

Reseeding the Eagle Ford Shale

By Forrest S. Smith

The Eagle Ford Shale (EFS) could be the most lucrative oil and gas play South Texas may ever see. We could not be more excited about this blessing for our friends, rural communities, and the nation's energy future. But with the positives, there are inevitable downsides. From a wildlife habitat standpoint, we are concerned about effects of EFS exploration on the "Last Great Habitat" for South Texas wildlife.

Along with loss of thousands of acres of habitat affected by caliche roads, pads, pits, and pipelines, another concern is one that can be mitigated. **This concern is the planting of exotic or non-native grass seed for reclamation in the EFS.** Over time, these non-native grasses are invasive and can spread to adjacent habitats, out-compete native plants, and can form monocultures with little value to wildlife.

Holding a firm line that no exotic grass seeds be planted on your property is a "legacy" decision. Speaking from more than a decade of experience working on how to convert exotic grass-dominated areas back to native plants, we know that such efforts are *very* difficult. There is no silver bullet for exotic grass control. So far, our results indicate repeated treatments spanning years and costing hundreds of dollars per acre are the only methods that provide satisfactory control of exotics. When Old World bluestems are the culprit, the challenge of converting back to natives is staggering.

With exotic grass, livestock grazing



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Eagle Ford Shale Drilling Rig

becomes a necessity at times; burning can be risky and a catch 22 - that may promote more exotic grass; and quail become scarcer according to CKWRI's research. Finally, based on recent research on the rate of spread of exotic grasses, it is likely your heirs will have an even bigger problem than you had.

What not to plant

Kleingrass (Verde, Select 75, or common) is not a native grass. Wilman lovegrass is not a native grass. Buffelgrass (common, Laredo, Pecos, Nueces, Frio, T-4464, or any other variety) is not a native grass. Old World bluestems (including KR, Kleberg, Angleton, WW-B Dahl, WW Spar, WW Ironmaster, Caucasian, Medio, T-587, and silky bluestems) are not native grasses. Blue panicum, green panicum (i.e. guinea grass), rhodesgrass, bermudagrass (Comanche,

Common, Giant) (and there is no "native" bermudagrass), Lehmann lovegrass, sorghum alnum, or Johnson grass are all non-native grasses.

None of these add value to a property focused on wildlife. There are no proven benefits of any of these grasses for wildlife. Conversely, there are proven negative effects to wildlife by many exotic grasses, especially with Old World bluestems, buffelgrass, guinea grass, and Lehman lovegrass.

Information from the right places

I have many friends in the oil and gas industry. If someone asked me how to drill an Eagle Ford Shale well, I would refer them to these oil and gas industry professionals for such advice. If I did tell a landowner how to drill an oil or gas well, they would be a fool to put much stock in what I told them. My recommendation could be a disaster!

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But the reverse is unfolding for seeding information in the EFS. People who lease mineral rights, drill oil and gas wells, and install pipelines are directing and dictating seeding of many properties.

Many seed mixes and recommendations being promoted to landowners, under the guise of “native” or the “best” for wildlife are far from either. I have reviewed many “native” seed mix recommendations, made by oil and gas, pipeline, and vegetation management companies- and *most include non-native grasses.*

Native is not native everywhere

A decade ago, CKWRI teamed with landowners, natural resource professionals, and agencies and began a project to make locally adapted native seeds available for restoration in South Texas. The project was needed because **native seeds originating from areas beyond South Texas did not work when planted in South Texas.** Seeds originating from Oklahoma and Kansas were “native” to North America, but wouldn’t work in arid South Texas. They almost always died out within 2 years. In many cases these “natives” were the wrong plant

species altogether for our region, or at the least the wrong variety of the plant. Bottom line, planting native seeds that did not originate from South Texas plant populations was a sure recipe for restoration failure. This was true 10 years ago, and it still is today.

We at CKWRI started a decade ago with an initiative called *South Texas Natives*. It is still accomplishing many of its goals. Today, seeds of 15 native plants, all of them native of South Texas, are produced commercially.

What to plant

When you review a seed mix proposal for EFS reclamation, or for any native seeding project in South Texas, compare it to the “Plant releases” tab on our website. If native seeds proposed to you are NOT ON THAT LIST, they probably won’t work in South Texas. There are 3 exceptions, all widely adapted cultivar seed releases. Those 3 are Haskell sideoats grama, Van Horn green sprangletop, and Alamo switchgrass.

Across South Texas three great choices for EFS reclamation are Catarina Blend Bristlegrass, Dilley Germplasm slender grama, and La Salle Germplasm Arizona cottontop. All have been available in large quantities since 2008 at reasonable prices. Other great warm season native grass options for the EFS restoration available now include: Webb Germplasm whiplash pappusgrass, Maverick Germplasm pink pappusgrass, Kinney Germplasm false rhodesgrass, and Falfurrias Germplasm big sacaton. A cool season native grass option is Lavaca Germplasm Canada wildrye. If seeded correctly, all of these plants will meet restoration needs associated with the Eagle Ford Shale.



Eagle Ford Shale pipeline installation.

© Eric Grahmann

Use this mix

Our website has native seed mix recommendations specifically designed for needs in the EFS. We also have a primer on general guidelines for native seeding, and we have an interactive tool that will generate a custom mix for your location based on your soils. If you want or need more help, email us at stn@tamuk.edu. Last year, we gave recommendations for 200,000 acres of restoration seeding in the EFS. We would be thrilled if we could give recommendations for 2 million more acres. If the mix being suggested to you is suspect, send it our way and we will give you a science-based, straight-up assessment. STN is a free resource in this regard, and we are glad to help.

We need your help more than ever to keep up with the EFS need, and keep the Last Great Habitat great, for years and generations to come. The cost to manage a project like this exceeds \$500,000 annually. Consider making a donation to *South Texas Natives*.



Forrest Smith is the Director of the South Texas Natives Project at the Caesar Kleberg Wildlife Research Institute.

Two New Research Associates Join STN/Texas Native Seeds Initiative



Colin Shackelford



Mia McCraw

As *South Texas Natives* leads a new project, **Texas Native Seeds**, with support of the Texas Department of Transportation and private donor support, we would like to welcome two new members to our team.

First, we would like to introduce Colin Shackelford. Colin was raised in Houston and is a seventh genera-



© Forrest Smith

South Texas native grasses Catarina Blend Bristlegrass, La Salle Germplasm Arizona cottontop (foreground), and Dilley Germplasm slender grama (background) are excellent choices for Eagle Ford Shale restoration, and all are commercially available.

tion Texas with a long family history in Central and West Texas. He received his B.A. in Psychology from Austin College in Sherman, Texas, and his M.S. in Rangeland Ecology from Texas A&M University in College Station. Colin's most recent experiences include positions as a grant projects manager for the Chihuahuan Desert Research Institute as well as the Director of Stewardship for The Nature Conservancy's Davis Mountains Project in West Texas. He currently serves on the board of the Texas Section of the Society for Ecological Restoration as the West Texas repre-

sentative. Colin's work with **Texas Native Seeds** will focus on collection and development of native seed sources for West Texas based out of Alpine, TX. Colin will work closely with the newly formed West Texas Plant Materials Initiative led by Dr. Bonnie Warnock of Sul Ross State University's Borderlands Research Institute for Natural Resource Management.

The second new member to our team, based out of Stephenville, TX, is Mia McCraw. Mia is a native of Dallas and later moved to Austin. She graduated from Texas A&M University with

STN Website:

<http://ckwri.tamuk.edu/research-programs/south-texas-natives/>

Eagle Ford Shale

In an effort to keep up with landowner requests STN has updated several parts of our website. Most notably, there are new links to assist land owners and oil and gas companies needing restoration information for Eagle Ford Shale activities. This section can be found in the "Restoration Seeding Information for the Eagle Ford Shale" tab. Also under this tab are links to seeding guidelines, seed vendors, as well as general seed mixes for common needs in this oil and gas play.

With the help of CKWRI's Wildlife Research Technologies laboratory, a new interactive tool provides specialized native seed mixture recommendations. This is located under the "Seeding Recommendations" tab on the website. This tool allows you to click on the region where the project is located, and the predominate soil type of the site. Based on the information entered, a native seed mixture recommendation is generated, along with a link to the commercial seed dealer for each species recommended.

dual Bachelor's degrees in Rangeland Ecology and Management and Ecological Restoration. While attending A&M she was a member of the Plant Identification Team and a teaching assistant for Dr. Stephan Hatch's rangeland plant taxonomy courses. After graduation from A&M, she went to work for North Cascades National Park in Washington and Grand Teton National Park in Wyoming. In 2010, she took a job in Wyoming with a consulting company working as a restoration technician for the oil and gas industry. As a member of the **Texas Native Seeds** Project, Mia's primary responsibilities will include opening communications with area landowners, and collecting native plant seed for propagation and evaluation in the Central Texas region. Mia will work closely with project collaborators Dr. Jim Muir of Texas AgriLife Research Stephenville, Dr. Jeff Breeden of Tarleton State University, as well as with Dr. Gary Rea of the USDA NRCS James E. "Bud" Smith Plant Materials Center. 🌿

Visit our web pages at:
<http://ckwri.tamuk.edu/research-programs/south-texas-natives/>
and
<http://ckwri.tamuk.edu/research-programs/texas-native-seeds/>

Commercial Status of STN/South Texas PMC Seed Releases

Variety	Availability	Dealer
Dilley Germplasm slender grama	Available	Douglass King Seed Company
LaSalle Germplasm Arizona cottontop	Available	Pogue Agri Partners Douglass King Seed Company Turner Seed Company
Catarina Bristlegrass Blend	Available	Pogue Agri Partners Douglass King Seed Company
Welder Germplasm shortspike windmillgrass	Sold Out	Turner Seed Company Douglass King Seed Company Bamert Seed Company Turner Seed Company Justin Seed Company
Mariah Germplasm hooded windmillgrass	Sold Out	Bamert Seed Company Douglass King Seed Company
Chaparral Germplasm hairy grama	Sold Out	Douglass King Seed Company
Atascosa Germplasm Texas grama	Sold Out	Douglass King Seed Company
Maverick Germplasm pink pappusgrass	Available	Pogue Agri Partners Douglass King Seed Company
Webb Germplasm whiplash pappusgrass	Available	Douglass King Seed Company
Falfurrias Germplasm big sacaton	Available	Douglass King Seed Company
Kinney Germplasm false rhodegrass	Available	Douglass King Seed Company
Hidalgo Germplasm multiflowered false rhodesgrass	2013	Douglass King Seed Company
Lavaca Germplasm canada wildrye	Available	Turner Seed Company
Oso Germplasm halls panicum	2013	Pogue Agri Partners
STN-561 Germplasm hookers plantain	Available	Pogue Agri Partners
STN-496 Germplasm redseed plaintain	2012	Pogue Agri Partners
Zapata Germplasm Rio Grande clammyweed	2012	Douglass King Seed Company
Goliad Germplasm Orange Zexmenia	2014	-----



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