

4.5 MA 5 – Charcoal Grade Management Area

Summary of Use and Management

Management in the Charcoal Grade management area (MA) (Figure 4.5.1) will strive to improve the quality of the hardwoods and balance the age classes of aspen; enhance wildlife habitat; protect areas of unique character; and provide for forest-based recreational uses. Management activities may be constrained by poor access in low, wet areas. Expected issues in this 10-year planning period include: maintenance of culverts and bridges; introduced pests and diseases; and increased recreational pressure.

Introduction

The Charcoal Grade management area is located in the central portion of the eastern Upper Peninsula in Luce County, north of Newberry. It has 16,456 acres of state-owned land. The primary attribute in this management area is the influence of the Newberry charcoal kiln and associated railroad system on the area. Additional attributes which were important in identifying this management area include:

- The management area falls within the Luce subsection 8.2 of the eastern Upper Peninsula ecoregion (Albert, 1995).
- The dominant landform consists of sandy ridges of end moraine and pitted outwash. The poorly drained deposits are concentrated in northern Luce County.
- Moraine features support northern hardwood and aspen types, excessively drained sand ridges are dominated by white and red pine. Peat lands are dominated by spruce, northern white cedar and tamarack.
- Recreational opportunities including: snowmobiling, fishing, trapping and hunting.
- This management area contains one of the eastern Upper Peninsula Grouse Enhanced Management Systems (GEMS) areas. This area plan will emphasize balanced age classes of aspen for timber production which will have habitat benefits for a number of the featured species including ruffed grouse and deer. The boundaries of Grouse Enhanced Management Systems areas will be delineated and an operational plan will be developed during this planning period by the local biologist in collaboration with the Forest Resources Division unit manager and integrated into the plan through the revision process.

Hardwoods in this management area were historically cut to support a charcoal kiln in the Newberry area. This cutting altered the composition and structure of the hardwood stands. Currently, the timber throughout much of the area is even-aged and of poor quality. There are historic logging camps within the management area, and other known archeological sites.

The state land in this management area is concentrated, with few private parcels. The Tahquamenon River forms the eastern border of the management area. The Charcoal Grade management area falls within the Newberry Forest Management Unit. The current predominant cover types, acreages and projected harvest acres in the management area are shown in Table 4.5.1.

Table 4.5.1. Current cover types, acreages, projected harvest acres and projected ten-year cover type acreage for the Charcoal Grade management area, eastern Upper Peninsula ecoregion (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	37%	6,100	411	5,689	0	1,821	6,100	0	2,707
Lowland Conifers	17%	2,842	865	1,977	220	0	2,842	220	0
Aspen	15%	2,498	45	2,453	78	0	2,498	409	0
Lowland Open/Semi-Open Lands	8%	1,356	0	1,356	0	0	1,356	0	0
Lowland Deciduous	5%	887	363	524	58	0	887	58	0
Upland Spruce/Fir	5%	768	35	733	60	0	768	105	0
Cedar	4%	587	67	520	33	0	587	33	0
White Pine	2%	274	17	257	71	22	274	23	77
Upland Open/Semi-Open Lands	1%	163	0	163	0	0	163	0	0
Misc Other (Water, Local, Urban)	1%	151	0	151	0	0	151	0	0
Others	5%	830	195	635	115	86	830	56	149
Total	100%	16,456	1,998	14,458	635	1,929	16,456	904	2,933

Others include: lowland spruce/fir, hemlock, upland conifers, natural mixed pine, lowland aspen/balsam poplar, red pine, mixed upland deciduous, paper birch and lowland mixed forest.

Charcoal Grade

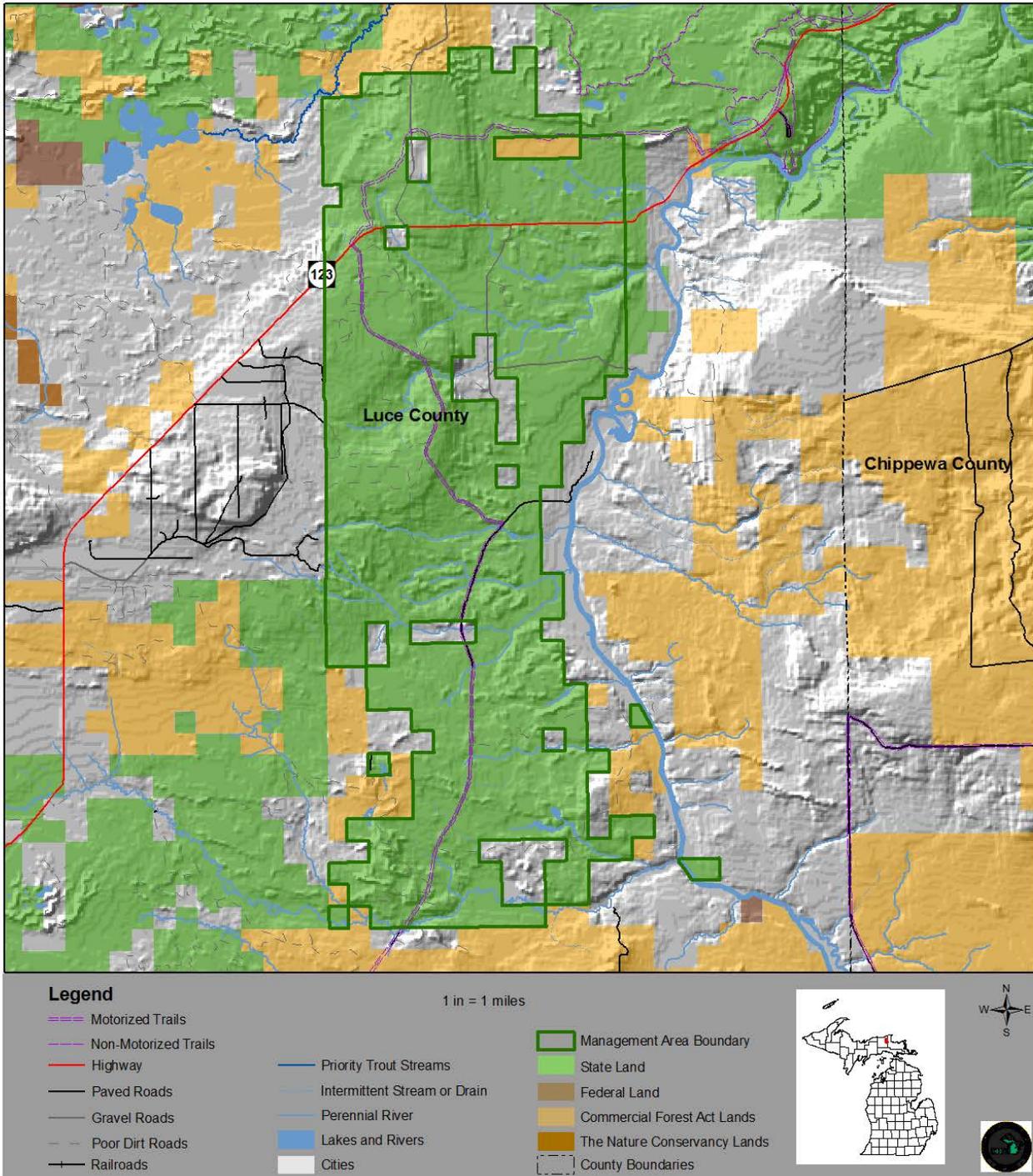


Figure 4.5.1. Location of the Charcoal Grade management area (dark green boundary) in relation to surrounding state forest lands and other ownerships.

4.5.1 Forest Cover Type Management Direction

The following sections contain information on vegetation management direction in the form of Desired Future Conditions, 10-Year Management Objectives and Long-Term Management Objectives for each of the major cover types and some of the minor cover types within the management area. This information applies to those portions of the forest where active management (e.g., timber harvest, prescribed fire, planting and mowing) will be conducted. In other portions of the state forest, passive management resulting in natural succession will achieve ecological objectives. While most stands have a variety of tree species and other vegetation, they are classified by the predominant canopy species.

All of the following cover types are valued commercially for their timber products; ecologically as sources of habitat for numerous species; and for the variety of recreational opportunities they provide. Harvesting these cover types will provide for a continuous flow of forest products and values.

Section 4.5.1.1 Forest Cover Type Management – Northern Hardwood

Current Condition

Northern hardwood occurs on 6,100 acres (37%) of the management area (Table 4.5.1). Northern hardwoods are distributed throughout the management area on outwash plains, lake plains and ground moraines with Kotar habitat classes including PARVAa, ATFD and AFPo (see Appendix E). The sites range from dry poor nutrient to mesic medium nutrient, with better quality stands in the west and north part of the management area. Many of the northern hardwood stands in this management area contain sugar and red maple, paper birch and aspen, and often have balsam fir and hemlock in the understory. The majority of the stands, approximately 90%, have been managed using single tree selection to work toward an uneven-aged state with trees of varying ages and sizes. In most stands in the management area, selection harvests are prescribed when the basal area is over 120 square feet per acre. In general, this will allow most hardwood stands to be selectively harvested every 20 years. Where site quality is poor, consider shelterwood and other even-aged harvesting systems. A small portion of the hardwood stands here were harvested using even-aged systems and these acres are shown in the immature column in Figure 4.5.2.

The killing front of beech bark disease has gone through this management area, and salvage of affected beech is ongoing. Northern hardwood stands that had a component of beech now have decreased stocking levels due to beech bark disease mortality and salvage harvesting. Further selection harvesting will be delayed, due to resultant lower than normal residual basal area.

Currently, 1,360 acres have a partial harvest or selection cut assigned (Figure 4.5.2). There are 411 acres of northern hardwood that have site conditions limiting their harvest and have been removed from the total number of manageable acres available for harvest calculations.

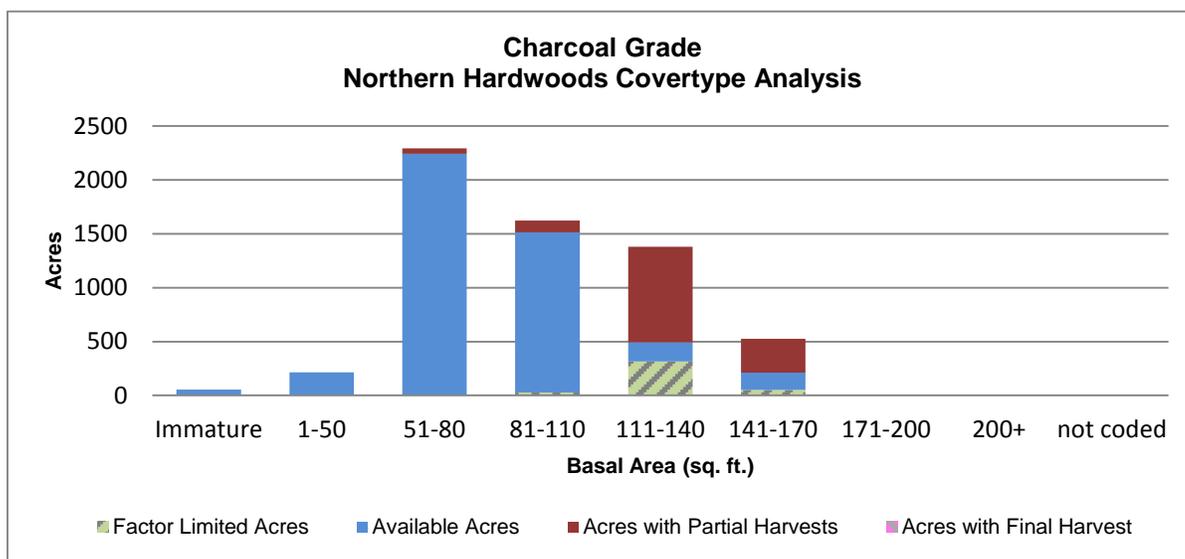


Figure 4.5.2. Basal area distribution of northern hardwood in the Charcoal Grade management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Northern hardwoods will be maintained on operable sites, generally by using individual tree selection harvesting to provide uneven-aged composition and structurally diverse stands. Even-aged management systems may be used on poor quality sites providing for a continuous supply of timber, available wildlife habitat and recreational opportunities.

10-Year Management Objectives

- The 10-year projected harvest is 1,821 acres of partial or selection harvest.
- Evaluate stands previously dominated by beech to determine the impact of beech bark disease on regeneration.
- Track beech regeneration in these stands.
- Consider herbicide application on beech regeneration to promote regeneration of other species.
- In areas that are losing beech to beech bark disease, consider planting disease resistant beech or oak to increase the availability of hard mast producing trees.

Long-Term Management Objectives

- Select harvest northern hardwood stands on a 20-year cycle.

Section 4.5.1.2 Forest Cover Type Management – Lowland Conifers

Current Condition

Lowland conifers occur on 2,842 acres (17%) of the management area (Table 4.5.1). Many of the lowland conifer stands in this area have low basal areas and are on poor sites. Approximately 36% of the stands have been classified as uneven aged, having trees of all sizes and ages, mainly due to natural processes and generally have not been harvested in many decades. Younger age classes are not well represented in this cover type in this management area. Access to some stands is limited due to the wet sites and the small creeks that are often found in these cover types.

Currently, there are 13 acres with a final harvest prescribed (Figure 4.5.3). There are 865 acres of lowland conifer that have site conditions limiting their harvest at this time. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations. Lowland conifer stands in inaccessible areas will be subject to natural processes (fire, windthrow, insect defoliation and beaver flooding) resulting in a range of successional stages.

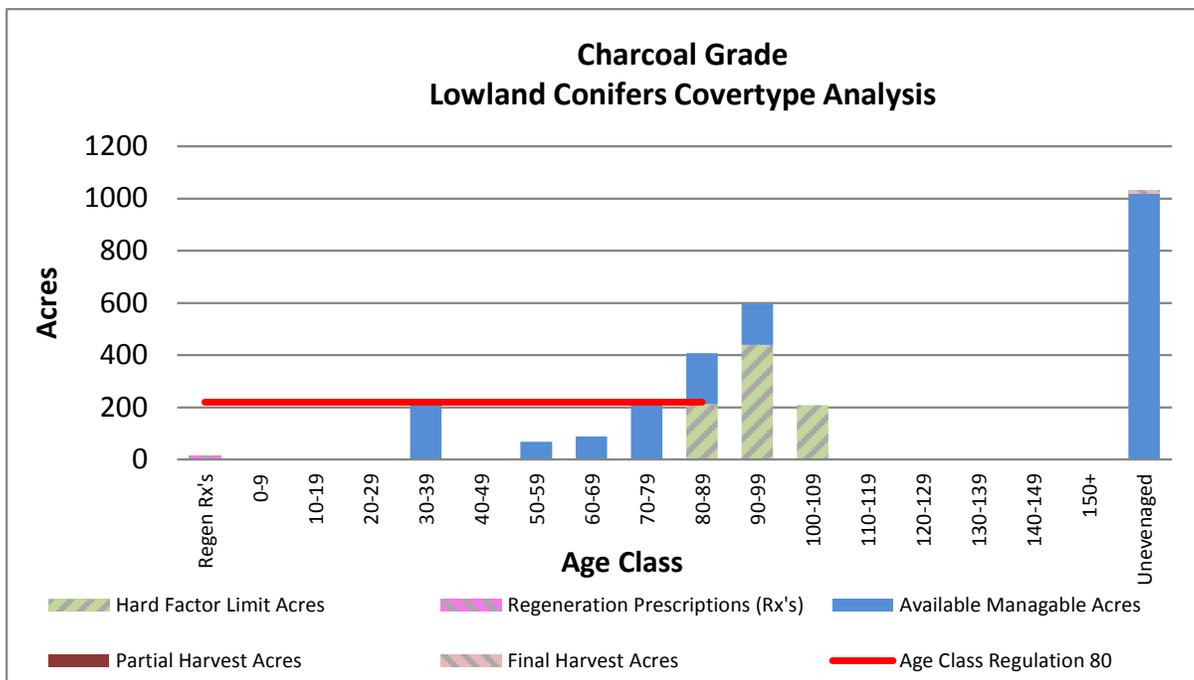


Figure 4.5.3. Age-class distribution of lowland conifers in the Charcoal Grade management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Lowland conifer stands will be maintained on operable sites through even-aged management, with acres balanced between 0-89 years of age providing for a continuous supply of timber, available wildlife habitat and recreational opportunities.

10-Year Management Objectives

- The 10-year projected harvest is 220 acres of lowland conifers. Natural regeneration consisting of species currently on site is expected.

Long-Term Management Objectives

- Balance the age-class distribution of accessible lowland conifers providing a regulated harvest of approximately 220 acres to be harvested every decade (red line in Figure 4.5.3).

Section 4.5.1.3 Forest Cover Type Management - Aspen

Current Condition

Aspen occurs on 2,498 acres (15%) of the management area (Table 4.5.1). Aspen stands are distributed throughout the management area on lake plains and ground moraines with Kotar habitat classes of PARVAa and ATFD (see Appendix E). This encompasses a range of sites on sandy to loamy soils, from very-dry very-poor nutrient, to mesic-poor to medium-nutrient sites. In this area, aspen is often mixed with hardwood, white pine, paper birch, balsam fir and other species. Aspen stands have been consistently harvested and regenerated in recent years, resulting in the majority of the aspen acreage (approximately 73%) being less than 30 years old (Figure 4.5.4). Aspen within the Charcoal Grade Grouse Enhanced Management Systems area may be managed slightly different than the rest of the aspen within the management area, with a lower rotation age and smaller harvest areas.

There are currently 438 acres that have a final or regeneration harvest prescribed. Approximately 16 acres that are prescribed for harvest in another cover type are expected to convert to aspen upon harvest. These acres are shown in Figure 4.5.4 in the regeneration prescriptions column. There are 45 acres of aspen that have site conditions limiting their harvest at this time. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations. Without intervention, inaccessible stands of aspen will eventually succeed to late successional species.

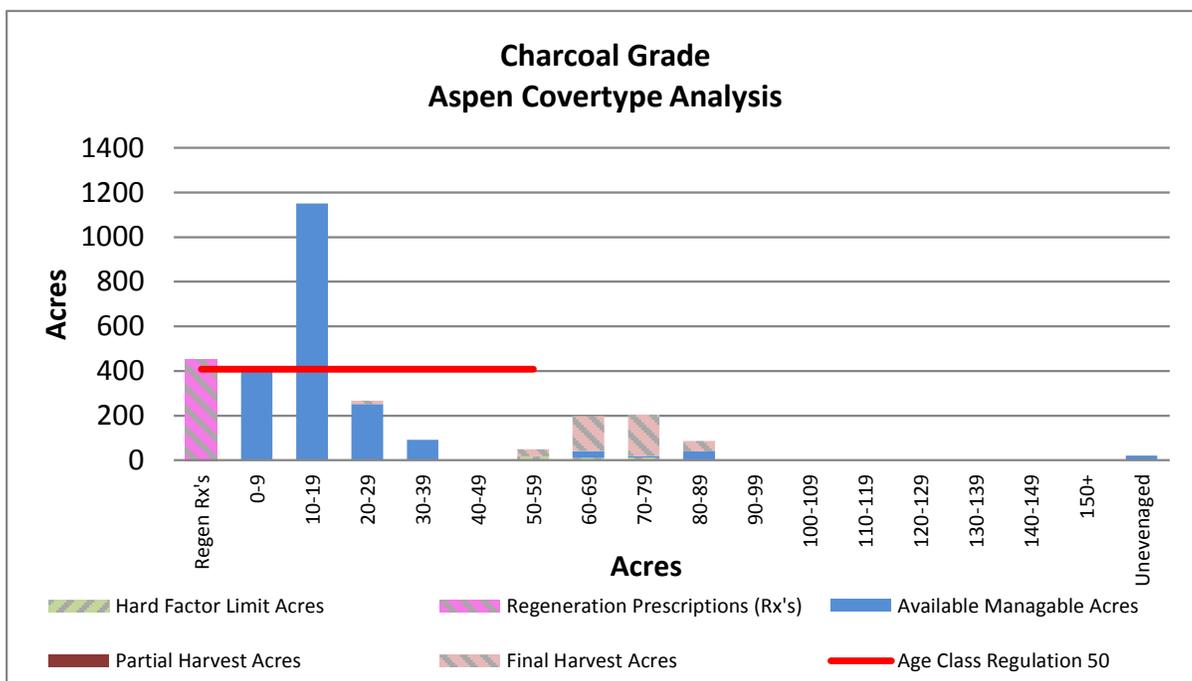


Figure 4.5.4. Age-class distribution of aspen in the Charcoal Grade management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Aspen stands will be maintained on operable sites through even-aged management with acres balanced between 0-59 years of age providing for a regulated harvest, wildlife habitat and recreational opportunities.

10-Year Management Objectives

- The 10-year projected harvest of aspen is 78 acres of final harvest with the reduction from the regulated harvest amount due to the current age-class structure where a large number of acres are in the 0-19 year age classes; and
- Aspen within the identified Grouse Enhanced Management Systems area may be managed differently than the rest of the aspen within the management area, with a shorter rotation age, small patch cuts and carefully considered stand adjacency.

Long-Term Management Objectives

- Balance the age-class structure of accessible aspen stands providing a regulated harvest of approximately 409 acres per decade.

Section 4.5.1.4 Forest Cover Type Management – Lowland Open/Semi-Open Lands

Current Condition

Lowland open/semi-open lands occur on 1,356 acres (8%) of the management area. This category is a combination of lowland shrub (923 acres), treed bog (176 acres), bog (141 acres) and marsh (116 acres). These stands are valued ecologically as sources of habitat for numerous species of wildlife, including moose. Most of the lowland shrub stands are found in association with streams and rivers and contribute to access issues within the management area.

Desired Future Condition

- Lowland open/semi-open lands will be retained in their current state to ensure an adequate level of wildlife habitat and recreational opportunity.

Long-Term Year Management Objectives

- Within these stands allow natural processes to occur while protecting their ecological values from man-made disturbances.

Section 4.5.1.5 Forest Cover Type Management – Lowland Deciduous

Current Condition

Lowland deciduous stands occur on 887 acres (5%) of the management area (Table 4.5.1). Lowland deciduous stands are found throughout the management area on lake plains and outwash plains. Many of the stands are found in association with streams and drainages. Younger age classes in this cover type are non-existent (Figure 4.5.5). Almost one-half of the lowland deciduous stands have been classified as uneven-aged, mainly due to natural processes, having trees of all ages and sizes. Lowland deciduous stands are generally managed through even-aged harvests, though depending on species composition some stands may be thinned prior to final harvest.

Currently, while there are not any acres of lowland deciduous with a final harvest prescribed and 26 acres of partial harvest or thinning are prescribed. There are 363 acres of lowland deciduous that have site conditions limiting their harvest at this time. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations. Lowland deciduous stands in inaccessible areas will be subject to natural processes (fire, windthrow, insect defoliation and beaver flooding) resulting in a range of successional stages.

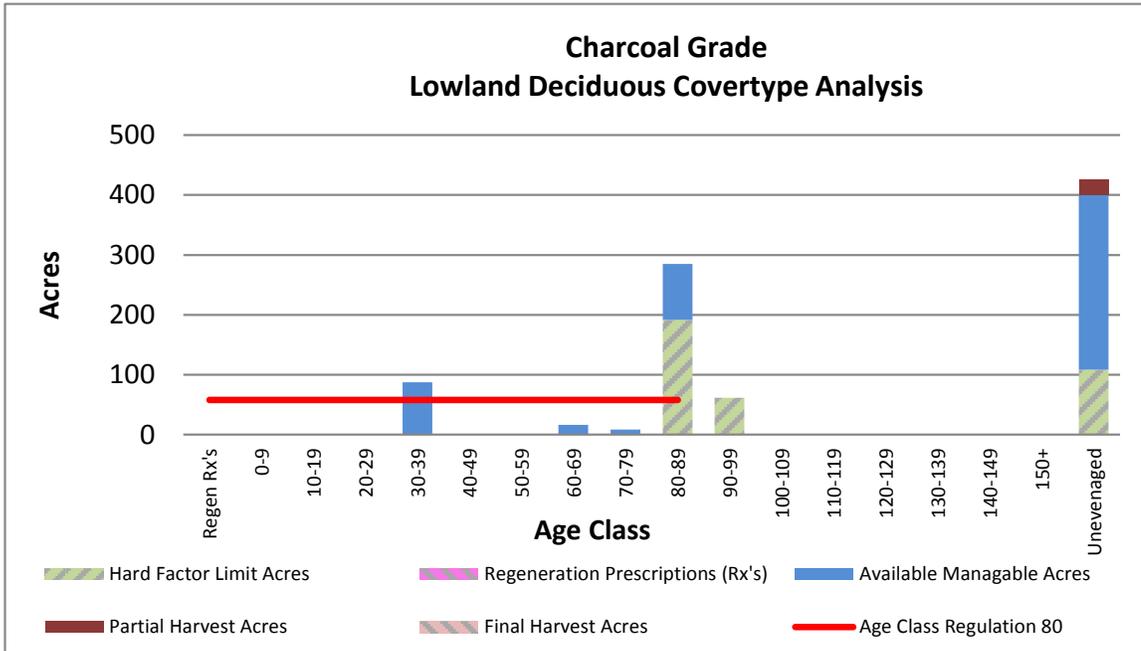


Figure 4.5.5. Age-class distribution of lowland deciduous in the Charcoal Grade management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Lowland deciduous stands will be maintained on operable sites through even-aged management with acres balanced between 0-89 years of age providing for a regulated harvest, available wildlife habitat and recreational opportunities.

10-Year Management Objectives

- The 10-year projected harvest is 58 acres of lowland deciduous with natural regeneration consisting of species currently on site is expected.
- Monitor stands with a black ash component for emerald ash borer. Follow Emerald Ash Borer Guidelines for harvesting in stands with ash trees.

Long-Term Management Objectives

Section 4.5.1.6 Forest Cover Type Management – Upland Spruce/Fir

Current Condition

Upland spruce/fir stands occur on 768 acres (5%) of the management area (Table 4.5.1). Upland spruce/fir stands are distributed throughout the management area on lake plains and outwash plains with Kotar habitat classes of PARVAa, ATFD and AFPo (see Appendix E). These stands have been successfully harvested and regenerated, resulting in a range of age classes (Figure 4.5.6). Natural regeneration consisting of species currently on site has worked well here.

Currently, there are no acres of upland spruce/fir with a harvest prescribed. There are 207 acres of other cover types that are expected to convert to upland spruce/fir after harvest. These acres are shown in Figure 4.5.6 in the regeneration prescriptions column. There are 35 acres of upland spruce/fir that have site conditions limiting their harvest at this time. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations. Upland spruce/fir stands that are unavailable for harvest will be subject to natural processes, eventually succeeding to late successional species.

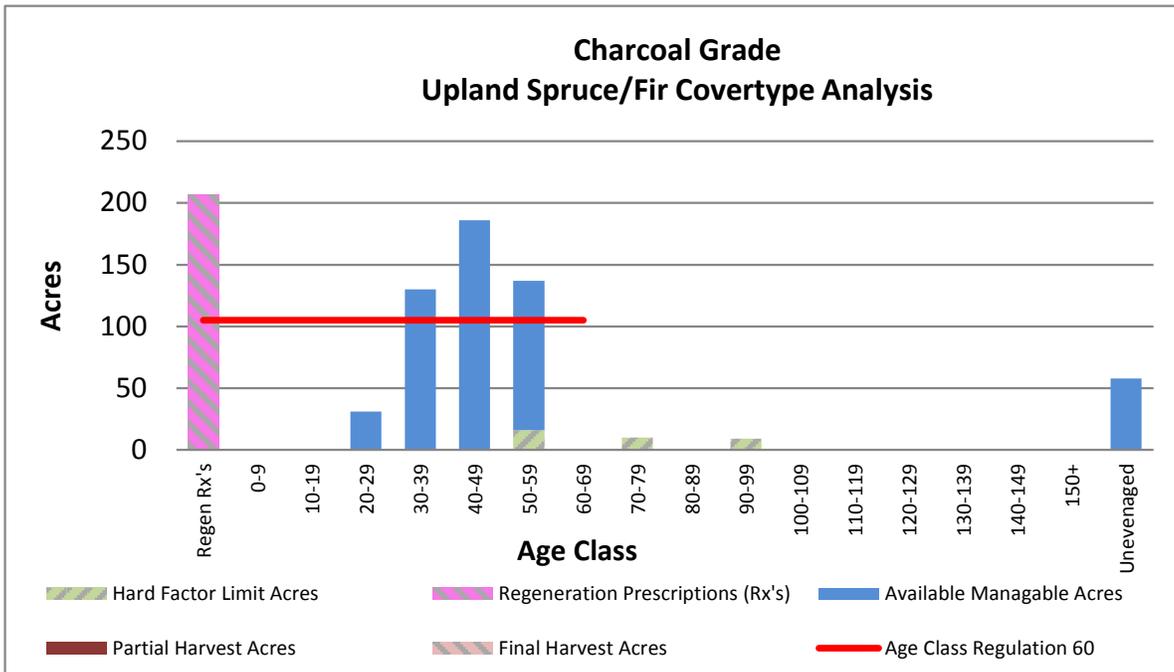


Figure 4.5.6. Age-class distribution of upland spruce/fir in the Charcoal Grade management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Upland spruce/fir will be maintained on operable sites through even-aged management, balancing acres between 0-69 years of age providing a regulated harvest, wildlife habitat and recreational opportunities.

10-Year Management Objectives

- The 10-year projected harvest is 60 acres of upland spruce/fir. The projected harvest is lower than the regulated amount due to the current age-class structure where there are a large number of acres in the regeneration prescriptions column.

Long-Term Management Objectives

- Balance the age classes of available upland spruce/fir stands providing a regulated harvest of approximately 105 acres to be harvested every decade.

Section 4.5.1.7 Forest Cover Type Management – Other Types

Current Condition

There are many other forest cover types spread across the management area that have less than 5% of the total management area acres (Table 4.5.1). Cedar with 587 acres (4%) and white pine with 274 acres (2%) are the only ones with over 2% of the total acres. Other types total 830 acres (5%) and include: upland open/semi-open lands, lowland spruce/fir, hemlock, upland conifers, natural mixed pines, lowland aspen/balsam poplar, red pine, mixed upland deciduous, paper birch and lowland mixed forest. With the exception of red pine, white pine and hemlock, these cover types are generally managed as even-aged. Following general timber management guidelines, look for opportunities to perform regeneration harvests in even-aged forested cover types, attempting to balance the age classes where possible. Natural regeneration of species currently on site is expected. Mixed cover types with high basal area may be thinned prior to final regeneration harvest depending on their species composition.

Approximately 279 acres of these other minor cover types have site conditions limiting their harvest at this time. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations. Inaccessible stands will be subject to natural processes and may succeed to late successional species, thus slightly changing the cover type distribution.

Desired Future Condition

- These cover types may be managed on operable sites, contributing to the compositional diversity of the landscape while providing for continual harvest, available wildlife habitat and recreation opportunity.

10-Year Management Objectives

- The projected 10-year final harvest is 33 acres of cedar, 71 acres of white pine and 115 acres of other types; and
- The projected 10-year partial harvest is 22 acres of white pine and 86 acres of other types.

Long-Term Management Objectives

- Continue management of these other cover types to provide a sustainable yield of forest products and wildlife habitat.

4.5.2 – Featured Species Management

The landforms in this management area consist of sandy ridges that grade to lower, flatter topography. This results in high vegetative diversity and high wildlife species diversity. Important management concepts include the retention of mesic conifers, coarse woody debris, large diameter hardwoods, soft mast and browse availability.

This management area will include one or more eastern Upper Peninsula Grouse Enhanced Management System areas. The boundaries will be delineated during this planning period by the local biologist in collaboration with the Forest Resources Division unit manager. Aspen stands that fall within the boundary may be managed to enhance habitat and hunting opportunities for ruffed grouse and deer. Habitat treatments may include managing aspen on a shortened rotation with multiple age classes and smaller stand sizes.

American Marten

The goal for marten in the eastern Upper Peninsula is to maintain or increase suitable habitat and strive to identify, maintain and connect known populations to facilitate genetic exchange. Management should address the maintenance and improvement of corridors, dead wood and conifer components in priority landscapes.

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. Write prescriptions to minimize potential blow down.
- Discourage land transactions and management activities that facilitate further fragmenting of marten habitat within the management area by identifying and maintaining corridors between large forested tracts.
- Provide older forest conditions in this management area.
- Retain and limit disturbance to existing downed coarse woody debris and exceed Within-Stand Retention Guidance for its maintenance. 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 and coarse woody debris logs on the ground per acre in harvested stands.
- Increase the within-stand component of mesic conifers in mixed stands and enhance mesic conifer forest types by group or gap selective harvest. Consider under-planting on suitable sites where a seed source is absent.
- Limit firewood permits, biomass harvesting and whole tree harvesting and retain the maximum residues in the Woody Biomass Harvesting Guidelines.

Black Bear

The goal for black bear in the eastern Upper Peninsula is to maintain or improve habitat. Management should focus on improving existing habitat (minimizing fragmentation and maintaining hard and soft mast) to offset potential population declines due to changes in land use.

Wildlife habitat specifications:

- Maintain or increase tree species that provide mast including beech, oak, black cherry and ironwood.
- Beech trees with bear claw scars on the bark are generally good mast producers and should be retained wherever possible.
- Retain some large diameter white pine or hemlock as refuge trees.
- Plant disease resistant beech and red oak where appropriate.
- 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 this resource.
- Discourage land transactions and management activities that facilitate further fragmenting state lands within the management area.

Moose

The goal for moose in the eastern Upper Peninsula is to maintain or increase suitable habitat. Management for moose should focus on providing early successional browse adjacent to lowland conifer complexes, the maintenance of hemlock within stands, and protecting 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 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 enhance thermal refugia in harvested stands by retaining hemlock and other conifers.
- Increase mesic conifer (e.g., hemlock, white pine, 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 and 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.

Ruffed Grouse

The goal for ruffed grouse in the eastern Upper Peninsula is to maintain or improve habitat. Management should focus on maintaining and balancing the age-class distribution for aspen in priority landscapes during this planning cycle.

Wildlife habitat specifications:

- Maintain the aspen cover type and increase the aspen component in mixed stands within the management area.
- Balance the age-class distribution of aspen and birch cover type to maintain young forests across the management area.
- Ideal aspen stands will be of 40-160 acres under a 50-60 year rotation. Larger harvest units should have irregular boundaries and include one or two 1-3 acre unharvested inclusions for every 40 acres exceeding 40 acres in size.
- Manage the aspen cover type for smaller patch size, a shorter rotation and a more deliberate habitat configuration within the designated Grouse Enhanced Management Systems areas where appropriate.
- Evaluate the conifer component in aspen stands, holding or increasing where desirable. Leave conifer under four inch diameter at breast height in mixed stands and aspen types as immediate residual escape cover and to promote corridors.
- Maintain cherry production for soft mast.

Spruce Grouse

The goal for spruce grouse in the eastern Upper Peninsula is to maintain or improve habitat. Management should focus on retention of mixed conifers on riparian/lowland edges, increasing within stand plant species diversity and landscape level planning to ensure populations are not isolated.

Wildlife habitat specifications:

- In jack pine harvests, leave mixed conifer and/or jack pine retention strips of mature trees along riparian corridors and lowland margins, as well as along upland edges.
- Maintain spruce seed trees through retention, especially at lowland margins.
- Maintain or increase diversity of conifer stands by implementing seed tree/shelterwood prescriptions and limiting the use of herbicides, especially along lowland edges.
- Large clearcuts may isolate populations of spruce grouse so landscape level planning must take into account this species' need for low-density mixed-conifer travel corridors to connect suitable stands.
- Ensure black spruce recruitment and regeneration is reliable where harvested. Monitoring should be required to ensure desired results from management are achieved.

4.5.3 - 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 one listed species as well as one natural community of note occurring in the management area as shown in Table 4.5.2. Any established management guidelines will be followed.

The portion of M-123 that runs through the management area has been designated as a scenic heritage route special conservation area (Figure 4.5.7).

Linton, Baird and Savage Creeks are listed as cold water stream special conservation areas.

A very small portion of the Little Two Hearted River zone high conservation value area is in the northwest part of the management area with the majority in the adjoining Deer Park management area.

Table 4.5.2. Occurrence information for special concern, rare, threatened and endangered communities and species for the Charcoal Grade 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 Community								
Muskeg		S3/G4G5	Confirmed				Lowland open/semi-open	N/A
Birds								
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	Late
						Dry-mesic northern forest	White Pine	Late
						Mesic northern Forest	Northern Hardwood	Late

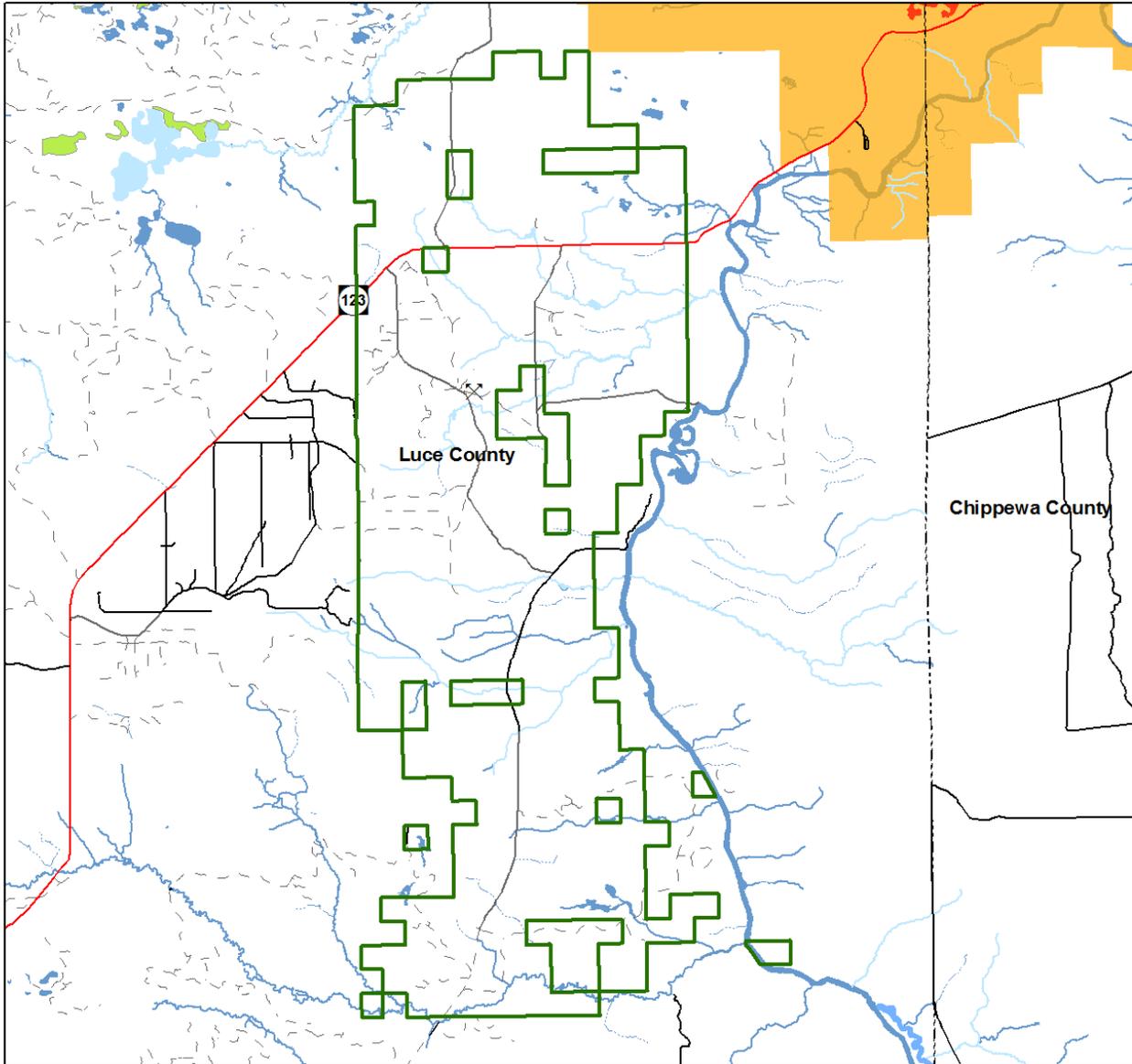
Climate Change Vulnerability Index: EV – Extremely Vulnerable; HV – Highly Vulnerable; MV – Moderately Vulnerable; PS – Presumed Stable; and IL – Increase Likely.

No ecological reference areas have been identified in the Charcoal Grade management area.

Management goals during this planning period are:

- Document occurrences of rare, threatened, endangered and special concern species and natural communities for the management area through the inventory process or with occasional focused surveys.
- Evaluate all potential Type 1, potential Type 2 and potential old growth areas to determine their status as a special resource area.
- Develop and maintain management and monitoring plans for ecological reference areas on state forest land.

Charcoal Grade



1 in = 1 miles

Legend

- Highway
- Paved Roads
- Gravel Roads
- - - Poor Dirt Roads
- Railroads
- · - · - Intermittent Stream or Drain
- Perennial River
- Lakes and Rivers
- ▭ Management Area Boundary
- ▭ Cities
- - - County Boundaries

- ▭ Ecological Reference Areas
- High Conservation Value Areas**
- ▭ Coastal Environmental Areas
- ▭ Critical Dunes
- ▭ Natural Rivers Vegetative Buffer
- ▭ Natural Rivers Zoning District
- ▭ Critical Coastal Habitat (Piping Plover)
- ▭ Kirtland Warbler Habitat
- ▭ Dedicated Management Areas
- ▭ Natural Areas Legally Dedicated

Special Conservation Areas

- ▭ Campgrounds
- ▭ Fishing Access Sites
- ▭ Boat Access Sites
- ▭ Mineral Resource Locations
- ▭ Wild & Scenic Rivers (USFS Lands)
- ▭ Visual Management Areas
- ▭ Contiguous Resource Areas
- ▭ Possible Type 1 and Type 2 Old Growth
- ▭ Potential Old Growth
- ▭ Non-Dedicated Natural Areas & National Natural Landmarks
- ▭ Springs, Wetlands, or Riparian Areas



- ▭ Cold Water Streams & Lakes
- ▭ Wildlife Management Areas
- ▭ Research, Development, and Military Lands
- ▭ Great Lakes Islands

Figure 4.5.7. A map of the Charcoal Grade management area showing the special resource areas.

4.5.4 – 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 management area by major cover type include:

- Northern hardwoods: beech bark disease and emerald ash borer
- Aspen: white trunk rot and *Hypoxylon* canker
- Lowland conifers and upland spruce/fir: spruce budworm, eastern larch beetle and larch casebearer

Further information on forest health can be found in Section 3.

Invasive Plant Species

Invasive exotic species, specifically plants, may pose a significant forest health threat to forested and non-forested areas throughout the management area. No invasive plant species have yet been documented within the management area, but garlic mustard has been documented within a five-mile buffer of the management area (Table 4.5.3) and monitoring efforts should specifically look for new populations of this species. Evaluate eradication treatments of any new populations of invasive plant species found in the management area. Invasive species that merit eradication efforts are those species that threaten sensitive sites, due to their location or growth characteristics and have population levels that may be successfully controlled.

Table 4.5.3. Invasive plant species within or near the Charcoal Grade management area. (Data from the Michigan Invasive Plant Identification Network database).

Charcoal Grade - FRD Management Areas	Cases within FRD Areas	Cases within 5 Mile Buffer	Total number of cases	Total number of different Invasive Species
	0	1	1	1
Invasive Species within FRD Areas	Occurrences	Invasive Species within 5 Mile Buffer	Occurrences	
-	-	Garlic Mustard <i>Alliaria petiolata</i>	1	

4.5.5 – Fire Management

This management area is dominated by mesic northern forest and lowland conifer forest. Fire impacts were rare, resulting in very long fire return intervals. The following fire management concepts will be used in this management area:

- Use of prescribed fire on the drier soils may be considered to maintain pine communities and encourage natural regeneration.
- Prescribed fire use is not anticipated in lowland stands, due to concerns about risks and costs associated with fire on organic soils.

4.5.6 – Public Access and Recreation

Highway 123 runs through the north part of the management area and there are two-track roads throughout. Access is somewhat restricted by creeks and wetland cover types in the southern portion of the management area. The quality of the forest roads in this area is generally poor, especially in the spring.

Recreational facilities include a major snowmobile route (Figure 4.5.1) that goes south through the village of Newberry.

Hunting is a popular form of recreation here. Specific hunting recreation improvements such as parking lots, gates, trail planting and trail establishment, as well as the preparation and dissemination of specific promotional material, may be made as a result of Grouse Enhanced Management Systems areas planning in this management area.

4.5.7 – 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 in accordance with DNR Policy 39.21-20 Beaver Management. There are no designated high priority trout streams that have been identified for this management area.

4.5.8 – Minerals

Surface sediments consist of an end moraine of coarse-textured till, lacustrine (lake) sand and gravel, peat and muck and coarse-textured till. There is insufficient data to determine the glacial drift thickness. Sand and gravel pits are located in this management area and there is good potential for additional pits.

The Ordovician Trenton, Black River and Prairie du Chien Formations and Cambrian Trempealeau and Munising Formations subcrop below the glacial drift. The Trenton and Black River are quarried for stone and dolostone in the Upper Peninsula.

Exploration and development for oil and gas has been limited to a few wells drilled in the Upper Peninsula (two in Luce County). No economic oil and gas production has been found in the Upper Peninsula.

Metallic mineral production is not supported by the geology given the depth to known metallic bearing formations.

The Camp 7 gravel pit is within the management area and is shown in Figure 4.5.7.