USDA Natural Resources Conservation Service

Ecological site R083DY025TX
Clay Loam

Last updated: 9/21/2023
Accessed: 05/18/2024

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.

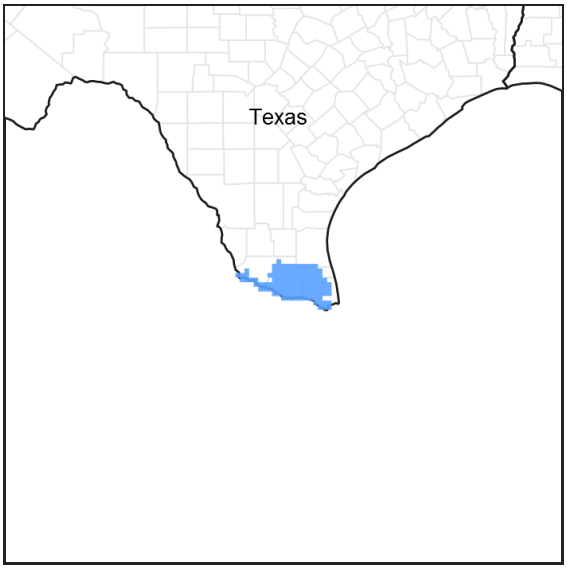


Figure 1. Mapped extent

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): 083D–Lower Rio Grande Plain

Major Land Resource Area (MLRA) 83D makes up about2,500 square miles (6,475 square kilometers). The towns of Brownsville, Edinburg, Harlingen, McAllen, and Raymondville are in this area. U.S. Highways 77 and 281 terminate in Brownsville and McAllen, respectively. The Santa Ana National Wildlife Area is along the Rio Grande in this area.

Classification relationships

USDA-Natural Resources Conservation Service, 2006.
-Major Land Resource Area (MLRA) 83D

Ecological site concept

The Clay Loam ecological site has very deep clay loam soils and high vegetative production.

Associated sites

R083DY006TX	**Fresh Marsh**
R083DY009TX	**Clayey Bottomland**
R083DY015TX	**Saline Clay**
R083DY024TX	**Tight Sandy Loam**
R083DY007TX	**Lakebed**
R083DY019TX	**Gray Sandy Loam**
R083DY023TX	**Sandy Loam**

Similar sites

R083AY026TX	**Eastern Clay Loam**
R083AY027TX	**Western Clay Loam**
R083BY025TX	**Clay Loam**
R083CY025TX	**Clay Loam**

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Prosopis* (2) *Schaefferia cuneifolia*
Herbaceous	(1) *Schizachyrium scoparium* (2) *Digitaria californica*

Physiographic features

The soils are on nearly level terraces on the Rio Grande delta plain. Slopes range 0 to 1 percent. A seasonally high water table as high as 30 inches below the surface exists during parts of the year.

Table 2. Representative physiographic features

Landforms	(1) Delta plain > Terrace
Runoff class	Negligible to medium
Flooding frequency	None
Ponding frequency	None
Elevation	6–152 m
Slope	0–1%
Water table depth	76–203 cm
Aspect	Aspect is not a significant factor

Climatic features

MLRA 83 has a subtropical, subhumid climate. Winters are dry and warm, and the summers are hot and humid. Tropical maritime air masses predominate throughout spring, summer and fall. Modified polar air masses exert considerable influence during winter, creating a continental climate characterized by large variations in temperature. Peak rainfall occurs late in spring and a secondary peak occurs early in fall. Heavy thunderstorm activities increase in April, May, and June. July is hot and dry with little weather variations. Rainfall increases again in late August and September as tropical disturbances increase and become more frequent. Tropical air masses from the Gulf of Mexico dominate during the spring, summer and fall. Prevailing winds are southerly to southeasterly throughout the year except in December when winds are predominately northerly.

Table 3. Representative climatic features

Frost-free period (characteristic range)	365 days
Freeze-free period (characteristic range)	365 days
Precipitation total (characteristic range)	559-660 mm
Frost-free period (actual range)	271-365 days
Freeze-free period (actual range)	365 days
Precipitation total (actual range)	533-686 mm
Frost-free period (average)	348 days
Freeze-free period (average)	365 days
Precipitation total (average)	610 mm

Climate stations used

- (1) RAYMONDVILLE [USC00417458], Raymondville, TX
- (2) SANTA ROSA 3 WNW [USC00418059], Edcouch, TX
- (3) WESLACO [USC00419588], Weslaco, TX
- (4) MCALLEN [USC00415701], McAllen, TX
- (5) MCALLEN MILLER INTL AP [USW00012959], McAllen, TX
- (6) HARLINGEN [USC00413943], Harlingen, TX
- (7) MISSION 4 W [USC00415972], Mission, TX
- (8) BROWNSVILLE [USW00012919], Brownsville, TX
- (9) LA JOYA [USC00414911], Mission, TX
- (10) MERCEDES 6 SSE [USC00415836], Mercedes, TX
- (11) RIO GRANDE CITY [USC00417622], Rio Grande City, TX

Influencing water features

A seasonally high water table as high as 30 inches below the surface exists during parts of the year, particularly a few weeks after heavy rainfall in the area.

Wetland description

N/A.

Soil features

The soils are very deep, moderately well drained, and moderately to moderately slow permeable. Soil series correlated to this site include: Lyford, Racombes, and Raymondville.

Table 4. Representative soil features

Parent material	(1) Alluvium–sedimentary rock
Surface texture	(1) Clay loam (2) Sandy clay loam
Family particle size	(1) Fine-loamy (2) Fine
Drainage class	Moderately well drained
Permeability class	Moderately slow to moderate
Soil depth	203 cm
Available water capacity (0-101.6cm)	7.62–17.78 cm

Calcium carbonate equivalent (0-101.6cm)	0–10%
Electrical conductivity (0-101.6cm)	0–16 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0–10
Soil reaction (1:1 water) (0-101.6cm)	6.6–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–6%

Ecological dynamics

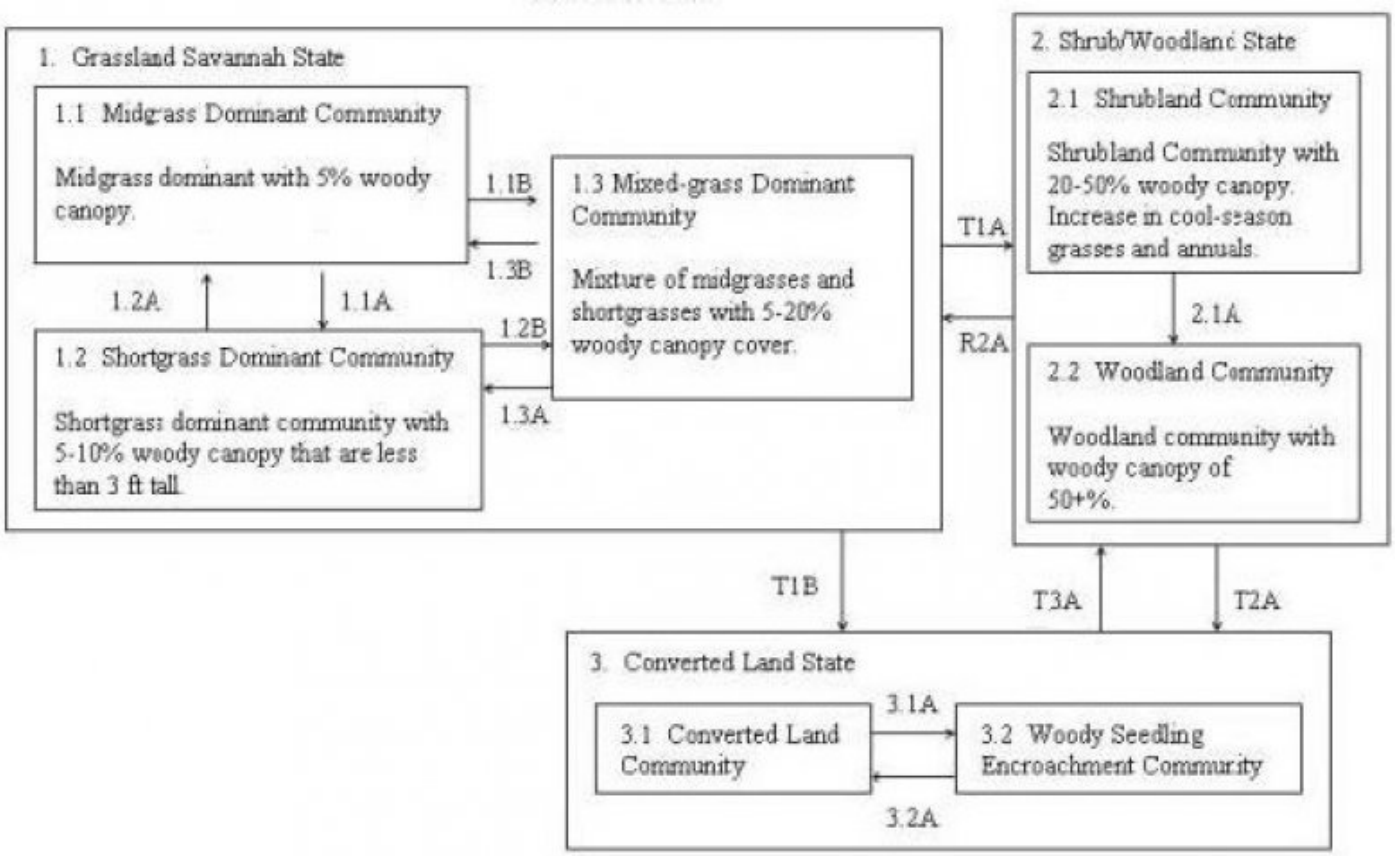
The Lower Rio Grande (MLRA 83D) was a disturbance-maintained system. Prior to European settlement (pre-1825), fire and grazing were the two primary forms of disturbance. Grazing by large herbivores included antelope, deer, and small herds of bison. The infrequent but intense, short-duration grazing by these species suppressed woody species and invigorated herbaceous species. The herbaceous savannah species adapted to fire and grazing disturbances by maintaining belowground tissues. Wright and Bailey (1982) report that there are no reliable records of fire frequency for the Rio Grande Plains because there are no trees to carry fire scars from which to estimate fire frequency. Because savannah grassland is typically of level or rolling topography, a natural fire frequency of three to seven years seems reasonable for this area.

Historical accounts prior to 1800 identify grazing by herds of wild horses, followed by heavy grazing by sheep and cattle as settlement progressed. Grazing on early ranches changed natural graze-rest cycles to continuous grazing and stocking rates exceeded the carrying capacity. These shifts in grazing intensity and the removal of rest from the system reduced plant vigor for the most palatable species, which on this site were midgrasses and palatable forbs. Shortgrasses and less palatable forbs began to dominate the site. This shift resulted in lower fuel loads, which reduced fire frequency and intensity. The reduction in fires resulted in an increase in size and density of woody species.

The open grassland in this area supports mid prairie grasses with scattered woody plants, perennial forbs, and legumes on soils in the uplands. Twoflower and fourflower trichloris, plains bristlegrass, and lovegrass tridens are among the dominant grasses on these soils. Desert yaupon, spiny hackberry, and blackbrush are the major woody plants. In bottomland areas, tallgrasses and midgrasses, such as switchgrass, giant sacaton, fourflower trichloris, big sandbur, little bluestem, and southwestern bristlegrass, are dominant. Hackberry, mesquite, elm, and palm trees are the major woody plants. Forbs are important but minor components of all plant communities.

Most of this area is cropland or improved pasture that is extensively irrigated. Large acreages of rangeland are grazed mainly by beef cattle and wildlife. The major crops are cotton, grain sorghum, citrus, onions, cabbage, and other truck crops. Almost all the crops are grown under irrigation. Hunting leases for white-tailed deer, quail, white-winged dove, and mourning dove are an important source of income in the area. Some of the major wildlife species in this area are white-tailed deer, javelina, coyote, fox, bobcat, raccoon, skunk, opossum, jackrabbit, cottontail, turkey, bobwhite quail, scaled quail, white-winged dove, and mourning dove.

State and transition model



Legend

1.1A Heavy Continuous Grazing, No Fire
1.2A Prescribed Grazing, Prescribed Burning
1.1B Heavy Continuous Grazing, No Fire, No Brush Management
1.2B Heavy Continuous Grazing, No Fire, No Brush Management
1.3A Prescribed Grazing, Prescribed Burning
1.3B Prescribed Grazing, Prescribed Burning
T1A Heavy Continuous Grazing, No Fire, No Brush Management
R2A Prescribed Grazing, Brush Management, Prescribed Burning
2.1A Heavy Continuous Grazing, No Fire, No Brush Management, Brush Invasion
T1B Brush Management, Pasture Planting, Range Planting, Crop Cultivation, Prescribed Grazing
T2A Brush Management, Pasture Planting, Range Planting, Crop Cultivation, Prescribed Grazing
T3A Heavy Continuous Grazing, No Fire, No Brush Management, Brush Invasion
3.1A Heavy Continuous Grazing, No Fire, Brush Invasion
3.2A Brush Management, Range Planting, Pasture Planting, Crop Cultivation, Prescribed Grazing

State 1
Grassland

Dominant plant species

- mesquite (*Prosopis*), shrub
- desert yaupon (*Schaefferia cuneifolia*), shrub
- little bluestem (*Schizachyrium scoparium*), grass
- Arizona cottontop (*Digitaria californica*), grass

Community 1.1
Midgrass Dominant

This community represents the reference community. It is a fire climax, midgrass plant community that has less than

five percent canopy of woody plants. The grasses are false Rhodesgrass, multi-flower chloris, little bluestem, Arizona cottontop, feather bluestems, pink pappusgrass, sideoats grama, buffalograss (*Bouteloua dactyloides*), curlymesquite (*Hilaria belangeri*), perennial threeawn (Aristida spp.), plains bristlegrass (Seteria spp.), Texas wintergrass (*Nassella leucotricha*), and hooded windmillgrass (*Chloris cucullata*). The woody species are mesquite, whitebrush, condalias, spiny hackberry (Celtis pallida), cacti, Texas colubrine (*Colubrina texensis*), wolfberry, vine ephedra (Ephedra spp.), desert yaupon (*Schaefferia cuneifolia*), and guayacan (*Guaiacum angustifolium*). Forbs are Engelmann's daisy (*Engelmannia peristenia*), bundleflower (Desmanthus spp.), sensitive briar (Mimosa spp.), orange zexmenia (Wedelia texana), hairy ruellia (Ruellia spp.), Mexican sagewort (*Artemisia ludoviciana*), bushsunflower (*Simsia calva*), lazy daisy (Aphanostephus spp.), and annual forbs. Recurrent fire and grazing by bison and other wildlife were natural components of the ecosystem. Settlement by European man brought continuous overstocking with no natural fires and the eventual removal of sheep. These changes caused a drastic change in the plant communities. The midgrasses gave way to the shortgrasses and the brush started to increase, causing a shift to the Shortgrass Dominant Community (1.2) and the Mixed-grass Dominant Community (1.3). Each of these communities can be managed back to the Midgrass Dominant Community (1.1) using prescribed grazing and fire. The Mixed-grass Dominant Community (1.3) may also require selective brush management or Individual Plant Treatments (IPT). However, once the woody canopy exceeds 20 percent and is taller than thre feet, the site transitions to the Shrub/Woodland State (2). In this case, energy in the form of heavy equipment, herbicides and prescribed grazing are required to shift the plant community back to the Grassland Savannah State (1). The Grassland Savannah State (1) can be converted to the Converted Land (3) state by controlling the brush and seeding to native or introduced grasses. It may also be plowed and converted to cropland.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	1905	4091	5492
Shrub/Vine	224	280	616
Forb	112	168	616
Tree	–	–	–
Total	**2241**	**4539**	**6724**

Figure 9. Plant community growth curve (percent production by month). TX5125, Midgrass Grassland Community. Warm-season production from grass, forbs, and woody species..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1	5	15	20	20	5	5	10	10	5	3

Community 1.2
Shortgrass Dominant

This phase of the Grassland Savannah State still exhibits a savannah plant structure with the woody species canopy being as high as 10 percent, but less than three feet tall. This is a result of fire being removed as a component of the site. Heavy continuous grazing has taken many of the midgrasses out of the site and replaced them with shortgrasses such as buffalograss, curlymesquite, threeawn, tumblegrass (*Schedonnardus paniculatus*), and red grama (*Bouteloua trifida*). Other common Increasers to the site are leatherstem (*Jatropha dioica*), huisache (Acacia smallii), ragweed (Ambrosia spp.), and tasajillo (Opuntia leptocaulis).

Table 6. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	785	1681	2242
Shrub/Vine	448	560	897
Forb	28	56	560
Tree	–	–	–
Total	**1261**	**2297**	**3699**

Figure 11. Plant community growth curve (percent production by month). TX5128, Shortgrass Dominant Community. Shortgrass dominates the site with decreasing midgrasses and increasing shrubs..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1	5	15	20	21	5	5	10	10	5	2

Community 1.3
Mixed-grass Dominant

This phase of the Grassland Savannah State still exhibits the savannah plant structure even though the woody canopy cover may be as high as 20 percent. The understory can still be a midgrass plant community, a shortgrass community, or a mixture of midgrasses and shortgrasses depending on the grazing management regime that it has received. A lack of fire and brush management is the major component driving the plant community toward Shrub/Woodland State (2). A threshold is being approached, but is still reversible by prescribed fire, brush management, and grazing management. There is still sufficient fuel production to carry a fire and the shrubs are small enough to still be affected.

Table 7. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	336	1121	1681
Shrub/Vine	673	1121	1681
Forb	28	56	560
Tree	–	–	–
Total	**1037**	**2298**	**3922**

Figure 13. Plant community growth curve (percent production by month). TX5129, Mixed-grass Dominant Community. Declining mid and shortgrasses with increasing shrubs..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1	5	15	20	21	5	5	10	10	5	2

Pathway 1.1A
Community 1.1 to 1.2

The reference community (1.1) will transition to the Shortgrass Dominant Community (1.2) with lack of fire, continued overgrazing, insufficient rest cycles, and/or natural disturbances, like prolonged drought.

Pathway 1.2A
Community 1.2 to 1.1

This phase can be managed back to the Midgrass Dominant Community (1.1) but will take the reintroduction of fire to the ecosystem or some method of brush management that allows selective removal of the plants. A prescribed grazing plan will be essential to reverse the trend and return the midgrasses back to the plant community over an

extended period of time.

Pathway 1.2B
Community 1.2 to 1.3

If heavy continuous grazing continues with the exclusion of fire, the phase will transition to the Mixed-Grass Dominant Community (1.3).

Pathway 1.3A
Community 1.3 to 1.2

This phase can be managed back to the Community 1.2, and eventually 1.1 but will take the reintroduction of fire to the ecosystem or some method of brush management that allows selective removal of the plants. A prescribed grazing plan will be essential to reverse the trend and returning the shortgrasses, and eventually the midgrasses back to the plant community over an extended period of time.

State 2
Shrub/Woodland

Dominant plant species

- mesquite (*Prosopis*), shrub
- desert yaupon (*Schaefferia cuneifolia*), shrub
- spiny hackberry (*Celtis ehrenbergiana*), shrub

Community 2.1
Shrubland

This plant community is a result of a transition from the Grassland Savannah (1) to the Shrubland/Woodland State (2). This threshold is passed when the woody canopy becomes such that insufficient fuel is produced to carry a fire that will control the woody canopy. The understory is limited in production due to the competition for sunlight, water, and nutrients. There is an increase in tasajillo, prickly pear (Opuntia spp.), yucca (Yucca spp.), annual grasses, and forbs.

Table 8. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	757	1345	2522
Grass/Grasslike	224	841	1121
Forb	28	56	280
Tree	–	–	–
Total	**1009**	**2242**	**3923**

Figure 15. Plant community growth curve (percent production by month). TX5130, Short/Midgrass Shrubland Complex 20-50% woody canopy. Shrubland Community with 20-50% woody canopy..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	2	5	10	18	15	5	9	15	9	5	5

Community 2.2
Woodland

This plant community is the culmination of continued heavy grazing and a lack of fire or brush management. At this point the woody species have dominated the site and there is very little understory production. Bare ground has increased and caused crusting to the point that there is little water infiltration and little seedling emergence. Water

infiltration does occur directly under some of the woody species, such as mesquite, as it moves down the trunk of the tree to the base. During the growing season, light showers are captured in the canopy of the trees and evaporate. Energy flow is predominantly through the shrubs as is the nutrient uptake. Winter rains can produce understory forage from cool-season annual forbs and grasses and perennials such as Texas wintergrass.

Table 9. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	1681	2242	3363
Forb	–	112	224
Grass/Grasslike	–	112	224
Tree	–	–	–
Total	**1681**	**2466**	**3811**

Figure 17. Plant community growth curve (percent production by month). TX5131, Shrubland Complex Community, >50% woody canopy. Woodland Community with 50-80% woody canopy cover..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	2	5	10	18	15	5	9	15	9	5	5

Pathway 2.2A
Community 2.2 to 2.1

To transition Community 2.2 back to 2.1, the land manager will need to apply prescribed grazing, prescribed burning (if enough fuel loads still exist), and brush management. The key is lessening the canopy cover by woody species.

State 3
Converted Land

Dominant plant species

- buffelgrass (*Pennisetum ciliare*), grass

Community 3.1
Converted Land

This plant community is a phase of the Converted Land State developed by applying brush management and seeding. The area can be seeded to native grasses, forbs, and desirable woody species, singly or as a mix. To maintain the native planting, prescribed grazing and some form of brush control will be needed on a continuing basis or the plant community will develop into the Woody Seedling Encroachment Community (3.2). Some land managers have chosen to seed introduced grasses instead of native species. To maintain the introduced grass planting, prescribed grazing and some form of brush control will be needed on a continuing basis or the plant community will develop into the Woody Seedling Encroachment Community (3.2). This community can also be attained by converting cropped fields into pastures. Some sites remain in cropland today, typically small grain production for stocker-cattle grazing. While restoration of this site to a semblance of the midgrass grassland is possible with range planting, prescribed grazing, and prescribed burning, complete restoration of the reference community in a reasonable time is very unlikely due to deterioration of the soil structure and organisms. If cropping is abandoned, this land is usually planted to introduced grasses and forbs and managed as pastureland or encroachment by woody seedlings occur.

Table 10. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	2242	4522	6783
Shrub/Vine	–	–	–
Tree	–	–	–
Forb	–	–	–
Total	**2242**	**4522**	**6783**

Figure 19. Plant community growth curve (percent production by month). TX4806, Converted Land Community - Introduced Seeding. Seeded into introduced grass species..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1	5	15	20	20	5	5	15	8	4	1

Community 3.2
Woody Seedling Encroachment

This plant community develops from native seeding, introduced seeding, and abandoned cropland communities. Seedlings of shrubs establish and spread due to the lack of fire or some other method of brush management. If the seedlings are not controlled, the Converted Land Community (3.1) will transition to the Woody Seedling Encroachment Community (3.2) and will require the application of energy in the form of machinery or herbicides to reduce the canopy. Production of the seeded species depends on the grazing management that has been applied since seeding, and the canopy of the shrubs invading or increasing on the site. As the canopy of the shrubs expands, grass and forb production will be reduced. Production will depend on the grass and forb species that invade the site as well as the canopy of the shrub invasion. It is unlikely that the Converted Land State (3) will ever fully return to the Grassland Savannah State (1). If neglected for a long time, it will transition into a Shrub/Woodland.

Table 11. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	1905	4091	5492
Shrub/Vine	224	269	646
Forb	112	161	646
Tree	–	–	–
Total	**2241**	**4521**	**6784**

Figure 21. Plant community growth curve (percent production by month). TX4812, Converted Land Community - Woody Seedling Encroachment. Converted Land Community that has been encroached by woody seedlings due to abandonment of crop and pastureland..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	2	5	10	18	15	5	9	15	9	5	5

Pathway 3.2A
Community 3.2 to 3.1

In order to return to the Converted Land Community (3.2), the land manager must control the woody encroachment. This can be attained by mechanical or chemical brush management techniques. Proper grazing and fire may help if the system is planted in grass. If the system is being cropped, other mechanical and chemical means are necessary to return the site to full agricultural productivity.

Transition T1A
State 1 to 2

Once the woody canopy exceeds approximately 20 percent and is taller than three feet, a threshold will have been passed to the Shrub/Woodland State (2). In this case energy in the form of heavy equipment and/or herbicides will be required along with prescribed grazing to shift the plant community back to the Grassland Savannah State (1).

Transition T1B
State 1 to 3

The Grassland Savannah State (1) can be converted to the Converted Land State (3) by controlling the brush and seeding to native or introduced grasses. It may also be plowed and converted to cropland.

Restoration pathway R2A
State 2 to 1

Brush management is the key driver in restoring Shrub/Woodland State (2) back to the Grassland Savannah State (1). Reduction in woody canopy below 20 percent will take large energy inputs depending on the canopy cover. A prescribed grazing plan and prescribed burning plan will keep the state functioning.

Transition T2A
State 2 to 3

The Shrub/Woodland State (2) can be converted to the Converted Land State (3) by controlling the brush and seeding to native or introduced grasses. It may also be plowed and converted to cropland.

Transition T3A
State 3 to 2

If the Woody Plant Seedling Encroachment Community (3.2) is left alone, eventually the woody plants will create a moderate to heavy canopy. At this point, the desired understory grasses, forbs, and/or crops will be shaded out and the site will transition into a Shrub/Woodland State (2).

Additional community tables

Table 12. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	**Midgrasses**			560–1569	
	little bluestem	SCSCS	*Schizachyrium scoparium var. scoparium*	560–1121	–
	false Rhodes grass	TRCR9	*Trichloris crinita*	560–1121	–
	multiflower false Rhodes grass	TRPL3	*Trichloris pluriflora*	560–1121	–
2	**Midgrasses**			1793–2354	
	cane bluestem	BOBA3	*Bothriochloa barbinodis*	336–785	–
	sideoats grama	BOCU	*Bouteloua curtipendula*	336–785	–
	silver beardgrass	BOLAT	*Bothriochloa laguroides ssp. torreyana*	336–785	–
	Arizona cottontop	DICA8	*Digitaria californica*	336–785	–
	pink pappusgrass	PABI2	*Pappophorum bicolor*	336–785	–
3	**Midgrasses**			448–897	
	hooded windmill grass	CHCU2	*Chloris cucullata*	224–448	–

	Texas wintergrass	NALE3	*Nassella leucotricha*	0–448	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	224–448	–
4	**Shortgrasses**			224–560	
	buffalograss	BODA2	*Bouteloua dactyloides*	112–448	–
	curly-mesquite	HIBE	*Hilaria belangeri*	112–448	–
5	**Shortgrass**			56–112	
	threeawn	ARIST	*Aristida*	56–112	–
Forb					
6	**Forbs**			112–616	
	Forb, annual	2FA	*Forb, annual*	0–112	–
	Riddell's dozedaisy	APRI	*Aphanostephus riddellii*	56–112	–
	white sagebrush	ARLUM2	*Artemisia ludoviciana ssp. mexicana*	56–112	–
	bundleflower	DESMA	*Desmanthus*	56–112	–
	Engelmann's daisy	ENPE4	*Engelmannia peristenia*	56–112	–
	sensitive plant	MIMOS	*Mimosa*	56–112	–
	fringeleaf wild petunia	RUHU	*Ruellia humilis*	56–112	–
	awnless bushsunflower	SICA7	*Simsia calva*	56–112	–
Shrub/Vine					
7	**Shrubs/Vines**			224–616	
	mesquite	PROSO	*Prosopis*	56–336	–
	desert yaupon	SCCU4	*Schaefferia cuneifolia*	56–224	–
	sweet acacia	ACFA	*Acacia farnesiana*	0–224	–
	Schaffner's wattle	ACSC2	*Acacia schaffneri*	0–224	–
	whitebrush	ALGR2	*Aloysia gratissima*	56–224	–
	spiny hackberry	CEEH	*Celtis ehrenbergiana*	56–224	–
	snakewood	CONDA	*Condalia*	56–224	–
	Texan hogplum	COTE6	*Colubrina texensis*	56–224	–
	vine jointfir	EPPE	*Ephedra pedunculata*	56–224	–
	Texas lignum-vitae	GUAN	*Guaiacum angustifolium*	56–224	–
	Berlandier's wolfberry	LYBE	*Lycium berlandieri*	56–224	–
	pricklypear	OPUNT	*Opuntia*	56–224	–

Animal community

As a historic tall/midgrass prairie, this site was occupied by bison, antelope, deer, quail, turkey, and dove. This site was also used by many species of grassland songbirds, migratory waterfowl, and coyotes. This site now provides forage for livestock and is still used by quail, dove, migratory waterfowl, grassland birds, coyotes, and deer.

Feral hogs (Sus scrofa) can be found on most ecological sites in Texas. Damage caused by feral hogs each year includes, crop damage by rutting up crops, destroyed fences, livestock watering areas, and predation on native wildlife, and ground-nesting birds. Feral hogs have few natural predators, thus allowing their population to grow to high numbers.

Wildlife habitat is a complex of many different plant communities and ecological sites across the landscape. Most animals use the landscape differently to find food, shelter, protection, and mates. Working on a conservation plan for the whole property, with a local professional, will help managers make the decisions that allow them to realize

their goals for wildlife and livestock.

Grassland State (1): This state provides the maximum amount of forage for livestock such as cattle. It is also utilized by deer, quail and other birds as a source of food. When a site is in the reference plant community phase (1.1) it will also be used by some birds for nesting, if other habitat requirements like thermal and escape cover are near.

Tree/Shrubland (2): This state can be maintained to meet the habitat requirements of cattle and wildlife. Land managers can find a balance that meets their goals and allows them flexibility to manage for livestock and wildlife. Forbs for deer and birds like quail will be more plentiful in this state. There will also be more trees and shrubs to provide thermal and escape cover for birds as well as cover for deer.

Converted Land State (3): The quality of wildlife habitat this site will produce is extremely variable and is influenced greatly by the timing of rain events. This state is often manipulated to meet landowner goals. If livestock production is the main goal, it can be converted to pastureland. It can also be planted to a mix of grasses and forbs that will benefit both livestock and wildlife. A mix of forbs in the pasture could attract pollinators, birds and other types of wildlife. Food plots can also be planted to provide extra nutrition for deer.

This rating system provides general guidance as to animal preference for plant species. It also indicates possible competition between kinds of herbivores for various plants. Grazing preference changes from time to time, especially between seasons, and between animal kinds and classes. Grazing preference does not necessarily reflect the ecological status of the plant within the plant community. For wildlife, plant preferences for food and plant suitability for cover are rated. Refer to habitat guides for a more complete description of a species habitat needs.

Hydrological functions

The Grassland, Shrubland, and Woodland Communities all the water from rainfall events. Research has shown that the evapotranspiration rate on all three communities is nearly the same. Very little water can be harvested from this site if the woody plant community is replaced by a grass-dominated community. Some crusting occurs on the sites which will decrease infiltration and increase runoff. There is also some entrapment of small showers in the canopy of the woody plants that will evaporate before reaching the ground. During heavy rains, the structure of the woody plants tends to funnel water down the stem to the base of the tree.

Recreational uses

Hunting and bird watching are common activities.

Inventory data references

Information presented was derived from the revised Range Site, literature, limited NRCS clipping data (417s), field observations, and personal contacts with range-trained personnel.

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Rangeland health reference sheet

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

Author(s)/participant(s)	
Contact for lead author	
Date	05/18/2024
Approved by	Bryan Christensen
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

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

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

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

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

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

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

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

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

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

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

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

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

    Dominant:

    Sub-dominant:

    Other:

    Additional:

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

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

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

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

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17. **Perennial plant reproductive capability:**