

Ecological site R040XB219AZ Schist Hills 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.

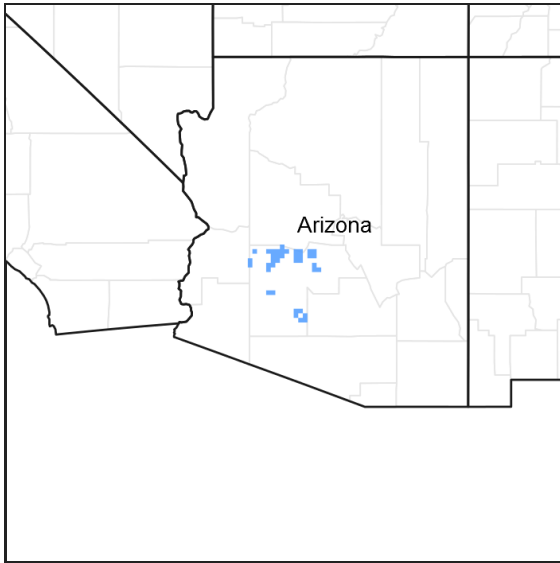


Figure 1. Mapped extent

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 typical 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) <i>Parkinsonia florida</i> |
| Shrub | (1) <i>Ambrosia deltoidea</i> (2) <i>Eriogonum fasciculatum</i> |
| Herbaceous | (1) <i>Pleuraphis rigida</i> (2) <i>Tridens muticus var. elongatus</i> |

Physiographic features

This site occurs as steep hills, schist hillslopes and mountain slopes. Rock outcrop consists of vertically oriented, fractured schist and can make up 15-20% of the area. Outcrops are usually the ridge and mountain tops.

Table 2. Representative physiographic features

| | |
|--------------------|------------------------------------|
| Landforms | (1) Mountain slope |
| Flooding duration | Very brief (4 to 48 hours) |
| Flooding frequency | None |
| Ponding frequency | None |
| Elevation | 1,500–3,500 ft |
| Slope | 15–70% |
| Aspect | Aspect is not a significant factor |

Climatic features

Precipitation in the sub-resource area ranges from 7 to 10 inches. Elevations range from 900 to 2050 feet. Winter-summer 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) | 10 in |

Influencing water features

Soil features

These soils are very shallow to shallow. They are generally very gravelly loams and weakly calcareous with a cover of small rock fragments. Plant-soil relationships is generally fair.

Soils mapped on this site include: SSA-645 Aguila-Carefree area MU's Dixaleta-32 & Schenco-108 & 109; SSA-653 Laposas-58 and Schenco-58.

Table 4. Representative soil features

| | |
|---------------------------------------|--|
| Surface texture | (1) Gravelly loam (2) Channery loam |
| Family particle size | (1) Loamy |
| Drainage class | Well drained to somewhat excessively drained |
| Permeability class | Moderately slow to moderate |
| Soil depth | 5–20 in |
| Surface fragment cover <=3" | 35–80% |
| Available water capacity (0-40in) | 0–2.5 in |
| Electrical conductivity (0-40in) | 0–4 mmhos/cm |
| Sodium adsorption ratio (0-40in) | 1–5 |
| Soil reaction (1:1 water) (0-40in) | 7.4–8.4 |

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 grazing, fire, 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 shown for the group. Divide the resulting total by the total normal year production shown in the plant community description. If 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 native plant community on this site is a mixture of perennial grasses, desert shrubs and cacti. Annual grasses and forbs make up a fair portion of the plant community. As the desirable perennial grasses decline on this site, undesirable species such as chollas, paperflower and bursage will increase.

Table 5. Annual production by plant type

| Plant Type | Low (Lb/Acre) | Representative Value (Lb/Acre) | High (Lb/Acre) |
|-----------------|---------------|--------------------------------|----------------|
| Shrub/Vine | 225 | 259 | 293 |
| Grass/Grasslike | 113 | 146 | 180 |
| Forb | 45 | 56 | 68 |
| Tree | 23 | 34 | 45 |
| Total | 406 | 495 | 586 |

Figure 5. Plant community growth curve (percent production by month). AZ4021, 40.2 7-10" p.z. upland sites. Plants remain green all year, most growth occurs in late winter to early spring..

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

Additional community tables

Table 6. Community 1.1 plant community composition

| Group | Common Name | Symbol | Scientific Name | Annual Production (Lb/Acre) | Foliar Cover (%) |
|------------------------|-------------------------------|--------|---|-----------------------------|------------------|
| Grass/Grasslike | | | | | |
| 0 | Dominant Grasses | | | 113–180 | |
| | big galleta | PLRI3 | <i>Pleuraphis rigida</i> | 45–68 | – |
| | slim tridens | TRMU | <i>Tridens muticus</i> | 23–45 | – |
| | bush muhly | MUPO2 | <i>Muhlenbergia porteri</i> | 5–23 | – |
| 1 | Misc Perennial Grasses | | | 5–23 | |
| | threeawn | ARIST | <i>Aristida</i> | 1–5 | – |
| | tobosagrass | PLMU3 | <i>Pleuraphis mutica</i> | 1–5 | – |
| | large-spike bristlegrass | SEMA5 | <i>Setaria macrostachya</i> | 1–5 | – |
| | nineawn pappusgrass | ENDE | <i>Enneapogon desvauxii</i> | 0–5 | – |
| | tanglehead | HECO10 | <i>Heteropogon contortus</i> | 0–4 | – |
| | sand dropseed | SPCR | <i>Sporobolus cryptandrus</i> | 0–4 | – |
| | Arizona cottontop | DICA8 | <i>Digitaria californica</i> | 0–4 | – |
| | desert needlegrass | ACSP12 | <i>Achnatherum speciosum</i> | 0–4 | – |
| | red grama | BOTR2 | <i>Bouteloua trifida</i> | 0–2 | – |
| 2 | Annual Grasses | | | 23–45 | |
| | Hall's panicgrass | PAHA | <i>Panicum hallii</i> | 1–5 | – |
| | Bigelow's bluegrass | POBI | <i>Poa bigelovii</i> | 1–5 | – |
| | Arizona signalgrass | URAR | <i>Urochloa arizonica</i> | 1–5 | – |
| | Pacific fescue | VUMIP | <i>Vulpia microstachys var. pauciflora</i> | 1–4 | – |
| | sixweeks threeawn | ARAD | <i>Aristida adscensionis</i> | 1–4 | – |
| | needle grama | BOAR | <i>Bouteloua aristidoides</i> | 1–4 | – |
| | sixweeks grama | BOBA2 | <i>Bouteloua barbata</i> | 1–4 | – |
| | Rothrock's grama | BORO2 | <i>Bouteloua rothrockii</i> | 1–4 | – |
| | Arizona brome | BRAR4 | <i>Bromus arizonicus</i> | 1–4 | – |
| | low woollygrass | DAPU7 | <i>Dasyochloa pulchella</i> | 1–4 | – |
| | littleseed muhly | MUMI | <i>Muhlenbergia microsperma</i> | 1–4 | – |
| Forb | | | | | |
| 4 | Perennial Forbs | | | 23–45 | |
| | desert globemallow | SPAM2 | <i>Sphaeralcea ambigua</i> | 2–5 | – |
| | New Mexico silverbush | ARNE2 | <i>Argythamnia neomexicana</i> | 2–5 | – |
| | wishbone-bush | MILAV | <i>Mirabilis laevis var. villosa</i> | 2–5 | – |
| | Louisiana vetch | VILUL2 | <i>Vicia ludoviciana ssp. ludoviciana</i> | 2–5 | – |
| | Mojave woodyaster | XYTOT | <i>Xylorhiza tortifolia var. tortifolia</i> | 1–4 | – |
| | desert Indianwheat | PLOV | <i>Plantago ovata</i> | 1–4 | – |
| | trailing windmills | ALIN | <i>Allionia incarnata</i> | 2–4 | – |
| | common fiddleneck | AMME12 | <i>Amsinckia menziesii var. intermedia</i> | 1–4 | – |

| | COMMON NAME | ABBREV | SCIENTIFIC NAME | FR | FL |
|---|------------------------------|--------|---|------|----|
| | bristly fiddleneck | AMTE3 | <i>Amsinckia tessellata</i> | 1-4 | - |
| | milkvetch | ASTRA | <i>Astragalus</i> | 2-4 | - |
| | desert marigold | BAMU | <i>Baileya multiradiata</i> | 1-4 | - |
| | cryptantha | CRYPT | <i>Cryptantha</i> | 1-4 | - |
| | bluedicks | DICAC5 | <i>Dichelostemma capitatum ssp. capitatum</i> | 1-4 | - |
| | desert trumpet | ERIN4 | <i>Eriogonum inflatum</i> | 1-4 | - |
| | brownplume wirelettuce | STPA4 | <i>Stephanomeria pauciflora</i> | 1-4 | - |
| 5 | Annual Forbs | | | 0-23 | |
| | aster | ASTER | <i>Aster</i> | 0-1 | - |
| | scarlet spiderling | BOCO | <i>Boerhavia coccinea</i> | 0-1 | - |
| | spiderling | BOERH2 | <i>Boerhavia</i> | 0-1 | - |
| | hoary bowlesia | BOIN3 | <i>Bowlesia incana</i> | 0-1 | - |
| | California suncup | CACA32 | <i>Camissonia californica</i> | 0-1 | - |
| | exserted Indian paintbrush | CAEXE | <i>Castilleja exserta ssp. exserta</i> | 0-1 | - |
| | mariposa lily | CALOC | <i>Calochortus</i> | 0-1 | - |
| | brittle spineflower | CHBR | <i>Chorizanthe brevicornu</i> | 0-1 | - |
| | devil's spineflower | CHRI | <i>Chorizanthe rigida</i> | 0-1 | - |
| | New Mexico thistle | CINE | <i>Cirsium neomexicanum</i> | 0-1 | - |
| | hairy prairie clover | DAMO | <i>Dalea mollis</i> | 0-1 | - |
| | American wild carrot | DAPU3 | <i>Daucus pusillus</i> | 0-1 | - |
| | larkspur | DELPH | <i>Delphinium</i> | 0-1 | - |
| | flatcrown buckwheat | ERDE6 | <i>Eriogonum deflexum</i> | 0-1 | - |
| | woollystar | ERIAS | <i>Eriastrum</i> | 0-1 | - |
| | fleabane | ERIGE2 | <i>Erigeron</i> | 0-1 | - |
| | California poppy | ESCAM | <i>Eschscholzia californica ssp. mexicana</i> | 0-1 | - |
| | spurge | EUPHO | <i>Euphorbia</i> | 0-1 | - |
| | gilia | GILIA | <i>Gilia</i> | 0-1 | - |
| | Gordon's bladderpod | LEGO | <i>Lesquerella gordonii</i> | 0-1 | - |
| | shaggyfruit pepperweed | LELA | <i>Lepidium lasiocarpum</i> | 0-1 | - |
| | pepperweed | LEPID | <i>Lepidium</i> | 0-1 | - |
| | foothill deervetch | LOHU2 | <i>Lotus humistratus</i> | 0-1 | - |
| | strigose bird's-foot trefoil | LOSTT | <i>Lotus strigosus var. tomentellus</i> | 0-1 | - |
| | Coulter's lupine | LUSP2 | <i>Lupinus sparsiflorus</i> | 0-1 | - |
| | desertdandelion | MALAC3 | <i>Malacothrix</i> | 0-1 | - |
| | Parry's false prairie-clover | MAPA7 | <i>Marina parryi</i> | 0-1 | - |
| | blazingstar | MENTZ | <i>Mentzelia</i> | 0-1 | - |
| | glandular threadplant | NEGL | <i>Nemacladus glanduliferus</i> | 0-1 | - |
| | evening primrose | OENOT | <i>Oenothera</i> | 0-1 | - |
| | combseed | PECTO | <i>Pectocarya</i> | 0-1 | - |
| | Emory's rockdaisy | PEEM | <i>Perityle emoryi</i> | 0-1 | - |
| | beardtongue | PENST | <i>Penstemon</i> | 0-1 | - |

| | | | | | |
|-------------------|--------------------------|--------|---|--------|---|
| | woolly plantain | PLPA2 | <i>Plantago patagonica</i> | 0–1 | – |
| | New Mexico plumeseed | RANE | <i>Rafinesquia neomexicana</i> | 0–1 | – |
| | chia | SACO6 | <i>Salvia columbariae</i> | 0–1 | – |
| | Coues' cassia | SECO10 | <i>Senna covesii</i> | 0–1 | – |
| | Lemmon's ragwort | SELE8 | <i>Senecio lemmonii</i> | 0–1 | – |
| | sleepy silene | SIAN2 | <i>Silene antirrhina</i> | 0–1 | – |
| | catchfly | SILEN | <i>Silene</i> | 0–1 | – |
| | blue-eyed grass | SISYR | <i>Sisyrinchium</i> | 0–1 | – |
| | woolly tidentromia | TILA2 | <i>Tidentromia lanuginosa</i> | 0–1 | – |
| Shrub/Vine | | | | | |
| 6 | Dominant Shrubs | | | 85–135 | |
| | triangle bur ragweed | AMDE4 | <i>Ambrosia deltoidea</i> | 23–45 | – |
| | brittlebush | ENFA | <i>Encelia farinosa</i> | 23–40 | – |
| | creosote bush | LATRT | <i>Larrea tridentata</i> var. <i>tridentata</i> | 20–35 | – |
| | desert ironwood | OLTE | <i>Olneya tesota</i> | 15–30 | – |
| | littleleaf ratany | KRER | <i>Krameria erecta</i> | 15–30 | – |
| | Eastern Mojave buckwheat | ERFA2 | <i>Eriogonum fasciculatum</i> | 5–10 | – |
| | ocotillo | FOSP2 | <i>Fouquieria splendens</i> | 1–5 | – |
| 7 | Mid Shrubs | | | 45–70 | |
| | burrobush | AMDU2 | <i>Ambrosia dumosa</i> | 5–10 | – |
| | Nevada jointfir | EPNE | <i>Ephedra nevadensis</i> | 5–10 | – |
| | longleaf jointfir | EPTR | <i>Ephedra trifurca</i> | 5–10 | – |
| | Mexican bladdersage | SAME | <i>Salazaria mexicana</i> | 5–10 | – |
| | jojoba | SICH | <i>Simmondsia chinensis</i> | 5–10 | – |
| | Coulter's brickellbush | BRCO | <i>Brickellia coulteri</i> | 3–8 | – |
| | narrowleaf silverbush | ARLA12 | <i>Argythamnia lanceolata</i> | 3–5 | – |
| | California fagonbush | FALA | <i>Fagonia laevis</i> | 0–5 | – |
| | southern goldenbush | ISPL | <i>Isocoma pluriflora</i> | 0–5 | – |
| | slender janusia | JAGR | <i>Janusia gracilis</i> | 0–5 | – |
| | desert-thorn | LYCIU | <i>Lycium</i> | 3–5 | – |
| | Goodding's tansyaster | MAPIG2 | <i>Machaeranthera pinnatifida</i> ssp. <i>gooddingii</i> var. <i>gooddingii</i> | 3–5 | – |
| | rough menodora | MESC | <i>Menodora scabra</i> | 0–5 | – |
| | slender poreleaf | POGR5 | <i>Porophyllum gracile</i> | 0–5 | – |
| | toothleaf goldeneye | VIDE3 | <i>Viguiera dentata</i> | 3–5 | – |
| 8 | Misc Shrubs | | | 90–145 | |
| | catclaw acacia | ACGR | <i>Acacia greggii</i> | 10–25 | – |
| | spearleaf brickellbush | BRAT | <i>Brickellia atractyloides</i> | 10–25 | – |
| | white ratany | KRGR | <i>Krameria grayi</i> | 10–25 | – |
| | whitestem paperflower | PSCO2 | <i>Psilostrophe cooperi</i> | 10–25 | – |
| | button brittlebush | ENFR | <i>Encelia frutescens</i> | 10–20 | – |
| | bastardsage | ERWR | <i>Eriogonum wrightii</i> | 5–15 | – |
| | fairyduster | CAER | <i>Calliandra eriophylla</i> | 5–15 | – |
| | whitethorn acacia | ACCO2 | <i>Acacia constricta</i> | 5–15 | – |

| | | | | | |
|-------------|-----------------------------|--------|--|-------|---|
| | desert lavender | HYEM | <i>Hyptis emoryi</i> | 5–15 | – |
| | San Felipe dogweed | ADPO | <i>Adenophyllum porophylloides</i> | 5–15 | – |
| | American threefold | TRCA8 | <i>Trixis californica</i> | 0–15 | – |
| | Wright's beebrush | ALWR | <i>Aloysia wrightii</i> | 5–10 | – |
| | sweetbush | BEJU | <i>Bebbia juncea</i> | 5–10 | – |
| | pelotazo | ABIN | <i>Abutilon incanum</i> | 5–10 | – |
| | woody crinklemat | TICAC | <i>Tiquilia canescens var. canescens</i> | 0–10 | – |
| | ragged rockflower | CRBI2 | <i>Crossosoma bigelovii</i> | 5–10 | – |
| | starry bedstraw | GASTE2 | <i>Galium stellatum ssp. eremicum</i> | 0–5 | – |
| 10 | Succulents | | | 5–23 | |
| | saguaro | CAGI10 | <i>Carnegiea gigantea</i> | 2–5 | – |
| | buckhorn cholla | CYACA2 | <i>Cylindropuntia acanthocarpa var. acanthocarpa</i> | 0–2 | – |
| | teddybear cholla | CYBI9 | <i>Cylindropuntia bigelovii</i> | 1–2 | – |
| | Wiggins' cholla | CYEC3 | <i>Cylindropuntia echinocarpa</i> | 0–2 | – |
| | Christmas cactus | CYLE8 | <i>Cylindropuntia leptocaulis</i> | 1–2 | – |
| | Engelmann's hedgehog cactus | ECEN | <i>Echinocereus engelmannii</i> | 1–2 | – |
| | California barrel cactus | FECYC | <i>Ferocactus cylindraceus var. cylindraceus</i> | 1–2 | – |
| | candy barrelcactus | FEWI | <i>Ferocactus wislizeni</i> | 1–2 | – |
| | Graham's nipple cactus | MAGR9 | <i>Mammillaria grahamii</i> | 1–2 | – |
| | common fishhook cactus | MATE4 | <i>Mammillaria tetrancistra</i> | 1–2 | – |
| | beavertail pricklypear | OPBA2 | <i>Opuntia basilaris</i> | 1–2 | – |
| | dollarjoint pricklypear | OPCH | <i>Opuntia chlorotica</i> | 1–2 | – |
| | cactus apple | OPEN3 | <i>Opuntia engelmannii</i> | 1–2 | – |
| | desert agave | AGDE | <i>Agave deserti</i> | 0–2 | – |
| Tree | | | | | |
| 9 | Trees | | | 23–45 | |
| | blue paloverde | PAFL6 | <i>Parkinsonia florida</i> | 12–23 | – |
| | yellow paloverde | PAMI5 | <i>Parkinsonia microphylla</i> | 12–23 | – |

Animal community

This site has less sloping areas of hills that are easier for animals to travel. Fencing and water improvements are needed to improve distribution and utilization. Grazing should be deferred during the spring and summer rains to provide for good growth of the grasses and browse to improve condition.

Forage diversity is good but a lack of natural water and cover for larger wildlife animals, this is provided by associated canyon bottoms. Water developments are very important to wildlife on this site.

Recreational uses

Recreation activity on this site is restricted in the hot summer months of June through August. Steep sharp ridges limit some activities. There is a good variety of desert shrubs and cacti with flowers during certain times of the year and provide good color contrast against the schist outcrops. Activities include horseback riding, wildlife observation, hunting, hiking and photography.

Other products

In some areas there is mining as a use.

Type locality

| | |
|---------------------------------|---|
| Location 1: Maricopa County, AZ | |
| Township/Range/Section | T3N R6E S35 |
| General legal description | Salt River Indian Reservation. Also located in Sitgreaves-Red Hill allotment, Belmont Mountains Sec 32, T4N, R6W and Ives Peak - Buckskin Mountains Sec 3, T9N, R13W. |

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, Shai Schendel, Scott Stratton, Dan Robinett, Emilio Carrillo |
| Contact for lead author | NRCS Tucson Area Office |
| Date | 12/14/2005 |
| Approved by | S. Cassady |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

Indicators

- 1. Number and extent of rills:** 5-8 feet apart

- 2. Presence of water flow patterns:** very discontinuous, hard to observe due to high gravel and rock cover.

- 3. Number and height of erosional pedestals or terracettes:** Erosional pedestals are very infrequent. Accumulated pedestals are 0-1/2 inch high. Terracettes are only formed by rock fragments.

- 4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 1-2% (Low values due to high rock and gravel cover). 2-3% woody litter, 95-97% rock fragment cover.

- 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):** Most litter size classes stay in place due to high rock and gravel cover.
-
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 ratings of 1-3 in perennial plant interspaces, 4-5 under shrub canopies.
-
9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** channery thickness to 2 inches.
-
10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** 8-10% canopy: 85% half shrubs, 11% shrubs, 4% trees. Lichens and moss cover 10-15% of soil surface. Cover is well dispersed throughout site.
-
11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None
-
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: subshrubs > annuals > shrubs > trees
- Sub-dominant:
- Other:
- Additional:
-
13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** 30% mortality of half shrubs ad shrubs. 100% mortality of perennial grasses and forbs.
-
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):** 300 lbs/ac unfavorable precipitation, 500 lbs/ac normal precipitation, 800 lbs/ac favorable precipitation.
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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: Sahara mustard, Lonon rocket, buffelgrass, red brome, filaree

17. **Perennial plant reproductive capability:** No impaired for shrubs; drought impaired for perennial grasses and forbs.
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