USDA Natural Resources
Conservation Service

Ecological site R115XB042MO
Ponded Floodplain Prairie

Last updated: 12/30/2024
Accessed: 05/21/2025

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): 115X–Central Mississippi Valley Wooded Slopes

This MLRA is characterized by deeply dissected, loess-covered hills bordering well defined valleys of the Illinois, Mississippi, Missouri, Ohio, and Wabash Rivers and their tributaries. It is used to produce cash crops and livestock. About one-third of the area is forested, mostly on the steeper slopes. This area is in Illinois (50 percent), Missouri (36 percent), Indiana (13 percent), and Iowa (1 percent) in two separate areas. It makes up about 25,084 square miles (64,967 square kilometers).

Most of this area is in the Till Plains section and the Dissected Till Plains section of the Central Lowland province of the Interior Plains. The Springfield-Salem plateaus section of the Ozarks Plateaus province of the Interior Highlands occurs along the Missouri River and the Mississippi River south of the confluence with the Missouri River. The nearly level to very steep uplands are dissected by both large and small tributaries of the Illinois, Mississippi, Missouri, Ohio, and Wabash Rivers. The Ohio River flows along the southernmost boundary of this area in Indiana. Well defined valleys with broad flood plains and numerous stream terraces are along the major streams and rivers. The flood plains along the smaller streams are narrow. Broad summits are nearly level to undulating. Karst topography is common in some parts along the Missouri and Mississippi Rivers and their tributaries. Well-developed karst areas have hundreds of sinkholes, caves, springs, and losing streams. In the St. Louis area, many of the karst features have been obliterated

by urban development.

Elevation ranges from 90 feet (20 meters) on the southernmost flood plains to 1,030 feet (320 meters) on the highest ridges. Local relief is mainly 10 to 50 feet (3 to 15 meters) but can be 50 to 150 feet (15 to 45 meters) in the steep, deeply dissected hills bordering rivers and streams. The bluffs along the major rivers are generally 200 to 350 feet (60 to 105 meters) above the valley floor.

The uplands in this MLRA are covered almost entirely with Peoria Loess. The loess can be more than 7 feet (2 meters) thick on stable summits. On the steeper slopes, it is thin or does not occur. In Illinois, the loess is underlain mostly by Illinoian-age till that commonly contains a paleosol. Pre-Illinoian-age till is in parts of this MLRA in Iowa and Missouri and to a minor extent in the western part of Illinois. Wisconsin-age outwash, alluvial deposits, and sandy eolian material are on some of the stream terraces and on dunes along the major tributaries. The loess and glacial deposits are underlain by several bedrock systems. Pennsylvanian and Mississippian bedrock are the most extensive. To a lesser extent are Silurian, Devonian, Cretaceous, and Ordovician bedrock. Karst areas have formed where limestone is near the surface, mostly in the southern part of the MLRA along the Mississippi River and some of its major tributaries. Bedrock outcrops are common on the bluffs along the Mississippi, Ohio, and Wabash Rivers and their major tributaries and at the base of some steep slopes along minor streams and drainageways.

The annual precipitation ranges from 35 to 49 inches (880 to 1,250 millimeters) with a mean of 41 inches (1,050 millimeters). The annual temperature ranges from 48 to 58 degrees F (8.6 to 14.3 degrees C) with a mean of 54 degrees F (12.3 degrees C). The freeze-free period ranges from 150 to 220 days with a mean of 195 days.

Soils The dominant soil orders are Alfisols and, to a lesser extent, Entisols and Mollisols. The soils in the area have a mesic soil temperature regime, an aquic or udic soil moisture regime, and mixed or smectitic mineralogy. They are shallow to very deep, excessively drained to poorly drained, and loamy, silty, or clayey.

The soils on uplands in this area support natural hardwoods. Oak, hickory, and sugar maple are the dominant species. Big bluestem, little bluestem, and scattered oak and eastern redcedar grow on some sites. The soils on flood plains support mixed forest vegetation, mainly American elm, eastern cottonwood, river birch, green ash, silver maple, sweetgum, American sycamore, pin oak, pecan, and willow. Sedge and grass meadows and scattered trees are on some low-lying sites. (United States Department of Agriculture, Natural Resources Conservation Service, 2022)

LRU notes

The Central Mississippi Valley Wooded Slopes, Western Part consists of deeply dissected, loess-covered hills bordering the Missouri and Mississippi Rivers as well as floodplains and terraces of these rivers. The Northern boundary runs along the South

Fabius River valley separating it from the broad rounded interfluves of the northern till plain. A major physiographic feature within the LRU (Land Resource Unit) includes the Lincoln Hills region. The Lincoln Hills extend along the Mississippi River in Missouri, starting about 40 miles (64 kilometers) northwest of St. Louis and extending north to Hannibal. The Lincoln Hills partially escaped the most recent glaciation in the region during the Pleistocene. In geology and biology, they resemble the rugged and forested hills of the Ozark Highlands (MLRA 116A) more than the rolling plains of northern Missouri. The underlying limestone bedrock has formed bluffs, glades, caves, springs, and sinkholes. Elevation ranges from about 420 feet (128 meters) along the Mississippi River near Cape Girardeau, Missouri to about 830 feet (253 meters) near Clarksville along the Mississippi River upstream from St. Louis. High ridges near Hillsboro, Missouri can reach over 1,000 feet (305 meters). Underlying bedrock is mainly Ordovician-aged dolomite and sandstone, with Mississippian-aged limestone north of the Missouri River. Loess caps both stream and glacial outwash terraces along the major rivers along with Pre-Illinoisan till near the edges of the area.

Classification relationships

Major Land Resource Area (MLRA) (USDA-NRCS, 2022):
115X–Central Mississippi Valley Wooded Slopes

Terrestrial Natural Community Type in Missouri (Nelson, 2010):
The reference state for this ecological site is most similar to a Wet Bottomland Prairie, or Marsh.

National Vegetation Classification System Vegetation Association (NatureServe, 2010):
The reference state for this ecological site is most similar to Spartina pectinata - Carex spp. - Calamagrostis canadensis - Lythrum alatum - (Oxypolis rigidior) Herbaceous Vegetation (CEGL002224).

Geographic relationship to the Missouri Ecological Classification System (Nigh & Schroeder, 2002):
This ecological site occurs primarily in Land Type Associations of the following Subsections:
Mississippi River Alluvial Plain
Missouri River Alluvial Plain

Ecological site concept

Ponded Floodplain Prairies are on the Missouri and Mississippi River floodplains, and in the lower portion of the Grand River floodplain. They occur in depressional areas of the floodplain associated with former meander scars, tributary stream channels and backswamps between natural levees of these once dynamic rivers. Sites are commonly adjacent to the Clayey Floodplain Forest and the Loamy Floodplain Forest ecological sites. Soils are very deep and clayey, and are subject to flooding and ponding. The

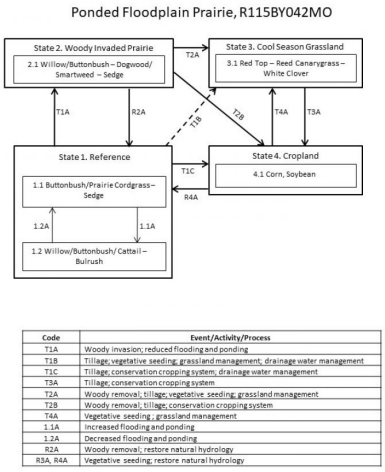
reference plant community is prairie dominated by a dense cover of wetland species, including buttonbush, willow, prairie cordgrass, sedges, and wet-tolerant forbs.

Associated sites

F115XB031MO	**Loamy Floodplain Forest** Loamy Floodplain Forests are commonly in the same floodplain with this ecological site.
F115XB041MO	**Clayey Floodplain Forest** Clayey Floodplain Forests are commonly adjacent to this ecological site.
R115XB037MO	**Loamy Terrace Prairie** Loamy Terrace Prairies are commonly in the same floodplain with this ecological site but nearer the main channel on higher positions.

Similar sites

R115XB042MO	**Ponded Floodplain Prairie** There are no similar ecological sites in this region.



Code	Event/Activity/Process
T1A	Woody invasion; reduced flooding and ponding
T1B	Tillage; vegetative seeding; grassland management; drainage water management
T1C	Tillage; conservation cropping system; drainage water management
T3A	Tillage; conservation cropping system
T2A	Woody removal; tillage; vegetative seeding; grassland management
T2B	Woody removal; tillage; conservation cropping system
T4A	Vegetative seeding ; grassland management
1.1A	Increased flooding and ponding
1.2A	Decreased flooding and ponding
R2A	Woody removal; restore natural hydrology
R3A, R4A	Vegetative seeding; restore natural hydrology

Figure 2.

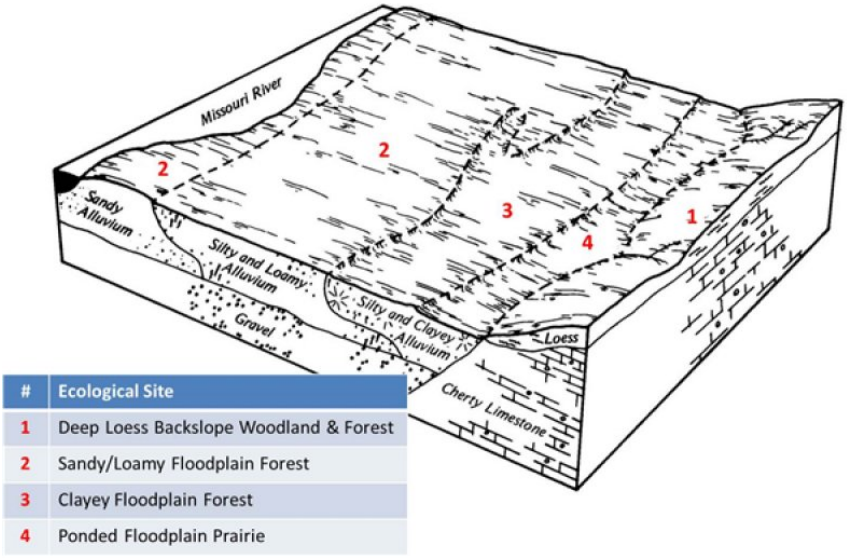
Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Cephalanthus occidentalis*
Herbaceous	(1) *Spartina pectinata* (2) *Carex*

Physiographic features

This site is in depressional areas of backswamps on the Missouri and Mississippi River floodplains, and in the lower portion of the Grand River floodplain. Slopes are less than 2 percent. The site receives runoff from adjacent floodplain sites. Areas not protected by levees are frequently flooded. The site is subject to intermittent ponding.

The following figure (adapted from Horn, 1992) shows the typical landscape position of this ecological site, and landscape relationships among the major ecological sites of the Missouri River floodplain. This site is within the area labeled as “4” on the figure, and is typically in swales of former backswamp positions of the Missouri and Mississippi rivers. These sites are commonly adjacent to Clayey Floodplain sites (labeled “3”). The dashed lines within the Sandy/Loamy Floodplain Forest area indicate the various soils included in this ecological site.



#	Ecological Site
1	Deep Loess Backslope Woodland & Forest
2	Sandy/Loamy Floodplain Forest
3	Clayey Floodplain Forest
4	Ponded Floodplain Prairie

Figure 3. Landscape relationships for this ecological site.

Table 2. Representative physiographic features

Landforms	(1) Flood plain (2) Depression
Runoff class	Negligible to low
Flooding duration	Long (7 to 30 days)
Flooding frequency	Occasional to frequent
Ponding duration	Long (7 to 30 days)
Ponding frequency	Frequent
Elevation	107–311 m
Slope	0–2%
Ponding depth	0–15 cm

Water table depth	15–23 cm
Aspect	Aspect is not a significant factor

Climatic features

The Central Mississippi Valley Wooded Slopes, Western Part has a continental type of climate marked by strong seasonality. In winter, dry-cold air masses, unchallenged by any topographic barriers, periodically swing south from the northern plains and Canada. If they invade reasonably humid air, snowfall and rainfall result. In summer, moist, warm air masses, equally unchallenged by topographic barriers, swing north from the Gulf of Mexico and can produce abundant amounts of rain, either by fronts or by convectional processes. In some summers, high pressure stagnates over the region, creating extended droughty periods. Spring and fall are transitional seasons when abrupt changes in temperature and precipitation may occur due to successive, fast-moving fronts separating contrasting air masses.

The Central Mississippi Valley Wooded Slopes, Western Part experiences regional differences in climates, but these differences do not have obvious geographic boundaries. Regional climates grade inconspicuously into each other. The basic gradient for most climatic characteristics is along a line diagonally crossing the MLRA from northwest to southeast. Both mean annual temperature and precipitation exhibit gradients along this line.

The average annual precipitation in most of this area is 38 to 48 inches. The average annual temperature is 53 to 57 degrees F. Mean January minimum temperature follows the northwest-to-southeast gradient. However, mean July maximum temperature shows hardly any geographic variation in the MLRA. Mean July maximum temperatures have a range of only two or three degrees across the area.

Mean annual precipitation varies along the same gradient as temperature. Seasonal climatic variations are more complex. Seasonality in precipitation is very pronounced due to strong continental influences. June precipitation, for example, averages three to four times greater than January precipitation. Most of the rainfall occurs as high-intensity, convective thunderstorms in summer. Snowfall is common in winter.

During years when precipitation comes in a fairly normal manner, moisture is stored in the top layers of the soil during the winter and early spring, when evaporation and transpiration are low. During the summer months the loss of water by evaporation and transpiration is high, and if rainfall fails to occur at frequent intervals, drought will result. Drought directly affects plant and animal life by limiting water supplies, especially at times of high temperatures and high evaporation rates.

Superimposed upon the basic MLRA climatic patterns are local topographic influences that create topoclimatic, or microclimatic variations. In regions of appreciable relief, for

example, air drainage at nighttime may produce temperatures several degrees lower in valley bottoms than on side slopes. At critical times during the year, this phenomenon may produce later spring or earlier fall freezes in valley bottoms. Higher daytime temperatures of bare rock surfaces and higher reflectivity of these unvegetated surfaces may create distinctive environmental niches such as glades and cliffs. Slope orientation is an important topographic influence on climate. Summits and south-and-west-facing slopes are regularly warmer and drier than adjacent north- and-east-facing slopes. Finally, the climate within a canopied forest is measurably different from the climate of a more open grassland or savanna areas.

Source: University of Missouri Climate Center - http://climate.missouri.edu/climate.php; accessed June 2012

Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin, United States Department of Agriculture Handbook 296 - http://soils.usda.gov/survey/geography/mlra/

Table 3. Representative climatic features

Frost-free period (characteristic range)	160-181 days
Freeze-free period (characteristic range)	195-204 days
Precipitation total (characteristic range)	1,067-1,118 mm
Frost-free period (actual range)	157-188 days
Freeze-free period (actual range)	191-205 days
Precipitation total (actual range)	1,041-1,143 mm
Frost-free period (average)	171 days
Freeze-free period (average)	199 days
Precipitation total (average)	1,092 mm

Climate stations used

- (1) ALTON MELVIN PRICE L&D [USC00110137], West Alton, IL
- (2) KASKASKIA RVR NAV LOCK [USC00114629], Ellis Grove, IL
- (3) BOONVILLE [USC00230817], Boonville, MO

Influencing water features

This ecological site is in floodplains of perennial streams, in backswamp positions, and are not adjacent to the current stream channel. They are influenced by a seasonal high water table, due to high groundwater levels in these topographically low positions, as well as slow hydraulic conductivity, which impedes throughflow from precipitation and flood

events. The water table is typically near or at the surface in late fall through spring, receding in the summer. Ephemeral ponding may occur as a result of entrapment of floodwaters in these depressional positions, from seasonal high groundwater tables above the soil surface, as a result of runoff from higher positions in the floodplain and adjacent uplands, or a combination of these factors.

Stream levels typically respond quickly to storm events, especially in watersheds where surface runoff is dominant. Long-duration flooding is common in many areas, particularly during spring and early summer storm events. Constructed levees, often accompanied by stream channelization, have altered the hydrology and flooding dynamics in many places and may be a sign of an alternative state.

This site is in the RIVERINE wetlands class of the Hydrogeomorphic (HGM) classification system (Brinson, 1993), and are Emergent Palustrine wetlands (Cowardin et al., 1979). Wetlands in RIVERINE backswamp positions may receive surface runoff and/or groundwater inflows from a contributing watershed. They may deliver surface and/or groundwater outflows to the stream channel. As an HGM class, the flow directions include horizontal and/or vertical flow vectors, and the flows are uni-directional.

Soil features

These soils are very deep, with seasonal high water tables. They were formed under herbaceous wetland vegetation, and have dark, organic-rich surface horizons. Parent material is alluvium. They have silty clay loam to clay surface horizons, with clayey subsurface layers. Soil series associated with this site include Beaucoup, Booker and Portage.

Table 4. Representative soil features

Parent material	(1) Alluvium
Surface texture	(1) Silty clay (2) Clay (3) Silty clay loam
Family particle size	(1) Clayey
Drainage class	Very poorly drained to poorly drained
Permeability class	Very slow
Soil depth	183 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	10.16–12.7 cm

Calcium carbonate equivalent (0-101.6cm)	0–10%
Electrical conductivity (0-101.6cm)	0–2 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	6.6–8.2
Subsurface fragment volume <=3" (Depth not specified)	0%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

Information contained in this section was developed using historical data, professional experience, field reviews, and scientific studies. The information presented is representative of very complex vegetation communities. Key indicator plants, animals and ecological processes are described to help inform land management decisions. Plant communities will differ across the MLRA because of the naturally occurring variability in weather, soils, and aspect. The Reference Plant Community is not necessarily the management goal. The species lists are representative and are not botanical descriptions of all species occurring, or potentially occurring, on this site. They are not intended to cover every situation or the full range of conditions, species, and responses for the site.

Ponded Floodplain Prairie ecological sites exist because of their association with low, wet areas with very poorly drained, heavy soils. These conditions along with periodic fire have a strong influence on excluding trees. Ponded Floodplain Prairies are dominated by a dense cover of wetland species, including prairie cordgrass, sedges and wet tolerant forbs. Shrubs, such as buttonbush and willow, are scattered throughout. The lowest and wettest areas may have marshes with cattails, river bulrush and other emergent wetland species, and minor areas of open water.

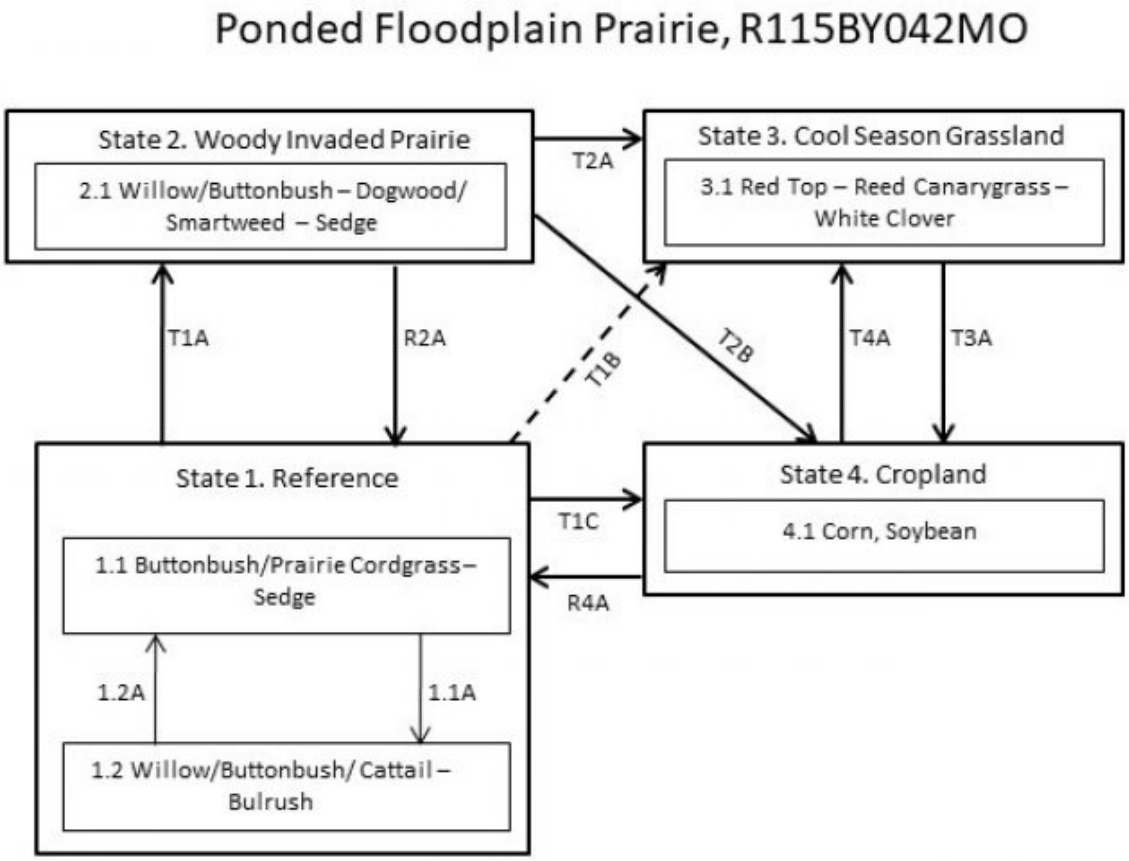
Prior to levee development and channeling, these areas were regularly flooded by typically slow-moving backwater floods. Some further inundation and ponding occurred through groundwater movement. Unaltered sites usually were flooded at least six months of the year. In addition to flooding, periodic fire also played a role in controlling woody species. Fire during dry periods removed the dense mat of leaf litter creating opportunities for plants less aggressive than the grasses and sedges. Over the long term, siltation slowly fills these depressions, altering flood duration and causing a shift toward floodplain forest or woodland communities.

Today most of these ecological sites have been drained and farmed. No known quality

remnants exist. However, because of their site conditions, during wet years, they do act as ephemeral farmed wetlands in the agricultural landscape. While their flood regime usually has been altered, their position and soil properties still make them good candidates for wet prairie and marsh development management. Left unfarmed, these wet depressions can quickly develop into naturally wet communities.

A State and Transition Diagram follows. Detailed descriptions of each state, transition, plant community, and pathway follow the model. This model is based on available experimental research, field observations, professional consensus, and interpretations

State and transition model



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T3A	Tillage; conservation cropping system
T2A	Woody removal; tillage; vegetative seeding; grassland management
T2B	Woody removal; tillage; conservation cropping system; drainage water management
T4A	Vegetative seeding ; grassland management
1.1A	Increased flooding and ponding
1.2A	Decreased flooding and ponding
R2A	Woody removal; restore natural hydrology; vegetative seeding
R3A, R4A	Vegetative seeding; restore natural hydrology

Figure 10. State and transition diagram for this ecological site

State 1
Reference

This state is typical of wet depressional prairies and marshes that experience full horizon saturation (endosaturation) for extended periods during the growing season. Long duration flooding or ponding regimes are common during some years.

Dominant plant species

- common buttonbush (*Cephalanthus occidentalis*), shrub
- narrowleaf willow (*Salix exigua*), shrub
- prairie cordgrass (*Spartina pectinata*), grass
- sedge (*Carex*), grass
- cattail (*Typha*), grass

Community 1.1
Buttonbush/Prairie Cordgrass – Sedge

This phase is dominated by a dense cover of wetland species, including prairie cordgrass, sedges and wet tolerant forbs. Shrubs, such as buttonbush and willow, are scattered throughout. The lowest and wettest areas may have marshes with cattails, river bulrush and other emergent wetland species, and minor areas of open water The plant species list is based on field surveys and commonly occurring species listed in Nelson (2010).

Forest understory. The Forest Understory list is based on commonly occurring species listed in Nelson (2010). Cover percentages are estimates.

Community 1.2
Willow/Buttonbush/ Cattail – Bulrush

This phase has increased ponding and flooding and will increase woody species such prairie willow, dogwoods and false indigo. Marsh species such as cattails and bulrushes may also increase.

Pathway P1.1A
Community 1.1 to 1.2

This community pathway is the result of increased flooding and ponding.

Pathway P1.2A
Community 1.2 to 1.1

This community pathway is the result of decreased flooding and ponding.

State 2
Woody Invaded Prairie

This state is typical of wet depressional prairies and marshes that experience full horizon saturation (endosaturation) for extended periods during the growing season. Long duration flooding regimes are common during some years. Two phases can occur that will transition back and forth depending on ponding and flooding frequencies.

Dominant plant species

- narrowleaf willow (*Salix exigua*), shrub
- common buttonbush (*Cephalanthus occidentalis*), shrub
- swamp smartweed (*Polygonum hydropiperoides*), other herbaceous
- sedge (*Carex*), other herbaceous

Community 2.1
Willow/Buttonbush – Dogwood/ Smartweed – Sedge

This is the only phase associated with this state at this time. See the corresponding state narrative for details.

State 3
Cool Season Grassland

Conversion of other states to non-native cool season species such as Reed canarygrass, white clover, and red top occurs infrequently. Occasionally, these pastures will have scattered bur oaks or pecan.

Dominant plant species

- redtop (*Agrostis gigantea*), grass
- reed canarygrass (*Phalaris arundinacea*), grass
- white clover (*Trifolium repens*), other herbaceous

Community 3.1
Red Top – Reed Canarygrass – White Clover

This is the only phase associated with this state at this time. See the corresponding state narrative for details.

State 4
Cropland

This is the dominant State that exists currently with intensive cropping of corn and soybeans occurring. Some conversion to cool season hayland may occur for a limited period of time before transitioning back to cropland.

Dominant plant species

- corn (*Zea mays*), grass
- soybean (*Glycine*), other herbaceous

Community 4.1
Corn, Soybean

This is the only phase associated with this state at this time. See the corresponding state narrative for details.

Transition T1A
State 1 to 2

This transition is the result of woody invasion and reduced flooding and ponding.

Transition T1B
State 1 to 3

This transition is the result of tillage, vegetative seeding, drainage water management and grassland management.

Transition T1C
State 1 to 4

This transition is the result of tillage, drainage water management and conservation cropping system.

Restoration pathway R2A
State 2 to 1

This restoration pathway is the result of woody removal, restored natural hydrology and vegetative seeding.

Transition T2A
State 2 to 3

This transition is the result of woody removal, tillage, vegetative seeding and grassland management.

Transition T2B
State 2 to 4

This transition is the result of woody removal, tillage, drainage water management and

conservation cropping system.

Transition T3A
State 3 to 4

This transition is the result of tillage, drainage water management, and conservation cropping system.

Restoration pathway R4A
State 4 to 1

This restoration pathway is the result of restored natural hydrology, vegetative seeding and prescribed fire.

Transition T4A
State 4 to 3

This transition is the result of vegetative seeding and grassland management.

Additional community tables

Table 5. Community 1.1 forest understory composition

Common Name	Symbol	Scientific Name	Nativity	Height (M)	Canopy Cover (%)
Grass/grass-like (Graminoids)					
broadleaf cattail	TYLA	*Typha latifolia*	Native	–	5–40
narrowleaf cattail	TYAN	*Typha angustifolia*	Native	–	5–40
prairie cordgrass	SPPE	*Spartina pectinata*	Native	–	20–40
rice cutgrass	LEOR	*Leersia oryzoides*	Native	–	10–20
softstem bulrush	SCTA2	*Schoenoplectus tabernaemontani*	Native	–	10–20
shoreline sedge	CAHY3	*Carex hyalinolepis*	Native	–	10–20
hop sedge	CALU4	*Carex lupulina*	Native	–	10–20
fox sedge	CAVU2	*Carex vulpinoidea*	Native	–	10–20
fescue sedge	CAFE3	*Carex festucacea*	Native	–	10–20
Forb/Herb					
common duckweed	LEMI3	*Lemna minor*	Native	–	5–30
smooth white oldfield aster	SYRA5	*Symphyotrichum racemosum*	Native	–	5–20
Virginia iris	IRVI	*Iris virginica*	Native	–	5–20
American water	LYAM	*Lycopus americanus*	Native		5–20

American water horehound	LYAM	*Lycopus americanus*	Native	–	5–20
swamp smartweed	POHY2	*Polygonum hydropiperoides*	Native	–	5–20
harvestlice	AGPA6	*Agrimonia parviflora*	Native	–	5–20
bearded beggarticks	BIAR	*Bidens aristosa*	Native	–	5–20
prairie ironweed	VEFA2	*Vernonia fasciculata*	Native	–	5–20
water knotweed	POAM8	*Polygonum amphibium*	Native	–	5–20
sawtooth sunflower	HEGR4	*Helianthus grosseserratus*	Native	–	5–20
swamp milkweed	ASIN	*Asclepias incarnata*	Native	–	5–20
winged lythrum	LYAL4	*Lythrum alatum*	Native	–	5–20
nodding beggartick	BICE	*Bidens cernua*	Native	–	5–20
jewelweed	IMCA	*Impatiens capensis*	Native	–	5–20
American lotus	NELU	*Nelumbo lutea*	Native	–	5–20
yellow pond-lily	NULU	*Nuphar lutea*	Native	–	5–20
broadleaf arrowhead	SALA2	*Sagittaria latifolia*	Native	–	5–20
broadfruit bur-reed	SPEU	*Sparganium eurycarpum*	Native	–	5–20
humped bladderwort	UTGI	*Utricularia gibba*	Native	–	5–20
Shrub/Subshrub					
false indigo bush	AMFR	*Amorpha fruticosa*	Native	–	5–20
common buttonbush	CEOC2	*Cephalanthus occidentalis*	Native	–	5–20
narrowleaf willow	SAEX	*Salix exigua*	Native	–	5–20

Animal community

Wildlife

Game species that likely utilize this ecological site include:
Waterfowl: Mallard, Blue-Winged Teal, Green-Winged Teal, American Black Duck, Northern Pintail, Gadwall, Ring-necked Duck, Bufflehead, American Widgeon, and Northern Shoveler.

Other waterbirds: Sora, Virginia Rail, Common Snipe

Furbearers: Muskrat, Beaver, and Mink.

Bird species associated with this ecological site's reference state condition:
Breeding birds likely associated with herbaceous perennial plant dominated (Spartina pectinata, Typha species, Polygonum amphibium, Schoenoplectus fluviatilis, Carex species, Sparganium eurycarpum) areas of this ecological site (Palustrine Emergent

Semipermanently Flooded): Sedge Wren, Red-Winged Blackbird, Least Bittern, Mallard, Sora, Pie-billed Grebe, King Rail, Common Moorhen, and Common Yellowthroat.

A number of migratory bird species are likely associated with annual plant (Eleocharis species, Bidens species, Cyperus species, Polygonum lapathifolium, Polygonum hydropiper) dominated areas and mudflats of this ecological site (Palustrine Emergent Seasonally Flooded, Palustrine Emergent Temporarily Flooded): Great Egret, Common Snipe, Pectoral Sandpiper, Greater Yellowlegs, Semipalmated Plover, and dabbling ducks (e.g., Mallard, Blue-Winged Teal, Gadwall, and Northern Pintail).

Breeding birds associated with woody vegetation dominated areas of this ecological site: Common Yellowthroat, Yellow Warbler, and Song Sparrow.

Amphibian and reptile species that may be associated with this ecological site's reference state: Western Chorus Frog (Pseudacris triseriata triseriata), Bullfrog (Rana catesbeiana), Southern Leopard Frog (Rana sphenocephala), Western Painted Turtle (Chrysemys picta bellii), Diamond-backed Water Snake (Nerodia rhombifer rhombifer), Graham's Crayfish Snake (Regina grahamii), Midland Brown Snake (Storeria dekayi wrightourm), and Western Ribbon Snake (Thamnophis proximus proximus).

Small mammals likely associated with this ecological site's reference state condition: Muskrat (Ondatra zibethicus), Southern Bog Lemming (Synaptomys cooperi), and Mink (Mustela vison).

Many native insect species are likely associated with this ecological site, especially native dragonflies and damselflies, beetles, and ants. However information on these groups is often lacking enough resolution to assign them to individual ecological sites.

Insect species known to be associated with this ecological site's reference state condition: Swamp Milkweed Leaf Beetle (Labidomera clivicollis), Cordgrass Planthopper (Prokelisia crocea), Dion Skipper butterfly (Euphyes dion), Duke's Skipper butterfly (Euphyes dukesi), Sedge Grasshopper (Stethophyma celatum), the Lance-tipped Darner dragonfly (Aeshna constricta) and the Ruby Meadowhawk dragonfly (Sympetrum rubicundulum).

(This section prepared by Mike Leahy, Natural Areas Coordinator, Missouri Department of Conservation, 2013. References for this section: Fitzgerald and Pashley 2000b; Heitzman and Heitzman 1996; Jacobs 2001; Johnson 2000; Pitts and McGuire 2000; Schwartz and others 2001)

Other information

Forestry

Management: This ecological site is not recommended for traditional timber management activity. Historically this site was dominated by a ground cover of native prairie grasses

and forbs. Some scattered open grown trees may have also been present. Altered sites may be suitable for non-traditional forestry uses such as windbreaks, environmental plantings, alley cropping (a method of planting, in which rows of trees or shrubs are interspersed with rows of crops) or woody biofuels.

Inventory data references

Potential Reference Sites: Ponded Floodplain Prairie

No quality reference sites are known to exist.

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Approval

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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	05/21/2025
Approved by	Suzanne Mayne-Kinney
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:**

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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):**

---

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

---

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

---

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

---

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:

---

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

---

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

---

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

---

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:**
