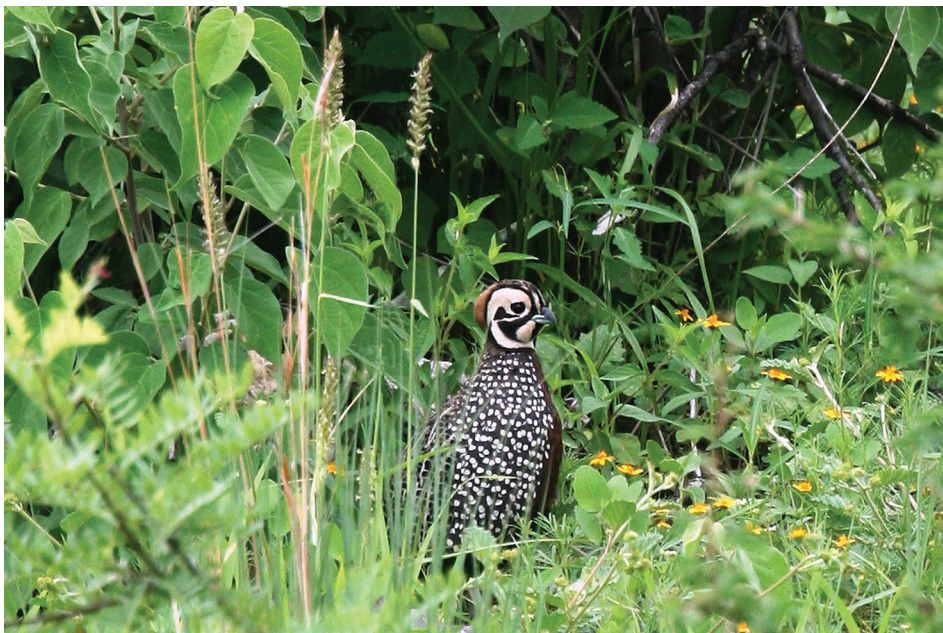


# SOUTH TEXAS WILDLIFE



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at Texas A&M University-Kingsville

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CKWRI's expanded research program includes Montezuma quail © Randy DeYoung

## REACHING OUT

by Fred Bryant

The CKWRI has evolved over time. This is particularly true of the “reach” of our research programs into different regions across Texas. Now please don’t think for a minute we will be diluting our research efforts in South Texas. South Texas is our home, and we will always have our focus and greatest research effort south of a line from Del Rio to Houston. But, there is a bit of historical background that would be appropriate to mention for

context. Early on, our research was narrowly focused within a few counties around the University. Caesar Kleberg himself was very focused on wildlife conservation and management in Nueces and Cameron counties until Brooks, Kenedy, Jim Wells, and Kleberg counties were formed after 1912.

When the Institute was founded in 1981, work was local and narrowly focused. However, the vision was to reach out to scientists from all over the nation and across the world when our scientists hosted the *International Cat Symposium* in 1982, *Antler Development Conference* in 1983, and the *Game Harvest Symposium* in 1985.

By the time I arrived in 1996, Timothy Fulbright and Dave Hewitt were working on black bears in the mountains of northern Mexico, and deer and turkey just across the Rio Grande, among other projects. Later Mike Tewes, and his students, began working on cats in Thailand, where they were the first scientists to trap, mark, and release golden cats—a secretive, forest dwelling species. Mike was also involved in a lion project in Tanzania for a couple of years and ocelots and jaguarundis in Mexico. Of course, Bart Ballard has been working on transcontinental avian species for more than 15 years.

But, when I look at our work in the state of Texas, we were fairly restrictive in our projects, which were focused on South Texas wildlife south of a line from Del Rio to Houston from 1996 to 2006. By 2016, we had broadened our reach. The Texas maps showing our projects in 2006 and a decade later in 2016 demonstrate this very well.

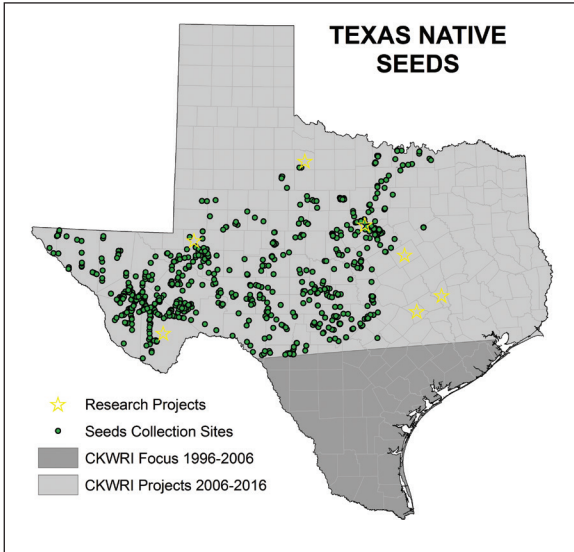
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Editor’s Note: Dr. Fred Bryant is CKWRI’s *Leroy G. Denman, Jr. Endowed Director of Wildlife Research*.

## By The Numbers

- 97 the approximate percentage of land that is privately owned in Texas (Private Lands Incentive Programs for Wetland Conservation, TPWD)
- 10–15 time in years it takes for a female Kemp’s Ridley sea turtle to reach sexual maturity (<http://tpwd.texas.gov/huntwild/wild/species/ridley/>)



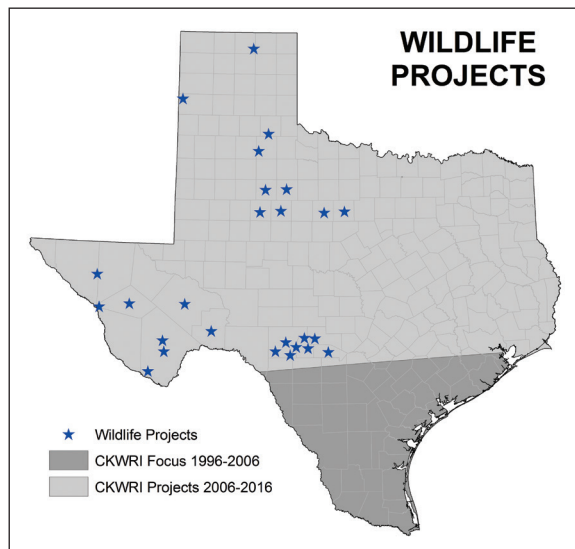
CKWRI native seed collections and projects during the periods 1996 to 2006 and 2006 to present.

The small dots on the above map show where we have collected native plants for our new project called *Texas Native Seeds*. At the request of TxDOT, we expanded our reach to central and west Texas in hopes that we can offer plant materials to commercial growers. This is modeled after the great success we have had with *South Texas Natives* where 30 species of native plants can now be purchased for large-scale restoration. At the rate Forrest Smith and his crew are going, there should be at least 5 species available for restoration in each region of central and west Texas by 2020.

The stars on the Wildlife Project’s map reflect research studies we have tackled on species such as Montezuma quail, northern bobwhites, mountain lion genetics, Rio Grande wild turkeys, mule deer, and pronghorns *outside of*

that magic line from Del Rio to Houston. These projects involve scientists such as Dave Hewitt, Randy DeYoung, Timothy Fulbright, Eric Grahmann, Humberto Perotto and their cadre of outstanding graduate students. And, we have partnered with scientists at the Borderlands Institute in Alpine, those at Tarleton University in Stephenville, the Rolling Plains Research Ranch at Roby, and Texas Tech University.

Our reach across Texas is expanding through our own initiatives and those who give research grants and want us to oversee the projects. It is an exciting time for growth and new successful projects. I hope this article gives our supporters a greater understanding of the impact CKWRI researchers have had on wildlife conservation and management in Texas and will have well into the future. ~



CKWRI wildlife projects during the periods 1996 to 2006 and 2006 to present.

## CKWRI NEWS

### Faculty Recognized for Their Service

Dr. Lenny Brennan was selected as a *Fellow of the American Ornithologists’ Union* (AOU). Fellows are nominated based on their exceptional and sustained contributions to ornithology.



Lenny has been interested in birds his entire life. He joined the AOU as a student member in 1982, and has published numerous articles on wild birds for the past 32 years.

Dr. Lenny Brennan has been recognized for his service by the American Ornithologists’ Union.

Dr. Scott Henke has been selected as the *2016 Student Chapter Advisor of the Year* by The Wildlife Society. Scott formed the TAMUK chapter, which was chartered in 1996. Under his leadership, the chapter received the *Student Chapter of the Year* 12 times out of the 15 years the award has been given by the Texas Chapter of The Wildlife Society, and has been named *International Student Chapter of the Year* 6 times by The Wildlife Society.

In June, Dr. J. Alfonso Ortega-Santos was awarded the *Presea al Merito Pro Flora y Fauna Silvestre De Nuevo Leon, Categoria Educacion*, which is a merit award for wildlife conservation by the Consejo Estatal de Flora y Fauna de Nuevo Leon. Since 1993, this organization has recognized those that benefit wildlife conservation and management.

### Researchers Recognized at TSSRM Meeting

Our folks did a wonderful job representing the CKWRI at the recent Texas Section of the Society for Range Management meeting held October 11–13th in Uvalde, TX. Drs. Raul Valdez (New Mexico State University) and J. Alfonso

**Ortega-Santos** received the *Special Category Publication Award* for editing the book “Ecología y Manejo de Fauna Silvestre en Mexico.” We also won the *Special Category Publication Award* for “Reseeding Natives in South Texas,” coauthored by **Dr. Megan Clayton** (Texas AgriLife Extension), **Forrest Smith**, **Keith Pawelek**, and **Anthony Falk**. **Dr. Eric Grahmann** took 1st place in the Professional Plant Identification Contest, and graduate student **Adam Toomey** received 1st place for the *Don Pendleton Memorial College Award* for his presentation “Vegetative Response to Season of Prescribed Burning in the Gulf Coast Prairie and Marsh Ecoregion of Texas,” coauthored by **Drs. Sandra Rideout-Hanzak**, **David Wester**, **J. Alfonso Ortega-Santos**, **Timothy Fulbright**, and **Tyler Campbell** (East Foundation).

**Brandon Mitchell** received 1st place in the graduate student poster competition for his presentation “Habitat Characteristics of Constructed Roost Sites for Rio Grande Turkeys in the South Texas Plains,” coauthored by **Drs. William Kuvlesky, Jr.**, **J. Alfonso Ortega-Santos**, and **Humberto L. Perotto-Baldivieso**. Also, **Tori Haynes** received 3rd place for her poster presentation “Prescribed Patch Burning in Gulf Cordgrass Rangelands on Ungulate Distribution,” coauthored by **Drs. Sandra Rideout-Hanzak**, **David Wester**, **Timothy Fulbright**, **Humberto L. Perotto-Baldivieso**, **J. Alfonso Ortega-Santos**, and **Alfonso Ortega-Sanchez, Jr.** (East Foundation). **Tyler Wayland** was awarded 1st place in the undergraduate student poster competition for “Germination Potential of Common Native Grasses from West Texas,” coauthored by **Forrest S. Smith**, **Anthony D. Falk**, **Keith A. Pawelek**, **Colin Shackelford**, and **Jameson Crumpler**. ~

## RESTORATION OF MIXED SOILS FOLLOWING PIPELINE CONSTRUCTION

by David B. Wester

Texas has over 430,000 miles of pipeline, comprising about 16% of pipeline mileage in the United States. With increased energy extraction, pipeline mileage also has increased; between 2010 and 2013, more than 16,000 miles of new pipeline were laid in Texas and between 2012 and 2015, Texas pipeline mileage increased by over 25,000 miles.

The extensive pipeline infrastructure is necessary to move energy resources from points of production to users. But, it is also true that pipeline construction can cause considerable soil disturbance. In the Eagle Ford Shale region, where semiarid rangeland dominates, vegetation along a pipeline rights-of-way is generally cleared via a mulching operation that grinds up woody plants and forms a mulch layer on the topsoil.

Double-ditching, the ‘best practice’ method for pipeline construction, separates topsoil and subsoil into stockpiles on either side of the trench to minimize soil mixing. Following pipeline laying, subsoil is returned to the ditch and the surface is graded with the original topsoil. Even with care, however, topsoil and subsoil can get mixed at the surface, and this material poses many challenges, both physical and chemical, for restoration.

CKWRI researchers (including myself and students Jenna Hoffman, Mylea Lovell, and Michael Golla) recently completed a project that

Editor’s Note: Dr. David Wester is a Research Scientist at CKWRI and Professor at Texas A&M University-Kingsville.

examined methods to restore mixed soils. In the study, we established 126 plots along 1,000 ft of pipeline in Dimmit County. The treatments included physical amendment (with an erosion control blanket (mat) or bare ground), chemical amendment (addition of humic substances), and/or biological amendment (10-species seed mix with or without an annual cover crop).

We documented slightly higher soil water following rainfall in plots covered with erosion control material than in bare ground plots. Even with erosion control material, however, soil water evaporated rapidly between rainfall events. Soil surface temperatures were cooler at mid-day under erosion control material on sunny days, but were similar under erosion control material and on bare ground plots on overcast days and during morning and evening hours



© David Wester

**Jenna Hoffman monitored soil surface temperatures, soil water dynamics, and seedling emergence to better understand how to restore pipeline rights-of-way.**

of sunny days. When precipitation allowed for seedling emergence, we documented from 3 to 10 more seedlings per ft<sup>2</sup> in plots covered with erosion control mats than in bare ground plots.

In greenhouse studies with mixed soil, slender grama, hooded

### Did You Know?

The scientific name of the mountain lion is *Felis concolor*, which means cat of one color. (A Field Guide to Texas Mountain Lions, TPWD)

The northern harrier (formerly marsh hawk) nests on the ground. (Handbook of Birds of the World, Vol. 2, del Hoyo et al., Lynx Edicions)

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<http://www.ckwri.tamuk.edu>

windmillgrass, and 4-flower trichloris had relatively high emergence. Study plots in the field were dominated by exotic grasses after 2 growing seasons, likely a result of seed bank and seed rain influences—and we could not detect an effect of the erosion control material after 2 years of growth. Although erosion control mats can enhance early seedling emergence, the advantage is apparently short-lived.

Native plant species with the highest biomass included sideoats grama and slender grama. Interestingly, we also detected a small but measurable effect of the annual cover crop on plant biomass after 2 growing seasons; our annual cover crop reduced exotic plant species biomass and did not negatively impact native species biomass. Finally, we found that the addition of humic materials had no measurable effect on early seedling emergence or standing crop after 2 years of growth.

**Advisory Board**

The Advisory Board of the Caesar Kleberg Wildlife Research Institute provides leadership in all aspects of our work. We are indebted to them for their commitment to CKWRI and its mission.

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Successful restoration depends on a host of factors. These include climatic conditions during and



© David Wester

Study plots in the foreground are covered with erosion control mats; plots in the background do not have mats.

following seeding, selection of locally-adapted species, proper seedbed preparation and planting, protection from grazing during early establishment, weed control, and seed bank/seed rain dynamics.

Based on our research, we recommend seeds of locally-adapted species be broadcast seeded onto a clean seedbed and rolled or cultivated to improve seed-soil contact. Herbicide application can reduce impacts of weedy species during early establishment. We also recommend inclusion of an annual warm-season cover crop. Although mulch can improve early seedling establishment, this is a costly practice that has little long-term benefit, especially if rainfall and temperature conditions allow for early seedling emergence and establishment. ~

### What Do They Eat?

The desert shrew is considered to be an insectivore, eating spiders, scorpions, centipedes, moths, beetles, and various other insects. (<https://www.nps.gov/tont/learn/nature/desert-shrew.htm>)

Mississippi mud turtles are omnivores, feeding on prey such as insects, snails, crayfish, small fish, amphibians, and aquatic plants. (Turtles of the United States and Canada, C.H. Ernst and J.E. Lovich, Johns Hopkins University Press)

**Consider giving a tax-deductible donation to CKWRI**



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