

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Woodland --
Site ID: FO35XB003NM
Site Name: Pinus edulis, Juniperus monosperma – Pinyon Juniper - Breaks/Hills
Major Land Resource Area and Common Resource Area MLRA 35-NM1
Precipitation or Climate Zone: 12-15 inches
Phase: _____

ORIGINAL SITE DESCRIPTION APPROVAL:

Site Date: September 19, 2005
Site Author: Noe J. Gonzalez, Woodland Ecologist, USDI, BLM, NMSO
Site Approval: _____
Approval Date: _____

REVISIONS:

Revision Date: none
Revisor: _____
Revision Approval: _____
Approval Date: _____
Revision Notes: _____

PHYSIOGRAPHIC FEATURES

Narrative:

This map unit is on sideslopes of basalt capped mesas, ridges on elevated plains, and sideslopes of steep dissected canyons. The units are characterized by surface exposed bedrock and rock outcrops. Areas can be long, narrow, and/or large but irregular in shape. This map unit has variable exposure and distinct vegetative characteristics between cool-moist and warm-dry aspects, with variable tree densities and plant composition. Slopes range from 10 to 45+%, sometimes steeper along base of escarpments and dissected canyons. Elevation varies within the map unit distribution.



Figure 1: General view of Map Unit 385. North aspect along side canyons and escarpment, dominated by Pinus edulis. Note the extent of drought stress and Ips beetle infestation resulting in Pinon pine mortality.



Figure 2: View of basalt-capped mesa and sideslopes, typical of Map Unit 385. This is northwest aspect, dominated by Pinus edulis.



Figure 3: Basalt-capped mesa and sideslope, southeast aspect, dominated by Juniperus monosperma.

LAND FORM:

1. hillsides
2. canyon sideslopes
3. elevated plains

ASPECT:

1. Variable
- 2.

	Minimum	Maximum
Elevation (feet)	6500	8200
Slope (percent)	10	45+
Water Table Depth (inches)	n/a	n/a
Flooding:	Minimum	Maximum
Frequency	n/a	n/a
Duration	n/a	n/a
Ponding:	Minimum	Maximum
Depth (inches)	n/a	n/a
Frequency	n/a	n/a
Duration	n/a	n/a

Runoff Class:

MU385 is medium to rapid, water erosion hazard is moderate to high; MU471 runoff is very rapid, erosion is very high; MU487 runoff is slow to rapid, erosion is slight to high.

CLIMATIC FEATURES

Narrative:

Representative weather station used is from Quemado, NM, Catron County, within 40 mile proximity to sites sampled. The weather station is within the climatic division NM-04, Southwestern Mountains. According to Catron County Soil Survey, this map unit is within a precipitation zone of 12-15 inch average annual precipitation. Average annual air temperature is 47 to 54 degrees (F). Due to elevation and latitude, this landscape is prone to winter and summer moisture with summer moisture exceeding winter. Summer precip is typically derived from convective showers with winter derived from snow and rain mixed storm events. Frost free days are based on ≥ 32.5 degrees (F); freeze free days based on ≥ 30 degrees (F).

	Minimum	Maximum
Frost-free period (days):	115	130
Freeze-free period (days):	152	214
Mean annual precipitation (inches):	12	15

Monthly moisture (inches) and temperature (°F) distribution:

	Avg. Precip. In.	Avg. Snowfall Total	Temp. Min.	Temp. Max.
January	0.56	4.3	13.1	46.7
February	0.57	4.0	16.6	50.3
March	0.64	4.7	20.8	56.5
April	0.44	2.1	26.3	65.4
May	0.44	0.2	33.6	74.5
June	0.49	0.0	41.8	84.3
July	2.11	0.0	50.7	85.1
August	2.31	0.0	48.8	82.4
September	1.30	0.0	41.7	78.0
October	0.85	0.5	30.2	69.2
November	0.50	2.0	19.2	57.0
December	0.53	4.6	13.6	48.9

Climate Stations:

Station ID	Location	Lat	Long	Period
297180	Quemado,	6878'asl		From: 7/1/46 To: 12/31/04
		34.21'N,	108.30'W	
Station ID	Location			From: To:
Station ID	Location			From: To:
Station ID	Location			From: To:
Station ID	Location			From: To:

INFLUENCING WATER FEATURES

Narrative:

None, except downslope runoff and slope retention of snow-pack on North slopes.

This unit is not influenced by wetlands or free-flowing streams or seeps.

Wetland description:

System	Subsystem	Class

If Riverine Wetland System enter Rosgen Stream Type:

N/A

REPRESENTATIVE SOIL FEATURES

Narrative:

Representative sites are located upon Aridic Argiustolls soils. This soil type is the predominant soil with inclusions in very minor amounts of Majada, Guy, and Aridic Haplustolls. Rock outcrops are prevalent and surface course fragments are common with fine to course sandy loams. The soils can be shallow to deep, well-drained and formed in alluvium, colluvium, or residuum derived from volcanic material. This unit has variable slope and aspect characteristics with distinct conditions for retaining snowpack and soil moisture, and susceptibility to evaporation.

Parent Material Kind: Volcanic (basalt)

Parent Material Origin: Colluvium or local alluvium

Surface Texture:

1. loamy sand

2. clayey

3. Loamy course sand

Surface Texture Modifier:

1. Very Stony

2. Very Cobbly

3. Bouldery

Subsurface Texture Group: Stoney to very cobbly, extremely stoney clay loam

Surface Fragments $\leq 3''$ (% Cover): <5% pebbles

Surface Fragments $> 3''$ (% Cover): 20-70% stones, cobbles, pebbles

Subsurface Fragments $\leq 3''$ (% Volume): 5 to 10% pebbles

Subsurface Fragments $\geq 3''$ (% Volume): B & C horizons are 5 to 85% rock fragments

	Minimum	Maximum
Drainage Class:	Well drained	
Permeability Class:	Very slow	Very rapid
Depth (inches):	5	60
Electrical Conductivity (mmhos/cm):	No data	No data
Sodium Absorption Ratio:	“”	“”
Soil Reaction (1:1 Water):	“”	“”
Soil Reaction (0.1M CaCl ₂):	“”	“”
Available Water Capacity (inches):	Very low	High
Calcium Carbonate Equivalent (percent):	Trace	35%

Soil survey associations:

This ecological site is associated with the map units and soil components in the following soil surveys. Future updates to this soil survey may affect these associations. For up-to-date associations between soil components and this ecological site, refer to NASIS. Associations between ecological sites and soil components are maintained in NASIS via the ecological site ID.

MAP UNIT NAME

<u>Soil survey</u>	<u>Map unit symbol</u>	<u>Soil components</u>	<u>Map unit name</u>
Catron County	#385	60% Aridic Argiustolls	Aridic Argiustolls-Rock outcrop complex, 15-45% slopes.
		25% Rock outcrops	
		15% Majada, Guy, Aridic Haplustolls	
Catron County	#471	30% Faraway	Faraway-Motoqua-Rock Outcrop complex, 8-30% slopes.
		25% Motoqua	
		25% Rock outcrops	
		20% Inclusions	
Catron County	#487	30% Ustic Torriorthents	Ustic Torriorthents-Rock Outcrop-Badland complex, 20-100% slopes
		30% Rock outcrops	
		25% Badlands	
		15% Inclusions (Hickman, Manzano,Pietown, Majada)	

PLANT COMMUNITIES

Ecological Dynamics of the Site:

The Historical Climax Plant Community (HCPC) is relative to the location on the landscape influenced by aspect, slope, and accessibility to animals (ungulates), density of surface bedrock/boulders/stones, and depth of soil to sustain herbaceous production for fire occurrences. There is a distinct difference in plant community structure based on aspect and its response to impacts that will influence succession. For this ESD, the distinctions are defined in terms of those landscapes that have primarily a north or south facing aspect.

North-facing slopes have a climax community dominated by Pinon pine (PIED) with montane-type herbaceous species in the understory plant community, such as, Mutton bluegrass, Prairie Junegrass, *Stipa* spp., and *Carex* spp. Factors that influence plant structure would be drought and livestock, and to a lesser degree fire due to the northerly exposure. Fire may occur but limited in size (<50 acres, typically 1 to 10 acres) and patchy occurrences with a catastrophic event being isolated. Early succession would be grasses and shrubs, converting to JUMO/JUOS and eventually to PIED/JUMO stand structure.

Drought and rock outcrop influence fuel loading and fuels are generally discontinuous which is not conducive to large fire occurrences. Livestock grazing influences herbaceous cover and fire susceptibility. Reduced fine fuels leads to P/J density increases. High tree density will lead to PIED mortality and susceptibility to disease infestations.

South-facing slopes are generally dominated by One-seed juniper (JUMO) with PIED as a co-dominant species. This site tends to be more arid. Factors that influence plant succession are drought, fire, grazing, and rock outcrops. Herbaceous cover tends to be greater in areas less accessible to livestock and higher density of rock outcrops. Plant diversity and production is greater in such areas. Southerly exposures limits soil moisture and along with shallow soils, tends to inhibit PIED growth. Drought effects would not only limit herbaceous growth, it would also contribute to tree mortality resulting from insect (*Ips*, *Scale*) and disease (mistletoe) infestations. Fire occurrences have a higher probability on south facing slopes but due to fragmented landscapes (rock outcrops), fire size and effects would be small and patchy in appearance. This landscape is not conducive to large or catastrophic fire events (crown fires) due to open stands, except under the most extreme conditions of high tree density patches, interlocking crowns, ladder fuels, low moisture, high temperatures, and high wind conditions. Such an occurrence may occur in isolated areas and again limited in size by the prevailing edaphic features. Higher tree densities could be seen in soil inclusions within the Majada and Guy soils. Grazeable areas are less steep and have less rock outcroppings. These areas could receive substantial grazing pressure due to species content, such as, sideoats grama, NM Muhly, and *Stipas*. Heavy grazing and associated effects on fine fuel loadings would lead to an increase in JUMO.

Site index (based on tree diameter in relation to basal area) for these sites is typically a “3” on south slopes with a site index of “2 or 3” on north slopes, depending on steepness and density of rock outcrops. Minimal regeneration is expected, generally consistent with tree mortality.

The Historic Plant Community would consist of old growth trees dominating the site comprising 50 to 60% of the stand, Mid-age trees would comprise 25-35%, and young age classes (seedlings/saplings) comprise 15-25% of the stand. The young age class could be virtually non-existent in some isolated areas. Mature trees would be long-lived, large diameter, and few, if any, dead trees present.

Plant Communities and Transitional Pathways (diagram)

SOUTH SLOPE

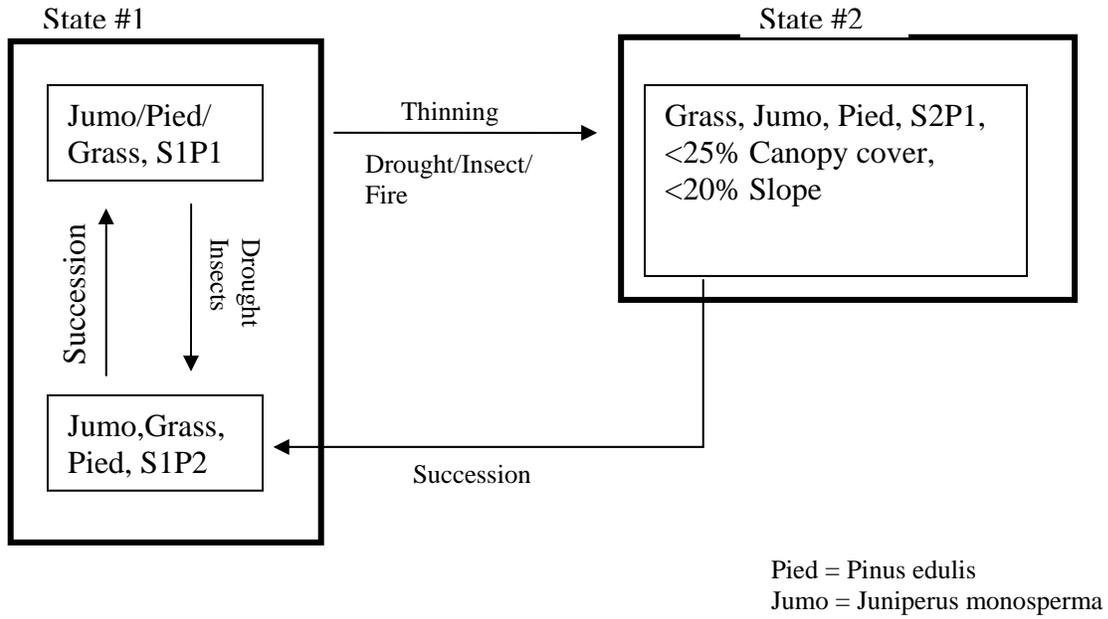




Figure 4: General view of location of Plot #1 on sideslopes of basalt-capped mesa; southeast aspect dominated by Juniperus monosperma.



Figure 5: Plot #1, upslope view, southeast aspect. Rock outcrops prevalent, comprised of stone and cobble size rock with occasional boulder present. Warm-season species dominates understory cover.



Figure 6: Plot #1, downslope view, southeast facing slope. Large diameter Juniperus monosperma trees common, indicating a mature stand present. Juniper regeneration is less common.

PLANT COMMUNITIES AND TRANSITIONAL PATHWAYS (DIAGRAM)

NORTH SLOPE

Pied = Pinus edulis
 Jumo = Juniperus monosperma

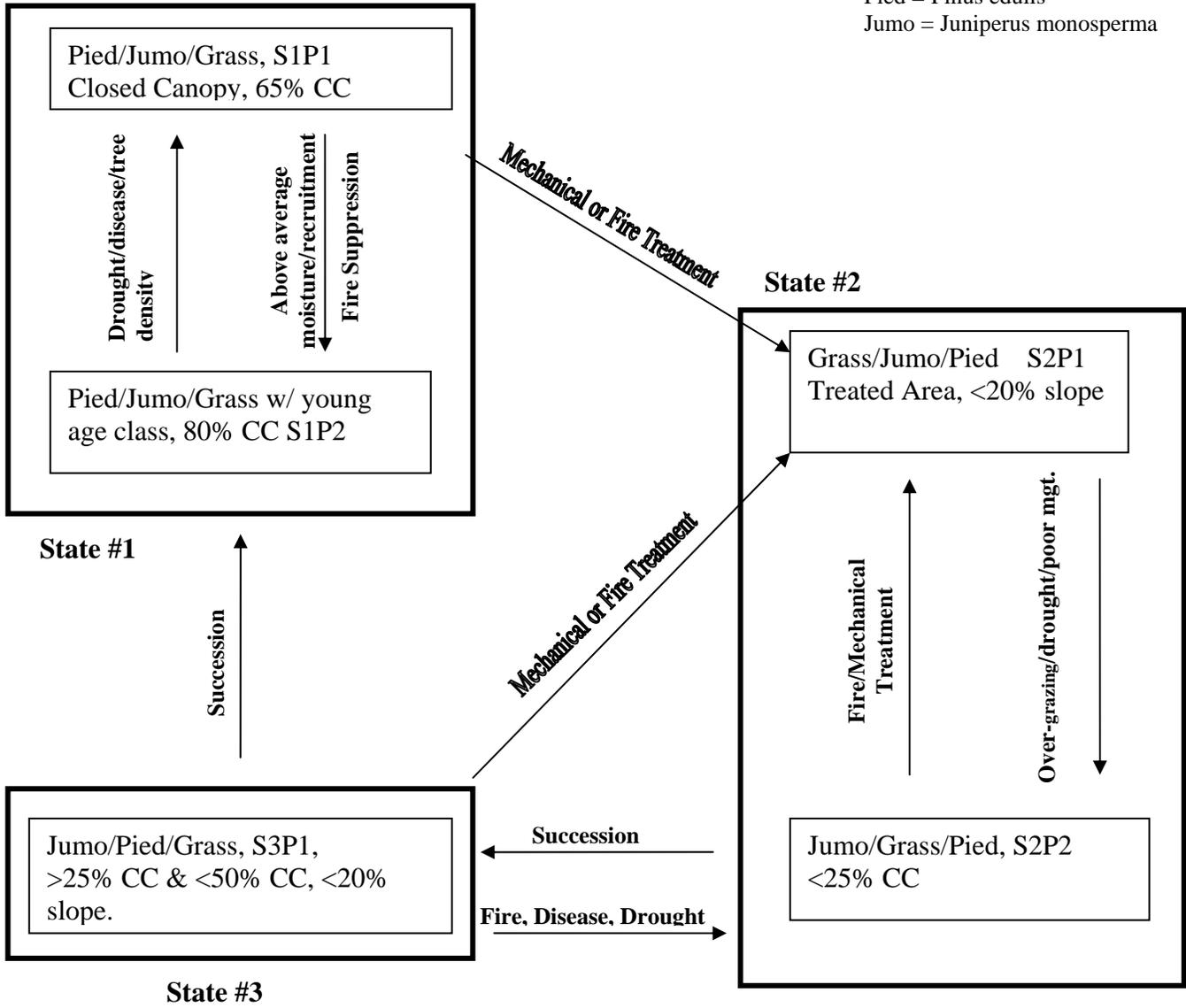




Figure 7: View of Plot #2, gentle gradient, less than 15% slope, northwest aspect. Rock outcrops prevalent mostly comprised of stone and cobble size rock.



Figure 8: View of Plot #3, north facing slope. This site is steeper and rockier terrain than Plots 1 & 2. Site dominated by Pinus edulis. Boulders begin to be more common and ground cover becomes less continuous.



Figure 9: Close-up view of Plot #4. The distinguishing rock outcrop is present in the foreground; northwest aspect, less than 15% slope. The dwarf mistletoe can be found in similar stands which affects tree survival in both woodland species (Jumo/Pied).



Figure 10: General view of Plot #4, northwest aspect. Site contains less rock outcrop than Plot #2. Dwarf mistletoe present, herbaceous cover dominated by blue grama grass.



Figure 11: View of Plot #5, northwest aspect, east of Plot #2. Slope is 10%, with very little surface bedrock, although it is present.



Figure 12: View of Plot #6, west of Plot #1. Southeast aspect, rock outcrops are common, comprised of boulder, stone, and cobble size rock. This site is less utilized by livestock, plant diversity is better than Plot #1.



Figure 13: View of Plot #7, west of Plot #3. North aspect, rock outcrops are common, comprised of boulder, stone, and cobble size rock. This site is less utilized by livestock, plant diversity is less than Plot 3 due to closed canopy. Pied is dominant tree species, soil moisture is high and area retains snow cover and lower temperatures.



Figure 14: View of Plot #8, west of Plot #3 and 7, located up slope.. North aspect, rock outcrops are common, comprised of boulder, stone, and cobble size rock. This site is less utilized by livestock, plant diversity is less than Plot 3 due to closed canopy. Pied is dominant tree species. Two large diameter, dead/down pinon trees were present on site, indicative of a mature stand.



Figure 15: View of Plot #9, located NW of Plot #6. Southeast aspect, rock outcrops are common, along with boulders, stones, and cobble size rock. This site is utilized by livestock due to proximity of water source although grazing does not appear to be excessive except upon inclusions. Moderate diversity of warm season species. Jumo is dominant tree species, comprised of mostly over-mature age classed trees.



Figure 16: View of Map Unit #385 on a southeast slope, less than 20% slope gradient. Located in far western Catron County, 1/2 mile north of US Hwy. 60 (Escudilla Peak, AZ. in background). This site has the characteristic rock outcrops with cobble and stone present. This site has been treated mechanically (chaining) in mid 1960s. Jumo regeneration present in seedling, sapling, and young age classes along with some remnant mid-aged trees. Very little pinon present, mostly in younger age classes.

Description of State and Transition Model

North Slope S1P1 = Is the State at which the plant community is represented at the HCPC with normal successional processes occurring. These processes include minor shifts as result of small scale, isolated fire occurrence, incidental age mortality, and disease infestations induced by drought. Stand recruitment is generally in sync with mortality.

North Slope S1P2 = This plant community phase occurs as result of favorable moisture years with rapid growth in the over story and new age class of trees entering the stand resulting in an uneven aged woodland. Canopy closure would increase with decrease in herbaceous component. The phase would revert back to original state through drought induced, stand density mortality (along with insect and disease infestations) and possible fire occurrence.

North Slope S2P1 = This transitional phase is result of prescribed land treatment through mechanical or herbicidal means, which would significantly reduce the over story and allow a grassland/savannah plant community to occur. Succession would allow the plant community to revert back to a woodland plant community, progressing first into a JUMO/Grass/PIED plant community (S2P2). These areas are generally rolling and less steep in slope, although the rock outcrop and surface bedrock is less prevalent. This site can be dominated by Blue Grama, although the savannah site could support both cool and warm season species if livestock grazing is managed properly which includes proper use levels and deferment/rest incorporated into a grazing system.

North Slope S2P2 = This plant community would evolve from S2P1 where JUMO would accelerate in stand density and begin to influence the plant composition by canopy and root

system expansion.. This Plant community could be moved back to S2P1 through additional land treatments.

North Slope S3P1 = This plant community would evolve through normal succession where S2P2 would shift to a more woodland dominated site, although still in an open savannah (JUMO/PIED/Grass plant community). Mature trees may become obvious throughout the site, but would generally be dominated by mid-aged class trees. The landscape would appear dominated by JUMO with PIED as sub-dominant with a grass understory along with scattered shrub species. This plant community could progress toward the HCPC state or revert back to State 2 through additional land treatments. The effects of fire, drought, and disease mortality in the PIED component would influence the successional pathway of S3P1.

South Slope S1 = This is the State at which the plant community is represented at the HCPC with normal successional processes occurring. These processes include minor shifts as result of small scale, isolated fire occurrence, incidental age mortality, and disease infestations induced by drought. Stand recruitment is generally in sync with mortality.

South Slope S1P1 = This plant community may express itself due to the aridic aspect of the site, the woodland stand may become more open following extreme drought periods resulting in PIED die-off.

South Slope S1P2 = Drought induced mortality (along with insect and disease infestations) in the PIED component would allow for a JUMO/Grass community to dominate. Succession would eventually allow PIED to re-enter and become a co-dominant species in the over story.

South Slope S2P1 = This plant community would result from a transition through some form of land treatment, generally on <20% slopes using mechanical or herbicidal means to reduce total canopy cover to below 15%. A mixed grass stand would exist comprised of warm and cool season species under proper grazing management or predominantly warm season stands (Blue grama and Aristida) under improper grazing management. Trees would occupy the landscape as seedlings/saplings, with JUMO dominating the composition.

Interpretive Plant Community: Three sites were evaluated with 3 plots measured in each site to develop this ESD. Most of the sites contained an age structure comprised of middle aged P/J trees with small representation of over-mature trees within the plots. Very little regeneration was measured in all the plots indicating that tree replacement and mortality occur at a very slow pace.

The information below represents the plant structure for a North slope P/J plant community. South slopes may have a lower tree ground cover and slightly higher herbaceous cover

Ground Cover and Structure:

Cover Type	**Percent Ground Cover by Height Class (feet)								
	<.5	.5-1	>1-2	>2-4.5	>4.5-13	>13-40	>40-80	>80-120	>120
Grass/Grass Like		18							
Forb		2							
Shrub/Vine				5					
Tree						5			
Lichen	T								
Moss	T								
Litter	20								
Course Fragment	39								
Bare Ground	11								

** Note: Ground Cover represents basal cover

Forest Overstory Composition:

The typical forest overstory composition of the historic climax community.

Common Name	Scientific Name	Percent Composition (percent by frequency)
Pinyon Pine	<i>Pinus edulis</i>	80% (North Slope)
One-seed Juniper	<i>Juniperus monosperma</i>	20% (North Slope)
Pinyon Pine	<i>Pinus edulis</i>	35% (South Slope)
One-seed Juniper	<i>Juniperus monosperma</i>	65% (South Slope)

Forest Understory Composition:

The typical annual production of understory species to a height of 4.5 feet (excluding boles of trees) under low, high, and representative canopy covers.

Common Name	Scientific Name	Annual Production Per Acre Range in Pounds (air-dry weight)					
		Canopy Cover Percent					
		Existing Avg. 42%		PNC Avg. 65%		HCPC Avg. 65%	
		lbs	lbs	lbs	lbs	lbs	lbs
Blue grama	<i>Bouteloua gracilis</i>	40	124	30	95	50	125
Threeawn	<i>Aristida spp.</i>	5	30	5	20	5	15
Fringed sagebrush	<i>Artemisia frigida</i>	5	20	5	15	5	10
Bottlebrush squirreltail	<i>Sitanion hystrix</i>	0	10	0	5	10	20
Wolftail	<i>Lycurus pheloides</i>	5	20	5	15	15	25
Sideoats grama	<i>Bouteloua curtipendula</i>	100	225	75	170	100	200
NM Muhly	<i>Muhlenbergia pauciflora</i>	50	100	40	75	75	125
Prairie Junegrass	<i>Koeleria macrantha</i>	25	40	20	30	75	125
Mutton bluegrass	<i>Poa fendleriana</i>	0	10	0	5	50	125
Bulb panicum	<i>Panicum bulbosum</i>	0	15	0	10	10	20
Sedge	<i>Carex spp.</i>	0	5	0	5	10	15
Sand dropseed	<i>Sporobolus cryptandrus</i>	10	20	5	15	10	20
Total Annual Production		240-619		185-460		500-700	

Typical Climax Community:

North slopes dominated by Pinyon pine whereas the south slopes dominated by Juniper. Not all grass species will be found on both exposures. HCPC would be at near maximum crown closure at about 65% canopy cover. Higher densities may occur but would likely be prone to stand density mortality induced by drought and eventually insect and disease infestations. Despite high canopy closure, cool season species would dominate the understory on north slopes whereas warm season species dominate the south slopes, if grazing impact was minimal or non-existent. Herbaceous cover would be less at PNC under grazing impact and high canopy closure. At HCPC, sufficient fine fuels would accumulate, allowing the potential for more frequent, small scale natural fires. Fire would occur more often on south slopes than north facing slopes. Potential for stand replacement fires may exist on north slopes but yet not at any large scale. Fire potential would still be dictated by high density of exposed bedrock and boulders impeding the rate of spread and heat intensity. Natural fire would likely take a “jackpot” or small pocket blow-out approach, rather than a running fire. In a static state, Old growth trees would dominate the stands being tall with wide diameters at root crown level. Young age classes will be minimal and generally static with natural die-off of old trees. In a dynamic state, Mid-aged trees would dominate the age structure with greater representation of younger age classes. Early seral stage would consist of few to no old trees present and young age class dominating the sites but may be in very low density. The landscape would be characteristic of a juniper savannah with a substantial increase in herbaceous cover. This would likely occur on less steep and less rocky slopes where land treatments are more readily applicable.

Plant Community: (as it exists today)

South slopes contain slightly more juniper than pinyon. The mid-aged class dominates the stand structure with old growth being less prevalent. Very few seedlings/saplings are present. Few fire scarred trees are evident indicating little to no wildland fire activity. Canopy closure varies, but in general more herbaceous production is found on south slopes than north, typically in rockier areas where livestock have minimal access or less desire to traverse the landscape. North slopes contain less herbaceous cover due to greater canopy and litter cover under P/J trees. Cool season species are notably more obvious on north slopes and receive grazing pressure from both livestock and wildlife (elk, deer). South/Southeast areas have canopy closure ranging from 20 to 50%, with north/northwest aspects having canopy closures ranging from 15 to 80%.

Ground Cover and Structure:

Cover Type	**Percent Ground Cover by Height Class (feet)								
	<.5	.5-1	>1-2	>2-4.5	>4.5-13	>13-40	>40-80	>80-120	>120
Grass/Grass Like		12							
Forb		T							
Shrub/Vine				T					
Tree						2			
Lichen	T								
Moss	T								
Litter	26								
Course Fragment	39								
Bare Ground	21								

** Note: Ground Cover represents basal cover

Forest Overstory Composition:

The typical forest overstory composition of the historic climax community.

Common Name	Scientific Name	Percent Composition (percent by frequency)
Total		

Forest Understory Composition:

The typical annual production of understory species to a height of 4.5 feet (excluding boles of trees) under low, high, and representative canopy covers.

Common Name	Scientific Name	Annual Production Per Acre Percent and Pounds (air-dry weight)					
		Canopy Cover Percent					
		75		85		95	
		%	lbs	%	lbs	%	lbs

Plant Community: (as it exists today)

ECOLOGICAL SITE INTERPRETATIONS

Forest Site Productivity

Common Name	Scientific Name	Annual Productivity (per acre per year)						
		Site Index		Cubic Feet (CMAI)		Other Units		
		Low	High	Low	High	Low	High	Unit

Soil Survey Associations:

This ecological site is associated with the map units and soil components in the following soil surveys. Future updates to this soil survey may affect these associations. For up-to-date associations between soil components and this ecological site, refer to NASIS. Associations between ecological sites and soil components are maintained in NASIS via the ecological site ID.

<u>Soil Survey</u>	<u>Map Unit Symbol</u>	<u>Soil Components</u>
Catron Cty., NM	385	Aridic Argiustolls-Rock outcrop complex
	471	Faraway-Motoqua-Rock outcrop complex
	487	Ustic Torriorthents-Rock outcrop-Badland complex

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

These areas may be grazed by livestock. Slopes of less than 10% may be suitable for grazing though may not have high amounts of forage production with an overstory canopy. Slopes that have been treated to remove or reduce overstory canopy may provide substantially more forage production to be considered in grazing capacity, although, these stands are likely to revert to a woodland plant community through successional changes (grassland/juniper, juniper/grassland, juniper/pinyon, pinyon/juniper). Steeper slopes, though grazed by livestock due to the proximity of water, should not be allocated for grazing or considered in grazing capacity estimates due to susceptibility of soil erosion, density of canopy, and likelihood of increasing grazing pressure on more desirable areas if steep slopes are not fully utilized by livestock.

Wildlife such as deer and elk utilize these areas for forage, escape cover, and thermal cover. It has been observed that cool season species are most utilized by wildlife during fall, winter, and early spring. Competition between livestock and wildlife can occur on these areas.

Plant Preference by Animal Kind:

Animal Kind:	<u>Livestock</u>
Animal Type:	<u>Cattle</u>

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Blue grama	<i>Bouteloua gracilis</i>	EP	D	D	D	D	D	D	P	P	P	D	D	D
B. squirreltail	<i>Sitanion hystrix</i>	EP	C	C	P	P	C	C	C	C	C	D	D	C
Wolftail	<i>Lycurus pheloides</i>	EP	S	S	S	D	D	D	P	P	P	P	S	S
Sideoats grama	<i>Bouteloua curtipendula</i>	EP	D	D	D	D	D	D	P	P	P	P	D	D
NM Muhly	<i>Muhlenbergia pauciflora</i>	EP	S	S	S	S	S	S	D	D	D	S	S	S
Prairie Junegrass	<i>Koeleria cristata</i>	EP	D	P	P	P	D	D	D	D	P	P	P	D
Mutton bluegrass	<i>Poa fendleriana</i>	EP	P	P	P	P	D	D	D	D	D	P	P	P
Hall's Panicum	<i>Panicum hallii</i>	EP	D	D	D	D	D	D	P	P	P	D	D	D
Sedge	<i>Carex spp.</i>	EP	D	P	P	P	D	D	D	D	D	D	D	D
Sand dropseed	<i>Sporobolus cryptandrus</i>	EP	S	S	S	S	D	D	P	P	P	D	S	S

Animal Kind: Wildlife

Animal Type: Elk

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Blue grama	<i>Bouteloua gracilis</i>	EP	D	D	D	D	D	D	P	P	P	D	D	D
B. squirreltail	<i>Sitanion hystrix</i>	EP	S	D	D	D	S	S	S	S	D	D	S	S
Wolftail	<i>Lycurus pheloides</i>	EP	C	C	C	C	C	C	C	C	C	C	C	C
Sideoats grama	<i>Bouteloua curtipendula</i>	EP	D	D	D	D	D	D	P	P	P	P	D	D
NM Muhly	<i>Muhlenbergia pauciflora</i>	EP	C	C	C	C	C	C	C	C	C	C	C	C
Prairie Junegrass	<i>Koeleria cristata</i>	EP	S	P	P	P	S	S	S	S	D	D	D	S
Mutton bluegrass	<i>Poa fendleriana</i>	EP	S	P	P	P	P	P	P	P	P	P	S	S
Hall's Panicum	<i>Panicum hallii</i>	EP	S	S	S	S	S	S	D	D	D	S	S	S
Sedge	<i>Carex spp.</i>	EP	D	D	D	D	D	D	D	D	D	D	D	D
Sand dropseed	<i>Sporobolus cryptandrus</i>	EP	S	S	S	S	S	S	S	D	D	S	S	S

Plant Preference codes:

<u>Plant Part</u>	<u>Code</u>	<u>Species Preference</u>	<u>Code</u>
Stems	S	None Selected	S
Leaves	L	Preferred	P
Flowers	F	Desirable	D
Fruit/Seeds	F/S	Undesirable	U
Entire Plant	EP	Not Consumed	C
Underground parts	UP	Emergency	E
		Toxic	T

Hydrology Functions:

The course fragments on the surface and in soil profile allows for rapid runoff. Although due to steep slopes, course fragments contributes to soil stability and precludes some soil erosion. Soil texture and profile allows for moisture to percolate through the horizons due to the porosity of the soil itself (sandy loam). No springs or free flowing discharges originate from this site. Runoff may contribute to downstream water table recharge. South slopes tend to be drier and retain less soil moisture for shorter periods of time than north slopes. North slopes accumulate and retain snow for longer periods of time allowing for greater moisture percolation, and greater retained soil moisture for extended periods of time during fall, winter, & spring.

Recreational Uses:

This map unit is not conducive to any conventional recreation opportunities except scenic values, thermal cover for wildlife (henceforth wildlife viewing), and hunting opportunities. Landscape is steep and rocky and only accessible on foot or by horseback.

Wood Products:

No commercial wood fiber is produced from these sites. They produce very little volume for wood posts, although stays can be removed from these sites. Fuelwood value is marginal to moderate but due to the steep terrain and surface rock, the land is best left undisturbed to retain soil integrity and prevent soil loss from human or livestock impact.

Other Products:

No other products produced from these sites.

Other Information:

Grazing occurs on these sites on an occasional basis due to the proximity of drinking water, but it is advisable not to include these lands in base stocking capacity due to the inherent nature of the landscape to deter grazing use, and the impact of grazing on shallow and highly erodible soils.

Supporting InformationAssociated Sites:

<u>Site Name</u>	<u>Site ID</u>	<u>Site Narrative</u>
------------------	----------------	-----------------------

Similar Sites:

<u>Site Name</u>	<u>Site ID</u>	<u>Site Narrative</u>
------------------	----------------	-----------------------

Inventory Data References (narrative):

This ESD is derived from interpretation of 3 selected study sites within the Mapping Unit #385. Each site had three 0.1 acre plots measured and the data summarized per study site. Sites were not selected randomly, they were selected based on best representation of the landscape and to maintain consistency within the soil mapping unit. A photographic record of each site is displayed in the preceding figures and also maintained in the case file with field data forms.

Inventory Data References:

<u>Data Source</u>	<u>Number of Records</u>	<u>Sample Period</u>	<u>State</u>	<u>County</u>
BLM, NMSO	9	Fall 2004, Winter 2005	NM	Catron

State Correlation:

This site has been correlated with the following sites: No other states have collected data in woodland type.

Type Locality:

State: _____
County: _____
Latitude: _____
Longitude: _____
Township: _____
Range: _____
Section: _____

Is the type locality sensitive? Yes No

General Legal Description: _____

Relationship to Other Established Classifications:

None

Other References:

Other soils comparable to MU 385 are 487 and 471.

MU 487- South slopes dominated by **Jumo** (*Juniperus monosperma*, One-seed juniper), with Blue grama dominant understory, with lesser amounts of Threeawns and Needle grass, slopes 30-50%, bare ground 50-60%, surface vegetation <20%. North/west slopes dominated by **Pied** (*Pinus edulis*, Pinon pine), with **Jumo** as co-dominant. Vegetation characteristics similar to MU385, rock outcrops not as common, mostly stoney to cobbly. In some locations, such as dikes, rock outcrops may be represented as vertical bluffs. Uneven-aged stands prevalent, with old **Pied** 10-30%, midaged 60-70%, young aged class at 10%, with very little seedling/saplings. Certain stands appear stable and with few fire scars or mortality. Avg. DRC for **Pied** is 12-16" old age class trees, midaged 6-10". Estimated forage production is 50-150#/acre.

MU 471 -- South slopes dominated by **Jumo**, **Pied** co-dominant, understory primarily blue grama. North slopes have slope of about 30%, rock outcrops on ridges, surface rock mostly stony to very cobbly. Surface moss found in certain locals on north slopes (not likely in south slopes). Alligator juniper and ponderosa pine may occur within the mapping unit at 5% of composition. Understory vegetation consist of blue grama as dominant with Pine dropseed (10-20#/ac.) and Mountain muhly (15-25#/ac) and at times these species become very common. Also found in association with north slope vegetation are buckwheat (5-10#/ac.) and mountain mahogany, both are commonly hedged by livestock or wildlife. **Pied** may be found to be stunted due to shallow soils with **Jumo** old trees being very common.