Vegetation Monitoring Report – Pre-treatment

Greater Rio Grande Watershed Alliance

Santa Fe - Pojoaque SWCD Project Sites 4 and 5

Thomas Property I & II

June 2012

Background:

Vegetation monitoring was conducted at this site on November 17, 2011 as part of a restoration project targeting non-native phreatophytes scheduled for winter 2011 – 2012. The project consists of two adjacent project sites totaling 15 acre, located within Santa Fe County, NM, south of the city of Santa Fe (see Figure 1 below). The project was sponsored by the Santa Fe - Pojoaque Soil and Water Conservation District. Restoration goals are to restore the area for wildlife with a mix of native species, to restore the area to a more natural condition with a more open canopy, and to remove exotic high water consumption plants to increase water presence in low-lying areas and drainages. (Stropki et al., 2010).

Figure 1. Project Location

The specific treatment prescription is as follows (NMSF, undated):

> Remove all invasive trees, including Juniper. Use appropriate herbicide on any stumps to prevent re-sprouting.
>
> Remove approximately 10 standing dead Cottonwood.
>
> Chop all slash, spread chips to < 2" out of high water flow area, larger woody material > 3" removed from high water flow area, placed outside fence along road for public removal.

Persons contacted:

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Monitoring team:

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Procedures:

Due to the short timeframe between project selection and implementation, only a narrow window was available to perform monitoring and that window was outside the optimum season for performing vegetation monitoring in this type of landscape. For that reason, a hasty monitoring protocol was developed. This protocol was based on placing photo point plots at locations distributed across the project area and representative of the diversity of the project area. In addition, an estimate of ground and canopy cover by percent within a 1/10 acre circular plot centered at the photo point was determined using ocular estimates. Overstory canopy was determined for a 1/10 acre circular area, also centered at the photo point. Finally, a Hink & Ohmart style vegetation structure assessment was performed. Vegetation species that were observed at each plot and in the project area were recorded. The plot size and density of observations limit the utility of this monitoring for describing overall site conditions or for generating any meaningful statistics.

Cover (%)										
Tree canopy	**Seedlings/saplings <5'/5 – 15'**		**Shrubs**		**Gramanoid**	**Forbs**	**Litter**	**Bare Soil**	**Rock**	**Gravel**	**Water or wet soil**

Figure 2. Categories used for percent cover estimates.

A base map of the project location was constructed using project boundary data provided by New Mexico State Forestry. Planned photo points were selected by visual inspection of May 2011 true-color digital orthorectified aerial photography obtained from the United States Department of Agriculture (http://datagateway.nrcs.usda.gov/). A GIS file for the photo point plots was created using ArcGIS software. Coordinates were derived from the GIS file and loaded into a Garmin GPSMAP 62sc Global Positioning System and a Trimble 2005 GeoXM Global Positioning System. The Garmin GPS was

used to navigate to the general location of the planned photo point. The actual location of the photo point was determined by visual inspection of the area and selection was based on the ability to physically occupy a position at or near the planned point. The coordinates of the photo point were then collected using the more precise Trimble GeoXM GPS.

Once the plot location was determined, a 1/100 acre radius plot was established by placing pin-flags at 11' 9" from plot center in each cardinal direction. Photos were taken from plot center in each cardinal direction and from a distance north of plot center (66', where possible) toward plot center. Ocular estimates were made of understory canopy and ground cover within the 1/100 plot. Overstory canopy cover was estimated using a concave spherical densitometer, with measurements made in four cardinal directions, approximately mid-way between plot center and the edge of the 1/100 acre plot. This method provides an estimate of canopy cover for a 1/10 acre area centered on the plot. A Hink & Ohmart structure class determination was made using a worksheet developed by SWCA Environmental Consultants (see Figure 3 below). Finally, plant species observed within the 1/10 area around the plot were recorded, as were other comments document conditions at the plot.

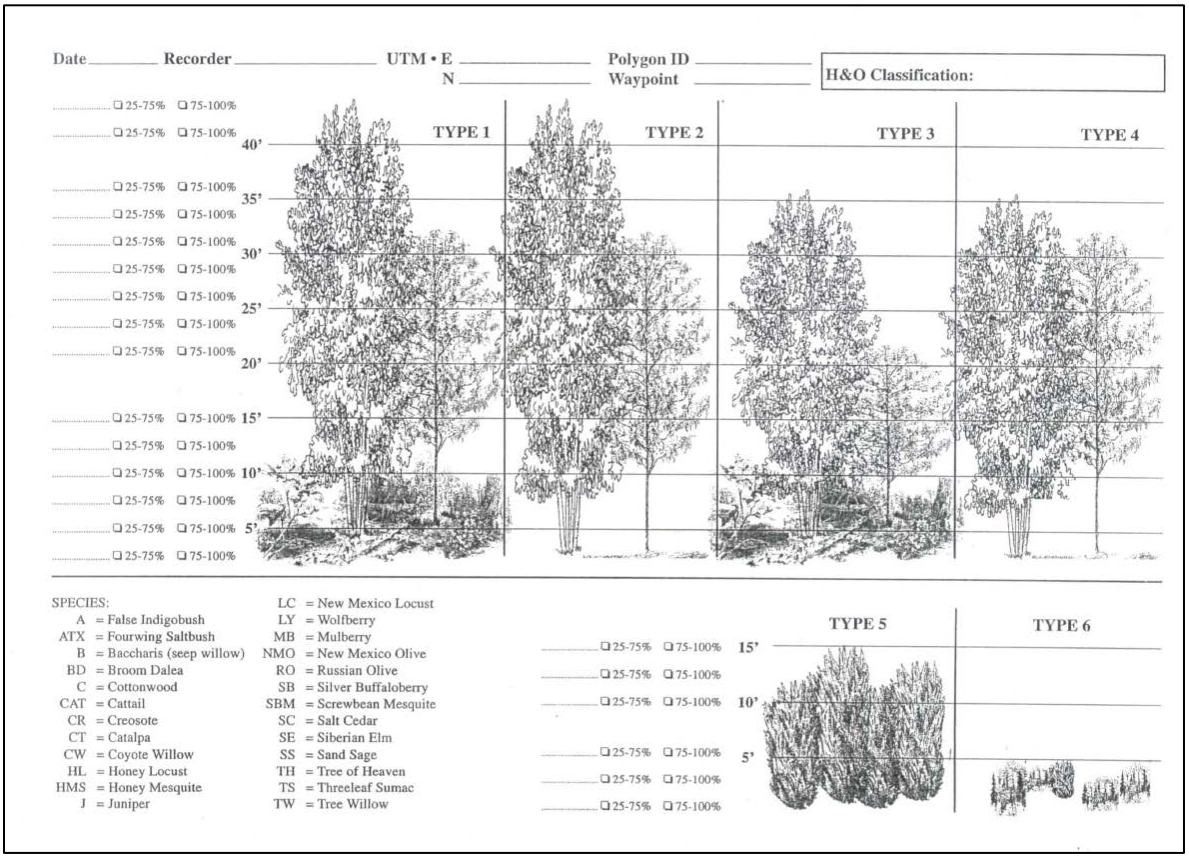


Figure 3. Hink & Ohmart Structural Class Worksheet (courtesy SWCA)

Observations:

The project area consists of a fenced riparian area approximately 2,100 feet long by 300 feet wide, with a near contiguous canopy along the channel of Cottonwood, Coyote Willow, Goodding's Black Willow, Russian Olive, and Siberian Elm, with some One-seed Juniper interspersed. A few open, sandy areas exist, characterized by clumps of Chamisa and grasses and scattered Cottonwood. These plots were assessed to fall in Hink & Ohmart Structure Classes 2

and 3. Identification of forb, grass and some shrub species was impacted by the limited plant identification skills of the monitoring team and by the season. Ducks were observed in the area and there was evidence of historic beaver activity.

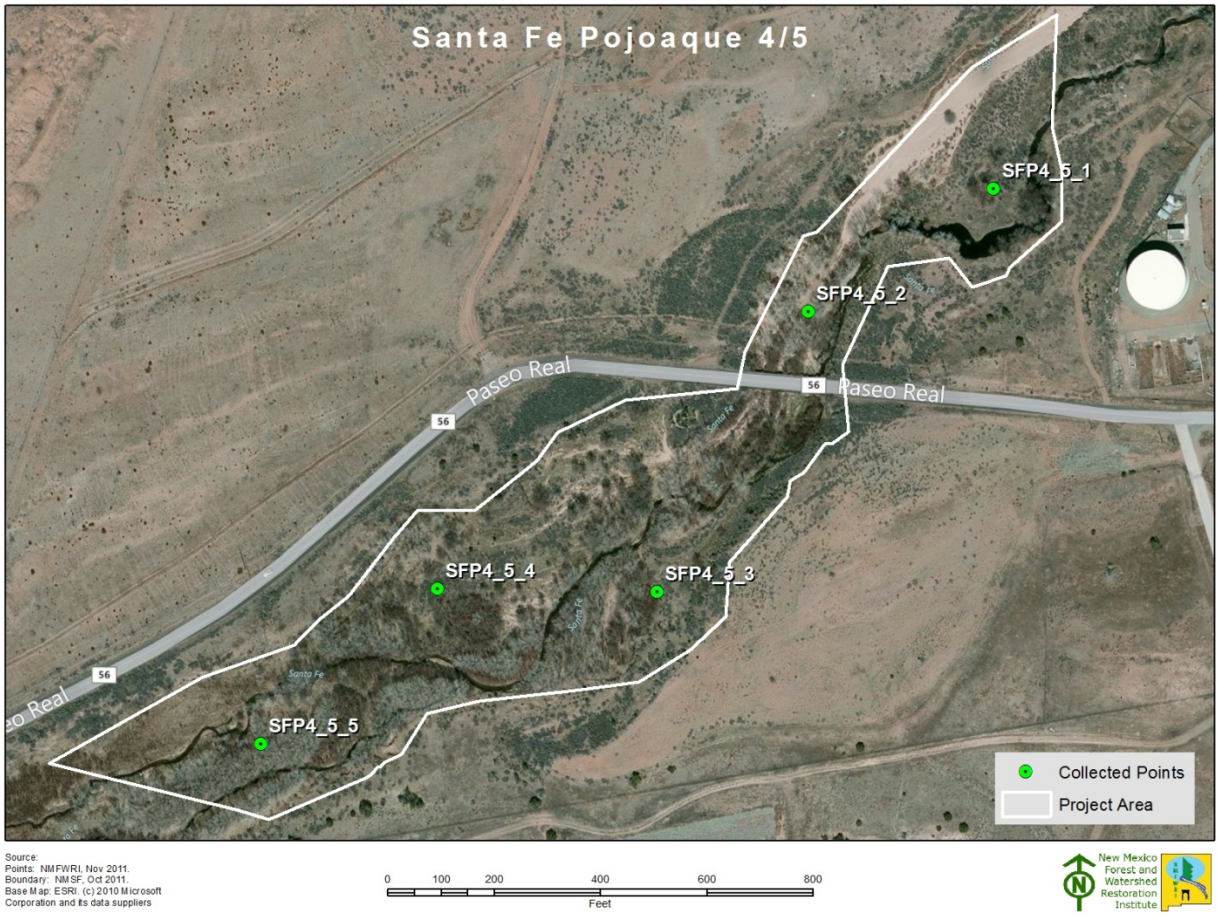


Figure 4. Close up view of Project Area 4/5 (pre-treatment) showing plot locations.

PT_ID	Horz_Prec (meters)	Std_Dev	Northing	Easting	Longitude	Latitude
SFP4_5_1	1.2	0.000294	3943523	401285	-106.090249	35.630719
SFP4_5_2	2.5	0.003353	3943453	401179	-106.091337	35.629913
SFP4_5_3	1.5	0.000789	3943292	401092	-106.092287	35.628494
SFP4_5_4	1.3	0.000306	3943294	400966	-106.093699	35.628442
SFP4_5_5	1.9	0.002041	3943205	400865	-106.094787	35.627630
Northing and easting; NAD 1983 UTM Zone 13 Longitude and Latitude: World Geodetic System 1984 (WGS 84) Data collected with Trimble GeoExplorer 2005 GeoXM, post-processed with Trimble Pathfinder Office software.						

Figure 5. Project Area 4/5 Plot coordinates.

Species observed:

Grasses		**Forbs**	
Scientific name	**Common name**	***Scientific name***	**Common name**
		Cylindropuntia imbricata	Cholla
		Cucurbita foetidissima	Buffalo Gourd
		Verbascum thapsus	Mullein
		Kochia scoparia	Kochia

Shrubs		**Trees**	
Scientific name	**Common name**	***Scientific name***	**Common name**
Salix exigua Nutt.	Coyote Willow	*Populus deltoides*	Cottonwood
Ericameria nauseosa	Chamisa	*Elaeagnus angustifolia*	Russian Olive
		Juniperus monosperma	One-seed Juniper
		Ulmus pumila	Siberian Elm
		Robinia pseudoacacia	Black Locust
		Salix gooddingii	Goodding's Black Willow

Figure 6. Species observed.

Conclusions and Recommendations:

Monitoring of this and other Greater Rio Grande Watershed Alliance project sites was constrained by time and resource availability. Due to these constraints, it was determined that the hasty method described in the Procedures section above would provide the minimum information necessary to determine the effectiveness of these treatments. Plot photos, in particular, will provide a good reference for assessing post treatment conditions. Monitoring crew members had limited skills in plant identification and Hink & Ohmart Structure Class determination. Vegetation identification was further complicated by the fact that most of the grasses and forbs were dormant. Despite these limitations, the monitoring adequately described the tree species variety and the overall site characteristics.

New, more robust monitoring protocols are being developed by the New Mexico Forest and Watershed Restoration Institute. These new protocols will be used for post-treatment monitoring and on future Greater Rio Grande Watershed Alliance projects. Monitoring crews will be provided training in the use of these new protocols. Future crews should also be provided with training in riparian plant identification and Hink & Ohmart structure class determination.

References:

Cartron, J.-L., D.C. Lightfoot, J.E. Mygatt, S.L. Brantley, and T.K. Lowrey. 2008. *A Field Guide to the Plants and Animals of the Middle Rio Grande Bosque.* University of New Mexico Press, Albuquerque.

Horizon Environmental Services, Inc. 2012. *Claunch-Pinto Soil and Water Conservation District Greater Rio Grande Watershed Alliance Riparian Restoration Projects Final Report*.

New Mexico Energy Mineral and Natural Resources Department, Forestry Division (NMSF). 2011. *Description and Scope of Work for Santa Fe – Pojoaque SWCD Projects 1, 2, 4, 5, 10*. New Mexico State Forestry.

Stropki, C., V. Williams, and M. Pease. 2010. *East Rio Arriba Soil and Water Conservation District Riparian Restoration Conservation Plan*. SWCA Environmental Consultants.

United States Department of Agriculture, Natural Resources Conservation Service. 2012. *Plants Database* (http://plants.usda.gov)

Project: Thomas Property I & II
Project Unit: n/a
Plot: SFP4_5_1

Date:	11/17/2011
Time:	1430
Plot size:	1/100

Cover (%)										
Tree canopy	**Seedlings/saplings**		**Shrubs <5'/5 – 15'**		**Gramanoid**	**Forbs**	**Litter**	**Bare Soil**	**Rock**	**Gravel**	**Water or wet soil**
21	0	0	30	20	0	20	60	20	0	0	0

Hink & Ohmart Class: 3

Species observed:

Grasses	**Forbs**	**Shrubs**	**Trees**
	Kochia scoparia	*Ericameria nauseosa*	*Salix gooddingii*
			Elaeagnus angustifolia

Comments:

None.

SFP 4_5_1 Plot Photos

Mar 2011 Aerial View, Circle = 1/10 acre


Plot Center from North


Looking East from Plot Center


Looking South from Plot Center


Looking West from Plot Center


Looking North from Plot Center

Project: Thomas Property I & II
Project Unit: n/a
Plot: SFP4_5_2

Date:	11/17/2011
Time:	1448
Plot size:	1/100

Cover (%)										
Tree canopy	**Seedlings/saplings <5'/5 – 15'**		**Shrubs**		**Gramanoid**	**Forbs**	**Litter**	**Bare Soil**	**Rock**	**Gravel**	**Water or wet soil**
94	0	0	1	10	1	0	90	6	3	0	0

Hink & Ohmart Class: 3

Species observed:

Grasses	**Forbs**	**Shrubs**	**Trees**
		Salix exigua Nutt.	*Elaeagnus angustifolia*
			Populus deltoides

Comments:

None.

SFP 4_5_2 Plot Photos

Mar 2011 Aerial View, Circle = 1/10 acre


Plot Center from North


Looking East from Plot Center


Looking South from Plot Center


Looking West from Plot Center


Looking North from Plot Center

Project: Thomas Property I & II
Project Unit: n/a
Plot: SFP4_5_3

Date:	11/17/2011
Time:	1553
Plot size:	1/100

Cover (%)										
Tree canopy	**Seedlings/saplings <5'/5 – 15'**		**Shrubs**		**Gramanoid**	**Forbs**	**Litter**	**Bare Soil**	**Rock**	**Gravel**	**Water or wet soil**
42	2	0	10	25	35	8	40	15	2	0	0

Hink & Ohmart Class: 3

Species observed:

Grasses	**Forbs**	**Shrubs**	**Trees**
		Salix exigua Nutt.	*Elaeagnus angustifolia*
		Ericameria nauseosa	*Juniperus monosperma*
			Populus deltoides

Comments:

Juniper seedlings.

SFP 4_5_3 Plot Photos

Mar 2011 Aerial View, Circle = 1/10 acre


Plot Center from North


Looking East from Plot Center


Looking South from Plot Center


Looking West from Plot Center


Looking North from Plot Center

Project: Thomas Property I & II
Project Unit: n/a
Plot: SFP4_5_4

Date:	11/17/2011
Time:	1513
Plot size:	1/100

Cover (%)										
Tree canopy	**Seedlings/saplings <5'/5 – 15'**		**Shrubs**		**Gramanoid**	**Forbs**	**Litter**	**Bare Soil**	**Rock**	**Gravel**	**Water or wet soil**
2	0	0	50	10	55	5	25	15	0	0	0

Hink & Ohmart Class: 3

Species observed:

Grasses	**Forbs**	**Shrubs**	**Trees**
	Verbascum thapsus	*Salix exigua Nutt.*	*Elaeagnus angustifolia*
		Ericameria nauseosa	*Salix gooddingii*
			Ulmus pumila
			Juniperus monosperma

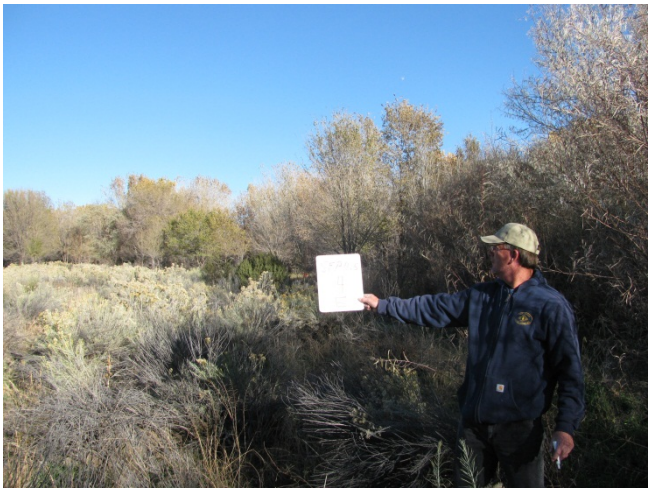
Comments:

None.

SFP 4_5_4 Plot Photos

Mar 2011 Aerial View, Circle = 1/10 acre


Plot Center from North


Looking East from Plot Center


Looking South from Plot Center


Looking West from Plot Center


Looking North from Plot Center

Project: Thomas Property I & II
Project Unit: n/a
Plot: SFP4_5_5

Date:	11/17/2011
Time:	1534
Plot size:	1/100

Cover (%)										
Tree canopy	**Seedlings/saplings <5'/5 – 15'**		**Shrubs**		**Gramanoid**	**Forbs**	**Litter**	**Bare Soil**	**Rock**	**Gravel**	**Water or wet soil**
94	0	0	1	20	85	0	10	5	0	0	1

Hink & Ohmart Class: 2

Species observed:

Grasses	**Forbs**	**Shrubs**	**Trees**
		Salix exigua Nutt.	*Populus deltoides*

Comments:

None.

SFP4_5_5 Plot Photos

Mar 2011 Aerial View, Circle = 1/10 acre


Plot Center from North


Looking East from Plot Center


Looking South from Plot Center


Looking West from Plot Center


Looking North from Plot Center