



## Ecological Site Description



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## Plant Communities

### Ecological Dynamics of the Site

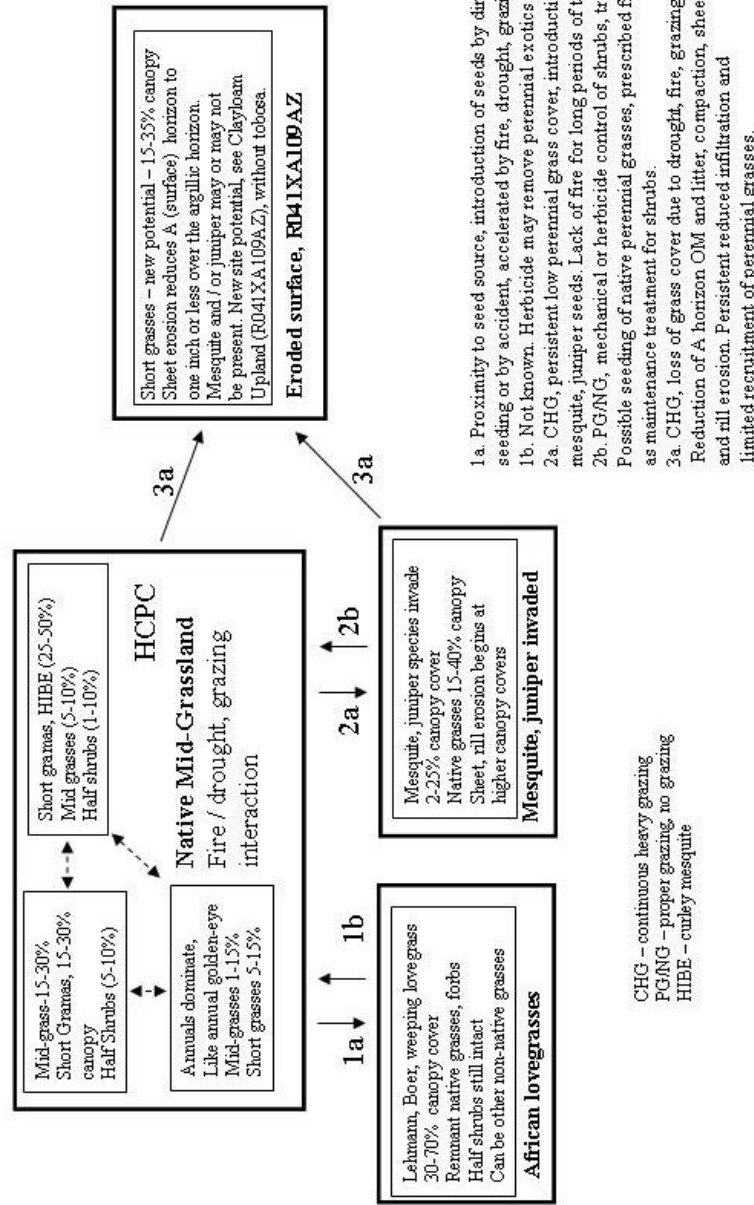
The plant communities found on an ecological site are naturally variable. Composition and production will vary with yearly conditions, location, aspect, and the natural variability of the soils. The historic climax plant community represents the natural potential plant communities found on relict or relatively undisturbed sites. Other plant communities described here represent plant communities that are known to occur when the site is disturbed by factors like 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 listed 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 the 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, and for each group, count no more than the maximum amount shown for that 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 Diagram

MLRA 41-1, Loamy Upland 16-20 " p.z.



State and Transition, Loamy Upland 16-20" p.z.

## Historic Climax Plant Community



Empire Ranch, West Pasture enclosure, KA 17&18

The historic native state includes the native plant communities that occur on the site, including the historic climax plant community. The state includes other plant communities that naturally occupy the site following fire, drought, flooding, herbivores and other natural disturbances. The historic plant community represents the natural climax community that eventually reoccupies the site with proper management.

The potential plant community on this site is dominated by warm season perennial midgrasses. The major perennial species are well dispersed throughout the plant community. Perennial forbs, several species of low shrubs and succulents are well represented in the plant community. The aspect is open grassland to oak-grass savannah.

With continuous, heavy grazing, midgrasses like sideoats grama, cane beardgrass and plains lovegrass are removed from the plant community and often times replaced by a continuous sod of blue grama. With severe deterioration, shrubby species like yerba-de-pasmo and wooly groundsel can increase to dominate the plant community. Mesquite and Lehmann lovegrass are both pushing the upper limits of their elevations in this MLRA subdivision and can invade areas of this site. They may be able to dominate the native plant community, especially with climatic warming. Species like one seed and alligator juniper can invade and increase to dominate the site. Naturally occurring fires in June-August are an important factor shaping this plant community. Fire-free intervals range from 10-20 years. With thin coarse textured soil surfaces, any soil loss due to erosion can reduce the sites ability to effectively use intense summer rainfall.

In "El Nino" years and without disturbance like grazing or fire, forbs like camphorweed, gumweed and annual goldeneye will increase to dominate the plant community as perennial grass cover diminishes from drought in the preceding years.

Periodic drought can occur in this CRA and cause significant grass mortality. Droughts in the early 30s, mid-50s, 1975-76, 1988-89, 1995-96 and 2002 resulted in the loss of much of the grass cover on this site. Mortality is highest in areas where the soil surface is very thin. There is a strong relationship between grass mortality and surface thickness/micro relief on this site. This site recovers moderately well from drought due to the favorable climate prevailing in this sub-resource area.

**Historic Climax Plant Community Plant Species Composition**

<b>Grass/Grasslike</b>				<u>Annual Production</u> (pounds per acre)	
<u>Group</u>				<u>Low</u>	<u>High</u>
<u>Group name</u>	<u>Common name</u>	<u>Symbol</u>	<u>Scientific name</u>		
1 -Dominant mid grasses				400	900

cane beardgrass	BOBA3	<a href="#">Bothriochloa barbinodis</a>	50	150
sideoats grama	BOCU	<a href="#">Bouteloua curtipendula</a>	150	500
plains lovegrass	ERIN	<a href="#">Eragrostis intermedia</a>	150	500
green sprangletop	LEDU	<a href="#">Leptochloa dubia</a>	0	100
crinkleawn	TRSP12	<a href="#">Trachypogon spicatus</a>	0	150
2 -Dominant short grasses			200	450
sprucetop grama	BOCH	<a href="#">Bouteloua chondrosioides</a>	25	200
black grama	BOER4	<a href="#">Bouteloua eriopoda</a>	25	100
blue grama	BOGR2	<a href="#">Bouteloua gracilis</a>	100	300
hairy grama	BOHI2	<a href="#">Bouteloua hirsuta</a>	0	100
common wolfstail	LYPH	<a href="#">Lycurus phleoides</a>	0	50
3 -Cool season grasses			10	40
densetuff hairsedge	BUCA2	<a href="#">Bulbostylis capillaris</a>	0	5
Carex	CAREX	<a href="#">Carex</a>	0	5
Cyperus	CYPER	<a href="#">Cyperus</a>	0	5
bottlebrush squirreltail	ELEL5	<a href="#">Elymus elymoides</a>	0	10
pinyon ricegrass	PIFI	<a href="#">Piptochaetium fimbriatum</a>	0	15
4 -Miscellaneous perennial grasses			5	100
poverty threeawn	ARDI5	<a href="#">Aristida divaricata</a>	1	10
Havard's threeawn	ARHA3	<a href="#">Aristida havardii</a>	0	1
Wooton's threeawn	ARPA9	<a href="#">Aristida pansa</a>	0	1
red threeawn	ARPUL	<a href="#">Aristida purpurea var. longiseta</a>	1	10
blue threeawn	ARPUN	<a href="#">Aristida purpurea var. nealleyi</a>	0	1
Wright's threeawn	ARPUW	<a href="#">Aristida purpurea var. wrightii</a>	0	1
Orcutt's threeawn	ARSCO	<a href="#">Aristida schiedeana var. orcuttiana</a>	0	10
spidergrass	ARTE3	<a href="#">Aristida ternipes</a>	1	10
mesa threeawn	ARTEG	<a href="#">Aristida ternipes var. gentilis</a>	0	5
purple grama	BORA	<a href="#">Bouteloua radicata</a>	0	10
slender grama	BORE2	<a href="#">Bouteloua repens</a>	0	5
Rothrock grama	BORO2	<a href="#">Bouteloua rothrockii</a>	0	10
silver bluestem	BOSA	<a href="#">Bothriochloa saccharoides</a>	0	5
Arizona cottontop	DICA8	<a href="#">Digitaria californica</a>	0	15
fall witchgrass	DICO6	<a href="#">Digitaria cognata</a>	0	5
woolly bunchgrass	ELBA	<a href="#">Elionurus barbiculmis</a>	0	10
spike pappusgrass	ENDE	<a href="#">Enneapogon desvauxii</a>	0	1
tanglehead	HECO10	<a href="#">Heteropogon contortus</a>	0	5
curly mesquite	HIBE	<a href="#">Hilaria belangeri</a>	1	15
Arizona muhly	MUAR3	<a href="#">Muhlenbergia arizonica</a>	0	5
bullgrass	MUEM	<a href="#">Muhlenbergia emersleyi</a>	0	10
purple muhly	MURI3	<a href="#">Muhlenbergia rigida</a>	0	5
Hall panicgrass	PAHA	<a href="#">Panicum hallii</a>	0	10
vine mesquite	PAOB	<a href="#">Panicum obtusum</a>	0	10
tobosa	PLMU3	<a href="#">Pleuraphis mutica</a>	0	5

	Texas bluestem	SCCI2	<a href="#">Schizachyrium cirratum</a>	0	5
	sand dropseed	SPCR	<a href="#">Sporobolus cryptandrus</a>	0	10
5	-Annual grasses			1	100
	sixweeks threeawn	ARAD	<a href="#">Aristida adscensionis</a>	0	5
	prairie threeawn	AROL	<a href="#">Aristida oligantha</a>	0	5
	sixweeks needle grama	BOAR	<a href="#">Bouteloua aristidoides</a>	0	5
	sixweeks grama	BOBA2	<a href="#">Bouteloua barbata</a>	0	5
	matted grama	BOSI2	<a href="#">Bouteloua simplex</a>	0	1
	feather fingergrass	CHVI4	<a href="#">Chloris virgata</a>	0	5
	tapertip cupgrass	ERACA	<a href="#">Eriochloa acuminata var. acuminata</a>	0	5
	Mexican lovegrass	ERME	<a href="#">Eragrostis mexicana</a>	0	2
	desert lovegrass	ERPEM	<a href="#">Eragrostis pectinacea var. miserima</a>	0	2
	tufted lovegrass	ERPEP2	<a href="#">Eragrostis pectinacea var. pectinacea</a>	0	5
	pitscale grass	HAGR3	<a href="#">Hackelochloa granularis</a>	0	5
	Mexican sprangletop	LEFUU	<a href="#">Leptochloa fusca ssp. uninervia</a>	0	10
	mucronate sprangletop	LEPAB	<a href="#">Leptochloa panicea ssp. brachiata</a>	0	10
	sticky sprangletop	LEVI5	<a href="#">Leptochloa viscida</a>	0	2
	delicate muhly	MUFR	<a href="#">Muhlenbergia fragilis</a>	0	2
	littleseed muhly	MUMI	<a href="#">Muhlenbergia microsperma</a>	0	2
	witchgrass	PACA6	<a href="#">Panicum capillare</a>	0	2
	Mexican panicgrass	PAHI5	<a href="#">Panicum hirticaule</a>	0	25
	poverty dropseed	SPVA	<a href="#">Sporobolus vaginiflorus</a>	0	2
	prairie false oat	TRIN5	<a href="#">Trisetum interruptum</a>	0	2
	Arizona signalgrass	URAR	<a href="#">Urochloa arizonica</a>	0	15
	sixweeks fescue	VUOC	<a href="#">Vulpia octoflora</a>	0	5

<b>Forb</b>				<u>Annual Production</u> (pounds per acre)		
<u>Group</u>	<u>Group name</u>	<u>Common name</u>	<u>Symbol</u>	<u>Scientific name</u>	<u>Low</u>	<u>High</u>
6	-Perennial forbs				10	45
		trailing four o'clock	ALIN	<a href="#">Allionia incarnata</a>	0	1
		largeflower onion	ALMA4	<a href="#">Allium macropetalum</a>	0	2
		slimleaf bursage	AMCO3	<a href="#">Ambrosia confertiflora</a>	1	2
		throw-up weed	AMPA3	<a href="#">Amoreuxia palmatifida</a>	0	1
		western ragweed	AMPS	<a href="#">Ambrosia psilostachya</a>	0	1
		desert anemone	ANTU	<a href="#">Anemone tuberosa</a>	0	2
		melon loco	APUN	<a href="#">Apodanthera undulata</a>	0	1
		Louisiana sagewort	ARLU	<a href="#">Artemisia ludoviciana</a>	0	2
		perennial rockcress	ARPE2	<a href="#">Arabis perennans</a>	0	1
		Watson's dutchman's pipe	ARWA	<a href="#">Aristolochia watsonii</a>	0	1
		Arizona milkvetch	ASAR6		0	1

		<a href="#">Astragalus arizonicus</a>		
spider milkweed	ASAS	<a href="#">Asclepias asperula</a>	0	1
chaparral asthead	ASHI3	<a href="#">Aspicarpa hirtella</a>	0	1
broadleaf milkweed	ASLA4	<a href="#">Asclepias latifolia</a>	0	1
		<a href="#">Astragalus</a>		
woolly locoweed	ASMOB	<a href="#">mollissimus var. bigelovii</a>	0	1
sheep milkvetch	ASNO3	<a href="#">Astragalus nothoxys</a>	0	1
		<a href="#">Asclepias</a>		
horsetail milkweed	ASSU2	<a href="#">subverticillata</a>	0	1
shrubby ayenia	AYMI	<a href="#">Ayenia microphylla</a>	0	1
hairyseed bahia	BAAB	<a href="#">Bahia absinthifolia</a>	0	1
lyreleaf greeneyes	BELY	<a href="#">Berlandiera lyrata</a>	0	1
scarlet spiderling	BOCO	<a href="#">Boerhavia coccinea</a>	0	1
		<a href="#">Calliandra humilis</a>		
dwarf stickpea	CAHUR	<a href="#">var. reticulata</a>	0	1
grayleaf Indian paintbrush	CAIN14	<a href="#">Castilleja integra</a>	0	1
		<a href="#">Calochortus</a>		
desert mariposa lily	CAKE	<a href="#">kennedyi</a>	0	1
sego lily	CANU3	<a href="#">Calochortus nuttallii</a>	0	1
Castilleja	CASTI2	<a href="#">Castilleja</a>	0	1
		<a href="#">Chamaesyce</a>		
whitemargin spurge	CHAL11	<a href="#">albomarginata</a>	0	1
		<a href="#">Chaetopappa</a>		
rose heath	CHER2	<a href="#">ericoides</a>	0	5
		<a href="#">Commelina</a>		
birdbill dayflower	CODI4	<a href="#">dianthifolia</a>	0	1
		<a href="#">Convolvulus</a>		
hoary bindweed	COEQ	<a href="#">equitans</a>	0	1
		<a href="#">Commelina erecta</a>		
whitemouth dayflower	COER		0	1
leatherweed	CRPO5	<a href="#">Croton pottsii</a>	0	5
fingerleaf gourd	CUDI	<a href="#">Cucurbita digitata</a>	0	1
coyote melon	CUPA	<a href="#">Cucurbita palmata</a>	0	1
whiteflower dalea	DAAL	<a href="#">Dalea albiflora</a>	0	1
James' prairie clover	DAJA	<a href="#">Dalea jamesii</a>	0	1
dwarf prairie clover	DANA	<a href="#">Dalea nana</a>	0	1
New Mexico dalea	DANE	<a href="#">Dalea neomexicana</a>	0	1
Cooley's bundleflower	DECO2	<a href="#">Desmanthus cooleyi</a>	1	10
		<a href="#">Dichelostemma</a>		
bluedicks	DICA14	<a href="#">capitatum</a>	1	10
		<a href="#">Dyschoriste</a>		
spreading snakeherb	DYSCD	<a href="#">schiedeana var. decumbens</a>	0	5
		<a href="#">Echeandia</a>		
Torrey's craglily	ECFL	<a href="#">flavescens</a>	0	1
		<a href="#">Erigeron divergens</a>		
spreading fleabane	ERDI4		0	2
trailing fleabane	ERFL	<a href="#">Erigeron flagellaris</a>	0	2
		<a href="#">Euphorbia</a>		
Mexican fireplant	EUHE4	<a href="#">heterophylla</a>	0	1
		<a href="#">Euphorbia radians</a>		
sun spurge	EUR2		0	1
hairy evolvulus	EVAR	<a href="#">Evolvulus arizonicus</a>	0	5
		<a href="#">Evolvulus</a>		
prostrate evolvulus	EVNU	<a href="#">nuttallianus</a>	0	1
		<a href="#">Evolvulus sericeus</a>		
silver evolvulus	EVSE		0	2
Arizona snakecotton	FRAR2	<a href="#">Froelichia arizonica</a>	0	1
scarlet gaura	GACO5	<a href="#">Gaura coccinea</a>	0	1
pearly globe amaranth	GONI	<a href="#">Gomphrena nitida</a>	0	1
		<a href="#">Guilleminea densa</a>		
small matweed	GUDE		0	2
		<a href="#">Hoffmannseggia</a>		
hogpotato	HOGL2	<a href="#">glauca</a>	0	1

red bluet	HORU	<a href="#">Houstonia rubra</a>	0	1
babyslippers	HYVE	<a href="#">Hybanthus verticillatus</a>	0	1
ragged nettlespurge	JAMA	<a href="#">Jatropha macrorhiza</a>	0	1
San Pedro daisy	LAPO4	<a href="#">Lasianthaea podocephala</a>	0	1
Fendler bladderpod	LEFE	<a href="#">Lesquerella fendleri</a>	0	1
narrowleaf puccoon	LIIN2	<a href="#">Lithospermum incisum</a>	0	1
Lewis blue flax	LILE3	<a href="#">Linum lewisii</a>	0	1
Greene deervetch	LOGR4	<a href="#">Lotus greenei</a>	0	1
Wright deervetch	LOWR	<a href="#">Lotus wrightii</a>	0	2
Huachuca Mountain rocktrumpet	MABR	<a href="#">Macrosiphonia brachysiphon(syn)</a>	0	2
variableleaf bushbean	MAGI2	<a href="#">Macroptilium gibbosifolium</a>	0	1
spiny tansyaster	MAPI	<a href="#">Machaeranthera pinnatifida</a>	0	2
Mexican star	MIBI2	<a href="#">Milla biflora</a>	0	1
lemon beebalm	MOCIA	<a href="#">Monarda citriodora ssp. austromontana</a>	0	1
tufted evening-primrose	OECA10	<a href="#">Oenothera caespitosa</a>	0	2
Oxytropis	OXYTR	<a href="#">Oxytropis</a>	0	1
beardlip penstemon	PEBA2	<a href="#">Penstemon barbatus</a>	0	1
Cochise beardtongue	PEDA	<a href="#">Penstemon dasyphyllus</a>	0	1
mat cinchweed	PELO	<a href="#">Pectis longipes</a>	0	1
Parry penstemon	PEPA24	<a href="#">Penstemon parryi</a>	0	1
narrowleaf bean	PHAN3	<a href="#">Phaseolus angustissimus</a>	0	1
orange talinum	PHAU13	<a href="#">Phemeranthus aurantiacus</a>	0	10
ivyleaf groundcherry	PHHE4	<a href="#">Physalis hederifolia</a>	0	1
white milkwort	POAL4	<a href="#">Polygala alba</a>	0	1
velvetseed milkwort	POOB	<a href="#">Polygala obscura</a>	0	1
shrubby purslane	POSU3	<a href="#">Portulaca suffrutescens</a>	0	2
slimflower scurfpea	PSTE5	<a href="#">Psoralegium tenuiflorum</a>	0	1
buffpetal	RHPH2	<a href="#">Rhynchosida physocalyx</a>	0	1
Texas snoutbean	RHSET	<a href="#">Rhynchosia senna var. texana</a>	0	5
slimleaf plainsmustard	SCLI12	<a href="#">Schoenocrambe linearifolia</a>	0	1
twinleaf senna	SEBA3	<a href="#">Senna bauhinioides</a>	0	1
Lemmon's ragwort	SELE8	<a href="#">Senecio lemmonii</a>	0	1
New Mexico checkermallow	SINE3	<a href="#">Sidalcea neomexicana</a>	0	1
silverleaf nightshade	SOEL	<a href="#">Solanum elaeagnifolium</a>	0	1
Missouri goldenrod	SOMI2	<a href="#">Solidago missouriensis</a>	0	2
narrowleaf globemallow	SPAN3	<a href="#">Sphaeralcea angustifolia</a>	0	1
gooseberryleaf globemallow	SPGR2	<a href="#">Sphaeralcea grossulariifolia</a>	0	1
brownplume wirelettuce	STPA4	<a href="#">Stephanomeria pauciflora</a>	0	2
big talinum	TAPA2	<a href="#">Talinum paniculatum</a>	0	1
Coulter's wrinklefruit	TECO	<a href="#">Tetraclea coulteri</a>	0	1
hairy fourwort	TENE	<a href="#">Tetramerium nervosum</a>	0	1

longstalk greenthread	THLO	<a href="#">Thelesperma longipes</a>	0	1
Hopi tea greenthread	THME	<a href="#">Thelesperma megapotamicum</a>	0	1
pinewoods spiderwort	TRPI	<a href="#">Tradescantia pinetorum</a>	0	1
branched noseburn	TRRA5	<a href="#">Tragia ramosa</a>	0	1
Fort Huachuca vervain	VEGR2	<a href="#">Verbena gracilis</a>	0	1
American vetch	VIAM	<a href="#">Vicia americana</a>	0	1
Louisiana vetch	VILUL2	<a href="#">Vicia ludoviciana ssp. ludoviciana</a>	0	1
copper zephyrlily	ZELO	<a href="#">Zephyranthes longifolia</a>	0	1
Texas zinnia	ZIGR	<a href="#">Zinnia grandiflora</a>	0	2
7 -Annual Forbs			1	200
New Mexico copperleaf	ACNE	<a href="#">Acalypha neomexicana</a>	0	2
carelessweed	AMPA	<a href="#">Amaranthus palmeri</a>	0	5
spurred anoda	ANCR2	<a href="#">Anoda cristata</a>	0	1
bluestem pricklypoppy	ARPL3	<a href="#">Argemone pleiacantha</a>	0	1
halfmoon milkvetch	ASAL6	<a href="#">Astragalus allochrous</a>	0	1
Nuttall milkvetch	ASNU4	<a href="#">Astragalus nuttallianus</a>	0	10
Thurber milkvetch	ASTH	<a href="#">Astragalus thurberi</a>	0	10
wheelscale saltbush	ATEL	<a href="#">Atriplex elegans</a>	0	1
fewflower beggarticks	BILE	<a href="#">Bidens leptoccephala</a>	0	1
Coulter spiderling	BOCO2	<a href="#">Boerhavia coulteri</a>	0	1
erect spiderling	BOER	<a href="#">Boerhavia erecta</a>	0	1
hairy bowlesia	BOIN3	<a href="#">Bowlesia incana</a>	0	1
purple spiderling	BOPU	<a href="#">Boerhavia purpurascens</a>	0	1
fringed redmaids	CACI2	<a href="#">Calandrinia ciliata</a>	0	1
pitseed goosefoot	CHBE4	<a href="#">Chenopodium berlandieri</a>	0	10
royal sandmat	CHDI5	<a href="#">Chamaesyce dioica</a>	0	1
pillpod sandmat	CHHI3	<a href="#">Chamaesyce hirta</a>	0	1
leafy spurge	CHHY3	<a href="#">Chamaesyce hyssopifolia</a>	0	1
New Mexico goosefoot	CHNE3	<a href="#">Chenopodium neomexicanum</a>	0	10
sensitive partridge pea	CHNI2	<a href="#">Chamaecrista nictitans</a>	0	10
threadstem sandmat	CHRE4	<a href="#">Chamaesyce revoluta</a>	0	1
thymeleaf spurge	CHSE6	<a href="#">Chamaesyce serpyllifolia</a>	0	1
slimseed spurge	CHST8	<a href="#">Chamaesyce stictospora</a>	0	1
New Mexico thistle	CINE	<a href="#">Cirsium neomexicanum</a>	0	10
miner's lettuce	CLPEP	<a href="#">Claytonia perfoliata ssp. perfoliata</a>	0	1
golden corydalis	COAU2	<a href="#">Corydalis aurea</a>	0	2
Cryptantha	CRYPT	<a href="#">Cryptantha</a>	0	1
Chihuahuan prairie clover	DAEX2	<a href="#">Dalea exigua</a>	0	1
American wild carrot	DAPU3	<a href="#">Daucus pusillus</a>	0	1
sacred datura	DAWR2	<a href="#">Datura wrightii</a>	0	1
western tansymustard	DEPI	<a href="#">Descurainia pinnata</a>	0	5
buttonweed	DITE2	<a href="#">Diodia teres</a>	0	1



wedgeleaf draba	DRCU	<a href="#">Draba cuneifolia</a>	0	2
Abert's buckwheat	ERAB2	<a href="#">Eriogonum abertianum</a>	0	5
miniature woollystar	ERD12	<a href="#">Eriastrum diffusum</a>	0	1
spreading fleabane	ERD14	<a href="#">Erigeron divergens</a>	0	1
sorrel buckwheat	ERPO4	<a href="#">Eriogonum polycladon</a>	0	5
Mexican gold poppy	ESCAM	<a href="#">Eschscholzia californica ssp. mexicana</a>	0	1
Arizona blanketflower	GAAR2	<a href="#">Gaillardia arizonica</a>	0	1
velvetweed	GAMO5	<a href="#">Gaura mollis(syn)</a>	0	1
red dome blanketflower	GAPI	<a href="#">Gaillardia pinnatifida</a>	0	1
lesser yellowthroat gilia	GIFL	<a href="#">Gilia flavocincta</a>	0	1
El Paso gilia	GIME	<a href="#">Gilia mexicana</a>	0	1
Dakota mock vervain	GLBIB	<a href="#">Glandularia bipinnatifida var. bipinnatifida</a>	0	1
curlytop gumweed	GRNUA	<a href="#">Grindelia nuda var. aphanactis</a>	0	20
longleaf false goldeneye	HELOA2	<a href="#">Heliomeris longifolia var. annua</a>	1	200
camphorweed	HESU3	<a href="#">Heterotheca subaxillaris</a>	0	25
crestrub morning-glory	IPCO2	<a href="#">Ipomoea costellata</a>	0	1
redstar	IPCO3	<a href="#">Ipomoea coccinea</a>	0	2
flaxflowered ipomopsis	IPLOL	<a href="#">Ipomopsis longiflora ssp. longiflora</a>	0	1
Thurber's morning-glory	IPTH	<a href="#">Ipomoea thurberi</a>	0	2
El Paso skyrocket	IPTH2	<a href="#">Ipomopsis thurberi</a>	0	1
orange caltrop	KAGR	<a href="#">Kallstroemia grandiflora</a>	0	5
warty caltrop	KAPA	<a href="#">Kallstroemia parviflora</a>	0	1
Coulter's horseweed	LACO13	<a href="#">Laennecia coulteri</a>	0	1
Gordon bladderpod	LEGO	<a href="#">Lesquerella gordonii</a>	0	1
broadleaf pepperweed	LELA2	<a href="#">Lepidium latifolium</a>	0	1
intermediate pepperweed	LEVIM	<a href="#">Lepidium virginicum var. medium</a>	0	2
orange flax	LIPU4	<a href="#">Linum puberulum</a>	0	1
foothill deervetch	LOHU2	<a href="#">Lotus humistratus</a>	0	1
coastal bird's-foot trefoil	LOSAB	<a href="#">Lotus salsuginosus var. brevivexillus</a>	0	1
shortstem lupine	LUBR2	<a href="#">Lupinus brevicaulis</a>	0	1
bajada lupine	LUCOC	<a href="#">Lupinus concinnus ssp. concinnus</a>	0	1
Fendler desert-dandelion	MAFE	<a href="#">Malacothrix fendleri</a>	0	1
slender tansyaster	MAGR10	<a href="#">Machaeranthera gracilis</a>	0	20
Tahoka tansyaster	MATA2	<a href="#">Machaeranthera tanacetifolia</a>	0	20
whitestem stickleaf	MEAL6	<a href="#">Mentzelia albicaulis</a>	0	1
green carpetweed	MOVE	<a href="#">Mollugo verticillata</a>	0	1
spring evening-primrose	OEPR	<a href="#">Oenothera primiveris</a>	0	1
Arizona phacelia	PHAR13	<a href="#">Phacelia arizonica</a>	0	1
Mangas Spring phacelia	PHBO4	<a href="#">Phacelia bombycina</a>	0	1
	PHCA43		0	1

sky blue scorpionweed			<a href="#">Phacelia caerulea (syn)</a>		
lipstick plant	PLAR		<a href="#">Plagiobothrys arizonicus</a>	0	1
woolly Indianwheat	PLPA2		<a href="#">Plantago patagonica</a>	0	10
Portulaca	PORTU		<a href="#">Portulaca</a>	0	1
yerba porosa	PORU6		<a href="#">Porophyllum ruderale</a>	0	1
straighttube devilsclaw	PRAL4		<a href="#">Proboscidea althaeifolia</a>	0	1
annual devilsclaw	PRPA2		<a href="#">Proboscidea parviflora</a>	0	1
Wright's cudweed	PSCAC2		<a href="#">Pseudognaphalium canescens ssp. canescens</a>	0	20
Abert's creeping zinnia	SAAB		<a href="#">Sanvitalia abertii</a>	0	1
sawtooth sage	SASU7		<a href="#">Salvia subincisa</a>	0	2
prostrate sida	SIAB		<a href="#">Sida abutifolia</a>	0	1
sleepy catchfly	SIAN2		<a href="#">Silene antirrhina</a>	0	1
streptanthea	STREP		<a href="#">Streptanthea</a>	0	1
golden crownbeard	VEEN		<a href="#">Verbesina encelioides</a>	0	1

<b>Shrub/Vine</b>				<u>Annual Production (pounds per acre)</u>		
<u>Group</u>	<u>Group name</u>	<u>Common name</u>	<u>Symbol</u>	<u>Scientific name</u>	<u>Low</u>	<u>High</u>
	8 -Dominant half shrubs				10	60
		prairie acacia	ACAN	<a href="#">Acacia angustissima</a>	0	10
		yerba de pasmo baccharis	BAPT	<a href="#">Baccharis pteronioides</a>	1	20
		false mesquite	CAER	<a href="#">Calliandra eriophylla</a>	1	30
		shrubby buckwheat	ERWR	<a href="#">Eriogonum wrightii</a>	0	20
		range ratany	KRER	<a href="#">Krameria erecta</a>	0	10
		spreading ratany	KRLA	<a href="#">Krameria lanceolata</a>	1	10
	9 -Miscellaneous shrubs				0	15
		catclaw acacia	ACGR	<a href="#">Acacia greggii</a>	0	1
		Pringle manzanita	ARPR	<a href="#">Arctostaphylos pringlei</a>	0	2
		broom snakeweed	GUSA2	<a href="#">Gutierrezia sarothrae</a>	0	1
		burroweed	ISTE2	<a href="#">Isocoma tenuisecta</a>	0	1
		wait-a-bit	MIACB	<a href="#">Mimosa aculeaticarpa var. biuncifera</a>	0	5
		velvetpod mimosa	MIDY	<a href="#">Mimosa dysocarpa</a>	0	5
		sacahuista	NOMI	<a href="#">Nolina microcarpa</a>	0	2
		turbinella oak	QUTU2	<a href="#">Quercus turbinella</a>	0	1
		skunkbush sumac	RHTR	<a href="#">Rhus trilobata</a>	0	1
		threadleaf ragwort	SEFLF	<a href="#">Senecio flaccidus var. flaccidus</a>	0	1
	10 -Succulents				1	10
		Palmer agave	AGPA3	<a href="#">Agave palmeri</a>	1	5
		Parry agave	AGPA4	<a href="#">Agave parryi</a>	0	1
		cane cholla	CYSP8	<a href="#">Cylindropuntia spinosior</a>	0	1
		scarlet hedgehog cactus	ECCOC	<a href="#">Echinocereus coccineus var. coccineus</a>	0	1
		pinkflower hedgehog cactus	ECFEF3	<a href="#">Echinocereus fendleri ssp. fendleri</a>	0	1
			ECIN2		0	1

white fishhook cactus		<a href="#">Echinomastus intertextus</a>		
rainbow cactus	ECPEP	<a href="#">Echinocereus pectinatus var. pectinatus</a>	0	1
spiny star cactus	ESVI2	<a href="#">Escobaria vivipara</a>	0	1
MacDougal's nipple cactus	MAHEM	<a href="#">Mammillaria heyderi var. macdougalii</a>	0	1
Engelmann pricklypear	OPEN3	<a href="#">Opuntia engelmannii</a>	0	1
twist spine pricklypear	OPMA2	<a href="#">Opuntia macrorhiza</a>	0	1
tulip pricklypear	OPPH	<a href="#">Opuntia phaeacantha</a>	0	1

<b>Tree</b>				Annual Production (pounds per acre)		
Group	Group name	Common name	Symbol	Scientific name	Low	High
11 -Trees					0	25
		alligator juniper	JUDE2	<a href="#">Juniperus deppeana</a>	0	2
		oneseed juniper	JUMO	<a href="#">Juniperus monosperma</a>	0	2
		Arizona white oak	QUAR	<a href="#">Quercus arizonica</a>	0	20
		Emory oak	QUEM	<a href="#">Quercus emoryi</a>	0	25

**Annual Production by Plant Type**

Plant type	Annual Production (lbs/ac)		
	Low	Representative value	High
Forb	11	45	245
Grass/Grasslike	520	1200	1600
Shrub/Vine	11	35	85
Tree	0	5	25
<b>Total:</b>	<b>542</b>	<b>1285</b>	<b>1955</b>

**Structure and Cover:**

Soil Surface Cover (%)

Basal Cover				Non-Vascular Plants	Biological Crust	Litter	Surface Fragments > 1/4 & <= 3"	Surface Fragments > 3"	Bedrock	Water	Bare Ground
Grass/Grasslike	Forb	Shrub/Vine	Tree								
7 to 20	0 to 1	0 to 2	0 to 1	0 to 1	1 to 10	20 to 65	10 to 25	0 to 5	0 to 0	0 to 0	10 to 50

Structure of Canopy Cover (%)

	Grasses/Grasslike	Forbs	Shrubs/Vines	Trees
<= 0.5 feet	5 to 15	1 to 5	1 to 5	
> 0.5 - < 1 feet	10 to 20	1 to 5	1 to 5	
< 1 - >= 2 feet	15 to 30	0 to 15	1 to 2	
> 2 - < 4.5 feet	0 to 10	0 to 2	0 to 1	
< 4.5 - >= 13 feet				0 to 1
> 13 - < 40 feet				0 to 5

**Plant Growth Curve**

AZ4111

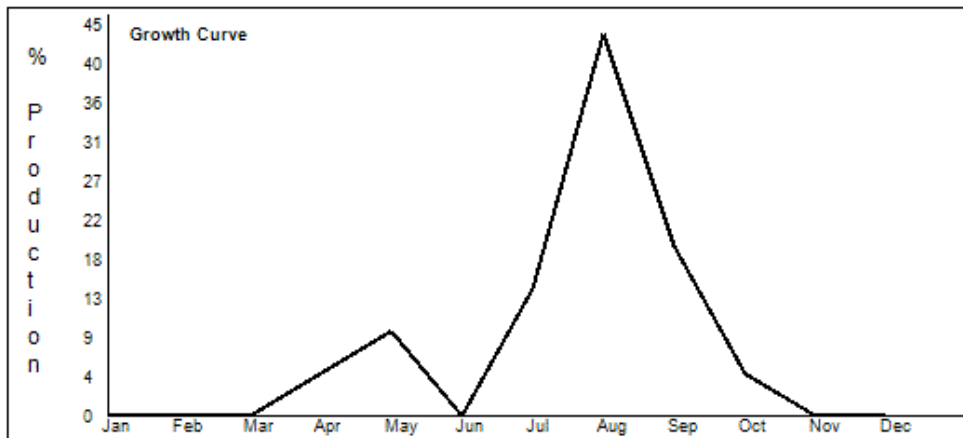
**Growth curve number:**

**Growth curve name:** 41.1 16-30" p.z. all sites

**Growth curve description:** Growth begins in the spring, semi-dormancy occurs during the June drought, most growth occurs during the summer rainy season.

Percent Production by Month

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
0	0	0	5	10	0	15	45	20	5	0	0



***African lovegrass species***



**Loamy Upland 16-20" pz, Boer lovegrass**

This state occurs where African lovegrass species have either invaded from established stands or from direct seedings of these areas. Lehmann, Boer, weeping lovegrass and in some places yellow or King Ranch bluestems are dominant and native perennial grasses and forbs exist only in minor amounts. Cover and production of these species is very high and site stability and hydrologic function are good.

***Mesquite, juniper invaded***



**Loamy Upland 16-20" pz. juniper invasion**

With continuous grazing, a nearby seed source and in the absence of fire for long periods of time; velvet mesquite and / or western honey mesquite and one seed or alligator juniper can invade and increase to dominate the site. Canopy cover can be from 2 to 25%. Sheet and rill erosion can begin to accelerate at the higher canopy levels.

### ***Eroded state***



**Loamy Upland 16-20" pz, alligator juniper, erosion**

This state occurs where accelerated sheet and / or rill erosion has removed most of the surface (A) horizon. With one inch of surface soil left the site has lost it's ability to grow mid-grasses. The new potential is for short grammas with lower basal cover and less production. To see the new potential see ecological site # R041XA109AZ, Clayloam Upland 16-20"pz.

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