Interim Forest Management Plan

Mud Lake Wildlife Area

County: Door

Property Acreage: 2325 acres

Forestry Property Code(s): 1501

Master Plan Date: 1987

Part 1: Property Assessment

General Property Description

- Landscape and regional context

Mud Lake Wildlife Area is located in the northeast portion of the Northern Lake Michigan Coastal Ecological Landscape (NLMCEL) The NLMCEL is located in the northeastern corner of Wisconsin bordered by Lake Michigan and the lake's largest bay, Green Bay. Major landforms of both of these landscapes are the Niagara Escarpment and landforms associated with the Lake Michigan and Green Bay shorelines such as sand spits, clay bluffs, beach and dune complexes, and ridge and swale systems. The Northern Lake Michigan Coastal Ecological Landscape includes an extensive shoreline along Green Bay, on the west coast of Lake Michigan. Also present are many small rivers and creeks that drain the numerous linear wetlands on the west side of Green Bay that trend southwest to northeast. Large rivers that flow through the Ecological Landscape are the Oconto, Peshtigo, and Menominee Rivers. There are few large inland lakes, but lakes that do occur have relatively high pollution levels.

Historical vegetation of the Northern Lake Michigan Coastal Ecological Landscape included maple-basswood-beech forest, hemlock-hardwood forest, northern white-cedar swamp, hardwood-conifer swamp, wet meadows, and coastal marshes. Conifer dominated upland forests that resemble the boreal forest were present along Lake Michigan; they contained a significant component of white spruce (*Picea glauca)* and balsam fir (*Abies balsamea)*.

Mud Lake State Natural Area consists of a 155-acre shallow (maximum depth 5 feet) drainage lake surrounded by an extensive shrub and timber swamp. The lake has a truly wild character to it. The bottom is predominantly marl, although dolomite bedrock is exposed in some areas. Many old snags along the shoreline

attest to water levels that fluctuate with seasonal precipitation. Aquatic plants are most diverse in the outlet stream (Reibolts Creek) and include bur-reed, coon's-tail, pondweed, and wild rice. In the lake, soft-stem bul-rush, yellow water-lily, common reed, and cattail. Immediately surrounding the open water is a narrow zone of shrubby northern sedge meadow dominated by sedges, willows, dogwoods, and sweet gale. The wetlands and lake provide habitat for the federally-endangered Hine's emerald dragonfly (*Somatochlora hineana*). The open zone grades into second-growth wet-mesic forest of white cedar, white spruce, balsam fir, and black ash. This is an example of boreal forest habitat which is a rare community type in Wisconsin. Reibolts Creek, which runs from Mud Lake to Lake Michigan, has been stocked with trout and supports a trout spawning run. Waterfowl use of the lake is occasionally heavy. Mud Lake W.A. is a migratory bird concentration area.. Nesting birds include pied-billed grebe, American bittern, common golden eye, mallard, pintail, blue-winged teal, wood duck, and Virginia rail.

There has been very little in the way of land management on the property with the exception of limited phragmites spraying over the past 6 years. Most of Mud Lake WA is wetland unsuitable for farming and was never cleared or drained. Late 1800's - early 1900, farming was limited to the upland portions of the area. In the more recent past there were scatterings of waterfowl and deer camps. There has been no brushing, mowing or Rx burning on the property. There was once a water control structure at the access by Old Lime Kiln Rd in what appears to have been an old railway used by the kiln. At one point a snowmobile club maintained a trail on this berm, but the control structure has been removed and a culvert was put in its place. Unfortunately the culvert is perched and is now a barrier to fish and benthos. No other control structures have been placed or removed. Current uses are mostly hunting and wildlife viewing. Access is limited and foot travel with in the forested wetland is very difficult. Most land users utilize an access at the end of Birch Rd west of Sunset Dr. Other users access the Mud Lake via Reiboldts Creek.

Site Specifics

- Current forest types, size classes and successional stages

Forest land represents 84% of the MLWA acreage. The current forest types by acreage are as follows:

Cedar	1389 acres
Miscellaneous conifers	409 acres
Swamp Hardwoods	85 acres
Aspen	57 acres
Tamarack	18 acres

The majority of stands are mixed poletimber and small sawtimber stands 75 to 100 years old. Several large sawtimber cedar and mixed conifer stands are present as well. Wetland forests are predominant with variable timber productivity influenced in large part by drainage. Transitional sites from wetland to upland occur on the eastern property boundary. Early successional forest occupies a minority of the property and natural conversion to later successional species is well underway due to age. Although not that particularly old in relative terms, the current cedar forest type will continue as the dominant long term late successional forest type on the property.

- State Natural Area (SNA) designations
  All of the wetland acres are dedicated SNA
- High Value Conservation Forests (HCVF) or other resources/natural community types limited in the landscape
  The forested wetlands and the foraging and breeding habitat for Hine's emerald dragonfly are identified HCVFs.
- Biotic Inventory status:
  A Rapid Ecological Assessment was completed for the Door and Kewaunee County State Wildlife and Natural Areas Planning Group in April 2011.
- Deferral/consultation area designations: All of the natural area is a deferral area and the remainder is designated as a consultation area. (http://intranet.dnr.state.wi.us/int/land/div/InterimPlanning/dc.asp): Sites are in the process of being finalized.
- Rare species: There are nine species of special concern, two state and/or federally threatened species and three state and/or federally endangered species known from the property.
- Invasive species_Phragmites is the biggest concern. It is assumed some Glossy Buckthorn is located on the property, but there has not been any active measures taken to locate or control it.
- Soils: The bedrock is Niagara dolomite limestone, which is coverd by a thin soil layer over most of the property. The property contains 21 soil types, which are consolidated into mucks, sands and loams. Approximately one half of the area is covered by muck soils. The remainder of the soils present are somewhat poorly drained to very poorly drained and nearly level, with saturated soil at or near the surface.

Cultural and Recreational Considerations

- Cultural and archeological sites (including tribal sites) A prehistoric campsite has been identified on the property. Our state archeologist will be consulted before any soil disturbance activities are conducted. ..
- Mud Lake was acquired by the state beginning in 1966. The major landowner was Leland Thorp, who owned 1040 acres surrounding the lake and expressed a desire to sell his land to the state for preservation as wildlife habitat.

- On August 16, 1975, the Ridges Sancturary-Toft Point-Mud Lake Area was dedicated as a National Natural Landmark by the National Park Service.

The following recreational opportunities exist at Mud Lake Wildlife Area.

- Birding
- Canoeing
- Cross country skiing (no designated trail)
- Fishing
- Hiking (no designated trail)
- Hunting - especially noted for deer, grouse, rabbit, squirrel and waterfowl
- Snowmobiling trail
- Trapping
- Wild edibles/gathering
- Wildlife viewing

Part 2: IFMP Components

Management Objectives:

Mud Lake SNA

1. Manage the site as a reserve for northern wet-mesic forest and sedge meadow, as an aquatic, wetland and estuarine reserve, and as an ecological reference area.
2. Natural processes will determine the structure of the forest and aquatic communities.
3. Provide opportunities for research and education on the highest quality native northern wet-mesic forests.

Outside the SNA there are 2 forest types scheduled for management; aspen & cedar. Aspen is a minority timber type on the property and will be regenerated where feasible to maintain a small component of early successional forest. Most of the aspen is past maturity and in some areas succession has advanced far enough to favor conversion to longer lived species (i.e. cedar).

Property Prescriptions:

Interim Forest Management Plan

Mud Lake SNA

1. The native species are managed passively, which allows nature to determine the ecological characteristics of the site. Exceptions include control of invasive plants and animals, maintenance of existing facilities, and access to suppress fires.
2. Salvage of trees after a major wind event is not considered compatible with management objectives.

Outside of the SNA, the Aspen type will be regenerated by coppice harvesting. Where harvests are large enough, Green Tree Retention Guidelines will be implemented by leaving 5-15% cover via individual trees, groups or a combination thereof. In the Cedar type, application of intermediate thinning will include assessment of residual stand density and site characteristics for feasibility/wind throw risk. Thinning from below or free thinning will be the primary intermediate treatments used. Current stand ages do not call for regeneration harvests in the near future. Reliable regeneration of cedar will likely present future silvicultural challenges. Forestry BMP's for water quality and habitat protection for endangered, threatened and special concern species will limit most forest management activities to frozen ground conditions.

Approvals:

Regional Ecologist	12/9/13 Date
Forester	12/10/13 Date
Property Manager	12-10-13 Date
Area/Team Supervisor	12-16-13 Date