4.29 Peshekee Highlands Management Area

Summary of Use and Management

Vegetative management in the Peshekee Highlands management area (MA) (Figure 4.29.1) 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 the following featured species: American marten, blackburnian warbler, gray jay, moose, northern goshawk and pileated woodpecker. Management activities may be constrained by site conditions and the skewed age-class distributions. Balancing age classes will be issues for the next ten years.

Introduction

The Peshekee Highlands management area is on a bedrock controlled ground moraine in east-central Baraga and northwestern Marquette County. The state forest covers 20,670 acres and is in widely scattered parcels. The major ownership in this vicinity is forest industry and non-industrial private. The management area is dominated by the northern hardwood, lowland conifer and upland spruce/fir cover types. Other attributes that played a role in the definition of this management area include:

- Dominated by two natural communities: mesic northern forest, poor conifer swamp, and boreal forest;
- Mid-range in site quality;
- This area has very rugged terrain and limited access;
- 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 benefit in a sustainable manner while minimizing user conflicts. Habitat management for moose has also been identified as a priority in this area.

The predominant cover types, composition and projected harvest areas for the Peshekee Highlands management area are shown in Table 4.29.1.

Table 4.29.1. Summary of cover types, composition, limited factor area, manageable area and projected harvest area for the Peshekee Highlands 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) Final Harvest	Partial Harvest	Projected Acreage in 10 Years	Desired Future Harvest (Acres) Final Harvest	Partial Harvest
Northern Hardwood	35%	7,186	1,346	5,840	0	2,761	7,186	0	2,761
Lowland Conifers	11%	2,328	891	1437	296	0	2,328	131	0
Aspen	9%	1,897	191	1706	69	0	1,897	284	0
Upland Spruce/Fir	9%	1,874	926	948	0	0	1,874	135	0
Paper Birch	4%	918	613	305	0	0	918	44	0
Lowland Spruce/Fir	4%	750	190	560	71	0	750	62	0
Upland Open/Semi-Open Lands	1%	183	0	183	0	0	183	0	0
Lowland Open/Semi-Open Lands	10%	2,009	0	2009	0	0	2,009	0	0
Misc Other (Water, Local, Urban)	3%	545	0	545	0	0	545	0	0
Others	14%	2,980	410	2570	451	417	2,980	296	540
Total		20,670	4,567	16,103	886	3,178	20,670	952	3,301

Peshekee Highlands
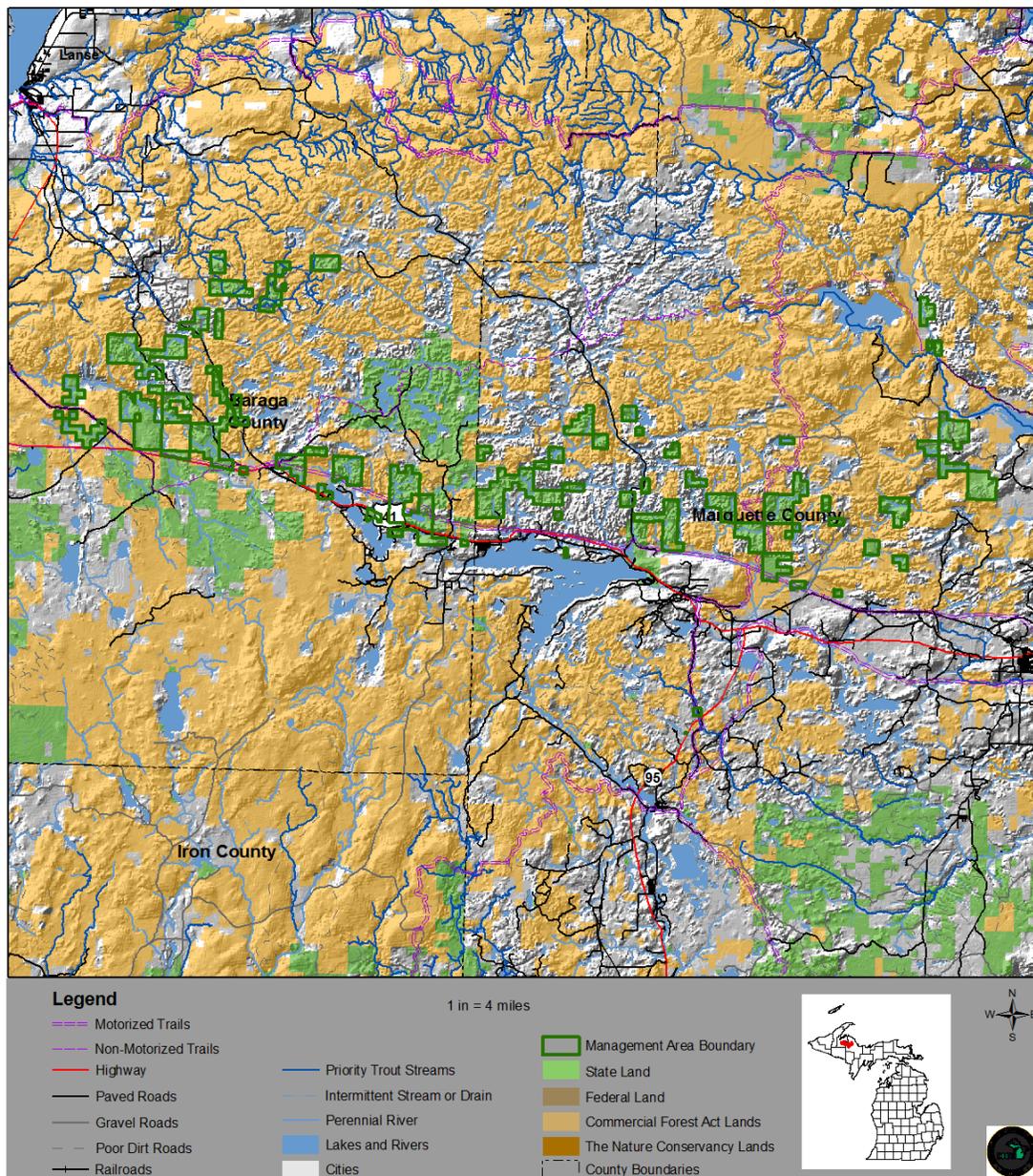
Figure 4.29.1. A map of the Peshekee Highlands management area (dark green boundary) in relation to other state forest and other lands in Baraga and Marquette Counties, Michigan.

4.29.1 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 Peshekee Highlands 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 Hardwood Cover Type

Current Condition

Northern hardwood stands make up 7,186 acres (35%) of state forest land in this management area (Table 4.29.1). They occur on medium-quality sugar maple sites. Most stands have been managed on a selection harvest basis. Some of the stands in this area have limiting factors (Figure 4.29.2) and have been removed for harvest calculations. Due to low deer numbers in this area, there are few problems with herbivory and most areas regenerate successfully. Northern hardwood is typically managed using an uneven-aged harvest system based on basal area rather than age.
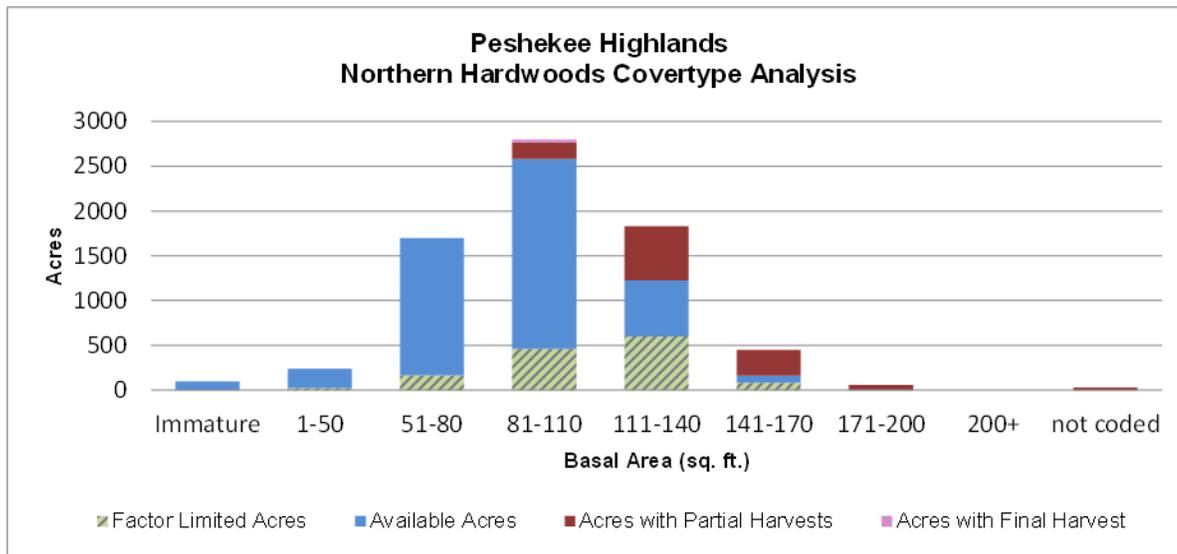

Figure 4.29.2. Graph of the basal area distribution for the northern hardwood cover type on the Peshekee Highlands management area (2012 Department of Natural Resources inventory data).

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 Objectives

- Using an uneven-aged system, selectively harvest high-quality northern hardwood stands on a 20-year cycle resulting in an estimated 2,761 acres harvested each decade;
- Maintain and encourage minor species to increase in-stand diversity; and
- Maintain hemlock as retention.

10-Year Management Objectives

- Selectively harvest 2,761 acres during this 10-year planning period;
- Maintain and regenerate white pine, oak, hemlock and upland cedar where they occur in stands that are harvested; and
- Work to regenerate hemlock components in stands lacking that species.

Lowland Conifers Cover Type

Current Condition

The lowland conifer cover type covers 2,328 acres (11%) of the management area (Table 4.29.1). These stands occur on poorly drained sites supporting mixed stands of cedar, black spruce, tamarack, balsam fir, white birch and balsam poplar. Mixed lowland conifers have poor an age-class distribution, with most of the stands ranging between 80 and 110 years old. Many of these stands have a hard factor limit associated with them which makes them unavailable for harvesting this entry period. Some harvesting has been done in this type over the past 10 years.
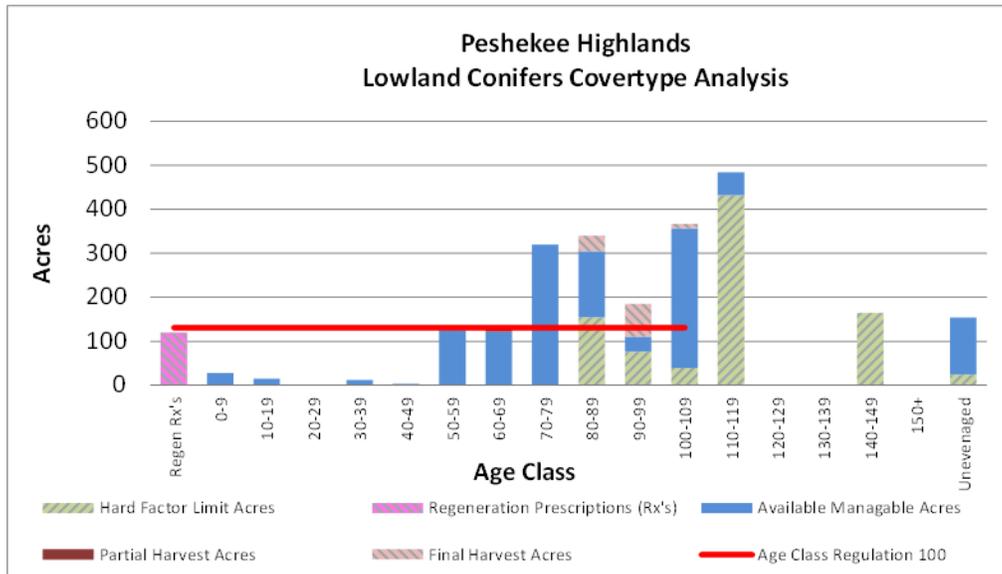

Figure 4.29.3. Graph of the age-class distribution for the lowland conifer cover type on the Peshekee Highlands management area (2012 Department of Natural Resources inventory data).

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 stands on a 100-year rotation leading to harvesting 131 acres per decade in those stands without hard factor limits (Figure 4.29.2);
- Regenerate stands to a species-mix similar to the pre-harvest conditions favoring cedar, black spruce and balsam fir; and
- Harvesting will be done using small clearcuts or strips with clumped retention.

10-Year Management Objectives

- Harvest 296 acres over this 10-year planning period, focusing on the use of "low impact" harvesting systems and successful, reliable regeneration techniques;
- Use appropriate silvicultural techniques to assure adequate regeneration; and
- Monitor harvested sites.

Aspen Cover Type

Current Condition

The aspen cover type covers 1,897 acres (9%) of the management area (Table 4.29.1) and is poorly distributed across age classes (Figure 4.29.4). Aspen will be managed on a 60-year rotation to a balanced age-class structure indicated by the red line in Figure 4.29.2. Most of the age classes over the rotation age of 50 years (70-99 years on the graph) are in the hard factor limited category or are part of a regeneration harvest. With an absence of aspen in the 40-49, 50-59 and 60-69 year-old age classes, early entry into those age classes above the age-class regulation line, is possible, but unlikely during the next 10-year period.

Desired Future Condition

- Balanced acres in each age class over a 50-year rotation (indicated by the red line in Figure 4.29.5);
- Provide an even supply of forest products;
- Provide for a balanced mix of habitat conditions for a variety of wildlife; and
- Provide for a variety of hunting-type opportunities.

Long-Term Management Objectives

- Once age classes are balanced, harvest and regenerate 284 acres each decade.

10-Year Management Objectives

- Harvest and regenerate 269 acres over this 10-year planning period with many of these acres coming from the 90-99 age class;
- Explore opportunities to harvest in the spikes (above the red line) presently in the 30-39 year-old age class as this age class grows older and reaches merchantable size;
- Biomass harvesting may facilitate the opportunities needed to harvest in these age classes early; and
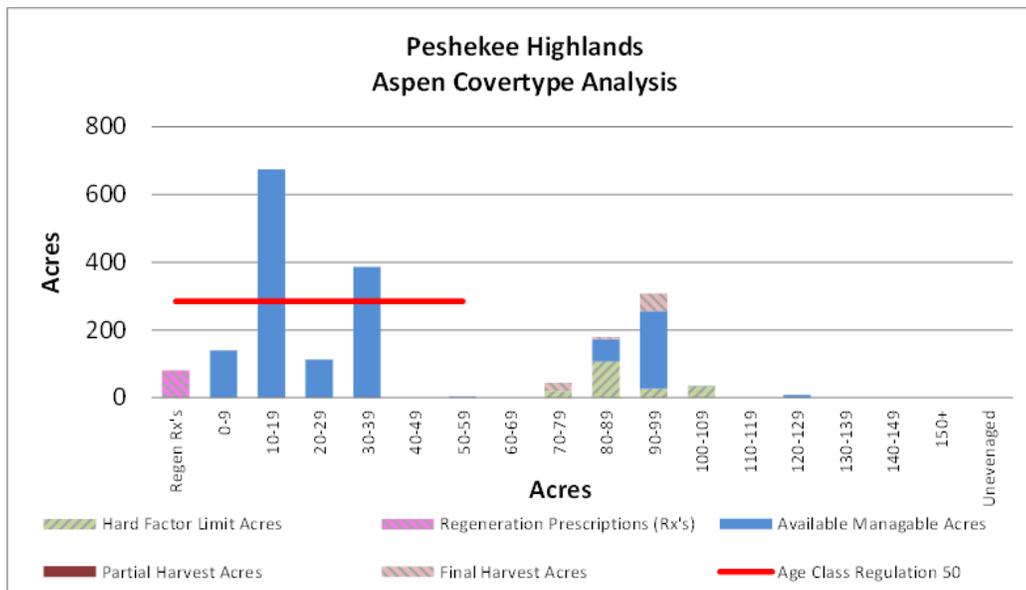- Maintain mature large-tooth aspen if present as retention.

Figure 4.29.4. Graph of the age-class distribution for the aspen cover type on the Peshekee Highlands management area (2012 Department of Natural Resources inventory data).

Upland Spruce/Fir Cover Type

Current Condition

There are 1,874 acres (10%) of upland spruce/fir on this management area. About 53% percent of the stands have factor limits that preclude harvest activities (Table 4.29.1). 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 and 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.

Desired Future Condition

- Balanced acres in each age class over a 60-year rotation; and
- Provide older-aged spruce for moose loafing sites.

Long-Term Management Objective

- Harvest and regenerate upland spruce/fir stands using a 60-year rotation length harvesting about 135 acres each decade once age classes are better distributed.
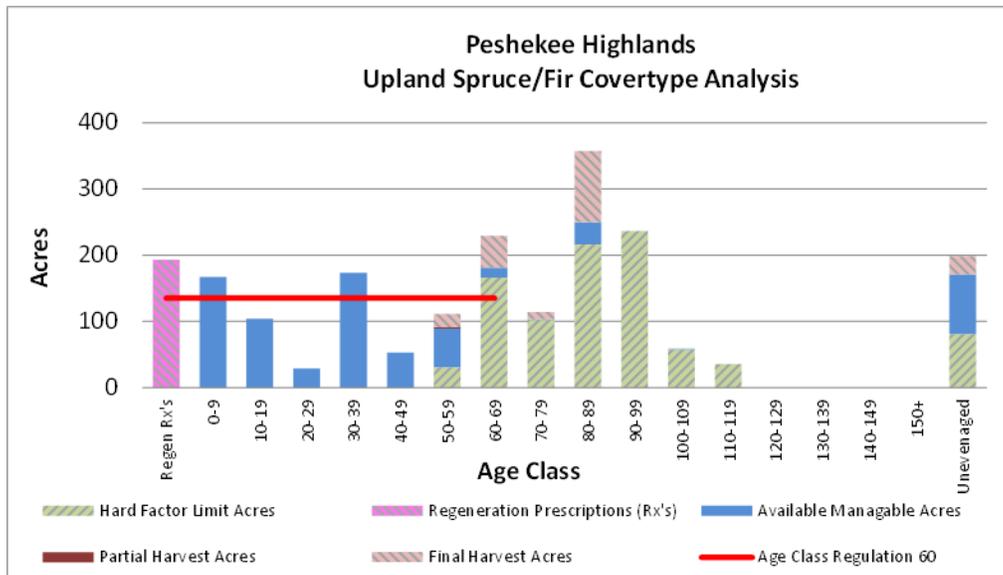

Figure 4.29.5. Graph of the age-class distribution for the upland spruce/fir cover type on the Peshekee Highlands management area (2012 Department of Natural Resources inventory data).

10-Year Management Objectives

- Harvest the oldest stands first to minimize mortality loss;
- Harvest in this type for this planning period is expected to be zero acres;
- 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; and
- Harvesting in this type maybe needed in this planning period to reduce mortality losses in the older stands.

Paper Birch Cover Type

Current Condition

The paper birch cover type covers 918 acres (6%) of state forest land in this management area. Paper birch is poorly distributed across age classes ranging in age between 70 and 100, which is well over the biological maturity of paper birch. Many of the older age classes are subject to hard factor limits which may preclude harvesting (Figure 4.29.6). In the absence of disturbance, these older age classes will convert to other successional cover types.

Desired Future Condition

- Maintain the paper birch cover type on the management area.

<u>Long-Term Management Objective</u>

- Harvest and regenerate paper birch stands using a 60-year rotation length harvesting 44 acres each decade.
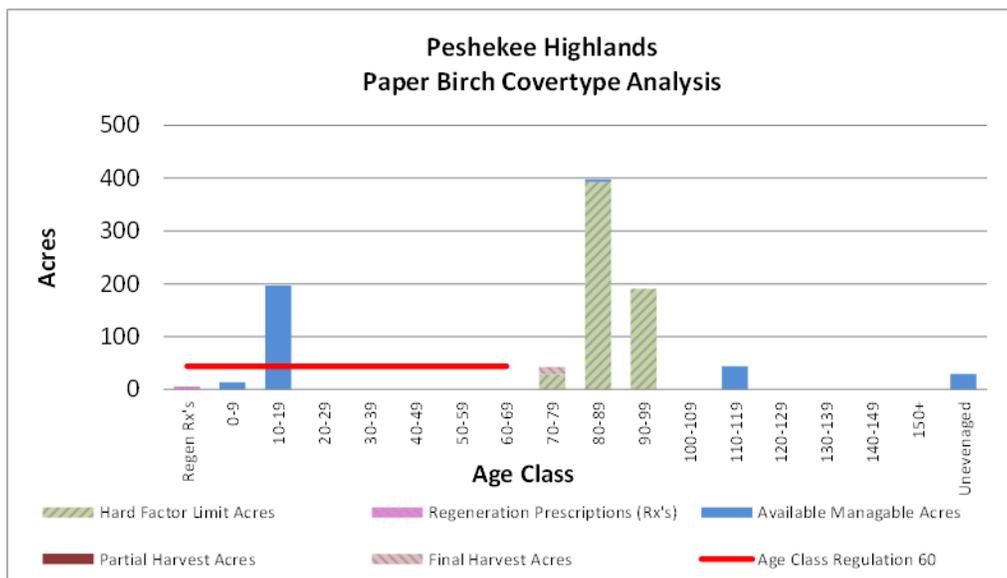

Figure 4.29.6. Graph of the age-class distribution for the paper birch cover type on the Peshekee Highlands management area (2012 Department of Natural Resources inventory data).

<u>10-Year Management Objectives</u>

- Harvest and regenerate zero acres of paper birch in this 10-year planning period;
- Harvest stands of 70-90 year-old paper birch that is in decline; and
- More aggressive harvesting in this type maybe needed in this 10-year planning period to reduce mortality losses in the older stands.

Other Forested Cover Types

<u>Current Condition</u>

Other forested types make up 3,730 acres and are made up of mixed upland deciduous (840 acres), lowland spruce/fir (750 acres), upland mixed forest (541 acres), upland conifers (330 acres), lowland deciduous (256 acres), white pine (243 acres), cedar (233 acres), red pine (212 acres), , jack pine (152 acres), tamarack (73 acres), lowland mixed forest (58 acres), hemlock (25 acres) and oak (17 acres). Together these types make up about 18% of the management area.

<u>Desired Future Condition</u>

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

<u>Long-Term Management Objectives</u>

- 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.

<u>10-Year Management Objectives</u>

- 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 939 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 (183 acres – 1%), lowland open/semi-open lands (2,009 acres – 10%) and miscellaneous other (water, local, urban) (545 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.

4.29.2 – Featured Wildlife Species Management

The Peshekee Highlands management area receives significant snowfall and does not offer wintering habitat for deer. As a result, many tree species that do not reliably recruit across other parts of the ecoregion are found in numerous age classes across this management area. Additionally, three of the largest tracts of mature forest in the Great Lakes region (e.g., McCormick Tract, Craig Lake State Park and the Huron Mountain Club) occur within or adjacent to this management area, the best example of a dry-mesic northern forest (Rocking Chair Lakes) in the state and two of the top eight examples of mesic northern forest statewide occur here. The current condition and spatial arrangement of these areas provide some of the best opportunities within the western Upper Peninsula, state and Great Lakes region for area sensitive wildlife requiring large tracts of mature forest, mesic conifer or corridors between such areas. The primary focus of wildlife habitat management in the Peshekee Highlands management area will be to address the habitat requirements identified for the following featured species: American marten, blackburnian warbler, gray jay, moose, northern goshawk and pileated woodpecker. 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; early successional forest (hardwood browse adjacent to closed canopy lowland conifer swamps); and coarse woody debris. 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 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 mange 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.

Gray Jay

The goal for gray jay in the western Upper Peninsula is to maintain suitable habitat. State forest management for gray jay should focus on maintaining or increasing boreal forest cover types in a variety of age classes and ensure that older age classes of boreal forest are maintained. Important considerations in timber harvests are retention of spruce and fir and scattered individual trees for food caching within sale boundaries and maintaining spruce and fir buffers along bog edges.

Wildlife habitat specifications:

- Maintain appropriate forest types (birch, lowland deciduous, fir, lowland conifer, lowland spruce/fir, tamarack and bogs) in the management area in a variety of age classes. Fifteen percent of the total acres in the relevant cover types (as stated above) within the management area should be maintained in older age classes (those at least 20 years beyond "normal" rotation length for the cover type). In this management area, older age classes (greater than 100 years) for gray jay habitat are being met by the large number of stands with site conditions that limit harvesting.
- Retain patches within timber harvest sale boundaries; patches are preferred over single trees within timber harvest sale boundaries though it is beneficial to have both.
- Offset salvage harvests deemed necessary due to insect, disease or fire within the same cover type and age class (within the compartment, management area or western Upper Peninsula ecoregion), to minimize impacts on gray jay habitat. Total allowable harvest in these situations will be evaluated on a case-by-case basis.

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 0-9 and 10-19 year-old age classes) in close proximity to closed canopy lowland conifer swamps.
- Balance aspen age-class distribution to ensure a more sustainable supply of browse.
- Retain hemlock and other conifer as thermal refuge in all harvested stands.
- Increase mesic conifer (e.g., hemlock, white pine, non-plantation red pine and upland spruce-fir) component on state forests by: a) Retaining 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. Increase the percentage of mesic conifers, where suitable, across the landscape by 10% during this planning cycle.
- Willow is an important browse species, as are submergent and emergent aquatic vegetation associated with summer feeding areas. Ensure sustainable supplies of each.

Northern Goshawk

The goal for northern goshawk is to maintain suitable habitat. Management at the stand scale should focus on protection of nest trees, the provision of coarse woody debris and on addressing fragmentation. Landscape scale management should provide mature and old aspen stands in the 60-69year-old age class.

Wildlife habitat specifications:

- Maintain a minimum of 15% of the state forest aspen resource above age of 60 in this management area (this can be accomplished using factor limited stands, special conservation areas, etc…). All known woodland raptor nests should be reported to local wildlife staff and documented in the Integrated Forest Monitoring Assessment and Prescription comments. If the species is known the common name should be included in those comments. For northern goshawk nests, the wildlife habitat specifications contained within Michigan DNR's *Interim Management Guidance for Red-Shouldered Hawks and Northern Goshawk on State Forest lands* (August 2012) will be followed until the workgroup has completed the guidance that will permanently replace the interim guidelines.

Pileated Woodpecker

The western Upper Peninsula goal for pileated woodpeckers is to maintain or improve habitat. State forest management for the species should address mature forest and retention or development of large living and dead standing trees (for cavities) in this management area. Focusing such efforts on riparian and animal movement corridors will benefit additional species.

Wildlife habitat specifications:

- Identify and retain as many existing large (>15 inches in diameter at breast height) snags and cavity trees, coarse woody debris and reserve green trees, as possible to ensure a sustainable supply of future cavity/foraging trees and associated coarse woody debris. Poorly formed trees and those damaged by natural disturbance or earlier harvests, particularly deciduous trees, are good candidates for future snags and cavity trees. Large diameter aspen and other soft hardwoods are preferred.
- Even-aged managed stands: Leave scattered retention patches around some 18 inches in diameter at breast height or greater (if unavailable, identify future potential 18 inch secure trees) to be recruited as a nucleus, using the upper end of the retention guidelines.
- Uneven-aged managed stands: Retain a minimum of three secure cavity or snags per acre with one exceeding 18 inches in diameter at breast height. If snags or cavity trees are lacking, leave trees with defects of the maximum available size that will likely develop and be recruited as cavity trees.
- Offset salvage harvests deemed necessary due to insect or disease, or fire within the same cover type and age class (within the compartment, management area or western Upper Peninsula ecoregion), to minimize impacts on pileated woodpecker habitat. Total allowable harvest in these situations will be evaluated on a case-by-case basis.

4.29.3 – 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 nine listed species as well as four natural communities of note occurring in the management area as listed in Table 4.29.2. 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.

The Rocking Chair Lakes natural area is a 235 acres special conservation area in this management area (Figure 4.29.7). There are also two potential Type 2 old growth areas as shown in Figure 4.29.7 representing 795 acres of the boreal forest natural community and 148 acres of the poor conifer swamp community.

Approximately 2,337.4 acres of potential old growth have been identified within the Peshekee Highlands management area (Figure 4.29.7). 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.

Table 4.29.2. Occurrence information for special concern, rare, threatened and endangered communities and species for the Peshekee Highlands 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
Natural Communities								
Bog		S4/G3G5	Confirmed				Lowland open/semi-open	N/A
Northern shrub thicket		S5/G4	Confirmed				Upland open/semi-open	N/A
Northern wet meadow		S4/G4	Confirmed				Lowland open/semi-open	N/A
Rich conifer swamp		S3/G4	Confirmed				Tamarack	Late
Birds								
Kirtland's warbler	*Dendroica kirtlandii*	LE/E/G1/S1	Confirmed	PS	Very High	Pine barrens	Jack Pine	Early
						Dry northern forest	Jack Pine, Red Pine	Early
Common loon	*Gavia immer*	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	*Haliaeetus leucocephalus*	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	*Pandion haliaetus*	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
Butterfly								
Freija fritillary	*Boloria freija*	SC/G5/S3S4	Confirmed	HV	Low	Bog	Lowland open/semi-open	N/A
						Patterned fen	Lowland open/semi-open	N/A
Mammal								
Tri-colored bat (Eastern pipistrelle)	*Perimyotis subflavus*	SC/G5/S2S3	Confirmed	PS	Very High	Caves	Caves	N/A
Plants								
Rock whitlow grass	*Draba arabisans*	SC/G4/S3	Confirmed			Volcanic cliff	Upland open/semi-open	N/A
						Limestone cliff	Upland open/semi-open	N/A
						Limestone bedrock lakeshore	Upland open/semi-open	N/A
						Limestone cobble shore	Upland open/semi-open	N/A
						Volcanic bedrock lakeshore	Upland open/semi-open	N/A
						Volcanic lakeshore cliff	Upland open/semi-open	N/A
						Limestone bedrock glade	Upland open/semi-open	N/A
						Granite cliff	Upland open/semi-open	N/A
						Limestone lakeshore cliff	Upland open/semi-open	N/A
						Northern bald	Upland open/semi-open	N/A
						Volcanic cobble shore	Upland open/semi-open	N/A
Fragrant cliff woodfern	*Dryopteris fragrans*	SC/G5/S3	Confirmed			Volcanic bedrock lakeshore	Upland open/semi-open	N/A
						Granite cliff	Upland open/semi-open	N/A
						Volcanic cliff	Upland open/semi-open	N/A
						Volcanic lakeshore cliff	Upland open/semi-open	N/A
Narrow-leaved gentian	*Gentiana linearis*	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

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

Although there are no high conservation value areas or ecological reference area in the management area as shown in Figure 4.29.7.

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.
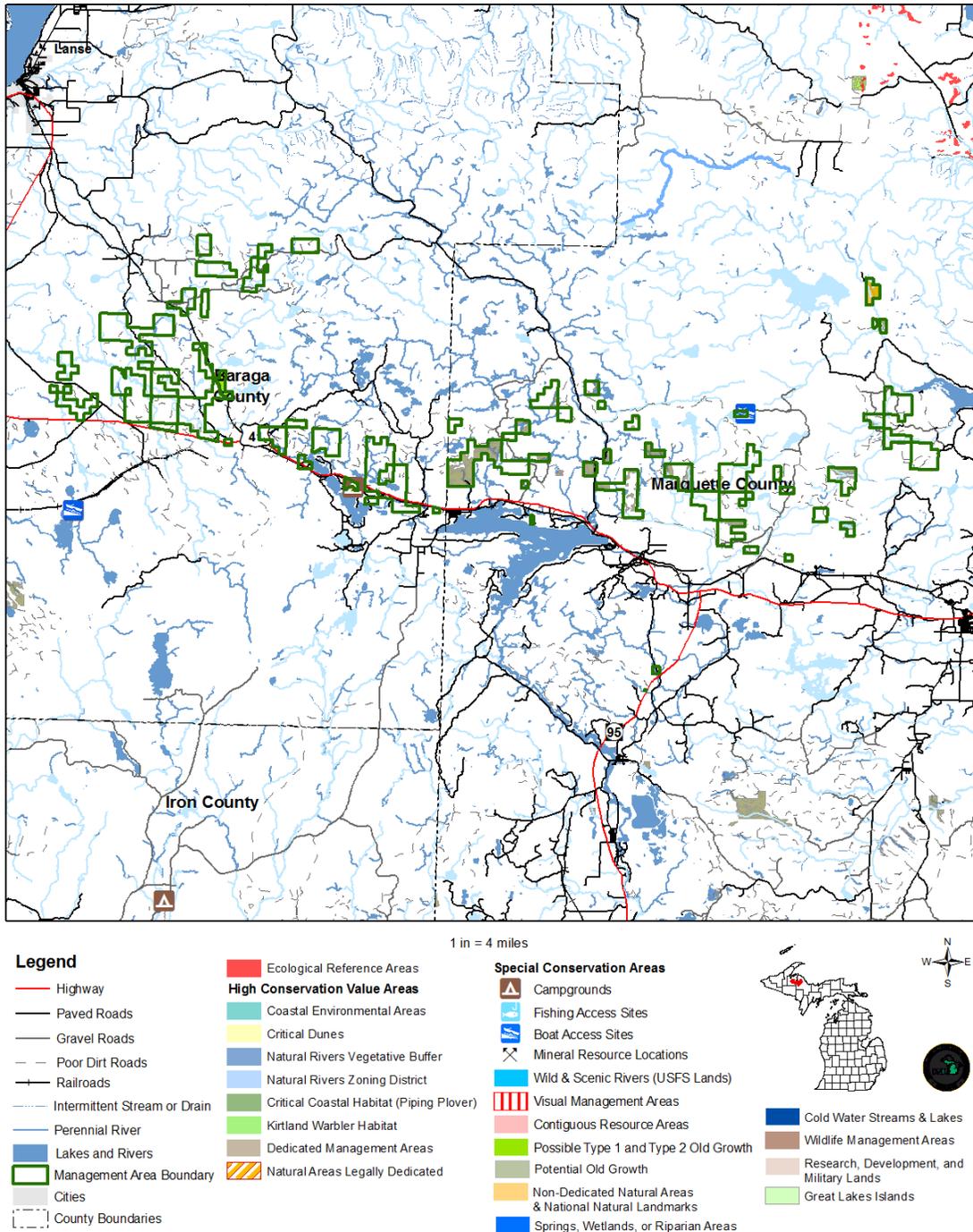
Peshekee Highlands

Figure 4.29.7. A map of the Peshekee Highlands management area showing the special resource areas.

4.29.4 – 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 spruce budworm and 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:

- Common buckthorn
- Common St. John's-wort
- European swamp thistle
- Japanese knotweed
- Multiflora rose
- Reed canary grass
- Spotted knapweed
- Tatarian honeysuckle.

4.29.5 – 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 4.29.1.

4.29.6 – Fire Management

Lightning fires on rocky hills are common during summer months in this area. Dry and dry-mesic forests, which may have experienced periodic stand-replacement fire, line the Dead River Basin north of Negaunee. Otherwise, much of the area, and most of the state land, is covered by mesic northern forest that was little impacted by wildland fire.

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

4.29.7 – Public Access and Recreation

This area is very remote and rugged. There are few public access roads although there are a couple of motorized vehicle trails that run through the management area as shown in Figure 4.29.1. There are no state forest campgrounds and one boating access site on Ruth Lake in this area (Figure 4.29.7).

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

4.29.8 – 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 and glacial outwash sand and gravel and postglacial alluvium in places thin to discontinuous. The glacial drift thickness varies up to 200 feet. Sand and gravel pits are located in the management area and there should be potential for additional pits.

The Precambrian Michigamme Formation, Archean Granite/Gneiss and the Siamo Slate and Ajibik Quartzite subcrop below the glacial drift. The Granite/Gneiss can sometimes be used as dimension stone.

Old iron mines and other explorations are located along the south edge of the management area. Metallic mineral exploration has occurred in the management area in the past and there could be additional potential.