

Ecological site R041XB211AZ

Saline Bottom 8-12" p.z.

Accessed: 02/10/2025

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.

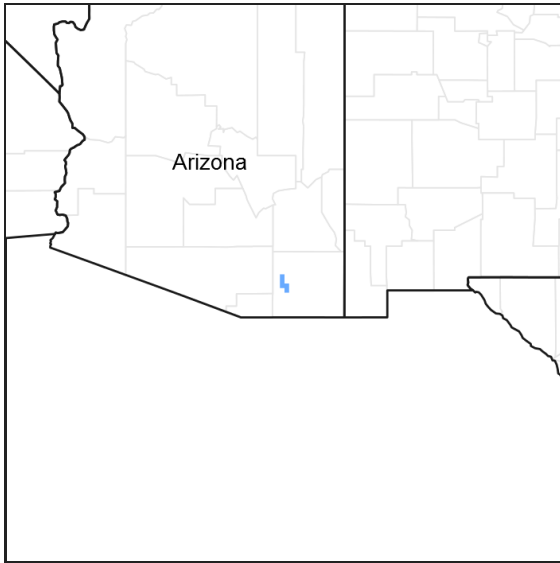


Figure 1. Mapped extent

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, soap tree yucca, creosote bush, 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

| | |
|-------------|--------------------------------------|
| R041XC312AZ | Loamy Bottom 12-16" p.z. |
| R041XC313AZ | Loamy Upland 12"-16" p.z. |
| R041XC319AZ | Sandy Loam Upland 12-16" p.z. |

Similar sites

| | |
|-------------|--------------------------|
| R041XB211AZ | Saline Bottom 8-12" p.z. |
|-------------|--------------------------|

Table 1. Dominant plant species

| | |
|------------|--------------------------------|
| Tree | Not specified |
| Shrub | (1) <i>atriplex obovata</i> |
| Herbaceous | (1) <i>sporobolus airoides</i> |

Physiographic features

This site occurs in the lowest elevations of the Madrean Basin and Range province in southeastern Arizona. It occurs on alluvial fans flanking the Gila and San Simon Rivers. It benefits on a sporadic basis from extra moisture received as runoff from the contributory watershed areas.

Table 2. Representative physiographic features

| | |
|--------------------|--|
| Landforms | (1) Alluvial fan (2) Flood plain (3) Flood-plain playa |
| 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) to brief (2 to 7 days) |
| Ponding frequency | Rare to occasional |
| Elevation | 2,600–4,000 ft |
| 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 in |

Influencing water features

There are no water features on this site.

Soil features

These soils are of various depth and textures. They have all formed in strongly saline and/or alkaline, basin floor

alluvium. Plant-soil moisture relationships are fair to poor due to infrequent flooding.

Soils mapped on this site include: SSA-666 Cochise county Northwest part MU 50 Hantz; SSA-671 Cochise county Douglas-Tombstone part MU 85 Hantz SiL saline-sodic.

Table 4. Representative soil features

| | |
|--|--|
| Surface texture | (1) Clay loam (2) Silty clay loam (3) Silty clay |
| Family particle size | (1) Clayey |
| Drainage class | Somewhat poorly drained to well drained |
| Permeability class | Moderately slow to very slow |
| Soil depth | 60 in |
| Surface fragment cover <=3" | 0–5% |
| Surface fragment cover >3" | 0–1% |
| Available water capacity (0-40in) | 3.6–6 in |
| Calcium carbonate equivalent (0-40in) | 1–20% |
| Electrical conductivity (0-40in) | 4–20 mmhos/cm |
| Sodium adsorption ratio (0-40in) | 6–60 |
| Soil reaction (1:1 water) (0-40in) | 7.4–8.4 |
| Subsurface fragment volume <=3" (Depth not specified) | 0–5% |
| Subsurface fragment volume >3" (Depth not specified) | 0–1% |

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 of a plant community described in this site description. To determine Similarity Index, compare the production (air dry weight) of each species to that shown in the plant community description. For each species, count no more than the maximum amount shown for the species, and for each group, count no more than the maximum amount shown for the 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

41.2 Saline Bottom 8-12" p.z. (R041XB211AZ)

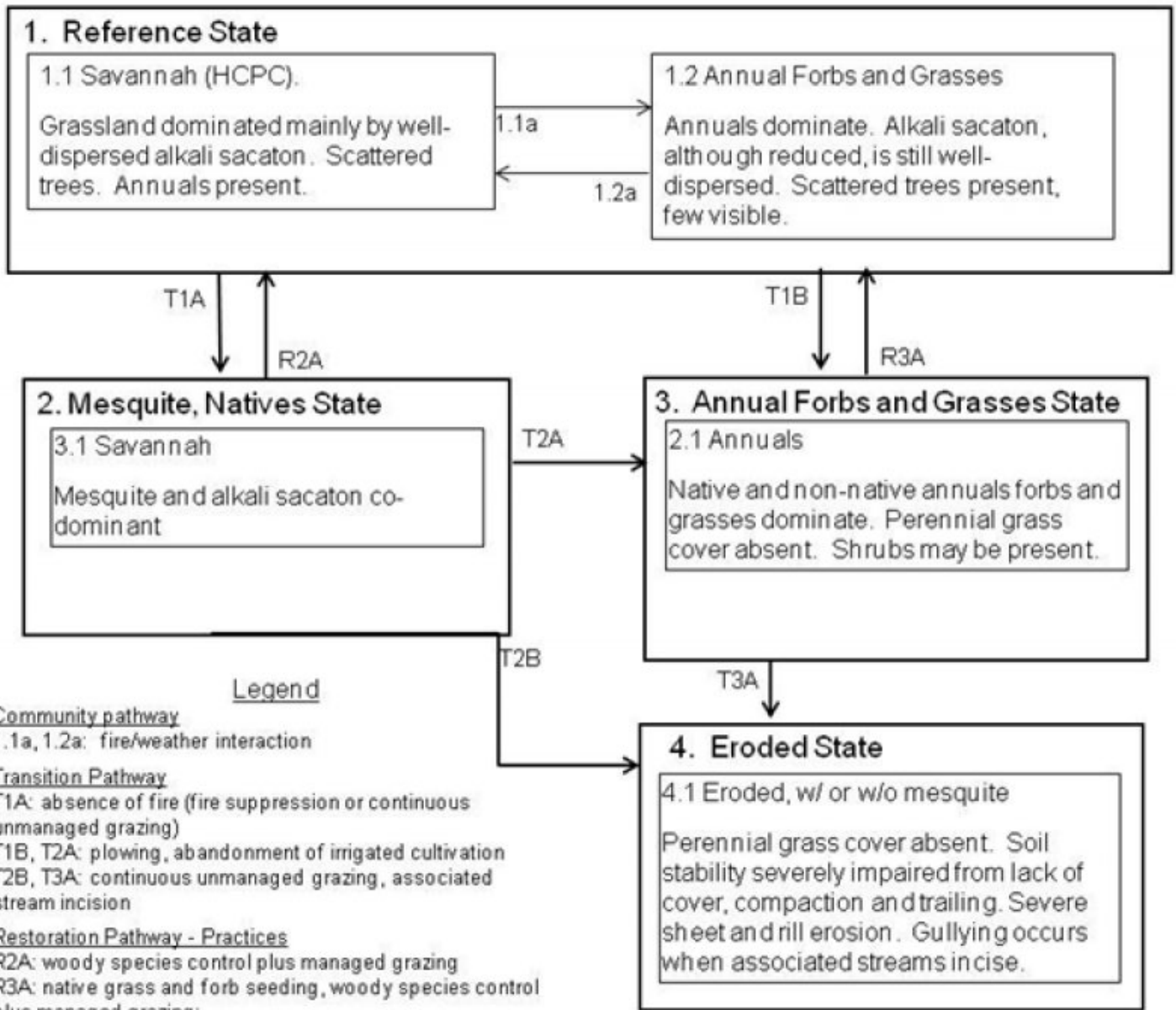


Figure 4. 41-2 Saline Bottom STM Diagram

State 1 Reference

Community 1.1 Savannah (HCPC)

The potential plant community is dominated by a warm perennial grass; alkali sacaton. Scattered trees give the site a savannah appearance. Several species of shrubs and perennial and annual forbs are unique to this site. This site is not flooded on a regular basis. Production will vary from what rainfall can produce in one year, to several times that when the site floods in another year. In large areas of this site there will be places where water concentrates and larger areas where runoff occurs. Flooding in "El Nino" years will be widespread and of long duration. As the plant community deteriorates from continuous heavy grazing and/or repeated burning alkali sacaton can decrease in cover. Mesquite can increase to densities of 20-30 percent canopy without a noticeable decline in grass under-story. Tree size varies with soil texture and depth. Areas of the site flanking the Willcox play are not subject to gully erosion as base level is controlled by the closed drainage system. However, areas which flank stream floodplains are subject to severe gully erosion if the base level of the stream is lowered and the grass

cover is depleted by improper management. Natural fire was a feature of this and helped maintain the shrub free aspect of the potential plant community.

Table 5. Annual production by plant type

| Plant Type | Low (Lb/Acre) | Representative Value (Lb/Acre) | High (Lb/Acre) |
|-----------------|---------------|--------------------------------|----------------|
| Grass/Grasslike | 406 | 1000 | 1750 |
| Forb | 6 | 30 | 125 |
| Tree | 5 | 10 | 100 |
| Shrub/Vine | 5 | 20 | 95 |
| Total | 422 | 1060 | 2070 |

Figure 6. Plant community growth curve (percent production by month).
 AZ4134, 41.3 12-16" p.z. other sites. Growth begins in the spring, semi-dormancy occurs during the May through June drought, most growth occurs during the summer rains..

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0 | 0 | 5 | 10 | 0 | 0 | 30 | 35 | 15 | 5 | 0 | 0 |

Community 1.2 Annual Forbs and Grasses

Pathway 1.1a Community 1.1 to 1.2

Natural fire controls canopy growth of mesquite and whitethorn acacia. Annual forbs and grasses populate the exposed plant interspaces among alkali sacaton.

Conservation practices

| |
|------------------------------------|
| Prescribed Burning |
| Upland Wildlife Habitat Management |
| Prescribed Grazing |

Pathway 1.2a Community 1.2 to 1.1

In the 10-20 year interval between natural fire events, alkali sacaton resumes dominance of plant community. Mesquite re-sprout after fire to return savannah aspect to landscape.

Conservation practices

| |
|------------------------------------|
| Upland Wildlife Habitat Management |
| Prescribed Grazing |

State 2 Mesquite, native grass

Community 2.1 Mesquite, native grass

Mesquite increases in the absence of fire for long periods of time. Alkalai sacaton can maintain good cover with up to 25% canopy of mesquite in occasionally flooded situations.

State 3
Annual grasses and forbs

Community 3.1
Annual grasses and forbs

This state occurs where the native plant community has been plowed and the site brought under cultivation (irrigated agriculture) and subsequently abandoned. Native and non-native annual forbs and grasses dominate the plant community. Shrubs like desert broom, jimmyweed and burroweed can be present.

State 4
Eroded, w/wo mesquite

Community 4.1
Eroded, w/wo mesquite

This state occurs where the site has been depleted of grass cover either due to cultivation or due to the interactions of fire, drought and continuous grazing. Base level changes of associated stream systems will cause gulling of the site in this condition. Areas of this state around the Willcox playa will not have gullies due to the base level control of the playa, but will have severe sheet and rill erosion due to lack of plant cover, soil compaction and trailing. This state can have moderate to high amounts of mesquite present. Erosion networks cause large amounts of water to be rapidly drained from the site.

Transition T1A
State 1 to 2

Long fire-free periods, fire suppression or due to grazing/consumption of fine fuel, allows mesquite unhindered growth.

Transition T1B
State 1 to 3

Conversion to and subsequent abandonment of irrigated cultivation.

Restoration pathway R2A
State 2 to 1

Returning fire to the ecosystem will not control mesquite in this State. Mechanical or chemical woody species management is needed. Grazing management and prescribed fire will maintain herbaceous community after brush control is applied.

Conservation practices

| |
|------------------------------------|
| Brush Management |
| Prescribed Burning |
| Upland Wildlife Habitat Management |
| Prescribed Grazing |

Transition T2A
State 2 to 3

Conversion to and subsequent abandonment of irrigated cultivation.

Transition T2B
State 2 to 4

Long-term unmanaged grazing affects soil site stability and hydrologic functioning. Animal trailing and soil surface compaction compound the affect of plant community changes (increased trees/decreased perennial grass community) to increase surface water run-off rather than infiltration.

Transition T3A State 3 to 4

Long-term unmanaged grazing affects soil site stability and hydrologic functioning. Animal trailing and soil surface compaction compound the affect of plant community changes (increased shrub/decreased perennial grass community) to increase surface water run-off rather than infiltration.

Restoration pathway R3A State 3 to 4

No restoration pathway known at this time. Perhaps development of enhanced native seeding techniques will occur.

Conservation practices

| |
|--|
| Brush Management |
| Mulching |
| Grazing Land Mechanical Treatment |
| Range Planting |
| Recreation Area Improvement |
| Recreation Land Grading and Shaping |
| Upland Wildlife Habitat Management |
| Prescribed Grazing |
| Road/Trail/Landing Closure and Treatment |

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 | | | | | |
| 1 | Dominant perennial grass | | | 400–1500 | |
| | alkali sacaton | SPAI | <i>Sporobolus airoides</i> | 400–1500 | – |
| 2 | Miscellaneous perennial grasses | | | 5–150 | |
| | big sacaton | SPWR2 | <i>Sporobolus wrightii</i> | 0–75 | – |
| | saltgrass | DISP | <i>Distichlis spicata</i> | 1–50 | – |
| | vine mesquite | PAOB | <i>Panicum obtusum</i> | 0–30 | – |
| | scratchgrass | MUAS | <i>Muhlenbergia asperifolia</i> | 0–25 | – |
| | creeping muhly | MURE | <i>Muhlenbergia repens</i> | 0–25 | – |
| | spidergrass | ARTE3 | <i>Aristida ternipes</i> | 0–15 | – |
| | spidergrass | ARTEG | <i>Aristida ternipes var. gentilis</i> | 0–15 | – |
| | blue grama | BOGR2 | <i>Bouteloua gracilis</i> | 0–15 | – |
| | tobosagrass | PLMU3 | <i>Pleuraphis mutica</i> | 0–15 | – |
| | knotgrass | PADI6 | <i>Paspalum distichum</i> | 0–10 | – |
| | hairy grama | BOHI2 | <i>Bouteloua hirsuta</i> | 0–10 | – |
| | Rothrock's grama | BORO2 | <i>Bouteloua rothrockii</i> | 0–10 | – |

| | | | | | |
|-------------|---------------------------|--------|--|-------|---|
| | sedge | CAREX | <i>Carex</i> | 0-5 | - |
| | flatsedge | CYPER | <i>Cyperus</i> | 0-5 | - |
| | Parish's threeawn | ARPUP5 | <i>Aristida purpurea</i> var. <i>parishii</i> | 0-5 | - |
| | burrograss | SCBR2 | <i>Scleropogon brevifolius</i> | 0-5 | - |
| | plains bristlegrass | SEVU2 | <i>Setaria vulpiseta</i> | 0-5 | - |
| | spike dropseed | SPCO4 | <i>Sporobolus contractus</i> | 0-5 | - |
| | sand dropseed | SPCR | <i>Sporobolus cryptandrus</i> | 0-5 | - |
| 3 | Annual grasses | | | 1-100 | |
| | feather fingergrass | CHVI4 | <i>Chloris virgata</i> | 1-25 | - |
| | prairie threeawn | AROL | <i>Aristida oligantha</i> | 1-25 | - |
| | needle grama | BOAR | <i>Bouteloua aristidoides</i> | 0-15 | - |
| | tapertip cupgrass | ERACA | <i>Eriochloa acuminata</i> var. <i>acuminata</i> | 0-15 | - |
| | mucronate sprangletop | LEPA6 | <i>Leptochloa panicea</i> | 0-15 | - |
| | sticky sprangletop | LEVI5 | <i>Leptochloa viscida</i> | 0-15 | - |
| | Mexican sprangletop | LEFUU | <i>Leptochloa fusca</i> ssp. <i>uninervia</i> | 0-10 | - |
| | Arizona brome | BRAR4 | <i>Bromus arizonicus</i> | 0-5 | - |
| | tufted lovegrass | ERPE | <i>Eragrostis pectinacea</i> | 0-5 | - |
| | little barley | HOPU | <i>Hordeum pusillum</i> | 0-5 | - |
| | sixweeks threeawn | ARAD | <i>Aristida adscensionis</i> | 0-5 | - |
| | delicate muhly | MUFR | <i>Muhlenbergia fragilis</i> | 0-5 | - |
| | littleseed muhly | MUMI | <i>Muhlenbergia microsperma</i> | 0-5 | - |
| | witchgrass | PACA6 | <i>Panicum capillare</i> | 0-5 | - |
| | Mexican panicgrass | PAHI5 | <i>Panicum hirticaule</i> | 0-5 | - |
| | Bigelow's bluegrass | POBI | <i>Poa bigelovii</i> | 0-5 | - |
| | poverty dropseed | SPVA | <i>Sporobolus vaginiflorus</i> | 0-5 | - |
| | Arizona signalgrass | URAR | <i>Urochloa arizonica</i> | 0-5 | - |
| | sixweeks fescue | VUOC | <i>Vulpia octoflora</i> | 0-5 | - |
| Forb | | | | | |
| 4 | Perennial forbs | | | 5-50 | |
| | fingerleaf gourd | CUDI | <i>Cucurbita digitata</i> | 1-15 | - |
| | Missouri gourd | CUFO | <i>Cucurbita foetidissima</i> | 0-15 | - |
| | weakleaf bur ragweed | AMCO3 | <i>Ambrosia confertiflora</i> | 1-15 | - |
| | alkali marsh aster | ALPA14 | <i>Almutaster pauciflorus</i> | 0-5 | - |
| | scarlet spiderling | BOCO | <i>Boerhavia coccinea</i> | 0-5 | - |
| | spiny chloracantha | CHSP11 | <i>Chloracantha spinosa</i> | 0-5 | - |
| | coyote gourd | CUPA | <i>Cucurbita palmata</i> | 0-5 | - |
| | beeblossom | GAURA | <i>Gaura</i> | 0-5 | - |
| | southwestern mock vervain | GLGO | <i>Glandularia gooddingii</i> | 0-5 | - |
| | small matweed | GUDE | <i>Guilleminea densa</i> | 0-5 | - |
| | Indian rushpea | HOGL2 | <i>Hoffmannseggia glauca</i> | 0-5 | - |
| | lacy tansyaster | MAPI | <i>Machaeranthera pinnatifida</i> | 0-5 | - |
| | camphor pluchea | PLCA7 | <i>Pluchea camphorata</i> | 0-5 | - |
| | canaigre dock | RUHY | <i>Rumex hymenosepalus</i> | 0-5 | - |

| | | | | | |
|---|-------------------------------|--------|--|------|---|
| | earleaf fanpetals | SITR | <i>Sida tragiifolia</i> | 0-5 | - |
| | silverleaf nightshade | SOEL | <i>Solanum elaeagnifolium</i> | 0-5 | - |
| | silky sophora | SONU | <i>Sophora nuttalliana</i> | 0-5 | - |
| | gooseberryleaf globemallow | SPGR2 | <i>Sphaeralcea grossulariifolia</i> | 0-5 | - |
| | spear globemallow | SPHA | <i>Sphaeralcea hastulata</i> | 0-5 | - |
| | dwarf desertpeony | ACNA2 | <i>Acourtia nana</i> | 0-2 | - |
| | clasping milkweed | ASAM | <i>Asclepias amplexicaulis</i> | 0-1 | - |
| 5 | Annual forbs | | | 1-75 | |
| | common sunflower | HEAN3 | <i>Helianthus annuus</i> | 0-50 | - |
| | common sunflower | HEAN3 | <i>Helianthus annuus</i> | 0-50 | - |
| | San Pedro matchweed | XAGY | <i>Xanthocephalum gymnospermoides</i> | 0-30 | - |
| | Nuttall's povertyweed | MONU | <i>Monolepis nuttalliana</i> | 0-30 | - |
| | salt heliotrope | HECU3 | <i>Heliotropium curassavicum</i> | 0-25 | - |
| | wheelscale saltbush | ATEL | <i>Atriplex elegans</i> | 0-25 | - |
| | carelessweed | AMPA | <i>Amaranthus palmeri</i> | 0-25 | - |
| | wheelscale saltbush | ATEL | <i>Atriplex elegans</i> | 1-25 | - |
| | Wright's saltbush | ATWR | <i>Atriplex wrightii</i> | 0-25 | - |
| | salt heliotrope | HECU3 | <i>Heliotropium curassavicum</i> | 0-25 | - |
| | seaside heliotrope | HECUO | <i>Heliotropium curassavicum var. oculatum</i> | 0-25 | - |
| | western tansymustard | DEPI | <i>Descurainia pinnata</i> | 1-25 | - |
| | Nuttall's povertyweed | MONU | <i>Monolepis nuttalliana</i> | 0-25 | - |
| | San Pedro matchweed | XAGY | <i>Xanthocephalum gymnospermoides</i> | 0-25 | - |
| | intermediate pepperweed | LEVIM | <i>Lepidium virginicum var. medium</i> | 0-15 | - |
| | hairy desertsunflower | GECA2 | <i>Geraea canescens</i> | 0-15 | - |
| | longleaf false goldeneye | HELOA2 | <i>Heliomeris longifolia var. annua</i> | 0-15 | - |
| | longleaf false goldeneye | HELOL | <i>Heliomeris longifolia var. longifolia</i> | 0-15 | - |
| | camphorweed | HESU3 | <i>Heterotheca subaxillaris</i> | 0-15 | - |
| | goosefoot | CHENO | <i>Chenopodium</i> | 0-15 | - |
| | Wright's saltbush | ATWR | <i>Atriplex wrightii</i> | 0-15 | - |
| | goosefoot | CHENO | <i>Chenopodium</i> | 0-15 | - |
| | carelessweed | AMPA | <i>Amaranthus palmeri</i> | 0-15 | - |
| | bristly fiddleneck | AMTE3 | <i>Amsinckia tessellata</i> | 0-15 | - |
| | intermediate pepperweed | LEVIM | <i>Lepidium virginicum var. medium</i> | 0-15 | - |
| | western tansymustard | DEPI | <i>Descurainia pinnata</i> | 0-15 | - |
| | longleaf false goldeneye | HELOA2 | <i>Heliomeris longifolia var. annua</i> | 0-15 | - |
| | hairy desertsunflower | GECA2 | <i>Geraea canescens</i> | 0-10 | - |
| | slender goldenweed | MAGR10 | <i>Machaeranthera gracilis</i> | 0-10 | - |
| | tanseyleaf tansyaster | MATA2 | <i>Machaeranthera tanacetifolia</i> | 0-10 | - |
| | golden crownbeard | VEEN | <i>Verbesina encelioides</i> | 0-10 | - |
| | cryptantha | CRYPT | <i>Cryptantha</i> | 0-10 | - |

| | | | | | |
|--|------------------------------|--------|---|------|---|
| | golden crownbeard | VEEN | <i>Verbesina encelioides</i> | 0–10 | – |
| | purslane | PORTU | <i>Portulaca</i> | 0–5 | – |
| | desert Indianwheat | PLOV | <i>Plantago ovata</i> | 0–5 | – |
| | shaggyfruit pepperweed | LELA | <i>Lepidium lasiocarpum</i> | 0–5 | – |
| | sleepy silene | SIAN2 | <i>Silene antirrhina</i> | 0–5 | – |
| | crestrub morning-glory | IPCO2 | <i>Ipomoea costellata</i> | 0–5 | – |
| | Thurber's morning- glory | IPTH | <i>Ipomoea thurberi</i> | 0–5 | – |
| | spurge | EUPHO | <i>Euphorbia</i> | 0–5 | – |
| | slender goldenweed | MAGR10 | <i>Machaeranthera gracilis</i> | 0–5 | – |
| | tanseyleaf tansyaster | MATA2 | <i>Machaeranthera tanacetifolia</i> | 0–5 | – |
| | New Mexico thistle | CINE | <i>Cirsium neomexicanum</i> | 0–5 | – |
| | fewflower beggarticks | BILE | <i>Bidens leptcephala</i> | 0–5 | – |
| | Coulter's spiderling | BOCO2 | <i>Boerhavia coulteri</i> | 0–5 | – |
| | crested anoda | ANCR2 | <i>Anoda cristata</i> | 0–5 | – |
| | New Mexico thistle | CINE | <i>Cirsium neomexicanum</i> | 0–5 | – |
| | Coulter's spiderling | BOCO2 | <i>Boerhavia coulteri</i> | 0–5 | – |
| | aridland goosefoot | CHDE | <i>Chenopodium desiccatum</i> | 0–5 | – |
| | sleepy silene | SIAN2 | <i>Silene antirrhina</i> | 0–5 | – |
| | purslane | PORTU | <i>Portulaca</i> | 0–5 | – |
| | seaside heliotrope | HECUO | <i>Heliotropium curassavicum</i> var. <i>oculatum</i> | 0–5 | – |
| | longleaf false goldeneye | HELOL | <i>Heliomeris longifolia</i> var. <i>longifolia</i> | 0–5 | – |
| | crestrub morning-glory | IPCO2 | <i>Ipomoea costellata</i> | 0–5 | – |
| | Thurber's morning- glory | IPTH | <i>Ipomoea thurberi</i> | 0–5 | – |
| | shaggyfruit pepperweed | LELA | <i>Lepidium lasiocarpum</i> | 0–5 | – |
| | sacred thorn-apple | DAWR2 | <i>Datura wrightii</i> | 0–2 | – |
| | spurge | EUPHO | <i>Euphorbia</i> | 0–2 | – |
| | green carpetweed | MOVE | <i>Mollugo verticillata</i> | 0–2 | – |
| | manybristle chinchweed | PEPA2 | <i>Pectis papposa</i> | 0–2 | – |
| | woolly plantain | PLPA2 | <i>Plantago patagonica</i> | 0–2 | – |
| | desert unicorn-plant | PRAL4 | <i>Proboscidea althaeifolia</i> | 0–2 | – |
| | doubleclaw | PRPA2 | <i>Proboscidea parviflora</i> | 0–2 | – |
| | spreading fanpetals | SIAB | <i>Sida abutifolia</i> | 0–2 | – |
| | Wright's thistle | CIWR | <i>Cirsium wrightii</i> | 0–2 | – |
| | southwestern pricklypoppy | ARPL3 | <i>Argemone pleiacantha</i> | 0–2 | – |
| | southwestern pricklypoppy | ARPL3 | <i>Argemone pleiacantha</i> | 0–2 | – |
| | green carpetweed | MOVE | <i>Mollugo verticillata</i> | 0–2 | – |
| | curlytop gumweed | GRNUA | <i>Grindelia nuda</i> var. <i>aphanactis</i> | 0–2 | – |
| | Coulter's horseweed | LACO13 | <i>Laennecia coulteri</i> | 0–2 | – |
| | woolly plantain | PLPA2 | <i>Plantago patagonica</i> | 0–2 | – |

| | | | | | |
|-------------------|-----------------------------|--------|--|-------|---|
| | woolly plantain | PRAL4 | <i>Proboscidea althaeifolia</i> | 0-2 | - |
| | doubleclaw | PRPA2 | <i>Proboscidea parviflora</i> | 0-2 | - |
| | spreading fanpetals | SIAB | <i>Sida abutifolia</i> | 0-2 | - |
| | vervain | VERBE | <i>Verbena</i> | 0-2 | - |
| | Wright's thistle | CIWR | <i>Cirsium wrightii</i> | 0-1 | - |
| | sacred thorn-apple | DAWR2 | <i>Datura wrightii</i> | 0-1 | - |
| | American wild carrot | DAPU3 | <i>Daucus pusillus</i> | 0-1 | - |
| Shrub/Vine | | | | | |
| 6 | Miscellaneous shrubs | | | 5-75 | |
| | fourwing saltbush | ATCA2 | <i>Atriplex canescens</i> | 1-25 | - |
| | Mojave seablite | SUMO | <i>Suaeda moquinii</i> | 0-25 | - |
| | Griffiths' saltbush | ATGR2 | <i>Atriplex griffithsii</i> | 0-15 | - |
| | cattle saltbush | ATPO | <i>Atriplex polycarpa</i> | 0-15 | - |
| | iodinebush | ALOC2 | <i>Allenrolfea occidentalis</i> | 0-15 | - |
| | shadscale saltbush | ATCO | <i>Atriplex confertifolia</i> | 0-5 | - |
| | mule-fat | BASA4 | <i>Baccharis salicifolia</i> | 0-5 | - |
| | rubber rabbitbrush | ERNAL | <i>Ericameria nauseosa ssp. consimilis var. leiosperma</i> | 0-5 | - |
| | pale desert-thorn | LYPA | <i>Lycium pallidum</i> | 0-5 | - |
| | broom dalea | PSSC6 | <i>Psoralea scoparius</i> | 0-5 | - |
| | southern goldenbush | ISPL | <i>Isocoma pluriflora</i> | 0-2 | - |
| | fringed twinevine | FUCYC | <i>Funastrum cynanchoides ssp. cynanchoides</i> | 0-2 | - |
| | Drummond's clematis | CLDR | <i>Clematis drummondii</i> | 0-2 | - |
| | longleaf jointfir | EPTR | <i>Ephedra trifurca</i> | 0-2 | - |
| | lotebush | ZIOB | <i>Ziziphus obtusifolia</i> | 0-2 | - |
| | broom snakeweed | GUSA2 | <i>Gutierrezia sarothrae</i> | 0-1 | - |
| | burroweed | ISTE2 | <i>Isocoma tenuisecta</i> | 0-1 | - |
| | desertbroom | BASA2 | <i>Baccharis sarothroides</i> | 0-1 | - |
| 7 | Succulents | | | 0-20 | |
| | candy barrelcactus | FEWI | <i>Ferocactus wislizeni</i> | 0-5 | - |
| | cactus apple | OPEN3 | <i>Opuntia engelmannii</i> | 0-5 | - |
| | hedgehog cactus | ECHIN3 | <i>Echinocereus</i> | 0-1 | - |
| Tree | | | | | |
| 8 | Trees | | | 5-100 | |
| | western honey mesquite | PRGLT | <i>Prosopis glandulosa var. torreyana</i> | 5-100 | - |
| | velvet mesquite | PRVE | <i>Prosopis velutina</i> | 0-25 | - |
| | western soapberry | SASAD | <i>Sapindus saponaria var. drummondii</i> | 0-15 | - |
| | catclaw acacia | ACGR | <i>Acacia greggii</i> | 0-15 | - |

Animal community

Alkalai sacaton usually does not green up until the first summer rains in July, so the green season is the summer rainy season. Grazing must be concentrated in the summer to effectively utilize the forage resource. Areas of the

site should be fenced exclusively for best management of alkalai sacaton. Herbaceous forage on the site will be deficient in digestible protein in the fall-winter-spring period. Burning or mowing can be used to freshen old growth alkalai sacaton. Burning should only be used in years with good winter-spring rainfall and should be done in late February to early March. Spring re-growth should not be grazed until the first summer rains. Several species of atriplex occur on the site but in such small quantities that the site is not valuable as winter forage area.

Free water is available some of the year in playa areas, natural charcos, and discontinuous gullies. This factor, in combination with the mixture of wooded areas and open grassland, make the site home to a variety of wildlife, and important for a variety of migratory waterfowl including sandhill cranes.

Hydrological functions

This site occurs as grassy alluvial fans flanking the Willcox playa and as grassy floodplains along streams. It acts to absorb water and catch sediment from large flood events.

Recreational uses

Hunting, hiking, horseback riding, bird watching, photography

Wood products

In areas where mesquite has increased to moderate canopy levels (15-30%) there can be considerable fuel-wood available.

Inventory data references

Range 417s include 3 in good condition and 4 in fair condition.

Type locality

| | |
|--------------------------------|---------------|
| Location 1: Cochise County, AZ | |
| Township/Range/Section | T13S R25E S31 |
| General legal description | Willcox Playa |

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) | Wilma Renken, Dan Robinett, Larry Humphrey, Gwen Dominguez, Scott Stratton |
| Contact for lead author | Tucson MLRA Soil Survey Office |
| Date | 08/07/2013 |
| Approved by | Byron Lambeth |
| Approval date | |

Indicators

- 1. Number and extent of rills:** None. However, this site can have a few rills (discontinuous, 30-50 feet long) when an associated feature such as an adjacent road drains water from the site.

- 2. Presence of water flow patterns:** Water flow paths occupy 40-50% of the surface area. They are discontinuous, 20-50 feet in length and show signs of strengthening with recent drought.

- 3. Number and height of erosional pedestals or terracettes:** Pedestals are common on alkalai sacaton and mound saltbush. They are between 1-2 inches in height. 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 the pace frequency transect (300 pts) done on site was 63%. Gravel cover was 0% and basal cover of live perennial grasses was 5%. Vegetation occurs in patches with bare areas up to 5-8' diameter. Bare areas are 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):** Fine litter size classes are moving a few feet in bare areas and water flow areas. Coarse litter staying in place under grass and shrubs.

- 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 3.3. About 50% of the ratings were 1-3s and 50% of the ratings were 4-6s.

- 9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** An1 horizon is a sandy clayloam, 1 inch thick with weak medium and thin platy structure and low organic matter. The An2 horizon (bisquit caps on columnar structure) is sandyloam with vesicular structure. Colors are 7.5 YR 7/2 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:** A shrub, mound saltbush, and perennial grasses dominate the site. Alkalai sacaton grass canopy is 16.7% and mound saltbush canopy is 14% on this site. Annual forbs/grass canopy fluctuates with rainfall. Vegetation presents in a patchy distribution. Bare areas act as a watershed supplementing soil moisture of perennial vegetation patches.

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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, average depth of penetration from an ARS field penetrometer with a 2.2 kg. sliding hammer, set at 20 inches fall height, is 6.4 cm. The dense (massive structure) siltyclay Btknz1 horizon at 3 inches can feel like a compacted layer.
-
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 grasses = shrubs >
- Sub-dominant: annual grasses > annual forbs > perennial forbs > trees > succulents
- Other:
- Additional:
-
13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Mortality estimated at about 20% on perennial grasses, likely due to drought and grazing. Mortality on shrubs is estimated at 10%, also likely due to drought and grazing.
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14. **Average percent litter cover (%) and depth (in):** Litter cover ranged from 13-32%. Litter was generally confined to vegetation patches.
-
15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 422 lbs/ac. in a below average year; 1060 lbs/ac. in an average year; 2070 lbs/ac. in an above average year. Production of summer annual grasses can exceed expected on years with above average seasonal 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:** mesquite, tumbleweed and cocklebur
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17. **Perennial plant reproductive capability:** Not impaired.
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