

# Ecological site R035XB212AZ Loamy Bottom 6-10" p.z. Ephemeral

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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.

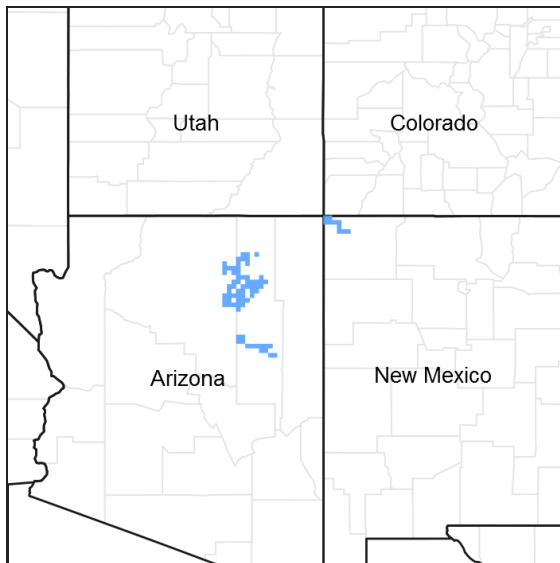


Figure 1. Mapped extent

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 LRU 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.

## Classification relationships

“ATTENTION: This ecological site meets the requirements for PROVISIONAL (if not more). A provisional ecological site is established after ecological site concepts are developed and an initial state-and-transition model is drafted. A provisional ecological site typically will include literature reviews, land use history information, legacy data (prior approved range site descriptions, forage suitability groups, woodland suitability groups, etc.), and includes some soils data, and estimates for canopy and/or species composition by weight,. A provisional ecological site provides the conceptual framework of soil-site correlation for the development of the ESD. For more information about this ecological site, please contact your local NRCS office.”

## Ecological site concept

“PROVISIONAL ecological site concepts developed and described. See Project Plan [insert Project Plan Name] for more details and related milestones.”

**Table 1. Dominant plant species**

Tree	Not specified
Shrub	(1) <i>Atriplex canescens</i>
Herbaceous	(1) <i>Panicum obtusum</i> (2) <i>Sporobolus airoides</i>

## Physiographic features

This site occurs on inter-channel bars of low, braided flood plains along perennial streams and has a water table within reach of most of the herbaceous vegetation during the main part of the growing season. Water can be expected over the surface during short periods of time.

**Table 2. Representative physiographic features**

Landforms	(1) Flood plain (2) Drainageway
Flooding duration	Brief (2 to 7 days) to long (7 to 30 days)
Flooding frequency	Occasional to frequent
Ponding duration	Brief (2 to 7 days) to long (7 to 30 days)
Ponding frequency	None to rare
Elevation	1,372–1,676 m
Slope	0–2%
Water table depth	0–152 cm
Aspect	Aspect is not a significant factor

## Climatic features

Area has a very dry and windy climate that is hot in the summer and cold in the winter. Average annual precipitation is from 6 to 10 inches. Soil moisture regime is typical aridic and the soil temperature regime is mesic. A slight majority of the precipitation arrives during the late fall, winter, and early spring. This winter season moisture originates in the Pacific Ocean and arrives as rain, or sometimes snow, during widespread frontal storms of generally low intensity. The majority of the snow falls from December through February, but rarely lasts more than a few days. The driest period is from late May to early July. Summer rains occur from July through September during brief intense local thunderstorms. The rain is sporadic in intensity and location. Windy conditions are common year round with the strongest most frequently in the spring.

**Table 3. Representative climatic features**

Frost-free period (average)	181 days
Freeze-free period (average)	207 days
Precipitation total (average)	254 mm

## Influencing water features

## Soil features

The soils that make up this site are deep and only moderately well drained. The surface soil is typically clay loam or clay about 8 - 10 inches thick underlain by a substratum of clay, silty clay and clay loam. The substratum may have thin layers of coarser textures. These soils may be completely inundated for two to four months and then not flood for four to six months. The water table fluctuates from the surface to a depth of six feet. These soils are strongly calcareous, mildly to moderately alkaline and slightly to strongly saline.

Typical taxonomic units include:

SSA 633 Navajo County Central Part - MU's 42 Navajo, 24 Ives wet, 23 Ives, 38 & 50 Medisaprists;  
 SSA-707 Little Colorado River Area MU's 7 Endoaquolls, Haplofibrists & Psammaquents, 16 Bebeever & Oxyaquic torripsamments;  
 SSA 714 Hopi - MU 37 Torrifuvents.

**Table 4. Representative soil features**

Parent material	(1) Alluvium–sandstone
Surface texture	(1) Loamy sand (2) Clay (3) Clay loam
Family particle size	(1) Clayey
Drainage class	Somewhat poorly drained to poorly drained
Permeability class	Slow to very slow
Soil depth	102–152 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	0–6.35 cm
Calcium carbonate equivalent (0-101.6cm)	0–10%
Electrical conductivity (0-101.6cm)	0–4 mmhos/cm
Soil reaction (1:1 water) (0-101.6cm)	7.4–8.4
Subsurface fragment volume <=3" (Depth not specified)	0%
Subsurface fragment volume >3" (Depth not specified)	0%

## Ecological dynamics

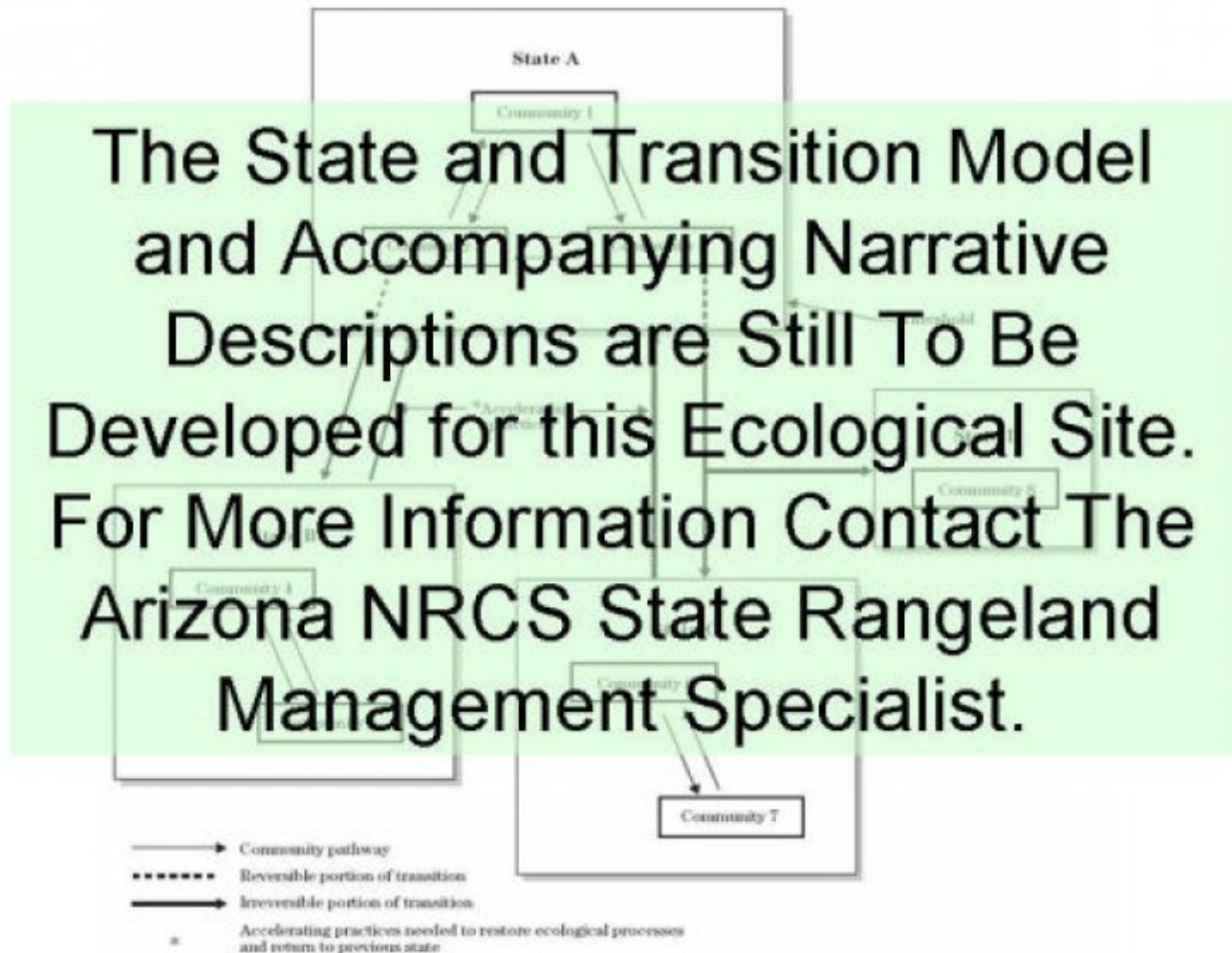
The plant communities found on an ecological site are naturally variable. Composition and production will vary with yearly conditions, location, aspect, and the natural variability of the soils. The historical climax plant community represents the natural potential plant communities found on relict or 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



### State 1 Historic Climax Plant Community

#### Community 1.1 Historic Climax Plant Community

This range site has a plant community consisting of narrowleaf and Fremont cottonwood. The understory consists of mid and short grasses, shrubs, forbs and annuals. When this site is continuously grazed during the winter and spring periods, cool season grasses and palatable shrubs are replaced by lower value plants. Plant species most likely to invade or increase on this site when it deteriorates are camelthorn, pickleweed, black greasewood, russian thistle, saltcedar and annuals.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	673	841	1009
Shrub/Vine	179	224	269
Forb	45	56	67
<b>Total</b>	<b>897</b>	<b>1121</b>	<b>1345</b>

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). 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 (%)
<b>Shrub/Vine</b>					
0				56–112	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	56–112	–
7				11–56	
	greasewood	SAVE4	<i>Sarcobatus vermiculatus</i>	6–39	–
	iodinebush	ALOC2	<i>Allenrolfea occidentalis</i>	6–17	–
8				11–56	
	stretchberry	FOPUP	<i>Forestiera pubescens</i> var. <i>pubescens</i>	6–28	–
	willow	SALIX	<i>Salix</i>	6–28	–
<b>Grass/Grasslike</b>					
1				392–560	
	alkali sacaton	SPAI	<i>Sporobolus airoides</i>	224–336	–
	vine mesquite	PAOB	<i>Panicum obtusum</i>	168–224	–
2				56–168	
	western wheatgrass	PASM	<i>Pascopyrum smithii</i>	34–90	–
	Indian ricegrass	ACHY	<i>Achnatherum hymenoides</i>	22–78	–
3				56–112	
	redtop	AGGI2	<i>Agrostis gigantea</i>	34–67	–
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	22–45	–
4				56–112	
	common reed	PHAU7	<i>Phragmites australis</i>	17–34	–
	spike dropseed	SPCO4	<i>Sporobolus contractus</i>	11–28	–
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	11–28	–
	saltgrass	DISP	<i>Distichlis spicata</i>	6–17	–
5				11–56	
	sedge	CAREX	<i>Carex</i>	6–34	–
	rush	JUNCU	<i>Juncus</i>	6–22	–
<b>Forb</b>					
6				11–56	
	Forb, perennial	2FP	<i>Forb, perennial</i>	6–34	–
	Forb, annual	2FA	<i>Forb, annual</i>	6–22	–
<b>Tree</b>					
9				11–56	
	narrowleaf cottonwood	POAN3	<i>Populus angustifolia</i>	6–28	–
	Fremont cottonwood	POFR2	<i>Populus fremontii</i>	6–28	–

## Animal community

This site is suitable for grazing by cows and calves, stocker cattle, sheep, goats, and horses. It offers good protection in winter. Planned grazing systems can be readily adopted when this site is involved but responds slowly to management when deteriorated. Mechanical treatment such as ripping or pitting will improve the vegetation more rapidly.

This site follows perennial and intermittent streams and forms an important mosaic of migration routes for many species of birds. Many bird species are dependent upon the nesting areas provided by the vegetative species on the site. A large variety of birds, reptiles, and mammals are indigenous to this site and many other species are benefitted by the edge it forms with other sites.

## Recreational uses

The proximity of the site to flood plains and water with its tall deciduous trees, shrub community and grass understory provides good aesthetic appeal.

Winters are cold and the relatively mild summers make the site attractive for recreational activities. Springtime is usually very windy.

Site is suited to birdwatching, hunting and photography activities.

## Other information

Site can be a roosting area for golden eagles.

## Type locality

Location 1: Navajo County, AZ	
General legal description	Flood plain of the Little Colorado River west of Holbrook, AZ.

## 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:

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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:

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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:**

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