4.35 Yellow Dog Plains Management Area

Summary of Use and Management

Vegetative management in the Yellow Dog Plains management area (MA) (Figure 4.35.1) will provide a variety of forest products; maintain or enhance wildlife habitat; protect areas with unique characteristics; and provide for forest based recreational uses. Timber management objectives for the 10-year planning period include improving the age-class distribution of jack pine; maintaining the conifer component in northern hardwood stands; maintaining the presence of minor cover types on the landscape; and maintaining non-forest vegetation types. Wildlife management objectives include addressing the habitat requirements identified for the following featured species: black bear, Kirtland's warbler and spruce grouse. Management activities may be constrained by site conditions and the skewed age-class distributions. Balancing age classes and potential insect (jack pine budworm) outbreaks will be issues for this 10-year planning period.

Introduction

The Yellow Dog Plains management area is on an outwash plain in northern Marquette County. The state forest covers about 3,800 acres and is somewhat scattered parcels. The major ownership in this vicinity is forest industry. The management area is dominated by the jack pine cover type. Other attributes that played a role in the definition of this management area include:

- Dominated by the dry northern forest natural community;
- Low-range in site quality;
- Provides multiple benefits including forest products and dispersed recreational activities; and
- Provides a variety of fish and wildlife habitats.

The management priority in this area is to continue to provide these multiple benefits while minimizing user conflicts.

The predominant cover types, composition and projected harvest areas for the Yellow Dog Plains management area are shown in Table 4.35.1.

Table 4.35.1. Summary of cover types, composition, limited factor area, manageable area and projected harvest area for the Yellow Dog Plains management area (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
Jack Pine	68%	2,567	104	2,463	214	0	2,567	352	0
Northern Hardwood	10%	362	44	318	0	157	362	0	157
White Pine	6%	225	0	225	48	86	225	14	86
Upland Open/Semi-Open Lands	0%	0	0	0	0	0	0	0	0
Lowland Open/Semi-Open Lands	2%	91	0	91	0	0	91	0	0
Misc Other (Water, Local, Urban)	0%	2	0	2	0	0	2	0	0
Others	14%	515	213	302	124	72	515	36	82
Total		3,762	361	3,401	385	315	3,762	402	325

Yellowdog Plains
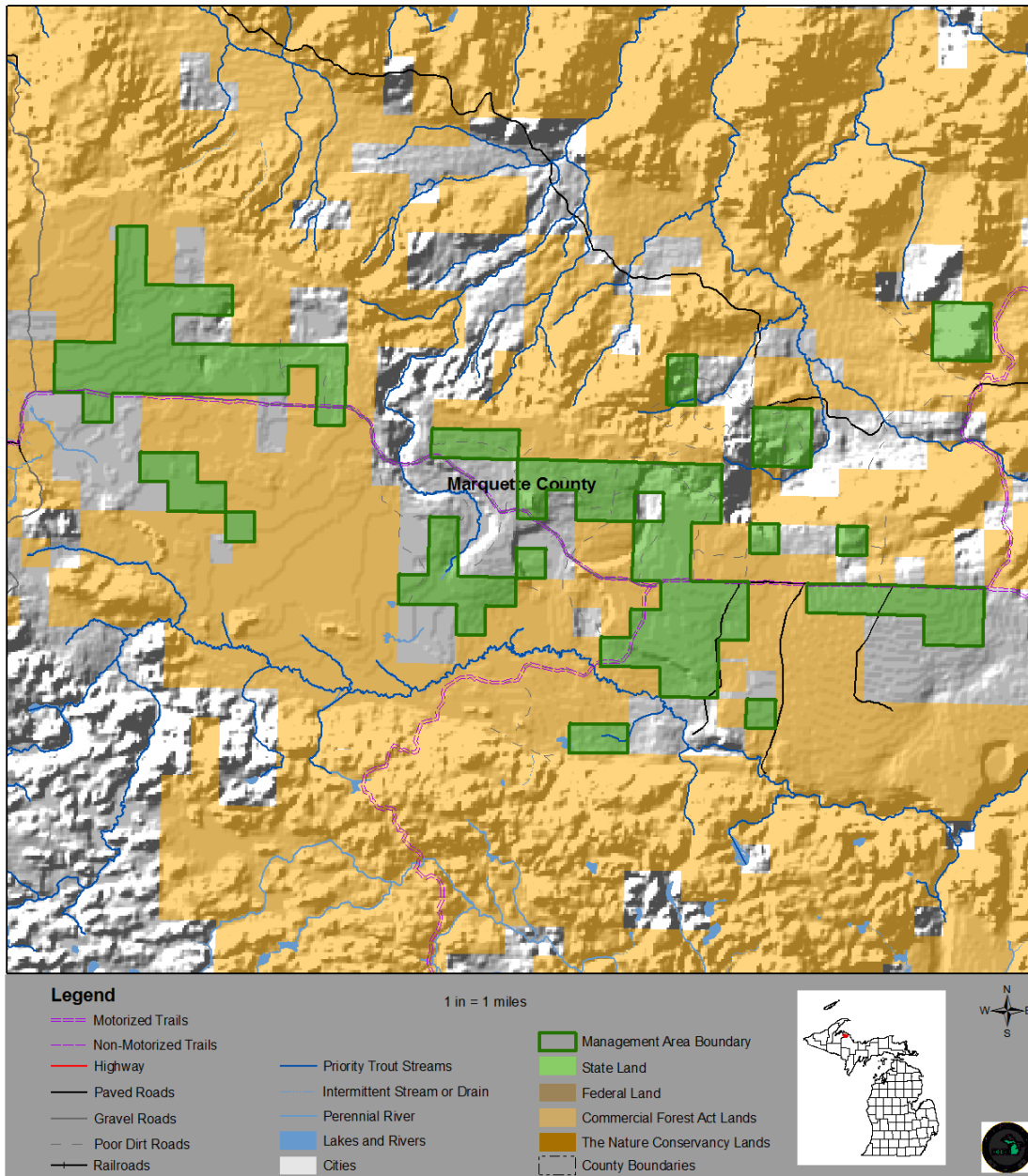
Figure 4.35.1. A map of the Yellow Dog Plains management area (dark green boundary) in relation to other state forest lands in Marquette County, Michigan.

4.35.1 Forest Cover Type Management Direction

The following sections contain information on vegetation management for each of the major cover types, a grouping of minor cover types and important non-forested vegetation types for the Yellow Dog Plains management area in the form of Desired Future Condition, 10-Year Management Objectives and Long-Term Management Objectives. This information applies to those portions of the forest where active management (e.g., timber harvest, prescribed fire, planting or mowing) will be conducted. In other portions of the state forest, the natural processes of succession and disturbance will provide ecological benefits. While most stands have a variety of tree species and other vegetation, they are classified by the species with dominant canopy coverage.

The following cover types are valued commercially for their timber products; ecologically as sources of habitat for numerous wildlife species; and for the variety of recreational opportunities they provide. Harvesting and regenerating these cover types will provide for a continuous flow of forest products and will help to ensure (or provide) wildlife habitat.

Jack Pine Cover Type

Current Condition

The jack pine cover type comprises 2,567 acres (68%) of the management area (Table 4.35.1). Most of the jack pine is unevenly distributed across age-classes with considerable surplus in the 0-9, 10-19 and 30-39 year-old age classes (Figure 4.35.2). Few acres of jack pine have limiting factors.
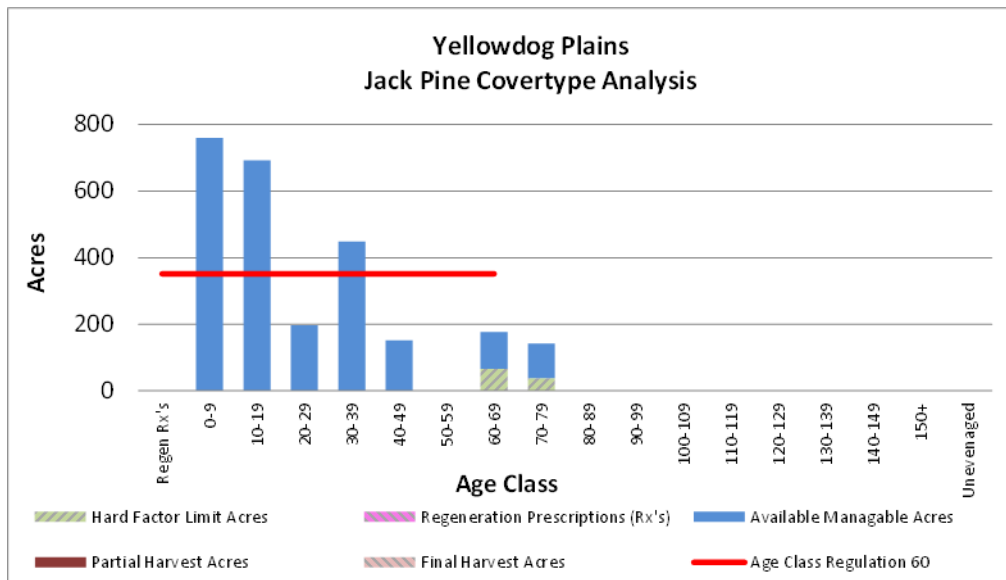

Figure 4.35.2. Graph of the age-class distribution for the jack pine cover type on the yellow Dog Plains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Balanced acres in each age class with a rotation age of 60 years;
- Provide an even supply of forest products;
- Provide for a balanced mix of habitat conditions for a variety of wildlife; and
- Provide for a variety of hunting-type opportunities.

Long-Term Management Objectives

- Manage jack pine on a 60-year rotation resulting in an estimated 352 acres harvested each decade; and
- Work to reduce the spikes in the younger age classes.

10-Year Management Objectives

- Harvest 214 acres during this 10-year planning period; and
- Manage portions of the jack pine in this management area as older age classes in retention patches.

Northern Hardwoods Cover Type

Current Condition

Northern hardwood stands make up 362 acres (10%) of state forest land in this area (Table 4.35.1). They occur on medium-quality sugar maple sites. Most stands have been managed on an uneven-aged basis using the selection harvest system. Some of the stands in this area have limiting factors. Due to low deer numbers in this area, there are few problems with herbivory and most areas regenerate successfully. Northern hardwood managed on an uneven-aged system is based on basal area rather than a rotation age.
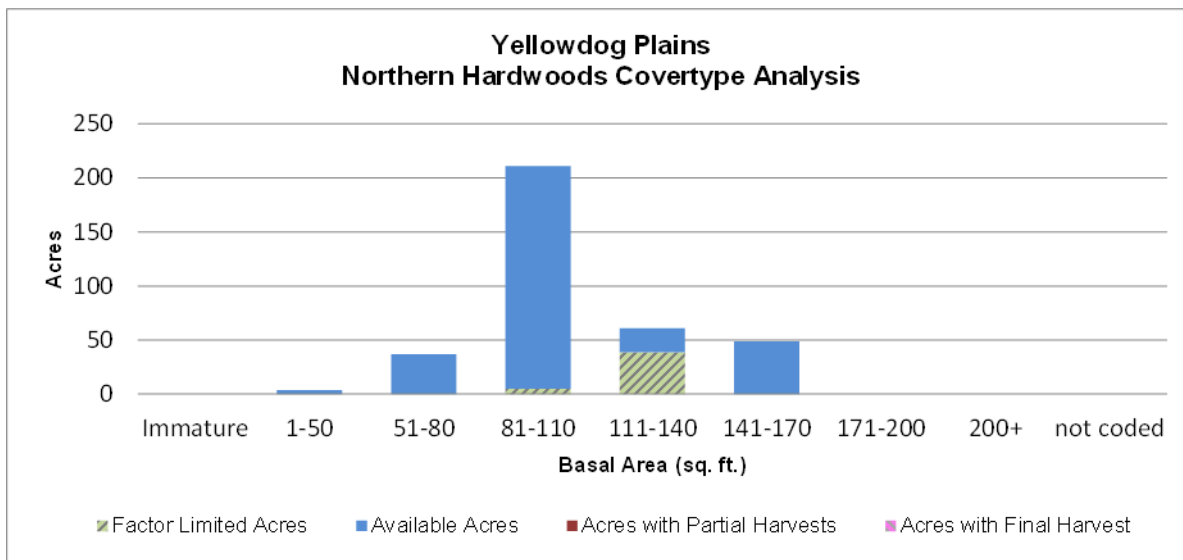
Figure 4.35.3. Graph of the basal area distribution for the northern hardwood cover type on the yellow Dog Plains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Uneven-aged northern hardwood stand structure promoting high-value sugar maple sawlogs with a full complement of tree seedlings recruiting into the overstory, well-developed shrub and herbaceous layers.

Long-Term Management Objectives

- Using an uneven-aged system, selectively harvest high-quality northern hardwood stands on a 20-year cycle to maintain high growth rates and minimize stagnant growth periods resulting in an estimated 157 acres harvested each decade; and
- Maintain and encourage minor species to increase in-stand diversity.

10-Year Management Objectives

- Selectively harvest 157 acres during this 10-year planning period;
- Maintain and promote white pine, oak, hemlock and upland cedar where they occur in stands that are harvested, favoring oak as retention; and
- Work to regenerate hemlock components in stands lacking that species.

White Pine Cover Type

Current Condition

The white pine cover type covers 225 acres (6%) of the state forest in this management area. It is poorly distributed across age classes, with most of the acres in the 70-79 and 80-89 year-old age classes. All the white pine is of natural origin.

Yellowdog Plains
White Pine Covertype Analysis

Legend:
- Hard Factor Limit Acres
- Regeneration Prescriptions (Rx's)
- Available Managable Acres
- Partial Harvest Acres
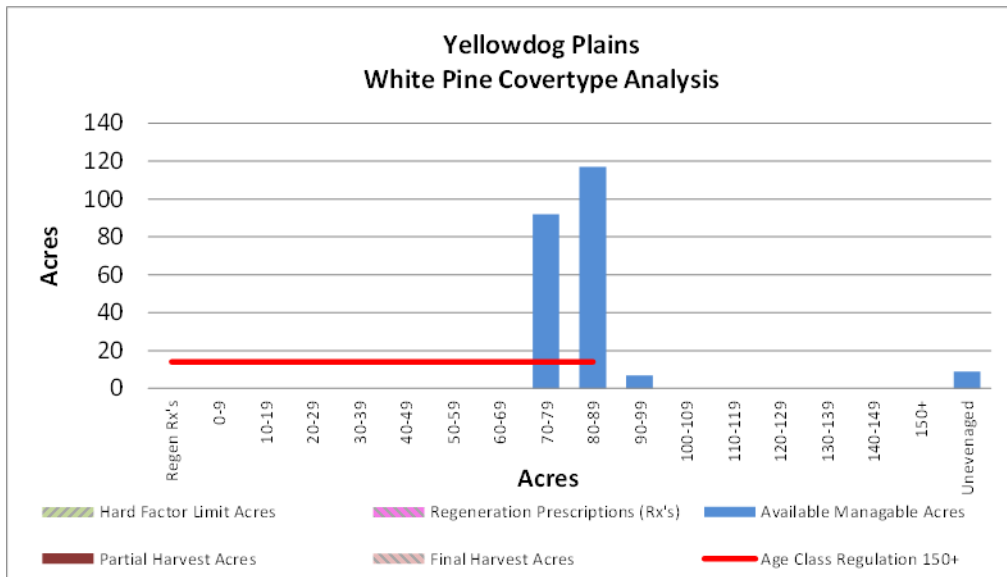- Final Harvest Acres
- Age Class Regulation 150+

Figure 4.35.4. Graph of the age-class distribution for the white pine cover type on the Yellow Dog Plains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Maintain natural origin white pine in this management area.

Long-Term Management Objectives

- Manage natural origin stands on a 150-year rotation using natural regeneration techniques with shelterwood or patch clearcuts and scarification as needed;
- Thin stands as necessary; and
- Harvest and regenerate 14 acres and carry out partial harvest on 86 acres each decade.

10-Year Management Objectives

- Thin 86 acres of white pine in this 10-year planning period; and
- Work to improve age-class distribution by harvesting and regenerating 48 acres of natural origin stands in this 10-year planning period using shelterwood and small patch cuts.

Other Forested Cover Types

Current Condition

Other forested types make up 515 acres and are made up of oak (127 acres), hemlock (111 acres), mixed upland deciduous (90 acres), lowland spruce/fir (87 acres), lowland conifer (46 acres), upland mixed forest (24 acres), natural mixed pines (18 acres) and paper birch (12 acres). Together these types make up about 14% of the management area (Table 4.35.1).

Desired Future Condition

- Maintain the presence of the minor cover types within the management area.

Long-Term Management Objectives

- Manage minor cover types to maintain representation using appropriate silvicultural methods;
- Use appropriate silvicultural techniques to assure adequate regeneration of desired species;
- Monitor harvested sites;
- Featured species habitat requirements will be taken into consideration; and
- Maintain hemlock as it occurs.

10-Year Management Objectives

- Harvest those stands without harvest limitations adjacent to other planned harvest activities and where stand and habitat conditions indicate that harvesting is appropriate; and
- Expected harvests in these types will be less than 196 acres during this 10-year planning period.

Other Non-Forested Cover Types

Current Condition

The following non-forested cover types are found on this management area: upland open/semi- open lands (none), lowland open/semi-open lands (91 acres – 2%) and miscellaneous other (water, local, urban) (2 acres - >1%).

Desired Future Condition

- These areas will be maintained in the current condition.

Long-Term Management Objective

- Grass will be burned or mowed to prevent forest encroachment.

10-Year Management Objective

- Grass-types will be treated for opening maintenance as needed.

4.35.2 – Featured Wildlife Species Management

Wildlife considerations in the Yellow Dog Plains management area consist of managing jack pine habitat with strategies that more closely mimic natural fire disturbance regimes. Increasing stand size and striving to accommodate many species associated with xeric forest habitat is desirable. The primary focus of wildlife habitat management in the Yellow Dog Plains management area will be to address the habitat requirements identified for the following featured species: black bear, Kirtland's warbler and spruce grouse. Based on the selected featured species, some of the most significant wildlife management issues in the management area are: mast (hard and soft); habitat fragmentation; within stand diversity; mature forest condition; mesic conifer; large open land complexes; and early successional forest. During this 10-year planning period, additional analyses to better define the spatial extent of priority areas for featured species will be performed.

Black Bear

The western Upper Peninsula black bear goal is to maintain or improve habitat. Management for bear should focus on improving existing habitat (e.g., maintaining corridors, mast and refuge trees) in this management area.

Wildlife habitat specifications:

- Maintain or increase the oak cover type and within stand oak component of hardwood forests within the management area;
- Maintain or increase mast by providing forest clearings that promote food sources such as pin cherry, juneberry/serviceberry, hazel, raspberry, blackberry and blueberry;
- Minimize herbicide use that would be detrimental to mast production;
- Maintain lowland conifer and hardwoods along and around drainages, vernal pools and forested wetlands; and
- Maintain refuge tree species with rough bark for cubs to escape (e.g., white pine and hemlock).

Kirtland's Warbler

The western Upper Peninsula goal for Kirtland's warbler during this planning period is to provide suitable breeding and foraging habitat within this management area. Management will focus on providing large patches (300-550 acres where possible) of early successional jack pine forest with appropriate structural and compositional diversity on droughty outwash plains systems. When possible, large blocks should be created by managing several smaller harvest blocks adjacent to each other simultaneously.

Wildlife habitat specifications:

- Develop landscape level plans for Kirtland's warbler habitat within and across management areas to ensure suitable habitat is provided at any point in time across management areas within the ecoregion. Jack pine should be harvested in a manner that attempts to mimic both the size and structure of the stands that would result from fire.
- Develop harvest plans in the context of landscape-level plans. Strive to increase patch size to meet Kirtland's warbler habitat needs. Consider current and desired future patch size, age class distribution and distance to other jack pine stands. When developing harvest plans, identify opportunities for increasing patch size:
  - Review state forest inventory in management area and identify adjacent stands with similar age classes that could reasonably be combined into one stand;
  - Collaborate in planning of the spatial arrangement and timing of harvest with willing major landowners within this outwash plain (e.g., Commercial Forest Act landowners); and
  - Large blocks of regenerating jack pine adjacent to herbaceous openings are desirable as they function as open-lands until the trees are 3-4 feet in height and benefit open-land species as well.
- Post-disturbance legacies include simulated skips or fingers of jack pine; snags; and larger diameter, fire-tolerant trees such as red pine. These features should be left in stands of harvested jack pine as retention to benefit Kirtland's warbler.
- Scarify stands quickly after stands are harvested or use prescribed fire where feasible to maintain jack pine and to ensure maximum stem density.

Spruce Grouse

The western Upper Peninsula goal for spruce grouse is to maintain or improve habitat. State forest management will focus on early successional forest (jack pine, mixed swamp conifer, tag alder and aspen), coarse woody debris and encouraging conifer (e.g., jack pine and mixed swamp conifer) understory component.

Wildlife habitat specifications:

- In jack pine harvests, leave mixed conifer and/or jack pine retention strips of mature trees along riparian corridors and lowland margins as well as along upland edges.
- Maintain spruce seed trees through retention, especially at lowland margins.
- Maintain or increase diversity of conifer stands by implementing seed tree/shelterwood prescriptions and limiting the use of herbicides, especially along lowland edges.
- Large clearcuts may isolate populations of spruce grouse so landscape level planning must take into account this species' need for low-density mixed conifer travel corridors to connect suitable stands. This is especially important in management areas where Kirtland's warbler is also a featured species.
- Ensure black spruce recruitment/regeneration is reliable if harvesting in this cover type. Regeneration monitoring should be required to assess whether or not we are getting desired results from management.

4.35.3 – 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, when past surveys have indicated a possibility of their presence, or when appropriate habitat is available and the species is known to occur in the general region.

Past surveys have noted and confirmed three listed species as well as one natural community of note occurring in the management area as listed in Table 4.35.2. 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.

Approximately 12.7 acres of potential old growth have been identified within the Yellow Dog Plains management area (Figure 4.35.5). These stands were identified for a broad range of reasons and were coded in the Operations Inventory database as Stand Condition 8. These stands area also special conservation areas until they are evaluated.

Although there are no high conservation value areas, there is one ecological reference area, the Powell Township Granite Bedrock Glade (15.7 acres) representing the granite bedrock glade natural community, as shown in Figure 4.35.5.

Table 4.35.2. Occurrence information for special concern, rare, threatened and endangered communities and species for the Yellow Dog 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 Community								
Granite Bedrock Glade		S2/G4G5	Confirmed				Upland open/semi-open	N/A
Birds								
Kirtland's warbler	Dendroica kirtlandii	LE/E/G1/S1	Confirmed	PS	Very High	Pine barrens	Jack Pine	Early
						Dry northern forest	Jack Pine, Red Pine	Early
Spruce grouse	Falcipennis canadensis	SC/G5/S2-3	Confirmed	MV	Very High	Bog	Lowland open/semi-open	N/A
						Boreal forest	Upland & Lowland Sp/F	Mid
						Poor conifer swamp	Tamarack	Late
						Dry northern forest	Jack Pine, Red Pine	Mid
Plant								
Narrow-leaved gentian	Gentiana linearis	T/G5/S2S3	Confirmed			Sand and gravel beach	Upland open/semi-open	N/A
						Northern wet meadow	Lowland open/semi-open	N/A
						Intermittent wetland	Lowland open/semi-open	N/A
						Northern hardwood swamp	Black Ash	Late

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

Management goals during this planning period:

Goal 1: To develop and maintain a list of rare, threatened, endangered and special concern species and natural communities for the management area through a continuous inventory and through opportunistic focused inventory surveys.

Objective 1-1: Field staff should be trained and aware of the identification characteristics and natural history of rare, threatened, endangered and special concern species.

Objective 1-2: Occurrences of rare, threatened, endangered and special concern species noted during the inventory process by inventory staff should be verified and added to the body of knowledge for the management area.

Goal 2: To evaluate the potential old growth areas by the end of this 10-year planning period.

Goal 3: To develop and maintain management plans for ecological reference areas on state forest land.
Objective 3-1: Complete ecological reference area planning by the end of this 10-year planning period.

4.35.4 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 area include:

- Jack pine budworm
- *Diplodia* shoot blight of pine
- *Sirococcus* shoot blight
- *Scleroderris* canker.

When forest pests are detected, they are to be reported to the forest health specialist for treatment recommendations. The treatment of large outbreaks of forest pests will be coordinated on a state and regional level.

Several invasive exotic species of plants are thought to be located in the vicinity. When invasive species are detected, they will be reported to the forest health specialist and treatment options will be reviewed. Priority for treatment should be given to those species that threaten sensitive sites due to their location or growth characteristics and have population levels that may be successfully controlled. Common St. John's-wort, European swamp thistle and spotted knapweed are species of concern that have been documented in or near this management area.
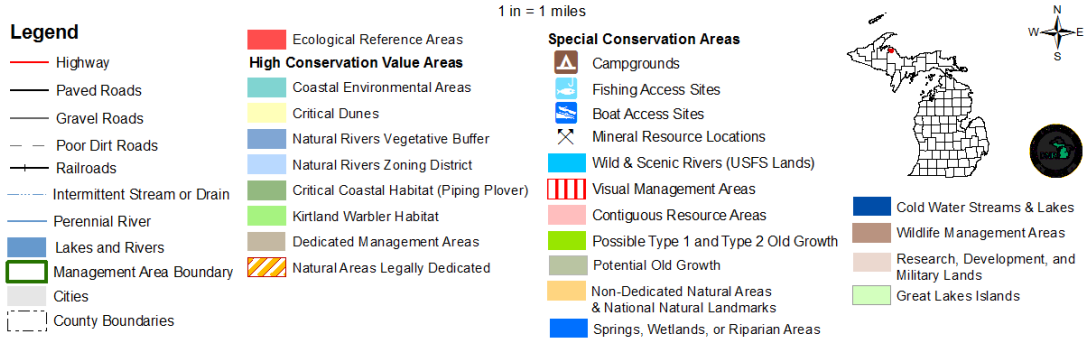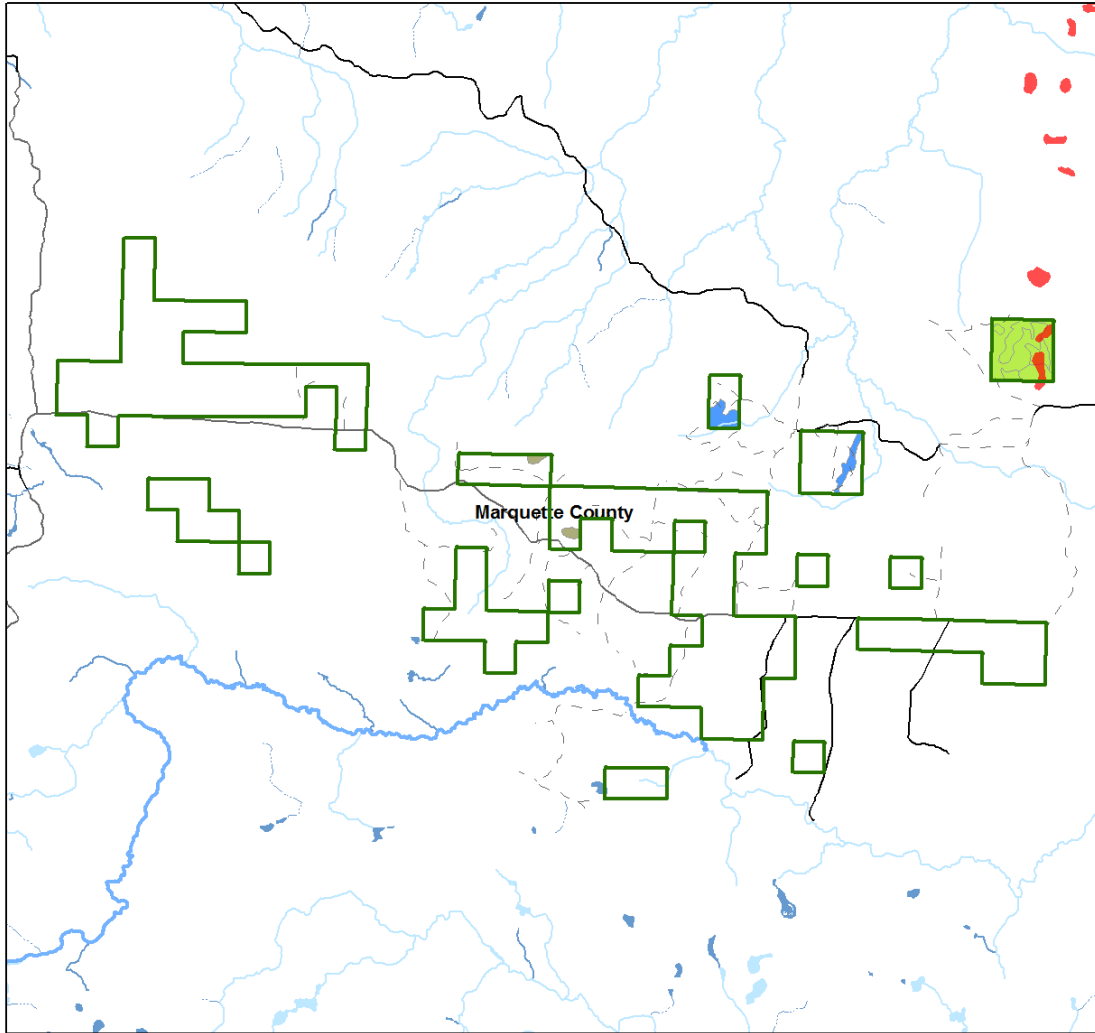
Yellowdog Plains

Figure 4.35.5. A map of the Voelker Plains management area showing the special resource areas.

4.35.5 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. Designated high priority trout streams are identified in the Integrated Forest Monitoring Assessment and Prescription Geographic Decision Support Environment. Remove or discourage beaver populations on designated high priority trout streams.

High priority trout streams in this management area as shown in Figure 4.35.1.

4.35.6 Fire Management

This area, comprised largely of dry and dry-mesic northern forest, was historically prone to periodic stand replacement fires.

- All wildfires are subject to appropriate initial attack suppression response; and
- Strategic placement of fire prevention signs in this area would raise awareness among public users.

4.35.7 Public Access and Recreation

This area has good public and management access. A snowmobile trail crosses this area as shown in Figure 4.35.1.

- Work to expand public access and recreation facilities as opportunities arise.

4.35.8 Oil, Gas and Mineral Resources

Exploration and development for oil and gas has been limited to a few wells drilled in the eastern Upper Peninsula.No economic oil and gas production has been found in the Upper Peninsula.

Surface sediments consist of glacial outwash sand and gravel and postglacial alluvium and coarse-textured till. There is insufficient data to determine the glacial drift thickness. Sand and gravel pits are not located in the management area, but there may be some potential for pits.

The Precambrian Michigamme Formation subcrops below the glacial drift. There is not a current economic use for the Michigamme.

Almost all state lands are leased and extensive exploration has been conducted in this area. Kennecott has begun to build the portal for the "Eagle" mine and hope to be producing ore in 2013. Additional mineral exploration is occurring on other state lands in this management area.