

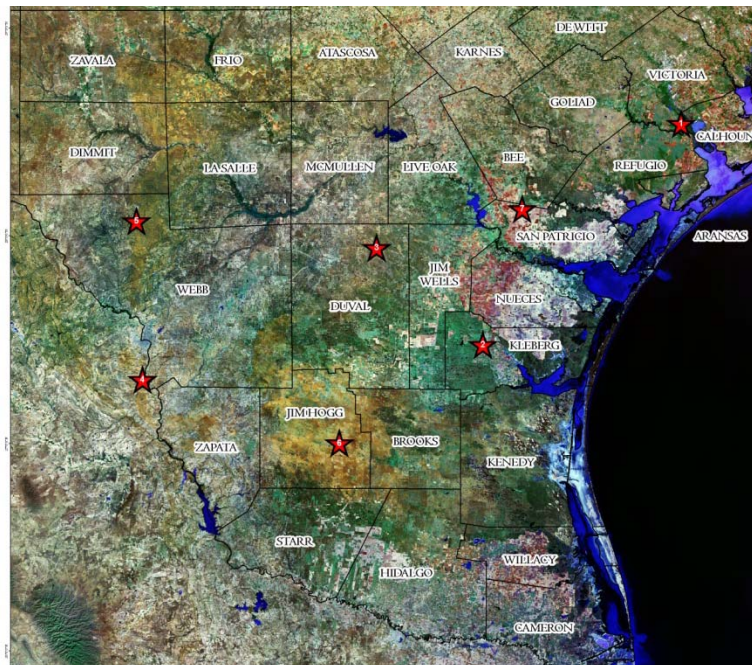


## *South Texas Natives*

### **Rangeland Demonstration Planting Project Progress Report January-July 2009**

#### ***Introduction***

Drought, drought, drought best describes this project since the last report. Rainfall amounts at all locations of the Demonstration project have been well below average over the last six months. Persistence of seedlings that emerged at the first four planting sites (which received adequate rainfall last fall) has been excellent, despite this. Scattered emergence has been seen at three other plantings initiated in late fall 2008 (2) and spring 2009 (1). The spring 2009 planting was near McFaddin, Texas at the Womack Ranch. The Coastal Prairies Coalition of the Grazing Lands Conservation Initiative and the Victoria Soil and Water Conservation District were instrumental in providing funding for startup of this planting. In late summer 2009 we will plant the eighth site for the project near Carrizo Springs. Two additional sites (Lower Rio Grande Valley and in the NW area of south Texas) are still being sought. This summer, we also received news that Texas Agrilife Research was committing funds toward sampling and evaluation of this project. We welcome their involvement!



**Figure 1.** STN Demonstration Project planting sites as of July 31, 2009.

*Progress by site, January-July 2009*

**Womack Ranch**

- Planted February 19, 2009
- Initial monitoring & photo points May 11, 2009
- Full sampling & photo points June 18, 2009



**Figure 2.** STN student workers Leanne Willey (L) and Lauren Bales (R) sample the planting at Womack Ranch on June 18, 2009. Native annual forbs were the principle vegetation encountered, rainfall was <2.5”, resulting in poor emergence of the seed mix to date.



**Figure 3.** Womack Ranch planting on May 11(L) and June 18 (R), 2009. Rio Grande clammyweed and slender grama were the only planted species encountered in this planting to date.

### Thompson Ranch

- Full sampling and photo points May 26, 2009
- Full sampling and photo points July 14, 2009
- Demonstrated planting site to visitors from PMC Program (3), Sul Ross State University (1), seed dealer (1), and TxDOT (2).



**Figure 4.** Thompson Ranch photo point on September 25, 2008 (top L), October 14, 2008 (top R), November 20, 2008 (bottom L), and May 26, 2009 (bottom R). Native planted species comprise <1, 20, 45, and >60% canopy cover at each sampling date respectively.

### Rancho Blanco

- Full sampling and photo points June 22, 2009



**Figure 5.** Despite good soil moisture at planting (L), drought has limited emergence to date (R) at the Rancho Blanco planting site, however several species have been observed.

### **Killam Tynan Ranch**

- Full sampling and photo points June 18, 2009



**Figure 6.** Slender grama, plains bristlegrass, Rio Grande clammyweed and orange zexmenia have been documented as establishing in this planting to date. Bermudagrass and Kleberg bluestem have already re-established on the planting site despite drought conditions.

### **Las Cuatas Ranch**

- Full sampling and photo points June 23, 2009



**Figure 7.** Dilley Germplasm slender grama has provided excellent vegetative cover on this loamy fine sand range site.

### **Cactus Jack Ranch**

- Full sampling and photo points March 9, 2009
- Full sampling and photo points June 22, 2009



**Figure 8.** Cactus Jack Ranch planting demonstrating little vegetative growth, March 9(L)-June 22 (R), 2009 during drought conditions.

### **Temple Ranch**

- Photo points March 6, 2009
- Full sampling and photo points June 23, 2009



**Figure 9.** Temple Ranch planting on March 6 following winter drought (L), and on June 23 (R) following significant rainfall and recovery.

### ***Results***

Table 1 gives relative performance ratings for each species planted in the project. Ratings given are excellent, good, fair, and poor in terms of emergence and in persistence <1 year from planting. This table provides an early indication of suitability of species for each site. This should be a useful reference for selecting seed mixes for plantings on similar areas. We will update and revise the table throughout the project as data is collected.



Table 2 presents percent basal cover of planted vegetation, bare ground, litter, volunteer natives, and exotic grasses at each site from the fall 2008 and summer 2009 samplings. Percent change in each category between sampling dates is given if available.

Table 3 graphs change in average percent cover of each plant category across all sites from fall 2008 to summer 2009. Overall trend in vegetation composition is encouraging, especially the rate of increase of seeded natives vs. exotic grasses up to this point.

### ***Observations***

Grazing pressure from rodents, rabbits, and other wildlife appears to be extremely high on many of the plantings, especially in areas where monocultures of exotic grasses surround the site. Larger plantings in future projects should alleviate this concern, but our observations indicate this may be having an under-appreciated effect on vegetation composition. Competition with exotic grasses is being carefully monitored in order to identify maintenance treatment recommendations for landowners. So far, most of the plantings have competed well with exotic grasses that are present, and up to this point we could recommend very few management practices that would favor natives over exotics. Averaged across all sites, native seeded species are increasing at a slightly higher rate than exotic grasses. Below normal precipitation may be the source of the native species good competitive ability to date; many exotic grasses respond more quickly to large rainfall events. Once significant rainfall occurs we will carefully monitor this interaction and add to Table 3 as time goes on.

This fall and winter we will also be evaluating the re-emergence of the annual warm and cool season forbs (clammyweed, tallow weeds, and deer pea vetch). Volunteer establishment of these plants in subsequent years is an important consideration for determining their suitability to a site. Perennial native grass establishment will also be monitored closely. Many past studies have documented slow establishment of native perennial grasses, but we've seen very good establishment in the first year at several plantings. The long-term persistence of early successional grasses like slender grama and shortspike windmillgrass will also be monitored. So far, these plantings show that site preparation is probably the most important consideration in reseeding native vegetation in south Texas. Extensive seedbed preparation at the Temple Ranch and Thompson Ranch plantings has resulted in native plant cover exceeding 50% in 10 months time, during drought conditions.

### ***Remaining 2009 Work Plan***

- August-Sept.- Plant sites near Carrizo Springs, Lower Rio Grande Valley, and NW portion of south Texas
- Sept-Oct.-conduct full sampling and take photo point pictures at all locations
- Continue to utilize demonstration plantings as needed by landowners, agency personnel and other scientists as requested, begin plans for 2010 field days

**Table 1.** Seeded native species emergence and persistence ratings at *South Texas Natives* Demonstration Project plantings through July 31, 2009. Data presented is <1 year after drill planting. Most plantings have had well below average rainfall during this period.

Site name	Thompson Ranch		Womack Ranch		Rancho Blanco		Cactus Jack Ranch		Temple Ranch		Las Cuatas Ranch		Tynan Ranch	
County	Kleberg		Victoria		Webb		Webb		Duval		Jim Hogg		San Patricio	
Soil texture	Sandy clay loam		Loamy fine sand		Silty loam		Fine sandy loam		Sandy clay loam		Loamy fine sand		Clay	
Performance rating	Emerg.	<1 yr. pers.	Emerg.	<1 yr. pers.	Emerg.	<1 yr. pers.	Emerg.	<1 yr. pers.	Emerg.	<1 yr. pers.	Emerg.	<1 yr. pers.	Emerg.	<1 yr. pers.
<b>Dilley Germplasm slender grama</b>	Exc.	Exc.	Fair	Fair	Good	Good	Exc.	Exc.	Exc.	Exc.	Exc.	Exc.	Fair	Fair
<b>Welder Germplasm shortspike windmillgrass</b>	Exc.	Ex.	Poor	Poor	Good	Good	Fair	Good	Exc.	Exc.	Fair	Good	Poor	Poor
<b>Kinney Germplasm false rhodesgrass</b>	Good	Good	Poor	Poor	Fair	Fair	Poor	Poor	Good	Fair	Poor	Poor	Poor	Poor
<b>Catarina Bristlegrass Blend</b>	Exc.	Exc.	Poor	Poor	Fair	Fair	Good	Exc.	Exc.	Good	Fair	Fair	Fair	Fair
<b>La Salle Germplasm Arizona cottontop</b>	Exc.	Exc.	Poor	Poor	Good	Good	Exc.	Good	Exc.	Good	Good	Fair	Fair	Fair
<b>BeeRich Germplasm deer pea vetch</b>	Exc.	N/A	N/A	N/A	Poor	Poor	Poor	N/A	Fair	N/A	Poor	N/A	Poor	Poor
<b>Zapata Germplasm Rio Grande clammyweed</b>	Exc.	Good	Fair	Fair	Fair	Fair	Exc.	Good	Exc.	Good	Good	Fair	Good	Good
<b>STN-496 Germplasm redseed plantain</b>	Good	N/A	N/A	N/A	Poor	Poor	Poor	N/A	Fair	N/A	Poor	N/A	Poor	Poor
<b>STN-561 Germplasm hookers plantain</b>	Good	N/A	N/A	N/A	Poor	Poor	Poor	N/A	Poor	N/A	Exc.	N/A	Poor	Poor
<b>Goliad Germplasm orange zexmenia</b>	Exc.	Good	Poor	Poor	Fair	Poor	Fair	Fair	Fair	Good	Good	Fair	Good	Good
<b>PMC experimental prairie acacia</b>	Exc.	Good	Poor	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Fair	Fair	Poor	Poor

**Table 2.** Percent cover of seeded natives, exotic grasses, volunteer natives and bare ground/litter at Demonstration Planting Project sites established in fall 2008. Percent change in cover of each category from fall-summer sampling is highlighted.

Site	Date	Seeded natives	Exotic grasses	Volunteer natives	Bare ground/litter
Tynan Ranch	Fall 2008	4.33	1.67	12.33	73.67
	Summer 2009	5.33	31.66	41.99	19.00
	% change +/-	+1.00	+29.99	+29.66	-54.67
Las Cuatas Ranch	Fall 2008	25.00	4.33	51.99	16.67
	Summer 2009	27.66	9.67	33.31	33.67
	% change +/-	+2.66	+5.34	-18.68	+17.00
Temple Ranch 1	Fall 2008	43.00	0.00	6.00	41.33
	Summer 2009	65.66	0.33	3.99	30.00
	% change +/-	+22.66	+0.33	-2.01	-11.33
Temple Ranch 2	Fall 2008	17.67	2.66	21.67	13.67
	Summer 2009	48.00	2.67	2.65	43.67
	% change +/-	+30.33	+0.01	-19.02	+30.00
Cactus Jack 1	Fall 2008	37.00	32.00	8.33	21.67
	Summer 2009	24.99	27.99	8.33	35.66
	% change +/-	-12.01	-4.01	+0.00	+13.99
Cactus Jack 2	Fall 2008	37.00	16.00	36.97	9.33
	Summer 2009	42.33	11.99	7.31	39.00
	% change +/-	+5.33	-4.01	-29.66	+29.67
Thompson Ranch	Fall 2008	65.33	0.00	23.33	10.00
	Summer 2009	82.00	0.00	11.67	6.33
	% change +/-	+16.67	+0.00	-11.66	-3.67



**Table 3.** Change in average percent cover by plant category from fall 2008-summer 2009, of plantings made in fall 2008. Seeded native plants have increased more rapidly than exotic species to date. Volunteer native plants (early successional species) have declined as time increases since soil disturbance, as expected.

