

# SOUTH TEXAS WILDLIFE



A publication of the Caesar Kleberg Wildlife Research Institute  
at Texas A&M University-Kingsville

Winter 2019–2020  
Volume 23, No. 4



Successful restoration of a pad site around an active production well. © Forrest Smith

## IT'S IN THE BANK...OR IS IT?

by David Wester, Dustin Golembiewski, Brianna Slothower, and Anthony Falk

It's not difficult to imagine a 60-foot wide swath of brush cleared through your ranch from boundary fence to boundary fence as it crosses your property and onto your

Editor's Note: Dr. David Wester is a research scientist at the Caesar Kleberg Wildlife Research Institute (CKWRI) and professor in the Department of Rangeland and Wildlife Sciences at Texas A&M University-Kingsville; Dustin Golembiewski and Brianna Slothower are graduate students in the Department of Range and Wildlife Sciences, working with Dr. Wester through the CKWRI; Anthony Falk is the assistant director of CKWRI's *Texas Native Seeds*.

neighbor's. It starts out as a clean slate, but what will it look like next year? What about that frac pond that you filled in last month? These disturbances are commonplace in South Texas and their restoration is a critical concern for landowners.

Experience tells us one thing for certain: a major challenge in restoration involves the contribution of seeds already in the soil of disturbed areas. We call this the soil seedbank—what comprises it, and how it behaves, has a lot to do with restoration success.

We have studied seedbanks in areas affected not only by oil and gas extraction but also in areas now dominated by invasive grasses,

work that would not be possible without the Caesar Kleberg Wildlife Research Institute's *Texas Native Seeds* Program. Our findings are as interesting as they are surprising, and they tell us that there's still a lot of work to be done.

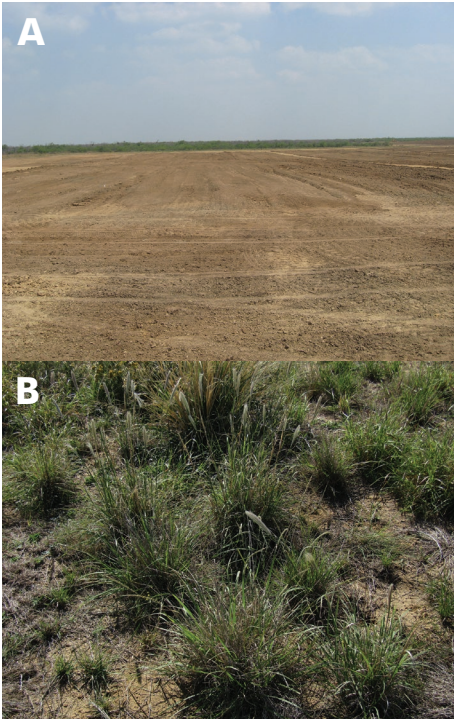
We've quantified seedbanks in areas dominated by (1) native grasses, (2) invasive grasses (tanglehead or Lehmann lovegrass), and (3) mixtures of natives and these invasives. We have found that seedbanks of native sites were largely similar to seedbanks of tanglehead- and lovegrass-invaded sites. This suggests that restoration of these rangelands may be possible without additional seed input. In contrast, we've documented little success of native plants in seedbanks dominated by bermudagrass. It is likely that a major factor determining the long-term outcome is past history and management. Rangelands and areas with a history of cultivation have different seedbanks, and site-specific conditions are important.

### This Issue

Restoring Disturbed Lands.....	1
By The Numbers.....	2
CKWRI News.....	2
Did You Know?.....	3
End of Year Reflection.....	3
What Do They Eat?.....	4
Advisory Board.....	4

## By The Numbers

- 8 length in inches of Texas coral snake hatchlings (Poisonous Snakes of Texas, A.H. Price, Texas Parks and Wildlife Press)
- 3–11 range in the number of eggs found in clutches of the reticulated collared lizard (A Field Guide to Texas Reptiles & Amphibians, R.D. Bartlett and P.P. Bartlett, Gulf Publishing Co.)



© David Wester (A) and Dustin Golembiewski (B)

(A) Bare surface of a retired frac pond prior to seeding; (B) A mixture of native grasses on a frac pond 2 years after seeding.

We have studied restoration of retired frac ponds. In this research, stockpiled topsoil was spread over the frac pond after it had been drained and back-filled with substrate excavated for its construction. A portion of the surface, however, was not covered with topsoil. We found that, 1- and 2-years post-seeding, native grass density was similar between non-seeded topsoil and non-seeded unamended surfaces. Also, we installed plots on both surfaces that were seeded with native grasses, which resulted in increased plant density on both surfaces. Such targeted seeding can be crucial to satisfy regulatory obligations.

Some of the most challenging areas to restore are the mixed soils

that result from pipeline installation. We found that invasive grasses (mostly Old World bluestems) dominated a pipeline 2 years after seeding, even though we used a native grass mix that had been successful along other pipelines on the same ranch. In this case, the existing seedbank overwhelmed native grasses we seeded. Even so, we found that inclusion of a cover crop during seeding reduced invasive grass biomass 2 years after planting without reducing native grass biomass. This latter finding points to the importance of plant interactions during the restoration process and to possible mechanisms involving cover crops that can improve restoration success.

Efforts to reduce seedbanks of invasive species are expensive and labor-intensive and negatively



© David Wester

**Pipeline restoration can be challenging. Seeded native grass seedlings emerging from planted rows often compete with other species that emerge from the seedbank.**

impact native seeds as well. Our findings—in sites dominated by different invasive grasses in areas impacted by energy extraction—illustrate the complexity of the processes involved and our incomplete understanding of them. Experience reassures us that

whatever challenges or opportunities the seedbank provides, restoration success is enhanced by seeding with locally-adapted native species. Our *Texas Native Seeds Program*, under the leadership of Forrest Smith and Keith Pawelek, provides invaluable information for landowners across the state.



© David Wester

**Research plots in the foreground of this pipeline restoration study area were not covered with mulch and supported few plants; plots in the background, which had mulch cover, supported more vegetation.**

Any area that requires restoration is an area that also has an existing soil seedbank. How large this seedbank is, what species it contains, and how it interacts with native seeds that are planted during the restoration process are complicated questions, and they have our full attention. ~

## CKWRI NEWS

### *Texas Native Seeds Program* Receives Award

In October, the Caesar Kleberg Wildlife Research Institute's (CKWRI) *Texas Native Seeds Program* (TNS) received the **Group Achievement Award** from The Wildlife Society. The award was presented at the 2019 joint annual conference of The Wildlife Society and American Fisheries Society held in Reno, Nevada. TNS director **Forrest Smith** and associate director **Keith Pawelek** accepted the award.

Visit our web page at  
<http://www.ckwri.tamuk.edu>



**Texas Native Seeds Program (TNS) director Forrest Smith (left) and associate director Keith Pawelek with the Group Achievement Award from The Wildlife Society.**

TNS was selected for the award in recognition of the beneficial impacts of the program on restoring habitat for wildlife throughout Texas. Since 2001, when the *South Texas Natives* Project began and 2011 when TNS was launched, over 45 native plant seed sources have been selected and commercialized. As much as 50,000 pounds of native seed are available annually to consumers as a result. In addition, Forrest Smith gave a keynote address on TNS at the conference as part of the *Caesar Kleberg Keynote Session*, titled “Behind the Gates, the Importance of Private Lands to Wildlife Conservation.”

### **Researchers Recognized at Recent Meeting**

Caesar Kleberg Wildlife Research Institute scientists were recognized for their research activities at the 2019 annual meeting of the Texas Section of the Society for Range Management, which was held October 9th–11th in Kerrville, Texas. **Humberto Perotto** received the *Outstanding Achievement Award*. **Alfonso Ortega-Santos** received the *Outstanding Contribution to Rangeland Management Award* and was recognized for his book *Wildlife Ecology and Management in Mexico* coauthored with **R. Valdez**. Graduate student **Alexandria DiMaggio** placed 2nd in the *Don Pendleton Memorial Graduate Oral Presentation* competition, **Alison Menefee** and **Kathryn Sliwa**

received 1st and 2nd place in the *Don Pendleton Memorial Graduate Poster Presentation* competition, undergraduates **Guillermo Mata** and **Shae Diehl** placed 2nd and 3rd in the *Don Pendleton Memorial Undergraduate Poster Presentation* competition, and **Rebecca Zerlin** and **Joey Cortez** placed 1st and 2nd in the *3 Minute Thesis* competition. Also noteworthy, Texas A&M University-Kingsville won 3rd place in the plant identification contest.

Congratulations go out to our scientists and students that won awards and represented the CKWRI at these conferences and meetings. ~

### **CKWRI AND SOUTH TEXAS' BOUNTY**

*by David Hewitt*

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

It is a clear, beautiful morning in early December. I am blessed to be watching the sunrise light up the tangle of live oak limbs around a hunting camp in deep South Texas. The rattle, day and night, of falling acorns rolling down the metal roof is a constant reminder of the season's bounty. Quail are abundant, deer are fat, turkeys are in large flocks, and green jays are more numerous than I have ever seen. It has been a great year in the South Texas brush country, and the Caesar Kleberg Wildlife Research Institute (CKWRI) has been similarly blessed.

The Institute's bounty included recognition of our outstanding students, scientists, and programs. The Texas Chapter of The Wildlife Society awarded Bart Ballard with



© David Hewitt

**Mature white-tailed deer bucks are part of the South Texas brush country's bounty.**

Honorary Life Time Membership and David Wester with Outstanding Educator. Mike Tewes presented the annual Faculty Lecture at Texas A&M University-Kingsville, detailing the history of ocelot conservation. Alfonso “Poncho” Ortega-Santos, Humberto Perotto, and several Institute students received honors from the Texas Section of the Society for Range Management as described elsewhere in this newsletter. The impactful work of *Texas Native Seeds* was recognized with a Texas Environmental Excellence Award for Agriculture from Governor Abbot and the Group Achievement Award from The Wildlife Society.

Just as every year is different for wildlife in South Texas, 2019 brought changes for the CKWRI. The Institute's advisory board established an emeritus category when 2 of its longest serving members stepped down. Jim McAllen and Dick Jones each served for 35 years, and we are thrilled they chose to continue their engagement with the Institute as emeriti. Two of our researchers, Charlie DeYoung and Tim Fulbright, retired although both will continue working part time to complete

### **Did You Know?**

The female praying mantis lays eggs contained in an egg sack called the ootheca.

The Ord's kangaroo rat is 5-toed, whereas the Merriam's kangaroo rat is 4-toed. (The Mammals of Texas, W.B. Davis and D.J. Schmidly, Texas Parks and Wildlife Press)

writing assignments. We recruited 2 new scientists, Mike Cherry to fill the Stedman Chair for White-tailed Deer Research, and Evan Tanner to fill the Meadows Professor for Semiarid Land Ecology. Look for great things as Mike and Evan develop their research programs. The Institute's Development Office lost Anne Thurwalker in 2019, but in January, Caroline McAllister starts as the Director of Donor Relations, so our supporters will remain in good hands.

We had a record year in 2019 for research funding at the CKWRI with over \$4 million in grants and \$1.5 million in donations. We look forward to another great year in 2020 with our many research partners, including the East Foundation, Texas Parks and Wildlife, U.S. Department of Agriculture, Texas Department of Transportation, and our private supporters. We are especially excited to work with the East Foundation and agency partners to advance

**Advisory Board**

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

Chad Auler Gus T. Canales T. Dan Friedkin Henry R. Hamman Jeff Hildebrand Karen Hunke	David W. Killam ( <i>Chair</i> ) Mason D. King Chris C. Kleberg Tio Kleberg C. Berdon Lawrence Tim Leach Kenneth E. Leonard	Ellen B. Randall Barry Coates Roberts Stuart W. Stedman Ben F. Vaughan, III Bryan Wagner Charles A. Williams
--	---	---

*Emeriti:* A. C. "Dick" Jones, IV and James A. McAllen



© Ben Masters

**We are working with the East Foundation to learn more about the endangered ocelot.**

ocelot conservation on private lands, thereby helping recover this iconic South Texas species.

All of these blessings rain down on the CKWRI because you, our supporters and champions, believe our research matters. To be relevant, we need a close relationship with you so that we know your challenges and needs. We cherish the opportunities you give us to tour your ranches, discuss wildlife management on the tailgate, and share ideas and observations at various events around the state.

We also value your investment in time to read the CKWRI's literature, to follow us on-line, and to attend our events. So, do not be a stranger. Contact us with questions and observations, share your ideas on how we can improve, and visit us if you are passing through Kingsville. Your interest inspires us. All the best for the New Year. ~

### What Do They Eat?

The hispid pocket mouse is primarily a granivore, but may eat some "...grasshoppers, caterpillars, and beetles." (The Mammals of Texas, W.B. Davis and D.J. Schmidly, Texas Parks and Wildlife Press)

Ferruginous pygmy-owls mainly eat insects, and to a lesser extent small birds, mammals, and reptiles. (G.A. Proudfoot and S.L. Beasom, The Wilson Bulletin 109(4):741-748.

**Consider giving a donation to the CKWRI**



**TEXAS A&M**  
UNIVERSITY  
**KINGSVILLE**®

Caesar Kleberg Wildlife  
Research Institute  
700 University Boulevard  
MSC 218  
Kingsville, Texas 78363-8202

Editor: Alan Fedynich, Ph.D.

**SOUTH TEXAS WILDLIFE** is printed on recycled paper

