USDA Natural Resources
Conservation Service

Ecological site R023XY418OR
ASPEN 16-35 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

R023XY302OR	**SOUTH SLOPES 12-16 PZ** South Slopes 12-16" PZ
R023XY404OR	**DEEP NORTH 12-18 PZ** Deep North 12-18" PZ
R023XY406OR	**SWALE 12-16 PZ** Swale 12-16" PZ
R023XY509OR	**SUBALPINE SLOPES 16-35 PZ** Subalpine Slopes 16-35" PZ

Table 1. Dominant plant species

Tree	(1) *Populus tremuloides*
Shrub	(1) *Symphoricarpos oreophilus*
Herbaceous	(1) *Carex*

Physiographic features

This site occurs on mountian sides and in glacial valleys. Slopes range from 2 to 35%. Elevations range from 6000

to 8000 feet.

Table 2. Representative physiographic features

Landforms	(1) Mountain
Elevation	1,829–2,438 m
Slope	2–35%
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 16 to 35 inches. Most precipitation occurs as snow during December through March. Soil temperature regimes is cryic. Mean annual air temperature of 40 to 43 degrees F. Teh frost free period ranges from 30 to 60 days. Teh period of optimal plant graowth occurs from late May to late-July.

Table 3. Representative climatic features

Frost-free period (average)	45 days
Freeze-free period (average)	0 days
Precipitation total (average)	660 mm

Influencing water features

Soil features

The soils of this site are very deep and well drained. The typical surface textures are gravelly loams amd very gravelly loams. Depths to bedrock are generally greater than 60 inches. Subsurface textures are loamy and gravelly loams. The available water holding capacity is about 8 inches for the profile. Permeability is moderatley slow.

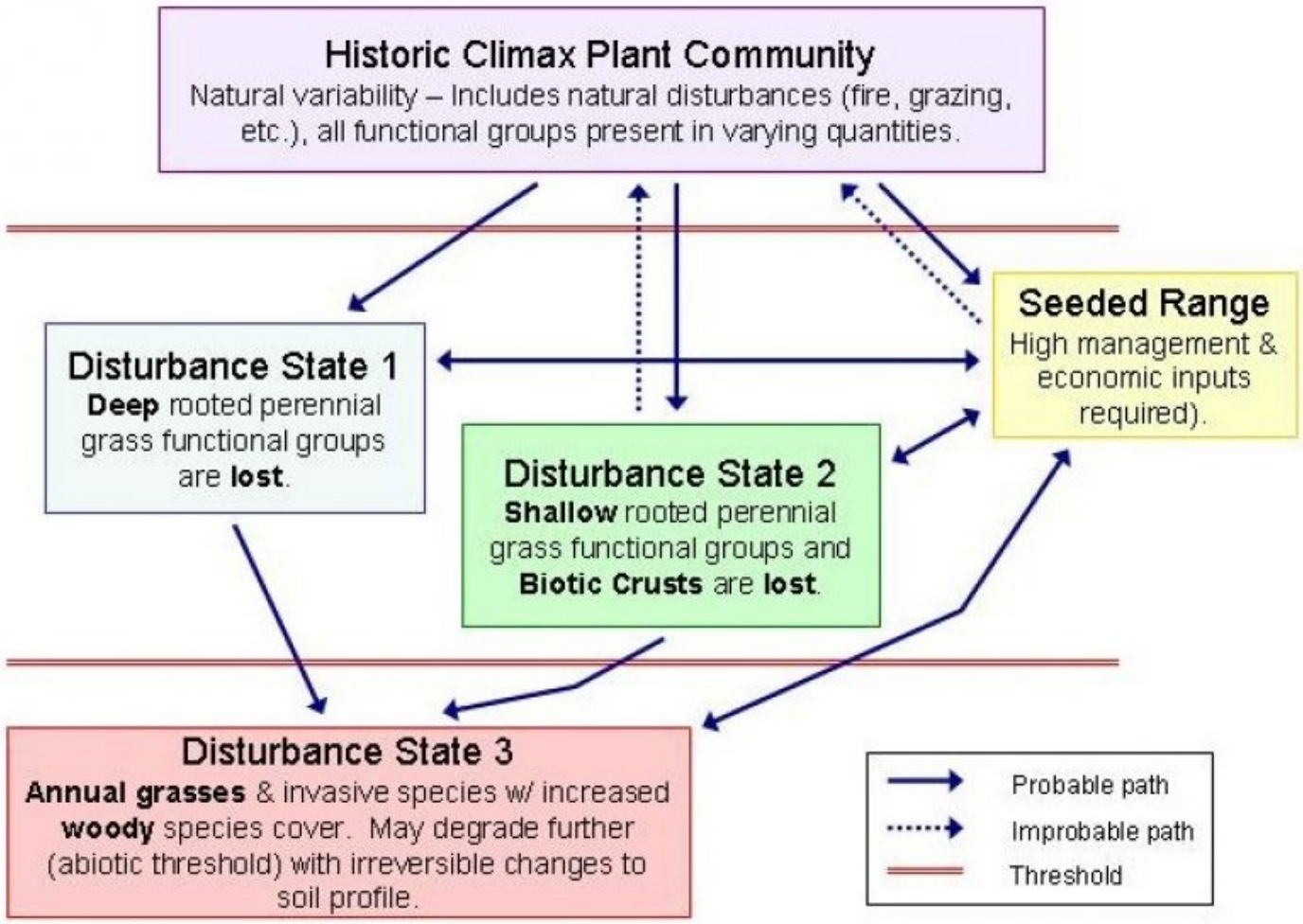
Table 4. Representative soil features

Surface texture	(1) Very gravelly loam (2) Extremely gravelly loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderately slow

Ecological dynamics

Range in Characterisitics:
Aspen and sedges increase in wetter areas with longer duration snowdrifts and subsurface water flows. Mountian big sagebrush and needle grasses increase in drier areas and on coarser textured soils with high surface drainage.
Response to Disturbance:
As the site deteriorates total shrub densities increase while herbaceous species decrease. This is most commonly seen in a total lack of aspen recruitment, resulting in an even-aged stand of aspen.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
Reference State

Community 1.1
Reference Plant Community

The potential native community is dominated by quaking aspen, snowberry, and sedges. Mountian big sagebrush and needlgrass and mountian brome are also present in the stand. Vegetative composition is about 40 percent grasses, 10 percent forbs, and 50 percent shrubs and trees.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	448	673	897
Tree	392	588	785
Shrub/Vine	168	252	336
Forb	112	168	224
Total	**1120**	**1681**	**2242**

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, rhizomatous, moderately deep rooted**			168–336	
	sedge	CAREX	*Carex*	168–336	–
2	**Perennial, moderately deep rooted bunchgrass**			219–504	
	needlegrass	ACHNA	*Achnatherum*	84–168	–
	Letterman's needlegrass	ACLE9	*Achnatherum lettermanii*	34–84	–
	western needlegrass	ACOC3	*Achnatherum occidentale*	34–84	–
	California brome	BRCA5	*Bromus carinatus*	34–84	–
	melicgrass	MELIC	*Melica*	34–84	–
3	**Other perennial grasses**			34–84	
	squirreltail	ELEL5	*Elymus elymoides*	0–34	–
	Idaho fescue	FEID	*Festuca idahoensis*	0–34	–
	sheep fescue	FEOV	*Festuca ovina*	0–34	–
	Sandberg bluegrass	POSE	*Poa secunda*	0–34	–
Forb					
5	**Perennial Forbs**			34–168	
	common yarrow	ACMI2	*Achillea millefolium*	0–34	–
	agoseris	AGOSE	*Agoseris*	0–34	–
	pussytoes	ANTEN	*Antennaria*	0–34	–
	rockcress	ARABI2	*Arabis*	0–34	–
	Indian paintbrush	CASTI2	*Castilleja*	0–34	–
	fleabane	ERIGE2	*Erigeron*	0–34	–
	sneezeweed	HELEN	*Helenium*	0–34	–
	desertparsley	LOMAT	*Lomatium*	0–34	–
	phlox	PHLOX	*Phlox*	0–34	–
	cinquefoil	POTEN	*Potentilla*	0–34	–
	ragwort	SENEC	*Senecio*	0–34	–
	meadow-rue	THALI2	*Thalictrum*	0–34	–
Shrub/Vine					
8	**Deciduous Shrubs**			84–252	
	mountain snowberry	SYOR2	*Symphoricarpos oreophilus*	84–252	–
9	**Evergreen Shrubs**			34–84	
	mountain big sagebrush	ARTRV	*Artemisia tridentata ssp. vaseyana*	34–84	–
10	**Other Shrubs**			34–84	
	ceanothus	CEANO	*Ceanothus*	0–34	–
	rabbitbrush	CHRYS9	*Chrysothamnus*	0–34	–
	plum	PRUNU	*Prunus*	0–34	–
Tree					
12	**Deciduous Sprouting Tree**			504–673	

Animal community

Livestock Grazing:
This site is suitable for livestock grazing use in the summer and fall under a planned grazing system.
Wildlife:
This site provides hiding and thermal cover for big game, such as elk and mule deer. Wildlife diversity at this site is very important to cavity nesting birds.

Hydrological functions

The soils if this site have moderate infiltration rates and medium runoff potential. The hydrologic soil group is B.

Recreational uses

This site provides opportunites for recreational activities such as hunting and camping. This site has high aesthetic value.

Wood products

Potential for non-commercial wood fiber production.

Other information

Suitability for seeding this site is fair due to the short growing season and steep slopes. The risk of seepage limits the construction of livestock watering ponds and other impoundments.

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	08/17/2012
Approved by	Bob Gillaspy
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

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

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2. **Presence of water flow patterns:** None to some

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):** 2-12%

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 to moderately coarse - 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: aggregate stability = 3-5

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Very deep well drained gravelly loams: Moderate OM (3-5%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant ground cover (70-100%) and gentle to moderate slopes (2-35%) 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: Quaking aspen > Sedges > Mountain snowberry > Needlegrass > other grasses > other shrubs = forbs

    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

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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: 2000, Normal: 1500, Unfavorable: 1000 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, while herbaceous species decrease. This decline is most commonly seen in a total lack of aspen recruitment, resulting in an even-aged stand of aspen.

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

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