Interim Forest Management Plan

Property Identifiers

Property Name and Designation: Waushara-Marquette Fishery Areas (WMFA)

- Mecan River Fishery Area (Including Chaffee Creek Unit – Upper Fox Headwaters SNA & Mecan Springs SNA)
- Pine River Fishery Area
- Willow Creek Fishery Area
- White River Fishery Area

Counties: Waushara/Marquette

Property Acreage:

- Mecan River Fishery Area: 6633
- Pine River Fishery Area: 2071
- Willow Creek Fishery Area: 2178
- White River Fishery Area: 3420

Forestry Property Code(s):

- Mecan River Fishery Area: 3958,3969,7059
- Pine River Fishery Area: 7009
- Willow Creek Fishery Area: 7017
- White River Fishery Area: 7014

Master Plan Date:

- Mecan River Fishery Area: Unknown
- Pine River Fishery Area: 1985
- Willow Creek Fishery Area: 1982
- White River Fishery Area: Unknown

Part 1: Property Assessment

General Property Description

- ***Landscape and regional context:*** The Mecan River, Pine River, and White River Fishery Areas are located within the Central Sand Hills Ecological Landscape. The Willow Creek Fishery Area spans the Central Sand Hills and the northwest portion of the Southeast Glacial Plains Ecological Landscape. The Central Sand Hills EL is located in central Wisconsin at the eastern edge of what was once Glacial Lake Wisconsin. The landforms in this ecological landscape are a series of glacial moraines that were later partially covered by glacial outwash. The area is characterized by a mixture of farmland, woodlots, wetlands, small kettle lakes, and cold water streams, all on sandy soils. The mosaic of glacial moraine and pitted outwash throughout this ecological landscape has given rise to extensive wetlands in the outwash areas, and the headwaters of cold water streams that originate in glacial moraines. The growing season is long enough for agriculture but the sandy soils limit agricultural productivity somewhat.

  Historic upland vegetation consisted of oak-pine forest, oak savanna, and tall-grass prairie. Fens were common in this ecological landscape and occurred along with wet-mesic prairie, wet prairie, and rare coastal plain marshes. Current vegetation is

composed of more than one-third agricultural crops, and almost 20% grasslands with smaller amounts of open wetland, open water, shrubs, barren, and urban areas. The major forested type is oak-hickory, with smaller amounts of white-red-jack pine, maple-basswood, lowland hardwoods, aspen-birch, and spruce-fir. Black spruce is a component of the Corning-Weeting lakes wetland complex in the northwestern corner of Columbia County. This is one of the southernmost locations for black spruce in the Upper Midwest.

The Southeast Glacial Plains Ecological Landscape 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 land cover 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.

- ***History of land use and past management:*** Prior to European settlement in the middle of the 19th century, primary cover types on the WMFA included Oak Woodlands, Oak Openings on the upland sites. Fire played a critical role in shaping these pre-settlement cover types. The lowlands on the WMFA were likely forested and composed mainly of Swamp Conifers and to a lesser extent Lowland Hardwoods. During settlement the majority of these lands were harvested for timber and/or cleared for agricultural purposes. Historical aerial photography indicates that meadows were the dominant cover type adjacent to the waterways in the early to middle part of the 20th century, likely as a result of agricultural use including burning, grazing, and cutting of marsh hay. Today most of these lands have converted to lowland woods or lowland brush. Acquisition boundaries for these Fisheries Areas approved beginning in the middle part of the 1950's.

  The waters of the WMFA contain some of the finest trout streams in central Wisconsin. The waters are crystal – clear and support excellent natural reproduction through 107 miles of the total 168 miles of stream length, and as such receive moderate to high fishing pressure, particularly during the early parts of the trout fishing season. Past management therefore has been primarily aimed at providing and improving opportunities for public fishing. These projects generally consisted of fence maintenance, development of parking areas, and in-stream habitat improvement.

The lands of the WMFA receive heavy hunting pressure, particularly during the gun deer season. Other recreational and educational activities supported by these properties include trapping, hiking, cross-country skiing, snowshoeing, picnicking, berry picking and nature study. Snowmobile trails exist on portions of these properties and are maintained by county snowmobile associations as part of a regional network of trails. In recent years hiking trails have been constructed on these lands as a part of Wisconsin's Ice Age Trail Corridor.

Forest management activities have included wildlife shrub plantings, planting of pines, and limited timber harvesting. Sharecropping occurs on non-forested uplands and is used primarily as a habitat maintenance tool.

Site Specifics

- ***Current forest types, size classes and successional stages:***

Acres Per Forest Type Per Property

	Mecan River		White River		Willow Creek		Pine River	
Forest Type	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**
Aspen	170	5%	50	3%	15	1%	29	2%
White Birch	2	0%	7	0%	13	1%	13	1%
White Cedar	0	0%	0	0%	3	0%	0	0%
Central Hardwoods	1	0%	0	0%	9	1%	0	0%
Misc. Coniferous	14	0%	3	0%	13	1%	4	0%
Misc. Deciduous	20	1%	0	0%	0	0%	0	0%
Red Maple	18	0%	84	5%	50	4%	101	7%
Northern Hardwood	12	0%	41	2%	7	0%	31	2%
Oak	1538	41%	534	31%	548	39%	440	30%
Jack Pine	260	7%	3	0%	5	0%	5	0%
Red Pine	416	11%	60	4%	158	11%	216	15%
White Pine	552	15%	98	6%	146	10%	133	9%
Bottom Hardwoods	93	2%	0	0%	0	0%	0	0%
Swamp Hardwoods	362	10%	701	41%	332	24%	441	30%
White Spruce	5	0%	0	0%	0	0%	14	1%
Tamarack	278	7%	123	7%	109	8%	31	2%
Totals:	3,741	100%	1,704	100%	1,408	100%	1,458	100%

Forested Vs. Non-Forested Acres Per Property

Cover type	Mecan River		White River		Willow Creek		Pine River		Totals	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Forested	3,741	60%	1,704	59%	1,408	66%	1,458	66%	8,311	62%
Non-forested	2,517	40%	1,183	41%	729	34%	748	34%	5,177	38%
Total:	6,258	100%	2,887	100%	2,137	100%	2,206	100%	13,488	100%

Age Class Distribution of Oak

Property: Fishery Area	less than 20		21-80		81-100		100+		Totals	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Mecan River	231	15%	277	18%	323	21%	707	46%	1538	100%
Willow Creek	0	0%	52	9%	305	56%	191	35%	548	100%
White River	70	13%	166	31%	150	28%	148	28%	534	100%
Pine River	7	2%	125	28%	246	56%	62	14%	440	100%
Total	**308**	**10%**	**620**	**20%**	**1024**	**33%**	**1,108**	**36%**	**3,060**	**100%**

- ***State Natural Area designations:*** There are two designated SNA's found within the boundaries of the WMFA, both located within the Mecan River Fishery Area; Mecan Springs SNA and the Chaffee Creek Unit of Upper Fox Headwaters SNA.
- ***High Value Conservation Forests (HCVF) or other resources/natural community types limited in the landscape:*** There are four natural communities found within the White and Pine River Fishery Areas that have EO ranks of B or BC that qualify as HCVF's per the guidance posted on the IFMP website (http://intranet.dnr.state.wi.us/int/land/div/InterimPlanning/pdfs/HCVF.pdf). The communities are; Hardwood Swamp, Central Sands Pine-Oak Forest, Northern dry-mesic forest, and Oak Barrens. No inventory work has been completed within the Hardwood Swamp and the Northern Dry-Mesic Forest within the Pine River system. These areas should receive "H" codes until the new master plan. The Hardwood Swamp along Soules Creek (lowland stands within sections 25 and 26) should be evaluated in terms of how timber management may help or hinder the wet prairie remnants located there. Within the White River Fishery Area there are two primary features; 1) pine-oak forest, and 2) oak barrens.. The pine-oak forest is in compartment 218 (stands 21, 22, and 25) and the 40 acres recently purchased just west of stands 21 and 25. These four areas should have "H" codes assigned in WisFirs. The oak barrens should also receive an "H" code and not receive any timber management until the new master plan.
- ***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:*** No
- ***Rare species:*** There are 12 rare species (3 invertebrates, 5 plants, 2 herptiles, and 2 mammals) known to occur on the four properties.

- ***Invasive species:*** The following species of invasive plants are known to be present on the properties; common and glossy buckthorn, garlic mustard, non-native honeysuckle, black locust, spotted knapweed, and reed canary grass,

  Mecan Springs SNA
  Black locust – small to medium clones in the northwest and west sides of the property
  Garlic mustard – scattered in pockets on the north and south side of the property
  Common buckthorn and European honeysuckle – located on the north, south and northwest corner of the property.
  European honeysuckle –located on the west side of the property.

  Chaffee Creek
  Spotted knapweed – located on the west and east sides of the property
  Wild parsnip – located on the east side of the property
  Sweet Clover - located on the east side of the property
  Reed canary grass – located on the west and east sides of the property

- ***Soils:*** The soil types range from very well drained sandy loams and loamy sands over non-calcareous sand outwash to poorly drained mucky, clayey, or sandy soils over calcareous clay or sand lacustrine, or non-calcareous sand outwash. In the Central Sand Hills EL soils are Primarily sands in the northwest portion (Central Wisconsin Moraines and Outwash Subsection, 222Kb) and sandy loam tills in the southeast (South Central Wisconsin Prairie and Savannah Subsection, 222Kd). Organic soils occur in wetlands throughout the ecological landscape. The major river valleys have soils formed in sandy to clayey alluvial material or non-acid muck. Their drainage classes range from moderately well drained to very poorly drained, and some areas are subject to periodic flooding.

Cultural and Recreational Considerations

- ***Cultural and archeological sites (including tribal sites):*** Archeological sites have been identified by the Wisconsin State Historical Society on several parcels on the WMFA. Prior to any management activity at these locations, consultation shall occur between property management and/or forestry staff and the Department Archaeologist. The outcomes of these consultations will be discussed at annual Integrated Property Management Meetings.

- ***Recreational Uses:*** Fishing, hunting and trapping are the primary recreational uses of this property. Snowmobile use occurs on the property on trails that are a part of a regional trail network. Other forms of nature based outdoor recreation such as hiking, berry picking, and cross country skiing also occur on the property

Part 2: IFMP Components

Management Objectives:

Sustainably manage the forest resource to:

- Promote native tree species, such as black oak, northern pin oak, bur oak, white oak, aspen, jack pine, and white pine.
- Maintain and prolong the oak forest timber type as a dominant cover type across the management area with evenly distributed age classes from young forest to “old growth”. Maintain oak in a variety of ages classes with 15% in 0-20 years, 40% in 21- 80 years, 25% in 81-100 years and 20% in 101 years plus.
- Seek opportunities to maintain and create oak barrens.
- Maintain the extent and quality of swamp hardwood and bottomland hardwood stands
- Promote the expansion of aspen and jack pine through even age management.
- Even age management of red pine with natural conversion to white pine and/or oak.
- Eliminate Miscellaneous Coniferous (Scotch Pine and various Christmas tree species) and Miscellaneous Deciduous (black locust, box elder) forest types and convert to non-forest type or native forest type such as oak or oak barrens.
- Protect water quality, air quality, and undeveloped lake and river frontage
- Identify threatened and endangered species and protect/provide habitat for a variety of game and non-game wildlife species, including aquatic species
- Offer opportunities for outdoor recreation to include hunting, fishing, trapping and nature study
- Mecan Springs SNA – Manage the site as an oak woodland and calcareous fen/ springs run ecological reference area. The oak woodland portion is not currently functioning as an ecological reference area and needs to be restored to that function.
- Chaffee Creek – manage the site as a calcareous fen, wet-mesic prairie and oak barrens ecological reference area. The fen and prairie need to have nearly all the tree species removed and have the shrub species short statured and occasional in distribution

Property Prescriptions:

The WI DNR Silvicultural Handbook shall be utilized to manage all forest cover types.

- Oak: Maintain oak stands through even age management techniques and natural regeneration harvest systems appropriate for the stand and site conditions.
  - Site preparation to include soil scarification and herbicide treatments may be necessary to establish regeneration.
  - Artificial regeneration from seed or seedlings may be necessary to establish oak reproduction prior to or after timber harvests when natural regeneration is not adequate.
  - Typically black oak and northern pin oak will undergo no intermediate thinning operations during the rotation length however true red oak may be thinned on a periodic basis to increase volume and value.
  - The following table from the Oak Chapter of the WI DNR Silviculture Handbook indicates the anticipated rotation lengths for oak. Site specifics will dictate the actual rotation length for individual stands however 20% of the oak cover type will be managed into extended rotation in order to establish snags and den trees for critical wildlife habitat

Habitat Type	Black/Northern Pin Oak	Red Oak	White Oak
Dry	70-90-110	70-100-120	80-110-150
Dry Mesic	80-110-140	80-120-150	80-140-250
Mesic	90-120-150	100-140-200	100-160-300

- Selection of the most appropriate silvicultural system for managing swamp hardwood and bottomland hardwood stands will be site specific. Based on the proximity of these stands to waterways and wetlands, silvicultural management requires consultation between the wildlife/fishery manager and the forester. Riparian zone management will incorporate relevant BMP's and shall implement measures appropriate to protect the scenic and aesthetic qualities of woodlands bordering waterways. Special management considerations include avoiding the introduction of reed canary grass into these stands and management to minimize the potential impacts associated with Emerald Ash Borer.
- Apply periodic prescribed burns to upland grass areas. Some upland grass areas will be allowed to convert to forests either through natural succession or by artificial planting.
- Utilize BMP's for Invasive Species to help limit the introduction and spread of invasive species when conducting timber sales
- Utilize BMP's for water quality when conducting timber sales.
- Endangered Resources Species Guidance documents will be consulted (ERCOMMON\\Species_Guidance\Species_Docs) and the management guidance and avoidance sections will be used to determine how and if timber management can occur.
- Mecan Springs SNA – Oak Woodland
  - Restore the oak woodland by removing invasive species and implementing prescribed fire.
  - Promote replacement trees to maintain canopy densities.
  - Restore ground layer composition by remove invasive shrubs and augmenting the ground layer with oak woodland species
- Chaffee Creek – Oak Barrens
  - Restore an oak barrens community on the south-facing dry sandy terrace above the wet soil near the stream.
  - Promote replacement trees to maintain canopy densities.
  - Gradually convert pine plantations to oak barrens.

Interim Forest Management Plan

Approvals:

Joe Henry 11/30/2012
District Ecologist Date

R.J. Wickham 11/30/2012
Forester Date

Jacob Fries 12/05/2012
Date

James Holzwart 12/03/2012
Property Manager Date

Ellen Barth 11/30/2012
Area/Team Supervisor Date