

Ecological site R021XY300OR
SOUTH SLOPES
10-14 PZ

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General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on south, southeasterly and west-facing exposures of mountain sideslopes adjacent to lake basins. Rock outcrop and rubble land are typically a component on the landscape. Slopes range from 30 to 50%. Elevations range from 4100 to 5000 feet.

Table 2. Representative physiographic features

Landforms	(1) Mountain slope
Elevation	1,250 – 1,520 m
Slope	30 – 50 %
Aspect	SE, S, W

Climatic features

The annual precipitation ranges from 10 to 14 inches, most of which occurs in the form of snow during the months of October through April. The soil temperature regime is mesic with the average annual air temperature about 47 degrees F. Temperature extremes range from 100 to -30 degrees F. The frost free period is 70 to 110 days. The optimum period for plant growth is from early April to mid-June.

Table 3 Representative climatic features

Frost-free period (average)	110 days
Freeze-free period (average)	0 days

Precipitation total (average)	360 mm
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Influencing water features

Soil features

The soils of this site are well drained and contain over 35% rock fragments throughout the soil profile. The soils have a loamy surface layer and a loamy or clayey subsoil. The soils are shallow to deep over bedrock. Permeability is moderate or moderately slow. The available water holding capacity is 2 to 4 inches. Runoff is rapid. Erosion hazard by water is moderate to severe.

Table 4. Representative soil features

Surface texture	(1) Loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderately slow to moderate
Available water capacity (0-101.6cm)	5.08 – 10.16 cm

Ecological dynamics

The potential native plant community is dominated by a very open stand of western juniper and bluebunch wheatgrass. Bitterbrush is prominent along with other shrubs such as basin big sagebrush, wax currant, Klamath plum, desert gooseberry, buckwheat and sometimes mtn. mahogany. Other grass species present include Thurber needlegrass, sandberg bluegrass, and small patches of Idaho fescue found directly under the canopy of juniper. Common forbs include balsamroot, fleabane, phlox, yarrow, lomatium, wooly eriophyllum, lupine, hawksbeard and penstemon.

Idaho fescue is most abundant in high precipitation areas but very minor in the driest climates and more droughty positions. Bitterbrush and juniper abundance vary with time interval since burning and with site conditions. An occasional ponderosa pine is present in high precipitation areas. Locations with very high surface stones/boulders have lower production and less plant cover.

Juniper is easily damaged or killed by high intensity fires, but because of the low ground fuels and stones, most fires do not carry well leaving patches or larger areas of trees unburned. Sustained heavy grazing pressure by livestock or poor grazing management may reduce wheatgrass, fescue, needlegrass, bitterbrush, and/or palatable forbs, depending on season of use and growing conditions. Green rabbitbrush and cheatgrass invade after fires and ground disturbance along with annual fescue, mustard and other weeds.

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
Grass/Grasslike					
1	Dominant deep rooted perennial grasses			538-673	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	538-673	–
2	Sub-dominant deep rooted perennial grasses			36-135	

	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	18-90	–
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	18-45	–
4	Sub-dominant shallow rooted perennial grasses			18-45	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	18-45	–
5	Other perennial grasses			18-72	
	squirreltail	ELEL5	<i>Elymus elymoides</i>	0-6	–
	tufted wheatgrass	ELMA7	<i>Elymus macrourus</i>	0-6	–
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	0-6	–
	needle and thread	HECO26	<i>Hesperostipa comata</i>	0-6	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	0-6	–
	basin wildrye	LECI4	<i>Leymus cinereus</i>	0-6	–
Forb					
7	Dominant perennial forbs			18-27	
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	18-27	–
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	18-27	–
8	Sub-dominant perennial forbs			9-18	
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	9-18	–
9	Other perennial forbs			18-45	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	0-6	–
	milkvetch	ASTRA	<i>Astragalus</i>	0-6	–
	buckwheat	ERIOG	<i>Eriogonum</i>	0-6	–
	lupine	LUPIN	<i>Lupinus</i>	0-6	–
	phlox	PHLOX	<i>Phlox</i>	0-6	–
Shrub/Vine					
12	Sub-dominant evergreen shrubs			9-18	
	Wyoming big sagebrush	ARTRW8	<i>Artemisia tridentata ssp. wyomingensis</i>	9-18	–
13	Dominant deciduous (or 1/2 shrubs) shrubs			18-27	
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	18-27	–
15	Other shrubs			18-45	
	rubber rabbitbrush	ERNA10	<i>Ericameria nauseosa</i>	0-6	–
	green rabbitbrush	ERTE18	<i>Ericameria teretifolia</i>	0-6	–
	spiny hopsage	GRSP	<i>Grayia spinosa</i>	0-6	–
	wild crab apple	PERA4	<i>Peraphyllum ramosissimum</i>	0-6	–
	horsebrush	TETRA3	<i>Tetradymia</i>	0-6	–
Tree					
16	Dominant evergreen trees			18-45	
	western juniper	JUOC	<i>Juniperus occidentalis</i>	18-45	–

Animal community

The southerly aspect of this site offers warm temperatures and early spring growth that attracts several grazing and browsing forms of wildlife and gallinaceous birds in winter and spring.

Hydrological functions

The hydrologic soil groups are C and D.

Wood products

This site is susceptible to increase in western juniper. Where this has occurred the site will yield fence posts, firewood and other specialty products.

Other products

Warm temperatures and early maturing forage attract livestock to south-facing slopes in early spring. Without a grazing system that will give periodic deferment, there will be a decline in plant vigor and reproduction. Failure to manage livestock on these sites will lead to the loss of any productive value.

Other information

Invasion by western juniper and the subsequent competition for moisture will lead to a reduction of soil cover and accelerated soil loss. Improving infiltration and permeability, and reducing runoff should be the immediate goal of juniper control. Livestock will avoid steep stony slopes and increase grazing pressure on adjacent, flatter lands. This should be considered when establishing initial stocking rates.

Type locality

Location 1: Klamath County, OR	
Township/Range/Section	T36S R36E S36
General legal description	East edge of Klamath Lake south of Modoc Point- T36S, R36E, Sec 36; T37S, R9E Sec 1
Location 2: Klamath County, OR	
Township/Range/Section	T41S R13E S15
General legal description	Southern end of Bryant Mountain- 41S, R13E, Sec 15
Location 3: Klamath County, OR	
Township/Range/Section	T40S R10E S9, 16
General legal description	Lower slopes of Stuckle Mtn. T40S, R10E, Sec 9, 16

Contributors

Barrett, Carlson
E Ersch
K.Kennedy

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	Jeff Repp
Contact for lead author	Oregon NRCS State Rangeland Management Specialist
Date	08/22/2012
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. Number and extent of rills: None to some, moderate to severe sheet & rill erosion hazard

2. Presence of water flow patterns: Some in interspaces

3. Number and height of erosional pedestals or terracettes: None

4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground): 10-20%

5. Number of gullies and erosion associated with gullies: None

6. Extent of wind scoured, blowouts and/or depositional areas: None, slight wind erosion hazard

7. Amount of litter movement (describe size and distance expected to travel): Fine - limited movement

8. Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values): Slightly to moderately resistant to erosion: aggregate stability = 3-5

9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness): Shallow to deep, well drained loams and clay loams: Low OM (1-2%)

10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: Moderate vegetative cover (30-50%), surface rock fragments (35+%), and moderate slopes (30-50%) moderately limit rainfall impact and overland flow; infiltration is moderately slow

11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): None

12. Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):

Dominant: Bluebunch wheatgrass > Antelope bitterbrush > Wyoming big sagebrush > Thurber needlegrass > forbs > other grasses > other shrubs > Western Juniper

Sub-dominant:

Other:

Additional:

13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Normal decadence and mortality expected

14. Average percent litter cover (%) and depth (in):

15. Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production): Favorable: 1200, Normal: 800, Unfavorable: 500 lbs/acre/year at high RSI (HCPC)

16. Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site: Perennial brush species will increase with deterioration of plant community. Western Juniper readily increases on the site. Cheatgrass and Medusahead invade sites that have lost deep rooted perennial grass functional groups.

17. Perennial plant reproductive capability: All species should be capable of reproducing annually
