# Ecological site R038XA119AZ
# Granitic Upland 12-16

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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.
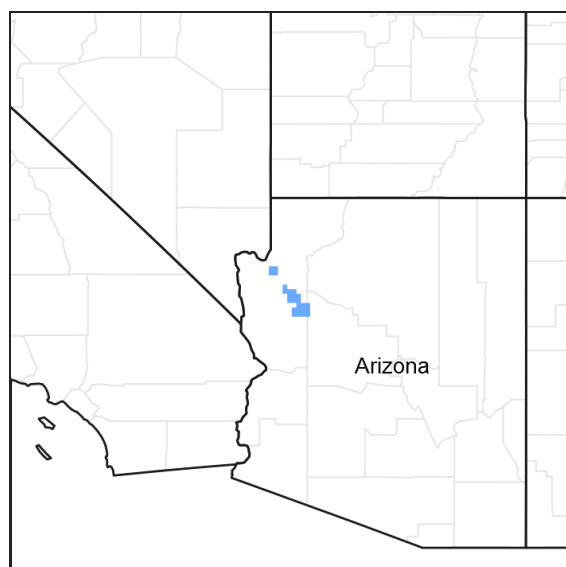


**Figure 1. Mapped extent**

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 38.1 – Lower Mogollon Transition

Elevations range from 3,000 to 4,500 feet and precipitation averages 12 to 16 inches per year. Vegetation includes canotia, one-seed juniper, mesquite, catclaw acacia, jojoba, turbinella oak, ratany, shrubby buckwheat, algerita, skunkbush, tobosa, vine mesquite, bottlebrush squirreltail, grama species, curly mesquite, desert needlegrass, and New Mexico feathergrass. The soil temperature regime is thermic and the soil moisture regime is ustic aridic. 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 Granitic Upland ecological site occurs on Valena soils that are on plateaus and mesas. Slopes range from 1 to 35 percent. The Valena soil series consists of shallow, well drained soils that formed in alluvium from igneous and metamorphic rock.

**Table 1. Dominant plant species**

| Tree | Not specified |
|---|---|
| Shrub | Not specified |
| Herbaceous | Not specified |

## Physiographic features

Valena soils are on plateaus and mesas. Slopes range from 1 to 35 percent.

**Table 2. Representative physiographic features**

| Landforms | (1) Plateau<br>(2) Mesa |
|---|---|
| Elevation | 914–1,372 m |
| Slope | 1–35% |
| Aspect | Aspect is not a significant factor |

## Climatic features

Precipitation in this common resource area averages 12 to 16 inches annually. The winter/summer rainfall ratio ranges from about 60/40 percent in the northwest part of the area to 50/50 percent in the southeast part. Summer rains fall July through September; 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 a trace to 10 inches per year and can occur from November through March. Snow seldom persists for more than a day except on north aspects. May and June are the driest months of the year. Humidity is generally low all year. Average annual air temperatures range from 59 to 70 degrees F (thermic temperature regime). Daytime temperatures in the summer are commonly in the high 90's. Freezing temperatures are common from October through April, usually during the night or early morning hours. The actual precipitation, available moisture, and temperature vary, depending on region, elevation, rain shadow effect, and aspect.

**Table 3. Representative climatic features**

| Frost-free period (average) | 230 days |
|---|---|
| Freeze-free period (average) | 285 days |
| Precipitation total (average) | 406 mm |

## Influencing water features

## Soil features

The Valena soil series consists of shallow, well drained soils that formed in alluvium from igneous and metamorphic rock.

From SSA-697 Mohave County Central Part MU's Carri and Valena-157; Kopie family and Valena-127; and Valena-158.

**Table 4. Representative soil features**

| Parent material | (1) Alluvium–granite |
|---|---|
| Surface texture | (1) Sandy loam |
| Family particle size | (1) Loamy |
| Drainage class | Moderately well drained to well drained |

| Permeability class | Moderately slow to moderate |
|---|---|
| Soil depth | 25–51 cm |
| Surface fragment cover <=3" | 0–5% |
| Available water capacity (0-101.6cm) | 0–6.35 cm |
| Soil reaction (1:1 water) (0-101.6cm) | 7.6–8 |
| Subsurface fragment volume <=3" (Depth not specified) | 0–5% |

## Ecological dynamics

The plant communities found on an ecological site are naturally variable. Composition and production will vary with yearly conditions, location, aspect, and the natural variability of the soils. The historical climax plant community represents the natural potential plant communities found on relict or relatively undisturbed sites. Other plant communities described here represent plant communities that are known to occur when the site is disturbed by factors such as grazing, fire, or drought.

Production data provided in this site description is standardized to air-dry weight at the end of the summer growing season. The plant communities described in this site description are based on near normal rainfall years.

NRCS uses a Similarity Index to compare existing plant communities to the plant communities described here. Similarity Index is determined by comparing the production and composition of a plant community to the production and composition of a plant community described in this site description. To determine Similarity Index, compare the production (air-dry weight) of each species to that shown in the plant community description. For each species, count no more than the maximum amount shown for the species, and for each group, count no more than the maximum shown for the group. Divide the resulting total by the total normal year production shown in the plant community description. If rainfall has been significantly above or below normal, use the total production shown for above or below normal years. If field data is not collected at the end of the summer growing season, then the field data must be corrected to the end of the year production before comparing it to the site description. The growth curve can be used as a guide for estimating production at the end of the summer growing season.

## State and transition model

**Ecosystem states**
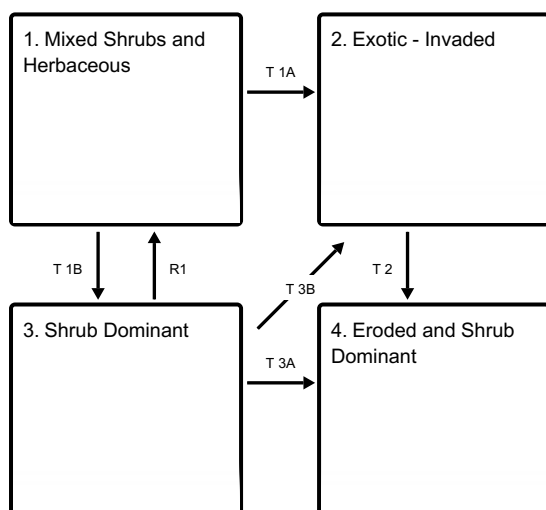


## State 1
## Mixed Shrubs and Herbaceous

Mixed shrubs, grasses, and forbs: Shrubs and succulents are more than annual grasses and forbs, which are more than perennial grasses.

## State 2
## Exotic - Invaded

Exotic annuals with 10 to 15 percent canopy cover

## State 3
## Shrub Dominant

Shrubs are more than 50 percent canopy cover

## State 4
## Eroded and Shrub Dominant

10 to 30 percent canopy cover

## Transition T 1A
## State 1 to 2

Exotic plants invade coupled with an increase in fire frequency

## Transition T 1B
## State 1 to 3

A decrease in fire coupled with continuous season-long grazing and drought.

## Transition T 2
## State 2 to 4

A decrease in vegetation canopy cover, an increase in soil loss, an increase in fire frequency, a decrease in perennials

## Restoration pathway R1
## State 3 to 1

Brush Management coupled with adequate recovery periods for herbaceous species.

## Transition T 3B
## State 3 to 2

An introduction of exotic species coupled with a wet climate

## Transition T 3A
## State 3 to 4

A decrease in vegetative canopy, an increase in soil erosion, an increase in fire frequency, a decrease in perennial plants

## 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:**

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:**