

## Ecological site R038XC307AZ Loamy Upland 20-24 " p.z.

Last updated: 9/05/2019  
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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.

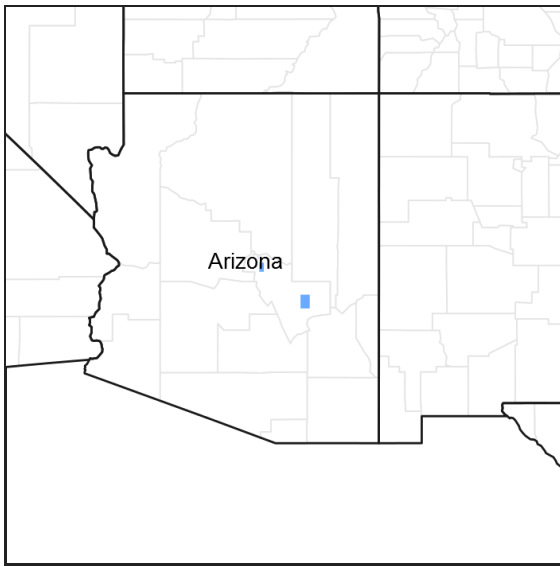


Figure 1. Mapped extent

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.

### MLRA notes

Major Land Resource Area (MLRA): 038X–Mogollon Transition South

AZ 38.3 – Upper Mogollon Transition

Elevations range from 5,100 to 7,000 feet and precipitation averages 20 to 27 inches per year. Vegetation includes Gambel oak, Arizona white oak, Emory oak, pinyon, alligator juniper, one seed juniper, Arizona cypress, ponderosa pine, shrubby buckwheat, sacahuista, skunkbush sumac, Wright silktassle, blue grama, sideoats grama, muttongrass, western wheatgrass, and bottlebrush squirreltail. The soil temperature regime is mesic and the soil moisture regime is typic ustic. This MLRA occurs within the Transition Zone Physiographic Province and is characterized by canyons and structural troughs or valleys. Igneous, metamorphic, and sedimentary rock classes occur on rough mountainous terrain in association with less extensive sediment filled valleys exhibiting little integrated drainage.

### Ecological site concept

The Loamy Upland ecological site is on fan terraces. Slopes range from 0 to 50 percent. The ecological site consists of very deep, well drained soils that formed in mixed gravelly alluvium and colluvium.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

## Physiographic features

The Loamy Upland ecological site is on fan terraces. Slopes range from 0 to 50 percent. The Loamy Upland ecological site also appears on dissected fans. Slopes range from 2 to 55 percent.

**Table 2. Representative physiographic features**

Landforms	(1) Terrace (2) Fan
Elevation	1,554–2,134 m
Slope	2–50%

## Climatic features

Precipitation in this common resource area averages approximately 20 to 24 inches annually. Precipitation is lower and temperatures are cooler in the eastern part of the MLRA. The winter-summer rainfall ratio ranges from about 60/40% in the western part of the area to 45/55% in the eastern part. Summer rains fall July through September; and are from high-intensity convective thunderstorms. This moisture originates primarily from the Gulf of Mexico, but can come from the remnants of Pacific hurricanes in September. Winter moisture is frontal, originates in the north Pacific, and falls as rain or snow in widespread storms of low intensity and long duration. Snowfall ranges from 10 to 18 inches per year and can occur from November through April. May and June are the driest months of the year. Humidity is generally low all year.

Average annual air temperatures range from 50 to 57 degrees F (mesic temperature regime). Daytime temps in the summer are commonly in the mid 80's in the eastern portion of the MLRA and the low to mid 90's in the western portion. Freezing temperatures are common from October through April. The actual precipitation, available moisture and temperature varies, depending on, region, elevation, rain shadow effect and aspect.

**Table 3. Representative climatic features**

Frost-free period (average)	167 days
Freeze-free period (average)	188 days
Precipitation total (average)	610 mm

## Influencing water features

### Soil features

The Showlow soil series consists of very deep, well drained soils that formed in mixed gravelly alluvium and colluvium. These soils are on fan terraces. Slopes range from 0 to 50 percent.

The Goldust soil series consists of very deep, well drained, slowly permeable soils that formed in mixed alluvium and colluvium derived dominantly from sedimentary and igneous rocks. These soils are on dissected piedmonts. Slopes range from 2 to 55 percent.

Soils mapped on the Loamy Upland ecological site include: from SSA-675 San Carlos IR Area - MU's Showlow-76 and Goldust-38.

**Table 4. Representative soil features**

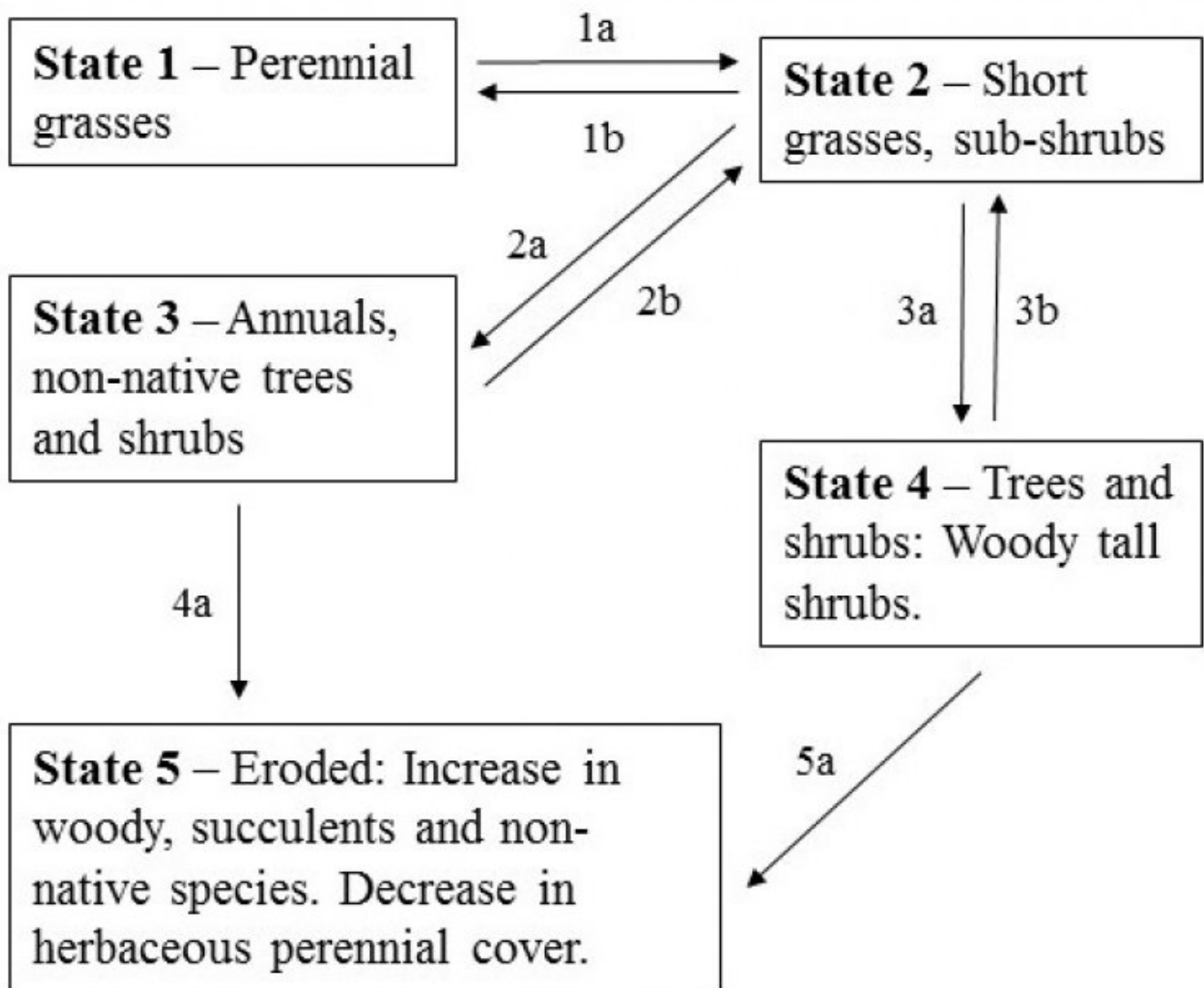
Surface texture	(1) Gravelly loam (2) Very gravelly clay loam
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Family particle size	(1) Clayey
Drainage class	Moderately well drained to well drained
Permeability class	Moderately slow to slow
Soil depth	102–152 cm
Surface fragment cover <=3"	0–55%
Surface fragment cover >3"	0–10%
Calcium carbonate equivalent (0-101.6cm)	0–15%
Soil reaction (1:1 water) (0-101.6cm)	6.8–7.6
Subsurface fragment volume <=3" (Depth not specified)	5–60%
Subsurface fragment volume >3" (Depth not specified)	10–15%

### **Ecological dynamics**

The historic native plant community includes grasslands and Alligator juniper savannahs. The plant community includes a diverse flora of native annual grasses and forbs of both the winter and summer seasons. Periodic wildfires occurred at moderate intervals (10 to 15 years) and helped maintain open grasslands and a balance between herbaceous plants and trees in savannahs. In the absence of fire for longer periods trees can become dominant. The interactions of drought, fire, and continuous livestock grazing can, over time, result in the loss of palatable perennial grasses. In "El Nino" years following summer drought, annual forbs such as goldeneye, spreading fleabane, and sunflower can dominate the plant community for a short time until perennial grasses can recover their basal cover.

### **State and transition model**



1a. Fire, drought, CHG

2a. CHG, absence of fire

3a. Woody species increase due to absence of fire and CHG

4a. Accelerated soil erosion may occur where herbaceous plants are absent.

5a. Fire, drought, CHG. Loss of perennial herbaceous cover.

Figure 4. MLRA 38.3 (20-24"), Loamy Upland

**Type locality**

Location 1: Navajo County, AZ	
Township/Range/Section	T11N R18E S11

General legal description	Showlow - Navajo County, Arizona; about 2.1 miles east of the Aripine Post Office on Arizona Highway 160 on the north side of the road, near the east 1/4 corner of section 12, T.11 N., R.18 E.
Location 2: Sierra County, NM	
Township/Range/Section	T14S R7W S6
General legal description	Goldust - Sierra County, New Mexico; about 6 miles north and 5 miles west of the Ladder Ranch Headquarters; 1,760 feet south and 240 feet west of the northeast corner, sec. 6, T. 14 S., R. 7 W.

## Contributors

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## Approval

Scott Woodall, 9/05/2019

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

## Indicators

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

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

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

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

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

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6. **Extent of wind scoured, blowouts and/or depositional areas:**
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7. **Amount of litter movement (describe size and distance expected to travel):**
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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**
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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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