

Ecological site F039XA004NM

Pinus ponderosa-Juniperus deppeana/Quercus gambelii/Festuca arizonica

Last updated: 4/03/2020

Accessed: 05/11/2025

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.

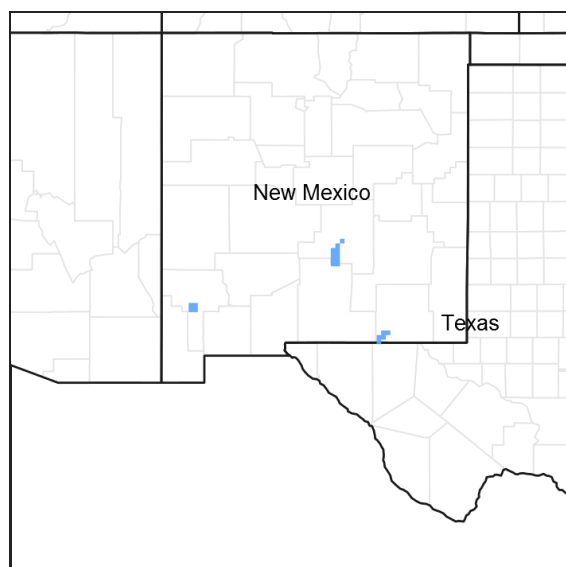


Figure 1. Mapped extent

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 site occurs in mixed alluvium derived from metamorphic and sedimentary rock. It occurs on shoulders and side slopes of canyons. It is predominately covered with trees with little understory.

Table 1. Dominant plant species

Tree	(1) <i>Pinus ponderosa</i> (2) <i>Juniperus deppeana</i>
Shrub	(1) <i>Quercus gambelii</i>
Herbaceous	(1) <i>Festuca arizonica</i>

Physiographic features

This site occurs on shoulders and backslopes of mountains and plateaus. Elevation ranges from 6000 to 7000 feet. Slope is predominantly between 15 and 45 percent but can extend up to 80 percent.

Climatic features

Table 2. Representative climatic features

Frost-free period (characteristic range)	111 days
Freeze-free period (characteristic range)	144 days
Precipitation total (characteristic range)	16 in
Frost-free period (actual range)	111 days
Freeze-free period (actual range)	144 days
Precipitation total (actual range)	16 in
Frost-free period (average)	111 days
Freeze-free period (average)	144 days
Precipitation total (average)	16 in

Climate stations used

- (1) GILA HOT SPRINGS [USC00293530], Datil, NM

Influencing water features

This is an upland site.

Soil features

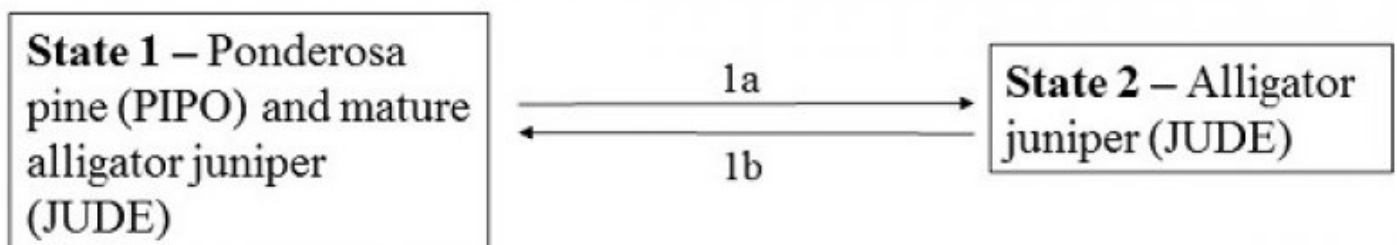
Soils are predominately shallow to moderately deep. They have developed in mountain slope ecosystems and may collect needle-cast and duff on the surface. Soils are derived from mixed alluvium and colluvium derived from igneous, metamorphic and sedimentary rock.

Ecological dynamics

This ecological site is historically heavily treed due to the influence of shallow soils to bedrock and fairly steep topography. Understory consisting primarily of cool season bunch grasses occurs in areas of open tree canopy. Ponderosa pine and alligator juniper co-dominate the site with patches of gambel oak. In the case of disturbance such as timber harvesting, drought, or crown burning fire, the site can cross a threshold where basal spreading shrubs such as alligator juniper and gambel oak can take over.

Restoration practices may include slow mechanical treatments to shrubs, encouraging gambel oak and alligator juniper to grow more as trees.

State and transition model



1a. Excessive disturbance

1b. Reestablishment of PIPO

Figure 8. MLRA 39

Contributors

Steve Lacy

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	05/11/2025
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):**
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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:

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:**
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17. **Perennial plant reproductive capability:**
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