

## *Ecological Site Description*

### **Mollic Wet Terrace Prairie and Savanna**

**R113XY004MO**

- (*Quercus palustris-Quercus macrocarpa/Salix humilis/ Andropogon gerardii - Panicum virgatum*)
- (pin oak – bur oak/prairie willow/big bluestem – switch grass)

An Ecological Site Description (ESD) is a reference document of ecological knowledge regarding a particular land area (ecological site). An ESD describes ecological potential and ecosystem dynamics of land areas and their potential management. Ecological sites are linked to soil survey map unit components, which allows for mapping of ecological sites. *(NOTE: This is a “provisional” ESD, and is subject to change. It contains basic ecological information sufficient for conservation planning and land management in Missouri. After additional information is developed and reviewed, a “Certified” ESD will be published and will be available via the Web Soil Survey <http://websoilsurvey.nrcs.usda.gov> .)*

**Major Land Resource Area:** 113 – Central Claypan, Western Part

### **Introduction**

The western, Missouri portion of the Central Claypan (area outlined in red on the map) is a weakly dissected till plain. Elevation ranges from about 1,000 feet in the north along the divide between the Missouri and Mississippi River watersheds to about 625 feet where the North Fork of the Salt River flows out of the area. Relief is generally low, with low slope gradients and relatively narrow drainageways. Most of the Central Claypan is in the Salt River watershed. The characteristic “claypan” occurs in the loess that caps the pre-Illinoian aged till on the broad interfluvial areas that characterize this region. Till is exposed on lower slopes. The underlying Mississippian aged limestone and Pennsylvanian aged shale is exposed in only a few places along lower slopes above the Salt River.



Mollic Wet Terrace Prairies and Savannas (green area on the map) are scattered throughout the MLRA and adjacent areas in river valleys of the major streams of the area, such as the Salt River and its tributaries. They are associated with floodplain ecological sites such as Loamy Floodplain Riverfront Forest and Wet Floodplain Woodland, which are on lower positions closer to the stream channel. Adjacent upland sites are typically Mollic Till or Mollic Loess. Soils have a silty clay subsoil that perches water in the spring, and affects rooting depth and species composition.

### **Physiographic Features**

This site is on footslopes and stream terraces with slopes of 0 to 9%. The site receives runoff from adjacent upland sites. A few areas are subject to rare flooding.

## Soil Features

These soils have an abrupt textural change to silty clay at about 12 inches, or a clayey subsoil that is similar to an abrupt textural change. Abrupt textural changes impede but do not exclude rooting. The soils were formed under prairie vegetation, and have dark, organic-rich surface horizons. Parent material is loess over alluvium or colluvium from loess and till. They have silt loam surface horizons and clayey subsoils. A seasonal high water table is perched above the clayey subsoil during the spring months. Soil series associated with this site include Chariton, Edinburg and Gifford.

## Ecological Dynamics

Mollic Wet Terrace Prairie and Savanna ecological sites exist because of their association with wet conditions and heavy, clayey soils. These conditions along with periodic fire have a strong influence on excluding trees. Mollic Wet Terrace Prairies and Savannas are dominated by a dense cover of wet tolerant grasses and forbs. On slightly higher areas within or at the edge of the prairie matrix scattered elm, bur oak, pin oak, shellbark hickory and willow occurred throughout the grass-dominated landscape.

Unaltered sites in the Central Claypan were on relatively stable former floodplain positions that rarely flooded, probably once every 25 or so years. In addition to flooding, periodic fire also played a role in keeping woody species at bay. Fire during dry periods removed the dense mat of leaf litter creating opportunities for plants less aggressive than the grasses and sedges.

Today most of these ecological sites have been drained and farmed. Only a few quality remnants exist. However, 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 moist prairie and savanna development management.

## Reference State Plant Community

### Canopy Trees

Common Name	Botanical Name	Cover % (low-high)	Canopy Height (ft)
PIN OAK	<i>Quercus palustris</i>	0-20	70
BUR OAK	<i>Quercus macrocarpa</i>	0-20	70
SHELLBARK HICKORY	<i>Carya laciniosa</i>	0-5	60

### Shrubs

Common Name	Botanical Name	Cover % (low-high)	Canopy Height (ft)
PRAIRIE WILLOW	<i>Salix humiis</i>	5-20	5
FALSE INDIGO	<i>Amorpha fruticosa</i>	5-20	4

### Forbs

Common Name	Botanical Name	Cover % (low-high)
SWAMP MILKWEED	<i>Asclepias incarnata</i>	5-20
SMALL WHITE ASTER	<i>Aster fragilis</i>	5-20
SAWTOOTH SUNFLOWER	<i>Helianthus grosseserratus</i>	5-20
WINGED LOOSESTRIFE	<i>Lythrum alatum</i>	5-20
FALSE ASTER	<i>Boltonia asteroides</i>	5-20
SWEET CONEFLOWER	<i>Rudebeckia subtomentosa</i>	5-20
TICKSEED SUNFLOWER	<i>Bidens aristosa</i>	5-20

IRONWEED	<i>Vernonia fasciculata</i>	5-20
BUNCH FLOWER	<i>Melanthium virginicum</i>	5-20
CULVER'S ROOT	<i>Veronicastrum virginicum</i>	5-20

### Grasses and sedges

Common Name	Botanical Name	Cover % (low-high)
HOP SEDGE	<i>Carex lupulina</i>	10-20
FOX SEDGE	<i>Carex vulpinoidea</i>	10-20
FESCUE SEDGE	<i>Carex festucacea</i>	10-20
SWITCH GRASS	<i>Panicum virgatum</i>	20-30
PRAIRIE CORD GRASS	<i>Spartina pectinata</i>	10-20
CANADA WILDRYE	<i>Elymus canadensis</i>	10-20
BIG BLUESTEM	<i>Andropogon gerardii</i>	20-40

## Site Interpretations

### Wildlife Species

This section is not completed.

### Glossary

*Alfic* – soil that has clay-dominated subsoil (argillic horizon) with moderate to high amounts of bases such as calcium, and were typically formed under woody vegetation.

*Backslope* – a hillslope profile position that forms the steepest and generally linear, middle portion of the slope.

*Backswamp* – marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces

*Calcareous* – the presence of calcium carbonate in the soil parent material within the rooting zone; relatively alkaline

*Claypan* – a dense, compact, slowly permeable layer in the subsoil having much higher clay content than the overlying material

*Chert* – hard, extremely dense or compact crystalline sedimentary rock, consisting dominantly of interlocking crystals of quartz

*Cliff* – a significant vertical, or near vertical, rock exposure

*Dolomite* – a type of sedimentary rock that is a carbonate mineral composed of calcium magnesium carbonate

*Drainageway* – the upper most reach of a stream channel system characterized by little meandering

*Dry* – a site where soil moisture is limiting during the growing season; low available water capacity

*Dune* – a low mound, ridge, bank or hill of loose, wind-blown sand

*Exposed* – steep, south and west-facing slopes, which are warmer and drier than other slope aspects

*Flatwoods* – a type of woodland that occurs on soils with a root restricting subsoil layer within 20 to 30 inches, resulting in very slow runoff and ponding that remains saturated for most of the winter and early spring months but dries out and becomes very dry in the summer months; plants that grow there must be adapted to both conditions

*Floodplain* – the nearly level plain that borders a stream and is subject to inundation under flood-stage conditions

*Footslope* – a hillslope position at the base of a slope where hillslope sediment (colluvium) accumulates

*Forest* – a vegetative community dominated by trees forming a closed canopy and interspersed with shade-tolerant understory species

*Fragipan* – a dense, brittle subsoil horizon that is extremely hard and compact when dry

*Glade* – open, rocky, barren vegetative community dominated by drought-adapted forbs and grasses, typically with scattered, stunted woody plants

*Igneous* –bedrock formed by cooling and solidification of magma. Granite and rhyolite are typical igneous bedrocks in Missouri

*Limestone* – a type of sedimentary rock composed largely of calcium carbonate

*Loess* – material transported and deposited by wind and consisting predominantly of silt-size particles

*Loamy* – soil material containing a relatively equal mixture of sand and silt and a somewhat smaller proportion of clay

*Marsh* – a type of wetland that is dominated by herbaceous rather than woody plant species

*Moist* – a site that is moderately well to well drained and has high available water capacity, resulting in a well-balanced supply of moisture (neither too dry nor too wet).

*Mollic* – soil that has a thick, dark surface horizon and was typically formed under prairie vegetation

*Mudstone* – blocky or massive, fine-grained sedimentary rock in which the proportions of clay and silt are approximately equal

*Natric* – a soil horizon that displays a blocky, columnar, or prismatic structure and has a subhorizon with an exchangeable-sodium saturation of over 15%

*Outwash* – stratified sediments of sand and gravel removed or “washed out” from a glacier by melt-water streams

*Pinery* – a vegetative community within the historic pine range in Missouri that has shortleaf pine as a significant tree species

*Prairie* – a vegetative community dominated by perennial grasses and forbs with scattered shrubs and very few trees

*Protected* – steep, north- and east-facing slopes, which are cooler and moister than other slope aspects

*Residuum* - unconsolidated, weathered, or partly weathered mineral material that accumulates by disintegration of bedrock in place

*Riser* – a component of terraces and flood-plain steps consisting of the steep side slope; the escarpment

*Riverfront* – a vegetative community in the floodplain immediately adjacent and generally parallel to a river or stream channel

*River hills* – a geographic area characterized by thick, dissected loess deposits, formed immediately adjacent to the edges of the Missouri and Mississippi River floodplains

*Sandy* – a coarse-sized soil containing a large mixture of sand and gravels and a somewhat smaller proportion of silts and clays with excessive drainage

*Sandstone* – a sedimentary rock containing dominantly sand-size particles

*Savanna* – grasslands interspersed with open-grown scattered trees, groupings of trees, and shrubs

*Shale* – a sedimentary rock formed from clay, silty clay, or silty clay loam deposits and having the tendency to split into thin layers

*Shallow* – a site with bedrock within 20 inches of the surface

*Shoulder* – the slope profile position that forms the convex surface near the top of a hill slope; it comprises the transition zone from summit to backslope

*Sinkhole* – a closed, circular or elliptical depression, commonly funnel-shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock or by collapse of underlying caves within bedrock

*Summit* – the top or highest area of a hillslope

*Swale* – shallow, closed depressions irregularly spaced across a floodplain or terrace with an irregularly undulating surface.

*Swamp* – an area of low, saturated ground, intermittently or permanently covered with water, and predominantly vegetated by shrubs and trees.

*Talus* – rock fragments of any size or shape (usually coarse and angular) derived from and lying at the base of a cliff or very steep rock slope.

*Terrace* – a step-like surface, bordering a valley floor that represents the former position of a flood plain

*Till* – dominantly unsorted and unstratified soil material deposited directly by a glacier

*Ultic* – soil that has a clay-dominated subsoil (argillic horizon) with low amounts of bases such as calcium, and were typically formed under woody vegetation

*Upland* – a general term for the higher ground of a region, in contrast with a low-lying, adjacent land such as a valley or floodplain

*Wet* – a somewhat poorly, poorly or very poorly drained site that has an oversupply of moisture during the growing season

*Woodland* – a highly variable vegetative community with a canopy of trees ranging from 30 to 100 percent closure with a sparse midstory and a dense ground flora of grasses, sedges and forbs