

Ecological site R023XF082CA STONY LOAM 9-12"

Last updated: 4/10/2025
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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.

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>

This California ecological site is correlated most closely to the Loamy 10-12" (023XY020NV) site in Nevada. This site is dominated by Wyoming big sagebrush and mountain big sagebrush, with a small component of antelope bitterbrush and little horsebrush (*Tetradymia glabrata*). Bluebunch wheatgrass is the dominant grass, with Thurber's needlegrass in smaller amounts. Trace amounts of western juniper is part of the site concept, and a Tree State is possible. Basin wildrye may be present. This site is more productive than the modal site with production ranging from 600-1200 lb/ac, and 600 lb/ac in normal years. As with many of the CA ecological sites evaluated in this report, it is a broad site concept and may vary significantly at the high and low ends of its precipitation range. This site has a tree state, making it a 6-state model.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

Climatic features

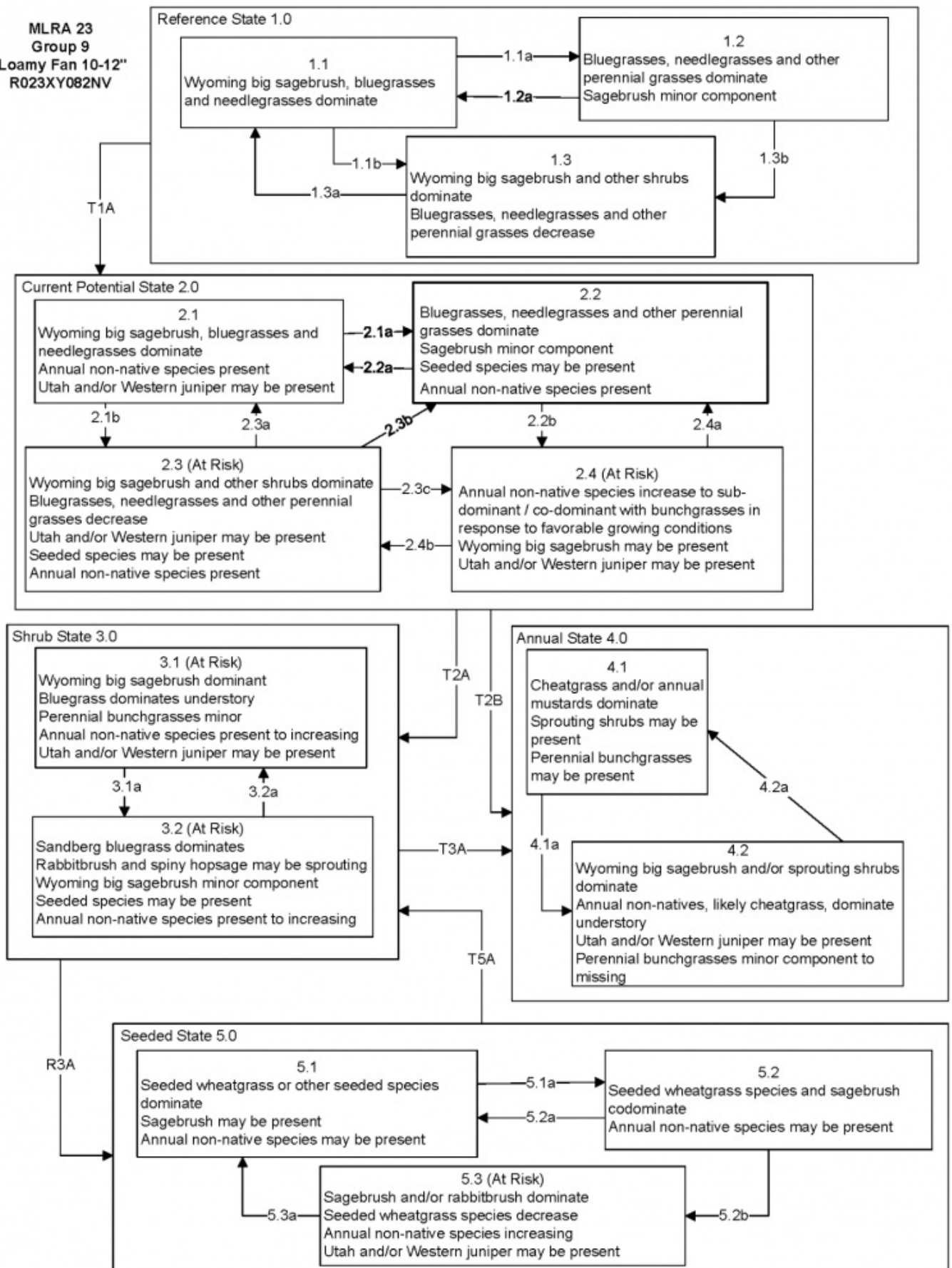
Influencing water features

Soil features

Ecological dynamics

State and transition model

MLRA 23
Group 9
Loamy Fan 10-12"
R023XY082NV



**MLRA 23
Group 9
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KEY**

Reference State 1.0 Community Phase Pathways

- 1.1a: Low severity fire and/or Aroga moth infestation creates grass/sagebrush mosaic.
- 1.1b: Time and lack of disturbance such as fire. Excessive herbivory and/or drought will reduce perennial bunchgrasses.
- 1.2a: Time and lack of disturbance and/or herbivory that allows for shrub regeneration.
- 1.3a: Low severity fire or Aroga moth infestation resulting in a mosaic pattern.
- 1.3b: High severity fire and/or severe Aroga moth infestation significantly reduces sagebrush cover leading to early/mid-seral community.

Transition T1A: Introduction of non-native species such as cheatgrass.

Current Potential State 2.0 Community Phase Pathways

- 2.1a: Low severity fire and/or Aroga moth infestation creates grass/sagebrush mosaic; non-native annual species present.
- 2.1b: Time and lack of disturbance such as fire. Inappropriate grazing and/or drought will reduce perennial bunchgrasses.
- 2.2a: Time and lack of disturbance allows for regeneration of sagebrush.
- 2.2b: Fall and spring growing conditions that favors the germination and production of non-native, annual grasses. Pathway typically occurs 3 to 5 years post-fire and 2.4 may be a transitory plant community.
- 2.3a: Low severity fire or Aroga moth infestation creates sagebrush/grass mosaic. Brush management (aerial herbicide application), late-fall/winter grazing causing mechanical damage to sagebrush.
- 2.3b: High severity fire and/or severe Aroga moth infestation significantly reduces sagebrush cover leading to early mid-seral community.
- 2.3c: Fall and spring growing season conditions that favors the germination and production of non-native annual grasses. 2.4 may be a transitory plant community.
- 2.4a: Growing season conditions favoring perennial bunchgrass production and reduced cheatgrass production.
- 2.4b: Growing season conditions favoring perennial bunchgrass production and reduced cheatgrass production.

Transition T2A: Inappropriate grazing management favoring shrub dominance and reducing perennial bunchgrasses and/or drought (3.1) Fire (3.2).

Transition T2B: Fire (4.1) or inappropriate grazing management in the presence on non-native annual species (4.2).

Shrub State 3.0 Community Phase Pathways

- 3.1a: Fire, Aroga moth, brush management (aerial herbicide application), and/or late-fall/winter grazing causing mechanical damage to sagebrush.
- 3.2a: Time and lack of disturbance (an unlikely/slow transition).

Annual State 4.0 Community Phase Pathways

- 4.1a: Time and lack of disturbance (an unlikely/slow transition).
- 4.2a: Fire.

Transition T3A: Fire (4.1) or inappropriate grazing management (4.2).

Restoration R3A: Brush management, combined with seeding of desired species.

Seeded State 5.0 Community Phase Pathways

- 5.1a: Time and lack of disturbance may be coupled with inappropriate grazing management.
- 5.2a: Low severity fire.
- 5.2b: Inappropriate grazing management reduces bunchgrasses and increases density of sagebrush; usually a slow transition.
- 5.3a: Fire or brush treatment with minimal soil disturbance.

Transition T5A: Inappropriate grazing management favoring shrub dominance and reducing perennial bunchgrasses will lead to phase 3.1. Soil disturbing treatments and/or fire will lead to phase 3.2.

Other references

Great Basin Ecological Site Development Project: State and Transition Models for Major

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)	
Contact for lead author	
Date	04/14/2026
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:**

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

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:

13. **Amount of plant mortality and decadence (include which functional groups are**

expected to show mortality or decadence):

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):**

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:**
