

4.18 MA 18 – Kinross Bog Management Area

Summary of Use and Management

Vegetative management in the Kinross Bog management area (MA) (Figure 4.18.1) will maintain or enhance wildlife habitat; protect areas of threatened, endangered and special concern species; provide for forest based recreational activities; and provide timber products. Timber management for this 10-year planning period will focus on improving the age-class structure of aspen, black spruce, mixed conifers and jack pine by harvesting older age classes where accessible. Wildlife habitat management objectives will focus on maintaining or enhancing the deer wintering area and perpetuating early-successional communities for species adapted to young forests. Expected issues within this 10-year planning period are introduced pests and diseases and introduction and spread of invasive species.

Introduction

The Kinross Bog management area is located in the east-central part of the eastern Upper Peninsula, in Chippewa County. It has 15,609 acres of state-owned land. The primary attribute is wildlife habitat. Additional attributes which were important in identifying this management area include:

- The management area falls within the Niagaran Escarpment and Lake Plain subsection 8.1 of the eastern Upper Peninsula ecoregion (Albert, 1995).
- The primary landform consists of lacustrine sand and gravel with areas of lacustrine clay and silt or broad clay lake plain.
- This is a basin in the Chippewa County landscape containing conifer dominated lowlands. The large coniferous bog, marsh and lowland shrub areas provide unique habitats for plants and animals.
- Recreational opportunities include: snowmobiling, bird watching, fishing and hunting.
- Special features including a special conservation area deer wintering area.

The state land in this management area is fairly concentrated into two blocks surrounding the old Air Force base and the Kincheloe Highlands management area with private parcels interspersed within. The Kinross Bog management area is within the Sault Forest Management Unit. The predominant cover types, acreages and projected harvest acres for the management area are shown in Table 4.18.1.

Table 4.18.1. Current cover types, acreages, projected harvest acres and projected ten-year cover type acreage for the Kinross Bog 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 |
| Lowland Open/Semi-Open Lands | 28% | 4,302 | 0 | 4,302 | 0 | 0 | 4,302 | 0 | 0 |
| Lowland Spruce/Fir | 17% | 2,731 | 547 | 2,184 | 243 | 0 | 2,731 | 243 | 0 |
| Aspen | 16% | 2,436 | 73 | 2,363 | 76 | 0 | 2,436 | 394 | 0 |
| Lowland Conifers | 10% | 1,483 | 175 | 1,308 | 145 | 0 | 1,483 | 145 | 0 |
| Cedar | 5% | 709 | 0 | 709 | 20 | 0 | 709 | 44 | 0 |
| Lowland Deciduous | 4% | 656 | 73 | 583 | 65 | 0 | 656 | 65 | 0 |
| Tamarack | 4% | 617 | 379 | 238 | 30 | 0 | 617 | 34 | 0 |
| Jack Pine | 4% | 564 | 74 | 490 | 0 | 0 | 564 | 70 | 0 |
| Upland Open/Semi-Open Lands | 1% | 159 | 0 | 159 | 0 | 0 | 159 | 0 | 0 |
| Misc Other (Water, Local, Urban) | 2% | 290 | 0 | 290 | 0 | 0 | 290 | 0 | 0 |
| Others | 11% | 1,662 | 282 | 1,380 | 145 | 231 | 1,662 | 155 | 247 |
| Total | 100% | 15,609 | 1,604 | 14,005 | 724 | 231 | 15,609 | 1,150 | 247 |

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

Kinross Bog

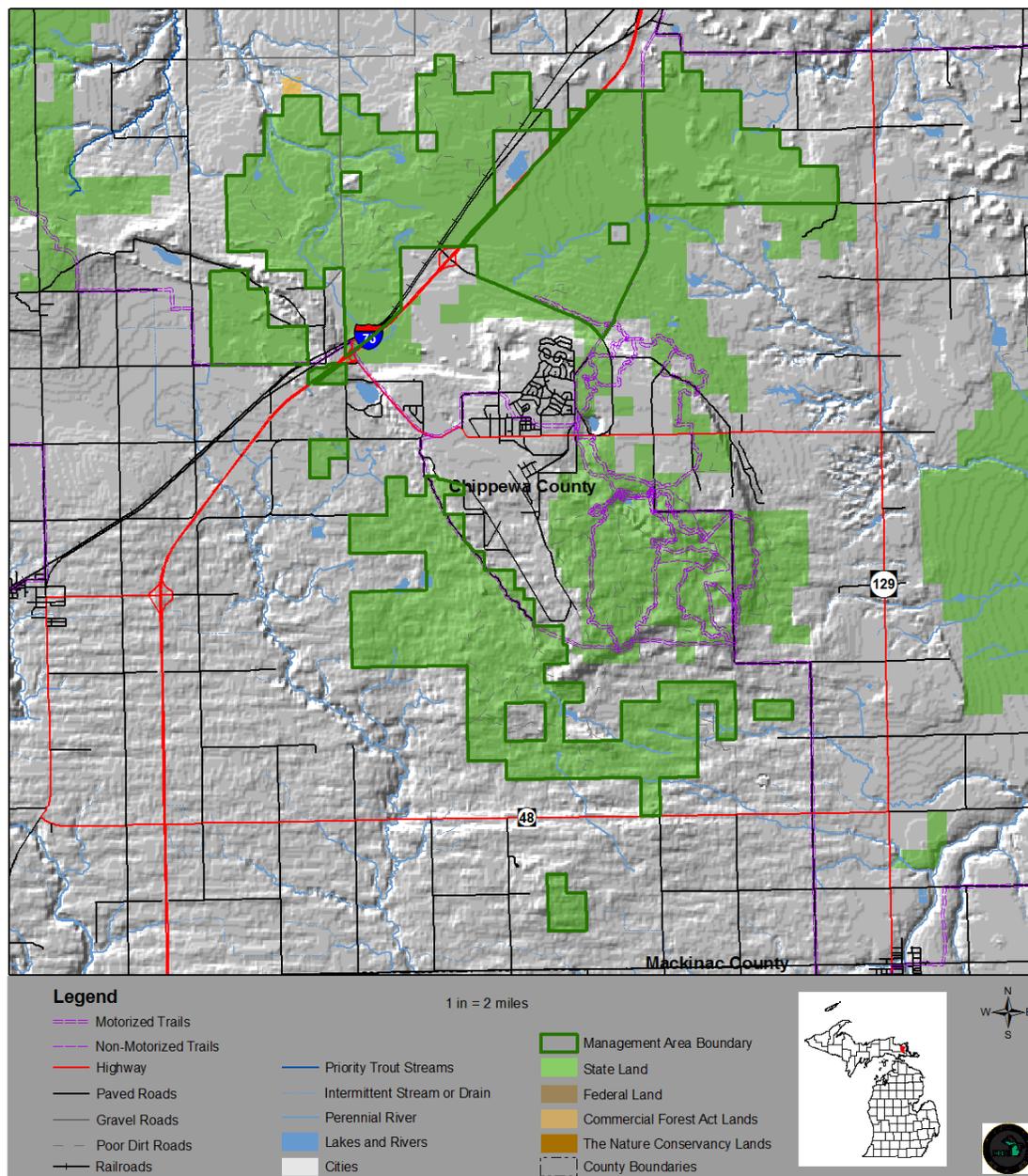


Figure 4.18.1. Location of the Kinross Bog management area (dark green boundary) in relation to the surrounding state forest lands, other ownerships and the former Kincheloe Air Force Base.

4.18.1 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 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 4.18.1.1 Forest Cover Type Management – Lowland Open/Semi-Open Lands

Current Condition

Lowland open/semi-open lands occur on 4,302 acres (28%) (Table 4.18.1). This category is a combination of lowland shrub (2,634 acres), marsh (1,467 acres), treed bog (134 acres) and bog (67 acres). These cover types function ecologically as sources of habitat for numerous species of wildlife. These stands are found in association with creeks, rivers and lowland forested stands. Some of these stands fall within the special conservation area deer wintering area. The large percentage of acres within these and other lowland cover types is what distinguishes this management area and makes access difficult.

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 and to protect the special conservation area values found in these cover types.

Long-Term Management Objectives

- Continue to maintain this habitat type for wildlife and other ecological concerns by allowing natural processes to occur.

Section 4.18.1.2 Forest Cover Type Management – Lowland Spruce/Fir

Current Condition

Lowland spruce/fir stands are found on 2,731 acres (17%) of the management area (Table 4.18.1). Lowland spruce/fir stands have been successfully harvested and regenerated through natural regeneration resulting in a range of age classes (Figure 4.18.2).

Currently there are 804 acres with a final harvest prescribed. There are 547 acres of lowland spruce/fir that have site conditions limiting their harvest this entry period. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations. Inaccessible stands of lowland spruce/fir will remain until biological maturity and will be subject to natural processes resulting in a range of successional stages.

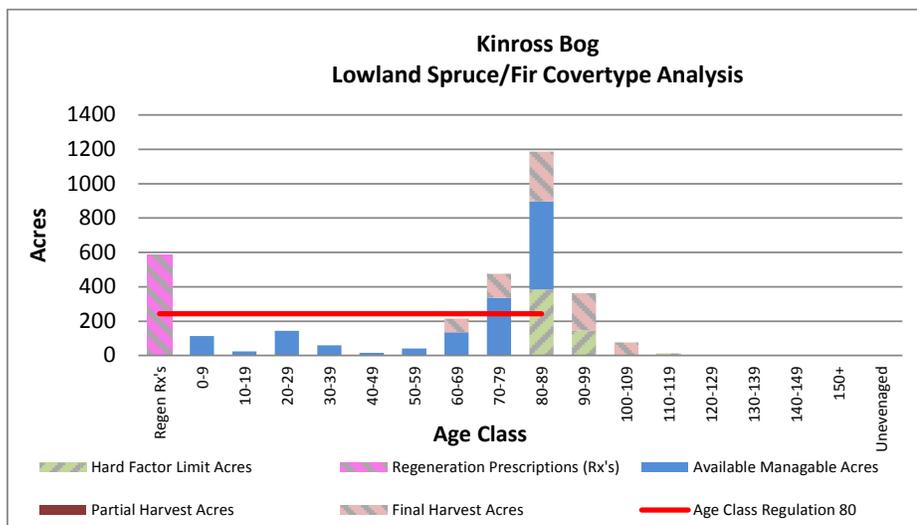


Figure 4.18.2. Age-class distribution of lowland spruce/fir in the Kinross Bog management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Lowland spruce/fir will be maintained on operable sites through even-aged management with acres balanced between 0-89 years of age to provide for regulated harvest, wildlife habitat and recreational opportunities.

10-Year Management Objectives

- The 10-year projected final harvest is 243 acres to work toward balancing the age classes.

Long-Term Management Objectives

- Balance the age classes of available lowland spruce/fir providing for a regulated harvest of approximately 243 acres each decade (red line in Figure 4.18.2).

Section 4.18.1.3 Forest Cover Type Management – Aspen

Current Condition

Aspen occurs on 2,436 acres (16%) of the management area (Table 4.18.1). Aspen stands are distributed throughout the management area on a range of sites from dry-poor nutrient to mesic-medium nutrient with Kotar habitat types of PARVAa, PARv, ATFD and AFPo (See appendix E). Aspen has been consistently harvested and regenerated in the past with the greatest harvest activity occurring within the last 30 years (Figure 4.18.3).

There are currently 523 acres that have a final harvest prescribed. There are 73 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. Inaccessible stands of aspen will succeed to more shade tolerant species.

Desired Future Condition

- Aspen will be maintained on operable sites through even-aged management balancing acres between 0-59 years of age to provide for regulated harvest, wildlife habitat and recreational opportunities.

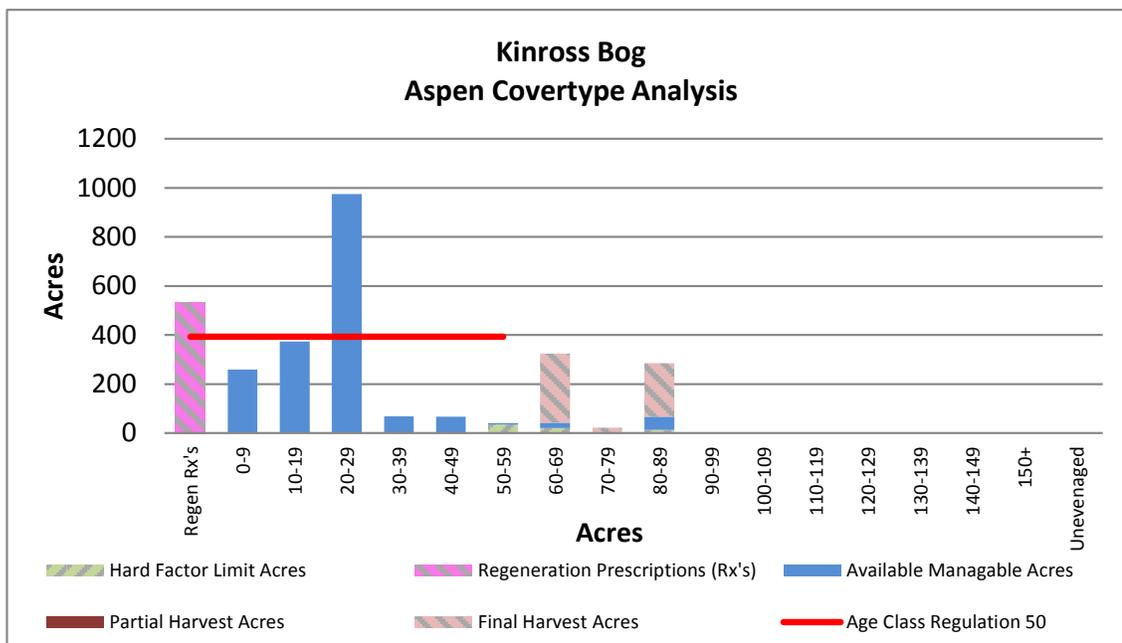


Figure 4.18.3. Age-class distribution of aspen in the Kinross Bog management area (2012 Department of Natural Resources inventory data).

10-Year Management Objectives

- The 10-year projected final harvest is 76 acres of aspen. This is significantly lower than the regulated amount due to the current age-class structure where there are a high number of acres in the regeneration prescriptions column.

Long-Term Management Objectives

- Balance the age-class distribution of accessible aspen stands providing for a regulated harvest of approximately 394 acres per decade.

Section 4.18.1.4 Forest Cover Type Management – Lowland Conifer

Current Condition

Lowland conifer stands occur on 1,483 acres (10%) of the management area (Table 4.18.1). Some of these stands are within the deer wintering special conservation area. Lowland conifer stands in this area have been successfully harvested and regenerated with natural regeneration (Figure 4.18.4). A small portion of the lowland conifer stands have been classified as uneven-aged, having trees of varying ages and sizes as a result of natural processes. Access to many of the lowland conifer stands in the management area is limited due to rivers, streams and lack of roads in adjacent wetland cover types.

Currently there are 19 acres with a final harvest prescribed. There are 219 acres prescribed in other cover types that are expected to convert to lowland conifers following harvest. These acres are shown in Figure 4.18.4 in the regeneration prescriptions column. There are 175 acres of lowland conifers that have site conditions limiting their harvest. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations. Lowland conifer stands in areas inaccessible for harvest will be subject to natural processes resulting in a range of successional stages.

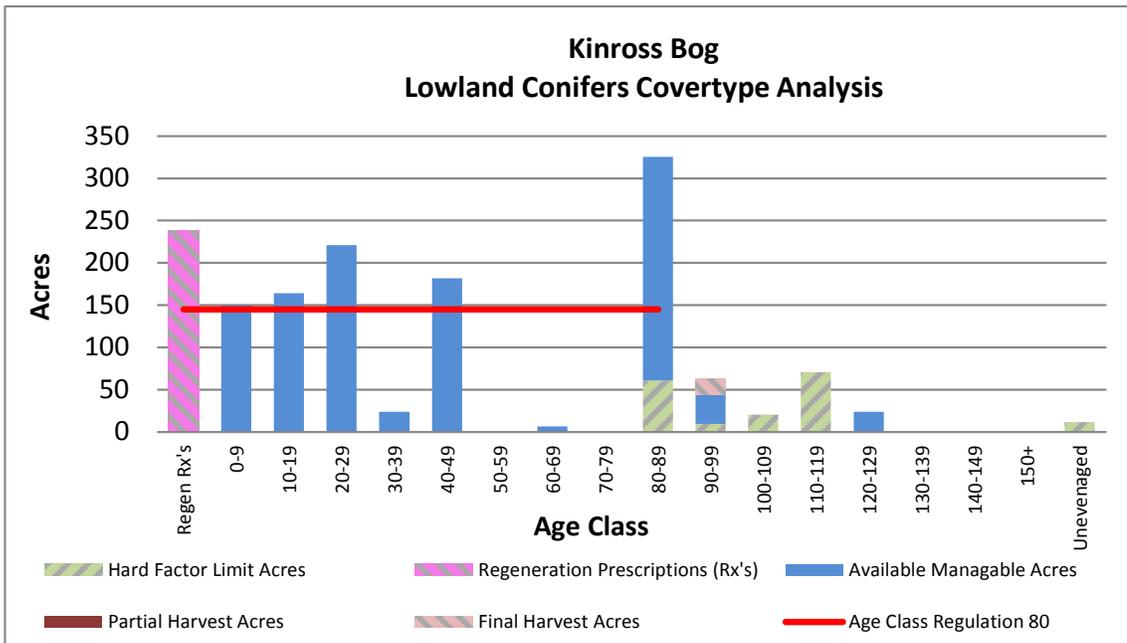


Figure 4.18.4. Age-class distribution of lowland conifers in the Kinross Bog management area (2012 Department of Natural Resources inventory data).

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, wildlife habitat and recreational opportunities.

10-Year Management Objectives

- The 10-year projected final harvest is 145 acres of lowland conifers to continue work toward balancing the age classes.

Long-Term Management Objectives

- Balance the age-class structure of accessible lowland conifer stands providing for a regulated harvest of approximately 145 acres every decade.

Section 4.18.1.5 Forest Cover Type Management – Cedar

Current Condition

Cedar stands occur on 709 acres (5%) of the management area (Table 4.18.1). Some of these stands are within a deer wintering area special conservation area. Within the deer wintering areas, manage for closed canopy habitat. There has not been any recent harvesting and regeneration of this cover type (Figure 4.18.5).

There is a need to address future cedar cover within the deer wintering complexes. Limited cedar harvests will occur outside the wintering complexes recognizing that cedar may take many years to regenerate. Reliable and timely regeneration of cedar is a concern from both wildlife and forest management perspectives.

At this time, there no cedar stands scheduled for final harvest. There are no stands with site conditions limiting harvest. Cedar stands in inaccessible areas will be subject to natural processes resulting in a range of successional stages.

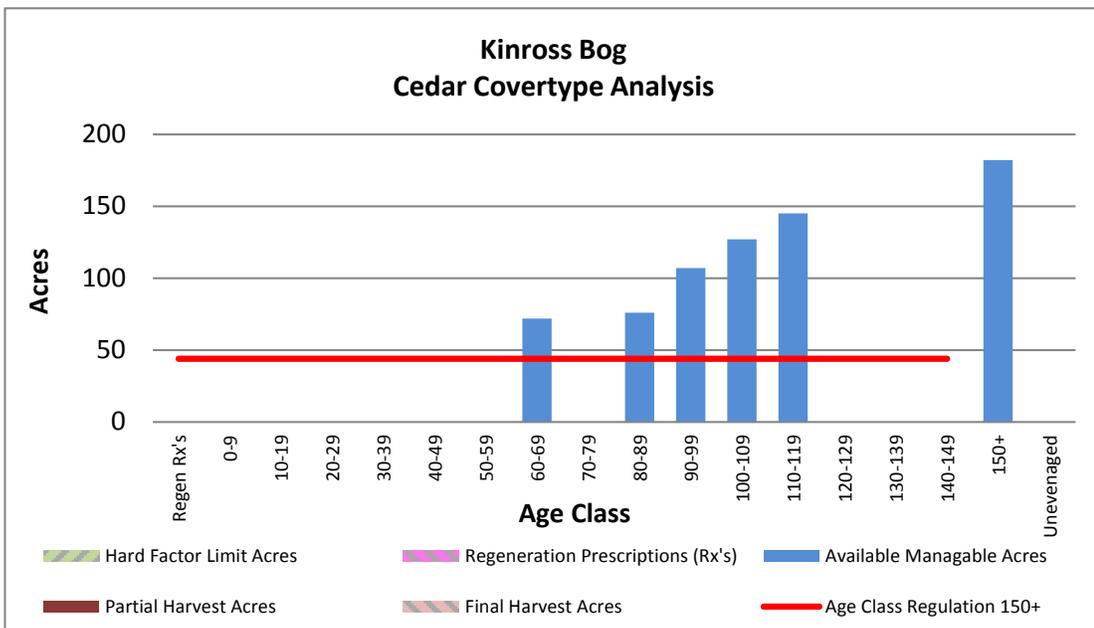


Figure 4.18.5 Age-class distribution of cedar in the Kinross Bog management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Outside the deer wintering areas cedar stands will be maintained on operable sites through even-aged management using a 150-year rotation age providing for continual harvesting, wildlife habitat and recreational opportunities.

10-Year Management Objectives

- The 10-year projected final harvest is 20 acres of cedar. However, harvest of this type, if it occurs, may vary widely from the projected harvest in order to meet the long-term management objectives.
- Ensure that cedar and/or hemlock recruitment/regeneration is reliable if harvesting in this cover type.

Long-Term Management Objectives

- In accessible areas outside the deer wintering areas balance the age-class structure providing for a regulated harvest of approximately 44 acres per decade; and
- Within deer wintering complexes focus cedar management on winter habitat for deer.

Section 4.18.1.6 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 management area acres (Table 4.18.1). Lowland deciduous (656 acres), tamarack (617 acres) and jack pine (564 acres) each have 4% of the management area acres. “Other types” (1,662 acres or 11%) includes forested cover types with 3% or less of the total management area acres and is made up of: lowland mixed forest (420 acres), lowland aspen/balsam poplar (222 acres), red pine (170 acres), upland mixed forest (140 acres), northern hardwood (113 acres), mixed upland deciduous, paper birch, natural mixed pines, upland conifers, white pine, oak and hemlock. In addition there are 290 acres (2%) of “miscellaneous other” stands, which includes water, sand/soil and roads.

With the exception of red pine, northern hardwood and hemlock most of these cover types will be managed as even-aged stands using natural regeneration after harvest. Red pine stands will be periodically thinned until final harvest at rotation age. Northern hardwood stand will generally be harvested through single tree selection to work toward an uneven-aged state.

Approximately 808 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. Stands that are inaccessible for harvesting will be subject to natural succession.

Desired Future Condition

- These other minor 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 opportunity.

10-Year Management Objectives

- The projected 10-year final harvest is 65 acres of lowland deciduous, 30 acres of tamarack and 145 acres of other types; and
- The projected 10-year partial harvest is 231 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.

4.18.2- Featured Wildlife Species

Management for featured wildlife and their associated include maintenance of a dense understory in lowland conifers, coarse woody debris and mast production.

American Bittern

The state wide goal for American bittern is to meet the Upper Mississippi Region Great Lakes Region Joint Venture population level as observed by the North American Breeding Bird Survey for Michigan. The eastern Upper Peninsula goal is to provide and maintain suitable habitat for American bittern. State forest management should focus on priority management areas with suitable shallow water marsh (hemi-marsh).

Wildlife habitat specifications:

- Manage priority wetlands in a hemi-marsh condition with open water surrounded by emergent vegetation. Optimal hemi-marsh sites for bittern are > 10 acres with the emergent vegetation portions having average water depths of four inches and a 4:1 ratio of adjacent grassland to hemi-marsh.

- Maintain wetland/upland complexes of > 50 acres.
- Buffer management activities at the edges of wetlands to protect marsh hydrology and limit the spread of invasive plant species.

Black Bear

The goal for black bear in the eastern Upper Peninsula is to maintain or improve habitat. State forest management for the species 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. State forest management for bear should focus on improving existing habitat (minimizing fragmentation and maintaining both hard and soft mast) in this management area.

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.
- 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.

Beaver

The eastern Upper Peninsula goal for beaver is to maintain suitable habitat. Management for the species should focus on providing favorable food within 100 feet of streams that are not designated high priority trout streams. Consideration will be given to best management practices, trout stream management and trends in beaver nuisance permits issued.

Wildlife habitat specifications:

- Maintain or promote alder, aspen, birch, maple or willow cover types within 100 feet of non-high priority trout streams with gradients of less than 15% and other inland bodies of water.

Snowshoe Hare

The goal for snowshoe hare in the eastern Upper Peninsula is to increase available habitat in the ecoregion. In priority landscapes, management should focus on maintaining young aspen adjacent to lowlands, maintaining jack pine, retaining slash and increasing mesic conifer components within stands.

Wildlife habitat specifications:

- Maintain young aspen and lowland shrub communities such as alder or willow that have a conifer understory or young aspen stands that are adjacent to lowland/swamp conifer and mesic conifers. Hold or increase the conifer component in aspen stands; leave conifers under four inch diameter at breast height.
- Regenerate black spruce stands to young, dense stocking adjacent to uplands.
- Balance age classes in the jack pine cover type to provide young, dense jack pine stands.
- When using herbicide treatments to prepare sites for planting red and jack pine in snowshoe hare habitat, encourage more diverse stands of pine and aspen by using application skips in pockets or along stand edges.
- In hare habitat, discourage biomass harvesting and chipping operations in this management area.
- Retain down coarse woody debris already present (before cutting), and resulting from incidental breakage of tops and limbs in the general harvest area, except on skid trails and landings, to the extent feasible. Retain slash and create brush piles within timber sales associated with hare habitat. In biomass timber sales apply the Michigan Biomass Harvesting Guidance and retain the maximum amount of residual material.

4.18.3 – 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, 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 three listed species and no natural communities of note occurring in the management area as listed in Table 4.18.2. 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.

Table 4.18.2. Occurrence information for special concern, rare, threatened and endangered communities and species for the Kinross Bog 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 |
|---------------------|---------------------------------|----------|---------------------------|---|------------|-------------------------------|------------------------|--------------------|
| 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 |
| | | | | | | Southern hardwood swamp | | |
| | | | | | | Dry northern forest | Jack Pine, Red Pine | Early |
| | | | | | | Dry-mesic northern forest | White Pine | Late |
| | | | | | | Mesic northern Forest | Northern Hardwood | Late |
| Sharp-tailed grouse | <i>Tympanuchus phasianellus</i> | SC/G5/S4 | Confirmed | PS | Moderate | Pine barrens | Jack Pine | Early |
| | | | | | | Oak-pine barrens | Oak | Mid |
| | | | | | | Dry sand prairie | Upland open/semi-open | N/A |
| | | | | | | Wet-mesic sand prairie | Upland open/semi-open | N/A |
| | | | | | | Northern shrub thicket | Upland open/semi-open | N/A |
| Plants | | | | | | | | |
| Ashy whitlow grass | <i>Draba cana</i> | T/G5/S1 | Confirmed | | | Limestone bedrock glade | Upland open/semi-open | N/A |
| | | | | | | Limestone lakeshore cliff | Upland open/semi-open | N/A |
| | | | | | | Limestone cliff | Upland open/semi-open | N/A |
| | | | | | | Volcanic cliff | Upland open/semi-open | N/A |

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

This management area has a deer wintering area in the western portion that is a special conservation area (Figure 4.17.6).

There have been no high conservation value areas or ecological reference areas identified for this management area.

Kinross Bog

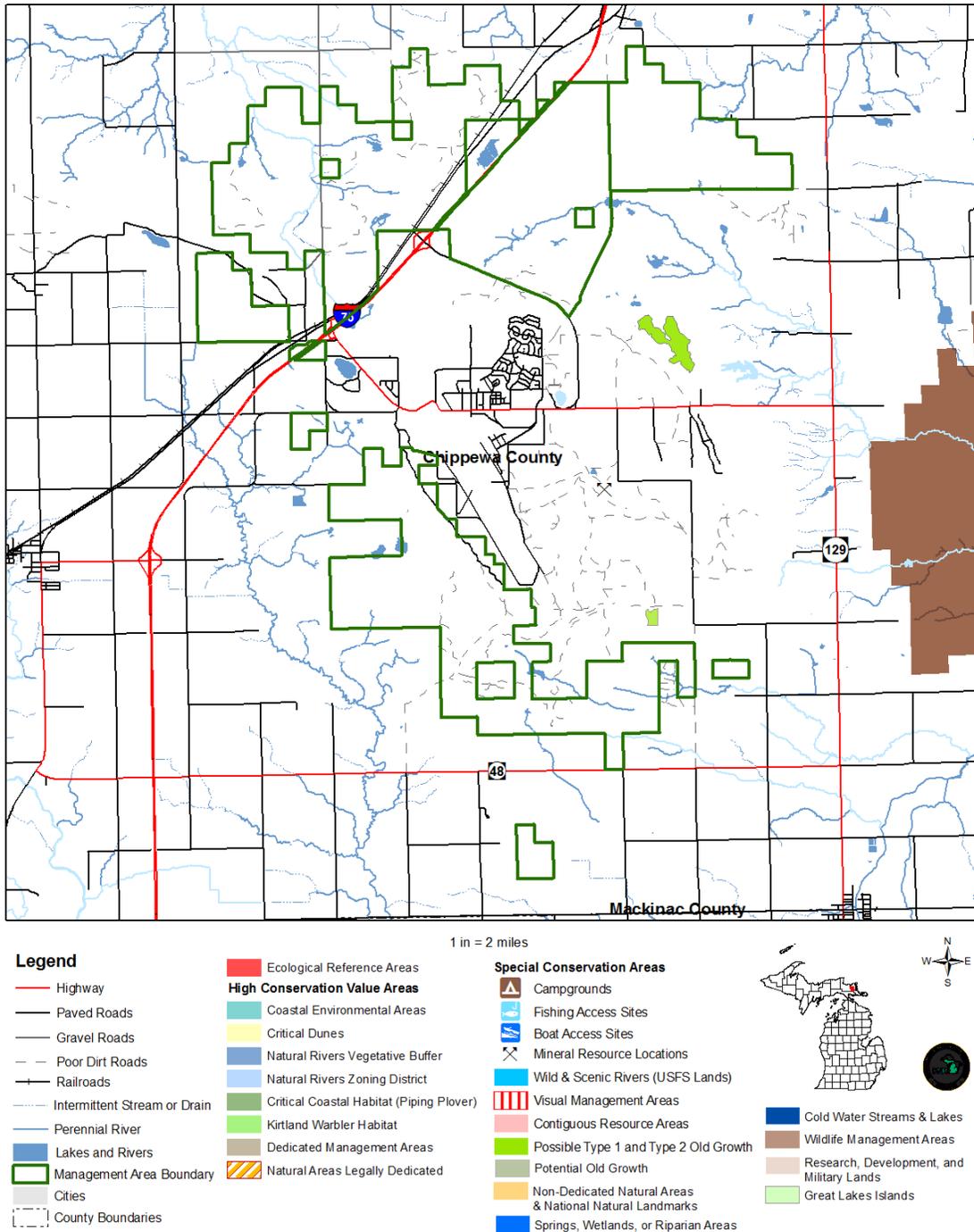


Figure 4.18.6. A map of the Kinross Bog management area showing the special resource areas.

Management goals during this planning period:

- 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.

4.18.4 – 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:

- Aspen: white trunk rot, *Hypoxyylon* canker; and
- Lowland conifers and lowland spruce/fir: spruce budworm, eastern larch beetle and larch casebearer.

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. No invasive plant species have yet been documented within the management area. Leafy spurge, Japanese knotweed and wild parsnip have been documented within a five-mile buffer of the management area (Table 4.18.3) 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 4.18.3. Invasive plant species within or near the Kinross Bog management area (Data from the Michigan Invasive Plant Identification Network database)

| Kinross Bog - FRD Management Areas | Cases within FRD Areas | Cases within 5 Mile Buffer | Total number of cases | Total number of different Invasive Species |
|------------------------------------|------------------------|---|-----------------------|--|
| | 0 | 4 | 4 | 3 |
| Invasive Species within FRD Areas | Occurrences | Invasive Species within 5 Mile Buffer | Occurrences | |
| - | - | Japanese Knotweed <i>Fallopia japonica</i> | 1 | |
| - | - | Leafy Spurge <i>Euphorbia esula</i> | 2 | |
| - | - | Wild Parsnip <i>Pastinaca sativa</i> | 1 | |

4.18.5 – Fire Management

While disturbance impacts from fire would have been uncommon in this management area, fire would have burned into these bogs from surrounding uplands periodically. Also, fire would have had an active role in maintaining the pine communities in the management area.

- Prescribed fire may be used in this management area to maintain natural communities, as appropriate.
- Fire suppression tactics should take into account the sensitive nature of some of the natural communities in this management area.

4.18.6 – Public Access and Recreation

I-75 divides the larger blocks of this management area. Much of the area has limited access due to the wet conditions of the landscape.

Road closures will be considered as needed to control illegal activity and to mitigate potential impacts to wetland soils.

Motorized trail facilities include the Kinross Motorcycle Trail and snowmobile trails (Figure 4.18.1). The Kinross Motorcycle Trail is designated motorcycle use only by Director's Order. Extreme care must be exercised to maintain the 24 inch trail bed.

Interest in bird watching is increasing in this area. Hunting for deer and ruffed grouse are popular forms of recreation in this management area.

4.18.7 - 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 to discourage beaver use in accordance with both DNR Policy and Procedure 39.21-20 Beaver Management and IC 4011. There are no designated high priority trout streams in this management area.

4.18.8 – Minerals

Surface sediments consist of lacustrine (lake) sand and gravel and clay and silt, glacial outwash sand and gravel and postglacial alluvium, 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 area and there is good potential for additional pits on the uplands.

The Ordovician Stonington Formation, Utica and Collingwood Shales and Trenton Formation subcrop below the glacial drift. The Trenton is quarried for stone/dolostone in the Upper Peninsula.

Exploration and development for oil and gas has been limited to a few wells drilled in the Upper Peninsula (14 in Chippewa 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.