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East FOUNDATION

FEBRUARY 2021

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

FROM THE CEO

We Didn't Start the Fire

NEAL WILKINS

During his 1528-1536 journey through South Texas, Cabeza de Vaca noted that the natives he was among would

> "... go about with a firebrand, setting fire to the plains and timber so as to drive off the mosquitos, and also to get lizards and similar things which they eat, to come out of the soil. In the same manner they kill deer, encircling them with fires, and they do it also to deprive animals of pasture, compelling them to go for food where the Indians want."

Cabeza de Vaca's journal entry is probably the first written account of the intentional use of fire as a management tool in North America. The Ignaces Indians of the 1530s were not exclusive in their use of fire. In fact, fire was such a key factor in the South Texas Plains that the grasslands observed by Cabeza de Vaca, and explorers that followed, could be called a fire-prone landscape.

The Tejano settlers of the 19th century were attracted to the area because of the lush grasslands that had developed under the combined impacts of fire, drought, and grazing animals – both wild and domestic.

Researchers at the US Forest Service have back-dated fire evidence to reveal historic fire frequencies prior to 1850. Their results suggest that most of the South Texas Plains had a fire return interval of two to four years, right up until the time this area joined the Republic of Texas. So, in the years since Cabeza de Vaca's journey the South Texas Plains could have burned at least 100 times. In the 150+ years since joining Texas, the fire frequency in this region was reduced drastically.


A view of a prescribed burn from above. Controlled burn research takes place on our El Sauz ranch where we study cattle movements and grazing in relation to burns.

Returning fire to the landscape might be beneficial, but the changes that have occurred can also make it difficult. Invasive brush species are often promoted by a combination of long-term fire suppression and grazing practices in the face of recurring droughts. Native rangelands can be restored with a combination of brush control (either mechanically or through herbicides) and prescribed fire – and then followed by good grazing practices. Fire, however, is not a magic bullet for immediately returning degraded and brush-invaded rangelands to their former condition. But fire is a tool that, when well-understood, can be used to enhance rangelands.

This issue of our newsletter is centered on fire. We seek to understand fire, in all its uses, so that we can make better decisions even though making better decisions, as Annie Duke notes in her quote below, does not always guarantee better outcomes.

"What good poker players and good decision-makers have in common is their

LOCATIONS

Hebbronville
310 East Galbraith Street
Hebbronville, Texas 78361

San Antonio Viejo Ranch
474 East Ranch Road
Hebbronville, Texas 78361

El Sauz Ranch
37216 Highway 186
Port Mansfield, Texas 78598

San Antonio
200 Concord Plaza Drive, Suite 410
San Antonio, Texas 78216
(210) 447-0126

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comfort with the world being an uncertain and unpredictable place. They understand that they can almost never know exactly how something will turn out. They embrace the uncertainty and, instead of focusing on being sure, they try to figure out how unsure they are, making their best guess at the chances that different outcomes will occur."

- Annie Duke, *Thinking in Bets: Making Smarter Decisions When You Don't Have All the Facts*

FROM THE ARCHIVE

Does Fire Foster Innovation?

NEAL WILKINS

Fire has several uses on South Texas ranches. Not only do ranchers use prescribed burns to manage rangelands, but historically they have used fire as a tool to transform prickly pear cactus into forage for cattle. This excerpt from our archive explains the process.

The drought of the early 1890s devastated much of the Southwest. In South Texas, this drought reached its peak during 1894. C.W. Hellen, a well-respected leader in the South Texas community, had lived through the current drought and many others before. In his address to Rotary Club members in 1935, he spoke about the awful conditions that he and his sister found when they first arrived to their El Sordo Ranch in 1894. The drought had devastated the cattle herd. Adding insult to injury was the fact that the cattle market was at its lowest point since the Civil War.

C.W. Hellen and other South Texas ranchers would cut prickly pear stalks and then carry them with a forked stick to be passed through a brush fire to singe off the spines. It was only through feeding this prickly pear to their weakened cattle that enough animals made it through the drought to restock the rangelands until finally the drought broke. This was back-breaking labor, and the method was not very efficient. With a more efficient way to singe the spines of prickly pear, more cattle may have survived (or at least the labor would have been less intensive).

Droughts do seem to be catalysts for innovation. The drought of the 1890s was followed by the invention of the gasoline-fueled pear burner. In 1900, Mr. Lewis Snowden, of Tilden, Texas (McMullen County), filed one of the first patents for an improved "cactus burner," which is now widely known as a pear-burner.

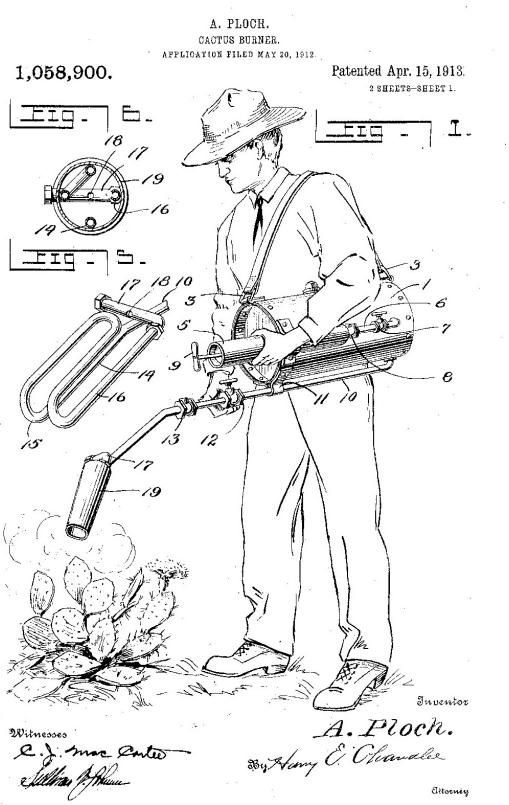
By 1906, David Griffiths, an agricultural scientist with the US Department of Agriculture, had done work in Texas that showed that one man with 10 gallons of gasoline could singe enough prickly pear to feed 100 beef cows in a day. Today, more than 100 years later, pear-burners are still in common use. The designs have changed, and propane is now used more than gasoline, but the concept is the same.

For the South Texas cattlemen at the turn of the century, another well-known innovation – the artesian water well – was developed in response to the same drought of the early 1890s. In 1899, Robert Kleberg, working with Henrietta King, successfully developed the first artesian well in the area. Many such

wells followed, and this innovation greatly improved the odds of a rancher surviving through drought.

As South Texas recovers from our latest drought, we persevere and create new ways to conserve native rangelands and maintain productivity through the next drought. We don't necessarily need a better pear-burner at this point. What we do need is to gain a more accurate understanding of the interactions among grazing and browsing animals. For example, we need to determine how to better predict, and then manage, the impacts from different densities of white-tailed deer, nilgai antelope, and cattle. We need to better understand the influence of fire on rangeland recovery, and how this is influenced by grazing. We need to better understand how to use all our management tools to control non-native and invasive grasses that threaten rangeland productivity and biological diversity.

Although the innovations needed now are different than those of a century ago, they may be just as important as a pear-burner for making it through the next drought.



Early version of an improved cactus burner. The South Texas drought of the 1890s was followed by dozens of early innovations for portable cactus burners.
Image Courtesy of U.S. Patent Office.

SCIENCE AT WORK

Patch-burn Grazing on El Sauz

TYLER CAMPBELL

Together with cattle grazing, prescribed burning is the primary tool for managing the rangelands and wildlife resources of the East Foundation. Rangelands in South Texas thrive when burned periodically. In the absence of fire, over time rangelands naturally shift from grasslands to shrublands, which reduces overall productivity. Also, many wildlife species in South Texas depend on periodic fire to maintain their preferred habitat structure.

We use prescribed burns to fulfill numerous objectives, including cattle forage production, wildfire fuel reduction, wildlife management, research, and rangeland management and restoration.

An example of a project that "checks all the boxes" is our patch-burn grazing project on the El Sauz Ranch. Here, we use prescribed burns in areas (or patches) of grassland habitats during different seasons and allow cattle, white-tailed deer, and nilgai to roam and forage freely. This creates a mosaic (or patchwork) of vegetation in different stages of development – from recently burned patches, to patches that have not been burned for several years, to patches that have never been burned – after all, habitat diversity is good for both wildlife and cattle. In other regions, cattle and wildlife heavily use recently burned patches because of greater forage quality and quantity; however, these relationships have not been fully explored in the South Texas Sand Sheet.

New forage growth after a patch burn on El Sauz.

Some specifics – in February 2016, we devoted 11,000 acres of grassland habitat to this long-term, operational-scale project. We use 15 patches (average patch size of 730 acres) and conduct prescribed burns in different seasons (winter and summer) and at different frequencies (short and long). We set all fires from a four-wheel ATV, or while on foot. Our overall long-term goal is to develop patch-burn grazing recommendations for the South Texas Sand Sheet, specifically related to the optimal season to burn and burn frequency.

The research objectives of the project are to quantify and compare:

1. Cattle use related to recently burned patches
2. Use of selected grasses following patch burns
3. Nutritional value of forage following patch burns
4. Plant responses to patch burns (fire intensity, forage production, carbohydrate reserves, and habitat structure)
5. Vegetative community composition following patch burns
6. Pollinator and other insect responses to patch burns
7. Small mammal and bird occupancy, abundance, and density relationships with patch burns

For this project, we work closely with personnel and students from the Caesar Kleberg Wildlife Research Institute at Texas A&M University-Kingsville and the Natural Resources Institute at Texas A&M University, including three Master of Science students and one Doctor of Philosophy student. Our goal – to equip the next generation of science-minded managers and management-minded scientists with sound land stewardship principles.

Our patch-burn grazing project on our El Sauz Ranch is yet another example of how the East Foundation does what's right for the land and the life that depends on it.

EDUCATION INSIGHTS

Lighting a Fire for Learning

TINA BUFORD

Recently, I had the opportunity to assist in a prescribed burn on East Foundation's El Sauz ranch. It was mesmerizing! Watching the flames was hypnotic. I found myself inching closer and closer and if it was not for the intense heat, I might have reached out to touch it. The flames were bright orange with a hint of red, the smoke ranged from white to grey to black and, every once in a while, I saw yellow and green smoke. The sounds were equally as spectacular. I expected crackling but was surprised to hear a zinging noise, almost like when fireworks take off.

With an element so intriguing, it is understandable that the jury is still out on when to introduce students to fire. Kids often link fire to fun. Like roasting smores over a campfire or lighting fireworks on the 4th of July. Teach them too early and you pique their curiosity, but they don't truly understand fire's impacts or teach them too late, and you risk their ignorance adding to the increasing rate of wildfires.

Setting timing aside, here at the East Foundation we strongly support educating students about the role fire plays in caring for our ecosystems. Fire is a necessary tool not to be feared, but rather to be understood and respected. One of the many advantages of hosting kids on the land during field lessons are the sights and sounds that help with their learning. A freshly burned plot with brand new, green shoots rising from the blackened ground is the perfect visual to tell the story of nutrient cycling – out with the old and in with the new.

Teaching kids about prescribed fire highlights the many benefits of fire and gives them the knowledge they need to respect its potential for destruction. At age 46, out in the field assisting with the burn, I once again was a student myself. Witnessing the landscape transformed by fire was a sight to see, and which had me wanting to learn more. I look forward to hosting students on the land once again!

A prescribed burn on El Sauz personifies "out with the old and in with the new."

FROM THE RANCH

Fuel for a Fire

ZANE HERRIN

Grazing management is both an art and a science. It takes an understanding of forage demand (the amount of grass needed to meet the requirements of all grazing animals) and forage availability (the amount of grazeable forage the land produces). Amount and timing of rainfall, freezes, and deviations in cattle production create the need for flexibility as forage surplus and deficit occurs.

A successful grazing strategy is well-thought and extends over a broad timeframe. Incorporating prescribed fire also requires a long-term perspective. With cow/calf, retained stocker, and purchased stocker enterprises, forage demand is high on East Foundation ranches. We cannot "accidently" fall into situations that allow us to conduct a successful and effective prescribed fire.

The most important component of a successful prescribed fire is fuel. Once an area is identified as a burn site and the season of burning is established, we can plan how to utilize that specific pasture to ensure ample residual forage to complete a burn. Therefore, our grazing strategy must ensure that we either defer grazing or lightly graze the dedicated burn area at least one growing season before the burn. This impacts where we put each class of cattle, as well as when we put them there.

Why burn? From a purely cattle production standpoint, would we be better off converting every blade of grass to beef? Without considering all other variables, maybe yes. However, fire is a useful tool for brush management and improving forage quality.

In South Texas, woody species are constantly encroaching on open areas. Over time, mesquite and huisache can reduce grazeable area, which reduces forage availability and ultimately the number of animals we can maintain. Prescribed fire, coupled with other forms of brush management and proper grazing, can maintain or increase grazeable acres by removing invasive woody species that compete with grass for water, nutrients, and sunlight.

Not all range sites and forages are created equal, especially with the diversity that exists across all East Foundation ranches. In some cases, it isn't a matter of deferring grazing in order to burn, but a matter of burning in order to graze. We may decide to conduct a burn before a major growing season to improve forage quality. For instance, burning gulf cordgrass at El Sauz promotes fresh growth, allowing our cows to consume an otherwise coarse and unpalatable forage. This improved grazing distribution allows other parts of the pasture to recover as the cattle graze burned areas.

Prescribed burning is an effective tool in our toolbox to improve the land for long-term sustainability of our rangeland and cattle operation. It takes communication, planning, and flexibility within our grazing systems that may not provide huge returns in the short-term, but over time increase the overall value of what we are doing as land stewards.

Upcoming Events

MARCH 5

Caesar Kleberg Wildlife Research Institute Annual Deer Research Meeting

MARCH 22

Professional Advisor Meeting at El Sauz and Port Mansfield

MARCH 23-24

Board of Directors Meeting at El Sauz

APRIL 20

Texan by Nature Conservation and Celebration Summit

ALUMNI PROFILE

JOSÉ SILVERIO ÁVILA SÁNCHEZ

Silverio "Silver" was born in Tampico, Mexico, and grew up as a nomad moving to Texas and back to Mexico following his parent's education and careers. With a ranching family background and a fondness for natural resources, he graduated in 2016 with a B.S. in Forestry Engineering from Universidad Autonóma Agraria Antonio Narro (UAAAN) in Saltillo, Coahuila, Mexico. His undergraduate thesis was focused on the effects of wildfire on plant species composition and structure in Coahuila, Mexico.

In 2017, he was offered a graduate position in Range and Wildlife Management at Texas A&M University-Kingsville, where he earned his Master of Science in Range and Wildlife Management. His thesis research evaluated the effects of winter and summer prescribed burning in Gulf cordgrass vegetation communities on the East Foundation's El Sauz Ranch. Silverio is now continuing as a Ph.D. student working for the Caesar Kleberg Wildlife Research Institute on East Foundation lands.

In his own words:

"Some things that amazed me from the East Foundation are that most of the research projects are performed at a large scale. Research done at this scale is rarely performed because of the lack of property, funding, personnel, or simply the uncertainty of the landowners not knowing what would happen to their natural resources. East Foundation trusts their research partners and goes above and beyond to support them in all ways possible.

East Foundation is true with their words when they say that they promote land stewardship through ranching, science, and education. The skill of communicating science in a way that speaks to landowners and non-scientist-minded individuals is, in my opinion, the most crucial step of making a change. This is just one of the many skills I have better developed through my work with East Foundation, and it has helped me become a better professional, student, and researcher.

My research project was limited to East Foundation's coastal property, the El Sauz Ranch. This piece of land is an oasis in the middle of the South Texas wild horse desert and is a property where you can find a great diversity of wildlife and vegetation, including active sand dunes that make this land unique and unforgettable."

PARTNER SPOTLIGHT

King Ranch® Institute for Ranch Management

JASON SAWYER

The King Ranch® Institute for Ranch Management aims to improve sustainability and effective management of complex ranching systems through innovation, education, and outreach programs. A partnership between East Foundation and KRIRM created my role as KRIRM Scientist-in-Residence, where working across the ranching, science, and education missions of East Foundation we seek strategies to improve long-term value of ranching systems through effective management.

In the Coloraditas grazing research program, we are testing novel deferred rotational grazing and adaptive stocking approaches compatible with extensive South Texas rangelands. Successful strategies should improve carrying capacity over time and enhance ecosystem services like wildlife habitat and carbon management.

At KRIRM, we are engaged in assessment of greenhouse gas emissions as a component of sustainable beef production systems, and have tried to 'make sense of methane'. With East Foundation, we have initiated studies to understand soil carbon storage as we anticipate opportunities and risks associated with carbon management for ranches. Livestock production, grazing strategies, resource improvement, and carbon transactions are not separate efforts...they are threads in the cloth of sustainable ranching systems. The partnership between East Foundation and KRIRM allows us to innovatively do what's right for the land and the lives that depend on it.

Fire Prevention & Preparedness

TODD SNELGROVE

February 15, 2021—It is 20 degrees outside. A biting north wind makes it feel twice as cold. To top it off, six inches of powdery white snow blankets the ground here in San Antonio. My thoughts turn to a fire. Not the inviting fire in our fireplace but the prospect of a wildfire on one of our ranches in deep South Texas. What could possibly have my mind on wildfire?

When it comes to rainfall, 2020 was about as good as it gets. Not only did we receive abundant, above average rainfall across all our ranches, but it was also particularly well timed. After a dry winter, we received pulses of rain throughout the spring, summer, and early fall. The rains, when paired with good grazing management, resulted in fantastic range conditions and significant forage accumulation.

As is often the case in South Texas, the tables have turned, and we have received only about a quarter of normal rainfall since mid-September. Drought has settled in and a handful of frosty mornings have turned what was once lush forage into well-cured fuel. With La Niña conditions persisting in the western Pacific, the National Weather Service predicts an elevated wildfire risk to persist or worsen through April. This is why my mind turns to wildfire prevention, mitigation, and response during a winter storm.

Prevention of wildfire on the ranches starts with emphasizing the risks associated with fires to staff and partners working on our lands. Emphasizing risks includes fostering an awareness of simple steps like not parking your truck in tall grass, blowing out accumulated debris in the grill and chassis of utility vehicles like Polaris Rangers, and taking extra precautions when doing things such as welding. Ensuring all trucks, utility vehicles, and other equipment are equipped with suppression gear like fire extinguishers, water cans, or even a shovel can nip a small fire in the bud if one were to break out.

Even with an increased focus on prevention, a wildfire occurrence on our ranches is not a question of if, but when? Knowing this, there are actions we can take to mitigate the impact of wildfire. Maintaining a disked line of bare mineral soil around our perimeters reduces the likelihood a fire can spread onto our property from a highway or neighbor, or even from us onto a neighboring property. Doing the same around headquarters at San Antonio Viejo serves to mitigate the risk to critical infrastructure.

In the coming years, we plan to develop corridors in strategic locations across East Foundation ranches along existing roads and fence lines that can be disced in times of high wildfire risk.

When responding to a wildfire we must acknowledge that we are ranchers, managers, and scientists, not firefighters. Knowing that, our response to a wildfire focuses on:

1. Gathering as much *information* about the fire on the front end—where is it? Size? What direction is it moving? How fast? What is at risk? All of this is critical in determining the appropriate course of action and getting first responders and neighbors engaged.
2. *Routing trained personnel*—local volunteer fire departments and the Texas Forest Service—to the fire as quickly and efficiently as possible.
3. Determining where best to *contain* a fire knowing we can cede ground to protect lives and critical infrastructure.

The Valentine's week artic outbreak in Texas will exacerbate an already tenuous situation when it comes to wildfire potential. Several nights of hard freezes likely killed much of the early spring green up. Knowing this, we will remain vigilant to the threat of wildfires. For more information on wildfire risk, preparedness, and response visit the Texas A&M Forest Service.

A Song of Ice and Drought

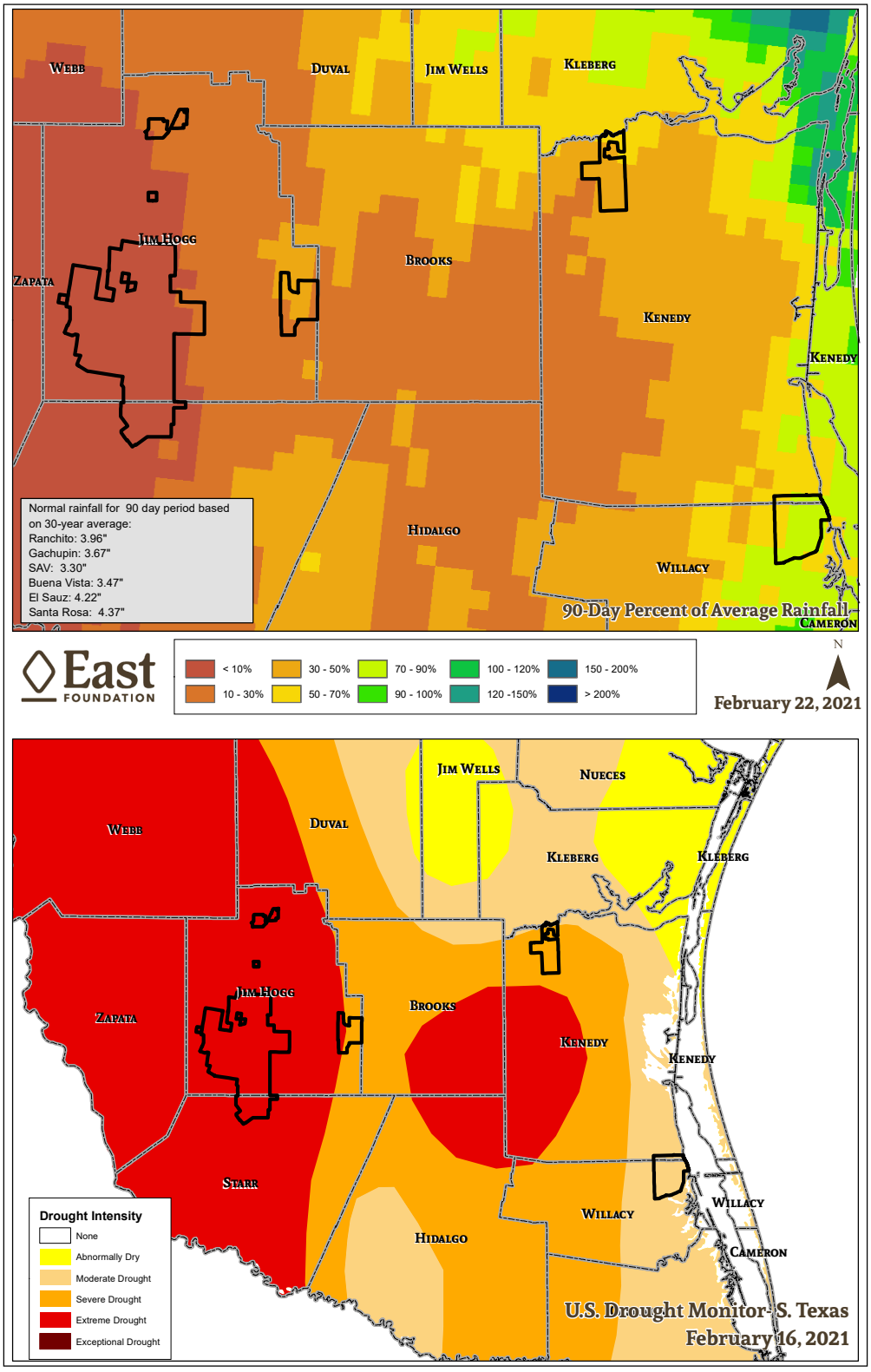
ALLIE BIEDENHARN

While snow and ice blanketed Texas this past week, drought conditions in South Texas continue to worsen. East Foundation ranches are in areas of moderate to extreme drought. With La Niña holding strong in the Pacific, predictions are calling for this drought to continue through winter and possibly spring.

The San Antonio Viejo ranch has received less than 10% of average rainfall with most areas receiving under one half inch of rain in the past 90 days.

El Sauz has received about 60 to 90% of average rainfall amount, or about three inches across the ranch. In the past 90 days, El Sauz remains in moderate drought.

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



EMPLOYEE PROFILE

EDDIE REYNA

Eddie is a native Texan born in Mission and raised in Rio Grande City, Texas. He has a Bachelor of Science in Agriculture Science from Texas A&M University-Kingsville. After earning his degree, he moved to West Texas and worked with Cargill Cattle Feeders in Dalhart and Bovina, where he was a yard foreman, a feed manager, and cattle and yard manager. In 2018, he headed back to Kingsville and became a unit manager for the Norias Division of the King Ranch.

As the new area foreman for the East Foundation, Eddie's primary duties consist of cattle inventory management, branding, weaning, and all day-to-day livestock management responsibilities. He is passionate about the beef industry and feels that working for the Foundation allows him to make a difference in the industry.

Eddie lives on the San Antonio Viejo Ranch with his wife, Amanda, and their son, David. In his free time, he enjoys hunting, fishing, and spending time with his family.

SECURITY REPORT

Fire Safety - A Team Effort

MATT ROBINSON

Since my article comes last in this fire-themed edition Trey Dyer said to me, "I hope everyone is not burned out by the time they get to yours." I hope not, because as always with the East Foundation, we have a lot going on.

Undocumented alien traffic has increased exponentially across our ranches. Eddie Reyna, our new area foreman, found a set of rattling horns in the San Antonio Viejo several miles from the nearest perimeter fence, so poaching is still happening as well. In other news, we had to call an ambulance to San Antonio Viejo and ultimately airlifted the patient to the hospital, and we also had a wildfire.

On the subject of the wildfire, I want to thank the Quail Research Team because everyone showed up and helped. Andrea Montalvo, Landon Schofield, and Abe Woodard noticed the fire while flying quail surveys and were able to report the fire before it got too far out of hand. Game Warden Carlos Maldonado helped by bringing the Jim Hogg county fire department to the scene. Quail guides, Brandon Hubert, and Blaine Riley headed to the fire with tractors equipped with disks, along with many others from the Dyer and Matador hunting camps who are associated with the quail research project.

Our neighbor, Whit Jones, also came to the rescue on a tractor equipped with a disk. Everyone worked well after dark to get the fire under control. The fire consumed around 2,500 acres, 500 of which were on the East Foundation's Buena Vista ranch. I want to extend East Foundation's appreciation to all that helped.

That said, please do not endanger yourself by getting in too big of a hurry to get to a fire. With most wildfires in South Texas, all that is typically in danger are the pastures that probably needed burning anyway, and maybe some fences. We can rebuild fences and do without grass for a short time, but we cannot do without you. Be careful!

REDNECKS AND PRESCRIBED BURNING – A CAUTIONARY TALE

A number of years ago, when I was a game warden, I received a call from the dispatcher from a neighboring county. The dispatcher reported that people were killing hawks (it always seems that this happens when the game warden responsible for the area is out of pocket.) The dispatcher advised me to meet the complainant on the highway near where the violation occurred. As I neared the location, I could see a large plume of smoke due to a prescribed or controlled burn taking place near the highway.

I could see there were many hawks circling and dropping down to catch the mice and rats scurrying from the fire. The numerous hawks had caught the eye of the University of Texas Ornithological Society members and other bird watchers who happened to be passing by on the highway. They were observing the hawks with binoculars and spotting scopes from the highway, and these people turned out to be the complainants and witnesses.

In their words, the "horror" started when a truck with a couple of men started driving around the fire and shooting the hawks. They also said they could see them drinking beer

as they had exceptionally good binoculars and spotting scopes.

I needed to leave quickly to apprehend the culprits, so I asked the complainants to write down what they had seen, and I would be back to pick up their statements. I was able to apprehend the subjects, who I knew were involved in the quail hunting business. These particular guys hated anything that would hurt their dogs, deplete the quail population, or limit their ability to take quail. Therefore javelinas, rattlesnakes, raptors, and game wardens were on their list as enemies. These guys were normally not bad people, but after a long day of fire preparation and maintaining the burn, they started drinking beer and lost some of their normal restraint. I gathered my evidence and their information and went back to the complainants to get their statements.

Just an FYI – if you ever ask professors, doctoral students, or even master's students for an official statement, get ready for a dissertation. I received details ranging from the scientific names of every bird that flew over, to what kind of mouse was preferred by which species of hawk. However, I also had a very explicit description of the violators and their actions. By the time I got finished reading the numerous statements, I was burned out.

Anyway, the moral of the story – drinking and prescribed burning do not go together! It is dangerous and makes you do stupid things.