



Ecotypic Seed for Restoration Efforts in the Coastal Prairies Region of Texas

Douglas L. Jobes¹, Forrest S. Smith², Keith A. Pawelek³, Tony D. Falk⁴, Aaron D. Tjelmeland⁵, and Garry S. Stephens⁶

1 Assistant Director, CPNSP-TNS, CKWRI Texas A&M University, Kingsville, Texas 78363, USA;

2 Dan L Duncan Endowed Director- TNS, CKWRI, TAMUK, MSC 218, 700 University Blvd., Kingsville, Texas 78363;

3 Associate Director, TNS, CKWRI, TAMUK, MSC 218, 700 University Blvd., Kingsville, Texas 78363;

4 Assistant Director, TNS-CKWRI, Texas A&M University-Kingsville (TAMUK), MSC 218, 700 University Blvd., Kingsville, Texas 78363;

5 Upper Coast Project Director, The Nature Conservancy, Texas City Prairie Preserve, Texas City, Texas

6 Director, Wildlife Habitat Federation, Cat Spring, Texas

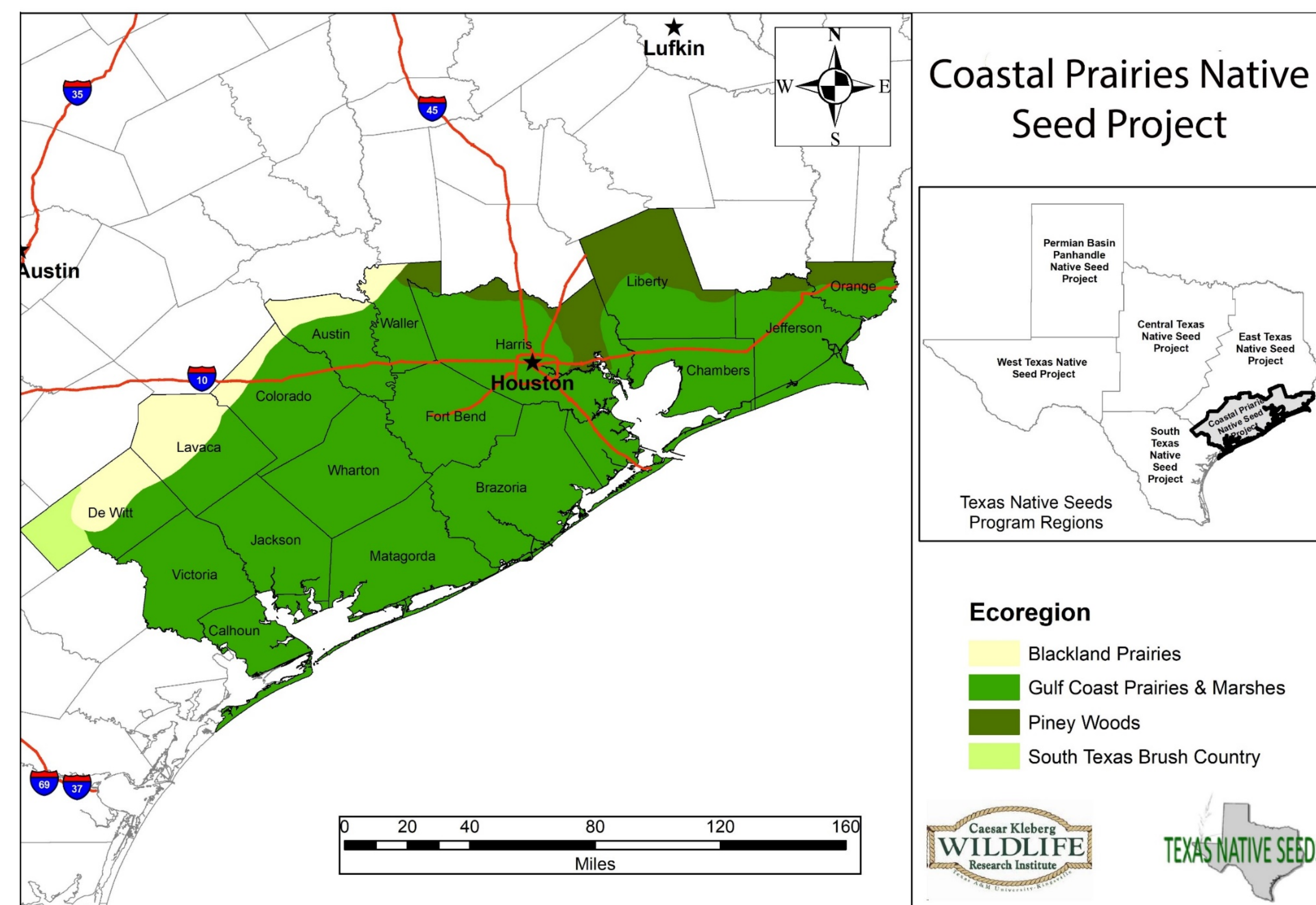


ABSTRACT

Commercially available native seed has become an increasingly popular choice for restoration and reclamation projects throughout the Coastal Prairies ecoregion of Texas. The Texas Native Seeds Program (TNS) Coastal Prairies Project (CPNSP) is a collaborative effort designed to develop ecotypic native seed supply for use in large-scale restoration and reclamation projects. The focus of the Coastal Prairies Project is collecting native seed germplasm, identifying suitable restoration populations of prairie and grassland species, and increasing and licensing these seed selections for commercial seed production. Currently, seed source evaluations for Little bluestem (*Schizachyrium scoparium*) and Knotroot bristlegrass (*Seteria parviflora*) are being conducted at two sites within the region, Texas City and Cat Spring. In 2019, evaluations of Indiangrass and silver bluestem will be initiative. With the development of locally adapted seed, TNS's Coastal Prairies Project will provide readily available, high quality seed sources for land managers and natural resource professionals interested in restoring native grasslands in this region.

Introduction

Texas Native Seeds officially expanded its reach into the coastal region of Texas in 2018, by launching the *Coastal Prairies Native Seed Project (CPNSP)*. This area of Texas is unique because of its history of large scale agriculture production, historic wide expanses of prairies, and the current growth and expansion of metropolitan areas. While we recognize the vitality of such economic growth and sustainability, urban sprawl and subsequent habitat fragmentation is quickly becoming one of the biggest threats to wildlife and native ecosystems in the region. The *CPNSP* is focused on following the model and successes of the *South Texas Natives Project* to develop regionally adapted and commercially available native seed for restoration and reclamation efforts in the region. We believe that ecotypic seed will be an important part of the region's future, and vital to minimizing the habitat loss in the Coastal Prairies region. It is also our goal to foster and grow support for the project and native plant conservation through outreach, demonstration, and research.



METHODS

Prairie remnant sites are identified and accessed for collection of native seed across the 18 county Coastal Prairies and Marshes eco-region. Sources include private ranches, county roads, railroad railways as well as public lands throughout the region. Collections are recorded in the TNS database and sent to USDA-NRCS Plant Material Centers for long-term cold storage. Once a regionally representative sample of collections are made, populations are removed from storage and germinated in a greenhouse setting until seedlings are large enough to be transferred into field evaluation locations. Evaluation sites are selected within the region to best represent soil and climatic conditions therein. The Wildlife Habitat Federation-Cat Spring, TX location is a sandy loam soil with gently rolling topography and a history of row crop agriculture. The Nature Conservancy- Texas City, TX location is indicative of clay soils on coastal upland flats in close proximity to saline marshes and bays that have been historically utilized for livestock production. Plants are set at each location and watered for the first growing season with irrigation. During this time plants are monitored and evaluated each month for morphologic and phenotypic characteristics such as seed production, plant height and canopy coverage. Once seed is made it is collected from each original source and tested in the lab for germination. The second and subsequent years of evaluation includes the same observations, only the plants are not artificially watered.

Implications

Within the greater-Houston area particularly, native habitat disturbance is on the rise. Historically, the entire Texas Gulf Coast was home to prairies and marshes that provided habitat for diverse native wildlife from waterfowl to upland gamebirds. Urbanization of this region has led to increasing populations of invasive exotic species such as Old World bluestems, bahiagrass, and bermudagrass. These species choke out native plant communities at a startling rate and if left unchecked will replace diverse native plant communities with dense monotypic stands of grass that have little to no value for native wildlife.



Discussion

A cornerstone of restoration for disturbed or displaced native habitats is cost-effective, commercially available native seed sources, available in large quantities to meet the scope of need in the region. Typical uses include to provide alternatives to non-native plants in urban horticulture. to prevent erosion on roadsides, reduce mowing costs, and protect and compliment biodiversity of the surrounding private lands. to increase and improve wildlife habitat, and to provide habitat for native pollinators and grassland bird species. to enhance and sustain our public and private lands. to help prevent invasive species from dominating disturbed sites.

Acknowledgments

Caesar Kleberg Wildlife Research Institute
Wildlife Habitat Federation
The Nature Conservancy
Lavaca Navidad River Authority
The Harvey Weil Sportsman Conservationist Award Trust
Private Donors