parks and Wildlife Foundation's conservation leadership program, equips emerging leaders aged 21 to 45 with opportunities to actively participate in the stewardship of Texas' wild things and wild places by providing education, networking, and outdoor experiences.

Stewards of the Wild launched in 2013 and now has member-led chapters across the state, providing young professionals with unique opportunities and experiences to remain informed and engaged in solving the conservation challenges facing Texas.

Individual chapters host an array of events each year, curated to their unique communities and with support from TPWF's professional staff. Stewards offers young professionals networking, and outdoor, behind-the-scenes opportunities to learn more about conservation efforts in Texas. Additionally, state-wide events encourage members from across the state to share experiences in the outdoors.

Favorite local and state-wide events include exclusive site visits to Powderhorn and Palo Pinto Mountains State Parks, West Texas camping trips, coastal kayaking trips, mentored hunting and fishing trips, birding, conservation service projects, and educational dinners with local food, live music, Texas Parks & Wildlife Department leadership!



TO LEARN MORE ABOUT STEWARDS OF THE WILD, VISIT [WWW.TPWF.ORG/SOTW](http://WWW.TPWF.ORG/SOTW)



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# ALUMNI

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## Spotlight

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*David*  
**SHINDLE**

CKWRI Class of 1995,  
Panther Coordinator,  
U.S. Fish and Wildlife Service  
Immokalee, FL

### *What is your background with the Institute?*

From 1993 to 1998, I conducted ocelot research as a graduate student and Research Associate for the Feline Research Program under the guidance of Dr. Michael Tewes. My graduate assistantship was supported through a TPWD-funded project surveying for unidentified populations of ocelots on public and private lands in South Texas. Given it was unlikely that I would capture ocelots in areas outside of their known occupied range, I conducted a separate research project in the Rio Grande Valley and Tamaulipas, Mexico for my M.S. thesis, *Habitat Use of Ocelots in the Tamaulipan Biotic Province*. After graduating in 1995, I returned to CKWRI as a Research Associate in 1996 to continue ocelot research on private lands and to assist Dr. Tewes in managing M.S. and Ph.D. student projects in the Feline Research Program.

### *What are you doing now?*

For the past 25 years, my career has been focused on the recovery and management of the Florida panther population. I am currently the Panther Coordinator for the U.S. Fish and Wildlife Service (USFWS) and have served in that capacity since 2015. As the USFWS Panther Coordinator, I work in close partnership with the Florida Fish and Wildlife Conservation Commission (FWC), private landowners, and other stakeholder groups to guide the USFWS's recovery efforts for this Endangered puma population. I started my panther career in 1998 when I said adios to CKWRI to serve as FWC's Florida Panther Capture Team Leader and was the lead field biologist responsible for coordinating panther captures, research, and monitoring associated with the Florida Panther Genetic Restoration and Management Project. I later worked for an environmental NGO, where I provided contracted scientific expertise to FWC, USFWS, and the US Army Corps of Engineers on research and management projects relating to the recovery and management of the Florida panther population.



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

I am deeply indebted for the experiences, friendships, and professional relationships I gained during my time at CKWRI. Dr. Tewes provided me an invaluable opportunity in the world of wild cat research and helped me forge a path, with machete in hand, to a wildlife career that I never would have dreamed possible at the time. Although I still suffer the trauma from crawling through the Tamaulipan thornscrub for my M.S. thesis, I will always cherish my time spent trapping ocelots on Frank Yturria's San Francisco Ranch and experiencing first-hand, the critical role that a private landowner can play in wildlife stewardship and the conservation of an imperiled species. As a CKWRI grad student, I also had the fortune of meeting and becoming friends with the late Dr. Dave Maehr during his tenure on the Ocelot Recovery Team. I was intrigued by Dr. Maehr's accounts of the Florida panther's plight and his efforts to lead a team of field biologists and a legendary houndsman from West Texas through a landscape of socio-political landmines to bring the panther back from the brink of extinction. Twenty-five years later, I'm still chasing panthers, dodging political landmines, working with private landowners, and carrying the proud legacy and fond memories of CKWRI.




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

## DONATE TODAY

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/giving](http://www.ckwri.tamuk.edu/giving).



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*Photo by Brian Loflin*