



Interim Forest Management Plan

Mill Bluff State Park

Property Identifiers

Property Name and Designation: Mill Bluff State Park

Counties: Monroe & Juneau

Property Acreage: 1588

Forestry Property Code(s): 4237

Master Plan Date: Concept Element Document – October 24, 1979

Part 1: Property assessment

The mission of Mill Bluff State Park (MBSP) is to protect and enhance the natural and cultural resources while providing high quality recreational and educational opportunities and programs. Some of the activities at the park include camping, hiking, swimming, picnicking, nature programs, biking, wildlife viewing, and hunting.

Landscape and regional context

MBSP lies in two Ecological Landscapes: the Central Sand Plains (CSP) and the Western Coulee and Ridges (WCR). The majority (93%) of the park is on the eastern edge of CSP. This landscape is characterized by an extensive, nearly level expanse of lacustrine and outwash sand that originated from a huge glacial lake characterizes much of the Central Sand Plains. Sand was deposited in Glacial Lake Wisconsin by outwash derived from melting glaciers to the north. Exposures of eroded sandstone bedrock remnants as buttes, mounds, and pinnacles are unique to this Ecological Landscape. Soils are excessively drained, with very rapid permeability, very low available water capacity, and low nutrient status. In lower-lying terrain where silty lacustrine material impedes drainage, the water table is very close to the surface. Hydrology has been greatly disrupted by past drainage, channelization, impoundment construction, and groundwater withdrawal. Many of the historic wetlands in the east part of the Landscape were drained early in the 1900s and are now used for agricultural purposes. The eastern portion of the Central Sand Plains is a mosaic of cropland, managed grasslands, and scattered woodlots of pine, oak, and aspen.

The only Landtype Association (LTA) in this part of the park is the Tomah-Mauston Terraces (222Ra08) which has an undulating lake plain landform. The sandstone bedrock is between 5 and 50 feet of the surface. Soils tend to be poorly drained and somewhat poorly drained silty, clayey, and sandy soils with a silt loam or loamy sand surface over silty-loamy-sandy hillslope alluvium or calcareous clayey lacustrine.

The remaining 7% of the park is in the WCR which is characterized by its highly eroded, unglaciated topography with steep sided valleys and ridges, high gradient headwaters streams, and large rivers with extensive, complex floodplains and terraces. Soils are windblown loess of varying thickness with alluvium in the floodplains. Organic soils, especially peats, are rare. Dendritic drainage patterns are well-developed in this mostly unglaciated Ecological Landscape. Natural lakes are restricted to the floodplains of large rivers. Current vegetation is a mix of forest (41%), agriculture (36%), and grassland (14%) with wetlands (5%) mostly in the river valleys. Primary forest cover is oak-hickory (51%). Maple-basswood forests (28%), dominated by sugar maple, basswood and red maple, are common in areas that were not burned frequently. Dry rocky bluffs may support xeric stands of native white pine, sometimes mixed with red or even jack pine. Prairies are now restricted to steep south- or west-facing bluffs, unplowed outwash terraces along the large rivers, and a few other sites.



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The LTA here is Trempealeau Sandstone Hills (222Lb07). The characteristic landform pattern is moderately steep with hills and narrow valleys of Tunnel City sandstone. Soils are well-drained silty and loamy soils with a silt loam or sandy loam surface over non-calcareous silty loess or over loamy, sandy, or clayey residuum or colluvium; most over glauconitic sandstone or dolostone bedrock.

The park property includes a wide mix of habitats including upland forest, savanna/barrens, grasslands, rock formations, and wetlands. Land use on the private property surrounding the park is a mix of oak forest and agriculture production including cranberries.

History of land use and past management

The Federal Government purchased 60 acres in 1936 in an effort to relocate residents from sub-marginal land in the central Wisconsin plain. This land was leased to the Wisconsin in 1955 for use as a roadside park. Some of this tract was conveyed to the State Highway Commission in 1961 and 1963. A total of 74 acres was given for use as MBSP. A joint venture with the Ice Age National Scientific Reserve in 1972 increased the size of the park size 749 acres. The size of the park has continued to increase by the purchase, from willing sellers, of property bordering or within the park boundary.

The park is bisected by I-90/94, and USH 12/STH runs parallel to and just south of I-90/94. Mill Bluff State Park is accessible by Funnel Road (CTH W) which travels north-south. Two separate railroad lines also cross the park, generally in an east-west direction.

A 21-site campground, swimming pond, picnic area, trail system, and support facilities have been developed over the years.

Past management within the park has included row crop agriculture on the uplands. The eastern half of the park, where the majority of the wetlands occur, was ditched in the past for agriculture. The remains of commercial cranberry beds are still evident. There has been recent forest management to help meet the objectives of MBSP, including SNA management.

The park is open for most hunting and trapping seasons. See <http://dnr.wi.gov/topic/parks/name/millbluff/todo.html> for details.

SITE SPECIFICS

Current forest types, size classes and successional stages

MBSP contains 1,588 acres of a red maple forest, oak forest, pine forest and plantation, upland grasslands, wetlands, and rock formations with 831 acres (52%) typed as forest. The largest forest type is red maple (348 acres, 42% of forested area). The second largest is oak at 31% (256 acres) of forested area. A combination of pine forests (jack, white, and red) make up 126 acres or 15% of the forested area. Lowland grass is the largest non-forest cover type at 384 acres.

- **Red Maple:** 348 acres (27% of total acreage). 159 acres in 05-11 inch dbh, 64 acres in 11-15 inch dbh, 125 acres greater than 15 inch dbh. Date of origin in mostly 1936-1972, with one each, respectively in 1917 and 2010.
- **Oak:** 301 acres (19% of total acreage). 51 acres in 05-11 inch dbh, 116 acres in 11-15 inch dbh, 134 acres greater than 15 inch dbh. Date of origin is between 1907 and 1954. This includes two stands classed as scrub oak.
- **Jack Pine:** 87 acres (5% of total acreage). 39 acres in 05-09 inch dbh, 48 acres in 09-15 inch dbh. Date of origin is between 1924 and 1983.
- **White Pine:** 29 acres (2% of total acreage). All greater than 15 inch dbh. Date of origin 1943 and 1950.
- **Aspen:** 3 acres (<1% of total acreage). 11-15 inch dbh. Date of origin 1948.



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- **Red Pine:** 3 acres (<1% of total acreage). Plantation. 09-15 inch dbh. Date of origin 1944 and 1948.

State Natural Area designations:

Mill Bluff State Natural Area (#359) was designated a State Natural Area in 2002. Mill Bluff State Natural Area features a number of spectacular Cambrian sandstone mesas, buttes, and pinnacles that rise above the level bed of an extinct glacial lake. Many of the area bluffs contain 6-12 inch long petroglyphs (rock carvings) that are shaped like bird tracks. The dominant plant community is a xeric forest composed primarily of Hill's oak, jack pine, red pine, white pine, and white oak. Associated trees include big-tooth aspen, black cherry, red oak, paper birch, and red maple. Many of the sandstone outcroppings contain large red pine.

High value conservation forests (HCVF) or other resources/ natural community types limited in the landscape: Both oak savanna and barrens are globally rare natural community types.

Biotic inventory: none

Deferral/Consultation area designations: none

Rare species and good quality natural communities:

As of 2013, one rare animal, two rare plants, and several good quality natural communities have been documented on the park. MBSP is also within the Karner blue butterfly Federal High Potential Range. Active forest management may help improve the quality of oak savanna (oak/pine barrens) and the rare species these natural community types support.

Invasive species:

Three invasive species are known from MBSP. Small common buckthorn is scattered throughout the park. The stems are not found in dense pockets at this time. Buckthorn has the ability to hinder tree regeneration and out-competes native understory vegetation. Spotted knapweed is another invasive primarily restricted to roadsides at this time. This plant readily spreads into disturbed areas and can out-compete native vegetation. Gypsy moth is also in the park but has not reached populations that have caused noticeable defoliation. There is high potential for invasive establishment due to the access by park users including bringing infested by various pests into the campground.

Soils:

Most soils in this area are deep alluvial sand deposits. These soils are excessively drained, with very rapid permeability, very low available water capacity, and low nutrient status. The eastern part of the park in Juneau County contains lower-lying terrain where the water table is very close to the surface. This water table has been artificially lowered due to drainage ditches built when agriculture was attempted on the property. These wetter soils are loamy sand and are poorly drained.

Cultural and Recreational Considerations

- **Cultural and archaeological:**

Several archaeological and historical sites have been identified by the Wisconsin Historical Society on MBSP.

- **Recreational uses:**

MBSP has high use area for hiking, camping, swimming, and hunting. Hiking trails and rock steps provide access into the interior and onto Mill Bluff. The 21-site campground is open from Memorial Day to Labor Day. The swimming pond open all year but no lifeguard is present. No fishing is allowed in the swimming pond due to conflicts with swimmers.



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Part 2: IFMP Components

Management Objectives:

1. Maintain and enhance the safety and aesthetic quality of the park.
2. Maintain and enhance wildlife habitat.
3. Perpetuate savanna and lupine habitats west of Long and Camel's Head bluffs.
4. Permit succession to proceed on the bluffs and red maple swamps within the State Natural Area.

Property Prescriptions (Identify specific and pertinent prescriptions by area or forest type, including passive management areas, extended rotation, and other information that will help achieve the objectives)

As prescriptions are the tools used to meet the objectives, it should be noted that many of the prescriptions accomplish more than one management objective. Forest management will include timber sales, hazard tree removal, and wildlife habitat enhancement for both common and rare species.

Park in general:

1. Red maple: Stand 24. Forest management will focus on uneven harvest and thinning with a goal of increasing the rate of tree diameter growth for aesthetic purposes.

State Natural Area:

1. Oak:

Forest management will focus on removal of diseased/dying trees, and small crowned trees in the sub-canopy and canopy. Leave trees should roughly equal 40 BA/acre of the largest, healthiest, large crowned trees and about 10 BA/acre of 6-12 in. dbh oak where it exists. It should be noted that these are general guidelines and flexibility is allowed to address variability between and within stands. Where jack and red pine exists, leave some scattered trees as legacies and in an attempt to perpetuate this component within these stands. Additionally, efforts should be made to eliminate all white pine and red maple from these stands by harvesting down to 2 in dbh. Further evaluation, guidance, and tree marking assistance can be provided by the State Parks Ecologist or District Ecologist on how to meet savanna management objectives for these stands.

2. Jack pine:

Forest management will focus on removal of all jack pine (and other species) close to roads and forest openings that contain native grasses. The remainder of these stands should be thinned by approximately 40-60 % to stimulate understory plants and maintain a component of older jack pine. Additionally, efforts should be made to eliminate all white pine and red maple from these stands. Further evaluation, guidance, and tree marking assistance can be provided by the State Parks Ecologist or District Ecologist on how to meet savanna management objectives for these stands.

3. Red maple and/or white pine:

These stands will be passively managed.



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Approvals:

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12/13/2013

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12/16/2013

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12/16/2013

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1/6/2014

Area/Team Supervisor**Date**



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