4.11 Cyr Swamp Management Area

Summary of Use and Management

Vegetative management in the Cyr Swamp management area (MA) (Figure 4.11.1) 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 opportunities are limited due to the wet, lowland conditions in this area. Wildlife management objectives include maintaining an unfragmented, mature forest condition. Management activities will be constrained by site conditions. Insect and disease problems may become important issues in this 10-year planning period.

Introduction

The Cyr Swamp management area is mostly on a Swamp landform in Southeastern Marquette County. The state forest covers 9,358 acres and is mostly contiguous. State forest lands are the major ownership in this vicinity. The management area is dominated by lowland conifer, cedar, and lowland spruce/fir cover types. Other attributes that played a role in the definition of this management area include:

- Dominated by poor conifer swamp natural community;
- Low-range in site quality; and
- Few roads make it mostly inaccessible;

The management priority for this area is to maintain and develop the unfragmented old forest character of this area. Timber management will be limited.

The predominant cover types, composition and projected harvest areas for the Cyr Swamp management area are shown in Table 4.11.1.

Table 4.11.1. Summary of cover types, composition, limited factor area, manageable area and projected harvest area for the Cyr Swamp management area (2012 Department of Natural Resources inventory data).

Cover Type	Cover %	Current Acreage	Hard Factor Limited Acres	Manageable Acres	10 Year Projected Harvest (Acres		Projected Acreage in 10 Years	Desired Future Harvest (Acres)	
					Final Harvest	Partial Harvest		Final Harvest	Partial Harvest
Lowland Conifers	18%	1,706	1,122	584	45	0	1,706	45	0
Cedar	17%	1,620	42	1578	0	0	1,620	99	0
Lowland Spruce/Fir	7%	677	445	232	74	0	677	21	0
Aspen	7%	623	46	577	193	0	623	96	0
Northern Hardwood	6%	564	0	564	0	282	564	0	282
Upland Open/Semi-Open Lands	1%	61	0	61	0	0	61	0	0
Lowland Open/Semi-Open Lands	35%	3,278	0	3278	0	0	3,278	0	0
Misc Other (Water, Local, Urban)	0%	8	0	8	0	0	8	0	0
Others	9%	821	79	742	256	141	821	79	163
Total		9,358	1,734	7,624	568	423	9,358	340	445

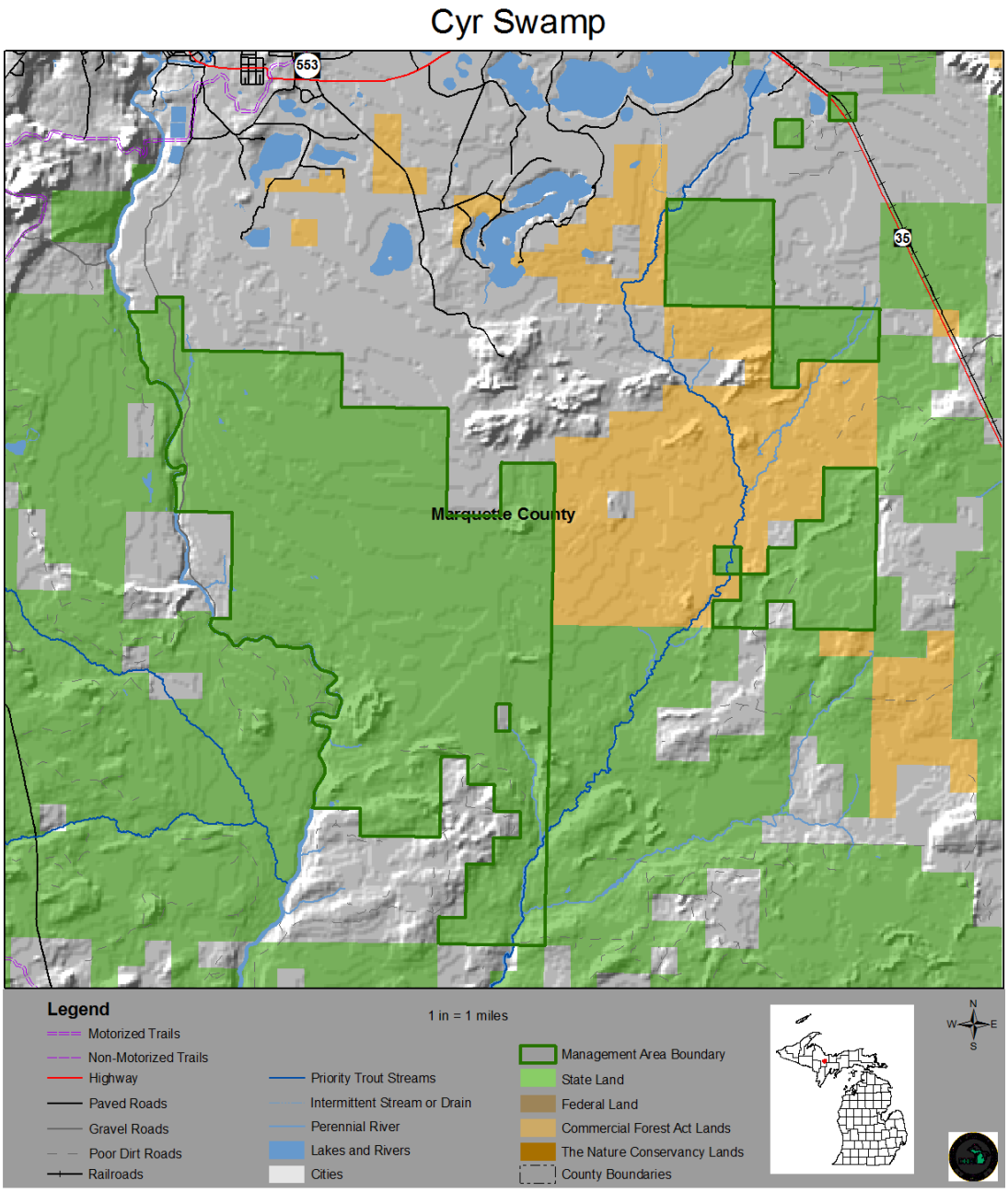

Figure 4.11.1. A map of the Cyr Swamp management area (dark green boundary) in relation to surrounding state forest and other lands) and other ownerships (light gray).

4.11.1 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 Cyr Swamp 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.

Lowland Conifers Cover Type

Current Condition

Lowland conifers occur on 1,706 acres (18%) of the management area (Table 4.11.1). This cover type is found on poorly drained sites supporting mixed stands of cedar, black spruce, tamarack, balsam fir, white birch and balsam poplar. There are 1,122 acres that have factor limits due to wet conditions or for riparian corridors. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations. Due to the wet site conditions, they are more susceptible to rutting damage from logging equipment and present difficult operating conditions for harvesting. Mixed lowland conifers are poorly distributed across the age-class distribution (Figure 4.11.2). Most of the stands are over 60 years of age. Little harvesting has been done in this type over the past 60 years.

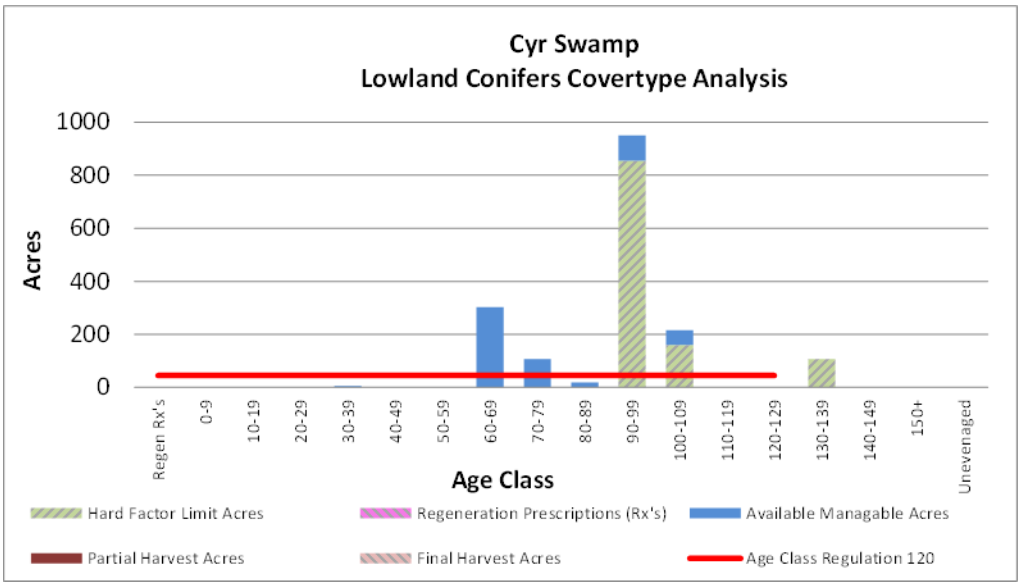

Figure 4.11.2. Graph of the age-class structure for the lowland conifer cover type on the Cyr Swamp management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Closed canopy stands interspersed with patches of all age classes;
- Sustainable regeneration and recruitment of seedlings and saplings;
- Maintain the closed canopy structure to provide important winter deer habitat; and
- Plan to harvest the oldest available stands to regenerate them before widespread mortality occurs.

Long-Term Management Objectives

- Manage stands on a 120-year rotation allowing for approximately 45 acres for harvest each decade;
- Regenerate stands to species mixes similar to the pre-harvest conditions preferring cedar, hemlock, black spruce and balsam fir; and
- Harvesting will be done using small clearcuts or strips with clumped retention.

10-Year Management Objectives

- Harvest about 45 acres over the next decade focusing on the use of “low impact” harvesting systems and successful, reliable regeneration techniques.

Cedar Cover Type

Current Condition

Cedar occurs on 1,620 acres (17%) of the management area (Table 4.11.1). Poorly drained sites supporting stands of mostly cedar mixed with black spruce, tamarack, balsam fir, characterize the cedar type. Due to the wet site conditions, they are more susceptible to rutting damage from logging equipment and present difficult operating conditions for harvesting. Cedar types are poorly distributed across the age-class distribution (Figure 4.11.3). All of the stands are over 80 years of age. Regeneration of cedar stands has been problematic in areas with high deer concentration. Currently there are 42 acres of cedar that have factors limiting harvest. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations.

Although there will be no harvesting of cedar within deer wintering complexes, there is a need to address future cedar cover. Limited cedar harvests will occur outside the wintering complexes recognizing that cedar takes many years to regenerate and escape deer browsing. Reliable and timely regeneration of cedar is a concern from both wildlife and forest management perspectives.

Desired Future Condition

- Closed canopy stands interspersed with patches of all age classes;
- Sustainable regeneration and recruitment of cedar seedlings and saplings; and
- Maintain the closed canopy (>70%) structure in many cedar stands for winter deer habitat.

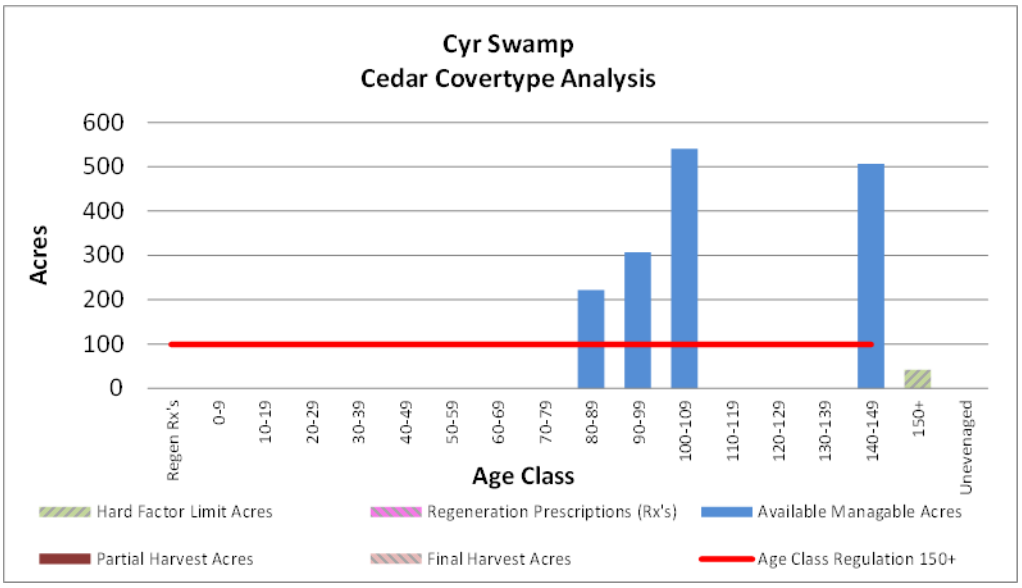

Figure 4.11.3. Graph of the age-class structure for the cedar cover type on the Cyr Swamp management area (2012 Department of Natural Resources inventory data).

Long-Term Management Objective

- Maintain cedar cover type on the landscape.

10-Year Management Objective

- While no harvests are planned for this area in the next decade, limited harvesting may occur to test methods of cedar regeneration.

Lowland Spruce-Fir Cover Type

Current Condition

Currently there are 677 acres (7%) of the lowland spruce-fir cover type in the management area (Table 4.11.1). Lowland spruce-fir is often found in association with lowland conifer, cedar and tamarack cover types. Lowland spruce-fir in this management area does not have a well-balanced age-class distribution with a spike in the 90-99 age class (Figure

4.11.4). There has been no recent harvesting in this cover type. There are 445 acres of lowland spruce/fir that have factors limiting harvest at this time. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations.

Desired Future Condition

- Maintain approximately the current level of lowland spruce-fir cover type with stands representing a variety of age classes.

Long-Term Management Objective

- Regenerate lowland spruce-fir cover types on a 100-year rotation allowing for 21 acres to be harvested each decade; and
- Promote longer rotations in special conservation areas.

10-Year Management Objectives

- Harvest 74 acres in the next decade (this number is higher than the regulated harvest amount due to the current age-class structure where there are no stands less than 70 years old); and
- More aggressive harvesting in this type maybe needed in this 10-year planning period to reduce mortality losses in the older stands.

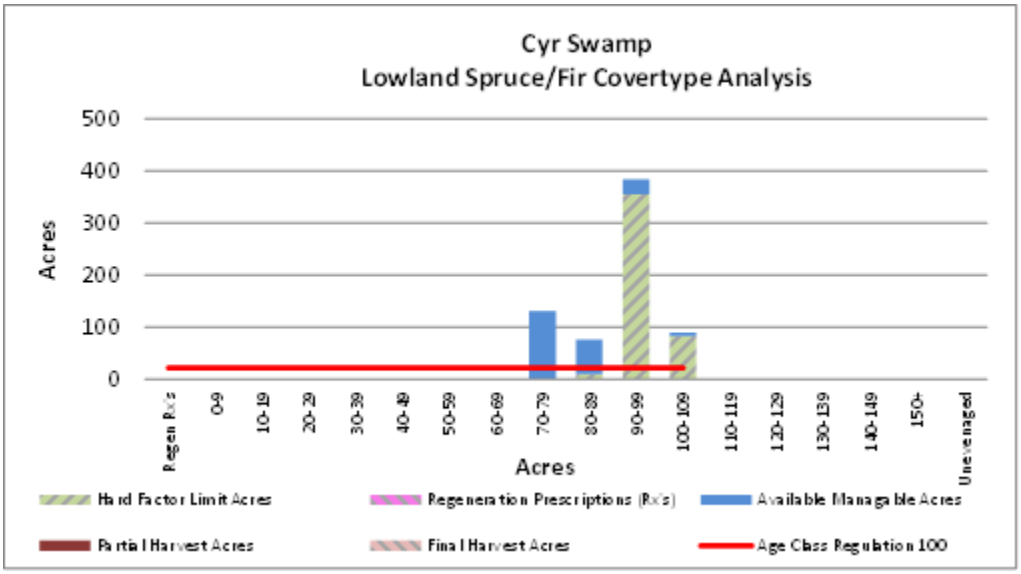

Figure 4.11.4. Graph of the age-class structure for the lowland spruce-fir cover type on the Cyr Swamp management area (2012 Department of Natural Resources inventory data).

Aspen Cover Type

Current Condition

About 623 acres (seven percent) of state forest land in this management area are in the aspen cover type (Table 4.11.1). Aspen is distributed across many age classes, though there are no acres less than 10 years of age. There are 46 acres of aspen that have limiting factors preventing harvest at this time. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations.

Desired Future Condition

- Provide a supply of forest products;
- Provide a mix of habitat conditions for a variety of wildlife; and
- Provide a variety of hunting-type opportunities.

Long-Term Management Objectives

- Harvest and regenerate aspen stands using a 50-year rotation length allowing for 96 acres to be harvested per decade.

10-Year Management Objectives

- Over this 10-year planning period, regenerate 193 acres of aspen;
- Two-aged stands with mature aspen over younger stands should be identified and scheduled for harvest; and
- Maintain mature large-tooth aspen if present as retention, because these softwood trees are longer lived, provide opportunities for woodpecker species and other cavity nesters and generally provide forked/bowl shaped crowns that provide nesting sites for raptors.

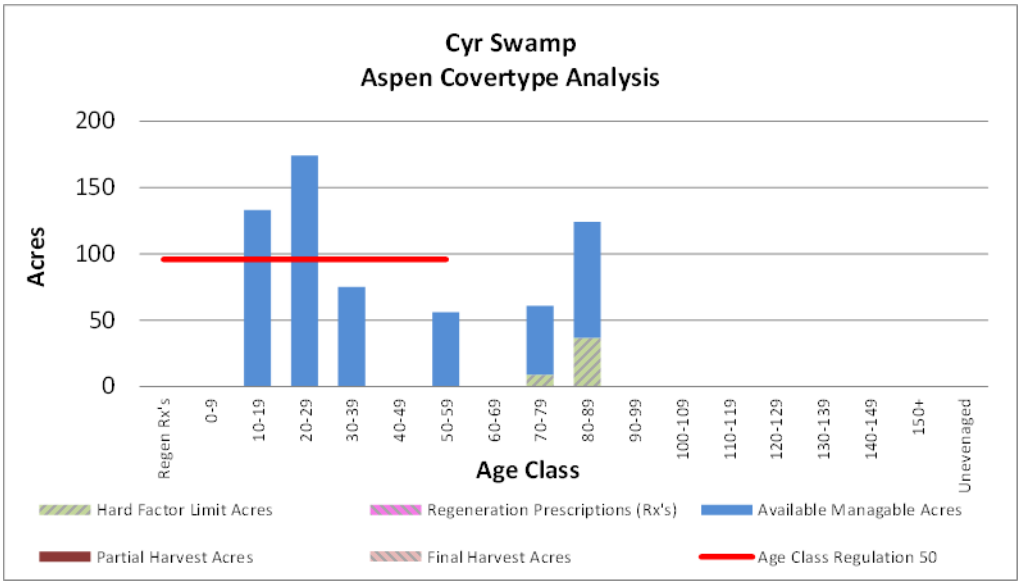

Figure 4.11.5. Graph of the age-class structure for the aspen cover type on the Cyr Swamp management area (2012 Department of Natural Resources inventory data).

Northern Hardwoods Cover Type

Current Condition

Northern hardwood stands make up 564 acres (six percent) of state forest land in this management area (Table 4.11.1). They occur on low-quality sugar maple sites mixed with wetland sites. Most stands have been managed using the selection harvest system. Northern hardwood is typically managed using an uneven-aged harvest system based on basal area rather than age (Figure 4.11.6). There are a large number of acres with no basal area coded. This is because on-site visits are not currently possible due to poor access. If access improves, basal area will be coded and used in analysis.

Desired Future Condition

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

Long-Term Management Objectives

- Selectively harvest northern hardwood stands on a 20-year cycle; and
- Maintain and encourage minor species to increase within-stand diversity.

10-Year Management Objectives

- Selectively harvest 282 acres in this 10-year planning period;
- Maintain and promote white pine, oak, hemlock and upland cedar where they occur in stands that are harvested, favor oak if present for retention; and
- Work to regenerate hemlock components in stands lacking that species.

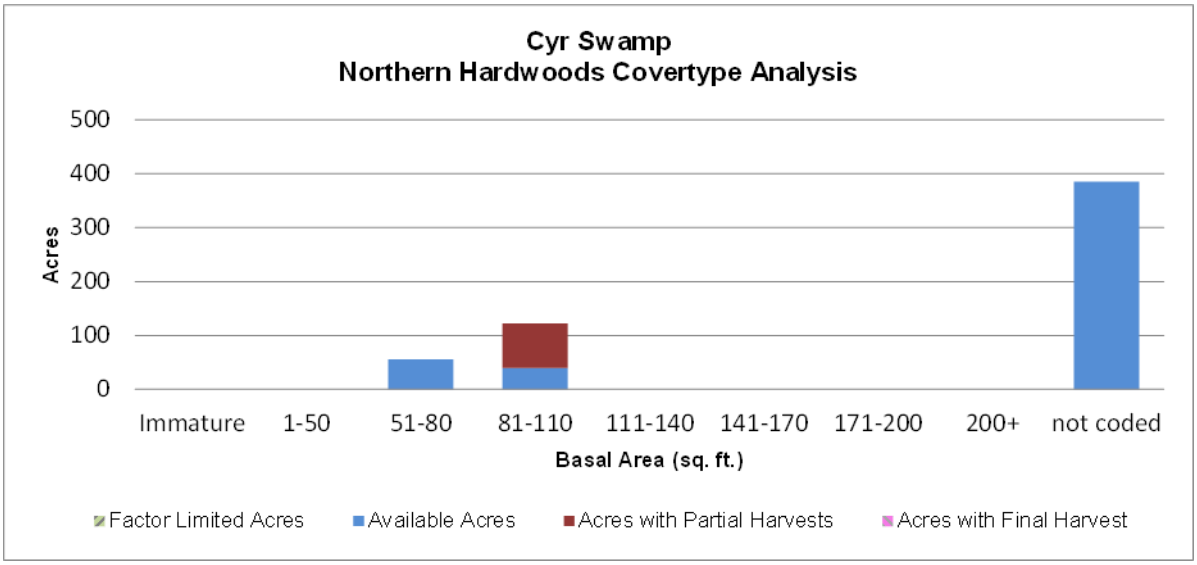

Figure 4.11.6. Graph of the basal area distribution for the northern hardwood cover type on the Cyr Swamp management area (2012 Department of Natural Resources inventory data).

Other Forested Cover Types

Current Condition

Other forested types make up 821 acres and consist of jack pine (203 acres), lowland mixed forest (127 acres), upland conifer (112 acres), natural mixed pines (103 acres), upland mixed forest (93 acres), upland spruce/fir (47 acres), hemlock (46 acres), white pine (44 acres), red pine (41 acres) and paper birch (five acres). Together these types make up about nine percent of the management area (Table 4.11.1).

Approximately 79 acres of these other minor cover types have site conditions limiting their harvest this decade. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations.

Desired Future Condition

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

Long-Term Management Objectives

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

10-Year Management Objectives

- Harvest those stands without harvest limitations adjacent to other planned harvest activities and where stand and habitat conditions indicate that harvesting is appropriate; and
- The ten-year projected final harvest of these types is 256 acres and the projected partial harvest is 141 acres.

Other Non-forested Cover Types

Current Condition

The follow non-forested cover types are found on this management area: upland open/semi- open lands (61 acres – 1%), lowland open/semi-open lands (3,278 acres – 35%) and other (water, local, urban) (eight acres - >1%) (Table 4.11.1).

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.

4.11.2 – Featured Wildlife Species Management

Cyr Swamp is the largest swamp in the western Upper Peninsula associated with state forest lands. The state forest portion of the swamp is about 9,200 acres (mostly contiguous). The management area has few roads and is mostly inaccessible. The management priority for this area is to maintain the unfragmented, mature forest condition of this management area. The primary wildlife focus in the Cyr Swamp management area will be to address the habitat requirements identified for the listed featured species, which include: red-shouldered hawk, spruce grouse and white-tailed deer. Based on the selected featured species, some of the most significant wildlife management issues in the management area are coarse woody debris, mature forest and mast. During this 10-year planning period, additional analyses to better define the spatial extent of priority areas (e.g., large contiguous blocks of suitable habitat for red-shouldered hawks) for featured species will be performed.

Red-shouldered Hawk

The goal for red-shouldered hawk is to maintain or improve suitable habitat in the ecoregion. Management activities should focus on the maintenance of large blocks of mesic northern forest with the appropriate level of large diameter trees in priority landscapes.

Wildlife habitat specifications:

- All known woodland raptor nests should be reported to local wildlife staff and included in the Integrated Forest Monitoring Assessment and Prescription Geographic Decision Support Environment. Confirmed red-shouldered hawk nests are to be documented in accordance with the “DNR’s Approach to the Protection of Rare Species on State Forest Lands” (IC4172) and included in the Integrated Forest Monitoring Assessment and Prescription Geographic Decision Support Environment. For red-shouldered hawks, the wildlife habitat specifications contained within Michigan DNR’s *Interim Management Guidelines 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.

Spruce Grouse

The western Upper Peninsula goal for spruce grouse is to maintain or improve habitat. Management will focus on early successional forest (jack pine, mixed swamp conifer, tag alder and aspen), coarse woody debris and encouraging conifer (e.g., jack pine, mixed swamp conifer) understory component.

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. This is especially important in management areas where Kirtland's warbler also is a featured species.
- Ensure black spruce recruitment and regeneration is reliable if harvesting in this cover type. Regeneration monitoring should be required to ensure we are getting desired results from management.

White-tailed Deer

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

<u>Wildlife habitat specifications for deer wintering complexes:</u>

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

4.11.3 –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 five listed species and no natural communities of note occurring in the management area as listed in Table 4.11.2. 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.

Approximately 1,322.4 acres of potential old growth have been identified within the Cyr Swamp management area. These stands were identified for a broad range of reasons and were coded in the Operations Inventory database as Stand Condition 8. These stands area also special conservation areas until they are evaluated.

There are no high conservation value areas or ecological reference areas identified in this management area as illustrated in Figure 4.11.7.

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.

Table 4.11.2. Occurrence information for special concern, rare, threatened and endangered communities and species for the Cyr Swamp 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								
Poor fen		S3/G3	Confirmed				Lowland open/semi-open	N/A
Birds								
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
Mammal								
Tri-colored bat (Eastern pipistrelle)	*Perimyotis subflavus*	SC/G5/S2S3	Confirmed	PS	Very High	Caves	Caves	N/A
Plants								
Dwarf raspberry	*Rubus acaulis*	E/G5T5/S1	Confirmed			Northern fen	Lowland open/semi-open	N/A
						Patterned fen	Lowland open/semi-open	N/A
						Poor fen	Lowland 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.

4.11.4 – 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, eastern larch beetle and larch casebearer.

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. There are no known occurrences of species of concern that been documented in or near this management area.

4.11.5 – 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.

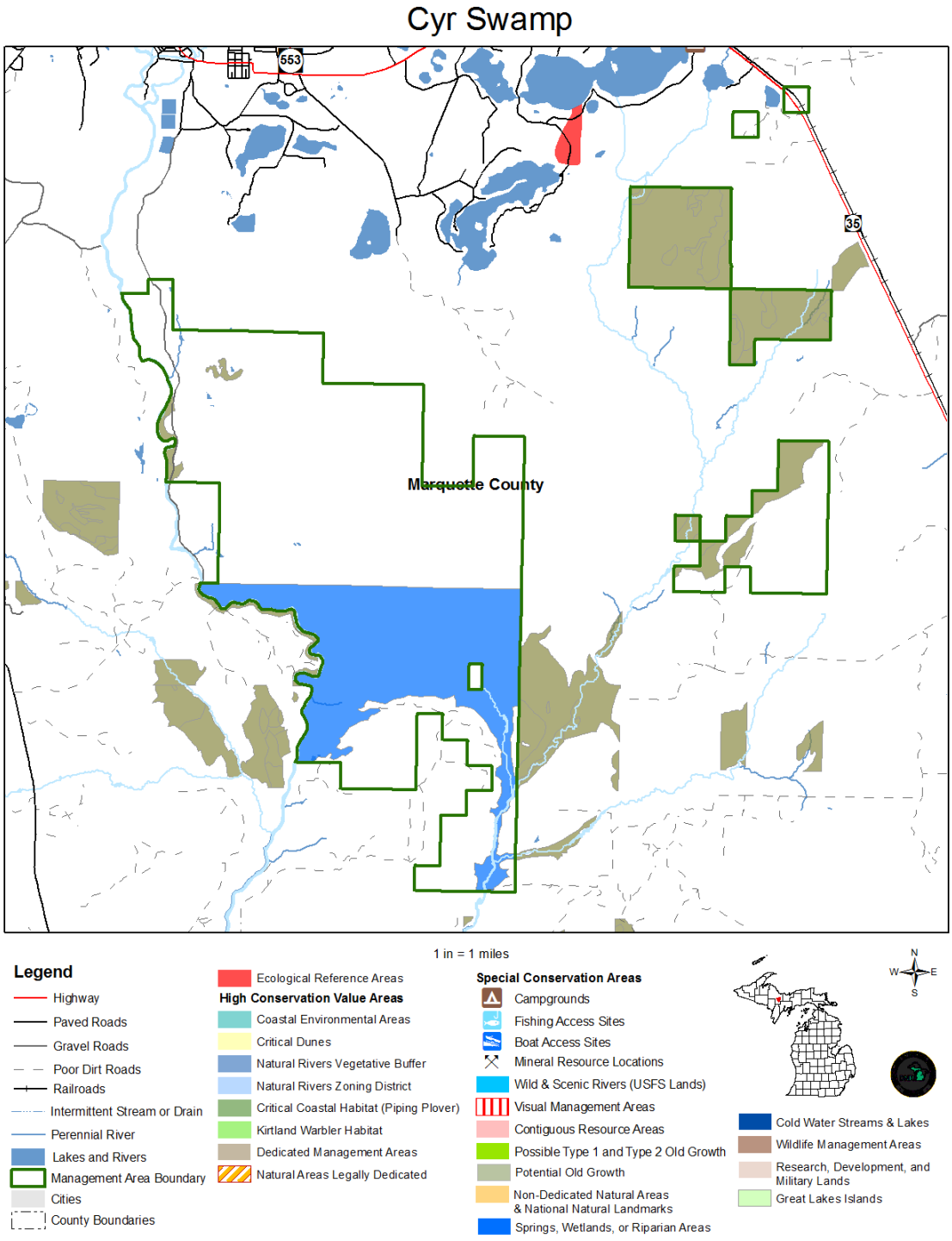

Figure 4.11.7. A map of the Cyr Swamp management area showing the special resource areas.

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 shown in Figure 4.11.1.

4.11.6 – Fire Management

Much of this area, being wetland, is of uncertain fire frequency, areas adjacent to high-risk upland fuels, such as jack pine, probably burned more frequently. Sites dominated by northern white cedar and hardwood islands probably will probably not be significantly impacted by wildland fire. Black spruce treed bogs and marshes may be more receptive to fire ignition and spread with lower water levels.

- All wildfires within the management area should be subject to appropriate initial attack response; and
- Work to develop modified suppression strategies for fires that are ignited in this area, based anticipated weather and interests of adjacent private landowners.

4.11.7 – Public Access and Recreation

This area has limited public and management access. No recreational facilities are located on state forest lands in this area.

- Work to improve the current road system to best management practice standards.

4.11.8 – 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 and no economic oil and gas production has been found anywhere in the Upper Peninsula.

Surface sediments consist primarily of peat and muck. There is insufficient data to determine the glacial drift thickness. Sand and gravel pits are not located in the management area and there is limited potential.

The Ordovician Prairie du Chien Group, the Cambrian Trempealeau Formation and Munising Group and Precambrian Oak Bluff Formation subcrop below the glacial drift. There is not a current economic use for these formations.

Old iron mines are located just to the north of the management area. Metallic mineral exploration is not known to have occurred in the management area in the past, but there could be metallic mineral potential in the future.