

Ecological Site Description

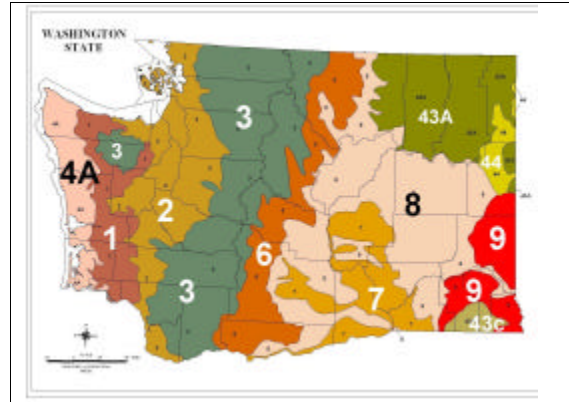
Site Type: Rangeland

Site Name: Dry Stony 15+ PZ

Site ID: R006XY201WA

Major Land Resource Area: B006X

Cascade Mountains, Eastern Slope



Physiographic Features

This site usually occurs as a complex of soils, slope, direction of slope, and general topography along foot slopes of mountains, the side slopes of hill, and on benches. The landscape is characterized by low hills, ridges, fans or footslopes. Aspect is variable. This site usually occurs as a complex of soils, slope, direction of slope, and general topography on terraces and terrace escarpments.

	Land Form: (1) hillslope	(2) hillslope		
		South	West	Southeast
Aspect		<u>MINIMUM</u>	<u>AVERAGE</u>	<u>MAXIMUM</u>
Elevation (feet):		1510	2048	4244
Slope (percent):		8	24	53
Runoff Class:	None Selected			None Selected
Water Table Depth (inches)		0		0
Flooding	Frequency:	None		None
	Duration:	None		None
Ponding	Depth:	0		0
	Frequency:	None		None
	Duration:	None		None

This ecological site has been documented as occurring on the following geomorphic features:

terraces and terrace escarpments

Ecological Site Number	Ecological Site Name	Below	Normal	Above
R006XY201WA	Dry Stony 15+ PZ	pounds/acre/year: 400	500	600

Climatic Features

Growing Season

National CRA		Minimum	Average	Maximum
6.3	Frost-free period (days):	110	139	154
	Freeze-free period (days):	138	168	189
6.4	Frost-free period (days):	132	132	132
	Freeze-free period (days):	162	162	162
6.5	Frost-free period (days):	108	108	108
	Freeze-free period (days):	136	136	136
6.6	Frost-free period (days):	114	114	114
	Freeze-free period (days):	147	147	147
6.8	Frost-free period (days):	114	114	114
	Freeze-free period (days):	154	154	154

Average Monthly Precipitation (inches) and Temperature (degrees Fahrenheit)							Avg. Snow(in.)
Month	Min. Temp.	Avg. Temp.	Max. Temp	Min. Ppt.	Avg. Ppt.	Max. Ppt.	
October	56.8	45.8	35.8	1.0	1.5	2.3	0.5
November	38.0	34.1	30.3	1.6	3.3	5.1	8.8
December	27.1	25.6	24.5	1.9	4.2	6.3	23.7
January	27.9	24.9	23.5	1.4	3.9	6.1	24.2
February	35.8	30.6	27.0	1.4	2.6	4.0	12.6
March	45.9	37.3	29.8	1.3	2.0	3.4	5.9
April	54.1	44.7	33.9	1.0	1.2	1.7	0.7
May	62.9	52.6	41.4	0.8	1.1	1.6	0.1
June	70.9	60.0	48.4	0.7	0.9	1.4	0.0
July	78.5	65.7	53.0	0.3	0.5	0.8	0.0
August	78.5	65.6	52.7	0.6	0.8	1.2	0.0
September	69.9	56.8	44.1	0.8	1.0	1.1	0.0
Annual Totals:					23.1		76.4

Representative Climate Station

National CRA Numbe	Station	record from	record to
6.3	CONCONULLY	1961	1990
6.3	MAZAMA	1961	1990
6.3	STEHEKIN 3 NW	1961	1990
6.4	LEAVENWORTH 3 S	1961	1990
6.5	PLAIN	1961	1990
6.6	CLE ELUM	1961	1990
6.8	APPLETON	1961	1990

For local climate stations that may be more representative, refer to <http://www.wcc.nrcs.usda.gov>

Representative Soil Features

REPRESENTATIVE SOIL FEATURES

Shallow soils with a loamy surface texture or moderately deep to deep soils with a loamy surface texture and coarse fragment modifiers in the control section of the soil series description. This includes soils that are shallow to an indurated hardpan. These soils are usually on the drier aspects and topographic positions. These soils are characterized by the following soil surface horizon textures: very fine sandy loam, loam, silt loam, silt, silty clay loam, sandy loam, fine sandy loam. In addition, the Control Section (0-20 inches) modifier is (Includes very and extremely classes): stony , bouldery , cobbly, gravelly ,flaggy , channery; or Shallow to varied bedrock or restrictions.

	FROM	TO
surface fragments > 3 in.	0	48
drainage class	Well drained	Well drained
permeability class	None selected	None selected
frost action class	Moderate	Moderate

	MINIMUM	AVERAGE	MAXIMUM
soil depth (inches)	16	18	20
organic matter %	2.5	2.8	3.0
electrical conductivity	0	0	0
sar	0	0	0
ph	6.3	6.6	7.0
available water capacity	1	3	4
caco3	0	0	0

Characteristic Soils

Refer to specific soil survey reports and databases for soil mapping units that include the following series. Major soils series that have been correlated to this site include:

ANATONE	Borland	Lithic Haploxerepts
NIVA	THIESSEN	

Influencing Water Features

Plant Communities

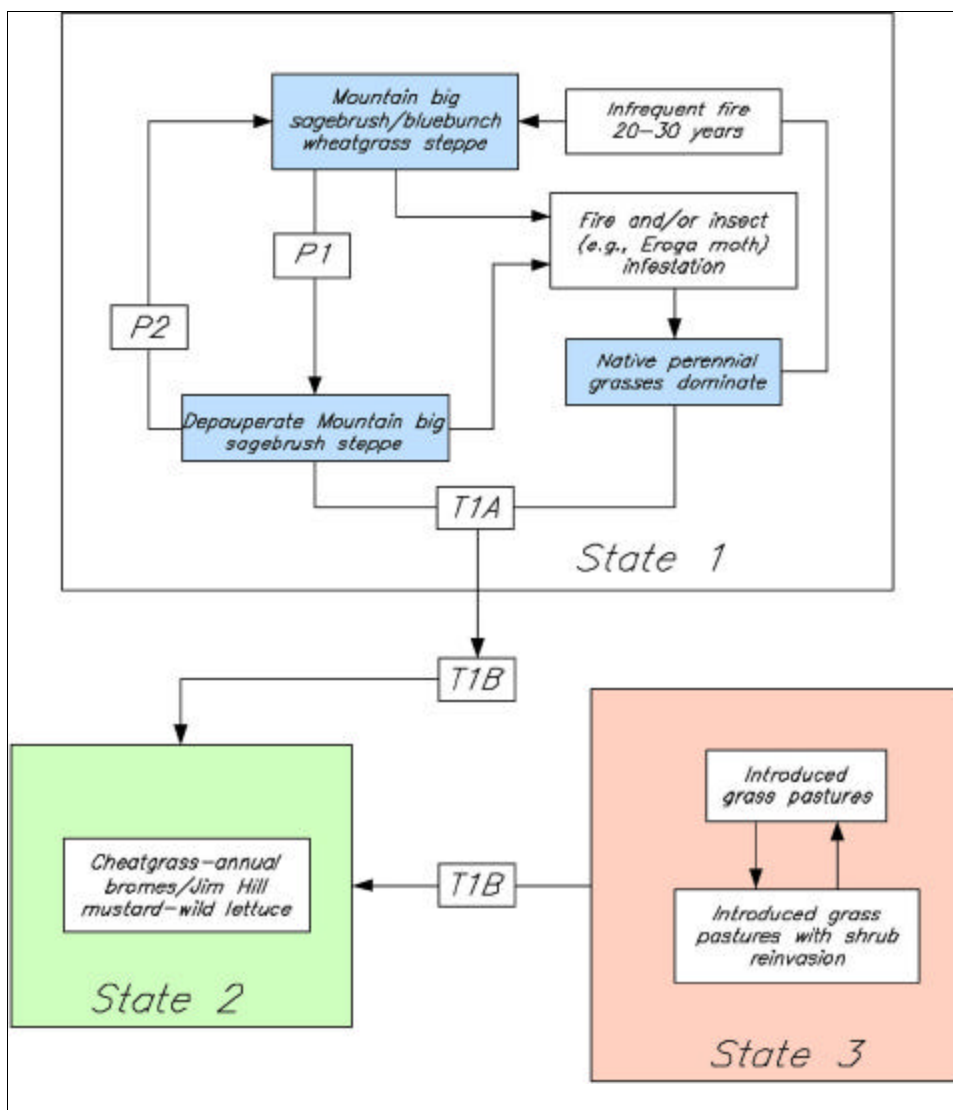
Ecological Dynamics of the Site

State-Transition Model

The historic climax plant community (description follows the State-Transition diagram) has been determined by study of rangeland relic areas, areas protected from excessive disturbance and historical accounts. The following diagram illustrates the common plant communities that can occur on the site and the transition pathways (arrows among communities). Bold lines surrounding each State represent ecological thresholds. The predominant plant communities within State 1 are sustainable plant communities in terms of soil stability, watershed function and biologic integrity. P1 is poor grazing practices such as overutilization and/or poor timing of grazing (during the critical period of the desired grasses).

P2 is prescribed grazing that meets the needs of the desired grasses.

T1A and T1B is the expression of (P1) poor grazing practices that are pushed by drought, poorly designed brush management or wildfire into State 2 that is dominated by cheatgrass, medusahead and other annual grasses and forbs. State 2 is characterized by excessive litter accumulations, reduced watershed function, and low biologic integrity.



Historical Climax Plant Community

Plant Group Type

Perennial Cool Season Mid-Grass Decreasers **pound**

Count Each Listed Species up to the listed pounds for the Species

PSSP6	bluebunch wheatgrass	126	25%
FEID	Idaho fescue	120	24%
POCU3	Cusick's bluegrass	12	2%

Perennial Cool Season Mid-Grass Increasers **pound**

Count Each Listed Species up to the listed pounds for the Species

POSE	Sandberg bluegrass	78	16%
ELEL5	bottlebrush squirreltail	54	11%
ACTH7	Thurber needlegrass	6	1%

Annual Grasses **pound**

Count Each Listed Species up to the listed pounds for the Species

VUOC	sixweeks fescue	5	1%
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Shrubs/Deep Rooted/Non-Sprouters **6 pound 1%**

Count any Listed Species Up to the Listed Pounds for the Group

ARTR2 big sagebrush

Shrubs/Deep Rooted/Sprouters **5 pound 1%**

Count any Listed Species Up to the Listed Pounds for the Group

ERNAN rubber rabbitbrush

CHVI8 green rabbitbrush

Shrubs/Shallow Rooted/Sprouters **12 pound 2%**

Count any Listed Species Up to the Listed Pounds for the Group

ARTR4 threetip sagebrush

Shrubs/N-fixers **6 pound 1%**

Count any Listed Species Up to the Listed Pounds for the Group

PUTR2 antelope bitterbrush

Half Shrub **36 pound 7%**

Count any Listed Species Up to the Listed Pounds for the Group

ERIOG buckwheat

ERMI4 Weyth buckwheat

Plant Group Type

Perennial Forbs/Fibrous-rooted **18 pound 4%**

Count any Listed Species Up to the Listed Pounds for the Group

- PHACE phacelia
- LIRU4 western gromwell
- PHCH wallflower phoenicaulis
- SYMPH aster
- VITR3 Rainier Violet
- OLDOI inflated olsynium

Perennial Forbs/tap-rooted **48 pound 10%**

Count any Listed Species Up to the Listed Pounds for the Group

- PHHO spiny phlox
- PHLO2 longleaf phlox
- SEDUM stonecrop
- ARABI rockcress
- PHLOX phlox
- PENST penstemon
- COGR4 largeflower mountaintrumpet
- NOTR2 weevil microsaris
- CREPI hawksbeard

Perennial Forbs/thickened taproot **54 pound 11%**

Count any Listed Species Up to the Listed Pounds for the Group

- BACA3 Carey's balsamroot
- LOMAT lomatium
- BAHO Hooker's balsamroot
- BASA3 arrowleaf balsamroot

Perennial Forbs/N-fixers **12 pound 2%**

Count any Listed Species Up to the Listed Pounds for the Group

- LULE2 Pacific lupine
- ASTRA milkvetch
- LUPIN lupine
- LUARL5 spur lupine

Spring bulbs & Ephemerals **6 pound 1%**

Count any Listed Species Up to the Listed Pounds for the Group

- ALLIU wild onion
- BRODI clusterlilly
- TRGR7 wild hyacinth
- CAMA5 sagebrush Mariposa lily

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R006XY201WA	Dry Stony 15+ PZ	pounds/acre/year:	400	500	600

Plant Group Type

<i>Perennial Forbs-parasitic to semi-parasitic</i>	12	pound	2%
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Count any Listed Species Up to the Listed Pounds for the Group

CATH4 Thompson's Indian paintbrush

CAST12 Indian paintbrush

<i>biennial</i>	6	pound	1%
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Count any Listed Species Up to the Listed Pounds for the Group

CHDO Douglas' dustymaiden

<i>Annual Forbs</i>	12	pound	2%
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Count any Listed Species Up to the Listed Pounds for the Group

ERIGE2 fleabane

MICRO microseris

EPBR3 autumn willowweed

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Ground cover and structure

Ground Cover

VEGETATION %	LITTER %	ROCK %	BARE %	MULCH (pounds/acre)
46	9	35	10	476

Structure of Canopy Cover

This section is in the data collection phase and under construction.

Ecological Site Interpretations

Animal Community:

Wildlife Interpretations

Animal Preferences

Quarter:	Cattle				Sheep				Horses				Deer				Elk			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
aster	U	U	D	U	U	U	P	U	U	U	D	U	U	U	P	U	U	U	P	U
big sagebrush	U	N	U	U	D	U	U	D	U	N	U	U	P	U	D	P	D	U	U	P
biscuitroot	U	D	U	U	U	D	D	U	U	D	U	U	U	D	D	U	U	D	D	U
bluebunch wheatgrass	U	P	D	D	P	P	P	P	U	P	D	D	D	D	D	D	U	P	D	D
bottlebrush squirreltail	U	D	U	U	N	D	U	N	U	D	U	U	N	D	U	N	U	D	U	N
cactus	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Columbia needlegrass	U	P	U	D	N	P	N	P	U	P	U	D	N	P	N	P	U	P	U	P
Cusick bluegrass	U	D	U	D	N	D	N	U	U	D	U	D	N	D	N	U	U	D	U	U
goldenpea	U	U	U	U	U	D	U	U	U	U	U	U	U	D	U	U	U	D	U	U
Hoods phlox	U	D	U	U	U	P	P	U	U	D	U	U	U	P	P	U	U	P	P	U
Idaho fescue	U	P	D	D	P	P	P	P	U	P	D	D	D	D	D	D	U	P	D	D
leafy aster	U	U	D	U	N	N	N	N	U	U	D	U	N	N	N	N	N	N	N	N
Louisiana sage	U	U	U	U	U	U	D	U	U	U	U	U	U	U	D	U	U	U	D	U
milkvetch	U	U	U	U	U	D	U	U	U	U	U	U	U	D	U	U	U	D	U	U
needleandthread	U	D	U	D	N	D	N	U	U	D	U	D	N	D	N	U	U	D	U	U
Nuttalls violet	U	D	U	U	U	P	P	U	U	D	U	U	U	P	P	U	U	P	P	U
prairie junegrass	U	D	U	D	N	D	N	U	U	D	U	D	N	D	N	U	U	D	U	U
prairie smoke	U	U	U	U	N	U	U	N	U	U	U	U	N	U	U	N	N	U	U	N
rose	U	D	D	U	U	D	D	U	U	D	D	U	U	D	D	U	U	D	D	U
rose pussytoes	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
rubber rabbitbrush	N	N	N	N	D	U	U	D	N	N	N	N	D	U	U	D	D	U	U	D
rush skeletonweed	U	U	U	U	N	N	N	N	U	U	U	U	N	N	N	N	N	N	N	N
sand dropseed	N	U	N	N	N	U	N	N	N	U	N	N	N	U	N	N	N	U	N	N
Sandberg bluegrass	N	U	N	N	N	D	N	N	N	U	N	N	N	D	N	N	N	U	N	N
scarlet globemallow	U	U	D	U	U	D	D	U	U	U	D	U	U	D	D	U	U	D	D	U
sedge	U	D	U	D	U	P	N	D	U	D	U	D	U	D	U	D	U	D	U	D
sticky cinquefoil	U	U	U	U	U	U	D	U	U	U	U	U	U	U	D	U	U	U	D	U
tapertip hawksbeard	U	U	D	U	N	D	U	N	U	U	D	U	N	D	U	N	N	D	U	N
thistle	U	U	U	U	N	N	N	N	U	U	U	U	N	N	N	N	N	N	N	N
threawn	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
wild buckwheat	U	U	D	U	U	U	U	U	U	U	D	U	U	U	U	U	U	U	U	U
wild onion	U	D	U	U	U	D	D	U	U	D	U	U	U	D	D	U	U	D	D	U
woolly Indianwheat	U	U	U	U	N	U	U	N	U	U	U	U	N	U	U	N	N	U	U	N
yarrow	U	U	U	U	N	U	U	N	U	U	U	U	N	U	U	N	N	U	U	N

NC=not consumed; U=undesireable; D=desireable; P= preferred; T=toxic

Quarters: 1-Jan., Feb., Mar.; 2-Apr., May, Jun.; 3-Jul., Aug., Sep.; 4-Oct., Nov., Dec.

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R006XY201WA	Dry Stony 15+ PZ	pounds/acre/year:	400	500	600

Grazing Interpretations

Guide to Suggested Initial Stocking Rate: Carrying capacity is highly dependent on plant community, specific site characteristics (elevation, aspect, slope, etc.) and management practices (the type of grazing system planned or being applied, water developments, fences, etc.). Because of this, a field visit is recommended, in all cases, to document plant composition and production and to inventory supporting practices. More valuable carrying capacity estimates are developed using specific site characteristics in conjunction with an evaluation of past stocking rates and resultant utilization.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area provide forage under prescribed grazing for cattle, sheep, horses and other herbivores.

CName	Beginning of Critical Management Period	End of Critical Management Period	CRA
bluebunch wheatgrass	5/12/1900	7/4/1900	6.6

Grazing systems need to be designed to meet the needs of jointed grasses (see NRCS-WA Range Technical Notes 34 & 35 during the critical period of plant growth. The above values are averages for the Common Resource Area listed. Choose the appropriate value for the location being evaluated in the Major Land Resource Area.

Specific dates depend on aspect, elevation, and growing season. Specific information for each supported climate station is available from the NRCS-WA technical note system on the web.

Plant Community Growth Curves - % by month

<i>growth curve description</i>	<i>jan</i>	<i>feb</i>	<i>mar</i>	<i>apr</i>	<i>may</i>	<i>jun</i>	<i>jul</i>	<i>aug</i>	<i>sep</i>	<i>oct</i>	<i>nov</i>	<i>dec</i>
HCPC	0	0	7	33	47	13	0	0	0	0	0	0
PG-Shrub	0	0	5	28	39	17	6	2	0	3	0	0
Annuals	0	4	17	67	11	1	0	0	0	0	0	0
AG-Shrubs	0	1	11	45	23	11	5	2	0	2	0	0

Hydrologic Interpretations:

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groupings

Hydrologic Group Fro Hydrologic Group To
 C D

Recreational Uses:

This site provides hunting, hiking, photography, bird watching and other opportunities. Recreation potential is limited largely by the cool, wet winters and spring. This site provides hunting opportunities for upland game species. The wide varieties of plants, which bloom in the spring, have an esthetic value that appeals to visitors. Photography and bird watching can be worthwhile, especially during migration seasons. Suitability for camping and picnicking is fair.

Wood Products:

No appreciable wood products are present on the site.

Other Products:

Seed harvest of native plant species can provide additional income on this site.

Other Information:

Ecological Site Number	Ecological Site Name		Below	Normal	Above
R006XY201WA	Dry Stony 15+ PZ	pounds/acre/year:	400	500	600

Supporting Information

Associated Sites:

Similar Sites:

State Correlation:

Inventory Data References:

Type Locality:

Relationship to Other Established Classifications:

Other References:

Site Description Approval

Gerald Rouse _____ 6/10/2004 _____

Author _____ **Date** _____

INTERIM-for use and comment for one year _____ 6/10/2004 _____

State Range Management Specialist _____ **Date** _____

Site Description Revision

_____ _____

Author _____ **Date** _____

_____ _____

State Range Management Specialist _____ **Date** _____

Ecological Site Number	Ecological Site Name	pounds/acre/year:			Below	Normal	Above
		400	500	600			
R006XY201WA	Dry Stony 15+ PZ						
1	Rills	Rill formation is severe and well defined throughout most of the area.	Rill formation is moderately active and well defined throughout most of the area.	Active rill formation is slight at infrequent intervals, mostly in exposed areas.	No recent formation of rills; old rills have blunted or muted features.	None	
2	Water Flow Patterns	Extensive and numerous; unstable with active erosion; usually connected.	More numerous than expected; deposition and cut areas common; occasionally connected.	Nearly matches what is expected for the site; erosion is minor with some instability and deposition.	Matches what is expected for the site; some evidence of minor erosion. Flow patterns are stable and short.	Short and discontinuous (< 1 meter) flow patterns	
3	Pedestals and/or Terracettes	Abundant active pedestalling and numerous terracettes. Many rocks and plants are pedestalled; exposed plant roots are common.	Moderate active pedestalling; terracettes common. Some rocks and plants are pedestalled with occasional exposed roots.	Slight active pedestalling; most pedestals are in flow paths and interspaces and/ or on exposed slopes. Occasional terracettes present.	Active pedestalling or terracette formation is rare; some evidence of past pedestal formation, especially in water flow patterns and/or on exposed slopes.	None	
4	Bare Ground	Much higher than expected for the site. Bare areas are large and generally connected.	Moderately higher than expected for the site. Bare areas are of moderate size and sporadically connected.	Slightly to moderately higher than expected for the site. Bare areas are small and rarely connected.	Amount and size of bare areas nearly to totally match that expected for the site.	10 % bare ground; bare patches should be less than 16-20 inch diameter. Larger patches are usually associated with rodent disturbance.	
5	Gullies	Common with indications of active erosion and downcutting; vegetation is infrequent on slopes and/or bed. Nickpoints and headcuts are numerous and active.	Moderate to common with indications of active erosion; vegetation is intermittent on slopes and/or bed. Headcuts are active; downcutting is not apparent.	Moderate in number with indications of active erosion; vegetation is intermittent on slopes and/or bed. Occasional headcuts maybe present.	Uncommon with vegetation stabilizing the bed and slopes; no signs of active headcuts, nickpoints, or bed erosion.	None	
6	Wind Scoured, Blowouts and/or Deposition Areas	Extensive.	Common.	Occasionally present.	Infrequent and few.	None	
7	Litter Movement	Extreme; concentrated around obstructions. Most size classes of litter have been displaced.	Moderate to extreme; loosely concentrated near obstructions. Moderate to small size classes of litter have been displaced.	Moderate movement of smaller size classes in scattered concentrations around obstructions and in depressions.	Slightly to moderately more than expected for the site with only small size classes of litter being displaced.	Minimal & Short, associated with water flow patterns	
8	Soil Surface Resistance to Erosion	Extremely reduced throughout the site. Biological stabilization agents including organic matter and biological crusts virtually absent.	Significantly reduced in most plant canopy interspaces and moderately reduced beneath plant canopies. Stabilizing agents present only in isolated patches.	Significantly reduced in at least half of the plant canopy interspaces, or moderately reduced throughout the site.	Some reduction in soil surface stability in plant interspaces or slight reduction throughout the site. Stabilizing agents reduced below expected.	Stability class (Herrick et al. 2001) anticipated to be 5-6 at surface and subsurface under vegetation and 4-5 at surface and subsurface in the interspaces.	

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9	Soil Surface Loss or Degradation	Soil surface horizon absent. Soil structure near surface is similar to, or more degraded than, that in subsurface horizons. No distinguishable difference in subsurface organic matter content.	Soil loss or degradation severe throughout site. Minimal differences in soil organic matter content and structure of surface and subsurface layers.	Moderate soil loss or degradation in plant interspaces with some degradation beneath plant canopies. Soil structure is degraded and soil organic matter content is significantly reduced.	Some soil loss has occurred and/or soil structure shows signs of degradation, especially in plant interspaces.	3 inch very dark brown A horizon with medium granular structure.
10	Plant Community Composition & Distribution Relative to Infiltration & Runoff -	Infiltration is severely decreased due to adverse changes in plant community composition and/or distribution. Adverse plant cover changes have occurred.	Infiltration is greatly decreased due to adverse changes in plant community composition and/or distribution. Detrimental plant cover changes have occurred.	Infiltration is moderately reduced due to adverse changes in plant community composition and/or distribution. Plant cover changes negatively affect infiltration.	Infiltration is slightly to moderately affected by minor changes in plant community composition and/or distribution.	126-157 pounds/acre of the dominant functional/structural group (see Indicator #12)-in combination with 46 % vegetative canopy cover and 9 % litter cover in interspaces should provide sufficient soil quality for optimal infiltration.
11	Compaction Layer	Extensive; severely restricts water movement and root penetration.	Widespread; greatly restricts water movement and root penetration.	Moderately widespread; moderately restricts water movement and root penetration.	Rarely present or is thin and weakly restrictive to water movement and root penetration.	None
12	Function/Structural Groups	Number of F/S groups greatly reduced; and/or relative dominance of F/S groups has been dramatically altered; and/or number of species within F/S groups dramatically reduced.	Number of F/S groups reduced; and/or one dominant group and/or one or more subdominant groups replaced by F/S groups not expected for the site; and/or number of species within F/S groups significantly reduced.	Number of F/S groups moderately reduced; and/or one or more subdominant F/S groups replaced by F/S groups not expected for the site; and/or number of species within F/S groups moderately reduced.	Number of F/S groups slightly reduced; and/or relative dominance of F/S groups has been modified from that expected for the site; and/or number of species within F/S groups slightly reduced.	Perennial Cool Season >10% & Mid-Grass Decreasers <40% Perennial Cool Season >10% & Mid-Grass Increaseasers <40% Perennial Forbs/Fibrous-rooted >3% & <10% Perennial Forbs/tap-rooted >3% & <10% Perennial Forbs/thickened taproot >3% & <10% Half Shrub >3% & <10%
13	Plant Mortality/Decadence	Dead and/or decadent plants are common.	Dead and/or decadent plants are somewhat common.	Some dead and/or decadent plants are present.	Slight plant mortality and/or decadence.	Grasses will nearly always show some mortality and decadence
14	Litter Amount	Largely absent or dominant relative to site potential and weather.	Greatly reduced or increased relative to site potential and weather.	Moderately more or less relative to site potential and weather.	Slightly more or less relative to site potential and weather.	9 % litter cover associated with bunchgrasses. The litter is decomposing in place and in contact with the soil surface.
15	Annual Aboveground Production	Less than 20% of potential production.	20-40% of potential production.	40-60% of potential production.	60-80% of potential production.	400-600 pounds/acre.
16	Invasive Plants	Dominate the site.	Common throughout the site.	Scattered throughout the site.	Present primarily on disturbed sites.	
17	Reproductive Capability of Perennial Plants	Capability to produce seed or vegetative tillers is severely reduced relative to recent climatic conditions.	Capability to produce seed or vegetative tillers is greatly reduced relative to recent climatic conditions.	Capability to produce seed or vegetative tillers is somewhat limited relative to recent climatic conditions.	Capability to produce seed or vegetative tillers is only slightly limited relative to recent climatic conditions.	All species are free of insect, disease, fungal impairments; display high vigor; and are producing abundant seed or multiple replacement tillers