

**DRAFT**  
**SAWYER COUNTY FOREST COMPREHENSIVE LAND USE PLAN**

**TABLE OF CONTENTS**

**CHAPTER 800**

**INTEGRATED RESOURCE MANAGEMENT**

<b>800</b>	<b>CHAPTER OBJECTIVES.....</b>	<b>4</b>
<b>805</b>	<b>INTEGRATED RESOURCE MANAGEMENT APPROACH.....</b>	<b>4</b>
<b>810</b>	<b>SUSTAINABLE FORESTRY.....</b>	<b>5</b>
	810.1 TOOLS IN INTEGRATED RESOURCE MANAGEMENT.....	6
	810.1.1 Compartment Recon.....	6
	810.1.2 Forest Habitat Classification System.....	6
	810.1.3 Soil Surveys.....	7
	810.1.4 National Hierarchical Framework of Ecological Units....	7
	810.1.5 Integrated Pest Management.....	8
	810.1.6 Best Management Practices for Water Quality.....	9
	810.1.7 Forest Fire Management.....	9
	810.1.7.1 Uncontrolled Fire.....	9
	810.1.7.2 Prescribed Fire.....	10
	810.1.8 Outside Expertise, Studies and Survey.....	10
	810.1.8.1 Water Resources.....	10
	810.1.8.2 Wildlife Resources.....	11
	810.1.8.3 Soil Resources.....	11
	810.1.8.4 Mineral Resources.....	12
	810.1.8.5 Wetland Resources.....	12
	810.1.8.6 Navigable Streams.....	13
	810.1.8.7 Floodplains.....	13
	810.1.8.8 Cultural Resources.....	13
	810.1.8.9 Entomology/Pathology.....	13
	810.1.8.10 Endangered Resources.....	13
	810.1.9 Local Silvicultural Field Trials.....	14
	810.1.10 Local Citizen Involvement.....	14
<b>820</b>	<b>BIOLOGICAL COMMUNITY TYPES.....</b>	<b>14</b>
	820.1 FORESTED COMMUNITIES.....	15
	820.2 NON-FORESTED COMMUNITIES.....	17
	820.2.1 Upland Non-Forest.....	17
	820.2.2 Wetlands.....	17
	820.2.3 Open Water Habitats.....	21

<b>830</b>	<b>PLANT COMMUNITIES MANAGEMENT.....</b>	<b>21</b>
	830.1 SILVICULTURE.....	22
	830.1.1    Aspen Management.....	22
	830.2 LOCALLY UNCOMMON TREES.....	23
	830.2.1    Jack Pine.....	23
	830.2.2    American Elm.....	24
	830.2.3    Butternut.....	24
	830.3 TREES LOCALLY DIFFICULT TO REGENERATE.....	25
	830.3.1    Hemlock.....	25
	830.3.2    White Birch.....	25
	830.3.2    Northern Red Oak.....	25
	830.4 EXOTIC PLANT SPECIES OF CONCERN.....	26
	830.5 LEGALLY PROTECTED PLANT SPECIES.....	27
	830.6 OTHER PLANT SPECIES AND NATURAL COMMUNITIES OF CONCERN - NHI.....	27
	830.6.1    Special Concern Plants.....	28
	830.6.2    Natural Communities.....	28
	830.6.3    Special Natural Communities -- "Natural Areas".....	28
	830.6.3.1    Totogatic River Hemlocks.....	28
	830.6.3.2    Osgood Springs.....	29
	830.6.3.3    Camp Smith Lake - Deadman Lakes Natural Pines Area.....	29
	830.6.3.4    Log Creek Drumlin.....	30
	830.6.4    Land Legacy Areas.....	30
<b>840</b>	<b>WILDLIFE SPECIES MANAGEMENT.....</b>	<b>31</b>
	840.1 WILDLIFE RESOURCES.....	31
	840.1.1    Technical Planning.....	32
	840.1.2    Guidelines.....	33
	840.1.3    Inventory.....	33
	840.1.4    Rare and Endangered Resources.....	33
	840.2 RESOURCE MANAGEMENT AND AREAS OF FOCUS.....	33
	840.2.1    General Management Policies.....	34
	840.3 HABITATS OF IMPORTANCE.....	34
	840.3.1    Aspen.....	34
	840.3.2    Jack Pine.....	34
	840.3.3    Forest Openings.....	35
	840.3.4    Lowland Conifer.....	35
	840.3.5    Oak.....	35
	840.3.6    Forest Game Species.....	35
	840.3.7    Forest Non-Game Species.....	36
	840.3.7.1    Neotropical Migrant Birds.....	36
	840.4 LEGALLY PROTECTED ANIMAL SPECIES.....	38
	840.5 OTHER ANIMALS OF SPECIAL CONCERN - NHI.....	39
	840.6 FISHERIES AND WATER MANAGEMENT.....	39
	840.6.1    Technical Planning.....	40

	840.6.2	Water Surveys.....	40
	840.6.3	Population Surveys.....	41
	840.6.4	Lake Management.....	41
	840.6.5	Stream Management.....	41
	840.6.6	Best Management Practices for Water Quality.....	41
	840.6.7	Shoreland Zoning.....	41
	840.6.8	Access and Development.....	42
	840.6.9	Important Water Resources.....	42
	840.6.10	Importance of BMP's to Fisheries.....	42
	840.7	CAMP SMITH LAKE.....	42
	840.8	CAMP SMITH LAKE ACCESS.....	43
	840.9	AERATION PROJECT ON CAMP SMITH LAKE.....	43
	840.10	MANAGEMENT OPPORTUNITIES FOR UNNAMED LAKES.....	43
	840.11	FISH STOCKING.....	44
	840.12	BEAVER MANAGEMNET.....	44
	840.12.1	Riparian Management for Trout Streams.....	44
	840.13	INSTREAM HABITAT RESTORATION.....	44
	840.13.1	Hatchery Creek.....	45
	840.13.2	Mosquito Brook Flowage.....	45
	840.14	RESEARCH OR SURVEYS.....	45
<b>850</b>		<b>LANDSCAPE MANAGEMENT.....</b>	<b>45</b>
	850.1	BIOLOGICAL DIVERSITY.....	45
	850.2	HABITAT FRAGMENTATION.....	46
	850.3	HIGH CONSERVATION VALUE FORESTS/AREA (HCVF) AND EXCEPTIONAL RESOURCES.....	46
	850.4	EXTENDED ROTATION FOREST.....	46
	850.4.1	Presumed Climax Forest Cover.....	47
	850.4	OTHER SPECIAL MANAGEMENT AREAS.....	47
<b>860</b>		<b>INTEGRATED RESOURCE MANAGEMENT.....</b>	<b>47</b>

## **800 CHAPTER OBJECTIVES**

The objectives of Chapter 800 are to:

- Introduce and communicate to the public, the County Board of Supervisors, and to the Wisconsin Department of Natural Resources (DNR), the integrated resource management approach that Forestry, Wildlife and other Natural Resource staff will use on the Sawyer County Forest during this planning period.

## **805 INTEGRATED RESOURCE MANAGEMENT APPROACH**

Integrated Resource Management is defined as: "the simultaneous consideration of ecological, physical, economic, and social aspects of lands, waters and resources in developing and implementing multiple-use, sustained yield management" (Helms, 1998).

This balance of ecological, economic, and social factors is the framework within which the Sawyer County Forest is managed. This broad definition describes the content of everything within this Comprehensive Land Use Plan. Previous chapters have discussed in depth many of the social and economic issues.

For the purpose of this Chapter, the scope of Integrated Resource Management includes:

- Forests, habitats, biological communities
- Wetlands and waters
- Wildlife and endangered resources
- Soils and minerals
- Cultural and historical resources

Management of one resource affects the management or use of other resources in an area. Managing each use or resource by itself is less effective than managing all of them in an integrated way. This is a field level approach to

integrated resource management. Management decisions are made while considering that each site is part of a larger ecosystem. Similarly, the development and implementation of this Plan also considers other planning efforts in order to provide the broader scale management.

**The working definition of Integrated Resource Management means, in large part, keeping natural communities of plants and animals and their environments healthy and productive so people can enjoy and benefit from them now and in the future.**

The remainder of this Chapter is written to help communicate how the County Forest is managed on an integrated resource approach.

## **810 SUSTAINABLE FORESTRY**

The definition of Sustainable Forestry in the Wisconsin Administrative Code and the Wisconsin Statutes is as follows:

*"the practice of managing dynamic Forest eco-systems to provide ecological, economic, social and cultural benefits for present and future generations" NR 44.03(12) Wis. Adm. Code and s. 28.04(1)(e), Wis. Stats.*

**For the purpose of this chapter, Sustainable Forestry will be interpreted as the management of the County Forest to meet the needs of the present without knowingly compromising the ability of future generations to meet their own needs (economic, social, and ecological) by practicing a land stewardship ethic which integrates the growing, nurturing, and harvesting of trees for useful products with the conservation of soil, air and water quality, and wildlife and fish habitat. This process is dynamic, and changes as we learn from past management.**

## 810.1 TOOLS IN INTEGRATED RESOURCE MANAGEMENT

### 810.1.1 Compartment Recon

Sawyer County will support and utilize the Compartment Reconnaissance Procedures as set for by the Department of Natural Resources (DNR) Public Forest Lands Handbook 2460.5. The Department of Natural Resources (DNR) Forester will be responsible for the completion and maintenance of the recon system and will assist in interpretation of the data to be utilized in planning and scheduling resource management.

### 810.1.2 Forest Habitat Classification System

The Forest Habitat Classification System (*A Guide to Forest Communities and Habitat Types of Northern Wisconsin Second Edition; Kotar, et al.*) is a natural classification system for Forest communities and the sites on which they develop. It utilizes systematic interpretation of natural vegetation with emphasis on understory species.

The Forest Habitat Classification System is an ecological tool that promotes a common language for interpreting site capability based on potential natural vegetation. Its primary use is the assessment of biological potential of Upland Forest sites. Through the application of the Forest Habitat Classification, land managers are better able to assess site potential of current stands, identify ecological and silvicultural alternatives, predict the effectiveness of possible silvicultural treatments, assess feasible management alternatives, and choose appropriate management objectives.

Data will be collected in order to classify the entire Forest. This information should be collected along with, and made part of, the Compartment Reconnaissance System during regular field inspections.

This data should also be compared to soil survey information in order to associate the relationships between Forest habitat types and soil types.

Forest Habitat Classification Types are discussed in greater detail in the "Integrated Resource Management Units" (Section 880) section of this Chapter.

#### 810.1.3 Soil Surveys

Forestry staff's knowledge of Forest ecology and their experience across the landscape can assist in associating Forest habitat types and site indices with soil type information. These associations can be beneficial in determining management prescriptions for specific sites. Detailed soil surveys, when available, will be made a part of the Compartment Reconnaissance System and continue to be correlated to the Forest Habitat Classification system.

Soil survey information may be obtained from the Natural Resource Conservation Service office.

#### 810.1.4 National Hierarchical Framework of Ecological Units/Ecological Landscape of Wisconsin

Integrated resource management recognizes that an individual Forest site is part of a larger landscape, and management activities can have an impact beyond a specific site. The National Hierarchical Framework of Ecological Units (NHFEU) is a useful tool in understanding natural landscapes.

The Wisconsin Department of Natural Resources (DNR) uses Ecological Landscapes of Wisconsin (WDNR Handbook 1805.1) which is an

ecological land classification system based on the National Hierarchical Framework of Ecological Units (NHFEU). Ecological landscapes distinguish land areas different from one another in ecological characteristics. A combination of physical and biological factors including climate, geology, topography, soils, water, and vegetation are used. They provide a useful tool and insight into ecosystem management. Land areas identified and mapped in this manner are known as ecological units.

Landtype Associations (LTA's) are considered landscape-scale ecological units, and are identified by surficial geology, patterns of vegetation, soil parent materials, and water tables. Most Landtype Associations (LTA's) are between ten thousand (10,000) and three hundred thousand (300,000) acres in size.

Goals can be developed for a Landtype Association (LTA) based in part on its capability, productivity, unique character, and the scarcity or abundance of similar Landtype Associations (LTA's) in the State, region or beyond. Objectives of vegetation management, wildlife habitat, ecological restoration, and recreation use can be tailored to the characteristics and potentials of the eco-system.

#### 810.1.5 Integrated Pest Management

Integrated Pest Management for the purpose of this Plan, is defined as follows:

*"the maintenance of destructive agents, including insects, at tolerable levels, by the planned use of a variety of preventive, suppressive, or regulatory tactics and strategies that are ecologically and economically efficient and socially acceptable."*

The Forestry Committee has the authority to approve and direct the use of pesticides and other reasonable alternatives in an integrated pest management program on the County Forest. Refer to Chapter 600 (610.3) for more detailed discussion and integrated pest management strategies.

#### 810.1.6 Best Management Practices for Water Quality

Often the most practical and cost-effective method to assure that Forestry operations do not adversely affect water quality on the County Forest is to utilize "Best Management Practices" (BMP's) as described in *Wisconsin Forestry Best Management Practices for Water Quality*, Publication Number FR093.

Consistent with the aforementioned manual, Sawyer County will use Best Management Practices (BMP's) on the County Forest with the understanding that the application of Best Management Practices (BMP's) may be modified for specific site conditions with guidance from a Forester or other natural resource professional. Modifications will provide equal or greater water quality protection, or have no impact on water quality. Areas with highly erodable soil types, close proximity to streams or lakes, or steep slopes may require mitigating measures in excess of those outlined in the manual. All Sawyer County personnel practicing forestry will receive BMP training. Additionally, Sawyer County will encourage BMP training for all logging contractors that operate on County timber sales.

#### 810.1.7 Forest Fire Management

Refer to Chapter 600.

##### 810.1.7.1 Uncontrolled Fire

Refer to Chapter 600.

#### 810.1.7.2 Prescribed Fire

Prescribed burning on the County Forest may play an important role in Forest management. Many of the plant communities present today are the result of wild fires.

As the needs are presented to regenerate or maintain timber types or other plant communities, the Forestry Committee will examine the costs and benefits of each opportunity. Increased regulations, the County's cost of completing the burn, and the risk of breakouts and uncontrolled fires will have to be considered with any benefits of vegetation management through prescribed burning.

All prescribed burning will be done in accordance with Wisconsin State Statutes 26.12, 26.14, and the Department of Natural Resources (DNR) Prescribed Burn Handbook 4360.5 and in cooperation with the Department of Natural Resources (DNR) per section 605.5 of this Plan.

#### 810.1.8 Outside Expertise, Studies and Survey

Additional data necessary to make management decisions on the County Forest will be sought from agencies or individuals, who in the Forestry Committee's opinion, are best equipped to provide that service. This data will be used as appropriate for management planning.

##### 810.1.8.1 Water Resources

The Department of Natural Resources (DNR) Fisheries Biologist and the Water Management Specialist will provide surveys, studies, and technical advice as necessary to prepare and carry out recreational planning affecting waters on the County Forest.

#### 810.1.8.2 Wildlife Resources

The Department of Natural Resources (DNR) Wildlife Biologist will provide surveys, studies, and technical services as necessary to prepare and carry-out environmental and recreational planning affecting wildlife on the County Forest.

#### 810.1.8.3 Soil Resources

Soil maps and surveys prepared by the Natural Resource Conservation Service (NRCS) will be used in various phases of planning.

Continental glaciation is responsible for the present topography of Sawyer County. Where the ice stopped, it deposited terminal moraines - huge accumulations of rock, gravel, sand and clay pushed along by or carried on the front of the ice sheet. One of these terminal moraines was deposited between two lobes of the Lake Wisconsin Ice Sheet along the western border of Sawyer County in the present towns of Edgewater, Sand Lake, Bass Lake, Hayward, Lenroot, Round Lake and Spider Lake. The resulting topography can only be described as rough. Lakes and swamps occupy many of the deeper kettle holes and it is noticeable that most of the lakes in Sawyer County are in this morainic area.

Ground moraine forms the greater part of the topography east and south of the moraine. This was deposited in a broad sheet by the ice, which melted away beneath it. The present surface is usually rolling with low ridges and shallow depressions, occupied by swamps rather than lakes.

The soils of Sawyer County have been derived largely from the weathering of the glacial drift deposits and show a great variation

within relatively short distances. Since the glacial period, the soils have been modified by water action, wind, and the accumulation and incorporation of organic material. Soil types on the County Forest can be classified into twenty-four (24) general groups. Level to gently rolling silty soils underlain with sand and gravel occur around Exeland, Stone Lake and east of Hayward. Level to nearly level sandy soils occur around Hayward, northeast of Stone Lake and in the northeast corner of the County. Gently rolling to rolling soils formed in silt underlain with acid glacial till are in the southeast part of the County. A small area of silty and sandy soils occurs through the central part of the County from north to south. Very steep sandy soils with complex topography lie east and west of Hayward. See Chapter 900 for list of soil types.

#### 810.1.8.4 Mineral Resources

The Department of Natural Resources (DNR) may provide information valuable for management of gravel and other mineral resources. (See Chapter 515.1 and 515.2).

#### 810.1.8.5 Wetland Resources

Maps prepared by the Department of Natural Resources (DNR) Bureau of Fisheries Management and Habitat Protection, may be utilized for identifying wetlands. Although not comprehensive, particularly in Forested areas, these maps are a good initial tool for identifying wetlands on County Forest lands. Assistance and technical advice will be requested from the Department of Natural Resources (DNR) Water Management Specialist when wetlands may be affected by management practices. The Army Corps of Engineers will also be consulted as appropriate. In addition, Wisconsin's Forestry Best Management Practices for protecting

water quality will be used. (See Chapter 820.2.2 for further details).

#### 810.1.8.6 Navigable Streams

The Department of Natural Resources (DNR's) Water Regulation Specialist will be consulted when navigable stream crossings or navigable stream management projects are being planned. (See Chapter 840.6.5). Best Management Practices for protecting water quality will be used.

#### 810.1.8.7 Floodplains

Maps prepared by the Federal Emergency Management Agency (FEMA) will be used to identify floodplains. The Sawyer County Zoning staff may be consulted regarding management activities in the floodplain.

#### 810.1.8.8 Cultural Resources

Management planning will take into consideration historical and archaeological sites. More information may be obtained from the State Historical Society or the Department of Natural Resources (DNR) archeologist. (See Chapter 530.3 for further details).

#### 810.1.8.9 Entomology/Pathology

Wisconsin Department of Natural Resources Forestry pest staff will provide information and consultation as requested by the County. (See Chapter 610 for more information on Forest pest control).

#### 810.1.8.10 Endangered Resources

Department of Natural Resources (DNR) endangered resources staff will provide Natural Heritage Inventory (NHI) information and are available for consultation on endangered resources issues.

#### 810.1.9 Local Silvicultural Field Trials

Silvicultural field trials may be initiated during this planning period relating to red oak and conifer regeneration. A compilation of silvicultural trials on State and County lands is available at: <http://dnr.wi.gov/org/land/forestry/sciences/silviculture/index.html>.

#### 810.1.10 Local Citizen Involvement

The Sawyer County Forestry Committee is an open forum to listen, evaluate and incorporate, where appropriate, the public's input into management of the County Forest.

The public's needs and interpretation of management of the Forest should be improved by the availability of "Integrated Resource Management Unit" information (See Chapter 860 for more information). It is hoped that an inventory of each unit's attributes, threats, trends, regulations and opportunities will encourage communication on specific issues and focus on possible solutions using a total integrated resource and eco-system viewpoint.

## **820 BIOLOGICAL COMMUNITY TYPES**

A community is an assemblage of different plant and animal species, living together in a particular area, at a particular time in specific habitats. Communities are complex and dynamic systems named for their dominant plant species. Species/community information has been condensed to familiarize the reader with the make-up of the Forest.

The following biological communities are found on the Sawyer County Forest:

- Northern Forest: contains mixed deciduous and coniferous forests found in a distinct climatic zone that occurs north of the tension zone.

- Wetlands: characterized by soils or substrate that is periodically saturated or covered by water.
- Aquatic Communities: includes springs, ponds, lakes, streams and rivers.

## 820.1 FORESTED COMMUNITIES

Commercial versus Non-commercial Forest Cover Types: Forest Cover Types that are capable of producing volume growth of 20 cubic feet/acre/year are classified as Commercial Forest Land. Sites that are stocked with trees but have excessively slow tree growth due to high water or other soil problems are classified as Non-commercial Forest Land.

Commercial Forest Cover Types: Eight (8) Forest cover types totaling approximately 94,000 acres comprise the Commercial Forests found on the Sawyer County Forest. The Aspen, thirty-seven percent (37 %) and Northern Hardwood, twenty-six percent (26%) commercial timber types cover the largest acreage of the Sawyer County Forest totaling sixty-three percent (63%) of the Forest acreage.

The Forested cover types are made up of a variety of size classes (regeneration, sapling-pole, and saw timber) and structure (canopy, layers, ground vegetation, dead and downed materials, and inclusions). Forested communities within the Sawyer County Forest cover approximately eighty-two percent (82%) of the Forest.

Forest cover types associated with the County Forest are:

**Aspen - 37%.** Consisting of primarily Aspen species often found in combination with Paper Birch and Red Maple

**Northern Hardwood - 22%.** Consisting of a mixture of upland hardwood species including Sugar Maple, Yellow Birch, Basswood, Ash and Red Maple.

**Hemlock Hardwoods - 0.5%.** More than 50% Hemlock associated with northern hardwood species.

**Oak - 7%.** Dominated by Red Oak, White Oak, Black Oak and associated with other hardwoods.

**Swamp Hardwoods - 4%.** More than 50% swamp hardwood species including Black Ash, Red Maple, and Elm.

**Red Maple - 0.5%.** More than 50% Red Maple. Often associated with Aspen and White Birch.

**White Pine - 4%.** More than 50% White Pine.

**Red Pine - 2%.** More than 50% Red Pine.

**Jack Pine - 0.1%.** More than 50% Jack Pine.

**Fir-Spruce - 1%.** Consisting of swamp border or upland types with mixed species, predominantly Balsam Fir and Spruce associated with White Pine, Cedar, Red Maple, Aspen and Birch.

**Swamp Conifer - 1%.** Lowland type typified by Balsam Fir, Cedar, and Spruce in combination with Red Maple and other lowland hardwoods.

**Black Spruce - 3%.** More than 50% swamp conifer species with Black Spruce predominating.

**Tamarack - 1%.** More than 50% swamp conifer species with Tamarack predominating.

**White Cedar - 0.2%.** More than 50% swamp conifer species with White Cedar predominating.

**Scrub Oak - 0%.** Consisting of a majority of poorer quality oak (often Northern Pin Oak) capable of only fuelwood or cellulose fiber production.

**Bottomland Hardwoods - 0%.** Typically floodplain species including Silver Maple, River Birch, Elm, Cottonwood, and Green Ash.

**White Birch - 0.3%.** Consisting of a majority of White Birch, often found in combination with Aspen and Red Maple.

## 820.2 NON-FORESTED COMMUNITIES

Non-Forested communities within the Sawyer County Forest cover approximately sixteen percent (16%) of the Forest. In broad categories, they are: upland (3.3%), wetland (12%), and water (0.7%).

Non-Forested habitats are important components of management within the County Forest. Upland and wetland non-forest types provide important habitat for distinct groups of species.

The following provides a general description of the Non-Forested communities:

### 820.2.1 Upland Non-Forest (3.3%)

Upland Non-Forest areas of the County Forest include:

**Grass Openings** - consists of upland grasses, such as brome, quack, bluegrass, timothy, big and little bluestem, and Indian grass.

**Herbaceous Vegetation** - ground cover predominated by herbaceous species with bracken fern, sweet clover, giant ragweed, stinging nettle, upland aster, goldenrod, and prairie dock being common.

**Shrub Openings** - primarily upland sites less than 10% stocked with tree species but having 50% or more of the area stocked with taller growing, persistent shrubs. This includes, but is not limited to, shrubs such as hazel, gray dogwood, juneberry, sumac, ninebark and prickly ash.

**Rock Outcrops and Sand Banks** - rock outcrops include rocky talus, and bedrock material.

### 820.2.2 Wetlands (12%)

Wisconsin State Statutes define a wetland as "as area where water is at, near, or above the land surface long enough to be capable of supporting

aquatic or hydrophytic vegetation, and which has soils indicative of wet conditions." Wetland communities are recognized to be a complex association of plants and animals, soils and water levels having special natural values. They are fragile systems that undergo rapid degradation when affected by incompatible uses and unskilled management.

Wetlands provide many functional values including shoreline and flood protection, water quality protection, groundwater recharge, and animal and plant habitat. Therefore, it is the policy of Sawyer County to preserve, protect and manage the wetlands under its jurisdiction in a manner that recognizes the natural values of wetlands and their importance in the environment. To this end the County will:

- Recognize wetland values in management plans, taking reasonable steps to minimize harmful effects.
- Cooperate with the Department of Natural Resources (DNR) in wetland inventories and in preparation of essential wetland information.
- Maintain control of vital wetlands under its jurisdiction when to relinquish such control would risk substantial site alteration and subsequent degradation of wetland values vital to the area and the State.
- Minimize adverse changes in the quality or quantity of the flow of waters that nourish wetlands.
- Cooperate with local, State and national agencies and citizens to increase understanding of the importance of wetlands and the need for land and water stewardship in guiding development decisions.
- Cooperate with the Department of Natural Resources (DNR) in wetland management activities that would enhance the quality and diversity of wetlands in the County and the region.

Wetlands are the transitional habitats between upland and aquatic systems where the water table is usually at or near the surface, or where the land is covered by shallow water. Wetlands are made up of fifteen (15) descriptive types (adapted from PUBL-WZ-029-94). They include:

**Shallow, open water** - wetlands characterized by submergent, floating and floating-leaved aquatic vegetation such as pondweed, water lilies, water milfoil, and duckweed. Water depths are generally less than 6.6 feet.

**Deep marshes** - wetlands characterized by emergent vegetations such as cattails and pickerel weed and floating leaved plants such as white and yellow water lily and watershield. Water depths of six (6) feet are typically found on deep marshes.

**Shallow marshes** - wetlands characterized by persistent emergent vegetation such as cattails and pickerel weed, etc., and water depths to 1.5 feet.

**Sedge meadow** - wetlands characterized by sedges and cattails. Surface water depths to six (6) inches in winter and early spring, and exposed saturated soil surface in summer.

**Fresh (wet) meadow** - wetlands dominated by grasses, such as red-top grass and the invasive, non-native, reed canary grass, and by forbs such as giant goldenrod growing on saturated soils.

**Calcareous fen** - rarest wetland plant community in Wisconsin. They are found in wet, seepage sites that have an internal flow of groundwater that is rich in chemical compounds and creates harsh, alkaline soil. Species like the shrubby cinquefoil, Ohio golden rod, and sterile sedge are characteristic.

**Open bog** - wetlands that are composed of living sphagnum moss growing over a layer of acid peat. Herbs and low shrubs colonize the mat and immature or stunted trees of black spruce and/or tamarack may be

scattered through the area.

**Coniferous bog** - wetlands similar to open bogs, except that mature black spruce and/or tamarack trees are the dominant species growing on the sphagnum moss mat. Black spruce and heath family shrubs are characteristics only of acid peats, whereas tamarack can grow in calcareous peats, such as those of northern white cedar swamps.

**Shrub-Carrs** - wetlands composed of tall deciduous shrubs growing on saturated to seasonally flooded soils. They are usually dominated by willows or red-osier dogwood. Non-native shrub species invade shrub-carrs, especially where drainage and pasturing have disturbed the area. In particular, honeysuckle and buckthorn can invade quickly.

**Alder thicket** - wetlands similar to shrub-carrs, but dominated by speckled alder. It can also include other shrub species like high bush cranberry and sweet gale.

**Lowland hardwood swamp** - wetlands dominated by deciduous hardwood trees. Soils are saturated during much of the growing season, and may be inundated by as much as a foot of standing water. Species include black ash, red maple, yellow birch, and northern white cedar.

**Coniferous swamp** - wetlands dominated by lowland conifers, primarily northern white cedar and tamarack. Soils are saturated during much of the growing season and may be inundated by as much as a foot of standing water. Soils are usually organic. A sphagnum moss mat is not present.

**Floodplain Forest** - wetlands dominated by mature, deciduous hardwood trees growing on alluvial soils associated with riverine systems. These wetlands often occur in the backwaters and depressions of rivers, which retain water for a long period into the growing season. Typically they include northern and southern wet-mesic hardwood Forest associations. Floodplain Forests support diverse plant and animal species because they serve as migration corridors.

**Seasonally flooded basin** - wetlands in poorly drained, shallow depressions that may have standing water for several weeks of each year, but are usually dry for much of the growing season. Typical species include smartweeds, beggarsticks, and wild millet. These basins often support an abundance of plant seeds and invertebrates, which make them ideal feeding and resting areas for migrating waterfowl and shorebirds.

#### 820.2.3 Open Water Habitats (0.7%)

Open water habitats are permanently flooded lands below the deep-water boundary of wetlands. Water is generally too deep to support emergent vegetation. Presence of these aquatic habitats within a Forest landscape greatly increases the number of wildlife species that can potentially occur. They include rivers, lakes, and streams. They are broken down into:

**Lakes** - lakes, ponds and flowages in excess of forty (40) acres in an area; or river in excess of one eighth (1/8) mile in width.

**Streams** - intermittent or permanent watercourses with slow water velocities and are usually defined as being less than one-eighth (1/8) mile in width.

**Rivers** - wetlands and deep-water habitats contained in a channel through which the water flows and associated with Forested riparian zones.

### 830 **PLANT COMMUNITIES MANAGEMENT**

Sawyer County recognizes the importance of maintaining the diversity of the County Forest under an eco-system approach. The process involved in making management decisions to encourage, or not to encourage, specific species or communities is complex. It includes an understanding of:

- Objectives of the County Forest
- Integration of the National Hierarchical Framework of Ecological Units (NHFEU - landforms, soils, climate, vegetation classification at multiple scales).

- Application of habitat type classification to identify ecological potentials and silvicultural alternatives.
- Past, present, and future desired condition.
- Surrounding ownership patterns and their generalized objectives.
- Socio-economic needs.

### 830.1 SILVICULTURE

Silviculture is the practice of controlling Forest composition, structure, and growth to maintain and enhance the Forest's utility for any purpose. Typically, silvicultural guidelines are written to encourage a stand to contain the greatest quality and/or quantity of timber under either an even-, or uneven-aged system. Plant communities are normally managed within the guidelines found in the Wisconsin Department of Natural Resources, Silviculture and Forest Aesthetic Handbook 2431.5.

A summary of management on the Sawyer County Forest is described as follows:

#### 830.1.1 Aspen Management

Aspen is found commonly throughout the Sawyer County Forest. It is a relatively short lived species that is shade intolerant. Aspen seedlings need full sunlight for optimum survival and growth.

The aspen type is recognized as providing important habitat values to a wide variety of wildlife species, as well as being an important species for economics and fiber production. A significant portion of the County Forest revenue is generated through the management and harvest of aspen.

The extent of this vital resource has been steadily declining statewide since the 1960's, but is stable within the Sawyer County Forest over the last thirty (30) years. The chief reasons for the statewide decline are: 1) lack of harvest as stands reach maturity (natural succession); and, 2) selective harvest. In both instances, the end result is conversion to more shade tolerant timber types.

Sawyer County is committed to maintaining its aspen acreage for wildlife and economic benefits. It will accomplish this by regenerating mature aspen stands through the use of clearcuts, although conversion of aspen timber types to more long-lived species will be a goal in Class A Aesthetic Zones and in riparian zones. Aesthetic concerns in other areas often can be mitigated by retaining pine and/or hardwood tree species on the sites, limiting the size of harvests, and creating irregularly shaped sale boundaries.

## 830.2 LOCALLY UNCOMMON TREES

The presence or lack of a particular plant species is dependent on the land's capabilities, climate, and natural (e.g., fire, browsing) and/or man-caused (e.g., logging, farming) disturbances. The present scarcity of the listed species makes them a source of concern. The following are considered uncommon on the Forest and perhaps to some extent across the regional landscape:

### 830.2.1 Jack Pine

Jack Pine is a shade intolerant species that occurs throughout the sand regions of the Forest. This species is shade intolerant and is naturally regenerated by wildfire. Full sunlight, prepared seedbed, and heat are the key conditions provided by fire. With the control of wildfire, other techniques have become necessary in order to perpetuate this type.

Soil scarification followed by harvest is a locally proven method for regenerating Jack Pine in the adjoining counties of Washburn and Bayfield. This method is most advantageous from an economic and ecological standpoint, lending itself to a more natural condition. Planting has been equally successful; however, it requires more expenditure and administration.

From a landscape perspective, the Jack Pine type is declining as it is converted either successional or through planting to another species. Sawyer County Forest will attempt to minimize conversion of Jack Pine to other species in order to stem long-range decline of this Forest type.

#### 830.2.2 American Elm

American Elm is scarce primarily due to mortality caused by the introduction of Dutch elm disease. Existing Elm will normally be left uncut in hopes that they may continue in the landscape as potential resistant seed source individuals. Where possible during silvicultural operations, efforts will be made to encourage regeneration of American Elm.

#### 830.2.3 Butternut

Butternut occurs on the Sawyer County Forest primarily in the southeast block. Due to Butternut decline, fewer individuals are present than in previous years. Existing healthy Butternut will normally be left in hopes that they may continue in the landscape as potential resistant seed source individuals. Where possible during silvicultural operations, efforts may be made to encourage regeneration of Butternut. This may include cutting to encourage stump sprouts in certain situations.

### 830.3 TREES LOCALLY DIFFICULT TO REGENERATE

There are certain tree species whose home ranges are within the County Forest that are difficult to regenerate. In many cases, this difficulty is related to the exclusion of fire from the environment. In other cases, this may be due to browsing by deer. The following species, normally found within the County, are found to be difficult to regenerate:

#### 830.3.1 Hemlock

Sawyer County is on the far western range of the Hemlock timber type. Foresters and researchers continue to research methods to successfully regenerate this timber species. Currently, Hemlock timber types within the Sawyer County Forest are being reserved from harvest until reliable methods for regeneration are developed.

#### 830.3.2 White Birch

White Birch (also referred to as paper birch) is a shade intolerant species and is generally found in stands of timber of similar age. A mineral seedbed appears to be necessary to regenerate White Birch and it is assumed that most White Birch present on the Forest is of fire origin. Drought conditions in 1989 and 1990, coupled with unseasonably warm temperatures and secondary pathogens, resulted in mortality of nearly 50% of the White Birch on the Forest.

Existing stands of White Birch may be considered for scarification coupled with shelterwood harvests. Initial trials using this method have proven successful in Counties adjacent to Sawyer County.

#### 830.3.3 Northern Red Oak

The Red Oak type is common across the northern and southwestern Block of the County Forest. Red Oak tends to favor habitat types that are

also suitable for white pine and northern hardwood species. On many sites, normal thinning practices tend to favor the growth and regeneration of other hardwoods over Oak. Over time, this shade tolerant seral stage will replace the Red Oak. The difficulty of regenerating Red Oak on these sites appears to be related to lack of soil disturbances including the removal of fire from the landscape.

Red Oak has very high wildlife value due to its mast production and tendency to produce cavities that are suitable for wildlife dens. It also has very high timber value in sawlog-sized timber. Because of these factors, it is important to retain Red Oak on the Sawyer County Forest.

Silvicultural trials using prescribed burns coupled with shelterwood harvests appear to be successful in northern Wisconsin. However, conducting these burns on a large scale has proven difficult. Scarification and other methods will continue to be investigated.

#### 830.4 EXOTIC PLANT SPECIES OF CONCERN

Exotic or non-indigenous invasive plant species can cause significant ecological and economic damage to the County Forest. Some invasive species, such as common and glossy buckthorn, eliminate not only wildflowers but also limit the regeneration of tree species. Keeping them from dominating the understory is critical to the long-term health and economic viability of the Forest. Currently, the Sawyer County Forest has few significant infestations of invasive plants, but Japanese honeysuckle is a growing problem on private lands in the Couderay and Ojibwa areas which has potential to become a serious problem on the County Forest within the planning period. With training, vigilance, and control efforts new infestations can be managed or eliminated. There are many highly invasive plants that are threatening to invade much of the northern Forests in Wisconsin.

### 830.5 LEGALLY PROTECTED PLANT SPECIES

There are some plants in Wisconsin that are afforded protection under the Federal Endangered Species Law, the State Endangered and Threatened Species Law (s. 29.604, Wis. Stats. and NR 27 Wis. Adm. Code), or both. Under Wisconsin State Law, no one may possess or sell any wild plant that is listed without a valid endangered or threatened (ET) species permit. On public lands or lands one does not own, lease or have permission of the landowner, one may not cut, root up, sever, injure, destroy, remove, transport, or carry away a listed plant without an ET special permit. There is an exemption on public lands for Forestry, Agriculture and utility activity under the State law.

In the Natural Heritage Inventory (NHI) program the Department of Natural Resources tracks information on these species in the State. See Chapter 900 for a list of legally protected plants known to occur in Sawyer County (on or near the County Forest).

### 830.6 OTHER PLANT SPECIES AND NATURAL COMMUNITIES OF CONCERN - NHI

#### Rare and Endangered Resources

The Natural Heritage Inventory (NHI) documents occurrences of rare, threatened, and endangered species, as well as natural communities and species of special concern. Foresters and Land Managers access the NHI database before implementing Forestry or recreational projects in order to help determine if NHI species might be affected adversely by a propose activity. (See Chapter 900 for a listing of threatened or endangered species in the Forest). The NHI program at the Department of Natural Resources (DNR) also tracks information on rare species and natural communities, in addition to legally protected species.

#### 830.6.1 Special Concern Plants

Special Concern Species are those species in which some problem of abundance or distribution is suspected, but not yet proven. The main purpose of this category is to focus attention on certain species before they become threatened or endangered. See Chapter 900 for a list of Special Concern plant species known to occur in Sawyer County (on or near the County Forest).

#### 830.6.2 Natural Communities

Similarly, specific records of natural communities are also tracked. See Chapter 900 for a list of natural communities have been recorded in Sawyer County (on or near the County Forest).

#### 830.6.3 Special Natural Communities -- "Natural Areas"

The Department of Natural Resources (DNR) has identified and registered several areas on or near the Sawyer County that are unique, rare or remnant natural communities that warrant protection. Bureau of Endangered Resources biologists offer technical assistance for any inventory or management needs associated with these unique areas. Identified areas include official and prospective "Natural Areas" and areas of "high conservation value forests or wetland ecological reference areas":

##### 830.6.3.1 Totogatic River Hemlocks

Found at this site is relict old-growth stands of hemlock and white cedar. The 2004 Statewide Forest Plan calls for protection of all relict old growth stands. Sawyer County has protected this site for decades, as has the Board of Commissioners of Public Lands that own the adjacent forty (40) acres in Bayfield County. These types of natural communities have received little recognition for their ecological reference attributes in the past. The Wisconsin State

Natural Areas Program has gaps in this ecological landscape for the northern mesic forest and northern wet-mesic forest in this Landtype Association. A cooperative recognition could benefit both programs.

#### 830.6.3.2 Osgood Springs

The feature of primary interest is a series of interconnected spring ponds that form the headwaters of McDermott Brook. Extensive wetlands of alder, willow, and conifer swamp along with open sedge meadow occupy the remainder of the site. The high quality nature of the springs and surrounding wetland communities combined with excellent forb diversity makes this spring site one of the best known in the state. These types of natural communities have received little recognition for their ecological reference attributes in the past. The Wisconsin State Natural Areas Program has gaps in this ecological landscape for springs. A cooperative recognition could benefit both programs.

#### 830.6.3.3 Camp Smith Lake - Deadman Lakes Natural Pine Area

The northern part of the County Forest contains many patches of natural origin red and white pine. Pines of natural origin are uncommon in the State and are becoming rarer every year. This type of pine forest is considered a high conservation value forest. Even though management is needed to maintain the cover types, management plan should consider development of old-growth characteristics and natural regeneration methods. The site could develop into a landscape pinery management area. Bureau of Endangered Resources (BER) biologists would be available to provide assistance in planning should the County choose to

develop such an area.

#### 830.6.3.4 Log Creek Drumlin

This site contains a large open black spruce muskeg. Nearly the full compliment of acid bog plants is found at this site. Patches of lower wet areas harbor poor fen species. Current management should maintain this site.

#### 830.6.4 Land Legacy Areas

These areas are large and cross numerous ownership boundaries, both public and private. Cooperative and collaborative planning to formulate goals for these land legacy places has not yet taken place. More information on the ecological and recreational values is found in the Land Legacy Report found in Chapter 900. Land Legacy Areas include:

- Namekagon River
- North Fork of the Chief River
- Chippewa Flowage
- Chequamegon-Nicolet National Forest
- Flambeau River State Forest
- Pipestone Hills
- Upper Chippewa River
- Thornapple-Brunet River Woods
- Big Island - Nelson Lake
- Couderay River
- Mosquito Brook
- Weirgor Springs

## 840 WILDLIFE SPECIES MANAGEMENT

### 840.1 WILDLIFE RESOURCES

For the purpose of this Plan, wildlife will include all native birds, mammals, fish, amphibians, reptiles, and insects with a strong focus on the natural communities in which they live. Wildlife biologists will emphasize habitat management that interrelates and benefits wildlife, and complements sound Forestry practices. Concerns about the biological diversity of the County Forest and how it fits into the regional, continental and global perspective, many cause wildlife management to place increased emphasis on segments of the Forestry community. Practices such as Old Growth, Snag and Den Tree Management, Access Management, Forest Openings Management, Oak Management and Aspen Maintenance, can be priorities in the dynamics of Forest management. A primary goal of Wildlife Management on the Sawyer County Forest is to provide a diversity of healthy eco-systems necessary to sustain native populations for their biological, recreational, cultural and economic values.

Department of Natural Resources (DNR) Wildlife Biologists will implement population and habitat surveys, provide technical advice, and direct assistance needed for Wildlife Management Planning and Implementation on County Forest lands. Wildlife projects are identified and implemented in collaboration with the County Forest Administrator, Department of Natural Resources (DNR) Liaison Forester, and the Forestry Committee.

The Sawyer County Forest is habitat for wildlife common to Wisconsin. While no formal comprehensive survey has been conducted to identify or inventory the fauna occurring on the Forest, one may be needed in the future for Forest Certification requirements.

Numerous species of songbirds, waterfowl, raptors, shorebirds, reptiles,

amphibians, fish and mammals frequent the Forest. Each species, or interacting group of species, do best under different conditions, ranging from recently disturbed ground to old growth. A diversity of plant communities is key to providing a niche for a variety of wildlife species.

Probably the two (2) most popular wildlife species in the County are the white-tail deer and ruffed grouse. The Aspen Forest-type is recognized as key habitat for these species and is important in maintaining biological diversity across North America. Longer rotation Forest communities, such as uneven-aged northern hardwood, similarly provide important habitat for other, less well-known species, such as pileated woodpeckers or northern goshawk.

Permanently sodded, grassy openings within the Forest (many originating from old log landings, camps, old burns, or frost pockets), are vital components of Forest wildlife habitat. An effort is being made to maintain and improve the quality and, in some cases, the quantity of openings.

#### 840.1.1 Technical Planning

As required by s. 23.09(17M), Wis. Stats., wildlife management technical planning shall be a cooperative effort of the Forest Administrator, Department of Natural Resources (DNR) Liaison Forester and Wildlife Biologist in formulating management plans and utilizing wildlife management techniques for the overall protection and enhancement of the Forest community, of which wildlife is a key component. Wildlife project planning shall follow priorities and procedures detailed in the Wildlife Habitat Improvement Program section of the Wisconsin Department of Natural Resources (DNR) Wildlife Operations Handbook (2310.5, pages 20-10 through 20-13 - see reference copy in Chapter 900).

#### 840.1.2 Guidelines

Additional references and guidelines for wildlife planning efforts on the County Forest include: WDNR Manual Codes on Endangered and Threatened Species Permits Issue (1724.5), Feasibility Studies and WEPA Analyses for Establishing or Modifying Property Project Boundaries (2105.1), Guidelines for Defining Forest-Wildlife Habitat Management (2112), Forest Opening Maintenance and Construction (2112.1), and the Public Forest Lands Handbook (2460.5). See reference copies in Chapter 900.

#### 840.1.3 Inventory

Habitat needs will be determined by analysis of Forest reconnaissance information. Population estimates will be conducted periodically by Department of Natural Resources (DNR) wildlife, endangered resources personnel, and other trained cooperators.

#### 840.1.4 Rare and Endangered Resources

The National Heritage Inventory (NHI) documents occurrences of rare, threatened, and endangered species, as well as natural communities and species of special concern. Foresters and Land Managers access the NHI database before implementing Forestry or recreational projects in order to help determine if NHI species might be affected adversely by a proposed activity. (See Chapter 900 for listing of threatened, endangered or species of special concern on or near the Sawyer County Forest).

### 840.2 RESOURCE MANAGEMENT AND AREAS OF FOCUS

In applying this Plan to the County Forest, the following areas of focus were identified in achieving Plan objectives:

#### 840.2.1 General Management Policies

Forest management practices may require modification to benefit wildlife and biodiversity in certain situations. The following will be considered in Forest management planning:

- Even-aged regeneration harvests (clearcuts) should vary in size and shape.
- A diversity of stand age, size and species.
- Mast-bearing trees and shrubs, den trees, and an adequate number and variety of snags.
- Cull trees (future snag or den trees) not interfering with specific high value trees.
- Timber types, habitat conditions and impacts on affected wildlife.
- Access management.
- Best Management Practices (BMP's) for water quality.

#### 840.3 HABITATS OF IMPORTANCE

Important habitat types are those cover types known to be of importance to certain native wildlife and whose absence would make that wildlife significantly less abundant. These shortages may be on a local or broader scale. (See Chapter 530). The following habitat types can be considered important:

##### 840.3.1 Aspen

The Aspen type is recognized as providing habitat values to a wide variety of wildlife species. This type will continue to be regenerated, with consideration given to reserving scattered den and mast-producing trees in the process.

##### 840.3.2 Jack Pine

Jack Pine and its associated plant understory provide a vital mix of

breeding and winter habitat for many wildlife species. The minor acreage of Jack Pine timber type that occurs on the Sawyer County Forest will become increasingly important as conversion to other tree species occurs on private lands. Jack Pine habitat maintenance will be a high priority.

#### 840.3.3 Forest Openings

Permanent grass openings are essential to well-balanced wildlife habitat. Openings will be maintained where needed. Most timber sale access roads and landings are seeded for the benefit of wild game.

#### 840.3.4 Lowland Conifer

Cedar, hemlock, and balsam fir types are important for winter cover for many wildlife species. These Forest-types will be maintained where practical.

#### 840.3.5 Oak

The Oak type is important to wildlife because of its cavity-forming potential and mast production. The vast majority of the Oak acreage that occurs on the Sawyer County Forest is nearing maturity during the planning period. Future management will focus on regenerating this type.

#### 840.3.6 Forest Game Species

The management of Forest game (white-tailed deer, ruffed grouse, black bear, turkey, snowshoe hare, and numerous furbearers) is centered on maintaining early successional species such as aspen, jack pine, white birch, and scrub oak; with aspen and oak being the primary species of importance.

Manual Code 2112 is a Wisconsin Department of Natural Resources (WDNR) document that establishes guidelines for measuring Forest game

habitat. It has been used like a barometer to measure changes in Forest wildlife habitat. While the scope of Manual Code 2112 can be narrow (deer habitat units compared with landscapes and ecoregions) by today's management standards, the impacts are broad. Foresters, in concert with wildlife biologists, will continue to monitor Forest game species and adjust land management prescriptions where appropriate. (See a copy of MC 2112 in Chapter 900).

#### 840.3.7 Forest Non-Game Species

Efforts will be made with the Wisconsin Department of Natural Resources (WDNR) to inventory existing populations, identify needs, and maintain valuable habitat types. The County has a history of commonly modifying silvicultural prescriptions for timber harvest to benefit non-game species. Modifications include leaving reserve trees in clearcut areas, and cavity trees, potential cavity trees, wolf trees in other areas, and leaving hemlock and some riparian areas unharvested.

##### 840.3.7.1 Neotropical Migrant Birds

Neotropical migrant birds (NTMB) are songbirds that breed in North America and winter in Central and South America. There are over one hundred twenty (120) species of NTMB's that spend a portion of each year in Wisconsin. Different NTMB's utilize a wide variety of habitats including forests, shrubs, and grasslands. Warblers, tanagers, vireos, thrushes, swallows, blue-winged teal and hummingbirds are just some examples of NTMB's. In addition, these species play an important role in Forest health by consuming large amounts of insects, including Forest pest species such as gypsy moths and Forest tent caterpillars.

In recent years, several neotropical species have experienced

significant declines in population. These declines likely reflect a reduction in suitability, or a loss of habitat where these species breed, overwinter and/or migrate. Grassland birds seem to be experiencing the most precipitous declines range wide, due to a loss of habitat both in North America and on the wintering grounds in South America. However, species that nest in forests or shrublands, such as the cerulean warbler, golden-winged warbler, and veery are also declining nationwide.

In some cases, these declines may be tied to Forest fragmentation. There are really two forms of Forest fragmentation, each with different impacts on Forest birds. One form of Forest fragmentation occurs when portions of a Forest are converted into Non-Forest cover crops (urbanization and agricultural). This is permanent fragmentation and poses the greatest threat to all Forest wildlife. The second type is the fragmentation of habitat or cover type. This habitat fragmentation occurs naturally due to local geological features or can be a result of human activity (harvest activity). Both kinds of Forest fragmentation have impacts on neotropical birds including changes in competition for resources, predation rates, and perceived quality of habitat. Each species of NTMB respond to Forest disturbance differently. Since there are so many neotropical migrants that utilize a wide variety of habitats and successional stages it's difficult to make generalizations as to the impacts of Forest management on the health of certain bird populations. Species such as chestnut-sided warblers and mourning warblers benefit from early successional species produced by clearcutting. Species that rely on more mature Forests or inferior Forests, such as ovenbirds or black-throated blue warblers, will be negatively impacted by intensive Forest management. To assure a rich

diversity of NTMB's in Wisconsin's Forests, emphasis should be placed on Forest management guidelines that promote habitat for NTMB's with the most specialized habitat needs.

Forests and associated wetlands of the western Great Lakes, including Wisconsin, support some of North America's highest densities and most diverse assemblages of breeding birds (Howe et al. 1996). While some Forest/shrub species mentioned above are decreasing, according to the Federal Breeding Bird Survey (BBS), the majority of Forest/shrub species that breed in Wisconsin are increasing. Wisconsin's private, County, State, and National Forests are still relatively intact and have regained much of their structural and compositional diversity that was once reduced in the big "Cutover" in the early 1900's.

As habitat is lost and fragmented by development on private lands, Wisconsin's County Forests continue to provide increasingly important habitat to numerous NTMB species that occur in a wide variety of Forest types and age classes.

#### 840.4 LEGALLY PROTECTED ANIMAL SPECIES

The Federal Endangered Species Act of 1973 and the Lacey Act together provide for the protection of wild animals threatened with extinction. The State Endangered and Threatened Species Law also requires that the State assume responsibility for conserving wild animals by restricting and regulating the taking, possession, transportation, processing, or sale of endangered or threatened wild animals within its jurisdiction. Further, the Federal Migratory Bird Act and the Eagle Protection Act provide additional protection for certain species of birds. Because animals usually travel freely from one property to another, they belong to everyone. Therefore, if a species is legally protected, it is protected anywhere

it occurs in Sawyer County. See Chapter 900 for a map and list of legally protected animal species known to occur in Sawyer County (on or near the County Forest).

#### 840.5 OTHER ANIMALS OF SPECIAL CONCERN - NHI

Just as with plants, the Department of Natural Resources (DNR) tracks information on rare animal species when some problem of abundance or disturbance is suspected but not yet proven. The main purpose of this category is to focus attention on certain species before they become threatened or endangered. See Chapter 900 for a list of Special Concern animal species known to occur in Sawyer County (on or near the County Forest). In addition to NHI, a statewide list of Species of Greatest Conservation Need can be found at: [http://dnr.wi.gov/org/land/er/cwcp/SGCN\\_ID.pdf](http://dnr.wi.gov/org/land/er/cwcp/SGCN_ID.pdf).

#### 840.6 FISHERIES AND WATER MANAGEMENT

Public waters shall be managed to provide for optimum natural fish production, an opportunity for quality recreation, and a healthy balanced aquatic eco-system. Emphasis will also be placed on land-use practices that benefit the aquatic community. Management of County Forest lands will attempt to preserve and/or improve fish habitat and water quality.

Sawyer County has fifty-four thousand (54,000) acres involving two hundred fifty (250) named lakes, one (1) flowage and eighteen hundred forty-three (1,843) miles of streams. Of this total, 207.9 miles are classified as trout streams (Class I - 115.2 miles, Class II - 70.8 miles, and Class III - 21.9 miles).

Within the County Forest boundaries, there are a variety of fishery resources. Approximately sixty-four (64) unnamed lakes have all or portions of their shoreline under County ownership. In addition, the County owns frontage on at least nine (9) named trout streams: Mosquito Brook, Sucker Creek, Thirty-Three

Mile Creek, Little Weirgor Creek, Hatchery Creek, North Branch Tupper Creek, Deer Creek (Winter), McDermott Creek, and the Totogatic River, totaling about nineteen (19) miles.

Sawyer County also has six (6) streams totaling approximately twenty (20) miles which are classified as Outstanding and Exceptional Resource Waters including:

- Little Weirgor Creek
- McDermott Creek
- Mosquito Brook
- Grindstone Creek\*
- Benson Creek\*
- Namakagon\*

\*Not within Sawyer County Forest, but Sawyer County Forest proximity creates watershed effects.

#### 840.6.1 Technical Planning

Management of all waters within the County Forest is the responsibility of the Department of Natural Resources (DNR). Technical assistance will be provided by the local Fisheries Biologist. Studies and management will be conducted in the manner described in the Department of Natural Resources (DNR) Fish Management Handbook 3605.9.

#### 840.6.2 Water Surveys

Comprehensive lake and stream surveys on the County Forest will be conducted by the Department of Natural Resources (DNR) Fisheries Biologist as required. The publication, "Surface Water Resources of Sawyer County", contains additional information relative to these waters.

#### 840.6.3 Population Surveys

Surveys of fish populations in waters within the County Forest will be conducted by the Department of Natural Resources (DNR) as required and will generally run concurrently with water surveys. Fish management programs will be guided by these surveys.

#### 840.6.4 Lake Management

Management of lakes within the County Forest will be consistent with the capability of the resource and any unique aspects associated with that resource.

#### 840.6.5 Stream Management

Trout streams on the County Forest will be managed to protect and enhance their quality. Streams containing warm water or cool water species will be managed to perpetuate their inherent qualities. Corresponding land and water use practices will be consistent with this policy.

#### 840.6.6 Best Management Practices for Water Quality

Protection of water resources in the County will be consistent with the "Wisconsin Forestry Best Management Practices (BMP's) for Water Quality". Examples of these protective measures are:

- Uncut riparian zones
- Erosion control measures
- Stream bank protection

#### 840.6.7 Shoreland Zoning

See Chapter 900.

#### 840.6.8 Access and Development

Access and development on County Forest waters will be limited to those activities consistent with the above water management policies. See Chapter 740 for further information.

#### 840.6.9 Important Water Resources

Management activities adjacent to these water resources, or in areas with sensitive soils or severe slopes, should consider measures above and beyond the customary BMP practices. An "erosion susceptibility map" identifying these more sensitive areas of the Forest can be found in Chapter 900. County staff may work with the Department of Natural Resources (DNR) Liaison Forester in cooperation with the local Department of Natural Resources (DNR) water resources staff to develop site-specific measures where appropriate. An inventory of water resources can be obtained from the Department of Natural Resources (DNR) Water Resources staff for Sawyer County.

#### 840.6.10 Importance of BMP's to Fisheries

Watershed protection will be emphasized via the BMP's to minimize potential negative effects of Forest harvest activities, and in particular road and trail use, construction, and maintenance. There likely are other existing roads which pose similar threats to surface water and their watersheds. A long-term plan to re-route and mitigation seems to be indicated. It is now clear that ATV use cannot be accommodated on unimproved trails in fragile watersheds. Sawyer County needs to formulate a comprehensive ATV policy to address this issue.

### 840.7 CAMP SMITH LAKE

Camp Smith Lake is the premiere coldwater fishery resource on the Sawyer County Forest and will continue to receive major management focus. The State

will continue to stock trout to provide one of the better and most popular put-grow-take fisheries in the area. The effectiveness of stocking spring fingerling trout (as opposed to older, larger, and more expensive spring yearlings) is in early stages of evaluation but appears to be working. This technique can be expanded to produce seasonal trout fisheries in winterkill lakes, as demonstrated by the current trout program on the Washburn County Forest.

#### 840.8 CAMP SMITH LAKE ACCESS

The recent history of Camp Smith Lake emphasizes the need for proper siting, maintenance, and use of Forest roads. At Camp Smith Lake an old Forest road on the south side of the lake had a long history of use and maintenance, despite being poorly sited on too steep of a slope, too close to the water, and on erodable soils. Recent ATV use and accommodation of ATV use had accelerated the problem, manifested in significant lake sedimentation. In late 2004, the road was closed off for good, a mitigation plan was started, and an alternate trail route is being researched for development.

#### 840.9 AERATION PROJECT ON CAMP SMITH LAKE

The previous Comprehensive Lake Use Plan projected an aeration project for Camp Smith Lake. This lake is in a deep depression and does not always mix well enough in the fall to prevent overwinter oxygen depletion. So, an aeration system would be an insurance policy against occasional winterkill. The project never proceeded past the planning stages in the last cycle because the cost proved too high for existing funding sources. The project is still viable if fifteen to twenty thousand (\$15,000 - \$20,000) funding can be secured. It would be a solar powered pump and cascade system.

#### 840.10 MANAGEMENT OPPORTUNITIES FOR UNNAMED LAKES

There are about sixty-four (64) unnamed lakes on the Sawyer County Forest, and it is estimated that as many as twenty percent (20%) would have seasonal

trout potential. Surveys and experimental stocking in the next decade should focus on providing an additional five to ten (5-10) coldwater lake fishing opportunities.

#### 840.11 FISH STOCKING

Other fish stocking on the Sawyer County Forest involved stocking of walleye fingerlings in Nelson, Smith, and the Tiger Cat Chain of Lakes and trout stocking in Osgood Lake.

#### 840.12 BEAVER MANAGEMENT

Beaver management will continue to be a major watershed and habitat protection feature on trout streams. This will include beaver removal via the APHIS program and private trappers, and dam removal.

##### 840.12.1 Riparian Management for Trout Streams

Some trout streams within the County Forest contain significant acreages of aspen timber type adjacent to them. For the benefit of the trout resource, it is important to break the long-term cycle of repeated beaver colonization. Converting aspen Forests adjacent to trout streams will discourage beaver colonization by removing the food source and in general improve fisheries habitat along these streams. Compliance with BMP's and the Sawyer County Shoreland Zoning Ordinance when establishing timber sale prescriptions and boundaries should help discourage aspen regeneration and conversion to more long-lived species.

#### 840.13 INSTREAM HABITAT RESTORATION

In the foreseeable future, watershed level habitat protection will be emphasized over site-specific in-stream work.

#### 840.13.1 Hatchery Creek

In-stream habitat restoration has two past success stories on the Sawyer County Forest - at Hatchery Creek in 1987 and on Mosquito Brook in the mid-70's. The Hatchery Creek project completely rebuilt the trout stream after the State fish hatchery was dismantled.

#### 840.13.2 Mosquito Brook Flowage

There is an opportunity for habitat restoration on the Mosquito Brook Flowage. Currently, there is an impoundment from a dam on private land. If the dam were removed, it would expose about a mile of Mosquito Brook headwater habitat, including numerous small springs and spring ponds. Although the dam is on private land, Sawyer County Forest land touches the upper end of the Flowage.

#### 840.14 RESEARCH OR SURVEYS

Research or surveys are a key technique for providing "actionable recon" for evaluating or prescribing other management techniques. Recent surveys have been conducted or are on-going on Nelson Lake, the Tiger Cat Chain, Smith Lake, Mosquito Brook, and the Thornapple River. Future survey work will target Thirty-Three Creek, Sucker Creek, Weirgor Lake, Green Lake, the Tupper Creek watershed and select unnamed lakes with potential for seasonal trout management.

### **850 LANDSCAPE MANAGEMENT**

#### 850.1 BIOLOGICAL DIVERSITY

For the purposes of this Plan, biological diversity will be interpreted to reference the variety and abundance of species, their genetic composition, and the communities, eco-systems, and landscapes, in which they occur. It also refers to ecological structures, functions, and processes that occur in eco-systems to

sustain the system as viable entities. The Forest landscape, a mosaic of plants and animals of various sizes and ages, are in constant flux due to succession from both natural and planned events.

Opportunities to manage Sawyer County Forest lands toward these ends will be continued and improved, provided they are deemed to be in the public's best interest by the Forestry Committee and within the framework of the County Forest Law (s. 28.11, Wis. Stats.).

#### 850.2 HABITAT FRAGMENTATION

The adoption of management plans and strategies developed cooperatively with neighboring Forest owners and managers will help to consider fragmentation on a landscape level. A continued program of encouraging land acquisition within the Forest blocking will decrease negative impact of Forest fragmentation by land uses other than Forestry.

#### 850.3 HIGH CONSERVATION VALUE FORESTS/AREAS (HCVF) AND EXCEPTIONAL RESOURCES

Refer to Chapter 530.

#### 850.4 EXTENDED ROTATION FOREST

Extended rotation represents mature Forests managed for both Forest products and for the development of some of the ecological and social benefits associated with older Forests. These sites are dominated by biologically mature trees that are older than their traditional rotation age and younger than their average life expectancy. In general, management prescriptions on these sites are delayed beyond the normal rotation that is used on the balance of the Forest. These extended rotation stands maybe aspen, northern hardwood, pine, or any other species that creates stand conditions with large diameter trees, native plant conditions, and course woody debris and down timber. Sawyer County intends

to manage oak Forests on an extended rotation basis for wildlife and aesthetic benefits where possible.

#### 850.4.1 Presumed Climax Forest Cover

Sawyer County will allow development of climax Forests primarily in riparian areas. With the development and acceptance of habitat classification as a management tool, land managers are gaining a much better understanding of the natural successional patterns on differing habitat groups and soil types. Sawyer County addresses the issue of old growth by managing for a presumed climax overstory on a percentage of the habitat and soil types that exist on the Forest. It is important to understand that there are often multiple possibilities for a climax overstory on many habitat types. It is also important to understand that the climax overstory on certain sites may not be as socially and economically beneficial as an early or mid-successional species.

#### 850.5 OTHER SPECIAL MANAGEMENT AREAS

Non-commercial Forested wetlands are not harvested on the Sawyer County Forest and provide undisturbed habitats for numerous wildlife and plant species.

### **860 INTEGRATED RESOURCE MANAGEMENT UNITS**

Integrated resource management units will not be employed in this Plan, but may be developed in the future at the direction of the Sawyer County Forestry Committee.