Vegetation Monitoring Report – Pre-treatment

Greater Rio Grande Watershed Alliance

Santa Fe - Pojoaque SWCD Project Site 2

La Cieneguilla

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 is a 11.5 acre site 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).

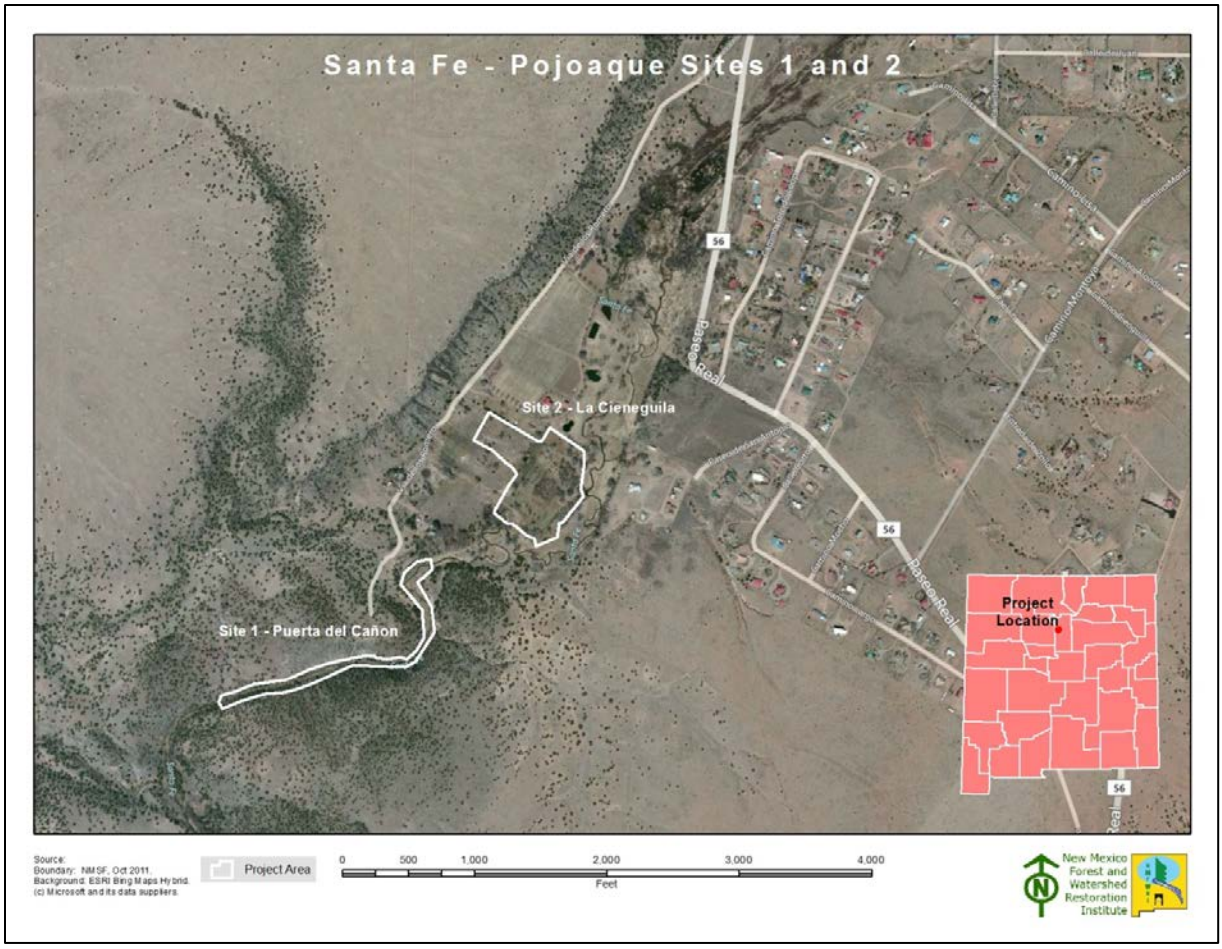


Figure 1. Project Location

The specific treatment prescription is as follows (NMSF, 2011):

> Remove all invasive trees. Use appropriate herbicide on any stumps to prevent re-sprouting.
>
> Slash: Chip or masticate all slash <3" diameter, spread chips to be <2" in depth; larger woody material >3" diameter, cut 4' lengths, leave in piles.

Persons contacted:

José Varela-Lopez Santa Fe – Pojoaque SWCD

1911 5th Street, Suite 201
Santa Fe, NM 87805
(505) 988-6253

Monitoring team:

Joe Zebrowski New Mexico Forest and Watershed Restoration Institute

Terrell Treat New Mexico State Forestry

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.

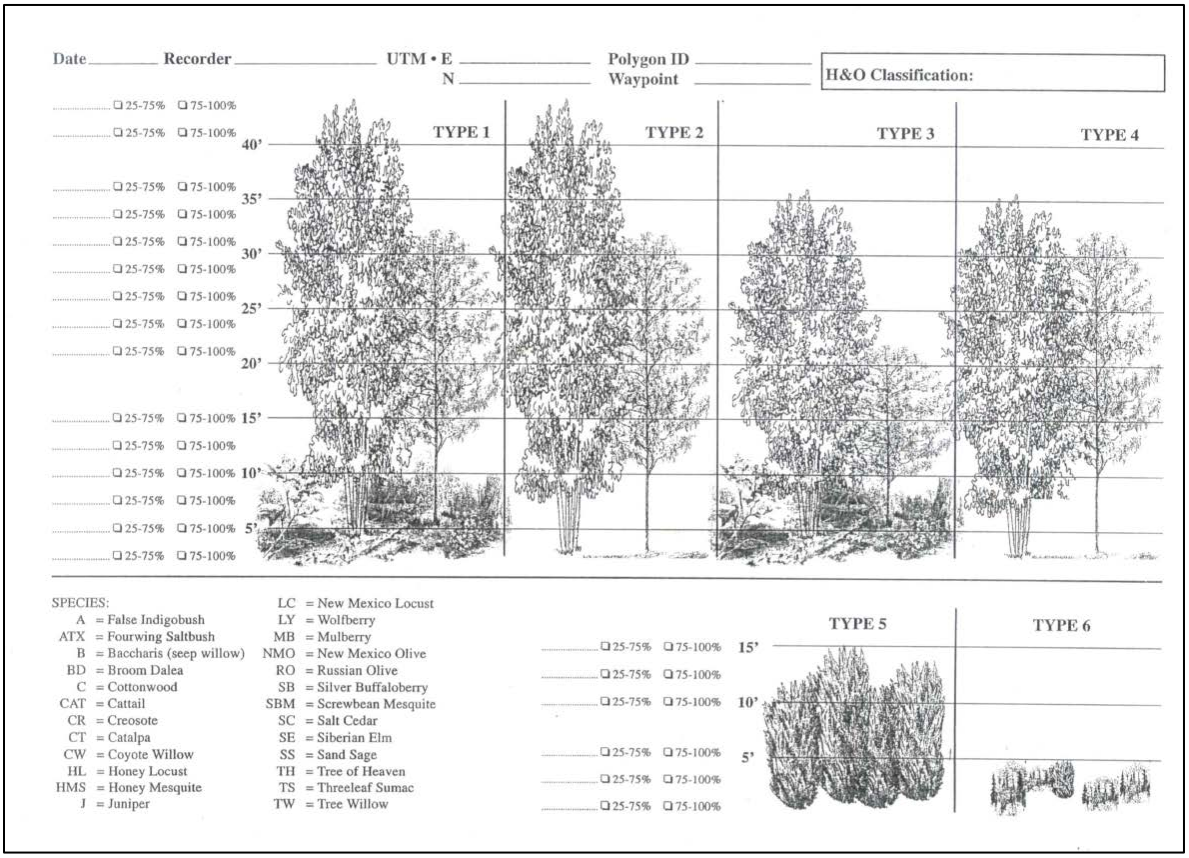


Figure 3. Hink & Ohmart Structural Class Worksheet (courtesy SWCA)

Observations:

The project area consists of several fenced pastures interspersed with clumps of Coyote Willow, Cottonwood, Russian Olive, and Siberian Elm. Most of the project area is open, with the exception of the various size clumps of trees and shrubs. A few isolated One-seed Juniper also exist. These plots were assessed to fall in Hink & Ohmart Structure Classes 1, 3, 4, and 5. Identification of forb, grass and some shrub species was impacted by the limited plant identification skills of the monitoring team and by the season.

Figure 4. Close up view of Project Area 2 (pre-treatment) showing plot locations.

PT_ID	Horz_Prec (meters)	Std_Dev	Northing	Easting	Longitude	Latitude
SFP2_1	1.4	0.000581	3939765	397812	-106.127923	35.596148
SFP2_2	1.3	0.000392	3939702	397912	-106.126850	35.595649
SFP2_3	1.7	0.000784	3939644	397987	-106.126021	35.595245
SFP2_4	1.3	0.000406	3939572	397964	-106.126212	35.594578
SFP2_5	1.6	0.000443	3939527	397919	-106.126854	35.594223
SFP2_6	2.0	0.000352	3939609	397915	-106.127295	35.594786
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 2 Plot coordinates.

Species observed:

Grasses		**Forbs**	
Scientific name	**Common name**	***Scientific name***	**Common name**
		Machaeranthera tanacetifolia	Purple Aster
		Typha spp.	Cattail
		Marrubium vulgare L.	Horehound
		Helianthus annus	Annual Sunflower
		Anemposis californica	Yerba Mansa
			Thistle?

Shrubs		**Trees**	
Scientific name	**Common name**	***Scientific name***	**Common name**
Gutierrezia sarathrae	Broom Snakeweed	*Populus deltoides*	Cottonwood
Salix exigua Nutt.	Coyote Willow	*Elaeagnus angustifolia*	Russian Olive
		Juniperus monosperma	One-seed Juniper
		Ulmus pumila	Siberian Elm

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: La Cieneguila
Project Unit: n/a
Plot: SFP_2_1

Date:	11/17/2011
Time:	1154
Plot size:	1/100

Cover (%)										
Tree canopy	**Seedlings/saplings <5'/5 – 15'**		**Shrubs**		**Gramanoid**	**Forbs**	**Litter**	**Bare Soil**	**Rock**	**Gravel**	**Water or wet soil**
19	0	0	0	0	45	45	5	5	0	0	0

Hink & Ohmart Class: 4

Species observed:

Grasses	**Forbs**	**Shrubs**	**Trees**
	Thistle?		*Juniperus monosperma*
	Marrubium vulgare L.		*Elaeagnus angustifolia*
	Machaeranthera tanacetifolia		

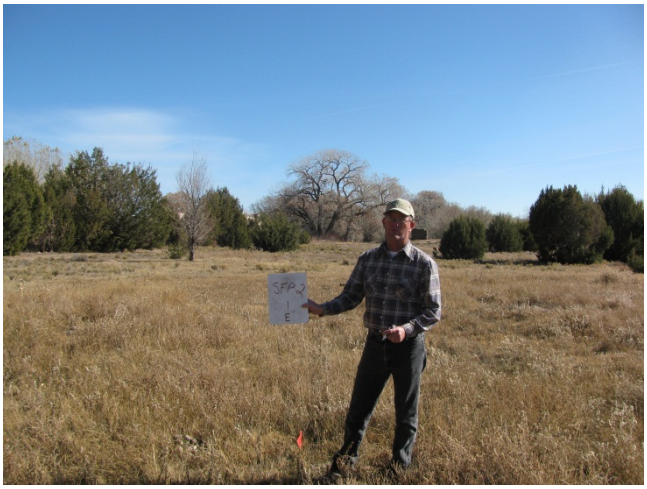
Comments:

None.

SFP _2_1 Plot Photos

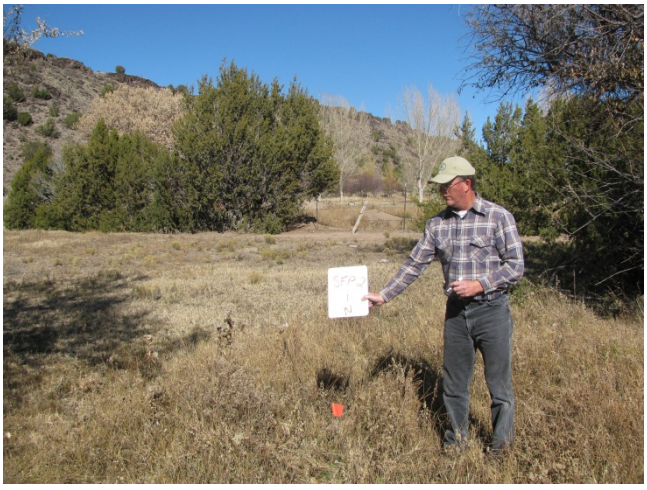
May 2011 Aerial View, Circle = 1/10 acre


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: La Cieneguila
Project Unit: n/a
Plot: SFP_2_2

Date:	11/17/2011
Time:	1210
Plot size:	1/100

Cover (%)										
Tree canopy	**Seedlings/saplings <5'/5 – 15'**		**Shrubs**		**Gramanoid**	**Forbs**	**Litter**	**Bare Soil**	**Rock**	**Gravel**	**Water or ~~wet soil~~**
58	0	0	0	0	80	12	3	12	0	0	5

Hink & Ohmart Class: 4

Species observed:

Grasses	**Forbs**	**Shrubs**	**Trees**
	Typha spp.		*Elaeagnus angustifolia*

Comments:

Muddy.

SFP _2_2 Plot Photos

May 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: La Cieneguila
Project Unit: n/a
Plot: SFP_3_3

Date:	11/17/2011
Time:	1230
Plot size:	1/100

Cover (%)										
Tree canopy	**Seedlings/saplings <5'/5 – 15'**		**Shrubs**		**Gramanoid**	**Forbs**	**Litter**	**Bare Soil**	**Rock**	**Gravel**	**Water or wet soil**
66	0	0	1	1	50	45	5	0	0	0	0

Hink & Ohmart Class: 3

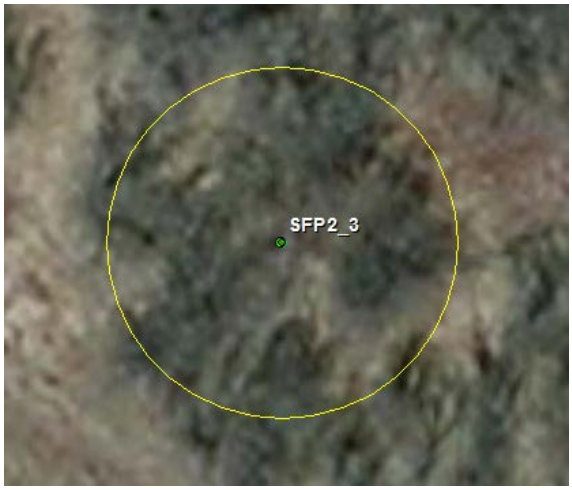
Species observed:

Grasses	**Forbs**	**Shrubs**	**Trees**
	Anemposis californica	*Salix exigua Nutt.*	*Elaeagnus angustifolia*

Comments:

None.

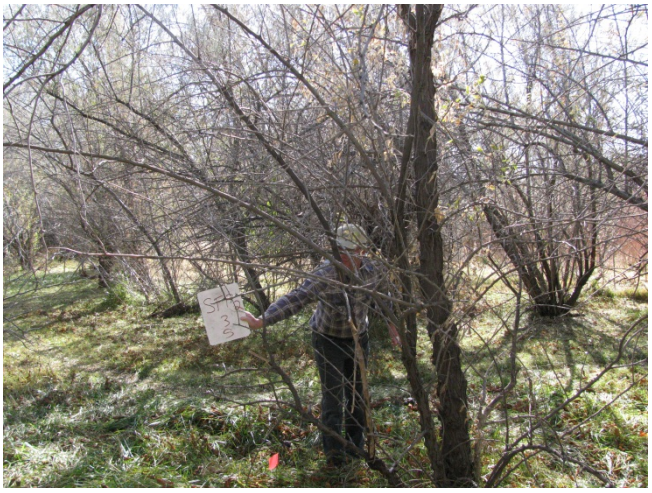
SFP _2_3 Plot Photos



May 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: La Cieneguila
Project Unit: n/a
Plot: SFP_2_4

Date:	11/17/2011
Time:	1252
Plot size:	1/100

Cover (%)										
Tree canopy	**Seedlings/saplings <5'/5 – 15'**		**Shrubs**		**Gramanoid**	**Forbs**	**Litter**	**Bare Soil**	**Rock**	**Gravel**	**Water or wet soil**
0	0	1	2	30	85	2	3	0	0	0	0

Hink & Ohmart Class: 5

Species observed:

Grasses	**Forbs**	**Shrubs**	**Trees**
	Anemposis californica	*Salix exigua Nutt.*	*Elaeagnus angustifolia*

Comments:

None.

SFP _2_4 Plot Photos

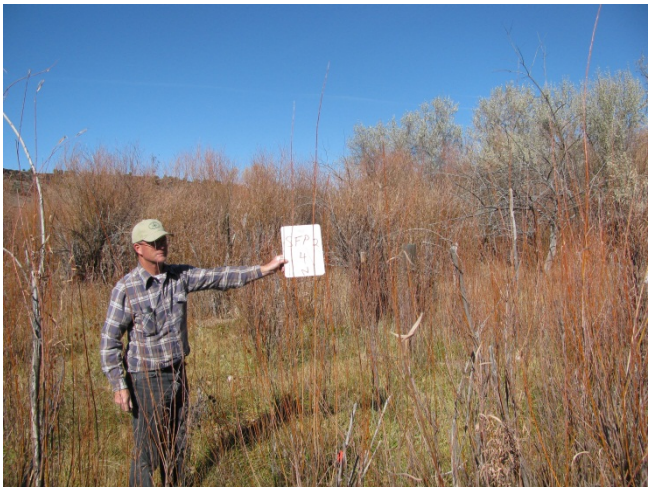
May 2011 Aerial View, Circle = 1/10 acre


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: La Cieneguila
Project Unit: n/a
Plot: SFP_2_5

Date:	11/17/2011
Time:	1310
Plot size:	1/100

Cover (%)										
Tree canopy	**Seedlings/saplings <5'/5 – 15'**		**Shrubs**		**Gramanoid**	**Forbs**	**Litter**	**Bare Soil**	**Rock**	**Gravel**	**Water or wet soil**
44	0	0	3	20	15	5	80	0	0	0	0

Hink & Ohmart Class: 1

Species observed:

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

Comments:

None.

SFP _2_5 Plot Photos

May 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: La Cieneguila
Project Unit: n/a
Plot: SFP_2_6

Date:	11/17/2011
Time:	1330
Plot size:	1/100

Cover (%)										
Tree canopy	**Seedlings/saplings <5'/5 – 15'**		**Shrubs**		**Gramanoid**	**Forbs**	**Litter**	**Bare Soil**	**Rock**	**Gravel**	**Water or wet soil**
0	0	0	1	15	98	2	0	0	0	0	0

Hink & Ohmart Class: 5/6

Species observed:

Grasses	**Forbs**	**Shrubs**	**Trees**
	Thistle?	*Salix exigua Nutt.*	*Elaeagnus angustifolia*

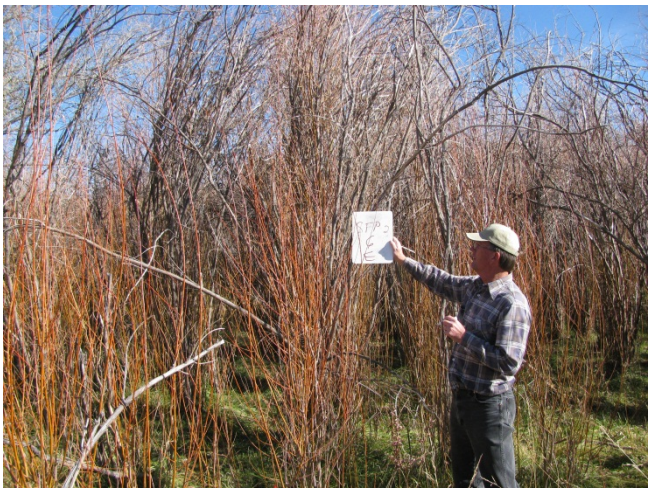
Comments:

None.

SFP _2_6 Plot Photos Plot Photos

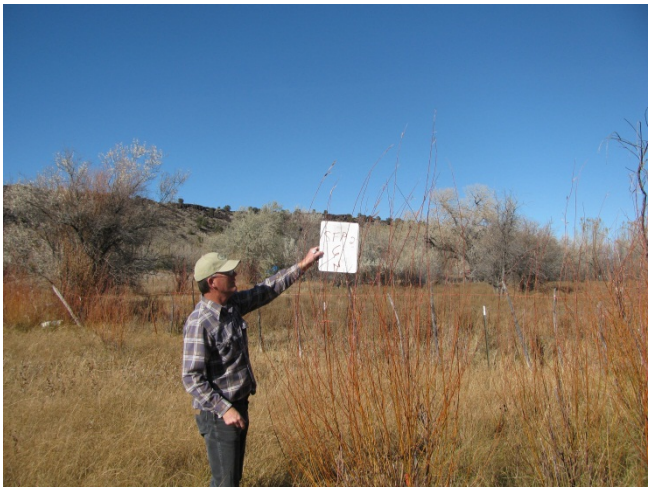
May 2011 Aerial View, Circle = 1/10 acre


Plot Center from North


Looking East from Plot Center


Looking South from Plot Center


Looking West from Plot Center


Looking North from Plot Center