

4.9 MA 9 – Deer Park Management Area

Summary of Use and Management

Vegetative management in the Deer Park management area (MA) (Figure 4.9.1) will emphasize balancing the age classes of jack pine and red pine and will provide various timber products. Management will maintain or enhance wildlife habitat and protect areas of special concern such as: the Two-Hearted River (a natural river) and the surrounding riparian zone, the critical dunes/barrier dunes, critical coastal piping plover habitat and listed species and communities of note. There are many trails and campgrounds within the management area and recreation and aesthetics are important in this area. Expected issues in this 10-year planning period are increased recreational pressure, especially illegal off-road vehicle activity; increased fragmentation of adjacent private ownerships; and pests and diseases, such as jack pine budworm and beech bark disease.

Introduction

The Deer Park management area is located in the center of the eastern Upper Peninsula, east of Grand Marais, along the Lake Superior shoreline. It is in Alger and Luce Counties and has 92,380 acres of state-owned land. Timber harvesting is the primary attribute in this management area, with recreation as an important secondary attribute. 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 major landforms consist of lacustrine sand and gravel.
- Current forest communities are dominated by both planted and natural red and jack pine. Natural mixed pine stands are also common.
- The Duck Lake wildfire burned approximately 22,000 acres in the eastern part of this management area in May 2012.
- Large number of special features including: high conservation value areas, ecological reference areas and special conservation areas.
- In addition to all of the recreational facilities, the area is highly used for other forms of recreation including: blueberry picking, site-seeing along the Lake Superior shoreline and dispersed camping especially during hunting and fishing seasons.
- Historical points of interest include the Crisp Point Lighthouse site, the site of the Perch Lake Civilian Conservation Corps camp and several known archeological sites.

The state-owned land within the management area is fairly concentrated, with some private parcels. The majority of the management area is in Luce County within the Newberry Forest Management Unit; the portion in Alger County is within the Shingleton Forest Management Unit. The current predominant cover types, acreages and projected harvest acres for the management area are shown in Table 4.9.1.

Deer Park

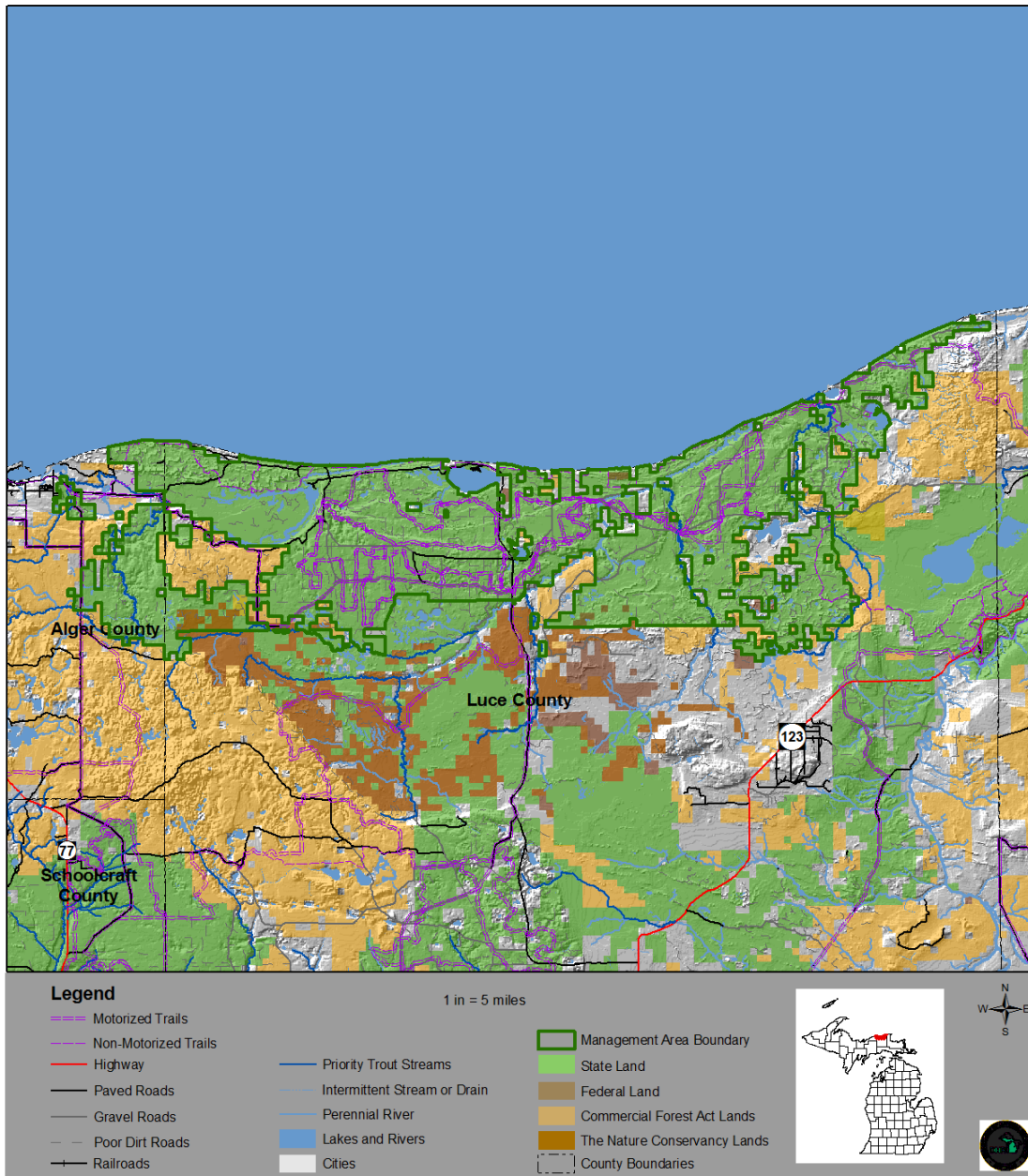


Figure 4.9.1. Location of the Deer Park management area (dark green boundary) in relation to surrounding state forest lands private lands Lake Superior and the town of Grand Marais within Alger and Luce Counties.

Table 4.9.1. Current cover types, acreages, projected harvest acres and projected ten-year cover type acreage for the Deer Perk 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
Jack Pine	35%	32,033	1,654	30,379	1,187	0	32,033	4,340	0
Red Pine	20%	18,509	3,190	15,319	1,496	3,212	18,509	1,702	5,226
White Pine	7%	6,920	448	6,472	588	2,427	6,920	588	2,773
Lowland Open/Semi-Open Lands	7%	6,375	0	6,375	0	0	6,375	0	0
Northern Hardwood	7%	6,064	421	5,643	0	2,285	6,064	0	2,398
Aspen	4%	3,350	229	3,121	128	0	3,350	520	0
Natural Mixed Pines	3%	2,368	38	2,330	212	924	2,368	212	924
Upland Open/Semi-Open Lands	2%	2,294	0	2,294	0	0	2,294	0	0
Lowland Conifers	2%	2,276	703	1,573	175	0	2,276	175	0
Cedar	2%	1,438	17	1,421	89	0	1,438	89	0
Hemlock	2%	1,386	351	1,035	0	50	1,386	0	186
Misc Other (Water, Local, Urban)	3%	2,569	5	2,564	0	0	2,569	0	0
Others	7%	6,798	1,444	5,354	657	925	6,798	679	969
Total	100%	92,380	8,499	83,881	4,531	9,823	92,380	8,305	12,476

Other Types include: upland conifers, paper birch, upland spruce/fir, lowland spruce/fir, oak, upland mixed forest, lowland deciduous, lowland aspen/ balsam poplar, tamarack and planted mixed pines.

4.9.1 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 or forest communities within the management area. This information applies to those portions of the forest where active management (i.e., 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 4.9.1.1 Forest Cover Type Management – Jack Pine

Current Condition

Natural and planted jack pine stands occur on 32,033 acres (35%) of the management area (Table 4.9.1). Many of the planted jack pine stands are from the late 1930's and early 1940s when the Civilian Conservation Corps crews were working. Some of the planted stands are mixed with white and red pine. The jack pine stands near Lake Superior are primarily of natural origin. Most of the jack pine occurs on the dry, sandy soils of outwash plains and beach ridges, with a PVE Kotar habitat type (see Appendix E). Jack pine is well suited to these very dry, very nutrient-poor sites and provides a valuable timber resource here. Jack pine in this management area has been consistently harvested and regenerated, providing stands in all age classes. Due to site conditions near Lake Superior some natural jack pine stands may be managed on longer rotations. Jack pine regeneration is generally through scarification though stands may be planted if scarification fails. In recent years jack pine budworm has been a problem resulting in many standing dead trees.

Approximately 9,500 acres of jack pine were burned in the 2012 Duck Lake fire. Salvage of burned timber is scheduled in accessible areas. The fire dramatically changed the age-class distribution of jack pine in the management area, placing a large number of acres in the regeneration prescriptions age class column (Figure 4.9.2). This column is for stands that are in the process of harvest and regeneration.

Currently, there are 6,578 acres of jack pine with a regeneration harvest pending, and 24 acres with a partial harvest scheduled. This includes the salvage sales resulting from the Duck Lake fire.

There are 1,654 acres of jack pine that have site conditions limiting their harvest, some of which are found in high conservation value areas, ecological reference areas and special conservation areas. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations. Jack pine stands that are unavailable for harvest will remain until biological maturity before succeeding to late successional species such as white pine.

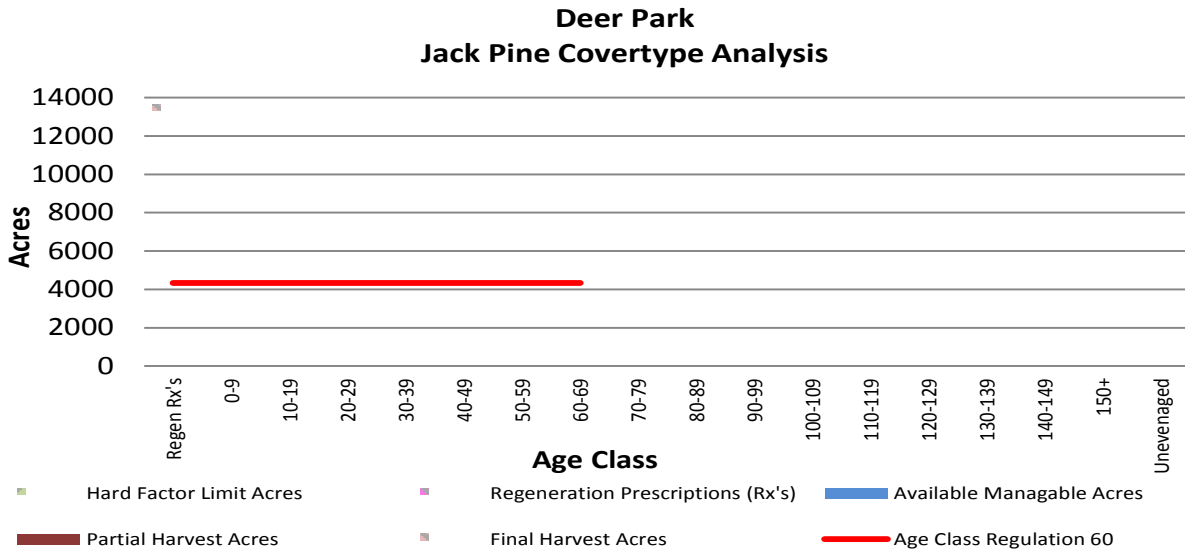


Figure 4.9.2. Age-class distribution of jack pine in the Deer Park management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Jack pine will be maintained on operable sites through even-aged management with acres balanced between 0-69 years of age to provide for continual harvest, available wildlife habitat and recreation opportunities.

10-Year Management Objectives

- The projected 10-year final harvest of jack pine is 1,187 acres which is significantly lower than the regulated amount due to the Duck Lake fire and the resultant age-class distribution.

Long-Term Management Objectives

- Maintain a lower acreage of over-mature stands to lessen the prevalence and severity of jack pine budworm outbreaks; and
- Balance the age classes of jack pine providing a regulated harvest of approximately 4,340 acres of jack pine every decade (red line in Figure 4.9.2).

Section 4.9.1.2 Forest Cover Type Management – Red Pine

Current Condition

Red pine occurs on 18,509 acres (20%) of the management area (Table 4.9.1). Red pine is distributed on sandy soils of dunes, beach ridges and outwash plains with Kotar habitat classes of PVE, PArV and PArVAa. Red pine is well suited to these very dry, very poor nutrient sites and provides a valuable timber resource in this management area. While a large portion of this red pine was planted by Civilian Conservation Corps camp workers 65-75 years ago, much of the red pine is of natural origin. Many of the natural red pine stands have a mix of other pine species and are managed to maintain that mixed composition. Red pine communities in this management area receive a lot of recreational use via trails and campgrounds and visual considerations are important.

Most of the natural red pine stands have been managed by thinning, followed by shelterwood or seed tree harvesting. This has resulted in some of the red pine stands being classified as uneven-aged stands. As natural regeneration becomes established, stand focus will shift from the retention trees to the regeneration and stands will be reclassified into the younger age classes.

Approximately 2,800 acres of red pine were burned in the 2012 Duck Lake fire. Salvage of burned timber in accessible areas is scheduled. The fire dramatically changed the age-class distribution of red pine in the management area, placing a large number of acres in the regeneration prescription age class column (Figure 4.9.3).

Currently, there are approximately 629 acres of red pine with a final harvest prescribed and 2,977 acres with a partial harvest or thinning prescribed. This includes the salvage sales associated with the Duck Lake fire.

There are 3,190 acres of red pine 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. Red pine unavailable for harvest will remain until natural senescence. Some of these stands are found within the high conservation value areas and special conservation areas found in the management area.

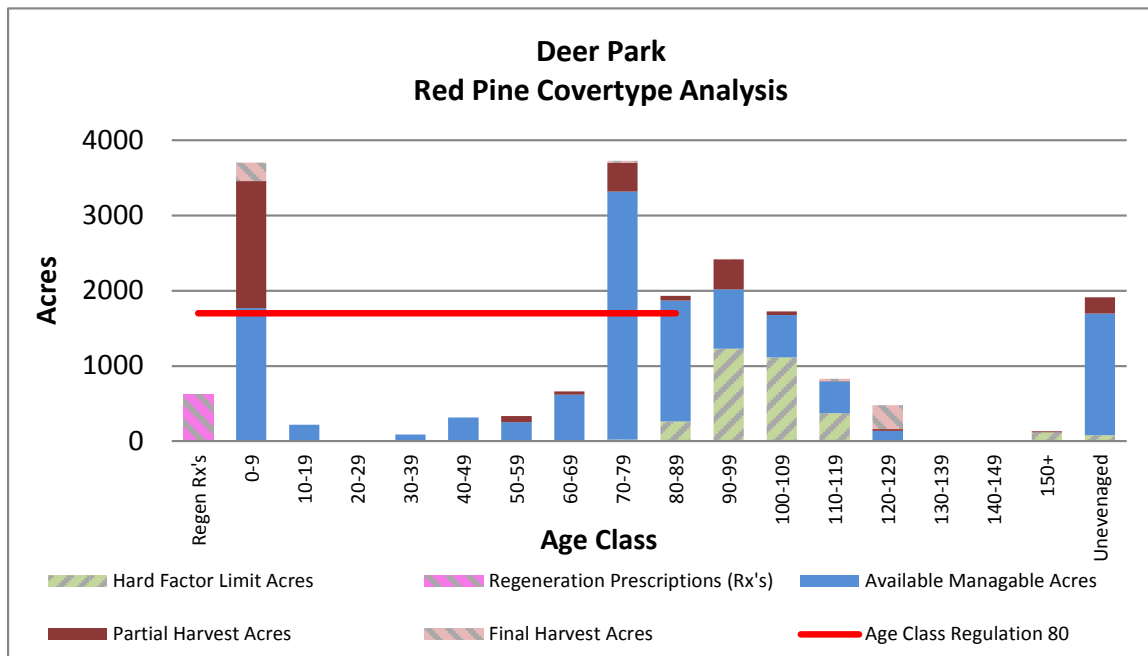


Figure 4.9.3. Age-class distribution of red pine in the Deer Park management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Red pine will be maintained and managed on operable sites through thinning until stand replacement harvest at economic maturity with acres balanced between 0–89 years of age to provide for continual harvest, wildlife habitat and recreational opportunities; and
- Red pine growing within high conservation value areas or special conservation areas may be left until biological maturity at over 200 years of age.

10-Year Management Objectives

- The projected 10-year final harvest is 1,496 acres of red pine with the reduction from the regulated amount due to the Duck Lake Fire and the resultant age-class structure; and
- The projected 10-year partial harvest (thinning) of red pine is 3,212 acres.

Long-Term Management Objectives

- Balance the age-class distribution of red pine providing a regulated final harvest of 1,702 acres per decade based on an 80-year rotation age;
- Stands will be periodically thinned until they meet silvicultural criteria; and
- Protect the ecological values in the high conservation value areas and special conservation areas.

Section 4.9.1.3 Forest Cover Type Management – White Pine

Current Condition

White pine occurs on 6,920 acres (7%) of the management area (Table 4.9.1). White pine stands are found on sandy soils of outwash plains and lake plains with PARV and PVE (see Appendix E) Kotar habitat types. These sites are very dry to dry, very poor to poor nutrient sites. White pine in this area is often found in association with other pine species and

northern hardwoods. Mixed pine stands will be managed to retain their varied composition. White pine regeneration grows well here and stands that have had partial harvests have several ages of white pine. Because of this, approximately 60% of the white pine stands here have been classified as uneven-aged stands (Figure 4.9.4). Using general white pine harvest guidelines, stands with high basal area undergo periodic thinning followed by regeneration harvests in stands that are economically mature. Use shelterwood or seed tree harvests to promote natural regeneration where possible.

As with red pine, some white pine stands in this management area receive a great deal of recreational use and visual considerations are necessary.

Approximately 770 acres of white pine were burned in the 2012 Duck Lake fire. As many of these stands were in relatively inaccessible areas, salvage harvest will be minimal.

Currently, there are nine acres with a final harvest prescribed and 141 acres with a partial cut prescribed. There are 448 acres of white pine 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. Many of these stands are found within high conservation value areas and special conservation areas.

Desired Future Condition

- White pine stands will be maintained on operable sites with acres balanced between 0-109 years of age through thinning and selection cuts until rotation age, followed by shelterwood or seed tree regeneration harvests (due to high conservation value areas and special conservation areas, some stands of white pine may remain through biological maturity).

10-Year Management Objectives

- The 10-year projected final or regeneration harvest of white pine is 588 acres to work toward balancing the age classes; and
- The 10-year projected partial harvest is 2,427 acres of white pine.

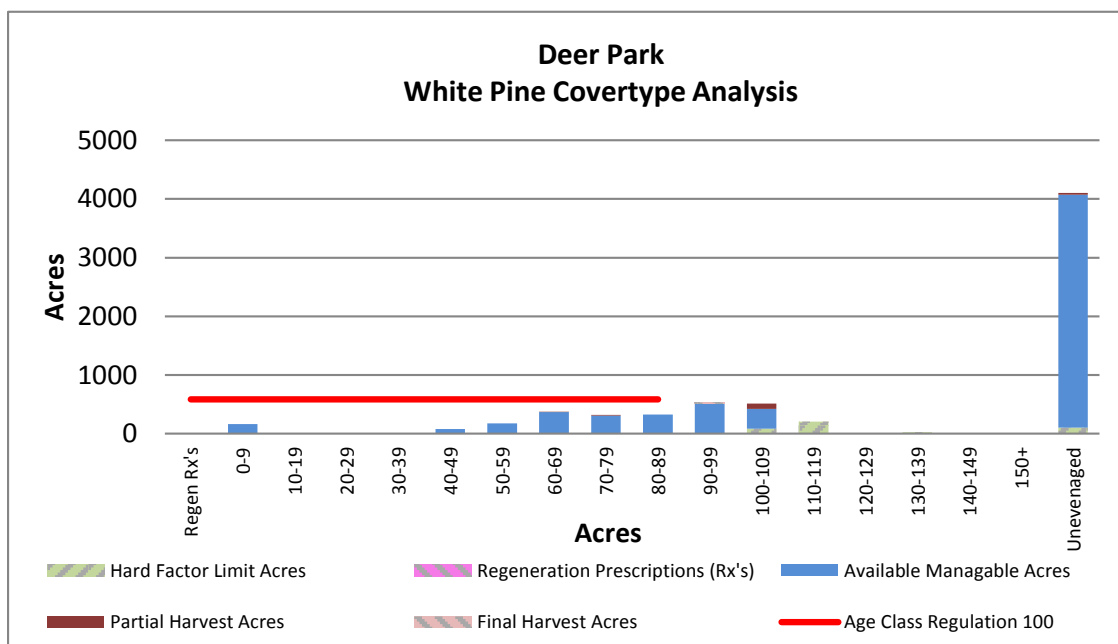


Figure 4.9.4. Age class distribution of white pine in the Deer Park management area (2012 Department of Natural Resources inventory data).

Long-Term Management Objectives

- A regulated harvest would allow 588 acres for final harvest per decade.

Section 4.9.1.4 Forest Cover Type Management – Lowland Open/Semi-Open Lands

Current Condition

Lowland open/semi-open lands occur on 6,375 acres (7%) of the management area (Table 4.9.1). This category is a combination of treed bog (1,573 acres), marsh (1,561 acres), lowland shrub (1,882 acres) and bog (1,359 acres). These cover types function ecologically as sources of habitat for numerous species of wildlife. Intermittent wetland and bog ecological reference areas are found within these cover types here. Approximately 1,700 acres of treed bog, 465 acres of marsh and 170 acres of lowland shrub were burned in the 2012 Duck Lake fire.

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 Management Objectives

- In general, these stands will be maintained without active management to protect their ecological values.

Section 4.9.1.5 Forest Cover Type Management – Northern Hardwood

Current Condition

Northern hardwoods occur on 6,064 acres (7%) of the management area (Table 4.9.1). Most of the hardwood stands are composed of red maple, sugar maple and beech, with white pine, hemlock and a mix of various other hardwood species. The stands generally fall into the Kotar habitat types of PArVAa and ATFD (see Appendix E). Northern hardwood stands are distributed on lake plains and outwash plains and are dry to mesic, poor- to medium-nutrient sites. The majority (80%) of the stands have been managed using single tree selection, generally every 20 years, maintaining structural and species diversity while working towards an uneven-aged state. Where site quality is poor, shelterwood and other even-aged harvesting systems are considered. Stands that have been managed through even-aged systems are shown in the immature column in Figure 4.9.5.

Approximately 300 acres of northern hardwood burned in the 2012 Duck Lake fire.

Beech bark disease is prevalent throughout the management area and many stands have had or will have salvage harvests. Beech mortality and salvage harvesting has resulted in decreased stocking levels. Further selection harvesting in these stands will be delayed due to resultant lower than normal residual basal area.

Currently, there are 576 acres with a partial harvest assigned and 93 acres with a final harvest prescribed. There are 421 acres of northern hardwood 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.

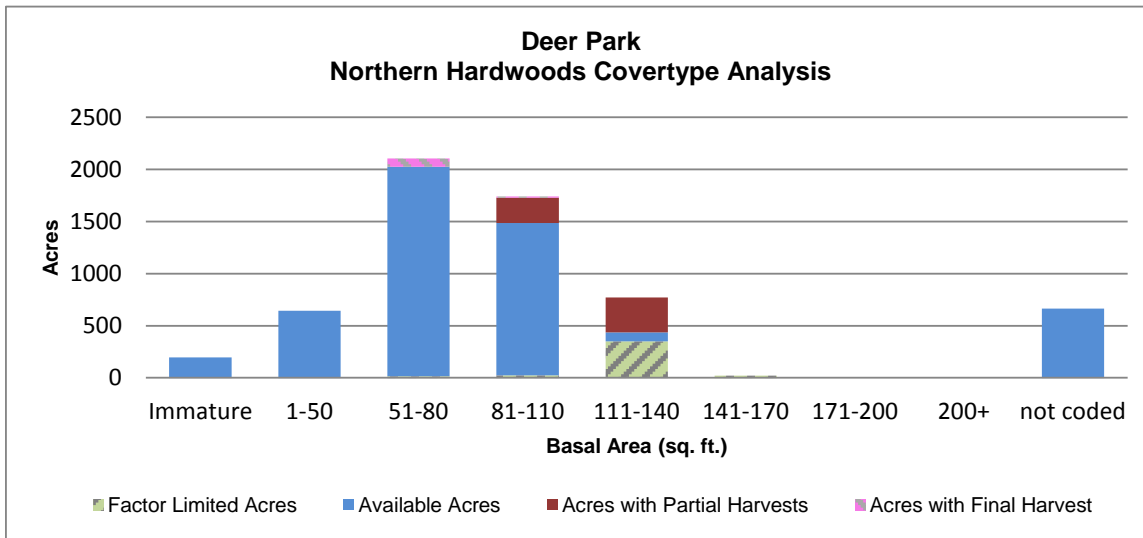


Figure 4.9.5. Basal area distribution of northern hardwood in the Deer Park management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Northern hardwoods will be maintained on operable sites by using individual tree selection harvesting resulting in an uneven-aged composition and structurally diverse stands.

10-Year Management Objectives

- The 10-year projected partial harvest is 2,285 acres of northern hardwoods;
- Evaluate stands previously dominated by beech to determine the impact of beech bark disease on regeneration;
- Track beech regeneration in these stands; and
- To favor regeneration of other hardwood species, consider herbicide applications of beech regeneration and planting of hard mast producing trees, including oak and disease resistant beech.

Long-Term Management Objectives

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

Section 4.9.1.6 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 acres (Table 4.9.1). The largest cover types in this category are: aspen (3,350 acres or 4%), natural mixed pines (2,368 acres or 3%). Upland open/semi-open lands (2,294 acres), lowland conifers (2,276 acres), cedar (1,438 acres) and hemlock (1,386 acres) all with 2% of the total acres.

“Other types” includes all cover types with less than 2% of the total acres and are comprised of: upland conifers, paper birch, upland spruce/fir, lowland spruce/fir, oak, upland mixed forest, mixed upland deciduous, lowland deciduous, lowland aspen/balsam poplar, tamarack, planted mixed pines and lowland mixed forest. Approximately 1,450 acres of these other cover types burned in the 2012 Duck Lake fire.

Using general timber management guidelines most of these stands will be harvested using even-aged management. Attempt to balance the cover type acres using standard rotation ages. Natural regeneration of species currently on site is expected in most cover types. Some of the mixed cover types with high basal area may be thinned, depending on the species composition.

There are 2,787 acres of these other minor cover types 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. Stands that are inaccessible for harvesting will be subject to natural succession. Miscellaneous other (2,569 acres or 3%) includes roads, water and sand/soil.

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, wildlife habitat and recreational opportunities.

10-Year Management Objectives

- The projected 10-year final harvest is 128 acres of aspen, 212 acres of natural mixed pines, 175 acres of lowland conifers, 89 acres of cedar and 657 acres of other types; and
- The projected 10-year partial harvest is 924 acres of natural mixed pines, 50 acres of hemlock and 925 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.

4.9.2 – Featured Species

Mixed pine and red pine stands of natural origin have high biodiversity values which should be maintained. Large stands of jack pine are prevalent. Key wildlife management strategies in these types would include the retention of large diameter red and white pine, retention of under-represented species, coarse woody debris and snags (particularly in the jack pine stands) and maintaining some larger than average jack pine cuts. The 2012 Duck Lake fire set back succession on a significant number of acres in pine cover types which will impact wildlife habitat in this management area. The northern hardwood forest is also represented and contributes to the overall landscape diversity and is important habitat for many wildlife species. In addition, the Lake Superior shoreline is part of the critical habitat unit for piping plover and Great Lakes endemic plant and animal species occur here as well.

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:

- Identify key stands that provide linkages between habitat areas. 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 blowdown.
- Identify and maintain corridors between large forested tracts.
- Provide mature forest conditions in this management area: Retain and limit disturbance to existing downed coarse woody debris. Where coarse woody debris is lacking, exceed Within-Stand Retention Guidance for its maintenance by increasing 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 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 underplanting on suitable sites where a seed source is absent.
- Limit biomass harvesting and whole tree harvesting in this management area considering retaining the maximum residues in the Woody Biomass Harvesting Guidelines in key marten areas.

Kirtland's Warbler

The state-wide goal for Kirtland's warbler is to maintain a population of at least 1,000 breeding pairs, as indexed by the annual breeding survey. In the Upper Peninsula it is desirable to have habitat available for birds outside the "core" range of the northern Lower Peninsula. Management should focus on maintaining breeding habitat in selected management areas while providing a sustainable supply of wood to the timber market. These two goals are compatible with only minor changes to timber harvest specifications. The eastern Upper Peninsula goal for Kirtland's warbler during this planning period is to provide suitable breeding and foraging habitat within this management area.

Wildlife habitat specifications:

The 2012 Duck Lake fire burned approximately 9,500 acres of jack pine effectively creating a large block of potential habitat for Kirtland's warbler and other early successional jack pine dependent species. Natural fire events within this forest type have been historically large and catastrophic leaving variable structural retention.

- Post-disturbance fire legacies including fire skips or fingers of jack pine; snags; and larger diameter, fire-tolerant trees such as red pine should be left in stands of burned jack pine as retention to benefit Kirtland's warbler.
- Ensure that jack pine stands regenerate to dense stands (optimal 1,600 stems per acre). If stands are planted, retain some small openings (< 2 acres) within stands.

Piping Plover

The state-wide goal for the Great Lakes piping plover is to maintain a breeding population of a minimum of 100 nesting pairs. In the eastern Upper Peninsula, management should focus on protecting and improving critical habitat on occupied shoreline and throughout designated critical habitat.

Wildlife habitat specifications:

- At known breeding sites, work with partners to:
 - Limit human activity near nests;
 - Construct predator exclosures around nests; and
 - Control avian and mammalian predators as needed.
- In other critical habitat, support land acquisitions and conservation easements.
- At active sites, support public education and increased awareness to help avoid disturbance to nesting birds.
- Address/discourage illegal off-road vehicle activity on Great Lakes shorelines.

Red Crossbill

In the eastern Upper Peninsula, the goal for red crossbill is to maintain or increase suitable habitat. Management should focus on maintaining mature and over-mature seed producing trees in priority areas.

Wildlife habitat specifications:

- Maintain a minimum of 15% of the total acres of appropriate cover types (upland spruce/fir, upland conifers, natural mixed pine and natural red and white pine) in the management area for red crossbill in a mature forest condition (e.g., >150 years for red pine, > 130 years for white pine and > 80 years for white spruce). This can be accomplished with existing factor-limited stands, or alternatively by extending the rotation length of these types to 150, 130 and 80 years respectively. Older age classes for red crossbill habitat are being met by a large number of stands with site conditions that limit harvesting.
- Retain large mature and over-mature red pine, white pine and white spruce in shelter-wood and seed tree cuts
- Evaluate the management area for the establishment of core tracts of old (>100 years old) pine stands in special resource areas or Type 1 or Type 2 old growth.

4.9.3 – 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 or past surveys have indicated a possibility of their presence.

Past surveys have noted and confirmed twenty-two listed species as well as eight natural communities of note occurring in the management area as listed in Table 4.9.2. 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.

As shown in Figure 4.9.6 there are five special conservation areas within the Deer Park management area. Both the Crisp Point (102 acres) and the Deer Park (100 acres) areas are non-dedicated natural areas. Both areas will be managed as if they were dedicated natural areas. There are three other special conservation areas and they are the Blind Sucker Flooding State Wildlife Management Area, a deer wintering area and the Old Seney Road (south of H-58) which is a natural beauty road (Figure 4.9.6).

Areas that might meet the definition of Type 1 and Type 2 old growth have been identified in a special conservation area layer in the Geographic Decision Support Environment and are shown in Figure 4.9.6. This set of areas originated from a subset of forested natural communities within some state natural areas and all A/AB-ranked natural heritage database element occurrences. Within the Deer Park management area there are 47 acres of potential Type 1 dry-mesic northern forest and three patches (Figure 4.9.6) of potential Type 2 identified as dry-mesic northern forest (100 acres), mesic northern forest (152 acres) and rich conifer swamp (812 acres). Approximately 1,000 acres of potential old growth have been identified within the Deer Park management area. These stands were identified for a broad range of reasons and were coded in the Operations Inventory database as Stand Condition 8.

High conservation value areas include critical dunes/barrier dunes and the critical coastal habitat of piping plovers (Figure 4.9.5). There is a Director's Order to protect nesting shorebirds in this management area. The Two Hearted River is a state designated natural river and along with its buffer is a high conservation value area. The Two Hearted River Natural River Plan (DNR, Dec. 1973) contains specific requirements for management in this area.

Ecological reference areas in the Deer Park management area include two bog natural communities (139 and 27 acres) and an intermittent wetland (46 acres on state land) as shown in Figure 4.9.6. These ecological reference areas will be managed to enhance and protect their natural vegetative and associated wildlife communities as directed by an ecological reference area-specific management plan.

Table 4.9.2. Occurrence information for special concern, rare, threatened and endangered communities and species for the Deer Park 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
Dry northern forest		S3/G37	Confirmed				Jack Pine, Red Pine	Late
Dry-mesic northern forest		S3/G4	Confirmed				White Pine	Late
Intermittent wetland		S3/G2	Confirmed				Lowland open/semi-open	N/A
Mesic northern forest		S3/G4	Confirmed				Northern Hardwood	Late
Muskeg		S3/G4G5	Confirmed				Lowland open/semi-open	N/A
Poor conifer swamp		S4/G4	Confirmed				Tamarack	Late
Rich conifer swamp		S3/G4	Confirmed				Tamarack	Late
Birds								
Northern Goshawk	<i>Accipiter gentilis</i>	SC/G5/S3	Confirmed	PS	Very High	Mesic northern Forest	Northern Hardwood	Late
						Hardwood-conifer swamp	Lowland Mixed	Mid
						Northern hardwood swamp	Black Ash	Late
						Floodplain forest	Lowland mixed	Mid
						Dry northern forest	Jack Pine, Red Pine	Late
						Dry-mesic northern forest	White Pine	Late
						Boreal forest	Upland & Lowland Sp/F	Mid
Piping plover	<i>Charadrius melodus</i>	LE/E/G3/S1	Confirmed	MV	Moderate	Open dunes	Upland open/semi-open	N/A
Common loon	<i>Gavia immer</i>	T/G5/S3-4	Confirmed	HV	Very High	Emergent Marsh	Lowland open/semi-open	N/A
						Bog	Lowland open/semi-open	N/A
Bald eagle	<i>Haliaeetus leucocephalus</i>	SC/G5/S4	Confirmed	IL	Moderate	Bog	Lowland open/semi-open	N/A
						Hardwood-conifer swamp	Lowland Mixed	Mid
						Northern hardwood swamp	Black Ash	Late
						Poor conifer swamp	Tamarack	Late
						Floodplain forest	Lowland mixed	Mid
						Dry northern forest	Jack Pine, Red Pine	Early
						Dry-mesic northern forest	White Pine	Late
						Mesic northern Forest	Northern Hardwood	Late
Osprey	<i>Pandion haliaetus</i>	SC/G5/S2-3	Confirmed	PS	Low	Coastal fen	Lowland open/semi-open	N/A
						Northern hardwood swamp	Black Ash	Late
						Floodplain forest	Lowland Mixed	Mid
						Hardwood-conifer swamp	Lowland Mixed	Mid
Insect								
Lake Huron locust	<i>Trimerotropis huroniana</i>	T/S2S3/G2G3	Confirmed	MV	Very High	Great Lakes barrens	Upland open/semi-open	N/A
						Open dunes	Upland open/semi-open	N/A
Mollusk								
Slippershell mussel	<i>Alasmidonta viridis</i>	T/G4G5/S2S3	Confirmed	EV	Very High	Headwater Stream	Aquatic	N/A
						Mainstem streams	Aquatic	N/A
						Inland lake	Aquatic	N/A
Plants								
Douglas's hawthorn	<i>Crataegus douglasii</i>	SC/G5/S3S4	Confirmed			Volcanic bedrock glade	Upland open/semi-open	N/A
						Volcanic bedrock lakeshore	Upland open/semi-open	N/A
						Boreal forest	Upland & Lowland Sp/F	Mid
						Mesic northern forest	Northern Hardwood	Late
						Northern bald	Upland open/semi-open	N/A
						Open dunes	Upland open/semi-open	N/A
						Sand and gravel beach	Upland open/semi-open	N/A
						Sandstone bedrock lakeshore	Upland open/semi-open	N/A
						Volcanic cliff	Upland open/semi-open	N/A
						Volcanic cobble shore	Upland open/semi-open	N/A
						Volcanic lakeshore cliff	Upland open/semi-open	N/A
English sundew	<i>Drosera anglica</i>	SC/G5/S3	Confirmed			Prairie fen	Lowland open/semi-open	N/A
						Coastal fen	Lowland open/semi-open	N/A
						Patterned fen	Lowland open/semi-open	N/A
						Northern fen	Lowland open/semi-open	N/A
						Bog	Lowland open/semi-open	N/A
						Interdunal wetland	Lowland open/semi-open	N/A
						Poor fen	Lowland open/semi-open	N/A
						Volcanic bedrock lakeshore	Upland open/semi-open	N/A
						Volcanic bedrock lakeshore	Upland open/semi-open	N/A
						Wooded dune & swale complex	Upland open/semi-open	N/A
						Mesic northern forest	Northern Hardwood	Late
						Open dunes	Upland open/semi-open	N/A
						Volcanic cliff	Upland open/semi-open	N/A
Black crowberry	<i>Empetrum nigrum</i>	T/G5/S2	Confirmed			Limestone cobble shore	Upland open/semi-open	N/A
						Northern fen	Lowland open/semi-open	N/A
						Sandstone cliff	Upland open/semi-open	N/A
						Sandstone lakeshore cliff	Upland open/semi-open	N/A
						Dry northern forest	Jack Pine, Red Pine	Late
Moor rush	<i>Juncus stygius</i>	T/G5/S1S2	Confirmed			Northern fen	Lowland open/semi-open	N/A
						Patterned fen	Lowland open/semi-open	N/A
American dune wild-rye	<i>Leymus mollis</i>	SC/G5/S3	Confirmed			Open dunes	Upland open/semi-open	N/A
Auricled twayblade	<i>Listera auriculata</i>	SC/G3G4/S2S3	Confirmed			Northern shrub thicket	Upland open/semi-open	N/A
American shore-grass	<i>Littorella uniflora</i>	SC/G5/S2S3	Confirmed			Submergent marsh	Lowland open/semi-open	N/A
Northern prostrate clubmoss	<i>Lycopodiella marquetiae</i>	T/G2/S2	Confirmed			Intermittent wetland	Lowland open/semi-open	N/A
						Coastal plain marsh	Lowland open/semi-open	N/A
						Lakeplain wet prairie	Lowland open/semi-open	N/A
						Lakeplain wet mesic prairie	Lowland open/semi-open	N/A
Northern appressed clubmoss	<i>Lycopodiella subappressa</i>	SC/G2/S2	Confirmed			Intermittent wetland	Lowland open/semi-open	N/A
						Coastal plain marsh	Lowland open/semi-open	N/A
						Interdunal wetland	Lowland open/semi-open	N/A
						Lakeplain wet prairie	Lowland open/semi-open	N/A
						Lakeplain wet mesic prairie	Lowland open/semi-open	N/A
						Submergent marsh	Lowland open/semi-open	N/A
Alternate-leaved water-milfoil	<i>Myriophyllum alterniflorum</i>	SC/G5/S2S3	Confirmed			Emergent marsh	Lowland open/semi-open	N/A
						Sand and gravel beach	Upland open/semi-open	N/A
Satiny willow	<i>Salix pellita</i>	SC/G5/S2S3	Confirmed			Volcanic bedrock lakeshore	Upland open/semi-open	N/A
						Emergent marsh	Lowland open/semi-open	N/A
Fleshy stitchwort	<i>Stellaria crossifolia</i>	E/G5/S1	Confirmed			Northern shrub thicket	Upland open/semi-open	N/A
						Rich conifer swamp	Tamarack	Late
						Northern shrub thicket	Upland open/semi-open	N/A
Stitchwort	<i>Stellaria longipes</i>	SC/G5/S2S3	Confirmed			Open dunes	Upland open/semi-open	N/A
Lake Huron pansy	<i>Tanacetum huronense</i>	T/G5T4T5/S3	Confirmed			Open dunes	Upland open/semi-open	N/A
						Limestone cobble shore	Upland open/semi-open	N/A
						Wooded dune & swale complex	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.

Deer Park

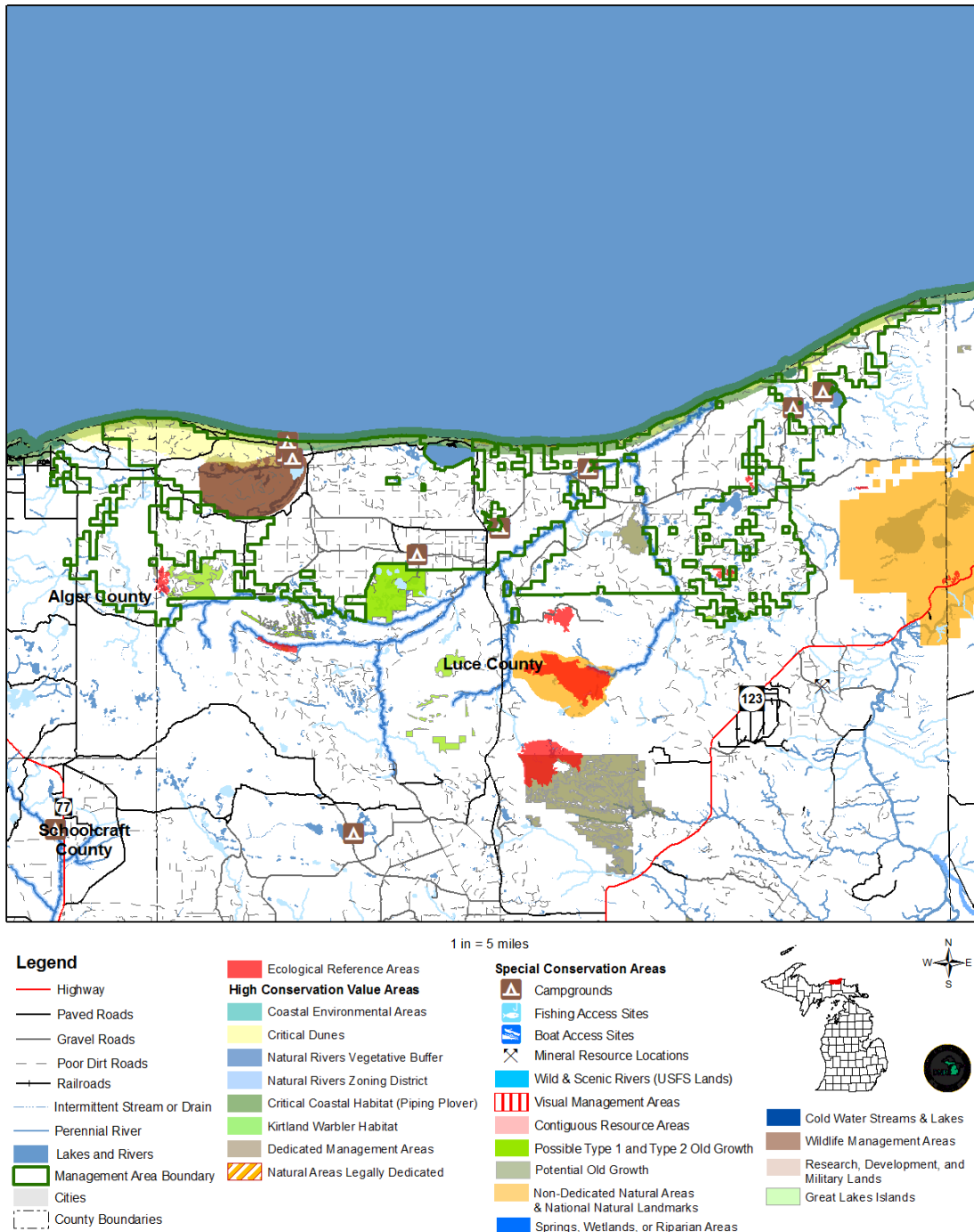


Figure 4.9.6. A map of the Deer Park management area showing special conservation areas.

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.

4.9.4 – 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:

- Red and jack pine: jack pine budworm, white grubs, red-headed pine sawfly, pine engraver and *Scleroderris* canker;
- White pine: white pine blister rust;
- Aspen: white trunk rot, *Hypoxyylon* canker; and
- Northern hardwoods: beech bark disease.

For further information on forest health, refer to Section 3.

Invasive Species

Invasive exotic species, specifically plants, may pose a significant forest health threat to forested and non-forested areas throughout the management area. The statewide database of invasive plant species does not yet document any known species or locations within or surrounding the management area. Absence of data is likely due to lack of surveys and it should not be assumed there are no species present. Monitoring efforts should specifically look for new populations of the 10 priority invasive plant species identified in Section 3 of this plan. Prescribe eradication treatments to any new populations of priority invasive plant species found in the management area.

While there are no invasive species documented in the database for this area, garlic mustard has been sighted in Muskallonge State Park.

Within this management area, there have been ongoing efforts to remove Scotch pine through timber sales and forest treatment proposals, followed by planting of native trees. Continue efforts to remove Scotch pine.

4.9.5 – Fire Management

Although these soils produce barrens communities in other parts of the state, the proximity of this area to Lake Superior produced humidity regimes and winter snows that encouraged higher forest densities. This management area is dominated by dry northern forest communities. Significant stand-replacement fires probably occurred with a frequency of 75 to 150 years.

- Prescribed fire may be used to maintain natural pine communities.
- Muskallonge Lake State Park and most of the Newberry Forest Management Unit's campgrounds are in this management area, providing numerous opportunities for targeted prevention messages.
- The Two-Hearted Zone Dispatch Plan covers most of the management area. This plan calls for aggressive initial attack, based upon current fire danger.

4.9.6 – Public Access and Recreation

Although most of the area is accessible by vehicles on gravel county roads, or sandy dirt two-track forest roads, there are large lowland areas with limited number of roads.

Recreational facilities in this management area include: the North Country National Scenic Trail and trailhead and the Bodi Lake pathway are located within this management area (Figure 4.9.1). Motorized trails include the Pine Ridge and Two-heart off-road vehicle trails and trailheads and several snowmobile trails (Figure 4.9.1).

Additional recreational facilities include: State forest campgrounds (Figure 4.9.3) include Bodi Lake, Culhane Lake, Highbridge, Holland Lake, Mouth of the Two-Hearted River, Reed and Green, Pike Lake, Perch Lake, Headquarters Lake, Lake Superior and Blind Sucker 1 and 2. The Headquarters Lake State Forest Campground, which has been closed since 2008, is also within this management area. Boating access sites (Figure 4.9.3) include Bodi Lake, Blind Sucker No.1 and No.2, Perch Lake, Mouth of Two Hearted River, Culhane Lake and Little Lake Harbor.

Bear hunting, trapping of furbearing species, canoeing, kayaking and wildlife viewing are popular in this management area. There are many areas that are popular for dispersed camping, especially along the Sucker River in fishing and hunting (deer, bear) seasons.

4.8.7 – 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 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. High priority trout streams in this management area are shown in the Integrated Forest Monitoring Assessment and Prescription Geographic Decision Support Environment and in Figure 4.9.1.

4.9.8 – Minerals

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

The Cambrian Trempealeau Formation and Munising Group and Precambrian Jacobsville Sandstone subcrop below the glacial drift. The Trempealeau Formation could be quarried for stone.

Exploration and development for oil and gas has been limited to a few wells drilled in the Upper Peninsula (two in Luce and one mineral well in Alger). 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.