

BARRON COUNTY FOREST COMPREHENSIVE LAND USE PLAN

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## **800 CHAPTER OBJECTIVES**

- (1) To introduce and communicate to the public, the Barron County Board of Supervisors, and the Wisconsin DNR, the integrated resource approach that forestry, wildlife, and other natural resources staff will use on the Barron 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 Barron 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 for broader scale management.

The working definition of Integrated Resource Management is, in a large part, the keeping of 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 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 ecosystems 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 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 Reconnaissance

The County will support and utilize the compartment reconnaissance procedures as set forth by the DNR Public Forest Lands Handbook 2460.5. The 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 Annual Harvest Goals

The Wisconsin Forest Inventory and Reporting System (WisFIRS) will be used to develop annual goals for both timber harvest and cultural projects. (see chapter 1000 for detail) The County as a part of its GIS layers of the County Forest will maintain and update a copy of the Barron County Forest reconnaissance to further facilitate planning. FSC as a part of the certification process requires the county to maintain a twenty year reconnaissance cycle. This is not a problem in timber types such as northern hardwoods or pine which we enter on cycles of seven to fifteen years but is a problem in even-aged stand types where there is no reason for entering a regenerated stand for up to fifty years or more. The thought is that when adjacent stands of other types are entered the reconnaissance of these even-aged stands will be updated by the taking of new reconnaissance points. This will, however, require up to two entries into such stands with the return of little or no useful information.

### 810.1.3 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 under story species. A digital version will eventually be made a part of the forestry GIS layers. 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 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 will be continually collected along with, and made part of, the compartment reconnaissance system during regular field inspections. The collected data also will be compared to soil survey information in order to associate the relationships between forest habitat types and soil types.

### 810.1.4 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 are a part of the compartment reconnaissance system and continue to be correlated to the Forest Habitat Classification system.

Soil survey information has been obtained from the Natural Resource Conservation Service office and is available as a layer of the County's GIS system.

#### 810.1.5 National Hierarchical Framework of Ecological Units

##### Ecological Landscapes 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) can be a useful tool in understanding natural landscapes.

The Wisconsin 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 can provide a useful tool with 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 LTA's are between 10,000 and 300,000 acres in size. Each landtype association contains a general description of characters such as landform, historic vegetation, current vegetation, water resources, land area, socioeconomic data, agriculture, population, and ecological opportunities.

Goals can be developed for an LTA based in part on its capability, productivity, unique character, and the scarcity or abundance of similar LTA's in the state, region or beyond. Objectives for vegetation management, wildlife habitat, ecological restoration, and recreation use can be tailored to the characteristics and potentials of the ecosystem. This tool has not been used on the Forest in the past, but it may be useful in the future. If need or its use is desired, it is available.

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

#### 810.1.7 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's Forestry Best Management Practices for Water Quality*. Publication number FR093.

Barron County will use these BMP's on the Forest with the understanding that the application of 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 erodible soil types, close proximity to streams or lakes, or steep slopes may require mitigating measures in excess of those outlined in the manual.

Training requirements:

- a. County Staff – Administrator will be certified in BMP's for Water Quality or as SFI and FSC requirements require. Administrator is the only county staff that routinely works on the forest.
- b. Contractors – Contract holder must show proof that at least one person in the woods crew has been certified for BMP's for Water Quality or as SFI and FSC requirements require.

#### 810.1.8 Forest Fire Management

Compartments number 1, 2, 4, 5, 6, 7, 8, 9,10,11,13, and 14 are all located in Intensive Fire Districts. Compartments 3 and 12 are located in Cooperative Fire Districts.

##### 810.1.8.1 Uncontrolled Fire (Refer to Chapter 600)

##### 810.1.8.2 Prescribed Fire

Prescribed burning on the County Forest may play an important role in management. Some of the plant communities present on the forest today are the result of past wild fires. As the needs are presented to regenerate or maintain timber types or other plant communities, the Administrator 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 DNR Prescribed Burn Handbook 4360.5 and in cooperation with the Department of Natural Resources per section 605.5 of this plan.

#### 810.1.9 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 Administrator's opinion, are best equipped to provide that service. This information will be used as appropriate for management planning.

#### 810.1.9.1 Water Resources

The 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. (Also see Chapter (840.6).

#### 810.1.9.2 Wildlife 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, (Also see Chapter 840). Wildlife projects are identified and implemented in collaboration with and approval of the County Forest Administrator.

#### 810.1.9.3 Soil Resources

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

#### 810.1.9.4 Mineral Resources

At this time it is the intent of Barron County to allow **no** mineral extraction within the forest.

#### 810.1.9.5 Wetland Resources

Maps prepared by the DNR's Bureau of Fisheries Management and Habitat Protection, may be utilized for identifying wetlands. Assistance and technical advice will be requested from the 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. (Also see Section 820.2.2 for further details).

#### 810.1.9.6 Navigable Streams

The DNR's water regulations specialist will be consulted when navigable stream crossings or navigable stream management projects are being planned. (Also see Chapter 840.6.5). Best Management Practices for protecting water quality will be used.

#### 810.1.9.7 Floodplains

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

#### 810.1.9.8 Cultural Resources

Management planning will take into consideration historical and archaeological sites. More information may be obtained from the State Historical Society or the DNR's archaeologist.

A detailed plan of archaeological management for the Wajiwani Mashkode Archaeological District located in the Doyle block of the forest has been prepared by State Archaeologist John Broihahn, and has been accepted by Barron County.

#### 810.1.9.9 Entomology / Pathology

Wisconsin DNR forest pest staff will provide information and consultation as requested by the County. (Also see Chapter 610 for more information on forest pest control).

#### 810.1.9.10 Endangered Resources

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

#### 810.1.10 Local Silvicultural Field Trials

To date, some field trials have been completed or are ongoing on the County Forest. These trials include:

1. Direct seeding of agricultural fields to Oak and Northern Hardwoods.
2. Oak regeneration by shelterwood harvests.
3. Oak release (enhancement) within Aspen regeneration sites.
4. Prescribed fire for Oak release.
5. Various combination plantings to convert agricultural fields to forest.

#### 810.1.11 Local Citizen Involvement

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

### **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. Refer to Chapter 130.1.4 for more information.

#### 820.1 FORESTED COMMUNITIES

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 material, and inclusions). Forested communities within the Barron County Forest cover approximately 77 percent 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, red oak, white oak and red maple.
- Northern Hardwoods - 27%. Consisting of a mixture of upland hardwood species including sugar maple, red oak, basswood, ash and red maple.
- Oak - 26%. Dominated by red oak, white oak, and associated with other hardwoods.
- Swamp Hardwoods - 2.5%. More than 50% swamp hardwood species including black ash, red maple, and elm.
- White Pine - 2%. More than 50% white pine.
- Red Pine - 2.6%. More than 50% red pine.

Fir-Spruce - 0.2%. Consisting of swamp border or upland types with mixed species, predominately balsam fir and spruce associated with white pine, cedar, red maple, aspen, and birch.

Swamp Conifers – 2.5% Various mixtures of black spruce, balsam fir, and Tamarack often with some red maple and black ash.

White birch - 0.1%. 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 Barron County Forest cover approximately 23% of the forest. In broad categories, they are: upland (15.1%), wetland (6.95%) and water (1.54%).

Non-forested habitats are important components of management within the County Forest. Upland and wetland non-forest types may 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 (15.1%)

Upland Non-Forest areas of the County Forest include:

1. Grass openings – consists of upland grasses, such as brome, quack, bluegrass, timothy, big and little bluestem, and Indian grass. Also, graveled and/or mowed parking areas.
2. 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, plums, pin and choke cherries and prickly ash.
3. Rock outcrops and sand banks - rock outcrops include rocky tallus, and bedrock material.

### 820.2.2 Wetlands (6.95%)

Wisconsin State Statutes define a wetland as “an 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 Forest 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:

1. Recognize wetland values in management plans, taking reasonable steps to minimize harmful effects.
2. Cooperate with the DNR in wetland inventories and in preparation of essential wetland information.

3. 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.
4. Minimize adverse changes in the quality or quantity of the flow of waters that nourish wetlands.
5. 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.
6. Cooperate with the 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. They presently make up a total of 19% of the County Forest. Wetlands are made up of 15 descriptive types (adapted from PUBL-WZ-029-94). They include:

1. 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.
2. 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 6 feet are typically found on deep marshes.
3. Shallow marshes - wetlands characterized by persistent emergent vegetation such as cattails and pickerelweed, etc., and water depths to 1.5 feet.
4. Sedge meadow - wetlands characterized by sedges and cattails. Surface water depths to 6 inches in winter and early spring, and exposed saturated soil surface in summer.
5. 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 golden rod growing on saturated soils.
6. 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.
7. 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.
8. 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.
9. 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.

10. 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.

11. Seasonally flooded basin – These are 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 (1.54%)

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 and occur on 3.5% of the forest landscape. They are broken down into:

1. Lakes - lakes, ponds, and flowages in excess of 40 acres in an area; or rivers in excess of 1/8 of a mile in width.
2. Minor Lakes – are lakes and ponds of less than 40 acres in area.
3. Streams - intermittent or permanent watercourses with slow water velocities and are usually defined as being less than 1/8 mile in width.
4. 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

Barron County recognizes the importance of maintaining the diversity of the Forest under an ecosystem 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:

1. Objectives of the County Forest.
2. Integration of the National Hierarchical Framework of Ecological Units (NHFEU - landforms, soils, climate, vegetation classification at multiple scales).
3. Application of habitat type classification to identify ecological potentials and silvicultural alternatives.
4. Past, present, and future desired condition.
5. Surrounding ownership patterns and their generalized objectives.
6. Socio-economic needs.

#### 830.1 SILVICULTURE

Plant communities are normally managed within the guidelines found in the *Wisconsin Department of Natural Resources. Silviculture and Forest Aesthetics Handbook 2431.5*. 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. A summary of management on the Barron County Forest is described as follows:

#### 830.1.1 Oak Management

Management of oak stands, primarily Red Oak, is carried out in an intolerant management scheme. Since the seedlings of oak require as much sun light as possible to develop and compete in the forest environment we have developed and use a regeneration strategy called a shelterwood. Stands ready for regeneration are entered and selectively marked leaving the best trees and creating crown closure of approximately 60 percent. This stand is however, not allowed to be cut until there is an adequate mast crop to insure good seedling reproduction. This harvest is required to be accomplished in the fall as acorns are falling and before the ground is frozen. Measures are taken to insure adequate ground scarification and eliminate undesirable competition for the future seedlings. After the seedlings are allowed to develop for three to five years the shelterwood trees are removed, in effect a two phase clear cut. Rotation ages will vary from 100 to 150 years based on site and tree quality. The habitat classification system and soil maps are extensively used to determine which oak stands can be successfully reproduced. This removal of high volumes and high quality saw logs greatly enhances the revenues of the Forest. Maturing oak stands have high wildlife values mostly because of the mast crops, which are used extensively by birds and animals alike.

The reproduction of oak using this system can have large aesthetic impacts especially on larger stands near public roads. The use of sale design can mitigate some this impact, but the use of informational signage and public meetings to explain the reproduction system have and will help.

#### 830.1.2 Northern Hardwoods Management

Selective management for Northern Hardwoods takes advantage of the shade tolerance of these species to maintain uneven-aged stands. Every 12 to 15 years, based on stand growth, these stands are entered and selectively harvested. These stands allow for the development of quality saw logs, which are the economic back bone of the Barron County Forest. Wildlife values derived from these stands are uses such as cavity nesting sites for both animals and birds and the stratified crown levels, which are used for nesting by many of the neotropical birds.

Acreage of this stand type has increased on the forest as stands and parts of stands typed as intolerant types such as aspen and oak were allowed to convert to northern hardwoods. Much of this “conversion” is now over and northern hardwood acreage will remain more constant in the future. The selective nature of northern hardwoods management has little or no aesthetic impact, and this is the management most tolerated and expected by the public.

#### 830.1.3 Aspen Management

Aspen is a shade intolerant species that is found throughout various areas of the forest and is managed on an even-aged basis. This means that aspen needs full sunlight to

regenerate and the best method for creating optimum conditions for stand replacement is clearcutting. The aspen type is recognized as providing habitat values to a wide variety of wildlife species as well as being an important species for economics and fiber production. The extent of this vital resource has been steadily declining since the 1960s. The chief reasons for the decline are:

1. Lack of harvest as stands reach maturity (natural succession)
2. Selective harvests.

In both instances, the end result is conversion to more shade tolerant timber types. Barron County is committed to maintaining, a high percentage of its aspen acreage and will accomplish this by regenerating the mature aspen stands through the use of clearcuts. Aesthetic concerns can be mitigated by retaining clumps of 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 trees are considered uncommon on the Forest and perhaps to some extent across the regional landscape:

830.2.1            American Elm (*Ulmus americana*) is scarce primarily because of past 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.

830.2.2            Yellow Birch (*Betula Lutea*) occurs on the forest in some northern hardwood stands. Due to the high White-tailed Deer population, natural reproduction is nonexistent. Only over mature and very poor quality individuals are removed during selective harvest. If healthy trees are to be removed, attempts are made at creating gaps that should enhance the chance of reproductive success.

830.2.3            Butternut (*Juglans cinerea*) occurs on the County Forest primarily throughout the forest's oak and northern hardwood stands. Due to butternut decline, the few individuals present are existing in a rapidly deteriorating state and these trees are harvested to attempt to salvage whatever value is possible. When healthy individuals are encountered, they are left and attempts are made to encourage their growth. 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                    EXOTIC PLANT SPECIES OF CONCERN

Exotic or non-indigenous invasive plant species can cause significant ecological and/or economic damage to the Forest. Some invasive species, such as common glossy buckthorn, can replace not only wildflowers but can also limit the regeneration potential of commercially desirable tree species. Keeping such species from dominating the forest under story is critical to the long-term health and economic viability of the

forest. Currently, the Barron County Forest has a significant infestation of Buckthorn in the Moose Ear block of the forest and a lesser invasion in the Silver Creek Block. With training, vigilance, and control efforts, new infestations, hopefully, can be managed or kept in check. During 2006 in the Moose Ear block, a treatment consisting of a triclopyr basal bark application of stems will be implemented during the fall season when Buckthorn is the easiest to detect. This treatment will allow Barron County to compare natural reproduction on treated and untreated sites within a timber sale planned for this area in 2007. In the following fall seasons, we expect to treat any other infestations of Buckthorn as they are detected. At the levels of infestation we are seeing now, except for the Moose Ear Block, this should be adequate to keep this invasive species in check. If these measures prove to be inadequate, other means of control will be considered and budgeted for.

Other invasive species of potential concern:

1. Honeysuckles
2. Garlic Mustard
3. Purple Loosestrife
4. Wild Parsnip

830.4 LEGALLY PROTECTED PLANT SPECIES AND THOSE OF SPECIAL CONCERN

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 species 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 DNR tracks information on these species in the State. Below is a list of legally protected plants known to occur in the Barron County Forest (on or near the County Forest).

Rare, Threatened & Endangered Species and Natural Communities In Barron County

PLANTS			
Common Name	Species Name	Wisconsin Status	Federal Status
Assiniboine Sedge	<i>Carex assiniboinensis</i>	SC	
Dragon's Mouth	<i>Arethusa bulbosa</i>	SC	
Hawthorne-Leaved Gooseberry*	<i>Ribes oxycanthoides</i>	THR	
Mingan's Moonwort	<i>Botrychium minganense</i>	SC	
Robbins Spike-Rush	<i>Eleocharis robbinsii</i>	SC	
Round-Leaved Orchid	<i>Platanthera orbiculata</i>	SC	
Small Yellow Lady's Slipper	<i>Cypripedium parviflorum</i>	SC	

Spotted Pondweed	Potamogeton pulcher	END	
White Ground Cherry	Leucophysalis grandiflora	SC	
Squashberry*	Viburnum edule	END	
Purple Clematis	Clematis occidentalis	SC	
Dragon Wormwood	Artemisia dracunculus	SC	
Torrey's Bullrush	Scripus torreyi	SC	
Mingan's moonwort	Botrychium minganense	SC	

\* found on County Forest

\**Key -Federal Status:*

LE- listed endangered;

LT,PD- listed threatened, proposed for de-listing;

LE-LT- listed endangered in part of its range, threatened in another part;

C- candidate for future listing

LT- listed threatened

\*\**Key -State Status:*

END- endangered;

SCTHR- threatened;

SC- special concern

### 830.5 OTHER PLANT SPECIES AND NATURAL COMMUNITIES OF CONCERN

The NHI program at the DNR also tracks information on rare species and natural communities, in addition to legally protected species.

#### 830.5.1 Natural Communities

Similarly, specific records of natural communities are also tracked. The following natural communities have been recorded in Barron County (on or near the County Forest).

Alder Thicket	Lake-Soft Bog	Open Cliff
Dry-Mesic Prairie	Northern Dry-Mesic Forest	Shaded Cliff
Emergent Aquatic	Northern Mesic Forest	
StreamFast, Soft, Warm	Lake-Shallow, Hard, Seepage	
Northern Sedge Meadow	Stream-Slow, Soft, Cold	
Lake-Shallow, Soft, Drainage	Northern Wet Forest	Moist Cliff
Lake-Shallow, Soft Seepage	Open Bog	Dry Cliff

Note: Important examples of the above listed natural community types have been found in Barron County. Although communities are not legally protected, they are critical components of Wisconsin's biodiversity and may provide the habitat for rare, threatened and endangered species.

#### 830.5.2 Plants of Special Concern

Scientific Name	Common Name	Year Last Observed	State Rank	Global Rank	State Status
Carex prasina	(Drooping Sedge)	2000	S3	G4	THR
Clematis occidentalis	(Purple Clematis)	2000	S3	G5	SC
Cypripedium parviflorum var makasin	(Northern Yellow lady slipper)	1989	S3	G3T4Q	SC
Leucophysalis grandi flora	(Large flowered Ground Cherry)	1988	S1	G3?	SC
Ribes oxycanthoides	(Canada Gooseberry)	2000	S2	G5	THR

Strialura ferrea	(Black Striatura)	2000	S2	G4G5	SC/N
Vertigo tridentate	(Honey Vertigo)	2000	S3	G4G5	SC/N
Viburnum edule	(Squash berry)	2000	S2	G5	END

(none of these plants have federal status)

## **840 WILDLIFE SPECIES MANAGEMENT**

### **840.1 BACKGROUND**

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, may cause wildlife management to place increased emphasis on segments of the forest community. Practices such as old growth, snag and den tree management, access management, forest openings maintenance, oak management, and aspen maintenance, can be priorities in the dynamics of forest management. A primary goal of wildlife management on the Forest is to provide a diversity of healthy ecosystems necessary to sustain native populations for their biological, recreational, cultural and economic values.

#### **840.1.1 Technical Planning**

Planning will be a cooperative effort of the administrator, 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.

#### **840.1.2 Guidelines**

DNR 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), are important references and guidelines in wildlife planning efforts.

#### **840.1.3 Inventory**

Habitat needs will be determined by analysis of forest reconnaissance information. Population estimates may be conducted periodically by DNR wildlife, endangered resources personnel, and other trained cooperators.

### **840.2 RESOURCE MANAGEMENT AND AREAS OF FOCUS**

In applying this plan to the 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:

1. Even-aged regeneration harvests (clearcuts) should vary in size and shape.
  - i. Under normal circumstances, clearcuts will not extent beyond 0.25 miles in length along a public road; within any four year period.
2. A diversity of stand age, size, and species.
3. Mast-bearing trees and shrubs, den trees, and an adequate number and variety of snags will be maintained were possible.
4. Cull trees (future snag or den trees) not interfering with specific high value trees or logger safety at time of a harvest will be retained when possible.
5. Timber types, habitat conditions and impacts on affected wildlife.
6. Access management.
7. Best management practices for water quality (BMP's).

### 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. 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 Forest Openings

Permanent grass openings are essential to well-balanced wildlife habitat. Openings will be maintained where they exist.

#### 840.3.3 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.

#### 840.3.4 Oak

Oak is important to wildlife because of its cavity forming potential and mast production. Future management will focus on regenerating this type.

#### 840.3.5 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, white birch, and oak; with aspen and oak being the primary species of importance.

Manual Code 2112 is a Wisconsin DNR 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.

#### 840.3.6 Forest Non-Game Species

Efforts will be made with the DNR to inventory existing populations, identify needs, and maintain valuable habitat types.

1. Cavity trees – attempts will be made to meet or exceed goals set forth for numbers of cavity trees to be maintained in oak and hardwood stands.
2. In most hardwood sales conducted in compartment #3, utilization of tops less than eight inches in diameter will be offered as optional to encourage the leaving of horizontal large woody debris in these stands.

#### 840.3.7 Neotropical Migrant Birds

Neotropical migrant birds (NTMB) are songbirds that breed in North America and winter in Central and South America. Different NTMBs 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 NTMBs. 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, over winter 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 shrub lands, 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 types (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 interior forests, such as ovenbirds or black-throated blue warblers, will be negatively impacted by intensive forest management. To attempt to assure a rich diversity of NTMBs in Wisconsin's forests, emphasis may be placed on forest management guidelines that promote habitat for NTMBs 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. 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 (AND THOSE OF SPECIAL CONCERN)

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 Acts and the Eagle Protection Acts provides additional protections for certain species of birds. Because animals usually travel freely from property to property, they belong to everyone. Therefore, if a species is legally protected, it is protected anywhere it occurs in Barron County.

Common Name	Species Name	Wisc. Status*	Taxa	Fed. Status
Bald Eagle	<i>Haliaeetus Leucocephalus</i>	SC/FL	Bird	PS
LeConte's Sparrow	<i>Ammodramus Leconteii</i>	SC/M	Bird	
Loggerhead Shrike	<i>Lanius Ludovicianus</i>	END	Bird	
Osprey	<i>Pandion Haliaetus</i>	THR	Bird	
Red Shouldered Hawk	<i>Buteo Lineatus</i>	THR	Bird	
Bullfrog	<i>Rana Catesbeiana</i>	SC/H	Amphib	
Pygmy Snaketail	<i>Ophiogomphus Howei</i>	THR	Dragonfly	
Round Pigtoe	<i>Pleurobema sintoxia</i>	SC/H	Mussel	
Skillet Clubtail	<i>Gomphurus Ventricosus</i>	SC/N	Dragonfly	
Greater Redhorse	<i>Moxostoma Valenciennesi</i>	THR	Fish	
Lake Herring	<i>Coregonus Artedi</i>	SC/N	Fish	
Least Darter	<i>Etheostoma Microperca</i>	SC/N	Fish	
Ozark Minnow	<i>Notropis Nubilus</i>	THR	Fish	
Pugnose Shiner	<i>Notropis Anogenus</i>	THR	Fish	
Redfin Shiner	<i>Lythrurus Umbratilis</i>	THR	Fish	
Weed Shiner	<i>Notropis Texanus</i>	SC/N	Fish	
Timber Wolf	<i>Canis Lupus</i>	THR	Mammal	PS
Blanding's Turtle	<i>Emydoidea Blandingii</i>	THR	Turtle	
Wood Turtle	<i>Clemmys Insculpta</i>	THR	Turtle	
Riffle Snaketail	<i>Ophiogomphus carolus</i>	SC/N	Dragonfly	
Green-Faced Clubtail	<i>Gomphus viridifrons</i>	SC/N	Dragonfly	
Yellow Rail	<i>Coturnicops noveboracensis</i>	THR	Bird	
Barrens Snaketail	<i>Ophiogomphus sp</i>	SC/N	Dragofly	

*\*Key- Federal Status:*

LE- listed endangered,	LT- listed threatened,
LT,PD- listed threatened, proposed for de-listing,	
LE-LT- listed endangered in part of its range, threatened in another part,	
C- candidate for future listing	PS – partial status

*\*\*Key- State Status:*

END- endangered,	THR- threatened,
SC- special concern	SC/P- fully protected,
SC/N- no laws regulating use, possession or harvesting,	
SC/H- take regulated by establishment of open/closed seasons,	
SC/FL- federally protected as endangered or threatened, but not designated by WDNR,	
SC/M- fully protected by federal and state laws under the Migratory Bird Act	

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

Just as with plants, the 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. Below is a list of Special Concern animal species known to occur in Barron County (on or near the County Forest).

<u>Scientific Name</u>	<u>Common Name</u>
Accipiter gentillis	Northern Goshawk
Lanius Ludovicianus	Loggerhead Shrike

#### 840.6 POPULATION CONCERNS

With the over abundance of White-Tailed Deer and Turkeys now allowed to populate the Forest's landscape, grave concerns are raised about our attempts at natural forest regeneration, especially with oak and northern hardwoods. The State's unwillingness or inability to manage these populations puts such management at risk of failure. These populations also affect many other plants that make up the forest landscape.

#### 840.7 FISH AND WATERS MANAGEMENT

Public waters shall be managed to provide for optimum natural fish production, an opportunity for quality recreation, and a healthy balanced aquatic ecosystem. 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.

##### 840.7.1 Technical Planning

Management of all waters within the County Forest is the responsibility of the DNR. Technical assistance will be provided by the local fisheries biologist. Studies and management will be conducted in the manner described in DNR Fish Management Handbook 3605.9.

#### 840.7.2 Water Surveys

Comprehensive lake and stream surveys on the County forest will be conducted by the DNR fisheries biologist as required. The publication, “Surface Water Resources of Barron County,” contains additional information relative to these waters.

#### 840.7.3 Population Surveys

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

#### 840.7.4 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.

#### 840.7.5 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. Maps inventorying water resources can be found in the appendix to this plan (Chapter 900).

#### 840.7.6 Best Management Practices for Water Quality

Protection of water resources in the county will be consistent with the “Wisconsin Forestry Best Management Practices (B.M.P.s) for Water Quality.” Examples of these protective measures are:

1. Modified timber harvests in riparian zones
2. Erosion control measures
3. Stream bank protection

#### 840.7.7 Shoreland Zoning

The Barron County Zoning recognizes the difference between accepted silvicultural practices and land clearing. A special exception is still required for some timber removals above 30 percent of shoreline cover but the Board of Review accepts the plans of the Forest Administrator in their considerations.

#### 840.7.8 Access and Development

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

#### 840.7.9 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. County staff may work with their liaison forester in cooperation with the local DNR water resources staff to develop site-specific measures where appropriate. An

inventory of water resources can be obtained from DNR Water staff for the County. Important water resources on the Forest include:

<b>NAMED LAKES (ENTIRELY WITHIN COUNTY FOREST)</b>			
Name	Description	Acres	Public Frontage (miles)
Kelley	36-12-18	17	1.1
Kirby	36-12-08	7	0.4
<b>NAMED LAKES (PARTIAL FRONTAGE IN COUNTY FOREST)</b>			
Bear	36-12-04	1,358	0.5
Beauty	36-14-11	11	0.3
Chain	36-10-17	107	0.4
Crooked	36-12-09	15	0.2
Goose	36-10-18	12	0.3
Hemlock	36-10-25	357	0.5
Kelly's	36-14-07	19	0.6
Little Butternut	36-12-07	19	0.3
Lower Waterman	36-14-08	14	0.2
Sand Lake	36-14-21	300	0.3
Little Sand Lake	36-14-27	84	0.4

<b>NAMED STREAMS LOCATED ON COUNTY FOREST</b>			
Name	Description	Miles of Stream	Classed as Trout Water
Hemlock	36-10-15	0.5	No
Little Bear	36-12-16	1.0	No
Moose Ear	34-10-25	2.0	Yes
Pigeon	36-10-12	1.5	No
Rock	35-10-36	0.3	Yes
Sand	36-14-06	1.0	No
Silver	32-14-01	1.5	Yes
Silver	35-10-27	0.2	Yes
Sucker	36-12-08	2.0	No
Turtle	32-14-01	2.5	Yes

#### 840.7.10.1 Outstanding and Exceptional Resource Waters

Barron County will comply with all State and Federal regulations as regards these designated waters. See Chapter 900 (page 900-48) for a map of these waters.

## **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, ecosystems, and landscapes in which they occur. It also refers to ecological structures, functions, and processes that occur in ecosystems 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 the Forest lands toward these ends will be continued and improved, provided they are deemed to be in the public's best interest by the 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 OLD GROWTH**

The Forest has no stands managed for old growth at this time.

#### **850.3.1 Presumed Climax Forest Cover**

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. Barron County addresses the issue of old growth by managing for presumed climax overstories 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. The primary climax species in this category for the forest is White Pine, with a number of stands in compartments # 7 & # 8 developing and/or will develop a potential old growth canopy of White Pine.

### **850.4 HIGH CONSERVATION VALUE FOREST AREAS & EXCEPTIONAL RESOURCES**

See Section 530 for detail.