USDA Natural Resources Conservation Service

Ecological site R038XB226AZ
Loamy Swale 16-20" 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): 038X–Mogollon Transition South

AZ 38.2 - Middle Mogollon Transition

Elevations range from 4000 to 5500 feet and precipitation averages 16 to 20 inches per year. Vegetation includes turbinella oak, Wright silktassel, hollyleaf buckthorn, desert buckbrush, one-seed juniper, alligator juniper, pinyon, algerita, sugar sumac, prairie junegrass, blue grama, curly mesquite, bottlebrush squirreltail, muttongrass, cane beardgrass, plains lovegrass and bullgrass. The soil temperature regime ranges from thermic to mesic and the soil moisture regime is aridic ustic. This unit occurs within the Transition Zone Physiographic Province and is characterized by canyons and structural troughs or valleys. Igneous, metamorphic and sedimentary rock classes occur on rough mountainous terrain in association with less extensive sediment filled valleys exhibiting little integrated drainage.

Classification relationships

Similar site to TES (Terrestrial Ecosystem Sites) map unit no's. 463 and 481 on the Prescott National Forest.

Associated sites

R038XB202AZ	**Clayey Upland 16-20" p.z.**
R038XB209AZ	**Loamy Upland 16-20" p.z.**
R038XB215AZ	**Clayey Hills 16-20" p.z.**
R038XB225AZ	**Clayey Swale 16-20" p.z.**

Similar sites

R041XC311AZ	**Loamy Swale 12-16" p.z.**
R038XB225AZ	**Clayey Swale 16-20" p.z.**

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	(1) *Bouteloua curtipendula* (2) *Bouteloua gracilis*

Physiographic features

This site occurs in the middle elevations of the Mogollon Transition zone south of the Rim in central Arizona. This site is in a bottom position. It benefits significantly from extra moisture recieved as runoff from, adjacent, upland areas.

Table 2. Representative physiographic features

Landforms	(1) Alluvial flat (2) Flood plain (3) Swale
Flooding duration	Very brief (4 to 48 hours) to brief (2 to 7 days)
Flooding frequency	Rare to occasional
Ponding duration	Very brief (4 to 48 hours) to brief (2 to 7 days)
Ponding frequency	None to rare
Elevation	1,341–1,707 m
Slope	0–3%
Aspect	Aspect is not a significant factor

Climatic features

Precipitation in this common resource area averages 16 to 20 inches annually. The winter-summer rainfall ratio ranges from about 60/40% in the western part of the area to 45/55% in the eastern part. Summer rains fall July through September; and are from high-intensity convective thunderstorms. This moisture originates primarily from the Gulf of Mexico, but can come from the remnants of Pacific hurricanes in September. Winter moisture is frontal, originates in the north Pacific, and falls as rain or snow in widespread storms of low intensity and long duration. Snowfall ranges from 5 to 35 inches per year and can occur from November through April. Snow seldom persists for more than a week. May and June are the driest months of the year. Humidity is generally low all year. Average annual air temperatures range from 51 to 60 degrees F (thermic temperature regime). Daytime temps in the summer are commonly in the low 90's. Freezing temperatures are common from October through April. The actual precipitation, avaliable moisture and temperature varies, depending on, region, elevation, rain shadow effect and aspect.

Table 3. Representative climatic features

Frost-free period (average)	180 days

Freeze-free period (average)	240 days
Precipitation total (average)	508 mm

Influencing water features

There are no water features associated with this site.

Soil features

These soils are deep (60 inches), loamy throughout, and well drained. They are formed in mixed alluvium from a variety of sources. The surface textures are sandyloam to siltloam. The effective rooting depth is 60 inches. Runoff is moderate on moist soils. The erosion hazard is slight unless heavy traffic causes trailing and compaction.

Soil series mapped under this site include: SSA675 San Carlos IR area MU's 51 Lanque.

Table 4. Representative soil features

Surface texture	(1) Sandy loam (2) Loam (3) Silt loam
Family particle size	(1) Loamy
Drainage class	Well drained to moderately well drained
Permeability class	Moderately rapid to moderate
Soil depth	152 cm
Surface fragment cover <=3"	0–5%
Surface fragment cover >3"	0–2%
Available water capacity (0-101.6cm)	12.19–23.37 cm
Calcium carbonate equivalent (0-101.6cm)	1–15%
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)	6.6–8.2
Subsurface fragment volume <=3" (Depth not specified)	0–5%
Subsurface fragment volume >3" (Depth not specified)	0–1%

Ecological dynamics

The native plant community is a warm season grassland (canopy cover of 50 to 70%) with an important component of cool season grasses that fluctuate with climate. Cool and warm season annual grasses and forbs are well represented in the flora. Half shrubs and perennial forbs are an important group also. Periodic wildfires occured every 10 to 15 years; June through August, and controlled shrubs and succulents invading from adjacent, shallow soil, areas. In the absence of fire for long periods of time; shrubs, trees and cacti can dominate the site. The interactions of drought, fire and grazing can result in a loss of perennial grass cover. In these situations annuals, both native and non-native, can dominate the plant community. Non-native annuals can, over time, diminish the soil seed-bank of native annual species.

State and transition model

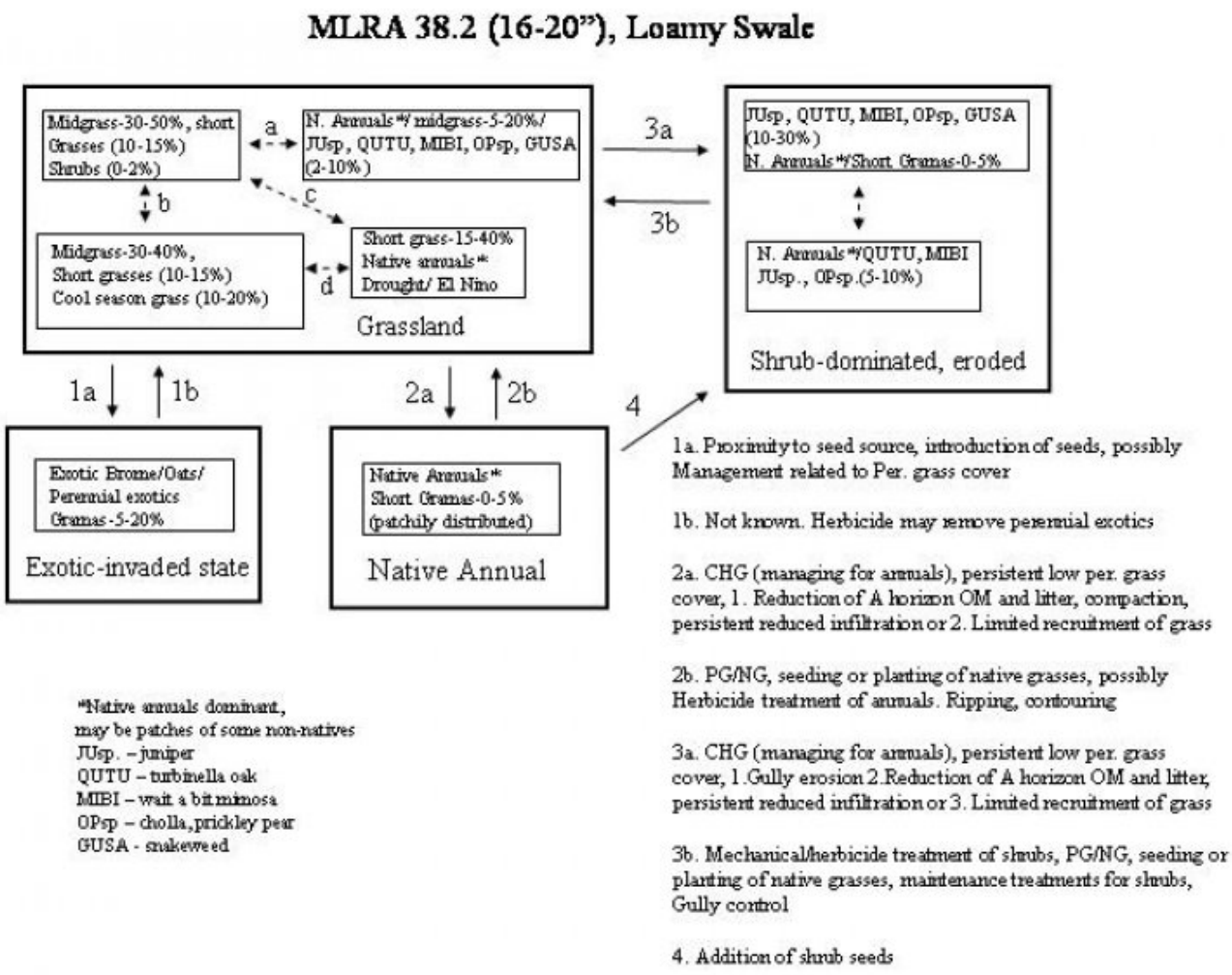

Figure 4. State & Transition Model, Loamy Swale 16-20" pz.

State 1
Mixed Native Grassland State

Community 1.1
Historic Native Plant Community

The historic, native, plant community is a grassland dominated by blue grama, sideoats grama, mat muhly, creeping muhly, tobosa and vine mesquite. Prairie junegrass and bottlebrush squirreltail are an important in the plant community, but can diminish to low levels after severe winter - spring drought. Shrubby buckwheat is an important half-shrub in the plant community. A rich flora of native annual forbs and grasses, of both the winter and summer seasons, exist in the plant community. Periodic, naturally occuring, wildfires were important in maintaining the potential plant community.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	1009	2074	2802
Forb	56	168	560
Shrub/Vine	11	56	112
Total	**1076**	**2298**	**3474**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0-3%
Grass/grasslike foliar cover	12-25%
Forb foliar cover	0-2%
Non-vascular plants	0-1%
Biological crusts	0-1%
Litter	35-60%
Surface fragments >0.25" and <=3"	0-5%
Surface fragments >3"	0-1%
Bedrock	0%
Water	0%
Bare ground	15-20%

Table 7. Canopy structure (% cover)

Height Above Ground (M)	Tree	Shrub/Vine	Grass/ Grasslike	Forb
<0.15	–	–	0-5%	0-5%
>0.15 <= 0.3	–	0-5%	2-20%	1-10%
>0.3 <= 0.6	–	0-2%	40-65%	0-10%
>0.6 <= 1.4	–	0-2%	–	0-10%
>1.4 <= 4	–	0-2%	–	–
>4 <= 12	–	–	–	–
>12 <= 24	–	–	–	–
>24 <= 37	–	–	–	–
>37	–	–	–	–

Figure 6. Plant community growth curve (percent production by month). AZ3812, 38.2 16-20" p.z. all sites. Growth begins in the spring and continues into the summer and fall..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	5	5	15	10	10	15	20	10	5	5	0

State 2
Native Annuals State

Community 2.1
Native Annual Forb and Grass Plant Community

Perennial grass canopy cover is reduced due to the interactions of drought, grazing and / or fire. Native and non-native annual forbs and grasses dominate the plant community. If this plant community persists for long periods of time; the seed-bank of native perennial grasses can diminish to a point where artificial reseeding will be necessary to return to a native potential plant community

State 3
Shrub Dominated, Eroded State

Community 3.1
Shrub Dominated, Eroded Plant Community

Rill and gully erosion can rapidly drain extra water from the site. Shrubs like; mesquite, wait a bit mimosa, catclaw acacia and turbinella oak; and succulents like prickly pear and cholla can increase, and trees like one-seed juniper, alligator juniper, redberry juniper and pinyon pine, can invade from adjacent, shallow soil, areas, to dominate the site in the absence of fire. Native and non-native annual forbs and grasses dominate the understory. In "El Nino" years, herbaceous fuels can be sufficient to carry fire through the heavy canopy of shrubs. The major woody shrubs are, however, fire resistant once established.

State 4
Exotic Invaded State

Community 4.1
Exotic forb and grass invaded state

Non-native annual grasses and forbs like; red brome, cheatgrass, kochia, tumble pigweed, russian thistle, tumble mustard, yellow starthistle, wild oats and filaree, can invade and dominate areas of the site with very low perennial grass cover. Perennial forbs like russian knapweed and leafy spurge could invade and, perhaps, dominate this site. These species can, over time, reduce the seed-bank of native annual grasses and forbs.

Additional community tables

Table 8. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	**mid grasses**			673–1345	
	sideoats grama	BOCU	*Bouteloua curtipendula*	224–673	–
	cane bluestem	BOBA3	*Bothriochloa barbinodis*	56–224	–
	green sprangletop	LEDU	*Leptochloa dubia*	28–224	–
	deergrass	MURI2	*Muhlenbergia rigens*	0–168	–
	big sacaton	SPWR2	*Sporobolus wrightii*	0–168	–
	tobosagrass	PLMU3	*Pleuraphis mutica*	0–112	–
	plains lovegrass	ERIN	*Eragrostis intermedia*	28–112	–
	spike dropseed	SPCO4	*Sporobolus contractus*	0–56	–
2	**short grasses**			224–448	
	blue grama	BOGR2	*Bouteloua gracilis*	112–336	–
	vine mesquite	PAOB	*Panicum obtusum*	112–336	–
	creeping muhly	MURE	*Muhlenbergia repens*	11–168	–
	mat muhly	MURI	*Muhlenbergia richardsonis*	11–112	–
3	**cool season grasses**			56–448	
	squirreltail	ELEL5	*Elymus elymoides*	11–224	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	11–224	–
	western wheatgrass	PASM	*Pascopyrum smithii*	0–56	–
4	**misc. perennial grasses**			11–112	
	Orcutt's threeawn	ARSCO	*Aristida schiedeana var. orcuttiana*	0–56	–
	spidergrass	ARTE3	*Aristida ternipes*	0–56	–
	spidergrass	ARTEG	*Aristida ternipes var. gentilis*	0–56	–
	threeawn	ARIST	*Aristida*	0–28	–
	Fendler threeawn	ARPUL	*Aristida purpurea var. longiseta*	0–28	–
	curly-mesquite	HIBE	*Hilaria belangeri*	0–28	–

	sand dropseed	SPCR	*Sporobolus cryptandrus*	0–28	–
	sprucetop grama	BOCH	*Bouteloua chondrosioides*	0–22	–
	black grama	BOER4	*Bouteloua eriopoda*	0–22	–
	hairy grama	BOHI2	*Bouteloua hirsuta*	0–22	–
	Arizona wheatgrass	ELAR7	*Elymus arizonicus*	0–22	–
	common wolfstail	LYPH	*Lycurus phleoides*	0–17	–
	slender muhly	MUTE4	*Muhlenbergia tenuifolia*	0–11	–
	muttongrass	POFE	*Poa fendleriana*	0–11	–
	muttongrass	POFEL	*Poa fendleriana ssp. longiligula*	0–11	–
	poverty threeawn	ARDI5	*Aristida divaricata*	0–11	–
5	**annual grasses**			28–448	
	Mexican sprangletop	LEFUU	*Leptochloa fusca ssp. uninervia*	11–224	–
	mucronate sprangeltop	LEPAB	*Leptochloa panicea ssp. brachiata*	11–224	–
	Mexican panicgrass	PAHI5	*Panicum hirticaule*	6–224	–
	prairie threeawn	AROL	*Aristida oligantha*	6–112	–
	needle grama	BOAR	*Bouteloua aristidoides*	0–56	–
	sticky sprangletop	LEVI5	*Leptochloa viscida*	0–56	–
	sixweeks threeawn	ARAD	*Aristida adscensionis*	0–56	–
	feather fingergrass	CHVI4	*Chloris virgata*	0–56	–
	witchgrass	PACA6	*Panicum capillare*	0–56	–
	tufted lovegrass	ERPE	*Eragrostis pectinacea*	0–56	–
	desert lovegrass	ERPEM	*Eragrostis pectinacea var. miserrima*	0–56	–
	little barley	HOPU	*Hordeum pusillum*	0–56	–
	small fescue	VUMI	*Vulpia microstachys*	0–56	–
	Eastwood fescue	VUMIC	*Vulpia microstachys var. ciliata*	0–56	–
	sixweeks fescue	VUOC	*Vulpia octoflora*	6–56	–
	canyon cupgrass	ERLE7	*Eriochloa lemmonii*	0–28	–
	delicate muhly	MUFR	*Muhlenbergia fragilis*	0–28	–
	littleseed muhly	MUMI	*Muhlenbergia microsperma*	0–28	–
	sixweeks grama	BOBA2	*Bouteloua barbata*	0–28	–
	Arizona brome	BRAR4	*Bromus arizonicus*	0–28	–
	Bigelow's bluegrass	POBI	*Poa bigelovii*	0–28	–
	Arizona signalgrass	URAR	*Urochloa arizonica*	0–17	–
Forb					
6	**perennial forbs**			28–112	
	largeflower onion	ALMA4	*Allium macropetalum*	1–56	–
	Missouri gourd	CUFO	*Cucurbita foetidissima*	0–56	–
	Lewis flax	LILE3	*Linum lewisii*	0–56	–
	Arizona gumweed	GRAR2	*Grindelia arizonica*	0–28	–
	showy goldeneye	HEMU3	*Heliomeris multiflora*	0–28	–
	Indian rushpea	HOGL2	*Hoffmannseggia glauca*	1–28	–
	Missouri goldenrod	SOMI2	*Solidago missouriensis*	0–28	–
	desert globemallow	SPAM2	*Sphaeralcea ambigua*	0–28	–

	copper globemallow	SPAN3	*Sphaeralcea angustifolia*	0–28	–
	Rusby's globemallow	SPRU2	*Sphaeralcea rusbyi*	0–28	–
	brownplume wirelettuce	STPA4	*Stephanomeria pauciflora*	0–28	–
	coyote gourd	CUPA	*Cucurbita palmata*	1–28	–
	bluedicks	DICA14	*Dichelostemma capitatum*	1–28	–
	weakleaf bur ragweed	AMCO3	*Ambrosia confertiflora*	1–28	–
	fingerleaf gourd	CUDI	*Cucurbita digitata*	1–28	–
	whitemouth dayflower	COER	*Commelina erecta*	0–22	–
	leastdaisy	CHAET2	*Chaetopappa*	0–17	–
	longstalk greenthread	THLO	*Thelesperma longipes*	0–17	–
	tepary bean	PHAC	*Phaseolus acutifolius*	0–17	–
	Greene's bird's-foot trefoil	LOGR4	*Lotus greenei*	0–17	–
	Wright's deervetch	LOWR	*Lotus wrightii*	0–17	–
	variableleaf bushbean	MAGI2	*Macroptilium gibbosifolium*	0–17	–
	vetch	VICIA	*Vicia*	0–11	–
	rose heath	CHER2	*Chaetopappa ericoides*	0–11	–
	Texas bindweed	COEQ	*Convolvulus equitans*	0–11	–
	onion	ALLIU	*Allium*	0–11	–
	Forb, perennial	2FP	*Forb, perennial*	0–11	–
	scarlet spiderling	BOCO	*Boerhavia coccinea*	0–11	–
	ragwort	SENEC	*Senecio*	0–11	–
	plainsmustard	SCHOE2	*Schoenocrambe*	0–11	–
	twinleaf senna	SEBA3	*Senna bauhinioides*	0–6	–
	sego lily	CANU3	*Calochortus nuttallii*	0–6	–
	Indian paintbrush	CASTI2	*Castilleja*	0–6	–
	brownfoot	ACWR5	*Acourtia wrightii*	0–6	–
	tuber anemone	ANTU	*Anemone tuberosa*	0–6	–
	Braun's rockcress	ARPE3	*Arabis perstellata*	0–6	–
	Watson's dutchman's pipe	ARWA	*Aristolochia watsonii*	0–6	–
	beeblossom	GAURA	*Gaura*	0–6	–
	southwestern mock vervain	GLGO	*Glandularia gooddingii*	0–6	–
	desert larkspur	DEPA	*Delphinium parishii*	0–6	–
	Parry's beardtongue	PEPA24	*Penstemon parryi*	0–6	–
	orange fameflower	PHAU13	*Phemeranthus aurantiacus*	0–6	–
	canaigre dock	RUHY	*Rumex hymenosepalus*	0–6	–
7	**annual forbs**			28–448	
	common sunflower	HEAN3	*Helianthus annuus*	1–224	–
	longleaf false goldeneye	HELOA2	*Heliomeris longifolia var. annua*	1–112	–
	longleaf false goldeneye	HELOL	*Heliomeris longifolia var. longifolia*	0–112	–
	camphorweed	HESU3	*Heterotheca subaxillaris*	1–112	–
	San Pedro matchweed	XAGY	*Xanthocephalum gymnospermoides*	0–112	–

	goldeneye	VIGUI	*Viguiera*	0–56	–
	Arizona popcornflower	PLAR	*Plagiobothrys arizonicus*	1–56	–
	creamcups	PLCA5	*Platystemon californicus*	0–56	–
	crestrib morning-glory	IPCO2	*Ipomoea costellata*	1–56	–
	spreading fleabane	ERDI4	*Erigeron divergens*	0–56	–
	carelessweed	AMPA	*Amaranthus palmeri*	0–56	–
	aster	ASTER	*Aster*	0–56	–
	New Mexico thistle	CINE	*Cirsium neomexicanum*	2–56	–
	Forb, annual	2FA	*Forb, annual*	0–56	–
	Coulter's spiderling	BOCO2	*Boerhavia coulteri*	0–28	–
	lambsquarters	CHAL7	*Chenopodium album*	0–28	–
	aridland goosefoot	CHDE	*Chenopodium desiccatum*	0–28	–
	western tansymustard	DEPI	*Descurainia pinnata*	0–28	–
	milkvetch	ASTRA	*Astragalus*	0–28	–
	miniature woollystar	ERDI2	*Eriastrum diffusum*	0–28	–
	California goldfields	LACA7	*Lasthenia californica*	0–28	–
	California poppy	ESCAM	*Eschscholzia californica ssp. mexicana*	0–28	–
	Thurber's pepperweed	LETH2	*Lepidium thurberi*	0–28	–
	foothill deervetch	LOHU2	*Lotus humistratus*	0–28	–
	coastal bird's-foot trefoil	LOSA	*Lotus salsuginosus*	0–28	–
	trefoil	LOTUS	*Lotus*	0–28	–
	desert Indianwheat	PLOV	*Plantago ovata*	0–28	–
	woolly plantain	PLPA2	*Plantago patagonica*	0–28	–
	New Mexico plumeseed	RANE	*Rafinesquia neomexicana*	0–28	–
	cudweed	GNAPH	*Gnaphalium*	0–28	–
	miniature lupine	LUBI	*Lupinus bicolor*	0–28	–
	Coulter's lupine	LUSP2	*Lupinus sparsiflorus*	0–28	–
	hollowleaf annual lupine	LUSU3	*Lupinus succulentus*	0–28	–
	tanseyleaf tansyaster	MATA2	*Machaeranthera tanacetifolia*	0–28	–
	manybristle chinchweed	PEPA2	*Pectis papposa*	0–28	–
	Canada cocklebur	XASTC	*Xanthium strumarium var. canadense*	0–28	–
	sand fringepod	THCU	*Thysanocarpus curvipes*	0–17	–
	purslane	PORTU	*Portulaca*	0–17	–
	desert unicorn-plant	PRAL4	*Proboscidea althaeifolia*	0–17	–
	doubleclaw	PRPA2	*Proboscidea parviflora*	0–17	–
	Arizona lupine	LUAR4	*Lupinus arizonicus*	0–17	–
	Goodding's bladderpod	LEGO2	*Lesquerella gooddingii*	0–17	–
	shaggyfruit pepperweed	LELA	*Lepidium lasiocarpum*	0–17	–
	wheelscale saltbush	ATEL	*Atriplex elegans*	0–17	–
	bristly fiddleneck	AMTE3	*Amsinckia tessellata*	0–11	–
	sanddune wallflower	ERCA14	*Erysimum capitatum*	0–11	–
	spurge	EUPHO	*Euphorbia*	0–11	–

	grassleaf lettuce	LAGRA	*Lactuca graminifolia var. arizonica*	0–11	–
	American wild carrot	DAPU3	*Daucus pusillus*	0–11	–
	New Mexico fleabane	ERNE3	*Erigeron neomexicanus*	0–11	–
	sorrel buckwheat	ERPO4	*Eriogonum polycladon*	0–11	–
	annual agoseris	AGHE2	*Agoseris heterophylla*	0–11	–
	sleepy silene	SIAN2	*Silene antirrhina*	0–11	–
	ragwort	SENEC	*Senecio*	0–11	–
	phacelia	PHACE	*Phacelia*	0–11	–
	evening primrose	OENOT	*Oenothera*	0–11	–
	green carpetweed	MOVE	*Mollugo verticillata*	0–11	–
	Arizona mousetail	MYCU	*Myosurus cupulatus*	0–6	–
	Florida pellitory	PAFL3	*Parietaria floridana*	0–6	–
	spreading fanpetals	SIAB	*Sida abutifolia*	0–6	–
	scrambled eggs	COAU2	*Corydalis aurea*	0–6	–
	croton	CROTO	*Croton*	0–6	–
	cryptantha	CRYPT	*Cryptantha*	0–6	–
Shrub/Vine					
8	**shrubs**			0–56	
	catclaw acacia	ACGR	*Acacia greggii*	0–28	–
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	0–28	–
	catclaw mimosa	MIACB	*Mimosa aculeaticarpa var. biuncifera*	0–28	–
	velvet mesquite	PRVE	*Prosopis velutina*	0–28	–
	Sonoran scrub oak	QUTU2	*Quercus turbinella*	0–28	–
	skunkbush sumac	RHTR	*Rhus trilobata*	0–17	–
	currant	RIBES	*Ribes*	0–17	–
	Apache plume	FAPA	*Fallugia paradoxa*	0–17	–
	pale desert-thorn	LYPA	*Lycium pallidum*	0–17	–
	algerita	MATR3	*Mahonia trifoliolata*	0–17	–
	fourwing saltbush	ATCA2	*Atriplex canescens*	0–17	–
	sugarberry	CELA	*Celtis laevigata*	0–11	–
	heartleaf goldeneye	VICO	*Viguiera cordifolia*	0–6	–
	toothleaf goldeneye	VIDE3	*Viguiera dentata*	0–6	–
9	**half shrubs**			11–56	
	bastardsage	ERWR	*Eriogonum wrightii*	1–56	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	0–28	–
	yerba de pasmo	BAPT	*Baccharis pteronioides*	1–28	–
	Coville's bundleflower	DECO4	*Desmanthus covillei*	0–17	–
	prairie acacia	ACAN	*Acacia angustissima*	0–17	–
10	**succulents**			0–28	
	walkingstick cactus	CYSP8	*Cylindropuntia spinosior*	0–28	–
	sacahuista	NOMI	*Nolina microcarpa*	0–28	–
	cactus apple	OPEN3	*Opuntia engelmannii*	0–28	–
	soaptree yucca	YUEL	*Yucca elata*	0–17	–

	Whipple cholla	CYWH	*Cylindropuntia whipplei*	0–17	–
	chaparral yucca	HEWH	*Hesperoyucca whipplei*	0–11	–
	spinystar	ESVI2	*Escobaria vivipara*	0–6	–

Animal community

This site is suitable for grazing year round and is easily traversed by all classes of livestock. the site is very susceptible to sheet, rill and gully erosion in overgrazed areas, old roads, cattle trails and concentration areas like bed grounds, water-lots and salt grounds.
The site has good habitat diversity for grassland wildlife species. Where it is adjacent to hill sites, with tree species or chaparral, it is a foraging area for elk.

Hydrological functions

This site produces runoff when soils are moist. Surfaces can be easily compacted by traffic and high densities of livestock when soils are moist. Normal depth of soil freezing in the winter is 5 to 6 inches. This will not break up compacted layers deeper than that. Compacted surfaces will produce much more runoff than surfaces with good tilth and structure. The extra water the site recieves is easily channelled by trails and wheel ruts to form rills and gullies.

Recreational uses

Hunting, camping, hiking, horseback riding, and backpacking.

Wood products

None

Other products

There is some native harvest of foods like wild onion, sunflower and thistle.

Contributors

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Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	
Contact for lead author	
Date	
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

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2. **Presence of water flow patterns:**

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3. **Number and height of erosional pedestals or terracettes:**

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

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5. **Number of gullies and erosion associated with gullies:**

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6. **Extent of wind scoured, blowouts and/or depositional areas:**

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7. **Amount of litter movement (describe size and distance expected to travel):**

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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

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

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12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant:

    Sub-dominant:

    Other:

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

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14. **Average percent litter cover (%) and depth (in):**

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

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16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:**

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17. **Perennial plant reproductive capability:**
