USDA Natural Resources
Conservation Service

Ecological site R030XB218AZ
Sandy Wash 6-9" p.z.

Last updated: 10/21/2024
Accessed: 05/10/2025

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): 030X–Mojave Basin and Range

This unit occurs within the Basin and Range Province and is characterized by broad basins, valleys, and old lakebeds. Widely spaced mountains trending north to south occur throughout the area. Isolated, short mountain ranges are separated by an aggraded desert plain. The mountains are fault blocks that have been tilted up. Long alluvial fans coalesce with dry lakebeds between some of the ranges.

LRU notes

AZ LRU 30-2 – Middle Mohave Desert

Elevations range from 1500 to 3200 feet and precipitation averages 6 to 9 inches per year. Vegetation includes creosotebush, white bursage, yucca, prickly pear and cholla species, Mormon tea, flattop buckwheat, ratany, winterfat, bush muhly, threeawns, and big galleta. The soil temperature regime is thermic and the soil moisture regime is typic aridic.

Ecological site concept

This ecological site is located in bottoms. Soils are gravelly sandy loams braided with watercourses of riverwash.

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Hymenoclea salsola* (2) *Larrea tridentata*
Herbaceous	(1) *Pleuraphis rigida*

Physiographic features

This ecological site occurs in and along the edges of ephemeral streams or washes. It is often intricately intertwined with, but is not, the riverwash. It occasionially receives additional run-in moisture from the surrounding ecological sites. The soil is very sandy and is often gravelly and/or cobbly as well.

Table 2. Representative physiographic features

Landforms	(1) Alluvial fan (2) Flood plain
Flooding duration	Very brief (4 to 48 hours)
Flooding frequency	Occasional
Ponding frequency	None
Elevation	1,500–3,000 ft
Slope	1–5%
Aspect	Aspect is not a significant factor

Climatic features

The climate is arid and warm. Annual precipitation ranges from 6 to 9 inches. About 65 percent of the rainfall comes from October through May as gentle rain from Pacific storms which may last for a couple of days. The rest of the rainfall comes during the summer monsoon season from July through September as spotty, brief, intense thunderstorms. Snow rarely falls, and only remains on the ground a few hours at most. Annual air temperature ranges from 59 to 70 degrees F. The average frost-free period ranges from 156 to 259 days.

Table 3. Representative climatic features

Frost-free period (average)	259 days
Freeze-free period (average)	290 days
Precipitation total (average)	9 in

Influencing water features

Soil features

The soil of this ecological site is deep to very deep. Surface textures range from loamy sand to sandy loam and is often gravelly or very gravelly. Subsurface textures range from sand to sandy loam and generally gravelly to extremely gravelly or very cobbly.

A typical profile of this soil is:

A—0 to 1 inch; gravelly sandy loam
C1—1 to 9 inches; loamy coarse sand
C2—9 to 60 inches; extremely gravelly loamy

coarse sand

The taxonomic classification of this soil is Sandy, mixed thermic Typic Torrifluvents.
Soils correlated to this ecological site include map unit 623005, Arizo, Shivwits SSA; 697006, Arizo and Franconia, 697007, Arizo, Central Mohave County SSA.

Table 4. Representative soil features

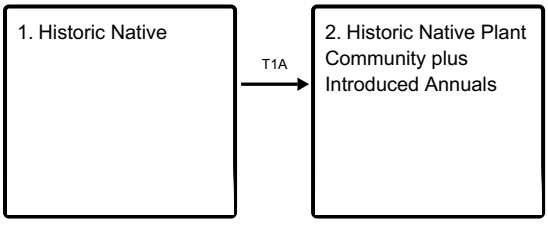
Surface texture	(1) Gravelly sandy loam (2) Very cobbly sandy loam (3) Very gravelly loamy sand
Family particle size	(1) Sandy
Drainage class	Excessively drained
Permeability class	Moderately rapid to very rapid
Soil depth	60 in
Surface fragment cover <=3"	10–50%
Surface fragment cover >3"	0–35%
Available water capacity (0-40in)	1.2–1.5 in
Calcium carbonate equivalent (0-40in)	6–10%
Electrical conductivity (0-40in)	0–2 mmhos/cm
Soil reaction (1:1 water) (0-40in)	7.9–8.4
Subsurface fragment volume <=3" (Depth not specified)	25–65%
Subsurface fragment volume >3" (Depth not specified)	0–35%

Ecological dynamics

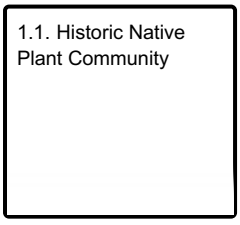
Sandy Wash, 6"-9" p.z., is a shrub dominated ecological site. Sparse perennial grasses and forbs are occasionally encountered. Annual forbs and grasses flourish following rainfall. Other than frequent flash flooding, natural disturbances are rare. After introduction of non-native annuals (forbs and/or grasses), they persist on this site. Dominant shrubs are creosote and hymenochlea. Assorted half-shrubs are widely scattered.

State and transition model

Ecosystem states



State 1 submodel, plant communities



State 2 submodel, plant communities

2.1. Non-native Annuals

State 1
Historic Native

Community 1.1
Historic Native Plant Community

The dominant aspect of this site is a desert shrub. This site is dominated by catclaw acacia, white burrobrush, and creosotebush. Perennial grasses are present in minor amounts. The burrobrush on this site will increase if other plants decrease for any reason. Also, if plant cover is lost there will be an increase in channel depth and erosion.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Shrub/Vine	109	263	381
Grass/Grasslike	8	33	67
Forb	8	25	44
Tree	0	4	8
Total	**125**	**325**	**500**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0-2%
Grass/grasslike foliar cover	0-1%
Forb foliar cover	0-1%
Non-vascular plants	0%
Biological crusts	0%
Litter	0%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

Table 7. Canopy structure (% cover)

Height Above Ground (Ft)	Tree	Shrub/Vine	Grass/ Grasslike	Forb
<0.5	–	–	–	0-2%
>0.5 <= 1	–	–	0-2%	–
>1 <= 2	–	–	–	–
>2 <= 4.5	–	–	–	–
>4.5 <= 13	–	10-14%	–	–
>13 <= 40	–	–	–	–
>40 <= 80	–	–	–	–
>80 <= 120	–	–	–	–
>120	–	–	–	–

Figure 5. Plant community growth curve (percent production by month). AZ3022, 30.2 6-9" p.z. upland sites. Growth begins in the late winter, most growth occurs in the spring..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	2	19	33	18	7	7	11	3	0	0	0

Figure 6. Plant community growth curve (percent production by month). AZ3030, 40-3AZ 7-10" p.z. big galleta. Growth begins in the spring, goes dormant in May through June, most growth occurs during the summer rainy season..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	10	10	0	0	15	55	10	0	0	0

State 2
Historic Native Plant Community plus Introduced Annuals

Community 2.1
Non-native Annuals

This plant community resembles the historic native plant community, but exotic annuals have been introduced. Non-native species include Asian mustard (*Brassica tournefortii*), red brome, Mediterranean grass (Schismus spp.), and filaree. The flourish of non-native annuals that occurs following rainfalls may preclude native annuals.

Transition T1A
State 1 to 2

Introduction of non-native annual forb and grass seed.

Additional community tables

Table 8. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1				3–16	
	big galleta	PLRI3	*Pleuraphis rigida*	3–16	–
2				0–3	
	threeawn	ARIST	*Aristida*	0–3	–
3				0–6	

	sand dropseed	SPCR	*Sporobolus cryptandrus*	0–6	–
4				0–6	
	slim tridens	TRMU	*Tridens muticus*	0–6	–
5				3–16	
	Grass, annual	2GA	*Grass, annual*	3–16	–
Forb					
6				3–10	
	desert globemallow	SPAM2	*Sphaeralcea ambigua*	3–10	–
7				3–16	
	Forb, annual	2FA	*Forb, annual*	3–16	–
8				3–10	
	Forb, perennial	2FP	*Forb, perennial*	3–10	–
Shrub/Vine					
9				16–49	
	catclaw acacia	ACGR	*Acacia greggii*	16–49	–
10				65–98	
	burrobrush	HYSA	*Hymenoclea salsola*	65–98	–
11				32–64	
	creosote bush	LATR2	*Larrea tridentata*	32–64	–
12				3–16	
	water jacket	LYAN	*Lycium andersonii*	3–16	–
13				0–6	
	burrobush	AMDU2	*Ambrosia dumosa*	0–6	–
14				3–16	
	Nevada jointfir	EPNE	*Ephedra nevadensis*	3–16	–
15				3–10	
	Eastern Mojave buckwheat	ERFAP	*Eriogonum fasciculatum var. polifolium*	3–10	–
16				0–6	
	woolly fruit bur ragweed	AMER	*Ambrosia eriocentra*	0–6	–
17				0–6	
	purple sage	SADO4	*Salvia dorrii*	0–6	–
18				0–3	
	peach thorn	LYCO2	*Lycium cooperi*	0–3	–
19				0–3	
	brittlebush	ENFA	*Encelia farinosa*	0–3	–
20				0–10	
	pricklypear	OPUNT	*Opuntia*	0–10	–
21				0–6	
	rayless goldenhead	ACSP	*Acamptopappus sphaerocephalus*	0–6	–
22				0–10	
	button brittlebush	ENFR	*Encelia frutescens*	0–10	–
23				0–13	
	turpentinebroom	THMO	*Thamnosma montana*	0–13	–

24				0–10	
	Mexican bladdersage	SAME	*Salazaria mexicana*	0–10	–
25				0–3	
	desert almond	PRFA	*Prunus fasciculata*	0–3	–
26				3–16	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	3–16	–
Tree					
27				0–6	
	Joshua tree	YUBR	*Yucca brevifolia*	0–6	–

Animal community

Wildlife Species List:
Snakes, Lizards, Ground Squirrels, Blacktail Jackrabbit, Cottontail Rabbit

Type locality

Location 1: Mohave County, AZ	
Township/Range/Section	T27 N. R20 W. S20
Latitude	35° 43′ 30″
Longitude	114° 27′ 30″
General legal description	Mt. Tipton 3NW Quad - Sec. 20, T. 27 N., R. 20 W.; Lat. 35 43' 30", Long. 114 27' 30"; Mohave County, Arizona.
Location 2: Mohave County, AZ	
Township/Range/Section	T36 N. R16 W. S35
General legal description	Pakoon Wash on Pakoon Springs Ranch; Sec. 35, T. 36 N., R. 16 W.; Mohave County, Arizona.

Contributors

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Approval

Kendra Moseley, 10/21/2024

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	05/10/2025
Approved by	Kendra Moseley

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:

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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:**
