

4.26 – MA 26: Wurtsmith Management Area Plan

Summary of Use and Management

Vegetation management in the Wurtsmith management area (MA) (Figure 4.26.1) 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 will focus on harvesting older jack pine and balancing age-class distributions of oak and aspen. 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 increased off-road vehicle pressure, both legal and illegal and an increased need to aggressively regenerate an aging oak resource.

Introduction

This management area is located in Alcona and Iosco counties and contains 20,962 acres of state forest land (Figure 4.26.1). The primary attributes which identify the Wurtsmith management area include:

- The portion of the management area in Alcona County is dune and swale complex.
- A significant portion of this management area is relatively inaccessible due to wet conditions.
- The management area straddles the Standish and Onaway sub-regions of the northern Lower Peninsula ecoregion as classified by Albert (1995).
- The lower part of the AuSable River flows along the south side of the management area.
- The Wurtsmith management area is a popular destination for game hunting, hiking, mushroom hunting and other activities for the town of Oscoda and the nearby community near the airport.
- Due to the proximity of this management area to these communities, the forest resources contribute significant social and economic values to the area.
- There is minimal oil and gas activity.
- The Old State House Off-Road Vehicle trail is located in the management area. Van Etten Lake State Forest Campground is near this management area. The Highbanks Access site and a snowmobile trail are also located in the management area.
- This management area borders federal land – the Huron-Manistee National Forest and the former Wurtsmith Air Force Base and bombing range.
- The management area contains approximately 2,500 acres within what the Department of Defense has defined as the Wurtsmith Bombing and Gunnery Range Formerly Used Defense Site Boundary. The Land Use Orders of the Director were amended in 2009 to close state land within the Formerly Used Defense Site area to all entry, except to operate motorized vehicles on existing open roads or with a written permit issued by the department.
- Threatened, endangered or species of special concern located by Michigan Natural Features Inventory surveys include: Hill's thistle, eastern massasauga rattlesnake and secretive locust. The Kirtland's warbler also uses some of the jack pine in this area.

The current predominant cover types, acreages and projected harvest acres in the management area are shown in Table 4.26.1.

Wurtsmith

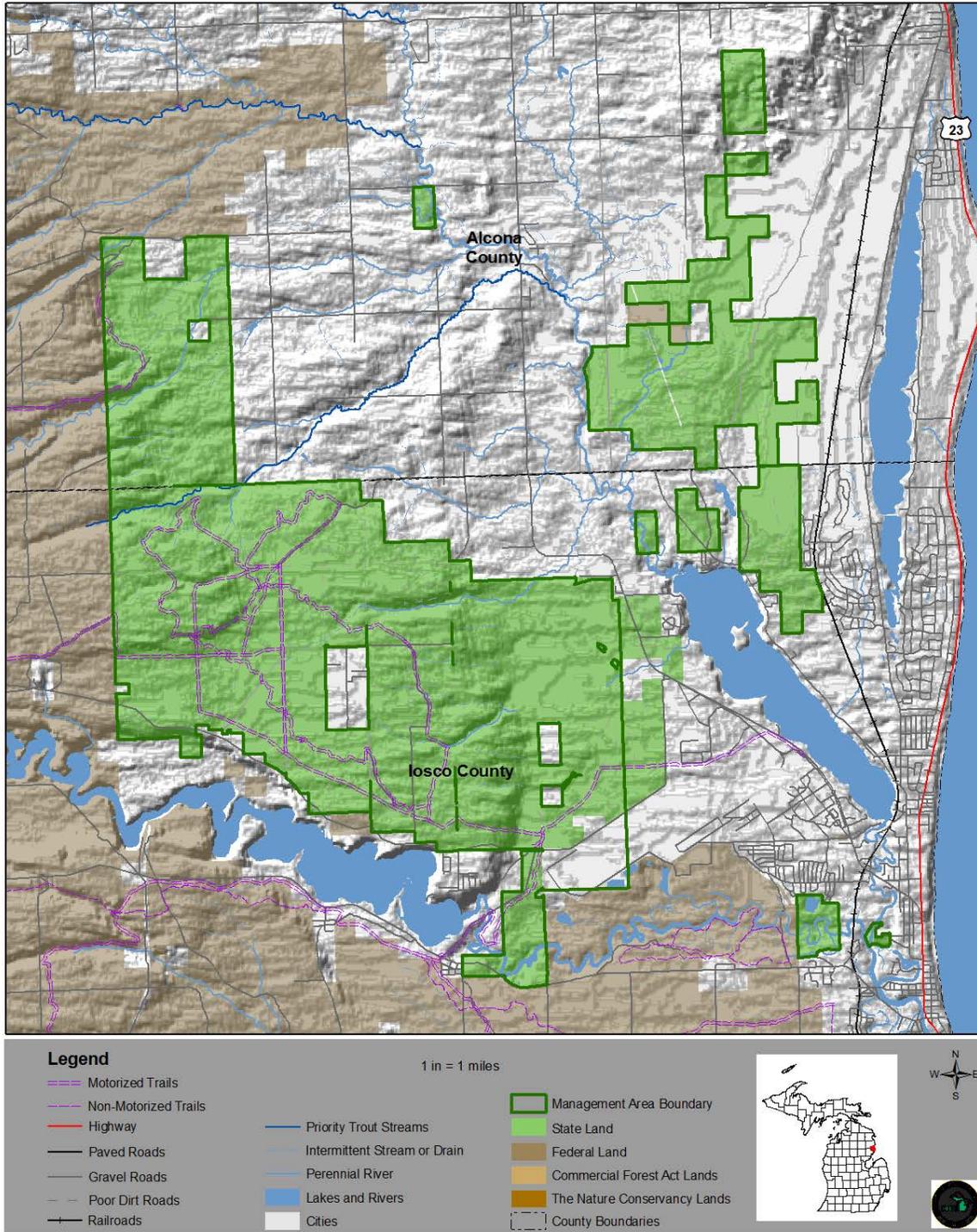


Figure 4.26.1. A map of the Wurtsmith management area (dark green boundary) in Alcona and Iosco counties.

Table 4.26.1. Current cover types, acreages, projected harvests and projected acreages at the end of this ten-year planning period for the Wurtsmith 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
Oak	34%	7,154	1,883	5,271	533	843	7,154	586	843
Jack Pine	17%	3,613	316	3,297	414		3,613	550	
Aspen	12%	2,613	169	2,444	283		2,613	349	
Cedar	12%	2,433	2,433				2,433		
Lowland Deciduous	6%	1,242	869	373	41		1,242	41	
White Pine	4%	837	59	778		104	837	71	104
Red Pine	3%	566	201	365	49	49	566	41	95
Lowland Conifers	2%	337	270	67	0		337	7	
Upland Open/Semi-Open Lands	1%	285		285			285		
Lowland Open/Semi-Open Lands	3%	701		701			701		
Misc Other (Water, Local, Urban)	1%	169		169			169		
Others	5%	1,020	349	671	105	85	1,020	53	196
Total		20,970	6,549	14,421	1,425	1,081	20,970	1,698	1,238

4.26.1 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 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 trees species and other vegetation, stands or communities are classified by the species which has the dominant canopy coverage.

Section 4.26.1.1 Forest Cover Type Management – Oak

Current Condition

Oak acres total 7,154 acres or 34% of the management area (Table 4.26.1) and occur on dry, poor nutrient sites (habitat classes: PARVCo, PARVHa/PARVVb, PARVHa and PVCd). More than 1,000 acres have a basal area of less than 50 square feet per acre (Figure 4.26.2), but may have an understory of oak, aspen and red maple.

Forest communities dominated primarily by oak type, generally a mixture of pin oak, black oak and jack pine, in this management area are valued ecologically as sources of habitat and mast for numerous species of wildlife including bear, white-tailed deer, squirrels and various birds and commercially for firewood and industrial lumber.

The older oak (age 90+years) is declining rapidly. There are 1,883 acres of oak that have met harvest criteria, but have site conditions that limit harvest (hard factor limit acres). There are 207 acres of stands that have a final harvest pending and these acres are included in the regeneration prescription class. The graph includes the projected number of acres converted to oak as a result of treatments that remove an overstory species resulting in the release of oak. These acres are included in the regeneration prescription class.

The management emphasis will be on aggressively regenerating an aging oak resource in this 10-year planning period.

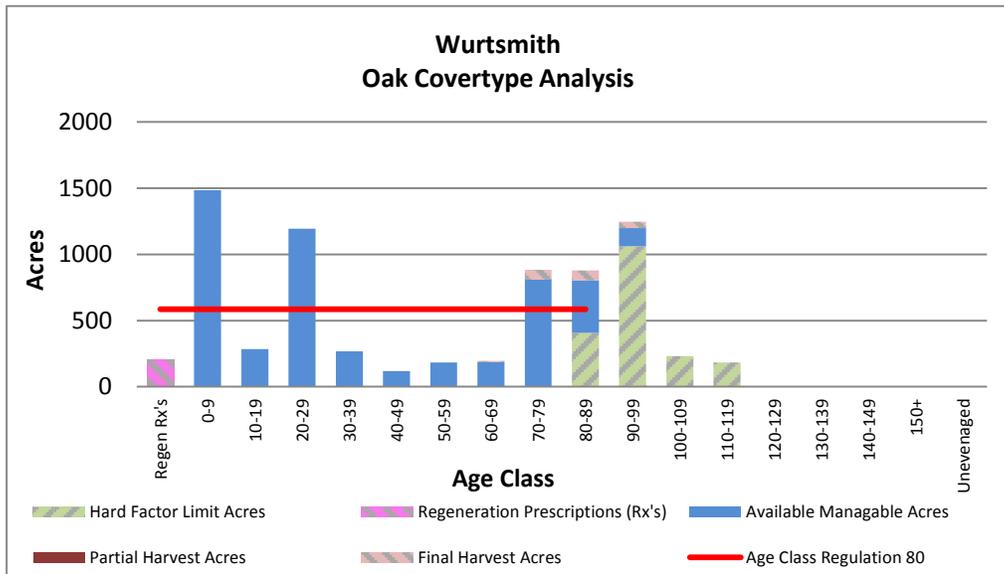


Figure 4.26.2. Age-class distribution for oak in the Wurtsmith management area (2012 Department of Natural Resources inventory data).

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 restarting harvests on a projected 533 acres with a concentration on acres in the oldest age groups;
- Conduct partial harvests on a projected 843 acres with a concentration on acres with a higher basal area that have not been previously harvested; and
- Maintain or expand oak as a component in stands throughout the management area through retention and management for natural regeneration in other cover types.

Long-Term Management Objectives

- Continue to seek opportunities to aggressively regenerate an aging oak resource;
- It is acceptable that the oak community will become more mixed over time to include more jack pine; and
- A desired future harvest level is projected at 586 acres for final harvest and 843 acres for partial harvest per 10-year period.

Section 4.26.1.2 Forest Cover Type Management – Jack Pine

Current Condition

Jack pine acres total 3,613 acres or 17% of the management area (Table 4.26.1) in the dry and dry-mesic outwash areas of the management area (habitat classes: PVCd, PARVHA) where it is often mixed with oak. The jack pine is generally limbic with poor form. Approximately two thirds of the jack pine is age 30 or less (Figure 4.26.3) reflecting robust management over the past three decades.

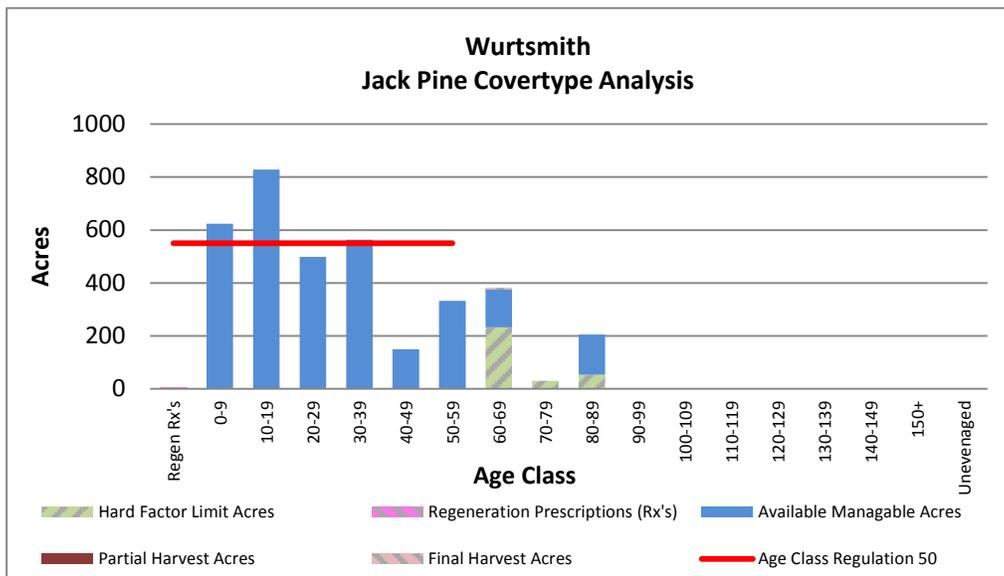


Figure 4.26.3. Age-class distribution for jack pine in the Wurtsmith management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Jack pine will be evenly distributed in age classes between 0-59 years on suitable sites to provide a steady supply of forest products, wildlife habitat and recreational opportunities;
- Management of the jack pine resource will minimize mortality due to jack pine budworm; and
- Wildfire risks will be minimized through reduction of fuel loads associated with older age classes of jack pine.

10-Year Management Objectives

- Conduct stand replacement harvests on a projected 414 acres of stands currently age 50 and older; and
- Overall jack pine acres may increase due to inter-planting on sites where oak was removed and oak regeneration was sparse.

Long-Term Management Objectives

- Continue management of jack pine on appropriate sites with an emphasis on reducing over mature stands to minimize losses from jack pine budworm and associated risks due to increased fuel loads; and
- A desired future harvest level is projected at 550 acres for final harvest per 10-year period.

Section 4.26.1.3 Forest Cover Type Management – Aspen

Current Condition

Aspen acres total 2,613 acres or 12% of the management area (Table 4.26.1). Forest communities dominated primarily by aspen in this management area are valued ecologically as sources of habitat for numerous species of wildlife including ruffed grouse, hare, woodcock, bear, white-tailed deer and various song birds; commercially for pulp and saw logs and for a wide range of forest recreation.

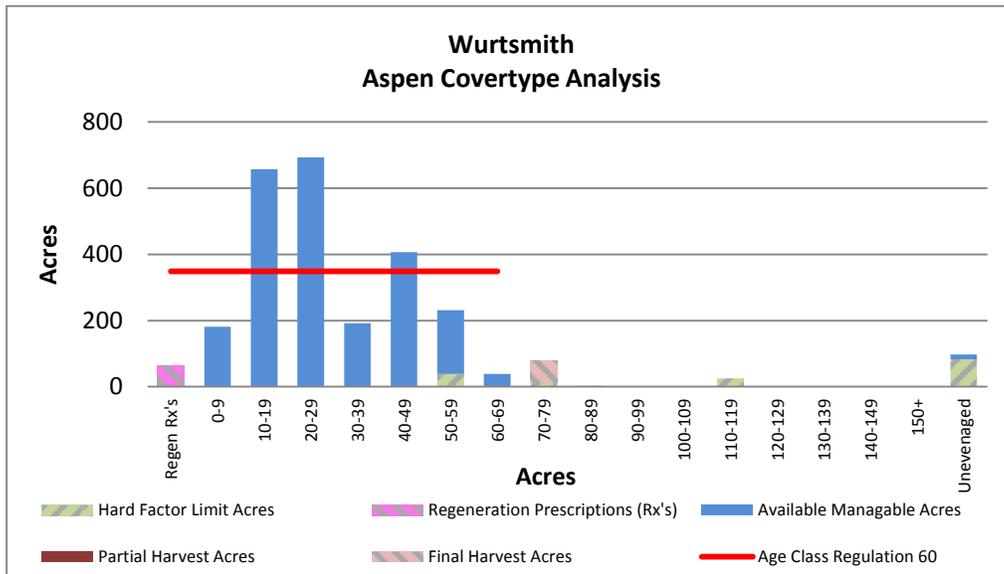


Figure 4.26.4. Age-class distribution for aspen in the Wurtsmith management area (2012 Department of Natural Resources inventory data).

Aspen occurs throughout the area on PARVHa, PARVHa/PArVVb and PArVVb sites. Accessible aspen has been consistently harvested over the last 40 years. There are 180 acres of aspen located in areas that are hard factor limited (Figure 4.26.4) making these areas unavailable for management (hard factor limit acres). There are 64 acres that have already been assigned a final harvest and these acres are included in the regeneration prescription class.

Desired Future Condition

- Aspen-dominated forest communities will be maintained on operable sites through even-aged management with acres balanced between 0-59 years of age to provide for regulated harvest, wildlife habitat and recreation opportunity.

10-Year Management Objectives

- Conduct regeneration harvests on a projected 283 acres in this 10-year planning period.

Long-Term Management Objectives

- Continue management to balance age-class distribution to produce a sustainable yield of forest products and wildlife habitat; and
- A desired future harvest level is projected at 349 acres for final harvest per 10-year period.

Section 4.26.1.4 Forest Cover Type Management – Lowland Deciduous

Current Condition

Lowland deciduous acres total 1,242 acres or 6% of the management area (Table 4.26.1) in predominantly older age classes above 70 years. Lowland deciduous forests are characterized by areas that show evidence of flooding in the past five years or support lowland indicator plants. The lowland type is typically a mixture of ash, red maple, birch, lowland aspen/balsam poplar, oak and other minor species. There has also been very little regeneration in the last 20 years. There are 869 acres which are hard factor limited, most frequently due to a lack of accessibility in wet areas. The ash component has been heavily impacted by the emerald ash borer. The graph includes 54 acres that have a final harvest pending and these acres are shown in the regeneration prescription class.

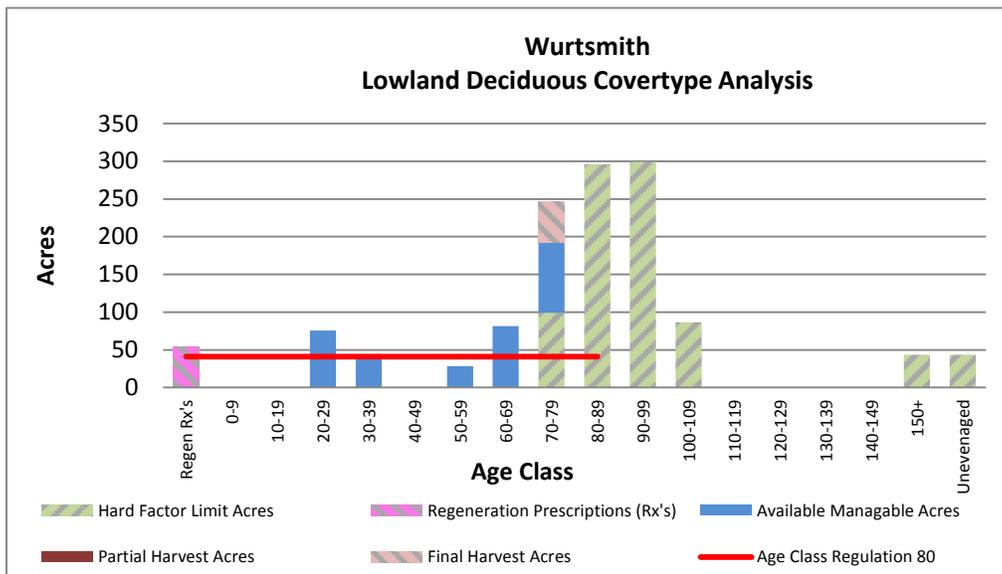


Figure 4.26.4. Age-class distribution for lowland deciduous in the Wurtsmith management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Lowland deciduous types will be sustainably managed with acres balanced between 0-89 years for a continuous supply of forest products and as a source of mast and habitat for wildlife.

10-Year Management Objectives

- Seek opportunities to harvest where it can be done in a manner that will not adversely impact wetland soils;
- Conduct regeneration harvests on a projected 41 acres to begin the process of regenerating older age classes;
- Follow the Emerald Ash Borer Guidelines for managing ash in lowland deciduous stands; and
- Consider opportunities to conduct non-commercial harvests to manage for habitat and a balanced age-class distribution.

Long-Term Management Objectives

- Where feasible, continue to seek opportunities to conduct regeneration harvests;
- It is acceptable that due to the emerald ash borer the amount of ash in lowland deciduous forests will decrease significantly and will be replaced by other lowland species; and
- A desired future harvest level is projected at 41 acres for final harvest per 10-year period.

Section 4.26.1.5 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 1,782 acres or 2% of the management area (Table 4.26.1).

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 4.26.1.6 Forest Cover Type Management – Upland Open/Semi-Open Lands

Current Condition

Upland open/semi-open acres total 285 acres or 1% of the management area. This category is a combination of the following non-forested land cover types: herbaceous open land, upland shrub 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 along with the past management practices to maintain these areas. These communities are valued ecologically as sources of open land habitat for numerous species of wildlife.

Desired Future Condition

- Maintain upland open/semi-open lands at or above the current level to provide habitat for species which use openings.

10-Year Management Objectives

- Consider management to maintain upland open/semi-open lands.

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 4.26.1.7 Forest Cover Type Management – Other Types

Current Condition

Individual cover types which may cover less than 5% of the management area include: white pine 837 acres or 4% of the management area, red pine 566 acres (3%), lowland conifers 337 acres (2%). Other forested and non-forested communities total 169 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.

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;
- Conduct final (regeneration) harvests on a projected 49 acres of red pine, 82 acres of upland mixed forest and 23 acres of upland spruce/fir;
- Consider methods to ensure adequate regeneration lowland types;
- Additional opportunities to increase harvest prescriptions in lowland forest types will be assessed, both in and outside (due to forest health issue) of normal years of entry; and
- Partial harvests are projected for 104 acres of white pine, 49 acres of red pine and 76 acres of northern hardwoods.

Long-Term Management Objectives

- Where operations are not limited by access or operability, continue management of lowland types; and
- Consider methods to ensure regeneration of lowland types.

4.26.2 Featured Wildlife Species

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

The following have been identified as featured species for this management area during this cycle of state forest planning:

- American woodcock
- Beaver
- Black bear
- Eastern massasauga rattlesnake
- Pileated woodpecker
- Red-headed woodpecker
- Ruffed grouse
- Snowshoe hare
- White-tailed deer

The primary focus of wildlife habitat management in the Wurtsmith 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; and the maintenance and expansion of hard mast and mesic conifer components.

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

American Woodcock

The goal for woodcock in the northern Lower Peninsula is to maintain or increase available habitat. American woodcock use young aspen stands having stem densities ranging from 6,000-20,000 stems/ac for feeding, nesting and brood-rearing. State forest management should address the maintenance of adequate early successional habitat to provide feeding, nesting and brood-rearing habitat and opportunity for hunting.

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, lowland aspen and lowland deciduous will be sufficient to meet this woodcock 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 and lowland deciduous will be sufficient to meet this woodcock habitat specification.
 - Identify commercial and non-commercial treatment opportunities in aspen and alder stands associated with non-high priority trout stream riparian zones or forested wetlands.

Beaver

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

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; and
- Implementation of the 10-year management direction for aspen, lowland aspen and lowland deciduous will be sufficient to meet this habitat specification.

Black Bear

The goal for black bear in the northern Lower Peninsula is to maintain or improve habitat. Black bears have large home ranges and require large contiguous tracts of diverse forests with a mixture of cover types. They tend to use forested riparian corridors in their movements (which can be extensive). Hard mast is critical in the fall for bears to achieve adequate weight gains before denning. State forest management for the species should focus on improving existing habitat by minimizing forest fragmentation and maintaining oak to offset potential population declines due to changes in land-use.

Wildlife Habitat Specifications:

- Identify, maintain, develop or restore forested corridors that connect larger forested tracts, paying particular attention to riparian zones.
 - Implementation of riparian guidance (best management practices) will be sufficient to meet the black bear habitat specifications related to preventing fragmentation and maintaining corridors.
- Conduct silvicultural practices that maintain or increase oak-dominated stands and the oak component of mixed stands.
 - Implementation of the 10-year management direction for oak will be sufficient to meet black bear habitat specifications.

Eastern Massasauga Rattlesnake

The goal for eastern massasauga rattlesnake in the management area is to maintain available habitat and provide for the long-term persistence of the rattlesnake population. Eastern massasauga rattlesnakes inhabit open wetlands for over-wintering as well as adjacent upland open cover types that support gestation and parturition. Populations in northern Michigan will often use lowland coniferous forests, such as cedar swamps, as well as open wetlands. Upland sites may range from forest openings to old fields, agricultural lands and prairies. State forest management for the species should focus on maintaining suitable habitat on dedicated managed lands in accordance with the approved Candidate Conservation Agreement with Assurances. As of August 2013, the Candidate Conservation Agreement is in the initial stages of approval and as a result is subject to change. Refer to approved Candidate Conservation Agreement for final managed land boundaries and habitat management guidelines. Approximately 6,300 acres of state forest land in the Rattlesnake Hills management area are proposed for designated as eastern massasauga rattlesnake managed lands per the raft Candidate Conservation Agreement.

Wildlife Habitat Specifications:

- At occupied sites maintain $\leq 50\%$ canopy from trees and shrubs in wetland and upland vegetation types, maintain patches of suitable habitat at greater than 250 acres, restrict mowing and burning to November to March when eastern massasauga rattlesnake are in hibernation, and refrain from manipulating water levels between November and March at sites where eastern massasauga rattlesnake are known to occur.
 - Implementation of eastern massasauga rattlesnake Candidate Conservation Agreement in appropriate management areas will be sufficient to meet eastern massasauga rattlesnake wildlife habitat specifications in this management area.

Pileated Woodpecker

The goal for pileated woodpecker in the northern Lower Peninsula is to maintain available habitat. Pileated woodpeckers 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 than 12 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.

Red-headed Woodpecker

The goal for red-headed woodpecker in the northern Lower Peninsula is to maintain or increase available habitat. Red-headed woodpecker are limited by the availability of snags for nesting, roosting and feeding and prefer areas with groupings of snags caused by beaver girdling, flooding, fire, disease or insect outbreaks. Preferred sites are greater than 5 acres in size with a savannah-like dispersion of large trees (< 50% canopy cover) with open under story and include tall trees or snags of large (> 12 inches) diameter at breast height. State forest management for the species should focus on the maintenance of snags in timber sales and salvage in priority landscapes.

Wildlife Habitat Specifications:

- Retain patches of dead wood left by beaver floodings, fire, disease and insect outbreaks by minimizing salvage cuts within the management area with preference for snags greater than 12 inches in diameter at breast height.
 - Implementation of beaver wildlife habitat specifications, Within-Stand Retention Guidance, factor-limited acres and continued mortality from insect and disease will be sufficient to meet the red-headed woodpecker habitat specifications for snags 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 direction 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 direction for upland brush will be sufficient to meet this grouse habitat specification.

Snowshoe Hare

The goal for snowshoe hare in the northern Lower Peninsula is to maintain or increase available habitat. Hare populations use areas of dense, young (sapling/pole) forest and shrub communities and prefer alder and coniferous swamps. Dense understory cover is the primary limiting factor as escape/thermal cover is more important than food availability. In mature forests, hare are associated with beaver ponds and aspen harvests, feeding upon available cuttings and finding cover in the resulting re-vegetation. State forest management should focus on maintaining young aspen adjacent to lowlands, maintaining jack pine, retaining slash, increasing mesic conifer components and increasing beaver.

Wildlife Habitat Specifications:

- Maintain young aspen and lowland shrub (alder or willow) communities that have a conifer understory or young aspen stands that are adjacent to lowland/swamp conifer and mesic conifers. Conduct silvicultural practices that maintain or increase mesic conifer components in aspen stands.
 - Implementation of beaver wildlife habitat specifications and the 10-year management direction for aspen, lowland aspen and lowland deciduous will be sufficient to meet this hare habitat specification.
- When conducting site-prep herbicide treatments, encourage more diverse stands by using application-skips in pockets or along stand edges.
- In snowshoe hare habitat, limit biomass harvesting and whole-tree chipping operations, retain slash and create brush piles.

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 open land 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.

4.26.3 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 three listed species and one natural communities of note occurring in the management area as listed in Table 4.26.2. Any established management guidelines will be followed. Further surveys for special species and natural communities will be carried out as a matter of course during the inventory process and opportunistically for special more focused surveys.

As shown in Figure 4.26.5, the only special conservation area is the 2500 acre Wurtsmith Bombing and Gunnery Range Formerly Used Defense Site.

There are no high conservation value areas or ecological reference areas identified for the Wurtsmith management area as illustrated in Figure 4.26.5.

Management goals during this planning period:

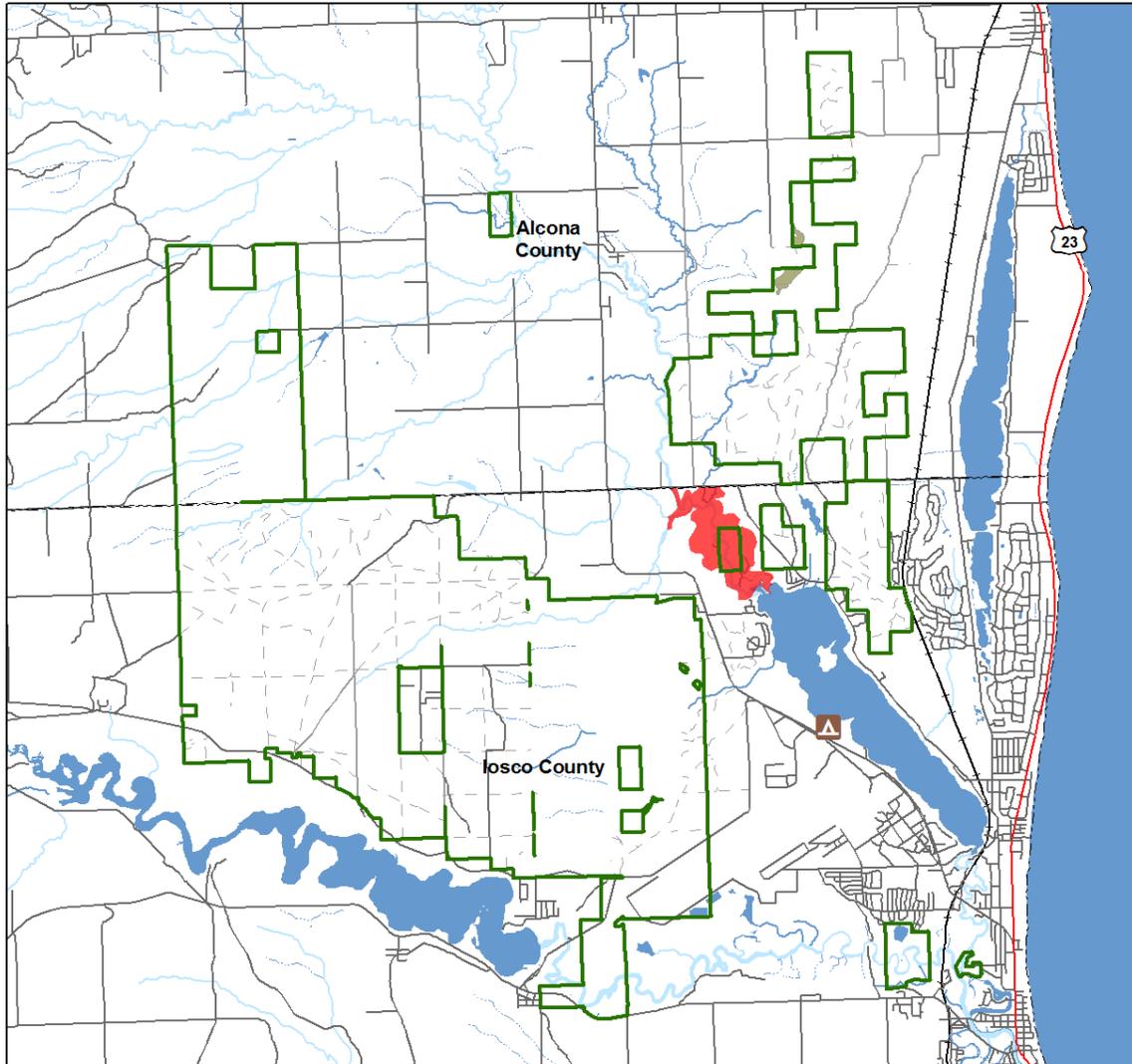
- Document occurrences of rare, threatened, endangered and special concern species and natural communities for the management area through the inventory process or with occasional focused surveys.
- Evaluate all potential Type 1, potential Type 2 and potential old growth areas to determine their status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

Table 4.26.2. Occurrence information for special concern, rare, threatened and endangered communities and species for the Wurtsmith management area.

Common Name	Scientific Name	Status	Status in Management Area	Climate Change Vulnerability Index (CCVI)	Confidence	Natural Community Association	Probable Cover Types	Successional Stage
Natural Communities								
Floodplain forest		S3/G3?	Confirmed				Lowland mixed	Mid
Insect								
Secretive locust	<i>Appalochia arcane</i>	SC/S2S3/G2G3	Confirmed	MV	Very High	Bog	Lowland open/semi-open	N/A
						Pine barrens	Jack Pine	Early
						Wet-mesic sand prairie	Lowland open/semi-open	N/A
						Intermittent wetland	Lowland open/semi-open	N/A
						Dry northern forest	Jack Pine, Red Pine	Late
Reptile								
Eastern Massasauga rattlesnake	<i>Sistrurus catenatus catenatus</i>	C/SC/G3G4T3T4Q/S3S4	Confirmed	HV	High	Coastal fen	Lowland open/semi-open	N/A
						Dry-mesic prairie	Upland open/semi-open	N/A
						Dry sand prairie	Upland open/semi-open	N/A
						Poor conifer swamp	Tamarack	Late
						Bog	Lowland open/semi-open	N/A
						Emergent marsh	Lowland open/semi-open	N/A
						Northern wet meadow	Lowland open/semi-open	N/A
						Intermittent wetland	Lowland open/semi-open	N/A
						Coastal plain marsh	Lowland open/semi-open	N/A
						Wet-mesic sand prairie	Lowland open/semi-open	N/A
						Wet prairie	Lowland open/semi-open	N/A
						Prairie fen	Lowland open/semi-open	N/A
						Northern fen	Lowland open/semi-open	N/A
						Rich conifer swamp	Tamarack	Late
						Northern hardwood swamp	Black Ash	Late
						Floodplain forest	Lowland mixed	Mid
						Northern shrub thicket	Upland open/semi-open	N/A
						Mesic northern forest	Northern Hardwood	Late
						Dry northern forest	Jack Pine, Red Pine	Early
						Oak-pine barrens	Oak	Mid
						Pine barrens	Jack Pine	Early
						Mesic prairie	Upland open/semi-open	N/A
						Mesic sand prairie	Upland open/semi-open	N/A
						Hardwood-conifer swamp	Lowland Mixed	Mid
Plant								
Hill's thistle	<i>Cirsium hillii</i>	SC/G3/S3	Confirmed			Alvar	Upland open/semi-open	N/A
						Oak-pine barrens	Oak	Mid
						Pine barrens	Jack Pine	Early
						Boreal forest	Upland open/semi-open	N/A
						Dry northern forest	Upland open/semi-open	N/A
						Dry sand prairie	Upland open/semi-open	N/A
						Dry-mesic northern forest	Upland open/semi-open	N/A
						Dry-mesic prairie	Upland open/semi-open	N/A
						Limestone bedrock glade	Upland open/semi-open	N/A
						Mesic prairie	Upland open/semi-open	N/A
						Mesic sand prairie	Upland open/semi-open	N/A
						Open dunes	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.

Wurtsmith



1 in = 2 miles

Legend

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

High Conservation Value Areas

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

Special Conservation Areas

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



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

Figure 4.26.5. A map of the Wurtsmith management area showing the special resource areas.

4.26.4 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 decline, oak wilt and emerald ash borer and management should be adapted as follows:

- 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.
- Oak wilt is found in this area. Epicenters need to be identified and treated. Timber sale restrictions which prevent wounding of oaks from April 15 to July 15 need to be enforced. Other management activities that can lead to damage of residual red oak trees – oil and gas development, recreational trail improvement, etc. – should be not be conducted during this high-risk period.
- Follow emerald ash borer guidelines for salvage of ash that may be impacted by emerald ash borer. It is expected that small diameter black ash in inaccessible lowland areas will not be salvageable and that the ash will be replaced by some other species.

Invasive Species

Invasive species pose a major threat to forest resources. They impact timber production, wildlife habitat and recreational access. Currently, no invasive species have been detected within the management area or within a five-mile buffer of the management area. This information was compiled from the Midwest Invasive Species Information Network database, but it should not be considered complete. Local staff has noted the presence of garlic mustard and *Phragmites* in the management area. Invasives 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.

4.26.5 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 4.26.1 and listed in Appendix F.

4.26.6 Fire Management

Disturbance through fire has played an important role in the initial propagation and maintenance of oak and natural oak/pine types and small inclusions of 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:

- Consider re-introduction of fire in the oak/pine areas to encourage pine and oak regeneration and to discourage competition;
- Consider opportunities to incorporate fire as a tool to restore or maintain managed openings; and
- Develop and implement formal fuel breaks in high hazard areas.

4.26.7 Public Access and Recreation

Access is restricted on approximately 2,500 acres except to operate motorized vehicles on existing open roads or with a written permit issued by the department. Where access is limited on state forest land, the department will continue to seek access across adjacent private property. In accordance with the department's *Sustainable Soil and Water Quality Practices on Forest Land*, upon completion of harvesting, temporary spur and seasonal roads will be closed and stabilized.

Recreation facilities and infrastructure are limited in this management area, perhaps due to the isolation from other blocks of state forestland or past military use. A portion of the Old State House Off-Road Vehicle route and snowmobile trail (Figure 4.26.1) and the Vanetten State Forest Campground and Boating Access Site are in the management area.

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 that may minimize possible recreational trail and other infrastructure impacts are agreed upon by recreation staff in Parks and Recreation Division and Forest Resources Division staff 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 Department'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 Department of Natural Resources Within Stand Retention Guidance.

4.26.8 Oil, Gas and Mineral Development

Surface sediments consist of fine-textured till, ice-contact outwash sand and gravel and lacustrine (lake) sand and gravel. The glacial drift thickness varies between 200 and 600 feet. Sand and gravel pits are located in this management area and there is potential.

The Mississippian Marshall Sandstone and Coldwater Shale subcrop below the glacial drift. The Marshall was previously used for building material elsewhere in the state.

Sparse oil and gas drilling has occurred on these lands, with two wells drilled for the Antrim Shale being plugged. Well spacing for the Antrim is 80 acres. The Collingwood Formation does not appear to have potential in this management area and none of the lands are currently leased.

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 that 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 that 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.