

UNITED STATES DEPARTMENT OF AGRICULTURE  
 NATURAL RESOURCES CONSERVATION SERVICE  
 SECTION II-E TECHNICAL GUIDE

ECOLOGICAL SITE DESCRIPTION  
 PINYON JUNIPER WOODLAND  
 \_\_\_\_\_, COLORADO FIELD OFFICE

Ecological Site Name: Mountain Pinyon #114

Ecological Site Number: GF - 048AY114CO

Date: 03/01/95

Author's initials: JEM

PART A: PHYSICAL CHARACTERISTICS

1. Soil Narrative:

*see attached copy.*  
 a. The soils of this site are shallow to moderately deep. If the soils are deep they are cobble or stone filled and act like a shallow soil with limited water holding capacity. They are all well drained. Surface textures range from loams, sandy loams to sandy clay loams and are often cobbly or stone filled. The subsoils are sandy clay loams to clay loams and mostly skeletal or contain rock fragments.

b. List of Soil series or Taxonomic Units included in this site:

SSA	MU	Soil Series	Surface Texture	Percent Slope	Phase
655	33	Earsman	STV Sandy Loam	12-65	None
655	25	Rentsac	CN Loam	15-65	None
675	13	Barkelaw	very cobbly clay loam	5-40	None
677	303	Benlowe	Loam, Sandy Loam	3-20	None
677	260	Transfer	Loam	3-15	None
677	100	Circleville	Sandy Loam	3-30	None
		<i>Loghill, etc</i>	<i>clay loam</i>	<i>15-50</i>	<i>dry</i>

2. Landscape Factors:

a. Physiography:

1. Elevation: Low: 6000 ft High: 7500 ft *8000*

2. Percent Slope: High: 65% Low: 3%

3. This site occurs on rolling hills to very steep slopes in the lower mountain zone.

3. Climate Factors:

*we need a  
13-15" precip - mesic temps  
and 15-18 precip - frigid temps*

- a. Hard freeze free period:\*
- b. Freeze-free period:\*
- c. Frost-free period: 90 to 110 day (32°F)
- d. Mean annual precipitation: <sup>13-17</sup> 13 to 17 (inches) ✓
- e. Mean annual air temperature: 42 to 45 (°F)
- f. Mean annual soil temperature: 46 to 49 (°F)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PPT HIGH	*											
MEAN	1.1	0.8	1.1	1.2	1.1	1.0	1.2	1.6	1.7	1.2	0.9	1.2
LOW	*											
PERCENT	.8	.5	.8	.9	.8	.7	.9	1.1	1.2	.9	.6	.9
TEMP HIGH	*											
MEAN	23	27	34	42	51	61	65	63	57	46	34	25
LOW	*											

*Never min!*

\* Reliable data not available at this time.  
Climatic data is taken from the following NWS Climate Station(s):

4. Vegetation Factors - Climax Plant Community:

a. Site Description Narrative:

The plant community is about 50 percent grass, 10 percent forbs, and 40 percent shrubs (air-dry weight of current season's growth) when the tree canopy is low (0 to 15%).

Dominant grasses are western wheatgrass, bluebunch wheatgrass and Indian ricegrass. Less abundant grasses are needleandthread, bottlebrush squirreltail, prairie junegrass, sand dropseed, muttongrass and Nevada bluegrass.

Forbs present in the plant community include arrowleaf balsamroot, buckwheat, crazyweed, fendler cryptantha, hairy goldaster, herbaceous sage, hoods phlox, mat penstemon, rocky mountain penstemon, scarlet globemallow, skeletonweed, and sulphur ergogonum. Shrubs, half-shrubs, and trees that occur on this site are small low rabbitbrush, Wyoming big sagebrush, true mountain mahogany, Utah serviceberry, Utah juniper and Pinyon pine.

*New Pinyon reach*

As elevation and moisture increases, Utah juniper gives way to Pinyon pine. ~~tree~~ <sup>tree</sup> may come to dominate the sight completely. As tree canopy increases the same plants are present, however, the amounts of grasses and shrubs have decreased. Canopy cover may increase to the point where understory vegetation is completely shaded out. A few invader species such as mustards, Russian thistle, and Kochia become established on the site at this level of tree canopy cover.

b. Percent Cover:

1. Ground cover and structure:

tree canopy	% Basal area cover
tree canopy 0-15%	
Grasses, Grasslikes	10
Forbs	1
Shrubs	3
Trees	1
tree canopy 15-30%	
Grasses, Grasslikes	5
Forbs	1
Shrubs	2
Trees	2
tree canopy 30%+	
Grasses, Grasslikes	<1
Forbs	1
Shrubs	2
Trees	5

c. Vascular plant community composition and production:

a. Grasses and grasslike:

Symbol	Common name	Productivity by Canopy Class		
		0-15%	15-30%	30%+
PASM	WESTERN WHEATGRASS	10-20	5-10	1-5
PSSPS	BLUEBUNCH WHEATGRASS	10-15	5-10	1-5
ORHY	INDIAN RICEGRASS	10-15	5-10	1-5
POSE	SANDBERG BLUEGRASS	10-15	3-10	1-5
STCO4	NEEDLEANDTHREAD	<del>5-10</del>	1-5	1-5
ELEL5	BOTTLEBRUSH SQUIRRELTAIL	5-10	1-5	1-5
KOMA	PRAIRE JUNEGRASS	5-10	1-5	1-5
SPCR	SAND DROPSEED	5-10	1-5	1-5
POFE	MUTTONGRASS	5-10	1-5	1-5
BOGR2	BLUE GRAMA	1-5	1-3	0-1
CAGE2	ELK SEDGE	1-5	1-3	0-1
LESAS2	SALINA WILD RYE	1-5	1-3	0-1
	<i>Nevada bluegrass</i>	<i>5-15</i>	<i>1-5</i>	<i>1-5</i>

b. Forbs:

Symbol	Common name	Productivity by canopy class		
		0-15%	15-30%	30%+
BASA3	ARROWLEAF BALSAMROOT	1-3	0-2	0-1
OXYTR	CRAZYWEED	1-3	0-2	0-1
CRFE3	FENDLER CRYPTANTHIA	1-3	0-2	0-1
HEVI4	HAIRY GOLDSTAR	<del>1-3</del>	0-2	0-1
ARLU	HERBACEOUS SAGE	1-3	0-2	0-1
PHHO	HOODS PHLOX	1-3	0-2	0-1
PECA4	MAT PENSTEMON	1-3	0-2	0-1
PEST2	ROCKY MOUNTAIN PENSTEMON	1-3	0-2	0-1
SPCO	SCARLET GLOBEMALLOW	1-3	0-2	0-1
ERDE6	SKELETONWEED	1-3	0-2	0-1
ERUM	SULFURFLOWER BUCKWHEAT	1-3	0-2	0-1
PEPU7	ROCK GOLDENROD	1-3	0-2	0-1
IPAGA3	SKYROCKET GILIA	1-3	0-2	0-1
ERST4	TIGHT ERIOGONUM	1-3	0-2	0-1
PHLO2	LONGLEAF PHLOX	1-3	0-2	0-1

c. Shrubs & Halfshrubs:

Symbol	Common name	Productivity by Canopy Class		
		0-15%	15-30%	30%+
ARTRW8	WYOMING BIG SAGEBRUSH	5-10	1-5	0-3
OPPO	PLAINS PRICKLYPEAR	1-5	0-5	1-3
AMUT	UTAH SERVICEBERRY	1-5	0-5	1-3
CEMO2	TRUE MOUNTAIN MAHOGANY	1-5	0-5	1-3
ARNO4	BLACK SAGEBRUSH	<del>1-5</del>	0-5	1-3
CHVIV4	SMALL LOW RABBITBRUSH	1-5	0-5	1-3
STACA	STEMLESS GOLDENWEED	1-5	0-5	1-3
QUGA	GAMBEL OAK	1-5	0-5	1-3
PUTR2	ANTELOPE BITTERBRUSH	1-3	0-3	0-1
ARFR4	FRINGED SAGEBRUSH	1-3	0-3	0-1
PERA4	SQUAW-APPLE	1-3	0-3	0-1
YUGL	SMALL SOAPWEED	1-3	0-3	0-1
SYOR2	MOUNTAIN SNOWBERRY	1-3	0-3	0-1
ARTRV	MOUNTAIN BIG SAGEBRUSH	1-3	0-3	0-1
RICE	WAX CURRANT	1-3	0-3	0-1
	Cliff fenderbush			

d. Trees:

Symbol	Common Name	Productivity by Canopy Class		
		0-15%	15-30%	30%+
PIED	PINYON PINE	1-15	30-55	60-90
JUOS	UTAH JUNIPER	0-2	<del>1-5</del>	<del>3-8</del>
		<del>1-10</del>	10-20	30-50

5. Total Annual Production:

- a. In an average year the approximate total annual production (air-dry) is as follows:

Tree Canopy cover	0-15%:	800 to 1000	lbs/acre
Tree Canopy cover	15-30%:	500 to 800	lbs/acre
Tree Canopy cover	+30%:	100 to 500	lbs/acre

- b. Growth Curves for this site:

Curve Identity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Mtn Pinyon Zone	0	0	2	9	37	42	0	0	4	6	0	0

6. Guide to Initial Stocking Rates:

To determine a beginning carrying capacity on this site, use 50 percent of the preferred species, 35 percent of the desirable species and 5 percent of the undesirable species by weight can be counted as usable forage for the target animal(s) using the area. Use 900 pounds air-dry weight as the amount of forage required to support one animal unit month (AUM). From the available forage, calculate the number of acres needed to support each AU for the length of the planned grazing season.

7. Wildlife Species List:

mule deer	rocky Mountain elk	bobcat
coyote	mountain lion	rock squirrel
cottontail	white-tailed jackrabbit	gopher snake
bushy tailed rat	side blotched lizard	sagebrush lizard
golden eagle	red-tailed hawk	chukar
pinyon jay	western blue bird	plain titmouse
rock wren	hairy woodpecker	

8. Site Degradation:

If retrogression is induced by lack of fire in the ecosystem, the trees will increase at the expense of grass, forbs and shrubs; When the trees become dominant on the site, soil erosion can be extreme (loosing up to two feet of topsoil).

If retrogression is induced by cattle, the grasses will decrease in relative proportions. Forbs, shrubs, and trees will increase in relative proportions. If retrogression continues, the site will be occupied by trees almost exclusively with ~~either five or ten percent~~ of the total production in grass, forbs, and shrubs.

Animal class symbols:

Animal -

- |               |               |          |
|---------------|---------------|----------|
| C - Cows      | S - Sheep     | H - Ho:  |
| E - Elk       | D - Deer      | P - Proc |
| G - Upland    | S - Songbirds | S - Sma  |
| B - Gamebirds | B -           | M - Mam  |

May want to define what excellent condition and late successional stages are in terms of tree canopy cover.  
 5-15%  
 10-20%  
 18-25%

2. Major Poisonous Plants to Livestock

Plant Name	Livestock Affected	Type of Poisoning
Utah juniper	cattle	maybe poisoned if large quantities of berries are eaten

3. Wood Products:

Wood products produced on this site are firewood, fence posts, and Christmas trees. Firewood can be harvested from the area in late successional stages to create an early or mid successional stage which produces better forage for grazing cattle. A patch cutting pattern for firewood can create better wildlife habitat by increasing the edge effect. An area in late successional stage can be managed for fence post production with light thinning. Christmas trees are best produced on areas in mid successional stages when the trees are relatively small and brushy.

4. Wildlife Values:

Practices or natural occurrences that set back succession such as fire, or clearing usually improve the area for mule deer and elk. Wildlife species that rely on large mature pinyon trees such as the white-breasted nuthatch and plains titmouse will be adversely effected by severe retrogression. In general, most wildlife species are benefited by this site being in good to excellent condition.

5. Hydrological Interpretations:

Soils in this site are ground into "D" hydrologic group, as outlined in the Soils of Colorado Loss Factors and Erodibility Hydrologic Groupings 1979 Handbook. Field investigations are needed to determine hydrologic cover conditions and hydrologic curve numbers. Refer to NRCS National Engineering Handbook, Section 4, and Peak Flows in Colorado Handbook for more information.

Canopy cover, when in excellent condition, is mostly grass which offers excellent protection against rain drop splash erosion. The grass roots also offer excellent protection against sheet erosion. When trees become dominant on the site the soil has little protection from either rain drop splash erosion or sheet erosion.

Excellent condition usually denotes late seral usually, which is larger trees, more canopy cover, which means less grass.

9. Typical Locations

- a. North of I-70 about four miles east of Eagle in Eagle County.
- b. Two miles south of Inspiration Point in Grand County.

Part B MAJOR USES AND INTERPRETATIONS FOR:

*having the same range cover of 25% or less*

1. Grazing:

- a. When in excellent condition, this site can be valuable for grazing by livestock. All of the grasses are palatable so they will become less abundant and less vigorous if the site is grazed too heavily. If ~~this~~ over grazing continues, total production will be drastically reduced and many species will completely disappear from the site. When this occurs, erosion increases greatly and basal areas will become nearly zero. *at this time basal area is reduced,*
- b. *Factors such as:* Adjustment to the initial stocking rate should be made as needed to obtain proper use. With specialized grazing systems, large livestock breeds, uncontrolled big game herbivores, inaccessibility, dormant season use, etc., stocking rate adjustments will be required. *to be made, will require*
- c. Depending on climatic condition, in some years palatable annuals such as cheatgrass may produce large amounts of forage that is available for only a short time. Intensive grazing programs on these areas followed by deferment, *as* an excellent management tool, utilize these annuals, but still allow recovery of the perennial vegetation normally associated with this site.

2. Guide to Forage Palability: 1/

a. Grasses and Grasslikes:

Plant Symbol	Common Names	Animal Preference								
		C	S	H	E	D	P	B	B	M
PASM	WESTERN WHEATGRASS	P	D	P	D	D	D	N	N	N
PSSPS	BLUEBUNCH WHEATGRASS	P	P	P	P	D	P	N	N	N
ORHY	INDIAN RICEGRASS	D	D	D	D	P	P	N	N	N
STCO4	NEEDLEANDTHREAD	D	D	D	D	D	D	N	N	N
ELEL5	BOTTLEBRUSH SQUIRRELTAIL	D	D	D	D	D	D	N	N	N
KOMA	PRAIRE JUNEGRASS	P	P	P	P	D	D	N	N	N
SPCR	SAND DROPSEED	D	D	D	D	U	U	N	N	N
POFE	MUTTONGRASS	P	P	P	P	P	P	N	N	N
POSE	SANDBERG BLUEGRASS	D	D	D	P	P	P	N	N	N
BOGR2	BLUE GRAMA	D	D	D	D	D	D	N	N	N
CAGE2	ELK SEDGE	D	D	D	D	D	D	N	N	N
LESAS2	SALINE WILD RYE	D	D	D	P	P	P	N	N	N

b. Forbs

Plant Symbol	Common Name	Animal Preference								
		C	S	H	E	D	P	G	S	S
		B	B	M						
BASA3	ARROWLEAF BALSAMROOT	U	P	D	D	P	U	D	D	D
OXYTR	CRAZYWEED	U	U	U	U	U	U	U	N	N
CRFE3	FENDLER CRYTANTHIA	U	U	U	U	D	D	U	D	D
HEVI4	HAIRY GOLDSTAR <i>A-152</i>	U	D	U	U	D	D	D	D	D
ARLU	HERBACEOUS SAGE	D	P	D	P	P	P	D	D	D
PHHO	HOODS PHLOX	U	D	U	U	U	D	N	N	N
PECA4	MAT PENSTEMON	U	D	U	U	D	D	N	N	N
PEST2	ROCKY MOUNTAIN PENSTEMON	U	D	U	U	D	D	D	D	D
SPCO	SCARLET GLOBEMALLOW	D	D	U	D	D	D	D	D	D
ERDE6	SKELETONWEED	U	D	U	U	D	D	N	N	N
ERUM	SULFURFLOWER BUCKWHEAT	U	D	U	U	D	D	N	N	N
PEPU7	ROCK GOLDENROD	U	U	U	U	U	U	U	U	N
IPAGA3	SKYROCKET GILIA	U	D	U	U	U	U	N	N	N
ERST4	TIGHT ERIOGONUM	U	D	U	U	D	D	N	N	N
PHLO2	LONGLEAF PHLOX	U	D	U	U	D	D	N	N	N

c. Shrubs and Halfshrubs

Plant Symbol	Common Name	animal Preference								
		C	S	H	E	D	P	G	S	S
		B	B	M						
ARTRW8	WYOMING BIG SAGEBRUSH	U	P	U	P	P	P	P	D	P
OPPO	PLAINS PRICKLYPEAR	U	U	U	U	U	U	D	D	P
AMUT	UTAH SERVICEBERRY	D	D	U	D	D	U	D	D	D
CEMO2	TRUE MOUNTAIN MAHOGANY	D	P	D	P	P	D	D	D	P
ARNNO4	BLACK SAGEBRUSH	D	P	D	P	P	P	P	D	D
CHVIV4	SMALL LOW RABBITBRUSH	U	D	U	U	D	D	D	D	D
STACA	STEMLESS GOLDENWEED	U	U	U	U	U	U	N	N	N
QUGA	GAMBEL OAK	U	D	U	D	D	D	D	P	P
PUTR2	ANTELOPE BITTERBRUSH	D	P	D	D	P	P	D	P	P
ARFR4	FRINGED SAGEBRUSH	U	D	U	D	D	D	D	D	D
PERA4	SQUAW-APPLE	U	D	U	D	D	D	D	D	D
YUGL	SMALL SOAPWEED	D	D	D	D	D	D	D	D	D
SYOR2	MOUNTAIN SNOWBERRY	U	D	U	D	D	D	D	D	D
ARTRV	MOUNTAIN BIG SAGEBRUSH	U	D	U	D	D	D	D	D	D
RICE	WAX CURRANT	U	P	D	P	P	P	D	D	D

d. Trees:

PIED	PINYON PINE	U	U	U	U	U	U	P	P	P
JUOS	UTAH JUNIPER	U	U	U	D	D	U	D	P	D

1./ Vegetation palatability by animal class is based on the attractiveness of the plant to animals as forage. Grazing preference changes from time to time and place to place depending on the animal class, plant palatability and nutrient value, stage of growth, and season of use.

6. Recreation and Natural Beauty:

Areas of this site are used for hiking, camping, and picnics during the early and late part of the summer. It provides good wildlife cover ~~and especially during late fall and winter so it is commonly used by hunters.~~

7. Endangered Plants and Animals:

Bald eagles can be found on this site during the winter season. The spineless hedgehog cactus can be found on this site.

8. Other Interpretations:

Many areas of this site are dominated by the trees to the near exclusion of grasses, forbs, and shrubs. This has usually resulted in severe erosion. To reclaim and stabilize these sites, the trees must be controlled by fire, cutting, or chaining. Seeding may be required. Deferment from all grazing will also be required. Then to prevent the reinfestation of trees, a planned grazing system which rests each area once every three or four years is needed. Periodic fires will also prevent the trees from fully maturing and creating excessive competition.

9. Scientific Names of Plants Listed According to NRCS "Plants" Database:

Grasses and Grasslikes:

Plant Symbol	Common Name	Scientific Name
PASM	WESTERN WHEATGRASS	PASCOPYRUM SMITHII
PSSPS	BLUEBUNCH WHEATGRASS	PSEUDOROEGNERIA SPICATA SSP. SPICATA
ORHY	INDAIN RICEGRASS	ORYZOPSIS HYMENOIDES
STCO4	NEEDLEANDTHREAD	STIPA COMATA
ELEL5	BOTTLEBRUSH SQUIRRELTAIL	ELYMUS ELYMOIDES
KOMA	PRAIRIE JUNIPER GRASS	KOELERIA MACRANTHA
SPCR	SAND DROPSEED	SPORABOLUS CRYPTANDRUS
POFE	MUTTONGRASS	POA FENDLERIANA
POSE	SANDBERG BLUEGRASS	POA SECUNDA
CAGE2	ELK SEDGE	CAREX GEYERI
LESAS2	SALINA WILDRYE	ELYMUS AMBIGUUS VAR. SALMOMIS
BOGR2	BLUE GRAMA	BOUTELOUS GRACILIS

Forbs:

Plant Symbol	Common Name	Scientific Name
BASH3	ARROWLEAF BALSAMROOT	BALSAMORHIZA SAGITTATA
OXYTR	CRAZYWEED	OXYTROPIS SPP.
CRFE3	FENDLER CRYPTANTHIA	CRYPTANTHA FENDLERI
HEVI4	HAIRY GOLDSTAR	METEROTHECA VILLOSA
RLU	HERBACEOUS SAGE	ARTEMISIA LUDOVICANA

PHHO	HOODS PHLOX	PHLOX HOODII
PECA4	MAT PENSTEMON	PENSTEMON CAESPITOSUS
PEST2	ROCKY MOUNTAIN PENSTEMON	PENSTEMON STRICTUS
SPCO	SCARLET GLOBEMALLOW	SPHARALCEA COCCINEA
ERDE6	SKELETONWEED	ERIOGONUM DEFLEXUM
ERUM	SULFURFLOWER BUCKWHEAT	ERIOGONUM UMBELLATUM
PEPU7	ROCK GOLDENROD	PETRADORIA PUMILA
IPAGA3	SKYROCKET GILIA	IPOMOPSIS AGGREGATA SSP. AGGREGATA
ERST4	TIGHT ERIOGONUM	ERIOGONUM STRICTUM
PHLO2	LONGLEAF PHLOX	PHLOX LONGIFOLIA

Shrubs and Halfshrubs:

Plant Symbol	Common Name	Scientific Name
ARTRW8	WYOMING BIG SAGEBRUSH	ARTEMISIA TRIDENTATA SSP. WYOMINGENSIS
OPPO	PLAIN PRICKLYPEAR	OPUNTIA POLYCANTHA
AMUT	UTAH SERVICEBERRY	AMELANCHIER UTAHEWSIS
CEMO2	TRUE MOUNTAIN MAHOGANY	CERCOCARPUS MONTANUS
ARARN	BLACK SAGEBRUSH	ARTEMISIA ARBUSCULA NOVA
CHVIV4	SMALL LOW RABBITBRUSH	CHRYSOTHAMNUS VISIDIFLORUS SSP. VISIDIFLORUS VAR. VISIDIFLORUS
STACA	STEMLESS GOLDENWEED	HASTENOTUS ACAULISVAR1
QUGA	GAMBEL OAK	QUERCUS GAMBELII
PUTR2	ANTELOPE BITTERBRUSH	PURSHIA TRIDENTATA
ARFR4	FRINGED SAGEBRUSH	ARTEMISIA FRIGIDA
PERA4	SQUAW-APPLE	PERAPHYLLUM RAMOSISSIMUM
YUGL	SMALL SOAPWEED	YUCCA GLAUCA
SYOR2	MOUNTAIN SNOWBERRY	SYMPHORICARPOS OREOPHILUS
ARTRV	MOUNTAIN BIG SAGEBRUSH	ARTEMISIA TRIDENTATA SSP. VASEYANA
RICE	WAX CURRANT	RIBES CEREUM

Trees:

PIED	PINYON PINE	PINUS EDULIS
JUOS	UTAH JUNIPER	JUNIPERUS OSTEOSPERMA

10. Counties in Which this Range Site Occurs:

Mesa  
Garfield  
Grand  
Montrose  
Ouray  
San Miguel  
Route  
Eagle  
Moffat

# Ecological Reference Sheet

**MLRA:** 48A    **Ecological Site:** Mountain Pinyon (Grazable Forest/woodland)

**Date:** 01/18/05    **Author(s)/participant(s):** J. Murray, C. Holcomb, L. Santana, F. Cummings, S. Jaouen

**Contact for lead author:** \_\_\_\_\_

This *must* be verified based on soils and climate (see Ecological Site Description). Current plant community *cannot* be used to identify the ecological site. **Composition (indicators 10 and 12) based on:** X Annual Production, \_\_ Cover Produced During Current Year  
Biomass

<p><b>Indicators.</b> For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above- and below-average years and natural disturbance regimes for <b>each</b> community within the reference state, when appropriate &amp; (3) cite data. Continue descriptions on separate sheet.</p>
<p><b>1. Number and extent of rills:</b> None</p>
<p><b>2. Presence of water flow patterns:</b> Flow paths are short and disconnected with debris dams. As slope increases, flow paths become more prominent and connected.</p>
<p><b>3. Number and height of erosional pedestals or terracettes:</b> Pedestals are expected and associated with flow paths. Terracettes or debris dams are obvious following rainfall events.</p>
<p><b>4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are <i>not</i> bare ground):</b> Expect 15-20% bare ground. Surface and sub-surface rock are inherent to this site.</p>
<p><b>5. Number of gullies and erosion associated with gullies:</b> An occasional gully is possible on steeper slopes.</p>
<p><b>6. Extent of wind scoured, blowouts and/or depositional areas:</b> None</p>
<p><b>7. Amount of litter movement (describe size and distance expected to travel):</b> Movement is expected due to steepness of slope. Distance varies from 1-3 feet following intense rainfall events up to 10 feet or more depending on water concentrations.</p>
<p><b>8. Soil surface (top few mm) resistance to erosion (stability values are averages – most sites will show a range of values):</b> Stability class rating anticipated to be 3-6 in the interspaces at soil surface. Aggregate stability can be quite variable depending on soil texture, biological crusts and organic matter.</p>
<p><b>9. Soil surface structure and SOM (soil organic matter) content (include type and strength of structure, and A-horizon color and thickness):</b> SOM ranges from 0.5-2%. Surface soils are shallow to moderately deep. Surface texture ranges from loams to sandy loams and sandy clay loams and are often cobbly or stone filled and well drained. The A-horizon ranges from 0-5 inches in depth and color ranges from reddish to grayish brown. Surface structure is weak fine to very fine granular.</p>
<p><b>10. Effect of plant community composition (relative proportion of different functional groups) &amp; spatial distribution on infiltration &amp; runoff:</b> Reduction of tree canopy cover causes lower infiltration rates and higher runoff on these soils. As tree canopy increases, moisture interception and evaporation increases.</p>
<p><b>11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):</b> None</p>
<p><b>12. Functional/Structural Groups (list in order of descending dominance by above-ground production or live foliar cover (specify) using symbols: &gt;&gt;, &gt;, = to indicate much greater than, greater than, and equal to; place dominants, subdominants and “others” on separate lines):</b>                  Dominants: trees &gt;                  Sub-dominants: cool season bunchgrass = shrubs &gt; forbs &gt;                  Other: cool season rhizomatous grass &gt; cryptogams &gt; sedges = warm season short bunchgrass</p>
<p><b>13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):</b> Tree mortality can be expected under drought conditions and insect infestations. Under dense tree canopy, vegetative understory mortality and/or decadence increases.</p>
<p><b>14. Average percent litter cover ( _____ %) and depth ( _____ inches).</b> 30-45% litter cover at 0.25-4.50 inch depth, depending upon tree canopy.</p>
<p><b>15. Expected annual production (this is TOTAL above-ground production, not just forage production):</b>                  Tree canopy cover 0-15%: 800-1000 lbs./ac.; Tree canopy cover 15-30%: 500-800 lbs./ac.; Tree canopy cover &gt; 30%: 100-500 lbs./ac. Production figures are for understory vegetation.</p>
<p><b>16. Potential invasive (including noxious) species (native and non-native). List species which characterize degraded states and which, after a threshold is crossed, “can, and often do, continue to increase regardless of the management of the site and may eventually dominate the site”:</b> Cheatgrass, annual weeds, other noxious weeds.</p>
<p><b>17. Perennial plant reproductive capability:</b> The only limitations are weather-related, wildfire, natural disease, inter-species competition, wildlife, and insects that may temporarily reduce reproductive capability. Increased tree canopy will result in decreased understory reproductive capability.</p>

## Functional/Structural Groups Sheet

State: \_\_\_\_\_ Office: \_\_\_\_\_ Ecological Site: Mountain Pinyon Site ID: F048AY114CO

Observers: \_\_\_\_\_ Date: \_\_\_\_\_

Functional/Structural Groups			Species List for Functional/Structural Groups
Name	Potential <sup>1</sup>	Actual <sup>2</sup>	Plant Names
Trees	D		Pinyon pine, Utah juniper, oneseed juniper
Cool season bunchgrass	S		Bluebunch wheatgrass, needleandthread, native bluegrasses, Indian ricegrass, prairie junegrass, bottlebrush squirreltail
Shrubs	S		Big sagebrush, black sagebrush, serviceberry, mountain mahogany, antelope bitterbrush, gambel oakbrush
Forbs	S		buckwheat, locoweeds, cryptanthia, Hood's phlox, scarlet globemallow, skyrocket gilia, arrowleaf balsamroot, hairy goldaster, penstemons, asters, daisy, stemless goldenweed
Cool season rhizomatous grass	M		Western wheatgrass
Sedges	T		Elk sedge
Warm season short bunchgrass	T		Blue grama
Noxious Weeds			
Invasive Plants			
Biological Crust <sup>3</sup>	M		

Indicate whether each “structural/functional group” is a **Dominant (D)** (roughly 40-100 % composition), a **Sub-dominant (S)** (roughly 10-40% composition) a **Minor Component (M)** (roughly 2-5% composition), or a **Trace Component (T)** (<2% composition) based on weight or cover composition in the area of interest (e.g., “Actual<sup>2</sup>” column) relative to the “Potential<sup>2</sup>” column derived from information found in the ecological site/description and/or at the ecological reference area.

**Biological Crust<sup>3</sup>** dominance is evaluated solely on **cover** not composition by weight.