South Texas Natives
A Collaborative Approach in Native Seed Solutions

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Problems

• Lack of commercially available native seeds and plant materials for restoration
• Increasing invasive plant encroachment on private ranches
• TxDOT: Interstate 69
• Energy reclamation
Caesar Kleberg Wildlife Research Institute

• Texas A&M University-Kingsville
• Director: Dr. Fred Bryant
• Strong and active Advisory Board
• Trust and relationship with private ranches
• Proven Record of Delivery
South Texas Natives Goal

• Initiated in 2001 as a collaborative effort between private, state and federal entities to develop and promote native plants of South Texas for restoration and reclamation of habitats on private and public lands.
Oversight and Advocacy

- Advisory Group
  - Conservation and political leaders
  - Agency advisors
  - Donors

- Technical Committee
  - Land Managers
  - Research Partners
  - Subject matter experts
  - Seed industry
Collaborators

• Private Landowners and Foundations
• USDA NRCS E. “Kika” de la Garza PMC
• Texas AgriLife Research– Beeville
• TxDOT
• Rio Farms
• Douglass King Seed Company and other cooperating industry partners
External Support

• Over 10 Million Dollars
  ▪ 50% private/50% state administered resources

• Landowner Support
  ▪ Active interest & involvement
  ▪ Demonstration plantings
  ▪ Politically & financially influential
  ▪ Seed consumers
Commercialization Process

• Seed Collections
• Evaluations
• Seed Increase
• Seed Dealers
Early Steps

• Plant Species List
  ▪ One of the first steps in formulating an ecological restoration plan

• Securing plant materials – Next Step
  ▪ Much more complex decision
    • Commercially available?
    • Multiple sources?
    • Genetically appropriate?
Regional Ecotype Approach

• A Seed Mix with Broad Genetic Base from a Similar Ecoregion which provides for On-Site Natural Selection

  ▪ Model – Iowa Ecotype Project (Ecol. Rest. 2000)
  ▪ Study on Genetic Variation in Blue Wildryes in California (Knapp, 1996)
Geographic Divisions

EPA -III vs. Ecoregions

Ecoregions of Texas

South Texas Ecoregions

- OAKWOODS & PRAIRIES
- BLACKLAND PRAIRIES
- GULF COAST PRAIRIES & MARSHES
- COASTAL SAND PLAIN
- RIO GRANDE PLAIN
- EDWARDS PLATEAU
- TRANS PECOS
Seed Collections

• South Texas Natives
  ▪ Brought in over 1,700 collections within the first couple of years.
Evaluations - Nursery Plantings

• Accession Selection:
  ▪ 50 plant groupings of each accession
  ▪ 1-2 replications per site
  ▪ Multiple sites, 3-4
  ▪ Multiple years, 2-3

• Factors:
  • Survival, Regrowth, Vigor, Foliage Density, Uniformity, Resistance, Development stage, Seed shatter, Origin
  • Quantitative: Seed Yield & Seed Germination
Evaluations

• Field Plantings
Seed Increase

• Seed Harvested from Selected Accessions in the Nursery Evaluation plots
• Planted in Production Fields for Mechanical Harvesting
Commercial Seed Production

• Seed Released to Growers
• Minimum – enough to establish at least a 5 acre field.
Example: Orange Zexmenia

- 42 accessions collected
- 3 Evaluation Sites/Years Evaluated
  - PMC Kingsville/1994-2003
  - TAMU Uvalde/2005-2006
Example: Orange Zexmenia

• 8 Accessions Chosen
  ▪ From across the Rio Grande Plain
    • 4 top performers on a clay site
      ▪ Root rot resistance
    • 4 top performers on a sandy site

• Commercial Availability
  ▪ 500# PLS
Example: Catarina Bristlegrass Blend

• 130 Accessions Collected

• 3 Evaluation Sites/Years Evaluated
  ▪ PMC Kingsville/1984-2004
  ▪ TARS-Beeville/2003-2005
  ▪ PMC Knox City/2003-2005
Example: Catarina Bristlegrass Blend

- *Seteria leucopila & Seteria vulpiseta*
  - A blend of 4 accessions, 2 species
  - 2 high active germination, but lower seed production
  - 2 high seed producers, but very high dormancy (<2% active germination)

- Commercial Availability
  - Over 100 acres in Production
  - 10,000#PLS
Accomplishments

• In 2007, 7 species were co-released to the commercial seed trade

• In 2011, Seed Companies were producing 2,400 lbs of seed from 18 species
Accomplishments

• By 2014, 25 STN cooperative releases were producing over 47,000 lbs of seed per year worth over $1.5 million

• Production from 2011-2016 has ranged 30,000-55,000 lbs PLS/year

• Adapted native seeds are today available for planting annually 20-30,000 acres
Accomplishments

• Popular & Scientific Articles
• YouTube Videos
• Restoration Manual
• Website
Accomplishments

• In 2014, TxDOT changed its South Texas species list to 100% native

• Based on the success of STN, a statewide initiative called Texas Native Seeds was launched
  ▪ Seeding specifications changed throughout the state based on research results
    • Many PMC Program releases incorporated
Accomplishments

• Energy Reclamation
• Active role with industry and landowners: Eagle Ford Shale
• Published research results
  ▪ Pad site reclamation
  ▪ Pipeline reseeding
• Assist with recommendations
  ▪ wind, solar, oil and gas, uranium
  ▪ Pipeline and electric rows
Example of Impacts: STN Assisted Projects

Consultation on ~200 projects per year.
South Texas Natives Critical Points:

• Active Involvement of Stakeholders
• Stated Goals & Measureable Objectives
• Strong Oversight and Focus of Project Operations to Ensure Delivery of Seed to Consumers
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