

Ecological site F039XA002NM **Pinus ponderosa-Pseudotsuga menziesii/Quercus gambelii-Cercocarpus montanus**

Last updated: 4/03/2020

Accessed: 05/10/2025

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.

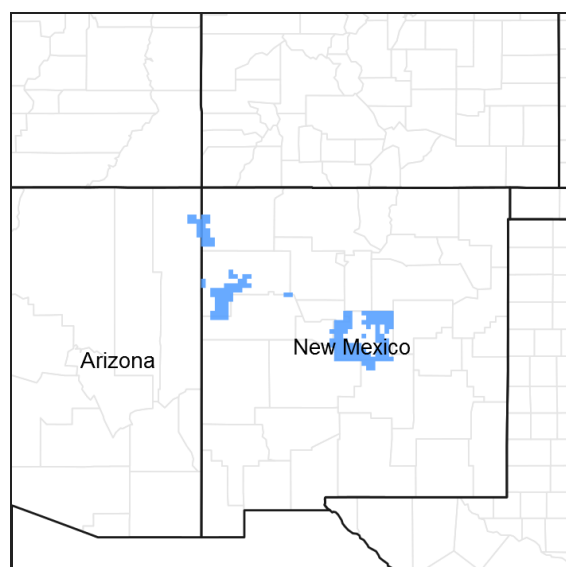


Figure 1. Mapped extent

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.

Ecological site concept

This ecological site appears mostly on escarpments of plateaus. Soils can be of different textures based on parent material.

Table 1. Dominant plant species

Tree	(1) <i>Pinus ponderosa</i> (2) <i>Pseudotsuga menziesii</i>
Shrub	(1) <i>Quercus gambelii</i> (2) <i>Cercocarpus montanus</i>
Herbaceous	(1) <i>Poa fendleriana</i>

Physiographic features

This site occurs on escarpments of sedimentary plateaus. Elevation ranges from 6600 to 8000 feet. Slope typically ranges from 15 to 45 percent.

Climatic features

Table 2. Representative climatic features

Frost-free period (characteristic range)	102 days
Freeze-free period (characteristic range)	132 days
Precipitation total (characteristic range)	22 in
Frost-free period (actual range)	102 days
Freeze-free period (actual range)	132 days
Precipitation total (actual range)	22 in
Frost-free period (average)	102 days
Freeze-free period (average)	132 days
Precipitation total (average)	22 in

Climate stations used

- (1) RUIDOSO [USC00297649], Ruidoso, NM

Influencing water features

This is an upland site.

Soil features

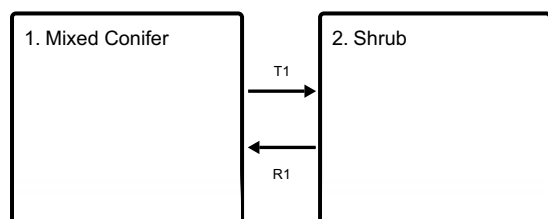
This site has a range of textures derived from sedimentary geology. Depth ranges from very shallow to moderately deep.

Ecological dynamics

This ecological site is a mixed conifer site with ponderosa pine and douglas fir prevailing. Long term disturbance such as excessive timber harvesting coupled with high livestock stocking rates may create an at risk community. Crown burning fire will be a trigger to move this site to a tree state.

State and transition model

Ecosystem states



State 1

Mixed Conifer

This site has mixed conifer such as ponderosa pine and douglas fir. Understory consists of oak brush and mainly cool season bunch grasses.

State 2

Shrub

Following intense disturbance, gambel oak, a basal sprouter may become thick, shading the ground and suppressing conifer regeneration.

Transition T1

State 1 to 2

Disturbance such as excessive logging, coupled with high stocking rates reduce resiliency. Drought, and/or extreme crown burning fire may trigger this site to a shrub state.

Restoration pathway R1

State 2 to 1

Mechanical treatment, being selective reducing gambel oak and opening areas for conifer regeneration.

Contributors

Steve Lacey

Approval

Scott Woodall, 4/03/2020

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	05/10/2025
Approved by	Scott Woodall
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:**
