

## 4.17 Huron Mountains Management Area

### Summary of Use and Management

Vegetative management in the Huron Mountains management area (MA) (Figure 4.17.1) will provide a variety of forest products; maintain or enhance wildlife habitat; protect areas with unique characteristics; and provide for forest based recreational uses. Management objectives for the 10-year planning period include enhancing recreational values while preserving and enhancing the native biodiversity. Wildlife management objectives are to manage for old growth forest characteristics in a fairly unfragmented condition, with particular emphasis on protecting the hemlock component. Management activities may be constrained by site conditions. Balancing recreational and other interests will be issues for this 10-year planning period.

### Introduction

The Huron Mountains management area is on bedrock controlled ground moraines and till-floored lake plains in northern Baraga and Marquette Counties. The state forest covers 13,637 acres and is widely scattered in small parcels. The major ownerships in this vicinity are forest industry and non-industrial private. The management area is dominated by northern hardwood, aspen and hemlock 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;
- Two popular Lake Superior shoreline recreation areas are within this management area (the Mouth of the Huron River along the Baraga/Marquette County border and Little Presque Isle north of Marquette); and
- This is a popular area for hunting and non-motorized trail recreation, close to the communities of Marquette and Big Bay.

The management priorities for this area are to develop its recreational characteristics while preserving and enhancing the native biodiversity. Timber management will focus on treatments that promote those values.

The predominant cover types, composition and projected harvest areas for the Huron Mountains management area are shown in Table 4.17.1.

Table 4.17.1. Summary of cover types, composition, limited factor area, manageable area and projected harvest area for the Huron Mountain 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	27%	3,649	736	2,913	0	1,438	3,649	0	1,438
Aspen	14%	1,869	416	1,453	94	0	1,869	208	0
Hemlock	13%	1,735	680	1,055	0	201	1,735	0	201
Red Pine	8%	1,109	1,057	52	10	20	1,109	3	20
Lowland Conifers	6%	780	725	55	21	0	780	6	0
Upland Open/Semi-Open Lands	0%	38	0	38	0	0	38	0	0
Lowland Open/Semi-Open Lands	6%	773	0	773	0	0	773	0	0
Misc Other (Water, Local, Urban)	3%	455	0	455	0	0	455	0	0
Others	24%	3,229	818	2,411	475	357	3,229	289	483
<b>Total</b>		<b>13,637</b>	<b>4,432</b>	<b>9,205</b>	<b>600</b>	<b>2,016</b>	<b>13,637</b>	<b>506</b>	<b>2,142</b>

# Huron Mountains

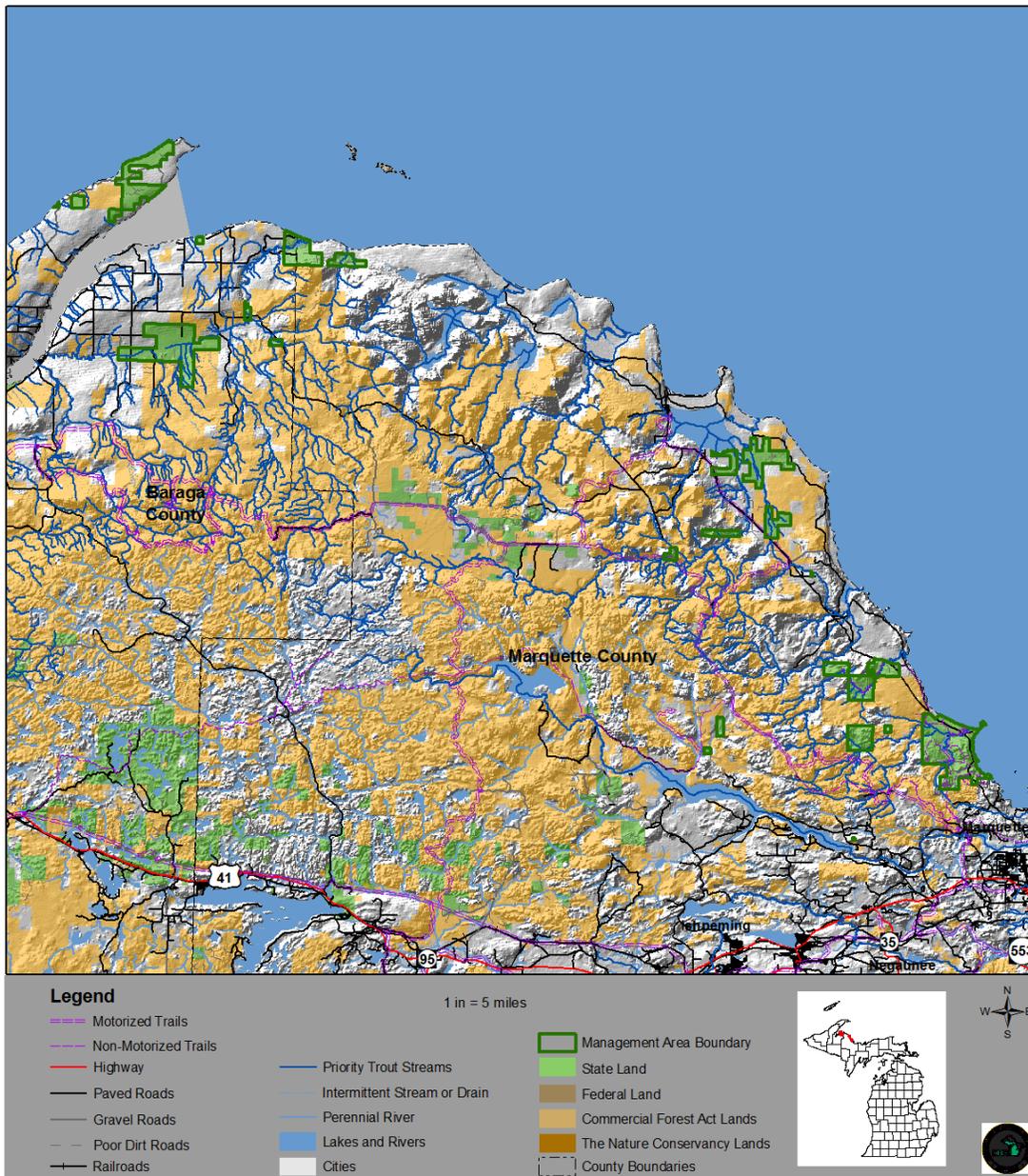


Figure 4.17.1. A map of the Huron Mountains management area (dark green boundary) in relation to surrounding state forest and other lands in Baraga and Marquette Counties.

## 4.17.1 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 Huron Mountains 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 are on 3,649 acres (27%) of the management area (Table 4.17.1). They occur on medium-quality sugar maple sites. Most stands have been managed on a selection harvest basis. Due to low deer numbers in this area, there are few problems with herbivory and most areas regenerate and recruit successfully. Northern hardwood is typically managed using an uneven-aged harvest system based on basal area rather than age.

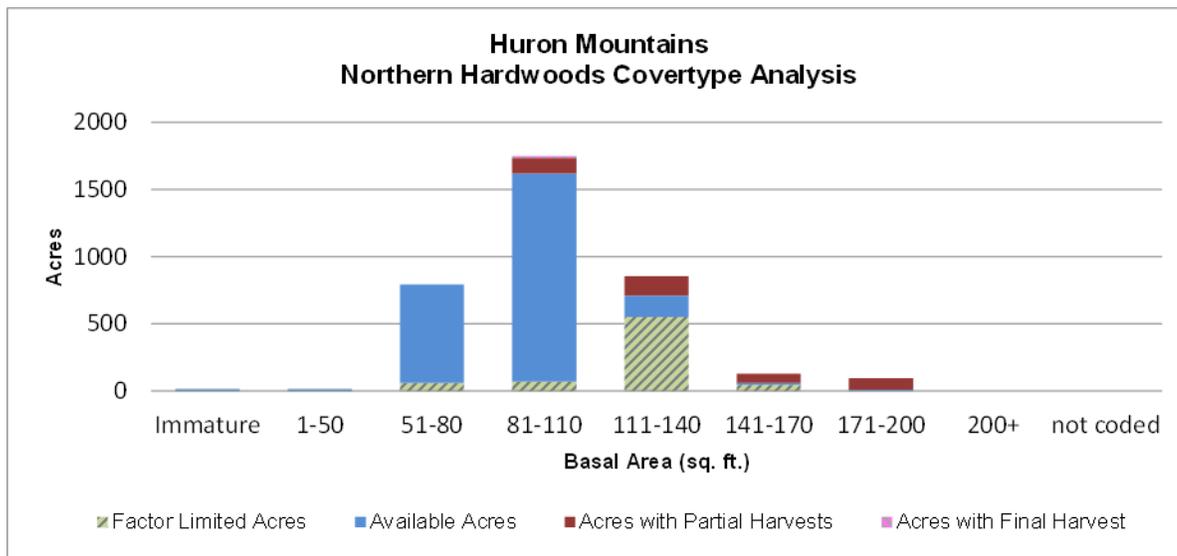


Figure 4.17.2. Graph of the basal area distribution for the northern hardwood cover type on the Huron Mountains management area (2012 Department of Natural Resources inventory data).

### Desired Future Condition

- Sustainable regeneration and recruitment of northern hardwood species leading to an all-age structure.

### Long-Term Management Objectives

- Using an uneven-aged system, selective harvest northern hardwood stands on a 20-year cycle to promote high-value sugar maple sawlogs, hemlock and a well-developed shrub and herbaceous layer.

### 10-Year Management Objectives

- Selectively harvest 1,438 acres in this 10-year planning period; and
- Maintain and regenerate white pine, oak, hemlock and upland cedar where they occur in stands that are harvested.

## Aspen Cover Type

### Current Condition

The aspen cover type covers 1,869 acres (14%) of this management area (Table 4.17.1). Most of the aspen cover type in this management area is growing on sites of medium productivity. Aspen is relatively well distributed across the younger age classes, but lacking in the 50-69 year age classes (Figure 4.17.3). There are 416 acres of aspen that have hard limiting factors on them. These acres are in the 70-89 year age classes and many of these acres will succeed to upland spruce/fir.

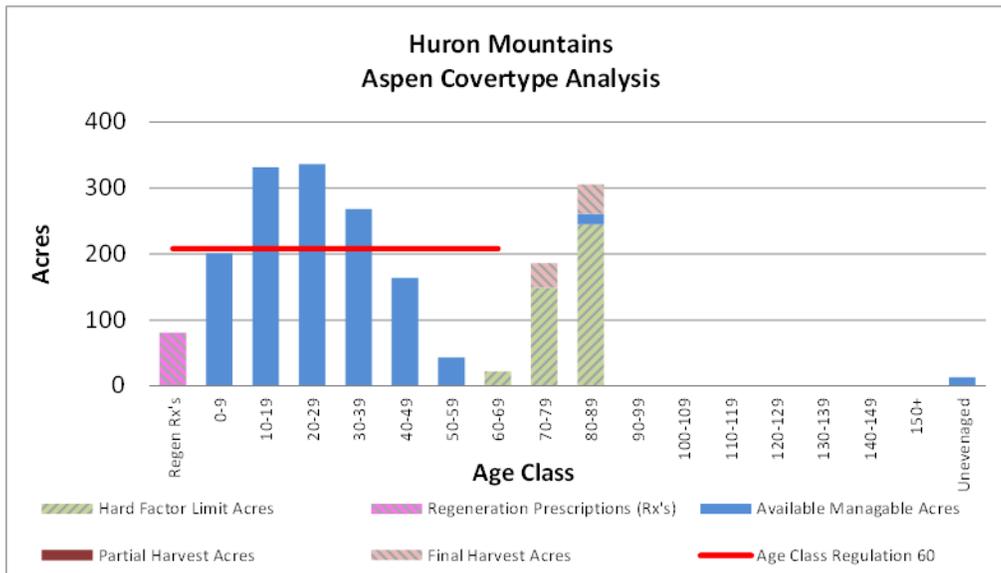


Figure 4.17.3. Graph of the age-class distribution for the aspen cover type on the Huron Mountains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Balanced acres in each age class over a 60-year rotation (indicated in the red line in Figure 4.17.3);
- Provide a 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 208 acres each decade; and
- Maintain mature big tooth aspen, if present, as retention.

10-Year Management Objectives

- Approximately 94 acres will be harvested during this 10-year planning period; and
- Two-aged stands with mature aspen over younger stands should be identified and scheduled for harvest.

**Hemlock Cover Type**

Current Condition

Hemlock stands make up 1,735 acres (13%) of the management area (Table 4.17.1) and is important to wildlife as a source of thermal cover. Most stands have been managed on a selection harvest basis. In areas away from the Lake Superior shoreline, low deer numbers allow successful regeneration and recruitment of hemlock.

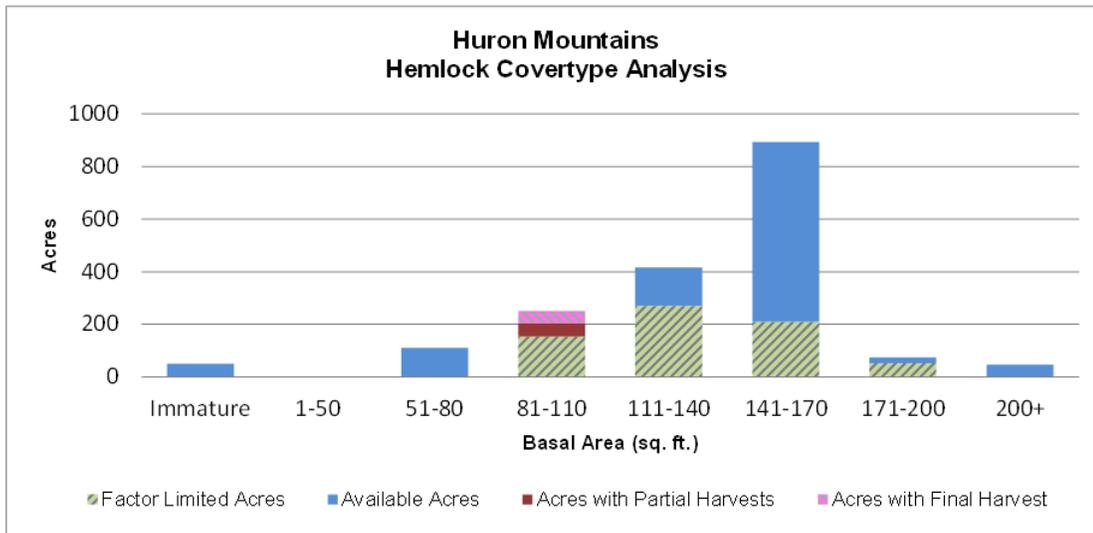


Figure 4.17.4. Graph of the basal area distribution for the hemlock cover type on the Huron Mountains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Provide uneven-aged hemlock stand structure while promoting sawlogs;
- Provide a full complement of tree seedlings recruiting into the overstory; and
- Provide well-developed shrub and herbaceous layers.

Long-Term Management Objectives

- Selectively harvest hemlock stands on a 50-year cycle, cutting approximately 201 acres each decade; and
- Using the uneven-aged system, maintain and encourage minor species to increase in-stand diversity.

10-Year Management Objective

- Due to the proximity and nature of the stands, no harvests are expected during this 10-year planning period.

**Red Pine Cover Types**

Current Condition

Over 1,109 acres (8%) of the management area is red pine. Most of the red pine in this area is located in the Little Presque Isle area growing on old beach, dune and swale complex. This area is a highly recreated area resulting in the majority of acreage having hard limiting factors assigned to them.

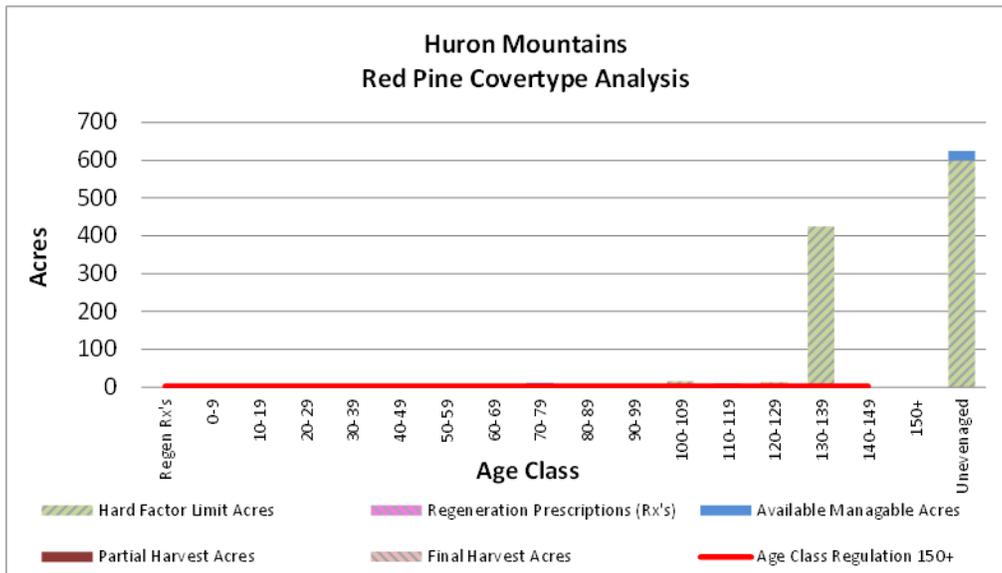


Figure 4.17.5. Graph of the age-class distribution for the red pine cover type on the Huron Mountains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Maintain mixed-age red pine stands by removing groups of trees only as they become hazards to recreational users.

Long-Term Management Objective

- Harvesting in this area is limited, occurring on approximately 20 acres per decade. When it does occur, natural origin stands will be managed on a 150-year rotation using natural regeneration techniques with shelterwood or patch clearcuts and scarification as needed; and
- Stands will be thinned at age 80 and 110 with the option of additional thinning as necessary.

10-Year Management Objective

- No harvesting is planned for this 10-year planning period.

**Lowland Conifers Cover Types**

About 780 acres (6%) of the management area are in this type. These are poorly drained sites supporting mixed stands of cedar, black spruce, tamarack, balsam fir, white birch and balsam poplar. Many of these stands have factor limits due to wet conditions or for riparian corridors. Due to the wet site conditions, they are more susceptible to rutting damage from logging equipment and present difficult operating conditions for harvesting. Mixed lowland conifers have a poor age-class distribution with the majority of acreage being in the 100-109 and uneven-aged classes (Figure 4.17.6). Little harvesting has been done in this type over the past 60 years.

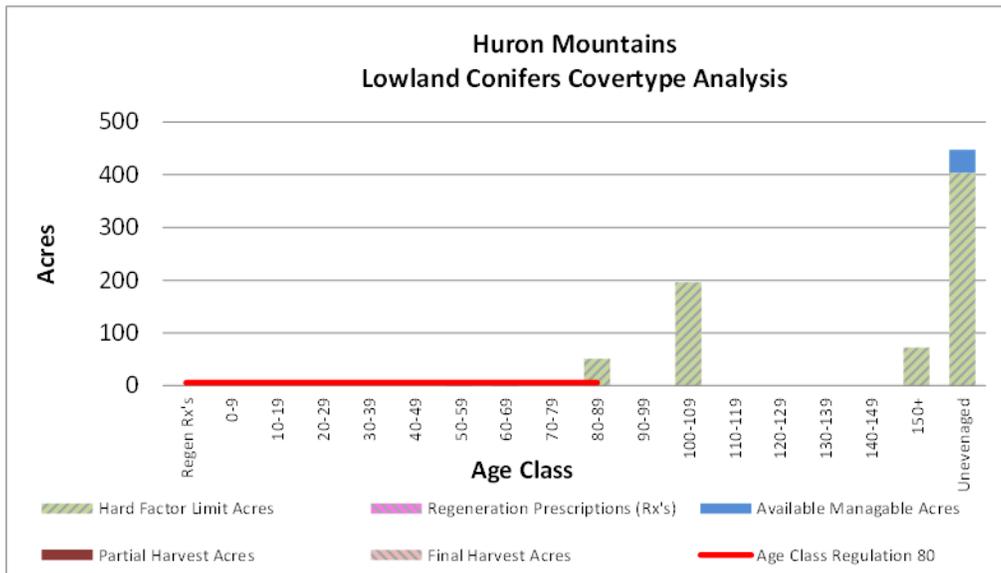


Figure 4.17.6. Graph of the age-class distribution for the lowland conifer cover type on the Huron Mountains management area (2012 Department of Natural Resources inventory data).

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 a 120-year rotation resulting in approximately six acres harvested each 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 21 acres over this planning period focusing on the use of “low impact” harvesting systems and successful, reliable regeneration techniques.

**Other Forested Cover Types**

Current Condition

Other forested types make up 3,229 acres and are made up of mixed upland deciduous (626 acres), cedar (562 acres), lowland deciduous (537 acres), oak (391 acres), jack pine (200 acres), upland spruce/fir (179 acres), upland conifer (173 acres), lowland mixed forest (140 acres), upland mixed forest (131 acres), paper birch (92 acres), natural mixed pines (81 acres), lowland poplar (46 acres), lowland spruce/fir (39 acres) and white pine (32 acres). Together these types make up about 24% 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; and
- Featured species habitat requirements will be taken in to consideration.

### 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;
- Expected harvests in these types will be less than 832 acres over this planning period;
- Leave all hemlock for retention; and
- Maintain and promote oak in this management area through retention and regeneration.

### **Other Non-forested Cover Types**

#### Current Condition

The following non-forested cover types are found on this management area: upland open/semi- open lands (38 acres - >1%), lowland open/semi-open lands (773 acres – 6%) and miscellaneous other (water, local, urban) (455 acres – 3%).

#### 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.

### **4.17.2 – Featured Wildlife Species Management**

The Huron Mountains management area receives significant snowfall and represents almost 20% of the western Upper Peninsula state forest hemlock resource. This provides critical wintering habitat to white tailed deer, especially along the Lake Superior shoreline, in the highest WUP snowfall zone. Additionally, some of the largest tracts of mature forest in the Great Lakes (e.g., McCormick Tract, Craig Lake State Park and the Huron Mountain Club) occur within or adjacent to this management area. The current condition and spatial arrangement of these areas provide some of the best opportunities within the western Upper Peninsula, state and Great Lakes for area sensitive wildlife that require large tracts of mature forest, mesic conifer or corridors between such areas. The wildlife priority here is to manage for old growth forest characteristics in a fairly unfragmented condition, with particular emphasis on protecting the hemlock component. This strategy will protect thermal cover, provide for wildlife movement corridors, and provide habitat for a variety of species. The primary focus of wildlife habitat management in the Huron Mountains management area will be to address the habitat requirements identified for the following featured species: American marten, blackburnian warbler and white-tailed deer. Based on the selected featured species, some of the most significant wildlife management issues in the management area are: habitat fragmentation; coarse woody debris; retain or develop large living and dead standing trees (for cavities); mesic conifer; mature forest; within-stand diversity; closed canopy forest; and deer wintering complexes. 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 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 blowdown.
- 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.

#### **Blackburnian Warbler**

The goal for blackburnian warbler is to maintain suitable breeding habitat. Management efforts for blackburnian warblers should focus on within stand diversity, discouraging habitat fragmentation and maintaining mature forest with a conifer component in priority landscapes. Specifically, increase mesic conifer cover types (i.e., hemlock, white pine, red pine, upland spruce-fir) and allow some to mature beyond standard rotation ages, retain a larger percentage of mesic conifer during harvests, employ silvicultural practices that encourage the regeneration of mesic conifers and where feasible, under plant hemlock, white pine and white spruce in hardwood-dominated stands.

#### Wildlife habitat specifications:

- Increase the mesic conifer (e.g., hemlock, white pine, natural red pine and upland spruce-fir) component on state forests by: a) Retain a larger percentage of 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.
- Provide for late successional mesic conifer-dominated, particularly hemlock, stands in the management area by extending the normal rotation length for upland spruce/fir cover types by 20 years in this management area.

#### **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.

#### **4.17.3 –Rare Species and Special Resource 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 eleven listed species as well as five natural communities of note occurring in the management area as listed in Table 4.17.2. 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.

Little Presque Isle has two non-dedicated natural areas (one of 529 acres and one of 15 acres) and 15 acres of Great Lakes island that are all special conservation areas within this management area as shown in Figure 4.17.7.

Approximately 499.2 acres of potential old growth have been identified within the Huron Mountains 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 are also special conservation areas until they are evaluated.

This management area has the Little Presque Isle Amendment (3134 acres) and Huron Mountain coastal environmental area (13 acres) that are high conservation value areas as well as five ecological reference areas (ERAs) as shown in Figure 4.17.7. The ERAs represent the following natural communities: wooded dune and swale complex (two areas, one of 547.1 acres and one of 16.6 acres), granite bedrock glade (two – 13 acres and 9.7 acres) and Great Lakes marsh (815.3 acres).

Table 4.17.2. Occurrence information for special concern, rare, threatened and endangered communities and species for the Huron Mountains 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
<b>Natural Communities</b>								
Granite bedrock glade		S2/G3G5	Confirmed				Upland open/semi-open	N/A
Great Lakes marsh		S3/G2	Confirmed				Lowland open/semi-open	N/A
Mesic northern forest		S3/G4	Confirmed				Northern Hardwood	Late
Sandstone lakeshore cliff		S2/G3	Confirmed				Upland open/semi-open	N/A
Wooded dune and swale complex		S3/G3	Confirmed				Upland open/semi-open	N/A
<b>Birds</b>								
Common loon	<i>Gavia immer</i>	T/G5/S3-4	Confirmed	HV	Very High	Emergent Marsh	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
						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
						Coastal fen	Lowland open/semi-open	N/A
Osprey	<i>Pandion haliaetus</i>	SC/G5/S2-3	Confirmed	PS	Low	Northern hardwood swamp	Black Ash	Late
						Floodplain forest	Lowland Mixed	Mid
						Hardwood-conifer swamp	Lowland Mixed	Mid
<b>Fish</b>								
Cisco (lake herring)	<i>Coregonus artedii</i>	T/G5/S3	Confirmed	MV	Low	Great Lakes	Aquatic	N/A
						Inland lake	Aquatic	N/A
						Rivers	Aquatic	N/A
<b>Mammal</b>								
Tri-colored bat (Eastern pipistrelle)	<i>Perimyotis subflavus</i>	SC/G5/S2S3	Confirmed	PS	Very High	Caves	Caves	N/A
<b>Reptile</b>								
Wood turtle	<i>Glyptemys insculpta</i>	SC/G4/S2S3	Confirmed	MV	Moderate	Northern wet meadow	Lowland open/semi-open	N/A
						Bog	Lowland open/semi-open	N/A
						Rich conifer swamp	Tamarack	Late
						Hardwood-conifer swamp	Lowland Mixed	Mid
						Northern shrub thicket	Upland open/semi-open	N/A
						Mesic northern forest	Northern Hardwood	Late
<b>Plants</b>								
Shortstalk chickweed	<i>Cerastium brachypodium</i>	T/G5/S2	Confirmed			Alvar	Upland open/semi-open	N/A
						Limestone bedrock glade	Upland open/semi-open	N/A
						Volcanic bedrock glade	Upland open/semi-open	N/A
						Sandstone bedrock lakeshore	Upland open/semi-open	N/A
Narrow-leaved gentian	<i>Gentiana linearis</i>	T/G5/S2S3	Confirmed			Sand and gravel beach	Upland open/semi-open	N/A
						Northern wet meadow	Lowland open/semi-open	N/A
						Intermittent wetland	Lowland open/semi-open	N/A
						Northern hardwood swamp	Black Ash	Late
Big-leaf sandwort	<i>Moehringia macrophylla</i>	T/G4/S1	Confirmed			Volcanic bedrock glade	Upland open/semi-open	N/A
						Granite bedrock glade	Upland open/semi-open	N/A
						Granite bedrock lakeshore	Upland open/semi-open	N/A
						Volcanic bedrock lakeshore	Upland open/semi-open	N/A
Pine-drops	<i>Pteropora andromedea</i>	T/G5/S2	Confirmed			Boreal forest	Upland & Lowland Sp/F	Mid
						Dry-mesic northern forest	White Pine	Late
						Dry northern forest	Jack Pine, Red Pine	Late
						Granite bedrock glade	Upland open/semi-open	N/A
						Wooded dune & swale complex	Upland open/semi-open	N/A
Blunt-lobbed woodsia	<i>Woodsia obtusa</i>	T/G5/S1S2	Confirmed			Volcanic bedrock lakeshore	Upland open/semi-open	N/A
						Volcanic cliff	Upland open/semi-open	N/A
						Limestone cliff	Upland open/semi-open	N/A
						Limestone bedrock glade	Upland open/semi-open	N/A
						Granite bedrock glade	Upland open/semi-open	N/A
						Granite cliff	Upland open/semi-open	N/A

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

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.

Goal 3: To develop and maintain management plans for ecological reference areas on state forest land.

Objective 3-1: Complete ecological reference area planning by the end of this 10-year planning period.

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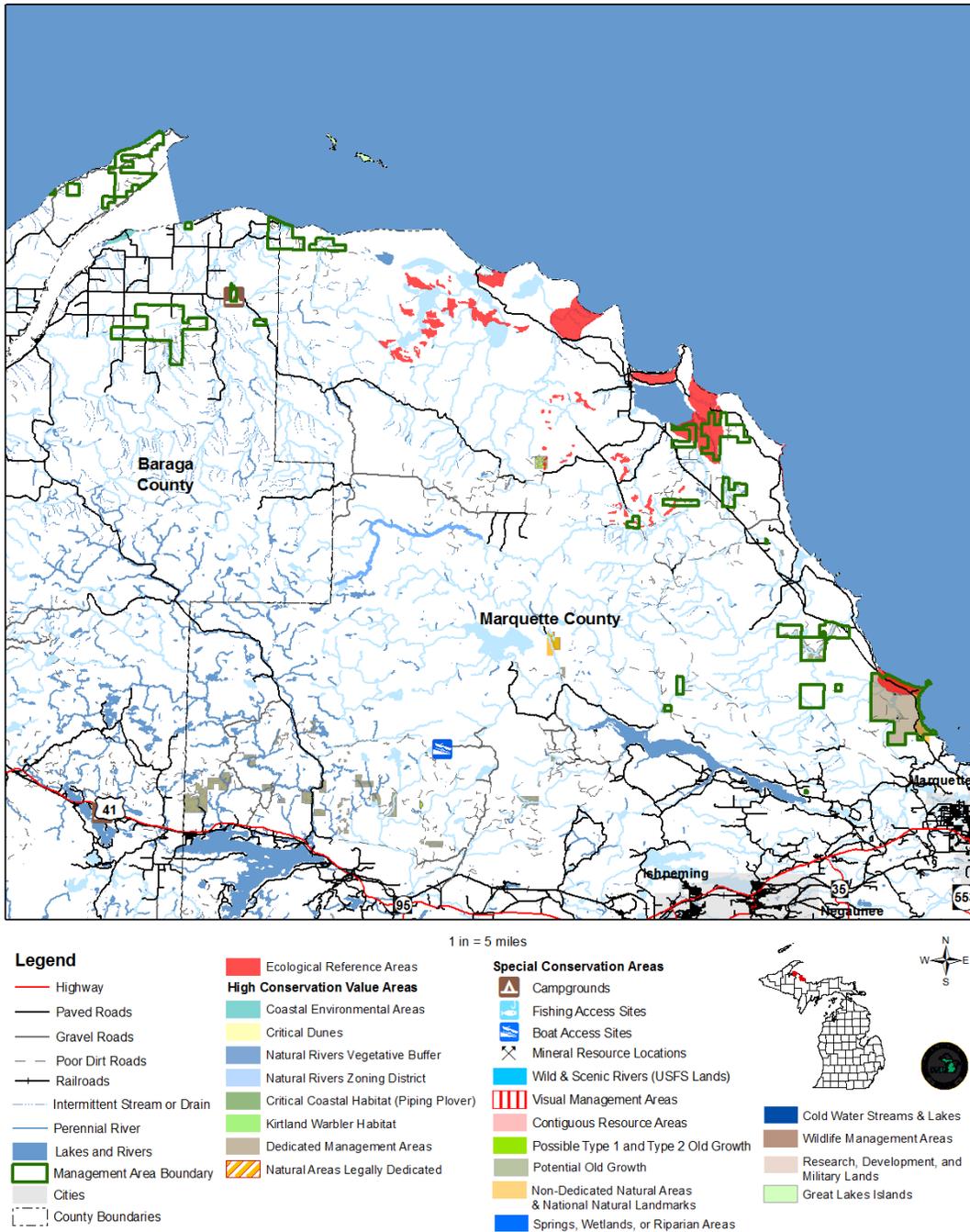


Figure 4.17.7. A map of the Huron Mountains management area showing the special resource areas.

## 4.17.4 – 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
- Emerald ash borer
- Hemlock woolly adelgid.

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:

- Black locust
- Garlic mustard
- Glossy buckthorn
- Japanese barberry
- Japanese knotweed
- Purple loosestrife
- Spotted knapweed
- Tatarian honeysuckle.

#### **4.17.5 – 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 as shown in Figure 4.17.1.

#### **4.17.6 – Fire Management**

Fire probably did not play a significant role in this largely mesic northern forest community, especially due to its proximity to Lake Superior and heavy winter snowfall. Small areas associated with beach sands and an area that transitions to drier soils near Marquette may have been more receptive to periodic stand replacement fires.

- All wildfires within the management area should be subject to appropriate initial attack response;
- Public use on some of these dry beach communities provides potential for prevention activities such as home hazard assessments and campfire prevention messages; and
- Post-harvest fuel reduction practices in the dry beach communities should be used, especially in areas of heavy public use and high value private development.

#### **4.17.7 – Public Access and Recreation**

This area has good public and management access. There are motorized vehicle and non-motorized trails in this management area as shown in Figure 4.17.1. Two major recreation areas are located in this area at Little Presque Isle and the Mouth of the Huron. Big Eric's Bridge State Forest Campground is located on the Huron River as shown in Figure 4.17.7.

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

#### **4.17.8 – 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 coarse-textured till, lacustrine (lake) sand and gravel, glacial outwash sand and gravel and postglacial alluvium and peat and muck sometimes thin to discontinuous over bedrock. The glacial drift thickness varies up to 50 feet. A few sand and gravel pits are located in the management area and there is some potential for additional pits.

The Precambrian Michigamme and Oak Bluff Formations and Archean Granite/Gneiss and Volcanics and Sedimentary Rocks subcrop below the glacial drift. The Granite/Gneiss sometimes can be used as dimension stone.

Old iron mines are located to the southeast of the management area. Metallic mineral exploration has occurred in the management area, and there are active metallic mineral leases in part of the Baraga County portion of the management area.