

4.12 MA 12 – Garden Thompson Plains Management Area

Summary of Use and Management

Vegetative management in the Garden Thompson Plains management area (MA) (Figure 4.12.1) will emphasize the intensive timber management of the upland forest types within this area, such as the red pine management area along U.S.-2. The Thompson Plains, a large opening complex north of U.S.-2, is managed specifically for wildlife. Primary values associated with the plains are the maintenance of an herbaceous community suitable for species such as sharp-tailed grouse and upland sandpiper. Management will also protect unique areas and threatened, endangered and special concern species; and provide recreational opportunities. Timber management objectives include improving the age class distribution of aspen, red pine and jack pine; and increasing the proportion of young oak. Expected issues in this 10-year planning period are increased illegal off-road vehicle use; introduced pests and diseases, such as beech bark disease and emerald ash borer; and control of non-native species, such as autumn olive.

Introduction

The Garden Thompson Plains management area is located in the western part of the eastern Upper Peninsula in Schoolcraft and Delta Counties. It has approximately 27,408 acres of state-owned land. The primary attributes are intensive timber production along the U.S.-2 corridor, and wildlife habitat management of a large open-land complex. Additional attributes which were important in identifying this management area include:

- The management area falls within the Niagaran Escarpment and Lake Plain subsection 8.1 of the eastern Upper Peninsula Ecoregion (Albert, 1995).
- The dominant landform consists of sandy lake plain and limestone bedrock at or near the surface.
- Recreational activities for nearby towns, including: skiing, hunting and snowmobiling.
- This management area contains one of the eastern Upper 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 and deer. 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 management area contains several Michigan Natural Features Inventory recognized element occurrences, special conservation area deer wintering areas and four ecological reference areas.

This management area has a unique climate along Lake Michigan. Coniferous species and red maple near Lake Michigan have a high-value to neotropical migrating bird species.

A sesquicentennial pine stand was planted along U.S.-2 in 1987. Historic Fayette State Park is nearby. There are several known archeological sites within the management area.

The state land in this management area is concentrated. Most of the management area was acquired in a land exchange with the federal government for state in-holdings within the Hiawatha National Forest. The management area is within the Shingleton Forest Management Unit. The predominant cover types, acreages and projected harvest acres for the management area are shown in Table 4.12.1.

Garden Thompson Plains

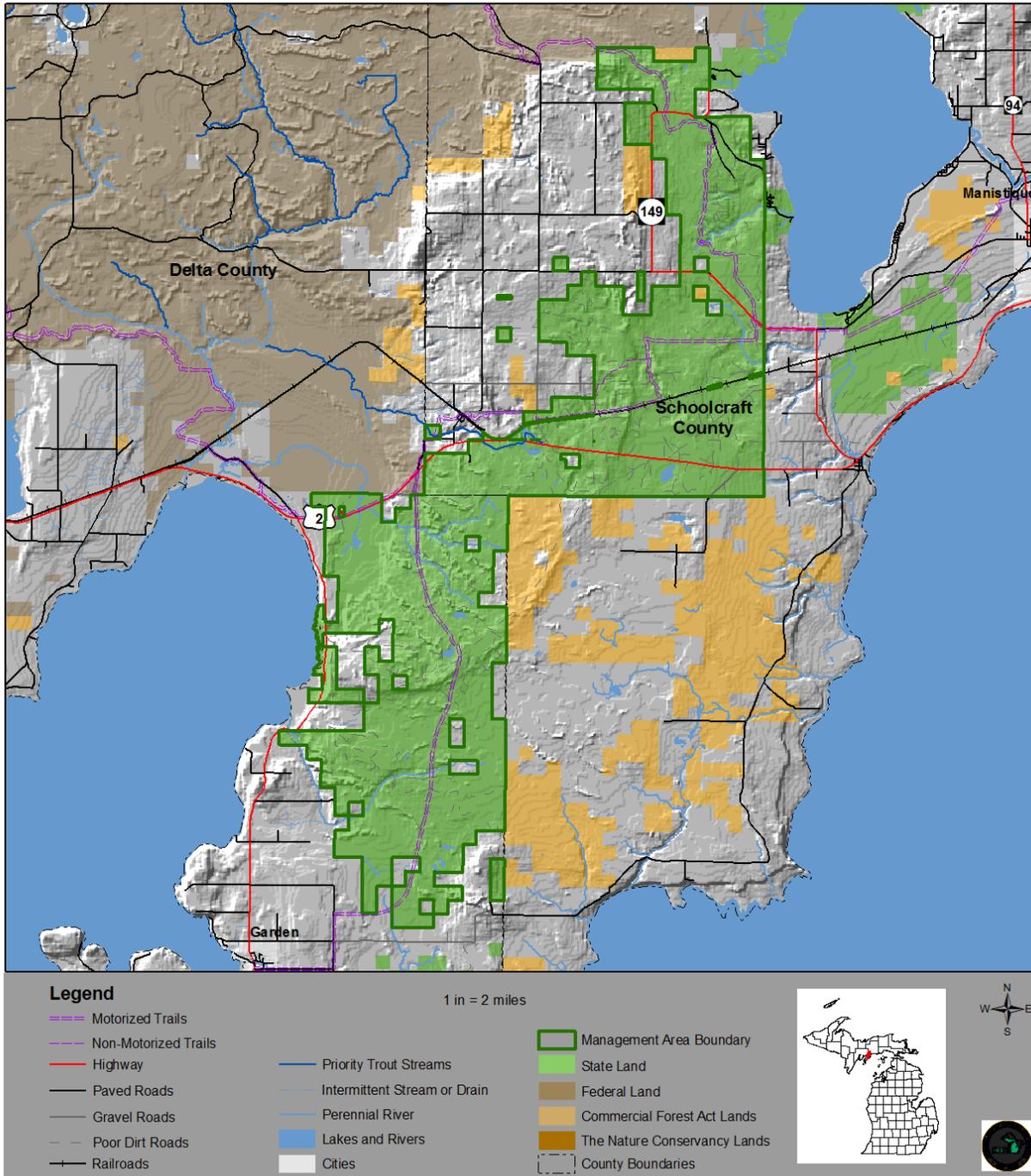


Figure 4.12.1. Location of the Garden Thompson Plains management area (dark green boundary) in relation to adjacent state forest lands other ownerships and Lake Michigan.

Table 4.12.1. Current cover types, acreages, projected harvest acres and projected ten-year cover type acreage for the Garden Thompson Plains management area, eastern Upper Peninsula ecoregion (2012 Department of Natural Resources inventory data).

Cover Type	Cover %	Current Acreage	Hard Factor Limited Acres	Manageable Acres	10 Year Projected Harvest (Acres)		Projected Acreage in 10 Years	Desired Future Harvest (Acres)	
					Final Harvest	Partial Harvest		Final Harvest	Partial Harvest
Aspen	30%	8,211	47	8,164	472	0	8,211	1,361	0
Northern Hardwood	11%	3,079	24	3,055	0	1,057	3,079	0	1,436
Red Pine	11%	2,932	0	2,932	112	266	2,932	326	1,264
Cedar	8%	2,181	0	2,181	136	0	2,181	136	0
Upland Open/Semi-Open Lands	7%	1,868	0	1,868	0	0	1,868	0	0
Lowland Conifers	5%	1,425	535	890	184	0	1,425	99	0
Lowland Open/Semi-Open Lands	5%	1,420	0	1,420	0	0	1,420	0	0
Oak	4%	979	52	927	103	251	979	103	292
Jack Pine	3%	948	0	948	0	0	948	135	0
Misc Other (Water, Local, Urban)	1%	343	0	343	0	0	343	0	0
Others	15%	4,022	375	3,647	259	372	4,022	409	382
Total	100%	27,408	1,033	26,375	1,266	1,946	27,408	2,569	3,374

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

4.12.1 Forest Cover Type Management Direction

The following sections contain information on vegetation management direction in the form of Desired Future Conditions, 10-Year Management Objectives and Long-Term Management Objectives for each of the major cover types or forest communities within the management area. This information applies to those portions of the forest where active management (i.e., timber harvest, prescribed fire, planting and mowing) will be conducted. In other portions of the state forest, passive management resulting in natural succession will achieve ecological objectives. While most stands have a variety of tree species and other vegetation, they are classified by the predominant canopy species.

All of the following cover types are valued commercially for their timber products; ecologically as sources of habitat for numerous species; and for the variety of recreational opportunities they provide. Harvesting these cover types will provide for a continuous flow of forest products and values.

Section 4.12.1.1 Forest Cover Type Management - Aspen

Current Condition

Aspen occurs on 8,211 acres (30%) of the management area (Table 4.12.1). Aspen stands in this management area are most often found on sandy soils of outwash plains, lake plains and moraines with PARV, PARVAa and ATFD Kotar habitat types (see Appendix E). Aspen has been consistently harvested and regenerated in recent years, resulting in approximately 85% of the acreage being less than 40 years old (Figure 4.12.2). Aspen within the Garden Thompson Plains Grouse Enhanced Management System area may be managed slightly different than the rest of the aspen within the management area, through shorter rotations and smaller harvest areas.

There are currently 520 acres of aspen prescribed for final harvest. There are 47 acres of aspen that have site conditions limiting their harvest at this time. These hard factor limited acres have been removed from harvest calculations. Inaccessible aspen areas will eventually succeed to late successional species.

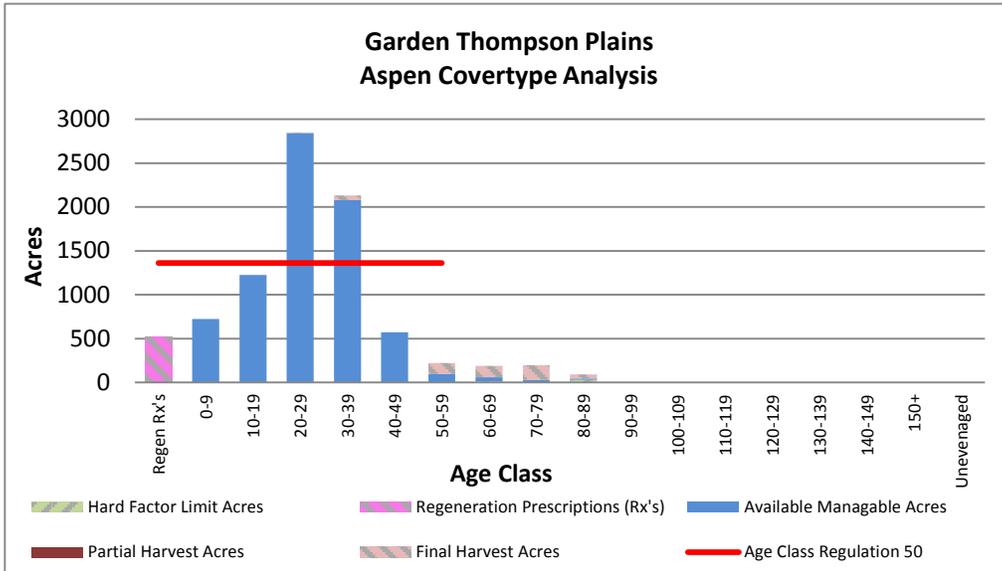


Figure 4.12.2. Age class distribution of aspen in the Garden Thompson Plains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

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

10-Year Management Objectives

- The projected 10-year final harvest is approximately 472 acres with the reduction in acres from the regulated amount being due to the current age-class structure where the majority of the stands are below 40 years of age; and
- Aspen within the identified Grouse Enhanced Management Systems area may be managed differently than the rest of the aspen within the management area, with a shorter rotation age, small patch cuts and carefully considered stand adjacency.

Long-Term Management Objectives

- Balance the age-class structure of accessible aspen stands providing for a regulated harvest of approximately 1,361 acres per decade (red line in Figure 4.12.2).

Section 4.12.1.2 Forest Cover Type Management – Northern Hardwoods

Current Condition

Northern hardwood occurs on 3,079 acres (11%) of the management area (Table 4.12.1). Northern hardwoods are distributed on loam and sand soils of moraines, ground moraines, disintegration moraines, outwash plains and lake plains with Kotar habitat types of AFPo, ATFD and PArVAa. The majority of the hardwood is found in the northern portion of the management area and is of good quality. In the Garden Peninsula, hardwood quality is generally poor, so not all stands are managed as uneven-aged. Where stand quality warrants, selection harvests will occur in stands with a basal area over 120 square feet per acre. In general, this will allow most hardwood stands to be selectively harvested every 20 years. Where site quality is poor, shelterwood and other even-aged harvesting systems will be considered. Stands that have been recently harvested through even-aged systems are shown in the immature column in Figure 4.12.3.

Beech is a major component in many of these hardwood stands and beech bark disease is prevalent throughout the management area. Many stands have had or will have salvage harvests due to beech bark disease. Northern hardwood stands that had a component of beech now have decreased stocking levels due to beech bark disease mortality and salvage harvesting. Further selection harvesting will be delayed due to resultant lower than normal residual basal area.

Currently there are 1,491 acres with a partial harvest method of cut assigned (Figure 4.12.3). There are 24 acres of northern hardwood that have site conditions limiting their harvest this entry period. These hard factor limited acres have been removed from harvest calculations.

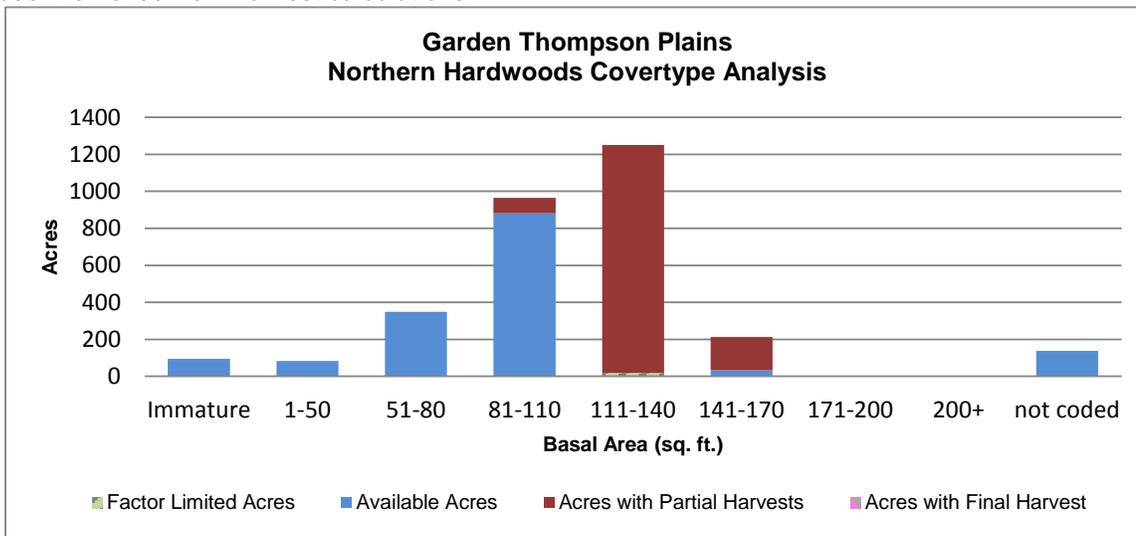


Figure 4.12.3. Basal area distribution of northern hardwoods in the Garden Thompson Plains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Northern hardwood stands will be maintained on operable sites using individual tree selection harvesting to provide all-aged composition and structurally diverse stands. Harvesting will provide for a continuous flow of timber products, a variety of wildlife habitats and recreational opportunities.

10-Year Management Objectives

- The ten-year projected partial or selection harvest is 1,057 acres of northern hardwood;
- Evaluate stands previously dominated by beech to determine the impact of beech bark disease on regeneration;
- Track beech regeneration in these stands;
- Consider herbicide application on beech regeneration to promote regeneration of other species; and
- In areas that are losing beech to beech bark disease, consider planting disease resistant beech or oak after harvesting to increase the availability of hard mast.

Long-Term Management Objectives

- Select harvest northern hardwood stands on a 20-year cycle.

Section 4.12.1.3 Forest Cover Type Management – Red Pine

Current Condition

Red pine stands occur on 2,932 acres (11%) of the management area (Table 4.12.1). Red pine stands throughout the management area are found on sandy soils of outwash plains and lake plains with Kotar habitat types of PARV, PARVAa and PVE. The majority of the red pine stands is of planted origin and is intensively managed. Red pine stands on these high-quality sites are usually thinned every ten years reducing basal area to approximately 120 square feet per acre, until replacement harvest age at 80. Most of the stands in this management area have been thinned more than once, and regeneration harvests followed by re-planting have started to diversify the age classes. Natural pine stands are generally harvested using shelterwood or seed tree methods resulting in natural regeneration intermixed with other species.

Currently there are 63 acres prescribed with a final harvest and 1,511 acres prescribed for partial harvest or thinning (Figure 4.12.4). At this time there are no stands that have site conditions limiting their harvest. Red pine in inaccessible or sensitive areas may remain through biological maturity.

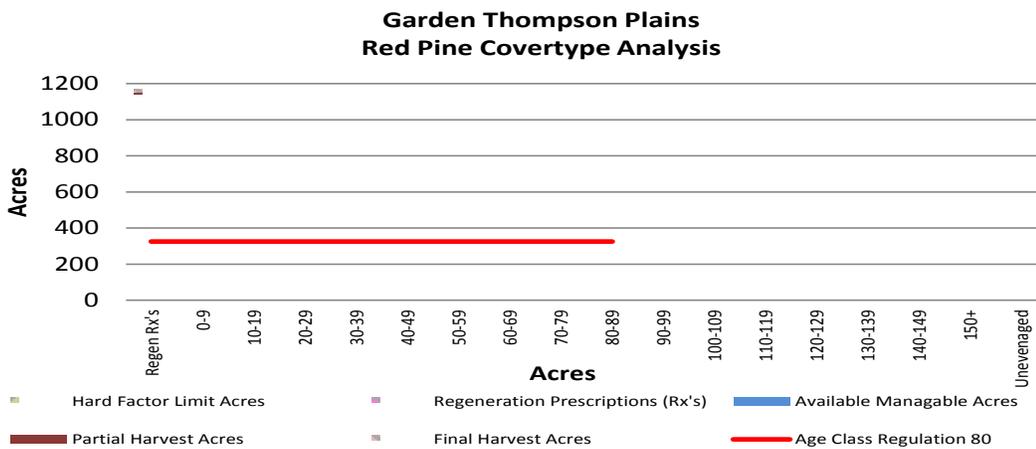


Figure 4.12.4. Age-class distribution of red pine in the Garden Thompson Plains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Red pine stands will be maintained and managed through thinning until stand replacement harvest at approximately age 80;
- Balancing acres between 0-89 years of age will provide for continual harvesting, wildlife habitat and recreational opportunities.

10-Year Management Objectives

- The 10-year projected harvest is 112 acres of final harvest to work toward balancing the age classes of red pine. This is lower than the regulated amount due to the current age class structure where the majority of stands are not yet at rotation age; and
- The 10-year projected partial harvest or thinning of red pine is 266 acres of stands 40-80 years old.

Long-Term Management Objectives

- Balance the age class distribution of red pine providing for a regulated final harvest of approximately 326 acres per decade; and
- Stands will be periodically thinned until they meet silvicultural criteria.

Section 4.12.1.4 Forest Cover Type Management – Cedar

Current Condition

Northern white cedar occurs on 2,181 acres (8%) of the management area (Table 4.12.1). The majority of the cedar stands in the management area are found south of U.S.-2. Cedar stands provide important wintering habitat for deer and there are deer wintering habitat special conservation areas within the management area. Cedar stands will be managed to maintain wintering habitat for deer and to retain this forest type in the landscape. Maintaining a closed canopy provides cover for deer and reduces snow depth within the stands. Cedar is a preferred winter food species of deer. This complicates regeneration efforts in areas of winter deer concentrations.

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

Currently there are no acres of cedar prescribed for harvest (Figure 4.12.5). At this time there are no cedar stands with site conditions limiting harvest.

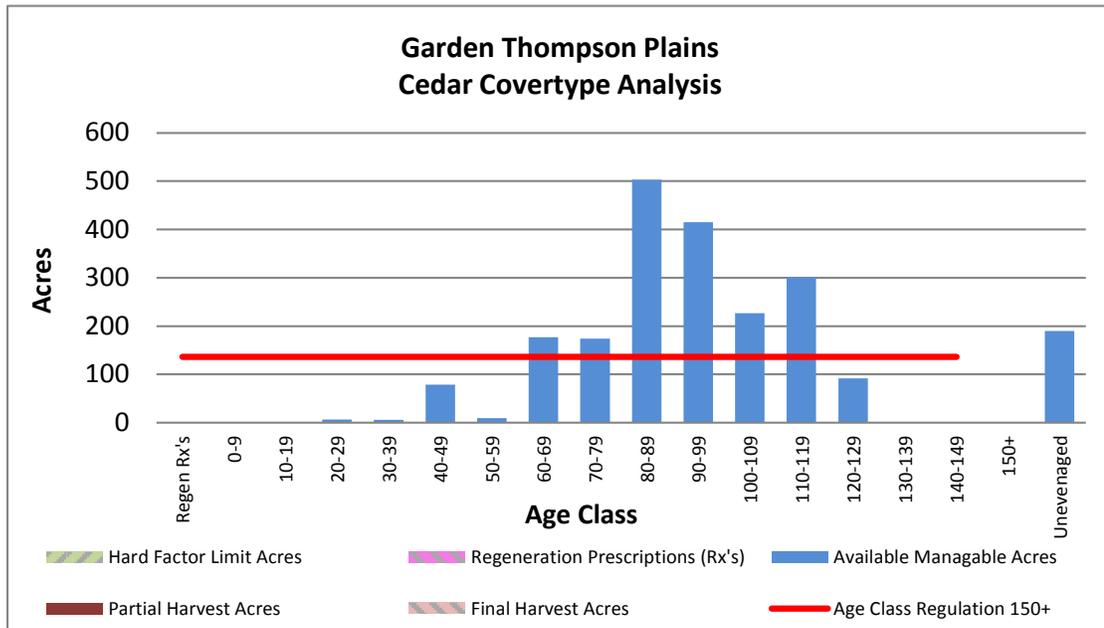


Figure 4.12.5. Age-class distribution of cedar in the Garden Thompson Plains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Where deer wintering activities are not a concern cedar will be maintained on operable sites through even-aged management.

10-Year Management Objectives

- The ten-year projected final harvest of cedar is 136 acres.

Long-Term Management Objectives

- Develop a comprehensive deeryard management plan focusing on cedar management for winter deer habitat;
- Look for opportunities to test different methods of regenerating cedar, especially outside deer wintering areas;
- Consider harvest of cedar before rotation age to begin to diversify the age classes; and
- Using a 150 year regulated rotation would allow approximately 136 acres to be final harvested per decade.

Section 4.12.1.5 Forest Cover Type Management – Upland Open/Semi-Open Lands

Current Condition

Upland open/semi-open lands occur on 1,868 acres (7%) of the management area. This category is a combination of the following non-forested land cover types: herbaceous openland (1,632 acres), bare/sparsely vegetated (122 acres), upland shrub (87 acres) and low-density trees (27 acres). These communities are valued ecologically as sources of open land habitat for numerous species of wildlife. The Thompson Plains is the largest open-land complex in the management area. The Thompson Plains has been intensively managed through prescribed burning for open-land species such as sharp-tailed grouse and upland sandpiper.

Desired Future Condition

- The Thompson Plains and other open areas in the management area will be maintained to encourage early successional plants, to benefit open-land wildlife species and to provide for recreational opportunities.

Long-Term Management Objectives

- Continue opening maintenance using prescribed burning, timber sales and other treatments as needed.

Section 4.12.1.6 Forest Cover Type Management – Lowland Conifer

Current Condition

Lowland conifer occurs on 1,425 acres (5%) of the management area (Table 4.12.1). The majority of the lowland conifer stands in the management area are south of U.S.-2, in the Garden Peninsula. Lowland conifer stands have been successfully harvested and regenerated in this area resulting in many age classes (Figure 4.12.6). Lowland conifer stands along the Lake Michigan shoreline provide valuable forage to many migrating neotropical bird species. Lowland conifer stands with a high proportion of cedar may be used by deer in the winter. Access to some stands is limited due to wet ground.

Currently there are 83 acres of lowland conifer with a final harvest prescribed. There are 535 acres of lowland conifer that have site conditions limiting their harvest this entry cycle. These hard factor limited acres have been removed from harvest calculations. Lowland conifer stands in areas inaccessible for harvest will be subject to natural processes resulting in a range of successional stages.

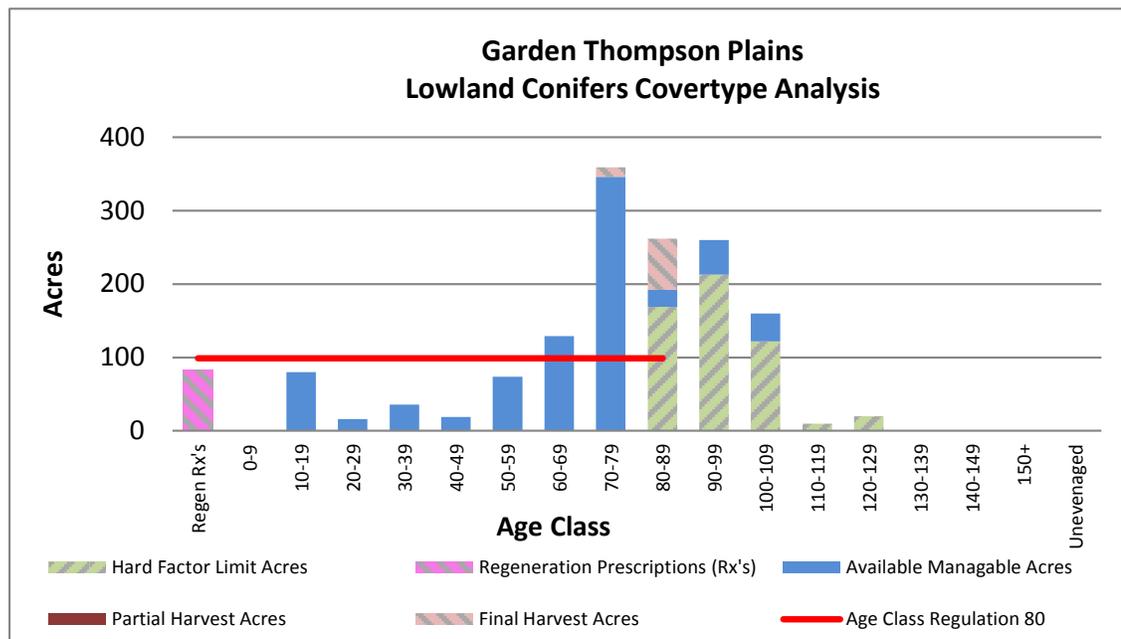


Figure 4.12.6. Age-class distribution of lowland conifers in the Garden Thompson Plains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Lowland conifer stands will be maintained on operable sites through even-aged management, with acres balanced between 0-89 years of age providing for a continuous supply of timber, wildlife habitat and recreational opportunities.

10-Year Management Objectives

- The 10-year projected final harvest is 184 acres of lowland conifers which is higher than the regulated amount due to the current age class structure where the majority of the stands are in older classes.

Long-Term Management Objectives

- Balance the age-class structure of available stands providing for a regulated harvest of approximately 99 acres each decade.

Section 4.12.1.7 Forest Cover Type Management – Lowland Open/Semi-Open Lands

Current Condition

Lowland open/semi-open lands occur on 1,420 acres (5%). This category is a combination of lowland shrub (842 acres), treed bog (461 acres), bog (82 acres) and marsh (35 acres). These cover types function ecologically as sources of habitat for numerous species of wildlife. The majority of these stands are found in the southern portion of the management area in association with creeks, rivers and lowland forested stands.

Desired Future Condition

- Lowland open/semi-open lands will be retained in their current state to ensure an adequate level of wildlife habitat and recreational opportunity.

Long-Term Management Objectives

- In general, these stands will be maintained without active management to protect their ecological values.

Section 4.12.1.8 Forest Cover Type Management – Other Types

Current Condition

There are many cover types spread across the management area that occur on less than 5% of the total management area acres (Table 4.12.1). Oak occurs on 979 acres (4%) and jack pine occurs on 948 acres (3%) of the management area. The “other types” category with 4,022 acres (15% of the management area) includes the following cover types, each with 2% or less of the total area: upland conifers (528 acres), upland spruce/fir (442 acres), lowland aspen/balsam poplar (433 acres), lowland deciduous (392 acres), lowland mixed forest (371 acres), lowland spruce/fir (365 acres), upland mixed forest (346 acres), hemlock (334 acres), mixed upland deciduous (270 acres), white pine (214 acres), paper birch (180 acres), natural mixed pines (116 acres) and tamarack (31 acres).

In general, most of these cover types will be managed as even-aged stands using natural regeneration after harvest. White pine, oak and hemlock may be managed using uneven-aged management. Mixed cover types with high basal area may be thinned, depending on the species composition, prior to final harvest. There are also 343 acres (1%) in the “miscellaneous other” category which includes, roads, water and sand/soil.

There are 426 acres of these other minor cover types have site conditions limiting their harvest at this time. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations. Some stands found on low, wet ground may be inaccessible for harvesting and will be subject to succession.

Desired Future Condition

- These cover types may be managed on operable sites contributing to the compositional diversity of the landscape while providing for continual harvest, wildlife habitat and recreational opportunities.

10-Year Management Objectives

- The projected 10-year final harvest is 103 acres of oak and 259 acres of other types; and
- The projected 10-year partial harvest is 251 acres of oak and 372 acres of other types.

Long-Term Management Objectives

- Continue management of these other cover types to provide a sustainable yield of forest products and wildlife habitat.

4.12.2 – Featured Wildlife Species

Wildlife values in aspen and northern hardwoods vegetative communities are high and primarily oriented to game species management though other species benefit as well. In the southern portion of the management area there is good open land habitat that supports a sharp-tailed grouse population and there is a viable wild turkey population. In addition, there are many wildlife values associated with the Lake Michigan shoreline including neo-tropical migrants and woodcock.

This management area will include one of the eastern Upper 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 boundary may be managed to enhance habitat and hunting opportunities for ruffed grouse, woodcock, deer, and turkey. Habitat treatments may include managing aspen on a shortened rotation with multiple age classes and smaller stand sizes.

American Woodcock

The goal for woodcock in the eastern Upper Peninsula is to maintain or increase habitat. 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:

- Balance aspen age-class distribution within the management area.
- Maintain or increase the aspen cover type within the management area. Where associated with alder riparian zones or forested wetlands use silvicultural practices that encourage the aspen component in mixed stands.
- Maintain rough openings associated with alder, riparian zones or forested wetlands.

Ruffed Grouse

The goal for ruffed grouse in the eastern Upper Peninsula is to maintain or improve habitat. Management should focus on maintaining and balancing the age-class distribution for aspen in priority landscapes.

Wildlife habitat specifications:

- Maintain and balance the aspen cover type and increase the aspen component in mixed stands within the management area.
- Move to balance the age-class distribution of aspen and birch cover types to maintain young forests across the management area.
- 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.
- Larger harvest units should have irregular boundaries and retention patches are preferred.
- Promote a conifer component in aspen stands. Leave conifer under four-inch diameter at breast height in mixed stands and aspen types as immediate residual escape cover and to promote corridors.
- Maintain cherry production for soft mast.

White-tailed Deer

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

Wildlife habitat specifications for deer wintering complexes:

- Strive to maintain > 50% of the land area within deer wintering complexes in mixed or pure stands of cedar, hemlock, white and black spruce, white and natural red pine, balsam fir, mixed swamp conifer and mixed upland conifer-hardwood.
- In northern white cedar and hemlock cover types that are commonly occupied by deer during severe winters, especially in medium and high snowfall zones, maintain canopy closure of >65%.

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

Wild Turkey

The goal for turkey in the eastern Upper Peninsula is to provide sufficient habitat in order to continue to provide recreational opportunities to view and harvest turkeys. In priority landscapes, management should focus on providing natural winter food, maintaining and regenerating the hard mast component and maintaining brood-rearing openings to improve brood-production and winter survival to offset anticipated habitat losses.

Wildlife habitat specifications:

- Provide sources of winter food that are accessible above the snow, including both hard and soft mast tree and shrubs.
- Conserve the beech and oak component in forest stands, promote oak regeneration (use fire, reduce herbivory), and where absent, plant oak on appropriate sites and plant disease resistant beech.
- Maintain and increase the number of brood-rearing forest openings (forest openings, savannas, barrens, hayfields, etc.)
- Select for vegetation with open spaces between plants (warm season bunch grasses, row crops, and drill planted forages)
- Mow or burn patches every 3-5 years to eliminate woody vegetation succession.
- Promote or enhance small dense mature conifer stands for winter thermal cover and roosting sites.

4.12.3 – Rare Species and Special Resource Area Management

All forest operations must be reviewed for potential conflicts between rare species and proposed forest operations following the guidance in “DNR’s Approach to the Protection of Rare Species on State Forest Lands” (IC4172). This is especially important when listed species are present, past surveys have indicated a possibility of their presence, or when appropriate habitat is available and the species is known to occur in the general region.

Past surveys have noted and confirmed seven listed species as well as three natural communities of note occurring in the management area as listed in Table 4.12.2. 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.

There are several special conservation area deer wintering areas within the management area. Other special conservation areas include cold water streams and high priority trout streams (Figure 4.12.1). In addition, approximately 1,700 acres were identified as potential old growth (Figure 4.12.7) and these stands are also special conservation areas until they are evaluated.

No high conservation value areas have been identified in this management area.

The following ecological reference areas are found within this management area (Figure 4.12.7): intermittent wetland (40 acres and 95 acres), bog (62 acres) and wooded dune and swale (126 acres). Ecological reference areas will be managed to enhance and protect their natural vegetative and associated wildlife communities, as directed by an ecological reference area-specific management plan.

Management goals during this planning period:

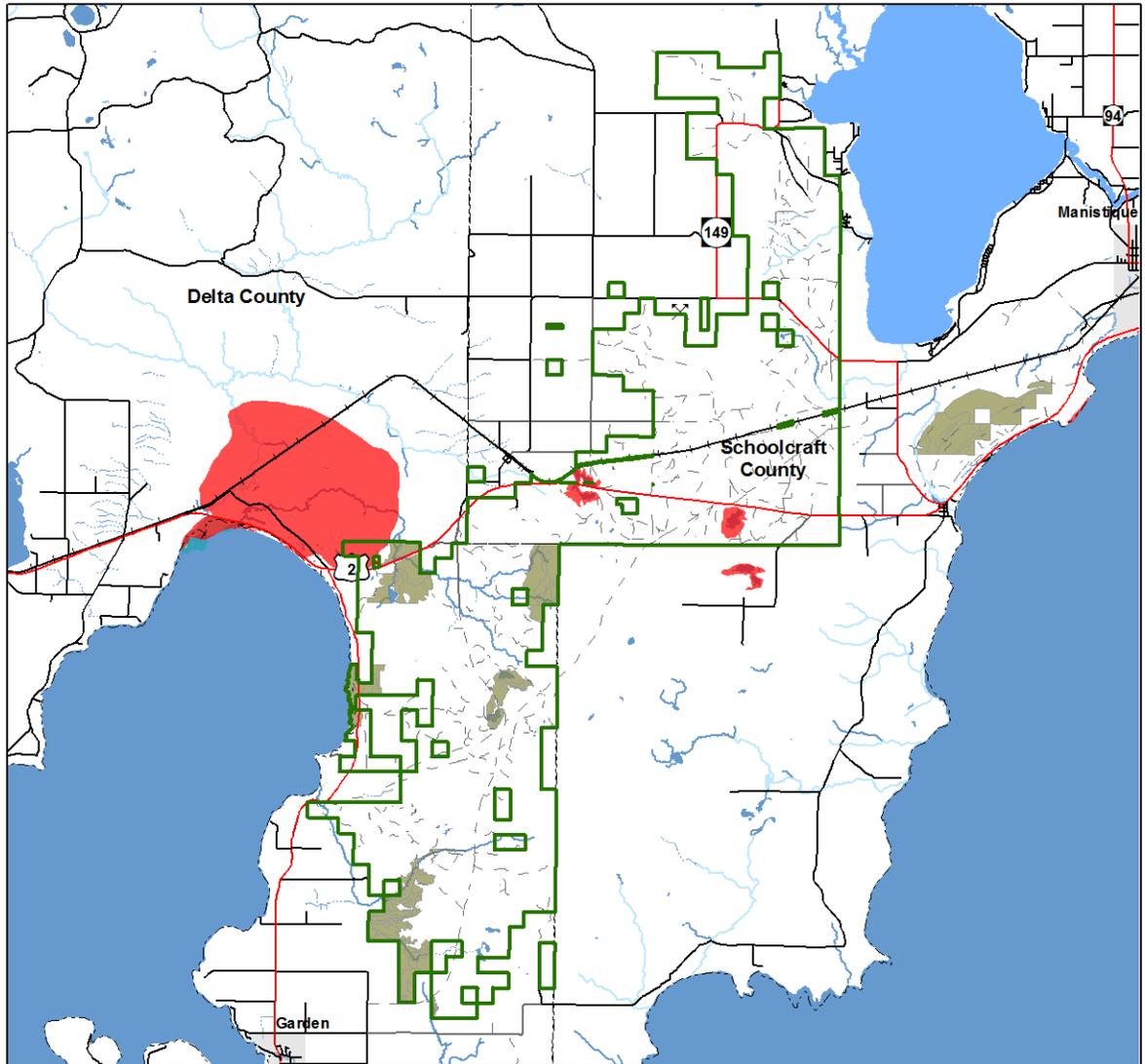
- Document occurrences of rare, threatened, endangered and special concern species and natural communities for the management area through the inventory process or with occasional focused surveys.
- Evaluate all potential Type 1, potential Type 2 and potential old growth areas to determine their status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

Table 4.12.2. Occurrence information for special concern, rare, threatened and endangered communities and species for the Garden Thompson Plains 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								
Bog		S4/G3G5	Confirmed				Lowland open/semi-open	N/A
Intermittent wetland		S3/G2	Confirmed				Lowland open/semi-open	N/A
Wooded dune and swale complex		S3/G3	Confirmed				Upland open/semi-open	N/A
Birds								
Grasshopper sparrow	<i>Ammodramus savannarum</i>	SC/G5/S3S4	Confirmed	PS	Moderate	Dry sand prairie	Upland open/semi-open	N/A
						Mesic prairie	Upland open/semi-open	N/A
						Lakeplain wet prairie	Lowland open/semi-open	N/A
						Lakeplain wet-mesic prairie	Lowland open/semi-open	N/A
						Wet prairie	Lowland open/semi-open	N/A
						Wet-mesic sand prairie	Lowland open/semi-open	N/A
						Hillside prairie	Upland open/semi-open	N/A
						Mesic sand prairie	Upland open/semi-open	N/A
Kirtland's warbler	<i>Dendroica kirtlandii</i>	LE/E/G1/S1	Confirmed	PS	Very High	Pine barrens	Jack Pine	Early
						Dry northern forest	Jack Pine, Red Pine	Early
Bald eagle	<i>Haliaeetus leucocephalus</i>	SC/G5/S4	Confirmed	IL	Moderate	Bog	Lowland open/semi-open	N/A
						Hardwood-conifer swamp	Lowland Mixed	Mid
						Northern hardwood swamp	Black Ash	Late
						Poor conifer swamp	Tamarack	Late
						Floodplain forest	Lowland mixed	Mid
						Dry northern forest	Jack Pine, Red Pine	Early
						Dry-mesic northern forest	White Pine	Late
						Mesic northern Forest	Northern Hardwood	Late
Osprey	<i>Pandion haliaetus</i>	SC/G5/S2-3	Confirmed	PS	Low	Coastal fen	Lowland open/semi-open	N/A
						Northern hardwood swamp	Black Ash	Late
						Floodplain forest	Lowland Mixed	Mid
						Hardwood-conifer swamp	Lowland Mixed	Mid
Sharp-tailed grouse	<i>Tympanuchus phasianellus</i>	SC/G5/S4	Confirmed	PS	Moderate	Pine barrens	Jack Pine	Early
						Oak-pine barrens	Oak	Mid
						Dry sand prairie	Upland open/semi-open	N/A
						Wet-mesic sand prairie	Upland open/semi-open	N/A
						Northern shrub thicket	Upland open/semi-open	N/A
Snail								
Eastern flat-whorl	<i>Planogyra asteriscus</i>	SC/G4/S3	Confirmed	EV	Low	Limestone cliff	Upland open/semi-open	N/A
						Rich conifer swamp	Tamarack	Late
						Northern fen	Lowland open/semi-open	N/A
						Northern shrub thicket	Upland open/semi-open	N/A
						Coastal fen	Lowland open/semi-open	N/A
Plants								
Torrey's bulrush	<i>Scripus torreyi</i>	SC/G5?/S2S3	Confirmed			Intermittent wetland	Lowland open/semi-open	N/A

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

Garden Thompson Plains



1 in = 2 miles

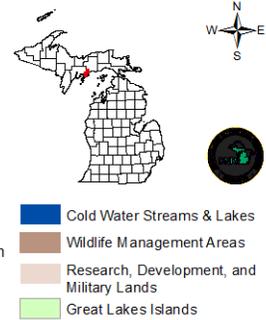
Legend

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

- Ecological Reference Areas
- High Conservation Value 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 4.12.7. A map of the Garden Thompson Plains management area showing the special resource areas.

4.12.4 – 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. The following forest health threats are present within this management area:

- Aspen: white trunk rot and *Hypoxylon* canker;
- Northern hardwoods: beech bark disease and emerald ash borer;
- Red pine: red-headed pine sawfly and pine engraver; and
- Lowland conifers: spruce budworm, eastern larch beetle and larch casebearer.

For further information on forest health refer to Section 3.

Invasive Plant Species

Invasive exotic species, specifically plants, may pose a significant forest health threat to forested and non-forested areas throughout the management area. No invasive plant species have yet been documented within the management area, but Japanese knotweed and *Phragmites* have been documented within a five-mile buffer of the management area (Table 4.12.3) and monitoring efforts should specifically look for new populations of this species. Evaluate eradication treatments of any new populations of invasive plant species found in the management area. Invasive species that merit eradication efforts are those species that threaten sensitive sites due to their location or growth characteristics and have population levels that may be successfully controlled.

Autumn olive eradication efforts have been conducted in this management area.

Table 4.12.3 Invasive plant species within or near the Garden Thompson Plain management area (Data from the Michigan Invasive Plant Identification Network database).

Garden Thompson Plain - FRD Management Areas	Cases within FRD Areas	Cases within 5 Mile Buffer	Total number of cases	Total number of different Invasive Species
	0	2	2	2
Invasive Species within FRD Areas	Occurrences	Invasive Species within 5 Mile Buffer	Occurrences	
-	-	Japanese Knotweed <i>Fallopia japonica</i>	1	
-	-	Phragmites (Common Reed) <i>Phragmites australis</i>	1	

4.12.5 – Fire Management

At least half of the management area is found on dry, sandy soils that once supported a mix of barrens and dry to dry-mesic northern forests. These systems were probably maintained by periodic high intensity stand replacement fires, perhaps as often as every 75-100 years.

Prescribed burns to maintain large openings in the management area have been conducted in 1975, 1978, 1983/84, 1988, 1997 and 2010.

- Prescribed fire is used to maintain the open nature of the natural communities in this management area.
- No specific prevention activities are anticipated in this management area. Nearby state parks provide opportunities for prevention messages.
- This management area falls entirely within the DNR Thompson protection area. The Thompson Plains Zone dispatch area was discontinued in 2010.

4.12.6 – Public Access and Recreation

Access for management and recreation is good in this management area, with U.S.-2 going through and a well-developed two-track road system. Illegal off-road vehicle use and trash dumping are prevalent, due to proximity to population centers.

Recreational facilities include a snowmobile trail and a ski trail (Figure 4.12.1). Palms Book and Indian Lake State Parks are nearby.

Hunting, trapping, fishing, berry picking and off-road vehicle and horse riding are other important forms of recreation here. 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.

4.12.7 – Aquatic Resource Management

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

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

Forested stands adjacent to designated high priority trout streams will specifically be managed to discourage beaver use in accordance with both DNR Policy and Procedure 39.21-20 Beaver Management and IC 4011. Portions of the Fishdam River watershed have been designated as high priority trout stream in this management area and the details are shown in the Integrated Forest Monitoring Assessment and Prescription Geographic Decision Support Environment and in Figure 4.12.1.

4.12.8 – Minerals

Surface sediments consist of lacustrine (lake) sand and gravel and medium-textured till with minor peat and muck. The glacial drift thickness varies between zero and 100 feet. Sand and gravel pits are located in the management area, and there is potential especially on the uplands for additional pits.

The Silurian Manistique and Burnt Bluff Groups, Cabothead Shale subcrop below the glacial drift. The Burnt Bluff is quarried for limestone in the Upper Peninsula.

Exploration and development for oil and gas has been limited to a few wells drilled in the Upper Peninsula (four in Delta and five in Schoolcraft). No economic oil and gas production has been found in the Upper Peninsula.

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