



South Texas Natives

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

Summer 2013
Volume 8, Issue 1



Photo by Forrest Smith

Native grassland restored using STN seeds in Jim Wells County

Seed Company, and Pogue Agri Partners, this number of successful releases would not be possible.

Releases made in the last couple of years include deer pea vetch, sideoats grama, prostrate bundleflower, awnless bushsunflower, prairie acacia, little bluestem, Halls panicum, and 4-flower trichloris. Most of these are already available for purchase, or will be very soon. In the “pipe” for the South Texas region are releases of red lovegrass, sand dropseed, slim tridens, Yellow Indiangrass, switchgrass, and brownseed paspalum.

South Texas Natives and Texas Native Seeds Project updates

*By Forrest S. Smith,
Dan L Duncan Endowed Director*

We do a poor job of sending out newsletters, and right up front I want to take the blame for that! For what we lack in newsletter proficiency, I hope we are making up for it in on- the-ground work and impact. Below are some updates on the work of South Texas Natives (STN) and Texas Native Seeds (TNS) since our last newsletter.

Seed source development and commercialization: South Texas Natives

In 2012, commercial seed production of native seed releases developed by STN and our partners yielded enough seed for about 30,000

acres of on-the-ground restoration. That figure is based on production data given to us from commercial producers. The exact total of acres planted is tough to track, since it depends on the exact seed mixes used and planting rates followed. We do know that that amount of seed was produced, and that most was already sold by spring 2013. Current production plans call for substantial seed production acreage increases in 2013. We estimate seed for 50,000 acres of restoration will be available to consumers in 2013.

Since 2011, STN and our partners have released and commercialized 7 native seed selections with the help of the commercial seed industry. It goes without saying, that without our partners at the **USDA NRCS E. “Kika” de la Garza Plant Materials Center, TxDOT, Rio Farms, Inc, Douglass King**

Texas Native Seeds

For the regions we are working in through TNS, we are exploring releases of white tridens, purple threeawn, little barley, and Texas wintergrass for the immediate future. These 4 species are aimed at meeting the needs of our major partner, **TxDOT**. Seeds of early successional native grasses like these are greatly needed to improve reclamation planting successes in Central and West Texas. A second group of selections are being made for each specific region, and will include little bluestem, meadow dropseed, and silver bluestem for Central Texas; and Halls panicum, cane bluestem, and sideoats grama for West Texas.

Restoration research:

As Eric Grahmann’s article in this newsletter reveals, we are making some headway at learning

how to restore areas dominated by exotic grasses in South Texas. We have been actively involved in the work at the **Hixon Ranch**, and at 40 other restoration research sites across the region. Many of the successful techniques are expensive and difficult, but we have some great starting points. As the value and availability of good wildlife habitat increases, we think many of these techniques will make sense in future years, even if today costs associated with them are hard to swallow. As they say, they aren't making any more land, particularly land with good native wildlife habitat.

In large part because of the Eagle Ford, we have placed enormous emphasis on oil and gas and pipeline related restoration in the last few years. We have had excellent results on many of our trials along pipeline right of ways and in and around oil and gas pad sites.

In rangeland settings, we have been monitoring many trial and demonstration plantings for more than 5 years now, and are encouraged by the results. Even with the prevailing drought conditions, we are documenting high success rates. Not every native seeding in every scenario is successful, but a majority of the ones we have installed and monitored have been.

Education and outreach:

One of the most rewarding aspects of STN and TNS, and the one that I am most proud of is the number of phone calls, emails, and requests for help and information we get from agencies, industry, and private landowners. Without going into too much detail, at the broad scale, we are fielding an average of 3 calls a day for advice on native plant restoration, and writing and sending seed mix recommendations for 2 or more private landowners a week.



Photo by Tony Falk

Commercial seed field of South Texas Germplasm sideoats grama

Our websites had about 14,000 page views in 2012, and we gave upwards of 30 public presentations last year.

I think it is awesome the number of people we are able to help through the STN and TNS projects. There has been a true sea-change in the number of people interested in native plants and restoration, and I like to think that is a result of STN and TNS and the awareness the programs have fostered.

Program development:

Our list of donors and funders is a long one, and I wish I had the space to thank each one individually. I do want to single out a couple major contributions to our efforts since our last newsletter. Because of a landmark contribution by the **Dan L Duncan Family of Houston**, we have our first guaranteed funding in our 12 year history! We cannot say thank you enough to the Duncan Family for their contribution of an endowment in support of the Director Position for STN and TNS.

We are also proud to report that our long-time partner **TxDOT** has

committed their support to the TNS Project for 5 more years. There is no doubt that amongst state agencies, TxDOT is the leader in native plant restoration research.

I also want to single out the **Robert J. Kleberg, Jr. and Helen C. Kleberg Foundation**, and the **Lee and Ramona Bass Foundation**. It is not a stretch to say, were it not for these families who believed in our project from day 1, we would not be around today. We are blessed by each and every one of our donors' contributions.

We are as excited as ever about the future, the impacts of STN and TNS, and about working to solve tomorrow's restoration challenges and native plant seed source needs in Texas. As always, we need your continued help to stay strong as a program, and to stay focused on what is important to you.

Thank you all for your support, encouragement, donations, and interest. Please do not hesitate to contact us if we can help you. And I promise we will keep working on getting better at sending out newsletters! 🌱

South Texas Germplasm Sideoats Grama Released by STN

*By Tony Falk - Research and
Evaluation Coordinator,
South Texas Natives*

South Texas Natives (STN) is proud to announce the release of South Texas Germplasm sideoats grama (*Bouteloua curtipendula* Michx. Torr. var. *caespitosa*). Sideoats grama is a perennial, warm-season native grass that provides excellent forage for livestock, valuable nesting cover for bobwhite quail, and habitat for a variety of wildlife species. South Texas Germplasm is made up of 6 collections of this plant originating from 5 south Texas counties. This release is the culmination of 11 years of collection, evaluation, selection, and increase work on this desirable and important native grass species.

South Texas Germplasm is the correct botanical variety of sideoats grama for South Texas. This release is comprised of variety *caespitosa*, the common type of the plant that is found across the Rio Grande Plain region. Many of the available commercial sources of sideoats grama are variety *curtipendula*. Variety *caespitosa* is the taller, bunchgrass form of sideoats grama, instead of the shorter, colony-forming sideoats grama found to the north and along the Upper Gulf Coast.

Our evaluations of South Texas Germplasm in comparison to available cultivars of this species have shown several distinct differences in performance. Of greatest importance, we have documented 4-5 times greater seedling establishment of South Texas Germplasm in the first 90 days after planting when compared to commercial sideoats grama

seed sources found in today's seed market. We have also documented superior long-term survival, and observed better plant vigor, biomass production, and taller plant heights. This is exactly what we would expect, and it confirms the rationale behind our ecotype approach of STN and TNS. That approach centers on the collection, selection and release of eco-region specific seed sources.

Certified seed of South Texas Germplasm sideoats grama is already commercially available from Douglas King Seed Company in San Antonio. 🌱

A Varied Approach to Restoration

*By Eric Grahmann,
CKWRI PhD. Candidate*

Landowners and land managers are well aware of the exotic grass problems on South Texas rangelands. Over the past 60 years, millions of acres were planted to grasses such as old world bluestems, buffelgrass, bermudagrass, Lehman lovegrass, and guinea grass. On some ranches, these grasses invaded and became established without the landowners consent. While some of these grasses provide valuable and plentiful forage for cattle, they have negative impacts on wildlife. For example, bobwhite quail can be half as abundant in areas dominated by buffelgrass in comparison to native areas on the same soils. Scaled quail may be in serious trouble on rangelands dominated by exotic grasses. Providing native habitat is the only way to ensure abundant and viable wildlife populations.

To counteract this, the Caesar Kleberg Wildlife Research Institute, STN, a few South Texas

ranches, and representatives from several agencies came together in 2008 to find restoration solutions. We began a series of restoration experiments at the Hixon Ranch, in LaSalle County, TX. We focused on treatments that included mechanical soil disturbance, prescribed fire, grazing by cattle, herbicides, and native seeding in order to convert exotic-dominated areas to native grassland.

Our most successful treatments have been:

1. Burning, moldboard plowing, deep disking every time exotic grass seedlings appeared, then reseeding with native plants, followed by spot spraying remaining exotics grass.
2. Disking every time exotic grass seedlings emerged (up to 12 times!) then planting a diverse native seed mix.
3. Spraying exotic grasses with the maximum rate of glyphosate herbicide repeatedly (up to 5 times), then planting a diverse native seed mix.
4. Planting native forbs then spraying grass-specific herbicides when exotic grasses returned.

Along the way we have learned some important lessons:

- Soil disturbance in native plant communities facilitates invasion by exotic grasses, however, soil disturbance is an important tool for maintaining plant diversity in exotic grass dominated areas.
- If reseeding is part of the restoration plan, exotic grass seed banks must be substantially depleted before planting if you want any reasonable chance of long-term success. On our study sites, this took about 3 years

to accomplish. During wet years, seedbank depletion was accomplished sooner.

- Moldboard plowing, to bury the top 6 inches or more of the soil profile is a valuable method for also burying exotic grass seed to keep it from germinating.
- Rectangular or square restoration plots are better than small strip plantings. Most exotic grass seeds are easily dispersed by wind and square restoration treatments reduce the amount of perimeter affected by adjacent exotic seed sources. Also, managers may want to consider using buffers of brush and/or wide disked strips to prevent the reinvasion of exotic grass seed into restoration plots.
- Quick establishment of native plants slows invasion by exotic grasses in restoration plots. While we recommend using a diverse seed mix of ecotypic native plants, you should always include a high percentage of early successional species that

establish quickly under marginal precipitation.

- To kill mature exotic grasses, they must be sprayed multiple times regardless of the herbicide used. We believe this is because the herbicides do not readily translocate in the root system of these grasses. Most plants have dormant buds that are poorly connected by the root system of the plant to the actively growing tillers.
- Grass specific herbicides provided limited treatment success.
- If managed properly, grazing by cattle is the most economical and effective management tool at our disposal for suppressing exotic grasses and increasing native plant diversity.
- Like brush management, regardless of the initial treatment, follow-up treatments are a must to maintain meaningful suppression of exotic grasses. These can include prescribed grazing, spot spraying, and

prescribed fire.

Regarding wildlife use, we observed very few bobwhites, turkeys, or doves on our study site when we began this project. There was also very little use of the research area by deer before we implemented our research. But, within a couple of years of implementing restoration treatments, bobwhite quail were common on the study area; the study plots have become a favorite hunting destination during dove season; and white-tailed deer are so common that they are a tolerable nuisance to native plant establishment on our plots. Wildlife use within our study area is a testament to the power of native plant restoration. 🌱

Editors Note: In spring 2013, the Hixon Ranch, CKWRI, and STN began work on a 400 acre research and demonstration project to apply many of these findings to a large-scale area. We can't thank Tim and Karen Hixon enough for their generosity that is making this important project possible!



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

ADDRESS SERVICE REQUESTED

Non-Profit Org.
U.S. Postage Paid
Kingsville, TX 78363
Permit #172

