USDA Natural Resources
Conservation Service

Ecological site R039XA019NM
Shallow Savanna 14-18

Accessed: 05/05/2024

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.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on undulating to moderately rolling topography and is typically associated with steeper hills having much exposed bedrock. Slopes range from 3 to 15 percent but average less than 10 percent. Elevation ranges from 7,000 to 8,700 feet above sea level.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Mountain slope
Elevation	2,134–2,652 m
Slope	3–15%
Aspect	Aspect is not a significant factor

Climatic features

Average annual precipitation varies from approximately 16 to 20 inches, depending upon where the site is found. Year-to-year fluctuations in precipitation are common. Half or more of the precipitation occurs during the late-fall through early spring periods, often in the form of snow. The balance of the precipitation falls typically from mid-June through September and is characterized by short-duration, high-intensity thunderstorms.

The average frost-free season is about 103 days but is highly variable from location to location. The last killing frost in the spring occurs about June 1st, and the first killing frost in the fall normally occurs by October 1st. Lighter frosts may occur anytime in June and again in late August or early September. Average annual air temperature is about 50 degrees F. Monthly average air temperatures vary from 30 degrees F in January to just under 70 degrees F in August.

Both the air temperature and moisture regimes of this climate favor cool-season vegetation.

Climate data was obtained from Web site http://www.wrcc.sage.dri.edu/summary/climsmnm.html using a 50% probability for freeze-free and frost-free seasons using 28.5 and 32.5 degrees F, respectively.

Table 3. Representative climatic features

Frost-free period (average)	112 days
Freeze-free period (average)	133 days
Precipitation total (average)	508 mm

Influencing water features

This site is not influenced by water from a wetland or stream.

Soil features

Soils are included in the Ustochrepts–Rock outcrop complex (as mapped in Catron County) and are very shallow to shallow over bedrock that is typically volcanic tuff. Surfaces are gravelly and range from sandy loam to clay loam in texture. They are normally light colored and gritty. Subsoils range from gravelly sand to cobbly clay loam. Permeability is rapid to moderately slow, runoff is medium to rapid, and available water-holding capacity is low to very low.

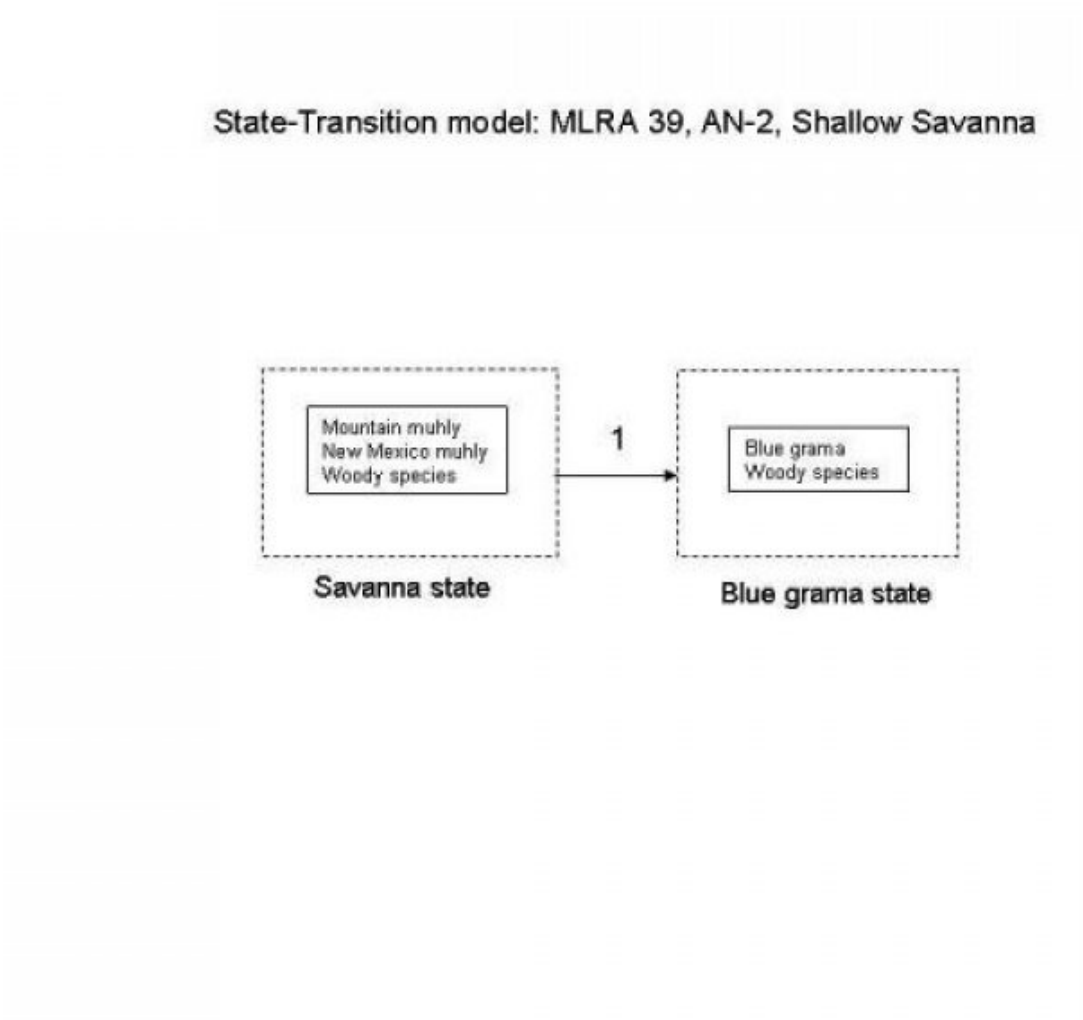
Table 4. Representative soil features

Surface texture	(1) Gravelly sandy loam (2) Cobbly loam (3) Clay loam
Family particle size	(1) Sandy
Drainage class	Well drained
Permeability class	Moderately slow to rapid
Soil depth	13–152 cm
Surface fragment cover <=3"	15–35%
Surface fragment cover >3"	15–35%
Available water capacity (0-101.6cm)	0–15.24 cm
Subsurface fragment volume <=3" (Depth not specified)	15–35%
Subsurface fragment volume >3" (Depth not specified)	15–35%

Ecological dynamics

To be developed.

State and transition model



State 1
Reference State

Community 1.1
Historic Climax Plant Community Phase

This site is a grassland mixed with shrubs and an overstory of very thin or scattered stands of ponderosa pine, twoneedle pinyon, and alligator juniper. Shrubs are typically hairy mountain mahogany, skunkbush sumac, and oak spp. Forbs include Fremont's goosefoot, buckwheat, tarragon, and trailing fleabane. Tree canopy generally does not exceed 15 percent and averages about 8 percent.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	526	684	841
Tree	73	118	164
Shrub/Vine	55	86	118
Forb	49	64	78
Total	**703**	**952**	**1201**

Table 6. Soil surface cover

Tree basal cover	0%
Shrub/vine/liana basal cover	0%
Grass/grasslike basal cover	0%
Forb basal cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	10%
Surface fragments >0.25" and <=3"	15%
Surface fragments >3"	10%
Bedrock	0%
Water	0%
Bare ground	42%

Figure 5. Plant community growth curve (percent production by month). NM1309, R039XA019NM Shallow Savanna HCPC. R039XA019NM Shallow Savanna HCPC Grassland mixed with shrubs and an overstory of scattered stands of trees with a minor forb component..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	3	5	10	10	25	30	12	5	0	0

Community 1.2
j,kl;,

ghl'pk [l

State 2
Blue Grama Invaded

vdfsfghdgn

Community 2.1
hhjh

Community 2.2
vyjf

Transition T1A
State 1 to 2

test

Transition T1A
State 1 to 2

Additional community tables

Animal community

Habitat for Wildlife:
This site provides habitat for a resident animal community that is characterized by elk, deer, gray fox, eastern cottontail, cliff chipmunk, Abert's squirrel, white-throated woodrat, porcupine, red-tailed hawk, screech owl, Montezuma quail, mourning dove, northern flicker, Cassin's kingbird, Stellar's jay, chipping sparrow, southern plateau fence lizard, short-horned lizard, New Mexico garter snake and prairie rattlesnake.

Merriam's turkeys range into the site and band-tailed pigeons may be present during years of high pinyon nut or acorn mast production. Purple martins, western bluebirds, and red-faced warblers nest here, and gray-headed juncos winter here. Golden eagles and common ravens hunt over the site.

Hydrological functions

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

Recreational uses

This site is well suited to hiking, horseback riding, picnicking, camping, nature observation, and photography. Hunting potential is very good for deer, fair to good for elk, and fair for wild turkey. The mountainous setting within which the site occurs enhances natural beauty.

Wood products

Wood products on this site are limited generally to firewood, fence posts, and occasionally a few Christmas trees. The site should not be considered a major source for wood products on a sustained basis.

Other products

Grazing:
Approximately 75 percent of the vegetative production on this site comes from plants that produce forage for grazing or browsing animals, including domestic livestock. Grazing distribution need not be a serious problem as long as waterings are adequately located. Continuous grazing use in the same season, year after year, is not recommended, as a decline in range condition may occur. Heavy continuous use will almost certainly result in such a decline, and cool-season grasses such as muttongrass and Arizona fescue are usually the first to decrease. Blue grama and the less palatable half-shrubs and shrubs will increase, at least initially, and production will drop. To best maintain a healthy balance of vigorous plants on the site, a system of deferred grazing that varies the season of use from year to year may be needed. Overstocking must be avoided no matter what the grazing system.

In addition to domestic livestock, this site is also used by deer, elk, small mammals, and birds.

Type locality

Location 1: Catron County, NM
Location 2: Grant County, NM
Location 3: Sierra County, NM
Location 4: Socorro County, NM

Other references

Data collection for this site was done in conjunction with the progressive soil surveys within the Arizona and New Mexico Mountains, Major Land Resource Area 39, of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: Socorro, Catron, Sierra, and Grant.

Contributors

Brandon Bestelmeyer
Don Sylvester
Elizabeth Wright
John Tunberg
Michael Carpinelli

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:**