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Natural Resources Conservation Service

2015 Progress Report of Activities
E. "Kika" de la Garza Plant Materials Center
Kingsville, Texas

Following are highlights of some of the activities of the PMC for 2015. Please contact the PMC for more detailed information.

New Seed Releases with South Texas Natives

In 2015, South Texas Natives and the USDA-NRCS E. "Kika" de la Garza Plant Materials Center completed three cooperative releases. All are a selected plant material class of certified seed (natural track). No intentional breeding, selection or genetic manipulation was carried out within these populations.

Ramadero Germplasm spike lovegrass, photo by South Texas Natives

Ramadero Germplasm spike lovegrass (*Eragrostis spicata* Vasey) is a perennial, warm season, bunch grass reaching 3 to 4 feet tall. It sets seed in the fall on a tall spike up to 2 feet long. This selection originates from a single population of spike lovegrass in the Rio Grande Plains ecoregion of South Texas. This one accession was chosen from 26 accessions of native dropseeds (*Sporobolus* spp.) and 19 accessions of native lovegrasses (*Eragrostis* spp.) evaluated at three locations in South Texas. Ramadero Germplasm spike lovegrass is recommended for restoration plantings on rangelands, for wildlife habitat improvement, and reclamation of disturbed and degraded sites. Spike lovegrass is a native species well adapted to moist soil areas and saline soils that result from oil and gas production activities and pipeline right of way construction. Ramadero Germplasm is adapted to the Rio Grande Plains (MLRA 83A, B, C and D), Coastal Sand Plain (MLRA 83E) and Gulf Coast Prairies and Marshes of Texas (MLRA 150A and B). Spike lovegrass does not naturally occur north of the Rio Grande Plains in North America, and use of the species beyond this limit of distribution is unlikely to be successful.

Carrizo Blend little bluestem [*Schizachyrium scoparium* (Michx.) Nash var. *scoparium*] is a commercial blend comprised of two

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Carrizo Blend little bluestem, photo by South Texas Natives

native seed releases. These releases are each available as the designated commercial blend or singly as STN-176 Germplasm little bluestem or STN-461 Germplasm little bluestem. Carrizo Blend little bluestem is a warm-season, native, perennial bunch grass that grows 3-6 feet tall. This blend is comprised of two releases both originating from native populations of little bluestem in South Texas. These two accessions were chosen from 95 accessions evaluated at three locations in South Texas. Carrizo Blend little bluestem is recommended for use in range seeding mixtures, upland wildlife plantings, roadside plantings, and other conservation plantings in South Texas. Little bluestem is a dominant plant species on sandy, loamy sand, and sandy loam soils in South Texas. Little bluestem produces abundant forage, provides excellent nesting habitat for bobwhite quail, and cover for other wildlife species. The area of known adaptation of Carrizo Blend is the Rio Grande Plains (MLRA 083B), Coastal Sand Plain (MLRA 083E), Gulf Coast Prairies and Marshes (MLRA 150B), and southern portions of the Post Oak Savannah Ecoregions of Texas (MLRA 87). Components of Carrizo Blend are recommended for sandy soils, but not on heavy textured soils. Carrizo Blend is recommended for use in most situations in lieu of STN-461 Germplasm or STN-176 Germplasm individually, especially where the exact ecotype of little bluestem cannot definitively be determined for the planting site.

Pollinator Habitat

About 75% of the world's flowering plant species rely on animal pollinators. Pollinators are vital to agriculture as pollination by bees and other insects contributed an estimated $20 billion in pollinated fruit and vegetable crops in the year 2000. This includes $3 billion in crops pollinated by native bees.

Pollinators are essential for maintaining the structure and function of a wide range of natural communities in North America. Ninety-six percent of birds rely on insects in at least one stage of their growth and development.

In view of the economic and ecological importance of pollinators, the STPMC focused its energy on both investigating potential and documenting valuable plants for pollinator habitat as well as conducting educational workshops on pollinator needs. In 2015, we presented pollinator information to 26 NRCS employees. We utilized the Pollinator Game,

Queen butterfly on frostweed, photo by Shelly Maher

an interactive game developed by the STPMC to help engage its audience. We reviewed other pollinator fact sheets and brochures including the "Native Pollinator Plants of South Texas" brochure, a joint publication with our partners at South Texas Natives (STN). The PMC also conducted a training session at the Corpus Christi Botanical Gardens on native seed collecting and specifically how to collect milkweed seeds for monarch butterflies.

In October 2015, we assisted United States Fish and Wildlife Service (USFWS) State Botanist, Chris Best, and landowner Ashley McAllen in seeding 19 sites for a total of 4.5 acres in a 54 acre deer-fenced paddock. The sites were seeded with 17 species of wildflowers. The seed mix included blazing star, wooly ironweed, antelope horns, American basketflower, black-eyed Susan, bush sunflower, cutleaf daisy, foxglove, goldenwave, huisache daisy, lemon mint, narrow-leaf purple coneflower, scrambled eggs, standing cypress, Texas bluebonnet, Texas yellow star and winecup.

In 2015, the STPMC along with our partners STN and the Nueces County Soil and Water Conservation District received a grant for $105,000 from the USFWS for monarch habitat restoration. This project focuses on three critical needs of monarch butterflies. First, we will work on the collection, evaluation and increase of seed supplies for restoration plantings of zizotes milkweed (*Asclepias oenotheroides*). Evaluation of each accession will be conducted along with the harvesting of seed. Following evaluation, seed will be collected and bulked for distribution to interested commercial seed growers for large scale production. The second project is to enhance production and commercialization of other native pollinator plants. Adult monarch, unlike monarch caterpillars which eat only milkweed, feed on a variety of flowering plants. These adults are seeking nectar bearing flowers which contain sugars and other nutrients. The adult monarchs in Texas require nectar bearing flowers both in the spring when they migrate north and once again in the fall when they must consume enough nectar to power them on their long journey to winter hibernation locations in Mexico. We plan to establish large seed increase fields of five pollinator attracting plants not currently commercially available and provide seed of those species to cooperating commercial seed companies. The third project is to enhance 1,000 acres of grassland restoration in South Texas by providing seed of native pollinator plants for inclusion in planting mixes. Forb and legume seed, which is beneficial to pollinators, is generally higher in cost than native grass seed. Because of the higher cost it is frequently left out of the seed mix. We plan to distribute pollinator seed, free-of-charge, to those conducting plantings by working with the local NRCS field offices and commercial seed companies.

Green Roof Plant Evaluation with TAMUK

Green roofs have been found to have an assortment of building and environmental benefits. Building cooling, reducing the heat island effect, mitigating flash floods, and extending the roof membrane's lifetime are some of these benefits. The Senior Citizen Community Center, Amigos del Valle, in San Juan, Texas enlisted the help of Dr. Kim Jones of the Environmental Engineering Department of Texas A&M University-Kingsville (TAMUK) to oversee the design and installation of a green roof at their facility. This project was funded by the Clean Water Act section 319 (h) grant program to mitigate non-point source pollution in the Arroyo Colorado watershed. It was executed in parthership with TAMUK, Lower Rio Grande Valley Stormwater Taskforce and

Green roof tray installation, photo TAMUK

Green roof, photo TAMUK

the City of San Juan. Dr. Jones subsequently requested our assistance with selecting and growing the plant material.

The application of green roof technology has become more common in the central, northwestern, and eastern parts of the U.S., but there is limited information on green roofs employed in semi-tropical or semi-desert environments like southern Texas. Only a few species of plants have been found to supply vegetation on shallow unirrigated green roofs in climates that frequently experience heat stress and drought. The roof at the Amigos del Valle Community Center would be an extensive type green roof with a rooting medium less than 4 inches deep. These parameters made it very difficult to select the appropriate plant material. The PMC selected four different grasses for each 2' x 2' tray. In each quarter of the tray, one of the grasses was planted. The selected grasses were buffalograss, curly mesquite, alkali sacaton and seashore dropseed. All of these grasses are known for their tolerance to heat and drought stress. We also planted a forb in the middle of each tray in order to provide some color to the green roof and hopefully some pollinator habitat. The forbs included Runyon's huaco, red yucca, scarlet sage, Texas frogfruit, lily of the lomas, southern coastal roseling, and seaside heliotrope. The PMC provided 400 plant trays, enough to cover 1,600 square feet of roof in November 2015. We plan to monitor the survival and condition of the plant species over the coming year.

Seed Collections Needed

The PMC is seeking seed collections in 2016 including: Virginia wildrye (*Elymus virginicus*), partridge pea (*Chaemaecrista fasciculata*), Engelmann's daisy (*Engelmannia peristenia*), and swamp sunflower (*Helianthus angustifolius*). Species description sheets as well as seed collecting protocols can be found on the Texas Plant Materials Program website or contact the PMC for more information.

Swamp Sunflower, photo by Shelly Maher

About the PMC

The E. “Kika” de la Garza Plant Materials Center (PMC) is a 91-acre facility established to provide cost-effective vegetative solutions for soil and water conservation problems. This means identifying plants and developing techniques for successful conservation use. It also means assisting in the commercial development of these plants and promoting their use in natural resource conservation and other environmental programs.

The PMC was established in 1981. It is one of 25 centers located throughout the United States. The PMC is operated by the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), in cooperation with Texas A&M University-Kingsville, the Caesar Kleberg Wildlife Research Institute (CKWRI), South Texas Association of Soil & Water Conservation Districts, and the Gulf Coast Association of Soil & Water Conservation Districts. The Kika de la Garza PMC serves approximately 27 million acres of the southern portion of Texas.

Program Emphasis

The mission of the E. “Kika” de la Garza PMC is to develop and transfer plant science technology to solve natural resource problems in the South Texas area. Plant testing and plant selection as well as the development of new plant science technologies are the primary products of our program. The PMC conducts plantings and studies at the Center and off-Center with cooperating partners. The PMC works with NRCS Field Offices and Resource Conservation and Development (RC&D) groups, Conservation Districts, federal and state agencies, and private landowners.
Our current program emphasis at the PMC is in the following areas:

- Rangeland Habitat Restoration and Enhancement
- Pollinator Habitat
- Coastal Shoreline Stabilization
- Coastal Habitat Restoration and Enhancement
- Erosion Control/Water Quality Improvement on Agricultural Land
- Biofuels

Publications for FY 2015

Reilley, J. and S. Maher. Spike lovegrass Plant Guide.
Reilley, J. and S. Maher. Year 2014 progress Report of Activities.
Smith, F., A. Falk, J. Reilley and S. Maher. Carrizo Blend little bluestem Release Brochure. South Texas Natives and STPMC.
Smith, F., A. Falk, J. Reilley and S. Maher. Ramadero Germplasm spike lovegrass Release Brochure. South Texas Natives and STPMC.
Smith, F., A. Falk, J. Reilley, and S. Maher. Ramadero Germplasm spike lovegrass Release Notice. South Texas Natives and STPMC.
Smith, F., A. Falk, J. Reilley, and S. Maher. STN-176 Germplasm little bluestem Release Notice. South Texas Natives and STPMC.
Smith, F., A. Falk, J. Reilley, and S. Maher. STN-461 Germplasm little bluestem Release Notice. South Texas Natives and STPMC.

Presentations for FY 2015

Maher, S. The Pollinator Game. Zone 3 NRCS Office, Corpus Christi, TX
Reilley, J. Range Planting Considerations. Bandera County, TX
Maher, S. Research at the STPMC. Plant Materials Workshop, Fort Worth, TX
Maher, S. Pollinator Seed Releases, Texas Seed Trade Meeting, Austin, TX
Reilley J. and S. Maher. Collecting Milkweed Seed, Corpus Christi Botanical Gardens and Nature Center, Corpus Christi, TX
Maher, S. How to plant a seed. South Texas Chapter of the Native Plant Society, Kingsville, TX

Current Availability of South Texas Ecotype Releases			
Common Name	**Scientific Name**	**Available From**	**Available**
Lavaca Germplasm Canada Wildrye	*Elymus canadensis*	Turner Seed Company Douglass W. King Co.	Now
Falfurrias Germplasm Big Sacaton	*Sporobolus wrightii*	Douglass W. King Co.	Now
Kinney Germplasm False Rhodes Grass	*Trichloris crinita*	Douglass W. King Co.	Now
Catarina Blend Bristlegrass	*Setaria leucopila* & *Setaria vulpiseta*	Pogue Agri Partners Douglass W. King Co. Bamert Seed Co. Turner Seed Company	Now
Mariah Germplasm Hooded Windmillgrass	*Chloris cucullata*	Douglass W. King Co. Pogue Agri Partners	Now
Welder Germplasm Shortspike Windmillgrass	*Chloris subdolichostachya*	Douglas King Seed Co. Pogue Agri Partners	Now
Dilley Germplasm Slender Grama	*Bouteloua repens*	Douglass W. King Co. Pogue Agri Partners	Now
Chaparral Germplasm Hairy Grama	*Bouteloua hirsuta*	Douglass W. King Co. Pogue Agri Partners	Now
Atascosa Germplasm Texas Grama	*Bouteloua rigidiseta*	Douglass W. King Co. Pogue Agri Partners	Now
La Salle Germplasm Arizona Cottontop	*Digitaria californica*	Pogue Agri Partners Douglas King Seed Co. Turner Seed Company	Now
Zapata Germplasm Rio Grande Clammyweed	*Polanisia dodecandra* ssp. *riograndensis*	Douglas King Seed Co.	Now, limited
Maverick Germplasm Pink Pappusgrass	*Pappophorum bicolor*	Douglas King Seed Co. Pogue Agri Partners	Now
Webb Germplasm Whiplash Pappusgrass	*Pappophorum vaginatum*	Douglass W. King Co.	Now
Hidalgo Germplasm Multiflower False Rhodes Grass	*Trichloris pluriflora*	Douglas King Seed Co.	Now
Oso Germplasm Hall's Panicum	*Panicum hallii* var. *filipes*	Douglas King Seed Co.	Now
South Texas Germplasm Sideoats Grama	*Bouteloua curtipendula* var. *caespitosa*	Douglas King Seed Co.	Now
Rio Grande Germplasm Prairie Acacia	*Acacia angustissima* var. *hirta*	Douglas King Seed Co.	Now, limited
Venado Germplasm Awnless Bushsunflower	*Simsia calva*	Douglas King Seed Co.	Now
Balli Germplasm Prostrate Bundleflower	*Desmanthus virgatus* var. *depressus*	Douglas King Seed Co.	Now
Goliad Germplasm Orange Zexmenia	*Wedelia texana*	Douglas King Seed Co.	Now, limited
Duval Germplasm Red Lovegrass	*Eragrostis secundiflora* ssp. *oxylepis*	Douglas King Seed Co.	Now, limited
Ramadero Germplasm Spike Lovegrass	*Eragrostis spicata*	Douglas King Seed Co.	Now, limited
Nueces Germplasm Sand Dropseed	*Sporobolus cryptandrus*	Douglas King Seed Co.	Now, limited
Carrizo Blend Little Bluestem	*Schizachyrium scoparium* var. *scoparium*	Douglas King Seed Co.	Now, limited