



E. "Kika" de la Garza Plant Materials Center

Evaluation of Three Endemic Plants of the Refugio-Goliad Prairies

Threeflower Broomweed



Plains Gumweed



Progress Report December 2007



Texas Peach Bush



Evaluation of Three Endemic Plants of the Refugio-Goliad Prairies *James E. Pittman III, John Lloyd-Reilley and Timothy E. Fulbright.*

The Coastal Prairie Conservation Initiative (CPCI) is a partnership between the Grazing Lands Conservation Initiative (GLCI), the U.S. Fish and Wildlife Service (USFWS), Texas Parks and Wildlife Department (TPWD), the Natural Resources Conservation Service (NRCS), the Nature Conservancy (TNC) and private landowners formed to restore habitat in the Refugio-Goliad prairies. The efforts of the CPCI are focused on improving habitat for the release of Attwater's prairie chicken (*Tympanuchus cupido attwateri*). Additional effort is also being generated on understanding two endemic forbs of the Texas coastal prairie, plains gumweed (*Grindelia oolepis*) and threeflower broomweed (*Thurovia triflora*), and one endemic shrub, Texas peach bush (*Prunus texana*). The purpose of this study is to collect data pertaining to the taxonomy, morphology, habitat and reproductive biology of these three plant species in order to aid in the restoration, stabilization and maintenance of their populations.

Texas peach bush is endemic to the Rio Grande Plains and Edwards Plateau where it may grow in poor or disturbed soil. It is a dwarf, bushy shrub having very irregular branches and greyish bark. It grows to a height of three feet and a width of two- to four-feet. Young branches are light grey and conspicuously covered with short, stiff hairs. Texas peach bush opens its white or pink blossoms just before unfolding its leaves in spring. Its edible, peach-like fruits ripen in June and are reported to make excellent preserves.

Two separate collections were harvested of Texas peach bush on the Vidaurri Ranch in late April and on into May. Eighteen seeds were collected on April 26, 2007, and 22 seeds were collected on May 16, 2007. The total for the year was 40 seeds harvested weighing 9.62 grams. Calculations estimate that Texas peach bush produces roughly 1,888 seeds per pound.

On May 18, 2007, 12 seeds of Texas peach bush were planted at the PMC greenhouse in Kingsville. Three seeds germinated in August but only two survived. As of December 17, 2007 one is 8.7 cm tall and the other is 18.5 cm tall. They are currently in one gallon containers in a medium of two parts planting mix and one part sand. A second planting occurred with 30 seeds on December 14, 2007.

Plains gumweed is a rhizomatous perennial forming small clumps. Its stems are no more than one foot tall, with alternate leaves that are narrowly oblanceolate and sparingly toothed. The flower heads are solitary at the tips of the stems and are $\frac{3}{4}$ inch wide or less. The flower heads are not as resinous as those of other gumweeds. It seems to occur mostly in ephemeral wet spots in coastal prairies on clayey soils. It is endemic to the Texas Gulf Coastal Plain in Bee, Cameron, Jim Wells, Nueces, Refugio, and San Patricio counties. Plains gumweed is on the Texas watch list for rare and endangered species.

Plains gumweed was harvested from one site on the Vidaurri Ranch from October 26 through December 13, 2007. The total harvest for the year was 133 seeds weighing

0.2623 grams. Calculations estimate that plains gumweed produces 230, 202 seeds per pound.

Threeflower broomweed (*Thurovia triflora*) is an annual that bears little resemblance to other broomweeds of the region, neither in stature nor flower color. It is tiny, seldom more than 4 or 5 inches tall, and has small white flower-heads. The other local broomweed species (*Gutierrezia texana* and *Amphiachyris dracunculoides*) are generally at least a foot tall and bear larger yellow flower heads. It also differs in habitat. Unlike the others, which are weedy generalists that increase under heavier grazing regimes, threeflower broomweed tends to be restricted to slightly saline or sodic soils that occur in small patches within a nonsaline soil matrix. It has been reported from about 30 places in Aransas, Brazoria, Calhoun, Galveston, Harris, Jackson, Matagorda, Refugio, San Patricio, and Waller counties. Threeflower broomweed is an endemic species that has limited populations (21-100) and thus makes the species vulnerable to depletion and loss.

Threeflower broomweed was harvested from one site on the Vidaurri Ranch from November 15 through December 13, 2007. The total harvest for the year was 543 seeds weighing 0.3338 grams. Calculations estimate that threeflower broomweed produces 738, 532 seeds per pound.

Shanna Dunn, NRCS soil scientist for the Corpus Christi region, visited the project site on November 29, 2007. She used an EM-38, electro-magnetic device, to determine the soil salinity from our plant harvest sites. The plains gumweed sites ranged from 0.4 to 1.2 EC levels at the surface and 0.5 to 1.4 EC levels at around 6 inches below the surface. In general, these sites are only slightly saline. This may be partly due to the high rainfall that occurred at this site temporarily leaching the salts.

At the threeflower broomweed harvest site, the surface reading indicated an EC of just 2.0. However, the subsurface had a reading of 7.3 with a SAR of 64, indicating a high salinity level. For reference, bermudagrass (*Cynodon dactylon*) is considered a salt tolerant species. Its threshold for 50% survival is at an EC level of 6.9.

Plans for next year include performing germination trials on the harvested seed and attempting to establish seed increase rows of these species at the PMC. We also plan to find at least two additional field sites for each of the species from which to harvest seed.

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