

Ecological site R021XY306OR

STONY CLAYPAN SOUTH 14-18 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.



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

R021XY210OR	LOAMY 14-18 PZ
R021XY308OR	SOUTH SLOPES 14-18 PZ

Similar sites

R021XY214OR	CLAYPAN 14-18 PZ Argillic horizon.
R021XY308OR	SOUTH SLOPES 14-18 PZ Deeper soils.
R021XY216OR	STONY CLAYPAN 14-20 PZ Steep south slopes.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on southerly exposures of mountain sideslopes.

Table 2. Representative physiographic features

Landforms	(1) Mountain slope
Elevation	1,219–1,829 m
Slope	30–70%
Aspect	S

Climatic features

The annual precipitation ranges from 14 to 18 inches, most of which occurs in the form of snow during the months of October through April. The soil temperature regime is frigid to mesic with the mean annual air temperature ranging from 45 to 47 degrees F. Temperature extremes range from 100 to -30 degrees F. The frost free period ranges from 50 to 110 days. The optimum period for plant growth is from May through June.

Table 3. Representative climatic features

Frost-free period (average)	110 days
Freeze-free period (average)	0 days
Precipitation total (average)	457 mm

Influencing water features

Soil features

The soils of this site are very shallow to a dense clay layer, which restricts root penetration. The surface layer is loamy and contains over 35 percent rock fragments, primarily stone size. Permeability is slow. The available water holding capacity is 2 to 5 inches. Runoff is rapid. Erosion hazard by water is high.

Table 4. Representative soil features

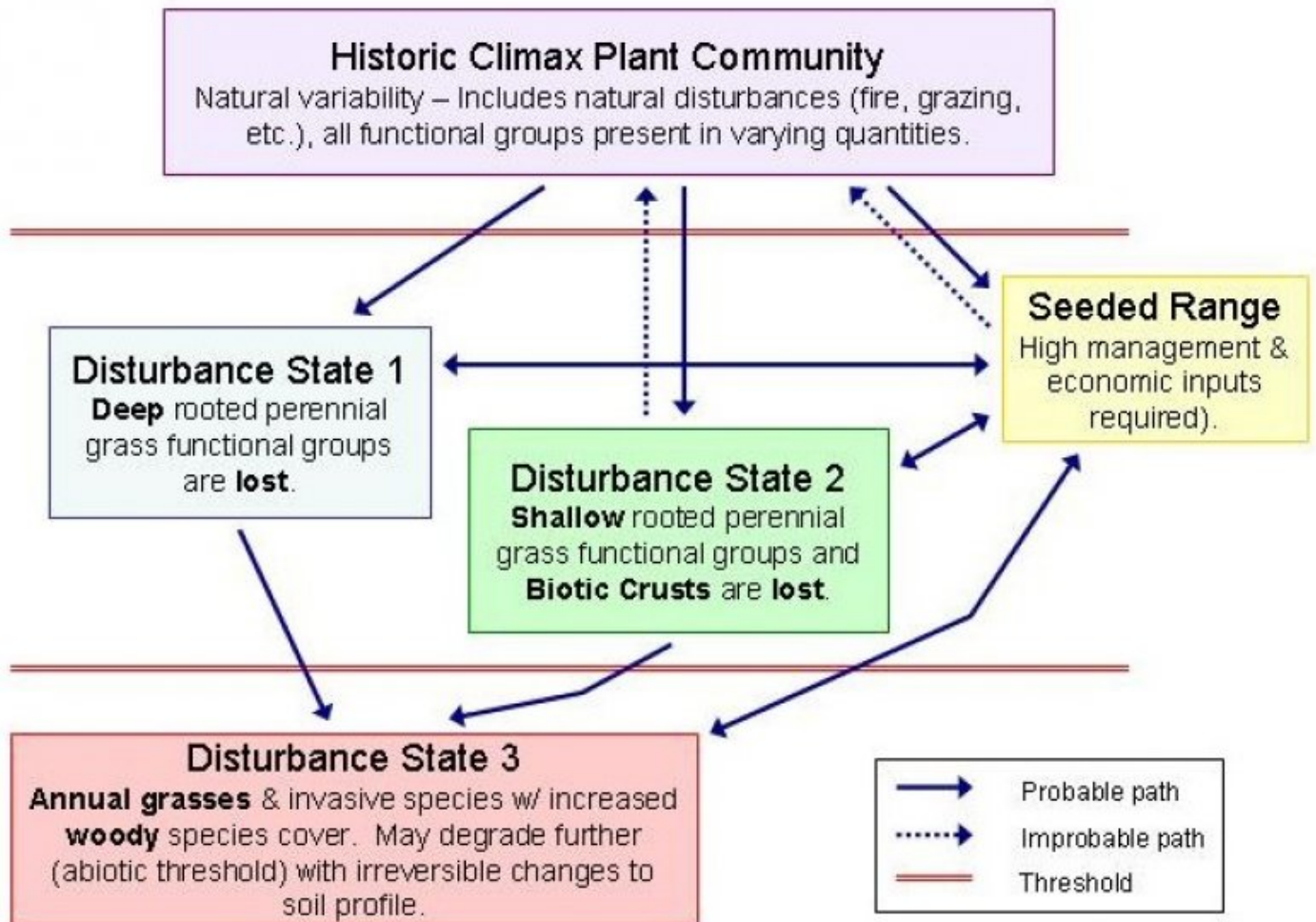
Surface texture	(1) Loam
Family particle size	(1) Clayey
Permeability class	Slow to very slow
Surface fragment cover <=3"	0–35%
Available water capacity (0-101.6cm)	5.08–12.7 cm

Ecological dynamics

If the condition of the site deteriorates as a result of overgrazing, bluebunch wheatgrass and Idaho fescue will decline in vigor and will eventually be lost from the stand. Sandberg bluegrass and low sagebrush will dominate the site.

The thickness of the soil surface layer will influence the plant composition and productivity of this site. As the soil surface thickness decreases, bluebunch wheatgrass and low sagebrush will increase. An increase in surface stones will lead to a corresponding decrease in plant productivity.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
HCPC, PSSP6-FEID-POSE/ARAR8

Community 1.1
HCPC, PSSP6-FEID-POSE/ARAR8

The potential native plant community is dominated by bluebunch wheatgrass with lesser amounts of low sagebrush and Idaho fescue. Vegetative composition of the community is approximately 75% grasses, 5% forbs, and 20% shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	347	426	504
Shrub/Vine	73	106	140
Forb	39	65	90
Total	459	597	734

Figure 4. Plant community growth curve (percent production by month).
OR5554, D21 Mid Elev., South, Good Condition. HCPC Growth Curve.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	10	45	40	5	0	0	0	0	0

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	Dominant deep rooted perennial grasses			252–336	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	168–224	–
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	84–112	–
2	Sub-dominant deep rooted perennial grasses			28–56	
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	28–56	–
3	Dominant shallow rooted perennial grasses			56–84	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	56–84	–
5	Other perennial grasses			11–28	
	squirreltail	ELEL5	<i>Elymus elymoides</i>	0–6	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	0–6	–
Forb					
7	Dominant perennial forbs			17–28	
	snow buckwheat	ERNI2	<i>Eriogonum niveum</i>	11–17	–
	woolly plantain	PLPA2	<i>Plantago patagonica</i>	6–11	–
8	Sub-dominant perennial forbs			17–34	
	desertparsley	LOMAT	<i>Lomatium</i>	6–11	–
	phlox	PHLOX	<i>Phlox</i>	6–11	–
	largehead clover	TRMA3	<i>Trifolium macrocephalum</i>	6–11	–
9	Other perennial forbs			6–28	
	mariposa lily	CALOC	<i>Calochortus</i>	0–6	–
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	0–6	–
	larkspur	DELPH	<i>Delphinium</i>	0–6	–
	lupine	LUPIN	<i>Lupinus</i>	0–6	–
	phacelia	PHACE	<i>Phacelia</i>	0–6	–
Shrub/Vine					
11	Dominant evergreen shrubs			56–112	
	little sagebrush	ARAR8	<i>Artemisia arbuscula</i>	56–112	–
15	Other shrubs			17–28	
	Wyoming big sagebrush	ARTRW8	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>	0–6	–
	slender buckwheat	ERMI4	<i>Eriogonum microthecum</i>	0–6	–
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	0–6	–

Animal community

This site provides forage and cover for mule deer and chukar.

Hydrological functions

The soils are in hydrologic group C.

Other products

This site is suited for livestock grazing use in spring, summer and fall. As slopes greater than 50%, cattle use will reduce.

Contributors

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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
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Date	08/22/2012
Approved by	Bob Gillaspay
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

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

2. **Presence of water flow patterns:** Some to Few in interspaces on steeper slopes (30-70%)

3. **Number and height of erosional pedestals or terracettes:** Some (shallow rooted grasses)

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 5-20%

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 resistant to erosion: aggregate stability = 3-5
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Very shallow (to dense clay layer), very stony loams (35+% surface rock fragments): Low OM (<1%)
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Moderate vegetative cover (50-70%) reduces potential excess run off on all but steepest slopes (30-70%); infiltration is slow
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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None
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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 > Idaho fescue > Low sagebrush > Sandberg bluegrass > Thurber needlegrass > forbs > other shrubs > other grasses
- 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):**
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Favorable: 800, Normal: 500, Unfavorable: 300 lbs/acre/year at high RSI (HCPC)
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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 may invade 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
