

Ecological site R041XC301AZ

Basalt Hills 12-16" p.z.

Accessed: 05/15/2024

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.

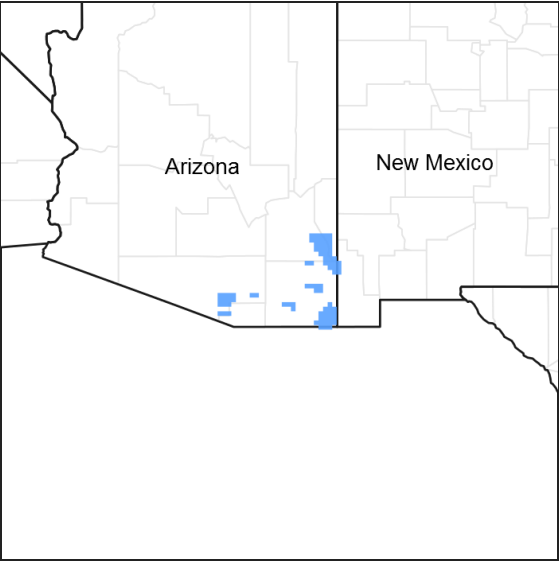


Figure 1. Mapped extent

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 41.3 – Chihuahuan – Sonoran Semidesert Grasslands

Elevations range from 3200 to 5000 feet and precipitation ranges from 12 to 16 inches per year. Vegetation includes mesquite, catclaw acacia, netleaf hackberry, palo verde, false mesquite, range ratany, fourwing saltbush, tarbush, littleleaf sumac, sideoats grama, black grama, plains lovegrass, cane beardgrass, tobosa, vine mesquite, threeawns, Arizona cottontop and bush muhly. The soil temperature regime is thermic and the soil moisture regime is ustic 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	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on hillslopes and ridgetops. Slope aspect is site differentiating at elevations near land resource area boundaries.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Ridge
Flooding frequency	None
Ponding frequency	None
Elevation	1,158–1,676 m
Slope	15–70%

Climatic features

Precipitation in this common resource area ranges from 12-16 inches yearly in the eastern part with elevations from 3600-5000 feet, and 13-17 inches in the western part where elevations are 3300-4500 feet. Winter-Summer rainfall ratios are 40-60% in the west and 30-70% in the east. Summer rains fall July-September, originate in the Gulf of Mexico and are convective, usually brief, intense thunderstorms. Cool season moisture tends to be frontal, originate in the Pacific and Gulf of California, and falls in widespread storms with long duration and low density. Snow rarely lasts more than one day. May and June are the driest months of the year. Humidity is generally very low.

Temperatures are mild. Freezing temperatures are common at night from December-April; however temperatures during the day are frequently above 50 F. Occasionally in December-February, brief 0 F temperatures may be experienced some nights. During June, July and August, some days may exceed 100 F.

Cool season plants start growth in early spring and mature in early summer. Warm season plants take advantage of summer rains and are growing and nutritious July-September. Warm season grasses may remain green throughout the year.

Table 3. Representative climatic features

Frost-free period (average)	220 days
Freeze-free period (average)	0 days
Precipitation total (average)	406 mm

Influencing water features

Soil features

These are shallow soils formed in slope alluvium of mixed basic igneous and carbonatic mineralogy. Soils are calcareous loams and clay loams with a complete cover of basalt cobbles and stones. Large areas of talus or rock slides occur intermingled with soil areas. Plant-soil moisture relationships are fair.

Soils mapped on this site include: SSA-664 San Simon area MU's 5 & 25 Graham; SSA-669 Pima county Eastern part MU 32 Graham; SSA-671 Cochise county Douglas-Tombstone part MU's 16 Boss, Krentz & Paramore, 75 Graham & Lampshire.

Table 4. Representative soil features

Parent material	(1) Slope alluvium–basalt
Surface texture	(1) Loam (2) Clay loam

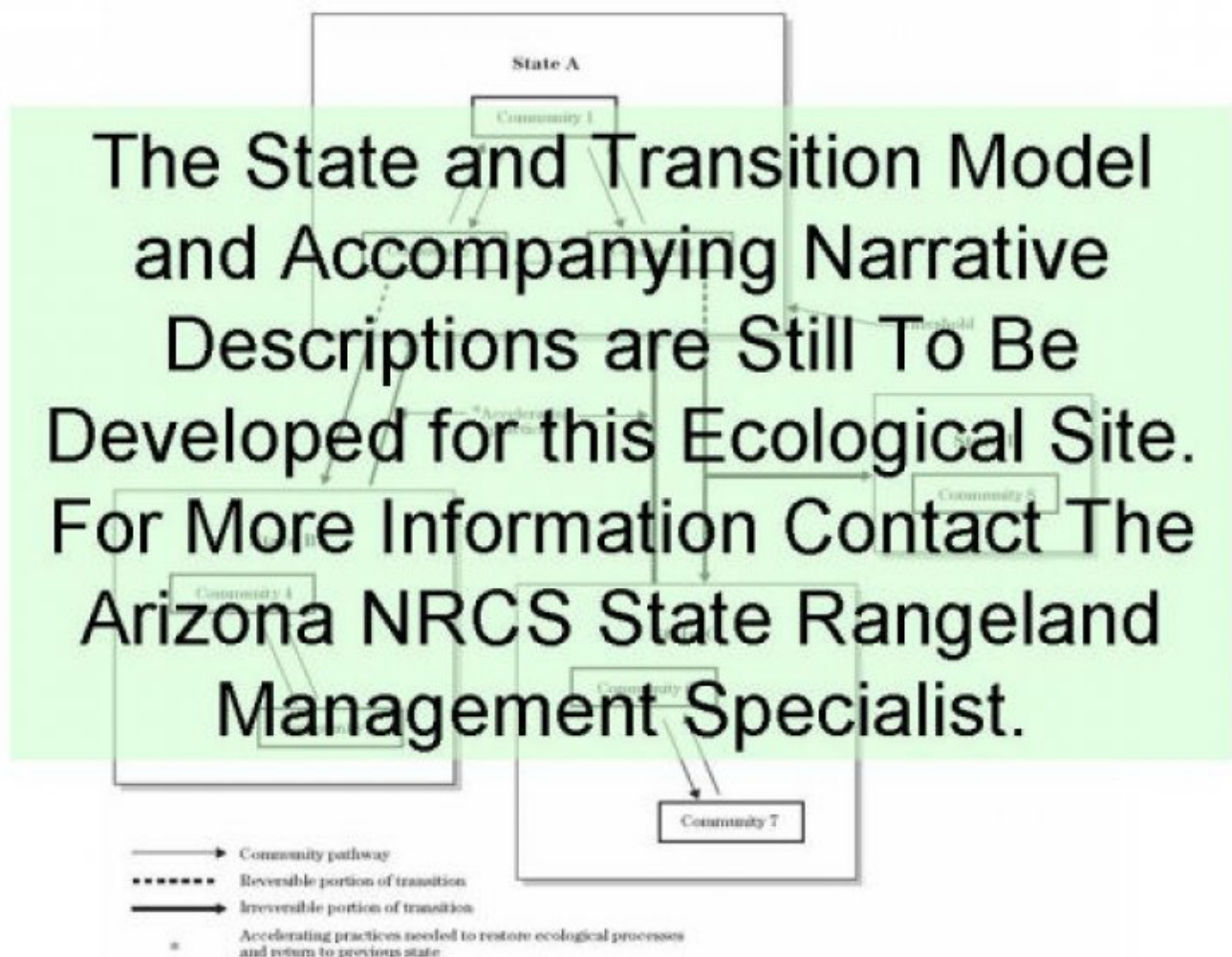
Ecological dynamics

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.

State and transition model



State 1 Historic Climax Plant Community

Community 1.1 Historic Climax Plant Community

The potential plant community on this site is dominated by warm season perennial grasses. Shrubs are well represented on the site, as well as perennial and annual forbs. The major grass species tend to be well dispersed throughout the plant community. Shrubs are concentrated at the edge of outcrops and along talus slides. The aspect is dotted grassland.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	605	–	706
Shrub/Vine	202	–	303
Forb	101	–	151
Total	908	–	1160

Figure 5. Plant community growth curve (percent production by month).
AZ4131, 41.3 12-16" p.z. hill sites. Growth begins in the spring, semi-dormancy occurs during the June drought, most growth occurs during the summer rainy season..

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

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				202–303	
	black grama	BOER4	<i>Bouteloua eriopoda</i>	202–303	–
2				151–252	
	sideoats grama	BOCU	<i>Bouteloua curtipendula</i>	151–252	–
3				303	
	cane bluestem	BOBA3	<i>Bothriochloa barbinodis</i>	303	–
	Arizona cottontop	DICA8	<i>Digitaria californica</i>	303	–
	bush muhly	MUPO2	<i>Muhlenbergia porteri</i>	303	–
4				50–101	
	Orcutt's threeawn	ARSCO	<i>Aristida schiedeana</i> var. <i>orcuttiana</i>	50–101	–
	spidergrass	ARTE3	<i>Aristida ternipes</i>	50–101	–
	spidergrass	ARTEG	<i>Aristida ternipes</i> var. <i>gentilis</i>	50–101	–
	plains lovegrass	ERIN	<i>Eragrostis intermedia</i>	50–101	–
	tanglehead	HECO10	<i>Heteropogon contortus</i>	50–101	–
	green sprangletop	LEDU	<i>Leptochloa dubia</i>	50–101	–
	tobosagrass	PLMU3	<i>Pleuraphis mutica</i>	50–101	–
	plains bristlegrass	SEVU2	<i>Setaria vulpiseta</i>	50–101	–
	spike dropseed	SPCO4	<i>Sporobolus contractus</i>	50–101	–

	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	50–101	–
5				10–50	
	sixweeks threeawn	ARAD	<i>Aristida adscensionis</i>	10–50	–
	needle grama	BOAR	<i>Bouteloua aristidoides</i>	10–50	–
	sixweeks grama	BOBA2	<i>Bouteloua barbata</i>	10–50	–
	Arizona brome	BRAR4	<i>Bromus arizonicus</i>	10–50	–
	feather fingergrass	CHVI4	<i>Chloris virgata</i>	10–50	–
	desert lovegrass	ERPEM	<i>Eragrostis pectinacea</i> var. <i>miserrima</i>	10–50	–
	little barley	HOPU	<i>Hordeum pusillum</i>	10–50	–
	Mexican sprangletop	LEFUU	<i>Leptochloa fusca</i> ssp. <i>uninervia</i>	10–50	–
	mucronate sprangletop	LEPA6	<i>Leptochloa panicea</i>	10–50	–
	Arizona signalgrass	URAR	<i>Urochloa arizonica</i>	10–50	–
	sixweeks fescue	VUOC	<i>Vulpia octoflora</i>	10–50	–
6				10–50	
	low woollygrass	DAPU7	<i>Dasyochloa pulchella</i>	10–50	–
	nineawn pappusgrass	ENDE	<i>Enneapogon desvauxii</i>	10–50	–
	Palmer's crinklemat	TIPA	<i>Tiquilia palmeri</i>	10–50	–
	slim tridens	TRMU	<i>Tridens muticus</i>	10–50	–
7				10–50	
	sprucetop grama	BOCH	<i>Bouteloua chondrosioides</i>	10–50	–
	blue grama	BOGR2	<i>Bouteloua gracilis</i>	10–50	–
	hairy grama	BOHI2	<i>Bouteloua hirsuta</i>	10–50	–
	purple grama	BORA	<i>Bouteloua radicata</i>	10–50	–
	slender grama	BORE2	<i>Bouteloua repens</i>	10–50	–
	curly-mesquite	HIBE	<i>Hilaria belangeri</i>	10–50	–
	common wolfstail	LYPH	<i>Lycurus phleoides</i>	10–50	–
	Hall's panicgrass	PAHA	<i>Panicum hallii</i>	10–50	–
	vine mesquite	PAOB	<i>Panicum obtusum</i>	10–50	–
8				10–50	
	poverty threeawn	ARDI5	<i>Aristida divaricata</i>	10–50	–
	Havard's threeawn	ARHA3	<i>Aristida havardii</i>	10–50	–
	Wootton's threeawn	ARPA9	<i>Aristida pansa</i>	10–50	–
	purple threeawn	ARPU9	<i>Aristida purpurea</i>	10–50	–
	blue threeawn	ARPUN	<i>Aristida purpurea</i> var. <i>nealleyi</i>	10–50	–
	sedge	CAREX	<i>Carex</i>	10–50	–
	squirreltail	ELELE	<i>Elymus elymoides</i> ssp. <i>elymoides</i>	10–50	–
	bullgrass	MUEM	<i>Muhlenbergia emersleyi</i>	10–50	–
	creeping muhly	MURE	<i>Muhlenbergia repens</i>	10–50	–
	slender muhly	MUTE4	<i>Muhlenbergia tenuifolia</i>	10–50	–
	Texas bluestem	SCCI2	<i>Schizachyrium cirratum</i>	10–50	–
	slim tridens	TRMUE	<i>Tridens muticus</i> var. <i>elongatus</i>	10–50	–
Forb					
9				50–101	

	dwarf Indian mallow	ABPA3	<i>Abutilon parvulum</i>	50–101	–
	San Felipe dogweed	ADPO	<i>Adenophyllum porophylloides</i>	50–101	–
	trailing windmills	ALIN	<i>Allionia incarnata</i>	50–101	–
	wealeaf bur ragweed	AMCO3	<i>Ambrosia confertiflora</i>	50–101	–
	anoda	ANODA	<i>Anoda</i>	50–101	–
	desert marigold	BAMU	<i>Baileya multiradiata</i>	50–101	–
	spreading fleabane	ERDI4	<i>Erigeron divergens</i>	50–101	–
	Arizona snakecotton	FRAR2	<i>Froelichia arizonica</i>	50–101	–
	haplopappus	HAPLO11	<i>Haplopappus</i>	50–101	–
	slender janusia	JAGR	<i>Janusia gracilis</i>	50–101	–
	tree tobacco	NIGL	<i>Nicotiana glauca</i>	50–101	–
	Wright's cudweed	PSCAC2	<i>Pseudognaphalium canescens</i> ssp. <i>canescens</i>	50–101	–
	twinleaf senna	SEBA3	<i>Senna bauhinioides</i>	50–101	–
	spreading fanpetals	SIAB	<i>Sida abutifolia</i>	50–101	–
	desert globemallow	SPAM2	<i>Sphaeralcea ambigua</i>	50–101	–
	brownplume wirelettuce	STPA4	<i>Stephanomeria pauciflora</i>	50–101	–
10				50	
	carelessweed	AMPA	<i>Amaranthus palmeri</i>	50	–
	pioneer rockcress	ARPL	<i>Arabis platysperma</i>	50	–
	clasping milkweed	ASAM	<i>Asclepias amplexicaulis</i>	50	–
	aster	ASTER	<i>Aster</i>	50	–
	milkvetch	ASTRA	<i>Astragalus</i>	50	–
	hairyseed bahia	BAAB	<i>Bahia absinthifolia</i>	50	–
	spiderling	BOERH2	<i>Boerhavia</i>	50	–
	hoary bowlesia	BOIN3	<i>Bowlesia incana</i>	50	–
	lipfern	CHEIL	<i>Cheilanthes</i>	50	–
	goosefoot	CHENO	<i>Chenopodium</i>	50	–
	fingerleaf gourd	CUDI	<i>Cucurbita digitata</i>	50	–
	American wild carrot	DAPU3	<i>Daucus pusillus</i>	50	–
	western tansymustard	DEPI	<i>Descurainia pinnata</i>	50	–
	fetid marigold	DYPA	<i>Dyssodia papposa</i>	50	–
	flatcrown buckwheat	ERDE6	<i>Eriogonum deflexum</i>	50	–
	spurge	EUPHO	<i>Euphorbia</i>	50	–
	Indian rushpea	HOGL2	<i>Hoffmannseggia glauca</i>	50	–
	redstar	IPCO3	<i>Ipomoea coccinea</i>	50	–
	ragged nettlespurge	JAMA	<i>Jatropha macrorhiza</i>	50	–
	prickly lettuce	LASE	<i>Lactuca serriola</i>	50	–
	shaggyfruit pepperweed	LELA	<i>Lepidium lasiocarpum</i>	50	–
	intermediate pepperweed	LEVIM	<i>Lepidium virginicum</i> var. <i>medium</i>	50	–
	common deerweed	LOSC2	<i>Lotus scoparius</i>	50	–
	blazingstar	MENTZ	<i>Mentzelia</i>	50	–
	minerslettuce	MONTI	<i>Montia</i>	50	–
	cloak fern	NOTHO	<i>Notholaena</i>	50	–

	owl's-clover	ORTHO	<i>Orthocarpus</i>	50	–
	Florida pellitory	PAFL3	<i>Parietaria floridana</i>	50	–
	chinchweed	PECTI	<i>Pectis</i>	50	–
	cliffbrake	PELLA	<i>Pellaea</i>	50	–
	Parry's beardtongue	PEPA24	<i>Penstemon parryi</i>	50	–
	Nine Mile Canyon phacelia	PHNO	<i>Phacelia novemmillensis</i>	50	–
	desert Indianwheat	PLOV	<i>Plantago ovata</i>	50	–
	silverleaf nightshade	SOEL	<i>Solanum elaeagnifolium</i>	50	–
	pricklyleaf dogweed	THAC	<i>Thymophylla acerosa</i>	50	–
	rue of the mountains	THTE2	<i>Thamnosma texana</i>	50	–
	woolly tidentromia	TILA2	<i>Tidentromia lanuginosa</i>	50	–
	catnip noseburn	TRNE	<i>Tragia nepetifolia</i>	50	–
	verbena	VEPO4	<i>Verbena polystachya</i>	50	–
	American vetch	VIAM	<i>Vicia americana</i>	50	–
	garden vetch	VISAN2	<i>Vicia sativa ssp. nigra</i>	50	–

Shrub/Vine

11				50–101	
	whitethorn acacia	ACCO2	<i>Acacia constricta</i>	50–101	–
	Wright's beebrush	ALWR	<i>Aloysia wrightii</i>	50–101	–
	Palmer's cock's comb	CEPA5	<i>Celosia palmeri</i>	50–101	–
	creosote bush	LATRT	<i>Larrea tridentata var. tridentata</i>	50–101	–
12				50–101	
	pelotazo	ABIN	<i>Abutilon incanum</i>	50–101	–
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	50–101	–
	yerba de pasmo	BAPT	<i>Baccharis pteronioides</i>	50–101	–
	resinleaf brickellbush	BRBA2	<i>Brickellia baccharidea</i>	50–101	–
	fairyduster	CAER	<i>Calliandra eriophylla</i>	50–101	–
	Cooley's bundleflower	DECO2	<i>Desmanthus cooleyi</i>	50–101	–
	ookow	DICO19	<i>Dichelostemma congestum</i>	50–101	–
	longleaf jointfir	EPTR	<i>Ephedra trifurca</i>	50–101	–
	bastardsage	ERWR	<i>Eriogonum wrightii</i>	50–101	–
	rock sage	SAPI2	<i>Salvia pinguifolia</i>	50–101	–
	American threefold	TRCA8	<i>Trixis californica</i>	50–101	–
	desert zinnia	ZIAC	<i>Zinnia acerosa</i>	50–101	–
13				10–50	
	pelotazo	ABIN	<i>Abutilon incanum</i>	10–50	–
	prairie acacia	ACAN	<i>Acacia angustissima</i>	10–50	–
	catclaw acacia	ACGR	<i>Acacia greggii</i>	10–50	–
	milfoil wattle	ACMI	<i>Acacia millefolia</i>	10–50	–
	netleaf hackberry	CELAR	<i>Celtis laevigata var. reticulata</i>	10–50	–
	oneseed juniper	JUMO	<i>Juniperus monosperma</i>	10–50	–
	desert-thorn	LYCIU	<i>Lycium</i>	10–50	–
	mariola	PAIN2	<i>Parthenium incanum</i>	10–50	–
	honey mesquite	PRGLG	<i>Prosopis glandulosa var. glandulosa</i>	10–50	–

	littleleaf sumac	RHMI3	<i>Rhus microphylla</i>	10–50	–
	Wright's mock buckthorn	SAWR	<i>Sageretia wrightii</i>	10–50	–
	woody crinklemat	TICAC	<i>Tiquilia canescens</i> var. <i>canescens</i>	10–50	–
	lotebush	ZIOB	<i>Ziziphus obtusifolia</i>	10–50	–
14				10–20	
	desertbroom	BASA2	<i>Baccharis sarothroides</i>	10–20	–
	threadleaf snakeweed	GUMI	<i>Gutierrezia microcephala</i>	10–20	–
	broom snakeweed	GUSA2	<i>Gutierrezia sarothrae</i>	10–20	–
	burroweed	ISTE2	<i>Isocoma tenuisecta</i>	10–20	–
	alyssumleaf phlox	PHALA4	<i>Phlox alyssifolia</i> ssp. <i>abdit</i>	10–20	–
	Douglas' spikemoss	SEDO	<i>Selaginella douglasii</i>	10–20	–
15				10–50	
	desert agave	AGDE	<i>Agave deserti</i>	10–50	–
	Bill Williams Mountain giant hyssop	AGPA	<i>Agastache pallidiflora</i>	10–50	–
	common sotol	DAWH2	<i>Dasyllirion wheeleri</i>	10–50	–
	candy barrelcactus	FEWI	<i>Ferocactus wislizeni</i>	10–50	–
	ocotillo	FOSP2	<i>Fouquieria splendens</i>	10–50	–
	globe cactus	MAMMI	<i>Mammillaria</i>	10–50	–
	sacahuista	NOMI	<i>Nolina microcarpa</i>	10–50	–
	beavertail pricklypear	OPBA2	<i>Opuntia basilaris</i>	10–50	–
	limestone adderstongue	OPEN	<i>Ophioglossum engelmannii</i>	10–50	–
	banana yucca	YUBA	<i>Yucca baccata</i>	10–50	–
	Schott's yucca	YUSC	<i>Yucca ×schottii</i>	10–50	–

Animal community

This site produces fair quality herbaceous forage. High soil pH is somewhat offset by inherent soil fertility. The site is not well suited to summertime grazing by cows with calves. Mother cow pairs will only use 300-400 feet, up or down in elevation, from water in the summer. Dry cows will use double that distance in the cool season. Yearling cattle make good use of the site in any season. Slope aspect affects both the intensity of use and seasonal use patterns. North-south trending slopes will be used fairly well even in summer, as the wets slope is shady in the morning and the east slope is shady in the afternoon. South facing slopes are used heavily in the winter-spring due to warmth from cold weather and early greenup of warm season grasses. North facing slopes, being shady and cooler, are used in the summer, and especially in the fall as the perennial grasses stay greener longer into the cool season. Very dark colored rock and soil surfaces cause early soil warming and, consequently, earlier greenup of warm season perennial grasses in the spring. Seep and canyon water is available in most winters from December-February.

Water developments are very important to wildlife on this site. The site is home to a wide variety of wildlife species due to the diversity of food, cover and edge.

Type locality

Location 1: Cochise County, AZ	
Township/Range/Section	T23S R29E S29
General legal description	Rocker M Ranch
Location 2: Pima County, AZ	

Township/Range/Section	T18S R10E S28
General legal description	Batamote Ranch
Location 3: Cochise County, AZ	
Township/Range/Section	T20S R24E S7
General legal description	Cowan Ranch

Contributors

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 Unknown
 Unknwon

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	USDA-NRCS Tucson Area Office
Date	02/25/2005
Approved by	Byron Lambeth
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None present on this site.

2. **Presence of water flow patterns:** Uncommon; probably cover no more than 10% of area; discontinuous; very short, usually less than 1 foot in length; broken primarily by high rock and gravel cover.

3. **Number and height of erosional pedestals or terracettes:** Pedestals are uncommon on perennial grass and shrubs; Limited soil material not conducive to forming continuous stands of plants that promote terracettes; high rock cover forms limited natural terracettes.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Estimated at 0-5%.

5. **Number of gullies and erosion associated with gullies:** None present on this site.
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6. **Extent of wind scoured, blowouts and/or depositional areas:** None present on this site.
-
7. **Amount of litter movement (describe size and distance expected to travel):** All litter size classes staying in place.
-
8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** No slake test done. Expect values of 1-2 in canopy interspaces, and 4 - 6 under plant canopies.
-
9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Weak coarse granular; Color is 10YR5/4 Dry, 10YR3/2 Moist; thickness to 3 inches.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Cover estimated as: Canopy 20-30%, Basal 5%, Litter 45-55%, and Gravel 30%; 10% of canopy cover is perennial mid grasses, 25% short grasses, 5% perennial forbs, 45% shrubs and 10% subshrubs. Cover is well dispersed throughout site.
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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):** None present 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: Perennial grass = shrubs
- Sub-dominant: annual grasses & forbs > subshrubs > succulents = perennial forbs
- Other:
- Additional:
-
13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** 2-3% of perennial grass plants have died with skeletons still present; 50% of basal cover of perennial grasses has been lost in recent prolonged drought.
-
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):** 600 lbs/acre unfavorable precipitation, 900 lbs/acre normal precipitation, 1,300 lbs/acre 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: turpentine bush, jojoba, whitethorn, mesquite, prickly pear, cane cholla, ocotillo may increase to undesirable levels in the absence of natural fires; Red brome and wild oats.
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17. **Perennial plant reproductive capability:** Not affected even following several years of prolonged drought period for region.
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