

4.23 Net River Management Area

Summary of Use and Management

Vegetative management in the Net River management area (MA) (Figure 4.23.1) will provide a variety of forest products; maintain or enhance wildlife habitat; protect areas with unique characteristics; and provide for forest based recreational uses. Timber management objectives for the 10-year planning period include improving the age-class distribution of aspen; maintaining the conifer component in northern hardwood stands; maintaining the presence of minor cover types on the landscape; and maintaining non-forest vegetation types. Wildlife management objectives include addressing the habitat requirements identified for: American woodcock, American marten, black bear, moose, white-tailed deer and wood duck. Management activities may be constrained by site conditions and the skewed age-class distributions. Balancing age classes will be an issue for this 10-year planning period.

Introduction

The Net River management area is on a drumlinized ground moraine in central Iron County. The state forest covers 14,355 acres in scattered small parcels. The major ownership in this vicinity is forest industry. The management area is dominated by the northern hardwood, aspen and lowland conifer cover types. Other attributes that played a role in the definition of this management area include:

- Dominated by two natural communities: mesic northern forest and poor conifer swamp;
- Mid-range in site quality;
- This is a popular hunting and recreation area near the community of Crystal Falls;
- Most of the state forest parcels in this area have frontage or are within a mile of the Net or Paint Rivers;
- Provides multiple benefits including forest products and dispersed recreational activities; and
- Provides a variety of fish and wildlife habitats.

The management priority in this area is to continue to provide these multiple benefits while minimizing user conflicts.

The predominant cover types, composition and projected harvest areas for the Net River management area are shown in Table 4.23.1.

Table 4.23.1. Summary of cover types, composition, limited factor area, manageable area and projected harvest area for the Net River management area (2012 Department of Natural Resources inventory data).

Cover Type	Cover %	Current Acreage	Hard Factor Limited Acres	Manageable Acres	10 Year Projected Harvest (Acres)		Projected Acreage in 10 Years	Desired Future Harvest (Acres)	
					Final Harvest	Partial Harvest		Final Harvest	Partial Harvest
Northern Hardwood	26%	3,686	81	3,605	0	1,743	3,686	0	1,795
Aspen	25%	3,627	130	3497	511	0	3,627	583	0
Lowland Conifers	13%	1,863	562	1301	144	0	1,863	144	0
Upland Spruce/Fir	8%	1,159	542	617	0	0	1,159	88	0
Upland Open/Semi-Open Lands	2%	238	0	238	0	0	238	0	0
Lowland Open/Semi-Open Lands	13%	1,825	0	1825	0	0	1,825	0	0
Misc Other (Water, Local, Urban)	2%	325	1	324	0	0	325	0	0
Others	11%	1,632	452	1180	207	222	1,632	111	222
Total		14,355	1,768	12,587	862	1,965	14,355	926	2,017

Net River

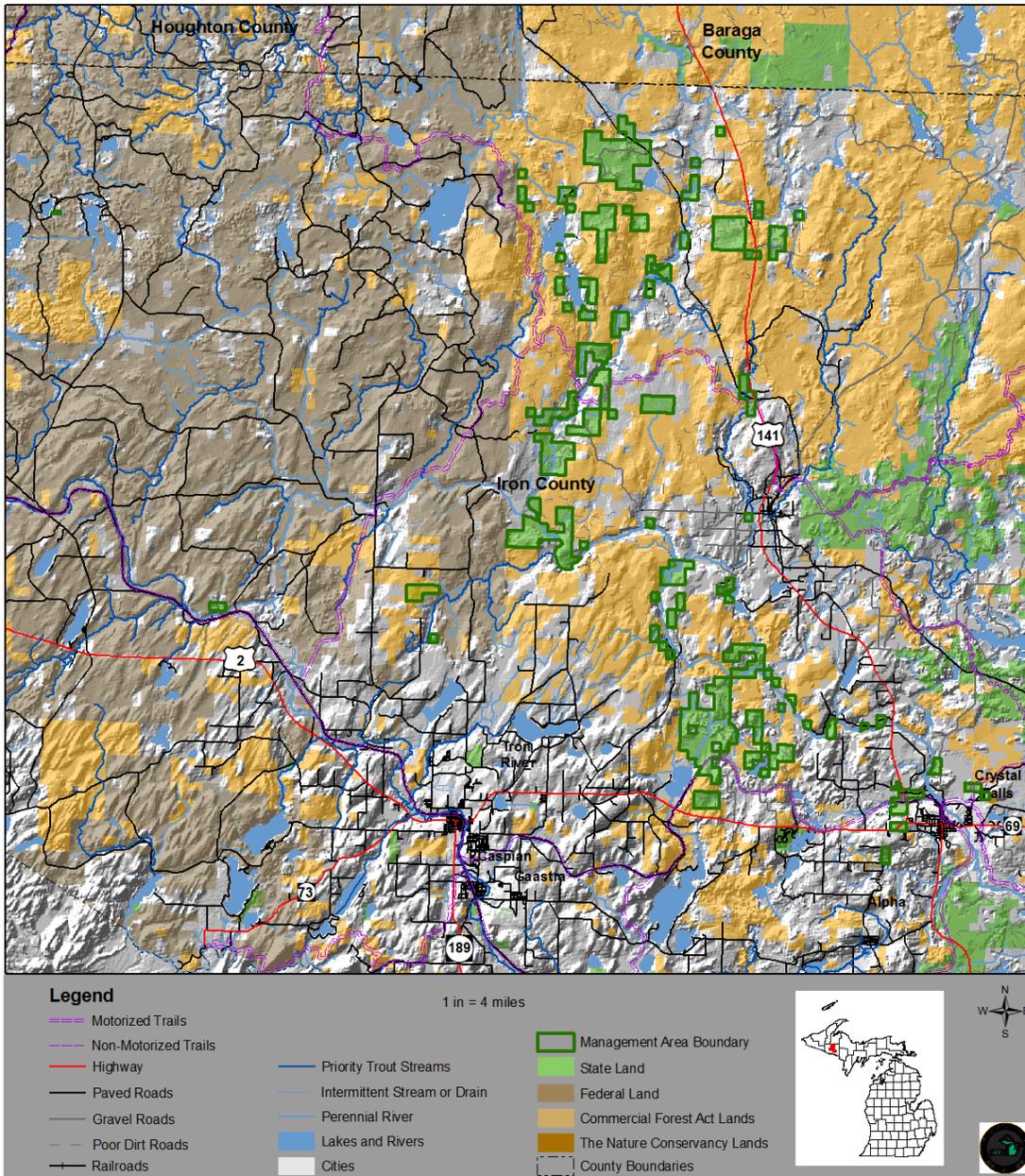


Figure 4.23.1. A map of the Net River management area (dark green boundary) in relation to surrounding state forest and other land in Iron County, Michigan.

4.23.1 Forest Cover Type Management Direction

The following sections contain information on vegetation management for each of the major cover types, a grouping of minor cover types and important non-forested vegetation types for the Net River management area in the form of Desired Future Condition, 10-Year Management Objectives and Long-Term Management Objectives. This information applies to those portions of the forest where active management (i.e., timber harvest, prescribed fire, planting or mowing) will be conducted. In other portions of the state forest, the natural processes of succession and disturbance will provide

ecological benefits. While most stands have a variety of tree species and other vegetation, they are classified by the species with dominant canopy coverage.

The following cover types are valued commercially for their timber products; ecologically as sources of habitat for numerous wildlife species; and for the variety of recreational opportunities they provide. Harvesting and regenerating these cover types will provide for a continuous flow of forest products and will help to ensure (or provide) wildlife habitat.

Northern Hardwoods Cover Type

Current Condition

Northern hardwood stands make up 3,686 acres (26%) of this management area. They occur on medium-quality sugar maple sites. Most stands have been managed on a selection harvest basis and are in good condition. Recruitment of seedlings and saplings into larger size classes is generally not successful due to browse pressure. Northern hardwood is typically managed using an uneven-aged harvest system based on basal area rather than age.

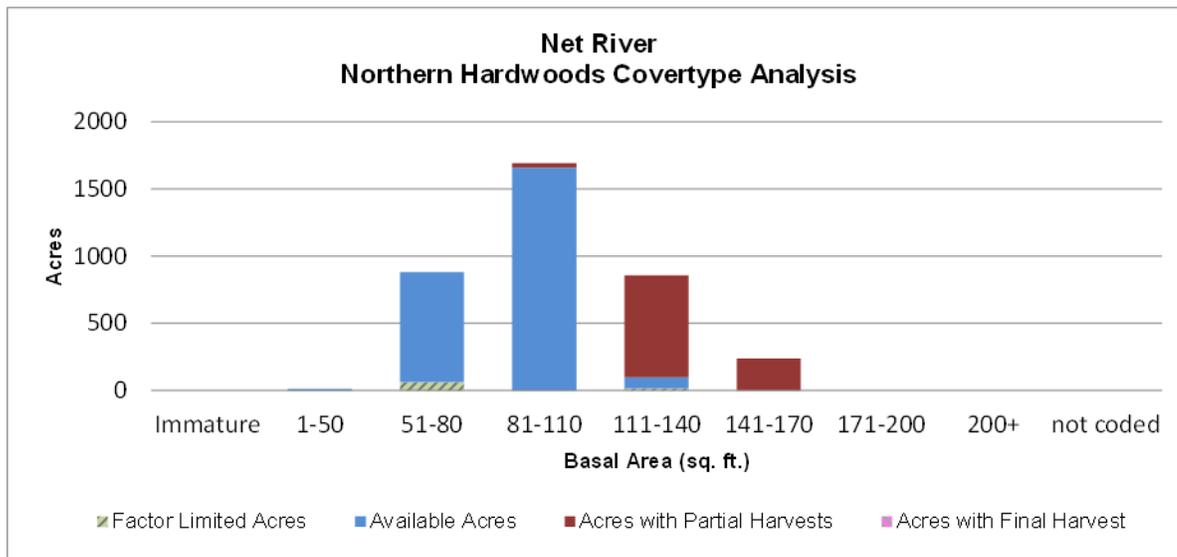


Figure 4.23.3. Graph of the basal area distribution for the northern hardwood cover type on the Net River management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Uneven-aged northern hardwood stand structure promoting high-value sugar maple sawlogs;
- Provide for a full complement of tree seedlings recruiting into the overstory; and
- Provide for well-developed shrub and herbaceous layers.

Long-Term Management Objective

- Using an uneven-aged system, selectively harvest high-quality northern hardwood stands on a 20-year cycle resulting in 1,795 acres harvested each decade.

10-Year Management Objectives

- Approximately 1,743 acres will be selectively cut during this 10-year planning period (this number is lower than the estimated long-term amount due to the current low basal areas);
- Maintain white pine, hemlock, oak and upland cedar where they occur in stands that are cut; and
- Monitor hardwood regeneration.

Aspen Cover Type

Current Condition

The aspen cover type covers 3,627 acres (25%) of state forest land in this management area. Aspen is poorly distributed across age-classes spiking in the 10-19 and 20-29 year age classes and again in the 80-89 year age class. A few acres of aspen have limiting factors on them. Many of these acres will succeed to upland spruce/fir.

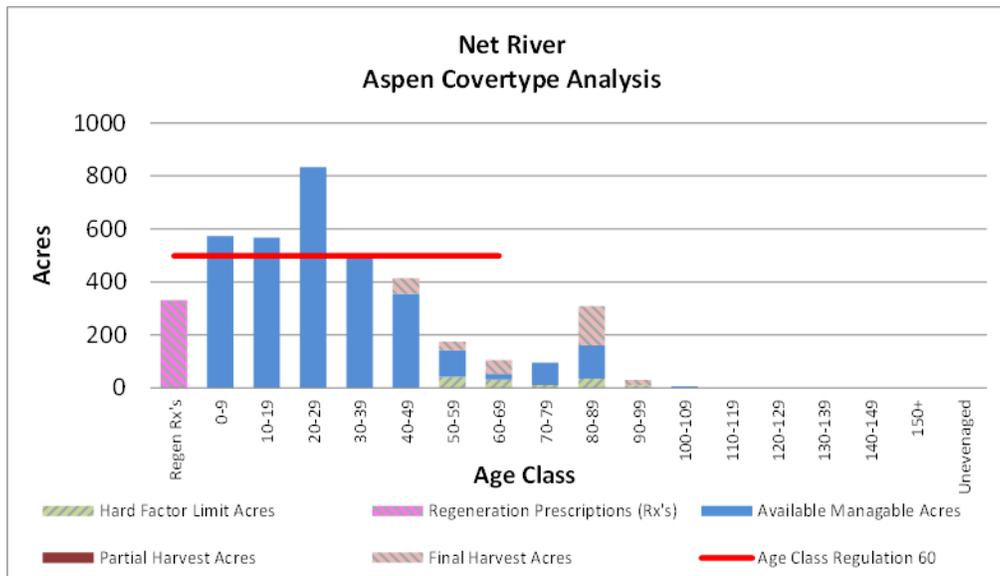


Figure 4.23.4. Graph of the age-class distribution for the aspen cover type on the Net River management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Balanced acres in each age class over a 50-year rotation (indicated by the red line in Figure 4.23.4);
- Provide an even supply of forest products;
- Provide a balanced mix of habitat conditions for a variety of wildlife; and
- Provide a variety of hunting-type opportunities.

Long-Term Management Objectives

- Regenerate approximately 583 acres each decade;
- Opportunities to harvest in the spikes (above the red line) presently in the 20-29 year-old age class will be explored as these classes grow older and reach merchantable size; and
- Biomass harvesting may facilitate the opportunities needed to harvest in these age classes early.

10-Year Management Objectives

- Harvest and regenerate 511 acres over this 10-year planning period with much of this acreage coming from the 40-49 year and older age class; and
- As biomass markets improve opportunities to harvest from the 30-39 year-old age class will be explored.

Lowland Conifers Cover Type

Current Condition

The lowland conifer cover type covers 1,863 acres (13%) of the management area and occurs on poorly drained sites supporting mixed stands of cedar, black spruce, tamarack, balsam fir, white birch and balsam poplar. Mixed lowland conifers have poor age-class distribution, with most of the stands ranging between 70 and 109 years old. Most of these stands have a hard factor limit associated with them which makes them unavailable for harvesting this entry period. Little harvesting has been done in this type over the past 60 years.

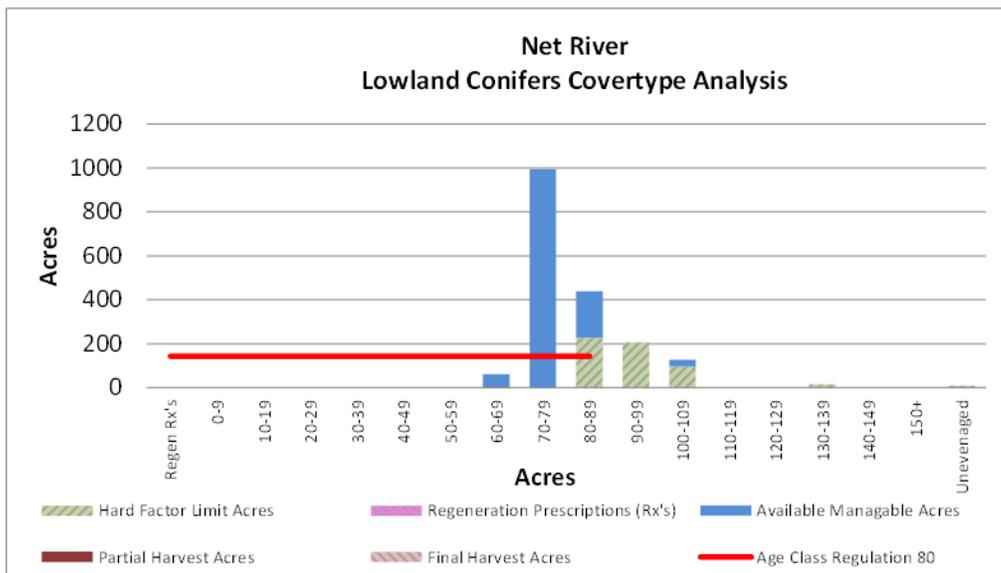


Figure 4.23.5. Graph of the age-class distribution for the lowland conifer cover type on the Net River management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Closed canopy stands interspersed with patches of all age classes;
- Sustainable regeneration and recruitment of seedlings and saplings;
- Mixed lowland conifer stands provide important winter habitat for deer and it is necessary to maintain the closed canopy (>70%) structure in many stands for that purpose; and
- Harvesting will be planned to regenerate stands before widespread mortality occurs.

Long-Term Management Objectives

- Manage this cover type on an 80-year rotation, leading to harvesting 144 acres per decade in those stands without hard factor limits;
- Regenerate stands to a species-mix similar to the pre-harvest conditions with preference for cedar, black spruce and balsam fir; and
- Harvesting will be done using small clearcuts or strips with clumped retention.

10-Year Management Objectives

- Harvest about 144 acres during this 10-year planning period focusing on the use of “low impact” harvesting systems and successful, reliable regeneration techniques.

Upland Spruce/Fir Cover Type

Current Condition

There are about 1,159 acres (8%) of upland spruce/fir on this management area. Many of the stands have factor limits that preclude harvest activities. Upland spruce/fir stands are generally short-lived reaching maturity in 60-70 years. Left unmanaged they may experience insect (spruce budworm) and/or windthrow mortality will be followed by natural regeneration of spruce/fir and/or aspen. Alternatively, they may succeed to shade tolerant hardwoods like red maple. Upland spruce/fir stands in this management area are unevenly distributed by age class. Upland spruce/fir typically occurs as small stands occupying the transition zone between larger upland types (aspen and northern hardwood) and lowlands.

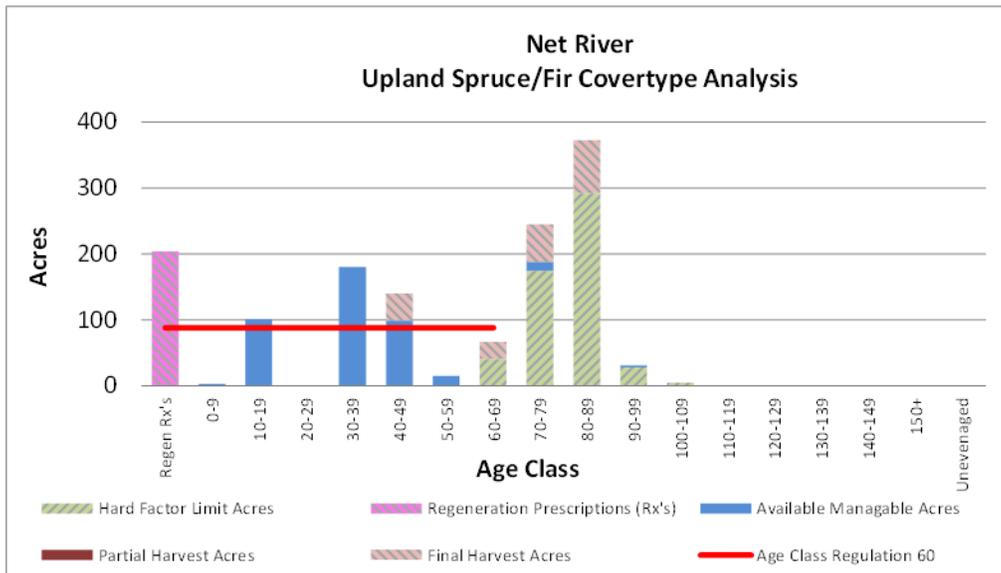


Figure 4.23.6. Graph of the age-class distribution for the upland spruce/fir cover type on the Net River management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Balanced acres in each age class over a 60-year rotation.

Long-Term Management Objective

- Harvest and regenerate upland spruce/fir stands on a sustainable basis using a 60-year rotation length, leading to harvesting 88 acres per decade in those stands without hard factor limits.

10-Year Management Objectives

- Harvest in this type for the next decade is expected to be about zero acres; and
- Evaluate the oldest stands with factor limits to determine which stands should be permanently withdrawn from timber production and which stands are only temporarily limited.

Other Forested Cover Types

Current Condition

Other forested types make up 1,632 acres and are made up of cedar (374 acres), lowland spruce/fir (342 acres), red pine (235 acres), upland mixed forest (200 acres), lowland deciduous (150 acres), tamarack (136 acres), white pine (73 acres), mixed upland deciduous (32 acres), natural mixed pines (32 acres), upland conifers (24 acres), paper birch (19 acres), hemlock (12 acres) and oak (three acres). Together these types make up about 11% of the management area.

Desired Future Condition

- Maintain the presence of the minor cover types within the management area.

Long-Term Management Objectives

- Manage minor cover types to maintain representation using appropriate silvicultural methods;
- Featured species habitat requirements will be taken in to consideration; and
- Maintain hemlock as it occurs.

10-Year Management Objectives

- Harvest those stands without harvest limitations adjacent to other planned harvest activities and where stand and habitat conditions indicate that harvesting is appropriate; and
- Expected harvests in these types will be less than 429 acres during this 10-year planning period.

Other Non-forested Cover Types

Current Condition

The following non-forested cover types are found on this management area: upland open/semi- open lands (238 acres – 2%), lowland open/semi-open lands (1,825 acres – 13%) and miscellaneous other (water, local, urban) (325 acres – 2%).

Desired Future Condition

- These areas will be maintained in the current condition.

Long-Term Management Objective

- Grass will be burned or mowed to prevent forest encroachment.

10-Year Management Objective

- Grass-types will be treated for opening maintenance as needed.

4.23.2 – Featured Wildlife Species Management

The Net River management area contains the Cable – Porter deer wintering complex and portions of the Hemlock Rapids deer wintering complex. The lowland conifer stands in this management area should be managed for wintering deer and conifer should be promoted in the upland hardwood stands. This management area is the heart of western Upper Peninsula moose country due the spatial arrangement of lowlands and uplands and the provision of summer and winter thermal cover near aquatic feeding sites. The primary focus of wildlife habitat management in the Net River management area will be to address the habitat requirements identified for: American woodcock, American marten, black bear, moose, white-tailed deer and wood duck. Some of the most significant wildlife management issues in the management area are: habitat fragmentation; coarse woody debris; large living and dead standing trees (for cavities), especially near water; mesic conifer; mature forest (especially near water); mast (hard and soft); early successional forest (hardwood browse adjacent to closed canopy lowland conifer swamps); and deer wintering habitat. During this 10-year planning period, additional analyses to better define the spatial extent of priority areas (e.g., large suitable patches of contiguous habitat and dispersal corridors for marten) for featured species will be performed.

American Woodcock

The western Upper Peninsula goal for woodcock is to maintain or increase woodcock habitat. In priority areas, management should focus on balancing the age-class distribution and provision of display, feeding, nesting and brood-rearing habitat via upland brush, opening and poorly stocked stand management.

Wildlife habitat specifications:

- Maintain aspen cover types within the management area, especially where associated with alder, riparian zones, or forested wetlands;
- Balance aspen age-class distribution within the management area;
- Use silvicultural practices that encourage the aspen component in mixed stands associated with alder, riparian zones or forested wetlands; and
- Maintain or create rough openings associated with alder, riparian zones, regenerating aspen or forested wetlands within the management area.

American Marten

The goal for marten is to maintain or increase suitable habitat and strive to identify, maintain and connect known populations to facilitate genetic exchange. Management during this planning period should focus on providing mature conifer forest conditions (e.g., coarse woody debris and large living cavity trees) across cover types in marten habitat.

Wildlife habitat specifications:

- Maintain a minimum of 30% canopy cover in key even-aged managed stands of northern hardwood and conifer stands as marten tend to avoid stands with less canopy cover. Retention patches should be oriented to minimize potential blow down.
- Discourage land transactions and management activities that facilitate additional fragmentation of marten habitat by identifying and maintaining corridors between large forested tracts (e.g., Huron Mountains, Craig Lake State Park, McCormick Wilderness, portions of The Nature Conservancy's Northern Great Lakes Forest Project and several smaller natural areas) west to Ottawa National Forest and south Chequamegon-Nicolet National Forest (WI) and Whisker Lake Wilderness.
- Provide late successional conifer-dominated stands in this management area.
- Provide for late successional mesic conifer-dominated stands in the area by extending the normal rotation length for white spruce and balsam fir cover types by 20 years.
- Retain down coarse woody debris present before cutting and debris resulting from incidental breakage of tops and limbs in the general harvest area, except on skid trails and landings, to the extent feasible. Where coarse woody debris is lacking, increase both standing dead and down dead wood by leaving at least three secure large diameter (>14 inches in diameter at breast height) live trees to serve as future den trees, snags, coarse woody debris and logs on the ground per acre harvested.
- Limit biomass harvesting, whole tree chipping and limit firewood permits and retain the maximum residues in the Woody Biomass Harvesting Guidelines within this management area.
- Increase the within-stand component of mesic conifers in forested stands and manage to increase mesic conifer forest types by group or gap selective harvest. Consider under planting on suitable sites where a seed source is absent.

Black Bear

The western Upper Peninsula black bear goal is to maintain or improve habitat. Management for bear should focus on improving existing habitat (e.g., maintaining corridors, mast and refuge trees) in this management area.

Wildlife habitat specifications:

- Maintain or increase the oak cover type and within stand oak component of hardwood forests within the management area;
- Maintain or increase mast by providing forest clearings that promote food sources such as pin cherry, juneberry/serviceberry, hazel, raspberry, blackberry and blueberry;
- Minimize herbicide use that would be detrimental to mast production;
- Maintain lowland conifer and hardwoods along and around drainages, vernal pools and forested wetlands; and
- Maintain refuge tree species with rough bark for cubs to escape (e.g., white pine and hemlock).

Moose

The western Upper Peninsula goal for moose is to maintain or increase suitable habitat. Management for moose should focus on providing early successional browse adjacent to lowland conifer complexes, maintenance of hemlock within stands and maintaining or promoting willow, a valuable food source, along riparian and wetland edges.

Wildlife habitat specifications:

- Encourage early successional hardwood browse (in the 0-20 year age class) in close proximity to closed canopy lowland conifer swamps.
- Balance aspen age-class distribution to ensure a more sustainable supply of browse.
- Maintain or promote thermal refugia in harvested stands by retaining hemlock and other conifers.

- Increase mesic conifer (e.g., hemlock, white pine, non-plantation red pine, and upland spruce-fir) component on state forests by: a) Retaining mesic conifer during harvests; b) Using silvicultural practices that encourage the regeneration of mesic conifer; and c) Where desired/feasible, under planting hemlock, white pine and white spruce in hardwood-dominated stands on suitable sites without a seed source. Increase the percentage of mesic conifers, where suitable, across the landscape by 10% during this 10-year planning period.
- Willow is an important browse species, as are submergent and emergent aquatic vegetation associated with summer feeding areas. Ensure sustainable supplies of each.

White-tailed Deer

The western Upper Peninsula goals for white-tailed deer are to: 1) Maintain existing deer wintering complexes and 2) Expand the extent of areas suitable as winter deer habitat, especially in the medium and high snowfall zones. Management should focus on maintaining habitat quality in priority wintering complexes. DNR department procedure 32.22-07 states "Coniferous swamps are important as winter deeryards and shall be managed primarily for deer. The objective shall be to maintain them for this purpose and through commercial cuttings and silvicultural practices, improve these areas to provide winter cover and food for deer." There is a complex relationship between deer abundance; available summer and winter habitat; timber management; and regeneration tree species, particularly white cedar and hemlock. It is recognized that meeting both timber management and deer goals presents challenges for the department and our stakeholders. Information on deer wintering complexes is currently being updated and new management guidelines are being developed. When completed, these will provide additional direction for managing these critical areas for white-tailed deer.

Wildlife habitat specifications for deer wintering complexes:

- Strive to maintain > 50% of the land area within deer wintering complexes in mixed or pure stands of cedar, hemlock, white and black spruce, white and natural red pine, balsam fir, mixed swamp conifer and mixed upland conifer-hardwood.
- In northern white cedar and hemlock cover types that are commonly occupied by deer during severe winters, especially in medium and high snowfall zones, maintain canopy closure of >65%.
- In deer wintering complexes in low snowfall areas, and within ¼-mile of severe-winter cover in the higher snowfall zones, write prescriptions that strive to maintain canopy closure of 40-65%, favoring cedar, hemlock, white spruce, black spruce, balsam fir and white pine.
- Provide winter forage in deer wintering complexes through stands of regenerating hardwood or brush, including preferred species of red maple, sugar maple, aspen, yellow birch, ashes, oaks, dogwood, crabapple, elderberry, high-bush cranberry, sumac and hazel.
- Enhance accessibility to winter browse within deer wintering complexes by maintaining mature mesic conifer components within upland hardwood stands or by maintaining or enhancing sheltered travel corridors between areas of conifer cover and browse.
- Provide spring break out areas by maintaining open hardwood stands on southern exposures and herbaceous openings adjacent to deer wintering complexes.
- When possible, timber harvests within deer wintering complexes should be carried out only during winter months and tops should be left. Chipping of non-bole wood and whole-tree harvesting in the deer wintering complexes should be avoided, but will be discussed on a case-by-case basis through the compartment review process.
- Harvests of cedar and hemlock may only be conducted when:
 - There is reasonable confidence of successful recruitment/regeneration of the cover types; or
 - There is a forest health issue (e.g., hemlock wooly adelgid); or
 - Part of an approved research project; or
 - Removal of selected trees will facilitate a reduction of harvest trails, landings, etc. to minimize soil sedimentation and possible soil compaction issues.
- Provide fall foods in the form of hard and soft mast and provide dense escape cover or bedding areas in the form of early successional forests, brush, and warm-season grasses that will encourage fall deer use in areas open to public hunting. Where habitat types are appropriate, increase diversity of hard mast by planting oak.

Wood Duck

The western Upper Peninsula goal for wood duck is to maintain or increase suitable habitat. Management should focus on the protection of forest wetland, riparian corridors, providing large cavity trees, mast and the management of priority wildlife management areas with suitable habitat.

Wildlife habitat specifications:

- In landscapes that contain streams, beaver ponds and other potential habitat for wood ducks, provide potential nesting sites by providing mature forest (possibly special conservation area designations) and/or big-tree silviculture near water.
- Retain all large diameter over-mature cavity trees within 300 feet of water bodies for cavities in lowland and upland hardwoods. Where adjacent forest is young or cavities limited, nest trees should be promoted.
- Where appropriate, manage for mast in riparian areas.
- Increase potential riparian buffers to 300+ feet, where desired, instead of the standard 100 foot best management practice.

4.23.3 – Rare Species and Special Conservation Area Management

All forest operations must be reviewed for potential conflicts between rare species and proposed forest operations following the guidance in “DNR’s Approach to the Protection of Rare Species on State Forest Lands” (IC4172). This is especially important when listed species are present, when past surveys have indicated a possibility of their presence, or when appropriate habitat is available and the species is known to occur in the general region.

Past surveys have noted and confirmed six listed species and no natural communities of note occurring in the management area as listed in Table 4.23.2. Any established management guidelines will be followed. Further surveys for special species and natural communities will be carried out as a matter of course during the inventory process and opportunistically for special more focused surveys.

Table 4.23.2. Occurrence information for special concern, rare, threatened and endangered communities and species for the Net River management area.

Common Name	Scientific Name	Status	Status in Management Area	Climate Change Vulnerability Index (CCVI)	Confidence	Natural Community Association	Probable Cover Types	Successional Stage
Birds								
Common loon	<i>Gavia immer</i>	T/G5/S3-4	Confirmed	HV	Very High	Emergent Marsh	Lowland open/semi-open	N/A
						Bog	Lowland open/semi-open	N/A
Bald eagle	<i>Haliaeetus leucocephalus</i>	SC/G5/S4	Confirmed	IL	Moderate	Bog	Lowland open/semi-open	N/A
						Hardwood-conifer swamp	Lowland Mixed	Mid
						Northern hardwood swamp	Black Ash	Late
						Poor conifer swamp	Tamarack	Late
						Floodplain forest	Lowland mixed	Mid
						Dry northern forest	Jack Pine, Red Pine	Early
						Dry-mesic northern forest	White Pine	Late
						Mesic northern Forest	Northern Hardwood	Late
Osprey	<i>Pandion haliaetus</i>	SC/G5/S2-3	Confirmed	PS	Low	Coastal fen	Lowland open/semi-open	N/A
						Northern hardwood swamp	Black Ash	Late
						Floodplain forest	Lowland Mixed	Mid
						Hardwood-conifer swamp	Lowland Mixed	Mid
Dragonflies								
Rapids clubtail	<i>Gomphus quadricolor</i>	SC/G3G4/S2S3	Confirmed	PS	Very High	Headwater & Mainstem Stream	Aquatic	N/A
						Bog	Lowland open/semi-open	N/A
						Northern fen	Lowland open/semi-open	N/A
						Patterned fen	Lowland open/semi-open	N/A
						Northern hardwood swamp	Black Ash	Late
						Emergent marsh	Lowland open/semi-open	N/A
						Great Lakes marsh	Lowland open/semi-open	N/A
						Hardwood-conifer swamp	Lowland Mixed	Mid
						Floodplain forest	Lowland mixed	Mid
						Mesic northern forest	Northern Hardwood	Late
Extra-striped snaketail	<i>Ophiogomphus anomalus</i>	SC/G4/S1	Confirmed	PS	Very High	Headwater & Mainstem Stream	Aquatic	N/A
Pygmy snaketail	<i>Ophiogomphus lineana</i>	T/G3/S1	Confirmed	PS	Very High	Inland lake	Aquatic	N/A
						Headwater & Mainstem Stream	Aquatic	N/A
						Alvar	Upland open/semi-open	N/A
						Bog	Lowland open/semi-open	N/A
						Emergent marsh	Lowland open/semi-open	N/A
						Dry northern forest	Jack Pine, Red Pine	Early
						Mesic northern forest	Northern Hardwood	Late

Climate Change Vulnerability Index: EV – Extremely Vulnerable; HV – Highly Vulnerable; MV – Moderately Vulnerable; PS – Presumed Stable; and IL – Increase Likely

The Paint River is a wild and scenic river in this management area that is a special conservation area as shown in Figure 4.23.7.

Approximately 22.9 acres of potential old growth have been identified within the Net River management area. These stands were identified for a broad range of reasons and were coded in the Operations Inventory database as Stand Condition 8. These stands area also special conservation areas until they are evaluated.

There are no high conservation value areas ecological reference areas identified in this management area as indicated it Figure 4.23.7.

Net River

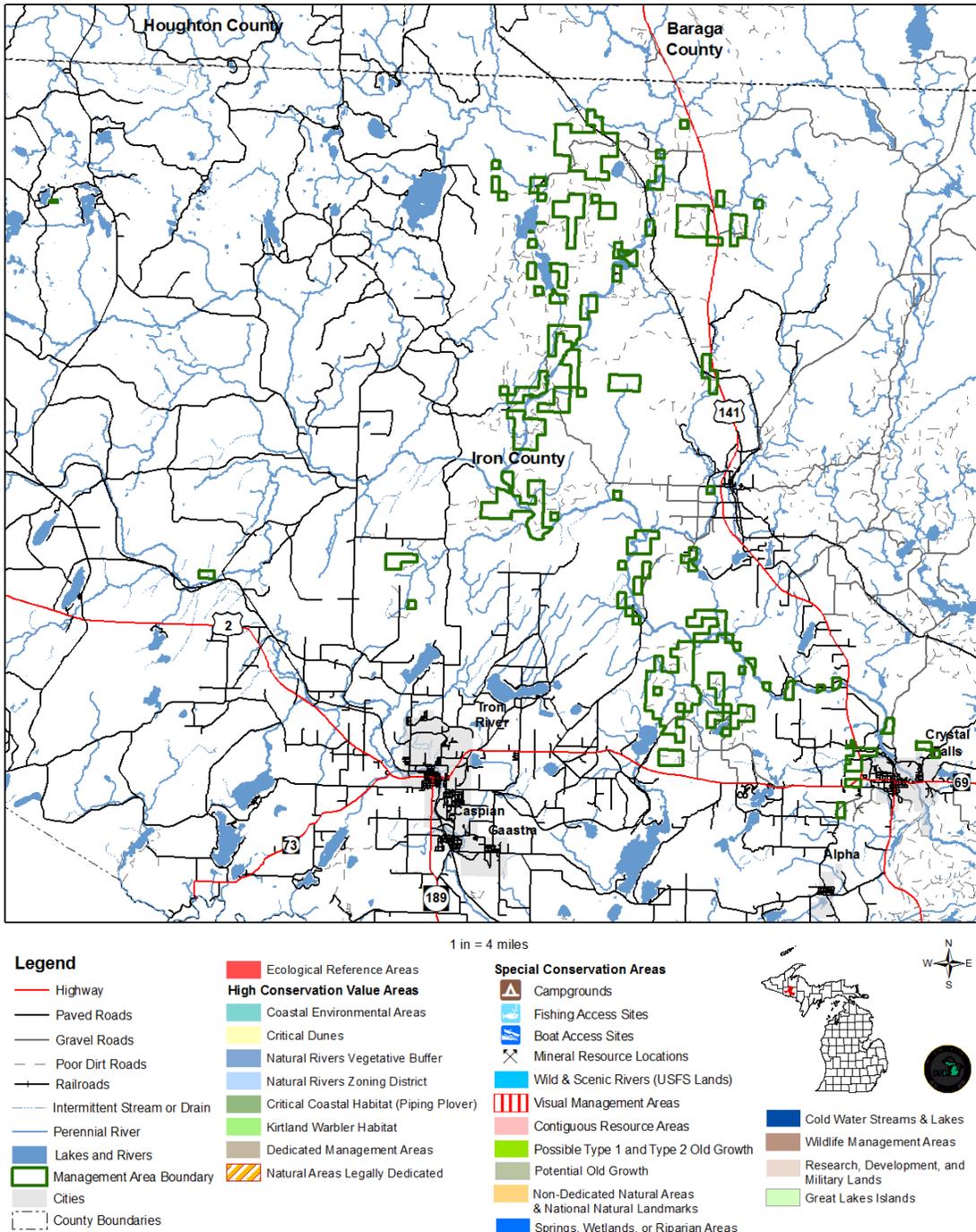


Figure 4.23.7. A map of the Net River management area showing the special resource areas.

Management goals during this planning period:

Goal 1: To develop and maintain a list of rare, threatened, endangered and special concern species and natural communities for the management area through a continuous inventory and through opportunistic focused inventory surveys.

Objective 1-1: Field staff should be trained and aware of the identification characteristics and natural history of rare, threatened, endangered and special concern species.

Objective 1-2: Occurrences of rare, threatened, endangered and special concern species noted during the inventory process by inventory staff should be verified and added to the body of knowledge for the management area.

Goal 2: To evaluate the potential old growth areas by the end of this 10-year planning period.

4.23.4 – Forest Health Management

Although forest health issues span the entire landscape, some specific threats are more important in this management area due to the species composition, site quality or other factors. Some of the more important forest health pests in this area include:

- White trunk rot of aspen
- *Hypoxylon* canker
- Spruce budworm
- Emerald ash borer

When forest pests are detected, they are to be reported to the forest health specialist for treatment recommendations. The treatment of large outbreaks of forest pests will be coordinated on a state and regional level.

Several invasive exotic species of plants are thought to be located in the vicinity. When invasive species are detected, they will be reported to the forest health specialist and treatment options will be reviewed. Priority for treatment should be given to those species that threaten sensitive sites due to their location or growth characteristics and have population levels that may be successfully controlled. Following is a list of species of concern that been documented in or near this management area:

- Bell's honeysuckle
- Canada thistle
- Common buckthorn
- Common St. John's-wort
- European swamp thistle
- Japanese barberry
- Japanese knotweed
- Morrow's honeysuckle
- Narrow-leaved cat-tail
- *Phragmites*
- Purple loosestrife
- Reed canary grass
- Spotted knapweed
- Tatarian honeysuckle

4.23.5 – Aquatic Resource Management

Fisheries Division management unit biologists will review proposed forest management activities using the compartment review process and will consider the potential impact of proposed prescriptions upon riparian and aquatic values. Management prescriptions will be modified to account for riparian and aquatic values by applying the standards and guidance documents listed in the introduction to this plan section to the unique conditions specific to any given forest stand.

Prescription of riparian management zone widths greater than the minimum widths provided in IC4011 (*Sustainable Soil and Water Quality Practices on Forest Land*) must be justified and documented during the compartment review process.

Forested stands adjacent to designated high priority trout streams will specifically be managed to discourage beaver use in accordance with both DNR Policy and Procedure 39.21-20 Beaver Management and IC 4011. Designated high priority trout streams are identified in the Integrated Forest Monitoring Assessment and Prescription Geographic Decision Support Environment. Remove or discourage beaver populations on designated high priority trout streams.

High priority trout streams in this management area are shown in Figure 4.23.1.

4.23.6 – Fire Management

Dominated by mesic deciduous forests and wetland communities, fire return intervals were very long. Fire disturbance was probably not a significant factor in community development.

- All wildfires within the management area are subject to appropriate initial attack response.

4.23.7 – Public Access and Recreation

This area has poor public and management access. General management access can be gained through private parcels on an as needed basis. Boating access sites are located on Cable Lake, Fire Lake, Long Lake and three sites along the Net/Paint river systems. Several snowmobile trails cross this area (Figure 4.23.1). No state forest campgrounds are located in this area.

- Work to expand public access and recreation facilities as opportunities arise.

4.23.8 – Oil, Gas and Mineral Resources

Exploration and development for oil and gas has been limited to a few wells drilled in the eastern Upper Peninsula. No economic oil and gas production has been found in the Upper Peninsula.

Surface sediments consist of an end moraine of coarse-textured till, coarse-textured till and glacial outwash sand and gravel and postglacial alluvium. There is insufficient data to determine the glacial drift thickness. Sand and gravel pits are located in the management area and there is good potential on the uplands for additional pits.

The Precambrian Dunn Creek and Michigamme Formations and Badwater Greenstone subcrop below the glacial drift. There is not a current economic use for these rocks.

Old iron mines are located to the east and south of the management area. Metallic mineral exploration has occurred in the management area in the past and there may be additional potential.