

“ I FIRMLY BELIEVE THAT WE CANNOT REALLY UNDERSTAND THE PRESENT WITHOUT KNOWLEDGE OF THE PAST. ”

~ Dolph Briscoe Jr., 41st Governor of Texas



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## FROM THE CEO NEAL WILKINS

### SCREWWORMS AND THE MOST ORIGINAL IDEA OF THE 20TH CENTURY

In 1960, the Directors of Texas and Southwestern Cattle Raisers Association (TSCRA) elected future governor Dolph Briscoe Jr. as their President. As owner of a large multi-generational ranch near Uvalde, Briscoe was well-acquainted with the major challenges for livestock producers and during his tenure he focused the organization's efforts on eradicating the New World Screwworm.

Prior to 1960, ranchers across much of Texas had been dealing with acreworms for over three decades. Although screwworm migration into Texas and elsewhere tended to fluctuate depending on winter severity, the economic impact to ranching was one of the biggest challenges for the livestock producers throughout Texas and other southwestern states. Annual losses could be heavy – in 1933, for example, over 180,000 animals died from screwworm infestation in Texas. In addition, screwworms were a major cause of death for wildlife and contributed heavily to reduced populations of white-tailed deer.

By 1951, screwworms had migrated throughout much of the southwestern US and Florida. Even after cold winters, the screwworm fly was able to overwinter in South Texas, the Florida peninsula, as well as southern extremes of California, Arizona and New Mexico. At a peak in 1951, this pest was present in all of Texas.

How did screwworms cause such harm? Screwworm flies deposit eggs around the edge of a live animal's open wound, including the navel of newborn calves or fawns. Eggs hatch after 10 to 20 hours of incubation, and then the larvae feed on the host's tissue using tusklike mandibles to tear flesh. Left untreated, the tissue loss and infection often result in death. After they feed on an animal's flesh, the larvae drop and burrow into the soil and pupate – adult flies then emerge in three to five days. Fertile adults can lay up to 2800 eggs in their 10-to-30-day lifespan. By the 1960s, ranchers in Texas were exhausted from years of roping cattle from horseback to apply tars, smears, and other strong medicines to treat screwworm infestations.

### A SOLUTION THAT TOOK DECADES

In 1937, two scientists in Menard, Texas, noticed that female screwworm flies only mated once in their entire lifetime, while the male flies were promiscuous. This

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## ABOUT US

East Foundation promotes the advancement of land stewardship through ranching, science, and education.

We manage more than 217,000 acres of native South Texas rangeland, operated as six separate ranches in Jim Hogg, Kenedy, Starr, and Willacy counties. Our land is a working laboratory where scientists and managers work together to address issues important to wildlife management, rangeland health, and ranch productivity. We ensure that ranching and wildlife management work together to conserve healthy rangelands.

East Foundation was established with a bequest from the estate of Robert East in 2007. In pursuit of our mission, we use our resources to build future leaders through programs that introduce students to private land stewardship. We invest in future professionals through internships, graduate fellowships, and close engagements with university programs.

We care for our land and are always exploring more efficient ways to get things done and are continuously guided by our values to conserve the land and resources.

**We do what's right for the land and the life that depends on it.**



discovery set these two entomologists – Edward Knipling and Raymond Bushland – on a path that resulted in what some have described as the most original idea of the 20th Century. Edward Knipling theorized that if they could overwhelm the screwworm fly population with a large enough number of sterilized male flies, they could capitalize on that feature of the screwworm’s sex life. Specifically, females could be rendered infertile due to squandering their single breeding opportunity by mating with a sterile male. They labeled this ambitious idea the “Sterile Insect Technique.” They acknowledged two obstacles for real application. First, they had not yet developed a means for producing the millions of screwworm flies necessary for release; secondly, they could not yet define any process that could sterilize millions of male flies (while not killing them in the process). To many of those who were aware of this at the time (1937) Knipling and Bushland’s Sterile Insect Technique must have seemed speculative and far-fetched.

By 1940, Knipling had moved on to work on mosquito control in the Northwest, followed by work in Florida on controlling insect carriers of disease during World War II. Meanwhile, Bushland had developed a way of mass-rearing screwworms at the USDA laboratory in Kerrville, Texas. He raised millions of them in a mix of ground meat, beef blood, water, and a small amount of formalin. But it was not until 1950 that they were able to attempt sterilization by radiation exposure, using cobalt-60 gamma ray equipment developed at Oak Ridge National Laboratory during World War II. It worked.

By 1951, USDA was able to field test Knipling and Bushland’s idea on Sanibel Island off the coast of Florida. This was followed in 1954 by successful eradication of screwworms from Curacao in the Netherland Antilles, where sterile flies were packaged in paper bags for aerial release. By 1958, the rearing technology had advanced to the point that Florida was able to convert an airplane hangar into a facility capable of producing 50 million flies per week. This allowed for aerial releases that largely eliminated screwworms from Florida and the southeastern US by early 1959. So, in a period of 22 years, Knipling and Bushland’s Sterile Insect Technique went from “crazy idea” to genius. This paved the way for eradication efforts in Texas, Mexico, and finally Central America.

Meanwhile, back in Texas, urged on by Dolph Briscoe at TSCRA, ranchers supported the founding of the Southwest Animal Health Research Foundation (SWAHRF). By 1962 ranchers raised over \$3 million – equivalent to \$31 million in today’s dollars. These funds were used to construct


sterile fly production facilities. While the facility in Kerrville was still in production, a new facility was added in Mission, Texas, that produced over 50 million sterile flies per week through the summer of 1962. In 1962, at the outset of the program, there were still thousands of cases reported weekly. By 1967 there were only 835 cases reported for the year. Once the program was extended to Mexico there continued to be periodic outbreaks throughout the 1970’s. The last detections in Texas were from Starr County in the early 1980s. Most recently, there was a localized 2016 infestation in the Florida Keys that threatened populations of endangered Key deer. In these recent cases, sterile fly releases remained the only reliable means for eradication.

## WORLD FOOD PRIZE

Norman Borlaug, who many dubbed the “Father of the Green Revolution”, was awarded the Nobel Peace Prize in 1970. Afterward, he worked to establish an international award for highlighting breakthrough achievements in improving global food production. Eventually, Borlaug founded the World Food Prize, which was first awarded in 1987.

In 1992, the World Food Prize was awarded to two scientists from Texas – Edward Knipling and Raymond Bushland – for their work in developing the “sterile insect technique.” Knipling and Bushland’s idea has been said by some to be the Most Original Idea of the 20th Century. According to USDA, the U.S. livestock industry benefits by more than \$900 million a year because of the eradication of the screwworm.

## A WARNING

Following virtual eradication of screwworms for the southern U.S., this pest was eventually pushed south of a well-established barrier in Panama where U.S.-funded efforts helped firmly hold that line for many years. And now the alarming part: over the last two years screwworms have moved beyond that barrier into Costa Rica, Nicaragua, Honduras, and Guatemala. In late November 2024, the Chief Veterinary Officer of Mexico notified U.S. Department of Agriculture of screwworms found in a cow in southern Mexico. This prompted the closure of the U.S. border to Mexican cattle imports. It appears that the closure will be temporary, but the message is clear. Without continued vigilance we could once again be at risk from screwworms. The sterile insect technique continues to be the only option for screwworm eradication. Sustaining the ‘most original idea’ is required to successfully avoid repeating history. 

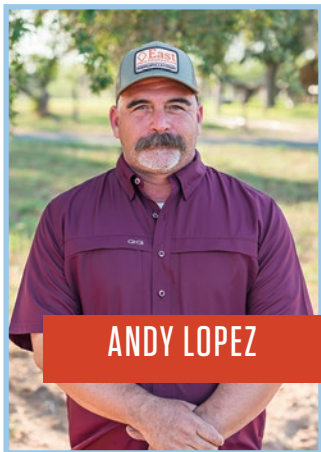






# OUR PEOPLE

Just as the East Foundation mission drives our organizational focus, our people are the boots on the ground who work diligently to promote land stewardship through our ranching operations, science-focused research, and informative educational programs. Below are highlights on the foundation's recent hires and program alumni.



ANDY LOPEZ

## EMPLOYEE PROFILE

As Shop Foreman at East Foundation, Andy Lopez is responsible for the repair and maintenance of our entire fleet. This includes vehicles, tractors, trailers, and related equipment. In addition, he helps manage operational costs, collaborates

with the ranching, science, and education program leaders to meet their needs, and helps ensure shop safety. Managing the shop at San Antonio Viejo is full of unexpected surprises, but Andy thrives on problem-solving and teamwork. His favorite part of working for East Foundation is the unmatched team atmosphere and mutual respect from his co-workers, who have become his friends. We are proud to have Andy on our team and are grateful for his dedication and expertise.

Prior to joining us, Andy worked for Enterprise Product, Hilcorp Energy, and M.C.C. Repairs. He brings nearly 30 years of industrial equipment and automotive repair experience to the Foundation.



REBECCA ZERLIN

## ALUMNI PROFILE

Rebecca grew up in New Orleans, Louisiana, where her interest in wildlife and conservation began through her volunteer work in middle and high school with the Audubon Nature Institute. Inspired by this, she went on to study Wildlife and

Ecology at Unity College in Maine.

After graduating, Rebecca took on diverse seasonal positions across the country. She worked as a naturalist with the Wisconsin Department of Natural Resources, served as a Range Technician with the Bureau of Land Management in California, and joined the National Park Service as a Biological Technician studying sea turtles. A highlight of this journey was her role as a technician studying Monarch butterflies at the Cape May Bird





# PROUD PARTNER



## Texas and Southwestern Cattle Raisers

Association (TSCRA) was founded in 1877 to fight cattle theft in northwest Texas. Today, TSCRA has more than 28,000 members ranching in Texas, Oklahoma, and surrounding states.

TSCRA Special Rangers remain in the forefront of beating back the ever-present threat of cattle theft. They assist with the investigation of livestock thefts and other ranch-related property losses and inspect cattle shipments, when requested, before movement to other ranches or feedlots in or out of state.

TSCRA maintains a website available to law enforcement officials worldwide. It includes information on stolen or strayed cattle and horses, stolen saddles, tractors, trailers, and other ranch property. They also maintain a file of more than 100,000 recorded brands in Texas.


As the association has grown, so have the challenges to cattlemen beyond cattle theft. TSCRA is recognized as a spokesman for the Texas cattle industry statewide and nationally on legislation, animal care, regulatory matters, and other things that might affect the best interests of cattlemen.

TSCRA works closely with the National Cattlemen's Beef Association, the Cattlemen's Beef Promotion and Research Board, the U.S. Meat Export Federation, and the Texas Beef Council, as well as other livestock groups including East Foundation, on issues of mutual interest.

Each year, we participate in TSCRA's Cattle Raisers Convention and Expo. We hope you'll come visit us at our booth there in April. For more information about TSCRA visit their website at <https://tscra.org/>.

Observatory in New Jersey, which solidified her passion for pollinator conservation.

Rebecca went on to earn a master's degree in Rangeland and Wildlife Management from Texas A&M University-Kingsville, which combined her interests in butterflies and prescribed burns. Her research with East Foundation focused on the effects of prescribed burning on butterfly populations in South Texas, where she conducted monthly butterfly and plant surveys, assisted with seasonal prescribed burns, and led outreach on butterfly and pollinator conservation.

Currently, Rebecca works as a researcher and lab manager at the Cariveau Native Bee Lab at the University of Minnesota. She continues her work with pollinators, surveying butterflies and bees and supporting both graduate and undergraduate students in their research. Her experience with East and her collaborative work with other graduate students has allowed her to develop strong mentorship skills, supporting and guiding the research of future conservationists. 







# FROM THE RANCH

JASON SAWYER

## DOUBLING UP: DUAL CALVING SEASON STRATEGY

As we approach the end of the calendar year, we all look forward to a pause between busy seasons on the ranch. Fall cattle workings have wrapped up. We have finished weaning and preconditioning spring-born calves, and branding fall-born calves. As we look forward to spring, this process will be repeated, but in reverse – first branding in all the spring-calving cow herds, then weaning in the fall-calving herds. It may seem as if we are doubling up on the workload in each season, but using dual production seasons gives us several advantages to managing ranch assets in a variable environment, and helps us to fulfill the management objective of maximizing long-term value of these assets.

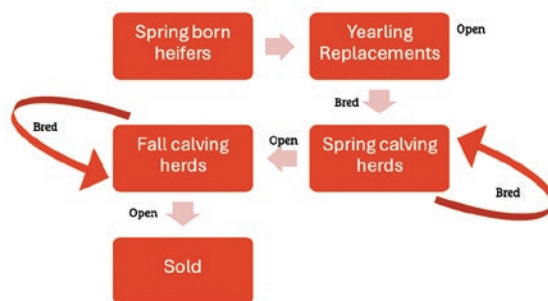


Figure 1. Stock flow through East Foundation Ranches spring-fall calving system.

Our system has a one-way flow (Fig. 1). We develop replacement heifers from spring-calving cow herds only; we expose those heifers to bulls with the expectation that they will calve as two-year-olds. These enter the spring herds, and each fall at




weaning and pregnancy check, bred females will remain in those spring herds. A spring cow that is open at pregnancy check will be evaluated, and based on her age, condition, and conformation can be 'rolled over' into a fall-calving herd. This requires exposure to bulls shortly after this determination, and upon confirmation of pregnancy, these cows are added to existing fall herds. In the fall calving herds, all open cows are culled. Unlike some systems where fall cows may be rolled back to spring herds, in our system there is no opportunity for fall cows to re-enter a spring calving group.

Our system offers several benefits. First, dual-season systems reduce our overall replacement rate. As an example, if our spring herds have an average retention rate of 85%, then they require a 15% replacement rate. If this were the only calving season, 15% would also be the overall replacement rate. We currently operate with about two-thirds of our resources allocated to spring calving groups. Because the fall calving 'replacements' are all cows that came from the spring group, our net replacement rate is reduced from 15% down to approximately 10%. Giving cows a second chance means those cows stay in production longer, with greater opportunity to realize their lifetime production potential. Importantly, this reduces the overall cost of replacing cows and helps avoid capital losses associated with sales of young open cows as culls. A second benefit of dual calving seasons is the more efficient use of capital invested in bulls, as they can be used in both seasons. With our current spring vs. fall allocation, we increase the efficiency of bull utilization by over 50%, which reduces the total costs of calf production in both seasons. Finally, dual production seasons also represent a risk mitigation strategy, where we can diversify production risk associated with weather across two seasons, and diversify market risk across seasons and weight classes.

These benefits come with some costs. Rolling a cow from the spring to the fall herds does result in a lag in her ability to generate revenue; however, this lag is an additional six months versus the additional year required to carry an open spring cow into another spring calving window. This is effectively a one-time penalty; once the cow is established in the fall group, she is expected to generate annual revenue thereafter.

We view our cows as a portfolio of producing assets; each season, age class, and the distribution among these represent our efforts to optimize the



portfolio and manage both costs and production. We aim to continue to innovate in how we develop and manage this portfolio, even down to the value prospect for each individual cow, and how they best match our resources and help us generate long term value. 







## PREPARING THE NEXT GENERATION OF PROFESSIONALS

TINA BUFORD

Each winter serves as a transition period for East Foundation's education staff. With the past fall's Behind the Gates Field Days at San Antonio Viejo successfully accomplished and in our rear-view mirror, and Field Days and in-classroom visits throughout the fall and winter months, Winter is the time of year we also begin planning and preparations for our Behind the Gates Field Days at El Sauz.

Behind the Gates is a unique opportunity for East Foundation's education staff to bring students from a select group of schools out for day-long learning experiences on one of the East Foundation ranches. The interactive, Science TEKS-aligned lessons encourage students to connect with the natural world while participating in first-hand, outdoor learning experiences.



Every spring, we invite more than 1,500 fifth grade students and their teachers from IDEA Public Schools in Cameron and Hidalgo counties to Behind the Gates at El Sauz near Port Mansfield, Texas. Students rotate through stations manned by our staff and featured partners including the Texas Zoo, Caesar Kleberg Wildlife Research Institute, the Museum of South Texas History, and Texas Parks and Wildlife.

Our education team is also finalizing efforts to host the next cohorts of Land Stewardship Ambassadors (LSA) high school students. These bright, young, and eager students will be attending our LSA meetings (a 10-session course of work) from January through May.

There will be three cohorts for this course – one in Bexar County (San Antonio), one in Cameron County






(Brownsville), and one in Webb County (Laredo) that will include four students from Hebbronville and Bruni who are part of a pilot expansion program monitored by Foundation staff from that area. During the regular sessions, the 49 students will participate in discussions and activities related to specific stewardship topics. There will also be two special weekend-long sessions during the course, where all cohorts will come together in person.

The Land Stewardship Ambassador program provides students with an educational and experiential program in which environmental and natural resource knowledge is increased through discussions, readings, workshops, and guest speakers. Students are introduced to this program through an overnight visit at The Witte Museum and the program concludes with a final trip to the San Antonio Viejo Ranch to observe land stewardship principles in action. Through these classroom, museum, and ranch-based activities, the program increases awareness of land stewardship

principles and empowers the next generation of land stewardship ambassadors.

We are not just working hard on our standard calendar of education programming, however. This year, we are also working on what's to come for East Foundation's education program in the future. East Foundation is working with Vivayic to evaluate the past 10 years of program impact to design a roadmap for learning and development that will help ensure that our internal and partner resources are optimized to reach organizational goals.

Although winter in South Texas is often seen as a period of natural dormancy and rest across our region's landscape, the education team is hard at work – along with our ranching and science teams – preparing the next generation of future professionals and leaders to be successful for decades to come. 





## BRINGING OUR MISSION TO LIFE IN THE MOST **HANDS-ON** WAY POSSIBLE

**E**ach fall, East Foundation conducts a large-scale scientific endeavor that goes far beyond simple wildlife tracking. Our annual white-tailed deer captures represent a unique blend of ranching, science, and education — bringing our mission to life in the most hands-on way possible.

The capture process is a meticulously planned operation that combines expertise from wildlife biologists, veterinarians, and state/federal wildlife agency personnel. Using net-guns from helicopters, our team conducts comprehensive health assessments and rigorous data collection protocols that provide crucial insights into regional white-tailed deer populations. During these carefully orchestrated operations, each captured deer undergoes a thorough medical examination, including blood sampling and disease screening, which helps track potential health threats that could impact both wildlife and livestock.

These captures serve multiple important purposes in better understanding white-tailed deer on the landscape. By tagging individuals and collecting detailed data, researchers track population demographics, reproductive rates, and movement patterns. This information is essential for understanding ecological health and provides invaluable insights into the complex dynamics of white-tailed deer populations in South Texas.







rainfall, and forage quality influence animal health and reproduction. These insights help landowners and conservation managers make informed decisions about land stewardship and wildlife management.

Partnerships are central to the success of our deer capture program. We collaborate closely with organizations like the Caesar Kleberg Wildlife Research Institute and various state wildlife departments including Texas Parks and Wildlife, ensuring rigorous scientific standards and regulatory compliance. These partnerships amplify our research's impact and contribute to a broader understanding of wildlife ecology.

Each capture represents more than just a scientific expedition. It embodies a careful approach that



The timing and methodology of our captures are carefully considered to minimize stress on the animals. Since 2011, when the first capture took place on East Foundation ranches, the process has evolved over time to ensure a safe, efficient, and effective approach to capturing and handling white-tailed deer. Over that time, more than 7,500 captures have taken place on roughly 5,200 individual deer with a capture mortality of less than 1%.

Another significant benefit of these captures is the educational opportunity they provide. In an era dominated by virtual learning, our program offers undergraduate wildlife students irreplaceable hands-on experiences. Annually, over 200 undergraduate students from Texas, Louisiana, and Oklahoma work alongside experienced professionals, learning critical skills in animal handling, scientific data collection, and biological sample management. This practical training is crucial for developing future wildlife professionals who will continue to advance ecological research and conservation efforts.

This research also addresses practical concerns for South Texas landowners by investigating significant ecological questions. Our data explores the intricate relationships between environmental factors and deer populations, examining how drought, lactation,

balances research, conservation, and a charge to do right by the land. By continuing to study and understand this important wildlife species in a working cattle ranch operating environment, East Foundation strives to maintain healthy, balanced ecosystems that support both wildlife and the communities that depend on them. 





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