

## Ecological site R040XA127AZ Gypsum Slopes 10"-13" p.z.

Accessed: 05/03/2024

### 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.

### MLRA notes

Major Land Resource Area (MLRA): 040X–Sonoran Basin and Range

AZ 40.1 – Upper Sonoran Desert

Elevations range from 2000 to 3200 feet and precipitation averages 10 to 13 inches per year. Vegetation includes saguaro, palo verde, mesquite, creosotebush, triangle bursage, prickly pear, cholla, limberbush, wolfberry, bush muhly, threeawns, ocotillo, and globe mallow. The soil temperature regime is thermic and the soil moisture regime is typic aridic. This unit occurs within the Basin and Range Physiographic Province and is characterized by numerous mountain ranges that rise abruptly from broad, plain-like valleys and basins. Igneous and metamorphic rock classes dominate the mountain ranges and sediments filling the basins represent combinations of fluvial, lacustrine, colluvial and alluvial deposits.

### Associated sites

R040XA110AZ	Limy Slopes 10"-13" p.z.
R040XA111AZ	Limy Upland 10"-13" p.z.
R040XA126AZ	Gypsum Upland 10"-13" p.z.

### Similar sites

R041XB219AZ	Gypsum Upland 8-12" p.z.
F041XB218AZ	Sandy Bottom 8-12" p.z. woodland

Table 1. Dominant plant species

Tree	(1) <i>Parkinsonia microphylla</i>
Shrub	(1) <i>Larrea tridentata</i> (2) <i>acacia constricta</i>
Herbaceous	(1) <i>Muhlenbergia porteri</i> (2) <i>aristida purpurea var. nealleyi</i>

### Physiographic features

This site occurs in the upper elevations of the Sonoran Desert province in southern Arizona. It occurs on fan terraces, hill-slopes and ridge-tops formed on relict lacustrine (lake bed) sediments. It occurs in the Gila and San Pedro river valleys.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Fan remnant (3) Ridge
Flooding frequency	None
Ponding frequency	None
Elevation	792–1,097 m
Slope	15–55%
Aspect	N, E, S

### Climatic features

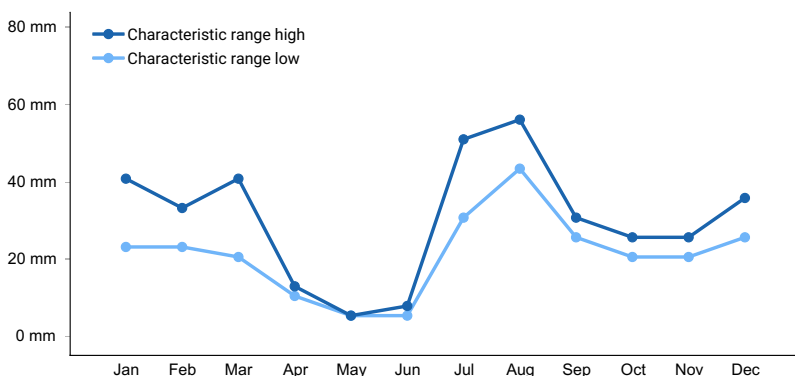
Precipitation in the sub resource area ranges from 10 to 13 inches in the southern part, along the Mexican border with elevations from about 1900 to 3200 feet. Precipitation in the northern part of the resource area ranges from 11 to 14 inches with elevations from about 1700 to 3500 feet. Winter-summer rainfall ratios range from 40%-60% in the southern portions of the land resource unit, to 50%-50% in the central portions, to 60%-40% in the northern part of the land resource unit. As one moves from east to west in this resource area rains become slightly more unpredictable and variable with Coefficients of Variation of annual rainfall equal to 29% at Tucson and 36% at Carefree. Summer rains fall July through Sept., originate in the Gulf of Mexico, and are convective, usually brief, intense thunderstorms. Cool season moisture tends to be frontal, originating in the Pacific and Gulf of California. This winter precipitation falls in widespread storms with long duration and low intensity. Snow is rare and seldom lasts more than an hour or two. May and June are the driest months of the year. Humidity is generally very low.

Winter temperatures are mild, with very few days recording freezing temperatures in the morning. Summer temperatures are warm to hot, with several days in June and July exceeding 105 degrees F.

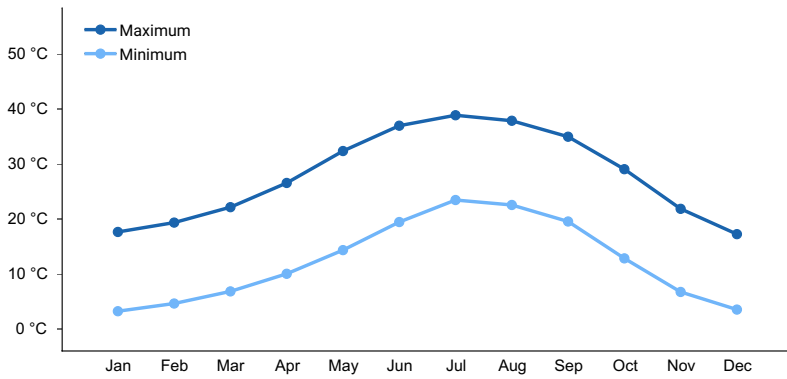
Both the spring and the summer growing seasons are equally important for perennial grass, forb and shrub growth. Cool and warm season annual forbs and grasses can be common in their respective seasons with above average rainfall. Perennial forage species can remain green throughout the year with available moisture.

**Table 3. Representative climatic features**

Frost-free period (average)	265 days
Freeze-free period (average)	0 days
Precipitation total (average)	330 mm



**Figure 1. Monthly precipitation range**



**Figure 2. Monthly average minimum and maximum temperature**

## Influencing water features

There are no water features associated with this site.

## Soil features

These soils are well drained, variable in texture, stratified and high in soluble gypsum (5-30% by volume). They are moderately deep to deep and underlain in places by gypsum. Coarse fragments in the soil profile are usually large gypsum crystals. These soils have formed in relict lacustrine deposits. Soil series mapped on this site include Contention, Ugy, Whitecliff and haplogypsids.

NOT CURRENTLY CORRELATED to any Soil in an AZ SSA.

**Table 4. Representative soil features**

Surface texture	(1) Silt loam (2) Fine sandy loam (3) Clay
Family particle size	(1) Loamy
Drainage class	Moderately well drained to well drained
Permeability class	Moderately rapid to slow
Soil depth	152 cm
Surface fragment cover <=3"	0–50%
Surface fragment cover >3"	0–10%
Available water capacity (0-101.6cm)	11.94–19.3 cm
Calcium carbonate equivalent (0-101.6cm)	0–20%
Electrical conductivity (0-101.6cm)	0–2 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0–2
Soil reaction (1:1 water) (0-101.6cm)	7.4–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–30%
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 community found on relict or relatively undisturbed areas of this site. Other plant communities described here represent plant communities that are known to occur when the site is disturbed by factors such as fire, grazing and 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 described in the 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 amount shown for that group. Divide the resulting total by the total, normal year, production shown in the plant community description. If the rainfall has been significantly above or below normal, use the total production shown for above or below normal years. If the field data is not collected at the end of the summer growing season, then the field data must be corrected to the end of 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.

The historic native state includes the native plant communities that occur on the site, including the historic climax plant community. This state includes other plant communities that naturally occupy the site following fire, drought, flooding, herbivores and other natural disturbances. The historic climax plant community represents the natural climax community that eventually reoccupies the site with proper management and a return to near normal conditions and/or equilibrium.

## **State and transition model**

## MLRA 40-1 (10-13"), Gypsum slopes

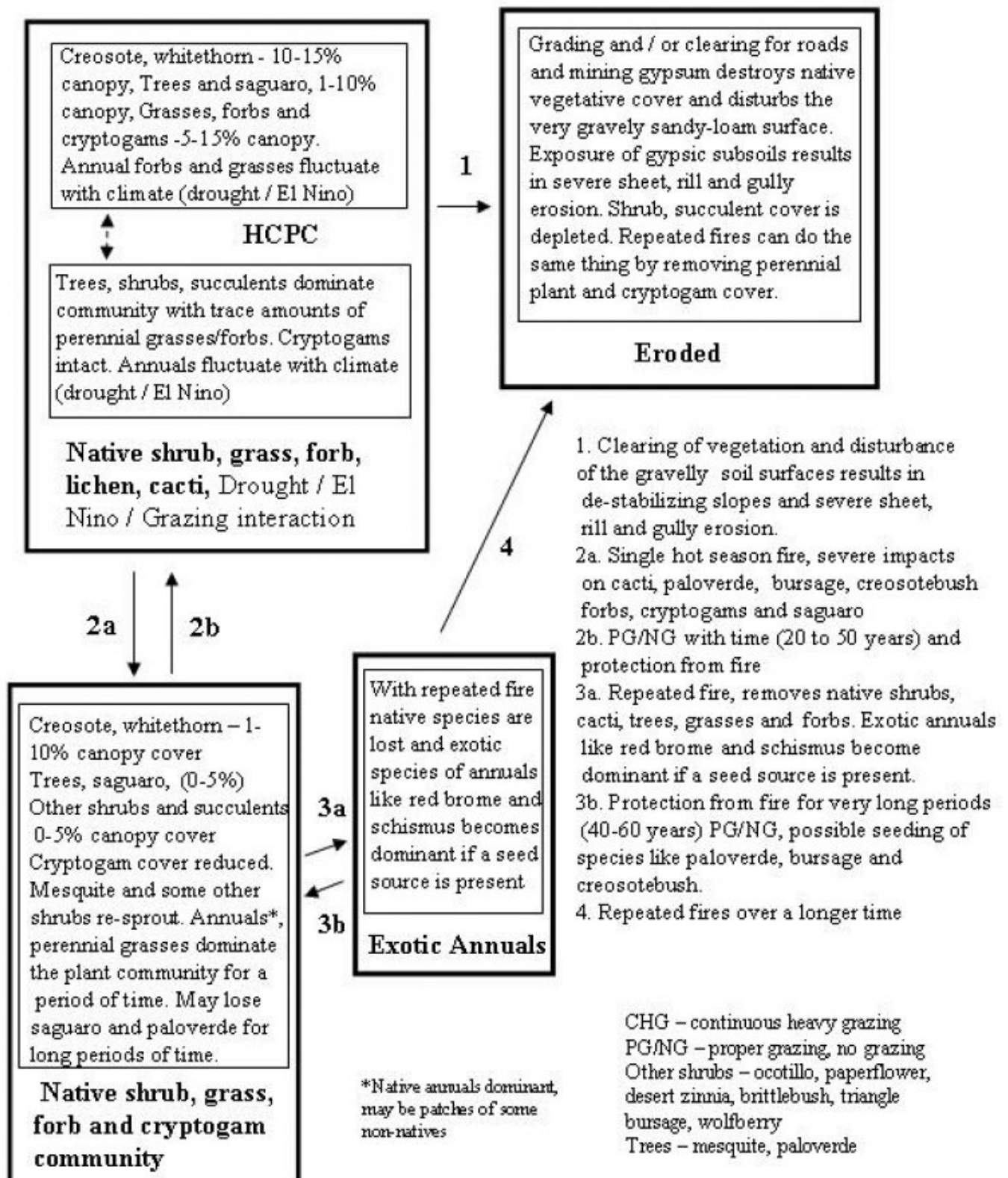


Figure 3. Gypsum slopes 10-13" pz

**State 1**  
**Historic Climax Plant Community**

**Community 1.1**  
**Historic Climax Plant Community**

This plant community is dominated by littleleaf paloverde, creosote bush and whitethorn acacia. Annual grasses and forbs are an important part of the plant community. Perennial grasses usually only occur on north hill slopes. Cryptogams are very common on this site, often completely colonizing outcrops of gypsum. The site is extremely susceptible to sheet, rill and gully erosion due to high concentrations of soluble gypsum in the surface soil; once the surface soil has been disturbed.

**Table 5. Annual production by plant type**

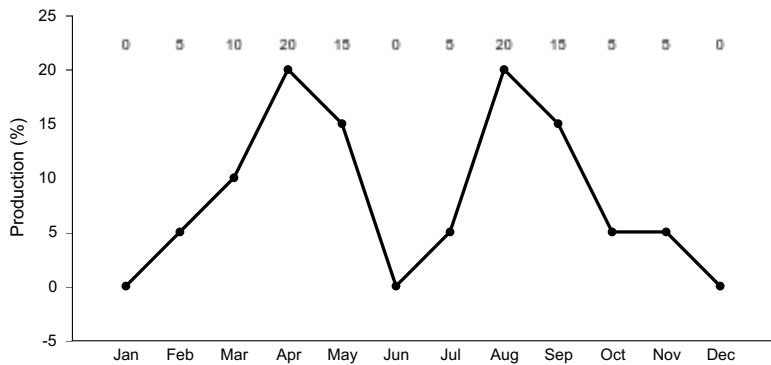
Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	152	280	471
Grass/Grasslike	13	90	224
Forb	4	45	140
Tree	11	34	112
<b>Total</b>	<b>180</b>	<b>449</b>	<b>947</b>

**Table 6. Soil surface cover**

Tree basal cover	0-1%
Shrub/vine/liana basal cover	1%
Grass/grasslike basal cover	0-1%
Forb basal cover	0-1%
Non-vascular plants	0%
Biological crusts	5-60%
Litter	5-35%
Surface fragments >0.25" and <=3"	15-45%
Surface fragments >3"	1-15%
Bedrock	0-5%
Water	0%
Bare ground	15-80%

**Table 7. Canopy structure (% cover)**

Height Above Ground (M)	Tree	Shrub/Vine	Grass/ Grasslike	Forb
<0.15	–	0-1%	0-5%	1-15%
>0.15 <= 0.3	–	0-1%	0-10%	0-5%
>0.3 <= 0.6	–	0-2%	0-5%	0-1%
>0.6 <= 1.4	–	2-5%	–	–
>1.4 <= 4	0-5%	0-2%	–	–
>4 <= 12	–	–	–	–
>12 <= 24	–	–	–	–
>24 <= 37	–	–	–	–
>37	–	–	–	–



**Figure 5. Plant community growth curve (percent production by month). AZ4013, 40.1 10-13" p.z. other sites. Growth begins in the late winter, goes semi-dormant in the drought period of late May through early July, growth continues in the summer through early fall..**

## State 2

### Native shrubs, cacti and fire

#### Community 2.1

##### Native shrubs, cacti and fire

This state occurs where the native tree, cacti and shrub cover has been impacted by a single hot season fire. This will occur only in El Nino years when annual forbs and grasses make enough fuel for a fire. Areas of this site will not burn completely due to patches of soil dominated by gypsum outcrop and high cryptogam covers which will not have fine fuel. The fire impacts paloverde, saguaro and other cacti species. Shrubs like creosote and whitethorn may sprout and recover from the fire.

## State 3

### Exotic annuals

#### Community 3.1

##### Exotic annuals

This state occurs where non-native annuals have invaded the native plant community. Species like red brome, schismus and native annuals dominate the understory of the plant community. Areas of the site adjacent urban areas and near heavily travelled roads may burn more often due to increased chance of ignition.

## State 4

### Eroded

#### Community 4.1

##### Eroded

This state occurs where the site has been graded, bladed or mined and the soil surface (gravelly sandyloam) has been disturbed. The subsurface is extremely erodible due to high concentrations of soluble gypsum in the soil profile. Steep slopes also contribute to rilling and gully formation.

## Additional community tables

**Table 8. Community 1.1 plant community composition**

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
<b>Grass/Grasslike</b>					
1	<b>Dominant perennial grasses</b>			11-90	
	purple threeawn	ARPUP6	<i>Aristida purpurea var. purpurea</i>	6-56	-
	bush muhly	MIIPQ2	<i>Muhlenbergia porteri</i>	6-17	-

	slim tridens	TRMU	<i>Tridens muticus</i>	1-17	-
	tobosagrass	PLMU3	<i>Pleuraphis mutica</i>	0-11	-
	spike dropseed	SPCO4	<i>Sporobolus contractus</i>	0-11	-
	Parish's threeawn	ARPUP5	<i>Aristida purpurea var. parishii</i>	0-11	-
	big sacaton	SPWR2	<i>Sporobolus wrightii</i>	0-6	-
	alkali sacaton	SPAI	<i>Sporobolus airoides</i>	0-6	-
2	<b>Misc. perennial grasses</b>			1-22	
	low woollygrass	DAPU7	<i>Dasyochloa pulchella</i>	1-11	-
	nineawn pappusgrass	ENDE	<i>Enneapogon desvauxii</i>	0-11	-
	blue threeawn	ARPUN	<i>Aristida purpurea var. nealleyi</i>	0-6	-
	spidergrass	ARTE3	<i>Aristida ternipes</i>	0-6	-
	spidergrass	ARTEG	<i>Aristida ternipes var. gentilis</i>	0-6	-
	whiplash pappusgrass	PAVA2	<i>Pappophorum vaginatum</i>	0-2	-
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	0-2	-
	mesa dropseed	SPFL2	<i>Sporobolus flexuosus</i>	0-2	-
	false Rhodes grass	TRCR9	<i>Trichloris crinita</i>	0-2	-
	burrograss	SCBR2	<i>Scleropogon brevifolius</i>	0-1	-
	plains bristlegrass	SEVU2	<i>Setaria vulpiseta</i>	0-1	-
	Arizona cottontop	DICA8	<i>Digitaria californica</i>	0-1	-
3	<b>Annual grasses</b>			1-112	
	sixweeks threeawn	ARAD	<i>Aristida adscensionis</i>	1-56	-
	sixweeks grama	BOBA2	<i>Bouteloua barbata</i>	0-56	-
	prairie threeawn	AROL	<i>Aristida oligantha</i>	0-28	-
	needle grama	BOAR	<i>Bouteloua aristidoides</i>	0-22	-
	mucronate sprangeltop	LEPAB	<i>Leptochloa panicea ssp. brachiata</i>	0-17	-
	Rothrock's grama	BORO2	<i>Bouteloua rothrockii</i>	0-11	-
	sixweeks fescue	VUOC	<i>Vulpia octoflora</i>	0-11	-
	Mexican panicgrass	PAHI5	<i>Panicum hirticaule</i>	0-6	-
	Bigelow's bluegrass	POBI	<i>Poa bigelovii</i>	0-2	-
	Arizona signalgrass	URAR	<i>Urochloa arizonica</i>	0-2	-
	canyon cupgrass	ERLE7	<i>Eriochloa lemmonii</i>	0-2	-
	desert lovegrass	ERPEM	<i>Eragrostis pectinacea var. miserrima</i>	0-2	-
	tufted lovegrass	ERPEP2	<i>Eragrostis pectinacea var. pectinacea</i>	0-2	-
	Mexican sprangletop	LEFUU	<i>Leptochloa fusca ssp. uninervia</i>	0-1	-
	Arizona brome	BRAR4	<i>Bromus arizonicus</i>	0-1	-
	delicate muhly	MUFR	<i>Muhlenbergia fragilis</i>	0-1	-
	littleseed muhly	MUMI	<i>Muhlenbergia microsperma</i>	0-1	-
<b>Forb</b>					
4	<b>Perennial forbs</b>			3-28	
	lacy tansyaster	MAPIP4	<i>Machaeranthera pinnatifida ssp. pinnatifida var. pinnatifida</i>	1-11	-
	desert trumpet	ERIN4	<i>Eriogonum inflatum</i>	1-11	-
	brownplume wirelettuce	STPA4	<i>Stephanomeria pauciflora</i>	1-11	-
	desert globemallow	SPAM2	<i>Sphaeralcea ambigua</i>	0-6	-



	Desert grassland	Site	Species/Local name	Abundance	Notes
	Parry's false prairie-clover	MAPA7	<i>Marina parryi</i>	0-2	-
	wishbone-bush	MILAV	<i>Mirabilis laevis</i> var. <i>villosa</i>	0-2	-
	weakleaf bur ragweed	AMCO3	<i>Ambrosia confertiflora</i>	0-2	-
	dwarf desertpeony	ACNA2	<i>Acourtia nana</i>	0-2	-
	stinging serpent	CESI	<i>Cevallia sinuata</i>	0-2	-
	whitemargin sandmat	CHAL11	<i>Chamaesyce albomarginata</i>	0-1	-
	leatherweed	CRPOP	<i>Croton pottsii</i> var. <i>pottsii</i>	0-1	-
	brownfoot	ACWR5	<i>Acourtia wrightii</i>	0-1	-
	trailing windmills	ALIN	<i>Allionia incarnata</i>	0-1	-
	tuber anemone	ANTU	<i>Anemone tuberosa</i>	0-1	-
	dense ayenia	AYMI	<i>Ayenia microphylla</i>	0-1	-
	hairyseed bahia	BAAB	<i>Bahia absinthifolia</i>	0-1	-
	desert marigold	BAMU	<i>Baileya multiradiata</i>	0-1	-
	desert tobacco	NIOB	<i>Nicotiana obtusifolia</i>	0-1	-
	Coues' cassia	SECO10	<i>Senna covesii</i>	0-1	-
	silverleaf nightshade	SOEL	<i>Solanum elaeagnifolium</i>	0-1	-
	San Pedro daisy	LAP04	<i>Lasianthaea podocephala</i>	0-1	-
	rue of the mountains	THTE2	<i>Thamnosma texana</i>	0-1	-
5	<b>Annual forbs</b>			1-112	
	phacelia	PHACE	<i>Phacelia</i>	0-28	-
	Coulter's lupine	LUSP2	<i>Lupinus sparsiflorus</i>	0-22	-
	California poppy	ESCAM	<i>Eschscholzia californica</i> ssp. <i>mexicana</i>	0-22	-
	bristly fiddleneck	AMTE3	<i>Amsinckia tessellata</i>	0-17	-
	western tansymustard	DEPI	<i>Descurainia pinnata</i>	0-17	-
	flatcrown buckwheat	ERDE6	<i>Eriogonum deflexum</i>	1-11	-
	miniature woollystar	ERDI2	<i>Eriastrum diffusum</i>	0-11	-
	exserted Indian paintbrush	CAEXE	<i>Castilleja exserta</i> ssp. <i>exserta</i>	0-11	-
	combseed	PECTO	<i>Pectocarya</i>	0-11	-
	manybristle chinchweed	PEPA2	<i>Pectis papposa</i>	0-11	-
	desert Indianwheat	PLOV	<i>Plantago ovata</i>	0-11	-
	lyreleaf jewelflower	STCAA	<i>Streptanthus carinatus</i> ssp. <i>arizonicus</i>	0-6	-
	thelypody	THELY	<i>Thelypodium</i>	0-6	-
	slender goldenweed	MAGR10	<i>Machaeranthera gracilis</i>	0-6	-
	cryptantha	CRYPT	<i>Cryptantha</i>	0-6	-
	Gordon's bladderpod	LEGO	<i>Lesquerella gordonii</i>	0-6	-
	shaggyfruit pepperweed	LELA	<i>Lepidium lasiocarpum</i>	0-6	-
	intermediate pepperweed	LEVIM	<i>Lepidium virginicum</i> var. <i>medium</i>	0-6	-
	coastal bird's-foot trefoil	LOSAB	<i>Lotus salsuginosus</i> var. <i>brevivexillus</i>	0-6	-
	Nuttall's povertyweed	MONU	<i>Monolepis nuttalliana</i>	0-6	-
	wheelscale saltbush	ATEL	<i>Atriplex elegans</i>	0-6	-

	Coulter's spiderling	BOCO2	<i>Boerhavia coulteri</i>	0-6	-
	carelessweed	AMPA	<i>Amaranthus palmeri</i>	0-6	-
	brittle spineflower	CHBR	<i>Chorizanthe brevicornu</i>	0-6	-
	hyssopleaf sandmat	CHHY3	<i>Chamaesyce hyssopifolia</i>	0-2	-
	Esteve's pincushion	CHST	<i>Chaenactis stevioides</i>	0-2	-
	fringed redmaids	CACI2	<i>Calandrinia ciliata</i>	0-2	-
	white tackstem	CAWR	<i>Calycoseris wrightii</i>	0-2	-
	green carpetweed	MOVE	<i>Mollugo verticillata</i>	0-2	-
	hairy prairie clover	DAMO	<i>Dalea mollis</i>	0-2	-
	American wild carrot	DAPU3	<i>Daucus pusillus</i>	0-2	-
	sorrel buckwheat	ERPO4	<i>Eriogonum polycladon</i>	0-2	-
	Texas stork's bill	ERTE13	<i>Erodium texanum</i>	0-2	-
	hairy desertsunflower	GECA2	<i>Geraea canescens</i>	0-2	-
	star gilia	GIST	<i>Gilia stellata</i>	0-2	-
	Arizona poppy	KAGR	<i>Kallstroemia grandiflora</i>	0-2	-
	tanseyleaf tansyaster	MATA2	<i>Machaeranthera tanacetifolia</i>	0-2	-
	desert evening primrose	OEPR	<i>Oenothera primiveris</i>	0-2	-
	Florida pellitory	PAFL3	<i>Parietaria floridana</i>	0-2	-
	woolly tidestromia	TILA2	<i>Tidestromia lanuginosa</i>	0-2	-
	woollyhead neststraw	STMI2	<i>Stylocline micropoides</i>	0-2	-
	doubleclaw	PRPA2	<i>Proboscidea parviflora</i>	0-1	-
	New Mexico plumeseed	RANE	<i>Rafinesquia neomexicana</i>	0-1	-
	sleepy silene	SIAN2	<i>Silene antirrhina</i>	0-1	-
	Coulter's globemallow	SPCO2	<i>Sphaeralcea coulteri</i>	0-1	-
	Arizona popcornflower	PLAR	<i>Plagiobothrys arizonicus</i>	0-1	-
	Mexican fireplant	EUHE4	<i>Euphorbia heterophylla</i>	0-1	-
	bristly nama	NAHI	<i>Nama hispidum</i>	0-1	-
	glandular threadplant	NEGL	<i>Nemacladus glanduliferus</i>	0-1	-
	common woolly sunflower	ERLA6	<i>Eriophyllum lanatum</i>	0-1	-
	milkvetch	ASTRA	<i>Astragalus</i>	0-1	-
	hoary bowlesia	BOIN3	<i>Bowlesia incana</i>	0-1	-
	yellow tackstem	CAPA7	<i>Calycoseris parryi</i>	0-1	-

#### Shrub/Vine

6	<b>Dominant shrubs</b>			140-336	
	creosote bush	LATR2	<i>Larrea tridentata</i>	112-224	-
	whitethorn acacia	ACCO2	<i>Acacia constricta</i>	22-112	-
	catclaw acacia	ACGR	<i>Acacia greggii</i>	1-28	-
	ocotillo	FOSP2	<i>Fouquieria splendens</i>	0-22	-
7	<b>Miscellaneous shrubs</b>			0-34	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	0-22	-
	Wright's beebrush	ALWR	<i>Aloysia wrightii</i>	0-11	-
	cattle saltbush	ATPO	<i>Atriplex polycarpa</i>	0-6	-

	longleaf jointfir	EPTR	<i>Ephedra trifurca</i>	0-6	-
	Berlandier's wolfberry	LYBE	<i>Lycium berlandieri</i>	0-6	-
	western honey mesquite	PRGLT	<i>Prosopis glandulosa var. torreyana</i>	0-2	-
	Warnock's snakewood	COWA	<i>Condalia warnockii</i>	0-2	-
	American tarwort	FLCE	<i>Flourensia cernua</i>	0-1	-
	crown of thorns	KOSP	<i>Koeberlinia spinosa</i>	0-1	-
	lotebush	ZIOB	<i>Ziziphus obtusifolia</i>	0-1	-
	pale desert-thorn	LYPA	<i>Lycium pallidum</i>	0-1	-
8	<b>Half shrubs</b>			11-90	
	brittlebush	ENFA	<i>Encelia farinosa</i>	1-28	-
	Parish's goldeneye	VIPA14	<i>Viguiera parishii</i>	0-22	-
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	1-17	-
	triangle bur ragweed	AMDE4	<i>Ambrosia deltoidea</i>	0-17	-
	rayless goldenhead	ACSP	<i>Acamptopappus sphaerocephalus</i>	0-11	-
	desert zinnia	ZIAC	<i>Zinnia acerosa</i>	1-11	-
	mariola	PAIN2	<i>Parthenium incanum</i>	0-11	-
	whitestem paperflower	PSCO2	<i>Psilostrophe cooperi</i>	1-11	-
	pricklyleaf dogweed	THAC	<i>Thymophylla acerosa</i>	1-6	-
	littleleaf ratany	KRER	<i>Krameria erecta</i>	1-6	-
	rough menodora	MESC	<i>Menodora scabra</i>	1-6	-
	white ratany	KRGR	<i>Krameria grayi</i>	0-1	-
	burrobush	AMDU2	<i>Ambrosia dumosa</i>	0-1	-
	threadleaf snakeweed	GUMI	<i>Gutierrezia microcephala</i>	0-1	-
9	<b>Succulents</b>			1-11	
	jumping cholla	CYFU10	<i>Cylindropuntia fulgida</i>	0-17	-
	cactus apple	OPEN3	<i>Opuntia engelmannii</i>	0-17	-
	staghorn cholla	CYVE3	<i>Cylindropuntia versicolor</i>	0-11	-
	saguaro	CAG10	<i>Carnegiea gigantea</i>	0-6	-
	buck-horn cholla	CYAC8	<i>Cylindropuntia acanthocarpa</i>	0-6	-
	teddybear cholla	CYBI9	<i>Cylindropuntia bigelovii</i>	0-6	-
	tulip pricklypear	OPPH	<i>Opuntia phaeacantha</i>	0-6	-
	purple pricklypear	OPMA8	<i>Opuntia macrocentra</i>	0-2	-
	Christmas cactus	CYLE8	<i>Cylindropuntia leptocaulis</i>	0-2	-
	walkingstick cactus	CYSP8	<i>Cylindropuntia spinosior</i>	0-1	-
	Engelmann's hedgehog cactus	ECEN	<i>Echinocereus engelmannii</i>	0-1	-
	redspine fishhook cactus	ECER2	<i>Echinomastus erectocentrus</i>	0-1	-
	pinkflower hedgehog cactus	ECFA	<i>Echinocereus fasciculatus</i>	0-1	-
	candy barrelcactus	FEWI	<i>Ferocactus wislizeni</i>	0-1	-
	devil's cholla	GRKU	<i>Grusonia kunzei</i>	0-1	-
	Graham's nipple cactus	MAGR9	<i>Mammillaria grahamii</i>	0-1	-
	nightblooming cereus	PEGR3	<i>Peniocereus greggii</i>	0-1	-

	banana yucca	YUBA	<i>Yucca baccata</i>	0–1	–
	soaptree yucca	YUEL	<i>Yucca elata</i>	0–1	–
<b>Tree</b>					
10	<b>Trees</b>			11–112	
	yellow paloverde	PAMI5	<i>Parkinsonia microphylla</i>	11–112	–
	velvet mesquite	PRVE	<i>Prosopis velutina</i>	0–11	–

## Animal community

This site offers little in the way of forage for livestock. Areas of threeawn, muhly and tridens are grazed on slopes less than 45%. Annual grasses and forbs offer limited grazing in wet winters. High concentrations of soluble gypsum in runoff water that is collected by stock ponds can cause laxative effects in livestock.

Wildlife on this site is limited to small mammals and birds and their associated predators. In areas where the site is adjacent to large stream bottoms, like the San Pedro river, it can be a forage area for mammals like mule deer and javalina.

## Hydrological functions

Loamy and silty textured soils and steep slopes make this site a good producer of runoff. High concentrations of soluble gypsum in the soils can cause piping, rilling and gullies to form with heavy rainfall.

## Recreational uses

Hunting, horseback riding, hiking, photography, bird watching.

## Wood products

Some mesquite, catclaw and paloverde for camp and branding fires.

## Other products

Gypsum is mined in some areas for use in making sheet rock.

## Type locality

Location 1: Pinal County, AZ	
Township/Range/Section	T5S R17E S15
General legal description	Old Mary Cluff Ranch on the Mineral Strip of the San Carlos Apache Nation.
Location 2: Pinal County, AZ	
Township/Range/Section	T6S R16E S23
General legal description	Old PZ Ranch, Now Becky Stambaugh ranch

## 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):**  
\_\_\_\_\_
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):**
- 

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:**
-