MONROE COUNTY FOREST COMPREHENSIVE LAND USE PLAN

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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 on the Monroe County Forest during this planning period.
2. To demonstrate literature and outside resources available to aid in the sustainable management of Monroe County Forest.

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 Monroe 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 Forest is managed on an integrated resource approach.

810 SUSTAINABLE FORESTRY

"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, <u>sustainable</u> <u>forestry</u> 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 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.

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

810.1.3 Soil Surveys

Forestry staff's knowledge of forest ecology and their experience across the landscape can assist in associating forest habitat types and site indices with soil type information. These associations can be beneficial in determining management prescriptions for specific sites. 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

"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 Committee 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.

810.1.6 Best Management Practices for Water Quality

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

Consistent with the aforementioned manual (page 6), Monroe County will use 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, proximity to streams

or lakes, or steep slopes may require mitigating measures in excess of those outlined in the manual. All Monroe County employees practicing forestry will receive BMP training. Additionally, Monroe County will encourage BMP training of all logging contractors that operate on County timber sales.

810.1.7 Fire Management

Reference Chapter 600.

810.1.7.1 Prescribed Fire

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

As the needs are presented to regenerate or maintain timber types or other plant communities, the 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 605.5 of this plan.

810.1.8 Outside Expertise, Studies and Survey

Additional data necessary to make management decisions on the County Forest will be sought from agencies or individuals, who 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 Zoning
- Navigable Streams: WDNR, Army Corps of Engineers, County Zoning
- Floodplains: County 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

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

- Pre-sale treatment of Pennsylvania Sedge
- Planting trial: containerized seedlings vs. bare root stock

815 MANAGEMENT CONSIDERATIONS TO REDUCE LOSS

815.1 RISK FACTORS

To reduce loss due to natural or social factors, such as: wind, fire, invasive species, climate change, and timber markets, Monroe County will continue to maintain a diverse mix of species and age classes on the forest, as well as promote sustainably managed habitats, in order to mitigate the effects of the aforementioned risk factors.

815.1.1 Wind

A healthy forest with diverse age and size classes will help mitigate wind losses. Younger forests are typically less wind-throw prone and can handle adverse weather conditions.

815.1.2 Fire

Due to the historical occurrence of fire in Monroe County, combined with the flammable nature of pine, wildland fires are a factor acknowledged when installing plantations. Fire breaks, access roads, and timing of thinnings are considered to reduce the spread of

wildland fire and minimize the chance of an errant spark igniting a catastrophic fire when live fuel moistures are low, typically in late spring.

815.1.3 Invasive Species

Invasive species have gained a strong foothold in southern Wisconsin forests, including Monroe County Forest. Treating invasive species in an effort to control the spread will continue to be a priority, especially in stands that are slated for harvest. Logging crews and forestry staff are encouraged to follow best management practices when it comes to cleaning equipment to reduce unintentional invasive species spread. Because of the extent of the infestation on Monroe County Forest, forestry staff does not feel the invasive population will ever be completed eradicated, but with effort, education, and planning, the populations may be controlled.

815.1.4 Climate Change

Monroe County Forest is affected by climate change in several ways but not limited to: timing and type of precipitation, soil moisture patterns, and severity and frequency of natural disturbances. By using ecosystem-based adaption strategies, such as promoting a diverse species composition, Monroe County strives to reduce or avoid loss of forest cover. Forests that are diverse in species, age class, and size class may be more suited to persist under uncertain future conditions, while still meeting the goals for forest management.

815.1.5 Timber markets

Timber markets allow the flexibility to manage the forest on a sustainable basis. Without adequate markets for wood, revenue is lost and the ability to manage the forest diminishes. By diversifying species and product offered for sale, Monroe County can reduce the ebbs and flows of uncertain markets.

820 PLANT COMMUNITIES MANAGEMENT

Monroe 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 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 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 in northern hardwood and occasionally in swamp hardwoods (when managing for all aged)

820.1.1.4 Prescribed Burning

Prescribed burning may be utilized as a tool to promote regeneration. A number of forest types in Monroe 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.

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 species. Disturbance that mixes seed into duff and soil layers creates optimal conditions for regeneration of oak, white birch, fir and others. Monroe County

has utilized root rakes, straight blades, anchor chains and brackes for soil scarification. The County is open to other mechanisms for soil scarification as well.

820.1.1.6 Other

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

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 will 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. Chemical 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. Treatments are recorded

by location, herbicide used, and date applied. This information is kept on file at the County Forestry Department office and the DNR Liaison Forester's office.

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. County will make all reasonable efforts 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 from competing vegetation using chain saws or other hand-held equipment; or mowing to release regeneration.

820.1.3.2 Chemical Release

Chemical Release is the removal of competing vegetation from desirable trees through the use of herbicides. It should be used sparingly and in situations where mechanical treatment is not expected to provide the level of vegetative control needed. Chemical 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.

820.1.3.5 Pruning

Pruning is the removal of limbs from lower sections of trees to increase log quality. Some pruning efforts were conducted in the past, but it is not generally recognized as economically viable on the forest.

820.2 SILVICULTURAL PRESCRIPTIONS

820.2.1 Even-Aged Management

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 50% of the stems. On the forest, aspen types may be dominated by quaking or big tooth aspen or a combination of both. Aspen stands contain a wide variety of associated hardwood and conifer species.

Shade tolerance:	Intolerant
Habitats:	PArVAm, AVDe
Intermediate treatments:	None
Median rotation age:	60
Primary regeneration method:	Natural
Harvest method:	Clearcutting with coppice
Habitat value:	Early successional related species
Economic value:	Fiber production / bolts
Insect disease considerations:	Hypoxylon and other cankers
Trends:	General declines on statewide acreage
Landscape considerations:	Retain where possible

820.2.1.2 White Pine

These are types where white pine is the dominant species and pine makes up more than 50% of the stems. Common associates in Monroe County are red oak, black oak, white oak, red pine and aspen.

Shade tolerance:	Intermediate
Habitats:	PVGy
Intermediate treatments:	Intermediate thinning
Median rotation age:	90
Primary regeneration method:	Natural
Harvest method:	Overstory removal
Habitat value:	Important: nesting and mast
Economic value:	Sawlogs, fiber production
Insect disease considerations:	White Pine Blister Rust, White Pine Tip Weevil
Trends:	General increases
Landscape considerations:	Retain where applicable.

820.2.1.3 Red Pine

These are types where red pine makes up more than 50% of the stems. Red pine stands are fairly pure with few associates. The most common associate would be white pine. Others may be jack pine or oak.

Shade tolerance:	Intolerant

Habitats:	PVGy
Intermediate treatments:	Periodic thinning
Median rotation age:	100
Primary regeneration method:	Artificial
Harvest method:	Clearcut
Habitat value:	Cover for wildlife, seed source for birds
Economic value:	Fiber production/bolts/logs
Insect disease considerations:	Diplodia/Annosum
Trends:	Stable
Landscape considerations:	Retain where applicable

820.2.1.4 Scrub Oak

These are types where oak makes up more than 50% of the stems. The most common associates would be white oak, pin oak, and white pine. Northern Red Oak sometimes present.

Shade tolerance:	Moderately Intolerant
Habitats:	PVCr
Intermediate treatments:	Improvement thinning
Median rotation age:	80
Primary regeneration method:	Natural and Coppice
Harvest method:	Clearcut
Habitat value:	Young forest for wildlife
Economic value:	Fiber production/bolts/logs
Insect disease considerations:	Oak wilt, Armillaria
Trends:	Stable to declining
Landscape considerations:	Retain and increase where applicable. Barrens and wildfire considerations.

820.2.2 Uneven-Aged Management

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. There are few northern hardwood stands on the Monroe County Forest. Monroe

County owns other lands within the blocking boundary that have northern hardwood stands.

820.3 LOCALLY UNCOMMON TREES / FOREST TYPES

The presence or lack of a particular tree species (on the County Forest) is dependent on land capability, climate, natural range, natural or human disturbance and many other factors. The following trees and types are considered uncommon on the Monroe County Forest and likely across the general region. These trees may be left as reserves in even aged management prescriptions, or in thinnings and all aged regeneration harvests.

820.3.1 American Elm (Ulmus americana.) is scarce primarily due to Dutch elm disease. Healthy looking elm may be left uncut in hope that they may continue on the landscape as potential resistant seed sources.

820.3.2 Butternut (Juglans cinerea) is declining due to butternut canker. Healthy individuals that appear to be canker free will be reserved in the forest as potential resistant seed sources.

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 Northern red oak

Northern red oak is a shade intolerant to mid tolerant species found in primarily even aged stands. Northern red oak appears to require disturbance to regenerate and herbivory appears to 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 harvests. Regeneration may require prescribed burning to release seedlings from competing vegetation.

820.4.3 Jack Pine

Jack Pine is a shade intolerant species found in primarily even aged stands. Jack pine appears to require disturbance to regenerate. The County is committed to retain as much of the existing acreage of Jack Pine as possible, including installing jack pine plantations were applicable. Regeneration efforts may include soil scarification with a salmon-blade or root rake combined with direct seeding or planting.

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 on 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. An emphasis will be put on controlling invasive species populations in stands that have an upcoming harvest in an effort to prevent spread.

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. On 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.

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

Reserve trees are living trees greater than or equal to 5 inches in diameter, retained after the regeneration period under even-aged or two aged silvicultural systems.

Monroe County Forest will generally follow the tree retention guidance for reserve trees, cavity trees, snags, and mast trees as outlined in the WDNR Silvicultural Handbook (2431.5). Reserve trees may be left in greater numbers in aesthetically sensitive areas, such as along recreational lakes, trails, or major roadways. Any deviations from the WDNR guidance will be noted and justified in the timber sale file. More information can be found at: https://dnr.wi.gov/topic/ForestManagement/guidelines.html.

820.8 BIOMASS HARVESTING GUIDELINES

Biomass harvesting is when entire aboveground forest vegetation is removed, including bark, branches, trunk, leaves and/or needles. Monroe County Forest will follow the current version of Wisconsin's Forestland Woody Biomass Harvesting Guidelines, as published by the WDNR. Deviations will be noted and justified in the timber sale file. Due to the high presence of sandy soils in Monroe County and their low productivity rates, biomass harvesting is not common.

825 ANIMAL SPECIES MANAGEMENT

Monroe 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 on the Monroe 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 on the Monroe 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 the following surveys on or adjacent to the Monroe County Forest:

- Summer deer observations: Conducted statewide by DNR staff annually in August and September to collect data on deer reproduction and presence. This data helps to determine the fawn-to-doe ratio and ultimately deer population estimates. This is not specific to the Monroe County Forest and may or may not

occur each year on the forest, depending on participation from DNR staff and Operation Deer Watch (similar to Citizen Based Monitoring).

- Ruffed Grouse Drumming Surveys: Counts of ruffed grouse drumming activity hear along roadsides are conducted annually throughout the State, including one survey in Monroe County. This survey has been conducted annually since 1964 to determine grouse population trends throughout Wisconsin.
- Frog and Toad Surveys: There are two frog and toad survey routes in Monroe County. Survey routes consist of 10 sites which are monitored three times yearly by volunteers: April 8-30; May 20- June 5; July 1-15. Surveys are started at dusk on evenings with wind velocities of 7mph or less. Water temperature is recorded at each stop where possible. The occurrence of each frog species is determined at each site by presence or absence of their call. The abundance of each species is ranked by the relative number of calling individuals.
- Bat Monitoring: Coordinated by Natural Heritage Conservation (NHC), there is no longer a formal widespread effort for this in terms of repeated survey routes.
- Snapshot Wisconsin: This is a partnership to monitor wildlife year-round using a statewide network of trail cameras. The resulting dataset is used to inform DNR management decisions and help us learn more about Wisconsin's wildlife. This is voluntary and Citizen Based Monitoring. There is a subset of this survey, which is specific to the elk reintroduction areas, including the area in Jackson County immediately to the north of the Monroe County Forest. Currently this survey does not occur on Monroe County Forest.
- Carnivore tracking: Carnivore snow-tracking surveys are conducted by both DNR staff and trained volunteers in designated survey blocks where wolf presence has been documented, including one in the northern half of the Monroe County Forest and one on adjacent military lands. The goals of the current survey are to: determine the number, distribution, breeding status, and territories of wolves in Wisconsin; develop a sense of the abundance and distribution of other medium-sized and large carnivores in the State; and to determine the existence of rare carnivores such as the Canadian lynx, cougar, and possibly wolverine.

825.4 RESOURCE MANAGEMENT CONSIDERATIONS FOR WILDLIFE

The following areas of focus are identified for achieving plan objects and for benefit of wildlife.

825.4.1 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 (BMP's).

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 Monroe County Forest contains 469 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 Monroe County Forest includes 38 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 Riparian and other non-managed areas

Undisturbed shoreline and riparian areas present on the forest and 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. On the Monroe County Forest there are currently 318 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 Monroe County Forest currently has 2,037 acres of predominately coniferous habitat; however conifers are substantial components of other forest cover types that are managed on the Monroe County Forest. Connecticut warbler, red crossbill, northern flying squirrel, and many others utilize conifer types. Jack pine areas can be managed to provide temporary barrens habitat providing habitat for Kirtland's warbler and other barren related species.

825.5.6 Oak management

Oak is an important mast producing food source on the forest, providing acorns for a wide variety of game and non-game species. The Monroe County Forest has 3,996 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 Monroe County Forest manages for uneven aged stands where applicable on the landscape. 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 rights-of-way, natural openings, upland brush and other upland open habitats provide for diversity and unique habitats benefitting pollinators, numerous species including upland plover and whip-poor-will. Monroe County Forest currently has 20 acres identified as open grassland or upland brush habitat.

825.6 INTENSIVE WILDLIFE MANAGEMENT PROJECTS

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 Shoreland Zoning

Development and cutting are regulated by WI-BMPs for Water Quality. Also, please see the Monroe County Shoreland Zoning Ordinance (Appendix 1005.2.3) for further information.

825.7.3 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.

830 EXCEPTIONAL RESOURCES, UNIQUE AREAS

830.1 HCVF FOR FSC® AND DUAL CERTIFIED COUNTIES

Monroe County Forest is not a third party certified county forest. This information is retained should the county forest become certified in the future.

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.wi.gov/topic/TimberSales/documents/DNRLandsHCVFSelectionCriteriaFinal.pdf

HIGH CONSERVATION AREAS

- Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values including RTE species.
- 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.
- Forest areas that are in or contain rare, threatened or endangered ecosystems.
- Forest areas that provide basic services of nature in critical situations (e.g., watershed protection). **Wisconsin does not have known locations meeting this criterion.**
- 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.**
- 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).

830.2 AREAS RECOGNIZED BY THE COUNTY OR LOCALLY

Monroe County may contain areas that are locally considered exceptional or unique. Some may be recognized by other agencies. These resources may include wild rivers, lakes, natural areas, geological features or historical/archeological sites. Examples of unique areas that may be recognized locally:

- Wildlife Sites (Hibernacula, Rookeries, Special Habitats)
- Savannas, Barrens.
- Geological Features of Significance
- Endangered or Threatened Species Habitat

830.3 CULTURALLY SIGNIFICANT SITES

Monroe County may contain areas that are culturally significant. Some may be recognized by other agencies. Examples include:

- Burial mounds, cemeteries
- Logging Camps, Dams, Forest History
- Landmarks

None of these areas are known to exist on the county forest.

835 AESTHETICS

Public perception of forestry has changed over the last planning period and in general it appears that the public is much more accepting of the visual impact of sound forestry. In response to this, aesthetic management planning is intended to be much more simplified in this Plan.

835.1 AESTHETIC MANAGEMENT

Aesthetic management techniques may be applied in areas of high visibility or high public use. 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 presence because of scenic attraction, or some use of the area that would be enhanced by special timber management practices.

835.2.1 Aesthetic Management Zone Examples

- Park and recreation areas; McMullen Memorial County Park.
- Roads with heavy traffic or scenic drive.

835.2.2 Aesthetic Management Prescriptions/Options

- Adjustment timing of timber harvesting
- Slash restrictions/requirements
- Staggered Harvests / Visual Screens
- Irregular harvest lines, interrupted sight distances

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 on the Monroe 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 forest blocking boundary is intended to decrease the conversion of forest land to other uses. Fort McCoy Military Installation has supported land acquisition efforts by the Monroe County Forest in locations where residential encroachment to the military boundary is possible. The Township of New Lyme has also been supportive of land acquisitions to limit rural development near Fort McCoy.