4.32 MA 32 Gladwin Lake Plain Management Area

Summary of Use and Management

Vegetation management in the Gladwin Lake Plain management area (MA) (Figure 4.32.1) will provide forest products; maintain or enhance wildlife habitat; protect areas of unique character including the Rifle River, a designated natural river; the Lame Duck Foot Access Area, a high conservation value area; several wildlife area floodings; threatened, endangered and special concern species; and provide for forest-based recreational uses. Timber management for this 10-year planning period will focus on balancing the age-class distributions for aspen and red pine. 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 in this 10-year planning period will be the continued need to address illegal off-road vehicle use, trash dumping and increased recreational pressure.

Introduction

There are 121,229 acres of state forest land in the Gladwin Lake Plain management area located in Gladwin and Arenac counties with smaller areas in Ogemaw and Iosco counties. The primary attributes which identifies the Gladwin Lake Plain management area include:

- The dominant landform consisting of lake plain (98% of the management area) which consists of poorly drained flat clay plains with broad sand channels. State forest lands have a higher percentage of sandy soils than the overall lake plain.
- Although much of the management area has not been classified by land type association, what has been classified is in the Saginaw Bay Lake Plain Region (Albert, 1995).
- The Rifle River and several tributaries, a designated natural river, cross parts of the management area.
- This area is popular for hunting, and concentrated recreation including off-road vehicle riding on the Gladwin Trail and Gladwin Route and canoeing and kayaking on the Rifle River for the nearby community of Gladwin and the population centers of southern Michigan.
- 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 area also includes the Bentley Marsh, Molasses River Floodings and the Lame Duck Foot Access Area, a designated management area.
- These social uses combined with a limited amount of oil/gas sites, the quantity and availability of wood fiber contributes significant social and economic values to the area.
- Threatened, endangered or species of special concern located by Michigan Natural Features Inventory surveys include eastern massasauga rattlesnake, slippershell, bald eagle, great blue heron heronry, Doll's merolonche, ellipse and red-shouldered hawk.

Aspen, swamp hardwoods, oak, jack pine and red pines are the predominant types as shown in Table 4.32.1.

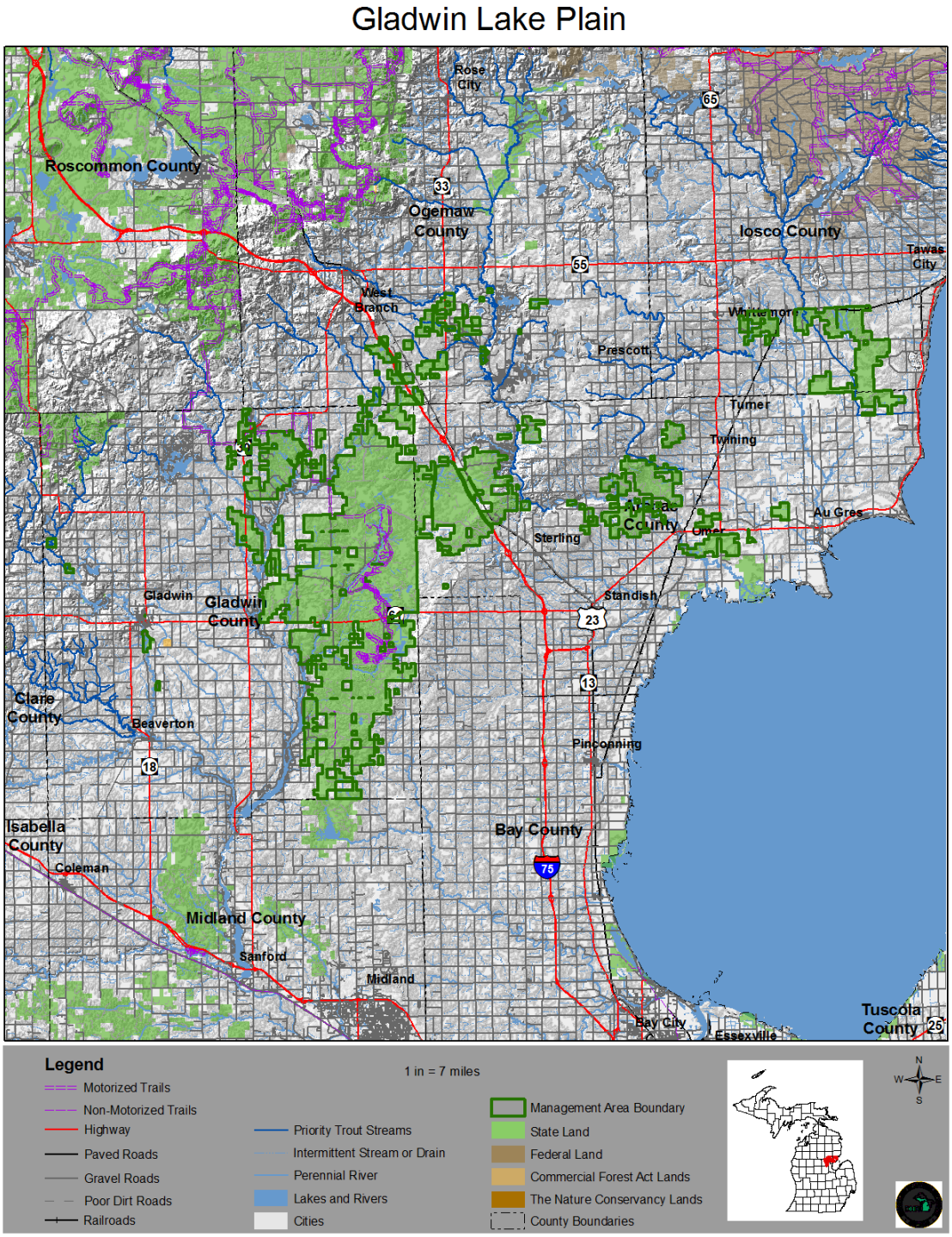

Figure 4.32.1. A map of the Gladwin Lake Plain management area (dark green boundary) in relation to surrounding state forest and other lands in Gladwin, Arenac, Ogemaw and Iosco counties, MI.

Table 4.32.1. Current cover types, acreages, projected harvests and projected acreages at the end of this ten-year planning period for the Gladwin Lake Plain 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	32%	38,990	1,385	37,605	8,809		38,990	6,268	
Lowland Deciduous	19%	22,954	16,013	6941	244	531	22,954	775	
Oak	9%	10,416	1,036	9380		1,162	10,416	1,179	1,162
Jack Pine	4%	4,537	118	4419	240		4,537	631	
Lowland Aspen/Balsam Poplar	3%	4,132	2,103	2029	346		4,132	346	
Mixed Upland Deciduous	3%	3,175	29	3146	489	534	3,175	449	602
White Pine	2%	2,658	68	2590	530	727	2,658	235	848
Red Pine	2%	2,486	129	2357	108	900	2,486	236	900
Upland Open/Semi-Open Lands	2%	2,837		2837			2,837		
Lowland Open/Semi-Open Lands	17%	20,837		20837			20,837		
Misc Other (Water, Local, Urban)	1%	1,565		1565			1,565		
Others	5%	6,642	2,647	3995	196	973	6,642	292	973
Total		121,229	23,528	97,701	10,963	4,827	121,229	10,411	4,485

4.32.1 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 4.32.1.1 Forest Cover Type Management - Aspen

Current Condition

Aspen acres total 38,990 or 32% of the management area (Table 4.32.1). Aspen is distributed throughout the management area on habitat classes PArVCo and PArVHA. Aspen age classes below the age of 50 are fairly evenly distributed (Figure 4.32.2). Aspen is frequently mixed with red maple and oak. Although the aspen quality is below average, it is providing wildlife habitat. There are 1,385 acres of aspen that have met harvest criteria, but have site conditions that limit harvest (hard factor limited acres). There are 2,459 acres of stands that have regeneration harvest pending and these acres are included in the regeneration prescription class.

Desired Future Condition

- Aspen will be located on suitable sites with acres balanced within the ages of 0-59 years to provide a sustainable level of wood fiber and early successional habitat for wildlife.

10-Year Management Objectives

- Conduct regeneration harvests on a projected 8,809 acres;
- Concentrate harvests on the oldest age-classes first; and
- Where necessary and feasible, consider harvesting stands below the rotation age to expedite the balancing of age-class distributions.
- 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.

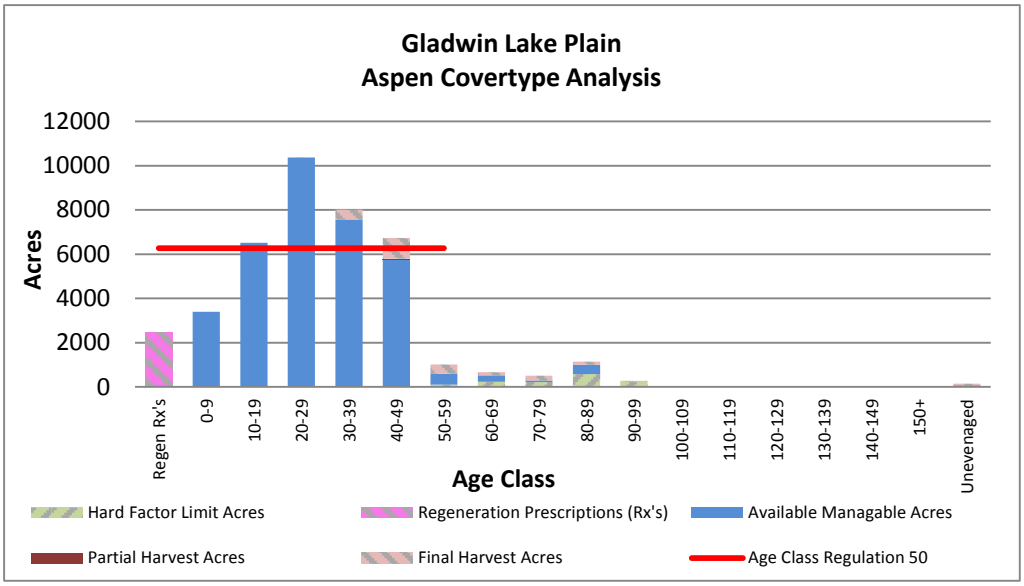

Figure 4.32.2. Age-class distribution for aspen in the Gladwin Lake Plain management area (2012 Department of Natural Resources inventory data).

Long-Term Management Objectives

- Continue to manage aspen for a balanced age-class distribution for sustainable fiber production and habitat; and
- A desired future harvest level is projected at 6,268 acres for final harvest per 10-year period.

Section 4.32.1.2 Forest Cover Type Management – Lowland Deciduous

Current Condition

Lowland deciduous acres total 22,954 or 19% of the management area (Table 4.32.1) and are located on PArVCo or unclassified wetland habitat class sites. Most of the acres are in the age classes above the age of 60 (Figure 4.32.3). Uneven-aged management is the preferred method for regeneration, which replicates the natural disturbance regime and provides the opportunity to manage for high quality sawtimber. Lowland deciduous stands have been managed as even-aged stands where quality stems were not present. Stands on the drier end of the spectrum were successfully restarted with even-aged management, while wetter stands converted to non-forest types. On these lowland sites, uneven-aged management reduces the potential for conversion. The residual stand keeps the sites from becoming even wetter, preventing a conversion to marsh. Excessive tip-overs and windthrow can become an issue in stands that have been reduced below a residual basal area of 80 square feet per acre.

Green ash, red maple and aspen are frequent components of swamp hardwoods and treatments on more mesic sites may convert lowland deciduous stands to aspen or red maple. There are 16,013 acres of lowland deciduous stands have met harvest criteria, but have site conditions that limit harvest (hard factor limited acres). There are 399 acres with a final harvest pending and these acres are included in the regeneration prescription class. There are 964 acres with a partial harvest pending and these acres are included in the current age classes.

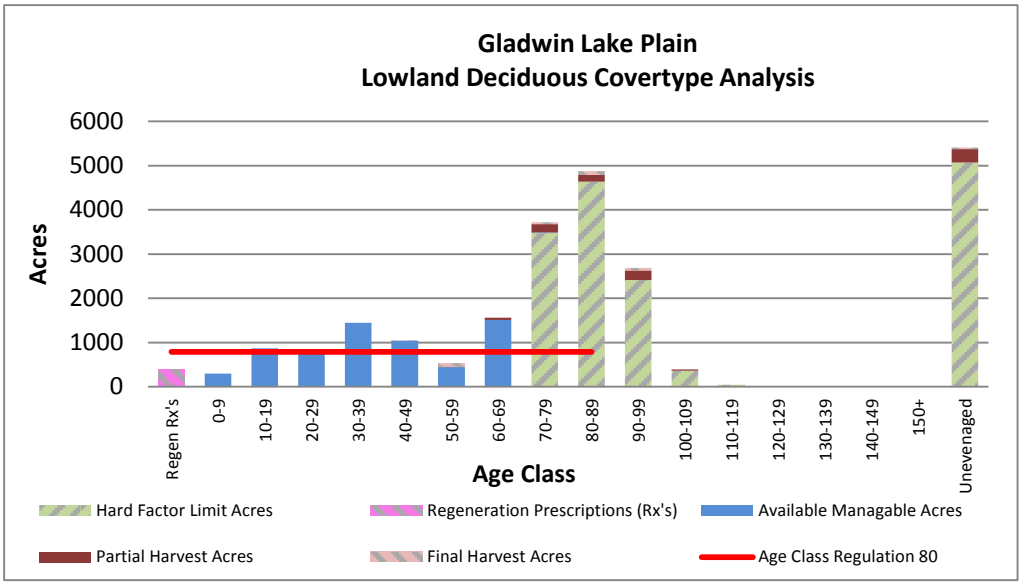

Figure 4.32.3. Age-class distribution for the lowland deciduous cover type in the Gladwin Lake Plain management area (2012 Department of Natural Resources inventory data).

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.

10-Year Management Objectives

- Conduct final harvests on a projected 244 acres with a concentration on poorer quality stands with poor stem quality, multiple stemmed trees and low basal area; and
- Conduct partial harvests on a projected 531 acres with a concentration on better quality stands with good stem quality and high basal area.

Long-Term Management Objectives

- Lowland deciduous stands will continue to be managed with using multi-aged regeneration and final harvests where necessary 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;
- A desired future harvest level of final and partial harvests is projected at 775 acres per 10-year period; and
- If needed, consider partial harvests in better quality stands.

Section 4.32.1.3 Forest Cover Type Management – Oak

Current Condition

Oaks acres total 10,416 acres or 9% of the management area (Table 4.32.1) on PArVHa and PVCd habitat class sites. Competition from red maple can be an issue which has required prescribed fire. In a few locations natural white pine has become a part of the understory. 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.

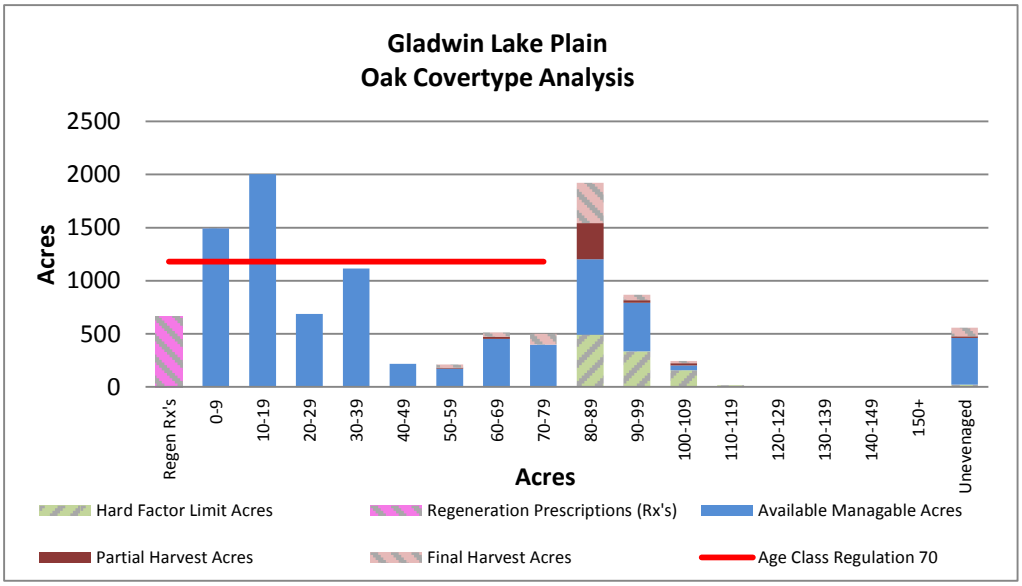

Figure 4.32.4. Age-class distribution for oak in the Gladwin Lake Plain management area (2012 Department of Natural Resources inventory data).

There are 846 acres of oak that have met harvest criteria (Figure 4.32.4), but have site conditions that limit harvest (hard factor limited acres). There are 662 acres that have regeneration harvest pending and these acres are included in the regeneration prescription class. There are 396 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 the cover type 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 will be located on suitable sites between 0-79 years of age for sustainable production of wood products, wildlife habitat and recreation opportunities.

10-Year Management Objectives

- Conduct partial harvests on a projected 1,162 acres concentrating on stands that have not been previously harvested or those stands that have a sufficient basal area for a partial harvest.

Long-Term Management Objectives

- Continue management to achieve a more balanced 0-79 year age-class distribution;
- In stands where the expense and difficulty of controlling red maple is prohibitive, consider whether some oak stands with a significant red maple understory should be allowed to succeed to red maple dominated stands where oak will remain a component of the stand for wildlife mast production; and
- A desired future harvest level is projected at 1,179 acres for final harvest and 1,162 acres for partial harvest per 10-year period.

Section 4.32.1.4 Forest Cover Type Management – Lowland Open/Semi-Open Lands

Current Condition

Lowland open/semi-open lands acres total approximately 20,837 or 17% of the management area (Table 4.32.1). 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.

Desired Future Condition

- Lowland open/semi-open lands sites will be maintained at 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 4.32.1.5 Forest Cover Type Management – Upland Open/Semi-Open Lands

Current Condition

Upland open/semi-open land acres total 2,837 or 2% of the management area (Table 4.32.1). Upland open/semi-open lands communities in this management area are valued ecologically as sources of habitat for numerous species of wildlife and recreationally for hunting, wildlife viewing and camping. This category is a combination of the following non-forested land cover types: herbaceous open land, 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 along with the past management practices to maintain these areas.

Desired Future Condition

- Upland open/semi-open lands will be maintained at or above current levels on sites that are natural openings due to frost or low soil fertility/moisture and on sites that have been historically been maintained as openings to provide habitat for species that use openings.

10-Year Management Objectives

- Where necessary and feasible, consider methods to maintain upland open/semi-open lands during this management cycle.

Long-Term Management Objectives

- Continue to maintain herbaceous open land and upland shrub openings at or above current levels in order to promote wildlife values and recreational opportunity;
- Continue to protect stands from illegal off-road vehicle use; and
- Where feasible and necessary, use control methods on invasive non-native species.

Section 4.32.1.6 Forest Cover Type Management – Other Types

Current Condition

Individual cover types which may cover less than 5% of the management area include: jack pine 4,537 acres 4% of the management area, lowland aspen/balsam poplar 4,132 acres (3%), mixed upland deciduous 3,175 acres (3%), white pine 2,658 acres (2%) and red pine 2,486 acres (2%). Other forested and non-forested communities total 6,642 acres or 5% 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;
- The following species are projected for regeneration harvests: lowland aspen/balsam poplar 346 acres, mixed upland deciduous 489 acres, white pine 530 acres, red pine 108 acres, natural mixed pines 46 acres, lowland

mixed forest 21 acres, lowland conifers 17 acres, upland spruce/fir 38 acres, upland conifers 30 acres and paper birch 44 acres;
- Consider methods to ensure 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
- The following species are projected for partial harvests: mixed upland deciduous 534 acres, white pine 727 acres, red pine 900 acres, northern hardwood 427 acres, upland mixed forest 194 acres, natural mixed pines 283 acres and upland conifers 55 acres.

Long-Term Management Objectives

- Continue efforts to regenerate lowland types where feasible;
- Continue to manage these other types to provide forest products, wildlife habitat and recreational opportunities; and
- A desired future harvest level is projected at 17 acres for final harvest for lowland conifers.

4.32.2 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 10-year planning period:

- American woodcock
- Beaver
- Eastern massasauga rattlesnake
- Golden-winged warbler
- Pileated woodpecker
- Red-headed woodpecker
- Ruffed grouse
- White-tailed deer.

The primary focus of wildlife habitat management in the Gladwin Lake Plain 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 and marsh/grassland complexes; the retention of large over-mature trees and snags; the maintenance and expansion of hard mast; and mesic conifer components.

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.

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

American Woodcock

The goal for American woodcock in the northern Lower Peninsula is to maintain or increase available habitat. The American woodcock use young aspen stands having stem densities ranging from 6,000-20,000 stems per acre 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 that 15% and other inland bodies of water.
  - Implementation of the Dingman Marsh and French Farm Flooding master plans and the 10-year management direction for aspen, lowland aspen and lowland deciduous will be sufficient to meet this habitat specification.

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 ≤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.

Golden-Winged Warbler

The goal for golden-winged warbler in the northern Lower Peninsula is to maintain or increase available habitat. The golden-winged warbler nests in a variety of shrubby and early-successional forest sites including moist woodlands, willow and alder thickets, young forests of sapling aspen and fire cherry. Habitat tracts of 25-125 acres can support several pairs and are preferred over both smaller and larger areas. State forest management should focus on the maintenance of young aspen (0-10 years old) in association with lowland shrub and grasslands in priority landscapes.

Wildlife Habitat Specifications:

- Identify commercial and non-commercial treatment opportunities in aspen and alder adjacent to or within lowland shrub and grassland. Treatment areas 25-125 acres are preferred.
  - Implementation of 10-year management direction for aspen, lowland aspen and lowland deciduous will be sufficient to meet this woodcock habitat specification.
- Within management area, maintain 20% of aspen associated with lowland shrub and grasslands in the 0-9 year-old age class.

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 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. The 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 typically support 8,000-10,000 woody stems per 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 directions 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 management of 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.

4.32.3 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 six listed species and no natural communities of note occurring in the management area as listed in Table 4.32.2. A colony of great blue herons has also been identified. 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.

The Rifle River and its tributaries have been identified as a natural river and along with their corridors are also designated as high conservation value areas as shown in Figure 4.32.5. The Lame Duck Foot Access Area is a dedicated management area that is also a high conservation value area (Figure 4.32.5).

There are no ecological reference areas identified for the Gladwin Lake Plain management area.

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 the primary challenge to successful management for rare fish, wildlife and plants.

Table 4.32.2. Occurrence information for special concern, rare, threatened and endangered communities and species for the Gladwin Lake Plain 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								
Red-shouldered hawk	*Buteo lineatus*	T/G5/S3-4	Confirmed	PS	Very High	Floodplain forest	Lowland mixed	Mid
						Dry-mesic northern forest	White Pine	Late
						Mesic northern Forest	Northern Hardwood	Late
Common tern	*Stema hirundo*	T/G5/S2	Confirmed	MV	Moderate	Sand & gravel beach	Upland open/semi-open	N/A
Moth								
Doll's merolonche	*Merolonche dolli*	SC/G3G4/S1S2	Confirmed	MV	Moderate	Pine barrens	Jack Pine	Early
						Oak-pine barrens	Oak	Mid
						Dry northern forest	Jack Pine, Red Pine	Late
						Dry-mesic northern forest	White Pine	Late
						Mesic northern forest	Northern Hardwood	Late
						Bog	Lowland open/semi-open	N/A
						Northern fen	Lowland open/semi-open	N/A
						Poor conifer swamp	Tamarack	Late
						Rich conifer swamp	Tamarack	Late
Mullusk								
Ellipse	*Venustaconcha ellipsiformis*	SC/G4/S2S3	Confirmed	EV	Moderate	Mainstem & Headwater streams	Aquatic	N/A
Mussel								
Slippershell mussel	*Alasmidonta viridis*	T/G4G5/S2S3	Confirmed	EV	Very High	Headwater Stream	Aquatic	N/A
						Mainstem streams	Aquatic	N/A
						Inland lake	Aquatic	N/A
Reptile								
Eastern Massassauga rattlesnake	*Sistrurus catenatus catenatus*	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

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

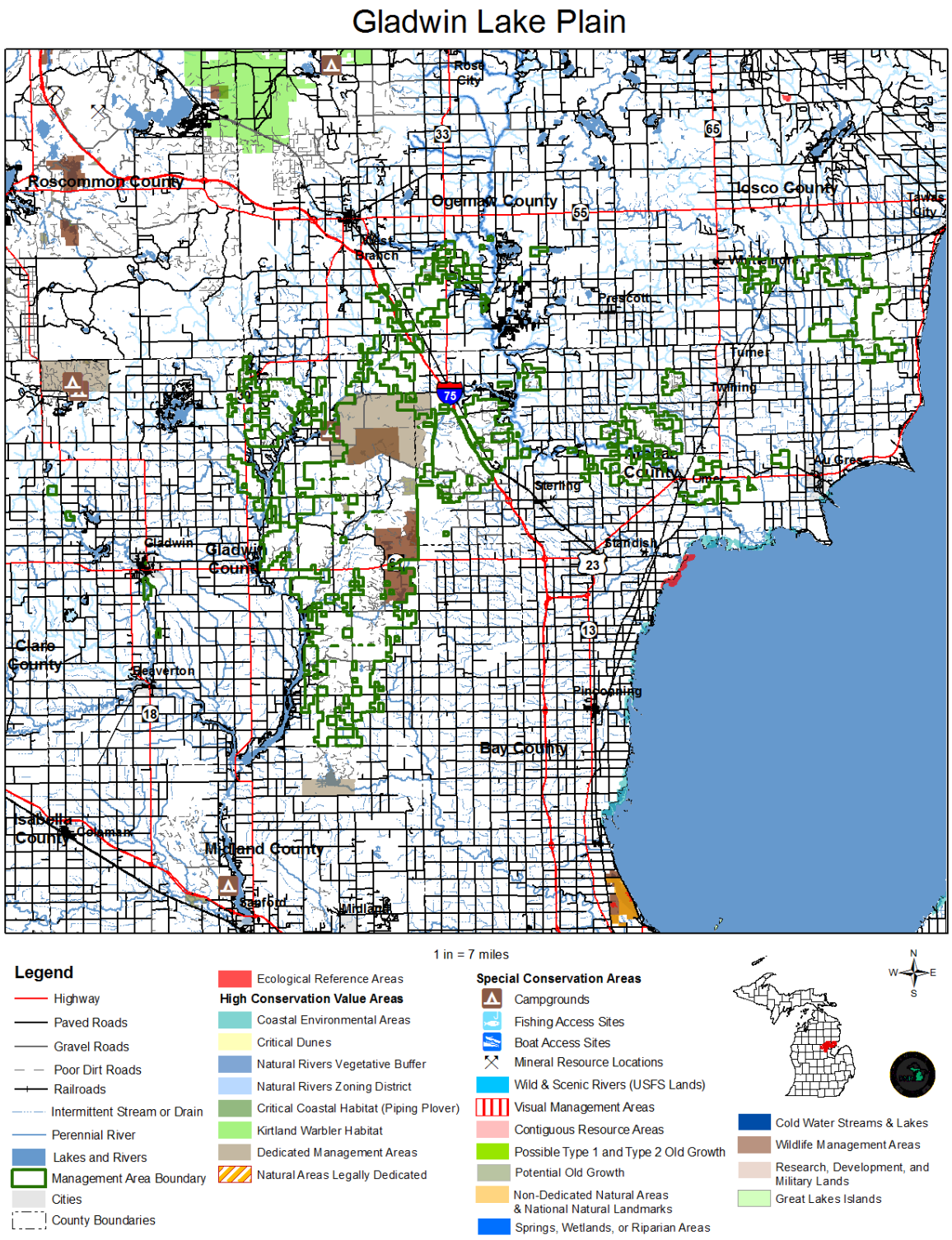

Figure 4.32.5. A map of the Gladwin Lake Plain management area showing the special resource areas.

4.32.4 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 include oak decline and oak wilt 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 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.

Invasive Species

Invasive species pose a major threat to forest resources. They impact timber production, wildlife habitat and recreational access. Currently no invasive species are mapped in 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 have noted the presence of *Phragmites* in this management area. This information and other sources that show the extent and location of invasives should be used to inform of the potential for additional sightings that should be documented. Invasives merit eradication efforts are those species threaten sensitive sites due to their location or growth characteristics and have population levels and may be successfully controlled.

4.32.5 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 4.32.1 and listed in Appendix F.

4.32.6 Fire Management

Lowland deciduous stands which have historically been a major component of this management area are rarely impacted by natural fire regimes. However, disturbance through fire has played an important role in the initial propagation and maintenance of oak and natural oak/pine types, small inclusions of aspen or open land herbaceous/upland shrub 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 dependant 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 opportunities to re-introduce 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
- Recognize that increased urbanization in close proximity to the management area will present more wildland/urban interface challenges to wildfire suppression.

4.32.7 Public Access and Recreation

Access in this management area is primarily by dirt road, two-tracks and the Gladwin Trail. Seasonal flooding due to a high water table may severely limit access. 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.

The following trails and recreation facilities are located in this management area:

Boating Access Sites (Figure 4.32.3)

- Kenneth Road – Rifle River
- Secord Lake North
- Secord Lake South

Off-Road Vehicle Trails (Figure 4.32.1)

- Gladwin Route
- Gladwin Trail
- Gladwin Trail and Michigan Cycle Conservation Club Trail
- M-30 North Gladwin Michigan Cycle Conservation Club Trail

Non-Motorized Trails (Figure 4.32.1)

- Midland to Mackinaw Boy Scout Trail

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 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 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 Guidance.

4.32.8 Oil, Gas and Mineral Development

Surface sediments consist of lacustrine (lake) sand, gravel, clay and silt, Fine-textured till, an end moraine of fine-texture till, glacial outwash sand and gravel and postglacial alluvium and dune sand. The glacial drift thickness varies between 10 and 400 feet. Sand and gravel pits are located in this management area and there is potential for additional pits.

The Jurassic Red Beds and Pennsylvanian Saginaw Formation, Bayport Limestone and Michigan Formation, and Mississippian Marshall Sandstone and Coldwater Shale subcrop below the glacial drift. The Saginaw is quarried for clay in brick making, the Bayport for limestone and the Michigan for gypsum elsewhere in the state. The southern end of the Gladwin county has been leased for nonmetallic mineral potash exploration. The only solution potash production,in the state comes from the Hersey area in Osceola county.

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 some of the lands are currently leased in this management area. The Collingwood Formation does not appear to have much 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.