Cerro Montoso and Cerro de la Olla Forest Monitoring 2014

New Mexico Forest and Watershed Restoration Institute

New Mexico Highlands University

http://www.nmfwri.org/

November 2014

Table of Contents

Management Goals and Objectives of the BLM

New Mexico Bureau of Land Management (BLM)planning uses the principles in the Federal Land Policy and Management Act of 1976 (FLPMA), as amended (43 U.S.C. 1701 et seq.), as it's 'multiple use' handbook. The attempt is to create what can be called "balanced" management of public land and its resources. The act established the principle that public lands be retained in federal ownership and provided for the management, protection, development, and enhancement of the public lands under the principles of multiple-use and sustained yield. The principles of multiple use and sustained yield require the consideration of long term needs of present and future generations as decisions are made in the management of renewable and non-renewable resources, such as recreation, timber, minerals, watershed, fish, wildlife, rangeland, scientific and historical values. (http://www.blm.gov/nm/st/en/prog/planning.html) Main goals of the forestry program for BLM New Mexico are to improve forest and watershed health, reduce the risk of large catastrophic wildfire, and improve wildlife habitat.

At the New Mexico Forest and Watershed Restoration Institute (http://www.nmfwri.org/), we provide forest and vegetation inventory data to the BLM. The collection and analysis of inventory data will support ongoing landscape scale forest and watershed treatment projects and provide baseline data to improve forest management efforts. As we are located at New Mexico Highlands University, students have helped collect and analyze data from various forest and woodland project sites on BLM lands. The public has benefited from educational opportunities being provided for students as well as the collection of data useful to the BLM in its management of public lands.

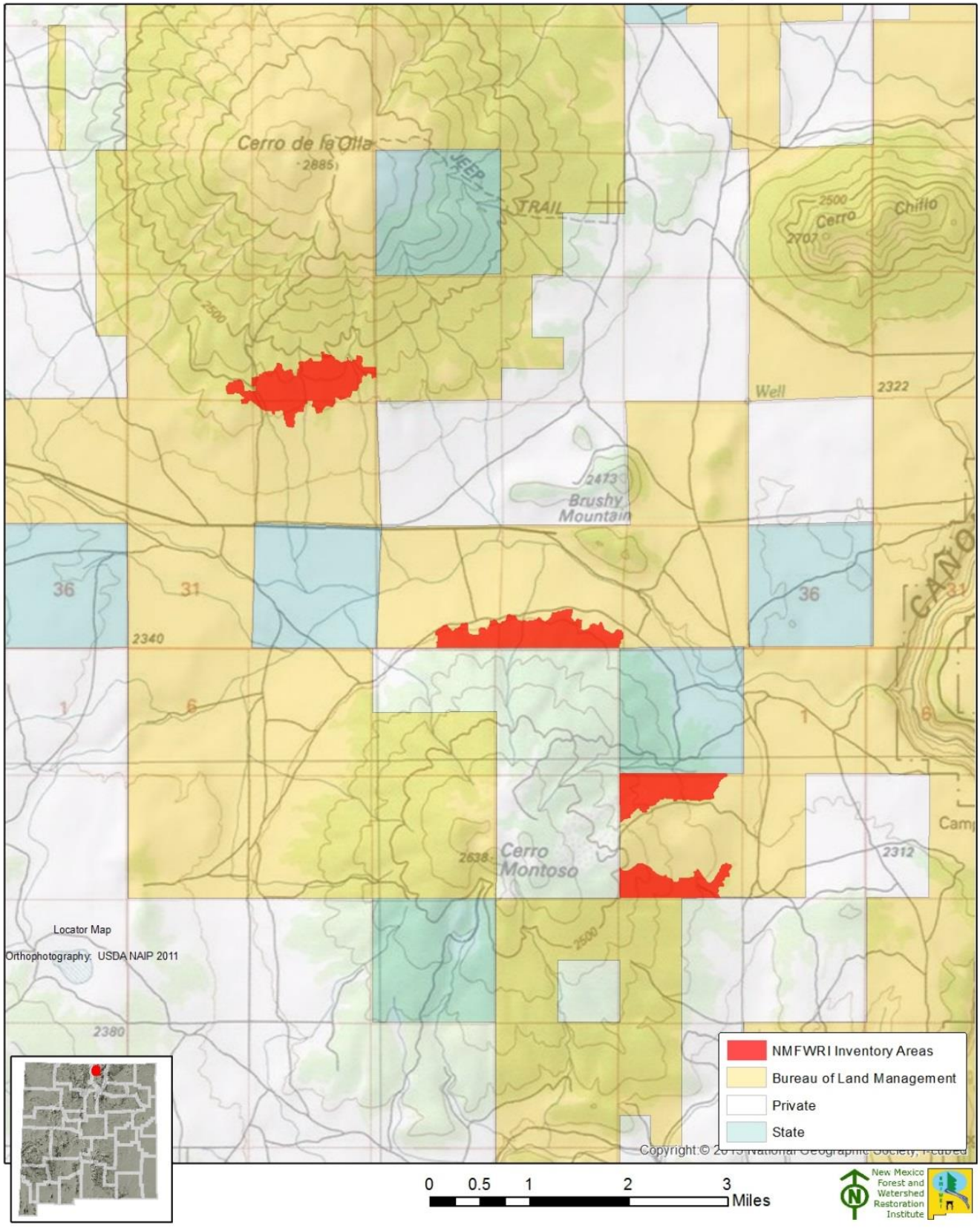
The Study Area

Located in Taos County the Cerro De La Olla and Cerro Montoso field monitoring inventory area cover a total acreage of approximately 645 acres. Field work was carried out in May of 2014.
The Southern Rocky Mountain Ecoregion

The Southern Rocky Mountain Ecoregion

The study area located in the Southern Rocky Mountain Ecoregion is located within the Rio Grande watershed drainage area. The Rio Grande Watershed begins in the San Juan Mountains of southern Colorado and flows south through central New Mexico for the entire length of the State. Flow in the Rio Grande is typically low in the winter and is greatly influenced by snowmelt and summer rain events. Spring peak flows generally occur between April and mid-May from snow melt. Smaller peaks of shorter duration occur with the summer monsoonal rain events. Fall generally has decreasing flow rates (Bullard and Wells 1992). Within the entire ecoregion the Sange de Christo and the San Juan mountain ranges form the southern portions of the eastern and western mountain belts.

Study Area and Land Ownership Map



Vegetation Characteristics

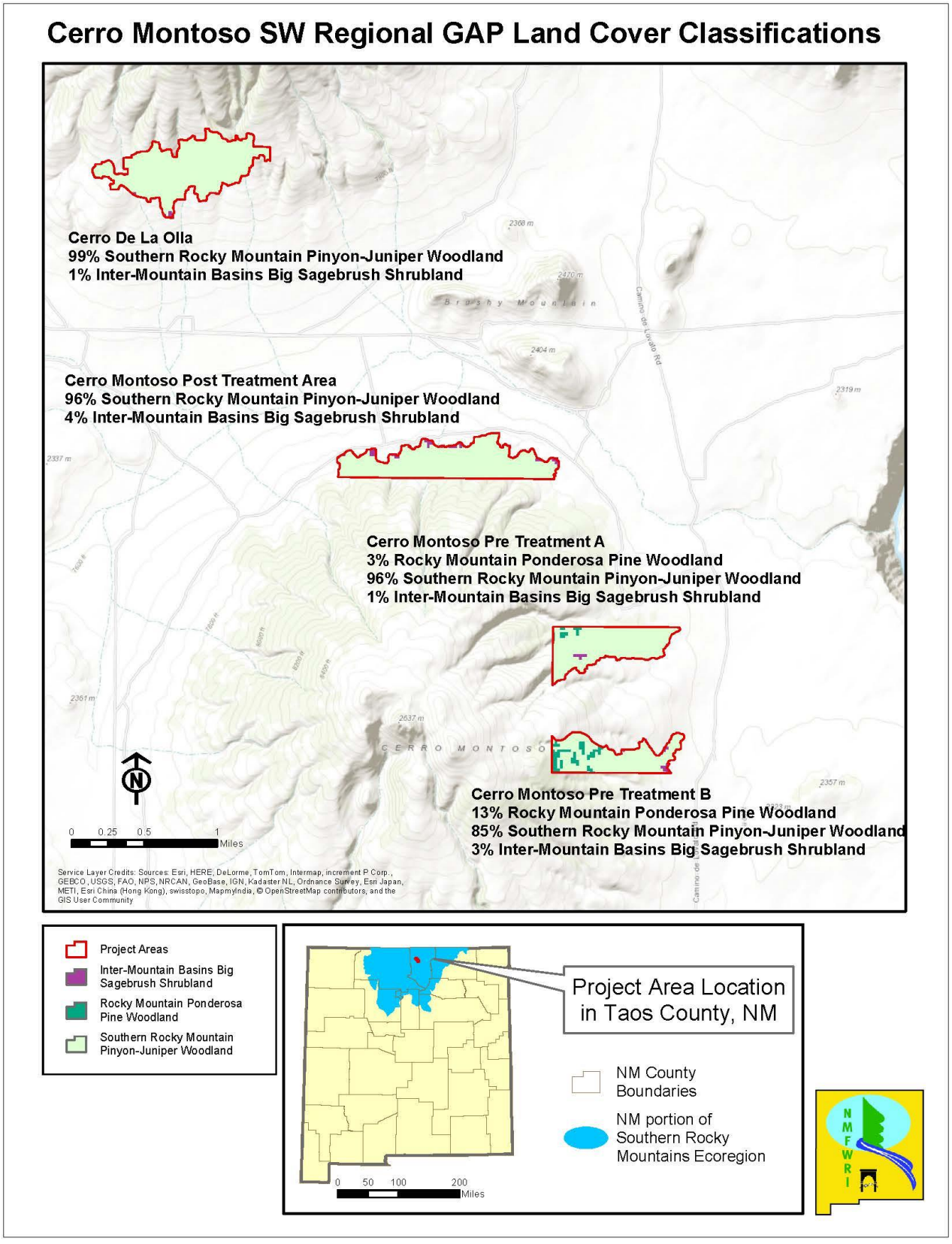
Within the Cerro Montoso and Cerro de la Olla study areas the dominate SWReGap land cover types include: Southern Rocky Mountain Pinyon-Juniper Woodlands, Inter-Mountain Basins Big Sagebrush Shrublands, and Rocky Mountain Ponderosa Pine Woodlands. According to their classification system the entire inventory areas comprised of 93.77% Southern Rocky Mountain Pinyon-Juniper Woodlands, 2.24% Inter-Mountain Basins Big Sagebrush Shrublands, and 3.99% Rocky Mountain Ponderosa Pine Woodlands.

The Southern Rocky Mountain Pinyon-Juniper Woodland ecological system occurs on dry mountains and foothills in plateaus of north-central New Mexico. These woodlands occur on warm, dry sites on mountain slopes, mesas, plateaus and ridges. Severe climatic events occurring during the growing season such as frosts and drought are thought to limit the distribution of pinyon-juniper woodlands to narrow altitudinal belts on the sides of mountains. In central New Mexico, *Juniperus deppeana* becomes common. Understory layers are variable and may be dominated by shrubs, graminoids, or be absent. Associated species are more typical of southern Rocky Mountains include *Artemisia bigelovii, Cercocarpus montanus,Quercus gambelii, Achnatherum scribneri, Bouteloua gracilis, Festuca arizonica,* or *Pleuraphis jamesii* (NatureServe 2004).

The Inter-Mountain Basins Big Sagebrush ecological system occurs throughout much of the western US, usually found in broad basins between mountain ranges, plains and foothills between 1500 and 2300 meters in elevation. Soils are typically deep, well-drained and not saline. Species that dominate these shrubland areas are *Artemisia tridentata ssp. tridentata* and/or *Artemisia tridentata ssp. wyomingensis. Scattered Juniperus spp.,Sarcobatus vermiculatus*, and *Atriplex spp*. Ericameria nauseosa, Chrysothamnus viscidiflorus, Purshia tridentata, or Symphoricarpos oreophilus may codominate disturbed stands. Perennial herbaceous speices typically contribute less than 25% vegetative cover. Common graminoid species include *Achnatherum hymenoides, Bouteloua gracilis, Elymus lanceolatus, Festuca idahoensis, Hesperostipa comata, Leymus cinereus, Pleuraphis jamesii, Pascopyrum smithii, Poa secunda,* or *Pseudoroegneria spicata* (NatureServe 2004).

Rocky Mountain Ponderosa Pine Woodlands is a very widespread ecological system found throughout the Rocky Mountains. These woodlands are found at the lower treeline ecotone between grassland or shrubland and more mesic coniferous forest typically in warm, dry, exposed sites. Elevation ranges from 1900 meters to 2800 meters approximately. These woodlands are found on all slopes and aspects but moderately steep to very steep slopes or ridgetops are most common. *Pinus ponderosa* (primarily var. *scopulorum* and var. *brachyptera*) is the predominant conifer; Pseudotsuga menziesii, Pinus edulis, and *Juniperus spp*. may be present in the tree canopy. The understory is usually shrubby, with *Artemisia nova, Artemisia tridentata, Arctostaphylos patula, Arctostaphylos uva-ursi, Cercocarpus montanus, Purshia stansburiana, Purshia tridentata, Quercus gambelii, Symphoricarpos oreophilus, Prunus virginiana, Amelanchier alnifolia,* and *Rosa spp*. common species. *Pseudoroegneria spicata* and species of *Hesperostipa, Achnatherum, Festuca, Muhlenbergia,* and *Bouteloua* are some of the common grasses.

Mixed fire regimes and ground fires of variable return intervals maintain these woodlands, depending on climate, soils, and denisty of understory vegetation (NatureServe 2004).



Fish and Wildlife

The fish and wildlife species of greatest conservation need occurring in the Southern Rocky Mountain Ecoregion include (New Mexico Department of Game and Fish. 2006.):

Birds
Ferruginous Hawk
Mourning Dove
Loggerhead Shrike
Sage Thrasher
Bendire's Thrasher
Sage Sparrow
Osprey
Bald Eagle
Northern Goshawk
Golden Eagle
Peregrine Falcon
Blue Grouse
Band-Tailed Pigeon
Mexican Spotted Owl
Black Swift
Williamson's Sapsucker
Olive-Sided Flycatcher
Pinyon Jay
Yellow Warbler
Grace's Warbler
Red-Faced Warbler

Mammals
Arizona Myotis Bat
White-Tailed Jack Rabbit
Gunnison's Prairie Dog
New Mexico Shrew Spotted Bat
Allen's Big-Eared Bat
Snowshoe Hare
Abert's Squirrel
American Beaver
Black Bear
American Marten
Mule Deer

Amphibians
Tiger Salamander
Jemez Mountains Salamander

Reptile
Collared Lizard

Molluscs
Rocky Mountainsnail
Amber Glass Snail
Sangre de Cristo Woodlandsnail
Jemez Mountains Woodlandsnail
Spruce Snail

Rare plant species

For Taos County specifically there are a number of rare and endangered plants, these include: *Astragalus cyaneus, Astragalus puniceus var. gertrudis, Astragalus ripleyi Cymopterus spellenbergii, Delphinium alpestre,Delphinium robustum, Draba smithii, Erigeron subglaber, Eriogonum lachnogynum var. colobum, Hackelia hirsuta, Lorandersonia microcephala, Phlox vermejoensis , and Salix arizonica* (New Mexico Rare Plant Technical Council. 1999). More detailed description of each plant can be found at *http://nmrareplants.unm.edu*

Soil Resources

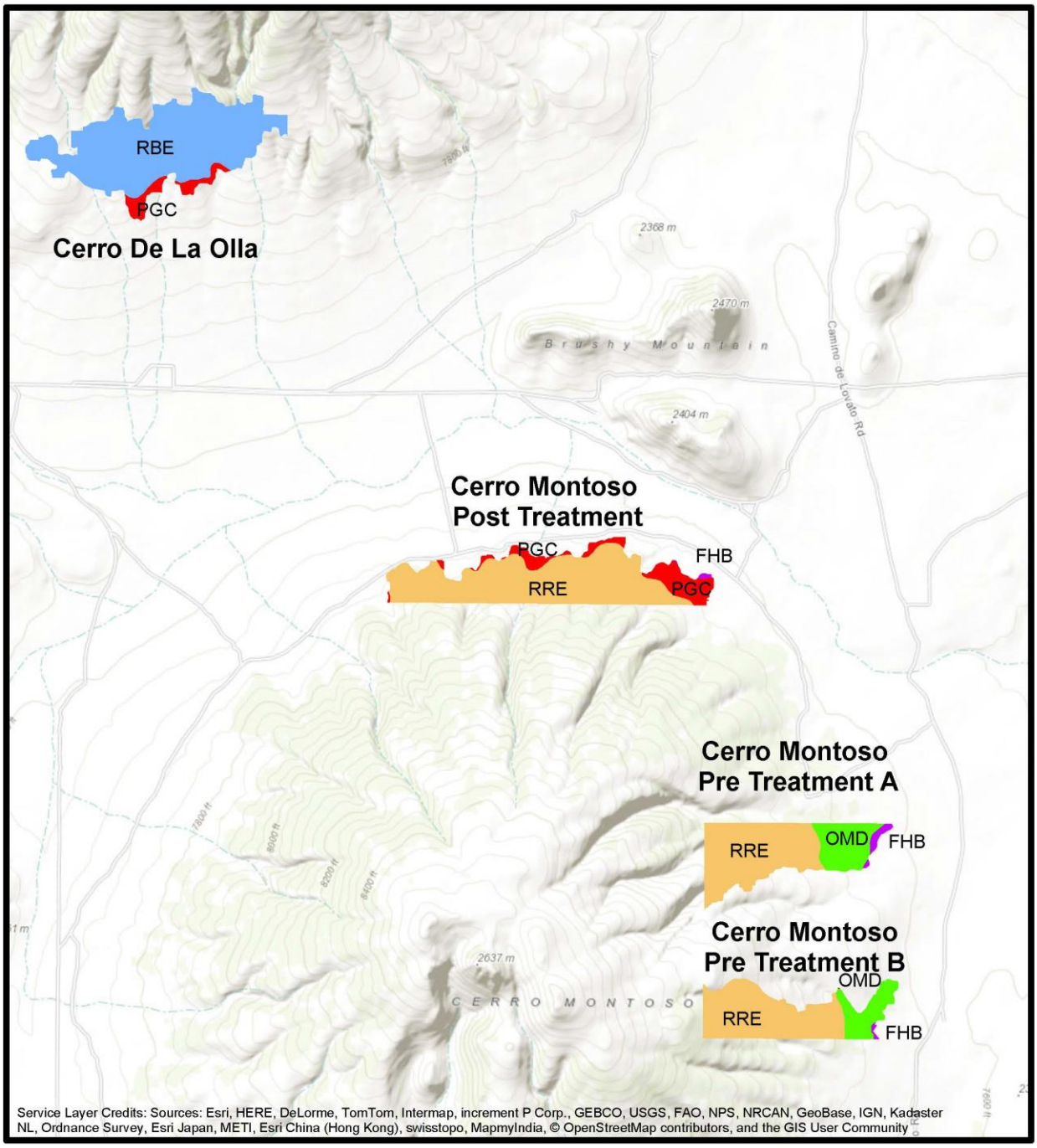
Soil types for the Cerro Montoso and Cerro de la Olla inventory areas were identifed using the USDA Natural Resources Conservation Web Soil Survey: http://websoilsurvey.nrcs.usda.gov/app/. The main soil units are outlined in the table below and as percentages of the monitoring inventory area:

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
FHB	Fernando-Hernandez association, nearly level	4.6	0.7%
OMD	Orejas-Montecito association, strongly sloping	57.2	8.9%
PGC	Petaca-Silva association, gently sloping	46.9	7.3%
RBE	Raton-Stunner association, moderately steep	202.6	31.4%
RRE	Rock outcrop-Raton complex, moderately steep	334.1	51.8%
Totals for Area of Interest		**645.5**	**100.0%**

(FHB)- Fernando-Hernandez association- nearly level

Fernando-Hernandez association- nearly level (FHB) soils were found in the eastern edges of the Cerro Montoso Pre Treatment A and B inventory units. Small amounts of FHB was also found on the eastern edge of the Cerro Montoso post-treatment inventory unit and comprises .7% of the inventory area. This association consists of nearly level and undulating soils on alluvial fans and valley sides wih elevation ranging from 6,500 to 7500 feet. Soils of these types occur in areas with a mean annual precipitation of 12 inches and mean annual temperature of 49 degrees Fahrenheit. This association is about 65% Fernando clay loam, 1-3 percent slopes and 20% Hernandez loam with 3 to 5 percent slopes. The nearly level Fernando soil is on the bottom of large alluvial fans. The Fernando soil is deep and well drained, forming in mixed alluvium. It is moderately slowly permeable with an effective rooting depth of 60 inches or more. The available water capacity is high and runoff is slow. The hazards of water and wind erosion are moderate (USDA Natural Resources Conservation Service, 1982).

Cerro Montoso Soil Units



Map Unit Legend
Taos County and Parts of Rio Arriba and Mora Counties, New Mexico (NM670)

- FHB Fernando-Hernandez association, nearly level 4.6 0.7%
- OMD Orejas-Montecito association, strongly sloping 57.2 8.9%
- PGC Petaca-Silva association, gently sloping 46.9 7.3%
- RBE Raton-Stunner association, moderately steep 202.6 31.4%
- RRE Rock outcrop-Raton complex, moderately steep 334.1 51.8%

1:40,000

0 0.25 0.5 1 Miles

OMD—Orejas-Montecito association, strongly sloping

Orejas-Montecito association, strongly sloping soils (OMD) were found on the Cerro Montoso pre-treatment A and B inventory units and comprises 8.9% of the inventory area. The OMD association is found on the sides of old volcanic cones at an elevation of 7,000 to 8,000 feet. Soils of these types occur in areas with a mean annual precipitation of 14 inches and a mean annual temperature of 52 degrees Fahrenheit. Rock outcrop makes up about 20% of this association. The Orejas soils are shallow and well drained formed from basalt. Permeability is slow and the effective rooting depth is 10 to 20 inches. The water capacity is very low and runoff is medum with hazards of water erosion as moderate. The Montecito soil is deep and well drained formed in alluvium derived from basalt. The Montecito soil's permeability is moderately slow with an effective rooting depth of 60 inches or more. The available water capacity is moderate to high and runoff is medium. The hazard of water erosion is moderate. These soils produce piñon pine and oneseed juniper and other vegeatation such as blue gramma, big sagebrush, sideoats gramma and muttongrass. This association has medium potential for the development of habitat for rangeland wildlife (USDA Natural Resources Conservation Service, 1982).

PGC—Petaca-Silva association, gently sloping

Petaca-Silva association, gently sloping soils (PGC) are found in both the Cerro de la Olla and Cerro Montoso post-treatment inventory areas comprises 7.3% of the total area. The PGC association is found on uplands at an elevation of 6,500 to 7,800 feet. Soils of these types occur in areas with a mean annual precipitation of 12 inches and a mean annual temperature of 49 degrees. This soil association is about 35% Petaca stony loam, 25% Silva loam, and 20% Prieta stony silta clay loam. The Petaca soil is on the more stony side slopes and ridgetops. The silva soil is in the deeper areas between basalt ridges while the Prieta soil is generally less sloping. The Petaca and Prieta soils formed from weathered basalt and eolian sediment. The Silva soil formed from eolian and old alluvial sediment. The Petaca and Prieta soils are slowly to moderately permeable with an effective rooting depth at 10 to 20 inches. Soil runoff is medium to rapid and the water rerosion hazzard is moderate. The Silva soil is slowly permeable with a rooting depth of 60 inches or more. The available water capacity is high and the runoff is medium. The hazard for water erosion for Silva soils is moderate (USDA Natural Resources Conservation Service, 1982).

RBE—Raton-Stunner association, moderately steep

Raton-Stunner association, moderately steep (RBE) soils were only found in the Cerro de la Olla inventory site and comprises 31.4% of the total inventory area. The RBE association is found on sides of old volcanic cones at an elevation of 7,600 to 10,000 feet. Soils of these types occur in areas with a mean annual precipitation of 15 inches and a mean annual temperature of 41 degrees. Raton cobbly silt loam makes up about 40% of this soil and Stunner cobbly loam makes up about 25% with rock outcrop comprising about 15%. The Raton soils is on steep slopes while the Stunner soils is on smooth foot

slopes. The Raton soils are shallow and slowly permeable with an effective rooting depth of 10 to 20 inches. The available water capacity is very low and runoff is rapid with a high hazard for water erosion. The Stunner soils are moderately permeable with an effective rooting depth of 60 inches or more. The available water capacity high and runoff is slow with a moderate hazard for water erosion (USDA Natural Resources Conservation Service, 1982).

RRE—Rock outcrop-Raton complex, moderately steep

Rock outcrop-Raton complex, moderately steep (RRE) soils were found on the Cerro Montoso pre-treatment A and B and post-treatment inventory units and comprises 51.8% of the total inventory area. This complex consists of areas of Rock outcrop and Raton very stony silt loam that area so intermingled that they could not be mapped separately. Rock outcrop is steep to very steep with eleveation ranging from 8,000 to 9,000 feet. Soils of these types occur in areas similar to Raton soil with a mean annual precipitation of 15 inches and a mean annual temperature of 41 degrees. Rock outcrop consists of folded, broken and exposed basalt flows. Runoff is rapid but the erosion hazard is slight (USDA Natural Resources Conservation Service, 1982). Raton soils were mentioned in the section above.

Forest Insect Damage in Taos County

The most common insects and found in Taos county include; Douglas-Fir Beetle (*Dendroctonus pseudotsugae)*, Spruce Beetle (*Dendroctonus rufipennis*), Western Pine Beetle (*Dendroctonus brevicomis*) and Western Spruce Budworm (*Choristoneura occidentalis*) (http://foresthealth.fs.usda.gov/). A table outline the type of instect damage and associated acreage can be found in the table listed below.

Region	County	DCA	Common name	Year	Acres
3	TAOS	11007	Douglas-Fir Beetle	2009	522
3	TAOS	11007	Douglas-Fir Beetle	2010	141
3	TAOS	11007	Douglas-Fir Beetle	2011	3709
3	TAOS	11007	Douglas-Fir Beetle	2012	4425
3	TAOS	11007	Douglas-Fir Beetle	2013	10970
3	TAOS	11009	Spruce Beetle	2010	33
3	TAOS	11009	Spruce Beetle	2011	2
3	TAOS	11009	Spruce Beetle	2012	100
3	TAOS	11009	Spruce Beetle	2013	812
3	TAOS	91304	Subalpine Fir Mortality Summary	2009	13694
3	TAOS	91304	Subalpine Fir Mortality Summary	2010	11984
3	TAOS	91304	Subalpine Fir Mortality Summary	2011	4329
3	TAOS	91304	Subalpine Fir Mortality Summary	2012	4196
3	TAOS	91304	Subalpine Fir Mortality Summary	2013	6877
3	TAOS	11002	Western Pine Beetle	2009	1
3	TAOS	11002	Western Pine Beetle	2010	3
3	TAOS	11002	Western Pine Beetle	2011	10
3	TAOS	11002	Western Pine Beetle	2012	7
3	TAOS	11002	Western Pine Beetle	2013	119
3	TAOS	12040	Western Spruce Budworm	2009	157910
3	TAOS	12040	Western Spruce Budworm	2010	106831
3	TAOS	12040	Western Spruce Budworm	2011	109116
3	TAOS	12040	Western Spruce Budworm	2012	114722
3	TAOS	12040	Western Spruce Budworm	2013	86361

2014 Forest Inventory Monitoring

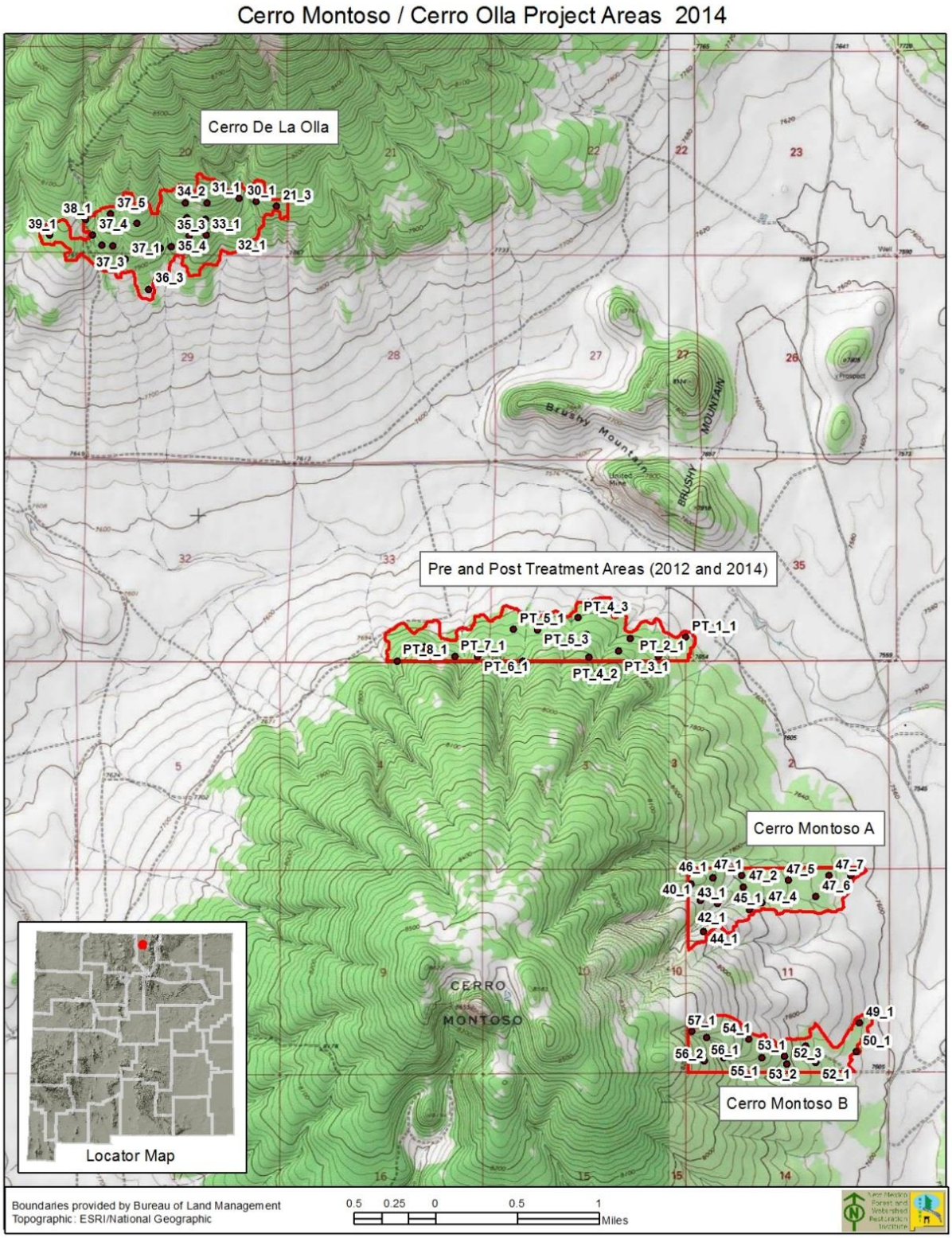


Figure 1. 2014 Monitoring Sample Plots (62 Plots)

Section I Cerro De La Olla

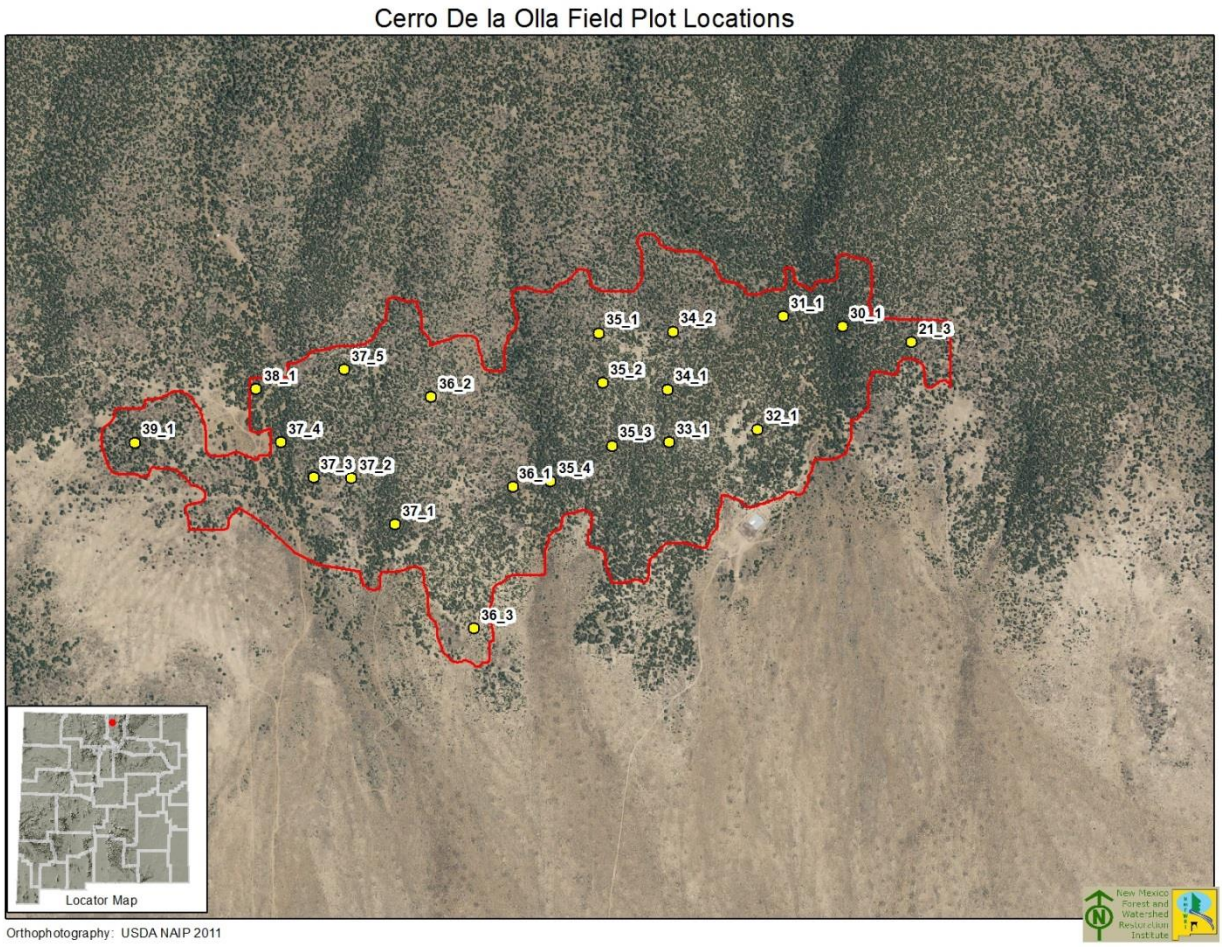


Figure 2. 2014 Cerro De La Olla Monitoring Plots (21 Plots)

The woodland growing in the Cerro de la Olla area exhibits some unique traits, but falls within what is typical for northern New Mexico. No forestland species are present. The species that are present only reach a basal acre (BA, with units equal to sq.ft. per acre) of 79. The individuals are skewed to smaller trees; saplings number 98 trees per acre (TPA), making up 39% of the total TPA but only 7% of the total BA (Table 1). 86% of the individual trees were piñon, and they were growing with Rocky Mountain juniper, not one-seed juniper (Table 2). On individual plots, TPA ranged from 80 to 510, and BA from 16 to 128 (Table 3). Tree canopy cover was 47%, as is typical for PJ, and grass cover was 23%. Average bare soil and rock were relatively high throughout this project, and here were 12% and 29%, respectively (Table 5).

This area was not treated during the time FWRI worked on the area. Given the reasonable basal area in the existing stand, we support the use of restoration funds on other areas.

Table 1. Monitoring Summary of Tree Component – Cerro Olla (2014) (21 plots)

Stand Total		Saplings			Pole			Tree or Sawlog											*Total by Class,Growing Stock & Dead*	*%by Class, Growing Stock vs Dead*
Diameter Class		***0***	***2***	***4***	***6***	***8***	***10***	***12***	***14***	***16***	***18***	***20***	***22***	***24***	***26***	***28***	***30***	***32***		
Growing Stock (All living trees in woodland & forestland)	**COUNT**	31	69	106	99	89	71	38	14	9	2	3	0	0	0	0	0	0	***531.00***	
	TPA	14.76	32.86	50.48	47.14	42.38	33.81	18.10	6.67	4.29	0.95	1.43	0.00	0.00	0.00	0.00	0.00	0.00	***252.86***	***92.19%***
	BA/AC	0.02	0.82	4.58	9.54	14.97	17.79	13.61	6.93	5.77	1.78	3.02	0.00	0.00	0.00	0.00	0.00	0.00	***78.83***	***91.01%***
	AVE HT, H_L	5	8	10	13	15	16	16	18	19	16	21	0.00	0.00	0.00	0.00	0.00	0.00		
Summary by Size Class (All living trees in woodland & forestland)	**TPA**	98.10			123.33			31.43											***252.86***	
	TPA %	38.79%			48.78%			12.43%											***100.00%***	
	BA/AC	5.43			42.30			31.11											***78.83***	
	BA/AC %	6.88%			53.66%			39.46%											***100.00%***	
	QMD MEAN DIA.	3.18			7.93			13.47											***7.56***	
	AVE HT, H_L	10			15			17											***16***	
Dead (All dead trees in woodland & forestland)	**COUNT**	0	5	6	10	15	6	1	0	0	1	1	0	0	0	0	0	0	***45.00***	
	TPA	0.00	2.38	2.86	4.76	7.14	2.86	0.48	0.00	0.00	0.48	0.48	0.00	0.00	0.00	0.00	0.00	0.00	***21.43***	***7.81%***
	BA/AC	0.00	0.07	0.23	1.03	2.51	1.55	0.37	0.00	0.00	0.89	1.13	0.00	0.00	0.00	0.00	0.00	0.00	***7.78***	***8.99%***
	AVE HT, H_L	0.00	6	8	12	11	13	13	0.00	0.00	16	20	0.00	0.00	0.00	0.00	0.00	0.00	***13***	
Total for all sample trees including	**COUNT**	31	74	112	109	104	77	39	14	9	3	4	0	0	0	0	0	0	***576.00***	
	TPA	14.76	35.24	53.33	51.90	49.52	36.67	18.57	6.67	4.29	1.43	1.90	0.00	0.00	0.00	0.00	0.00	0.00	***274.29***	***100.00%***
	BA/AC	0.02	0.89	4.81	10.58	17.48	19.34	13.97	6.93	5.77	2.67	4.15	0.00	0.00	0.00	0.00	0.00	0.00	***86.61***	***100.00%***

Table 2. Woodland Species by Diameter Class - Cerro Olla (2014), No Forestland Species Present

Woodland Species		Saplings			Pole			Mature Trees											Total by Species	%Species for all G-Stock
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32+*		
PIED	COUNT	18	55	88	88	84	67	32	12	8	1	2	0	0	0	0	0	0	*455.00*	
Piñon pine	TPA	8.57	26.19	41.90	41.90	40.00	31.90	15.24	5.71	3.81	0.48	0.95	0.00	0.00	0.00	0.00	0.00	0.00	*216.67*	*85.69%*
	BA/AC	0.02	0.67	3.91	8.53	14.09	16.76	11.51	5.95	5.03	0.89	2.07	0.00	0.00	0.00	0.00	0.00	0.00	*69.42*	*88.06%*
	AVE HT. (H_L)	5	8	11	13	16	17	16	18	20	22	24	0.00	0.00	0.00	0.00	0.00	0.00		
JUSC2	COUNT	13	14	18	11	5	4	6	2	1	1	1	0	0	0	0	0	0	*76.00*	
Rocky Mnt juniper	TPA	6.19	6.67	8.57	5.24	2.38	1.90	2.86	0.95	0.48	0.48	0.48	0.00	0.00	0.00	0.00	0.00	0.00	*36.19*	*14.31%*
	BA/AC	0.01	0.16	0.67	1.01	0.88	1.03	2.10	0.98	0.74	0.89	0.95	0.00	0.00	0.00	0.00	0.00	0.00	*9.41*	*11.94%*
	AVE HT. (H_L)	6	8	10	13	14	12	14	17	12	9	13	0.00	0.00	0.00	0.00	0.00	0.00		
Woodland Species	***COUNT***	***31***	***69***	***106***	***99***	***89***	***71***	***38***	***14***	***9***	***2***	***3***	***0***	***0***	***0***	***0***	***0***	***0***	*531.00*	
Sub-total	***TPA***	***14.76***	***32.86***	***50.48***	***47.14***	***42.38***	***33.81***	***18.10***	***6.67***	***4.29***	***0.95***	***1.43***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	*252.86*	*100.00%*
	BA/AC	***0.02***	***0.82***	***4.58***	***9.54***	***14.97***	***17.79***	***13.61***	***6.93***	***5.77***	***1.78***	***3.02***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	*78.83*	*100.00%*
	AVE HT. (H_L)	***5***	***8***	***10***	***13***	***15***	***16***	***16***	***18***	***19***	***16***	***21***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***		
Summary by Size	***TPA***	***98.10***			***123.33***			***31.43***											*252.86*	
Class for Woodland	***TPA %***	***38.79%***			***48.78%***			***12.43%***											*100.00%*	
Species	***BA/AC***	***5.43***			***42.30***			***31.11***											*78.83*	
	BA/AC %	***6.88%***			***53.66%***			***39.46%***											*100.00%*	
	QUADRATIC MEAN DIA.	***3.18***			***7.93***			***13.47***											*7.56*	
	AVE HT. (H_L)	***10***			***15***			***17***											*16*	

Table 3. Individual Plot Summary - Cerro Olla (2014)

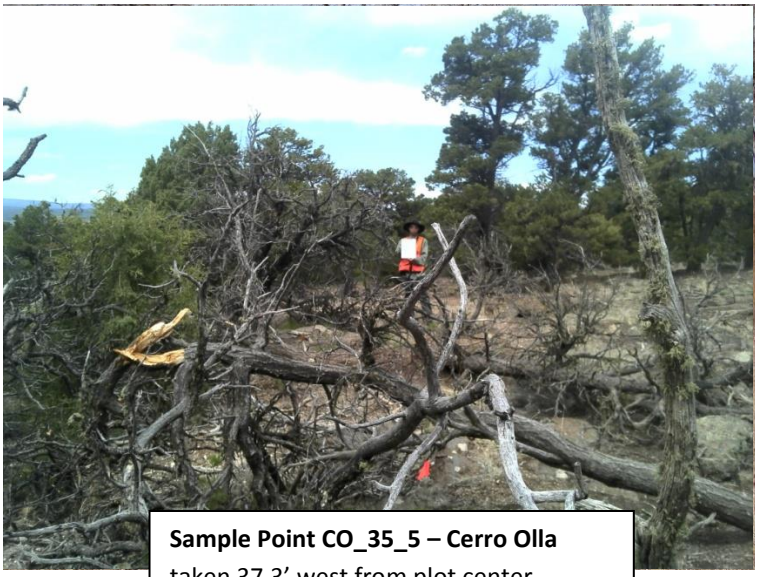
Macro Plot Name	Total number of sample trees on plot	Growing Stock		
		Number of growing stock sample trees on plot	Trees per Acre	Basal Area per Acre
21_3	32	27	270	90.44
30_1	32	29	290	108.89
31_1	35	35	350	98.13
32_1	49	49	490	62.87
33_1	30	28	280	77.13
34_1	30	30	300	111.59
34_2	19	15	150	46.20
35_1	12	8	80	17.09
35_2	52	51	510	81.58
35_3	33	32	320	77.99
35_4	41	37	370	127.55
36_1	13	11	110	50.04
36_2	30	25	250	76.63
36_3	22	22	220	15.88
37_1	28	25	250	78.93
37_2	20	19	190	79.66
37_3	21	19	190	93.18
37_4	19	18	180	124.20
37_5	16	15	150	35.81
38_1	22	21	210	104.10
39_1	20	15	150	97.55
Total	**Total number of sample trees on plot**	**Number of growing stock**	**Average for all Plots**	
			TPA	**BA/AC**
	576.00	**531.00**	**252.86**	**78.83**

Table 4. Summary Table for All Plots– Cerro Olla (2014)

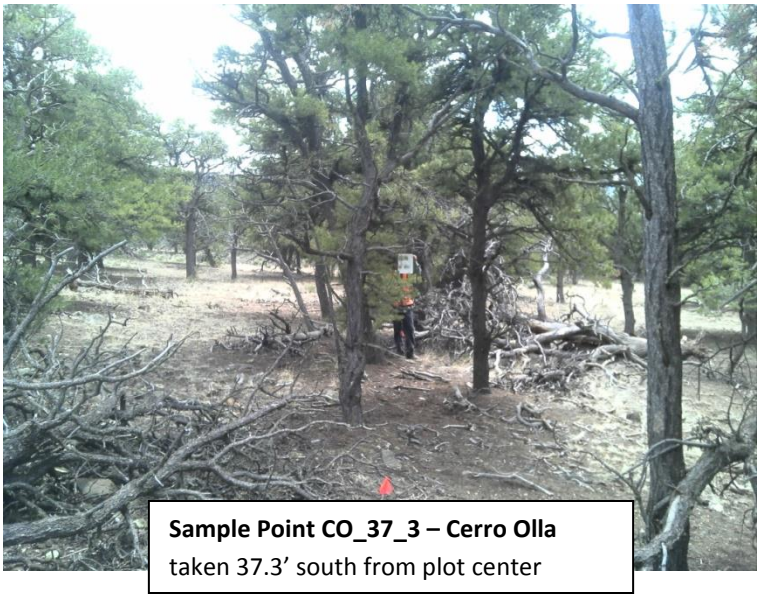
Cerro De la Ollia				May 2014	
Summary Table for all Plots			**# Sample Trees on plot**	**Trees per acre**	**Basal area per acre**
Plot Total			**576.00**	**274.29**	**86.61**
Growing Stock		Healthy (H)	0.00	0.00	0.00
		Unhealthy(U)	0.00	0.00	0.00
		Sick (S)	0.00	0.00	0.00
		Living (L)	531.00	252.86	78.83
Sum of Growing Stock			**531.00**	**252.86**	**78.83**
Dead		Dead (D)	45.00	21.43	7.78
Sum of Dead			**45.00**	**21.43**	**7.78**
Plot Total:		**Sum of Growing Stock & Dead**	**576.00**	**274.29**	**86.61**

Table 5. Average Percent Cover for Plot Descriptions – Cerro Olla (2014)

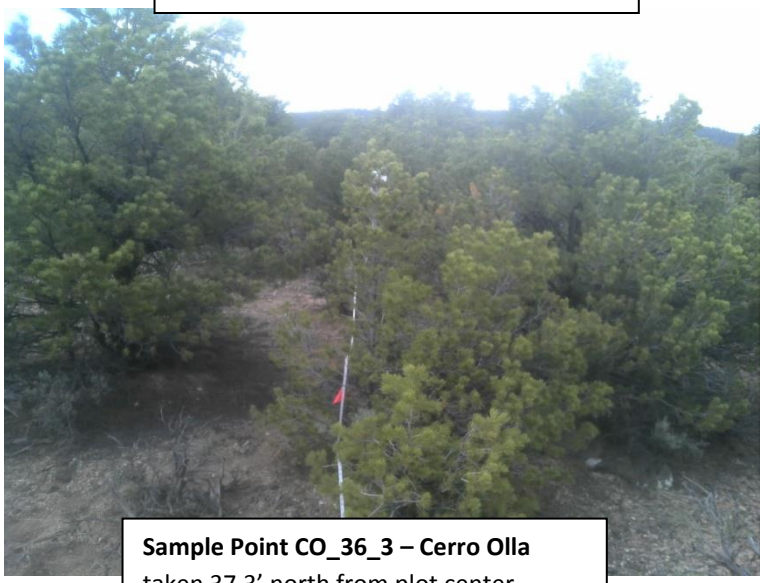
Tree Canopy	Seedlings/Saplings	Shrub cover	Graminoid Cover	Forb Cover	Litter	Bare Soil	Rock/Gravel
47%	4.24%	2.86%	22.57%	1.57%	16.79%	12.19%	28.70%



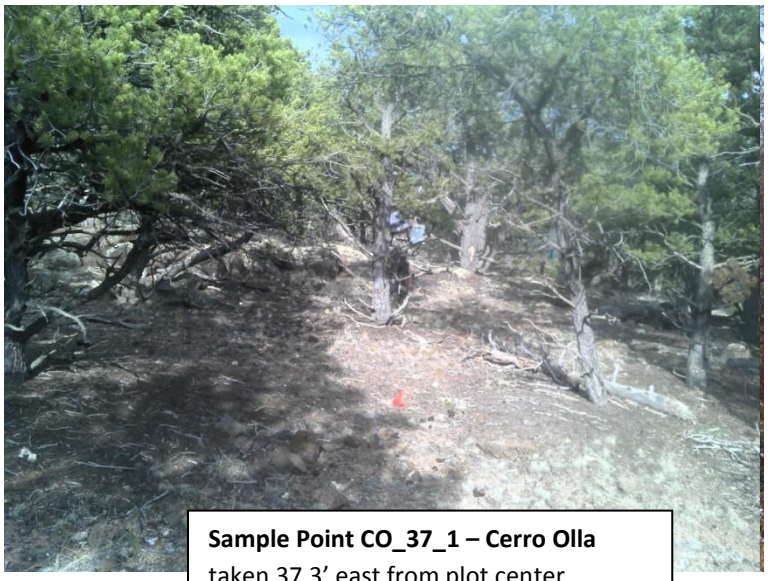
Sample Point CO_35_5 – Cerro Olla
taken 37.3’ west from plot center



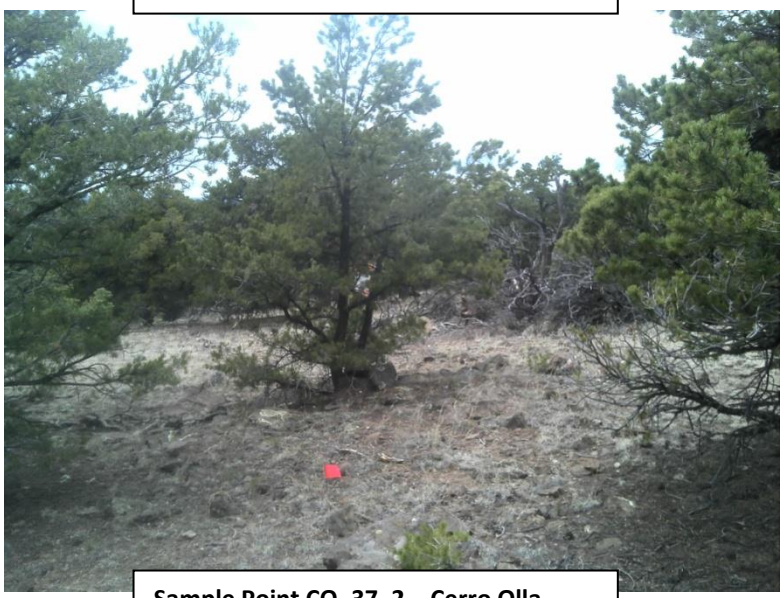
Sample Point CO_37_3 – Cerro Olla
taken 37.3’ south from plot center



Sample Point CO_36_3 – Cerro Olla
taken 37.3’ north from plot center



Sample Point CO_37_1 – Cerro Olla
taken 37.3’ east from plot center



Sample Point CO_37_2 – Cerro Olla
taken 37.3’ west from plot center

Sample Point CO_31_3 – Cerro Olla
taken 37.3’ east from plot center

Figure 3. Sample Monitoring Point Photographs, Cerro De La Olla May 2014

Section II Cerro Montoso Pre and Post Treatment Monitoring Plots

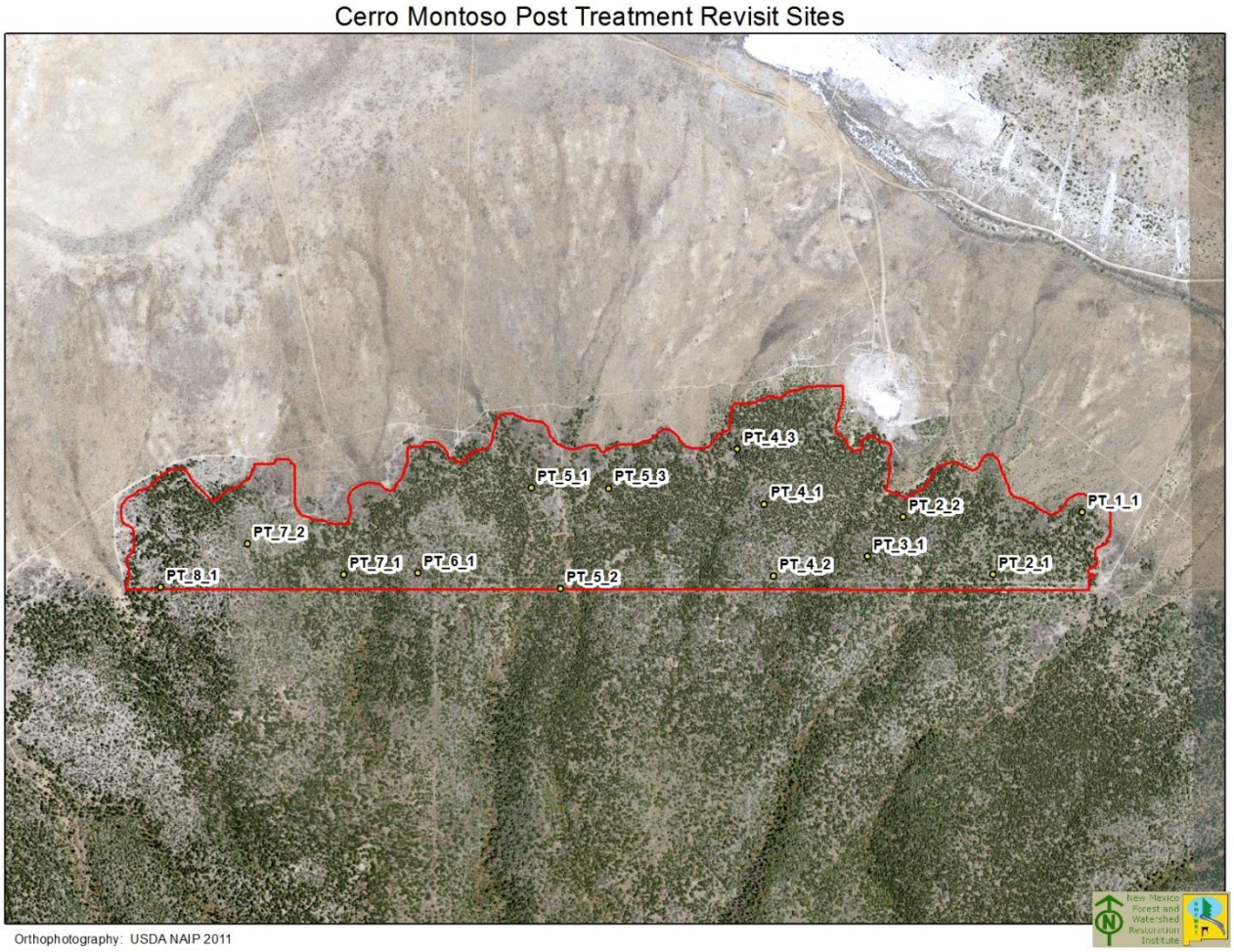


Figure 4. Cerro Montoso Pre (2012) and Post (2014) Treatment Monitoring Plots (14 Plots)

Monitoring plots were established on this portion of the Cerro Montoso area in 2012, prior to treatment. When the plots were remeasure post-treatment in 2014, plot 4-2 had only stumps, and no trees remained standing. The analysis program FFI has problems in this situation; plot 4-2 was dropped from the standing tree analysis, and Tables 7, 9, 11, and 13 were calculated based on 13 rather than 14 plots. Plot 4-2 should have been included as a plot with no trees. In the narrative below, the correct values for the cited statistics have been hand-calculated based on 14 plots, resulting in about a 7% difference from the values shown in Tables 7, 9, 11, and 13.

As with the Cerro de la Olla area, this Cerro Montosa area was mainly piñon and Rocky Mountain juniper. However, this area also had a scattering of one-seed juniper. Prior to treatment, it averaged 185 TPA with a BA of 57 (Table 6). Diameter distribution was skewed to small trees, especially with

Rocky Mountain juniper. 53% of the total trees were less than 6 inches in diameter (Table 8). On individual plots, TPA ranged from 80 to 280, and BA from 18 to 120 (Table 10). Tree canopy cover was at 38%, grass cover was 19%, litter cover was 25%, and bare soil and rock combined was 34% (Table 14). Based on these measures, this area was a good candidate for restoration thinning.

Post-treatment and including the plot 4-2, this area averaged 49 TPA with a BA of 47. Mainly small trees were cut; TPA for trees less than 12 inches in diameter dropped from 159 to 21. All the one-seed juniper were cut (Table 9). For the only time in this project, the low and high values for TPA and BA matched up on the individual plots, with 2-1 the low plot and 5-2 the high plot. TPA ranged from 10 to 200, and BA from 11 to 76 (Table 11). Post-treatment, average tree canopy cover dropped to 23%, grass cover increased to 31%, litter cover was 39%, and bare soil and rock combined was 29% (Table 14). Grass cover almost always increases after thinning, but an increase as rapid as this is unusual, and is probably related to the wet September 2013.

Table 6. Monitoring Summary of Tree Component – Cerro Montoso Pre-Treatment (2012)

Stand Total		Saplings			Pole			Tree or Sawlog											*Total by Class,Growing Stock & Dead*	*%by Class, Growing Stock vs Dead*
Diameter Class		***0***	***2***	***4***	***6***	***8***	***10***	***12***	***14***	***16***	***18***	***20***	***22***	***24***	***26***	***28***	***30***	***32***		
Growing Stock (All living trees in woodland & forestland)	**COUNT**	43	58	36	38	27	20	12	10	7	4	1	2	1	0	0	0	0	***259.00***	
	TPA	30.71	41.43	25.71	27.14	19.29	14.29	8.57	7.14	5.00	2.86	0.71	1.43	0.71	0.00	0.00	0.00	0.00	***185.00***	***87.21%***
	BA/AC	0.05	0.75	2.37	5.35	6.78	7.65	6.82	7.43	7.04	4.91	1.70	3.91	2.09	0.00	0.00	0.00	0.00	***56.84***	***83.82%***
	AVE HT, H_L	6	11	14	15	17	19	21	19	21	24	29	17	16	0	0	0	0		
Summary by Size Class (All living trees in woodland & forestland)	**TPA**	97.86			60.71			26.43											***185.00***	
	TPA %	52.90%			32.82%			14.29%											***100.00%***	
	BA/AC	3.16			19.78			33.90											***56.84***	
	BA/AC %	5.57%			34.80%			59.64%											***100.00%***	
	QMD MEAN DIA.	2.43			7.73			15.34											***7.51***	
	AVE HT, H_L	13			17			21											***19***	
Dead (All dead trees in woodland & forestland)	**COUNT**	1	2	8	18	1	1	2	2	1	0	1	1	0	0	0	0	0	***38.00***	
	TPA	0.71	1.43	5.71	12.86	0.71	0.71	1.43	1.43	0.71	0.00	0.71	0.71	0.00	0.00	0.00	0.00	0.00	***27.14***	***12.79%***
	BA/AC	0.00	0.04	0.46	2.65	0.26	0.34	1.03	1.52	1.05	0.00	1.65	1.97	0.00	0.00	0.00	0.00	0.00	***10.98***	***16.18%***
	AVE HT, H_L	6	10	14	15	15	13	19	16	17	0	23	31	0	0	0	0	0	***20***	
Total for all sample trees including	**COUNT**	44	60	44	56	28	21	14	12	8	4	2	3	1	0	0	0	0	***297.00***	
	TPA	31.43	42.86	31.43	40.00	20.00	15.00	10.00	8.57	5.71	2.86	1.43	2.14	0.71	0.00	0.00	0.00	0.00	***212.14***	***100.00%***
	BA/AC	0.05	0.80	2.83	8.00	7.03	7.99	7.85	8.95	8.08	4.91	3.35	5.88	2.09	0.00	0.00	0.00	0.00	***67.82***	***100.00%***

Table 7. Monitoring Summary of Tree Component – Cerro Montoso Post Treatment (2014)

Stand Total		Saplings			Pole			Tree or Sawlog											Total by Class,Growing Stock & Dead	%by Class, Growing Stock vs Dead
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32*		
Growing Stock (All living trees in woodland & forestland)	**COUNT**	1	5	4	4	4	11	14	8	5	3	5	3	2	0	0	0	0	***69.00***	
	TPA	0.77	3.85	3.08	3.08	3.08	8.46	10.77	6.15	3.85	2.31	3.85	2.31	1.54	0.00	0.00	0.00	0.00	***53.08***	***95.83%***
	BA/AC	0.00	0.10	0.29	0.63	1.03	4.89	8.47	6.83	5.27	4.17	8.08	5.99	4.58	0.00	0.00	0.00	0.00	***50.33***	***93.02%***
	AVE HT, H_L	7	10	19	17	19	19	21	21	21	23	21	29	17	0.00	0.00	0.00	0.00		
Summary by Size Class (All living trees in woodland & forestland)	**TPA**	7.69			14.62			30.77											***53.08***	
	TPA %	14.49%			27.54%			57.97%											***100.00%***	
	BA/AC	0.39			6.55			43.39											***50.33***	
	BA/AC %	0.78%			13.01%			86.21%											***100.00%***	
	QMD MEAN DIA.	3.06			9.06			16.08											***13.19***	
	AVE HT, H_L	17			18			22											***21***	
Dead (All dead trees in woodland & forestland)	**COUNT**	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	***3.00***	
	TPA	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.00	0.77	0.00	0.00	0.77	0.00	0.00	0.00	0.00	0.00	***2.31***	***4.17%***
	BA/AC	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	1.20	0.00	0.00	2.11	0.00	0.00	0.00	0.00	0.00	***3.77***	***6.98%***
	AVE HT, H_L	0.00	0.00	0.00	0.00	0.00	5	0.00	0.00	5	0.00	0.00	24	0.00	0.00	0.00	0.00	0.00	***15***	
Total for all sample trees including	**COUNT**	1	5	4	4	4	12	14	8	6	3	5	4	2	0	0	0	0	***72.00***	
	TPA	0.77	3.85	3.08	3.08	3.08	9.23	10.77	6.15	4.62	2.31	3.85	3.08	1.54	0.00	0.00	0.00	0.00	***55.38***	***100.00%***
	BA/AC	0.00	0.10	0.29	0.63	1.03	5.36	8.47	6.83	6.47	4.17	8.08	8.09	4.58	0.00	0.00	0.00	0.00	***54.10***	***100.00%***

Table 8. Woodland Species by Diameter Class – Pre Treatment Cerro Montoso (2012)

Woodland Species		Saplings			Pole			Mature Trees											Total by Species	%Species for all G-Stock
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32+*		
PIED	COUNT	19	20	15	20	16	14	10	8	3	3	1	0	0	0	0	0	0	*129.00*	
Piñon pine	TPA	13.57	14.29	10.71	14.29	11.43	10.00	7.14	5.71	2.14	2.14	0.71	0.00	0.00	0.00	0.00	0.00	0.00	*92.14*	*49.81%*
	BA/AC	0.02	0.28	1.11	2.84	3.98	5.43	5.78	5.84	2.99	3.77	1.70	0.00	0.00	0.00	0.00	0.00	0.00	*33.74*	*59.36%*
	AVE HT. (H_L)	6	11	14	17	18	22	22	20	26	24	29	0	0	0	0	0	0		
JUMO	COUNT	0	3	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	*7.00*	
One-seed juniper	TPA	0.00	2.14	0.71	1.43	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*5.00*	*2.70%*
	BA/AC	0.00	0.05	0.07	0.29	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.64*	*1.12%*
	AVE HT. (H_L)	0	11	17	11	13	0	0	0	0	0	0	0	0	0	0	0	0		
JUSC2	COUNT	24	35	20	16	10	6	2	2	4	1	0	2	1	0	0	0	0	*123.00*	
Rocky Mnt juniper	TPA	17.14	25.00	14.29	11.43	7.14	4.29	1.43	1.43	2.86	0.71	0.00	1.43	0.71	0.00	0.00	0.00	0.00	*87.86*	*47.49%*
	BA/AC	0.03	0.42	1.19	2.23	2.57	2.22	1.03	1.59	4.04	1.14	0.00	3.91	2.09	0.00	0.00	0.00	0.00	*22.46*	*39.51%*
	AVE HT. (H_L)	7	10	13	14	15	13	17	15	17	25	0	17	16	0	0	0	0		
Woodland Species	*COUNT*	*43*	*58*	*36*	*38*	*27*	*20*	*12*	*10*	*7*	*4*	*1*	*2*	*1*	*0*	*0*	*0*	*0*	*259.00*	
Sub-total	*TPA*	*30.71*	*41.43*	*25.71*	*27.14*	*19.29*	*14.29*	*8.57*	*7.14*	*5.00*	*2.86*	*0.71*	*1.43*	*0.71*	*0.00*	*0.00*	*0.00*	*0.00*	*185.00*	*100.00%*
	BA/AC	*0.05*	*0.75*	*2.37*	*5.35*	*6.78*	*7.65*	*6.82*	*7.43*	*7.04*	*4.91*	*1.70*	*3.91*	*2.09*	*0.00*	*0.00*	*0.00*	*0.00*	*56.84*	*100.00%*
	AVE HT. (H_L)	*6*	*11*	*14*	*15*	*17*	*19*	*21*	*19*	*21*	*24*	*29*	*17*	*16*	*0*	*0*	*0*	*0*		
Summary by Size Class for Woodland Species	*TPA*	*97.86*			*60.71*			*26.43*											*185.00*	
	TPA %	*52.90%*			*32.82%*			*14.29%*											*100.00%*	
	BA/AC	*3.16*			*19.78*			*33.90*											*56.84*	
	BA/AC %	*5.57%*			*34.80%*			*59.64%*											*100.00%*	
	QUADRATIC MEAN DIA.	*2.43*			*7.73*			*15.34*											*7.51*	
	AVE HT. (H_L)	*13*			*17*			*21*											*19*	

Table 9. Woodland Species by Diameter Class – Post Treatment Cerro Montoso (2014)

Woodland Species		Saplings			Pole			Mature Trees											Total by Species	%Species for all G-Stock
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32+*		
PIED	COUNT	0	2	3	2	2	8	12	7	5	1	2	2	0	0	0	0	0	***46.00***	
Piñon pine	TPA	0.00	1.54	2.31	1.54	1.54	6.15	9.23	5.38	3.85	0.77	1.54	1.54	0.00	0.00	0.00	0.00	0.00	***35.38***	***66.67%***
	BA/AC	0.00	0.05	0.24	0.33	0.59	3.40	7.31	5.96	5.27	1.41	3.09	3.99	0.00	0.00	0.00	0.00	0.00	***31.64***	***62.87%***
	AVE HT. (H_L)	0.00	12	21	18	18	21	22	23	21	26	24	29.596	0.00	0.00	0.00	0.00	0.00		
JUSC2	COUNT	1	3	1	2	2	3	2	1	0	2	3	1	2	0	0	0	0	***23.00***	
Rocky Mnt juniper	TPA	0.77	2.31	0.77	1.54	1.54	2.31	1.54	0.77	0.00	1.54	2.31	0.77	1.54	0.00	0.00	0.00	0.00	***17.69***	***33.33%***
	BA/AC	0.00	0.05	0.04	0.30	0.45	1.49	1.16	0.87	0.00	2.77	4.99	1.99	4.58	0.00	0.00	0.00	0.00	***18.69***	***37.13%***
	AVE HT. (H_L)	7	8	9	15	19	13	17	12	0.00	22	18.326	27	17	0.00	0.00	0.00	0.00		
Woodland Species	***COUNT***	***1***	***5***	***4***	***4***	***4***	***11***	***14***	***8***	***5***	***3***	***5***	***3***	***2***	***0***	***0***	***0***	***0***	***69.00***	
Sub-total	***TPA***	***0.77***	***3.85***	***3.08***	***3.08***	***3.08***	***8.46***	***10.77***	***6.15***	***3.85***	***2.31***	***3.85***	***2.31***	***1.54***	***0.00***	***0.00***	***0.00***	***0.00***	***53.08***	***100.00%***
	BA/AC	***0.00***	***0.10***	***0.29***	***0.63***	***1.03***	***4.89***	***8.47***	***6.83***	***5.27***	***4.17***	***8.08***	***5.99***	***4.58***	***0.00***	***0.00***	***0.00***	***0.00***	***50.33***	***100.00%***
	AVE HT. (H_L)	***7***	***10***	***19***	***17***	***19***	***19***	***21***	***21***	***21***	***23***	***21***	***29***	***17***	***0.00***	***0.00***	***0.00***	***0.00***		
Summary by Size	***TPA***	***7.69***			***14.62***			***30.77***											***53.08***	
Class for Woodland	***TPA %***	***14.49%***			***27.54%***			***57.97%***											***100.00%***	
Species	***BA/AC***	***0.39***			***6.55***			***43.39***											***50.33***	
	BA/AC %	***0.78%***			***13.01%***			***86.21%***											***100.00%***	
	QUADRATIC MEAN DIA.	***3.06***			***9.06***			***16.08***											***13.19***	
	AVE HT. (H_L)	***17***			***18***			***22***											***21***	

Table 10. Individual Plot Summary Table for Pre Treatment Cerro Montoso (2012)

Macro Plot Name	Total number of sample trees on plot	Growing Stock		
		Number of growing stock sample trees on plot	Trees per Acre	Basal Area per Acre
1_1	26	26	260	69.28
2_1	28	28	280	23.24
2_2	26	24	240	69.87
3_1	14	10	100	47.54
4_1	22	8	80	36.67
4_2	15	10	100	18.41
4_3	24	24	240	57.25
5_1	28	28	280	119.80
5_2	28	28	280	79.32
5_3	32	28	280	54.65
6_1	14	9	90	62.87
7_1	20	20	200	72.69
7_2	9	8	80	50.90
8_1	13	10	100	33.28
Total	**Total number of sample trees on plot**	**Number of growing stock**	**Average for all Plots**	
			TPA	**BA/AC**
	299.00	**261.00**	**186.43**	**56.84**

Table 11. Individual Plot Summary Table for Post Treatment Cerro Montoso (2014)

Macro Plot Name	Total number of sample trees on plot	Growing Stock		
		Number of growing stock sample trees on plot	Trees per Acre	Basal Area per Acre
1_1	9	9	90	63.70
2_1	1	1	10	11.47
2_2	5	5	50	42.73
3_1	6	4	40	42.37
4_1	5	5	50	38.05
4_3	4	4	40	51.46
5_1	6	6	60	67.10
5_2	20	20	200	76.49
5_3	3	3	30	55.96
6_1	3	3	30	67.40
7_1	3	3	30	48.68
7_2	3	3	30	55.25
8_1	4	3	30	33.62
Total	**Total number of sample trees on plot**	**Number of growing stock**	**Average for all Plots**	
			TPA	**BA/AC**
	72.00	**69.00**	**53.08**	**50.33**

Table 12. Summary Table for all Plots - Pre Treatment Cerro Montoso (2012)

Summary Table for all Plots		# Sample Trees on plot	Trees per acre	Basal area per acre
Plot Total		**299.00**	**213.57**	**67.82**
Growing Stock	Healthy (H)	0.00	0.00	0.00
	Unhealthy(U)	0.00	0.00	0.00
	Sick (S)	0.00	0.00	0.00
	Living (L)	261.00	186.43	56.84
Sum of Growing Stock		**261.00**	**186.43**	**56.84**
Dead	Dead (D)	38.00	27.14	10.98
Sum of Dead		**38.00**	**27.14**	**10.98**
Plot Total: Growing Stock & Dead	**Sum of**	**299.00**	**213.57**	**67.82**

Table 13. Summary Table for all Plots - Post Treatment Cerro Montoso (2014)

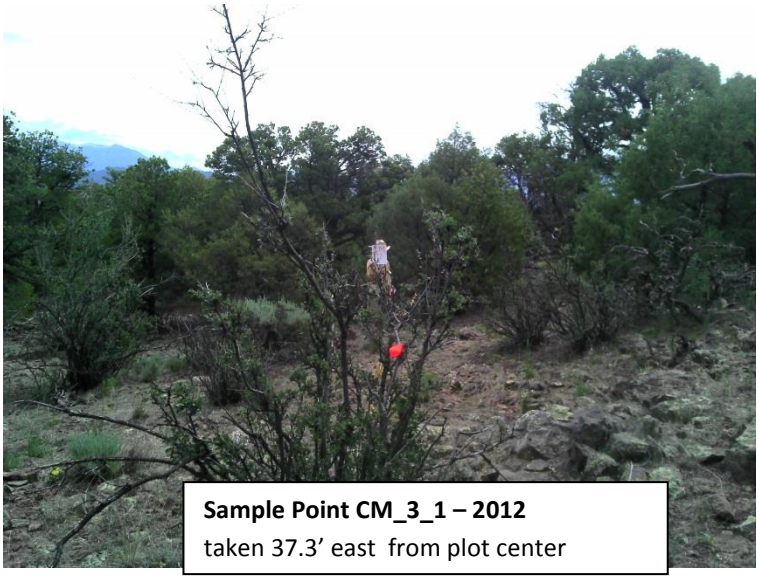
Cerro Montoso Revisit			May 2014	
Summary Table for all Plots		**# Sample Trees on plot**	**Trees per acre**	**Basal area per acre**
Plot Total		**72.00**	**55.38**	**54.10**
Growing Stock	Healthy (H)	0.00	0.00	0.00
	Unhealthy(U)	0.00	0.00	0.00
	Sick (S)	0.00	0.00	0.00
	Living (L)	69.00	53.08	50.33
Sum of Growing Stock		**69.00**	**53.08**	**50.33**
Dead	Dead (D)	3.00	2.31	3.77
Sum of Dead		**3.00**	**2.31**	**3.77**
Plot Total:	**Sum of Growing Stock & Dead**	**72.00**	**55.38**	**54.10**

Table 14. Average Percent Cover for Plot Descriptions – Pre Treatment Cerro Montoso (2012)

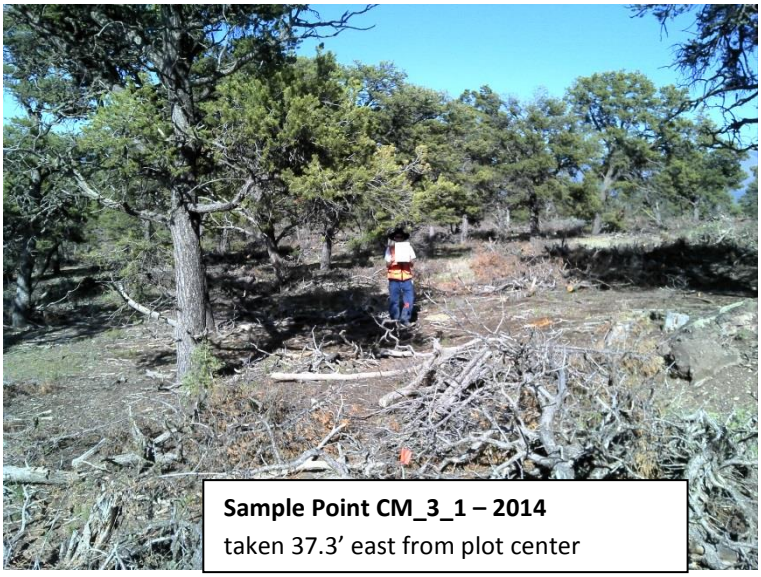
Tree Canopy	Seedling/Saplings Cover	Shrub cover	Graminoid Cover	Forb Cover	Litter	Bare Soil	Rock/Gravel
37.71%	6.1	13.7	18.8	1.4	25.7	15.0	19.3

Table 15. Average Percent Cover for Plot Descriptions – Post Treatment Cerro Montoso (2014)

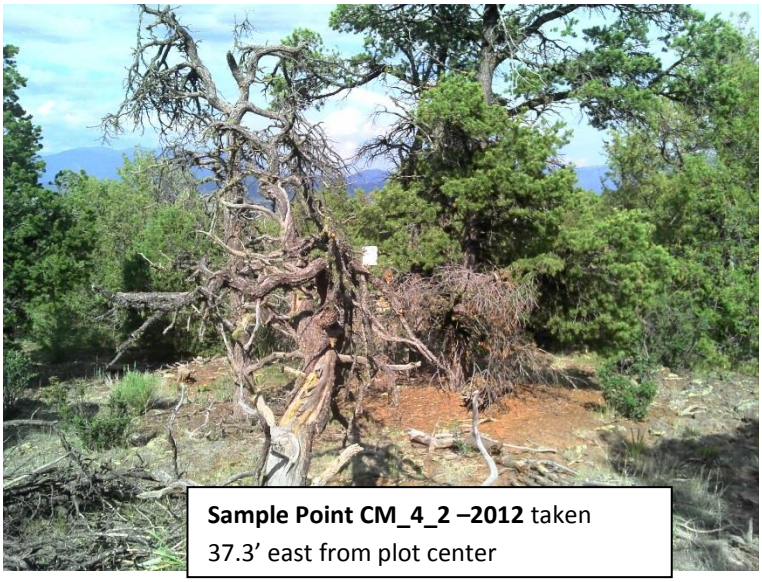
Tree Canopy	Seedlings/Saplings	Shrub cover	Graminoid Cover	Forb Cover	Litter	Bare Soil	Rock/Gravel
23%	4.14%	10.43%	31.46%	2.21%	38.61%	11.10%	17.90%



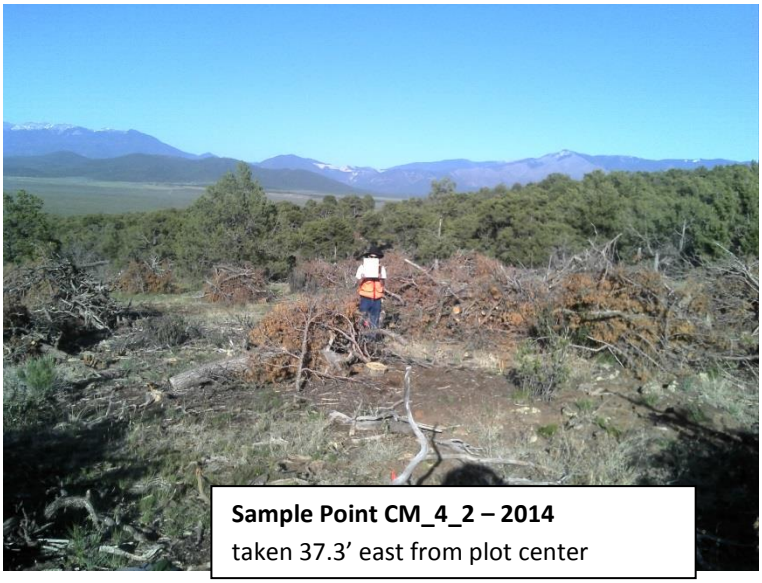
Sample Point CM_3_1 – 2012
taken 37.3’ east from plot center



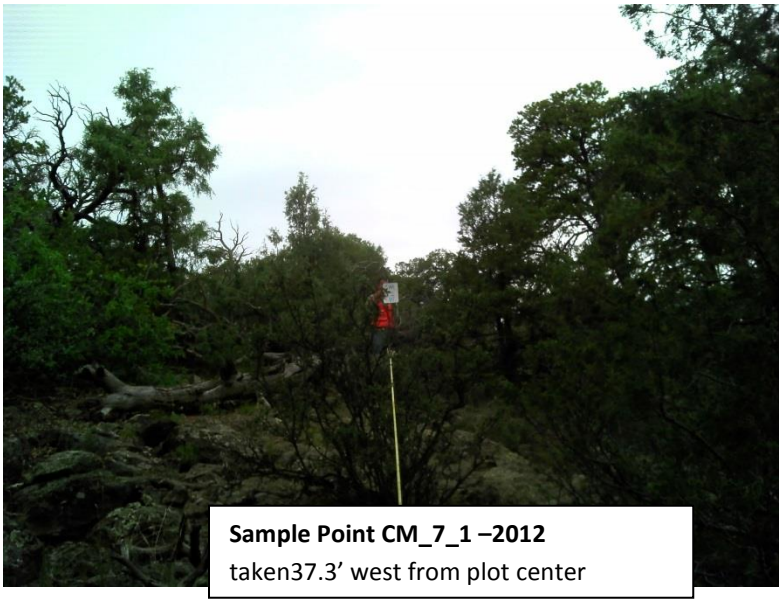
Sample Point CM_3_1 – 2014
taken 37.3’ east from plot center



Sample Point CM_4_2 –2012 taken 37.3’ east from plot center



Sample Point CM_4_2 – 2014
taken 37.3’ east from plot center



Sample Point CM_7_1 –2012
taken37.3’ west from plot center

Sample Point CM_7_1 – 2014 taken 37.3’ wast from plot center

Figure 5. Sample Monitoring Point Photographs, Cerro Montoso Pre (2012) and Post Treatment (2014)

Section III Cerro Montoso Section A

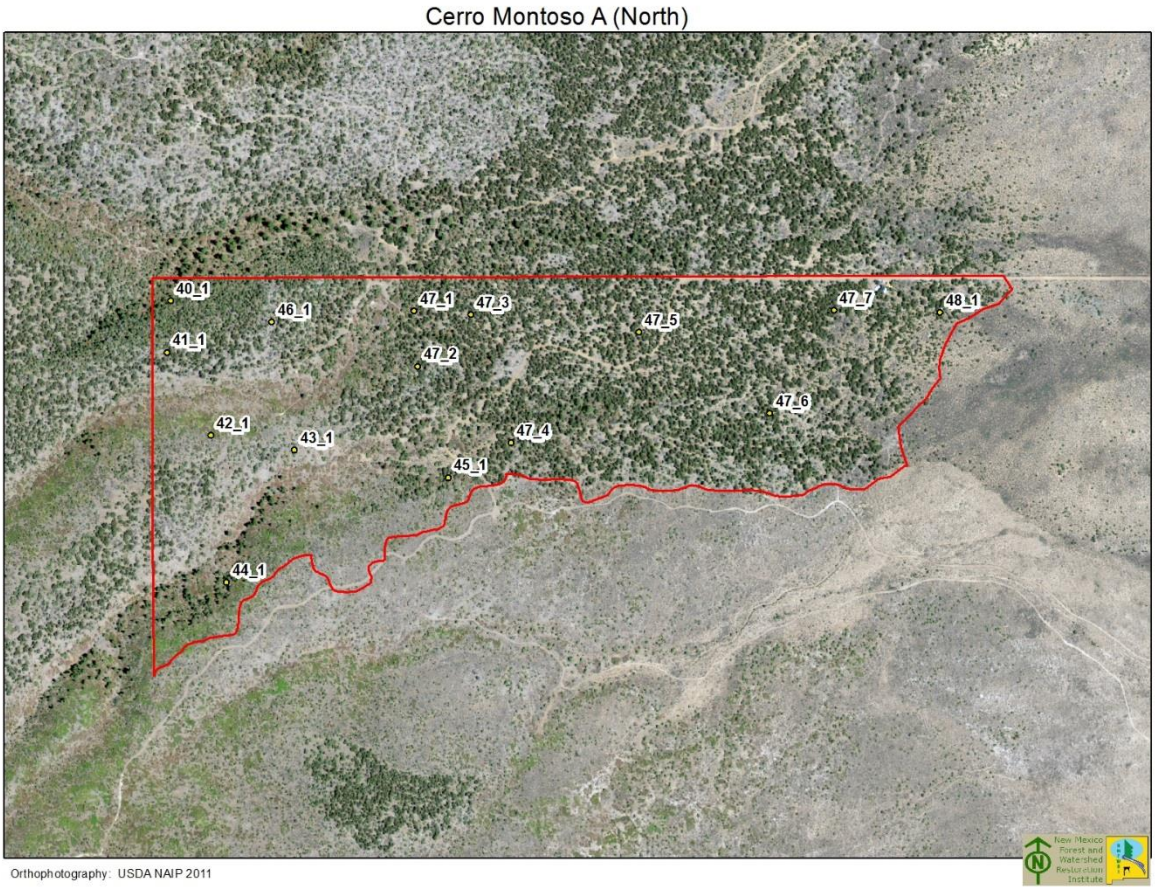


Figure 6. Cerro Montoso Section A Monitoring Plots (15 Plots)

This was the densest of the four areas in this project, with 327 TPA and 84 BA. As is usual, diameters were skewed to the small; only 12% of the trees were 12 inches and larger (Table 16). Piñon was only 30% of the TPA, but 56% of the total BA. 65% of the total TPA were Rocky Mountain juniper. No one-seed juniper were present, but Gambel oak was (Table 17). This area also had a scattering of ponderosa pine and Douglas-fir (Table 18) on the upper and more north-facing slopes. On individual plots, TPA ranged from 30 to 860, and BA from 5 (on the same plot as the 30 TPA) to 151 (Table 19). Despite being dense, tree canopy cover was only 23%, and grass cover was relatively high at 34%. Combined, bare soil and rock cover was 40%.

The drainage containing these plots and the drainage containing the Cerro Montoso Section B plots (see report Section IV, below) both generally faced east. However, the upper portion of Cerro Montoso A faced NE and that of Cerro Montoso B faced SE. This slight difference in aspect was enough to cause

noticeable differences in vegetation, especially in overall density and in numbers and diameter distribution of the forest tree species (Tables 18 and 24).

Table 16. Monitoring Summary of Tree Component – Cerro Montoso Area A (2014) (15 Plots)

Stand Total		Saplings			Pole			Tree or Sawlog											Total by Class,Growing Stock & Dead	%by Class, Growing Stock vs Dead
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32*		
Growing Stock (All living trees in woodland & forestland)	**COUNT**	97	142	67	61	33	30	20	13	12	6	5	3	1	0	0	0	0	***490.00***	
	TPA	64.67	94.67	44.67	40.67	22.00	20.00	13.33	8.67	8.00	4.00	3.33	2.00	0.67	0.00	0.00	0.00	0.00	***326.67***	***91.59%***
	BA/AC	0.07	1.80	3.76	7.70	7.19	10.76	10.69	9.27	11.23	7.09	7.42	5.20	1.99	0.00	0.00	0.00	0.00	***84.17***	***90.58%***
	AVE HT, H_L	8	9	12	14	16	20	19	21	18	24	20	20	32	0.00	0.00	0.00	0.00		
Summary by Size Class (All living trees in woodland & forestland)	**TPA**	204.00			82.67			40.00											***326.67***	
	TPA %	62.45%			25.31%			12.24%											***100.00%***	
	BA/AC	5.63			25.65			52.89											***84.17***	
	BA/AC %	6.69%			30.47%			62.84%											***100.00%***	
	QMD MEAN DIA.	2.25			7.54			15.57											***6.87***	
	AVE HT, H_L	11			17			21											***19***	
Dead (All dead trees in woodland & forestland)	**COUNT**	1	18	8	5	3	1	6	2	0	0	0	1	0	0	0	0	0	***45.00***	
	TPA	0.67	12.00	5.33	3.33	2.00	0.67	4.00	1.33	0.00	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	***30.00***	***8.41%***
	BA/AC	0.00	0.31	0.41	0.66	0.70	0.34	3.20	1.53	0.00	0.00	0.00	1.62	0.00	0.00	0.00	0.00	0.00	***8.75***	***9.42%***
	AVE HT, H_L	8	8	5	11	16	10	11	16	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	0.00	***11***	
Total for all sample trees including	**COUNT**	98	160	75	66	36	31	26	15	12	6	5	4	1	0	0	0	0	***535.00***	
	TPA	65.33	106.67	50.00	44.00	24.00	20.67	17.33	10.00	8.00	4.00	3.33	2.67	0.67	0.00	0.00	0.00	0.00	***356.67***	***100.00%***
	BA/AC	0.07	2.11	4.17	8.36	7.89	11.10	13.89	10.80	11.23	7.09	7.42	6.82	1.99	0.00	0.00	0.00	0.00	***92.92***	***100.00%***

Table 17. Woodland Species by Diameter Class - Cerro Montoso Area A

Woodland Species		Saplings			Pole			Mature Trees											Total by Species	%Species for all G-Stock
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32+*		
PIED	COUNT	9	24	20	25	12	21	12	10	5	3	3	3	1	0	0	0	0	*148.00*	
Piñon pine	TPA	6.00	16.00	13.33	16.67	8.00	14.00	8.00	6.67	3.33	2.00	2.00	2.00	0.67	0.00	0.00	0.00	0.00	*98.67*	*30.20%*
	BA/AC	0.02	0.39	1.06	3.06	2.52	7.47	6.41	7.09	4.51	3.42	4.41	5.20	1.99	0.00	0.00	0.00	0.00	*47.55*	*56.50%*
	AVE HT. (H_L)	7	9	12	14	17	18	20	22	22	24	24	19.974	32	0.00	0.00	0.00	0.00		
JUSC2	COUNT	88	114	46	30	18	7	7	2	6	2	2	0	0	0	0	0	0	*322.00*	
Rocky Mnt juniper	TPA	58.67	76.00	30.67	20.00	12.00	4.67	4.67	1.33	4.00	1.33	1.33	0.00	0.00	0.00	0.00	0.00	0.00	*214.67*	*65.71%*
	BA/AC	0.05	1.35	2.67	3.95	3.96	2.54	3.68	1.42	5.73	2.49	3.01	0.00	0.00	0.00	0.00	0.00	0.00	*30.85*	*36.65%*
	AVE HT. (H_L)	8	9	11	12	13	13	12	9	13	16	13.691	0.00	0.00	0.00	0.00	0.00	0.00		
QUGA	COUNT	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*2.00*	
Gambel oak	TPA	0.00	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*1.33*	*0.41%*
	BA/AC	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.03*	*0.04%*
	AVE HT.	0.00	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Woodland Species	***COUNT***	***97***	***140***	***66***	***55***	***30***	***28***	***19***	***12***	***11***	***5***	***5***	***3***	***1***	***0***	***0***	***0***	***0***	*472.00*	
Sub-total	***TPA***	***64.67***	***93.33***	***44.00***	***36.67***	***20.00***	***18.67***	***12.67***	***8.00***	***7.33***	***3.33***	***3.33***	***2.00***	***0.67***	***0.00***	***0.00***	***0.00***	***0.00***	*314.67*	*96.33%*
	BA/AC	***0.07***	***1.77***	***3.73***	***7.01***	***6.48***	***10.00***	***10.09***	***8.51***	***10.24***	***5.91***	***7.42***	***5.20***	***1.99***	***0.00***	***0.00***	***0.00***	***0.00***	*78.43*	*93.18%*
	AVE HT. (H_L)	***8***	***9***	***12***	***13***	***15***	***17***	***17***	***20***	***17***	***20***	***20***	***20***	***32***	***0.00***	***0.00***	***0.00***	***0.00***		
Summary by Size	***TPA***	***202.00***			***75.33***			***37.33***											*314.67*	
Class for Woodland	***TPA %***	***64.19%***			***23.94%***			***11.86%***											*100.00%*	
Species	***BA/AC***	***5.57***			***23.50***			***49.36***											*78.43*	
	BA/AC %	***7.10%***			***29.96%***			***62.94%***											*100.00%*	
	QUADRATIC MEAN DIA.	***2.25***			***7.56***			***15.57***											*6.76*	
	AVE HT. (H_L)	***11***			***15***			***19***											*17*	

Table 18. Forestland Species by Diameter Class - Cerro Montoso Area A

Forestland Species		Saplings			Pole			Mature Trees											Total by Species	%Species for all G-Stock
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32+*		
PIPO	COUNT	0	2	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	***5.00***	
Ponderosa pine	TPA	0.00	1.33	0.00	0.00	0.00	0.00	0.00	0.67	0.67	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***3.33***	***1.02%***
	BA/AC	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.76	0.99	1.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***2.96***	***3.52%***
	AVE HT.	0.00	9.50	0.00	0.00	0.00	0.00	0.00	36.00	32.00	44.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
PSME	COUNT	0	0	1	6	3	2	1	0	0	0	0	0	0	0	0	0	0	***13.00***	
Douglas-fir	TPA	0.00	0.00	0.67	4.00	2.00	1.33	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***8.67***	***2.65%***
	BA/AC	0.00	0.00	0.03	0.69	0.70	0.76	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***2.78***	***3.30%***
	AVE HT.	0.00	0.00	6.00	28.10	31.12	63.50	45.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Forestland Species	***COUNT***	***0***	***2***	***1***	***6***	***3***	***2***	***1***	***1***	***1***	***1***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***18.00***	
Sub-total	***TPA***	***0.00***	***1.33***	***0.67***	***4.00***	***2.00***	***1.33***	***0.67***	***0.67***	***0.67***	***0.67***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***12.00***	***3.67%***
	BA/AC	***0.00***	***0.03***	***0.03***	***0.69***	***0.70***	***0.76***	***0.60***	***0.76***	***0.99***	***1.18***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***5.74***	***6.82%***
	AVE HT. (H_L)	***0.00***	***10***	***6***	***28***	***31***	***64***	***45***	***36***	***32***	***44***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***		
Summary by Size	***TPA***	***2.00***			***7.33***			***2.67***											***12.00***	
Class for Forestland	***TPA %***	***16.67%***			***61.11%***			***22.22%***											***100.00%***	
Species	***BA/AC***	***0.06***			***2.15***			***3.53***											***5.74***	
	BA/AC %	***1.08%***			***37.44%***			***61.48%***											***100.00%***	
	QUADRATIC MEAN DIA.	***2.38***			***7.33***			***15.58***											***9.36***	
	AVE HT. (H_L)	***8***			***42***			***39***											***40***	

Table 19. Individual Plot Summary Table for Cerro Montoso Area A

Macro Plot Name	Total number of sample trees on plot	Growing Stock		
		Number of growing stock sample trees on plot	Trees per Acre	Basal Area per Acre
40_1	54	54	540	70.47
41_1	34	27	270	101.33
42_1	11	3	30	5.19
43_1	13	12	120	32.99
44_1	30	24	240	69.54
45_1	86	86	860	92.29
46_1	24	24	240	52.39
47_1	27	24	240	59.72
47_2	58	56	560	127.05
47_3	24	24	240	109.50
47_4	48	42	420	151.19
47_5	31	29	290	145.22
47_6	20	16	160	110.97
47_7	32	26	260	89.04
48_1	43	43	430	45.70
Total	**Total number of sample trees on plot**	**Number of growing stock**	**Average for all Plots**	
			TPA	**BA/AC**
	535.00	**490.00**	**326.67**	**84.17**

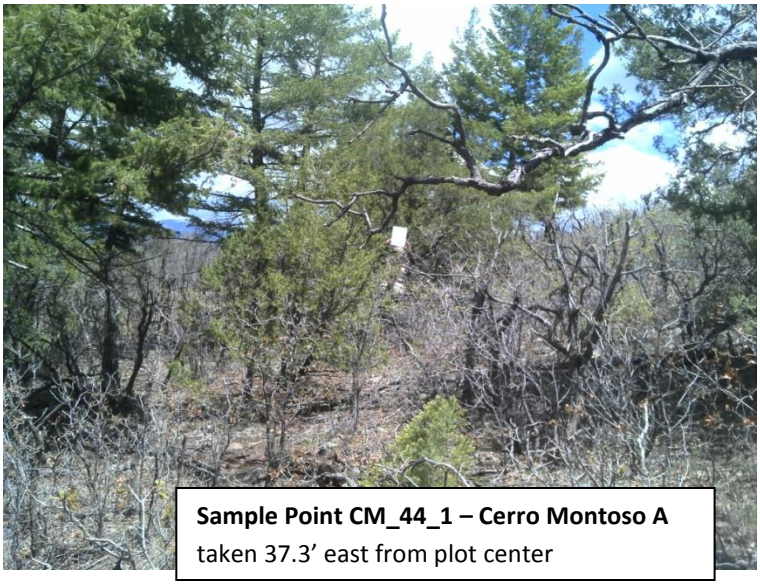
Table 20. Summary Table for all Plots - Cerro Montoso Area A

Cerro Montoso Area A				**May 2014**	
Summary Table for all Plots			**# Sample Trees on plot**	**Trees per acre**	**Basal area per acre**
Plot Total			**535.00**	**356.67**	**92.92**
Growing Stock		Healthy (H)	0.00	0.00	0.00
		Unhealthy(U)	0.00	0.00	0.00
		Sick (S)	0.00	0.00	0.00
		Living (L)	490.00	326.67	84.17
Sum of Growing Stock			**490.00**	**326.67**	**84.17**
Dead		Dead (D)	45.00	30.00	8.75
Sum of Dead			**45.00**	**30.00**	**8.75**
Plot Total:		**Sum of Growing Stock & Dead**	**535.00**	**356.67**	**92.92**

Table 21. Average Percent Cover for Plot Descriptions – Cerro Montoso Area A

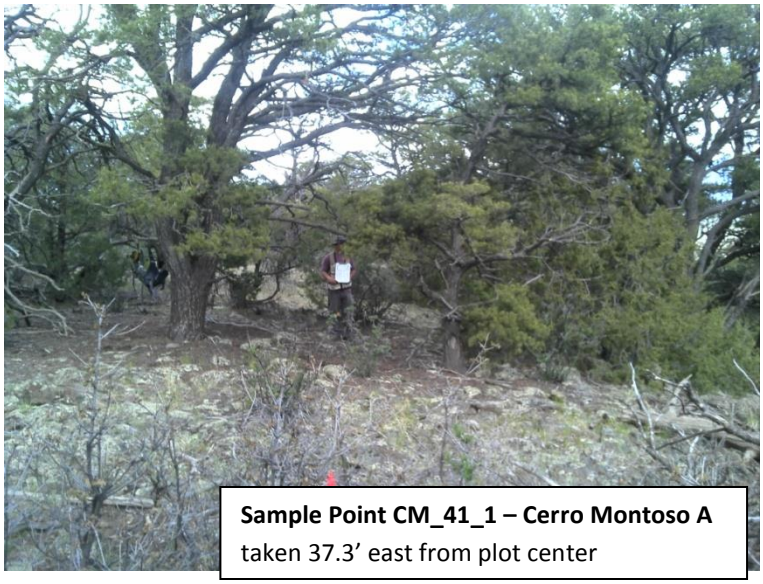
Tree Canopy	Seedlings/Saplings	Shrub cover	Graminoid Cover	Forb Cover	Litter	Bare Soil	Rock/Gravel
23%	9.73%	24.70%	34.37%	6.37%	22.43%	19.43%	20.90%

Sample Point CM_42_1 – Cerro Montoso A
taken 37.3’ north from plot center



Sample Point CM_44_1 – Cerro Montoso A
taken 37.3’ east from plot center

Sample Point CM_47_3 – Cerro Montoso A
taken 37.3’ east from plot center



Sample Point CM_41_1 – Cerro Montoso A
taken 37.3’ east from plot center

Sample Point CM_47_6 – Cerro Montoso A
taken 37.3’ east from plot center

Sample Point CM_48_1 – Cerro Montoso A
taken 37.3’ west from plot center

Figure 7. Sample Monitoring Point Photographs, Cerro Montoso Area A May 2014

Section IV Cerro Montoso Section B

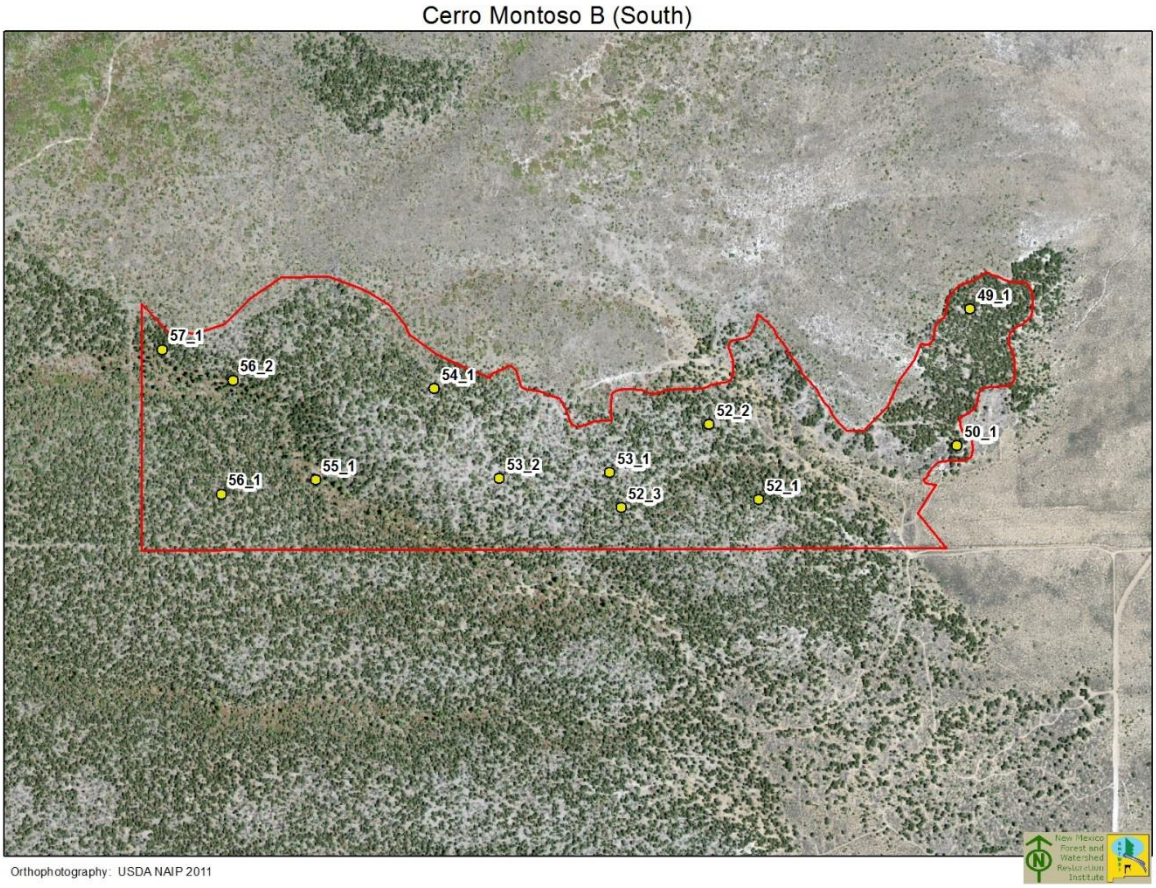


Figure 8. Cerro Montoso Section B Monitoring Plots (12 Plots)

TPA was lower (245) but BA was higher (92) than Cerro Montosa Area A. As with that area, diameters were skewed to the small, and only 19% of the trees were 12 inches and larger (Table 22). Piñon was almost two-thirds of both TPA and BA. Rocky Mountain juniper and Gambel oak were the other woodland species (Table 23). Ponderosa pine and Douglas-fir also were present, but the numbers were fewer and they were considerably larger than in Cerro Montosa Area A; here, no individuals were found that were smaller than 14-inches DBH (Table 24). All four ponderosa pine were on one plot (Plot 55-1) at about 7960 feet elevation. Both Douglas-fir were up the same relatively steep, narrow drainage, on another plot (Plot 56-2) at about 8070 feet elevation. On individual plots, TPA ranged from 80 to 470, and BA from 37 (on the same plot as the 80 TPA) to 129 (Table 25). Tree canopy cover was 30% and grass cover was 23%. Litter cover was high at 38%. Averaged and combined, bare soil and rock cover was 29%.

Table 22. Monitoring Summary of Tree Component – Cerro Montoso Area B

Stand Total		Saplings			Pole			Tree or Sawlog											*Total by Class,Growing Stock & Dead*	*%by Class, Growing Stock vs Dead*
Diameter Class		***0***	***2***	***4***	***6***	***8***	***10***	***12***	***14***	***16***	***18***	***20***	***22***	***24***	***26***	***28***	***30***	***32***		
Growing Stock	**COUNT**	19	62	50	39	27	41	26	12	10	1	5	1	0	1	0	0	0	***294.00***	
(All living trees	**TPA**	15.83	51.67	41.67	32.50	22.50	34.17	21.67	10.00	8.33	0.83	4.17	0.83	0.00	0.83	0.00	0.00	0.00	***245.00***	***88.55%***
in woodland &	**BA/AC**	0.02	1.21	3.58	6.73	7.66	18.37	16.29	10.68	11.49	1.47	8.93	2.38	0.00	3.07	0.00	0.00	0.00	***91.89***	***91.87%***
forestland)	**AVE HT, H_L**	7	9	12	16	18	19	18	22	22	69	40	13	0.00	66	0.00	0.00	0.00		
Summary by	**TPA**	109.17			89.17			46.67											***245.00***	
Size Class (All	**TPA %**	44.56%			36.39%			19.05%											***100.00%***	
living trees in	**BA/AC**	4.81			32.75			54.33											***91.89***	
woodland &	**BA/AC %**	5.23%			35.64%			59.12%											***100.00%***	
forestland)	**QMD MEAN DIA.**	2.84			8.21			14.61											***8.29***	
	AVE HT, H_L	12			18			27											***23***	
Dead (All dead	**COUNT**	4	12	8	3	2	3	4	1	1	0	0	0	0	0	0	0	0	***38.00***	
trees in	**TPA**	3.33	10.00	6.67	2.50	1.67	2.50	3.33	0.83	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***31.67***	***11.45%***
woodland &	**BA/AC**	0.00	0.30	0.54	0.55	0.70	1.33	2.67	0.97	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***8.13***	***8.13%***
forestland)	**AVE HT, H_L**	5	8	10	12	10	9	13	11	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***11***	
Total for all	**COUNT**	23	74	58	42	29	44	30	13	11	1	5	1	0	1	0	0	0	***332.00***	
sample trees	**TPA**	19.17	61.67	48.33	35.00	24.17	36.67	25.00	10.83	9.17	0.83	4.17	0.83	0.00	0.83	0.00	0.00	0.00	***276.67***	***100.00%***
including	**BA/AC**	0.02	1.51	4.12	7.28	8.36	19.70	18.97	11.65	12.54	1.47	8.93	2.38	0.00	3.07	0.00	0.00	0.00	***100.02***	***100.00%***

Table 23. Woodland Species by Diameter Class - Cerro Montoso Area B

Woodland Species		Saplings			Pole			Mature Trees											Total by Species	%Species for all G-Stock
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32+*		
PIED	COUNT	7	33	30	29	23	31	17	8	8	0	1	0	0	0	0	0	0	***187.00***	
Piñon pine	TPA	5.83	27.50	25.00	24.17	19.17	25.83	14.17	6.67	6.67	0.00	0.83	0.00	0.00	0.00	0.00	0.00	0.00	***155.83***	***63.61%***
	BA/AC	0.01	0.64	2.29	5.00	6.70	14.23	10.67	7.18	9.26	0.00	1.66	0.00	0.00	0.00	0.00	0.00	0.00	***57.65***	***62.74%***
	AVE HT. (H_L)	7	10	14	18	19	20	20	21	22	0.00	17	0.00	0.00	0.00	0.00	0.00	0.00		
JUSC2	COUNT	12	25	19	10	4	10	9	3	2	0	1	1	0	0	0	0	0	***96.00***	
Rocky Mnt juniper	TPA	10.00	20.83	15.83	8.33	3.33	8.33	7.50	2.50	1.67	0.00	0.83	0.83	0.00	0.00	0.00	0.00	0.00	***80.00***	***32.65%***
	BA/AC	0.00	0.48	1.24	1.72	0.96	4.13	5.63	2.51	2.23	0.00	1.93	2.38	0.00	0.00	0.00	0.00	0.00	***23.23***	***25.28%***
	AVE HT. (H_L)	7	8	9	12	13	16	14	9	20	0.00	11	13	0.00	0.00	0.00	0.00	0.00		
QUGA	COUNT	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	***5.00***	
Gambel oak	TPA	0.00	3.33	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***4.17***	***1.70%***
	BA/AC	0.00	0.08	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	***0.13***	***0.14%***
	AVE HT.	0.00	8	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Woodland Species	***COUNT***	***19***	***62***	***50***	***39***	***27***	***41***	***26***	***11***	***10***	***0***	***2***	***1***	***0***	***0***	***0***	***0***	***0***	***288.00***	
Sub-total	***TPA***	***15.83***	***51.67***	***41.67***	***32.50***	***22.50***	***34.17***	***21.67***	***9.17***	***8.33***	***0.00***	***1.67***	***0.83***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***240.00***	***97.96%***
	BA/AC	***0.02***	***1.21***	***3.58***	***6.73***	***7.66***	***18.37***	***16.29***	***9.69***	***11.49***	***0.00***	***3.59***	***2.38***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***81.00***	***88.15%***
	AVE HT. (H_L)	***7***	***9***	***12***	***16***	***18***	***19***	***18***	***18***	***22***	***0.00***	***14***	***13***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***		
Summary by Size	***TPA***	***109.17***			***89.17***			***41.67***											***240.00***	
Class for Woodland	***TPA %***	***45.49%***			***37.15%***			***17.36%***											***100.00%***	
Species	***BA/AC***	***4.81***			***32.75***			***43.44***											***81.00***	
	BA/AC %	***5.94%***			***40.44%***			***53.63%***											***100.00%***	
	QUADRATIC MEAN DIA.	***2.84***			***8.21***			***13.83***											***7.87***	
	AVE HT. (H_L)	***12***			***18***			***18***											***18***	

Table 24. Forestland Species by Diameter Class - Cerro Montoso Area B

Forestland Species		Saplings			Pole			Mature Trees											Total by Species	%Species for all G-Stock
Diameter Class		*0*	*2*	*4*	*6*	*8*	*10*	*12*	*14*	*16*	*18*	*20*	*22*	*24*	*26*	*28*	*30*	*32+*		
PIPO	COUNT	0	0	0	0	0	0	0	0	0	1	2	0	0	1	0	0	0	***4.00***	
Ponderosa pine	TPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	1.67	0.00	0.00	0.83	0.00	0.00	0.00	***3.33***	***1.36%***
	BA/AC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47	3.64	0.00	0.00	3.07	0.00	0.00	0.00	***8.18***	***8.90%***
	AVE HT.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.00	61.00	0.00	0.00	66.00	0.00	0.00	0.00		
PSME	COUNT	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	***2.00***	
Douglas-fir	TPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.00	0.00	0.83	0.00	0.00	0.00	0.00	0.00	0.00	***1.67***	***0.68%***
	BA/AC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.71	0.00	0.00	0.00	0.00	0.00	0.00	***2.71***	***2.95%***
	AVE HT.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.00	0.00	0.00	48.00	0.00	0.00	0.00	0.00	0.00	0.00		
Forestland Species	***COUNT***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***1***	***0***	***1***	***3***	***0***	***0***	***1***	***0***	***0***	***0***	***6.00***	
Sub-total	***TPA***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.83***	***0.00***	***0.83***	***2.50***	***0.00***	***0.00***	***0.83***	***0.00***	***0.00***	***0.00***	***5.00***	***2.04%***
	BA/AC	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***1.00***	***0.00***	***1.47***	***5.35***	***0.00***	***0.00***	***3.07***	***0.00***	***0.00***	***0.00***	***10.89***	***11.85%***
	AVE HT. ($H_{L)}$	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***56***	***0.00***	***69***	***57***	***0.00***	***0.00***	***66***	***0.00***	***0.00***	***0.00***		
Summary by Size	***TPA***	***0.00***			***0.00***			***5.00***											***5.00***	
Class for Forestland	***TPA %***	***0.00%***			***0.00%***			***100.00%***											***100.00%***	
Species	***BA/AC***	***0.00***			***0.00***			***10.89***											***10.89***	
	BA/AC %	***0.00%***			***0.00%***			***100.00%***											***100.00%***	
	QUADRATIC MEAN DIA.	***0.00***			***0.00***			***19.98***											***19.98***	
	AVE HT. ($H_{L)}$	***0.00***			***0.00***			***61***											***61***	

Table 25. Individual Plot Summary Table for Cerro Montoso Area B

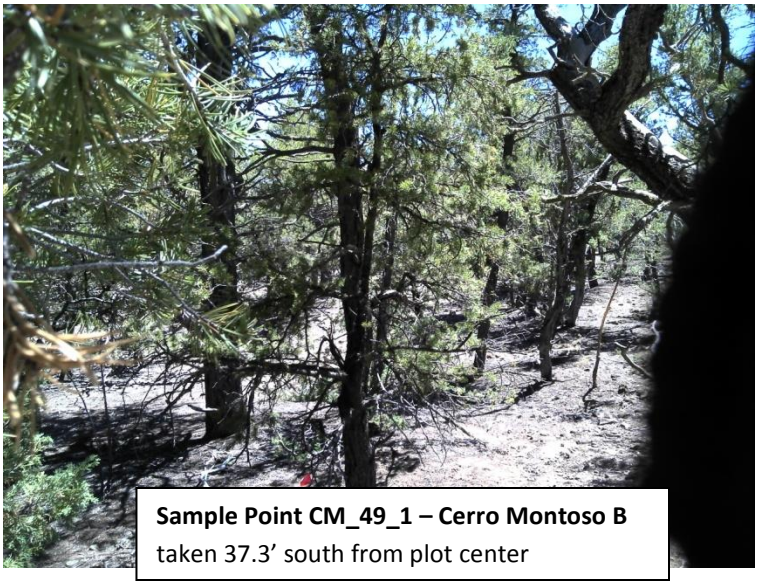
Macro Plot Name	Total number of sample trees on plot	Growing Stock		
		Number of growing stock sample trees on plot	Trees per Acre	Basal Area per Acre
49_1	51	47	470	121.74
50_1	21	21	210	128.83
52_1	32	29	290	73.91
52_2	29	25	250	110.74
52_3	37	36	360	79.09
53_1	17	16	160	40.42
53_2	10	8	80	37.44
54_1	26	26	260	116.93
55_1	26	25	250	124.51
56_1	31	21	210	76.22
56_2	21	14	140	75.03
57_1	31	26	260	117.81
Total	**Total number of sample trees on plot**	**Number of growing stock**	**Average for all Plots**	
			TPA	**BA/AC**
	332.00	**294.00**	**245.00**	**91.89**

Table 26. Summary Table for all Plots - Cerro Montoso Area B

Cerro Montoso Area B				May 2014	
Summary Table for all Plots			**# Sample Trees on plot**	**Trees per acre**	**Basal area per acre**
Plot Total			**332.00**	**276.67**	**100.02**
Growing Stock		Healthy (H)	0.00	0.00	0.00
		Unhealthy(U)	0.00	0.00	0.00
		Sick (S)	0.00	0.00	0.00
		Living (L)	294.00	245.00	91.89
Sum of Growing Stock			**294.00**	**245.00**	**91.89**
Dead		Dead (D)	38.00	31.67	8.13
Sum of Dead			**38.00**	**31.67**	**8.13**
Plot Total:		**Sum of Growing Stock & Dead**	**332.00**	**276.67**	**100.02**

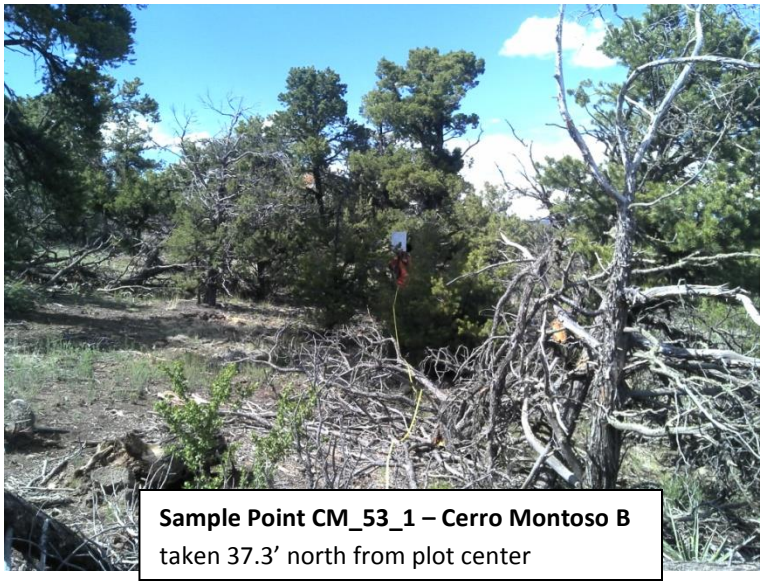
Table 27. Average Percent Cover for Plot Descriptions – Cerro Montoso Area B

Tree Canopy	Seedlings/Saplings	Shrub cover	Graminoid Cover	Forb Cover	Litter	Bare Soil	Rock/Gravel
30%	7.29%	12.17%	23.50%	3.42%	37.96%	10.54%	18.12%



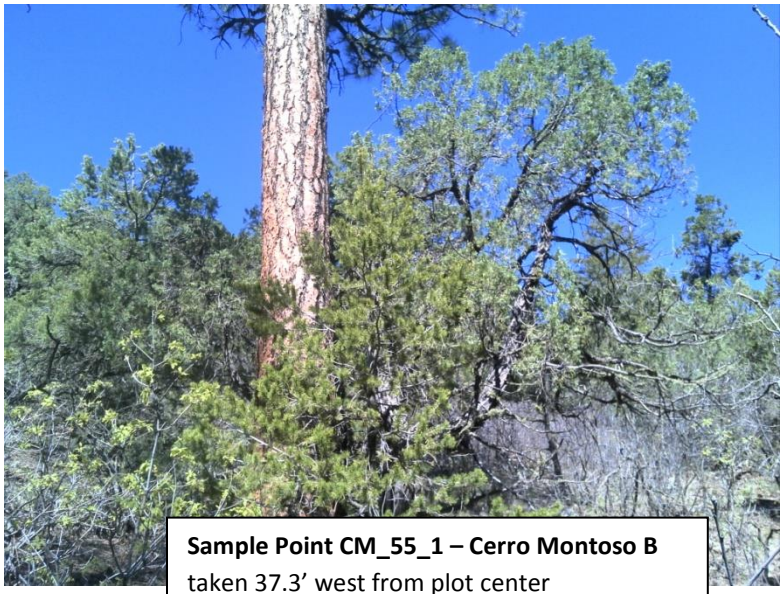
Sample Point CM_49_1 – Cerro Montoso B
taken 37.3’ south from plot center

Sample Point CM_52_1 – Cerro Montoso B
taken 37.3’ east from plot center



Sample Point CM_53_1 – Cerro Montoso B
taken 37.3’ north from plot center

Sample Point CM_54_1 – Cerro Montoso B
taken 37.3’ east from plot center



Sample Point CM_55_1 – Cerro Montoso B
taken 37.3’ west from plot center

Sample Point CM_56_2 – Cerro Montoso B
taken 37.3’ west from plot center

Figure 9. Sample Monitoring Point Photographs, Cerro Montoso Area B May 2014

References

Bullard, T.F. and S.G. Wells. 1992. Hydrology of the Middle Rio Grande from Velarde to Elephant Butte Reservoir, New Mexico. US Fish and Wildlife Service Resource Publication 179.

NatureServe. 2004b. Landcover descriptions for the Southwest Regional Gap Analysis Project. NatureServe, Arlington, Virginia. [Online]. Available:

http://earth.gis.usu.edu/swgap/data/atool/files/swgap_legend_desc.pdf

New Mexico Department of Game and Fish. 2006. Comprehensive Wildlife Conservation Strategy for New Mexico. New Mexico Department of Game and Fish. Santa Fe, New Mexico. Online linkage: http://www.wildlife.state.nm.us/conservation/comp_wildlife_cons_strategy/

New Mexico Rare Plant Technical Council. 1999. New Mexico Rare Plants. Albuquerque, NM: New Mexico Rare Plants Home Page. *http://nmrareplants.unm.edu*

USDA Forest Service Forest Health Protection Mapping and Reporting Portal, *http://foresthealth.fs.usda.gov/portal*

USDA Natural Resources Conservation Service. 1982. *Soil Survey of Taos County and part of Rio Arriba and Mora Counties New Mexico*.

USDA Natural Resources Conservation Service, Web Soil Survey: http://websoilsurvey.nrcs.usda.gov/app/

USDA PLANTS database, *http://plants.usda.gov/java/*

US Department of the Interior, Bureau of Land Management, New Mexico website: http://www.blm.gov/nm/st/en/prog/planning.html