USDA Natural Resources Conservation Service

Ecological site R041XB213AZ
Sandy Wash 8-12" p.z.

Accessed: 05/21/2025

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.

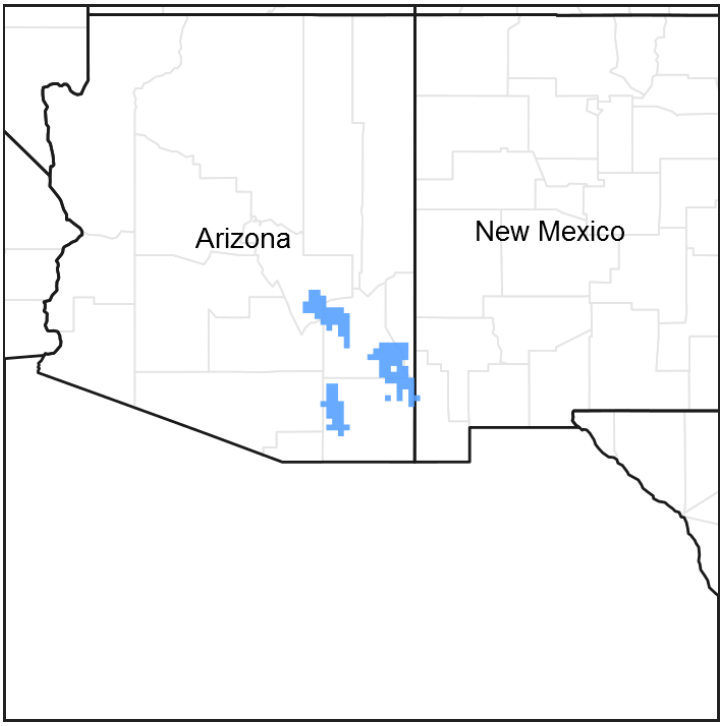

Figure 1. Mapped extent

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): 041X–Madrean Archipelago

AZ 41.2 – Chihuahuan – Sonoran Desert Shrubs

Elevations range from 2600 to 4000 feet and precipitation ranges from 8 to 12 inches per

year. Vegetation includes mesquite, palo verde, catclaw acacia, soaptree yucca, creosotebush, whitethorn, staghorn cholla, desert saltbush, Mormon tea, burroweed, snakeweed, tobosa, black grama, threeawns, bush muhly, dropseed, and burrograss. 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

R041XB207AZ	**Limy Slopes 8-12" p.z.**
R041XB208AZ	**Limy Upland 8-12" p.z.**
R041XB210AZ	**Loamy Upland 8-12" p.z.**
R041XB215AZ	**Sandy Loam Upland 8-12" p.z.**

Similar sites

R040XA115AZ	**Sandy Wash 10"-13" p.z.**
R041XC316AZ	**Sandy Wash 12-16" p.z.**

Table 1. Dominant plant species

Tree	(1) *Prosopis* (2) *Acacia greggii*
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs in the lowest elevations of the Madrean Basin and Range province in southeastern Arizona. It occurs on floodplains, low stream terraces, in canyons and on alluvial fans. It benefits on a regular basis from extra moisture received as over-bank flooding of channels and as runoff from adjacent upland areas. It does not benefit from shallow water tables.

Table 2. Representative physiographic features

Landforms	(1) Flood plain (2) Stream terrace (3) Canyon

Flooding duration	Very brief (4 to 48 hours) to brief (2 to 7 days)
Flooding frequency	Occasional to frequent
Ponding duration	Very brief (4 to 48 hours)
Ponding frequency	None to rare
Elevation	792–1,219 m
Slope	0–3%
Aspect	Aspect is not a significant factor

Climatic features

Precipitation ranges from 8-12 inches annually. More than half falls during Jul-Sep in brief, but often heavy, thunderstorms. The rest of the moisture comes as light rain or snow that falls slowly for a day or more, but rarely lasts more than a day. May and June are normally the driest months. Humidity is generally very low.

Temperatures are mild throughout most of the year. Freezing temperatures are common at night Dec-Feb; brief 0 F may be observed some nights. During June, July & August, some days may exceed 100 F.

In years of average or greater winter precipitation, annual grasses and forbs occur abundantly in the interspaces.

Table 3. Representative climatic features

Frost-free period (average)	240 days
Freeze-free period (average)	0 days
Precipitation total (average)	0 mm

Influencing water features

There are no water features associated with this site.

Soil features

These are very young soils on gravelly and sandy alluvium of mixed origin. They are deep and well drained. Surface textures range from gravelly sand to loamy fine sand. Sub-soils are sandy loam and loamy sands with various amounts of gravel and/or cobbles. Although course textures make for low available water holding capacities, plant-soil moisture relationships are very good due to extra moisture the site receives. Soil surfaces, outside of channel areas, are light colored.

Soils mapped on this site include: SSA-662 Safford area MU's AlB AmA AnA ApB & AtA Anthony, AtA Gila, AuA AvA AvB AwA & AzA Arizo, Br & Bt Brazito, Cm & Co Comoro, Cn Comoro Mottled Variant, Gv Gravelly alluvial land, and Ma & Mr Maricopa; SSA-664 San Simon area MU's 1 Anthony and 2 Arizo; SSA-666 Cochise county Northwest part MU's 3 Maricopa and 65 Queencreek; SSA-671 Cochise county Douglas-Tombstone part MU's 2 Maricopa and 3 Arizo family; SSA-675 San Carlos IR area MU's 4 & 5 Anthony, 60 Queencreek & Brazito.

Table 4. Representative soil features

Surface texture	(1) Gravelly sandy loam (2) Gravelly loamy fine sand (3) Very gravelly loamy sand
Family particle size	(1) Sandy
Drainage class	Somewhat excessively drained to well drained
Permeability class	Rapid to moderately rapid
Soil depth	152 cm
Surface fragment cover <=3"	5–35%
Surface fragment cover >3"	0–10%
Available water capacity (0-101.6cm)	6.1–15.24 cm
Calcium carbonate equivalent (0-101.6cm)	0–5%
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)	0–45%
Subsurface fragment volume >3" (Depth not specified)	0–10%

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 each 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 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.
The potential plant community on this site is a diverse mixture of native perennial grasses, shrubs, vines, trees and annual forbs and grasses. Smaller drainage-ways are dominated by desert trees like mesquite, desert willow and catclaw acacia. Larger washes and canyons will have a higher percentage of broadleaf trees like ash, walnut and netleaf hackberry.

State and transition model

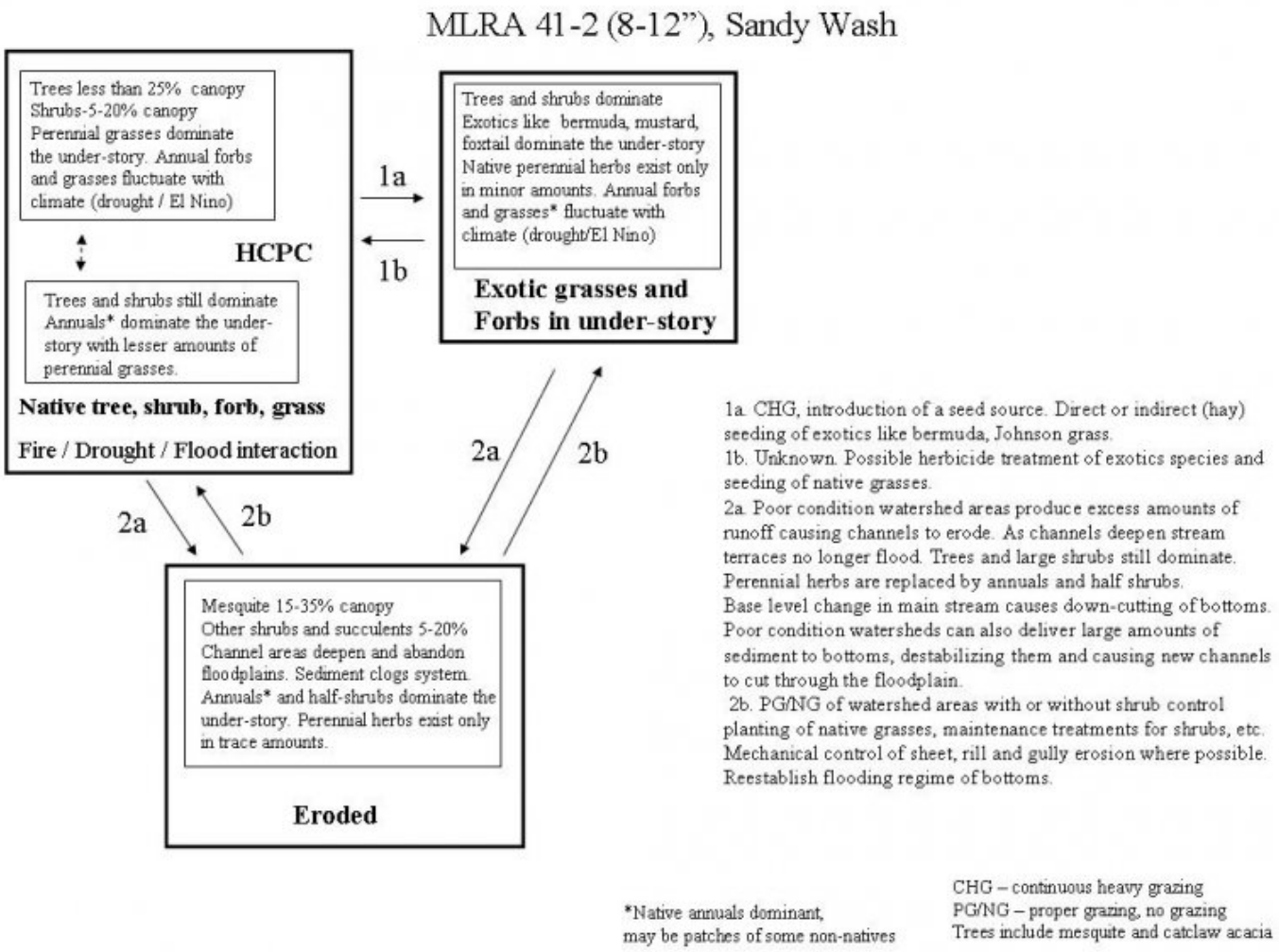

Figure 4. State and Transition, Sandy Wash 8-12" pz.

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

The potential plant community of this site is a diverse mixture of perennial grasses, forbs, vines, trees and shrubs. Annual forbs and grasses of both the warm and cool seasons are well represented in the plant community. The major grass, forb and shrub species on the site are well dispersed throughout the plant community. Tree canopy cover ranges from 10 to 20% in the potential plant community. With continuous heavy grazing, palatable mid-grasses decline and species such as Rothrock grama and annuals increase. With severe deterioration, woody species increase to dominate the plant community. Mesquite, with lesser amounts of catclaw acacia and desert willow, form the over-story and burroweed, jimmyweed and snakeweed dominates the under-story. Active channel areas are dominated by shrubs like burrobrush and desert broom. The site is very susceptible to gully, channel and bank erosion, especially where it has deteriorated to shrubby conditions and where depleted watershed areas are contributing larger than normal

amounts of runoff. The lowering of the base level of the axial stream of a watershed will eventually cause channeling of the site. Deeply channeled areas will no longer flood the stream terraces of this site. Due to deep, course textured soils and extra moisture received as flooding, trees grow to maximum size on the site. This site can produce effective herbaceous covers with tree canopies up to 20%.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	460	1121	1681
Tree	336	560	897
Forb	45	112	616
Shrub/Vine	84	224	336
Total	**925**	**2017**	**3530**

Figure 6. Plant community growth curve (percent production by month). AZ4121, 41.2 7-12" p.z. all sites. Growth begins in the late winter to early spring, semi-dormancy occurs during the May through June drought, most growth occurs during the summer rainy season..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	5	5	10	0	0	25	30	15	5	5	0

State 2
Understory exotics

Community 2.1
Understory exotics

This state exists where exotic perennial and annual grasses and forbs have invaded from adjacent areas to become dominant in the under-story. These species include bermuda grass, red brome, foxtail barley, barnyard grass, London rocket, filaree, tumbleweed, Sahara mustard and malva. These species usually have little effect on the over-story tree and large shrub component of the plant community. They do, however, greatly limit the diversity of native grasses and forbs.

State 3
Eroded

Community 3.1
Eroded

This state occurs where poor condition watersheds yield excessive amounts of runoff

causing erosion of the channel areas. As channels deepen, the low stream terraces no longer receive extra water from flooding and stream-bank erosion enlarges the area of river-wash. Down-cutting of major stream systems can contribute to this situation in areas where sandy bottoms are tributary to the main stream. The woody component of the plant community usually remains intact but the herbaceous component becomes dominated by half-shrubs and annuals. Poor condition watersheds can also destabilize the sandy bottom site by adding more sediment than the system can handle, causing channels to move and cut through new areas on the floodplain.

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	**Dominant mid grasses**			336–673	
	sideoats grama	BOCU	*Bouteloua curtipendula*	112–336	–
	green sprangletop	LEDU	*Leptochloa dubia*	28–224	–
	big sacaton	SPWR2	*Sporobolus wrightii*	0–224	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	17–112	–
	spike dropseed	SPCO4	*Sporobolus contractus*	28–112	–
	cane bluestem	BOBA3	*Bothriochloa barbinodis*	6–112	–
2	**Suffrutescent grasses**			56–336	
	bush muhly	MUPO2	*Muhlenbergia porteri*	56–224	–
	Arizona cottontop	DICA8	*Digitaria californica*	17–168	–
	Santa Rita threeawn	ARCAG	*Aristida californica var. glabrata*	0–56	–
3	**Miscellaneous grasses**			56–112	
	spidergrass	ARTE3	*Aristida ternipes*	22–56	–
	spidergrass	ARTEG	*Aristida ternipes var. gentilis*	11–56	–
	tanglehead	HECO10	*Heteropogon contortus*	0–56	–
	deergrass	MURI2	*Muhlenbergia rigens*	0–56	–
	whiplash pappusgrass	PAVA2	*Pappophorum vaginatum*	0–56	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	0–28	–
	squirreltail	ELELE	*Elymus elymoides ssp. elymoides*	6–28	–

	black grama	BOER4	*Bouteloua eriopoda*	0–28	–
	blue grama	BOGR2	*Bouteloua gracilis*	0–28	–
	hairy grama	BOHI2	*Bouteloua hirsuta*	0–28	–
	Rothrock's grama	BORO2	*Bouteloua rothrockii*	0–28	–
	Parish's threeawn	ARPUP5	*Aristida purpurea var. parishii*	0–28	–
	Orcutt's threeawn	ARSCO	*Aristida schiedeana var. orcuttiana*	0–28	–
	vine mesquite	PAOB	*Panicum obtusum*	0–28	–
	purple threeawn	ARPU9	*Aristida purpurea*	0–17	–
	plains lovegrass	ERIN	*Eragrostis intermedia*	0–17	–
	alkali sacaton	SPAI	*Sporobolus airoides*	0–17	–
	mesa dropseed	SPFL2	*Sporobolus flexuosus*	0–11	–
	poverty threeawn	ARDI5	*Aristida divaricata*	0–11	–
	Fendler threeawn	ARPUL	*Aristida purpurea var. longiseta*	0–6	–
	blue threeawn	ARPUN	*Aristida purpurea var. nealleyi*	0–6	–
	sedge	CAREX	*Carex*	0–6	–
	low woollygrass	DAPU7	*Dasyochloa pulchella*	0–6	–
	nineawn pappusgrass	ENDE	*Enneapogon desvauxii*	0–6	–
	bulb panicgrass	PABU	*Panicum bulbosum*	0–6	–
	knotgrass	PADI6	*Paspalum distichum*	0–6	–
4	**Annual grasses**			11–448	
	prairie threeawn	AROL	*Aristida oligantha*	1–112	–
	Parry's grama	BOPA2	*Bouteloua parryi*	0–112	–
	feather fingergrass	CHVI4	*Chloris virgata*	1–112	–
	tapertip cupgrass	ERACA	*Eriochloa acuminata var. acuminata*	0–56	–
	mucronate sprangeltop	LEPAB	*Leptochloa panicea ssp. brachiata*	0–56	–
	Mexican panicgrass	PAHI5	*Panicum hirticaule*	0–56	–
	sixweeks fescue	VUOC	*Vulpia octoflora*	1–56	–
	Arizona brome	BRAR4	*Bromus arizonicus*	0–56	–
	needle grama	BOAR	*Bouteloua aristidoides*	1–56	–
	Bigelow's	POBI	*Poa bigelovii*	0–28	

	Bigelow's bluegrass	POBI	*Poa bigelovii*	0–28	–
	Arizona signalgrass	URAR	*Urochloa arizonica*	0–28	–
	Arizona barley	HOAR	*Hordeum arizonicum*	0–28	–
	Mexican sprangletop	LEFUU	*Leptochloa fusca ssp. uninervia*	0–28	–
	desert lovegrass	ERPEM	*Eragrostis pectinacea var. miserrima*	0–28	–
	sixweeks threeawn	ARAD	*Aristida adscensionis*	0–22	–
	sixweeks grama	BOBA2	*Bouteloua barbata*	0–11	–
	tufted lovegrass	ERPEP2	*Eragrostis pectinacea var. pectinacea*	0–11	–
	sweet tanglehead	HEME	*Heteropogon melanocarpus*	0–11	–
	Mexican lovegrass	ERME	*Eragrostis mexicana*	0–11	–
	delicate muhly	MUFR	*Muhlenbergia fragilis*	0–11	–
	littleseed muhly	MUMI	*Muhlenbergia microsperma*	0–11	–
	witchgrass	PACA6	*Panicum capillare*	0–11	–
Forb					
5	**Perennial forbs**			22–112	
	weakleaf bur ragweed	AMCO3	*Ambrosia confertiflora*	1–39	–
	redstar	IPCO3	*Ipomoea coccinea*	0–34	–
	canaigre dock	RUHY	*Rumex hymenosepalus*	6–34	–
	Lemmon's ragwort	SELE8	*Senecio lemmonii*	1–28	–
	desert globemallow	SPAM2	*Sphaeralcea ambigua*	1–28	–
	gooseberryleaf globemallow	SPGR2	*Sphaeralcea grossulariifolia*	0–28	–
	brownplume wirelettuce	STPA4	*Stephanomeria pauciflora*	1–28	–
	Trans-Pecos thimblehead	HYWI	*Hymenothrix wislizeni*	1–28	–
	scarlet spiderling	BOCO	*Boerhavia coccinea*	1–28	–
	climbing wartclub	BOSC	*Boerhavia scandens*	1–28	–
	Thurber's cotton	GOTH	*Gossypium thurberi*	0–28	–
	[illegible]	[illegible]	[illegible]	1–17	

	fingerleaf gourd	CUDI	*Cucurbita digitata*	1–17	–
	coyote gourd	CUPA	*Cucurbita palmata*	0–17	–
	brownfoot	ACWR5	*Acourtia wrightii*	0–17	–
	Gila manroot	MAGI	*Marah gilensis*	0–17	–
	lacy tansyaster	MAPI	*Machaeranthera pinnatifida*	1–17	–
	desert tobacco	NIOB	*Nicotiana obtusifolia*	0–11	–
	variableleaf bushbean	MAGI2	*Macroptilium gibbosifolium*	0–11	–
	Parry's beardtongue	PEPA24	*Penstemon parryi*	0–11	–
	mesquite mistletoe	PHCA8	*Phoradendron californicum*	1–11	–
	hairy fournwort	TENE	*Tetramerium nervosum*	0–11	–
	perennial rockcress	ARPE2	*Arabis perennans*	0–11	–
	Arizona foldwing	DIRE4	*Dicliptera resupinata*	0–11	–
	spreading fleabane	ERDI4	*Erigeron divergens*	0–11	–
	fringed twinevine	FUCYC	*Funastrum cynanchoides ssp. cynanchoides*	0–11	–
	southwestern mock vervain	GLGO	*Glandularia gooddingii*	0–11	–
	small matweed	GUDE	*Guilleminea densa*	0–6	–
	Lewis flax	LILE3	*Linum lewisii*	0–6	–
	Wright's deervetch	LOWR	*Lotus wrightii*	0–6	–
	Coulter's lyrepod	LYCO4	*Lyrocarpa coulteri*	0–6	–
	roving sailor	MAAN9	*Maurandella antirrhiniflora*	0–6	–
	wild dwarf morning-glory	EVAR	*Evolvulus arizonicus*	0–6	–
	Cooley's bundleflower	DECO2	*Desmanthus cooleyi*	0–6	–
	Missouri gourd	CUFO	*Cucurbita foetidissima*	0–6	–
	desert marigold	BAMU	*Baileya multiradiata*	0–6	–
	Arizona wrightwort	CAAR7	*Carlowrightia arizonica*	0–6	–
	skeletonweed	CHAET	*Chaetadelpha*	0–6	–
	rose heath	CHER2	*Chaetopappa ericoides*	0–6	–
	whitemouth	COER	*Commelina erecta*	0–6	–

	whitemouth dayflower	COER	*Commelina erecta*	0–6	–
	trailing windmills	ALIN	*Allionia incarnata*	0–6	–
	tarragon	ARDR4	*Artemisia dracunculus*	0–6	–
	white sagebrush	ARLU	*Artemisia ludoviciana*	0–6	–
	American vetch	VIAM	*Vicia americana*	0–6	–
	Louisiana vetch	VILU	*Vicia ludoviciana*	0–6	–
	slimleaf bean	PHAN3	*Phaseolus angustissimus*	0–6	–
	Wright's cudweed	PSCAC2	*Pseudognaphalium canescens ssp. canescens*	0–6	–
	Colorado Desert mistletoe	PHMA18	*Phoradendron macrophyllum*	0–6	–
	tufted evening primrose	OECA10	*Oenothera caespitosa*	0–6	–
	sweet four o'clock	MILO2	*Mirabilis longiflora*	0–6	–
	Coulter's wrinklefruit	TECO	*Tetraclea coulteri*	0–6	–
	ragged nettlespurge	JAMA	*Jatropha macrorhiza*	0–2	–
	velvetseed milkwort	POOB	*Polygala obscura*	0–2	–
	shrubby purslane	POSU3	*Portulaca suffrutescens*	0–2	–
	ivyleaf groundcherry	PHHE4	*Physalis hederifolia*	0–2	–
	jewels of Opar	TAPA2	*Talinum paniculatum*	0–2	–
	New Mexico fanpetals	SINE	*Sida neomexicana*	0–2	–
	silverleaf nightshade	SOEL	*Solanum elaeagnifolium*	0–2	–
	twinleaf senna	SEBA3	*Senna bauhinioides*	0–2	–
	New Mexico silverbush	ARNE2	*Argythamnia neomexicana*	0–2	–
	Palmer's Indian mallow	ABPA	*Abutilon palmeri*	0–2	–
	dwarf desertpeony	ACNA2	*Acourtia nana*	0–2	–
	lyreleaf greeneyes	BELY	*Berlandiera lyrata*	0–2	–
	Watson's dutchman's pipe	ARWA	*Aristolochia watsonii*	0–2	–

	desert larkspur	DEPA	*Delphinium parishii*	0–2	–
6	**Annual forbs**			22–504	
	carelessweed	AMPA	*Amaranthus palmeri*	1–112	–
	bristly fiddleneck	AMTE3	*Amsinckia tessellata*	1–112	–
	western tansymustard	DEPI	*Descurainia pinnata*	1–56	–
	goosefoot	CHENO	*Chenopodium*	1–56	–
	longleaf false goldeneye	HELOA2	*Heliomeris longifolia var. annua*	1–56	–
	longleaf false goldeneye	HELOL	*Heliomeris longifolia var. longifolia*	0–56	–
	camphorweed	HESU3	*Heterotheca subaxillaris*	0–56	–
	Thurber's morning-glory	IPTH	*Ipomoea thurberi*	0–56	–
	sensitive partridge pea	CHNI2	*Chamaecrista nictitans*	1–39	–
	Coulter's spiderling	BOCO2	*Boerhavia coulteri*	1–39	–
	sorrel buckwheat	ERPO4	*Eriogonum polycladon*	1–34	–
	wheelscale saltbush	ATEL	*Atriplex elegans*	0–28	–
	fewflower beggarticks	BILE	*Bidens leptocephala*	1–28	–
	slender goldenweed	MAGR10	*Machaeranthera gracilis*	1–28	–
	tanseyleaf tansyaster	MATA2	*Machaeranthera tanacetifolia*	1–28	–
	phacelia	PHACE	*Phacelia*	1–28	–
	shaggyfruit pepperweed	LELA	*Lepidium lasiocarpum*	1–22	–
	intermediate pepperweed	LEVIM	*Lepidium virginicum var. medium*	1–22	–
	hoary bowlesia	BOIN3	*Bowlesia incana*	0–22	–
	New Mexico thistle	CINE	*Cirsium neomexicanum*	1–22	–
	cryptantha	CRYPT	*Cryptantha*	1–22	–
	common sunflower	HEAN3	*Helianthus annuus*	0–22	–
	woolly tidestromia	TILA2	*Tidestromia lanuginosa*	0–22	–
	crestrib morning-	IPCO2	*Ipomoea costellata*	0–17	

	crestrib morning-glory	IPCO2	*Ipomoea costellata*	0–17	–
	New Mexico copperleaf	ACNE	*Acalypha neomexicana*	1–17	–
	American wild carrot	DAPU3	*Daucus pusillus*	1–11	–
	California poppy	ESCAM	*Eschscholzia californica ssp. mexicana*	0–11	–
	horseweed	CONYZ	*Conyza*	0–11	–
	Florida pellitory	PAFL3	*Parietaria floridana*	0–11	–
	whitestem blazingstar	MEAL6	*Mentzelia albicaulis*	0–11	–
	sweet four o'clock	MILO2	*Mirabilis longiflora*	0–11	–
	phlox	PHLOX	*Phlox*	0–11	–
	Arizona popcornflower	PLAR	*Plagiobothrys arizonicus*	0–11	–
	woolly plantain	PLPA2	*Plantago patagonica*	1–11	–
	purslane	PORTU	*Portulaca*	0–11	–
	chia	SACO6	*Salvia columbariae*	0–11	–
	sawtooth sage	SASU7	*Salvia subincisa*	0–11	–
	ragwort	SENEC	*Senecio*	0–11	–
	streamside bur cucumber	SIAM	*Sicyos ampelophyllus*	0–11	–
	sleepy silene	SIAN2	*Silene antirrhina*	1–11	–
	climbing arrowheads	SIGR	*Sicyosperma gracile*	0–11	–
	cutleaf bur cucumber	SILA	*Sicyos laciniatus*	0–11	–
	combseed	PECTO	*Pectocarya*	0–11	–
	manybristle chinchweed	PEPA2	*Pectis papposa*	0–6	–
	golden crownbeard	VEEN	*Verbesina encelioides*	0–6	–
	sand fringepod	THCU	*Thysanocarpus curvipes*	0–6	–
	spreading fanpetals	SIAB	*Sida abutifolia*	0–6	–
	desert unicorn-plant	PRAL4	*Proboscidea althaeifolia*	0–6	–
	doubleclaw	PRPA2	*Proboscidea parviflora*	0–6	–
	New Mexico	RANE	*Rafinesquia neomexicana*	0–6	

	New Mexico plumeseed	RANE	*Rafinesquia neomexicana*	0–6	–
	desert Indianwheat	PLOV	*Plantago ovata*	0–6	–
	minerslettuce	MONTI	*Montia*	0–6	–
	Nuttall's povertyweed	MONU	*Monolepis nuttalliana*	0–6	–
	green carpetweed	MOVE	*Mollugo verticillata*	0–6	–
	Mexican passionflower	PAME2	*Passiflora mexicana*	0–6	–
	Arizona lupine	LUAR4	*Lupinus arizonicus*	0–6	–
	Coulter's lupine	LUSP2	*Lupinus sparsiflorus*	0–6	–
	cutleaf cyclanthera	CYDI	*Cyclanthera dissecta*	0–6	–
	Palmer's spectaclepod	DICA31	*Dimorphocarpa candicans*	0–6	–
	wedgeleaf draba	DRCU	*Draba cuneifolia*	0–6	–
	sanddune wallflower	ERCA14	*Erysimum capitatum*	0–6	–
	lobed tickseed	COAU	*Coreopsis auriculata*	0–6	–
	scrambled eggs	COAU2	*Corydalis aurea*	0–6	–
	spurge	EUPHO	*Euphorbia*	1–6	–
	beeblossom	GAURA	*Gaura*	0–6	–
	Arizona poppy	KAGR	*Kallstroemia grandiflora*	0–6	–
	warty caltrop	KAPA	*Kallstroemia parviflora*	0–6	–
	Gordon's bladderpod	LEGO	*Lesquerella gordonii*	0–6	–
	southwestern pricklypoppy	ARPL3	*Argemone pleiacantha*	0–6	–
	milkvetch	ASTRA	*Astragalus*	0–6	–
	star gilia	GIST	*Gilia stellata*	0–2	–
	blanketflower	GAILL	*Gaillardia*	0–2	–
	Texas stork's bill	ERTE13	*Erodium texanum*	0–2	–
	fringed redmaids	CACI2	*Calandrinia ciliata*	0–2	–
	Fendler's desertdandelion	MAFE	*Malacothrix fendleri*	0–2	–
	foothill deervetch	LOHU2	*Lotus humistratus*	0–2	–
	coastal bird's-foot	LOSAB	*Lotus salsuginosus var*	0–2	–

	coastal bird's-foot trefoil	LOSAB	*Lotus salsuginosus var. brevivexillus*	0–2	
	desert evening primrose	OEPR	*Oenothera primiveris*	0–2	–
	rough cocklebur	XAST	*Xanthium strumarium*	0–2	–
Shrub/Vine					
7	**Riverwash shrubs**			28–168	
	rubber rabbitbrush	ERNAL	*Ericameria nauseosa ssp. consimilis var. leiosperma*	0–112	–
	singlewhorl burrobrush	HYMO	*Hymenoclea monogyra*	1–112	–
	clasping milkweed	ASAM	*Asclepias amplexicaulis*	3–43	–
	fingerleaf gourd	CUDI	*Cucurbita digitata*	3–43	–
	Missouri gourd	CUFO	*Cucurbita foetidissima*	3–43	–
	coyote gourd	CUPA	*Cucurbita palmata*	3–43	–
	pricklyburr	DAIN2	*Datura inoxia*	3–43	–
	Gila manroot	MAGI	*Marah gilensis*	3–43	–
	doubleclaw	PRPA2	*Proboscidea parviflora*	3–43	–
	ambrosia leaf bur ragweed	AMAM2	*Ambrosia ambrosioides*	0–28	–
	desertbroom	BASA2	*Baccharis sarothroides*	1–22	–
	mule-fat	BASA4	*Baccharis salicifolia*	0–22	–
	burroweed	ISTE2	*Isocoma tenuisecta*	1–22	–
	sweetbush	BEJU	*Bebbia juncea*	0–17	–
8	**Miscellaneous shrubs**			56–168	
	fringed twinevine	FUCYC	*Funastrum cynanchoides ssp. cynanchoides*	1–28	–
	desert-thorn	LYCIU	*Lycium*	1–28	–
	whitethorn acacia	ACCO2	*Acacia constricta*	0–28	–
	lotebush	ZIOB	*Ziziphus obtusifolia*	1–28	–
	littleleaf sumac	RHMI3	*Rhus microphylla*	0–28	–
	Thurber's desert honeysuckle	ANTH2	*Anisacanthus thurberi*	0–22	–
	fourwing saltbush	ATCA2	*Atriplex canescens*	0–22	–
	Drummond's clematis	CLDR	*Clematis drummondii*	1–22	–
	Apache plume	FAPA	*Fallugia paradoxa*	0–22	–

	desert olive	FOSH	*Forestiera shrevei*	0–17	–
	knifeleaf condalia	COSP3	*Condalia spathulata*	0–17	–
	Warnock's snakewood	COWA	*Condalia warnockii*	0–17	–
	Coulter's brickellbush	BRCO	*Brickellia coulteri*	0–17	–
	fairyduster	CAER	*Calliandra eriophylla*	0–11	–
	Kearney's snakewood	COWAK	*Condalia warnockii var. kearneyana*	0–11	–
	shortleaf baccharis	BABR	*Baccharis brachyphylla*	0–11	–
	California brickellbush	BRCA3	*Brickellia californica*	0–11	–
	longleaf jointfir	EPTR	*Ephedra trifurca*	0–11	–
	bastardsage	ERWR	*Eriogonum wrightii*	0–11	–
	Texas mulberry	MOMI	*Morus microphylla*	0–11	–
	sacahuista	NOMI	*Nolina microcarpa*	0–11	–
	skunkbush sumac	RHTR	*Rhus trilobata*	0–11	–
	threadleaf ragwort	SEFLF	*Senecio flaccidus var. flaccidus*	0–11	–
	canyon grape	VIAR2	*Vitis arizonica*	0–11	–
	soaptree yucca	YUEL	*Yucca elata*	1–11	–
	Thurber's sandpaper plant	PETH4	*Petalonyx thurberi*	0–6	–
	Parish's goldeneye	VIPA14	*Viguiera parishii*	0–6	–
	banana yucca	YUBA	*Yucca baccata*	0–6	–
	American threefold	TRCA8	*Trixis californica*	0–6	–
	cactus apple	OPEN3	*Opuntia engelmannii*	0–6	–
	Schott's yellowhood	NISC	*Nissolia schottii*	0–6	–
	catclaw mimosa	MIACB	*Mimosa aculeaticarpa var. biuncifera*	0–6	–
	velvetpod mimosa	MIDY	*Mimosa dysocarpa*	0–6	–
	sorrelvine	CITR2	*Cissus trifoliata*	0–6	–
	yerba de pasmo	BAPT	*Baccharis pteronioides*	0–6	–

	Wright's beebrush	ALWR	*Aloysia wrightii*	0–6	–
	common sotol	DAWH2	*Dasylirion wheeleri*	0–2	–
	Palmer's century plant	AGPA3	*Agave palmeri*	0–2	–
	candy barrelcactus	FEWI	*Ferocactus wislizeni*	0–2	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	0–2	–
Tree					
9	**Dominant trees**			336–897	
	mesquite	PROSO	*Prosopis*	224–560	–
	catclaw acacia	ACGR	*Acacia greggii*	56–224	–
	blue paloverde	PAFL6	*Parkinsonia florida*	0–112	–
	Jerusalem thorn	PAAC3	*Parkinsonia aculeata*	0–56	–
	netleaf hackberry	CELAR	*Celtis laevigata var. reticulata*	0–56	–
	desert willow	CHLI2	*Chilopsis linearis*	0–56	–
	velvet ash	FRVE2	*Fraxinus velutina*	0–28	–
	Arizona walnut	JUMA	*Juglans major*	0–28	–
	western soapberry	SASAD	*Sapindus saponaria var. drummondii*	0–28	–
	American black elderberry	SANIC4	*Sambucus nigra ssp. canadensis*	0–22	–
	Arizona sycamore	PLWR2	*Platanus wrightii*	0–17	–
	narrowleaf willow	SAEX	*Salix exigua*	0–17	–
	Fremont cottonwood	POFR2	*Populus fremontii*	0–11	–
	oneseed juniper	JUMO	*Juniperus monosperma*	0–11	–

Animal community

This site produces a wide variety of good quality forage and is usable at any season by all classes of cattle. It usually occurs as small inclusions within large areas of upland range sites. Having a good variety of forage species, shade, and occasional water, this site will be overused in the summer growing season before proper use is made of adjacent upland areas. For this reason, grazing systems must be used to allow recovery of herbaceous forage species on this site. The site produces a good variety of valuable browse for spring and fall use.

Occurring as occasional wooded strips through large areas of open uplands, this site is a haven for wildlife, especially in the heat of the summer season. Water is available occasionally in the spring and again in the summer. Water developments are very important for wildlife species using this site.

Hydrological functions

These sandy floodplains are extremely important for ground-water recharge in upland basins. Deep, very coarse textured soils allow water to percolate to great depths after runoff from large storms.

Recreational uses

Hunting, hiking, horseback riding, bird-watching, camping, photography and picknicing.

Wood products

Mesquite and catclaw acacia furnish limited fuel-wood and posts. The importance of large trees on this site for wildlife should limit the fuel-wood uses to deadwood and driftwood.

Other products

Sand, magnetite.

Inventory data references

Range 417s include 2 in fair condition.

Contributors

Dan Robinett
Larry D. Ellicott

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)	Wilma Renken, Dan Robinett, Larry Humphrey
Contact for lead author	USDA-NRCS Tucson MLRA Soil Survey
Date	12/12/2012
Approved by	Byron Lambeth
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None

---

2. **Presence of water flow patterns:** Sandy stream channels braid through the site and occupy 35% of the area. Channel depth ranges from 6-12 inches and floodplain areas receive extra water as overbank flow in moderate and large run-off events.

---

3. **Number and height of erosional pedestals or terracettes:** Pedestals are common on all longer lived grasses and sub-shrubs and are from 1-3 inches in height. Pedestals are common on large shrubs and range from 6-12 inches high (from rodent activity, erosion and sedimentation). Terracettes are uncommon on the site.

---

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground from a point cover transect (300 pts) run on site was 41%. Gravel cover was 6% and basal cover of live perennial plants was 1%. Bare areas (outside braided channels), often masked by annuals, are 3-4’ in diameter, generally connected.

---

5. **Number of gullies and erosion associated with gullies:** None

---

6. **Extent of wind scoured, blowouts and/or depositional areas:** None

---

7. **Amount of litter movement (describe size and distance expected to travel):** Both fine and coarse litter size classes are staying in place. In channels, all litter size classes are moving except large woody debris which catches in low growing tree branches.

---

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Values from a soil slake test average 1.7. Soils are very sandy. There is no difference between areas without canopy and shrub canopy areas.

---

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** A horizon is 8 inches thick, single-grained. Colors are 7.5 YR 6/4 dry and 7.5 YR 4/4 moist.

---

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Trees and large shrubs are well distributed on site (20-30% canopy cover), sub-shrubs scattered across site (0-3% canopy cover), perennial grasses show a general association with trees and shrubs with scattered plants across site (10-12% canopy cover), annual grasses and forbs fluctuate with weather patterns. General hydrologic functioning: the perennial grasses slow/reduce the energy of surface run-off and promote infiltration; trees and shrubs deter surface water flow without slowing its energy.

---

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None present.

---

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: Dom.Mid-Grasses = Trees >>

    Sub-dominant: Suffrutescent Grasses >Misc.Per.Grasses > Riverwash Shrubs = Misc. Shrubs > Annuals

    Other:

Additional: Annual grasses and forbs fluctuate within ranking based on seasonal precipitation.

---

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Mortality due to drought (2009 and very dry winter spring of 2011) is high on perennial grasses and sub-shrubs.

---

14. **Average percent litter cover (%) and depth (in):** From the pace frequency transect (300 pts.) litter cover was 50% on this date.

---

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 825 lbs/ac. in a below average year; 1800 lbs/ac. in an average year; 3150 lbs/ac. in an above average year.

---

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:** Mesquite is native to site and has not increased in size or density. From transects mesquite canopy is 11% and density is 80 plants/ac. Catclaw acacia has 11% canopy on this site. Other invasive/non-native species: Enneapogon cenchroides (softfeather pappusgrass), Bermuda, mustard, foxtail.

---

17. **Perennial plant reproductive capability:** Slightly impaired by drought on perennial grass and sub-shrub species.
