

WASHBURN COUNTY FOREST COMPREHENSIVE LAND USE PLAN  
**CHAPTER 800 – INTEGRATED RESOURCE MANAGEMENT**

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*No Revisions*

## **800 CHAPTER OBJECTIVES**

The objective of this Chapter is to communicate to the public, the Committee, Washburn County Board and to the DNR the integrated approach that the Forestry Department will use on the Washburn County Forest during this planning period.

The County Forest is segregated into 15 Integrated Resource Management Units (IRMU's). IRMU chapters identify and summarize the natural resources, social and physical characters and management potential, goals and opportunities. These units are listed in Chapter 3000 of this Plan.

This chapter is meant to help communicate how the Forest is managed, not only to the public, but also to the individuals charged with managing it.

## **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).

The balance of ecological, economic, and social factors is the framework within which the Washburn County Forest is managed. This broad definition describes the context of everything within this Plan. Previous chapters have described many of the social and economic issues.

For the purpose of this Plan, 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.

## **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 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.*

Washburn County recognizes that Integrated Resource Management and Sustainable Forestry are, for the most part, the same management principal.

## 810.1 TOOLS IN INTEGRATED RESOURCE MANAGEMENT

There are many tools and guidelines available to assist with the management of the Forest. Any, or all of the following are used either separately or combined as a means of managing with the best available information.

### 810.1.1 Compartment Reconnaissance

The County will support and utilize the compartment reconnaissance procedures as set forth in the DNR Public Forest Lands Handbook 2460.5. The Wisconsin Forest Inventory and Reporting System (WisFIRS) serves as the data base for housing reconnaissance information.

This forest reconnaissance attaches tabular data to spatial features. Each individual forest type, or stand, has a set of data describing its attributes. The WisFIRS data base is used to analyze resources and assist in the implementation of forest management plans.

### 810.1.2 Geographic Information Systems

The County also maintains software systems for spatial and tabular analysis of data associated with the forest and the forest reconnaissance. These software systems are not only valuable for mapping, but also in helping analyze data at a more in-depth level than is available in the WisFIRS data system. The County will continue to maintain and operate GIS systems and data to aid in developing management prescriptions and in implementing this Plan.

### 810.1.3 Forest Habitat Classification System

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



The Forest Habitat Classification System helps land managers assess the site potential of current stands, identify ecological and silvicultural alternatives, predict the effectiveness of possible treatments and choose appropriate management objectives.

The Washburn County Forest contains conditions for all forest habitats described for Region 1 within the Forest Habitat Classification System, (*PQGCe, PArVAm, AVDe, AAt, ACaCi, ASai, and ArVRp*). Washburn County lies on the eastern edge of Region 1 and there are several habitats normally found in the neighboring Region 3 that are also found on the Forest (*primarily ATM*). Washburn County uses habitat classification primarily on the upland forest habitats as listed below:

**PQGCe** (*Pinus-Quercus/Gaultheria-Ceanothus / White pine-oak/Wintergreen-New Jersey Tea*). PQGCe occurs on excessively drained sands that are generally dry and nutrient poor. Forest management options are somewhat limited and these types are usually best suited for jack and red pine, although pin oak, white pine and aspen are not uncommon. The presumed climax overstory on these sites is assumed to be represented by white pine, pin oak, white oak, red oak, and bur oak.

**PArVAm** (*Pinus-Acer rubrum/Vaccinium-Amphicarpa / White pine-Red maple/Blueberries-Hog peanut*). PArVAm occurs on somewhat excessively drained loamy sands and sands that are dry to dry-mesic and nutrient poor to nutrient medium. This type is generally best suited for management of early successional species, especially aspen. While even aged management presents the best management opportunities, white pine and mixtures of oak can also be found and managed on these habitats. Growth potential for pines (red and white) can also be high. The presumed climax overstory on these sites is represented by white pine, red maple, red oak, and white oak.

**AVDe** (*Acer/Vaccinium-Desmodium / Sugar maple/Blueberry-Pointed-leaved tick trefoil*). AVDe occurs on well drained sandy loams and loamy sands that are dry-mesic and nutrient medium. This type is suitable for most early successional species. Generally early successional species on these sites are aspen types but white birch also presents an opportunity. Oak management can also be feasible. Northern hardwood does occur but generally does not thrive. The presumed climax overstory on these sites is represented by sugar maple, red maple, basswood, and white ash.

**AAAt** (*Acer/Athyrium / Sugar Maple/Lady fern*). AAAt occurs on well to moderately well drained loams that are dry-mesic and nutrient medium to rich. AAAt is the principal habitat for hardwood management in the area. It differs from other hardwood habitats by the complete absence of hemlock and yellow birch and strong representation of red oak and other mid-successional species. Potential for oak management is high and aspen and birch show excellent growth. Northern hardwood, while not optimal for the sites, can show good growth. There are also opportunities to convert northern red oak sites to uneven aged northern hardwood. Northern hardwood sites may also be more appropriate to manage even-aged depending on stand conditions. Presumed climax overstory for this type is sugar maple, basswood, white ash, and red maple.

**ACaCi** (*Acer/Caulophyllum-Circaea / Sugar maple/Blue cohosh-Enchanter's nightshade*). ACaCi occurs on well to moderately well drain soils that are mesic to dry-mesic and nutrient rich to very rich. This type is well suited for management of northern hardwood. Sugar maple is generally a significant component on these sites but other species show stronger representation here than they do on other northern hardwood habitats in Wisconsin. ACaCi typically offers the best opportunity to manage northern hardwood stands under uneven-aged systems. These sites also provide opportunities for diverse species components. The presumed climax overstory for this type is sugar maple, basswood, and white ash.

**ATM** (*Acer-Tsuga/Maianthemum / Sugar maple-Eastern hemlock/Wild lily-of-the-valley*). ATM occurs on well to moderately-well drained sandy loams, and also on silt loams, that are mesic to dry mesic and nutrient medium. This habitat is from the neighboring region 3. It is a very diverse type that represents what was originally the hemlock-hardwood forest. It supports a high number of tree species and growth rates are high for both hardwoods and conifers. Management decisions are influenced by composition and condition of current stands. The presumed climax overstory for this type is sugar maple, hemlock and yellow birch.

**ASal** (*Acer/Sanguinaria-Impatiens / Sugar maple/Bloodroot-Jewelweed*). ASal occurs on poorly drained loams that are mesic to wet-mesic and nutrient rich. This type is very similar to ACaCi except that it is strongly associated with silt loam soils associated with perched water tables. These types are generally very rich in nutrients but usually support hardwood of only

moderate yield and poor tree form. The presumed climax overstory for this type is sugar maple, red maple, basswood, ashes and yellow birch.

**ArVRp** (*Acer rubrum/Vaccinium-Rubus / Red maple/Blueberry-Dwarf raspberry*). ArVRp occurs on poorly drained loamy sands and sands that are mesic to wet mesic and nutrient poor to medium. The type is best suited for aspen, red maple and white pine. It can also support red oak but growth and quality are usually poor. The presumed climax overstory is red maple and white pine.

#### 810.1.4 Soil Surveys

Forestry Department staff knowledge of forest ecology and experiences on the landscape can assist with associating forest habitat type with soil type information. These associations can be beneficial in determining management prescriptions for specific sites. WisFIRS contains some soil survey data. More information can be found on the NRCS website based soil survey.

<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

#### 810.1.5 Ecological Landscapes of Wisconsin

The Wisconsin DNR uses Ecological Landscapes of Wisconsin (WDNR Handbook 1805.1) which is a land classification system based on the National Hierarchical Framework of Ecological Units (NHFEU). These landscapes distinguish land areas with differing ecological characteristics. A combination of physical and biological factors, including climate, geology, soils, hydrology and current land cover are used. These classifications may be a useful tool in ecosystem management. Silvicultural systems are prescribed on a stand level, in recognition of their position within the ecological landscape. More information on how Ecological Landscapes relate to forest management is available within the individual Integrated Resource Management Units of Chapter 3000. The Washburn County Forest lies within 3 of the 16 ecological landscapes defined for Wisconsin. A summary of the three ecological landscapes within Washburn County is listed below and more information is available at:

<https://dnr.wi.gov/topic/Landscapes/index.asp>

Northwest Sands

Climate	Similar to all northern landscapes (mean annual temp 41.3° F)
Geology	Xeric glacial outwash
Soils	Sands over sand or sand mixed with gravel
Hydrology	Seepage and drainage lakes, large wetland complexes, river headwaters
Land Cover	Dry forests (pine, aspen, oak) barrens, grasslands.
Habitat Values	See Chapter 830.6.1 (Wildlife Action Plan data)
Opportunities	Northern dry forest and northern dry-mesic forest Suitable for jack pine, red pine, scrub oak, aspen Opportunity to emulate barrens and historic fire patterns Opportunities for natural white pine and red pine

#### North Central Forest

Climate	Similar to all northern landscapes (mean annual temp 40.3° F)
Geology	End and ground moraines with some pitted outwash
Soils	Sandy loams, sands and silts. Organic soils in wetlands
Hydrology	Major rivers and streams throughout with concentrations of glacial kettle lakes.
Land Cover	Mesic northern forests (northern hardwood, aspen-birch, spruce-fir). Also wet and wet mesic forests along with non-forested wetlands
Habitat Values	See Chapter 830.6.1 (Wildlife Action Plan data)
Opportunities	Mesic, Mesic to Wet Mesic and Wet Mesic Forests Suited for northern hardwood and aspen birch in uplands Swamp conifers and swamp hardwood in wetlands Opportunities for restoration of hemlock hardwood and white pine

#### Forest Transition

Climate	Varies across 200 miles (mean annual temp 41.9° F)
Geology	Glacial till in till plains or moraines. Also floodplain terraces
Soils	Mainly well drained sandy loams
Hydrology	Major rivers drain the landscape and lakes and wetlands are common
Land Cover	Variable, western end is mix of forests, lakes and agriculture.
Habitat Values	See Chapter 830.6.1 (Wildlife Action Plan data)
Opportunities	Mesic to wet mesic, mesic, dry mesic mesic, and wet mesic to mesic forests Wide range of suitability depending on soils

#### 810.1.6 Integrated Pest Management

Integrated Pest Management, for the purpose of this Plan is defined as, “The maintenance of destructive agents 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 for more information.

#### 810.1.7 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 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-093-2010.*

Consistent with the BMP manual, Washburn 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 Washburn County employees practicing forestry, or recreational trail management, will receive BMP training. Washburn County will encourage BMP training for logging contractors that operate on County timber sales.

#### 810.1.8 Fire Management

*See Chapter 600 for information on wildfire and fire suppression.*

Prescribed burning on the County Forest can play an important role in habitat management. Many of the forest communities on the Washburn County Forest originated as a result of wild fires.

As needs to regenerate or maintain timber types or other plant communities are identified, the Committee will examine the costs and benefits of each opportunity. Regulations, costs of completing burns, and risk of breakouts will all have to be considered along with the benefits of vegetative management through prescribed burning.

All prescribed burns will be done in accordance with s.26.12 & 26.14, Wis. Stats., and also with the DNR Prescribed Burn Handbook 4360.5, and in cooperation with the Department of Natural Resources.

#### 810.1.9 Outside Expertise, Studies and Survey

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

- Water Resources – WDNR
- Wildlife/Fishery Resources – WDNR
- Soil Resources – NRCS
- Wetland Resources – WDNR, Army Corps of Engineers, County Zoning
- Navigable Streams – WDNR, Army Corps of Engineers
- Floodplains – County Zoning
- Cultural Resources – WDNR, State Historical Society
- Entomology / Pathology – WDNR
- Endangered Resources – WDNR
- Wisconsin Geological & Natural History Survey (U.W. Extension – mineral resources)
- Other subjects as needed.

#### 810.1.10 Local Silvicultural Field Trials

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

1. Northern Hardwood Salmon Blade Site Prep – 2000
2. Red Oak Prescribed Burning – 2000
3. Jack Pine Seeding – 1980
4. Jack Pine Herbicide – 1993
5. Jack Pine Fire Regeneration – 1981
6. Northern Hardwood Shelterwood – 2005
7. Northern Hardwood Salmon Blade – 2004
8. Northern Hardwood Gaps – 2007
9. Northern Hardwood Thinning Techniques – 1980
10. Red Oak Site Preparation – 1980
11. Red Oak Shelterwood – 1984
12. Red Oak Site Preparation – 1992
13. Red Oak Shelterwood – 1981
14. Swamp Conifer Strip Cut – 1979
15. White Birch Scarification – 1997
16. Swamp Hardwood Regeneration – 2017

## 17. Northern Hardwood Scarification - 2015

A compilation of silvicultural trials on State and County lands is available at:

<https://dnr.wi.gov/topic/forestmanagement/silviculturetrials.html>

There are numerous other older silvicultural field trials identified for the Forest. The list above as well as the list from the prior Plan should be evaluated to determine which trials are appropriate to retain as research projects that have validity in current management. The final list should be submitted to the WDNR for inclusion in their field trial list.

## **815 CLIMATE CHANGE**

The long term impacts of a potentially changing climate on the characters of the forest are unknown at this time. Mitigating prescriptions may be developed as new science and research is developed.

The Climate Change Field Guide for Northern Wisconsin Forests handbook, created by the Northern Institute of Applied Climate Science, *Handler, S., K. Marcinkowski, M. Janowiak, S. Clark, and C. Swanston. 2019*, may be used as a guide for future management adaptations.

Washburn County will make reasonable efforts to remain up-to-date on science pertaining to the vulnerability of the Washburn County Forest to potential climate change impacts and possible management responses. Due to the current inconsistencies in the science, however, climate change initiatives will not be used to replace the County's planning processes, institutional knowledge or management experience. As an adaptive measure, Washburn County will continue to make efforts to diversify forest types wherever reasonable and practical.

At the time of this Plan drafting, the certainty of increasing weather events, such as wind and flooding, appear to be apparent. Mitigating prescriptions for weather related losses and mitigating prescriptions are contained within Section 820.

## **820 MANAGEMENT CONSIDERATIONS TO REDUCE RISK OF LOSS**

Washburn County will consider, alter, and adjust forest management prescriptions as necessary in order to prevent or mitigate risk of financial losses due to damaging agents. In general retaining high value forest products for long terms on the landscape should always be weighed against the risk of losing that product's value in a weather event or other damaging factor.

## 820.1 WIND EVENTS

Extreme weather events seem to be increasing across Wisconsin. Wind events, and subsequent need for timber salvage, has become a more common component of managing the Washburn County Forest. Research relating to climate change does indicate that these types of events are increasing, and are likely to continue to do so.

When blowdown, wind throw and other storm related damages occur, timber values drop drastically from the value normally received for standing wood. In order to try and reduce risk of economic losses, Washburn County will consider the following on a stand level basis:

- In northern hardwood or red oak stands dominated by larger diameter (generally 18" dbh and larger), high quality trees (veneer, prime veneer), consider targeting these stands for regeneration harvests IF they are to be managed as an even aged prescription and IF they are at or near the target age for regeneration (shelterwood or other)
- In northern hardwood or red oak stands dominated by large diameter, high quality trees, on sites not at or near target age for regeneration, apply intermediate treatment (thinning) with adjustments to the order of removal to include economic maturity as one of the standards. This does not mean that all large diameter and high value trees are to be removed, only that field staff will look for opportunities to remove some of these trees within the marking order of removal while maintaining targeted residual basal area, spacing, and other criteria.
- For northern hardwood stands scheduled for all aged regeneration harvest, adjust the order of removal to include economic maturity as one of the criteria. This does not mean that all large diameter and high value trees are to be removed, only that field staff will look for opportunities to remove some of these trees within the marking order of removal while maintaining targeted residual basal area, spacing, and other criteria.
- In red pine stands approaching maturity, consider regenerating stands if growth rates are shown to be declining or stagnant. If growth rates are still vigorous, look for opportunities to remove high value poles where such removal does not result in release of suppressed or intermediate trees and does not result in basal area pockets lower than the stand prescription
- In general, all stands with higher than normal economic value should be evaluated to determine ways to capture certain high value trees in a way that complies with stand prescriptions and does not impact other stand characters.
- In general, final harvests and regeneration on aspen, jack pine, white birch and other even aged stands will be conducted as close to the targeted rotation age as is feasible.



In general these mitigating prescriptions relating to wind events will also minimize economic losses to the County from specific agents such as oak wilt, emerald ash borer, and others.

#### 820.2 FLOODING

In general, flooding events appear to also be on the rise, usually associated with storm systems. These floods tend not to impact forested settings to any great degree and mitigating management prescriptions are usually not necessary. Flooding relating to beaver activity can cause significant impacts to the forest. As a mitigating prescription, Washburn County will review forest stands lying on lowland soils to determine which sites are associated with stream flow and are likely to be at risk of flooding from beaver activity.

Lowland stands associated with flow may be considered for pre-salvage of certain products provided silviculturally sound forestry principals are utilized.

While weather related flooding events generally have a minimal impact on timber, they can be devastating to roads, culverts, bridges and other infrastructure. It is important to monitor rainfall events and inspect County road and trail systems to determine repair needs. The County will also review all external funding activities, especially FEMA and Wisconsin Emergency Management funds when disaster declarations are made.

#### 820.3 MARKETS

Market conditions for certain forest products may be a criterion to use for establishing alternative management techniques. It is important for County Forest staff to have a solid understanding of the value of certain products within existing timber markets. Objectives may be adjusted to capture higher values. Red pine, for example, may have alternate prescriptions in order to produce utility poles, which are generally higher in value than larger sawlog products. Hardwood markets generally have a maximum diameter that the mills are able to saw, which may impact top end diameter in hardwood and oak stands.

Markets can change rapidly and the County will use caution when altering management techniques to satisfy current market trends. Maintaining a forest that is diverse in tree species, as well as product and size classes is likely the best method of providing for long term market goals.

Washburn County is committed to providing forest industry with a long term supply of wood products.

## **825 PLANT COMMUNITIES MANAGEMENT**

Washburn 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 trending objectives
- Wildlife habitat and other natural resources values
- Social needs

### **825.1 SILVICULTURAL PRACTICES / TREATMENTS**

Silviculture is the art and science of controlling forest composition, structure and growth to maintain and enhance the forest for any purpose. These practices are based on research and general 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 may be used as general guidance for management practices used on the Forest.

#### **825.1.1 Natural Regeneration**

As a priority, and 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 method chosen will depend on the biological functions of the target species or forest type.

##### **825.1.1.1 Clearcutting / Coppice**

Clearcutting is a silvicultural method used to regenerate shade intolerant and mid-shade tolerant species. Complete, or nearly complete removal of the forest canopy will stimulate 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 oak, red pine and others. Tree retention guidelines are followed when prescribing clearcut or coppice cuts.

#### 825.1.1.2 Shelterwood / Seed Tree Harvest

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

#### 825.1.1.3 All Aged Regeneration Harvests

All aged regeneration harvests are used in shade tolerant species. Openings in the forest canopy allow regeneration to occur throughout the stand. Over time, multiple entries into the stand will create 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. All aged regeneration harvests are used in northern hardwood and occasionally in swamp hardwood.

#### 825.1.1.4 Prescribed Burning

Prescribed burning may be utilized as a tool to promote regeneration. A number of forest types in Washburn 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, white pine, and other types. Burning will be used as a management tool when safe and practical.

#### 825.1.1.5 Soil Scarification

Scarification is a technique used to prepare a seedbed beneath forest stands scheduled for harvest and regeneration. Mechanical disturbance exposes bare mineral soil, reduces competition, and creates seeding conditions for pine species. Disturbance that mixes seeds into duff and soil layers creates optimal conditions for regeneration of oak, white birch, fir and others. Washburn County uses salmon blades, root rakes and straight blades for soil scarification. Other scarification techniques and/or equipment may be utilized for regeneration projects.

#### 825.1.1.6 Other

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

#### 825.1.2 Artificial Regeneration

When natural regeneration fails, or is likely to fail, 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 usually requires some sort of site preparation followed by seeding or planting.

##### 825.1.2.1 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 tools are used to reduce logging debris to a smaller size, incorporate debris into the soil, clear brush and debris from the site, reduce competition, and to provide suitable seeding/planting conditions.

##### 825.1.2.2 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. Proximity to private lands, residences, water, wetlands and other areas must be considered when selecting both the herbicide and the means of application. Chemicals will be applied in strict accordance with label recommendations, requirements, and under the oversight of a certified applicator. Herbicides on the Washburn County Forest will normally be applied with motorized, ground based equipment or by hand applications.

A written prescription for each herbicide application will be prepared and kept on file. Map and cover sheets included in the application prospectus/field sheets are considered to be sufficient to satisfy written prescription requirements. Field notes shall be captured during the application, including weather conditions, and filed as part of the project file and considered part of the prescription.

##### 825.1.2.3 Prescribed Burning

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

#### 825.1.2.4 Tree Planting / Seeding

Tree planting projects will normally be conducted with hand planting crews. Machine planters are available but costs are generally lower with hand planters and survival rates are higher. 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. Planting or seeding may also be used to maintain a desirable species on the forest. Washburn County will make reasonable efforts to source seed/seedlings from local genetics.

#### 825.1.3 Intermediate Treatments

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

##### 825.1.3.1 Mechanical Release

Mechanical release is the removal of competing vegetation by means other than herbicide or fire. Mechanical release may include releasing young pine plantations from competing vegetation using chain saws or other hand held equipment; or mowing to release regeneration.

##### 825.1.3.2 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 treatments are not expected to provide the level of vegetative control needed. Proximity to private lands, residences, water, wetlands and other areas must be considered when selecting both the herbicide and the means of application. 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. Map and cover sheets included in the application prospectus/field sheets are considered to be sufficient to satisfy written prescription requirements. Field notes shall be captured during the

application, including weather conditions, and filed as part of the project file and considered part of the prescription.

#### 825.1.3.3 Non-Commercial Thinning (TSI)

Most thinnings on the Washburn County Forest can be accomplished through commercial harvest operations. Non-commercial thinning may be considered if the individual site requirements, funding, and/or available labor make it desirable.

#### 825.1.3.4 Thinning / Intermediate Cuts

Many forest types on the Washburn County Forest require intermediate harvests or thinnings. Species such as red oak, conifers and even aged northern hardwood may have thinnings or intermediate cuts prescribed. Thinning may be prescribed in other even aged types as appropriate and where feasible. Intermediate thinnings include prescriptions for residual densities, marking priorities, spacing, crown closure, diameter distribution or other measurements.

### 825.2 SILVICULTURAL PRESCRIPTIONS

This section is intended to generally describe how forest types on the Washburn County Forest are managed. These prescriptions are intended to explain typical management scenarios, although other techniques may be utilized in special circumstances. Forest management can be divided into even aged and uneven (also called all aged) management.

#### 825.2.1 Even-Aged Management

An even aged forest is composed of trees having relatively small differences in age. Typical cutting practices include: clear cutting (coppice), shelterwood, and seed tree cuts. Even aged management is generally required to manage shade intolerant forests, which are normally considered early successional forest types. The following are the major even aged managed forest types, along with Washburn County's general management prescriptions. (Note that there are cases where the specified forest type may reflect the management objective rather than primary species composition).

##### 825.2.1.1 Aspen

These generally are forest types where aspen trees comprise more than 50% of stems. On the Forest, aspen types may be dominated by quaking aspen (*Populus tremuloides*) or big

tooth aspen (*populous grandidentata*) or a combination of both. In general, the heavier soils, as well as some of the driest soils on the County Forest are more likely to contain higher components of quaking aspen, while the sandy loams and loamy sands tend to contain clones of big tooth aspen. Aspen stands usually contain a wide variety of associated hardwood and conifer species.

<u>Shade Tolerance:</u>	Intolerant
<u>Habitats:</u>	Found on all Region 1 upland habitats
<u>Soils:</u>	Nearly all upland soils in Washburn County
<u>Intermediate Treatments:</u>	Traditionally none but may be viable in big tooth
<u>Planned Rotation Age:</u>	55 years but varies due to other concerns
<u>Primary Regeneration Method:</u>	Natural
<u>Harvest Method:</u>	Coppice Harvest
<u>Habitat Value:</u>	Early successional related species
<u>Economic Value:</u>	High – fiber production / bolts
<u>Insect and Disease Considerations:</u>	Hypoxyton, other cankers, phellinus trunk rot, gypsy moth, forest tent caterpillar
<u>Trends:</u>	General decline in statewide acreage
<u>WCF Landscape Goal:</u>	Retain or slightly increase aspen acres

Special Concerns – Through the late 1970’s and early 1980’s aspen was harvested at an accelerated rate as markets became available. This was done to address the backlog of aspen stands due for harvest. Because of this, Washburn County has significant acres clumped into certain age classes. Through this planning period, this bubble will need to be addressed by harvesting selected acreage at younger ages; and later in the plan, harvesting at older ages.

This Plan also recommends monitoring forest tent caterpillar egg masses in order to pre-plan for years with heavy defoliation. If repeated defoliation occurs, salvage of aspen stands may be necessary. See Section 610.3.3

#### 825.2.1.2 Jack Pine

These generally are forest types where jack pine (*pinus banksiana*) makes up more than 50% of the stems. Common associates on the Washburn County Forest are pin oak, aspen and white birch.

<u>Shade Tolerance:</u>	Intolerant
<u>Habitats:</u>	PQGc, PArVAm
<u>Soils:</u>	Sands, loamy sand
<u>Intermediate Treatments:</u>	None recommended
<u>Planned Rotation Age:</u>	50 years
<u>Primary Regeneration Method:</u>	Natural, needs scarification/disturbance
<u>Harvest Method:</u>	Clearcut
<u>Habitat Value:</u>	Early successional related species
<u>Economic Value:</u>	High – fiber production / bolts
<u>Insect and Disease Considerations:</u>	Jack Pine budworm, Ips, tip weevil
<u>Trends:</u>	Drastic decline in statewide acreage
<u>WCF Landscape Goal:</u>	Retain / promote as much acreage as feasible

Special Concerns – on the Washburn County Forest, the jack pine type is considered an ecologically important habitat to maintain on the landscape. U.S. Forest Service Forest Inventory and Analysis (FIA) data continues to show drastic declines in statewide jack pine acreage. On adjacent lands, jack pine areas are converted to other forest types, either by natural succession or by harvest practices with no jack pine regeneration prescriptions. Washburn County will make efforts to regenerate jack pine naturally or to plant jack pine in certain circumstances where natural regeneration is not practical. Chemical applications are often necessary to control competing vegetation.

In addition, it is considered critical to avoid allowing mature/overmature jack pine stands to linger on the forest. Mature sites are prone to heavy losses during jack pine budworm outbreaks and also tend to contain less abundant seed sources. Mature sites should be targeted for regeneration and harvest prescriptions. Washburn County has a significant acreage of single age class jack pine in the Oak Lake fire area. See Section 610.3.1 for more information on jack pine management as well as proposals for addressing the Oak Lake Fire “bubble”.



Jack pine may be managed within a rotation age of 50 to 70 years for fiber production, or longer for log/bolt production although this is not recommended. There are concerns with jack pine budworm mortality if there are significant areas of mature jack pine on the landscape. 41% of the natural origin jack pine acres lie within the area of the 1980 Oak Lake Fire. Even with the establishment of a 50 year target rotation age, there will be significant acreage of jack pine well over 60 years by the time that the jack pine resource is regulated by age and acres. This Plan recommends a rotation age of 50 years for planning purposes, but also recommends re-evaluating this to consider an older rotation age once the Oak Lake Fire area is addressed.

Jack Pine is considered a species that is difficult to regenerate and requires intensive management to retain on the landscape. Intensive site preparation is required in order to achieve abundant regeneration. Jack pine is adapted to regenerate after wildfire and the near complete exclusion of fire from the landscape has resulted in lack of normal jack pine reproduction.

Washburn County developed a scarification technique for successful jack pine regeneration. Sites proposed for sale are pre-harvest scarified with a straight dozer blade to expose bare mineral soil. During harvest, the tops are required to be lopped and scattered to within 18 inches of bare mineral soil. Cones in Washburn County tend to open from the heat of sunlight, rather than needing fire, allowing seed to be released onto a prepared seedbed to germinate. Supplemental seeding may be necessary in cases where cones/seed are insufficient on the site.

The jack pine areas that originated from the Oak Lake Fire appear to be too densely stocked to allow for pre-harvest scarification. These sites will need management in the near future and alternative regeneration techniques need to be tested and prescribed. This Plan recommends post-harvest soil scarification with anchor chain, or other, as a priority trial.

#### 825.2.1.3 White Birch

These generally are types where white (paper) birch (*Betula papyrifera*) makes up more than 50% of the stems. Common associates in Washburn County are aspen, red maple and red oak. Locally, stands may be typed as white birch with less than 50% components. This is done to document management objective rather than stand composition.

<u>Shade Tolerance:</u>	Intolerant
<u>Habitats:</u>	Found on all upland habitats
<u>Soils:</u>	Found on wide range of soils
<u>Intermediate Treatments:</u>	None but stands may benefit from thinning
<u>Target Rotation Age:</u>	60 years
<u>Primary Regeneration Method:</u>	Natural, needs disturbance. Coppice possible
<u>Harvest Method:</u>	Clearcut
<u>Habitat Value:</u>	Early successional related species
<u>Economic Value:</u>	High – fiber production / bolts / sawlogs
<u>Insect and Disease Considerations:</u>	birch leaf miner, birch skeletonizer, bronze birch borer, two-lined chestnut borer
<u>Trends:</u>	Drastic decline in statewide acreage
<u>WCF Landscape Goal:</u>	Retain / promote as much acreage as feasible

Special Concerns – white birch is rarely found in pure stands, but it often appears as a component of other stands. Statewide, white birch acres are declining drastically, primarily due to lack of disturbance (primarily fire).

Washburn County considers this as a species that is difficult to regenerate and a priority species to maintain on the landscape. This plan recommends looking for opportunities to scarify and regenerate white birch wherever reasonably feasible and the County is committed to retaining as much white birch acreage as possible on the Forest. This includes evaluating other oak and hardwood stands with significant birch components for scarification to promote white birch regeneration.

Statewide silvicultural guidance includes recommendations for shelterwood harvests to prevent seedling desiccation. Local experience has shown that pre-sale scarification and clearcut is extremely effective. Mixing of the seed into the upper, organic soil layer appears to be necessary in order to reproduce.

Regeneration trials have been conducted numerous times and the County has found great success with pre-harvest Salmon Blade scarification. Shelterwood/seed tree harvests have proved unnecessary and management prescriptions are for pre-sale scarification followed

by clearcut. Regeneration is typically abundant and also includes significant components of red oak, ash, basswood and other mid-shade tolerant species.

#### 825.2.1.4 Red Pine

These are types dominated by red pine, either as plantations or as natural stands. Common associates in red pine stands are white pine, fir, aspen and oak.

<u>Shade Tolerance:</u>	Intolerant
<u>Habitats:</u>	Found on many upland habitats.
<u>Soils:</u>	Found on wide range of soils, but does better on sands and loamy sands.
<u>Intermediate Treatments:</u>	Yes, frequent thinnings B level stocking
<u>Target Rotation Age Natural:</u>	120-250 years, but variable depending on vigor (see Section 825.3.9)
<u>Target Rotation Age Plantation:</u>	65-90 depending on vigor
<u>Primary Regeneration Method:</u>	Artificial, site prep and hand plant
<u>Primary Regeneration Method:</u>	Natural stands, site preparation, natural seeding, more research/trials needed.
<u>Harvest Method:</u>	Clearcut
<u>Habitat Value:</u>	Barrens characters, conifer dependent species
<u>Economic Value:</u>	High – fiber production / bolts, poles, sawlogs
<u>Insect and Disease Considerations:</u>	Diplodia, HRD, pocket mortality, Ips
<u>Trends:</u>	Aging stands, need for younger forests
<u>WCF Landscape Goal:</u>	Retain existing acreage

Special Concerns – red pine plantations on the Washburn County Forest have been found to decline significantly in growth and yield sometime after the third or fourth thinning. In many cases, scattered tree mortality on these older sites is equal to or greater than the growth rates within these stands. Washburn County has started evaluating growth and yield on these older sites and conducting final harvests at dates earlier than originally projected. These red pine rotation sites will be considered as a priority for replanting to red pine or other conifer.

This Plan recommends continued monitoring of any north and westward progress of HRD across Wisconsin. If HRD is found in Washburn or adjacent counties, treatment efforts will be necessary. In addition, continued monitoring of red pine plantations for Red Pine Pocket Decline is also important. See Sections 610.3.6 and 610.3.7

#### 825.2.1.5 Red Oak

These generally are stands dominated by more than 50% northern red oak (*Quercus rubra*). Common associates are aspen, white pine, red pine, red maple and white birch. Oak can be found in fairly pure stands or as a component of others.

<u>Shade Tolerance:</u>	Intolerant to mid-tolerant
<u>Habitats:</u>	PArVAm, AVDe, AAt, ACaCi
<u>Soils:</u>	sandy loam, loamy sand, silt loam.
<u>Intermediate Treatments:</u>	Yes, frequent thinnings to B level stocking
<u>Target Rotation Age:</u>	80 – 150 years, variable depending on vigor/site
<u>Primary Regeneration Method:</u>	Natural, shelterwood, site prep
<u>Harvest Method:</u>	Clearcut
<u>Habitat Value:</u>	Mast, multi storied canopies, early succession
<u>Economic Value:</u>	Very high – sawlogs, veneer, bolts, firewood
<u>Insect and Disease Considerations:</u>	Oak wilt, two-lined chestnut borer, Gypsy moth
<u>Trends:</u>	Aging stands, need for younger forests
<u>WCF Landscape Goal:</u>	Retain existing acreage, unless viable NH site

Special Concerns – Washburn County has significant red oak acreage and nearly all of it is originated in the 1930's. As these stands age, Washburn County will have to determine how to handle regeneration of a majority of this acreage over a short period of time. It is critical to look for opportunities to regenerate oak, under a variety of mechanical prescriptions, during years with good acorn crops. Washburn County will also analyze all oak sites to determine which of the richer sites are more suited to push towards northern hardwood, with oak components; and a harvest schedule for other sites that is based on habitat and soil conditions. Significant investments may be needed to accomplish these goals.

Northern red oak is considered a species that is difficult to regenerate and requiring intensive management efforts. On richer sites, northern hardwood competes readily with red oak. On other, less nutrient rich sites, red oak may be found as more dominant. In the absence of ground disturbance, types dominated by oak tend to develop understories of northern hardwood, red maple, or other species, depending on the characteristics of the site. The difficulty in regenerating red oak appears to be directly related to the exclusion of wildfire from the landscape.

Washburn County has found a great deal of success using a number of techniques that provide disturbance of the leaf and duff layer, coupled with good acorn crops. The difficulty has been preventing red oak regeneration from being outcompeted by other hardwood species and from excessive browsing by deer. Washburn County has determined that Salmon Blade, or root rake scarification, during or after a good acorn crop dropping on to the forest floor is the most effective method of regenerating red oak. This scarification is coupled with a shelterwood harvest. Shelterwood removal is prescribed once adequate numbers of seedlings/saplings are established. Release of seedlings/saplings from competing vegetation appears to normally be necessary. Release may be in the form of burning, mowing, or other treatment.

Annual monitoring flights, along with ground checks for oak wilt is critical to the future health of red oak stands on the Forest. In addition, the County shall also monitor potential stresses on oak stands (such as drought) and consider seasonal restrictions to minimize Two-lined chestnut borer damage. See Section 610.3.2. Egg mass surveys for Gypsy moth are also recommended. See Section 610.3.8

#### 825.2.1.6 Northern Hardwood

In most cases, northern hardwood types are intended to be managed as uneven aged. Washburn County does consider management of northern hardwood under even aged prescriptions when dealing with certain stand conditions (generally lack of regeneration, growth rate response, or degraded stands). Northern hardwood stands managed under even aged prescriptions could be considered for future un-even aged management after successful even aged regeneration harvests. See Section 825.2.2.1 for more information on northern hardwood management.

Emerald Ash Borer is likely to have an impact on northern hardwood stands during this planning period. Section 610.3.5 has additional information on mitigating strategies for EAB.

#### 825.2.1.7 Swamp Hardwood

Swamp Hardwood stands have variable compositions across the region. On the Washburn County Forest, they are dominated by black ash (*Fraxinus nigra*), with components of red maple (*Acer rubrum*), elm (*Ulmus spp.*), and scattered inclusions of northern hardwood species. Swamp hardwood stands may be managed as even or all aged.

<u>Shade Tolerance:</u>	Mid-tolerant to tolerant
<u>Habitats:</u>	ArVRp, ASal, wetland habitats
<u>Soils:</u>	muck, perched soils
<u>Intermediate Treatments (even aged):</u>	Yes, thinnings B level stocking
<u>Intermediate Treatments (uneven aged):</u>	None
<u>Target Rotation Age (even aged):</u>	120 but variable depending on vigor/site index
<u>Rotation Age (uneven aged):</u>	None
<u>Primary Regeneration Method:</u>	Natural
<u>Harvest Method (even aged):</u>	Shelterwood, Strip cuts, overstory removal
<u>Harvest Method (uneven aged):</u>	All aged regeneration harvests
<u>Habitat Value:</u>	Diverse species, forested wetlands
<u>Economic Value:</u>	Moderate depending on markets
<u>Insect and Disease Considerations:</u>	EAB. Other various minor pests
<u>Trends:</u>	Risk of catastrophic losses due to EAB
<u>WCF Landscape Goal:</u>	Retain existing acreage

Special Concerns - Emerald Ash Borer is likely to impact Washburn County within the time frame of this Plan. Our swamp hardwood stands are considered particularly vulnerable, primarily due to their high density of black ash within these stands. It is important for the County to develop a strategy to pre-treat as many of these sites as possible to mitigate financial losses and also to attempt a start conversion to non-ash species. On sites dominated by black ash, complete mortality is likely to lead to site “swamping” and conversion to alder. This effort will be complicated by poor access and operating conditions, as well as markets. See Section 610.3.5

#### 825.2.1.8 Northern White Cedar (*Thuja occidentalis*)

Northern White Cedar is normally managed as an even aged species. It is found in hydric soils on the Forest either as nearly pure stands or as components of swamp conifer stands. Although the species is not scarce, reproduction of cedar is not common. Cedar is considered as a species that is difficult, or requires intensive effort, to regenerate. In general, it appears that cedar regeneration issues are related to deer and small mammal herbivory and until successful and practical regeneration measures are developed, cedar will not be managed. Field trials aimed at regeneration techniques will be permitted.

#### 825.2.1.9 Balsam Fir / White Spruce (*Abies balsamea*, *Picea glauca*)

Both of these species are typically managed as even aged stands. While white spruce exists as plantations, natural stands of spruce, and balsam are considered difficult to regenerate naturally.

Balsam fir exists across a wide range of habitats on the forest and white spruce can be a common associate. While balsam fir is common, pure, or nearly pure stands are not abundant. Balsam can be difficult to regenerate due to lack of a suitable seedbed and competition from other species. Tests with scarification have resulted in some success but more study is needed.

White spruce is generally found only as a component of other stands, or as plantations. This Plan recommends test projects to regenerate white spruce where opportunities are found. There are opportunities to reserve/promote balsam and white spruce in aspen regeneration harvests to provide for diversity.

#### 825.2.1.10 Black Spruce (*Picea mariana*)

Black spruce grows primarily on wetland sites and is often mixed with other swamp conifer species. Black spruce is difficult to regenerate due to lack of suitable seedbeds. Fluctuating water levels may also impact regeneration of this type. Past attempts at regeneration have led to mixed results. At the time of the drafting of this Plan, black spruce is generally not being actively managed. More research may be needed to develop effective management prescriptions. Black spruce has not been included in annual

allowable harvest goals but there may be opportunities to manage more black spruce or swamp conifers dominated by black spruce.

#### 825.2.1.11 Natural Origin Red and/or White Pine

Washburn County has conducted smaller scale trials on regeneration of natural red and/or white pine stands. Success has been minimal. Section 825.3.9 recognizes the importance of protecting stands of natural origin, large diameter, red and white pine. While the County can manage these scattered sites on an extended rotation basis, eventually they will need special attention in order to regenerate the sites. Regeneration prescriptions will need to include creating conditions for bare mineral seed bed for red pine and incorporation of seeds into moist mineral/humus seed bed for white pine. Prescriptions may require provisions for prescribed burning in order to be effective.

More local research is needed to refine a reliable silvicultural prescription and this Plan recommends development of several silvicultural field trials to analyze the effectiveness of varying techniques. These trials will likely need to include an analysis of habitats and soils as a component of the research.

#### 825.2.1.12 Other

Certain timber types that present challenges in management, regeneration, access, or other issues, including black spruce, swamp conifer, tamarack, swamp hardwood, and others, may present other opportunities for passive management.

### 825.2.2 Uneven-Aged Management

An uneven aged forest is composed of trees in various age and size classes. The typical management practice is selection harvest, where individual trees, or groups of trees, are removed from the stand. Regeneration is continually occurring each time a stand is managed. Uneven-aged management, also called an all aged regeneration harvest, is generally used to manage shade tolerant forest types.

#### 825.2.2.1 Northern Hardwood

Northern Hardwood stands have variable compositions across the region. On the Washburn County Forest, they are comprised of combinations of sugar maple (*Acer saccharum*), basswood (*Tilia americana*), white ash (*Fraxinus americana*), red oak



(*Quercus rubra*), and yellow birch (*Betula alleghaniensis*). Most northern hardwood stands here are managed as all aged, but under certain stand conditions, even aged management may also be prescribed. See section 820.2.1.

<u>Shade Tolerance:</u>	Mid-tolerant to tolerant
<u>Habitats:</u>	AVDe, AAt, ACaCi, ATM
<u>Soils:</u>	sandy loam, loamy sand, silt loam.
<u>Intermediate Treatments (even aged):</u>	Yes, thinnings to B level stocking
<u>Intermediate Treatments (uneven aged):</u>	None
<u>Rotation Age (even aged):</u>	Variable depending on vigor
<u>Rotation Age (uneven aged):</u>	None
<u>Primary Regeneration Method (even aged):</u>	Natural, shelterwood, site prep, others
<u>Primary Regeneration Method (uneven aged):</u>	Natural
<u>Harvest Method (even aged):</u>	Shelterwood, Overstory removal
<u>Harvest Method (uneven aged):</u>	All aged regeneration harvest
<u>Habitat Value:</u>	Diverse species, old grown characters
<u>Economic Value:</u>	Very high – all products
<u>Insect and Disease Considerations:</u>	EAB. Other various minor pests
<u>Trends:</u>	Regeneration issues, high grading on private
<u>WCF Landscape Goal:</u>	Retain or slightly increase acreage

Special Concerns – Traditional all aged management prescriptions have proven to be an ineffective method of managing certain northern hardwood sites on the County Forest. The areas in northeastern Washburn County in particular have shown lack of regeneration response under all aged management. In addition, numerous sites are stocked with lower quality sugar maple and generally lack crop trees. Washburn County has been analyzing these sites for even aged consideration and will continue to prescribe even aged regeneration harvests, usually coupled with site preparation, on sites that have been previously managed and have not shown growth or regeneration response. Sedge competition, browse and other factors seem to contribute to the regeneration issues on these sites.

Many of these sites became dominated by ironwood shrub layers after all aged regeneration harvests in the past. Many of these sites also have dense mats of Pennsylvania sedge.

There are numerous theories on cause and it is unknown if the ironwood/sedge character is causative or symptomatic. Regardless, Washburn County has been prescribing much more intensive, often even aged, management techniques on some of these sites.

Northern hardwood sites are to be evaluated for crop trees, regeneration, ironwood and sedge competition and other factors. If stands have been previously managed and the sites do not have sufficient crop trees or sufficient quality hardwood regeneration, the site will be managed even aged. Crop tree and regeneration thresholds are identified in the northern hardwood decision matrix, which is a work in progress at the time of this Plan drafting. A prescription of site preparation and shelterwood will be used on these sites. If these sites contain any components of aspen, the sites may be considered for conversion to aspen. Sites with sufficient crop trees, that are lacking regeneration, may have intermediate treatments (improvement thinning) prescribed under an even aged management system.

Continued research on silvicultural methods, including chemical, are recommended. This Plan recommends continued refinement of the northern hardwood management matrix as well as further considerations for how to apply even aged versus uneven aged designation and criteria for converting from one process to the other. This matrix is included in Chapter 1000

Emerald Ash Borer (EAB) is likely to have an impact on northern hardwood stands during this planning period. Section 610.3.5 has additional information on mitigating strategies for EAB

#### 825.2.2.2 Swamp Hardwood

On the Washburn County Forest, swamp hardwood is generally managed as even aged. There are stand conditions, however, that can allow for uneven aged management. In cases where regeneration exists within these stands, and there are components of healthy vigorous northern hardwood species within the site, all aged regeneration harvests may be prescribed. There are sites with 3 age classes in swamp hardwood. Diameter limit harvests of larger/older age classes are often prescribed on these sites and are considered as all aged management. See Section 825.2.1.7 for more information on Swamp Hardwood.

Emerald Ash Borer is likely to have an impact on swamp hardwood stands during this planning period. Section 610.3.5 has additional information on mitigating strategies for EAB

### 825.3 LOCALLY UNCOMMON TREES AND FOREST TYPES

The presence or lack of a particular tree species is dependent on the land capability, climate, natural range, disturbance history and other factors. The following trees and types are considered uncommon on the Washburn County Forest and perhaps across the regional landscape. These trees may be left as reserve trees or identified for special management depending on the circumstances.

825.3.1 American Elm (*Ulmus Americana*) is scarce primarily due to Dutch elm disease. Healthy looking elm may be reserved on timber sales with the hope that they may persist in the stand as potential resistant seed sources.

825.3.2 Butternut (*Juglans cinerea*) occurs primarily in the southeast block of the Forest. Due to butternut decline and butternut canker, the tree is becoming scarcer on the Washburn County Forest. This area is also considered to be north of normal butternut range. Healthy individuals that appear to be canker free will be reserved on the forest as seed sources.

825.3.3 Bitternut Hickory (*Carya cordiformis*) has been noted occasionally in northern hardwood stands in southern Washburn County. Washburn County is north of its normal range. Existing, good quality and vigorous hickory will be left as potential seed sources. They should only be left if they are mechanically sound since forked trees are especially prone to wind damage. Bitternut hickory nuts are a valuable mast source for wildlife.

825.3.4 Eastern Hemlock (*Tsuga canadensis*) appears to be found only in the northeastern block of the County Forest. Washburn County is thought to lie on the westernmost fringe of the normal hemlock range. Although once common at the turn of the century, the species is becoming scarcer on the Forest. Hemlock is very shade tolerant but is a favored food for whitetail deer. Browse by deer and other small mammals is likely the primary reason for lack of regeneration. All existing hemlock trees and stands will be left uncut / intact in order to serve as seed sources. Silvicultural trials may be conducted to help determine methods to regenerate the species.

825.3.5 Yellow Birch (*Betula alleghaniensis*) was once more common on the forest than what is seen today. It is normally a component of northern hardwood stands and was likely more common in association with hemlock. In general, yellow birch will be reserved within hardwood stands as a seed source. Where yellow birch trees are abundant (this is rare on the forest), they may be managed as a normal component of northern hardwood stands. Scarification projects in northern hardwood stands are likely to encourage yellow birch regeneration.

825.3.6 Black Cherry (*Prunus serotina*) is found occasionally on the forest, although rarely reaching any significant size. The tree is uncommon here as it is north of its natural range. Existing black cherry may be left as wildlife food sources and as a seed source for future individuals.

825.3.7 Silver Maple (*Acer saccharinum*) is normally found as a significant component of bottomland hardwood types, primarily along parts of the Totogatic and Namekagon Rivers. They are common in flood plains. Washburn County appears to lie on the northern range of silver maple. Due to low market values for the species, and the proximity to the river systems, management typically does not occur where silver maple is present.

825.3.8 Green ash, Swamp white oak, Rock elm, Balsam poplar (*Fraxinus pennsylvanica*, *Quercus bicolor*, *Ulmus thomassii*, *Populus tacamahaca*) are also of low occurrence on the Forest. A variety of factors lead to their scarcity, including disturbance patterns, insects and disease, natural range, or simply the ability of some species to occur at low densities across the landscape. When these species are found, they should be identified in timber sale narratives and afforded protection from harvesting. They should be reserved, if for no other reason, to provide for diversity on the Forest.

825.3.9 Natural, large diameter red and white pine (*Pinus strobus*, *Pinus resinosa*) are found as scattered individual trees and some small pockets of nearly pure stands. These trees tend to have social importance and relatively low economic value. They are valuable seed sources and also provide wildlife value either as live trees or dead snags. Stands of natural pine within the Forest are considered uncommon and will be managed with a goal of retaining the trees, and the stand characters on the landscape.

Natural pine stands are often recognized within habitat classifications as the presumed climax overstory on many sites and these forest types are presumed to provide old growth

characteristics. Natural pine stands will be managed on extended rotations wherever feasible. Management efforts will include thinning/harvesting and natural regeneration efforts (to include scarification and prescribed burning) to assure they are a permanent component of the Washburn County Forest.

#### 825.4 INVASIVE SPECIES OF CONCERN

Invasive plants can cause significant damage to the forest. Invasive species can displace native plants and hinder 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 Forest. Some warrant immediate and continual control while others may remain untreated, depending on impact to forest ecosystems. The County will continue to monitor for invasive species and train staff on their identification and control. The County will also continue to seek out funding opportunities to assist in management and control efforts. More information on invasive species can be found in Section 610.5.

#### 825.5 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 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 for forestry, agriculture and utility service 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 of 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 County has access to this data under a license agreement and is committed to reviewing this database for endangered resources that occur within proposed land disturbing project areas.

825.5.1 Legally Protected Plant Species Identified by NHI on or Near County Forest (*as of 2019*). *This information is intentionally generalized to prevent disclosing more precise locations.*

<u>Name</u>	<u>Federal Status*</u>	<u>State Status**</u>	<u>Date Recorded</u>	<u>Type</u>
Arrow-head rattle box	None	SC	1935	Upland
Bog bluegrass	None	SC	2013	Upland
Dwarf milkweed	None	THR	1996	Upland
Mingans moonwort	None	SC	1979	Upland
Missouri rock-cress	None	SC	1966	Upland
Putty root	None	SC	2017	Upland

825.5.2 Other Legally Protected Plant Species Identified by NHI in Washburn County (*as of 2019*).

*This information is intentionally generalized to prevent disclosing more precise locations.*

<u>Name</u>	<u>Federal Status*</u>	<u>State Status**</u>	<u>Date Recorded</u>	<u>Type</u>
Dragon wormwood	None	SC	1917	Upland
Prairie sagebrush	None	SC	1917	Upland
Longstem water-wort	None	SC	2014	Aquatic
Northeastern bladderwort	None	SC	various	Aquatic
Oakes pondweed	None	SC	2013	Aquatic
Robbins spike rush	None	SC	various	Aquatic
Snail-seed pondweed	None	SC	2013	Aquatic
Torrey's bulrush	None	SC	various	Aquatic
Vasey's pondweed	None	SC	various	Aquatic
Clustered bur-reed	None	THR	2001	Wetland
Downy willow-herb	None	SC	2018	Wetland
Pale Green Orchid	None	THR	2016	Wetland
Round leaved Orchis	None	SC	2018	Wetland

*\*\*SC= State Special Concern; THR=State Threatened*

825.6 NATURAL COMMUNITIES

Similar to the tracking of protected plant species, the NHI database also tracks certain natural communities. According to the DNR's NHI program, a natural community is "an assemblage of different plant and animal species, living together in a particular area, at a particular time, in a specific habitat." NHI tracks natural communities that are deemed by the DNR to be significant because of their undisturbed condition, size and what occurs around them.

The following natural communities, recognized by NHI, are found on or near the County Forest:

Northern Dry Mesic Forest	Wolf Springs Forest
Northern Mesic Forest	Totogatic Highlands
Northern Sedge Meadow	Bean Brook
Northern Wet Forest	Wolf Springs Forest
Northern Wet Mesic Forest	Totogatic Highlands
Open Bog	Lost Lake
Springs and Spring Runs	Bean Brook
Muskeg	Olson Road
Deep Soft Seepage Lake	Birchwood Lakes
Shallow Soft Drainage Lake	Tranus Lake
Shallow Soft Seepage Lake	Oak Lake
Soft Bog Lake	Lost Lake

Washburn County will recognize these designations during all land management activities but it is unlikely that changes to forest management prescriptions are necessary. Many of the sites are excluded from management and those actively managed sites are likely to include goals aimed at perpetuating forest types and conditions, consistent with the NHI community designations. More information can be found at:

<https://dnr.wi.gov/topic/EndangeredResources/Communities.asp>

#### 825.7 TREE RETENTION/RESERVE TREE GUIDELINES

Washburn County Forestry's tree retention guidelines utilize the Wisconsin Department of Natural Resources Tree Retention Guidelines (Chapter 24 Silvicultural Handbook) as reference point for tree retention on the forest. The retention guidance in this Plan is specifically tailored based on the wealth of staff experience in managing this forest. The high diversity of forest types, habitats, stand sizes and shapes, as well as forest management history all contribute to these guidelines and justifies deviation from other statewide level guidance.

Reserve trees are stems, living or dead, which are reserved from harvesting as part of a timber sale harvest prescription. They may be specifically retained on site through their entire lifespan, or harvested once they have provided their intended function.

A tree retention policy is intended to provide for timber sale harvest prescriptions that more closely mimic natural disturbance patterns (typically applied in even aged harvests) or to provide for wildlife habitat (applied in both even and uneven-aged harvests). This Plan recognizes that there are 4 categories of tree retention that consist of legacy, habitat, reserve, and aesthetic trees. Any of these may be reserved as individuals or in patches. Considerations for reserve trees for the purpose of aesthetic management are included in Section 840 and further described in the Integrated Resource Management unit (Chapter 3000). The policies listed here rescind and supersede any green tree, or tree retention policy(s) adopted by previous Plans or formal actions to adopt by the Forestry, Parks and Recreation Committee.

#### 825.7.1 Legacy Trees

For the purpose of this Plan, Washburn County defines a legacy tree as one having significant resource or cultural value within the resource management unit or larger landscape. They may be trees of regional scarcity, large size, old age, unique form, or other unique characters. Not all sites will contain legacy trees, but when they are present and identified, they are intended to be protected from harvest throughout their life cycle. These trees may be identified to remain on site during even aged harvests, or designated to remain as part of the stand within un-even aged stands.

Legacy trees are typically identified during the course of timber sale establishment. Once identified, legacy trees should either be marked with paint as such, established with a GPS coordinate, or otherwise described in a manner that specifies location. These legacy trees are required to be noted within the forest reconnaissance data (WisFIRS) for that stand in order to provide that information to future land managers. It is the goal of this Plan that legacy trees are scattered on the landscape and it is unlikely that any individual forest stands will have more than one or two legacy trees, if any at all.

The following are examples of legacy trees

- Large diameter “sentinel” white pine trees as very scattered or lone individuals
- Hemlock of good health and vigor
- Healthy and vigorous individual trees that are locally uncommon as identified in Section 825.3
- Trees of outstanding diameter, height, crown, form, or other exceptional character for its species.



- Trees of other cultural significance.

It is not the intention of this policy for all trees meeting the above characters to be established as legacy trees. If a site contains high densities of unique trees, one or two examples can be identified as legacy, or the stand could be considered for alternate management goals.

#### 825.7.2 Habitat Trees

Habitat trees are those beneficial to wildlife. They include mast trees, cavity trees and dead snags. While not every site has trees with these characters, Washburn County will make efforts to retain these types of trees during the course of timber sale operations. The following practices will be used to provide for habitat trees.

##### Snags

On all sites, whether even or uneven-aged prescriptions, dead trees will be reserved from harvest. Timber sale prospectus/contract will include provisions to retain dead trees within the site unless they pose a risk to workers operating on the timber sale. The intention is to provide for as much dead, standing material on the site as possible, but it is not practical to expect that incidental breakage and other factors won't reduce the amount of standing snags left on the site.

The requirement may be waived in cases where the presence of dead snags will interfere with management objectives. Examples of waiver may include stands intended for site preparation and replanting; or cases where timber salvage is needed.

##### Mast Trees

For the purpose of this Plan, mast trees will normally be northern red oak and white oak. This Plan includes the recommendation to not use northern pin oak trees for retention purposes, primarily due to the higher risk of oak wilt infection.

On even aged sites (primarily aspen coppice harvests), oak trees are to be considered for retention. Care should be taken to avoid leaving too many individuals on the site as they will interfere with regeneration. At least 3 basal area, if available, but no more than 10 basal area of oak trees per acre (scattered or in groups) will be retained on an even aged regeneration site. It is also not recommended to retain high quality/high value red oak as reserves trees as they are at high risk of mortality due to oak wilt, wind, two-lined chestnut borer and other factors.

Foresters may need to specifically tailor how oak is to be retained if it is a significant percentage of the stand. Options may include marking reserve trees, diameter limit cuts, or other techniques.

On uneven aged sites, or even aged intermediate treatments, mast trees will be reserved as part of the marking order of removal. A majority of these treatment types will be in northern hardwood or red oak stands and oak are normally a significant component. Retain 3 basal area or more oak per acre, preferably in larger trees.

#### Cavity Trees

On *even aged* rotation harvests, trees with obvious cavities should be retained on the site. If they are available, attempts should be made to reserve no less than 2 trees per acre, but not more than 5 per acre. Trees can be retained but impacts on regeneration need to be considered. It should be noted that mast and cavities in total should not exceed 5 trees per acre reserved on the site.

For *uneven aged* management and intermediate even aged treatments, cavity trees should be retained if they are available. A minimum of 1 tree per acre should be retained but retention should not exceed 3 per acre. The lower per acre recommendation for thinnings and uneven aged management is to account for cavities that are not readily apparent to field staff.

Mast and cavity trees may be the same individual tree if both characters are satisfied.

#### 825.7.3 Reserve Trees

The concept of reserve tree retention is intended as a means to mimic natural disturbance patterns such as wind or fire. Most policies adopted by other agencies include a requirement that the dominant species be retained on site as individuals, or in patches, at densities ranging from 5 to 15%. Many of these strategies originated in areas with vast landscapes managed under even aged systems, and corresponding large harvest units. While the concept of retention is warranted in regions like northern Ontario, it likely has limited applicability in Washburn County.

Forest types in northern Wisconsin are much more diverse and harvest units have historically been, and will continue to be, much smaller in scale, more irregular in shape, and much more

likely to contain significant adjacent boundary with either other age classes or other forest types.

When even aged rotation harvests occur, Washburn County will retain no less than 3% and not more than 10% of the dominant tree species on the site. Retention of the dominant tree species is not required, due to management conflicts, on the following timber types:

#### Jack Pine

Jack pine is managed even aged and in conjunction with intensive site preparation. It is important to keep jack pine stands young and vigorous in order to prevent jack pine budworm outbreaks from building within the area. Reserving older jack pine as retention trees conflicts with that goal. Efforts will be made to reserve habitat, snag and legacy trees of other species, where they are available.

#### Red Pine Plantations

Washburn County is applying even aged regeneration harvests in older red pine plantations where growth is declining. These sites are normally scheduled for site preparation and replanting. Reserving red pine retention trees allows for Diplodia to remain on the site and will likely cause significant mortality to regeneration.

#### Aspen

When aspen is retained, either as islands or lone trees, as part of a clearcut, they seldom remain standing for any significant length of time. Wind events in the newly open canopy tends to knock the reserved trees over within several years after the harvest. In addition, the presence and prevalence of hypoxylon canker in local aspen stands complicates a decision to retain aspen reserves within an even aged harvest.

Washburn County will make efforts to provide for 3% to 10% retention in aspen regeneration harvests by reserving legacy, habitat and other non-dominant species. In cases where opportunities to provide for retention in these types is lacking, staff will make efforts to maximize perimeter to acre ratios and edge effect. While not recommended, islands or individuals of aspen may be retained if no other options to provide for tree retention are available. The following recommendations will be followed and documentation of tree retention prescriptions will be included in the timber sale narrative.

1. In general, attempts should be made to split aspen stands larger than 100 acres into multiple prescriptions/harvests, with the remaining portion of the stand harvested, or established for harvest, no sooner than 5 years after the initial harvest. Many of the second entry aspen stands are large areas and it is recommended that these be split into numerous stands to diversity age classes.
2. If larger harvest acreages are desired, or necessary, even aged aspen timber sales over 100 acres should include retention of islands or individuals of aspen at a density of no less than 3% of the stand acreage or total trees.
3. Retention goals can be met by recognizing stands directly adjacent to the timber sale that are fully stocked with aspen, or other forest types, that have a minimum average dbh of 5 inches and are not scheduled to be harvested under an even aged regeneration prescription for at least 20 years. When recognizing adjacent stands, it is recommended that stands with the same dominant timber type be identified before alternate species. Forest types with all aged management prescriptions, as well as stands that are reserved from harvest (riparian areas, aesthetic zones, etc.) may also qualify for recognition.
4. For aspen sites, if retention thresholds cannot be met with legacy trees, habitat trees, or adjacent stands, efforts will be made to diversify sale boundaries. Sale boundaries that are irregular and odd shaped provide for more edge effect than square boundaries.
5. In addition to legacy and habitat trees, aspen prescriptions may contain requirements to retain conifers, oak, uncommon trees defined in Section 825.3, aesthetic strips, buffer trees around vernal pools, or others.
6. This Plan recommends implementing a program of direct seeding conifers or other species to diversify aspen sites where retention options are limited.

#### 825.8 BIOMASS HARVESTING GUIDELINES

There are certain nutrient poor soil types within the Washburn County Forest where biomass, or whole tree harvesting may have a negative impact on soil productivity. On these types, it is important to retain fine and coarse woody debris on the site to avoid nutrient depletions. On restricted soil types, activities will generally be limited to harvesting to no smaller than a 4-inch top diameter. The Wisconsin Department of Natural Resources compiled the “Wisconsin Forestland Woody Biomass Harvesting Guidelines” field manual, which lists soils within each county where

biomass harvesting is not recommended. Washburn County utilized this resource as guidance to adopt internal biomass limited soils.

A map of limited soils is included in Chapter 1000.

More information on Wisconsin Biomass Harvesting Guidelines is available at:

<https://councilonforestry.wi.gov/Documents/WoodyBiomass/BHGFieldManual.pdf>

#### 825.8.1 Soils Identified by Department of Natural Resources and by Washburn County as Restricted

Grayling Sand (399B, 399C, 399D) – nutrient poor sand

Greenwood and Beseman Soils (484A) - Dysic Histosol (wetland)

Greenwood Mucky Peat (415A) - Dysic Histosol (wetland)

Loxley Mucky Peat (406A) - Dysic Histosol (wetland)

Loxley, Beseman and Dawson (3403A) - Dysic Histosol (wetland)

Sayner Loamy Sand (574B, 574C, 574D) – nutrient poor sand

Vilas Loamy Sand (74C, 74D) – nutrient poor sand

#### 825.8.2 Soils Restricted by Washburn County Not listed by Department of Natural Resources

Grayalm-Menahga Complex (439B, 439C, 439C) – nutrient poor sand

Menahga Sand (100B, 100C, 100D) – nutrient poor sand

#### 825.8.3 Soils Listed by Department of Natural Resources but Not Restricted by Washburn County

There are several soil types, classified as complexes, identified by the Department as meeting the requirement of a “restricted” soil type. In Washburn County, these complexes are made up of multiple soil types and only one component of that soil has characteristics that warrant limitations on biomass harvesting. In most cases, these soils are a minor component of the soil type. Washburn County does not recognize or impose restrictions on biomass harvesting on the following types:

Amery, very stony-Greenwood complex (443D)

Haugen, very stony-Greenwood complex (442C)

Keweenaw-Sayner-Vilas complex(69B, 69C, 69E)

Rock Outcrop – Frogcreek-Metonga Complex (524E)

#### 825.8.4 Other Limited Sites and Limits on Harvesting

- Sites where such harvest will impact endangered resources

- Riparian or wetland buffer areas
- Other sensitive areas or areas where debris will benefit management as determined by the county.
- 10% of all tops and limbs (smaller than 3” in diameter) must be retained and scattered on any biomass harvesting sites.
- Incidental breakage of tops and limbs must be left on biomass harvesting sites.
- All coarse woody debris existing on the forest floor prior to harvesting must be left on site.

#### 825.8.5 Exceptions to Biomass Limitations

Washburn County may elect to waive limitations on biomass harvesting in order to accomplish resource management goals. Any deviations from biomass harvesting guidelines will be documented in the timber sale narrative. Examples of exemptions are:

- Red pine plantation final harvests where biomass may impede site preparation prescriptions
- Jack pine rotation harvests where post sale scarification is prescribed
- Sites where prescribed burning may be implemented.

#### 825.9 ANNUAL ALLOWABLE HARVEST / RESOURCE NEED

This Plan recognizes the practice of sustainable forestry as defined in Section 810. The basis of this principal is to meet the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable Forestry incorporates a multitude of differing needs including environmental, social and economic values. The use of annual allowable harvests satisfies the most basic levels of sustainable forestry by assuring that harvests levels do not exceed growth and that the forest is capable of providing similar levels of harvests in the future.

Annual allowable harvests are established for the major forest types on the Forest. The Washburn County Forestry Department sets allowable harvests, on an acreage basis that incorporates numerous management considerations. Forest reconnaissance data (WisFIRS) contains detailed information that establishes basic information to set harvest levels. Annual allowable harvest goals are set using WisFIRS data along with the following considerations:

1. Analysis of resource needs over a longer time period than the 15 year WisFIRS planning window.
2. Age class distribution within certain forest types

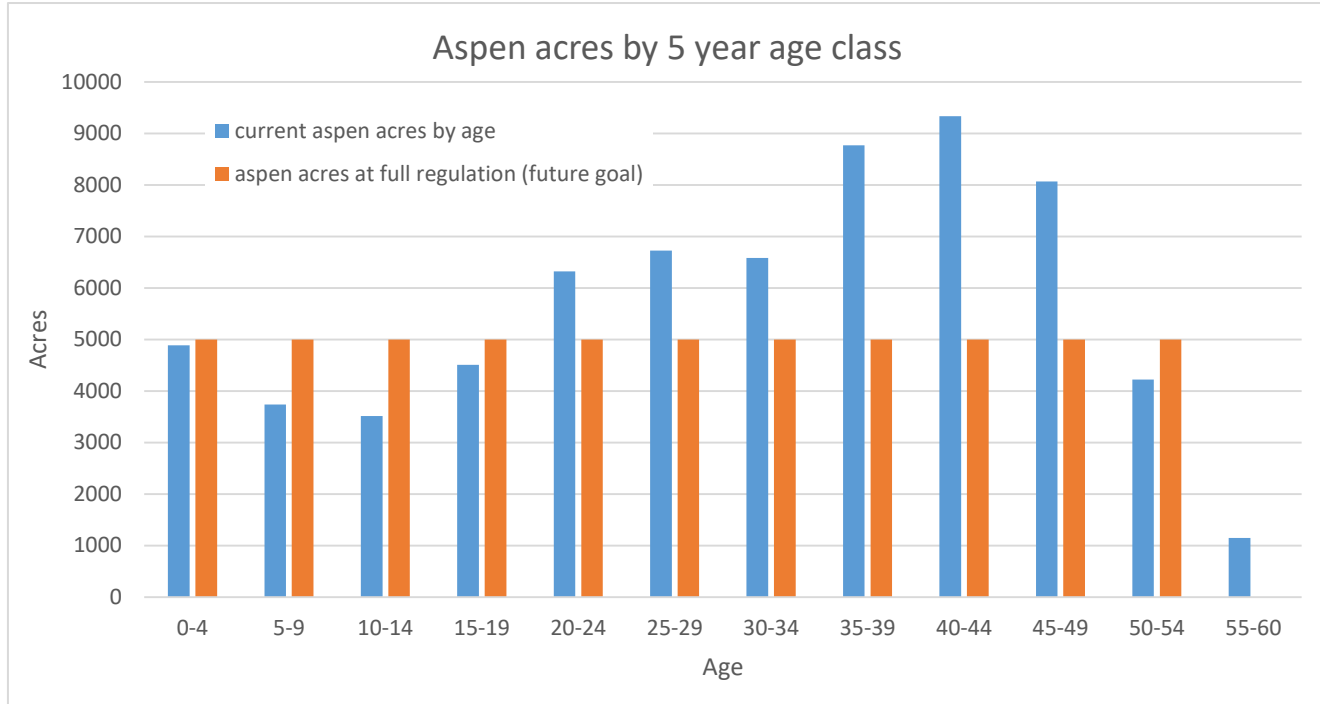
3. Adjustments to harvest levels to accommodate special resource considerations.
4. Available labor
5. Adjustments for salvage, pre-salvage or forest health.
6. Forest stands or forest types removed from planned management due to accessibility, regeneration, or other concerns.
7. Adjustments to “carry-over” acreage from year to year.
8. Poor timber market conditions (may require holding acreage until markets improve).

Allowable harvests will be established annually, within the framework of considerations listed above. These goals will be identified in the Annual County Forest Work Plan established by the Committee and County Board. The following goals are the recommended framework for allowable harvest data.

#### 825.9.1 Aspen

There are approximately 57,052 acres of aspen on the Forest. Approximately 56,500 of these acres are identified as available for management/harvest. Washburn County has established a rotation age of 55 years for aspen types, which would allow for 1,027 acres per year to be harvested. The Forest does not, however, contain aspen ages evenly distributed across all age classes. There are an inordinate number of acres in the age range of 30-45 years old at the time of the drafting of this Plan. Through the late 1970's and early 1980's aspen was harvested at an accelerated rate as markets became available. This was done to address the backlog of aspen stands due for harvest. Because of this, Washburn County has significant acres clumped into certain age classes. See Graph 825.9.1

Graph 825.9.1



Aspen is essentially not fully regulated at this time, which does not allow for full harvest of 1027 acres per year. This level of harvest will result in a short term issue of harvesting wood well below the accepted rotation age. This Plan recommends a slightly reduced aspen harvest level of 900 acres per year. Even at this level, the County may be harvesting aspen as young as 40 years old in order to balance the uneven distribution of aspen ages. This Plan recommends harvesting aspen at an age younger than 55 years as necessary to fully regulate the aspen acreage. This Plan also recommends increasing the annual harvest to 1000 acres per year sometime late in this Plan period.

During the duration of this Plan, aspen will be harvested at less than the 55 year rotation age identified in Section 825.2.1.1. This Plan recommends analyzing soils, habitats, and other factors in order to develop a plan as to which stands and which IRMUs should be targeted for harvests at younger than rotation age.

### 825.9.2 Jack Pine

There are approximately 7,435 acres of jack pine on the Forest. 7,425 acres are available and scheduled for management. 6,125 acres are natural stands and approximately 1,300 are plantations. Washburn County has established a rotation age of 50 years for jack pine, which



allows for 150 acres of harvest per year. Jack pine ages are not, however, evenly distributed on the Forest, primarily due to a large percentage of the acreage originating from the Oak Lake Fire in 1980. See Graph 825.9.2

Graph 825.9.2



The 2,500 acres of jack pine from the Oak Lake Fire makes it a difficult task to fully regulate the jack pine resource. Washburn County had not been harvesting jack pine on any consistent basis from 2015 – 2020, primarily because the Oak Lake area was not of sufficient size to harvest. Prescribed 150 acres per year, starting in 2020 will fully regulate the pine acreage over time, but will result in age classes well over 60 years old. This is not recommended due to the high likelihood of Jack Pine Budworm outbreaks.

At the time of this Plan drafting, markets for jack pine are very poor. This Plan recommends an annual allowable harvest of 150 acres, but if the market improves dramatically, this Plan also recommends accelerated harvests of up to 300 acres per year for up to 5 years. These accelerated harvests are to target the Oak Lake Fire area in order to help break up this age class. After 5 years, the allowable harvest data should be recalculated.

This Plan recommends analyzing habitats and diameters of the Oak Lake Fire area to determine the best method of breaking up this single aged jack pine landscape. This analysis should also include mitigating prescriptions for budworm, as well as wildfire risk. It may be appropriate to consult with DNR Forest Health, Fire Control and Wildlife to assist with developing recommendations.

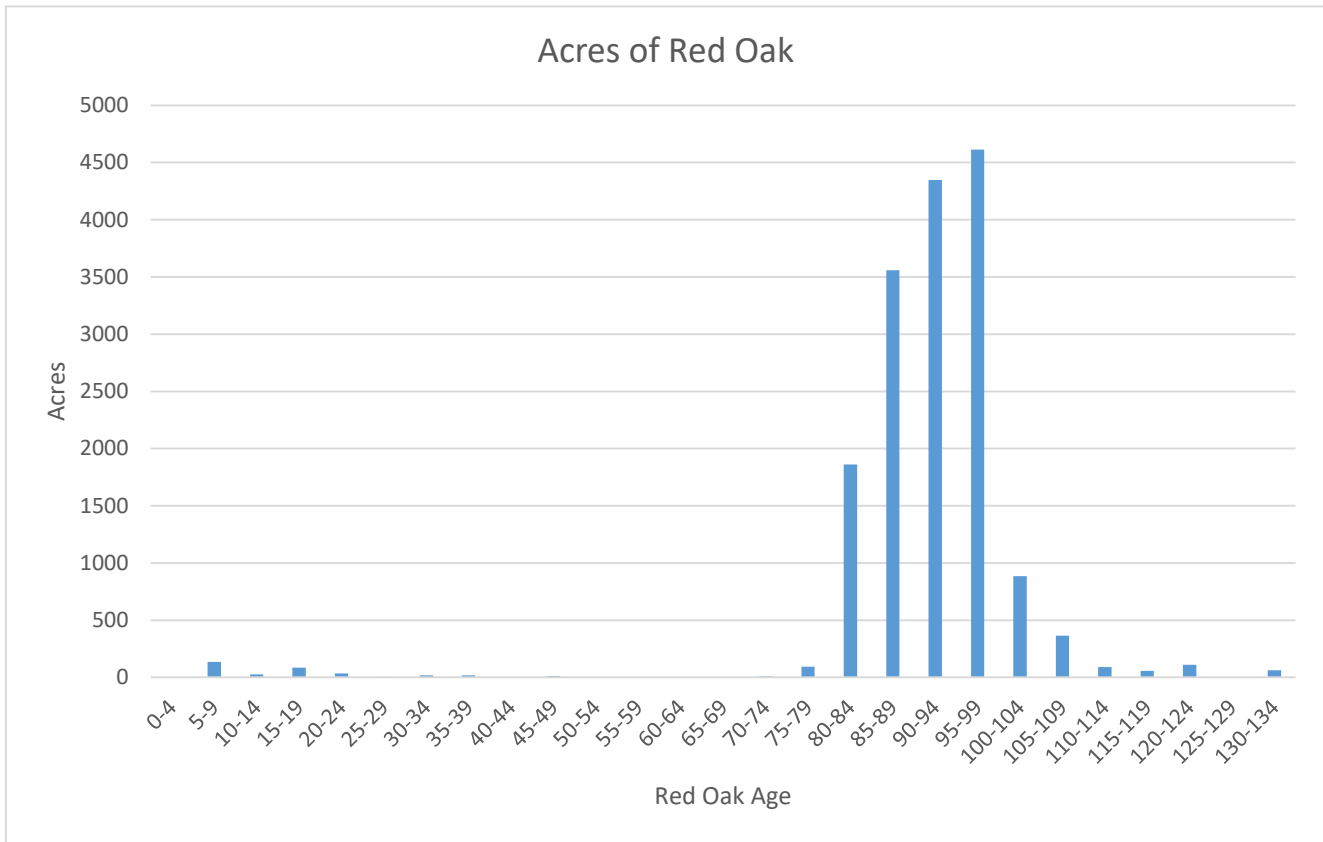
It is likely that certain areas of the Oak Lake Fire area have significant inclusions of aspen within stands that are currently typed as jack pine. Jack pine acreage will likely decrease as forest reconnaissance data is updated and stands are typed more accurately.

### 825.9.3 Northern Red Oak

Forest reconnaissance data indicates 16,455 acres of oak on the Forest. Of those acres, approximately 16,379 acres are available for management. There are also approximately 153 acres within forest habitats that indicate a strong likelihood of presence of northern pin oak rather than true red oak. For the purpose of this Plan, allowable harvest planning for red oak will utilize an estimate of 16,225 acres (which excludes northern pin oak).

Tree ages indicate that a majority of the oak forests most likely originated after fires in the 1920's and 1930's. Most of the oak stands are approximately 90-95 years old at the time of this Plan draft. *See Graph 825.9.3*

Graph 825.9.3



It is a recommendation of this Plan that oak sites are to be evaluated for desired future condition and for management direction. This Plan also recommends that richer soils/habitats, that are typed as red oak, be considered for conversion to northern hardwood under all aged management, while less nutrient rich and dryer soils/habitats be managed even aged with the long term goal of retaining red oak.

An analysis of data compiled during the drafting of this Plan resulted in the following classifications of northern red oak by soils and habitats:

- Red oak on mesic sites: 2,307 acres  
*(Silt loam and richer sandy loams; ACaCi and upper AAt habitats)*
- Red oak on dry-mesic sites: 11,190 acres  
*(Average nutrient sandy loams; average to lower AAt and upper AVDe habitats)*
- Red oak on dry sites: 2,728 acres  
*(Loamy sands and sands; lower AVDe, and all ParVAm's)*

Within the framework of analysis of oak sites and their corresponding soils and habitats, this Plan recommends these acreage goals:

All-aged regeneration harvest:	350 acres per year
Even-aged intermediate (thinning) treatments	300 acres per year
Even-aged regeneration harvest:	200 acres per year

As management is prescribed, regeneration harvest are conducted, and sites are reviewed, acreage goals should be revisited annual to determine if these goals are still accurate and valid.

#### 825.9.3.1 All Aged Oak Management

Northern red oak growing on soils that are richer are to be evaluated and considered for all aged management and subsequent gradual conversion to northern hardwood. Prescriptions would include all aged regeneration harvests rather than the typical intermediate thinnings under an even aged system. Even though the long term goal is all-aged management with promotion of northern hardwood “in-growth”, oak will likely be a significant component of these forests for extended periods of time, if not permanently.

Data analysis indicates 2,307 acres of northern red oak on mesic sites. These sites include silt loam soils and ACaCi forest habitats. In addition, internal staff analyzed the dry-mesic sites and calculated 4,537 acres (approximately 40%) of the red oak on dry-mesic sites could be considered for all aged management. These sites included upper sandy loam soils and upper AAt habitats. Analysis of the dry-mesic sites was conducted on an IRMU basis and more specific recommendations are included in Chapter 3000.

Total acreage estimated for future management as all aged forests includes 6,844 acres. An average re-entry period for all-aged regeneration harvests of approximately 18 years results in an annual allowable harvest of 380 acres. For the initial several years of this Plan, the accepted goal is recommended as 350 acres until the data is more solidly established.

An advantage of all aged harvest management on these richer sites is that it allows enough time for the prescription of all aged regeneration harvests as well as follow up regeneration checks. Sites can still be switched to even-aged oak management if recruitment of northern hardwood under the all aged system fails.

In addition to all aged management prescriptions on high quality sites, there are numerous areas where stands are prescribed for conversion to northern hardwood for aesthetic purposes. Those sites are also to be included in the acreage goal calculations for oak managed as all-aged.

#### 825.9.3.2 Even Aged Oak Management on Dry-Mesic to Mesic Sites

Northern red oak growing on soils that are of average nutrient and moisture, and do not meet the criteria as established in Section 825.10.3.1, are to be considered for even aged management. These sites are sandy loam soils and generally correlate to AAt forest habitats of average and lower nutrient and moisture and AVDe of above average nutrient and moisture. The ultimate goal for stands will be soil disturbance to establish seedlings, coupled with shelterwood and overstory removal. Generally, the accepted even aged rotation ages on these sites would range between 120 (dry-mesic) and 140 years (mesic). Average red oak stand ages on the Forest are in the range of 90-95 years at the time of this Plan drafting.

Stand ages indicate that one, and in some cases two intermediate treatments (thinnings) may be feasible on many of these stands. Internal staff analyzed the dry-mesic sites and calculated 6,653 acres of northern red oak to be considered for even aged management, including intermediate treatments. An average re-entry period of 18 years results in an annual allowable harvest of 333 acres per year. For the initial several years of this Plan, the accepted goal will be 300 acres per year until the data is more solidly established.

Future Plans will need to incorporate a goal that includes regeneration harvest prescriptions for stands in this category.

#### 825.9.3.3 Even Aged Oak Management on Dry Sites

Northern red oak growing on soils with lower nutrient content and less moisture are generally to be considered for even aged management. Sites in this category include red oak on loamy sands and sands, and corresponding low AVDe and PArVAm sites. The goal on these sites is site preparation/shelterwood/overstory removal, but the difference on these dry sites is that the generally accepted rotation age is 100 years.

Given that most of these stands are 90 to 95 years old, it is unlikely that there is enough time to schedule additional intermediate treatments.

Analysis of red oak resulted in approximately 2,728 acres determined to be on dry sites. The accepted rotation age of 100 years should allow for some flexibility to carry certain stands longer, and this Plan recommends an accepted annual allowable harvest of 200 acres per year under site preparation and shelterwood.

The 200 acre planned allowable harvests will need to be prescribed in conjunction with soil disturbance during good acorn crops. It is likely that the County will need to conduct site preparation on 500 or more acres during years with good acorns in order to meet the annual objective.

#### 825.9.3.4 Other Plan Recommendations for Oak Prescriptions

- Each IRMU will have unit specific goals for red oak management (See Chapter 3000). These goals will include target acreage for each management prescription and rotation ages.
- Stands with aesthetic considerations may be pushed towards all aged management in addition to those sites identified in 825.10.3.1 and 825.10.3.2
- Even aged regeneration harvests will likely need to be “saved” for years with abundant acorns. This will lead to clumped age class distribution but it is necessary to take advantage of good acorn crops when they are available. It will also be important to develop a procedure to determine thresholds for good acorn crops.
- For even aged regeneration of red oak, overstory removal and follow up release treatments are to be automatically scheduled. Overstory should be removed as soon as possible after regeneration has been determined as successful. Release treatments may include prescribed burning, mowing or other.
- For those stands on dry-mesic sites, there is sufficient time before scheduled rotation age to prescribe all aged regeneration harvests and monitor for northern hardwood seedlings/saplings. Regeneration harvest checks (3, 5 and 10 year checks, or other schedule as appropriate) are to be conducted. All-aged/Even aged decisions can be made after analysis of regeneration checks.
- A decision matrix is needed to help determine successful regeneration.

- A general rule of thumb for evaluating previously thinned red oak sites is that the presence of red maple seedlings/saplings is an indicator of sites suitable for even aged management while presence of sugar maple is an indicator of potential for all aged.
- Monitoring for oak wilt and other pests and pathogens will continue to be a high priority for oak management on the Forest.

#### 825.9.4 Northern Hardwood

Forest reconnaissance data indicates 14,132 of 14,291 acres of northern hardwood on the Forest available for management. Historically, northern hardwood has been managed as uneven aged. During the duration of the last Plan, post-harvest conditions on certain sites prescribed with all aged regeneration harvests showed a lack of hardwood recruitment within canopy caps, as well as a general lack of growth response. Many of these “problem” sites are located in the northeastern corner of the County.

In order to effectively manage northern hardwood, Washburn County developed a hardwood management decision matrix that utilized an analysis of crop trees, regeneration, ironwood density, sedge composition and other factors to identify sites more suited to even aged management. These stands were prescribed for shelterwood harvests, although the matrix includes provisions allowing for intermediate thinnings if crop trees were present but regeneration was lacking. This Plan recommends continued refinement of this matrix as well as continued analysis of northern hardwood stands and potential management techniques. A copy of this matrix is include in Chapter 1000.

Current forest reconnaissance data contains schedule harvest dates for northern hardwood stands, along with the management prescription. At the time of the drafting of this Plan, there is a significant “backlog” of hardwood sites due for management. Many of these will need review as they may not be ready for entry and will need rescheduling. Given the need to revisit and reschedule some of these sites, an analysis of allowable harvest was done over a 20 year window.

Analysis of this data resulted in the following conclusions and accepted annual acreage goals:

All aged regeneration harvests in uneven aged stands and intermediate thinnings in even aged stands scheduled over the 20 year period of 2021-2040 averages 562 acres of treatment per year. In order to allow sites that have not responded in growth and other factors, this Plan recommends 500 acres per year be established for all aged regeneration harvest and intermediate thinnings through the duration of this Plan.

Even aged rotation harvests (shelterwood, usually with site preparation) scheduled over the same time period averages 71 acres per year. This Plan recommends 50 to 70 acres per year for even aged rotation harvests through the duration of this Plan.

These annual harvest levels may be adjusted based on further refinement of the northern hardwood matrix and further evaluation of northern hardwood sites over time.

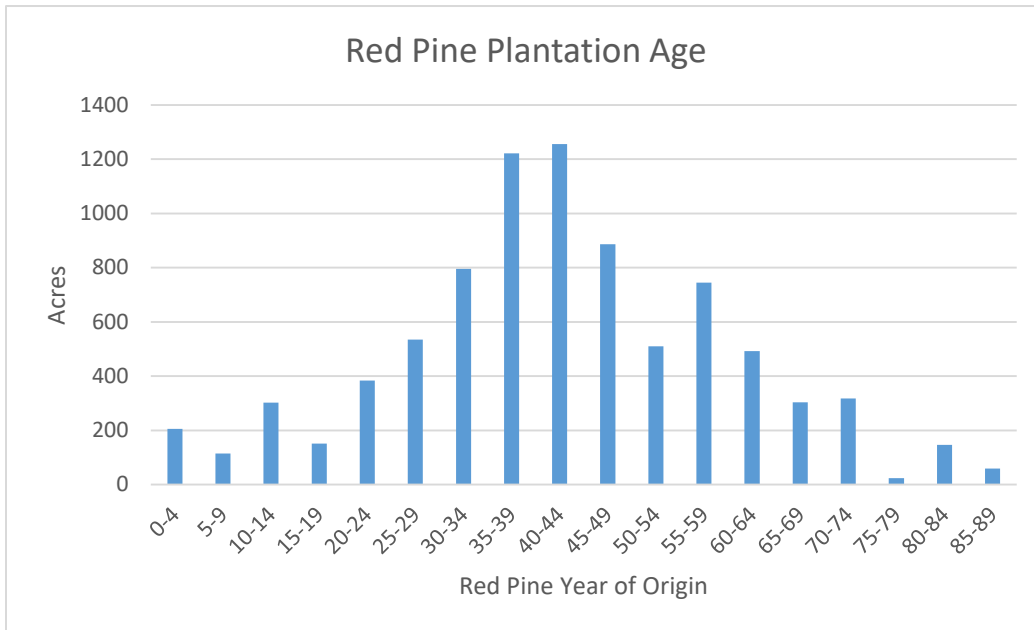
#### 825.9.5 Red Pine

Forest reconnaissance data shows that there are 10,254 acres of red pine on the Forest. Of that, 8,446 acres are of plantation origin. The purpose of this section is to establish allowable harvest data for plantation red pine.

Prior management objectives included a goal of managing red pine plantations with a rotation age of 120-140 years. More recent evaluation of red pine plantations on the Forest are showing that growth and yield decline dramatically after the third or fourth thinning. In many cases, scattered tree mortality within the stand exceeds growth. New management objectives include provisions to allow for harvest and re-planting of red pine if growth response is lacking when 4<sup>th</sup> or 5<sup>th</sup> thinnings are prescribed. This generally occurs between 70 and 85 years. This Plan recommends even-aged rotation harvests and replanting when stand information indicates significantly reduced growth rates. See age class distribution in graph 825.9.5



Graph 825.9.5



As growth rates slow on older red pine plantations, thinning intervals increase as well. Calculations on growth and thinning intervals within the existing age class distribution indicate a resource need of 536 acres per year of intermediate thinnings and 63 acres per year of even age final harvest and replanting. To accommodate for possible slower than anticipate growth rates, this Plan recommends 500 acres per year of red pine thinning and 50 acres per year of rotation harvests during the 15 year period.

The 1,808 acres of natural origin red pine will be managed only as prescribed in Section 825.3.9. Allowable harvests for these natural stands have not been established and management activities will be conducted as necessary to promote, enhance or retain these forest stands.

#### 825.9.6 Swamp Hardwood

Forest reconnaissance data shows that there are 6,539 acres of swamp hardwood on the Forest. Of these acres, 6,429 are available for management. Swamp hardwood timber sales are difficult to sell and offered tracts often do not attract any bids. As a result, Washburn County has not sold any significant swamp hardwood acres over the duration of the last County Forest Plan.

These sites are in need of management, especially in light of the likelihood of emerald ash borer infestations, as described in Section 825.2.1.7. If wood markets improve to the point that the County is able to sell swamp hardwood timber sales, and there are contractors willing to harvest on these sites, and management is prescribed that pushes sites towards species other than ash, this Plan recommends a concentrated effort on managing swamp hardwood stands. Stand prescriptions may include all aged single tree selection, all aged partial harvests, patch harvests, seed tree harvests and shelterwood. The individual prescription will depend on site productivity and stand conditions. This Plan does not recommend swamp hardwood thinnings that are intended only for increased growth on black ash stems.

Forest reconnaissance data shows that over the duration of this Plan, an average of 285 acres of swamp hardwood even aged and uneven aged treatments are scheduled for harvest per year. This acreage is described to illustrate resource need, not necessarily as a goal. The operability of many of these sites is a deterrent to most timber sale bidders. This Plan recommends that County staff offer as much acreage as possible if management opportunities come available, but not to waste efforts if markets do not exist.

Swamp hardwood stands may need to be analyzed due to emerald ash borer concerns. Sites should be reviewed and weighed against current research in order to write management prescriptions that diversify stands into swamp species, both deciduous and coniferous, as an alternative to black ash.

#### 825.9.7 Swamp Conifer

Swamp conifers are generally those typed as black spruce, tamarack, white cedar, or combinations thereof. Forest reconnaissance data shows 1,577 acres of cedar and all of it is set aside as non-managed and no allowable harvest data is established.

There are 3,774 acres of black spruce, 2838 acres are available for management. There are 2,041 of 3,397 acres of tamarack available for management. While there are acres available, and scheduled for management in these types, access is very difficult and markets are generally not adequate to allow for timber sale activity. This Plan does not establish an allowable harvest for swamp conifer types although sales may be established under the following guidance:

- Markets are adequate

- Logging contractors with proper equipment to harvest frozen ground wetlands are available
- Regeneration success is probable (this is more of an issue with black spruce than tamarack).

#### 825.9.8 White Birch

There are 1,112 acres of forests typed as white birch. White birch is considered a priority species to retain on the landscape, and sites will be managed and regenerated as they become available and where/when practical. An allowable harvest has not been established for this timber type.

#### 825.9.9 Other

Other forest types do exist on the forest in minor representations on the landscape. Allowable harvest goals have not, and will not be set for these species. Stands may be management as they are encountered, but only in situations where access is reasonable, markets exist, and regeneration success is highly probable.

### **830 ANIMAL SPECIES MANAGEMENT**

The Washburn County Forest is habitat for a wide range of wildlife, including species that are common, rare and transient in Wisconsin. The primary goal of wildlife management on the Washburn County Forest is to provide a diversity of habitats and ecosystems in order to sustain and enhance a wide range of native wildlife populations. With the exception of certain threatened or endangered species, the Forest will be managed to provide for a suite of species.

In general, habitats are managed, not specific species of plants or animals. A diversity of plant communities and structure is key to providing a niche for a variety of wildlife species. Wildlife concerns on a larger scale may result in an emphasis of managing certain areas on the forest, especially where specific habitats or management practices are unique or uncommon.

Washburn County has always had a cooperative partnership in managing the forest with DNR Wildlife staff, who have assisted in numerous projects that have benefitted wildlife, the forest and the public. It is the intent of this Plan to ensure that this level of cooperation continues.

#### 830.1 TECHNICAL PLANNING

Planning will be a cooperative effort of the Forest Administrator, DNR Liaison Forester, DNR Wildlife Biologist, and the Committee in formulating management plans relating to wildlife and wildlife habitat projects.

#### 830.2 GUIDELINES

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

#### 830.3 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. DNR Wildlife staff will conduct various surveys of game and non-game species as time and funding permit.

#### 830.4 RESOURCE MANAGEMENT CONSIDERATIONS FOR WILDLIFE

The following areas of focus are identified for achieving plan objectives relating to wildlife:

##### 830.4.1 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 can vary in size and shape and will include tree retention considerations.
- Diversity in stand ages, sizes and species.
- Maintain mast bearing trees and shrubs, cavities, and a variety of snags when available.
- Cull trees provided they do not interfere with management objectives
- Diversity in timber types, habitat conditions
- Access management
- Best Management Practices for Water Quality
- Seasonality and other adjustments to timber sales

#### 830.5 IMPORTANCE OF HABITATS

These are habitat types known to be of importance to certain native wildlife and whose absence would make them significantly less abundant. These shortages may be on a local or broader scale.

The following habitat types can be considered important: *The species identified are intended as examples and not a full list of species benefitting from the specific habitat.*

#### 830.5.1 Non-Forested Wetlands

The County Forest contains 18,564 acres of non-forested wetland types, providing a variety of habitats for common, rare and endangered species. Emergent wetland, sedge meadow, muskeg bog, and others provide habitat for species such as wood turtle, black tern, American bittern and numerous other species.

#### 830.5.2 Aquatic Habitats

The County Forest contains 3,795 acres of lakes, rivers, streams and ponds. There are several thousand acres of additional aquatic habitat in meandered lakes and rivers that abut the Forest. Open water provides habitat for ducks, frogs, shrews, fish, insects and other species reliant on water habitats.

#### 830.5.3 Riparian and Other Non-Managed Areas

Numerous undisturbed shorelines and riparian areas are present on the forest and they provide habitat for species such as red shouldered hawk, green frog, and woodland jumping mouse. “Riparian” is a classification within the forest reconnaissance system that designates and recognizes an area, or forest stand, as important to the protection of water quality.

#### 830.5.4 Early Successional Forests

Management of aspen, white birch, jack pine, red oak and other shade intolerant species creates habitat for a variety of wildlife species that benefit from early successional forests. On the Washburn County Forest, there are 57,058 acres of aspen alone, which results in approximately 5000 acres of aspen younger than 5 years old during any point in time on the Forest. These early successional forests are key habitat for American woodcock, ruffed grouse, golden winged warbler, Kirtland’s warbler and black-billed cuckoo.

#### 830.5.5 Conifers

Conifers, whether pine, spruce, fir, or other, are an important habitat for a number of wildlife. The Washburn County Forest currently has 27,954 acres of conifer forests, 19,410 in upland and 8,544 in lowland types. Of particular importance are the 7,437 acres of jack pine forest. Jack pine is a forest type that is declining rapidly across the region. Connecticut warbler, red

crossbill, northern flying squirrel, and many others utilize conifer forest. Jack pine management can also provide barrens habitat that benefit species like Kirtland's warbler and other barren related species.

#### 830.5.6 Oak Management

Oak is an important mast producing food source, providing acorns for a variety of game and non-game species. The County Forest includes 16,469 acres of northern red oak and 1,045 acres of northern pin oak. Oak is considered a critical resource to maintain on the landscape for both economic and wildlife values. Many of these oak stands also include components of white oak, which further contributes to wildlife values. Oak provides habitat for species such as scarlet tanager, wood thrush, red headed woodpecker and black bear.

#### 830.5.7 Uneven / All Aged Management

Management of uneven aged stands provides for multi-storied canopies, diverse age structure and older forest characters. The Washburn County Forest contains 17,582 acres being managed in uneven aged systems, primarily northern hardwood. Species such as Canada warbler, little brown bat, black throated blue warbler, and many others benefit from this type of management. In addition, numerous amphibians and reptiles use these forest types.

#### 830.5.8 Large Forest Blocks

Washburn County has a relatively large County Forest ownership that is consolidated into several large, unbroken tracts of forest. These large blocks provide habitat for a number of 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.

#### 830.5.9 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 and numerous other species, including upland plover and whip-poor-will. Openings can provide unique diversity in an otherwise wooded habitat. Forest reconnaissance data shows 1,141 acres in non-forested upland types. The actual acreage is likely much higher since most wildlife openings and also road rights-of-way are not specifically mapped within the system.

Washburn County historically has maintained approximately 350 wildlife openings ranging in size from 0.5 to 5 acres. These openings were managed to provide benefit for game, and non-game species and were maintained through a combination of mowing and herbicide applications. While it is widely accepted that these openings in the forest benefit species ranging from insects to mammals, this Plan recommends analyzing this program to determine the costs benefit relationship of the program. Forestry Department staff, in cooperation with the DNR Wildlife Biologist will evaluate the wildlife openings program within the following considerations:

- Rank importance of all managed game openings to develop a core list for continued maintenance.
- Evaluate those timber sale landing areas that are likely a permanent fixture on the landscape and attempt to develop a method to provide openings benefits within them.
- Prioritize habitats, ecological landscapes, forest types where wildlife openings are more important.
- Evaluate whether harvests or other disturbance can provide comparable benefits.

#### 830.5.10 WDNR Terrestrial and Wetland Habitat Priorities

An interdisciplinary team of Wisconsin Department of Natural Resources Fisheries, Forestry, Natural Heritage Conservation, Parks and Wildlife staff developed a list of habitat priorities, dated April 20, 2018, based on the Wildlife Action Plan, and other planning processes. This document was intended to focus available resources to maximize habitat benefits. This document was, generally, focused on WDNR lands, but the resulting habitat goals are applicable to habitats provided by the Washburn County Forest. The list below is an excerpt of priority 1 and 2 habitats identified that are present on the Forest:

##### Deep marsh/shallow lakes (with significant wild rice opportunities) Priority 1

These are generally addressed under Section 320.2.8. There are numerous habitats/sites providing these characters, including various lakes, flowages and other aquatic habitats.

##### Oak/pine barrens Priority 1

There are no areas on the Forest that are formally recognized as pine barrens, but the nature of conifer management, especially jack pine, provides barrens characteristics on a “floating” basis within the landscape. Oak barrens, or oak barrens characters may be provided within the sites identified in Section 835.3.8. These sites had been identified by

DNR staff in the past as oak savannah. The Forestry Department is still investigating a DNR program that is willing to assist with possible planning and management to enhance these areas.

Old Forests (natural origin pine, hemlock, cedar, northern hardwoods) Priority 1

DNR's document defines these as "forest stands in late seral or reference condition that are dominated by canopies with trees > 12 inches in diameter at breast height with ages ranging from 75-300 years old." These habitats are abundant across the Washburn County Forest.

Young Forests (primarily aspen) Priority 1

By the nature of Washburn County's large acreage of aspen forest type and commitment to sustainable forest management, young forests are common component of the forest landscape. Allowable harvests in aspen alone provide an additional 900 acres per year in early successional forests.

Conifers of Natural Origin Priority 2

DNR's document defines these as "Unplanted forest stands with >50% of canopy trees comprised of eastern hemlock, red and white pine, balsam fir, and white spruce species. These types, particularly hemlock and natural origin red and white pine are identified as unique resources to be protected on the Forest as described in Sections 825.3.4 and 820.3.9. Natural origin red and white pine stands are not uncommon and are scattered across many of the forest units. Hemlock is less common, primarily due to its natural range being mainly to the east but there are stands in the far northeast portion of the County.

Mixed conifer/deciduous forest Priority 2

These are defined as "forests that are more than 50% stocked with a mixture of conifer (White Pine, Red Pine, Jack Pine, Balsam Fir, White Spruce, Black Spruce, Tamarack, White Cedar or Hemlock) and deciduous (Sugar Maple, Basswood, Beech, White Ash, White Birch, Aspen) trees." These conditions can be found in certain upland areas but they are not common on the Forest. Forested wetlands do provide more of these characteristics.

Oak Forest (specifically regeneration/perpetuation) Priority 2

Washburn County is regenerating red oak as opportunities present themselves and as described in Section 825.2.1.5. During the duration of this Plan, a significant percentage of



the red oak resource on the Forest will come due for a regeneration prescription, which will provide additional habitat values.

Forest openings      Priority 2

These are abundant on the forest, in the form of wildlife openings, grass types, harvest sites, log landings and other types.

Deep marsh/shallow lakes (hemi-marsh goal); Emergent wetlands; Forested wetlands,

Shrub wetlands      Priority 2

These wetland habitats are common across the County Forest. Most are passively managed, with the exception of forested wetlands.

## 830.6 INTENSIVE WILDLIFE MANAGEMENT PROJECTS

830.6.1 Wisconsin Wildlife Action Plan (WWAP) / Species of Greatest Conservation Need (SGCN) (2015-2025). In addition to species listed as endangered, threatened or special concern within NHI, the DNR also maintains a statewide list of species of greatest conservation need within the WWAP

The 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.

WWAP contains data specific to species and to taxonomic groups. In general this plan identifies issues and conservation actions for taxonomic groups. While these issues and conservation actions are helpful in determining how county forests and forest management impact certain species, Chapter 4, “*Natural Communities Associated with Species of Greatest*

*Conservation Need*” contain “issues and conservation actions” that are much more applicable to the management of the County Forest.

The information in Chapter 4 is separated into community types, of which the sections on Northern Forest and Wetlands are most applicable to this Plan. In most cases, management described in this plan directly complements the Conservation Actions defined with the WWAP. More information on the Wisconsin Wildlife Action Plan can be found in the Chapter 1000 or at:

<https://dnr.wi.gov/topic/wildlifehabitat/actionplan.html>

#### 830.6.2 Welsh Lake Grouse Management & Harmon Lake Grouse Management Units

The Welsh Lake Management Unit includes all County Forest lands in the Towns of Barronett and Saronia. The Harmon Lake Unit lies in the Town of Madge. The management objective on these lands will be to improve capacity to support ruffed grouse through the application of sound, accepted forest management techniques. The general management prescriptions for these units are to clearcut aspen in patches of approximately 10-20 acres in size in order to increase edge effects and dispersing these sales through time in order to diversify age classes. More specific management information is listed in the Integrated Resource Management Units in Sections 3000.12 and 3000.15.

#### 830.6.3 Beaver Management

Locally, beaver populations appear to be increasing dramatically. This is likely due to lower fur prices and the recent wet weather conditions. While beaver ponds can provide certain wildlife benefits, they can also damage forests and infrastructure. Washburn County will manage beaver populations as follows:

- Damage to timber will be mitigated only in cases where standing timber values are high. Generally, Washburn County will not remove beaver and/or beaver dams in cases of flooded swamp hardwood or swamp conifer types.
- Beaver abatement may be conducted if flooding threatens cedar stands
- Flooding that impacts forest roads will be addressed in cases where it impacts a major public access or in cases where it impedes access for timber management

- Town road flooding will be managed by the Forestry Department ONLY in those cases where dams are located on County Forest. Dams located in culverts and rights of way are the responsibility of the Town, County or State.
- The Forestry Department will contract with APHIS to conduct a majority of beaver control and may utilize private contractors
- The County may also promote sport trapping to control nuisance populations. These efforts may include permits for motorized travel in closed units or on closed roads (primarily winter use).

More information on beaver management is available at:

<https://dnr.wisconsin.gov/topic/Wildlifehabitat/plans.html>

#### 830.6.4 Oak Savannah

This Plan recommends that Forestry Department staff continue to solicit assistance from the Wisconsin Department of Natural Resources to develop a management plan, and also assistance in undertaking management activities, on sites that may contain oak savannah characters. See Section 835.3.8

#### 830.6.5 Other Wildlife Management Projects

Other specific wildlife habitat projects on the Forest are likely to be proposed during this planning period. For proposals aimed at providing certain specific management or habitat alterations will be submitted to the Washburn County Forestry, Parks and Recreation Committee for review. The Committee will only review proposals that are submitted or sanctioned by the Wisconsin Department of Natural Resources. Proposals by private individuals, non-profit organizations or others will not be entertained by the Committee unless they are specifically managed and supported by WDNR.

#### 830.6.6 Wildlife Habitat Grant

The Department of Natural Resources, under 23.09(17m) Wis. Stats., makes an annual appropriation for the development of habitat on County Forests. The current payment is 5 cents per acre (pro-rata) for approved projects designed to benefit wildlife and the natural environment. 23.09(17m)(d) identifies that the application shall be made, “as part of the comprehensive county forest land use plan prepared under s. 28.11”, which is a reference to

this Plan. To that end, this section is considered the “application” and the following projects are to be considered as eligible under the annual wildlife habitat grant:

- Wildlife openings maintenance, including purchase of herbicide for treatments and reimbursement of county equipment and labor for management of the openings program.
- Purchase of jack pine or other seed to promote, establish, or enhance declining forest types.
- Site preparation projects for jack pine, oak, white birch, or other natural forest types
- Purchase of signs, gates and reimbursement of labor and equipment that implements the road and access plan.
- Mechanical or chemical release needs for natural jack pine regeneration sites.
- Flowage inspections, repairs, maintenance, enhancement, or flowage removal projects.

#### 830.7 FISH AND WATERS MANAGEMENT

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

##### 830.7.1 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 DNR and will be conducted as needed by fisheries biologists.

##### 830.7.2 Trout Lakes on the County Forest

The WDNR has been stocking fingerling brook trout and rainbow trout in certain small ponds on the Forest since 1996. There are a high number of small lakes on the Forest that are usually fishless and prone to winterkill. Many of these, even though prone to periodic winterkill, provide high nutrient conditions for trout growth. Fingerlings are stocked in spring and often reach legal size by late summer. Trout that survive through to a second season often show a tremendous size increase.

These trout lakes are very popular and provide a unique fishing experience. Ice fishing is extremely popular. This Plan recommends that the County continue to support management of this fishery and also recommends that funding should be sought to help offset costs if WDNR is required to scale back the program. Trout lakes are identified in Chapter 3000.

#### 830.7.3 Trout Streams

While there are many streams located within the County Forest, cold water streams containing trout are not common. There may be opportunities to enhance those streams classed as trout stream. In particular, there may be opportunity to improve habitat on those streams associated with Godfrey Creek and Little Bean Brook, as well as other scattered cold water streams in the County.

#### 830.7.4 Other Fisheries Projects

Specific fisheries projects on the Forest are likely to be proposed during this planning period. Proposals to provide certain specific management or habitat alterations will be submitted to the Washburn County Forestry, Parks and Recreation Committee for review. The Committee will only review proposals that are submitted or sanctioned by the Wisconsin Department of Natural Resources. Proposals by private individuals, non-profit organizations or others will not be entertained by the Committee unless they are specifically managed and supported by WDNR.

#### 830.7.5 Important Water Resources

Washburn County Recognizes the following as important, major water resources within, adjacent or near the County Forest:

Long Lake      One of the larger lakes in the County. The lake has high recreational demand and is adjacent to large blocks of County Forest.

Namekagon River      This River intersects numerous County Forest blocks and is designated as a National Scenic Riverway

Totogatic River      This River crosses the northern portion of the County and intersects several large forest blocks. The river is designated as a State Wild River.

Other unique water resources are identified in Chapter 3000

#### 830.7.6 Shoreland Zoning

Washburn County has adopted County Shoreland Zoning as part of the Washburn County Code of Ordinances. Prior to the adoption of Act 170, adopted by the State Legislature in 2011, management activities on the Washburn County Forests are exempted provided the management complies with BMP's for water quality and riparian protection standards are incorporated into this Plan. Act 170 restricted the ability of the County to adopt shoreland zoning requirements that were more restricted than State Administrative Code. Most counties adopted the state standard as county zoning. This Plan recognizes and asserts that NR115 and subsequently County Zoning provide for silvicultural exemptions for forest management adjacent to shoreline.

#### 830.8 LEGALLY PROTECTED AND SPECIAL CONCERN ANIMAL SPECIES

There are animals in Wisconsin that are protected under the Federal Endangered Species Act, the State Endangered Species Law, or both. The Federal Migratory Bird Act provides additional protection for certain species of birds. The County will prescribe management techniques intended to avoid impacts to endangered, threatened or special concern animals during the course of forestry/silviculture activities.

The Wisconsin Department of Natural Resources Bureau of Natural Heritage Conservation tracks information on legally protected animals 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 County has access to this data under a license agreement and is committed to reviewing this database for endangered resources that occur within proposed land disturbing project areas.

##### 830.8.1 Legally Protected Animal Species Identified by NHI on or Near County Forest (as of 2019).

*This information is intentionally generalized to prevent disclosing more precise locations.*

<u>Name</u>	<u>Federal Status*</u>	<u>State Status**</u>	<u>Date Recorded</u>	<u>Type</u>
Little brown bat	None	THR	2011	bat
N. long eared bat	LT	THR	2014	bat

American bittern	None	THR	2010	bird
Black tern	SOC	END	2016	bird
Connecticut Warbler	None	SC	2012	bird
Kirtland's warbler	LE	END	1988	bird
Least flycatcher	None	SC	2018	bird
Northern goshawk	SOC	SC	various	bird
Gilt darter	None	THR	various	fish
Pugnose shiner	None	THR	various	fish
Predacious diving beetle	None	SC	various	insect
Gray copper	None	SC		
Prairie skink	None	SC	1988	lizard
Elktoe	None	SC	2012	mussel
Purple wartyback clam	None	END	2012	mussel
Blanding's turtle	None	SC	various	turtle
Wood turtle	SOC	THR	various	turtle
Gray wolf	LE	SC	various	mammal
Franklin's ground squirrel	None	SC		mammal

830.8.2 Other Legally Protected Animal Species Identified by NHI in Washburn County (*as of 2019*).

*This information is intentionally generalized to prevent disclosing more precise locations.*

*(This list does not necessarily include all species)*

<u>Name</u>	<u>Federal Status*</u>	<u>State Status**</u>	<u>Date Recorded</u>	<u>Type</u>
Canada jay	None	SC	2018	bird
Common nighthawk	None	SC	2012	bird
Golden winged warbler	SOC	SC	2018	bird
LeConte's sparrow	None	SC	2010	bird
Pronghorn clubtail	None	SC	2008	dragonfly
Sioux snaketail	None	SC	1980	dragonfly
Lake sturgeon	None	SC	1979	fish
Ozark minnow	None	THR	various	fish
River redhorse	None	THR	2014	fish
Mink frog	None	SC	2018	frog
N. bar tiger beetle	None	SC	1999	insect

*\*LE= Federally Listed Endangered; LT= Federally Listed Threatened; SOC= Federal Species of Concern*

*\*\*SC= State Special Concern; THR= State Threatened; END= State Endangered*

### 830.8.3 Karner Blue Butterfly

The Karner blue butterfly (*Lycaeides melissa samualis*) was listed by the U.S. Fish and Wildlife Service as an endangered species in 1992. It is not listed as state threatened or endangered but is recognized as a species of special concern. The butterfly is endangered primarily due to loss of habitat in other parts of the United States. To date, it has not been found on the Washburn County Forest, but parts of the Forest are designated as Karner Blue Butterfly High Potential Range (HPR). The presence of wild lupine also indicates probable habitat.

Washburn County adopted a Habitat Conservation Agreement (*Washburn County Resolution No. 56-98*) in 1998. In 2003, the U.S. Fish and Wildlife Service issued an incidental take permit to the Wisconsin Department of Natural Resources Habitat Conservation Plan (HCP) partners. This incidental take permit allows Washburn County to manage lands within Karner blue habitat as long as surveying and monitoring protocols for the butterfly are followed.

The Washburn County Species and Habitat Conservation Agreement for Surveying and Monitoring Protocols, made part of Washburn County Board Resolution No. 56-98, and a map of HPR range are appended in Chapter 1000. More information is available at:

<https://dnr.wi.gov/topic/endangeredresources/karner/>

### 830.8.4 Northern Long Eared Bat and Other Bats

As of January 1, 2020, the Northern long eared bat is listed as Federal and State threatened. This bat species, and others, have seen drastic population declines over the last several years. They are impacted by white-nose syndrome, which is a disease that affects hibernating bats. It is caused by a fungus that attacks the skin of bats while they're hibernating. The disease is an irritant that impacts hibernation activities. Infected bats do not have the ability to survive hibernation.



As of 2019, the U.S. Fish and Wildlife Service issued a 4(d) ruling on Northern long eared bat. A 4(d) ruling allows the U.S. Fish and Wildlife Service to promulgate special rules for species listed as threatened. One or more bat species may soon be reclassified as endangered. When this happens, the U.S. Fish and Wildlife Service provides the opportunity to develop a Habitat Conservation Plan (HCP). In preparation, the Wisconsin Department of Natural Resources and neighboring states are developing a bat HCP that will allow forest management activities to continue.

Even though white-nose syndrome has been the cause of drastic bat population declines, which is spread through bat contact during hibernacula, summer maternity roosts have been identified as critical habitat. Many bats will roost in tree cavities, cracks, and bark pockets. A bat endangered species listing has the potential to impact forest management activities across the entire landscape. At a minimum it could restrict summer logging activities, which would likely be a devastating impact to the logging industry.

It is critical that Washburn County, and the Wisconsin County Forests Association remain engaged in the bat HCP process to ensure that conservation measures that protect bat habitat are drafted and implemented in a way that minimizes impact on the timber industry.

### **835 EXCEPTIONAL RESOURCE, UNIQUE AREAS**

The Washburn County Forest contains numerous areas that are considered exceptional or unique. Some are recognized by other agencies, others are designated only in this Plan. Exceptional resources include such areas as wild rivers, lakes, natural areas, and unique geological features, historical and archeological sites. It is Washburn County's intent to manage these resources to enhance and protect their individual exceptional features.

These exceptional areas will be visited periodically to assure that the sites are not impacted by damaging agents (invasives, motor vehicle violations/damage, trespass, etc.). In addition, the County can also use new GIS technology (LIDAR, new aerial photography, others) as well as visually inspect the areas during monitoring flights for other projects (oak wilt detection flights and others). The County does not have the financial or staff resources to conduct intensive formal monitoring, but will make at least annual efforts to look at these areas to find potential impacts. Any monitoring efforts on these sites are to be documented and forwarded to the Forest Administrator for inclusion in a permanent

record. If the area is stand specific, or if a certain stand is identified as a representative of the whole area, the monitoring record can be included in the WisFIRS system.

#### 835.1 HIGH CONSERVATION VALUE FORESTS FOR FSC CERTIFICATION

The Forest Stewardship Council® recognizes high conservation values as, *“from endemic species to sacred sites, all natural habitats – especially forests – inherit conservation values. Those biological, ecological, social or cultural values of outstanding significance are known as ‘high conservation values,’ or HCVs.”* Recognition of High Conservation Values (HCV) is an important component of the FSC certification program.

Washburn County is also certified as sustainable under the Sustainable Forestry Initiative®, which requires “Conservation of Biological Diversity” under Objective 4. For the purpose of this Plan, the principal of High Conservation Value is presumed to also meet the requirements of “Conservation of Biological Diversity”.

The Forest Stewardship Council® developed the FSC-US Draft High Conservation Value Forest Assessment Framework, dated as revised July 7, 2010. The FSC-US Management Standard references that this document may be used as a resource to assess the presence of High Conservation Values on the Forest. High Conservation Values within these documents are categorized as follows:

HCV 1: Forest Areas containing globally, regionally or nationally significant concentrations of biodiversity values.

HCV 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.

HCV 3: Forest areas that are in, or contain rare, threatened or endangered ecosystems. Rare, threatened and endangered ecosystems include old growth, roadless areas, and other ecosystems that are considered ‘rare’ at a global, regional, local (state) level.

HCV 4: Forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control)

HCV 5: Forest areas fundamental to meeting basic needs of local communities (e.g., subsistence, health, well-being).

HCV 6: Forest areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

As part of the 2006-2020 Washburn County Forest Comprehensive Land Use Plan, certain areas were analyzed by staff from the Wisconsin State Natural Areas program for potential inclusion as High Conservation Value Forests (HCVF). These areas included Transus Lake Natural Area, Oak Lake, Birchwood Lakes, Crystal Swamp, Lost lake Acid Bog, Chicog savannas, South Fork of Bean Brook Springs, Namekagon River and Totogatic River. Washburn County has analyzed these resources using the best available information and has determined that, while these are unique resources, they do not meet the criteria of High Conservation Value.

Analysis of Natural Heritage Conservation and other data has not resulted in the identification of other resources on the Washburn County Forest that warrant designation as High Conservation Value.

#### 835.1.1 Recommendations for High Conservation Values

- Continue to analyze Natural Heritage Conservation data (Natural Heritage Inventory) and other data sets against the UFSC-US Draft High Conservation Value Forest Assessment Framework to determine possible future designations.
- Identify areas of potentially older forests that may qualify as Type 1 or Type 2 old growth as an HCV 3: *See Section 835.5*  
Type 1: “stands that have never been logged and display late successional/old-growth characteristics”  
Type 2: “stands that have been logged, but which retain significant late-successional/old-growth structure and functions.”
- Evaluate Karner Blue Butterfly High Probability Range to determine if this area meets the criteria for HCV 3.

- Request data assistance from WDNR Ecologists to determine status of Chicog savannas to determine if sufficient characters remain to meet criteria HCV criteria related to barrens and savannas.
- Look for opportunities to collaborate with local or regional tribal representatives to help identify any possible areas of cultural importance.

## 835.2 AREAS RECOGNIZED BY STATE OR FEDERAL GOVERNMENT

### 835.2.1 State Natural Areas

#### Tranus Lake State Natural Area

Tranus Lake is a 174 acre shallow, soft water, drainage lake with abundant aquatic vegetation. The site, when compared to others of its type in Wisconsin was determined to be an exceptional ecological resource.

In 1993, Washburn County and the Department of Natural Resources cooperatively designated Tranus Lake as a State Natural Area in order to recognize its special features. This area is a benchmark for assessing management of shallow drainage lakes containing wild rice.

The County agrees to manage the Forest along Tranus Lake in a manner consistent with a policy of long-term maintenance and preservation of the natural values on the Tranus Lake State Natural Area. A management plan is incorporated into the MOU and includes a five chain (330 feet) zone along the shore where the County will consider special management techniques to protect the lake. This MOU can be found in Chapter 1000.

#### Totogatic Highlands Hemlocks

Totogatic Highlands is a mesic and wet-mesic forest that includes stands of large hemlock with yellow birch, basswood and elm. The hemlock stands on this parcel are thought to be the western most stands of Eastern hemlock in the United States. This is a 160 acre parcel owned and managed by DNR that is remote and completely surrounded by County Forest. The natural communities on this parcel are recognized by NHI.

### 835.2.2 Endangered Species Habitats

The Washburn County Forest contains Karner Blue Butterfly High Probability Range. See Section 830.8.3

### 835.2.3 Rivers

#### Namekagon

Several stretches of the Namekagon River flow through the Washburn County Forest. The Namekagon is designated by the Federal Government as a National Scenic Riverway and managed by the National Parks Service. There are many miles of shared property boundary between the Federal Government and Washburn County Forest. The Namekagon is designated as an Outstanding Resource Water.

#### Totogatic

The Totogatic River runs across the northern portion of Washburn County and bisects one of the larger County Forest blocks. The Totogatic was designated as a State Wild River in 2009. Washburn County had managed the stretches flowing through County Forest as a County Wild River for many years prior to the state designation. State Statutes provide for protection measures along the river.

The County will not permit structures, facilities, roads or other permanent alterations of the shoreline within 200 feet of the river. Silvicultural practices are permitted as long as aesthetic prescriptions are utilized and generally no harvesting will be allowed within 100 feet, or a visual distance from the river's edge. Recreational development of the area for increased convenience of the public will not be permitted. The Totogatic is designated as an Outstanding Resource Water.

### 835.3 AREAS RECOGNIZED BY THE COUNTY OR LOCALLY

#### 835.3.1 Silent Wood Benchmark Area

The area of County Forest bounded by the Totogatic River on the south and west; Douglas County on the north; and Sawyer County on the east is known as the "Silent Wood" Unit. Compartment 75 is a reserve area intended as a benchmark stand to help illustrate how the forest evolves without forest management prescriptions. The unit is entered into the Special Use category of the County Forest Law.

There is little evidence of modern management found within the unit, other than a few old roads and an older timber sale trespass (less than 2 acres on the south). A focal point of the area is the 3 miles of undeveloped river frontage.

This unit will continue to be set aside as a benchmark unit without forest management prescriptions. Its non-managed conditions will provide additional unique character to the Totogatic River corridor. This area is designated under Integrated Resource Management Unit 4 as described in Section 3000.4.

#### 835.3.2 National Scenic Riverway Zone

Washburn County has established a Wild River Zone on any County Forest Lands within 400 feet of the Namekagon River. This zone of adjusted management allows for a 100-foot zone of no forest management, with the exception of salvage.

Many areas of this riparian zone can be highly erodible soils, which can be aggravated by public uses. Projects intended for stabilization, reforestation, and invasive species control, or other ecological practices are allowed within this area. More information is available in Section 530. The Namekagon River is part of Integrated Resource Management Units 5, 8 and 9 and described in Sections 3000.5, 3000.8 and 3000.9.

#### 835.3.3 Birchwood Lakes

The Birchwood lakes area lies within the southeast corner of Washburn County. The outstanding feature of this area is the dense concentration of lakes set in a relatively natural state. Lakes exhibit differences in species composition and population densities due to factors such as depth, alkalinity, shore features, and drainage. Many of the lakes have bass and panfish.

The area is actively managed and most lake shores are considered aesthetic management zones. In many cases, management adjacent to the lakes is done with a goal of converting forest types to longer lived species (northern hardwood). A majority of the Birchwood Lakes area is considered Primitive Area with restrictions on motorized access. This Plan recommends retaining non-motorized designations. The Birchwood Lakes are also described in Section 530.11 and are part of Integrated Resource Management Units 12 and 13, as described in Sections 3000.12 and 3000.13.

#### 835.3.4 South Fork of Bean Brook Springs

The springs originate from the base of hilly moraine deposits. The seepage springs are at the head of the south fork and cover about 3 acres. Beaver tend to flood the area periodically.

These springs are part of Integrated Resource Management Unit 10 as described in Section 3000.10

#### 835.3.5 Crystal Swamp

Crystal Swamp is an 800-acre black spruce bog. The site has a history of wildfires entering the bog that has resulted in an unusual vegetative patterning. The bog is a classic example of peat development in shallow lake basins. The center of the bog accumulates peat much faster than the edges and rises above the elevation of the edges. The raised areas drain towards the outside creating differences in water chemistry across the bog. The Crystal Swamp is part of Integrated Resource Management Unit 10 as described in Section 3000.10

#### 835.3.6 Lost Lake Acid Bog

Lost Lake Bog is over 1000 acres in size and surrounds a 41 acre acid bog lake. The lake is 10 feet deep with very dark stained water. The extensive bog wetlands are dominated by black spruce and leatherleaf. This bog is one of 15 to 20 large bogs remaining in the state. These large bogs exhibit different successional pathways than others and actually become more acidic over time. The Lost Lake Acid Bog is part of Integrated Resource Management Unit 3 as described in Section 3000.3.

#### 835.3.7 Oak Lake

Oak Lake is an 83 acre shallow, soft water seepage lake that is subject to fluctuating water levels. It averages 5 feet deep and has only minnows as a fishery. This lake is one of the largest and least disturbed of its type left in Wisconsin. Oak Lake is one of only seven high rated shallow, soft water seepage lakes in the state and only one of three in northwest Wisconsin. Recommendations from DNR staff in the past have been to keep the shoreline open in order to mimic the historic regular fire disturbance. Oak Lake is part of Integrated Resource Management Unit 8 as described in Section 3000.8

#### 835.3.8 Oak Savannas

Oak savannas are considered a rare community and intact or restorable savannas are not common. There are several sites on County Forest, in the Towns of Chicog and Casey, which exhibited oak savannah characters. DNR ecologists visited these sites around the year 2000 and found plant species indicative of oak savanna. 40% of high indicators were found and 60% of moderate indicators were present. The following sites were reviewed by ecologists:

- Section 15 T41N-R13W (Hallstrom Woods)
- Section 5 T41N-R13W (Webb Creek Drive)
- Section 31 T41N-R13W (Bear Trail Lane)
- Section 29 T40N-R13W (Fire Tower Lane)

These ground species were not readily apparent when these sites were re-visited in 2019. The Fire Tower Lane site appeared to have the best opportunity and the site was harvested in 2019 under a prescription that mimicked historical oak savanna characters. It is assumed that these savanna sites develop as a result of thousands of years of natural wildfires burning across the adjacent dry sands worked their way into these wetter uplands and extinguished. Washburn County will continue to work with DNR specialists to further define management objectives on this site.

These sites warrant special recognition and management and they are available for future analysis should researchers wish to pursue management options. Washburn County will not, however initiate any projects without outside expertise and funding.

These 4 sites are part of Integrated Resource Management Unit 8 as described in Section 3000.8

#### 835.3.9 Other Areas

There are a number of other areas on the forest that are considered unique or are managed with other goals. The following special management areas are recognized and further described in the Integrated Resource Management Units within Chapter 3000.

- Birchwood Canoe Unit (Section 3000.13)
- Cedar Creek Unit (Section 3000.3)
- Harmon Grouse Management Unit (Section 3000.12)
- Welsh Lake Grouse Management Unit (Section 3000.15)
- Hallstrom Woods Unit (Section 3000.8)

#### 835.4 CULTURAL, HISTORICAL, ARCHEOLOGICAL SITES

The County Forest has a rich history of historical evidence. Logging camps, dams, homesteads, and evidence of Native American activity is noted throughout the forest. Sites of historical importance are protected on the Washburn County Forest and any digging, disturbance, or



collection of artifacts is prohibited. A more extensive list, in addition to those recorded by the State Historical Society, is maintained by the Forestry Department. A majority of these locations are, and will continue to be held, confidential. The Forest Administrator will recognize and identify historic and archeological sites as they become evident.

The historic sites listed below will be managed in the best interest of Washburn County. Actions will be taken to preserve sites in their present state until the Committee, in cooperation with other agencies, decide how to further manage them. Sites identified within this Plan:

1. CCC Camp Minong

Managed as an educational site. Building sites and a self-guided tour will be maintained for persons interested in the history of the Civilian Conservation Corps. Forest products may be removed with proper restrictions to protect the sites.

2. Harmon Lake Logging Camp Site

This logging camp was located near Harmon Lake. Permanent structures, facilities or roads are not permitted on the site. Historic artifacts remain the property of Washburn County

It is likely that there are numerous sites of importance relating to Native American history and culture. Sites will be protected as they are found and it appears that a collaborative relationship between the County and tribes to help identify tribal sites of significance would be a greatly beneficial to efforts in protection.

#### 835.5 OLD GROWTH / OLD GROWTH CHARACTERS

The term “Old Growth” is used with greater frequency when discussing resource management and especially forest management. This Plan does not incorporate or recognize a definition for old growth, primarily due to lack of universally accepted terminology. Some definitions tend to be arbitrary, most likely due to the large spatial and temporal variety of physical conditions on a landscape, as well as subjective due to variable human values and perspectives.

While this Plan does not recognize a formal definition for “Old Growth” the County does recognize that many concepts of “Old Growth” generally includes the following characters:

- Advanced or older stand ages
- Diversity of tree sizes and ages (vertical canopy structure)
- Presence of very old and/or large trees
- Presence of standing dead trees

- Dead stumps and coarse woody debris

Washburn County has not recognized or identified any sites as designated old growth either historically or as part of this Plan. Given the landscape scale forest replacement event(s) that occurred in the late 1800's and early 1900's, it is likely that any forest stands of advanced age are rare. It is not feasible to create/designate old stands in order to create old growth. It is, however, feasible to create forest conditions with old growth characteristics. Characteristics such as coarse woody debris, cavity and den trees, climax successional stages, large trees, standing dead trees, etc. can be cultivated as part of, and through forest management prescriptions.

### 835.5.1 Passive Management Prescriptions Providing Old Growth Characters

#### 835.5.1.1 Silent Wood Unit

The Silent Wood Unit, as identified in Section 530.5 and 835.3.1, is a non-managed unit set aside as a benchmark. Over time, it can be assumed that this second growth stand, left alone, will gradually develop many of the characters common to old growth definitions.

#### 835.5.1.2 Non-Managed Stands and Areas

On the Forest, there is significant forested acreage that is not actively managed. They may be unmanaged due to local decisions, regulatory issues, visual impact, riparian considerations and others. These areas may also contribute to the presence of old growth characters. The following areas are typically where un-managed stands may be located:

- Riparian management zones
- Certain aesthetic management zones
- Non-managed forest types (cedar)
- Swamp hardwoods and conifers that are not commercially viable
- Inaccessible stands (islands, steep slopes, landlocked, etc.)

#### 835.5.1.3 Recommendations Relating to Old Growth

1. Document any stands that appear to qualify as Type 1 Old Growth as defined by Forest Stewardship Council® (Stands that have never been logged and display late successional/old-growth characteristics) and identify for protection.
2. Document any stands that appear to qualify as Type 2 Old Growth as defined by Forest Stewardship Council® (stands that have been logged, but which retain significant late-successional/old-growth structure and functions.) and identify for special management.

3. Look for opportunities to provide a percentage of stands as extended rotation forest within the major forest timber types (even aged)
4. Evaluate and document stands representing the presumed climax overstory for each of the major forest habitat classifications. If these samples are lacking, look for opportunities to create stand conditions.

## **840 AESTHETICS**

Public perception of forestry has seemed to change significantly since the last planning period. In general, it appears that the public is much more accepting of the visual impacts of sound forestry. In response, Plan language relating to aesthetic management has been simplified. Aesthetic management zones are now itemized on an individual unit basis. Specific zones and prescriptions are contained in the Integrated Resource Management Unit narratives in Chapter 3000.

### **840.1 AESTHETIC MANAGEMENT**

Aesthetic management techniques may be prescribed in areas of high visibility or high public use. Altered management, visual screens, slash disposal, conversion to other species and other methods may be used depending on the specific site.

### **840.2 AESTHETIC MANAGEMENT ZONES**

Aesthetic management zones include areas where there may be high levels of public use or some use of the area that would be enhanced by application of an aesthetic management zone.

#### **840.2.1 Aesthetic Management Zone Examples**

- Parks, recreation areas
- Recreational trails
- Lakes, rivers or streams with recreational use
- Roads with heavy traffic
- Scenic drives

#### **840.2.2 Aesthetic Management Zone Prescriptions**

The following aesthetic management prescriptions may be utilized on the Forest:

- Adjustments or restrictions on timber sale timing
- Slash restrictions
- Staggered harvests / visual screens

- Forced conversion to longer lived species
- Irregular harvest lines / interrupted site distances

#### 840.2.3 Regulated Aesthetic Management Zone Areas

Washburn County has two scenic easements with the State Department of Transportation along state highways. One is located in Section 1 T40N-R11W and is associated with the wayside on Highway 63. The second is located in Sections 7 & 8 T41N-R13W and is associated with the National Scenic Riverway and Highway 77.

In addition to the regulatory easements, Washburn County also has regulated aesthetics management associated with the Tranus Lake Natural Area, Totogatic Wild River Corridor and Namekagon National Scenic Riverway. More information on these aesthetic areas is contained in Chapter 3000.

## **845 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 landscape, but also to try to provide for resources or forest types that are lacking or declining within surrounding areas. This concept has been a part of the Washburn County Forestry planning effort since 1996.

The following concepts are considered a part of management on the County Forest:

### 845.1 CONSERVATION OF BIOLOGICAL DIVERSITY

For the purpose 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 Washburn County Forest enhance biological diversity by managing for a wide variety of habitat types, age structures, and by attempting to perpetuate declining forest types.

Opportunities to manage the Washburn County Forest towards these goals will be continued and improved, provided they are deemed to be in the public's best interest by the Committee and within the framework of the County Forest Law.

### 845.2 LACKING OR DECLINING FOREST TYPES

A goal of this Plan is to emphasize promoting those forest types that are lacking, declining, or are potentially declining on the surrounding landscapes. Species such as jack pine, white birch and balsam fir are declining, primarily due to lack of natural disturbances on the forest. Other species of concern are red oak, natural stands of red and white pine, and aspen. Statewide inventories show declining trends in all of these types. Washburn County will continue to aggressively manage for the regeneration of these species and others like them.

More information on these resources and the specific management goals are identified in the Integrated Resource Management Units contained in Chapter 3000.

#### 845.3 HABITAT FRAGMENTATION

For the purpose 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 lands to other uses.

### **850 CARBON MANAGEMENT AND STORAGE**

Markets for carbon storage on forest lands appear to be developing quickly at the time of the drafting of this Plan. There are numerous, large companies that are proposing to be carbon “neutral” by a designated future date. Programs are developing that allow these markets, also known as “voluntary” markets to purchase carbon storage/credits from external sources. Many of these programs are viewing stored carbon in wooded settings as desirable offsets within their business plans.

Initial investigation shows opportunity for County Forest programs to market baseline carbon storage through an “Improved Forest Management” (IFM) project. IFM projects could reward current and ongoing maintenance of carbon storage above a baseline scenario.

This market appears to be an emerging one and could present opportunities for significant financial gains to Washburn County. These projects also are likely to be complex and time consuming. This Plan recommends that Washburn County investigate possible carbon markets within the following constraints:

- Projects will be consistent with County Forest Law and other legal constraints
- Washburn County will not enter into carbon agreements that purposefully reduce or restrict the ability to sustainably manage forest products

- Washburn County may consider designating non-management zones in certain forest types that are currently difficult to access (wet) or problematic to manage sustainably. Swamp conifer, bottomland hardwood, natural red/white pine stands are examples of this category.
- Washburn County will investigate working with a consultant to guide the process.
- Both “turn-key” and more internally developed projects will be investigated and considered
- Washburn County will look for opportunities to “annualize” payments as much as feasible in order to prevent lump sum payments on the front end.
- The Forestry, Parks and Recreation Committee will make efforts to retain some percentage of revenues for recreation and land acquisition projects.

## 855 INTEGRATED RESOURCE MANAGEMENT UNITS

Previous chapters have outlined planning objectives, decision guides and management considerations for administering the Washburn County Forest.

The intent of using Integrated Resource Management Units is to document the differing characteristics of individual units on the Forest, as well as any unique management considerations. Resource managers can use these chapters as a tool to guide management and to communicate management goals and resource needs to other foresters and resource managers. These same chapters can provide valuable information to the public to help with understanding how and why management prescriptions are implemented.

### 855.1 UNIT NARRATIVES

Each Integrated Resource Management Unit (IRMU) are to contain the following information:

1. Resource Map
2. Forest reconnaissance compartments
3. Unit acreage
4. Predominant cover types (including changes over time if available)
5. Ecological Landscapes – *See Section 300.2.4 for more information*
6. Landforms
7. Soils
8. Forest Habitat Types
9. Water resources
10. Recreation
11. Historical, cultural, archeological sites (generalized)

12. Protection needs
13. Aesthetics
14. Land control
15. Forest management goals and guidelines
16. Site specific management opportunities

**INTEGRATED RESOURCE MANAGEMENT UNITS ARE FOUND IN CHAPTER 3000**