CHIPPEWA COUNTY FOREST COMPREHENSIVE LAND USE PLAN

TABLE OF CONTENTS

CHAPTER 800

INTEGRATED RESOURCE MANAGEMENT

800 CHAPTER OBJECTIVES

1. To introduce and communicate to the public, the County Board of Supervisors, and to the Wisconsin DNR the integrated resource approach that forestry, wildlife and other natural resource staff will use in the County Forest during this planning period.
2. Counties may wish to consider the "Integrated Resource Management Units" (IRMU) approach that will identify and summarize the natural resources, social and physical management potential and opportunities for each unit.

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 County Forest is managed.

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

Sustainable Forestry is "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 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

The County will support and utilize the compartment reconnaissance procedures, as set forth by the DNR *Public Forest Lands Handbook (2460.5)*. WisFIRS serves as the database for housing recon information.

810.1.2 Forest Habitat Classification System

The Forest Habitat Classification System (*A Guide to Forest Communities and Habitat Types of Central and Southern Wisconsin*; 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.

810.1.3 Soil Surveys

Chippewa County Department of Land Conservation & Forest Management 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. WisFIRS contains soil survey data, and this information can also be found on the NRCS website-based soil survey.

810.1.4 Ecological Landscapes of Wisconsin

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 provide a useful tool and insight into ecosystem management. Land areas identified and mapped in this manner are known as ecological units.

Generally accepted silvicultural systems are prescribed on a stand level scale, in recognition of the position within an ecological landscape.

810.1.5 Integrated Pest Management

Integrated Pest Management is “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 Land Conservation & Forest Management Committee has the authority to approve and direct the use of pesticides and other reasonable alternatives in an integrated pest management program in 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

The most practical and cost-effective method to assure that forestry operations do not adversely affect water quality in the County Forest is to utilize "best management practices" (BMPs), as described in *Wisconsin's Forestry Best Management Practices for Water Quality,* Publication number FR-093.

Consistent with the aforementioned manual, Chippewa County will use BMPs on the County Forest with the understanding that the application of BMPs 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, proximity to streams or lakes, or steep slopes may require mitigating measures in excess of those outlined in the manual. All Chippewa County employees practicing forestry will receive BMP training. Additionally, Chippewa County will encourage BMP training of all logging contractors that operate on County timber sales.

810.1.7 Fire Management

Chapter 600 covers matters relating to the prevention, detection and suppression of forest fires in detail.

810.1.7.1 Prescribed Fire

Prescribed burning in the County Forest may play an important role in 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 Land Conservation & Forest Management 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 DNR *Prescribed Burn Handbook (4360.5)*, and in cooperation with the Department of Natural Resources, per Section 605.4 of this plan.

810.1.8 Outside Expertise, Studies and Survey

Additional data necessary to make management decisions in the County Forest will be sought from agencies or individuals who have the best capability and technical expertise, including, but not limited to:

- Water Resources: WDNR
- Wildlife Resources: WDNR
- Soil Resources: NRCS
- Mineral Resources: WDNR
- Wetland Resources: WDNR, Army Corps of Engineers, County Planning & Zoning
- Navigable Streams: WDNR, Army Corps of Engineers, County Planning & Zoning
- Floodplains: County Planning & Zoning
- Cultural Resources: WDNR, State Historical Society
- Entomology/Pathology: WDNR
- Endangered Resources: WDNR

- Forestry: Cooperative Field Trials, see WDNR website
- Other subjects as needed

810.1.9 Local Silvicultural Field Trials

Though there have been several studies conducted by various research organizations, to date no formal field trials have been completed or are ongoing in the County Forest.

815 MANAGEMENT CONSIDERATIONS TO REDUCE LOSS

815.1 RISK FACTORS

Chippewa County will use the timely application of silvicultural techniques to prevent and mitigate negative effects of wind, flooding, fire, climate change and fluctuations in timber markets.

820 PLANT COMMUNITIES MANAGEMENT

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

- Objectives of the County.
- Integration of landforms, soils, climate, and vegetative factors.
- Habitat classification.
- Past, present and future desired condition.
- Surrounding ownership patterns and general objectives.
- Wildlife habitat and other values.
- Social needs.

820.1 SILVICULTURAL PRACTICES/TREATMENTS

Silviculture is the art and science of controlling forest composition, structure, and growth to maintain and enhance the forest's utility for any purpose. These practices are based on research and general silviculture knowledge of the species being managed. The goal is to encourage vigor within all developmental stages of forest stands, managed in an even aged or uneven aged system. The application of silviculture to a diverse forest needs a unified, systematic approach. The DNR *Public Forest Lands Handbook (2460.5)* and DNR *Silvicultural Guidance* will be used as guidelines for management practices used on the County Forest.

820.1.1 Natural Regeneration

Where feasible, natural regeneration will be encouraged through the use of silvicultural methods that promote regrowth and recruitment of the County Forest. In general, the particular silvicultural method chosen will depend on the biological functions of the target species or forest type.

820.1.1.1 Clearcutting/Coppice

Clearcutting is a silvicultural method used to regenerate shade intolerant species. Complete, or nearly complete, removal of the forest canopy will stimulate the regeneration and growth of species such as aspen, jack pine and white birch. This method is also used as a final rotation removal in species such as red oak, red pine and others. Tree retention guidelines are followed when prescribing clearcut or coppice cuts.

820.1.1.2 Shelterwood/Seed Tree

Shelterwood harvest is a method used to regenerate mid-shade tolerant and shade tolerant species. Partial canopies stimulate regeneration, enhance growth and can provide seed source. Canopies are eventually removed. This method is used for white birch, white pine, red oak, and northern hardwood (when managing even aged).

820.1.1.3 All Aged Regeneration Harvests

All aged regeneration harvests are used in shade tolerant species. Gaps in the forest canopy allow regeneration to occur throughout the stand. Over time, multiple entries into the stand will create multiple age class structure with the intent of creating a fully regulated stand. All aged regeneration harvests may be prescribed in the form of single tree selection, group selection or patch selection. This method is used mainly in northern hardwoods and sometimes in oak stands with aesthetic restrictions due to high recreational use.

820.1.1.4 Prescribed Burning

Prescribed burning may be utilized as a tool to promote regeneration. Some of the forest types in Chippewa County are ecologically tied to fire. Burning may create seeding conditions or release regeneration from competing vegetation. Prescribed fire may be used for regeneration of red oak, jack pine or white pine. See Section 820.4.2.

820.1.1.5 Soil Scarification

Scarification is a technique used to prepare a seedbed beneath forest stands scheduled for harvest and regeneration. This mechanical disturbance that exposes bare mineral seedbeds and creates conditions necessary for regeneration of pine and oak species. Disturbance that mixes seed into duff and soil layers creates optimal conditions for regeneration of oak, white birch, fir and others. Chippewa County may utilize salmon blades, root rakes, straight blade and anchor chains for soil scarification.

820.1.1.6 Other

Other natural regeneration techniques may be considered where necessary and appropriate. New methods for natural regeneration are continually tested.

820.1.2 Artificial Regeneration

When natural regeneration fails, or when tree species present do not coincide with management objectives for the site, artificial means may be employed to establish a desirable stand of trees. Artificial regeneration on a site usually requires some form of site preparation followed by seeding or planting.

820.1.2.1 Mechanical Site Preparation

Mechanical site preparation includes the use of soil disturbance equipment such as a disc, roller chopper, patch scarifier, disk trencher or V-plow prior to tree planting or seeding. These types of equipment are used to reduce logging debris to a smaller size, incorporate debris into the soil, clear brush and debris from the site, and to reduce competition from other vegetation.

820.1.2.2 Chemical Site Preparation

Herbicide application can be an effective means of controlling unwanted vegetation in order to establish seedlings or plantations. It should be used sparingly and in situations where mechanical treatment is not expected to provide the level of vegetative control needed. Chemicals will be applied in strict accordance with label recommendations, requirements, and under the oversight of a certified applicator. Herbicides will normally be applied with motorized, ground based equipment, hand applications, or aerially. A written prescription for each herbicide application will be prepared and kept on file.

820.1.2.3 Prescribed Burning

Prescribed burning for site preparation can be used to reduce logging debris, clear the site, reduce competing vegetation, and to release nutrients into the soil.

820.1.2.4 Tree Planting/Seeding

Both machine and/or hand planting/seeding will be utilized to insure adequate regeneration. The selection of species will be determined according to the specific management objectives and capabilities of each site. Planting or seeding will primarily occur in areas where natural regeneration is inadequate or conflicts with the management goals of the site. The County will make a reasonable effort to source seeds/seedlings from local genetics.

820.1.3 Intermediate Treatments

Intermediate treatments are those practices used to enhance the health and vigor of a forest stand. In general, intermediate treatments are applied to forest stands managed as even aged.

820.1.3.1 Mechanical Release

Mechanical release is the removal of competing vegetation by means other than herbicide or fire. Mechanical may include releasing young pine plantations or oak stands from competing vegetation using chain saw, brush cutter, other hand-held equipment or mowing to release desired regeneration.

820.1.3.2 Chemical Release

Chemical Release is the removal of competing vegetation releasing desirable trees through the use of herbicides. It should be used in situations where mechanical treatment is not expected to provide the level of vegetative control needed. Chemicals will be applied in strict accordance with label recommendations, requirements and under the oversight of a certified applicator. A written prescription for each herbicide application will be prepared and kept on file.

820.1.3.3 Non-Commercial Thinning (TSI)

In general, most thinning needs are accomplished through commercial harvest operations. Non-commercial thinning may be considered if the individual site requirements, funding and/or available labor make it desirable.

820.1.3.4 Thinning/Intermediate Cuts

Management of some even aged forest types necessitates the use of commercial thinning, also known as intermediate harvests, to maintain forest health and vigor. Thinning is generally prescribed in forest types such as red pine, red oak, and in cases of even aged hardwood management. Thinning may be prescribed on other even aged types as appropriate and where feasible. Intermediate harvests include prescriptions for residual densities, marking priorities, spacing, crown closure, diameter distribution, or other measurements.

820.2 SILVICULTURAL PRESCRIPTIONS

820.2.1 Even Aged Management

Even aged management maintains a forest stand composed of trees having relatively small differences in age. Typical cutting practices include: clear cutting, shelterwood cutting and seed-tree cutting. Even aged management is generally required to manage shade intolerant, early successional forest types.

820.2.1.1 Aspen

These are types where aspen trees comprise of more than fifty percent (50%) of the stems or basal area. In the forest, aspen types may be dominated by quaking aspen, big tooth aspen or a combination of both. Aspen stands contain a wide variety of associated hardwood and conifer species.

Shade tolerance:	Intolerant
Habitats:	AArVB,AOCa, Avb, AVVb, ArCi, PArVAa
Intermediate treatments:	None
Median rotation age:	48
Primary regeneration method:	Natural/coppice
Harvest method:	Clearcutting
Habitat value:	Early successional species
Economic value:	Fiber production, bolts
Insect disease considerations:	Hypoxylon and other cankers
Trends:	General decline on statewide acreage
Landscape considerations:	Retain/increase acreages, age class diversity

820.2.1.2 Black Spruce

These are types where black spruce make up more than fifty percent (50%) of the stems

or basal area with black spruce predominant. Common associates in Chippewa County are tamarack, white pine, red maple and yellow birch.

Shade tolerance:	Tolerant
Habitats:	AbFnThIx, AbFnThOs, AbFnThAs
Intermediate treatments:	None
Median rotation age:	100
Primary regeneration method:	Natural/seed
Harvest method:	Clearcutting
Habitat value:	Varies by successional stage
Economic value:	Fiber production
Insect disease considerations:	Butt Rots, Dwarf Mistletoe
Trends:	Stable acreage/increasing volume
Landscape considerations:	Maintain stands on poorly drained soils

820.2.1.3 Balsam Fir

These are types where balsam fir makes up more than fifty percent (50%) of the stems or basal area. Common associates in Chippewa County are paper birch, trembling aspen, red maple, white cedar, black spruce, yellow birch and white pine.

Shade tolerance:	Very tolerant
Habitats:	TMC, ArC, AArS, AASM
Intermediate treatments:	Thinning can improve growth
Median rotation age:	50
Primary regeneration method:	Natural
Harvest method:	Cleacutting
Habitat value:	Thermal cover
Economic value:	Fiber production
Insect disease considerations:	Red Heart Rot, Brown Cubical Butt Rot and White Stringy Butt Rot, Spruce Budworm
Trends:	Decline stabilizing/growth increasing
Landscape considerations:	Maintain acreage

820.2.1.4 Oak

These are types where oaks make up more than fifty percent (50%) of the stems or basal area. Common associates in Chippewa County are all northern hardwood species which vary by soil moisture and nutrients with red maple being the most common.

Shade tolerance:	Intermediate
Habitats:	AArVb, ACaCi, AOCa, Avb AVVb, ArCi
Intermediate treatments:	Release, thinning
Median rotation age:	100
Primary regeneration method:	Natural
Harvest method:	Shelterwood, patch selection, clearcutting
Habitat value:	Mast production, varies with succession
Economic value:	Fiber production, Bolts, High quality sawlogs, veneer
Insect disease considerations:	Oak Wilt, Gypsy Moth, herbivory
Trends:	Volume growth, acreage decline, succession
Landscape considerations:	Retain/increase acreage where feasible

820.2.1.5 White Birch

These are types where White birch make up more than fifty percent (50%) of the stems or basal area. Common associates in Chippewa County are aspen, red maple, white pine and other northern hardwood species.

Shade tolerance:	Intolerant
Habitats:	AArVb, ArCi, AVb, AVb-V, PArVAa
Intermediate treatments:	Release
Median rotation age:	65
Primary regeneration method:	Natural
Harvest method:	Seed tree, shelterwood, clearcutting
Habitat value:	Early successional species
Economic value:	Fiber production
Insect disease considerations:	Bronze Birch Borer
Trends:	Declining volume and acreage
Landscape considerations:	Maintain acreage

820.2.1.6 Red Maple

These are types where red maple make up more than fifty percent (50%) of the stems or basal area. Common associates in Chippewa County are all northern hardwood species which vary by soil moisture and nutrients.

Shade tolerance:	Mid-tolerant
Habitats:	AArVb, AOCa, ArCi, Avb, ParVa
Intermediate treatments:	Thinning
Median rotation age:	80
Primary regeneration method:	Natural
Harvest method:	Clearcutting, shelterwood, patch selection
Habitat value:	Varies with succession
Economic value:	Fiber production, sawlog potential
Insect disease considerations:	Defoliating insects, borers, cankers
Trends:	Growing volume and acreage
Landscape considerations:	Age class diversity

820.2.1.7 Red Pine

These are types where red pine make up more than fifty percent (50%) of the stems or basal area. Common associates in Chippewa County are white pine, red maple, white birch and aspen.

Shade tolerance:	Intolerant
Habitats:	AArVb, AVb, AVVb, ArCi, PArVAa, PVCr
Intermediate treatments:	Release, thinning
Median rotation age:	80
Primary regeneration method:	Artificial, planting
Harvest method:	Clearcutting
Habitat value:	Thermal cover
Economic value:	Fiber production, utility poles, sawlogs
Insect disease considerations:	Armillaria, HRD, Diplodia, Sirococcus
Trends:	Growing volume and acreage
Landscape considerations:	Older age classes are under represented

820.2.1.8 Swamp Hardwood

These are types where Black ash make up more than fifty percent (50%) of the stems or basal area. Common associates in Chippewa County are tamarack, white pine, white cedar.

Shade tolerance:	Mid-tolerant
Habitats:	FnThAbAt, FnAbArOn, ThAbFnC
Intermediate treatments:	Thinning
Median rotation age:	100
Primary regeneration method:	Natural, artificial likely for future stands
Harvest method:	Clearcut, patch selection, shelterwood
Habitat value:	amphibians, rare plants
Economic value:	Fiber production, bolts, sawlogs
Insect disease considerations:	Emerald Ash Borer (EAB)
Trends:	Growth and Acreage declines due to EAB
Landscape considerations:	Planting/conversion to non-ash species

820.2.1.9 Tamarack

These are types where Tamarack make up more than fifty percent (50%) of the stems or basal area with tamarack predominant. Common associates in Chippewa County are white cedar, white pine, black spruce and balsam fir.

Shade tolerance:	Very tolerant
Habitats:	PCS, PO, TMC, TTM, TTS,
Intermediate treatments:	Thinning
Median rotation age:	70
Primary regeneration method:	Natural, artificial potential
Harvest method:	Clearcutting, strip cut, seed tree
Habitat value:	amphibians
Economic value:	Fiber production
Insect disease considerations:	Eastern Larch Beetle, Armillaria
Trends:	Growing volume and acreage
Landscape considerations:	Increase acreage, plant as ash alternative

820.2.1.10 White Cedar

These are types where White Cedar make up more than fifty percent (50%) of the stems with white cedar predominant. Common associates in Chippewa County are tamarack, white pine, black spruce, aspen, red maple, ash, balsam fir and yellow birch.

Shade tolerance:	Tolerant
Habitats:	TTM, TTS, PO, PCS
Intermediate treatments:	Release, thinning
Median rotation age:	100
Primary regeneration method:	Natural, artificial may be required
Harvest method:	Clearcutting, strip cuts, shelterwood
Habitat value:	Thermal cover, browse
Economic value:	Sawlogs, specialty products
Insect disease considerations:	White stringy and brown cubical butt rotts
Trends:	Growing volume, older age class
Landscape considerations:	Regenerate where feasible

820.2.1.11 White Pine

These are types with more than fifty percent (50%) of the stems or basal are in pine with white pine predominant. Common associates in Chippewa County are aspen, white birch, oak, tamarack, red pine, red maple, white spruce and yellow birch.

Shade tolerance:	Intermediate
Habitats:	AArVb, AVb, AVVb, AOCa, ATD
Intermediate treatments:	Release, thinning
Median rotation age:	150
Primary regeneration method:	Artificial, natural in other timber types
Harvest method:	Clearcutting, shelterwood, seed tree
Habitat value:	Varies with succession, thermal cover
Economic value:	Fiber production, sawlogs
Insect disease considerations:	White pine blister rust, tip weevil, armillaria
Trends:	Growing volume
Landscape considerations:	Release component in other timber types

820.2.2 Uneven-Aged Management

Uneven-Aged Management promotes a forest stand composed of trees in various age and size classes. The typical cutting practice is selection cutting, where individual trees are removed from the stand. Regeneration is continually occurring after the stand is cut. Uneven-aged management is generally used to manage shade tolerant forest types.

820.2.2.1 Northern Hardwood

These are stands dominated by shade tolerant and mid-shade tolerant species. In Chippewa County, northern hardwood stands are typically dominated by sugar maple, oak, basswood and ash. Common associates in Chippewa County are red maple, yellow birch, paper birch, aspen, balsam fir, bitternut hickory, hemlock, red pine, white pine.

Shade tolerance:	Tolerant to mid-tolerant
Habitats:	AArVb, ArCi, AVb, AOCa, ATiSa, ATiCa,
Intermediate treatments:	Timber stand improvement, release
Median rotation age:	N/A
Primary regeneration method:	Natural – all aged regeneration
Harvest method:	Single tree selection, patch selection
Habitat value:	Late successional species, continuous cover
Economic value:	Fiber production, bolts, sawlogs
Insect disease considerations:	Emerald ash borer, oak wilt, herbivory
Trends:	Growing volume and acreage
Landscape considerations:	Succession converting other types

820.3 LOCALLY UNCOMMON TREES/FOREST TYPES

The presence or lack of a particular tree species is dependent on land capability, climate, natural range, natural or human disturbance and many other factors. Trees considered uncommon in the County Forest (e.g. butternut, jack pine) may be left as reserves in even aged management prescriptions or in all-aged single tree selection harvests.

820.4 FOREST TYPES REQUIRING INTENSIVE EFFORT TO REGENERATE

There are certain forest types within the County Forest that are difficult to regenerate. In many cases, this difficulty may be related to the exclusion of fire from the landscape, deer herbivory or other factors. The following list itemizes forest types with difficult regeneration and County management goals:

820.4.1 White Birch

White birch is a shade intolerant species normally found in even aged stands. White birch evolved to regenerate after disturbances such as fire. The County is committed to retain as much of the existing acreage of white birch as possible. Regeneration efforts will include scarification to prepare a seed bed in concert with shelterwood or seed tree harvests.

820.4.2 Northern Red Oak

Northern red oak is a shade intolerant to mid tolerant species found in primarily even aged stands. Northern red oak requires large scale disturbance to create a bare mineral soil and full sunlight conditions in order to regenerate. Herbivory can be a limiting factor on regeneration success. The County is committed to retain as much of the existing acreage of northern red oak as possible. Regeneration efforts will focus on timing soil scarification with good acorn crops and shelterwood or patch clearcut harvests. Regeneration efforts may also require prescribed burning and chemical, or mechanical release to free seedlings from competing vegetation.

820.4.3 White Cedar

White cedar is a shade tolerant species found in primarily even aged stands. The County is committed to retain as much of the existing acreage of white cedar as possible. Past management has been limited due to poor regeneration and the difficulty of operations on moist soils where these stands exist. White cedar germination and seedling establishment rates are best at half to full sunlight on exposed soils. Herbivory can be a limiting factor on regeneration success. Regeneration efforts will focus on soil scarification, through harvesting operations or mechanical treatment, in concert with shelterwood, seed tree or strip clearcut harvests. Regeneration may require chemical or mechanical release to free seedlings from competing vegetation.

820.5 INVASIVE PLANT SPECIES OF CONCERN

Invasive plants can cause significant damage to the forest. Invasive species can displace native plants and hinder the forest regeneration efforts. Preventing them from dominating forest understories is critical to the long-term health of the forest. There are a number of invasive plant species in varying densities in the County Forest. Some warrant immediate and continual treatment efforts while others may be allowed to remain due to extent and financial ability to control them. The County will continue to train staff in invasive species identification as well as attempt to secure funding sources to control them as much as is practical, see Section 610.5.

820.6 LEGALLY PROTECTED AND SPECIAL CONCERN PLANT SPECIES

There are plants in Wisconsin that are protected under the Federal Endangered Species Act, the State Endangered Species Law, or both. In the County Forest, no one may cut, root up, sever, injure, destroy, remove, transport or carry away a listed plant without a valid endangered or threatened species permit. There is an exemption on public lands for forestry, agriculture and utility activities under State law. The County will, however, make reasonable efforts to minimize impacts to endangered or threatened plants during the course of forestry/silviculture activities (typically identified in the timber sale narrative).

The Wisconsin Department Natural Resources Bureau of Natural Heritage Conservation tracks information on legally protected plants with the Natural Heritage Inventory (NHI) program. The NHI program also tracks Special Concern Species, which are those for 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.

The County has access to this data under a license agreement and is committed to reviewing this database for endangered resources that may occur within proposed land disturbing project areas.

820.7 TREE RETENTION GUIDELINES

Chippewa County is committed to following the tree retention guidelines outlined in the *Silvicultural Handbook (2431.5),* Chapter 24 "Tree Marking and Retention Guidelines: The Silvicultural Practice of Selecting Tree to Retain and Remove".

820.8 BIOMASS HARVESTING GUIDELINES

Chippewa County is committed to following the guidelines outlined in *Wisconsin's Forestland Woody Biomass Harvesting Guidelines: Field Manual for Loggers, Landowners, and Land Managers*, Pub-FR-435.

825 ANIMAL SPECIES MANAGEMENT

The County Forest provides a wide range of wildlife habitats from open grasslands/barrens to mature forests, from bogs to forested wetlands, from spring ponds to lake shorelines. A primary goal of wildlife management in the County Forest is to provide a diversity of healthy ecosystems necessary to sustain and enhance native wildlife populations. This forest will be managed primarily to provide habitats for a suite of species rather than focusing on a specific species, with exceptions made for Federal or State Listed Endangered or Threatened Species.

825.1 TECHNICAL PLANNING

Management of wildlife populations in the County Forest falls under the jurisdiction of the DNR. Planning may be a cooperative effort of the County Forest staff, DNR liaison forester and wildlife manager in formulating management plans and utilizing forest and wildlife management techniques to accomplish desired forest and wildlife management goals.

825.2 GUIDELINES

DNR operational handbooks, including the *Public Forest Lands Handbook (2460.5)*, manual codes and guidance documents are important references and guidelines to utilize in fish and wildlife planning efforts.

825.3 INVENTORY

Habitat needs will be determined by analysis of forest reconnaissance information. Population estimates will be conducted periodically by DNR wildlife, endangered resources personnel, and other trained cooperators. Currently, Department Wildlife staff conduct surveys on or adjacent to the County Forest. The Natural Heritage Inventory Program produced the *Biotic Inventory and Analysis of the Chippewa County Forest* in 2005. Beaver Creek Reserve produced the *Biotic Inventory of Five Flowages Within the Chippewa County Forest* in 2015. These documents are available upon request to the County Forest Administrator.

825.4 RESOURCE MANAGEMENT CONSIDERATIONS FOR WILDLIFE

General Management Policies

Forest management practices may be modified to benefit wildlife and diversity. The following will be considered when planning for management activities:

- Even aged regeneration harvests (clearcuts) should vary in size and shape and include retention considerations.
- A diversity of stand age, size and species.
- Mast-bearing trees and shrubs, cavity 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 for water quality (BMPs).

825.5 IMPORTANCE OF HABITATS

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:

825.5.1 Non-Forested Wetlands

The County Forest contains 5,821 acres of non-forested wetland types providing a variety of habitats for common, rare and endangered species. Emergent wetland, sedge meadow, muskeg bog and deep marsh provide habitat for species such as wood turtle, black tern, American bittern, and numerous other species.

825.5.2 Aquatic Habitats

The County Forest includes 1,979 acres of lakes, rivers, streams, ponds and other aquatic habitats. Open water provides habitat for species such as wood duck, boreal chorus frog, water shrew and many other species reliant on water related resources.

825.5.3 Shoreline and Riparian Areas

Undisturbed shoreline and riparian areas present in the County Forest provide habitat for species such as red shouldered hawk, green frog, and woodland jumping mouse.

825.5.4 Early Successional Forests

Management of aspen, white birch, jack pine and other shade intolerant species creates habitat for a large suite of wildlife species that benefit from early successional forests. In the County Forest, there are currently 9,234 acres of these forest types present. This is a key habitat used for recreational hunting activities, providing conditions favorable for American woodcock, ruffed grouse, white-tailed deer and non-game species such as golden-winged warbler, Kirkland's warbler and black-billed cuckoo.

825.5.5 Conifers

Conifers, whether jack pine, white pine, spruce, fir or other types appear to be an important habitat for a number of wildlife species. The County Forest currently has 6,691 acres of coniferous habitat. Connecticut warbler, red crossbill, northern flying squirrel, and many others utilize conifer types.

825.5.6 Oak Management

Oak is an important mast-producing food source in the forest, providing acorns for a wide variety of game and non-game species. The County Forest has 6,377 acres of oak habitat. It is considered a critical resource to retain on the landscape for both its timber and wildlife value, providing habitat for species such as scarlet tanager, wood thrush, red headed woodpecker, and black bear.

825.5.7 Uneven/All Aged Management

Management of uneven aged stands provides for multi-storied canopies, diverse age structure and potentially older forest characters. The County Forest has 3,822 acres being managed under an all-aged management system. Species such as Canada warbler, little brown bat, black throated blue warbler and many others benefit from these forest type. In addition, numerous amphibian and reptiles utilize these forest types.

825.5.8 Large Forest Blocks

Large blocks of County Forest provide habitat for numerous interior species. Gray wolf, black throated blue warbler, Canada warbler and Least flycatcher are a few examples of animals that rely on these large blocks.

825.5.9 Grasslands, Openings, Upland Brush

Wildlife openings, grass right-of-ways, natural openings, upland brush and other upland open habitats provide for diversity and unique habitats benefitting pollinators and numerous species. County Forest currently has nineteen (19) acres identified as open grassland or upland brush habitat.

825.6 INTENSIVE WILDLIFE MANAGEMENT PROJECTS

Chippewa County does not currently have any Integrated Resource Management Units (IRMU) which would define objectives for intensive wildlife management.

825.6.1 Wisconsin Wildlife Action Plan/Species of Greatest Conservation Need (SGCN)

In addition to species listed as endangered, threatened or special concern within the NHI database, the Department also maintains a statewide list of species of greatest conservation need.

This list includes species that have low or declining populations and may be in need of conservation action. The list includes birds, fish, mammals, reptiles, amphibians and insects that are:

- Already listed as threatened or endangered.
- At risk due to threats.
- Rare due to small or declining populations.
- Showing declining trends in habitat or populations.

The WWAP working list can provide information on how management activities may impact, or in many cases, benefit species of greatest conservation need. More information is available on the WWAP website: *https://dnr.wi.gov/topic/wildlifehabitat/actionplan.html* .

825.7 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.

825.7.1 Technical Planning and Surveys

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)*. Water and Population Surveys fall under the jurisdiction of the Department and will be conducted as needed by fisheries biologists.

825.7.2 Special Projects

Chippewa County works with DNR Fisheries Biologists to obtain permits and grants related to creating and enhancing habitat through fish cribs, tree drops and stocking projects on a regular basis.

825.7.3 Shoreland Zoning

One of the permitted uses, which does not require issuance of a zoning permit listed in Section 55-28.(1)(e) of the Chippewa County Shoreland Zoning Ordinance, is: "The practice of silviculture, including planting, thinning, and harvesting of timber". Timber harvesting is allowed on a parcel with ten (10) or more acres of forested land, provided that accepted forestry management practices are followed. Vegetation removal beyond the 35 foot buffer is allowed following accepted forest conservation practices, which protect water quality.

825.7.4 Access and Development

Access and development of County Forest waters will be limited to those activities consistent with the above water management policies.

825.7.5 Important Water Resources

The Chippewa Moraine lakes, Dorothy Lake and Townline Lake, listed in the next section, all have unique characteristics which qualify them for State Natural Area designation.

830 EXCEPTIONAL RESOURCES, UNIQUE AREAS

830.1 HCVF FOR FSC® AND DUAL CERTIFIED COUNTIES

The DNR established criteria for establishing HCVFs on State lands is found below. For the purpose of this plan, the County recognizes this criterion for identifying HCVFs on County land. This does not preclude the County from identifying other unique areas that do not meet the definition of HCVFs.

https://dnr.wisconsin.gov/sites/default/files/topic/TimberSales/DNRLandsHCVFSelectionCriteriaFinal.pdf

HIGH CONSERVATION AREAS

1. Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values, including RTE species.
2. Forest areas containing globally, regionally or nationally significant large landscape level forests, contained within or containing the management unit, where viable populations of most, if not all, naturally occurring species exist in natural patterns of distribution and abundance.
3. Forest areas that are in or contain rare, threatened or endangered ecosystems.
4. Forest areas that provide basic services of nature in critical situations (e.g., watershed protection). **Wisconsin does not have known locations meeting this criterion.**
5. Forest areas fundamental to meeting basic needs of local communities (e.g. subsistence, health of indigenous communities) **Wisconsin does not have known locations meeting this criterion.**
6. Forest areas critical to local communities' traditional cultural identity (e.g. areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

Chippewa County worked with the Natural Heritage Inventory Program to evaluate which areas should be designated HCVFs, as described in the *Criteria for Selection of High Conservation Value Forests* and mirrors State policy, as described in *Crosswalk of High Conservation Value Forests Requirements* and WDNR's *Planning and Management for State Forests*. These documents are available upon request to the County Forest Administrator. The HCVFs in the County Forest are the State Natural Areas listed in 830.2.1, with the exception of Chippewa Moraine lakes, which has no forest included in the designated area.

830.2 AREAS RECOGNIZED BY STATE OR FEDERAL GOVERNMENT

830.2.1 State Natural Areas

Chippewa County manages a variety of property designations, including Wisconsin State Natural Areas (SNA). The SNA system represents the wealth and variety of Wisconsin's native landscape. The SNA program has worked with Chippewa County to further recognize outstanding examples of native biotic communities. Chippewa County maintains land ownership, management and decision-making authority, but with cooperative recognition of these sites, the County can provide a broader range of opportunities and experiences for citizens of the County and State.

DNR Ecologist staff will work cooperatively with the County by coordinating educational, monitoring and research activities. Assistance with management projects can provide the County with additional expertise to accomplish resource management goals. Management decisions will endeavor to protect the unique character of these designated areas.

830.2.1.1 Chippewa Moraine Lakes #618 (HCVF 1.2)

Chippewa Moraine Lakes features a dense concentration of nine (9) lakes in a relatively natural state, situated within the morainal topography of Chippewa County just west of the Chippewa River. Lakes include Camp, Spence, Plummer, Little Plummer, Bass No. 1, Bass No. 5, Deer, Fishpole, and Burnt Wagon. Each exhibit differences in plant species composition and population densities due to depth, alkalinity, and shore features. An open floating mat surrounds the six (6) acre Camp Lake. Sphagnum mosses and white beak-rush are dominant with small cranberry, tawny cotton-grass, few-seeded sedge, and leatherleaf also present. The lake's hydrology appears relatively intact and numerous openings in the mat support northern yellow-eyed grass, narrow-leaved sundew, rose pogonia, and grass pink. Fishpole Lake is a soft-water meromictic lake with a depth of twelve (12) feet. Meromixis, the permanent thermal stratification of the water, results from the lake having an extremely small surface area in comparison to its depth. The lake never "turns over" and circulates as the water temperature changes in the spring and fall, as is typical of most other Wisconsin lakes. Instead, its waters stay stratified

creating unusual chemical and biological layers. Spence Lake is an acid bog lake having a small outlet that is the headwaters of Foster Creek. Plummer Lake is a forty-one (41) acre deep hard-water seepage lake with a small outlet stream to Bob Creek. Wood ducks nest here. Little Plummer Lake is a ten (10) acre hard-water seepage lake with an outlet stream to Plummer Lake and the Mud Creek drainage system. It is a wilderness-type lake with no access roads or private development. Fish include northern pike, largemouth bass, perch, bluegills, rock bass, pumpkinseed, and bullhead. Mallards, wood ducks, and mergansers use the lake area for nesting. Bass Lake No. 1 (Town of Birch Creek) is a six (6) acre soft-water seepage lake with an intermittent outlet to Mud Creek. Bass Lake No. 5 is a deep, hard-water seepage lake with a small inlet from Bass Lake No. 4 and a small outlet that is the main headwaters branch of Mud Creek. The fifteen (15) acre Burnt Wagon Lake is a landlocked, soft-water seepage lake with no development. Chippewa Moraine Lake is owned by Chippewa County and DNR (Plummer Lake). The site was designated a State Natural Area in 2010.

830.2.1.2 Deer Fly Swamp #618 (HCVF 1.1)

Situated within uneven end moraine, Deer Fly Swamp is a high quality white pine swamp in a perched, shallow depression occupying the headwaters of Fish Pole Lake. This natural community type white pine/red maple swamp is rare in Wisconsin and even rarer within this morainal landscape. Most are concentrated in and around the bed of extinct Glacial Lake Wisconsin in the Central Sand Plains Ecological Landscape. White pine and tamarack are the canopy and subcanopy dominants with red maple, yellow birch, and black spruce as associates. Trees range from 8-24 inches in diameter. The shrub/sub-shrub layers are diverse and moderately dense with winterberry, mountain-holly, and huckleberry most prevalent. The stand has fair development of structure with coarse woody debris, snags and tip-ups, and microtopography; the site goal is to encourage old-growth characteristics. About twenty-five (25%) of the area is mucky water filled hollows

and the remainder Sphagnum-dominated hummocks. Cinnamon fern and three-leaved false solomon's seal are the dominant herbs. Deer Fly Swamp is owned by Chippewa County and was designated a State Natural Area in 2010.

830.2.1.3 Dorothy Lake #630 (HCVF 1.2)

Dorothy Lake features a diverse mosaic of natural communities and supports numerous rare plant and animal species. Dorothy Lake is a 5.2 acre soft-water seepage lake and supports an extremely diverse invertebrate fauna. A small, soft-water unnamed lake is found just north of Dorothy Lake in an open wetland with an intermittent outlet into Mud Creek. Two (2) other unnamed lakes are located just south of Dorothy Lake, the smallest of which supports a high quality floating poor fen border. Surrounding the lakes is northern dry-mesic forest with mature white pine, red pine, and red oak. High quality wetlands between and adjacent to the lakes are rich in plant species diversity. Four rare plants are supported here. Dorothy Lake is owned by Chippewa County and was designated a State Natural Area in 2010.

830.2.1.4 Tealey Creek Cedars #632 (HCVF 1.1)

Tealey Creek Cedars occupies a low terrace along the lower end of Tealey Creek, just above its confluence with Mud Creek, where it drains off hilly end moraine and through gently rolling ground moraine. The site supports a high conservation value forest of high-quality white cedar-black ash swamp. White cedar is rare in this part of the state, and this swamp represents the largest and best quality example of this community type in the County Forest. Many of the cedars are 18 inches in diameter. Balsam fir and red maple are canopy associates. The swamp has a diverse structure, including frequent blowdowns, tip-up mounds, fallen trees, snags, and hummock-hollow microtopography. Disturbances appear to be minimal at this site, although water level alteration by beaver is a concern for the rare plants found here. Tealey Creek Cedars is owned by Chippewa County and was designated a State Natural Area in 2010.

830.2.1.5 Townline Lake and Woods #617 (HCVF 1.2)

Town Line Lake and Woods features a large, second-growth block of medium aged,

dry-mesic forest in an area of rough morainal topography, dotted with kettle lakes and wetlands. Dominant trees include red oak, white oak, red maple, and big-tooth aspen. The importance of the canopy species varies locally within the block and scattered large individual trees are present. Other trees present include black cherry, paper birch, basswood, white ash, and white and red pines. White ash and red maple are the most common saplings, and the tall shrub layer is composed of maple-leaf viburnum, beaked hazelnut, and witch-hazel. Characteristic herbs are big-leaf aster, lady fern, pointed tick-trefoil, naked tick-trefoil, wild geranium, sweet cicely, early meadow-rue, hog peanut, American starflower, and American lopseed. Some areas are comprised of mostly northern plant species such as huckleberry, early low-blueberry, wintergreen, and narrow-leaved cow-wheat. Several small seepage lakes and kettle wetlands are also present including poor fen, tamarack swamp, and emergent marsh. Small, scattered patches of wet-mesic white pine-yellow birch-black spruce forest are found within the area. Town Line Lake is a forty-eight (48) acre soft-water seepage lake with an intermittent outlet to the O'Neil Creek drainage system. Breeding birds include common loon, red-shouldered hawk, red-headed woodpecker, least flycatcher, winter wren, veery, wood thrush, blue-winged warbler, golden-winged warbler, ovenbird, and cerulean warbler. Fish include northern pike, largemouth bass and slow growing pan fish. Town Line Lake and Woods is owned by the DNR and Chippewa County. It was designated a State Natural Area in 2010.

830.2.2 State/Federal Scientific Areas

The Chippewa Moraine State Recreation Area, which is one of nine units in the Ice Age National Scientific Reserve, surrounds and has an overlapping blocking boundary with the County Forest, sharing approximately eight (8) miles of adjacent property line. The reserve was established in 1964 to protect the glacial landforms and landscapes in Wisconsin.

830.3 AREAS RECOGNIZED BY COUNTY OR LOCALLY

Chippewa County may contain areas that are locally considered exceptional or unique.

Some are recognized by other agencies, while others are designated only within this Plan. These resources may include wild rivers, lakes, natural areas, geological features or historical/archeological sites.

830.3.1 Geological Features of Significance

The landscape of the County Forest is characterized by the geologic features left by the advance and retreat of the Chippewa Lobe, creating the high-relief Chippewa Moraine, during the Wisconsin Glaciation from 26,000 to 9,500 years ago.

830.4 CULTURALLY SIGNIFICANT SITES

830.4.1 Logging Camps, Dams, Forest History

There are logging camps, dams and ice roads scattered across the forest. Although some locations of ice roads have been mapped in GIS, none of these resources are identified in the Wisconsin Historical Preservation Database. Care is taken to minimize disturbance to these areas when management activity occurs.

835 AESTHETICS

The aesthetic impact of sound forest management practices continues to be a concern of the citizens of Chippewa County and the Land Conservation & Forest Management Committee. Chippewa County will continue to use a system to classify zones with variable levels of importance placed on aesthetics.

835.1 AESTHETIC MANAGEMENT

Aesthetic forest management will be applied to the County Forest. The degree of application of special management will vary and will require classification of the forest according to the degree and type of public use. DNR guidance on aesthetics and Ch. NR 1.24 of Wis. Administrative Code will be used for management prescription guidance. Altered management, visual screens, slash disposal, conversion to other species, no cut zones or other methods may be employed, depending on the circumstances of the specific site.

835.2 AESTHETIC MANAGEMENT ZONES

Aesthetic Management Zones include areas where there may be high levels of public use because of scenic attraction, or some use of the area that would be enhanced by alternative timber management practices.

835.2.1 Aesthetic Management Zone A

Zone A includes areas where there is intensive public presence because of scenic attraction or some use for the area that would be enhanced by alternative timber management practices.

- All parks and some other recreation areas within the forest boundary, including access routes (Otter Lake & Round Lake County Parks).
- Lakes and rivers with significant recreational use.
- Roads with heavy traffic or scenic drives where the majority of traffic is unrelated to the forest or is for the specific purpose of enjoying scenery (County Highways E, G, & M).

Management in Zone A is primarily for scenic values. This will involve adaptations of normal timber harvesting practices (extended rotations, adjusted harvest timing, visual screens or forced conversion to longer lived species) and may require additional expenditures to mitigate visual impacts and maintain scenic quality.

835.2.2 Aesthetic Management Zone B

Zone B includes any area of the forest where the public use is such that no one value is at all times considered as the most important, but where, because of the intensity and variety of use, attention to scenic values is highly desirable.

- Roads with light to medium use, where the majority of traffic is a result of some other use of the County Forest other than for scenic beauty (areas in the IANST view shed).
- Designated recreational trails, as detailed in Section 940.
- Lakes and streams that do not have significant recreational use.

Management in Zone B is for multiple-use, but applies alternative forest management practices to protect scenic values. This may involve adaptations of normal timber harvesting practices (adjusted harvest timing, visual screens, irregular harvest boundaries or restrictions on slash) to mitigate visual impacts. All forest management activities are permissible but should

incorporate sensitivity to aesthetics.

835.2.3 Aesthetic Management Zone C

Zone C includes all areas of the forest not contained in Zones A and B. Any significant public use in this zone is likely to occur only as a result of a specific use of the County Forest (fishing, hunting, trapping).

- The majority of the County Forest is classified as Zone C.

Management is Zone C is to optimize timber production using sound resource management techniques. Natural opportunities to maintain and enhance diversity or scenic quality should be considered.

840 LANDSCAPE MANAGEMENT

The County will make efforts to evaluate surrounding landscapes while managing the County Forest. The County will strive to provide management that compliments the landscapes, but also try to provide for resources or forest types that are lacking or declining within surrounding landscapes.

840.1 CONSERVATION OF 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. Forest management activities in the County Forest enhance biological diversity by managing for a wide variety of habitat types, age structures and by attempting to perpetuate and protect declining forest types.

840.2 HABITAT FRAGMENTATION

For the purposes of this plan, habitat fragmentation is interpreted as conversion of forests to land uses other than forestry. Lands enrolled in the County Forest Law help protect against habitat fragmentation. A continued program of encouraging land acquisition within the County Forest Blocking Boundary is intended to decrease the conversion of forest land to other uses.