USDA Natural Resources
Conservation Service

Ecological site R023XY608OR
DROUGHTY PUMICE PLAINS 8-11 PZ

Last updated: 4/10/2025
Accessed: 05/21/2025

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.

Ecological site concept

Currently there is only a draft of the initial concept for this ecological site. The initial concept for this site places it within the Clayey Mesic Plateaus 8-14 PZ Wyoming Big Sagebrush and Thurber's Needlegrass Ecological Site Group. To view the General STM and other information available for this ESG please go to https://edit.jornada.nmsu.edu/catalogs/esg/023X/R023XY909OR

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on terraces and plains in old lake basins. Occasionally, It occurs in swales and small valleys within hill topography.

Table 2. Representative physiographic features

Landforms	(1) Terrace (2) Plain (3) Swale
Elevation	1,311–1,463 m
Slope	0–3%

Aspect	Aspect is not a significant factor

Climatic features

Most of the annual precipitation occurs during the months of October through March. The soil temperature regime is marginal for frigid. The mean annual air temperature is 48 degrees F. Temperature extremes range from 110 to -30 degrees F. The period for optimum Plant growth is from April through early June. Some fall growth may occur during October-November when these months are unusually warm and moist.

Table 3. Representative climatic features

Frost-free period (average)	70 days
Freeze-free period (average)	100 days
Precipitation total (average)	279 mm

Influencing water features

Soil features

The soils of this site are typically moderately deep or deep (rarely shallow), well to somewhat excessively drained and sandy loam to gravely, loamy sand textured. They are generally formed in/from wind deposited volcanic ash/pumice and lacustrine deposits. Permeability is rapid to very rapid, and the available water holding capacity is typically 3-7 inches for the profile. The potential for water erosion is low and wind erosion is high.

Table 4. Representative soil features

Surface texture	(1) Sandy loam (2) Gravelly loamy sand
Family particle size	(1) Loamy
Drainage class	Well drained to somewhat excessively drained
Permeability class	Rapid to very rapid
Soil depth	152–254 cm
Available water capacity (0-101.6cm)	7.62–17.78 cm
Calcium carbonate equivalent (0-101.6cm)	2%
Electrical conductivity (0-101.6cm)	0 mmhos/cm

Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	7

Ecological dynamics

The potential native plant community is dominated by basin big sagebrush and needleandthread. Gray rabbit brush and granite pricklygilia are also common in the stand. Minor amounts of other woody plants are present including low green rabbitbrush and granite pricklygilia. Indian ricegrass, Ross sedge, squirreltail and Thurber needlegrass are common. Minor occurrences of basin wildrye or thickspike wheatgrass are sometimes present. Vegetative composition by weight is approximately 65-70% grasses, 5-10% forbs, and 20-25% shrubs.

State and transition model

Ecosystem states

1. State A: HCPC

State 1 submodel, plant communities

1.1. State A: HCPC

State 1
State A: HCPC

Community 1.1
State A: HCPC

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	729	757	785
Shrub/Vine	224	252	280
Forb	56	84	112
Total	**1009**	**1093**	**1177**

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				340–491	
	needle and thread	HECO26	*Hesperostipa comata*	340–491	–
2				59–112	
	western needlegrass	ACOCO	*Achnatherum occidentale ssp. occidentale*	37–53	–
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	15–37	–
	Thurber's needlegrass	ACTH7	*Achnatherum thurberianum*	8–22	–
3				8–22	
	squirreltail	ELEL5	*Elymus elymoides*	8–22	–
4				0–58	
	Idaho fescue	FEID	*Festuca idahoensis*	0–15	–
	basin wildrye	LECI4	*Leymus cinereus*	0–15	–
	beardless wildrye	LETR5	*Leymus triticoides*	0–15	–
	bluebunch wheatgrass	PSSPS	*Pseudoroegneria spicata ssp. spicata*	0–15	–
5				15–37	
	Ross' sedge	CARO5	*Carex rossii*	15–37	–
Forb					
6				8–24	
	rockcress	ARABI2	*Arabis*	1–3	–
	woollypod milkvetch	ASPU9	*Astragalus purshii*	1–3	–

	milkvetch	ASTRA	*Astragalus*	1–3	–
	Douglas' dustymaiden	CHDO	*Chaenactis douglasii*	1–3	–
	blue eyed Mary	COLLI	*Collinsia*	1–3	–
	Cascade knotweed	POCA9	*Polygonum cascadense*	1–3	–
Shrub/Vine					
7				44–75	
	basin big sagebrush	ARTRT	*Artemisia tridentata ssp. tridentata*	38–63	–
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	6–12	–
8				11–28	
	mountain big sagebrush	ARTRV	*Artemisia tridentata ssp. vaseyana*	2–6	–
	yellow rabbitbrush	CHVI8	*Chrysothamnus viscidiflorus*	2–6	–
	spineless horsebrush	TECA2	*Tetradymia canescens*	2–6	–

Contributors

C Tackman

Approval

Kendra Moseley, 4/10/2025

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)	
Contact for lead author	
Date	05/21/2025

Approved by	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

2. **Presence of water flow patterns:**

3. **Number and height of erosional pedestals or terracettes:**

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

5. **Number of gullies and erosion associated with gullies:**

6. **Extent of wind scoured, blowouts and/or depositional areas:**

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

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

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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):**

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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:

    Sub-dominant:

    Other:

    Additional:

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

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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):**

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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:**

17. **Perennial plant reproductive capability:**