14880

Eastern Great Plains Wet Meadow-Prairie-Marsh

BpS Model/Description Version: Aug. 2020

Update: 6/26/2018

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| **Modelers** |  | **Reviewers** |  |
| Timothy Nigh | Timothy.Nigh@mdc.mo.gov | Jim Drake | jim\_drake@natureserve.org |
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|  |  |  |  |

Vegetation Type

Herbaceous Wetland

Map Zones

38, 42, 43

Model Splits or Lumps

This biophysical setting (BpS) is lumped with: 1482

Geographic Range

This system is found along creeks and streams from Nebraska and Iowa to Illinois, and from Minnesota to Texas. It is also found in depressions and along lake borders. In Missouri, the system occurred in the Central Dissected Till Plains and Osage Plains sections, especially along larger rivers and streams. This system would occur primarily in ECOMAP subsections 251Ea, 251Eb and 251C (Cleland et al. 2007).

Biophysical Site Description

This system is found primarily on silty and/or dense clay, hydric soils, usually classified as Vertic Haplaquolls. It is often found within poorly drained, relatively level areas. Lowland prairies were in and along waterways or in areas subject to frequent inundation. Soils are rich in organic matter and show evidence of inundation in a gleying layer three to four feet below the surface.

Vegetation Description

The vegetation is dominated by prairie cordgrass (*Spartina pectinata*), eastern gamma grass (*Tripsacum dactyloides*), numerous large sedges, such as Frank's sedge (*Carex frankii*) and shoreline sedge (*Carex hyalinolepis*), and in wetter areas, spikerush (*Eleocharis* spp.). Other emergent marsh species such as cattail (*Typha* spp.) can be associated with this system. Forbs can include sawtooth sunflower (*Helianthus grosseserratus*), ironweed (*Vernonia fasciculata*), and obedient plant (*Physostegia virginiana*). Shrub species can be present; however, they are usually insignificant compared to the prairie and meadow species.

BpS Dominant and Indicator Species

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** |
| SPPE | *Spartina pectinata* | Prairie cordgrass |
| TRDA3 | *Tripsacum dactyloides* | Eastern gamagrass |
| CAFR3 | *Carex frankii* | Frank's sedge |
| CAHY3 | *Carex hyalinolepis* | Shoreline sedge |
| ELEOC | *Eleocharis* | Spikerush |
| TYPHA | *Typha* | Cattail |
| HEGR4 | *Helianthus grosseserratus* | Sawtooth sunflower |

Species names are from the NRCS PLANTS database. Check species codes at http://plants.usda.gov.

Disturbance Description

The fire and flooding regimes were equally important in this system. Flooding was probably annual, with fire on a 2-5yr cycle, maintaining grass and forb vegetation. Most fires were stand- replacement in nature. Fire and flooding are the primary influences in keeping these wet areas free of trees. Grazing would have also been an important dynamic process.

Fire Frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity** | **Avg FI** | **Percent of All Fires** | **Min FI** | **Max FI** |
| Replacement | 3 | 100 | 2 | 5 |
| Moderate (Mixed) |  |  |  |  |
| Low (Surface) |  |  |  |  |
| All Fires | 3 | 100 |  |  |

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Percent of all fires is the percent of all fires modeled in that severity class. Minimum and Maximum FIs show the relative range of fire intervals as estimated by model contributors, if known.

Scale Description

This system was often the dominant, matrix community of great plains floodplains. Today, the system is quite rare, with <2000ac known in Missouri.

Adjacency or Identification Concerns

This system is often adjacent to a floodplain system but is devoid of trees and riparian vegetation. It is also distinguished from upland prairie systems by having more hydrology

Today this system has a severely reduced native cover due to conversion to other uses such as agriculture. In addition to the massive reduction in extent of mesic prairie, the scale of its occurrence has also severely been altered. Altering of the type is due to grazing and reduced fire resulting in greater shrub and tree component and a variety of native and non-native shrubs, and non-native cool season grasses (brome, bluegrass, quackgrass, redtop) resulting in reduced diversity.

This system has mainly been converted to agriculture and other development. Invasion of cool season grasses and shrubs often mask the identification of this type. It may be difficult to determine the difference between old fields and native prairie patches by using aerial photos or remote sensing data.

Issues or Problems

For mapping and modeling purposes, BpS 1482, Great Plains Prairie Pothole was lumped into 2488, Eastern Great Plains Wet Meadow-Prairie-Marsh. There is no model for 2482 and it should not be mapped. Experts thought it could not be distinguished from 2488.

Native Uncharacteristic Conditions

Many small trees and shrubs would be uncharacteristic of this system historically but occurs today due to the lack of fire. Domestic livestock grazing has also severely degraded this system.

Comments

Succession Classes

**Mapping Rules**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Upper Layer Lifeform** | **Height (m)** | **Canopy Cover (%)** | | | | | | | | | |
| **0-10** | **11-20** | **21-30** | **31-40** | **41 - 50** | **51-60** | **61-70** | **71-80** | **81-90** | **91-100** |
| Herb | 0-0.5 | A | A | A | A | A | A | A | A | A | A |
| Herb | 0.5-1.0 | A | A | A | A | A | A | A | A | A | A |
| Herb | >1.0 | A | A | A | A | A | A | A | A | A | A |
| Shrub | 0-0.5 | UN | UN | UN | UN | UN | UN | UN | UN | UN | UN |
| Shrub | 0.5-1.0 | UN | UN | UN | UN | UN | UN | UN | UN | UN | UN |
| Shrub | 1.0-3.0 | UN | UN | UN | UN | UN | UN | UN | UN | UN | UN |
| Shrub | >3.0 | UN | UN | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 0-5 | UN | UN | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 5-10 | UN | UN | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 10-25 | UN | UN | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | 25-50 | UN | UN | UN | UN | UN | UN | UN | UN | UN | UN |
| Tree | >50 | UN | UN | UN | UN | UN | UN | UN | UN | UN | UN |

Succession class letters A-E are described in the Succession Class Description section. Some classes use a leafform distinction where a qualifier is added to the class letter: Brdl (broadleaf), Con (conifer), or Mix (mixed conifer and broadleaf). UN refers to uncharacteristic native or a combination of height and cover that would not be expected under the reference condition. NP refers to not possible or a combination of height and cover which is not physiologically possible for the species in the BpS.

**Description**

Class A 100 Early Development 1 - Closed

Indicator Species

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Scientific Name** | **Common Name** | **Canopy Position** |
| SPPE | Spartina pectinata | Prairie cordgrass | Upper |
| TRDA3 | Tripsacum dactyloides | Eastern gamagrass | Upper |
| CAFR3 | Carex frankii | Frank's sedge | Upper |
| CAHY3 | Carex hyalinolepis | Shoreline sedge | Upper |

Description

From blackened state, rapid regrowth of dominant vegetation such as prairie cordgrass, eastern gamma grass, numerous large sedges, such as Frank's sedge and shoreline sedge, and in wetter areas, spikerush.

*Maximum Tree Size Class*  
None

Model Parameters

Deterministic Transitions

|  |  |  |  |
| --- | --- | --- | --- |
| **From Class** | **Begins at (yr)** | **Succeeds to** | **After (years)** |
| Early1:CLS | 0 | Early1:CLS | 999 |

Probabilistic Transitions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Disturbance Type** | **Disturbance occurs In** | **Moves vegetation to** | **Disturbance Probability** | **Return Interval (yrs)** | **Reset Age to New Class Start Age After Disturbance?** | **Years Since Last Disturbance** |
| Replacement Fire | Early1:CLS | Early1:CLS | 0.33 | 3 | Yes | 0 |

References

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