

BEMP Vegetation 2010
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As I start to write I can only think of the life that Cliff Crawford shared so graciously with those he encountered. I could write for pages about Cliff but I'll leave it to each of us that knew him to keep his bright spirit alive and impart his sense of wonder to others as best we can. Long may he be a source of curiosity and courage to live and share more fully.

New or Infrequent Plants Collected in 2010

Very few new or intermittent species were encountered this year. This may reflect the lack of consistent rains during the monsoon season.

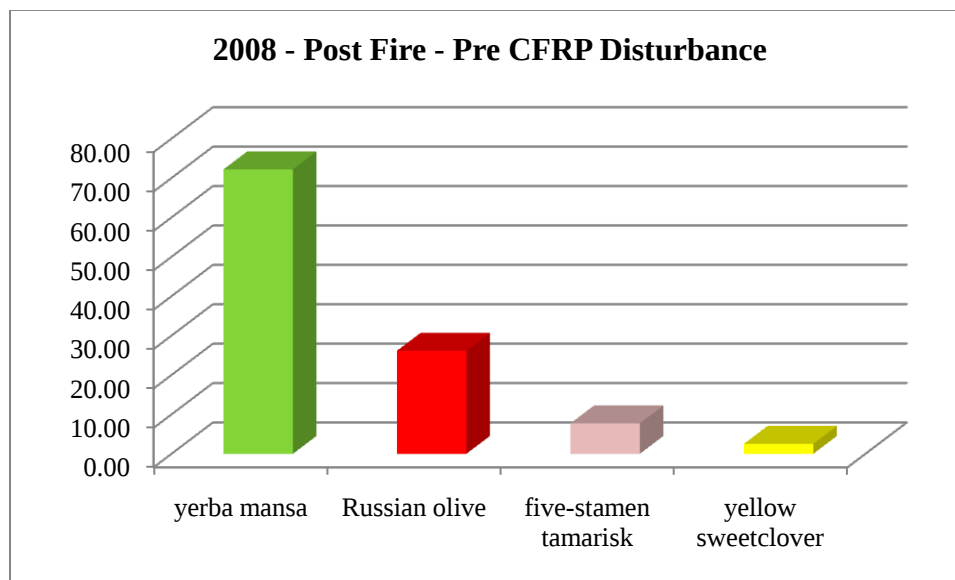
No.	Scientific Name	Common name	PD_Acro	Location	Notes
1	<i>Erigeron bellidiastrum</i>	western daisy fleabane	ERBE2	Kewa	comes and goes with the rain
3	<i>Euphorbia davidii</i>	David's spurge	EUDA5	Kewa	
4	<i>Muhlenbergia mexicana</i>	Mexican muhly	MUME2	Diversion	
5	<i>Solidago velutina</i> ssp. <i>sparsiflora</i>	threenerve goldenrod	SOVE6	Kewa	
2	<i>Viguiera dentata</i>	toothleaf goldeneye	VIDE3	Kewa	

Monitoring Continued Changes at the Crawford site following Fire and implementation of the CFRP

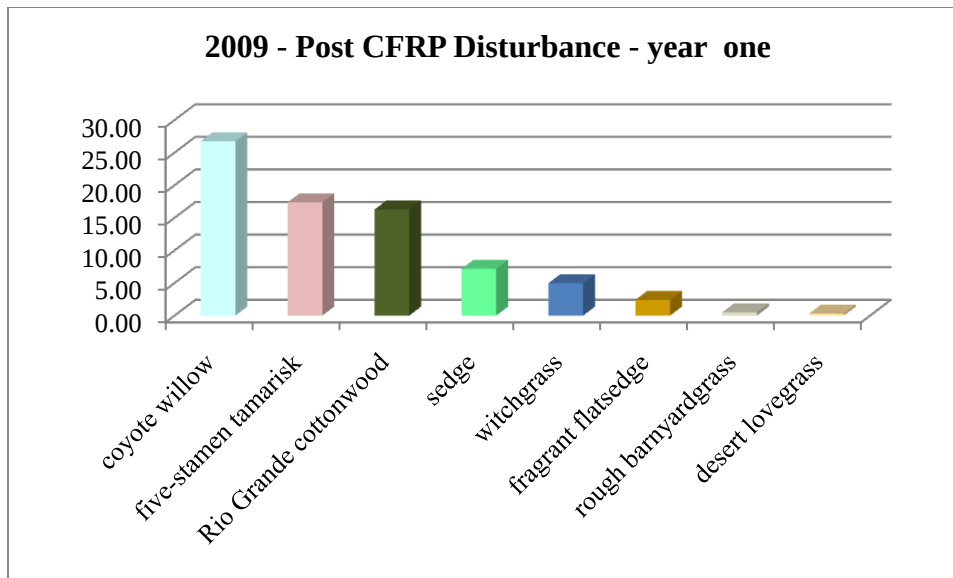


This year we completed the third year of monitoring of the Crawford BEMP site. In past reports we've noted changes based on field observations and continue to watch as the vegetation shifts. Now that we've recorded a few years of data it seems appropriate to attempt to illustrate what's gone on. In 2006 the area we now refer to as the Crawford site had a mature cottonwood river terrace community. In February of 2007 all of the mature cottonwoods in the area were mortally wounded or killed by fire in the bosque.

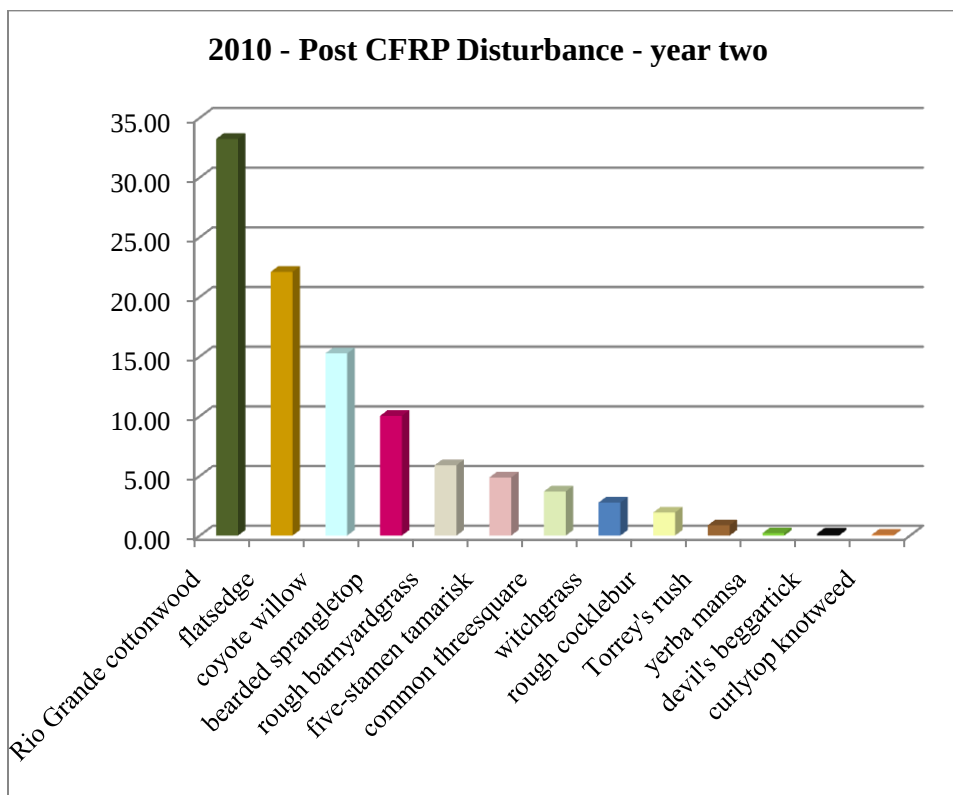
This major disturbance completely eliminated the forest canopy and set the stage for dramatic shifts in the vegetation. Additional changes to the area took place with the implementation of the CFRP which created a new channel and lowered the level of the surface soils on transects A through F. This area has shifted in response to the altered canopy and hydrology in ways that are best represented by examining the gross vegetation shifts that have taken place. For the sake of simplicity I focused on transect E changes over the past three years for this analysis (similar differences are apparent if you compare the A-F data to the G-J data since the G-J terrace was unaltered by the CFRP). We've moved from a relatively stable post-fire area dominated by few species (Graph 1), primarily yerba mansa, to an early seral state represented by more species (Graphs 2 & 3). The shifting species composition and relative abundance is interesting to watch. Continued monitoring of this area should result in a better understanding of ecological shifts along the Rio Grande in response to competition and access to sunlight, and ground and surface water.



Graph 1. Crawford Site, Line I, species vs. percent cover. Few species with relatively high cover values.



Graph 2. Crawford Site, Line I, species vs. percent cover. Increased species diversity with lower cover values.



Graph 3. Crawford Site, Line I, species vs. percent cover. Continued increases in species diversity. Increased cottonwood and decreased tamarisk cover are notable changes. Yerba mansa, dominant in 2008, has returned in low abundance.

Insect Diversity and Abundance

This past growing season was a remarkable time to observe the relative abundance and diversity of insects in the bosque. Of particular note were perceived increases in Odonates (dragonflies and damselflies) and Lepidopterans (butterflies and moths). A variety of host trees and shrubs throughout the bosque were adorned with numerous bagworm moth bags; while common other years they seemed particularly abundant this year.

While the vegetation crew doesn't gather arthropod data it would be interesting to see if our anecdotal and photographic observations of abundance and diversity were paralleled in observed peaks in the 2010 pitfall data. Here are some of the species observed:





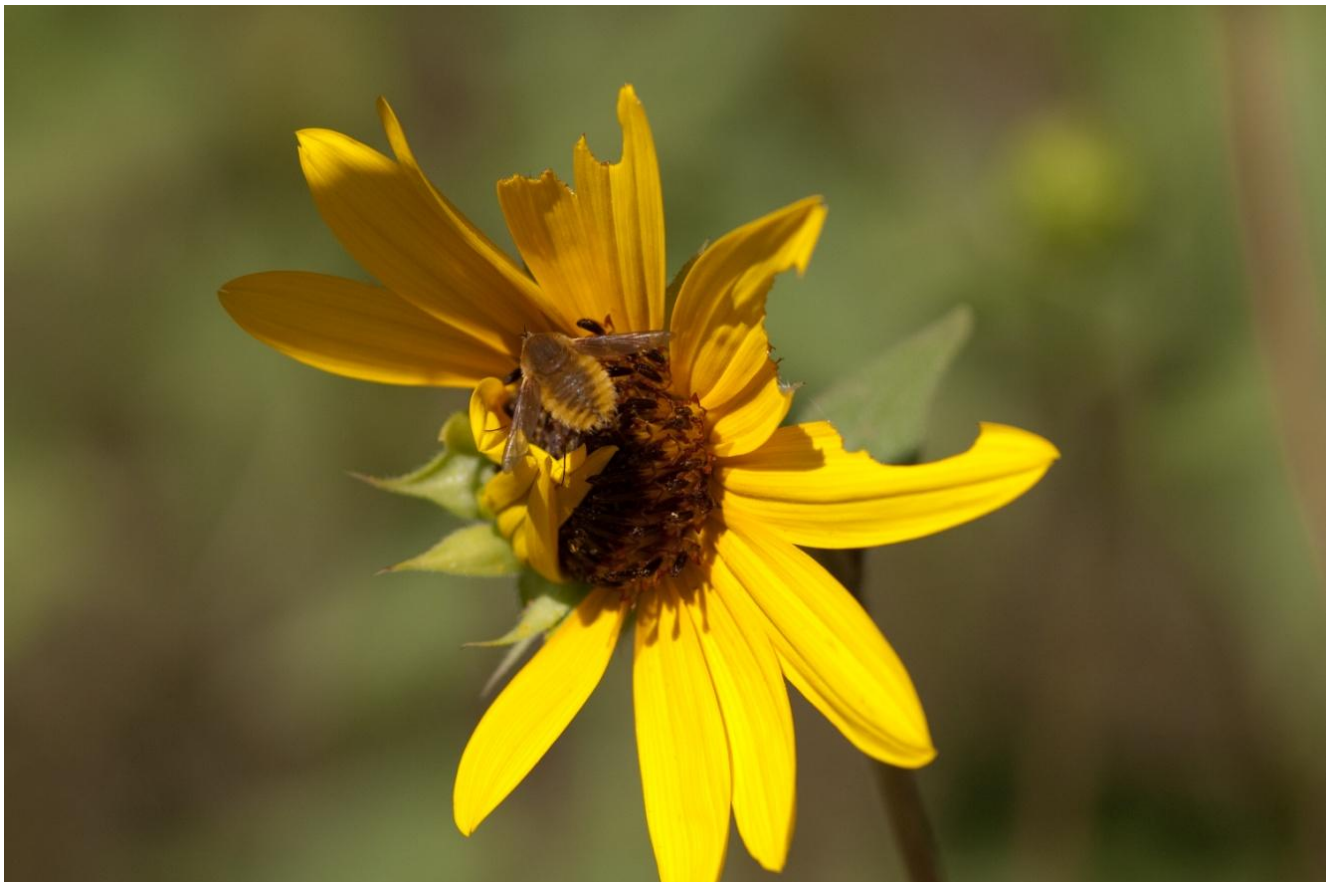


























Improved GPS data

For years we've discussed obtaining accurate coordinates for the vegetation transects. The vegetation crew mapped all of the existing sites several years ago but the accuracy was not adequate to re-establish missing transect rebar. I have been mapping the vegetation transects using sub-meter GPS positions for several years, but it has always been as needed or when there was time. We have delivered eleven full sites and six partial sites to Jen Schuetz and Kristen Weil, and they plan to collect additional points to complete all sites at this accuracy.

Accomplishing this goal will greatly improve our ability to maintain transect locations in areas where rebar are routinely removed by others using the bosque. Rebar have been intentionally removed by the public and/or inadvertently through mowing, thinning, and exotic control operations. Having accurate location information will ensure that we can continue to read the same transect location from year to year for improved data integrity. When combined with improvements in site maintenance, this should improve our ability to record vegetation data over time.