USDA Natural Resources
Conservation Service

Ecological site R035XB272AZ
Loamy Bottom 6-10" p.z. Perennial, Saline

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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): 035X–Colorado Plateau

AZ CRA 35.2 - Colorado Plateau Shrub – Grasslands

Elevations range from 3500-5500 feet and precipitation averages 6 to 10 inches per year. Vegetation includes shadscale, fourwing saltbush, Mormon tea, blackbrush, Indian ricegrass, galleta, blue grama, and black grama. The soil temperature regime is mesic and the soil moisture regime is typic aridic. This unit occurs within the Colorado Plateau Physiographic Province and is characterized by a sequence of flat to gently dipping sedimentary rocks eroded into plateaus, valleys and deep canyons. Sedimentary rock classes dominate the plateau with volcanic fields occurring for the most part near its margin.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Atriplex canescens* (2) *Sarcobatus vermiculatus*
Herbaceous	(1) *Distichlis spicata* (2) *Sporobolus airoides*

Physiographic features

This site occurs on high flood plains and terraces of the San Juan River. Flooding rarely occurs; but a high water table does benefit the site. Depth to a seasonal high water table is 2 to 5 feet. It occurs on all exposures.

Table 2. Representative physiographic features

Landforms	(1) Flood plain (2) Terrace
Flooding duration	Very brief (4 to 48 hours) to brief (2 to 7 days)
Flooding frequency	Very rare to rare
Ponding duration	Brief (2 to 7 days) to long (7 to 30 days)
Ponding frequency	Rare to occasional
Elevation	1,402–1,524 m
Slope	0–1%
Water table depth	61–152 cm
Aspect	Aspect is not a significant factor

Climatic features

The climate of the land resource unit is arid with warm summers and cool winters. This is one of the driest land resource units on the Colorado Plateau with an average annual precipitation ranging from 6 to 10 inches per year. It is also very erratic, often varying substantially from year to year. 40 to 50 percent of the precipitation is received from October through early May. This precipitation comes as gentle rain or snow from frontal storms coming out of the Pacific Ocean. Snow is common from November through February. Generally no more than an inch or two of snow accumulates and usually melts within a day or two. The remaining precipitation, approximately 50 to 60 percent, is received from July through September as spotty, unreliable and sometimes violent thunderstorms. The moisture for this precipitation originates in the Gulf of Mexico (and the Pacific Ocean in the fall) and flows into the area on the north end of the Mexican monsoon. Late May through late June is generally a dry period. The mean annual temperature ranges from 53 to 56 degrees Fahrenheit (F). The frost-free period (air temperature > 32 degrees F) ranges from 135 to 160 days (@ 50 percent probability). Strong winds are common, especially in the spring.

Table 3. Representative climatic features

Frost-free period (average)	160 days
Freeze-free period (average)	184 days
Precipitation total (average)	254 mm

Influencing water features

Soil features

The soils in this site are very deep (60+") and moderately well to somewhat poorly drained. They are formed in alluviuum derived from sandstone and shale. Surface textures of loam, fine sandy loam, siltly clay loam. Subsurface textures include loam, fine sandy loam, silt loam, sand, fine sand, loamy fine sand, very fine sandy loam, clay loam, silty clay loam and silty clay. Hazard of water erosion is none to slight and the hazard of wind erosion is severe.

Typical taxonomic units include:

SSA 717 Shiprock NM - MU's 153 Green River, 157 Werjo and 163 Werlog.

Table 4. Representative soil features

Parent material	(1) Alluvium–sandstone and shale
Surface texture	(1) Fine sandy loam (2) Loam (3) Silty clay loam
Family particle size	(1) Sandy
Drainage class	Somewhat poorly drained to moderately well drained
Permeability class	Slow to moderate
Soil depth	152 cm
Surface fragment cover <=3"	0–5%
Available water capacity (0-101.6cm)	6.35–25.4 cm
Electrical conductivity (0-101.6cm)	4–16 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0–30
Soil reaction (1:1 water) (0-101.6cm)	7.9–8.4

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

The State and Transition Model and Accompanying Narrative Descriptions are Still To Be Developed for this Ecological Site. For More Information Contact The Arizona NRCS State Rangeland Management Specialist.

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

This site has a plant community made up primarily of mid and short grasses, scattered shrubs and a relatively small percentage of forbs. There is a mixture of cool and warm season plants. Plant species most likely to invade or increase on this site when it deteriorates are annual mustard, fireweed, Russian thistle, cheatgrass, black greasewood, threadleaf rubber rabbitbrush and salt cedar.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	874	1020	1166
Shrub/Vine	73	146	219
Forb	15	44	73
Tree	–	8	15
Total	**962**	**1218**	**1473**

Figure 5. Plant community growth curve (percent production by month). AZ3521, 35.2 6-10" p.z. all sites. Growth begins in the spring and continues through the summer. Most growth in this CRA occurs in the spring using stored winter moisture..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	1	9	20	27	14	10	11	5	3	0	0

Figure 6. Plant community growth curve (percent production by month). AZ5203, 35.2 6-10" p.z. alkali sacaton. Growth begins in the spring, most growth occurs in the summer, goes dormant in the fall..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	5	10	20	10	20	20	10	5	0	0

Figure 7. Plant community growth curve (percent production by month). AZ5211, 35.2 6-10" p.z. fourwing saltbush. Growth begins in spring and continues through the summer. Seed stalk extension occurs in summer with seed set in the fall..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	5	10	15	20	20	15	10	5	0	0

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Tree					
0				0–15	
	Fremont cottonwood	POFR2	*Populus fremontii*	0–15	–
Shrub/Vine					
0				73–219	
	fourwing saltbush	ATCA2	*Atriplex canescens*	15–73	–
	rubber rabbitbrush	ERNAC2	*Ericameria nauseosa ssp. consimilis*	15–44	–
	stretchberry	FOPUP	*Forestiera pubescens var. pubescens*	15–44	–
	greasewood	SAVE4	*Sarcobatus vermiculatus*	15–44	–
	Mojave seablite	SUMO	*Suaeda moquinii*	0–29	–
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	0–29	–
	iodinebush	ALOC2	*Allenrolfea occidentalis*	0–29	–
Grass/Grasslike					
0				874–1166	
	saltgrass	DISP	*Distichlis spicata*	437–583	–
	alkali sacaton	SPAI	*Sporobolus airoides*	73–146	–
	alkali cordgrass	SPGR	*Spartina gracilis*	15–146	–
	foxtail barley	HOJU	*Hordeum jubatum*	15–73	–
	western wheatgrass	PASM	*Pascopyrum smithii*	0–73	–
	Sandberg bluegrass	POSE	*Poa secunda*	0–73	–
	Grass, perennial	2GP	*Grass, perennial*	0–73	–
	salt sedge	CAHA5	*Carex hassei*	15–73	–
Forb					
0				15–73	
	Forb, perennial	2FP	*Forb, perennial*	15–44	–
	Forb, annual	2FA	*Forb, annual*	0–29	–

Animal community

This site is suitable for yearlong grazing by all classes of livestock. Prescribed Grazing systems adapt well to use on this site. This site may be hazardous on areas where flooding rarely occurs.
This wetland site attracts many species of upland and wetland wildlife. Competition with livestock can be high year round.

Recreational uses

The land form of this site is high flood plains along the San Juan river where the grass-meadow look is aesthetically appealing.
The winters are cold and spring time is usually windy. The summers are mild with a typical southwest thunderstorms.
The main activities include wildlife observation and hunting.

Type locality

Location 1: San Juan County, NM

Township/Range/Section	T30N R17W S31
General legal description	Shiprock quad - about 1 mile southeast of the junction of U.S. Highways 64 and 666 in Shiprock, NM - Navajo Res., NM.

Contributors

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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):**

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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:

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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:**
