Ecological Site Description

Ponded Floodplain Depression Prairie and Marsh R115BY042MO

- *(/Cephalanthus occidentalis/Spartina pectinata-Carex)*
- (/buttonbush /prairie cord grass-sedge)

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: 115B – Central Mississippi Valley Wooded Slopes, Western Part

Introduction

The Central Mississippi Valley Wooded Slopes, Western Part (area outlined in red on the map) consists mainly of the deeply dissected, loess-covered hills bordering the Missouri and Mississippi Rivers as well as the floodplains and terraces of these rivers. It wraps around the northeast corner of the Ozark Uplift, and constitutes the southern border of the Pre-Illinoisan-aged till plain. Elevation ranges from about 320 feet along the Mississippi River near Cape Girardeau in the south to about 1,020 feet on the highest ridges near Hillsboro, MO in the east. Local relief varies from 10-20 feet in the major river floodplains, to 50-100 feet in the dissected uplands, with bluffs of 200 to 350 feet along the Mississippi and Missouri Rivers. Underlying bedrock is mainly Ordovician-aged dolomite and sandstone, with Mississippian-aged limestone north of the Missouri River.

Ponded Floodplain Depression Prairies and Marshes (green areas on the map) 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 Riverfront Forest and the Loamy Floodplain Riverfront Forest ecological sites. Soils are very deep and clayey, and are subject to flooding and ponding.

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%. The site receives runoff from adjacent floodplain sites. Areas not protected by levees are frequently flooded. The site is subject to intermittent ponding.

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.

Ecological Dynamics
Floodplain Depression Prairie and Marsh 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. Floodplain Depression Prairie and Marshes are dominated by a dense cover of wetland species, including prairie cord grass, 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. Only a few 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.

Reference State Plant Community
Shrubs

Common Name	Botanical Name	Cover % (low-high)	Canopy Height (ft)
BUTTONBUSH	*Cephalanthus occidentalis*	5-20	5
SANDBAR WILLOW	*Salix exigua*	5-20	8
FALSE INDIGO	*Amorpha fruticosa*	5-20	4

Forbs

Common Name	Botanical Name	Cover % (low-high)
SWAMP MILKWEED	*Ascelpias incarnata*	5-20
SMALL WHITE ASTER	*Aster fragilis*	5-20
SAWTOOTH SUNFLOWER	*Helianthus grosseserratus*	5-20
BLUE FLAG	*Iris virginica*	5-20
WINGED LOOSESTRIFE	*Lythrum alatum*	5-20
BEGGAR TICK	*Bidens cernua*	5-20
AMERICAN BUGLEWEED	*Lycopus americanus*	5-20
TICKSEED SUNFLOWER	*Bidens aristosa*	5-20
SPOTTED TOUCH-ME-NOT	*Impatiens capensis*	5-20
SMARTWEED	*Polygonum hydropiperoises*	5-20

IRONWEED	*Vernonia fasciculate*	5-20
SWAMP AGRIMONY	*Agrimonia parviflora*	5-20
WATER SMARTWEED	*Polygonum amphibium (M)*	5-20
GIANT BUR-REED	*Sparganium eurycarpum (M)*	5-20
AMERICAN LOTUS	*Nelumbo lutea (M)*	5-30
SPADDERDOCK	*Nuphar lutea (M)*	5-20
BLADDERWORT	*Utricularia gibba (M)*	5-20
ARROWHEAD	*Sagittaria latifolia (M)*	5-20
DUCKWEED	*Lemns minor (M)*	5-30

Grasses and sedges

Common Name	**Botanical Name**	**Cover % (low-high)**
HOP SEDGE	*Carex lupulina*	10-20
SHORELINE SEDGE	*Carex hyalinolepis*	10-20
FOX SEDGE	*Carex vulpinoidea*	10-20
FESCUE SEDGE	*Carex festucacea*	10-20
AWLFRUIT SEDGE	*Carex stipata*	5-10
RICE CUTGRASS	*Leersia oryzoides*	10-20
PRAIRIE CORD GRASS	*Spartina pectinata*	20-40
GREAT BULRUSH	*Schoenoplectus tabernaemontani (M)*	10-20
BROADLEAF CATTAIL	*Typha latifolia (M)*	5-40
NARROW-LEAF CATTAIL	*Typha angustifolia (M)*	5-40
RIVER BULLRUSH	*Bolboschoenus fluviatilis (M)*	10-20

Site Interpretations

Wildlife Species

Wet prairies and marshes are home to many invertebrates, amphibians, reptiles, fish, birds and mammals. They are adapted to find and catch food in wet places. Shallow marshes and depression wet prairies provide important foraging habitat for migratory ducks and shorebirds. They also provide habitat for Woodhouse's and spadefoot toads. They provide habitat for many rare marsh birds, including bitterns, sora and king rails, pied-billed grebes and moorhens, as well as more common species, like redwing blackbirds. Other animals at home in emergent marshes include leopard frogs, muskrats and dragonflies. Periodic fires and flooding help maintain the open, herbaceous (non-woody) nature of emergent marshes.

Glossary

Alfic – soil that has a 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