



MAY 2021

We promote the advancement of land stewardship through ranching, science, and education.

FROM THE CEO

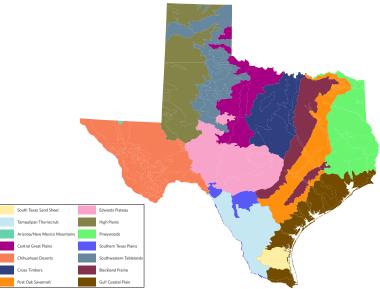
Exploring the South Texas Sand Sheet

Depending on which map of Texas' Ecological Regions you look at, the area in deep South Texas is either called the "Coastal Sand Plains" or the "South Texas Sand Sheet." I like to call it simply "Sand Sheet." Some recent cartographers have simply lumped the region in as part of a larger "South Texas Plains." But I am of the opinion that the latter designation lacks proper admiration for a region that is distinct in its origins.

Older maps - maps with more inspired cartographers – labeled the area "Llano Mesteñas", "Mustang Plains", or "Wild Horse Desert." These more romantic designations arise from maps from the early 1800s, upon which, the region of the Sand Sheet was named "Los Llanos de Las Mesteñas" – generally translated as the "Plains of Wild Livestock." This of course references the abundant wild cattle and horses that roamed the Sand Sheet descendants of livestock brought in by Spanish settlers as early as the mid-1700s. The Spanish "mesteñas" was later anglicized to "mustangs."

The South Texas Sand Sheet covers approximately 3,000 square miles. For most of its western boundary, the Sand Sheet runs against the South Texas Brush Country with an irregular border resembling a peninsula reaching into the Brush Country. To the north, and then for a narrow boundary along the Laguna Madre, the Sand Sheet abuts the Gulf **Coast Prairies** and Marshes. Starting just south of Baffin Bay, the Sand Sheet's eastern boundary stretches almost 80 miles to its southeastern origin near Port Mansfield.

This landform then spreads inland with some parts of the formation extending for another 80 miles to a westward extreme south of Hebbronville.



These are the Ecological Regions of Texas. Notice the South Texas Sand Sheet highlighted in yellow.

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Due to prevailing winds from the southeast, the droughty soils of the Sand Sheet are created from sand dunes blown inland from the shores of the Gulf of Mexico. It has taken more than 2,700 years of migrating sand dunes for the Sand Sheet to reach its present-day accumulation. From sea level, Sand Sheet elevations gently rise to the inland extreme of about 800 feet.

When viewed from above, the impacts of these migrating sand dunes are clear. The entire orientation of the open grasslands interspersed with brush and woodlands is slanted along a northwesterly pattern. Throughout the Sand Sheet, the wake of migrating sand dunes can each be traced, sometimes for miles. Live oak can dominate the remaining woodlands in the eastern portion of the Sand Sheet, and mottes of mesquite and mixed brush – such as granjeno and brasil – prevail in the western portion.

Only a fraction of the Sand Sheet is covered by what would be recognized as sand dunes at any one time, while other parts of the Sand Sheet are with little relief.



An example of the Sand Sheet with migrating sand dunes on El Sauz Ranch.

The diversity of native vegetation across the Sand Sheet creates some of the most productive wildlife habitats of any region in the nation. Over time, the plant composition and structure of most native rangelands are controlled by the joint influence of grazing, drought, and fire. In the Sand Sheet, migrating sand dunes must be added to that list of major influences and it is this unique natural disturbance that contributes much to the diverse wildlife habitats of the region.

The miles of public roads in the Sand Sheet are relatively few, at least when compared to other parts of the state. Most people that travel through the Sand Sheet do so on one of only a few straight roads that run directly north-south. The only major east-west road crossing through the Sand Sheet is SH 285, connecting Hebbronville to Falfurrias. State Highway 77 passes through the Sand Sheet as it connects the lower Rio Grande Valley to Corpus Christi. State Highway 281 passes through the Sand Sheet as it connects McAllen to San Antonio.

Further west, FM 1017 passes through the Sand Sheet as it provides a connection from San Isidro to Hebbronville. The point here is that the Sand Sheet is not a destination for many people, but it is territory that many people pass through on their way to other places.

> Once a person spends time in the Sand Sheet, they realize water, or the lack of it, is just as defining a characteristic of the region as is the sand. The region depends almost entirely on groundwater for domestic and livestock uses. It was water, or rather the easy access to it. that defined early settlement patterns in the Sand Sheet. Roads. trails. ranches. and settlements were centered around spots where fresh-water was close enough to the surface to be made available with shallow hand-dug wells.

The first ranchers in the Sand Sheet were holders of Spanish land grants issued under Spanish authority when this area was part of Nuevo Santander – a region of the Spanish Viceroyalty. Founded as part of a territory of New Spain in 1746, the few settlers in the Sand Sheet remained under Spanish rule until Mexican independence was gained in 1821. It was during this period that cattle and sheep ranching was initially established in the Sand Sheet. It was then 15 years later, in 1836, when Texas gained independence from Mexico.

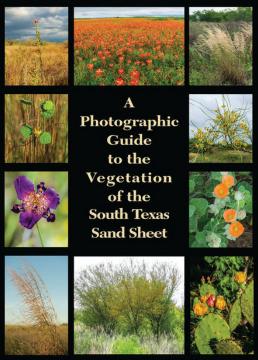
The ranching culture that was established on many of the original Spanish and Mexican land grants remains not only a part of the Sand Sheets' history, but it has continued to define the area.

Throughout the Sand Sheet, cattle ranching remains the dominant land use. Land ownership sizes are among the largest in the state – and this supports an economy-of-scale for profitable cattle operations. These large and unfragmented expanses of native rangelands benefit wildlife conservation to the point that many have begun to refer to this part of South Texas as "The Last Great Habitat¹." East Foundation's ranches span the breadth of the Sand Sheet. El Sauz, San Antonio Viejo, Santa Rosa, and Buena Vista are in the Sand Sheet. This issue of our newsletter is focused on the unique challenges and rewards of working in the Sand Sheet.

¹The designation of "The Last Great Habitat" was first used by Tim Fulbright and Fred Bryant with the Caesar Kleberg Wildlife Research Institute.

FOR YOUR LIBRARY

Dexter Peacock and Forrest Smith recently authored A Photographic Guide to the Vegetation of the South Texas Sand Sheet. Published by Texas A&M University Press as part of the Perspectives on South Texas series, this book is just what it claims to be – a guide organized in an easy-to-use format you can use to identify the plants of the Sand Sheet. You need two copies – one for the bookshelf and one to carry in whatever you're driving while in the Sand Sheet.



Dexter Peacock & Forrest S. Smith

SCIENCE AT WORK

Quail Management in the South Texas Sand Sheet

ABE WOODARD

"Red gopher mounds and bumper crops of bobwhites go together like beans and tortillas... The best gopher and quail soils are sands." — Fred S. Guthery from *On Bobwhites*

Ask any quail enthusiast in the United States where is the best place to hunt wild bobwhites, and their answer is always South Texas! In particular, the South Texas Sand Sheet, also known as the Wild Horse Desert. The reason for this response is straightforward—population stability.

Across most of their geographic range, bobwhites have experienced widespread population declines. On the other hand, South Texas bobwhite populations have remained stable due to favorable range management practices, contiguous habitats, plant species diversity, and vested interest in conservation efforts from landowners and hunters. Owed to this success, the National Bobwhite Conservation Initiative designated South Texas as a Legacy Landscape for Northern Bobwhite Conservation in 2014.

In the 1984 book *Bobwhites in the Rio Grande Plain of Texas,* Val Lehmann noted, "…The Wild Horse Desert has supported high bobwhite populations more continuously than has any other part of the Rio Grande Plain for at least four decades." That statement holds true thirty-seven years later. Despite the stability, many folks have reservations regarding the harvest of a species suffering from widespread declines. Rightfully, the sustainability of hunted populations is a primary concern for landowners and sportsmen.



Examples of female and male South Texas bobwhite quail.

To address these concerns, the East Foundation has implemented a long-term research project focusing on evaluating the effects of quail hunting on bobwhite populations within the Sand Sheet of South Texas. We are studying harvest rate recommendations (i.e., 20% for South Texas), seasonal population trends, and the temporal and spatial effects of harvest on spring bobwhite densities.

We designated a hunted (15,030 acres) and a non-hunted area (10,813 acres) comprised of similar soils, vegetation, grazing pressure, and pre-harvest bobwhite densities. We are using distance sampling from a helicopter to estimate bobwhite density on both areas in early November, mid-December, late January, and early March. The harvest prescription (20% of November population) is distributed evenly across the hunting season (Early, Middle, Late seasons), with hunting ongoing until quotas are met. Spatial hunting distribution is collected using GPS units on trucks and hunting dogs, along with detailed hunting logs from each hunt.

To date, we have completed three years of experimental harvest and corresponding helicopter surveys for both hunted and non-hunted areas (24 quail surveys). In total, our hunting cooperators harvested 1,736 bobwhites and crippled an additional 420. We recorded more than 1.9 million GPS locations during 670.8 hours of quail hunting (211 hunts). We have trapped, banded, and released 877 bobwhites for comparisons with harvested samples.

We are in the process of analyzing the 2020–2021 season and evaluating the collective results from the first three years of the project. Thus far, bobwhite population trends during winter months and resulting spring densities of hunted and nonhunted areas have been similar (2018–2019 = 0.15 vs. 0.16 quail per acre; 2019–2020 = 0.16 vs. 0.13 quail per acre). We also found that South Texas quail hunts cover 60-65 acres per hour (quail rig and two pointing dogs) and find 2.7 coveys per hour. Hunters harvested 1.04 bobwhite per covey and retrieved a bobwhite for every 5.2 shots.

The South Texas Sand Sheet is home to one of the last great bobwhite populations. It is our obligation to future generations to preserve this legacy and not fall victim to the population declines experienced in so many other regions. For this reason, our goal is to provide insight regarding sustainable harvest practices that will ensure the continued legacy of healthy, sustainable bobwhite populations and exciting quail hunting in the South Texas Sand Sheet.

FROM THE RANCH

Unique Cattle Management Techniques

Ranch management practices, history, and culture differ throughout the state. Such diversity isn't surprising as geography affects culture, influencing the way people adapt and respond to certain variables and situations. The geography and climate of the South Texas Sand Sheet have created ranch culture and cattle management techniques that are unique.

The South Texas Sand Sheet is rich with history and the heritage of the "vaqueros." Methods and tack used by the vaqueros were the foundation for cowboys across North America. The large, rough country and wild cattle of the sand sheet forced vaqueros to be horsemen who were tough, quick, and able to outsmart any bovine. Cattle handling and horsemanship techniques found within the sand sheet even today are much more similar to the old vaqueros than those found within other regions of Texas.

Each region presents distinct management challenges. Gathering cattle and inventory management are much more difficult in South Texas than other parts of the state. Large pastures, thick brush, and decades of helicopter use have shifted management strategies from the old vaquero days, so cattle are rarely gathered horseback.



Cattle at the East Foundation are bred with characteristics that help them to thrive in the dry South Texas Sand Sheet.

Gathering rate is a real metric tracked by managers in the sand sheet but hardly considered elsewhere. Sometimes only 70% of the cattle in a pasture may be gathered for a working, causing inventory issues without an empty, or "clean," pasture into which to rotate.

Water and feed are two major leverage points utilized for gathering cattle in South Texas. Cattle are commonly "trapped" for workings in water lots. Shutting off access to water to consolidate cattle within proximity to the pens and then calling them in with a feed truck are common strategies. Cattle hesitant to follow a feed truck may be trapped using special trap gates or gathered by helicopters. Once the cattle are trapped, most of the work is then accomplished horseback, similar to other regions of the state.

The climate favors ranching in the sand sheet. Freezes rarely occur, and the growing season accounts for roughly 305 days (about 10 months) annually. The growing season is bimodal with peaks in the spring and fall, supporting dual calving seasons. The soil types found within the sand sheet produce large volumes of forage with incredible biodiversity. However, no cool season grasses grow in the region, so palatable forbs are crucial to late winter grazing. The warm season grasses are of high quality when rain occurs, but they do not cure well. However, standing forage may be supplemented with feeds high in crude protein, and feed costs can be maintained lower than in other regions.

Cattle must be selected to fit the environment. High temperatures, prolonged droughts, big country, parasites, and disease must be considered. A balance must be maintained to select females that persist and produce annually while raising calves that meet quality expectations. Cows with Brahman influence are common across the sand sheet and are often crossed with English and/or continental breeds.

Cattle ranching in the South Texas Sand Sheet is unique with its various challenges offset by its benefits. Just like anywhere else in the state, there are advantages and disadvantages to the region, but at the end of the day, ruminant animals are still efficiently converting indigestible plants into nutritious and healthy protein for consumers in Texas and beyond.



Upcoming Events

MAY 8-9

Hosted Land Stewardship Ambassadors at the San Antonio Viejo Ranch.

MAY 25

Virtual International Urban Wildlife Conference; Masi Mejia will present, "Taking Students Behind the Gates."

Virtual Lone Star Land Steward Awards

JUNE 3-4

Professional Advisors' Meeting in Kingsville

JUNE 22-23

Board of Directors Meeting in San Antonio

JULY 15-18

8th Annual Private Lands Summit at the JW Marriott in San Antonio

JULY 16-18

Texas Wildlife Association 36th Annual Convention at the JW Marriott in San Antonio

JULY 23-25

Cattle Raisers Convention & Expo in Fort Worth





FOSTER BURCHETT

Foster Burchett was born and raised in Big Spring, Texas. After graduating from Forsan High School in 2012, he stayed in Big Spring to play baseball at Howard Junior College. From there, he transferred to Tarleton State University and graduated with a Bachelor of Science in 2016. The following fall, he went on to Texas Christian University (TCU) where he received a certificate in ranch management in 2018.

During his time at Tarleton State, he was a summer intern with East Foundation where he learned about the cattle operations and assisted with various research projects. Upon graduation he was invited back in a temporary position to cowboy for the ranches until leaving for TCU. Foster was an asset to cattle operations. The comradery he developed with the crew as well as his work ethic and dedication to the job were crucial during the tough days while continuing to clean up the ranches.

Foster gives credit to his time at the Foundation for leading him to his current position as Assistant Manager of JF Welder Heirs Cattle Company where he leads daily activities across a highly productive operation.

In his own words:

"Everyone taught me so much, and it prepared me for my future. I do not think I would be where I am at today if I had not gone and worked for the East Foundation. It gave me the knowledge I needed to get a head start for the TCU Ranch Management program."

It has been a great pleasure to watch Foster grow professionally and become a successful professional in the beef industry.



PARTNER SPOTLIGHT

Texan By Nature Taylor keys

Texan by Nature (TxN), founded by former First Lady Laura Bush, partners actively with conservation groups and businesses, including with the East Foundation, acting as an accelerator for conservation groups and a strategic partner for business. Their projects and programs (TxN Conservation Wrangler, TxN Certification, Symposia Series, and TxN 20) have impacted more than 7 million people, 19.5 million acres, and all of Texas' 254 counties over the last two years.

TxN is also the fiscal sponsor for Deep in the Heart, a Fin & Fur Film coming to a screen near you in Summer of 2022. The film will showcase approximately twenty wildlife species ranging from the iconic bison to the mysterious ocelot. Deep in the Heart aims to inspire Texans to conserve our remaining wild places, to show the connectivity of water and wildlife, and to recognize Texas' conservation importance on a continental scale. The film will be distributed to millions of people in K-12 schools, universities, theaters, digital mediums, and through community screenings to benefit Texas conservation organizations. Learn

To get involved and learn more visit <u>www.texanbynature.org</u> or follow them on Facebook, Twitter, LinkedIn, and Instagram @TexanbyNature.

TEXAN 🍫 NATURE

OPERATIONS REPORT

Water from Sand

TODD SNELGROVE

May 18, 2021—The East Foundation operates six ranches in a region of Texas known by many names. Names like the Wild Horse Desert romantically capture the rich history of this arid landscape. The more common ones focus on what define it best—a vast expanse of sand, or Sand Sheet.

This region of gently rolling sandhills and grasslands spotted with brush mottes receives less than 24 inches of rain in a normal year. Given the wild extremes we see in annual rainfall we are very often well above or well below normal—in our case the trend is toward the below normal end. This combination of land dominated by deep sands and little rain creates a set of conditions most Texans are unfamiliar with—there is little or no *surface water* in the Sand Sheet. No lakes. No rivers, creeks, or bayous. The occasional presa (dirt tank), laguna, or cayo dots the landscape during prolonged periods of wet weather but dry up quickly when the weather turns hot and dry. The only reliable source for the inhabitants of this arid landscape—human, livestock, and wildlife alike—is groundwater.

Just under the surface of the Sand Sheet lies the expansive Gulf Coast Aquifer. This major aquifer parallels the Texas coast from the Louisiana border to the border of Mexico—nearly 42,000 square miles. It consists of several minor aquifers containing water producing sand, including the Jasper, Evangeline, and Chicot aquifers the become narrower and shallower inland from the coast. EMPLOYEI PROFILE



ABE WOODARD

Abe, an East Foundation Research Associate, grew up hunting, fishing, and playing sports in Northeast Ohio on Lake Erie near the Pennsylvania line.

Although Abe is a recent hire for the East Foundation, he has been with us as a graduate student for several years. As a Ph.D. student, he studies the impacts of harvest on a northern bobwhite population on our Buena Vista and San Antonio Viejo ranches.

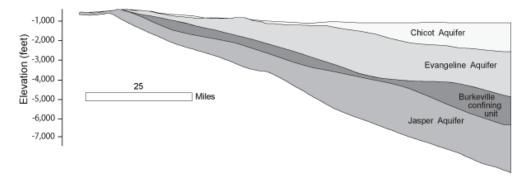
Abe has enjoyed returning to South Texas and the beauty of working on such historic landscapes. The East Foundation's mission and focus mesh well his professional goals related to promoting the importance of private land stewardship and applied research.

As a Research Associate, Abe works closely with hunting cooperators and Foundation personnel to continue his research. Currently, he is focused on completing his dissertation and publishing the findings from the first four years of the sustainable quail harvest project. Prior to joining us at the East Foundation, Abe worked for Caesar Kleberg Wildlife Research Institute at Texas A&M University-Kingsville as a Research Assistant and Ph.D. student. He was also a Natural Resource Manager and Wildlife **Biologist for Deseret Ranches** before returning to graduate school, working on private lands in Florida, Oklahoma, Kansas, Nebraska, and Texas. He also worked as a Wildlife Biologist for the Mota Bonita Lease on the Encino Division of the King Ranch.

Abe lives on the Santa Rosa Ranch with his wife and two sons. In his free time, he enjoys hunting, fishing, and training bird dogs.



Continued on page 8.



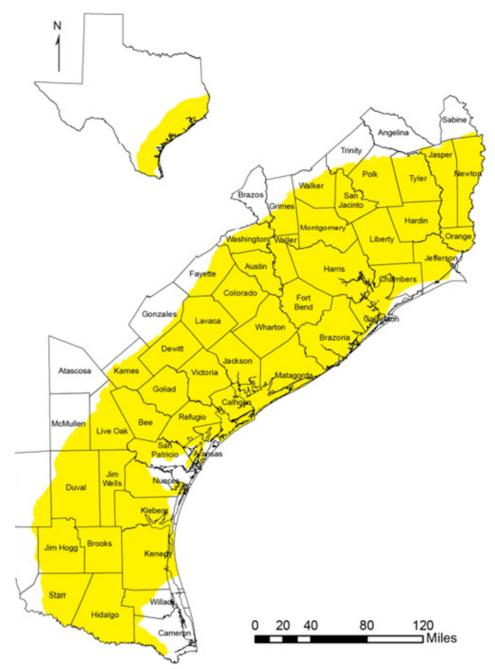
Cross section of the Gulf Coast Aquifer in South Texas from the Texas Water Development Board, 2016.

It was access to this water that drove early settlement patterns in the Sand Sheet. Roads, ranches, and communities were centered around spots where freshwater was close enough to the surface to be accessed by shallow hand-dug wells. Many of these wells still exist today but have long ago gone dry.

In the 1850's, Daniel Halladay and John Burnham established the U.S. Wind Engine Company. They manufactured the Halladay Windmill specifically designed to efficiently access deeper ground water than a traditional hand dug well could. The invention of steel blades in the late 1880's made windmills more efficient and affordable.

Over the next 100 years more than six million windmills were erected across the United States. As a rule of thumb, ranchers tried to provide a wind mill every thousand acres to ensure livestock never had to travel too far for water. No one is certain, but likely thousands have been used across the Sand Sheet to capture groundwater and sustain life for people, livestock, and wildlife.

The use of groundwater fundamentally changed the way life persists in the Sand Sheet of Texas. In future editions of our newsletter, we will highlight how groundwater use has evolved on our ranches and techniques we are implementing to more efficiently capture, store, and deliver water.



Extent of the Gulf Coast Aquifer in Texas from the Texas Water Development Board, 2016.

Dry Times in the Sand Sheet

ALLIE BIEDENHARN

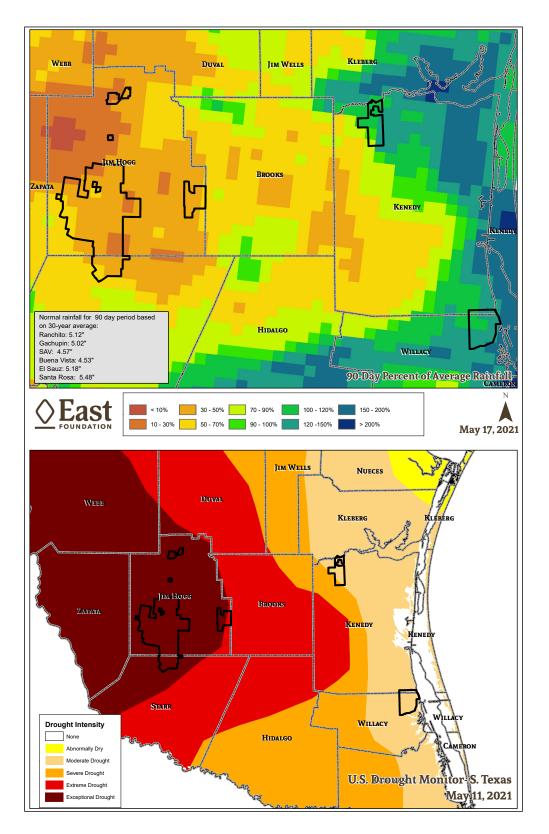
Average rain fall in the Texas Sand Sheet is 19 to 32 inches, increasing as you get closer to the coast. With the highest chances of rain in South Texas being in the late spring and fall, we are currently hoping and praying the rainy season extends to summer!

Even with the rainy weather the past few weeks, all the of the East Foundation ranches are currently in areas of moderate to extreme drought.

San Antonio Viejo Ranch has currently received about 30-50% of average rainfall in the past 90 days with most areas receiving 1.5 to 3 inches of rain.

El Sauz has received well over average rainfall for the spring. In the past 90 days, the ranch has collected 4 to 7 inches, but remains in moderate drought conditions.

For more information on drought and other weather events or to view information specific to your part of the state please visit: https://climatexas.tamu.edu/ drought/maps/index.html.



Securing the South Texas Sand Sheet

MATT ROBINSON

Several weeks ago, I was on patrol near the Buenos Aires pens. I pride myself on being observant and try to notice even the smallest details and while driving down the twotrack road, I noticed some footprints in the sand. Realizing they were the tracks of a group of undocumented folks, I followed them. I tracked, using my keen skills of observance, for around three miles to our north property line.

Knowing the tracks were fresh, I called Border Patrol and gave them the location of where I had stopped tracking. As I traveled back to headquarters feeling immensely proud of myself and patting myself on the back for my good observation skills, I decided to celebrate by eating a candy bar.

As I was bouncing along, a big piece of chocolate-covered almond fell to the floorboard of my truck. Not wanting to waste any of the candy, I reached down and picked it up by feel while still driving and watching the road – all the while maintaining my good observation skills. I plopped the tasty morsel in my mouth. It did not take long to realize that either the almond was rotten. or I accidentally picked up a piece of the dung beetle that had ricocheted off my side mirror into the truck the other day. Either way, it tasted like... not something to eat!

While I was washing the bad taste out of my mouth, I received a call from Border Patrol informing me they had caught 32 of the group that I had been tracking. By this time, I was realizing that my observation skills were not as fantastic as I thought. Tracking 32 people is about as hard as tracking a herd of elephants, and I apparently cannot tell an almond from a dung beetle.

I have spent most of my career working in the South Texas Sand Sheet. It presents challenges to everyone that lives and works in it. When I graduated the Game Warden academy in 1982, I was issued a two-wheel drive sedan as a patrol vehicle – a brand-new Dodge Diplomat. It was a nice car, but really did not travel that well on rutted Sand Sheet ranch roads.

Despite the challenge, I learned many tricks over the years to be able to properly patrol this sandy country in that car. Many of them I learned from oldtime Game Warden Norman Anthony, who spent much of his career patrolling in two-wheel drive sedans through Brooks and Jim Hogg counties. His first advice to me was to share a list of equipment I needed to have in my patrol car: a high-lift jack, a couple of comealongs, rope, chain, a portable air compressor, and a shovel.

We all realized that we were on our own out there. There were no cell phones, limited police radio service, and virtually no way anybody could get to you because they also had only two-wheel drive and probably didn't have the gate keys to wherever you were. So, if... I mean when you got stuck, you had to get yourself out.

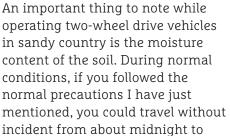
The main trick everyone used was to reduce air pressure on all four tires down to ten pounds. It is amazing where you can go in the sand using this simple method. Norman said that he let the air out and then put it back in his tires so many times he would wear the valve stems out. He also told me that before he was able to purchase a portable air compressor, he instead carried a five- gallon propane tank to fill his tires.



Sometimes when you're stuck you need MORE HORSEPOWER!

Once, he pulled into Hebbronville to have a flat fixed and warned the mustache-wearing tire repairman to be careful because he had aired his tires up with propane. When he returned, the repairman had no mustache or eyebrows. When Norman questioned him about his hair loss, the repairman replied, "I know you warned me, but I was smoking a cigarette when I broke the bead on your flat..."

Checking hunting camps in the Sand Sheet country could take a long time. Gates sometimes had all the vegetation beat out around them, with soft sand in every direction. We would have to stop a long way from the gate on solid ground, walk to the gate, and open it. We would then walk back to the car, speed through the gate hoping not to get stuck, and then stop several hundred yards past the gate on solid ground. After all that, we'd have to walk back and shut the gate, and then turn and walk back to the car to proceed on. Some camps had five or more gates between them and the blacktop. Many times, you would work your way to the camp, only to find no one there.





Antlions, insects that dig pits to trap passing ants or other prey are sometimes referred to as doodlebugs because of the strange marks they leave in the sand. Pictured above, a Polaris stuck in a doodlebug trap.

easier to travel the Sand Sheet. Looking back on those hardships many years ago makes me really appreciate the modern, practical equipment the East Foundation supplies. Unfortunately, despite all our modern conveniences, the Sand Sheet remains challenging and unconquered.

As time passed, our equipment

improved, and it became much

Ultimately, I guess my point in this story is to remind everyone to be very observant, but also to stay humble. If not, you might just get stuck... with a bug in your mouth.

