USDA Natural Resources
Conservation Service

Ecological site R009XY003OR
Fan 10-15 PZ

Last updated: 9/05/2019
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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.

Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

Associated sites

R009XY050OR	**Loamy Bench 10-15 PZ** Loamy bench 10-15 PZ
R009XY051OR	**Loamy South 10-15 PZ** Loamy South 10-15 PZ
R009XY052OR	**Loamy Shallow South 10-15 PZ** Loamy Shallow South 10-15 PZ
R009XY053OR	**Very Shallow South 10-15 PZ** Very Shallow South 10-15 PZ
R009XY054OR	**Loamy North 10-15 PZ** Loamy North 10-15 PZ

Similar sites

R009XY050OR	**Loamy Bench 10-15 PZ** Loamy Bench 10-15 PZ

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs in canyons along lower slopes and on fans a the outlet of perennial and ephemeral streams. Braiding at stream otulets and fan coalescence is often common. Slopes range from 2 to 30% with slopes of 2 to 15% being most typical. Elevation varies from 800 to 2400 feet.

Table 2. Representative physiographic features

Landforms	(1) Fan
Elevation	244–732 m
Slope	2–30%
Water table depth	152 cm
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 10 to 15 inches. Limited deep seasonal subsurface flows augment the precipition. The precipitation occurs as rain and snow during the months of November through March. Localized, occasionally severe, convection storms occur during the summer. The mean annual air temperature is approximately 50 degrees F. Extreme temperatures range from 100 degrees F. to -20 degrees F. Soil temperature regimes are mesic. The frost free period ranges from 90 to 140 days. The period of optimum plant growth is from April through mid July.

Table 3. Representative climatic features

Frost-free period (average)	140 days
Freeze-free period (average)	0 days
Precipitation total (average)	381 mm

Influencing water features

Soil features

The soils of this site are formed in deep aluvium, colluvium and loess. They are deep to very deep. Typically the surface layer is a silt loam or gravelly silt loam over a loamy to cobbly clay loam subsoil. Stoniness is variable. Soil permeabilty is moderate. Teh available water holding capacity (AWC) is 6 to 10 inches. Localized, deep, seasonal subsurface flows augment the available water. The erosion potential is moderate.

Table 4. Representative soil features

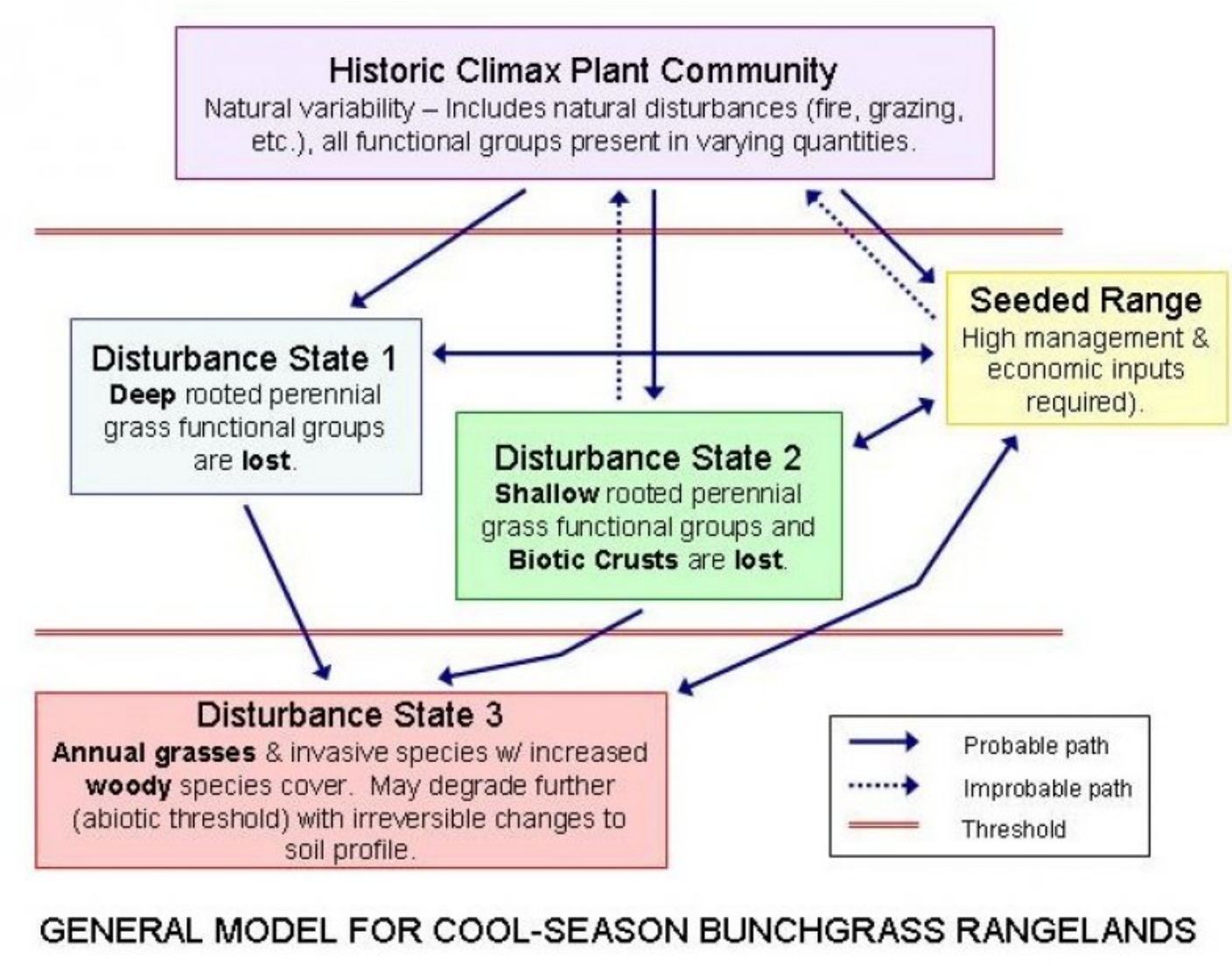
Surface texture	(1) Silt loam (2) Very gravelly silt loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderate

Ecological dynamics

Range in Characteristics:
Variability in plant compostion and yeild is dependent on soil depth and the extent of lateral subsurface water flow. Netleaf Hackberry increases with availability of localized subsurface flows. Bluebunch wheatgrass increases in drier areas. As a site susceptable to fire, the amount of netleaf hackberry is influenced by fire frequency. It typically resprouts and persists under light fuel burns. Higher mortality occurs in dense stands with heavy fuel loads. Hackberry is a slow-growing species averaging 13 feet in 50 years. Recruitment rates are typically low.

Response to Disturbance:
If the condition of the site deteriorates as a result of over grazign, bluebunch wheatgrass decreases along with other palatable understory grasses and forbs. Sand dropseed increases along with lesser amounts of red threeawn. Cheatgrass, Japanese brome and annual annual fescues invade along with marestail and a variety of other unpalatable forbs. Hackberry reproduction becomes limited. Minor amounts of rhizomatous shrubs, sumac and poison ivy, continue to increase slowly. With further deterioration areas of bare ground increses, forage production decreases and soil erosion accelerates.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

The potential nativ plant community is dominated by a complex of shrubs and bluebunch wheatgrass in a pattern arrangement. The dominant shrub is netleaf hackberry. Serviceberry is present along with minor amounts of smooth

sumac and poison ivy. Bluebunch wheatgrass is the dominant grass along with lesser amounts of sand dropseed and a variety of forbs. the potential vegetative composistion is approximately 75 percent grass, 20 percent shrubs and 5 percent forbs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	991	1188	1384
Shrub/Vine	219	350	481
Forb	73	154	233
Total	**1283**	**1692**	**2098**

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	**Perennial Deep-rooted Dominant**			874–1020	
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	874–1020	–
2	**Perennial Deep-rooted Subdominant**			73–146	
	sand dropseed	SPCR	*Sporobolus cryptandrus*	73–146	–
5	**Perrennial Others (PPGG) All**			44–219	
	purple threeawn	ARPU9	*Aristida purpurea*	9–44	–
	needle and thread	HECO26	*Hesperostipa comata*	9–44	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	9–44	–
	basin wildrye	LECI4	*Leymus cinereus*	9–44	–
	Sandberg bluegrass	POSE	*Poa secunda*	–	–
Forb					
7	**Perennial all Dominant**			29–73	
	desertparsley	LOMAT	*Lomatium*	29–73	–
8	**Perennial all Subdominant**			29–87	
	lupine	LUPIN	*Lupinus*	15–44	–
	plains pricklypear	OPPO	*Opuntia polyacantha*	15–44	–
9	**PPFF**			1–8	
	common yarrow	ACMI2	*Achillea millefolium*	1–8	–
	agoseris	AGOSE	*Agoseris*	1–8	–
	shaggy fleabane	ERPU2	*Erigeron pumilus*	1–8	–
	aster	EUCEP2	*Eucephalus*	1–8	–
	hairy false goldenaster	HEVI4	*Heterotheca villosa*	1–8	–
	hawkweed	HIERA	*Hieracium*	1–8	–
	beardtongue	PENST	*Penstemon*	1–8	–
	phacelia	PHACE	*Phacelia*	1–8	–
	phlox	PHLOX	*Phlox*	1–8	–
	narrowleaf skullcap	SCAN3	*Scutellaria angustifolia*	1–8	–
Shrub/Vine					
11	**Perennial Evergreen Dominant**			146–291	
	curl-leaf mountain mahogany	CELE3	*Cercocarpus ledifolius*	146–291	–
12	**Perennial Evergreen Subdominant**			29–73	
	Saskatoon serviceberry	AMAL2	*Amelanchier alnifolia*	29–73	–
15	**SSSS**			44–117	
	leather flower	CLEMA	*Clematis*	11–29	–
	buckthorn	RHAMN	*Rhamnus*	11–29	–
	smooth sumac	RHGL	*Rhus glabra*	11–29	–
	western poison ivy	TORY	*Toxicodendron rydbergii*	11–29	–

Animal community

Livestock Grazing:
This site is siuted to spring, fall and winter use by cattle, sheep and horses under a planned grazing system. The key species is bluebunch wheatgrass. Bluebunch wheatgrass can be damaged if heavily grazed during periods of

flowring and seed formation when root reserves and soil moisture is low. Use in the spring should be postponed until the soils are firm enough to prevent trampling damage, soil compaction and streambank sloughing. As a sediment deposition area, adequate plant cover shold be left in the fall to catch sediment and protect streambanks and secondary overflow channels during spring runoff events.
Wildlife:
When the ecological condition is high this site provides food and cover for deer, elk, other mammals and upland birds. IT is an importatn wintering area for deer and elk.

Hydrological functions

The soils of this site have excellent water holding capacities providing late season water for plant growth. As a site which often occurs at stream outlets in depostion areas the site is inherently unstable. In natural undisturbed conditions it supports a braided stream pattern, one with numerous secondary overflow channels. This pattern functions in reducing stream energy and allowing sediment depostion. The depostion potential of the site should be considered in hydrology analysis and developing plannning alternatives. The hydrologic cover condition is excellent when the ecological condition is high.

Other information

When in poor condition the site has potential for mechanical range seeding. When incised channels are present, rehabilitation will markedly improve production, redcue downstream sedimentation and improve hydrologic characteristics.

Contributors

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Approval

Kendra Moseley, 9/05/2019

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	07/27/2012
Approved by	Bob Gillaspy
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

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

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2. **Presence of water flow patterns:** Occasional to rare flooding with seasonal high water table

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):** 5-10%

5. **Number of gullies and erosion associated with gullies:** Poor resistance to erosion when cover is lacking - subject to incision and downcutting

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):** Moderately resistant to erosion with adequate cover: aggregate stability = 3-4

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Deep silt loam or gravelly silt loam with variable stoniness: Low OM (1-3%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant ground cover (90-100%) and moderate slopes (3-30%) effectively limit rainfall impact and overland flow

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 > Hackberry > Sand dropseed > other perennial grasses > other shrubs > Saskatoon serviceberry = Lomatium > other forbs > lupine = Plains pricklypear

    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: 1600, Normal: 1300, Unfavorable: 1000 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. Cheatgrass and Medusahead invade sites that have lost deep rooted perennial grass functional groups

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