



Rangeland Demonstration Planting Project

December 2010

Figure 1. Cactus Jack Ranch planting November 2009 (l) and November 2010 (r). Native grasses increased and exotic grasses decreased over this time period at this site.

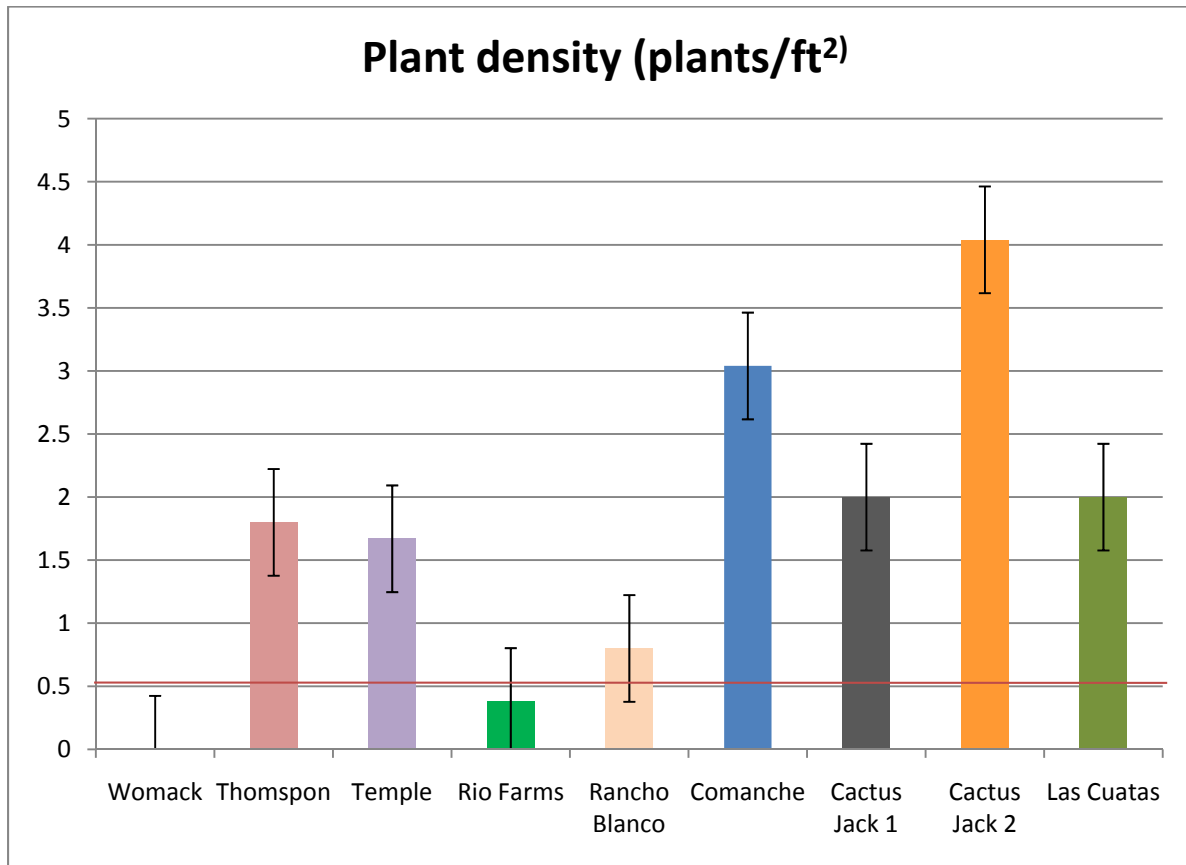


Measuring success

Sampling this fall represented 2 years post-seeding of many sites. This is an important point at which to quantify performance of the plantings since this is the time at which many conservation plantings are evaluated by accepted standards. Figure 2 gives the seeded-plant density of each site determined in the fall sampling. While plant density has decreased on many sites, vegetative cover of seeded plants has remained constant or increased. On other sites, (ex. Cactus Jack Ranch Figure 1 above) native seeded-plant density increased significantly between fall 2009 and 2010. Seven plantings have had acceptable or better performance, and 2 plantings have had relatively poor performance. The Rio Farms planting exhibited some improvement since the summer sampling and shows signs of establishment. The the Womack Ranch planting remained

poor, with few observed seedlings or plants of the species we seeded. Overall, performance of the plantings is very encouraging. A 77% success rate for range seedings is very good.

Figure 2. Plant density of seeded native plants, fall 2010. Red line denotes threshold for “satisfactory seeding” rating according to USDA NRCS standards for range plantings.



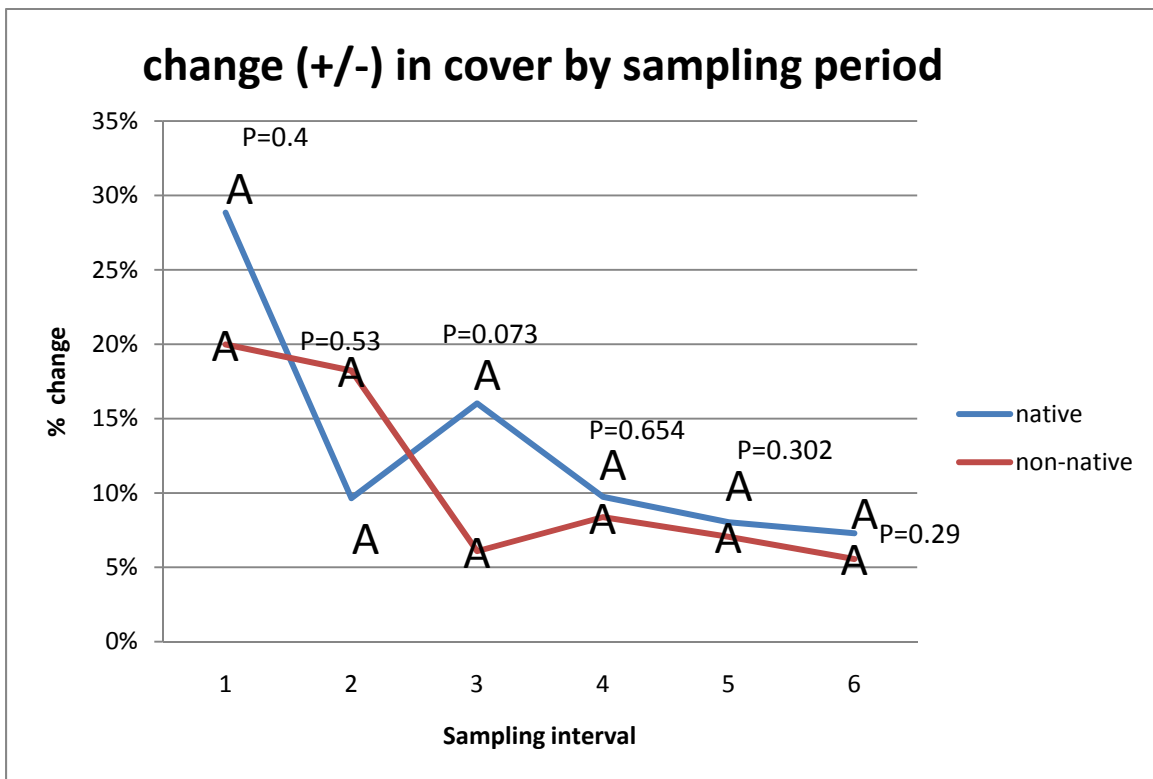
Exotic grasses out-compete reseeded natives, or do they?

Exotic grasses are present at all of the planting sites, and at every potential restoration site in South Texas. Buffelgrass, bermudagrass, old world bluestems, Lehman lovegrass, Johnsongrass, Kleingrass, natal grass, and guineagrass are some of those we have documented on the planted plots. One of the most frequently asked questions regarding planting native seed is: “will reseeded native plants compete with exotic grasses?” The consensus is that exotic grasses generally outcompete native species in restoration seedings, and eventually dominate the planting site. That conclusion is based on years of planting poorly adapted native seeds and observing that the natives typically died within 2 years post-planting, if they established at all. Once native species declined, the site was typically dominated by exotic grasses. This project has given us the opportunity to evaluate local seed sources that result in plants that persist in this context.

So far, the data collected on this series of demonstration plantings **does not** support the notion that exotic grass cover changes independently of cover of reseeded native plants on restoration sites (Figure 3). There has been no statistical difference in the change in cover of seeded native plants and exotic grasses between any sampling dates in these plantings. Exotic grasses will be part of the vegetation on restoration sites in South Texas, but our data indicates native plants increase or decrease at similar rates as exotics. The drought we experienced in 2009 had somewhat greater impact on seeded natives in comparison to exotic grasses during the same time period. But, our data also indicated stronger recovery of seeded natives following the drought.

Basically, we think the proportion of native and exotic seeds in the seedbank immediately after planting is in some regards what you will end up with. Exotic grasses have not increased or invaded these sites dramatically in 2 years. The bottom line is that if you want to reseed and establish natives, site preparation to reduce exotic grass seed to potentially establish on day 1 after planting on your restoration site will dictate success. More native seeds need to be present to establish on the site than exotic grass seeds if you want native plants to dominate the site. The data also indicate that as time since disturbance and planting passes, less change in cover of either native or exotic plants occurs.

Figure 3. Change in seeded native and non-native plant cover across sampling periods at all sites. The change in cover of seeded native and non-native plants from one sampling date (6 intervals) to another was not statistically different at any sampling period.



The big picture

To conclude, one of the simplest measures of success can be found by looking at what is growing on all the sites as a whole. Bottom line, more area is covered by native seeded plants than exotics grasses or bare ground. Whether our goal is preventing soil erosion, site stabilization after disturbance, diversifying exotic grass monocultures, or wildlife habitat restoration, this is a positive. We think this indicates a very positive impact of seeding locally adapted native plants on a broad diversity of South Texas rangelands sites for a variety of purposes.

Figure 4. Cover across all planting sites fall 2008-fall 2010. Notice effects of 2008-2009 drought on native plant cover between December 2008 and August 2009.

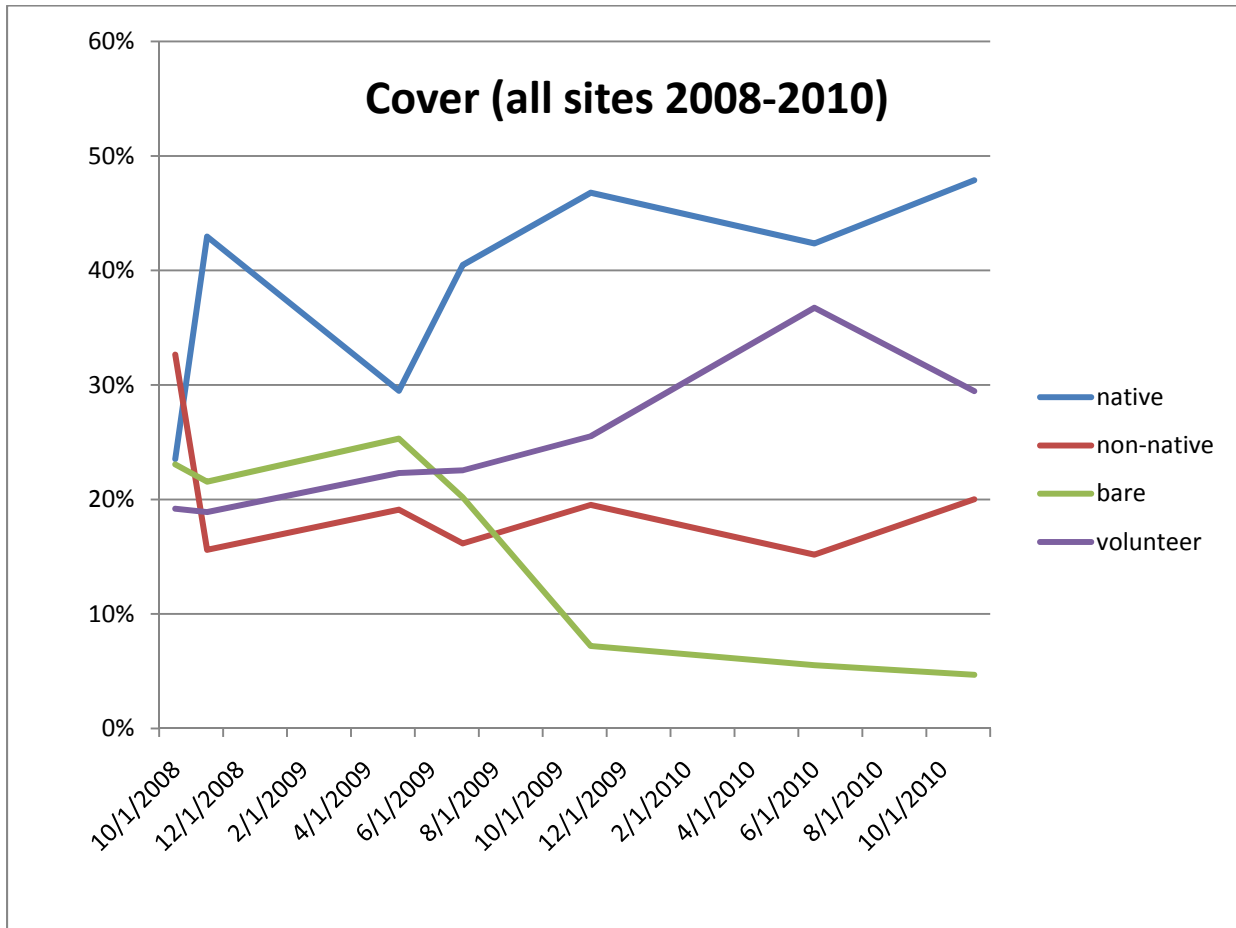


Figure 5. Planting the latest demonstration plot at Greg Smith's ranch near Premont, October 2010.

