

Ecological site R040XB204AZ Clayey Upland 7"-10" p.z.

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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): 040X–Sonoran Basin and Range

AZ 40.2 - Middle Sonoran Desert

Elevations range from 1200 to 2000 feet and precipitation averages 7 to 10 inches per year. Vegetation includes saguaro, palo verde, creosotebush, triangle bursage, brittlebush, prickly pear, cholla, desert saltbush, wolfberry bush muhly, threeawns, and big galleta. The soil temperature regime is hyperthermic 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.

Table 1. Dominant plant species

Tree	(1) Parkinsonia florida (2) Parkinsonia microphylla
Shrub	(1) Ambrosia deltoidea (2) Lycium berlandieri

Physiographic features

This site occurs on relatively flat fan terraces and mesa tops, mostly associated with basalt bedrock types. The site has cracking clay soils with high shrink-swell capability. Slopes typically range from 1 to 10 percent. In the historic climax plant community, the site is dominated by tobosa.

Table 2. Representative physiographic features

Landforms	(1) Fan (2) Terrace (3) Mesa
Elevation	335–610 m
Slope	1–10%

Climatic features

Precipitation in the sub-resource area ranges from 7 to 10 inches. Elevations range from 900 to 2050 feet. Wintersummer rainfall ratios range from 40% to 60% in the southern part along the international boundary, to 60% to 40% in the central and northern parts of the sub-resource area. As one moves from east to west in this resource area rains become more unpredictable and variable with Coefficients of Variation of annual rainfall equal to 38% at Florence and 46% at Aguila. Summer rains fall July- September, originate in the Gulf of Mexico, and are convective, usually brief, intense thunderstorms. Summer precipitation is extremely erratic and undependable in this area. Cool season moisture tends to be frontal, originates in the Pacific and Gulf of California, and falls in widespread storms with long duration and low intensity. This is the dependable moisture supply for vegetation in the area. Snow is very rare and usually melts on contact. May-June is the driest time of the year. Humidity is very low.

Winter temperatures are very mild with very few days recording freezing for short periods of time. Summertime temperatures are hot to very hot with many days in June-July exceeding 105 degrees F. Frost-free days range from 280 at stations in major river valleys with cold air drainage to 320 to 350 days at upland stations.

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)	350 days
Freeze-free period (average)	0 days
Precipitation total (average)	254 mm

Influencing water features

Soil features

These are old soils formed in clay rich alluvium from basaltic origin. They are moderately deep and have high shrink-swell potential. They crack and churn with wetting and drying. Plant-soil relationships are good. The soil surface is clay or heavy clay loam textured, over a calcic horizon, duripan, or bedrock at moderate depths. In some areas there is a thin lighter textured surface less than 3 inches thick.

Soils mapped on this site include: in

SSA-645 Aguila-Carefree area MU's Carefree-12, Beardsley & Carefree-13, Contine-23 & Mohall-79;

SSA-651 Central Maricopa County MU's Glenbar-Gv & Mohall-Ms;

SSA-659 Western Pinal County MU's Contine-10 & Saminiego-41.

Table 4. Representative soil features

Parent material	(1) Alluvium–basalt
Surface texture	(1) Gravelly loam(2) Very gravelly clay loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Moderately slow to slow
Soil depth	102–152 cm
Surface fragment cover <=3"	1–45%
Surface fragment cover >3"	0–5%
Available water capacity (0-101.6cm)	8.13–22.86 cm
Calcium carbonate equivalent (0-101.6cm)	5–30%
Electrical conductivity (0-101.6cm)	0 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	7.4–8.4
Subsurface fragment volume <=3" (Depth not specified)	1–45%
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 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 fire, grazing, 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 amount shown for 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 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 Historical Climax Plant Community

Community 1.1 Historical Climax Plant Community

The potential plant community on this site is a mixture of perennial and annual grasses and forbs with a scattering of shrubs and cacti. The aspect is open grassland. 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.

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	303	1	381
Forb	50	-	123
Shrub/Vine	50	-	101
Total	403	-	605

Additional community tables

Table 6. Community 1.1 plant community composition

Grae	· c/Graceliko	-			
1	Summer Native Domina	t Poronnial	Colonizing Mid Gr	224 202	
1				224-303	
0	lobosagrass	PLIMU3	Pieuraphis mulica	224-303	-
Ζ	hin nellete			22-50	
	big galieta	PLRI3	Pieuraphis rigida	0-17	
	purple threeawn	ARPU9	Aristida purpurea	0-6	-
	Parish's threeawn	ARPUP5	Arıstıda purpurea var. parıshii	0–3	
	Wright's threeawn	ARPUW	Aristida purpurea var. wrightii	0–3	-
	spidergrass	ARTE3	Aristida ternipes	0–2	-
	spidergrass	ARTEG	Aristida ternipes var. gentilis	0–2	_
	curly-mesquite	HIBE	Hilaria belangeri	0–2	_
	bush muhly	MUPO2	Muhlenbergia porteri	0–1	_
	low woollygrass	DAPU7	Dasyochloa pulchella	0–1	
3				22–73	
	sixweeks fescue	VUOC	Vulpia octoflora	0–11	-
	sixweeks threeawn	ARAD	Aristida adscensionis	0–11	_
	prairie threeawn	AROL	Aristida oligantha	0–11	_
	needle grama	BOAR	Bouteloua aristidoides	0–11	-
	sixweeks grama	BOBA2	Bouteloua barbata	0–11	-
	Rothrock's grama	BORO2	Bouteloua rothrockii	0–6	_
	Eastwood fescue	VUMIC	Vulpia microstachys var. ciliata	0–6	_
	Pacific fescue	VUMIP	Vulpia microstachys var. pauciflora	0–6	_
	Arizona brome	BRAR4	Bromus arizonicus	0–1	_
	feather fingergrass	CHVI4	Chloris virgata	0–1	_
	desert lovegrass	ERPEM	Eragrostis pectinacea var. miserrima	0–1	_
	tufted lovegrass	ERPEP2	Eragrostis pectinacea var. pectinacea	0–1	-
	bearded sprangletop	LEFUF	Leptochloa fusca ssp. fascicularis	0–1	_
	mucronate sprangletop	LEPA6	Leptochloa panicea	0–1	-
	sticky sprangletop	LEVI5	Leptochloa viscida	0–1	_
	delicate muhly	MUFR	Muhlenbergia fragilis	0–1	_
	littleseed muhly	MUMI	Muhlenbergia microsperma	0–1	_
	Bigelow's bluegrass	POBI	Poa bigelovii	0–1	_
	Arizona signalgrass	URAR	Urochloa arizonica	0–1	_
4				6–22	
	Alga	2ALGA	Alga	2–11	-
	Lichen	2LICHN	Lichen	2_6	_
	Moss	2MOSS	Moss	1_3	_
	Fungus	2FUNGI	Fungus	1_2	_
Forh			, unguo	172	
5	,			22 50	
5		\		06-22	

	dwarf desertpeony	ACNA2	Acourtia nana	2–6	_
	bluedicks	DICA14	Dichelostemma capitatum	2–6	_
	Indian rushpea	HOGL2	Hoffmannseggia glauca	2–6	_
	desert globemallow	SPAM2	Sphaeralcea ambigua	2–6	_
	globemallow	SPHAE	Sphaeralcea	2–6	_
6	Native Occasional Forbs	•		22–73	
	common fiddleneck	AMMEI2	Amsinckia menziesii var. intermedia	0–11	_
	desert Indianwheat	PLOV	Plantago ovata	0–11	-
	redseed plantain	PLRH	Plantago rhodosperma	0–11	-
	bristly fiddleneck	AMTE3	Amsinckia tessellata	0–11	-
	western tansymustard	DEPI	Descurainia pinnata	0–6	_
	evening primrose	OENOT	Oenothera	0–6	_
	combseed	PECTO	Pectocarya	0–6	_
	manybristle chinchweed	PEPA2	Pectis papposa	0–1	_
	phacelia	PHACE	Phacelia	0–1	-
	lineleaf whitepuff	OLLI	Oligomeris linifolia	0–1	_
	Florida pellitory	PAFL3	Parietaria floridana	0–1	_
	touristplant	DIWI2	Dimorphocarpa wislizeni	0–1	_
	flatcrown buckwheat	ERDE6	Eriogonum deflexum	0–1	_
	miniature woollystar	ERDI2	Eriastrum diffusum	0–1	_
	spreading fleabane	ERDI4	Erigeron divergens	0–1	_
	fleabane	ERIGE2	Erigeron	0–1	_
	woolly sunflower	ERIOP2	Eriophyllum	0–1	_
	Texas stork's bill	ERTE13	Erodium texanum	0–1	_
	California poppy	ESCAM	Eschscholzia californica ssp. mexicana	0–1	_
	pygmy poppy	ESMI	Eschscholzia minutiflora	0–1	-
	hairy desertsunflower	GECA2	Geraea canescens	0–1	-
	gilia	GILIA	Gilia	0–1	-
	Arizona poppy	KAGR	Kallstroemia grandiflora	0–1	-
	California goldfields	LACA7	Lasthenia californica	0–1	-
	Gordon's bladderpod	LEGO	Lesquerella gordonii	0–1	-
	shaggyfruit pepperweed	LELA	Lepidium lasiocarpum	0–1	-
	pepperweed	LEPID	Lepidium	0–1	-
	Bigelow's linanthus	LIBI2	Linanthus bigelovii	0–1	-
	flax	LINUM	Linum	0–1	-
	coastal bird's-foot trefoil	LOSA	Lotus salsuginosus	0–1	-
	Arizona lupine	LUAR4	Lupinus arizonicus	0–1	
	Coulter's lupine	LUSP2	Lupinus sparsiflorus	0–1	
	hollowleaf annual lupine	LUSU3	Lupinus succulentus	0–1	
	disc mayweed	MADI6	Matricaria discoidea	0–1	
	Nuttall's povertyweed	MONU	Monolepis nuttalliana	0–1	_
	bristly nama	NAHI	Nama hispidum	0–1	

	tuber anemone	ANTU	Anemone tuberosa	0–1	—
	milkweed	ASCLE	Asclepias	0–1	-
	milkvetch	ASTRA	Astragalus	0–1	-
	Coulter's spiderling	BOCO2	Boerhavia coulteri	0–1	-
	hoary bowlesia	BOIN3	Bowlesia incana	0–1	_
	exserted Indian paintbrush	CAEXE	Castilleja exserta ssp. exserta	0–1	_
	yellow tackstem	CAPA7	Calycoseris parryi	0–1	_
	white tackstem	CAWR	Calycoseris wrightii	0–1	_
	whitemargin sandmat	CHAL11	Chamaesyce albomarginata	0–1	_
	brittle spineflower	CHBR	Chorizanthe brevicornu	0–1	_
	New Mexico thistle	CINE	Cirsium neomexicanum	0–1	_
	sand pygmyweed	CRCO34	Crassula connata	0–1	_
	cryptantha	CRYPT	Cryptantha	0–1	_
	hairy prairie clover	DAMO	Dalea mollis	0–1	_
	American wild carrot	DAPU3	Daucus pusillus	0–1	_
	New Mexico plumeseed	RANE	Rafinesquia neomexicana	0–1	_
	sleepy silene	SIAN2	Silene antirrhina	0–1	_
	Coulter's globemallow	SPCO2	Sphaeralcea coulteri	0–1	_
	woollyhead neststraw	STMI2	Stylocline micropoides	0–1	_
	cutleaf thelypody	THLA	Thelypodium laciniatum	0–1	_
	woolly tidestromia	TILA2	Tidestromia lanuginosa	0–1	_
	carelessweed	AMPA	Amaranthus palmeri	0–1	_
	weakleaf bur ragweed	AMCO3	Ambrosia confertiflora	0–1	_
Shrub					
Sillub	/Vine				
7	/Vine			22–50	
7	/ Vine triangle bur ragweed	AMDE4	Ambrosia deltoidea	22–50 0–6	_
7	/Vine triangle bur ragweed creosote bush	AMDE4 LATR2	Ambrosia deltoidea Larrea tridentata	22–50 0–6 0–6	
7	/vine triangle bur ragweed creosote bush Berlandier's wolfberry	AMDE4 LATR2 LYBE	Ambrosia deltoidea Larrea tridentata Lycium berlandieri	22–50 0–6 0–2	
7	/vine triangle bur ragweed creosote bush Berlandier's wolfberry desert-thorn	AMDE4 LATR2 LYBE LYCIU	Ambrosia deltoidea Larrea tridentata Lycium berlandieri Lycium	22–50 0–6 0–2 0–2	-
7	/Vine triangle bur ragweed creosote bush Berlandier's wolfberry desert-thorn pale desert-thorn	AMDE4 LATR2 LYBE LYCIU LYPA	Ambrosia deltoidea Larrea tridentata Lycium berlandieri Lycium Lycium pallidum	22–50 0–6 0–2 0–2 0–2 0–2	
7	Vine triangle bur ragweed creosote bush Berlandier's wolfberry desert-thorn pale desert-thorn desert ironwood	AMDE4 LATR2 LYBE LYCIU LYPA OLTE	Ambrosia deltoidea Larrea tridentata Lycium berlandieri Lycium Lycium pallidum Olneya tesota	22–50 0–6 0–6 0–2 0–2 0–2 0–2 0–2	
7	Itriangle bur ragweed creosote bush Berlandier's wolfberry desert-thorn pale desert-thorn desert ironwood blue paloverde	AMDE4 LATR2 LYBE LYCIU LYPA OLTE PAFL6	Ambrosia deltoidea Larrea tridentata Lycium berlandieri Lycium Lycium pallidum Olneya tesota Parkinsonia florida	22–50 0–6 0–2 0–2 0–2 0–2 0–2 0–2	- - - - - - -
7	Vine triangle bur ragweed creosote bush Berlandier's wolfberry desert-thorn pale desert-thorn desert ironwood blue paloverde yellow paloverde	AMDE4 LATR2 LYBE LYCIU LYPA OLTE PAFL6 PAMI5	Ambrosia deltoidea Larrea tridentata Lycium berlandieri Lycium Lycium pallidum Olneya tesota Parkinsonia florida Parkinsonia microphylla	22–50 0–6 0–2 0–2 0–2 0–2 0–2 0–2 0–2	
	Vine triangle bur ragweed creosote bush Berlandier's wolfberry desert-thorn pale desert-thorn desert ironwood blue paloverde yellow paloverde velvet mesquite	AMDE4 LATR2 LYBE LYCIU LYPA OLTE PAFL6 PAMI5 PRVE	Ambrosia deltoidea Larrea tridentata Lycium berlandieri Lycium Lycium pallidum Olneya tesota Parkinsonia florida Parkinsonia microphylla Prosopis velutina	22–50 0–6 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2	- - - - - - - - - - -
	Vine triangle bur ragweed creosote bush Berlandier's wolfberry desert-thorn pale desert-thorn desert ironwood blue paloverde yellow paloverde velvet mesquite banana yucca	AMDE4 LATR2 LYBE LYCIU LYPA OLTE PAFL6 PAMI5 PRVE YUBA	Ambrosia deltoidea Larrea tridentata Lycium berlandieri Lycium Lycium pallidum Olneya tesota Parkinsonia florida Parkinsonia microphylla Prosopis velutina Yucca baccata	22–50 0–6 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2	- - - - - - - - - - - -
	Vine triangle bur ragweed creosote bush Berlandier's wolfberry desert-thorn pale desert-thorn desert ironwood blue paloverde yellow paloverde velvet mesquite banana yucca lotebush	AMDE4 LATR2 LYBE LYCIU LYPA OLTE PAFL6 PAMI5 PRVE YUBA ZIOB	Ambrosia deltoidea Larrea tridentata Lycium berlandieri Lycium Lycium pallidum Olneya tesota Parkinsonia florida Parkinsonia microphylla Prosopis velutina Yucca baccata Ziziphus obtusifolia	22–50 0–6 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2	- - - - - - - - - - - - -
	Vine triangle bur ragweed creosote bush Berlandier's wolfberry desert-thorn pale desert-thorn desert ironwood blue paloverde yellow paloverde velvet mesquite banana yucca lotebush whitethorn acacia	AMDE4 LATR2 LYBE LYCIU LYPA OLTE PAFL6 PAMI5 PRVE YUBA ZIOB ACCO2	Ambrosia deltoidea Larrea tridentata Lycium berlandieri Lycium Lycium pallidum Olneya tesota Parkinsonia florida Parkinsonia microphylla Prosopis velutina Yucca baccata Ziziphus obtusifolia Acacia constricta	22–50 0–6 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2	- - - - - - - - - - - - - -
	Vine triangle bur ragweed creosote bush Berlandier's wolfberry desert-thorn pale desert-thorn desert ironwood blue paloverde yellow paloverde velvet mesquite banana yucca lotebush whitethorn acacia catclaw acacia	AMDE4 LATR2 LYBE LYCIU LYPA OLTE PAFL6 PAMI5 PRVE YUBA ZIOB ACCO2 ACGR	Ambrosia deltoideaLarrea tridentataLycium berlandieriLyciumLycium pallidumOlneya tesotaParkinsonia floridaParkinsonia microphyllaProsopis velutinaYucca baccataZiziphus obtusifoliaAcacia constrictaAcacia greggii	22–50 0–6 0–6 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2	- - - - - - - - - - - - - - - - - -
	Itriangle bur ragweed creosote bush Berlandier's wolfberry desert-thorn pale desert-thorn desert ironwood blue paloverde yellow paloverde velvet mesquite banana yucca lotebush whitethorn acacia catclaw acacia	AMDE4 LATR2 LYBE LYCIU LYPA OLTE PAFL6 PAMI5 PRVE YUBA ZIOB ACCO2 ACGR	Ambrosia deltoideaLarrea tridentataLycium berlandieriLyciumLycium pallidumOlneya tesotaParkinsonia floridaParkinsonia microphyllaProsopis velutinaYucca baccataZiziphus obtusifoliaAcacia constrictaAcacia greggii	22–50 0–6 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2	- - - - - - - - - - - - - - -
7	Vine triangle bur ragweed creosote bush Berlandier's wolfberry desert-thorn pale desert-thorn desert ironwood blue paloverde yellow paloverde velvet mesquite banana yucca lotebush whitethorn acacia catclaw acacia	AMDE4 LATR2 LYBE LYCIU LYPA OLTE PAFL6 PAMI5 PRVE YUBA ZIOB ACCO2 ACGR	Ambrosia deltoidea Larrea tridentata Lycium berlandieri Lycium Lycium pallidum Olneya tesota Parkinsonia florida Parkinsonia microphylla Prosopis velutina Yucca baccata Ziziphus obtusifolia Acacia constricta Acacia greggii	22–50 0–6 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2	
	Vine triangle bur ragweed creosote bush Berlandier's wolfberry desert-thorn pale desert-thorn desert ironwood blue paloverde yellow paloverde yellow paloverde velvet mesquite banana yucca lotebush whitethorn acacia catclaw acacia dollarjoint pricklypear cactus apple	AMDE4 LATR2 LYBE LYCIU LYPA OLTE PAFL6 PAMI5 PRVE YUBA ZIOB ACCO2 ACGR OPCH OPEN3	Ambrosia deltoideaLarrea tridentataLycium berlandieriLyciumLycium pallidumOlneya tesotaParkinsonia floridaParkinsonia microphyllaProsopis velutinaYucca baccataZiziphus obtusifoliaAcacia constrictaAcacia greggiiOpuntia chloroticaOpuntia engelmannii	22–50 0–6 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2	
	Vine triangle bur ragweed creosote bush Berlandier's wolfberry desert-thorn pale desert-thorn desert ironwood blue paloverde yellow paloverde velvet mesquite banana yucca lotebush whitethorn acacia catclaw acacia dollarjoint pricklypear cactus apple candy barrelcactus	AMDE4 LATR2 LYBE LYCIU LYPA OLTE PAFL6 PAHI5 PRVE YUBA ZIOB ACCO2 ACGR OPCH OPEN3 FEWI	Ambrosia deltoideaLarrea tridentataLycium berlandieriLyciumLycium pallidumOlneya tesotaParkinsonia floridaParkinsonia microphyllaProsopis velutinaYucca baccataZiziphus obtusifoliaAcacia constrictaAcacia greggiiOpuntia chloroticaOpuntia engelmanniiFerocactus wislizeni	22–50 0–6 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2	
	Vine triangle bur ragweed creosote bush Berlandier's wolfberry desert-thorn pale desert-thorn desert ironwood blue paloverde yellow paloverde yellow paloverde velvet mesquite banana yucca lotebush whitethorn acacia catclaw acacia dollarjoint pricklypear cactus apple candy barrelcactus globe cactus	AMDE4 LATR2 LYBE LYCIU LYPA OLTE PAFL6 PAHI5 PRVE YUBA ZIOB ACCO2 ACGR ACCGR OPCH OPEN3 FEWI MAMMI	Ambrosia deltoideaLarrea tridentataLycium berlandieriLyciumLycium pallidumOlneya tesotaParkinsonia floridaParkinsonia microphyllaProsopis velutinaYucca baccataZiziphus obtusifoliaAcacia constrictaAcacia greggiiOpuntia chloroticaOpuntia engelmanniiFerocactus wislizeniMammillaria	22–50 0–6 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2 0–2	

cactus		

Animal community

Tobosa, the dominant forage species, is very unpalatable when cured and is best used when green (in either spring or summer growing season). It will grow year round with available moisture. Utilization in the growing season should not exceed 50%. The potential plant community on this site is deficient in digestible protein in the fall and winter. In wet winters, the production of annual grasses and forbs can provide for very high stocking rates through a March-May grazing season.

Water developments are very important to wildlife species on this site. Cover and diversity is lacking for the larger desert mammals like mule deer and Javalina, but the high production of spring annuals make this site an important springtime forage area for those species. This site is home to a variety of small mammals and their preditors.

Recreational uses

Recreation on this site includes hiking, backpacking, horse riding, and hunting. Due to hot summer temperatures, recreational activities are mostly limited to the fall through spring.

Wood products

No significant wood products are produced on this site.

Type locality

Location 1: Maricopa County, AZ			
Township/Range/Section T5N R2E S3			
General legal description Phoenix FO - Black Canyon Shooting Range			
Location 2: Pinal County, AZ			
Township/Range/Section T8S R2E S2			
General legal description Casa Grande FO - Top of Table Top Mounta			

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)	Dave Womack, Dan Robinett, Emilio Carrillo
Contact for lead author	NRCS Tucson Area Office
Date	03/07/2005
Approved by	S. Cassady
Approval date	

Indicators

- 1. Number and extent of rills: Rills are common and continuous in absence of high gravel cover.
- 2. Presence of water flow patterns: Water flow patterns are common, continuous, and occupy 15-20% of area.
- 3. Number and height of erosional pedestals or terracettes: Shrubs have symmetrical mounds caused by the actions of splash, erosion and rodent activity. There are no pedestals on rock or gravel fragments and no terracettes are present.
- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground): Bare ground is 10-60%. Expect low values in dry years.
- 5. Number of gullies and erosion associated with gullies: None.
- 6. Extent of wind scoured, blowouts and/or depositional areas: No evidence of soil movement by wind.
- 7. Amount of litter movement (describe size and distance expected to travel): Herbaceous litter can move by wind and water. Woody litter remains under shrub canopies.
- Soil surface (top few mm) resistance to erosion (stability values are averages most sites will show a range of values): Soil surface resistance to erosion is good under shrub canopies to moderate in interspaces due to crusts formed by raindrop impact.
- 9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness): Weak thir platy to granular to subgranular blocky; 5-7.5YRS5/6 dry, 5-7.5YR4/6 moist, to 16 inches thick.
- 10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: Canopy 15-25%. Herbaceous litter is present in some years and absent in others. Large shrubs with large coppice mounds with high infiltration rates. Subshrubs with small mounds with high infiltration rates. Mounds occyupy 15-30% of the surface and are evenly spaced over the area.
- 11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): None

foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):

Dominant: subshrubs = large shrubs & trees > winter annuals > summer annuals > perennial grasses and forbs > succulents > crytogams

Sub-dominant:

Other:

Additional:

13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): 0-50% canopy mortality on trees & shrubs, 90-100% mortality on perennial grasses.

14. Average percent litter cover (%) and depth (in): Herbaceous litter not persistant on the site.

- 15. Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annualproduction): 300 lbs/ac unfavorable precipitation; 450 lbs/ac normal precipitation; 1000 lbs/ac favorable precipitation
- 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: Sahara mustard (potential)

17. Perennial plant reproductive capability: Not impaired for shrubs, drought impaired for perennial grasses and forbs.