Chapter 3
Management Area Direction

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Introduction

The 1986 Land and Resource Management Plans for the Chequamegon and Nicolet National Forests included specific direction on how to manage different land areas. Management Areas (MAs) are also used in this Forest Plan to define where different management activities and vegetative emphases are applied. Each area is defined by a primary emphasis or MA Prescription that guides activities taking place within it. All National Forest System lands administered by the Chequamegon-Nicolet National Forests are managed according to these prescriptions.

MA 1-4 polygons are based on Chequamegon-Nicolet National Forest LTA boundaries, a landscape scale ecological unit of the Forest Service national hierarchical framework of ecological units. These units are relatively homogeneous with respect to terrestrial resources—such as potential for vegetative communities, soils, landform—and some aquatic resources. Management Area 6 polygons were developed using Recreation Opportunity Spectrum criteria, and boundaries often follow existing roads. MA 8 polygons generally are too small to follow LTA boundaries and often correlate with forest type or political boundaries. In addition, an aquatic desired future condition for the Chequamegon-Nicolet National Forests is included at the end of this Chapter. The description of desired condition covers the whole forest and includes descriptions of watersheds and riparian and aquatic habitats. Forestwide Standards and Guidelines listed in Chapter 2 of this document will allow the Forests to progress toward desired conditions.

MAs are grouped into eight major categories using numeric codes. In general, the numeric codes are the same as those used in the 1986 Forest Plans. As part of the revision, the numeric MA categories have been divided further into subcategories by using a letter code to differentiate between each MA subcategory. Therefore, each MA is identified by number and letter and is defined using the following elements:

- **Theme**—a short summary of management emphasis.
- **Landscape Description**—a brief description of the geophysical and ecological classification of the areas included.
- **Desired Future Condition**—a detailed description of the desired ecological characteristics and vegetation management of the areas included in the MA, including Landscape Level Vegetative Composition and Structure, Site Level Vegetation Composition and Structure, and Disturbance Regime.
- **Standards and Guidelines**—management direction specific to each MA, beyond that provided by Forestwide Standards and Guidelines. Some MA Standards or Guidelines apply to the whole MA; others apply to only one subcategory of the MA.

In addition, MAs can overlap, such as where a Research Natural Area is located within potential Wilderness. Each MA prescription contains Standards and Guidelines specific

to that MA; however, when overlap occurs, the more stringent or restrictive Standards and Guidelines apply.

Each MA category is presented separately in this chapter. If a specific resource is not addressed in an MA prescription, then the Forestwide Standards and Guidelines provide adequate direction. In addition, federal and state laws and regulations and the Forest Service Directives System always apply, although they are not specifically identified in MA direction. Some terms used in Management Area descriptions, such as Habitat Type or outwash plains, are not defined in the text. See the Glossary in Appendix EE for definitions.

See the Alternative maps in the Map Packet to view the spatial allocation of MAs in the Selected Alternative. Particular MAs can occur more than once and in multiple locations on the Forests.

Management Area boundaries shown on maps in the Map Packet were developed at the landscape scale and were somewhat generalized (smoothed) during the development process. Land Type Association boundaries were often originally drawn using wide lines on fine scale maps. In turn these were based on even broader scale ecological units (Province, Section, Subsection). While distinct Management Area boundaries based on LTA's are displayed on maps, they in fact represent wide or "fuzzy" boundaries as one LTA grades into another LTA on the ground. Forest "stands" are identified at a high resolution, have not been smoothed, and generally closely follow features that demarcate fine scale details including land type phase or forest overstory type. The stand level detail of geography is often the scale used for site-specific analysis at the project level. Decisions at the landscape scale (Forest Plan MA boundaries) guide decisions at the project level. However, since the MA boundaries are broadly defined and have been generalized, decisions at the site-specific or project scale where MA boundaries meet, may be more influenced by the stand boundary than by the Plan MA boundary. Scale differences in the two data sets will require interpretation and wise application of Plan guides and direction.

During implementation of the 2004 Forest Plan, the scale of project level analysis will be chosen to be appropriate for the site-specific project. Due to the finer scale, small adjustments may be made in MA boundaries to match the scale of project level analyses. However, forestwide monitoring and other comparisons will continue to use Management Area boundaries developed at the landscape scale and displayed on maps in the Map Set.

In addition, mapping errors that have occurred will be corrected. As more accurate locations of roads, political boundaries, or other geographic boundaries are incorporated into geo-spatial data (either during project analysis or during digital data updates), boundaries used in the 2004 Plan will be adjusted to ensure their accuracy along these applicable boundaries, without amending the Plan.

Management Area 1

Theme

Simply structured early successional forests (primarily aspen) characterize MA 1. Ruffed grouse and deer hunting are the primary recreational activities within a wide range of recreation opportunities. White-tailed deer, ruffed grouse, beaver, and chestnut-sided warblers are some wildlife species associated with pioneer vegetation.

Landscape Description

Rolling topography with slope gradients of approximately 5-15% characterizes MA 1. Glacial landforms include outwash plains, washed moraines, and drumlins. Soils have sandy to loamy surfaces over sandy sediments, the soil moisture regime is dry-mesic to mesic, and soil nutrient status is poor to medium. Forest Habitat Types common to these areas include: PArVAa-Po, PArVAa, AVVb, AVb, and ATM. Wetlands are abundant. Argonne and Wabeno Plains; Jump River and Perkinstown Moraines; Lakewood Plains & Moraines; Bayfield Rolling Outwash and Washed Till; Chequamegon Washed Till and Outwash and Glidden Drumlins are common Land Type Associations (LTAs).

Desired Future Condition

MA 1A Early Successional: Aspen

Landscape Composition and Structure

Early successional forest communities dominate MA 1A. Aspen, the most prevalent early successional tree species, is maintained in a shifting mosaic pattern of age classes across the landscape. Numerous small, simple patches with a high degree of edge are created through even-aged management, resulting in significant contrast among patches. Temporary openings, young forests and small permanent openings are commonly interspersed throughout the area.

Table 3-1. Management Area 1A – Upland Forest Type Composition Objectives

Species Group	Desired Composition (percentage)	Summary* (percentage)
Aspen	50-75	Early Successional 50-92
Balsam Fir	0-10	
Paper Birch	0-5	
Jack Pine	0-2	
Red Pine/White Pine	5-15	Red Pine/White Pine 5-15
Northern Hardwoods	5-20	Hardwoods 5-25
Oak	0-5	
Permanent Openings	1-4	
Other Forest Types	0-5	

**Early Successional: Aspen, Balsam Fir, Paper Birch, and Jack Pine; Hardwoods: Northern Hardwoods and Oak.*

Site-Level Composition and Structure

Early successional forests are structurally simple; yet retain important habitat features such as snags and downed logs. Trees within each forest patch are approximately the same age, but ages vary between patches. Forest patches (managed with an even-aged silvicultural system) tend to be younger than those within other MAs, and vary from 10 to 40 acres in size. Some within stand tree species diversity is maintained by reserving scattered individuals and small groups of long-lived conifers, mast, den, and snag trees.

Disturbance Regime

Human-caused disturbance that maintains early successional communities is evident, frequent, and intensive. Management activities such as clearcutting and shelterwood harvests maintain early successional ecosystems. Even-aged management in aspen occurs at approximately 45-year intervals and intermediate treatments would occur prior to harvest in other species types.

MA 1B Early Successional: Aspen, Mixed Aspen-Conifer, and Conifer

Landscape Composition and Structure

Aspen and conifer forests and mixed aspen-conifer stands are featured in this area. Conifer components can include balsam fir, spruce, pine, cedar, and hemlock. A high amount of edge creates significant contrast among patches. Temporary openings, young forests and small permanent openings are commonly interspersed throughout the area. Patch sizes range from tens to hundreds of acres depending on LTA, location, and species composition.

Table 3-2. Management Area 1B – Upland Forest Type Composition Objectives

Species Group	Desired Composition (percentage)	Summary* (percentage)
Aspen	35-55	Early successional 35-80
Balsam Fir	0-10	
Paper Birch	0-5	
Jack Pine	0-10	
Red Pine/White Pine	5-30	Red Pine/White Pine 5-30
Northern Hardwoods	5-15	Hardwoods 5-20
Oak	0-5	
Permanent Openings	1-4	
Other Forest Types	0-10	

**Early Successional: Aspen, Balsam Fir, Paper Birch, and Jack Pine; Hardwoods: Northern Hardwoods and Oak.*

Site-Level Composition and Structure

Stand structure varies from simple in the most common types (aspen or red pine) to somewhat complex in the mixed aspen-conifer patches. Forest patches (defined as common age groupings by species or forest type) are managed through even-aged silviculture; tend to be younger than those within MAs 2, 3, or 4; and are usually 10 to 40 acres in size. Alternative silvicultural treatments are used where feasible to encourage conifer regeneration along with aspen and to provide a larger component of older aged trees. In addition, a higher proportion (compared to MA 1A or 1C) of reserved scattered individuals and larger groups of long-lived conifers, mast, den and snag trees are retained

to provide a biological legacy. Permanent pockets of pine and oak barrens communities are restored within appropriate habitat types.

Disturbance Regime

Human-caused disturbance such as clearcutting and shelterwood harvests that maintains early successional communities is evident and intensive. Even-aged management in aspen occurs at approximately 45-year intervals and intermediate treatments would occur prior to harvest in other species types.

MA 1C Early Successional: Aspen and Hardwood

Landscape Composition and Structure

Early successional forest communities dominate MA 1C. Aspen, the most prevalent early-successional tree species, and is maintained in a shifting mosaic pattern of age classes across the landscape. Northern hardwood types contribute significantly to the total composition in this area. Numerous simple patches of aspen are created through even-aged management. Hardwood patches are maintained through both even and uneven-aged management depending on site and species involved. A high amount of edge creates significant contrast among patches. Young forests, patches of even and uneven-aged hardwoods and small permanent openings are commonly interspersed throughout the area. Due to the increased hardwood component, average species diversity, patch size, and stand age are somewhat higher than MA 1A. Edge habitat is somewhat reduced.

Table 3-3. Management Area 1C – Upland Forest Type Composition Objectives

Species Group	Desired Composition (percentage)	Summary* (percentage)
Aspen	35-55	Early successional 35-80
Balsam Fir	0-10	
Paper Birch	0-10	
Jack Pine	0-5	
Red Pine/White Pine	5-20	Red Pine/White Pine 5-20
Northern Hardwoods	15-40	Hardwoods 15-50
Oak	0-10	
Permanent Openings	1-4	
Other Forest Types	0-10	

**Early Successional: Aspen, Balsam Fir, Paper Birch, and Jack Pine; Hardwoods: Northern Hardwoods and Oak.*

Site-Level Composition and Structure

Stand structure varies from simple in the most common type (aspen) to somewhat complex in the hardwood patches. Important habitat features such as snags, mast trees, den trees and downed logs are more common in the hardwood types and are reserved as scattered individuals and small groups in clearcut patches. Generally, trees within each forest patch are approximately the same age, but ages vary between patches. The exception to this is the scattered patches of uneven-aged hardwood. Forest patches tend to be younger and smaller in size than those within MAs 2, 3, and 4.

Disturbance Regime

Human-caused disturbance that maintains early successional communities is evident and intensive. The primary silvicultural system is even-aged management (primarily

clearcutting to maintain aspen), however both even-aged and uneven-aged management occurs in the hardwood patches. Even-aged management in aspen occurs at approximately 45-year intervals and intermediate treatments would occur prior to harvest in other species types.

Guidelines for Management Areas 1A, 1B, and 1C

Biological Diversity

MA 1B:

Emphasize the retention of spruce, balsam fir, and other conifers within aspen stands—initiating transitions to aspen-spruce-fir or aspen-mixed conifer stands.

Increase conifer components (especially black spruce) where spruce grouse are present.

MA 1A and 1C:

Retain conifers as reserve trees within aspen clearcuts.

Reserve Tree Guidelines for Uneven-Aged Managed Stands:

MAs 1A, 1B, and 1C:

1. Reserve 3 to 7 live trees per acre larger than 11 inches. Focus on the largest trees available.
2. Reserve tree species such as hemlock, yellow birch, paper birch, red oak, white oak, American beech, white pine, and others that are not well represented in the stand or on the Forests.

Management Area 2

Theme

MA 2 is characterized by large, relatively continuous, mid to late-successional northern hardwood forests. Black-throated blue warblers, least flycatchers, goshawks, red-shouldered hawks, and raccoons are some wildlife species associated with mid to late-successional uneven-aged northern hardwood forests. Lake and stream cold and warm water fishing, large and small game hunting, campground and dispersed area camping, and a variety of motorized and non-motorized trail uses are the primary recreation activities.

Landscape Description

Rolling to hilly topography with slope gradients of approximately 5% to 20% characterize MA 2. Glacial landforms include drumlins, moraines, and loess covered outwash (windblown fine sand and silt over outwash materials). Soils have loamy to silty surfaces over loamy to sandy sediments, the soil moisture regime is mesic, and soil nutrient status is rich. Forest Habitat Types common to these areas include: ATM, ATD, AOCa, AH and TMC. Wetlands are abundant. Iron River/Argonne, Wabeno, Flambeau, and Glidden Drumlins, and Argonne Plains, Nicolet Hills, and Jump River and Perkinstown Moraines are common Land Type Associations.

Desired Future Condition

MA 2A Uneven-aged Northern Hardwoods

Landscape Composition and Structure

Relatively continuous mid to late-successional uneven-aged northern hardwood and northern hardwood-hemlock forest communities dominate MA 2A. The uneven-aged nature of this forested landscape is characterized by a variety of tree ages and sizes. Sugar maple, basswood, yellow birch and hemlock are the primary long-lived tree species. Hardwood patch sizes are typically in the thousands of acres. Pine and early successional types such as aspen, paper birch, and balsam fir are present. Edge habitat is much less common, compared to MA 1, and contrast among patches is low. Temporary open patches are small (not to exceed 40 acres), somewhat uncommon, and do not normally break up large patches of northern hardwoods. Forest openings are generally allowed to re-vegetate but a small amount of openings are maintained. A long-lived conifer component (white pine, white spruce, hemlock, and northern-white cedar) is maintained or restored within transitional areas between upland and lowland.

Table 3-4. Management Area 2A – Upland Forest Type Composition Objectives

Species Group	Desired Composition (percentage)	Summary* (percentage)
Aspen	5-20	Early Successional 5-30
Balsam Fir	0-3	
Paper Birch	0-5	
Jack Pine	0-2	
Red Pine/White Pine	5-20	Red Pine/White Pine 5-20
Northern Hardwoods	40-70	Hardwoods 40-75
Oak	0-5	
Permanent Openings	0-1	
Other Forest Types	0-15	

**Early Successional: Aspen, Balsam Fir, Paper Birch, and Jack Pine; Hardwoods: Northern Hardwoods and Oak.*

Site-Level Composition and Structure

Incorporating snags, den trees, coarse woody debris, super canopy trees, and canopy gaps into the management activities enhances structural diversity. Trees are uneven-aged with a range of tree sizes up to 23 inches in diameter. Sugar maple is the most common species but efforts are made to maintain or restore regionally less common species such as yellow birch, hemlock, and white pine.

Disturbance Regime

The primary silvicultural system is uneven-aged management (improvement and single tree selection harvests) which is less intensive but normally larger in scale than MA 1, 3 or 4. Hardwood regeneration is encouraged by creation of canopy gaps. Uneven-aged management activities take place at 10 to 20 year intervals. Some shade intolerant and mid-tolerant forest types are maintained with even-aged silviculture (thinning, shelterwood, overstory removal, and clearcut harvests) or uneven-aged silviculture with a variety of canopy gap sizes. Prescribed fire is an uncommon disturbance event.

MA 2B Uneven-aged Northern Hardwoods: Interior Forest

Landscape Composition and Structure

Relatively continuous mid to late-successional uneven-aged northern hardwood and northern hardwood-hemlock forest communities dominate MA 2B. Large patch conditions and a relatively continuous canopy is maintained or recreated. Hardwood patch sizes are in the thousands of acres. Early successional forest patches are generally allowed to succeed or treated so as to encourage conversion to long-lived species. Landscape heterogeneity is low and habitat fragmentation is minimized. Forest openings are allowed to naturally re-vegetate, however, some will persist (i.e., frost pockets).

Table 3-5. Management Area 2B – Upland Forest Type Composition Objectives

Species Group	Desired Composition (percentage)	Summary* (percentage)
Aspen	0-10	Early successional 0-17
Balsam Fir	0-3	
Paper Birch	0-2	
Jack Pine	0-2	
Red Pine/White Pine	0-10	Red Pine/White Pine 0-10
Northern Hardwoods	50-80	Hardwoods 50-83
Oak	0-3	
Permanent Openings	0-1	
Other Forest Types	0-15	

**Early Successional: Aspen, Balsam Fir, Paper Birch, and Jack Pine; Hardwoods: Northern Hardwoods and Oak.*

Site-Level Composition and Structure

The overstory is dominated by sugar maple, hemlock, and yellow birch in the northern hardwood-hemlock forest community; or sugar maple, basswood, white ash and yellow birch in the northern hardwood forest community. Hemlock is the most common conifer, but super-canopy white pine is a component. Trees are uneven-aged with older age classes well represented. Multiple tree sizes are emphasized. Extended rotation ages (see Tables 2-1 and 2-5) are used to achieve large diameter trees (25 inches and greater). Some old growth component characteristics are maintained or restored. A component of large trees is left to create tip-ups, snags, and coarse woody debris. Standing and down coarse dead wood material is common.

Disturbance Regime

Management activities such as improvement harvest and single-tree selection are designed to mimic natural wind disturbance mortality. Small gaps (up to 60’ in diameter) in the canopy may be created to encourage mixed hardwood regeneration. Harvest activities take place at intervals of 15 years. Prescribed fire is an uncommon disturbance event.

MA 2C Uneven-aged Northern Hardwoods: Mixed Forest

Landscape Composition and Structure

MA 2C is similar to MA 2A in that relatively continuous mid to late-successional uneven-aged northern hardwood and northern hardwood-hemlock forest communities dominate the area. However, this area differs from MA 2A in that aspen, spruce and red/white pine types are well-represented species components that are maintained in most cases. The uneven-aged nature of this forested landscape is characterized by a variety of tree ages and sizes. Sugar maple, basswood, yellow birch and hemlock are the primary long-lived tree species. Hardwood patch sizes are typically in the hundreds of acres. Edge habitat and contrast among patches is more common, compared to MA 2A or 2B. Temporary open patches are small (not to exceed 40 acres) and do not normally break up large patches of northern hardwoods. Forest openings are generally maintained.

Table 3-6. Management Area 2C – Upland Forest Type Composition Objectives

Species Group	Desired Composition (percentage)	Summary* (percentage)
Aspen	15-30	Early Successional 15-40
Balsam Fir	0-3	
Paper Birch	0-5	
Jack Pine	0-2	
Red Pine/White Pine	10-30	Red Pine/White Pine 10-30
Northern Hardwoods	30-50	Hardwoods 30-60
Oak	0-10	
Permanent Openings	1-2	
Other Forest Types	0-15	

**Early Successional: Aspen, Balsam Fir, Paper Birch, and Jack Pine; Hardwoods: Northern Hardwoods and Oak.*

Site-Level Composition and Structure

MA 2C is similar to MA 2A because incorporating snags, den trees, coarse woody debris, super canopy trees and canopy gaps into management activities enhances structural diversity. Trees are uneven-aged with a range of tree sizes up to 23 inches in diameter. Sugar maple is the most common species but efforts are made to maintain or restore regionally less common species such as yellow birch, hemlock, and white pine. In contrast to MA 2A, there is a higher component of structurally simple early successional forest. These early successional patches tend to be small (less than 40 acres) and younger.

Disturbance Regime

This area is similar to MA 2A in that the primary silvicultural system is uneven-aged management (improvement and single tree selection harvests) which is less intensive but normally larger in scale than MA 1, 3 or 4. Hardwood regeneration is encouraged by creation of canopy gaps. Uneven-aged management activities take place at 10 to 20 year intervals. In contrast to MA 2A a higher percentage of shade intolerant and mid-tolerant forest types are maintained with even-aged silviculture (thinning, shelterwood, overstory removal and clearcut harvests). Prescribed fire is an uncommon disturbance event.

Guidelines for Management Areas 2A, 2B, and 2C

Biological Diversity

MA 2A:

Extend the rotation age of aspen. This is a site quality determination but do not exceed 70 years where aspen is to be regenerated.

MA 2B:

1. Convert most aspen stands to long-lived tree species.
2. Reserve tree or reserve island guidelines may be used to establish areas or exclusions within timber sale units for restoring or maintaining special or unique habitats.

3. Leave 15-25% of potential timber salvage unharvested following large disturbance events (greater than 100 acres), except in salvage situations determined high risk to human safety and/or forest health.
4. Restrict harvest on northern hardwood sites to frozen ground conditions.
5. Extend the rotation age of aspen. This is a site quality determination but do not exceed 70 years where aspen is to be regenerated.

MA 2C:

Maintain existing continuous blocks of northern hardwood closed canopies.

MA 2A and 2B:

1. Retain long-lived conifers and hardwoods as reserve trees within aspen clearcuts. Where long-lived trees are not present—retain short-lived conifers if they are available.
2. Maintain white pine and hemlock within 300 feet of rivers with a bankfull width of 50 feet or larger.
3. Increase closed canopy continuity within northern hardwood blocks. Increase the average patch size of northern hardwoods by converting aspen inclusions within the larger northern hardwood blocks.

MA 2A, 2B, and 2C:

Manage riparian corridor forest types (especially within 300 feet of rivers with a bankfull width of 50 feet or larger) primarily under uneven-aged management systems and at maximum rotations.

Reserve Tree Guidelines for Uneven-Aged Managed Stands:

MAs 2A and 2C:

Reserve 3 to 7 live trees per acre larger than 11 inches. Focus on the largest trees available.

MA 2B:

1. Reserve 4 to 9 live trees per acre larger than 11 inches. Focus on the largest trees
2. Develop and retain trees over 24 inches in diameter to increase the probability of natural gap formation and tip-up mounds. The number of reserve trees over 24 inches in diameter should be included within the 4-9 reserve live tree total. Large (over 24 inches) basswood, ash, yellow birch, and red oak are preferred for retention.

MAs 2A, 2B, and 2C:

Emphasize the retention of long-lived conifers such as hemlock and white pine (as a component of the reserve live tree numbers). In addition, reserve other tree species that are not well represented in the stand or on the Forests (yellow birch, paper birch, red oak, white oak, American beech, etc.).

Management Area 3

Theme

MA 3 is characterized by a mixture of even-aged northern hardwoods ranging from shade intolerant early successional to shade tolerant late successional species. Red-eyed vireo, rose-breasted grosbeaks, black bear and gray squirrels are some wildlife species associated with even-aged northern hardwood forests. Cold and warm water fishing, large and small game hunting, campground and dispersed area camping and a variety of motorized and non-motorized trail uses are the primary recreation activities.

Landscape Description

Rolling to hilly topography with slope gradients of approximately 5-20% characterize MA 3. The predominant glacial landforms are outwash plains and washed moraines. Soils have loamy surfaces over sandy sediments, the soil moisture regime is dry-mesic to mesic, and the soil nutrient status is medium to rich. Forest Habitat Types common to these areas include: PArVAa, AVVb, ATM, AVb, and ATFD. Wetlands are common. Lakewood Plains & Moraines; Mountain Moraines; Cable Rolling Outwash; and Telemark Washed End Moraine are common Land Type Associations.

Desired Future Condition

MA 3A Even-aged Northern Hardwoods: Mid-tolerant

Landscape Composition and Structure

Mixed northern hardwoods such as white ash, basswood, red maple, red oak, and yellow birch dominate a mosaic of mid to late-successional forest communities. Sugar maple is a significant component but management is focused on mid-tolerant hardwood species. Early successional species such as aspen are generally less common in MA 3A compared to MA 3C. Interior forest habitat is provided in hardwood patches typically hundreds of acres during the period prior to regeneration harvests. Even-aged management activities, primarily thinning, shelterwood and removal harvests, are the norm. Temporary openings up to 40 acres in size are common. Mixed coniferous-deciduous communities are encouraged in the transition zones between uplands and lowlands.

Table 3-7. Management Area 3A – Upland Forest Type Composition Objectives

Species Group	Desired Composition (percentage)	Summary* (percentage)
Aspen	0-20	Early successional 0-38
Balsam Fir	0-3	
Paper Birch	0-10	
Jack Pine	0-5	
Red Pine/White Pine	0-10	Red Pine/White Pine 0-10
Northern Hardwoods	35-60	Hardwoods 45-85
Oak	10-25	
Permanent Openings	1-3	
Other Forest Types	0-10	

**Early Successional: Aspen, Balsam Fir, Paper Birch, and Jack Pine; Hardwoods: Northern Hardwoods and Oak.*

Site-level Composition and Structure

Within-stand species diversity is high, and stands are structurally well developed and complex. Species that are less tolerant of shade, such as white ash, red oak, basswood, and yellow birch are well represented. Early successional species are fairly common as a within stand feature and in individual patches.

Disturbance Regime

Mid-tolerant hardwood species and in some cases sugar maple stands are encouraged through thinning and are regenerated through even-aged management including shelterwood and overstory removals. Fire is another tool used to regenerate oak and pine. Thinning activities generally occur on a 10 to 20 year interval. Aspen is maintained in some areas through clearcutting. Uneven-aged management is practiced where sugar maple dominates and opportunities to regenerate mid-tolerant hardwood species are limited.

MA 3B Even-aged Hardwood: Oak-Pine

Landscape Composition and Structure

Red oak, and oak mixed with pine or other hardwood species, is the dominant type. Early successional forest, such as aspen and paper birch, represents a relatively small proportion of the landscape. At a landscape scale, large patch conditions are restored or maintained. Interior forest habitat is provided in hardwood patches up to hundreds of acres during the period prior to regeneration harvests. A relatively continuous canopy is desired but even-aged management activities (primarily shelterwood and removal harvests) create temporary openings up to 40 acres. These temporary openings have a high reserve tree component and regeneration is generally well established.

Table 3-8. Management Area 3B – Upland Forest Type Composition Ob

Species Group	Desired Composition (percentage)	Summary* (percentage)
Aspen	5-10	Early Successional 5-28
Balsam Fir	0-3	
Paper Birch	0-10	
Jack Pine	0-5	
Red Pine/White Pine	10-25	Red Pine/White Pine 10-25
Northern Hardwoods	10-50	Hardwoods 30-95
Oak	20-45	
Permanent Openings	1-2	
Other Forest Types	0-10	

**Early Successional: Aspen, Balsam Fir, Paper Birch, and Jack Pine; Hardwoods: Northern Hardwoods and Oak.*

Site-Level Composition and Structure

Within-stand species diversity is high, and stands are structurally well developed and complex. Extended rotation ages (See Tables 2-1 and 2-4) are used to achieve large diameter trees. Some old growth component characteristics are maintained or restored. Structural features such as large trees and large crowns are retained to create tip-ups, snags, and coarse woody debris. Coarse, dead wood material is common both standing and down. Permanent pockets of pine and oak barrens communities are restored within appropriate habitat types.

Disturbance Regime

Mid-tolerant species such as oak and white pine are encouraged through thinning and are regenerated through even-aged management primarily shelterwood harvest. Fire is another tool used to regenerate oak and pine. Thinnings are of low intensity with a return interval of 15 to 20 years. Regeneration efforts for oak and pine employ a 2 to 3 cut shelterwood harvest, and an overstory removal, which maintains a significant component of reserve trees and groups. Uneven-aged management is practiced where sugar maple dominates and opportunities to regenerate mid-tolerant hardwood species are limited.

MA 3C Even-Aged Hardwood: Oak-Aspen

Landscape Composition and Structure

A mosaic of early to mid-successional forest communities characterizes MA 3C. Red oak is the dominant forest type with a relatively high proportion of early successional forest types like aspen and paper birch. Regeneration practices result in temporary openings up to 40 acres in size, with a relatively high degree of contrast and edge. Patches of uneven-aged hardwoods are scattered across the landscape. Temporary openings, young forests and small permanent openings are distributed fairly uniformly across the landscape. Interior forest habitat may occur in patches of hundreds of acres.

Table 3-9. Management Area 3C – Upland Forest Type Composition Objective

Species Group	Desired Composition (percentage)	Summary* (percentage)
Aspen	20-40	Early Successional 20-60
Balsam Fir	0-5	
Paper Birch	0-10	
Jack Pine	0-5	
Red Pine/White Pine	5-15	Red Pine/White Pine 5-15
Northern Hardwoods	10-25	Hardwoods 30-65
Oak	20-40	
Permanent Openings	1-3	
Other Forest Types	0-5	

**Early Successional: Aspen, Balsam Fir, Paper Birch, and Jack Pine; Hardwoods: Northern Hardwoods and Oak.*

Site-Level Composition and Structure

Within stand species diversity is moderate and stands are structurally simpler than MA 3A or 3B but more complex than MA 1. Those species that are least tolerant of shade, such as red oak, aspen, red maple, and paper birch are well represented. Patches tend to be smaller resulting in more edge and higher contrast than MA 3A or 3B. Within stand features are maintained through forest wide reserve tree guidelines. Permanent pockets of pine and oak barrens communities are restored within appropriate habitat types.

Disturbance Regime

The primary silvicultural system is even-aged management (thinning, shelterwood, overstory removal, and clearcut) and is prescribed in order to maintain relatively shade-intolerant trees species such as red oak, aspen, paper birch, white ash, yellow birch and basswood. Fire is another tool used to regenerate oak and pine. Thinnings occur on 10 to 20 year interval. Uneven-aged management is practiced where sugar maple dominates and opportunities to regenerate mid-tolerant hardwood species are limited. Uneven-aged silviculture is somewhat less intensive and occurs on a small scale.

Guidelines for Management Areas 3A, 3B, and 3C

Biological Diversity

MA 3A:

Maintain existing continuous blocks of northern hardwoods.

MA 3B:

1. Retain long-lived conifers and hardwoods as reserve trees within aspen clearcuts. Where long-lived trees are not present, retain short-lived conifers if they are available.
2. Extend the rotation age of aspen. This is a site quality determination but do not exceed 70 years where aspen is to be regenerated.

3. Increase closed canopy continuity within oak-pine blocks. Convert aspen inclusions to the oak-pine type within large oak-pine blocks.
4. Reserve tree or reserve island guidelines may be used to establish areas or exclusions within timber sale units for restoring or maintaining special or unique habitats.
5. Leave 15 to 25% of potential timber salvage unharvested following large disturbance events (greater than 100 acres), except in salvage situations determined high risk to human safety and/or forest health.
6. Prescribed fire is preferred over mechanical means when doing regeneration treatments in oak-pine or when maintaining or restoring fire-dependent species. Use mechanical means as an alternative disturbance mechanism where prescribed fire is not feasible.

MA 3A and MA 3B:

Maintain or restore white pine and hemlock within upland-lowland transition zones.

Reserve Tree Guidelines for Uneven-Aged Managed Stands:

MAs 3A and 3C:

Reserve 3 to 7 live trees per acre larger than 11 inches. Focus on the largest trees available.

MA 3B:

1. Reserve 4 to 9 live trees per acre larger than 11 inches. Focus on the largest trees available.
2. Develop and retain trees over 24 inches in diameter to increase the probability of natural gap formation and tip-up mounds. The number of reserve trees over 24 inches in diameter should be included within the 4 to 9 reserve live tree total. Large white pine over 24 inches and red oak are preferred for retention.

MAs 3A, 3B, and 3C:

Emphasize the retention of long-lived conifers such as hemlock and white pine (as a component of the reserve live tree numbers). In addition, reserve other tree species that are not well represented in the stand or on the Forests (yellow birch, paper birch, red oak, white oak, American beech, etc.).

Management Area 4

Theme

MA 4 is characterized by upland conifer forests mixed with other forest communities; wildlife associated with coniferous and mixed conifer-hardwood forest such as chipping sparrow, pine warbler, red breasted nuthatch, and red squirrel; and a wide variety of recreational activities (e.g. fishing, hunting, berry picking, camping, and motorized and non-motorized trail use).

Landscape Description

MA 4 is characterized by nearly level to steep topography, with slope gradients of 2 to 10% in level areas and 5 to 30% in pitted and collapsed areas. Glacial landforms are predominantly outwash plains with some washed moraines. Soils have sand to sandy loam surfaces over loamy to sandy sediments, a soil moisture regime of very dry to dry mesic, and a soil nutrient status of poor to medium. Forest Habitat Types common to these areas include: PQE, PArV, PArVAa, and AVVb. The abundance of wetlands ranges from scarce to common. Vilas-Oneida, Butler, and Northern Highland Outwash Plains; Popple River and Waupee Knolls; Cable Rolling Outwash; Bayfield Rolling Outwash Barrens; and Chequamegon Washed Till and Outwash, are common Land Type Associations.

Desired Future Condition

MA 4A Conifer: Red-White-Jack Pine

Landscape Composition and Structure

Coniferous, mixed coniferous-hardwood and aspen forests dominate MA 4A. Natural and plantation conifer stands are most prevalent, but both hardwood and aspen are well represented in this landscape. Numerous small to medium patches up to hundreds of acres characterize the area. A moderate to high amount of edge creates significant contrast among patches. Some jack pine and/or northern dry forest are maintained as large blocks of suitable habitat for black-backed woodpeckers and Connecticut warblers. Young forests, small permanent openings, and mixed stands of pine-oak are commonly interspersed throughout the area.

Table 3-10. Management Area 4A – Upland Forest Type Composition Objectives

Species Group	Desired Composition (percentage)	Summary* (percentage)
Aspen	10-30	Early successional 10-73
Balsam Fir	0-3	
Paper Birch	0-5	
Jack Pine	0-35**	
Red Pine/White Pine	10-50**	Red Pine/White Pine 10-50
Northern Hardwoods	0-25	Hardwoods 0-50
Oak	0-25	
Permanent Openings	1-6	
Other Forest Types (hemlock/spruce)	0-5	

**Early Successional: Aspen, Balsam Fir, Paper Birch, and Jack Pine; Hardwoods: Northern Hardwoods and Oak.*

***Minimum of 30% Pine (jack, red or white pine in combination or as individual species)*

Site-Level Composition and Structure

Prescriptions maintain relatively shade intolerant species such as jack pine, red pine, white pine, aspen, paper birch and red oak. Permanent pockets of pine and oak barrens communities are restored within appropriate habitat types. Patches range from structurally simple such as with pure red pine plantations to the more complex such as mixed white pine, red pine and red oak.

Disturbance Regime

Even-aged management practices that maintain early to mid-successional communities are evident and intensive. Activities such as prescribed fire, even-aged timber harvesting techniques, and site preparation for planting help maintain these ecosystems. Thinning normally occurs on 7 to 15 year intervals. Natural regeneration is encouraged but artificial regeneration efforts such as planting and seeding are common.

MA 4B Conifer: Natural Pine-Oak

Landscape Composition and Structure

These areas are dominated by natural origin red and white pine often mixed with oak. Early successional forest, such as aspen, is a minor component of the area. Large patch conditions are restored or maintained. Patches are typically in the thousands of acres. A relatively continuous canopy is maintained until regeneration harvests are applied. Landscape heterogeneity is low. Temporary openings may occur as conversions from jack pine plantation to longer-lived species are made.

Table 3-11. Management Area 4B – Upland Forest Type Composition Objectives

Species Group	Desired Composition (percentage)	Summary* (percentage)
Aspen	0-7	Early successional 0-23
Balsam Fir	0-3	
Paper Birch	0-5	
Jack Pine	3-6	
Red Pine/White Pine	45-70	Red Pine/White Pine 45-70
Northern Hardwoods	0-10	Hardwoods 10-35
Oak	10-25	
Permanent Openings**	2-8	
Other Forest Types (hemlock/spruce)	0-10	

**Early Successional: Aspen, Balsam Fir, Paper Birch, and Jack Pine; Hardwoods: Northern Hardwoods and Oak.*

***Includes pocket barrens / savannas*

Site-Level Composition and Structure

White pine, red pine, and red oak are the dominant tree species. Extended rotation ages (see Tables 2-1 and 2-4) are used to achieve large diameter trees. All other species will also be regenerated at maximum rotation ages (see page 8 of Forestwide Standards and Guidelines for maximum rotation ages of other tree species). Some old growth component characteristics are maintained or restored.

Disturbance Regime

Timber harvest along with fire is used to regenerate pine and oak. Low intensity intermediate treatments such as thinning and prescribed fire are scheduled on a return interval of 10 to 20 years. Regeneration efforts for pine and oak employ a 2 to 3 cut shelterwood harvest, and an overstory removal that maintains a significant component of reserve trees and groups. Regeneration is generally natural however supplemental planting and seeding does occur.

MA 4C Conifer: Surrogate Pine Barrens

Landscape Composition and Structure

MA 4C is dominated by natural and plantation jack pine mixed with large temporary openings (up to 1000 acres) that provide conditions similar to pine barrens. These surrogate barren conditions are maintained through harvest of areas on a regularly scheduled rotation of sites. Harvest ages may be shortened in some cases (i.e., 35 to 40 years) to maintain this rotation. With the exception of the scrub oak thickets and jack pine groves left in reserve areas and/or as scattered red pine and white pine across each unit, most of the trees are harvested. The fragmenting effects of roads and red pine plantations are reduced by managing some jack pine and (or) northern dry forest areas as large blocks of suitable habitat for black-backed woodpeckers and Connecticut warblers. Regeneration efforts are conducted soon after harvest but until the jack pine reaches 10 feet in height, the area serves the role of surrogate barrens. Permanent pockets of pine and oak barrens communities exist.

Table 3-12. Management Area 4C – Upland Forest Type Composition Objectives

Species Group	Desired Composition (percentage)	Summary* (percentage)
Aspen	20-35	Early successional 55-93
Balsam Fir	0-3	
Paper Birch	0-5	
Jack Pine	35-50	
Red Pine/White Pine	20-30	Red Pine/White Pine 20-30
Northern Hardwoods	0-10	Hardwoods 10-30
Oak	10-20	
Permanent Openings**	2-8	
Other Forest Types (hemlock/spruce)	0-10	

**Early Succ*essional: Aspen, Balsam Fir, Paper Birch, and Jack Pine; Hardwoods: *Northern Hardwoods and Oak.*

***Includes pocket barrens / savannas*

Site-Level Composition and Structure

Jack pine trees are dominant, with a component of red pine, scrub oak and other trees. Because of patchy regeneration in some areas some small (less than 10 acres) open patches remain in an open condition, usually with a strong component of grasses, forbs, and shrubs typical of restored barrens. As these areas become more forested, the barrens species become less abundant.

Disturbance regime

Clearcutting is the principle disturbance event, occurring every 35 to 70 years. Prescribed fire may be used as a site preparation or restoration tool. Clearcut areas are generally regenerated naturally or are artificially seeded following site disturbance with heavy equipment. Planting and associated site preparation may occur when natural regeneration efforts fail or are unlikely to succeed.

Guidelines for Management Areas 4A, 4B, and 4C

Biological Diversity

MA 4A:

Maintain at least 80% of the existing jack pine within the MA.

MA 4B:

1. Extend the rotation age of aspen. This is a site quality determination, but do not exceed 70 years where aspen is to be regenerated.
2. Increase closed canopy continuity within pine-oak blocks. Convert aspen inclusions to the pine-oak type within large pine-oak blocks.
3. Reserve tree or reserve island guidelines may be used to establish areas or exclusions within timber sale units for restoring or maintaining special or unique habitats.
4. Leave 15 to 25% of potential timber salvage unharvested following large disturbance events (greater than 100 acres), except in salvage situations determined high risk to human safety and/or forest health.

5. Use prescribed fire, natural fire, and (or) mechanical processes that mimic fire to reduce shrub and other tree competition and establish and (or) maintain an open understory for pine warbler habitat and the maintenance and regeneration of white pine.
6. Provide 100-acre patches of quality pine warbler habitat (red and white pine greater than 70 years, with a 60 to 70% crown closure and very little understory).

MA 4C:

Use the maximum jack pine rotation age of 70 years to maintain isolated stands for wildlife species such as Connecticut warbler.

MAs 4A, 4B, and 4C:

Reserve scattered white pine, red pine, and oak trees within jack pine clearcuts.

Reserve Tree Guidelines for Uneven-Aged Managed Stands:

MAs 4A and 4C:

Reserve 3 to 7 live trees per acre larger than 11 inches. Focus on the largest trees available.

MA 4B:

1. Reserve 4 to 9 live trees per acre larger than 11 inches. Focus on the largest trees available. Priority for reserve tree species selection within aspen clearcuts is 1) long-lived conifers; 2) long-lived hardwoods; 3) short-lived conifers.
2. Develop and retain trees over 24 inches in diameter to increase the probability of natural gap formation and tip-up mounds. The number of reserve trees over 24 inches should be included within the 4 to 9 reserved live tree total. Large (24 inches or more) white pine and red oak are preferred for retention.

MAs 4A, 4B, and 4C:

Emphasize the retention of long-lived conifers such as hemlock and white pine (as a component of the reserve live tree numbers). In addition, reserve other tree species that are not well represented in the stand or on the Forests (yellow birch, paper birch, red oak, white oak, American beech, etc.).

Fire Management

MAs 4A, 4B, and 4C:

Emphasize prescribed fire for fuels reduction treatments. Where feasible, combine fuels reduction treatments with ecological restoration activities using prescribed fire.

Management Area 5

Theme

MA 5 emphasizes the management and protection of congressionally designated Wilderness. The Wilderness areas are Whisker Lake, Headwaters, Blackjack Springs, Rainbow Lake, and Porcupine Lake. Rainbow Lake Wilderness is also a Class I Air Quality Area. Large forested areas that provide a wilderness experience through a semi-primitive, non-motorized recreation setting characterize this MA. Evidence of human activity is low. Forest interior songbirds, grey wolf, bobcat, and American marten are some wildlife species associated with large, undisturbed areas. Lake and stream cold and warm water fishing, large and small game hunting, wildlife viewing, primitive camping, and a variety of non-mechanized trail uses are the primary recreation activities. Interaction between users is low with more contact near water or unique scenery areas.

Landscape Description

Rainbow and Porcupine Lake Wildernesses are characterized by rolling to steep topography with slope gradients ranging from 5 to 30%. Glacial landforms are predominantly ground moraine, end moraine, washed till hills and outwash in glacial drainways. The soils are sandy loam to loamy sand in the surface over loamy to sandy sediments. These soils have a dry-mesic to mesic moisture regime and a medium to rich nutrient regime. Areas of sandy outwash have dryer, nutrient poor soils. Morse/Marenisco/McDonald Moraines and Chequamegon Washed Till and Outwash are the Land Type Associations common to this area.

Whisker Lake Wilderness area is characterized by gently rolling topography with slope gradients ranging from 2 to 10%. The area is within a pitted outwash plain landform. The soils are loamy on the surface over sandy melt water stream sediments. These soils have a dry-mesic to mesic moisture regime and a medium nutrient status. This area is within the northern portion of the Popple River Knolls Land Type Association.

Blackjack Springs Wilderness is characterized by rolling to hilly topography with slope gradients ranging from 5 to 20%. Pitted outwash plains, collapsed outwash hills, and drumlin ground moraine are the dominant landforms. The soil is sandy to loamy in the surface over sandy sediments. These soils have a dry to mesic moisture regime and a poor to medium nutrient status. This area is within portions of the Vilas-Oneida Plains, Argonne/Iron River Drumlins, Argonne Plains, and Nicolet Hills Land Type Associations.

Headwaters Wilderness is characterized by nearly level to very hilly topography with slope gradients ranging from 2 to 25%. Pitted outwash plains and drumlin ground moraine are the dominant landforms. The soils are loamy on the surface over sandy sediments. These soils have a dry-mesic to mesic moisture regime and a medium to rich nutrient status. This area is within the Argonne Plains and Argonne/Iron River Drumlin Land Type Associations.

Desired Future Condition

Landscape Composition and Structure

Vegetative composition results from natural ecological processes rather than human caused activities. As a result, relatively continuous late successional northern hardwoods, northern hardwood/hemlock, and mixed conifer forests dominate the MA. Vegetation cover varies based primarily on ecological land type. Patch size is large (in the thousands of acres) with edge habitat normally found only at wetland-upland interfaces. Temporary openings, early successional forest, and small permanent openings may be found but are very uncommon. Landscape heterogeneity reflects the natural landscape pattern.

Site-Level Composition and Structure

Compositional diversity of forest ecosystems typically reflects late successional-mature conditions. Dominant species are likely to be sugar maple, white pine, yellow birch, and hemlock. Associated species include white ash, basswood, and balsam fir. Trees not tolerant of shade such as aspen, white birch and jack pine are maintained only in areas where natural disturbances have created large enough openings in the canopy for them to regenerate, survive and grow. Structural diversity is complex, with snags, den trees, coarse woody debris, and super-canopy trees being common. Average tree sizes are large, with diameters greater than 24 inches being common.

Disturbance Regime

Natural ecological processes and natural disturbances shape the landscape-level and site-level vegetation composition. Components of the natural disturbance regime include individual tree throw and infrequent larger scale blowdown, infrequent low-intensity fire, insect damage, and beaver flooding. Timber harvesting or other intensive management activities do not occur.

Standards and Guidelines for Management Area 5

Aquatic

Standard:

Allow only naturally occurring structure in lakes and streams.

Guideline:

Allow the stocking of native fish species on a case-by-case basis.

Vegetation Management

Standards:

1. Prohibit grazing.
2. Existing forest openings will not be maintained.

Special Forest Products

Guideline:

Prohibit the gathering of special forest products for personal use or commercial sale.

Fire

Standard:

Suppress all wildfires. Use of mechanical equipment, including aerial drops, is subject to Forest Supervisor (or Acting) approval.

Recreation

Standard:

Use hand tools for construction and maintenance activities. Mechanized equipment and power tools are prohibited (see Fire for exceptions).

Guidelines:

1. Manage for low interaction between users.
2. Provide only minimum facilities when they are necessary to prevent the deterioration of Wilderness values. Construct facilities with natural materials.
3. Limit signing to major trail intersections and trailhead facilities.
4. Trailhead facilities and Wilderness information will normally be located outside of Wilderness boundaries.

Trail Use and Operation

Standards:

1. Trail tread will be no more than 24-inches wide.
2. Limit trail brushing to a 6-foot width and an 8-foot height.

Guidelines:

3. Provide, on the average, no more than one mile of non-motorized trail per square mile of area.
4. Design, construct, and maintain trails to minimize impacts to vegetation, soils, and water.
5. Wilderness is restricted to non-motorized uses except for the following:
   - Search and Rescue operations with Forest Supervisor approval.
   - Fire suppression with Forest Supervisor approval.

Lands Management

Standards:

1. Maintain federal corner monuments without signing or painting witness trees.
2. Use brushing and signing (only) to maintain landline boundaries next to private land. Do not blaze or paint boundary lines.

Special Uses

Standard:

Corridors for reservoirs, water conservation works, power projects, transmission lines, and other facilities will not be provided.

Transportation Systems

Standard:

Wilderness area motorized use will only be permitted for private land access and emergency situations with prior Forest Supervisor approval.

Guideline:

Coordinate with local governments to manage boundary roads for high Scenic Integrity Objectives, and where appropriate, at the lowest possible standard to complement adjoining Wilderness areas.

Research

Standard:

Prohibit research markings that may be visible for more than three years.

Guidelines:

1. Allow research activities that comply with Wilderness standards.
2. Locate biological research activities away from trails, facilities, and other areas where people may be concentrated.

Management Area 5B

Theme

MA 5B provides for the management and protection of Wilderness study areas. MA 5B is characterized by large, relatively continuous, late successional hardwood forests that provide a wilderness-like experience within a semi-primitive, non-motorized recreation setting. Evidence of human activity is low. Forest interior songbirds, grey wolf, bobcat, and American marten are some wildlife species associated with large, undisturbed roadless areas. Lake and stream cold and warm water fishing, large and small game hunting, wildlife viewing, primitive camping, and a variety of non-motorized trail uses are the primary recreation activities. Interaction between users is low with more contact near water or unique scenery areas.

Landscape Descriptions

Rolling topography with slope gradients of approximately 5 to 15% characterize lands within MA 5B. Glacial landforms include drumlins, moraines, and outwash plains. Soils have loamy to silty surfaces over loamy to sandy sediments, soil moisture regimes range from dry to mesic, and soil nutrient status ranges from poor to rich. Forest Habitat Types common to these areas include: PArVAa, ATM, ATD, and AOCa. The Wilderness study areas are within the following LTAs: Flambeau Silt Capped Drumlins, Valhalla/Marenisco (McDonald) Moraines, and Cable Rolling Outwash.

Desired Future Condition

Landscape Composition and Structure

Vegetative composition results from natural ecological processes rather than human caused activities. As a result, relatively continuous late successional northern hardwoods, northern hardwood/hemlock, and mixed conifer forests dominate the MA. Vegetation cover varies based primarily on ecological land type. Patch size is large (in the thousands of acres) with edge habitat normally found only at wetland-upland interfaces. Temporary openings, early successional forest, and small permanent openings may be found but are very uncommon. Landscape heterogeneity reflects the natural landscape pattern.

Site-Level Composition and Structure

Compositional diversity of forest ecosystems typically reflects late successional-mature conditions. Dominant species are likely to be sugar maple, white pine, yellow birch, and hemlock. Associated species include white ash, basswood, and balsam fir. Trees not tolerant of shade such as aspen, white birch and jack pine exist within areas where natural disturbances have created large enough canopy openings for them to regenerate, survive and grow. Structural diversity is complex, with snags, den trees, coarse woody debris, and super-canopy trees being common. Average tree sizes are large, with diameters greater than 24 inches being common.

Disturbance Regime

Natural ecological processes and natural disturbances shape the landscape-level and site-level vegetation composition. Components of the natural disturbance regime include individual tree throw and infrequent larger scale blowdown, infrequent low-intensity fire, insect damage, and beaver flooding. Timber harvesting and other intensive management activities do not occur.

Standards and Guidelines for Management Area 5B

Minerals

Guidelines:

1. Mineral exploration surface occupancy is allowed where mineral rights are federally owned; whenever possible, minimize surface disturbance.
2. Prohibit development of new sources of common variety minerals.
3. Continue utilization of existing gravel sources, but look for feasible alternative sources.
4. When surface disturbing mineral exploration of reserved and outstanding mineral rights is proposed, consider reasonable alternatives that minimize impacts to semi-primitive non-motorized values.
5. Whenever possible, minimize the amount of surface disturbance during mineral exploration. Full-sized surface exploration vehicles will use existing travel ways to access exploration sites. New road construction will be accomplished using only the minimum standards necessary. Minimize the cutting of brush and trees for surface exploration.

Aquatic

Standard:

Allow only naturally occurring structure in lakes and streams.

Guideline:

Allow the stocking of native fish species on a case-by-case basis.

Vegetation Management

Standards:

1. Prohibit timber harvesting
2. Do not maintain existing forest openings.
3. Prohibit grazing.

Special Forest Products

Guidelines:

1. Prohibit the gathering of special forest products for commercial sale.

2. Allow non-commercial gathering of special forest products for personal uses (motorized access for gathering is not permitted).

Fire Management

Guidelines:

1. Minimize off-road use of tractors or tractor plows, retardants, constructed helispots, and wheeled tankers.
2. Post fire suppression activities will include rehabilitation of fire lines, roads, helispots, and other disturbed areas.

Recreation

Guidelines:

1. Manage for low interaction between users.
2. Provide only the minimum facilities necessary to prevent the deterioration of Wilderness study area values. Construct facilities with natural materials.
3. Trailhead facilities and area information will normally be located outside of Wilderness study area boundaries.
4. Limit signing to major trail intersections and trailhead facilities.

Trail Use and Operation

Standards:

1. Trail tread will be no more than 24 inches wide.
2. Limit trail brushing to a 6-foot width and an 8-foot height.

Guidelines:

1. Provide, on the average, no more than one mile of non-motorized trail per square mile of area.
2. Design, construct, and maintain trails to minimize impacts to vegetation, soils, and water.
3. Trails are restricted to non-motorized uses with the following exceptions:
   - Emergency search and rescue
   - Fire suppression
   - Law enforcement
   - Trail maintenance
   - Administrative management needs (case-by-case basis)

Lands Management

Standards:

1. Maintain federal corner monuments without signing or painting witness trees.
2. Use brushing and signing (only) to maintain landline boundaries next to private land. Do not blaze or paint boundary lines.

Special Uses

Standard:

Corridors for reservoirs, water conservation works, power projects, transmission lines, and other facilities will not be provided.

Guideline:

Consider the special use needs of landowners within Wilderness study areas on a case-by-case basis.

Transportation Systems

Standard:

Wilderness study area motorized use will only be permitted for private land access and emergency situations with prior Forest Supervisor approval.

Guideline:

Coordinate with local governments to manage boundary roads for High Scenic Integrity Objectives, and where appropriate, at the lowest possible standard to complement adjacent Wilderness study areas.

Research

Standard:

Prohibit research markings that may be visible for more than three years.

Guidelines:

1. Allow research activities that comply with Wilderness and Wilderness study area standards.
2. Locate biological research activities away from trails, facilities, and other areas where people may be concentrated.

Management Area 6

MA 6A Semi-Primitive Non-Motorized, Low Disturbance

Theme

MA 6A is characterized by large, relatively continuous, late successional hardwood forests that are located within a natural appearing semi-primitive non-motorized setting. The forces of nature are the predominant disturbance factors in this MA. Black-throated blue warblers, least flycatchers, goshawks, red-shouldered hawks, and raccoons are some wildlife species associated with late successional northern hardwood forests. Lake and stream cold and warm water fishing, cross country skiing, hiking, hunting, and primitive camping are the primary recreation activities.

Landscape Description

Gently sloping to hilly topography with slope gradients of approximately 5 to 30% characterize MA 6. Glacial landforms include drumlins, moraines, outwash plains, and eskers. Soils have loamy to silty surfaces over loamy to sandy sediments, the soil moisture regime ranges from dry to mesic, and the soil nutrient status ranges from poor to rich. A broad array of Forest Habitat Types and LTAs are represented in this MA.

Desired Future Condition

Landscape Composition and Structure

Relatively continuous late-successional northern hardwoods and northern hardwood-hemlock forest communities dominate MA 6A. This forested landscape is characterized by a naturally occurring variety of tree ages and sizes with greater representation in older age classes and larger tree sizes. Sugar maple, basswood, yellow birch, red oak, white pine, and hemlock, are the primary long-lived tree species present. Large connective forest interior landscape patches characterize the area.

Site-Level Composition and Structure

Forest stands within MA 6A (compared to MAs 1, 2, 3, and 4) are older, have larger than average tree diameters, more snags, den trees, coarse woody debris, long-lived conifer components, super canopy trees, and natural occurring canopy gaps. Within stand tree species diversity occurs as a result of natural forces.

Disturbance Regime

Frequent very small scale and very rare large-scale natural events (such as wind, ice storms, and fire) are the dominant natural disturbance regime. Human-caused disturbances (timber harvest and other types of vegetative management) will not normally occur in this MA. Commercial salvage of timber may occur on a case-by-case basis.

Standards and Guidelines for Management Area 6A

Minerals

Guidelines:

1. Mineral exploration surface occupancy is allowed where mineral rights are federally owned. Whenever possible, surface disturbance will be minimized.
2. When surface disturbing mineral exploration of reserved and outstanding mineral rights is proposed, consider reasonable alternatives that minimize impacts to semi-primitive non-motorized values.
3. Whenever possible, exploration for minerals will minimize the amount of surface disturbance. Full-sized surface exploration vehicles will use existing travel ways to access exploration sites. New road construction will be accomplished using only the minimum standards necessary. Minimize the cutting of brush and trees for surface-disturbing activity.

Vegetation

Guideline:

1. Prohibit grazing.
2. Timber harvesting is normally not allowed. However, infrequent timber harvesting may take place for any of the following reasons:
   - Harvest involves cutting trees that are needed for maintaining or improving roadless or semi-primitive area characteristics; improving threatened, endangered, and Regional Forester Sensitive Species habitat; or restoring ecosystem composition and structure characteristics.
   - The cutting, sale, or removal of timber is incidental to the implementation of a management activity.
   - The timber harvesting is needed for public protection, pest control management, or to create desired conditions for tree regeneration following catastrophic events such as wind or fire.

Special Forest Products

Guidelines:

1. Prohibit the gathering of special forest products for commercial sale.
2. Allow non-commercial gathering of special forest products for personal uses (motorized access for gathering is not permitted).

Fire Management

Guidelines:

1. Minimize off-road use of tractors or tractor plows, retardants, constructed helispots, and wheeled tankers.
2. Post fire suppression activities will include rehabilitation of fire lines, roads, helispots, and other disturbed areas.

Recreation

Guidelines:

1. Manage for low interaction between users.
2. Minimize the presence of structures, facilities, and signing.

Trail Use and Operation

Guideline:

Trails are restricted to non-motorized uses with the following exceptions:

- Emergency search and rescue
- Fire suppression
- Law enforcement
- Trail maintenance
- Administrative management needs (case-by-case basis)
- ATV/Snowmobile use of existing ATV/snowmobile trails. Coordinate with local communities to relocate ATV/snowmobile trails outside of SPNM areas when reasonable alternative routes can be found.

Transportation Systems

Guideline:

1. Limit national forest development interior roads to those that provide access for resource management or facility maintenance, and ingress to private land. These roads will be managed at the lowest traffic service and maintenance levels possible, and will be closed to public motorized vehicle traffic.
2. Restore all decommissioned roads to some level of landscape restoration, or convert them to trails.

MA 6B Semi-Primitive Non-Motorized, Moderate Disturbance

Theme

MA 6B is characterized by early, mid, and late successional hardwood and aspen forests located within a semi-primitive non-motorized setting. Black-throated blue warblers, least flycatchers, goshawks, red-shouldered hawks, ruffed grouse, and white tailed deer are some wildlife species associated with mid to late successional northern hardwood forests and early, mid, and late successional aspen forests. Lake and stream cold and warm water fishing, cross country skiing, mountain biking, hiking, hunting, and primitive camping are the primary recreation activities. MA 6B is managed for a low interaction between users.

Landscape Description

Rolling to hilly topography with slope gradients of approximately 5 to 20% characterize MA 6. Glacial landforms include drumlins, moraines, and loess covered outwash (windblown fine sand and silt over outwash materials). Soils are loamy to silty surfaces over loamy to sandy sediments, the soil moisture regime is mesic, and the soil nutrient status is rich. Forest Habitat Types common to this area include: PArVAa, AVib, ATM, ADT, AOCa, AH, and TMC. Iron River/Argonne, Wabeno, Flambeau, and Glidden Drumlins and Argonne Plains, Nicolet Hills, Jump River, and Perkinstown Moraines are common LTAs.

Desired Future Condition

Landscape Composition and Structure

This forested landscape is characterized by a variety of tree ages. Sugar maple, basswood, yellow birch, red oak, white pine, and hemlock, are the primary long-lived tree species present. Pine and early successional types such as aspen, paper birch, and balsam fir are present. Edge habitat is much less common than in most other MAs and contrast among patches is low. Permanent and temporary open patches are relatively small (up to 10 acres), somewhat uncommon, and do not normally break up large patches of northern hardwoods. A long-lived conifer component (white pine, white spruce, hemlock, and northern white cedar) is maintained or restored within transitional areas between upland and lowland.

For Upland Forest Type Composition Objectives, see Vegetation Guidelines below.

Site-Level Composition and Structure

Forest stands within MA 6B reflect the variety of composition and structure found within MAs 2, 3, and 4. Within stand tree species diversity is moderate, with efforts made to maintain or restore regionally less common species such as yellow birch, hemlock, and white pine.

Disturbance Regime

The silvicultural systems used will range from even-aged to uneven-aged management, will generally be less intensive, and will generally be larger in scale than MA 1. Uneven-aged management activities take place at 10 to 20 year intervals. Some shade-intolerant and mid-tolerant forests types are maintained with even-aged silviculture (thinning, shelterwood, overstory removal, and clearcut harvests). Temporary openings are small (10 acres or less).

Standards and Guidelines for Management Area 6B

Vegetation

NOTE: Management of MA 6B is accomplished by specific guidelines for 6B as well as guidelines for the associated vegetation management areas 1 through 4.

Guidelines:

1. MA 6B areas are designated as MA6B-1B, 6B-2A, etc. Standards and guidelines for both Management Areas are applied; when they conflict the more restrictive Standards or Guidelines prevail.
2. Limit clearcuts to 10 acres and design them to maximize benefits for early successional wildlife species.
3. Retain most of the long-lived northern hardwood and conifer large diameter trees (a diameter at breast height of 19 inches or more) within 200 feet of travel ways and use areas.
4. Remove the appearance of rows when thinning pine plantations.
5. Timber sales will be of appropriate size to be completed in about 3 years duration. Divide areas larger than 6,000 acres into two equal units. Apply the three-year duration to each sub-unit.
6. Limit timber harvesting treatments to no more than one-half of the upland acres (e.g., north half of the area) within individual 6B areas during any ten-year period.

Special Forest Products

Guidelines:

1. Allow the gathering of special forest products for personal use and commercial sale.
2. Prohibit motorized access for gathering special forest products.

Fire Management

Guideline:

Post fire suppression activities will include the rehabilitation of all fire lines, roads, helispots, and other disturbed areas.

Recreation

Guideline:

Minimize the presence of structures, facilities, and signing.

Trail Use and Operation

Guideline:

Trails are restricted to non-motorized uses with the following exceptions:

- Emergency search and rescue
- Fire suppression
- Law enforcement
- Trail maintenance
- Administrative management needs (case-by-case basis)
- ATV/Snowmobile use of existing ATV/snowmobile trails. Coordinate with local communities to relocate ATV/snowmobile trails outside of SPNM areas when reasonable alternative routes can be found.

Transportation Systems

Guidelines:

1. Close national forest development roads to public motorized vehicle traffic and limit density of interior roads to 3.0 miles per square mile.
2. Restore all decommissioned roads to some level of landscape restoration, or convert them to trails.

Management Area 8

MA 8A Argonne Experimental Forest

Theme

The purpose of MA 8A is for research and development of silvicultural techniques to be used in the development, maintenance and harvest of quality northern hardwoods. This area is characterized by large relatively continuous, mid to late-successional northern hardwood forests on the southern and eastern sides of the unit and early successional types such as aspen, balsam fir, jack pine and red pine on the northern and western sides of the unit. The entire area is broken by wetlands comprised of mixed swamp conifers and lowland brush. Wildlife species vary from those that are favored by early successional types such as deer and grouse to those favored by uneven-aged hardwoods such as goshawks and raccoons. Large and small game hunting, dispersed camping, and a variety of non-motorized trail uses are the primary recreation activities.

Landscape Description

The Argonne Experimental Forest is characterized by nearly level to steep topography with slope gradients ranging from 2 to 20%. The dominant glacial landform is drumlin ground moraine with some areas of pitted outwash plain. The soils are sandy loam to fine sandy loam in the surface over loamy sand deposits. These soils have a mesic moisture regime and are nutrient rich. Forest Habitat Types common to the area include: ATM, ATD, AOCa and TMC. This area is primarily within the Iron River/Argonne Drumlins LTA with a smaller area in the Argonne Plains LTA.

Desired Future Condition

Landscape Composition and Structure

Relatively continuous mid to late successional northern hardwood and northern hardwood-hemlock forests dominate the southern and eastern portion of the Argonne Experimental Forest. Early successional types such as aspen, balsam fir and jack/red pine dominate the northern and western portion of the area. Hardwood research projects scattered across the landscape produce a variety of tree ages, sizes, and species composition. Hardwood patches are typically from hundreds to thousands of acres. Pine and early successional types such as aspen, paper birch, and balsam fir are common, especially on the north and west sides of the unit but management activities are limited in this portion of the MA. Temporary openings resulting from research projects are generally small (5 to 40 acres) but may vary as projects expand to consider landscape level effects. Edge habitat and contrast among patches is generally low. Forest openings are not generally maintained but some exist due to frost pockets. Species composition objectives are determined as research needs arise.

Site-Level Composition and Structure

Within stand diversity is generally low as sugar maple dominates the eastern area and aspen dominates the western portion of the area. Hemlock, balsam fir, jack/red pine and other hardwood species such as red maple, basswood, yellow birch, white ash, and red oak are present. Structural diversity is well developed and complex in the eastern portion of the area with snags, den trees, coarse woody debris and canopy gaps being fairly common. Structural diversity is less developed and less complex to the west.

Disturbance Regime

Silvicultural systems vary from even-aged management to uneven-aged management with the emphasis on northern hardwood research. Generally, disturbance through timber management is small in scale but can be intense on specific sites. Other large areas are relatively undisturbed from active management. However, if additional research projects are initiated, the disturbance level and the scale of this disturbance may increase.

Standards and Guidelines for Management Area 8A

Biological Diversity

Guideline:

Use native plant species for restoration activities. Use non-native plant species only if they are needed to prevent irreversible resource damage.

Vegetation

Guidelines:

1. Vegetation management is permitted for the continuation of existing studies, the development of new research projects or maintenance of species composition per the direction of the North Central Forest Experiment Station.
2. Salvage timber harvest, as a result of wind or other natural events, is allowed in coordination with the North Central Forest Experiment Station.

Special Forest Products

Guideline:

Gathering of special forest products for personal use or commercial sale is allowed.

Wildlife and Fish

Guideline:

Wildlife and fish habitat manipulation shall be coordinated and approved by the North Central Forest Experiment Station.

Insects and Disease

Guideline:

Control actions against insects and diseases shall be coordinated and approved by the North Central Forest Experiment Station.

MA 8B Oconto River Seed Orchard

Theme

Management Area (MA) 8B is characterized by small orchards managed to produce genetically improved tree seed. Agricultural fields occupy the area not presently in seed production. The song sparrow, clay-colored sparrow, bluebirds, red-tailed hawk, meadow vole and garter snake are some of the wildlife species associated with open grassland conditions. Large and small game hunting, trout fishing, hiking, and bird watching are the primary recreational activities.

Landscape Description

The seed orchard is characterized by nearly level to gently rolling topography with slope gradients commonly ranging from 0 to 10%. The dominant glacial landform is pitted outwash plain. The soils are loamy in the surface over sandy meltwater stream sediments. These soils have a dry-mesic to mesic moisture regime and a medium to rich nutrient status. Forest Habitat Types common to the area include: PArVAa, ATM, and AVb. The orchard is entirely within the Lakewood Plains and Moraines LTA.

Desired Future Condition

Landscape Composition and Structure

This 670-acre area is highly manipulated. Seed orchards, agricultural fields, and administrative buildings dominate the site. A band of northern hardwoods, which grades into mixed conifers such as cedar and hemlock, border the Oconto River that runs through the tract. Species composition objectives are determined as projected needs arise.

Site-Level Composition and Structure

The variety of seed orchards on site include white pine, red pine, jack pine, white spruce, black spruce, tamarack and aspen. Annual agricultural crops are raised in the open fields.

Disturbance Regime

In order to maintain productive seed orchards and agricultural fields, disturbance is very high. Disturbance includes control of competition, insects, and disease with pesticides, discing, plowing and mowing; fertilization, pruning, seed harvest, agricultural crop harvest, tree removal and controlled pollination.

Standards and Guidelines for Management Area 8B

Vegetation

Guideline:

Vegetation management is done only to enhance seed orchard objectives as determined by the Seed Orchard Manager.

Special Forest Products

Guideline:

Gathering of special forest products is not permitted for commercial sale.

Wildlife and Fish

Guideline:

Wildlife and fish habitat manipulation will be permitted when consistent with seed orchard objectives and with Seed Orchard Manager approval.

Insects and Disease

Guideline:

The Seed Orchard Manager shall initiate Control actions against insects and diseases.

MA 8C Riley Lake Wildlife Area and Moquah Barrens Area

Theme

Large open areas and barrens featuring a mixture of grasses, shrubs, and scattered trees characterize MA 8C. Sharp-tailed grouse, northern harrier, upland sandpiper, sandhill crane, and badger are some wildlife species associated with large open areas and barrens. Wildlife viewing, berry picking, hunting, and sight seeing are some of the primary recreational activities. In the Moquah Barrens, roaded-natural recreation opportunities are featured. In the Riley Lake Area, semi-primitive motorized recreation opportunities are featured.

Landscape Description

Riley Lake Wildlife Area is characterized by nearly level to rolling topography with slope gradients ranging from 0 to 10%. The majority of this area is a wetland. The dominant glacial landform is washed ground moraine and outwash in former glacial drainways. The soils are loamy to sandy at the surface over sandy sediments. These soils have a dry-mesic moisture regime and a poor to medium nutrient status. Forest Habitat Types common to this area are PArVAa and TMC. This area is entirely within the Chequamegon Washed Till and Outwash LTA.

The Moquah Barrens are composed of a large contiguous area of about 13,640 acres and several smaller, unconnected barrens areas referred to as “satellite barrens.” Moquah

Barrens are characterized by rolling to very steep topography with slope gradients ranging from 0 to 45%. The dominant glacial landform is pitted outwash plain. The soils are sandy at the surface and throughout the subsoil. These soils have a dry to very dry moisture status and a poor to very poor nutrient status. Some areas with loamy surface soils are dry-mesic with a poor to medium nutrient status. Forest Habitat Types common to this area are PArV and PArVAa. This area is primarily within the Bayfield Rolling Outwash Barrens LTA, with a portion in the Bayfield Rolling Outwash and Washed Till LTA

Desired Future Condition

Landscape Composition and Structure

Relatively open lands (compared to other MAs) dominate the areas, interspersed with mature trees, ponds, and other wetland types. Grasses and shrubs, with open areas typically hundreds to thousands of acres in size, dominate the Riley Lake Area. A continually changing savanna-type community characterizes Moquah Barrens. Canopy closure varies from mostly open to 50% closure (scattered clumps of trees). Inclusions of northern dry forest and northern dry mesic forest are found on loamy sand soils within the Moquah Barrens Area.

Management activities such as prescribed fire and timber harvest are frequent and very evident. Edge habitat and contrast among patches is generally low due to the dominance of open areas and large patch conditions. Forested inclusions are generally maintained but some are converted to open land through timber harvest or prescribed fire.

Site-Level Composition and Structure

Species diversity is mostly limited to those species that are well adapted to frequent fire. Grasses, forbs, and shrubs are the main component of the stands but fire associated tree species such as aspen, paper birch, red oak, scrub oak, red pine and jack pine are present. Structural diversity in the Riley Lake Area is limited and relatively simple with snags, den trees and coarse woody debris being uncommon. Structural diversity is more developed in Moquah Barrens due to a larger amount of individual trees and scattered groups of trees.

Disturbance Regime

Prescribed fire is the primary management tool. Timber harvest, typically even-aged management, may be used in areas where forested stands are to be maintained. Disturbance with prescribed fire at Riley Lake involves large scale, frequent (3 to 12 year rotation) and intensive burns. Moquah Barrens is managed with a more variable burning regime, to replicate the natural disturbance pattern that is characteristic of pine barrens. Disturbance may involve large scale, low intensity, patchy, and less frequent burns (8 to 12 year rotation). Other silvicultural techniques may be used in Moquah Barrens where red and white pine is to be maintained or restored.

Mechanical treatments such as roller chopping may be used on occasion in both areas when prescribed fire does not produce desired results.

Standards and Guidelines for Management Area 8C

Vegetation

Guidelines:

1. Forest management practices will enhance the recreation and/or wildlife values of these areas.
2. Use even-aged management practices where forested stands are to be retained.
3. Clearcuts will be 300 acres or less.
4. Permanent openings can be larger than 300 acres.
5. Manage 70 to 80% of the Riley Lake upland area in grasses, low shrubs, and young trees. Maintain approximately 20 to 30% of this area in stands of aspen, northern red oak, scrub oak, and jack pine.
6. Maintain the Moquah Barrens Core Area in a mostly open, early-successional barrens condition.
7. Manage the Satellite Barrens Areas for a higher percentage tree cover than the Moquah core area. Tree cover will be scattered clumps and individual trees and have a canopy closure that ranges from mostly open to 50% closed.
8. Use natural regeneration to develop species composition.
9. Minimize disturbance at lek sites during the breeding season.

Special Forest Products

Guidelines:

1. Prohibit the gathering of special forest products for commercial sale.
2. Permit non-commercial gathering of special forest products for personal uses.

Fire

Guideline:

Vary the prescribed burning regime by lengthening burn intervals, allowing fuels and topography to determine intensity, and alternating the seasons when prescribed burning is applied.

Recreation

Standard:

Prohibit use of vehicles (including snowmobiles) off of roads. Close and rehabilitate user-developed motorized trails to prevent resource damage.

Guideline:

Minimize the construction of facilities, structures, and signing; and encourage “no-trace” camping.

Transportation Systems

Guidelines:

1. Interior road density will not exceed 2.0 miles of classified road per square mile of national forest land.
2. Area classified roads will be Maintenance Level One or Two. Some Moquah Barrens decommissioned roads may be converted to fire breaks if necessary.
3. Construct temporary roads when new transportation corridors are needed.
4. Monitor and control non-native invasive plant species during construction, reconstruction, and maintenance of classified and temporary roads; and after the decommissioning and landscape restoration of unclassified and temporary roads. Use only local source (endemic) native plant species for revegetation.

MA 8D Existing, Eligible, and Potentially Eligible Wild, Scenic, and Recreational Rivers

Theme

MA 8D is characterized by free-flowing rivers and associated corridors in a natural condition identified for special management on a federal or state level. These areas provide habitat for a number of riparian-dependant fish and wildlife species and are important ecological corridors within the landscape. Recreational activities that occur in these areas include canoeing, kayaking, fishing, swimming, primitive camping, photography, and hunting. Viewing wildlife species such as bald eagles, otter, beaver, muskrat, herons, kingfisher, and waterfowl is also an important recreational activity.

This prescription will: (1) protect and enhance the scenic and recreational values of the Upper Namekagon segment of the St. Croix National Scenic River; (2) protect and enhance the values of candidate national wild, scenic, and recreational rivers that are eligible for designation or have been identified for study by Congress; (3) provide for the protection and management of state wild rivers in accordance with a memorandum of understanding between the Forest Service and Wisconsin Department of Natural Resources; (4) preserve the rivers in a natural and free-flowing condition; and (5) provide for management that restores or enhances the ecological and recreational characteristics of the river corridors.

The Upper Namekagon segment of the St. Croix National Scenic River was designated in 1968 and is administered by the National Park Service. Eligible national wild, scenic and recreation river segments occur on the East Fork Chippewa, South Fork Flambeau, South Fork Jump, Pine, Popple and Peshtigo Rivers. The Pine and the Popple Rivers are also state designated wild rivers. These state designated rivers are mostly eligible for federal designation as scenic rivers but also include two segments eligible for wild designation. The portion of this prescription for scenic segments incorporates key components of the memorandum of understanding with the Wisconsin Department of Natural Resources for management of state wild rivers on the Forests.

The Brule River lies on the border with Michigan and has been designated by Congress as a study river. Standards and guidelines include a requirement to protect the features and values of the Brule River that caused it to be included for study.

These MAs generally include river corridors about ½ mile wide (i.e., the river plus one-quarter mile wide on each side) along the Namekagon, East Fork Chippewa, South Fork Flambeau, South Fork Jump, Pine, Popple, Peshtigo and south bank of the Brule River. The area considered for special management along state wild rivers is 400 feet either side of the river. For both national and state rivers, the area visible from the river is an important management consideration. The area visible from the river is typically less than either of these corridor widths.

Landscape Description

The river corridors on the Forest vary in length from 1.1 to 54.9 miles. The rivers are typically 40 to 100 or more feet wide with some headwater segments 15 to 40 feet wide.

The Namekagon River originates at the outlet of Namekagon Lake. On the Forest it has moderate width, moderate alkalinity, and warm temperatures that result in a warm water community consisting of several minnow and forage fish and a few mussel species. The East Fork Chippewa, South Fork Flambeau, and South Fork Jump Rivers are relatively wide (i.e., 40 to 140 feet), have moderate alkalinity, stained water and warm temperatures. These rivers contain a diverse assemblage of 9 to 27 species of fish including minnows, darters, redhorse, suckers, and game fish such as musky, walleye, small-mouth bass and northern pike. They also contain 3 to 8 species of mussels including three ridge, muckets, fat muckets, spikes, and pigtoes. The East Fork Chippewa and South Fork Flambeau also contain lake sturgeon that is on the Regional Forester's sensitive species list.

The Pine and Popple Rivers are also predominantly wide, with stained or dark water, moderate to high alkalinity, warm temperatures, 10 to 15 fish species, and 1 to 2 mussel species. Common fish include shiners, chubs, dace, and suckers while cylindrical papershells are the most common mussel species. Naturally reproduced brook trout are common in certain segments of both rivers and are supplemented by stocking of domestic strains. Brown trout are also stocked in the lower portions of the river. The Peshtigo, North Branch Peshtigo, and North Branch Pine are similar to the Pine and Popple except they tend to have clearer water and cool water temperatures and are likely to have more trout present.

The Brule and South Branch Popple are predominantly cold-water communities with clear, cold or cool, high alkalinity water that supports brook trout and stocked brown trout; the water is generally too cold to support mussels. Other common fish include mottled sculpin, brook stickleback, central mudminnow, and johnny darter.

All of these rivers are predominantly low gradient (i.e., less than 0.30%), meandering channels with well-developed floodplains (i.e., Rosgen C type) and sand or gravel channel materials. Most include shorter segments of rapids with high gradients, straight channels, narrow floodplains (i.e., Rosgen B type or C type with low entrenchment values), and coarse channel materials (i.e., cobble or boulder).

Wetlands are common along these rivers, particularly the low gradient, meandering segments. These wetlands are vegetated mostly by shrub swamp or lowland hardwood. The uplands within these river corridors are composed of a wider range of glacial landforms that result in variety of forest types with northern hardwoods, and pine among the most common types.

The corridors along these rivers are characterized by nearly level to steep topography with slope gradients ranging from 2 to 30%. Glacial landforms include drumlin ground

moraines, pitted outwash plains, and washed moraines. The soils are silty to sandy in the surface over loamy to sandy sediments. Soil moisture regimes range from dry to mesic and nutrient status ranges from poor to rich. Forest habitat types common to these river corridors include PArV, PArVAa, ATM, ATD, and TMC. The Pine, Popple, Peshtigo, and Brule river corridors are primarily within the Argonne and Wabeno Plains, Argonne/Iron River Drumlins, Nicolet Hills and Popple River Knolls LTAs. The East Fork of the Chippewa, South Fork of the Flambeau, and Namekagon River corridors are primarily within the Glidden Drumlins, Chequamegon Washed Till and Outwash, and Highland Plains LTAs.

While these rivers have good to excellent water quality and are in a free-flowing, relatively undisturbed condition, historical logging and log drives has impacted all of them. Logging at the turn of the century and sometimes later also resulted in the removal of mature trees adjacent to rivers that would have served as future sources of large woody debris. Log drive associated activities clearly caused the most substantial impact by altering instream habitat and increasing erosion and sedimentation. These activities included the cleaning or improving of small rivers and streams so that logs could be floated downstream, the creation of log rollways, the construction of dams, and the log drives themselves. River cleaning included the cutting of brush and trees on the sides; digging cutoff channels between oxbows; and removing logs, rocks, and shoals from the channel by snagging or blasting. These activities would have resulted in some bed and bank erosion and a wider, cleaner channel susceptible to additional erosion. They also resulted in the loss of aquatic habitat through the removal of large rocks and vast amounts of large woody debris.

Desired Future Condition

Landscape Composition and Structure

The rivers are in a relatively undisturbed and free-flowing condition. The composition and productivity of biological communities are not limited by water quality problems. The rivers provide excellent habitat for the fish, mussels, and aquatic invertebrates that are ecologically suited to each segment. The river corridors provide habitat for a variety of wildlife, particularly those dependant on riparian habitat such as the bald eagle, wood duck, kingfisher, great blue heron, turtles, otter, muskrat, and beaver.

The structure, function, and composition of these riparian areas are intact and the areas serve as landscape corridors. A mature forest character interspersed with lowlands dominates the landscape. A variety of tree species is present but management encourages longer-lived species such as white pine, red pine, hemlock, sugar maple, yellow birch, and white spruce. Within scenic and recreational river segments, aspen and other early successional species are managed to encourage conversion to longer-lived species (adjacent to the river). Size and age class distributions of the long-lived species are maintained but rotation ages and size classes are extended to provide the big tree character. Edge habitat and contrast among patches is generally low. Patches are typically in hundreds of acres. This band of continuous forest canopy within the river corridor provides travel routes between large patches of similar habitat.

Site-Level Composition and Structure

Large woody debris (LWD) occurs within the rivers in amounts that are within the normal range for the ecological capability of the riparian area. The LWD provides habitat

for a variety of aquatic species. Where appropriate, river channels are restored from the impacts of historical log drives, sedimentation, and increased water temperatures; and riparian areas are restored from the impacts of historical logging. Restoration occurs using native materials and in a manner that enhances that natural structure, function, and stability of the channel and riparian area.

Each river corridor consists of a variety of vegetative conditions but long-lived species predominate. Mature patches of climax tree species dominate wild river segments, and there is no evidence of forest management. Scenic segments are dominated by long-lived, tall, large diameter trees of a variety of species that enhance the river values such as visuals, wildlife and aquatic habitat. The overstory is dominated by white pine, red pine, hemlock, and sugar maple. Pine plantations within the corridor are managed to break-up the appearance of rows and uniform spacing between trees. Incorporating snags, den trees, coarse woody debris, super canopy trees, and canopy gaps into management activities enhances structural diversity. Trees are uneven-aged with the older age classes well represented. Recreation segments are similar to scenic segments but may include more small even-aged stands of aspen.

Wild segments are undeveloped and there is little evidence of human activity. They may contain a few recreation developments or other structures which are primitive, unobtrusive or not in close proximity to the river. Scenic segments are mostly undeveloped and evidence of human activity is minimized. Campgrounds, picnic areas and other structures are generally limited in extent and screened from the river. Recreation segments are mostly undeveloped but may contain campgrounds, picnic areas and other structures in close proximity to the river.

Disturbance Regime

The natural range of flood and drought flows are the predominate disturbances within the riverine environment. Flooding from beaver dams occasionally occurs in some headwater segments but most other rivers are too large for beaver dams to persist. In the uplands, windthrow and other natural events occur in all segments but are the predominate disturbances within wild segments. Uneven-aged management such as improvement and selection harvest is the primary management activity within scenic and recreation corridors to create a large tree character and visually pleasing scenes. In some cases, even-aged management such as thinning, shelterwood and removal harvest are used to develop a large tree character and maintain desired species compositions. Disturbances associated with timber harvest are generally infrequent (15 to 20 years), low in intensity, and not readily apparent from the river.

Standards and Guidelines for Management Area 8D

Brule Congressional Study River

Standard:

Protect and enhance the values that caused the Brule River to be included as a study river. Emphasize protection of free flow, water quality, and features of outstanding value.

Designated and Eligible River Segments

Water

Guidelines:

1. Identify and restore (over time) channel segments degraded by scour or excessive sedimentation.
2. Rock roller dams and remnants of logging dams and other similar structures will be evaluated on a case-by-case basis to determine if they will be removed, modified, or maintained.

Minerals

Standards:

1. Prohibit minerals activities for federally owned minerals that would change eligibility for wild river status on stream segments that are eligible for wild status as well as State designated wild rivers. USDA consent to mineral extraction plans will be determined individually based on the relative value of the surface/subsurface resources and consideration of effect on “Wild” character and eligibility for wild status.
2. Minerals activities for federally owned minerals may be permitted on a case-by-case basis on river segments with an eligible scenic or recreation status.

Biological Diversity

Guidelines:

1. Restore wild rice beds and other aquatic macrophytes where suitable.
2. Emphasize the use of native and desirable non-native plants for restoration activities.

Aquatic Species

Standard:

Provide naturally appearing restoration and improvement fish habitat structures within wild, scenic, and recreational river segments.

Guideline:

Maintain recreational navigability when conducting river habitat restoration projects such as the placement of large woody debris, rocks, and other structures.

Vegetation

Standards:

1. Timber harvesting will not occur within wild river segments except for emergency situations or valid mining claims.
2. Timber harvesting can occur within scenic segments for the purpose of restoring or enhancing fish and wildlife habitat, visual quality, forest health, tree vigor, and long-lived large diameter trees. Even-aged management practices will not be visible from any point on the river and will not be permitted within 200 feet of river shorelines.

Even-aged management practices will not be visible from any point on the Pine and Popple Rivers (State designated wild status) and will not be permitted within 400 feet of river shorelines.

3. Allow all silvicultural harvesting techniques within recreation segments (except clearcutting is not permitted where it is visible from the river). Timber harvesting within areas visible from the river will be for the purpose of restoring or enhancing fish and wildlife habitat and visual quality. Timber harvests will be designed to create a large-tree character, and a species composition that favors long-lived, large diameter trees.

Guideline:

Timber harvesting within 150 feet of the river will be for the purpose of establishing long-lived, large diameter trees such as white pine, red pine, hemlock, northern white cedar, white spruce, and to lesser extent red maple, red oak, and sugar maple.

Special Forest Products

Guideline:

Prohibit the gathering of special forest products, for commercial sale, within 100 feet of designated or eligible wild, scenic, and recreation rivers. Non-commercial gathering of special forest products for personal uses is permitted within these areas. Commercial and personal use gathering is permitted outside of the above-listed riverside zones.

Recreation

Standard:

Construction of major new recreation facilities (campgrounds, major trailheads, etc.) will not occur within wild or scenic river segments. Construction of minor recreation facilities that maintain or enhance river values (such as primitive campsites) are permitted within scenic segments, and are permitted on a case-by-case basis within wild segments.

Guideline:

New recreation facilities within wild and scenic corridors will not be readily visible from the river.

Transportation Systems

Standard:

New road and motorized trail construction is not permitted within eligible or designated wild river corridors.

Guidelines:

1. The overall interior road density for eligible or designated wild, scenic, and recreation river corridors will not exceed 2.0 miles of classified road per square mile of national forest land.
2. Restore all decommissioned roads to some level of landscape restoration.

3. Do not designate new motorized trails within eligible or designated scenic and recreation river corridors. Where the designation and use of motorized trails is unavoidable—they will be located at least 400 feet from eligible or designated scenic rivers and at least 100 feet from eligible or designated recreation rivers.
4. Trails that cross eligible or designated wild, scenic, or recreation rivers will cross on existing bridges.

Table 3-13. Classification of MA 8D river segments.

River	DES[6]	Segment[2]	Description of Segment	Potential or Designated Classification	Length (miles)
Namekagon	D		Namekagon Lake to Forest boundary--Was designated in 1968. Segment on National Forest is SCENIC and is administered by the National Park Service	Scenic	2
East Fork Chippewa	E	1	Forest Boundary to FR 162	Scenic	10
		2	FR 162 to bridge on Blaisdell Lake	Recreational	9.8
South Fork Flambeau	E	1	Headwater to footbridge	Scenic	0.2
		2	Footbridge to east of FR 144	Wild	2.8
		3	East of FR 144 to FR 148 (Smith Rapids Br)	Recreational	5.2
		4	FR 148 to FR 149	Scenic	4.8
		5	FR 149 to Forest boundary	Recreational	11.4
South Fork Jump[4]	E		Forest boundary to Forest boundary	Scenic	1.1
Brule	S		Brule Lake to NE Forest boundary—Eligibility Report completed by the Ottawa National Forest in 1989.	Recreational	32.4
North Branch Peshtigo[3]	E	2	Sec 23/30 to confl w/unt Sec 4, T37N, R13E	Wild	6
		3	Confluence w/unt[1] to Forest boundary	Scenic	8.5
Peshtigo	E	4	Forest boundary to railroad bridge	Recreational	7.2
		5	Railroad bridge to 1/4 mi below CCC bridge	Scenic	4.8
		6	Below CCC Br to 1/4 mi above Evans Br	Wild	4.3
		7	Above Evans Br to Armstrong Cr confluence	Scenic	5
		8	Armstrong Cr to Sec 12/13, T35N, R16E	Wild	5.3
		9	Sec 12/13 line to Forest boundary	Scenic	1.7
North Branch Pine[5]	E	1	Butternut Lake to Pine River confluence	Scenic	12.6
Pine[5]	E	2	Headwaters Wilderness segment	Wild	5.3
		3	HW Wilderness to private bridge	Scenic	6.1
		4	Private bridge to Hwy. 55	Scenic	2
		5	Hwy. 55 to FR 2169	Scenic	11.4
		6	FR 2169 to FR 2133	Scenic	3.8
		7	FR 2133 to FR 2156	Scenic	5.3
		8	FR 2156 to Forest boundary	Wild	3.5
North Branch Popple[5]	E	1	Origin to 1/4 mi above Hwy. 55	Wild	5.2
		2	1/4 mi above Hwy. 55 to Popple	Scenic	6.2
Popple[5]	E	3	Origin to FR 2167	Scenic	9.8
		4	FR 2167 to Hwy. 139	Scenic	6.7
		5	Hwy. 139 to FR 2398	Scenic	7.6
		6	FR 2398 to Forest boundary	Scenic	8.6
South Branch Popple[5]	E	7	Origin to Popple River	Scenic	10.8

Table Notes: *(1) unt=ununnamed tributary; (2) Segment numbers correspond to the Wild and Scenic Eligibility Report, Chequamegon-Nicolet NF, March 15, 1994 and found in Appendix E of the FEIS; (3) Peshtigo segments start at 2 because segment 1 was determined to be ineligible; (4) The SF Jump was not considered in the eligibility report because of the short distance; (5) The NB Pine, Pine, NB Popple, Popple and SB Popple segments are also designated as state wild rivers; (6)D=designated National Wild/Scenic River segments;E=potential classification for eligible national wild, scenic and recreation river segments; S=Rivers that are yet to be studied for suitability.*

MA 8E Existing and Candidate Research Natural Areas (RNA)

Theme

In this document, the term RNA will refer to both Existing and Candidate Research Natural Areas. MA 8E is characterized by ecologically significant natural features, representative ecosystems, and/or unique areas managed as Candidate or Existing Research Natural Areas. A broad representation of Forest community types is included in this MA. In combination with other RNAs in the nation, they form a national network of ecological areas for research, monitoring, education, and maintenance of biological diversity.

Landscape Description

MA 8E is characterized by nearly level to steep topography with slope gradients ranging from 0 to 30%. Glacial landforms include drumlin ground moraine, collapsed and uncollapsed outwash plains, washed moraines and eskers. The soils range from sandy to silty in the surface over loamy to sandy sediments. Soil moisture regimes range from dry to mesic and nutrient status ranges from poor to rich. A broad array of Forest Habitat Types and LTAs are represented in this MA.

Desired Future Condition

Landscape Composition and Structure

RNAs are chosen as high quality representatives of ecological communities found on the Forest. In general, they exhibit minimal evidence of past human disturbance, and contain all or most species characteristic of that community in the region. They may range in size from less than 100 acres to thousands of acres. They are generally well buffered from incompatible activities on nearby lands. RNAs are meant to include a representation of ecological types and vegetative cover across the Forest. However, composition results primarily from natural ecological processes rather than human-caused activities. As a result, late-successional upland types such as northern hardwoods, northern hardwood/hemlock, and mixed-conifers dominate the MA. A variety of wetland types may be present, from small isolated ponds and bogs to large (over 1000 acre) wetland complexes.

Site-Level Composition and Structure

Compositional diversity typically reflects late successional mature conditions. Dominant upland tree species are sugar maple, hemlock, yellow birch, basswood, and American beech. Lowland areas support tree species such as black spruce, northern-white cedar, and tamarack. Shade-intolerant species such as aspen, white birch, and jack pine are uncommon, limited to areas affected by natural disturbance such as windfall. Ground flora reflects the full diversity of native upland and lowland communities, and is generally unaffected by invading exotics. Structural diversity is complex, with features such as super-canopy trees, snags, den trees, downed woody debris, and canopy gaps commonly found.

Disturbance Regime

Natural ecological processes and natural disturbances shape the landscape-level and site-level vegetation composition. Components of the natural disturbance regime include individual tree throw and infrequent larger scale blowdown, infrequent low-intensity fire, insect damage, and beaver flooding. Timber harvesting does not occur.

Standards and Guidelines for Management Area 8E

Minerals

Standard:

Prohibit the development of new sources of common variety minerals.

Guidelines:

1. Surface disturbing mineral activities will be approved or disapproved on a case-by-case basis where minerals are federally owned. Whenever possible surface disturbance will be limited.
2. When surface disturbing mineral exploration and development of reserved and outstanding mineral rights is proposed, consider reasonable alternatives that minimize impacts to RNA values.
3. Acquisition of reserved and outstanding mineral rights will be considered on a willing seller / willing buyer basis.
4. Existing common variety minerals developments may be utilized. Consider RNA values if full utilization requires vegetation disturbance.

Biological Diversity

Guideline:

Use native plant species for restoration activities. Use non-native plant species only if they are needed to prevent irreversible resource damage.

Vegetation

Standard:

Prohibit domestic livestock grazing.

Guidelines:

1. Vegetation management is not permitted unless the desired vegetation type would be lost or degraded without treatment. Management practices will approximate the vegetation and processes that govern natural succession.
2. Hazard trees may be cut but not removed.

Special Forest Products

Guideline:

Prohibit the gathering of special forest products for personal use or commercial sale.

Wildlife and Fish

Guideline:

Wildlife and fish habitat manipulation will not be permitted unless it's consistent with RNA objectives and is needed to maintain the character or purpose of the area.

Fire Management

Guidelines:

1. Allow prescribed fire within a prescription designed to accomplish specific RNA objectives where it is part of the natural disturbance regime, where it is needed to maintain or restore ecosystems, and where it is called for in the establishment record.
2. Minimize the disturbance of soil and water resources by designing fire suppression activities to fit each individual situation.

Insects and Disease

Guideline:

Minimize the disturbance of soil and water resources. Minimize control actions against native insects and diseases, and native plant and animal pests. Allow limited control actions to protect adjacent resources or the features for which the research natural area was established.

Recreation

Standard:

Prohibit recreational use that threatens or interferes with the objectives or purposes for which the RNA was established.

Guidelines:

1. Do not install signs or construct trails or other improvements unless they contribute to RNA objectives or area protection.
2. Prohibit the use of horses, bicycles, and motorized vehicles on RNA trails.

Lands

Guideline:

Clearly identify RNA boundaries, monument corners, and turning points.

Special Uses

Standard:

Prohibit the establishment of new facilities and corridors for utility rights-of-way.

Guideline:

Do not issue special use permits except as mandated by law or agreement. Exceptions may be made for research or educational activities. Phase out existing special use permits when feasible.

Facilities

Guideline:

Do not construct buildings unless they are needed to meet RNA objectives. Existing structures may be maintained.

Transportation Systems

Guidelines:

1. Do not construct new roads.
2. Restore all decommissioned roads to some level of landscape restoration.

Research

Standard:

Permit educational and research use as long as it will not result in unacceptable impacts to RNA values.

MA 8F Special Management Areas

Theme

MA 8F is characterized by unique areas of physical, biological, and cultural features of Forestwide or Regional significance. Included are examples or representatives of scenic, historical, geological, botanical, zoological, paleontological, and archeological values. Management emphasizes the protection of these values and opportunities for public use and interpretation. Special MAs (SMAs) may also provide opportunities as reference sites for research and monitoring.

Landscape Description

MAs 8F is characterized by nearly level to steep topography with slope gradients ranging from 0 to 45%. Glacial landforms include drumlin ground moraine, collapsed and uncollapsed outwash plains, washed moraines and eskers. The soils range from sandy to silty in the surface over loamy to sandy sediments. Soil moisture regimes range from dry to mesic and nutrient status ranges from poor to rich. A broad array of Forest Habitat Types and LTAs are represented in this MA.

Desired Future Condition

Landscape Composition and Structure

SMAs exemplify the special values for which they were designated. They display a high level of integrity, while providing opportunities for public use and awareness. SMAs represent many physical and biological conditions across the Forest, and therefore include a wide variation in vegetative cover and communities. This variety of ecosystems and the quality of special values make SMAs well suited as benchmarks for research and monitoring.

Site-Level Composition and Structure

Sites reflect good recovery from past disturbance. Quality and condition, are high. Site level composition and structure is diverse due to the wide variety of sites represented.

Disturbance Regime

Natural disturbances and occasional management activities shape the landscape-level and site-level vegetation composition. Components of the natural disturbance regime include individual tree throw and infrequent larger scale blowdown, infrequent low-intensity fire, insect damage, and beaver flooding. Management activities are generally limited to light disturbances such as trail clearing and facility construction.

Standards and Guidelines for Management Area 8F

Minerals

Standard:

Prohibit the development of new sources of common variety minerals.

Guidelines:

1. Surface disturbing mineral activities will be approved or disapproved on a case-by-case basis where minerals are federally owned. Whenever possible surface disturbance will be limited.
2. When surface disturbing mineral exploration and development of reserved and outstanding mineral rights is proposed, consider reasonable alternatives that minimize impacts to SMA values.
3. Existing common variety mineral sources may be utilized.

Vegetation

Standard:

Prohibit grazing.

Guidelines:

1. Allow natural processes to determine SMA composition, structure, and function.
2. Vegetation management and commercial timber harvesting will not be permitted unless needed to maintain the character or purpose of the SMA.

3. Do not conduct salvage timber operations except in the following situations:
   - There is a threat to human life, SMA resources, or structures.
   - There is a threat to adjacent lands.
   - The area no longer retains the characteristics for which it was designated.

Wildlife and Fish

Guideline:

Do not allow wildlife and fish habitat manipulation unless it enhances or does not affect the character or purpose of the area.

Fire

Guidelines:

1. Allow prescribed fire within a prescription designed to accomplish specific SMA objectives (where fire is part of the natural disturbance regime, where it is needed to maintain or restore ecosystems, and where it is described in the establishment record or special fire management plan).
2. Fire control within SMAs will use methods that result in minimal disturbance.

Insects and Diseases

Guideline:

Do not use control actions against endemic insects, diseases, or plant and animal pests unless the action is necessary to protect adjacent resources or SMA values.

Recreation

Guidelines:

1. Minimize non-motorized trail construction and maintenance.
2. Relocate motorized trails if they interfere with SMA objectives, in cooperation with local communities.
3. Do not construct or designate horse trails.

Scenery Management

Guideline:

Apply high scenic integrity objectives for visual quality.

Special Uses

Guideline:

Do not issue special use permits except as mandated by law or agreement. Exceptions may be made for research or educational activities. Phase out existing special use permits when feasible.

Facilities

Guideline:

Do not construct buildings unless they are needed to support SMA objectives. Examples are temporary gauging stations and instrument shelters.

Transportation Systems

Guidelines:

1. Do not construct new roads unless they protect or contribute to special MA values.
2. Manage national forest development interior roads at the lowest traffic service and maintenance levels possible.
3. Restore decommissioned roads to the Minimum, Moderate or Maximum level of restoration as outlined in "Road Decommissioning and Landscape Restoration" in Chapter 2, Forestwide Standards and Guidelines.

Research

Guideline:

Research is permitted if it does not compromise the values for which the area was designated.

Administration

Guideline:

Identify, evaluate, and designate SMAs with outstanding natural characteristics, or unique recreation features and (or) resource values.

MA 8G Old Growth and Natural Feature Complexes

Theme

MA 8G is characterized by ecosystem complexes and scattered individual stands which feature existing or developing old growth forest, as well as other exemplary natural communities. These areas provide habitat for a number of forest interior plant and animal species. A wide range of compatible recreational activities occur in this MA including hiking, skiing, fishing, hunting, and wildlife viewing. The MA may serve as a benchmark or reference area for use in monitoring, adaptive management, or research.

Landscape Description

MA 8G is characterized by nearly level to steep topography with slope gradients ranging from 0 to 30%. Glacial landforms include drumlin ground moraine, collapsed and uncollapsed outwash plains, washed moraines and eskers. The soils range from sandy to silty in the surface over loamy to sandy sediments. Soil moisture regimes range from dry to mesic and nutrient status ranges from poor to rich. A broad array of Forest Habitat Types and LTAs are represented in this MA.

Desired Future Condition

Landscape Composition and Structure

Existing and developing old growth generally occurs within community complexes, which may contain a variety of ecosystem types including forested, non-forested, upland, lowland, and aquatic types. Some old growth areas may also occur as scattered stands or smaller clusters of stands, rather than complexes. The MA represents a wide range of community types across the Forest, particularly those types generally thought of as climax communities (northern hardwood, hardwood/hemlock, mixed conifer).

Site-Level Composition and Structure

Site level composition and structure generally reflects true old growth conditions, although some areas may reflect a more recent history of management. Even in these exceptions however, the communities are fairly advanced in the process of recovery. Dominant tree species are sugar maple, hemlock, yellow birch, basswood, and American beech. Shade-intolerant species such as aspen, white birch, and jack pine are uncommon, although they may be found in areas affected by past management activities or by natural disturbance such as windfall. Structural features such as canopy gaps, snag and den trees, large woody debris, and tip-up mounds are common. Average tree size is large, with trees commonly over 24 inches in diameter.

Disturbance Regime

Vegetation composition and structure result from natural ecological processes rather than human-caused activities. Components of the natural disturbance regime include individual tree throw and infrequent larger scale blowdown, infrequent low-intensity fire, insect damage, and beaver flooding. Timber harvesting does not typically occur.

Standards and Guidelines for Management Area 8G

Minerals

Guidelines:

1. New sources of common variety minerals (sand and gravel) will not be developed.
2. Surface disturbing mineral activities will be approved or disapproved on a case-by-case basis where minerals are federally owned. Whenever possible surface disturbance will be limited.
3. When surface-disturbing mineral exploration of reserved and outstanding mineral rights is proposed, consider reasonable alternatives that minimize impacts to old growth values.
4. Existing common variety mineral sources may be utilized.

Vegetation

Standard:

Prohibit domestic livestock grazing

Guidelines:

1. Do not harvest timber except as salvage operations.
2. Do not conduct salvage timber operations except in the following situations:
   - There is a threat to human life, Old Growth resources or structures.
   - There is a threat to adjacent lands.
   - The area no longer retains the characteristics for which it was designated.

Wildlife and Fish

Guideline:

Conduct wildlife and fish habitat manipulation only where needed to maintain the character or purpose of the area.

Fire

Guidelines:

1. Allow prescribed fire within a prescription designed to accomplish specific old growth objectives.
2. Fire control within old growth areas will use methods that result in minimal disturbance.

Insects and Disease

Guideline:

Do not use control actions against endemic insects, diseases, or plant and animal pests unless the action is necessary to protect adjacent resources or old growth area values.

Recreation

Guideline:

Do not construct new campground facilities. Some primitive campsite construction may be allowed.

Facilities

Guideline:

Do not construct buildings unless they are needed to meet old growth area objectives.

Transportation Systems

Guidelines:

1. Manage National Forest classified roads within MA 8G at the lowest traffic service and maintenance level possible.
2. Restore decommissioned roads to the Minimum, Moderate, or Maximum level of restoration as outlined in “Road Decommissioning and Landscape Restoration” in Chapter 2, Forestwide Standards and Guidelines.

Aquatic Desired Condition

Watershed and Aquatic Resource Management Prescription

Theme

The Aquatic Resource Management Prescription provides direction for management of watersheds, riparian areas, and aquatic resources across the entire Forest. It emphasizes the protection, restoration, and enhancement of watershed conditions, riparian areas, wetlands, lakes, streams and aquatic communities.

Desired Future Condition

Watersheds

Healthy watersheds are resilient in the face of natural events and are capable of absorbing the effects of human disturbances. They function properly by absorbing rain, recharging groundwater, providing favorable conditions of water flows, dissipating floods, and connecting headwaters to downstream areas and wetlands. Maintaining ground cover and minimizing compaction, severe burning, displacement and puddling protects the soil surface. These factors result in high infiltration rates; a minimum of natural or human induced erosion; and the filtering of sediment before it reaches lakes, streams, and wetlands. Soil resources further contribute to watershed health and ecosystem sustainability through long-term maintenance of organic matter and nutrient levels.

All watersheds on the forest are assessed to determine their condition with regard to soils, riparian habitat, aquatic habitat and the quantity, timing and quality of flows. Conditions are restored or enhanced as needed.

Riparian Ecosystem Habitat

Riparian corridors whose structure, function, and composition are intact and which serve as landscape connectors border streams and lakes. Floodplains have little or no development and are able to store and transmit floodwaters with a minimum of risk to human safety and property.

The terrestrial component of riparian areas consists of a diversity of vegetation within the range of natural variability. Many upland and forested wetlands have large, long-lived, tall trees appropriate for the site that enhance aquatic ecosystems by providing shade, detritus, LWD, shoreline and stream bank stability, and overhead cover. Desirable species, particularly adjacent to lakes and wide rivers, include white pine, red pine, hemlock, northern white cedar, and to a lesser extent white spruce, red oak, sugar maple, and red maple.

The diversity and abundance of wetlands are maintained or restored over time. Natural hydrological regimes are maintained for a variety of wetland types. Wetlands provide beneficial values, within the range of natural variability, such as storm and floodwater storage; storage and transmission of surface or groundwater; filtration of sediments, nutrients, or toxic substances; shoreline protection against erosion; and habitat for plants, aquatic organisms, and wildlife.

National Forest ownership of shoreline on lakes and streams is maintained or increased over time. Additional shoreline is acquired as opportunities arise.

Aquatic Ecosystem Habitat

The composition and productivity of biological communities in streams and lakes are not limited by reductions in water quality. Water temperatures, sediment, nutrients, and dissolved oxygen are within their normal ranges for the valley segment, stream reach or lake type. The introduction of pesticides, fertilizers and other chemicals to aquatic ecosystems is avoided or minimized to prevent adverse effects to aquatic biota. Water quality on the Forests is suitable for fishing and swimming.

Streams are maintained or restored to provide for natural functions and processes such as the transport of water and sediments within the normal ranges for the watershed. This results in the maintenance or development of stream channels which are relatively stable over time and provide suitable habitat for aquatic biota.

Stream flows are sufficient to maintain channel integrity and support aquatic biota.

Most Class I and II trout streams are in a free-flowing condition which provides suitable habitat for cold-water stream community.

Fish passage occurs at all road and trail stream crossings and impoundments unless passage is determined to be undesireable (i.e., to prevent upstream movement of exotics) or not necessary to maintain the composition of the fish community.

Where coarse substrates (gravel, cobble, and boulder) occur in streams, they are free of accelerated sedimentation and provide spawning substrates for simple lithophilous fish (species that lay their eggs on clean gravel or cobble and do not build a nest or provide parental care) and habitat for a wide range of macroinvertebrates, particularly ephemeroptera, plecoptera and trichoptera.

Large woody debris (LWD) occurs in lakes and streams in amounts that are within the normal range for the ecological capability of the area. Individual pieces of LWD are typically greater than 12 inches in diameter and some are resistant to decay. The LWD provides habitat for fish, invertebrates, reptiles and amphibians, and helps to maintain and restore ecological structure and function in aquatic ecosystems.

Aquatic Communities

Most streams and lakes provide various fishing opportunities. Habitat management and access are coordinated with WDNR harvest regulations to maintain healthy fish populations and aquatic communities.

The Forests provide for a variety of recreational fishing opportunities in terms of fish species, harvest, access, and remoteness.

The diversity and abundance of native aquatic flora and fauna are maintained or restored in most streams and lakes in a manner that is consistent with the ecological capability of the water body. Exceptions include cases where game fish have become naturalized, such as many populations of brown trout, or where species are prescribed and stocked by the Wisconsin Department of Natural Resources (WDNR) to provide angling opportunities, such as lakes stocked with trout.

Exotics such as carp, zebra mussel, rusty crayfish, Eurasian milfoil, and purple loosestrife are not spreading or adversely affecting native flora and fauna in lakes and streams.