4.31 MA 31 Evart Block Management Area

Summary of Use and Management

Vegetation management in the Evart Block management area (MA) (Figure 4.31.1) will provide timber products; maintain or enhance wildlife habitat; protect areas of unique threatened, endangered and special concern species; and provide for forest-based recreational uses. Timber management for this 10-year planning period years will focus on balancing the age-class distributions for aspen and regenerating oak. Wildlife habitat management objectives include perpetuating early-successional communities for species adapted to young forests for hunting and other wildlife-related recreation opportunity. Expected trends within this 10-year planning period are the need to regenerate oak, the need to continue to balance aspen age classes, the need to diversify forest cover types and an increase in recreation pressure.

Introduction

The Evart Block management area is located in Central Osceola County and contains approximately 17,305 acres of state forest land. The primary attributes which identify the Evart Block management area include:

- A hilly landscape with large well-drained sand ridges and outwash channels of thick till. This area is in the transition zone between the southern forest and northern forest, has naturally growing hickory and other central hardwoods.
- Historically, some areas of this management area were used as a sheep ranch.
- The management area falls within the Cadillac sub-region of the northern Lower Peninsula ecoregion as classified by Albert (1995).
- Due to the proximity of this management area to more populated areas of southern Michigan and the communities of Cadillac, Evart, Reed City, Harrison and Clare. This area is popular for dispersed recreation.
- This management area contains one or more of the northern Lower Peninsula Grouse Enhanced Management Systems areas. This area plan will emphasize balanced age classes of aspen for timber production which will have habitat benefits for a number of the featured species including ruffed grouse. The boundaries of Grouse Enhanced Management Systems areas will be delineated and an operational plan will be developed during this planning period by the local biologist in collaboration with the Forest Resources Division unit manager and integrated into the plan through the revision process.
- This recreational use combined with the quantity and availability of wood fiber contributes significant social and economic values to the area.
- Oil and gas development is not significant.
- Surveys do not show any threatened or endangered species in this management area. However, surrounding properties do show common loon, Blanding's turtle and wood turtle.
- Currently, aspen and oak are the predominant types as shown in Table 4.1.

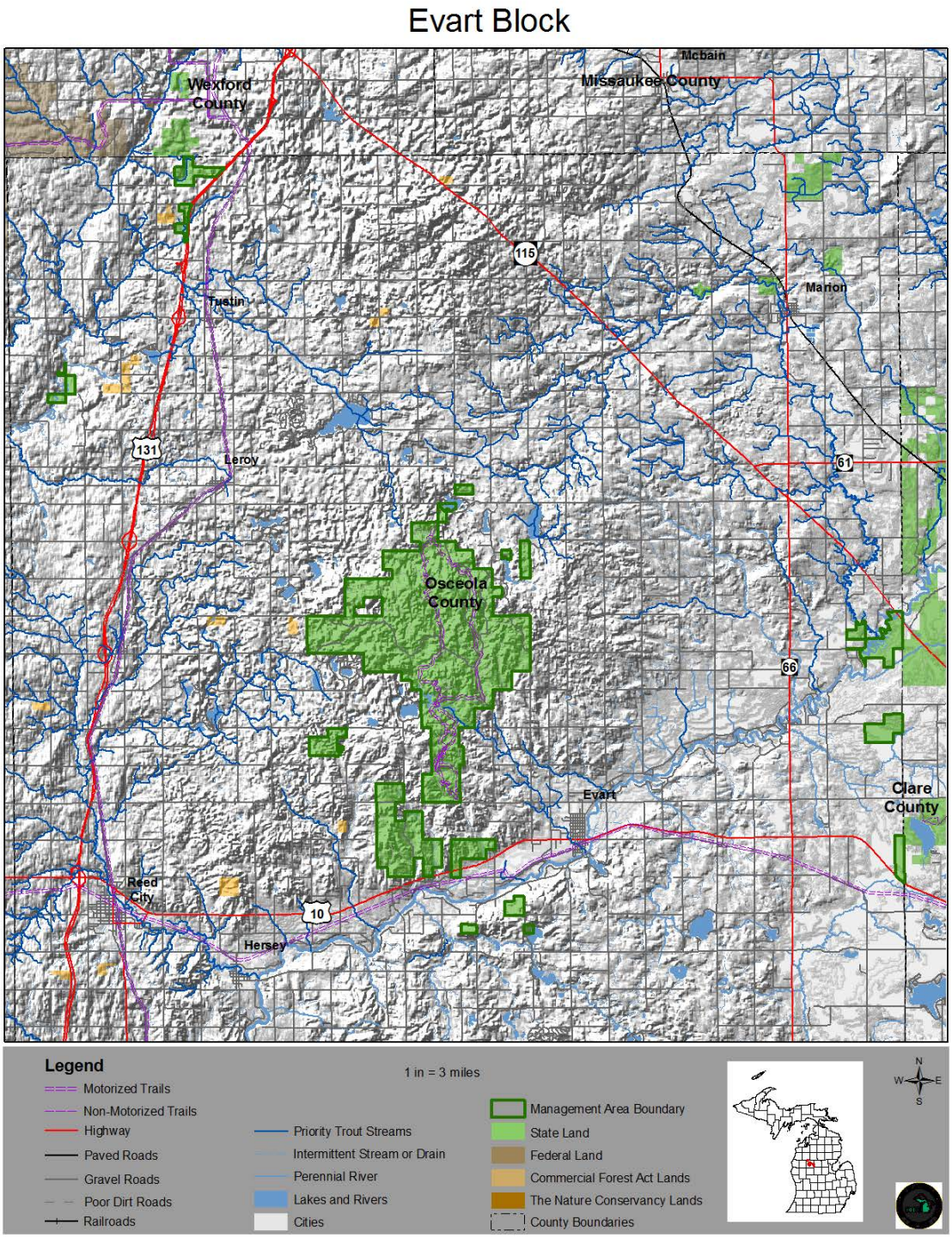

Figure 4.31.1. A map of the Evart Block management area (dark green boundary) in relation to surrounding state forest and other lands in Osceola County, Michigan.

Table 4.31.1. Current cover types, acreages, projected harvests and projected acreages at the end of this ten-year planning period for the Evart Block management area, northern Lower 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
Aspen	58%	10,107	63	10,044	2,717		10,107	1,674	
Mixed Upland Deciduous	5%	841		841	262	253	841	120	338
Red Pine	3%	581	17	564	147	193	581	63	331
Northern Hardwood	3%	543		543		71	543		186
Lowland Deciduous	3%	498	351	147	17		498	17	
Upland Open/Semi-Open Lands	3%	558		558			558		
Lowland Open/Semi-Open Lands	3%	472		472			472		
Misc Other (Water, Local, Urban)	1%	182		182			182		
Others	3%	534	282	252	36	3	534	30	7
Total		17,305	1,186	16,119	3,624	1,294	17,305	2,183	1,636

4.31.1 Forest Cover Type Management Direction

The following sections contain information on the management direction in the form of **Current Forest Condition, 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 or mowing) will be conducted. In other portions of the state forest, natural succession will achieve ecological objectives. While most stands have a variety of tree species and other vegetation, stands or communities are classified by the species which has the dominant canopy coverage.

Section 4.31.1.1 Forest Cover Type Management - Aspen

Current Condition

Aspen acres total 10,107 or 58% of the management area (Table 4.31.1) and are located on moraine ridges, moraines and till areas on PArVHa and PArVVb habitat class sites. The age classes of aspen are somewhat imbalanced (Figure 4.31.2) with spikes in the 20-29 and 30-39 year age classes.

There are 63 acres that have a factor limit (hard factor limit acres) as these acres are inaccessible or otherwise unavailable for management. There are 653 acres with a regeneration prescription pending and these acres are shown in the regeneration prescription class.

Desired Future Condition

- Aspen will be maintained on suitable sites with acres balanced between 0-59 years of age to provide early successional habitat for species viability, timber products and recreational opportunities.

10-Year Management Objectives

- Conduct restarting harvests on a projected 2,717 acres of aspen;
- Where necessary and feasible, consider harvesting stands below the rotation age to expedite the balancing of age-class distributions;
- Non-commercial harvests to manage habitat may be needed where access is limited; and
- Aspen within the identified Grouse Enhanced Management Systems area may be managed differently than the rest of the aspen within the management area, with a shorter rotation age**,** small patch cuts and carefully considered stand adjacency.

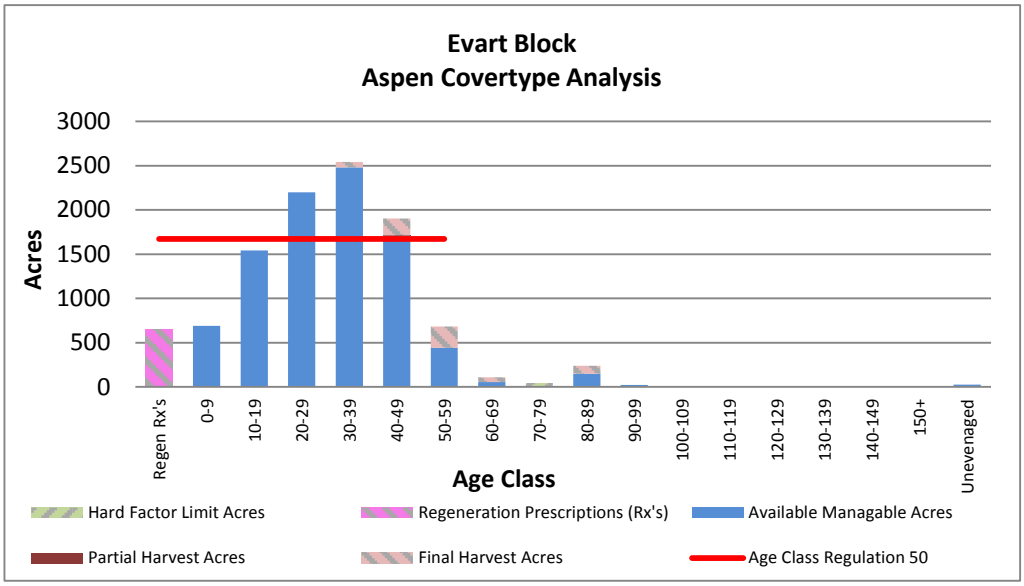

Figure 4.31.2. Age-class distribution for aspen in the Evart Block management area (2012 Department of Natural Resources inventory data).

Long-Term Management Objectives

- As the aspen in the 30-39 year-old age class spikes reaches maturity, consider treatments to balance the age-class distribution; and
- A desired future harvest level is projected at 1,674 acres for final harvest per 10-year period.

Section 4.31.1.2 Forest Cover Type Management – Oak

Current Condition

Oak acres total 2,989 or 17% of the management area (Table 4.31.1) on moraine ridges, moraines or till areas on habitat class PArVVb sites.

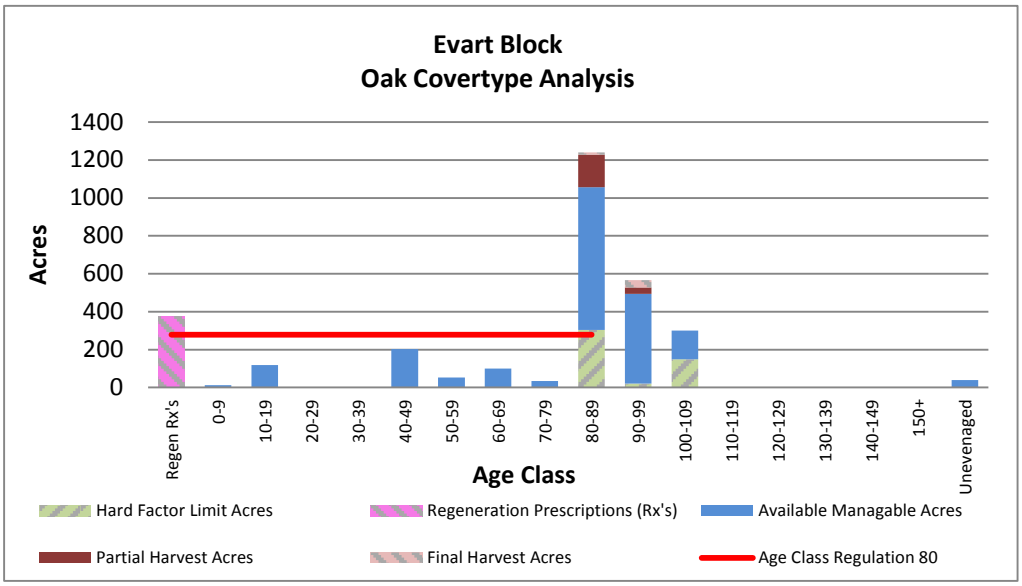

Figure 4.31.3. Age-class distribution for oak in the Evart Block management area (2012 Department of Natural Resources inventory data).

On most sites red maple, especially from stump sprouting, is a significant competitor for oak regeneration. Oak is frequently a component of aspen stands. The age class distribution (Figure 4.31.3) would appear to be heavily skewed toward the age classes above 80 years of age. However, as the cover type is based on the predominant species by canopy coverage, younger oak which is in the understory may not be reflected in the age-class distributions. There are 474 acres of oak have met harvest criteria, but have site conditions that limit harvest (hard factor limited acres). There are 50 acres that have regeneration harvest pending and these acres are included in the regeneration prescription class. There are 206 acres with a partial harvest pending and these acres are included in their current age class. The graph displays the projected number of acres converted to oak as a result of treatments that remove an overstory species resulting in release of oak. These acres are included in the regeneration prescription class.

Desired Future Condition

- Oak in stands and as a component in stands throughout the management area will be maintained through management to provide for timber products, wildlife habitat and recreational opportunities.

10-Year Management Objectives

- Conduct partial harvests on a projected 774 acres on oak sites that have not been previously treated nor have a suitable basal area level;
- Conduct final harvests on a projected 446 acres; and
- Maintain or expand oak as a component in stands throughout the management area through retention and management for natural regeneration on other cover types.

Long-Term Management Objectives

- Continue aggressive management efforts outlined above to regenerate and establish oak on PArVVb sites;
- It is acceptable some oak stands may become mixed stands through partial removal of an oak over story, planting pine in oak stands or through natural regeneration of other species;
- Continue to seek opportunities to maintain or expand oak as a component of stands throughout the management area; and
- A desired future harvest level is projected at 279 acres for final harvest and 774 acres for partial harvest per 10-year period.

Section 4.31.1.3 Forest Cover Type Management – Mixed Upland Deciduous

Current Condition

Mixed upland deciduous acres total 841 or 5% of the management area (Table 4.31.1). This includes species such as aspen, oak and red maple where one species does not dominate. These acres are evenly distributed across the management area.

The age classes are heavily skewed towards the older age classes above 80 years (Figure 4.31.4). This advanced age is an indication that oak is more common in the mixed upland deciduous cover type than aspen and red maple. There are 91 acres with a partial harvest pending and these acres are included in their current age class.

Desired Future Condition

- The mixed upland deciduous cover type will provide timber products and a diverse cover and mast at sustainable levels.

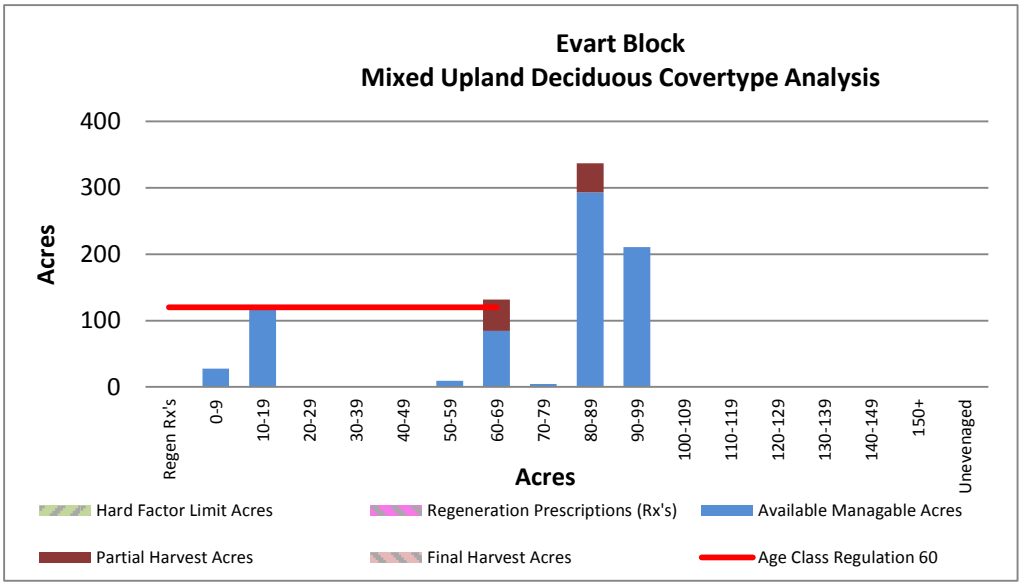

Figure 4.31.4. Age-class distribution for mixed upland deciduous in the Evart Block management area (2012 Department of Natural Resources inventory data).

10-Year Management Objectives

- Conduct final (regeneration) harvests on a projected 262 acres. These harvests will mostly target small oak and aspen pockets in the mixed stands for regeneration; and
- Conduct partial harvests on a projected 253 acres.

Long-Term Management Objectives

- It is acceptable that management through regeneration harvests of mixed upland deciduous may convert some areas to either aspen or oak cover types; and
- A desired future harvest level is projected at 120 acres for final harvest and 338 acres for partial harvest per 10-year period.

Section 4.31.1.4 Forest Cover Type Management – Red Pine

Current Condition

Natural and planted red pine acres total 518 acres or 3% of the management area (Table 4.31.1) There is a pronounced spike in the 50-59 year class which represents a previous era of active planting (Figure 4.31.5).

Red pine plantations in this management area are commercially valued for pulp, saw logs and utility poles. There are 17 acres of red pine that have met harvest criteria, but have site conditions that limit harvest (hard factor limit acres). There are 29 acres of stands that have regeneration harvest pending and these acres are included in the regeneration prescription class. There are 159 acres with a partial harvest pending and these acres are included in their current age class. The graph includes the projected number of acres converted to red pine as a result of final harvests and planting to red pine. These acres are included in the regeneration prescriptions class.

Desired Future Condition

- Red pine of either natural origin or in planted stands will be located on suitable sites with acres balanced in the 0-89 year age classes to provide a steady flow of forest products.

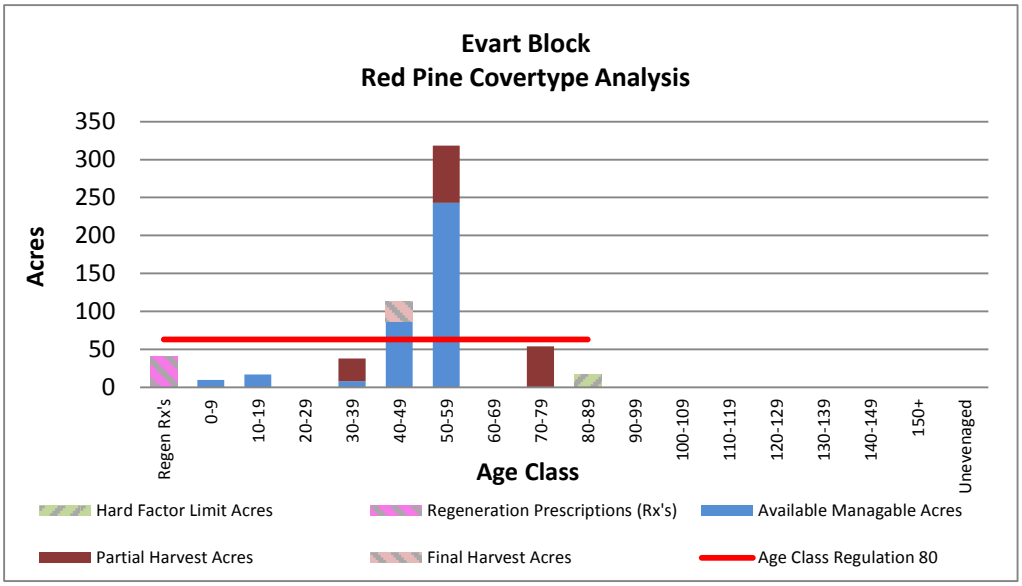

Figure 4.31.5. Age-class distribution for red pine in the Evart Block management area (2012 Department of Natural Resources inventory data).

10-Year Management Objectives

- Follow the Red Pine Management Guidelines, which recommends growing red pine on suitable sites and balancing the age-class distributions;
- Conduct partial harvests on a projected 193 acres, concentrating on stands of better-quality red pine that has the potential for a higher product value in larger size classes; and
- Conduct regeneration harvests on a projected 147 acres of red pine beginning with the oldest age-classes and with a concentration on stands with less potential for a higher product value.

Long-Term Management Objectives

- In identified special conservation areas, especially those with natural red pine on dry-mesic sites, consider management of red pine to a biological rotation of 200+ years;
- Continue management to balance the age-class distributions; and
- A desired future harvest level is projected at 63 acres for final harvest and 331 acres for partial harvest per 10-year period.

Section 4.31.1.5 Forest Cover Type Management – Northern Hardwoods

Current Condition

Northern hardwood acres total 543 acres or 3% of the management area on habitat class PArVVb, AFO and AFOCa sites (Table 4.31.1). Forest communities dominated by northern hardwoods in this management area are valued ecologically as sources of habitat for numerous species of wildlife including bear, white-tailed deer and various song birds; commercially for pulp and saw logs; and for a wide range of forest recreation.

There are 60 acres with a partial harvest pending and these acres are included in their basal area range.

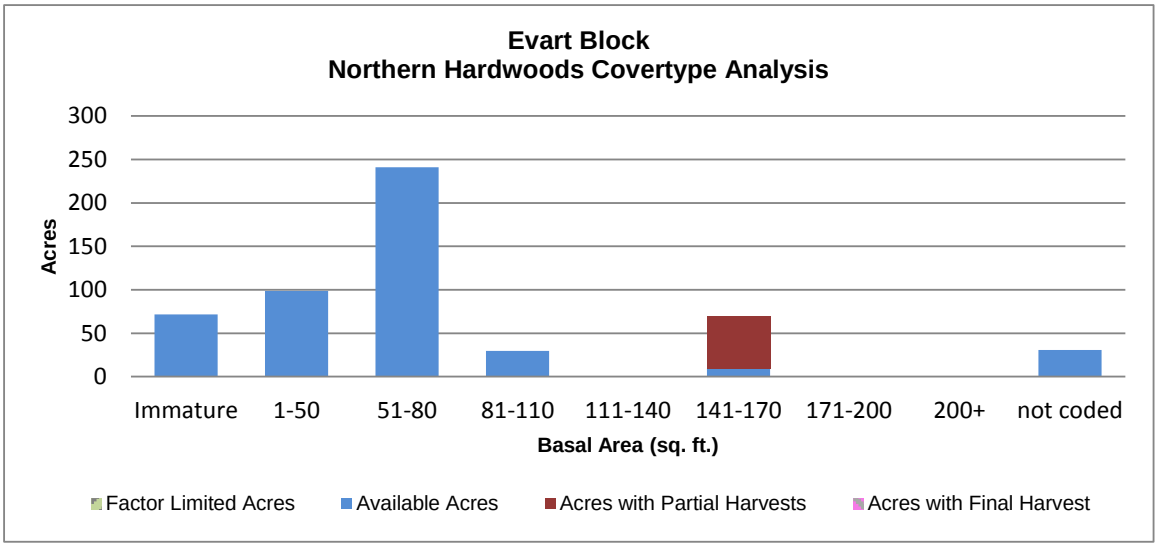

Figure 4.31.6. Basal area distribution for northern hardwoods in the Evart Block management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Northern hardwood stands will be maintained and managed through selection harvests to provide a sustainable timber supply, wildlife habitat and recreational opportunity.

10-Year Management Objectives

- A projected 71 acres will be harvested through selection harvests to produce uneven aged stands.

Long-Term Management Objectives

- Continue to conduct salvage harvests of beech affected by beech bark disease and ash where present and affected by emerald ash borer in northern hardwood stands using Beech Bark Disease Guidelines and Emerald Ash Borer Guidelines;
- Delay further selection harvesting due to resultant lower than normal residual basal area in post-salvage harvest stands;
- Continue to manage for stands with an uneven age class; and
- A desired future harvest level is projected at 186 acres for partial harvest per 10-year period.

Section 4.31.1.6 Forest Cover Type Management – Lowland Deciduous

Current Condition

Lowland deciduous acres total 498 or 3% of the management area (Table 4.31.1) and are located on wetland sites. As shown in Figure 4.31.7, most of the acres are in the age-classes above the age of 60.

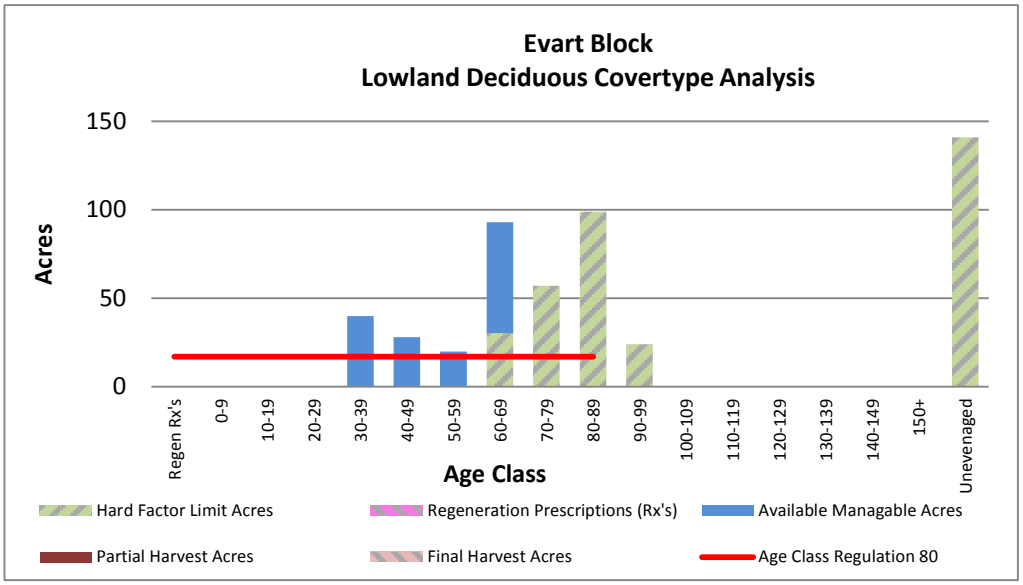

Figure 4.31.7 Age-class distribution for lowland deciduous in the Evart Block management area (2012 Department of Natural Resources inventory data).

Tip-overs and windthrow may also be an issue in stands that have been reduced below a residual basal area of 80 square feet per acre. The residual trees also keep the sites from becoming even wetter, resulting in a conversion to marsh. Black ash, red maple and aspen are frequent components of swamp hardwoods (lowland hardwoods) and treatments on more mesic sites may convert lowland deciduous stands to aspen or red maple. It is expected that much of the ash will be affected by emerald ash borer. There are currently 351 acres factor limited that are not available for harvest (hard factor limit acres), often because the sites are too wet or due to other site factors.

Desired Future Condition

- Lowland deciduous stands will be located on suitable sites in a compositionally diverse forest which contains coarse woody debris, scattered large trees and scattered snags; and
- These lowland types will provide a sustainable level of forest products along with wildlife habitat and recreational opportunity.

10-Year Management Objectives

- Conduct final harvests on a projected 17 acres.

Long-Term Management Objectives

- Continue to manage lowland deciduous stands for timber products, wildlife habitat and recreational opportunities;
- Lowland deciduous stands will continue to be managed with individual tree selection, group selection or final harvest to produce a sustainable level of forest products and wildlife habitat;
- Consider the impact of emerald ash borer on ash in lowland deciduous stands in management decisions; and
- A desired future harvest level is projected at 17 acres of final harvest per 10-year period.

Section 4.31.1.7 Forest Cover Type Management – Lowland Open/Semi-Open Lands

Current Condition

Lowland open/semi-open lands (lowland shrub, marsh, treed bog and bog) communities in this management area are valued ecologically as sources of habitat for numerous species of wildlife. Lowland open/semi-open acres total 472 acres or 3% of the management area (Table 4.31.1).

Desired Future Condition

- Lowland open/semi-open lands sites will be maintained at or above current levels to provide wildlife habitat.

10-Year Management Objectives

- Management in lowland open/semi-open lands will be minimal. What little maintenance that will be done will be to maintain the hydrology and open characteristics.

Long-Term Management Objectives

- Continue management to maintain upland open/semi-open lands at or above current levels;
- Continue to protect stands from illegal off-road vehicle use; and
- Where feasible and necessary, use control methods on invasive non-native species.

Section 4.31.1.8 Forest Cover Type Management – Upland Open/Semi-Open Lands

Current Condition

Upland open/semi-open lands total approximately 558 acres or 3% of the management area (Table 4.31.1). This category is a combination of the following non-forested land cover types: herbaceous openland, upland shrub, low density trees and bare/sparsely vegetated. These non-forested areas are a result of natural processes of fire, frost or other disturbances which create openings in the forest canopy.

Desired Future Condition

- Upland open/semi-openland types will be sustained at current levels order to ensure an adequate level of habitat for species which use openings.

10-Year Management Objectives

- Upland open/semi-open lands are self-sustaining as they are in frost pockets that impede encroachment from woody vegetation. Little or no management is needed to perpetuate these openings.

Long-Term Management Objectives

- Continue to protect stands from illegal off-road vehicle use; and
- Where feasible and necessary, use control methods on invasive non-native species.

Section 4.31.1.9 Forest Cover Type Management – Other Types

Current Condition

Individual cover types which may cover less than 5% of the management area include forested and non-forested communities which total 135 acres or 1% of the management area and are spread across the management area. All of the timbered and non-timbered communities have important ecological values and are important habitat for numerous wildlife species. Because this area is a transition zone to the southern hardwood species there are occasional hickory mixed in with the northern hardwoods. The northern hardwoods are fairly young stands and only a few have achieved sufficient density necessary for selective cutting. The lowland deciduous sites are fairly young stands of less than 81 square feet per acre of basal area in relatively inaccessible areas.

Desired Future Condition

- These cover types will be maintained on suitable sites and contribute to the compositional species diversity of the landscape.

10-Year Management Objectives

- Seek opportunities to harvest, where appropriate, the scattered acreages of upland and lowland minor types where access and operability will not adversely impact sensitive areas; and
- Final harvests are projected for 20 acres of white pine.

Long-Term Management Objectives

- The acreage of these cover types will remain steady over time and there will be minimal conversion of other types.

4.31.2 Featured Wildlife Species

Each of the featured species outlined below includes recommended practices with regard to forest and/or wetland management.

This management area will include one or more northern Lower Peninsula Grouse Enhanced Management System areas. The boundaries will be delineated during this planning period by the local biologist in collaboration with the Forest Resources Division unit manager. Aspen stands that fall within the Grouse Enhanced Management System area boundary may be managed on a shortened rotation with multiple age classes and smaller stand sizes to enhance hunting opportunities for ruffed grouse, woodcock, deer, turkey and hare. The remainder of the management area (outside the boundary) will be managed based on the direction in the management area write up.

The following have been identified as featured species for this management area during this 10-year planning period:

- Pileated woodpecker
- Ruffed grouse
- White-tailed deer.

The primary focus of wildlife habitat management in the Evart Block management area will be to address the habitat requirements identified for the listed featured species. Based on the selected featured species, some of the most significant wildlife management issues in the management area are the maintenance of young forest; the retention of large over-mature trees and snags; the maintenance/expansion of hard mast; and mesic conifer components.

A more detailed overview of featured species is included in Section 3.

Pileated Woodpecker

The goal for pileated woodpecker in the northern Lower Peninsula is to maintain available habitat. The pileated woodpecker prefer stands greater than 40 years old for foraging and greater than 70 years old for nesting and roosting and abundance is positively related to the density of trees greater than12 inches in diameter at breast height. State forest management should focus on the maintenance of a component of large diameter trees (>12 inches in diameter at breast height) at the landscape scale.

Wildlife Habitat Specifications:

- Maintain a component of large diameter trees greater than 12 inches in diameter at breast height.
  - Implementation of Within-Stand Retention Guidance, factor-limited acres, uneven-aged management in the northern hardwoods type, special conservation areas with objectives for big tree management and continued mortality from insect and disease will be sufficient to meet the pileated woodpecker habitat specifications for large trees in this management area.

Ruffed Grouse

The goal for grouse in the northern Lower Peninsula is maintain available habitat. Ruffed grouse prefer young (6-15-year old) even-aged deciduous stands that typically support 8,000-10,000 woody stems/acre. Although ruffed grouse use many different forest types (aspen, birch, oak-hickory) aspen can support higher densities than those attained in other forest types. The juxtaposition of different age classes allows for different life history requirements to be met within a small area and promotes higher grouse densities. Ideal aspen stands will be of 40-160 acres under a 40-year rotation with staggered

harvests of 25% every ten years in 10-40-acre harvest units. Larger harvest units should have irregular boundaries and include one or two, 1-3-acre unharvested inclusions. State forest management should focus on maintaining and balancing the age-class distribution for aspen and oak cover types in priority landscapes.

Wildlife Habitat Specifications:

- Maintain the aspen cover type and the aspen component in mixed stands within the management area.
  - Implementation of 10-year management direction for aspen and oak will be sufficient to meet this grouse habitat specification.
- Move to balance the age-class distribution of aspen and continue management to regenerate oak to maintain young forests across the management area.
  - Implementation of 10-year management directions for aspen and oak will be sufficient to meet this grouse habitat specification.
- Maintain the upland shrub cover type specifically juneberry, hawthorn, cherry and other mast producing shrub components.
  - Implementation of 10-year management directions for upland brush will be sufficient to meet this grouse habitat specification.
- Manage the aspen cover type for smaller patch size, a shorter rotation and a more deliberate habitat configuration within the designated Grouse Enhanced Management Systems areas where appropriate.

White-tailed Deer

The goals for white-tailed deer habitat in the northern Lower Peninsula are to: 1) Maintain spring and summer forage and improve recreational access through openings management; 2) Maintain the overall proportion of potential woody browse such as aspen; 3) Maintain or increase the oak component in forest stands and promote oak regeneration; and 4) Maintain and promote functional shelter in wintering complexes.

Wildlife Habitat Specifications:

- Annual manage at least 3,000 acres of forest openings across the ecoregion to provide spring and summer forage and recreational opportunities.
  - Implementation of 10-year management direction for upland openland and upland shrub will be sufficient to meet this deer habitat specification.
- Maintain the aspen cover type and the aspen component in mixed stands within the management area.
  - Implementation of 10-Year management direction for aspen, lowland aspen and lowland deciduous will be sufficient to meet this deer habitat specification.
- Move to balance the age-class distribution of aspen and continue management to regenerate oak to maintain young forests across the management area.
  - Implementation of 10-Year management direction for aspen, lowland aspen, lowland deciduous and oak will be sufficient to meet this deer habitat specification.
- Conduct silvicultural practices that conserve the oak component in forest stands and promote oak regeneration.
  - Implementation of 10-year management direction for oak will be sufficient to meet this deer habitat specification.
- Manage cedar and hemlock with the main objectives of regeneration and providing future functional cover.
  - Implementation of 10-year management direction for cedar and lowland conifer will be sufficient to meet this deer habitat specification.
- Promote hemlock on appropriate sites using silviculture to increase within-stand hemlock components.

4.31.3 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 no listed species or natural communities of note occurring in the management area. 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.

There have been no high conservation value areas or ecological reference areas identified in the Evart Block management unit as illustrated in Figure 4.31.8.

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.
- Develop and maintain management and monitoring plans for ecological reference areas on state forest land.

Future development and recreational pressure associated with expected population growth in the vicinity of this management area will be primary challenge to successful management for rare fish, wildlife and plants.

Evart Block

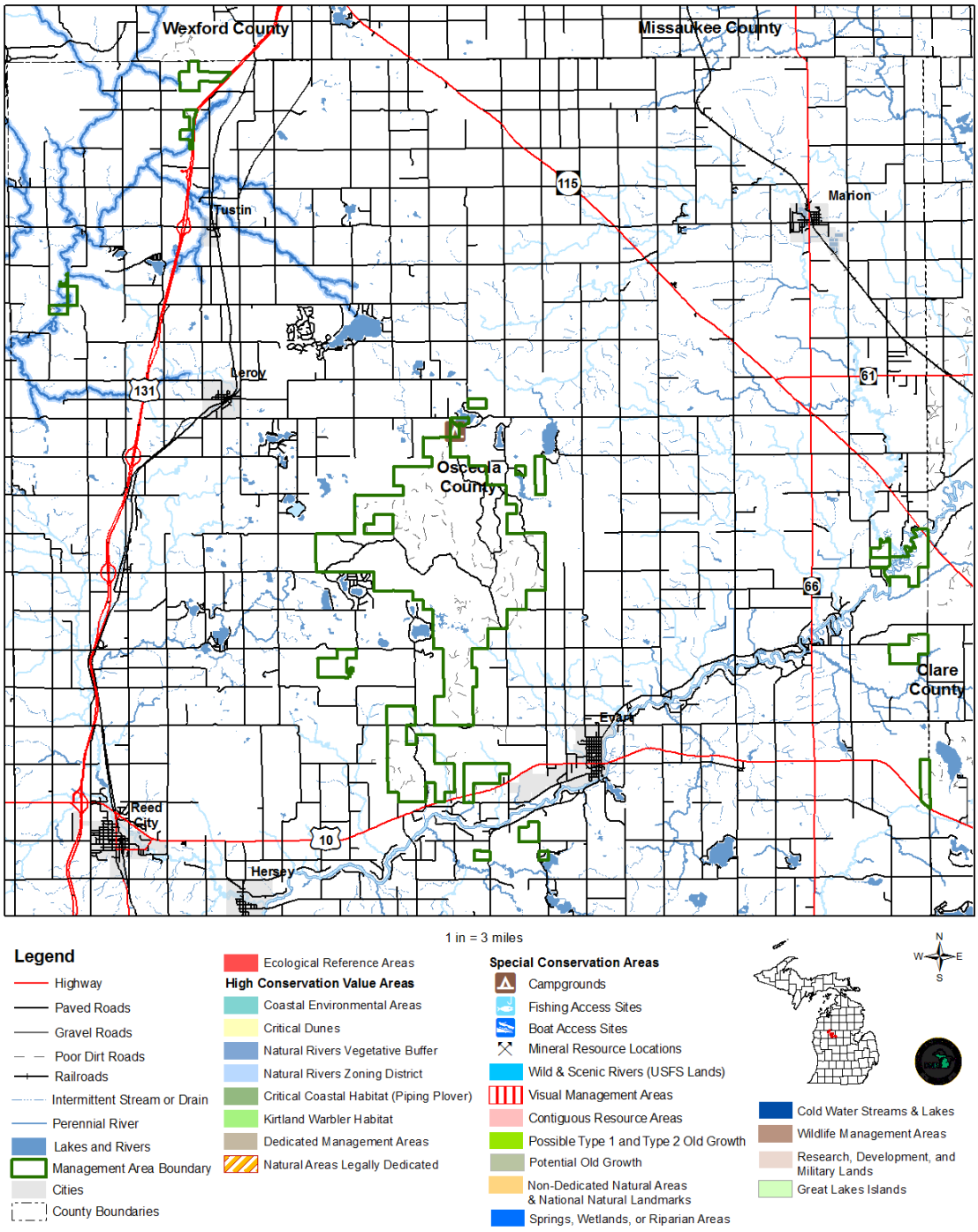

Figure 4.31.8. A map of the Evart Block management area showing the special resource areas.

4.31.4 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 issues in this management area include oak wilt, oak decline, *Diplodia* shoot blight and management should be adapted as follows:

- Oak wilt is prevalent in adjacent management areas. Early detection and treatment of oak wilt introductions is needed to protect the oak resource. Timber sale restrictions which prevent wounding of oaks from April 15 to July 15 need to be enforced.
- Oak decline is most prevalent on frost-prone, nutrient poor outwash plains. Old age and drought predispose areas to two-lined chestnut borer and *Armillaria* root rot. Shorter rotations will reduce risk of decline.

Invasive Species

Invasive species pose a major threat to forest resources. They impact timber production, wildlife habitat and recreational access. Locations of invasive species mapped in and within a five-mile buffer of the management area are summarized in the Table 4.31.2. This information was compiled from the Midwest Invasive Species Information Network database, but it should not be considered complete. This information and other sources show the extent and location of invasives should be used to inform of the potential for additional sightings should be documented. Invasives that merit eradication efforts are those species threatening sensitive sites due to their location or growth characteristics and have population levels that may be successfully controlled.

Table 4.31.2. Locations of invasive species mapped in and within a five-mile buffer of the management area (Midwest Invasive Species Information Network database).

Evart Block - FRD Management Areas	Cases within FRD Areas	Cases within 5 Mile Buffer	Total Number of Cases	Total Number of Different Invasive Species
	14	21	35	9

Invasive Species within FMD Areas	Occurrences	Invasive Species within 5 Mile Buffer	Occurrences
Glossy Buckthorn *Rhamnus frangula*	3	Common Buckthorn *Rhamnus cathartica*	1
Reed Canary Grass *Phalaris arundinacea*	3	Glossy Buckthorn *Rhamnus frangula*	10
Tatarian Honeysuckle *Lonicera tatarica*	1	Japanese Knotweed *Fallopia japonica*	1
		Multiflora Rose *Rose Multiflora*	1
-	-	Phragmites (Common Reed) *Phragmites australis*	1
-	-	Purple Loosestrife *Lythrum salicaria*	2
-	-	Reed Canary Grass *Phalaris arundinacea*	1
-	-	Spotted Knapweed *Centaurea stoebe*	2
-	-	Tatarian Honeysuckle *Lonicera tatarica*	2

4.31.5 Aquatic Resources

Fisheries Division management unit biologists will review proposed forest management activities using the compartment review process and will consider the potential impact of proposed prescriptions upon riparian and aquatic values. Management prescriptions will be modified to account for riparian and aquatic values by applying the standards and guidance documents listed in the introduction to this plan section to the unique conditions specific to any given forest stand.

Prescription of riparian management zone widths greater than the minimum widths provided in IC4011 (*Sustainable Soil and Water Quality Practices on Forest Land*) must be justified and documented during the compartment review process.

Forested stands adjacent to designated high priority trout streams will specifically be managed to discourage beaver use in accordance with both DNR Policy and Procedure 39.21-20 Beaver Management and IC 4011. Designated high priority trout streams for this management area are shown in Figure 4.31.1 and listed in Appendix F.

4.31.6 Fire Management

Disturbance through fire has historically played a role in the initial propagation and maintenance of oak and natural oak/pine types, small inclusions of aspen or grass/upland brush types.

The Michigan DNR has a prescribed fire program and maintains a well-trained staff to conduct prescribed burns for silviculture, habitat maintenance or habitat restoration. Each year, all burns prescribed on state forests, parks and wildlife game lands are evaluated and ranked, with funding allocated to the highest priority burns. The ability to fund prescribed burns is based on available funding, the total acres prescribed for burning and the prioritized ranking of individual burns. The demand for prescribed burning money frequently exceeds the amount of funding and some recommended burns may not be funded for that fiscal year. Once funded, the ability to implement a burn is dependent on suitable prescribed burning weather, a suitable fuel (vegetation) condition, local staffing and other resources.

The following fire management concepts should be applied in the management area:

- Where feasible, seek opportunities to use fire in the oak/pine areas to encourage pine and oak regeneration and to discourage competition; and
- Recognize that increased urbanization in close proximity to the management area will present more wildland/urban interface challenges to wildfire suppression.

4.31.7 Public Access and Recreation

Access for management and/or recreation is generally very good throughout this management area as there is very little lowland and a well-developed road/trail system which includes the Evart Cycle Trail. In accordance with the DNR's *Sustainable Soil and Water Quality Practices on Forest Land*, upon completion of harvesting, temporary spur and seasonal roads will be closed and stabilized.

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

Due to its relative isolation to development and private lands, the Evart Block offers a sense of the back country and is very popular with hunters and dispersed camping enthusiasts. The only dedicated recreational trail use is the Evart Cycle Trail (Figure 4.31.1) which is seen as a premier cycle trail based on its narrowness, topography and challenge for riders. This trail is designated cycle only, providing motorcyclists with a unique riding experience. Sunrise Lake Campground (Figure 4.31.8), boat access site and the non-motorized Osceola Pathway (Figure 4.31.1) are located at the north end of the entrance point to the management area.

Current Recreational Infrastructure:

- Sunrise Lake Campground and Boat Access site
- Evart Cycle Trail
- Osceola Pathway

Although managing recreational opportunities is the primary responsibility of Parks and Recreation Division, timber management activities may impact the quality of recreational opportunities and management modifications will be considered to minimize these impacts.

Management modifications may minimize possible recreational trail and other infrastructure impacts are agreed upon by recreation staff in Parks and Recreation Division and Forest Resources Division through the compartment review process. Public input received through meetings, including the compartment review process and other forums, will also be considered. Trail protection specifications can be applied through the vegetative management system in the design and administration of timber management activities. Guidance for within stand retention may also be used along trails to minimize impacts which may include modifications to management such as maintaining conifers to shade winter snow trails or retaining trees along single track off-road vehicle trails to maintain the integrity of narrow trails. Where

modifications to management may not be compatible with timber management objectives, opportunities to educate the public on the DNR's timber management policies may be considered. Specifications and guidance for management around trails may include, but is not limited to: vegetative management system sections 5.2.39, 5.2.40, 5.2.41 and 5.2.42 and the DNR Within Stand Retention Guidelines.

4.31.8 Oil, Gas and Mineral Development

Surface sediments consist of glacial outwash sand and gravel and postglacial alluvium and an end moraine of coarse-textured till. The glacial drift thickness varies between 400 and 1,000 feet. Sand and gravel pits are located in this management area and there is good potential for additional pits.

The Jurassic Red Beds and Pennsylvanian Saginaw Formation subcrop below the glacial drift. The Saginaw is quarried for clay in brick making elsewhere in the state. Most of this area has been leased for nonmetallic mineral potash exploration. The only solution potash production, in the state, comes from the nearby Hersey area.

Exploration and development for oil and gas from the shallow Mississippian Stray Sandstone to the deep Ordovician Prairie du Chien has occurred around this management area. Well spacing ranges from 40 acres up to 640 acres for the deeper formations. There is potential for additional development for these formations and most of the lands are currently leased in this management area. The Collingwood Formation does not appear to have potential in this management area.

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

Administration of oil and gas development on state forest land is provided by both the DNR and Department of Environmental Quality to ensure minerals shall be developed in an orderly manner to optimize revenue consistent with other public interest and natural resource values.

Lease classification of state lands is guided by DNR Oil and Gas Lease Classification Procedure No. 27.23-15. Contained within each DNR Oil and Gas Lease Agreement are environmental terms which detail requirements for permits to drill issued by the Department of Environmental Quality, supervisor of wells pursuant to Part 615, 1994 PA 451, as amended. No operations are to take place in a wetland (as defined in Part 303 of 1994 PA 451, as amended) habitat critical to the survival of an endangered species and designated under provisions of Part 365 of 1994 PA 451, as amended or a site designated by the secretary of state to be of historical or archeological significance unless a plan to eliminate negative impacts to archeological or historical resources is agreed upon. In areas identified as having special wildlife, environmental, recreational significance and/or state surface require a development plan which will minimize negative impacts and will minimize surface waste while remaining consistent with the spacing requirements established by the supervisor of wells. All pipelines from the well site are required to follow existing well roads or utility corridors and all pipelines are to be buried below plow depth. Abandoned well sites should be incorporated back into state forest stands as either forest openings or re-forested areas, as determined by the vegetation plan contained in the lease agreement or as subsequently decided in compartment review.