



# Interim Forest Management Plan

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## Property Identifiers

Property Name and Designation (multiple small properties can be grouped):

White River Marsh Wildlife Area (WRWA) with 2 imbedded State Natural Areas: White River Sedge Meadow and White River Prairie/Tamaracks SNA.

Counties: Green Lake, Marquette

Property Acreage:

White River Marsh WA – 8,555 ac

White River Sedge Meadow SNA – 3,176 ac

White River Prairie/Tamaracks SNA – 780 ac

Total – 12,511 ac

Forestry Property Code(s):

White River Marsh WA - 3972

White River Sedge Meadow SNA – 2407

White River Prairie/Tamaracks SNA - 2408

Master Plan Date: A Non-NR44 compliant Draft Master Plan Concept Element dated 6 March 1987

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## Part 1: Property Assessment (1-2 pages maximum)

The following items should be considered during the property assessment. Not all sections may be relevant for all properties.

### General Property Description

- Landscape and Regional Context

The White River Marsh WA is found within the Southeast Glacial Plains Ecological Landscape, which covers approximately 4.9 million acres and makes up the bulk of the non-coastal land area in southeastern Wisconsin. This Ecological Landscape is situated entirely on glacial landforms, including till and plains, interlobate and end moraines. Most of this Ecological Landscape is composed of glacial materials deposited during the Wisconsin Ice Age, but the southwestern portion consists of older, pre-Wisconsin till, with more dissected topography. Soils are lime-rich tills overlain in most areas by a silt-loam loess cap. Agricultural and residential developments throughout the Ecological Landscape have significantly altered the historical vegetation and the hydrology. Many of the natural community remnants, especially the rare types, are associated with rugged moraines, wet sites, or areas where the Niagara Escarpment is close to the surface.

Historically, vegetation in the Southeast Glacial Plains consisted of a mix of prairie, savanna and oak forest, with maple-basswood forests prevalent in areas less affected by wildfire. Wet and wet-mesic prairies, sedge meadows, marshes, fens, and tamarack swamps occurred in poorly drained, wetter portions of the Ecological Landscape. End moraines and drumlins supported prairies, savannas and oak forest. Agricultural and urban land use practices have drastically changed the landcover of the Southeast Glacial Plains since Euro-American settlement. The current vegetation is primarily agricultural cropland. The prairies and savannas are all but gone, and the remaining forests are severely fragmented and occupy only about 10% of the total land area. Important forest cover types include oak, maple-basswood, and lowland hardwoods. No large areas of contiguous upland forest exist today except on the Kettle Interlobate Moraine, which has relatively rugged topography that is ill-suited for agricultural use. In the southern Kettle Moraine, much of the historic oak savanna cover has succeeded to dense hardwood forests due to fire suppression. Only about 4% of this Ecological Landscape is publicly-owned.



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- History of land use and past management

Prior to European settlement the majority of the property was dominated by wetland vegetation with smaller areas of oak. According to Finley's Original vegetation of Wisconsin, the wetland vegetation was identified as marsh, sedge meadow, wet prairie, and lowland shrubs. The oak component was made up of white, black and bur oak. Extensive wetland drainage throughout the majority of the property allowed conversion for agricultural purposes, including some muck farming.

Prior to State acquisition the property was predominated by small dairy and animal farms and the marshlands were cut and burned for the production of marsh hay and grass. The marsh grass was used for cattle feed, bedding and for the production of carpet fiber. The harvested "wire grass" was shipped via the Lock and Dam system on the Fox River to carpet factories in the City of Oshkosh. Aldo Leopold investigated the marsh in the 1940's and wrote a biological report that contained field observations on a wide variety of wildlife species. Wildlife species such as Prairie Chicken and Bobwhite Quail were abundant on the property and Mr. Leopold recommended Federal or State purchase of the marsh for conservation purposes.

The project statement and first land acquisition was approved by the Wisconsin Conservation Commission on March 30, 1962. The goal of the property was to manage a state wildlife area for duck and pheasant production, public hunting, trapping, fishing and compatible recreational and educational opportunities.

Management has included wetland development (7 small lowhead dike impoundments), wetland restoration (at least 110 small ditch plugs/fills), upland grassland restoration, oak barrens/savannah restoration, undesirable tree removal, invasive species control, and maintenance of the oak resource. Due to the fact that the property is a State Wildlife Area, any management consideration will emphasize the need to provide recreational opportunities and wildlife habitat as related to hunting, fishing and trapping to coincide with the original intention of the project justification.

## Site Specifics

- Current forest types, size classes and successional stages

There are six major forest types found on the property, including oak (1174 ac), bottomland hardwoods (696 ac), tamarack (556 ac), red maple (242 ac), aspen (149 ac), and swamp hardwoods (29 ac).

Break down for each type by age class is as follows:

|                         |                          |                            |                             |                           |
|-------------------------|--------------------------|----------------------------|-----------------------------|---------------------------|
| Oak –                   | <b>0-20 yrs</b><br>28 ac | <b>20–80 yrs</b><br>411 ac | <b>80–100 yrs</b><br>447 ac | <b>100+ yrs</b><br>288 ac |
| Bottomland<br>Hardwoods | 0-20 yrs<br>6 ac         | 20-80 yrs<br>300 ac        | 80-100 yrs<br>353 ac        | 100+ yrs.<br>37 ac        |
| Tamarack –              | 0-20 yrs<br>71 ac        | 20-80 yrs<br>485 ac        |                             |                           |
| Red Maple –             | 0-20 yrs<br>0 ac         | 20-80 yrs<br>211 ac        | 80-100 yrs<br>31 ac         |                           |
| Aspen –                 | 0-20 yrs<br>0 ac         | 20-40 yrs<br>80 ac         | 40+ yrs<br>69 ac            |                           |
| Swamp Hardwoods –       | 80-100 yrs<br>29 ac      |                            |                             |                           |



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- State Natural Area designations  
There are two designated SNA's within the White River Marsh WA, White River Sedge Meadow and the White River Prairie/Tamaracks
- High Value Conservation Forests (HCVF) or other resources/natural community types limited in the landscape - No
- Biotic Inventory status  
The Master Planning biotic inventory is not complete; however, the Bureau of Endangered produced an Ecological Assessment for The Fox River Headwaters Ecosystem in 2002.
- Deferral/consultation area designations (refer to the following website): No
- Rare species  
There are 24 rare species (9 plants and 15 animals) listed in the Fox River Headwaters Ecological Assessment for the White River Marsh Wildlife Area.  
The property is identified as a Conservation Opportunity Area (Upper Midwest for Ecological Significance) in the Wildlife Action Plan, is considered an Important Bird Area, and a Land Legacy Place. In addition, the property has been identified as a Bird Conservation Area, Tier 2.
- Invasive species  
Reed canary grass is widespread throughout the wildlife area. Hybrid cattail is found throughout much of the White River Sedge Meadow SNA and along Sucker Creek and giant reed grass is scattered in isolated pockets throughout the lowland areas.  
Common and Glossy buckthorn are prevalent in scattered patches throughout White River Marsh WA.  
Other invasive species found in scattered smaller areas on WRWA include spotted knapweed, garlic mustard, crown vetch, autumn olive, black locust, and oriental bittersweet.
- Soils –

Most upland soils of the Southeast Glacial Plains Ecological Landscape are brown or reddish brown calcareous glacial till ranging in texture from sandy loam to loam or clay loam. Some soils are outwash sands and gravels, or lacustrine clays and sands derived from Glacial Lake Oshkosh. A mantle of silty loess, originating from wind deposition during and after glaciation, is 6 inches to more than 48 inches thick in different parts of the Ecological Landscape (Hole 1976). Nearly all the soils are rich in calcium carbonates derived from the underlying dolomite bedrock, and are highly productive. Some of the soils have an iron content that gives them a reddish color; the iron comes from sediments transported by glaciers from the Lake Superior basin. The reddish versus brownish color of the soils is generally linked to glacial Formations, but is not always distinctive. The browner soils tend to be associated with the Holy Hill and New Berlin Formations, while reddish ones are more typical of the Kewaunee Formation and the older Zenda Formation (Schneider 1983, Dott and Attig 2004). Upland soils range from well drained to poorly drained; they have very slow to rapid permeability and low to very high available water capacity. Most lowland soils are very poorly drained non-acid mucks, but some are silty or clayey lacustrine, or loamy till soils. Soils in the larger river valleys include loamy to silty alluvium, non-acid muck, and aeolian silts over acid outwash sand and gravel. The "Soils of the Southeast Glacial Plains" map in Appendix K at the end of this chapter indicates the general textures of soils in the Southeast Glacial Plains, classing them as clayey, silty, or loamy, with many interspersed wetland soils.

Specifically for WRWA, the wildlife area has 4 different soil associations which include:

- Oakville-Brems-Granby: well drained, moderately well drained and poorly drained, nearly level to steep soils that have a subsoil of fine sand underlain by fine and medium sand
- Boyer-Oshemo-Gotham: well drained and somewhat excessively drained, nearly level to steep soils that have a subsoil mainly of loamy fine sand, sandy loam, and loamy sand underlain by sand or stratified sand and gravel outwash.
- Willette-Poy-Poygan: very poorly drained and poorly drained, nearly level organic soils and soils that have a subsoil of silty clay and clay underlain by sand or calcareous clay and silty clay.
- Adrian-Houghton: very poorly drained, nearly level organic soils underlain by sandy, loamy, or clayey material or marl.



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## Cultural and Recreational Considerations

- Cultural and archeological sites (including tribal sites)

Few archaeological and historical sites have been identified at the White River Marsh WA according to the Bureau of Facilities and Lands website. Five historical sites and 7 archaeological sites are identified to the ¼ section of current state ownership or adjacent to state ownership.

Due to the proximity to major metropolitan areas (Milwaukee, Madison and Fox Valley), the property receives considerable public use. The majority of the activity is related to hunting, primarily pheasant, duck, turkey and deer hunting. However, due to the presence of Operation Migration and the Whooping Crane training and release facility on the property there has been a marked increase in the number of visitors specifically for viewing the ultra-light led training activities. Other important recreational activities on the property include bird watching, wildlife viewing, canoeing, fishing and trapping

## Part 2: IFMP Components (1-2 pages maximum)

**Management Objectives** (Outline primary forest management objectives):

### Oak

The management objective for oak is to maintain the current level of oak acreage on the property with management prescriptions to convert the current oak forest to a more open oak woodland condition. Maintain oak in a variety of ages classes with 15% in 0-20 years, 40% in 20- 80 years, 25% in 80-100 years and 20% in 100 years plus. In addition, restore oak barrens and savannah where the opportunities are economically and ecologically feasible. The oak type may also be expanded into areas of suitable habitat where the red maple type is now found with some oak available for restoration.

### Bottomland Hardwoods

The management objective for bottomland hardwoods would be to maintain the current level of the type at a maximum, particularly in the White River corridor to maintain and protect the Gallery type forest. Expansion into quality sedge meadow and wet prairie will be discouraged and conversion to oak, where feasible, will be encouraged.

### Tamarack

The management objective for tamarack would be to maintain the current level of the type on the wildlife area and encourage expansion in the "tamarack area" of the Wet Prairie/Tamarack SNA.

### Swamp Hardwoods

The management objective for swamp hardwoods would be to maintain the current level of the type. When feasible, swamp hardwoods where present in red maple stands, will be encourage to expand and replace the red maple type.

### Aspen

The management objective for aspen is to maintain the current level of aspen on the property with an even distribution of age classes. Expansion into sedge meadow and wet prairie will be discouraged.

### Red Maple

The management objective for red maple would be to convert to either swamp hardwood or oak, depending on other species present in the stand and feasibility of conversion based on presence/absence of invasive species (common and glossy buckthorn).



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**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):

Stand specific objectives and prescriptions will be discussed and determined at the Annual Integrated Property Management meetings. Typically these meetings occur in January and several resource professionals associated with the property attend the meeting, including the forester, district ecologist, fish manager, wildlife biologist / property manager, and Facilities and Lands technicians. Long term objectives and prescriptions may be modified at the Integrated Property Management meetings in the case of catastrophic events such as wild fires, insect invasions, or disease that cause safety concerns or create significant stand modifications.

Extended rotations will be utilized in the oak stands to encourage the establishment of stands reaching up to 150 years old and the retention of snags and den trees to provide additional wildlife habitat. A two cut shelterwood system is being prescribed in the oak stand in order to promote advanced regeneration of white oak, black oak, and swamp white oak. There are several inclusions that will have a coppice system applied in order to regeneration aspen and red/black oak through stump and root sprouting.

Green Tree Retention (GTR): all trees marked with green paint will be reserved for wildlife purposes. The target level of retention is 40% canopy closure based upon the level of advanced regeneration in the understory. After the second harvest of the shelterwood system, GTR will range from 5-15% and additional snags and den trees will be reserved. In the areas of coppice harvesting, 5-15% canopy will be reserved as GTR and indicated with green paint. The aspen pockets will have less than 5-15% GTR in order to promote vigorous and adequate stump and root sprouting. In the overstory removal areas, all marked trees with green paint will be reserved. Retention will be targeted at 5-15% canopy closure. Reserved species include white oak, red/black oak, swamp white oak, ash, and elm.

Approvals:

\_\_\_\_\_  
District Ecologist Date

\_\_\_\_\_  
Forester Date

\_\_\_\_\_  
Property Manager Date

\_\_\_\_\_  
Area/Team Supervisor Date