

4.2 Baraga Plains Management Area

Summary of Use and Management

Vegetative management in the Baraga Plains management area (MA) (Figure 4.2.1) 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 and maintaining the presence of minor cover types on the landscape; and maintaining non-forest vegetation types. Wildlife management objectives include managing for unique habitat types such as pine barrens, Kirtland's warbler habitat and Canada goose. Management activities may be constrained by site conditions and the skewed age-class distributions. Balancing age classes will be an issue for this 10-year planning period.

Introduction

The Baraga Plains management area is on an outwash plain located in west central Baraga County. The state forest covers about 12,200 acres and is mostly contiguous. The major ownerships in this vicinity are public state forests or forest service. Major forest cover types include jack pine, aspen and grass openings. Other attributes that played a role in the definition of this management area include:

- Dominated by two natural communities: barrens and dry northern forests;
- Low-range in site quality;
- Provides multiple benefits including forest products and dispersed recreational activities; and
- Provides a variety of fish and wildlife habitat;

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 Baraga Plains management area are shown in Table 4.2.1.

Table 4.2.1. Summary of cover types, composition, limited factor area, manageable area and projected harvest area for the Baraga 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	55%	6,793	19	6,774	388	0	6,793	968	0
Aspen	15%	1,784	462	1322	301	0	1,784	223	0
Upland Open/Semi-Open Lands	9%	1,123	0	1123	0	0	1,123	0	0
Lowland Open/Semi-Open Lands	3%	319	0	319	0	0	319	0	0
Misc Other (Water, Local, Urban)	1%	79	0	79	0	0	79	0	0
Others	18%	2,155	22	2133	215	235	2,155	225	400
Total		12,253	503	11,750	904	235	12,253	1,416	400

Baraga Plains

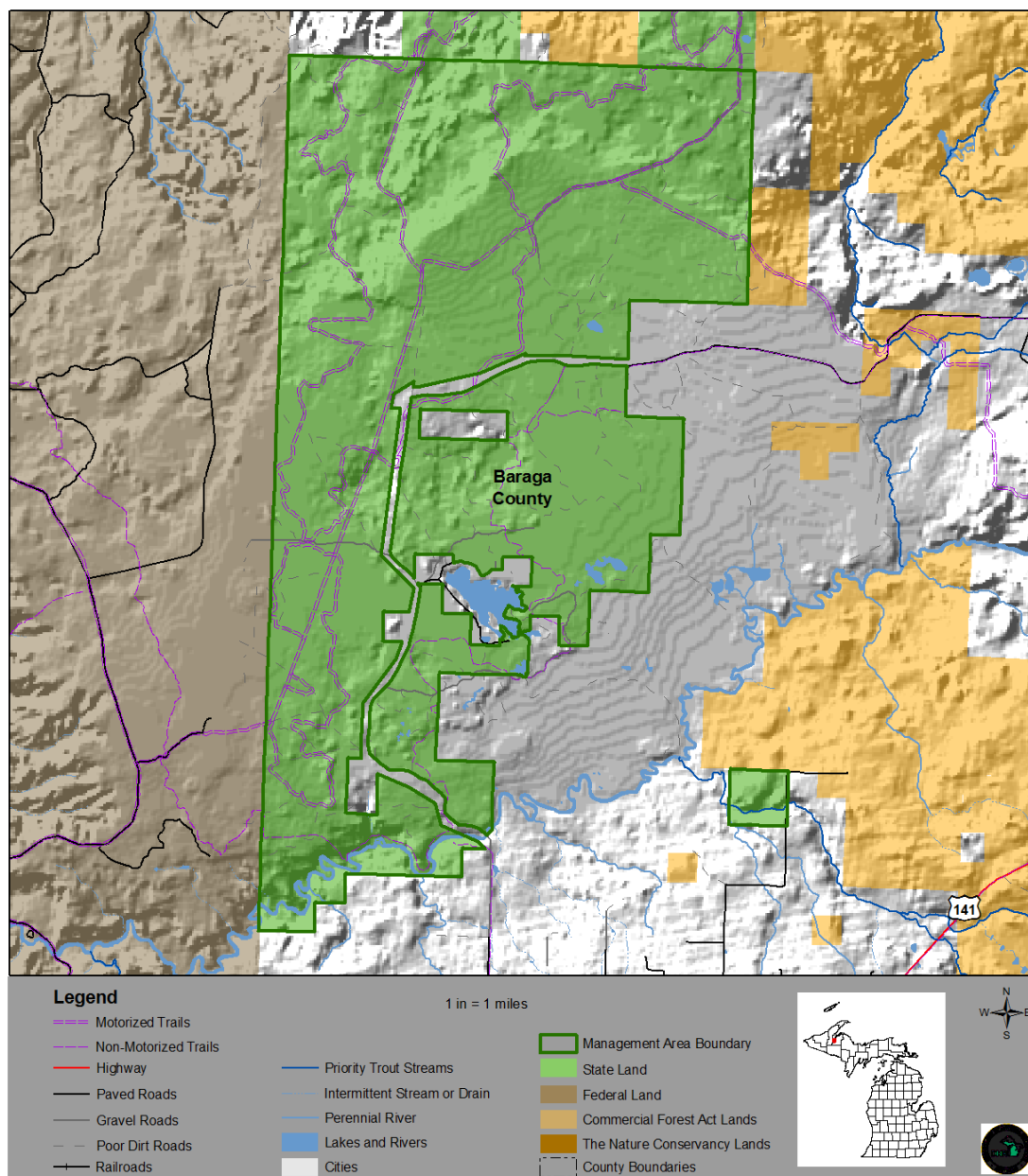


Figure 4.2.1. A map of the Baraga Plains management area (dark green boundary) in relation to surrounding state forest lands and other ownerships in Baraga County, Michigan.

4.2.1 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 Baraga 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 (i.e., 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

Jack pine is the dominant cover type comprising over 55% of the area, and covers 6,793 acres (Table 4.2.1). Most of the jack pine is not equally distributed across age classes and is less than 40 years old (Figure 4.2.2). In the past, much of the jack pine on the plains was a single age class. Forest management over the past 20 years has focused on increasing the age-class distribution by harvesting poorly stocked stands, delaying harvesting in well-stocked stands and regenerating harvested acres promptly. Most of the mature jack pine has been harvested except in areas that are reserved for aesthetics around campgrounds and popular recreation sites. There are 19 acres of jack pine that have site conditions limiting their harvest this entry period. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations.

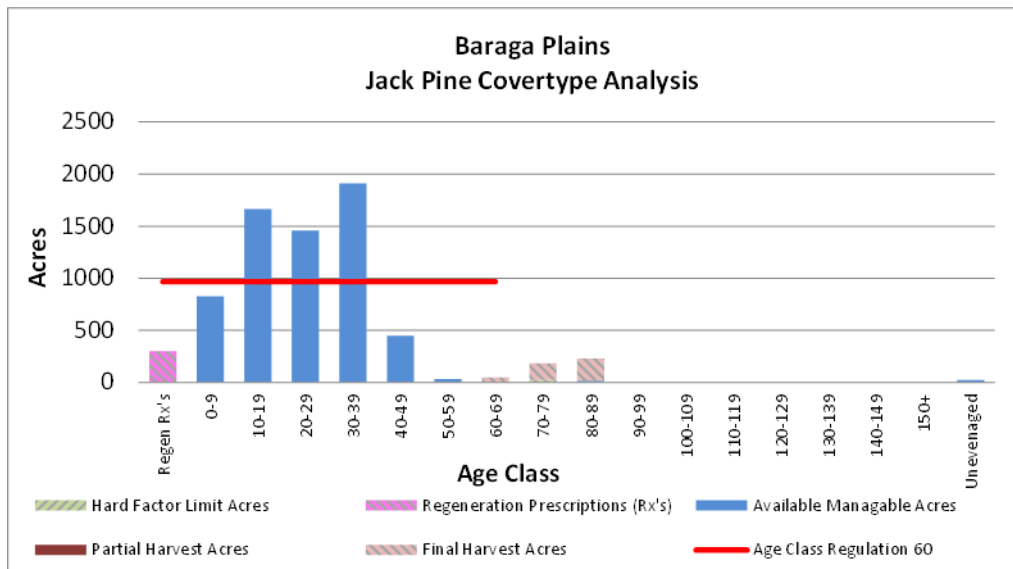


Figure 4.2.2. Graph of the age-class distribution of the jack pine cover type on the Baraga Plains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Balanced acres in each age class up to 60 years (indicated by the red line in Figure 4.2.2); and
- Provide an even supply of forest products and a balanced mix of habitat conditions for a variety of wildlife as well as a variety of hunting-type opportunities.

Long-Term Management Objectives

- Manage jack pine on a 60-year rotation, regenerating approximately 968 acres each decade;
- Favor larger clearcuts harvests;
- Manage portions of the jack pine in this area in older age-classes in small retention patches; and
- Jack pine stands that are reserved from harvest will undergo natural succession.

10-Year Management Objective

- In order to harvest 388 acres over the next decade, early entry into younger age classes may be necessary.

Aspen Cover Type

Current Condition

Aspen occurs on 1,784 acres (15%) of the management area (Table 4.2.1). Aspen on the Baraga Plains is predominantly on Rubicon and Grayling soils, too dry for healthy aspen growth. Much of the aspen is growing in association with oak and almost half the aspen is currently listed as uneven-aged. There are 462 acres of aspen that have site conditions limiting their harvest this entry period (Figure 4.2.3).

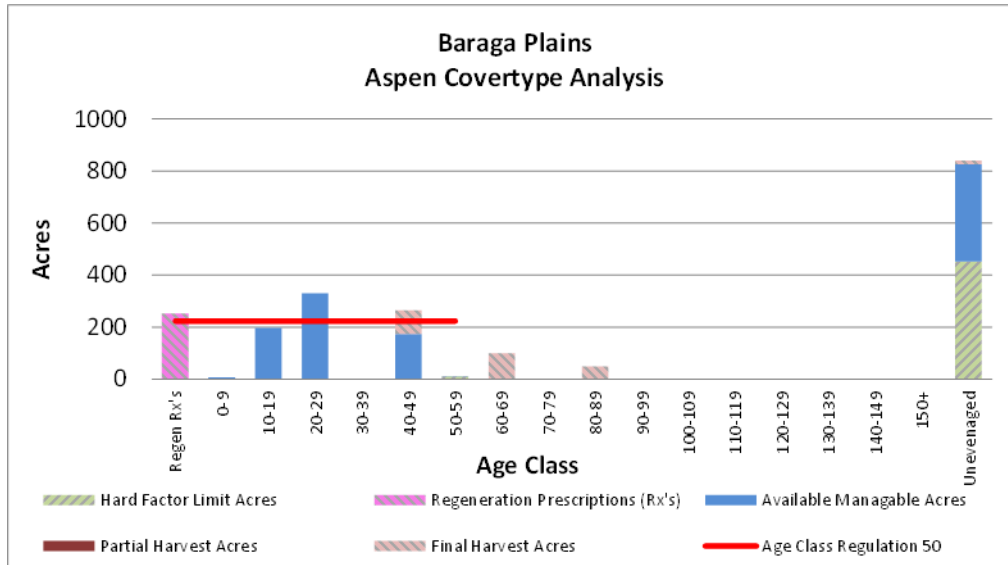


Figure 4.2.3. Graph of the age-class distribution of the aspen cover type on the Baraga Plains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Provide an even supply of forest products; and
- Provide a balanced mix of habitat conditions for a variety of wildlife as well as a variety of hunting-type opportunities.

Long-Term Management Objectives

- Aspen will be maintained in the proportions desired by managing on approximately a 50-year rotation through harvesting, regenerating 223 acres per decade; and
- Identify stands that can be converted from poor quality off-site aspen to natural red pine, white pine and oak stands.

10-Year Management Objectives

- Harvest and regenerate 301 acres over the 10-year planning period (this is slightly lower than the regulated amount due to the current age-class structure with a large number of acres in the 0-9 year class);
- Identify low quality off-site aspen stands for conversion to more ecologically appropriate cover types, mitigating any loss during this planning period through identification of replacement acreage prior to conversion; and
- Partial harvesting may be done in these stands to accelerate the conversion process.

Other Forested Cover Types

Current Condition

Other forested types make up 2,155 acres and are made up of upland mixed forest (469 acres), upland mixed deciduous (409 acres), natural mixed pine (383 acres), oak (224 acres), upland conifer (135 acres), lowland conifers (120 acres), planted mixed pines (108 acres), white pine 104 acres), northern hardwoods (77 acres), hemlock (59 acres), red pine (44 acres) and lowland spruce/fir (23 acres). Together these types make up about 18% of the management area (Table 4.2.1). There are 22 acres of other types that have site conditions limiting their harvest this entry period. These hard factor limited acres have been removed from the total number of manageable acres available for harvest calculations.

Desired Future Condition

- Maintain similar proportions of minor cover types within the management area.

Long-Term Management Objectives

- Manage minor cover types to maintain representation using appropriate silvicultural methods;
- Harvest as opportunities arise in conjunction with other management activities; and
- Use appropriate silvicultural techniques to assure adequate regeneration; and
- Monitor harvested sites.

10-Year Management Objectives

- Harvest those stands without harvest limitations adjacent to other planned harvest activities and where stand conditions indicate that harvesting is appropriate; and
- Expected harvests in these types will be 215 acres of final harvest and 235 acres of partial harvest over the next decade.

Other Non-forested Cover Types

Current Condition

The follow non-forested cover types are found on this management area: upland open/semi- open lands (1,123 acres – 9%), lowland open /semi-open lands (319 acres – 3%), and other (water, local, urban) (79 acres – 1%) (Table 4.2.1).

Desired Future Condition

- The desired future condition of the grass (open/semi-open lands) type is an open sedge/grass community populated with native grass and other herbaceous species.

Long-Term Management Objectives

- Permanent grass openings will be maintained with frequent low-intensity fires and mechanical treatments allowing native grasses, small grains and forbs to establish; and
- Maintain current acreage in grasses or other open conditions.

10-Year Management Objectives

- A periodic burn schedule will be established to maintain permanent openings; and
- Opportunities to expand the fields into adjacent pine, aspen or oak types will be determined on a case-by-case basis.

4.2.2 – Featured Wildlife Species Management

The Baraga Plains management area is unique because of the size and spatial arrangement of compartments within the management area and proximity to U.S. Forest Service ownership within a single outwash plain system. This area provides the best opportunity for managing for Kirtland's warbler, open land species, and barrens within the ecoregion. It is desired to use management strategies that mimic natural fire disturbance regimes, and coordinate with the U.S. Forest Service and other owners in the planning and management of this outwash plain system. Wildlife management priorities in the Baraga Plains include a waterfowl management area. A master plan is being written for that area and should guide management activities at a finer scale. The following have been identified, as featured species for the Baraga Plains: black bear, Canada goose, eastern bluebird and Kirtland's warbler. Some of the most significant wildlife management issues in the management area are: mast (hard and soft); habitat fragmentation; large open land complexes (with snags in open lands); and large contiguous blocks of young jack pine. During this 10-year planning period, additional analyses to better define the spatial extent of priority areas (e.g., patches of sufficient size and density for Kirtland's warbler) 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, junberry/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 to provide escape cover for cubs (e.g., white pine and hemlock).

Canada Goose

The western Upper Peninsula Canada goose goal is to provide recreational opportunity by attracting migrating geese to state forest lands. The focus of such management is to provide favorable water features and foraging fields.

Wildlife habitat specifications:

- Attract geese to huntable areas during the fall season;
 - Plant green browse such as winter wheat or rye;
 - Manage water features as necessary; and
 - Manage small grain fields, leaving the maximum possible amount of waste grain.

Eastern Bluebird

The western Upper Peninsula goal for bluebirds is to maintain or improve habitat. Management efforts during this planning period will focus on maintaining or expanding open land conditions, protection of snags or dying standing trees associated with openings and managing opening complexes/savanna with prescribed fire.

Wildlife habitat specifications:

- Maintain herbaceous open-land complexes within the management area using prescribed burns or mowing and consider the spatial arrangement;
- Protect snags, or dying standing trees within the open-lands. If nest cavities are not present, consider leaving standing live trees (e.g., aspen) trees in final harvest timber sales; and/or planting scattered oak; and
- Leave a ½-chain buffer around openings to limit aspen encroachment following aspen timber harvests.

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., U.S. Forest Service, Michigan Technological University); 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. 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, 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 also is a featured species.
- Ensure black spruce recruitment and 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.

4.2.3 –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 six listed species and no natural communities of note occurring in the management area as listed in Table 4.2.2. 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.

Table 4.2.2. Occurrence information for special concern, rare, threatened and endangered communities and species for the Baraga 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
Bird								
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
Butterflies								
Freija fritillary	<i>Boloria freija</i>	SC/G5/S3S4	Confirmed	HV	Low	Bog	Lowland open/semi-open	N/A
						Patterned fen	Lowland open/semi-open	N/A
Frigga fritillary	<i>Boloria frigga</i>	SC/G5/S3S4	Confirmed	HV	Low	Bog	Lowland open/semi-open	N/A
Reptile								
Wood turtle	<i>Glyptemys insculpta</i>	SC/G4/S2S3	Confirmed	MV	Moderate	Northern wet meadow	Lowland open/semi-open	N/A
						Bog	Lowland open/semi-open	N/A
						Rich conifer swamp	Tamarack	Late
						Hardwood-conifer swamp	Lowland Mixed	Mid
						Northern shrub thicket	Upland open/semi-open	N/A
						Mesic northern forest	Northern Hardwood	Late
Plants								
American shore-grass	<i>Littorella uniflora</i>	SC/G5/S2S3	Confirmed			Submergent marsh	Lowland open/semi-open	N/A
Canada rice grass	<i>Oryzopsis canadensis</i>	T/G5/S2	Confirmed			Pine barrens	Jack Pine	Early

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

The Baraga Plains Goose management area is a special conservation area within this management area as shown in Figure 4.2.4.

There have been no high conservation value areas or ecological reference areas identified in the management area as illustrated in Figure 4.2.4.

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.

4.2.4 – 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:

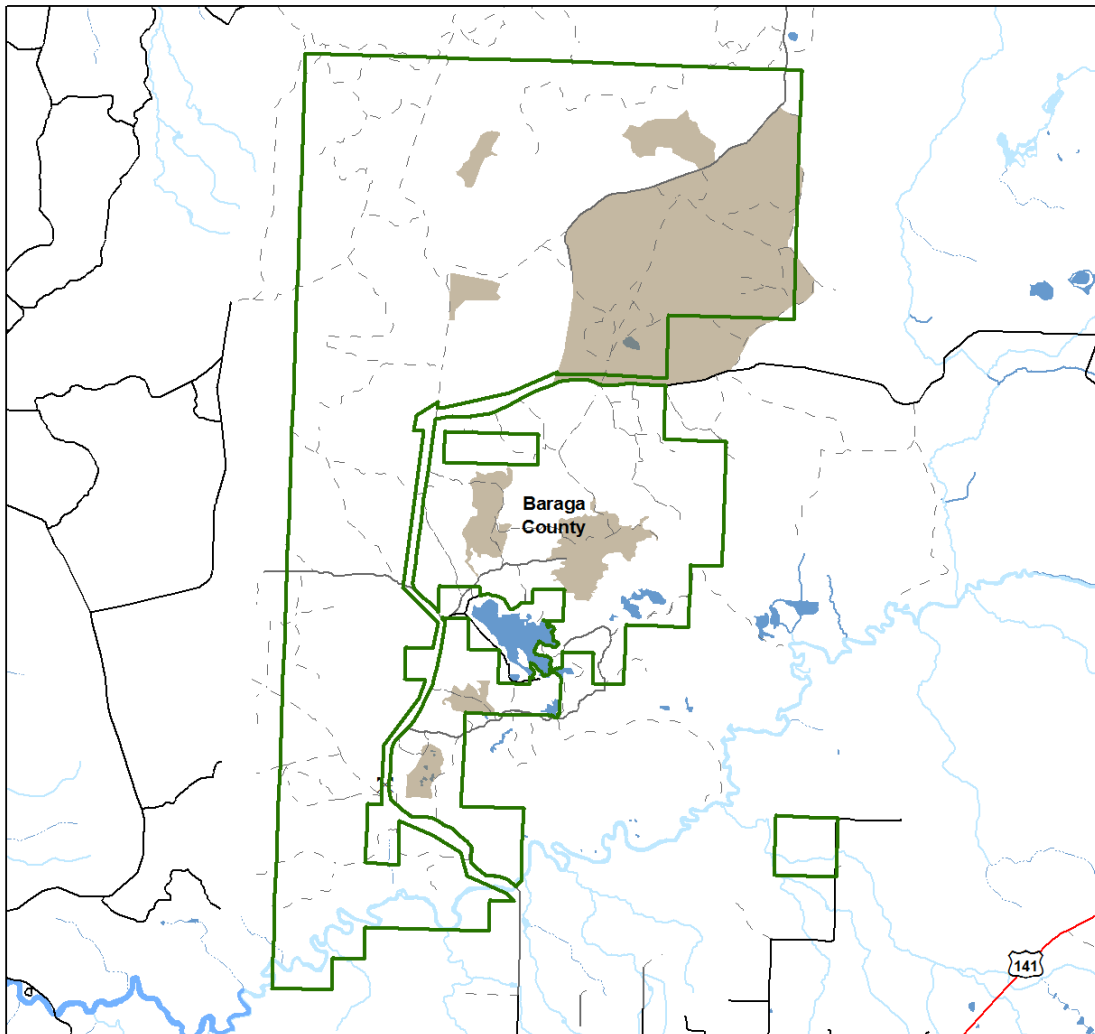
- Jack pine budworm
- Diplodia shoot blight of pine
- *Sirococcus* shoot blight
- White trunk rot of aspen
- *Hypoxyton* canker
- Oak wilt
- Two-lined chestnut borer.

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. Following is a list of species of concern that been documented in or near this management area:

- Bell's honeysuckle
- Common buckthorn
- European swamp thistle
- Glossy buckthorn
- Japanese barberry
- Morrow's honeysuckle
- Multiflora rose
- Reed canary grass
- Spotted knap weed
- Tatarian honeysuckle.

Baraga Plains



Legend

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|--|--|---|---|
| <ul style="list-style-type: none"> — Highway — Paved Roads — Gravel Roads - - - Poor Dirt Roads — Railroads - · - · Intermittent Stream or Drain — Perennial River — Lakes and Rivers ▭ Management Area Boundary ▭ Cities - · - · County Boundaries | <ul style="list-style-type: none"> ▭ 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> ▭ Cold Water Streams & Lakes ▭ Wildlife Management Areas ▭ Research, Development, and Military Lands ▭ Great Lakes Islands |
|--|--|---|---|

Figure 4.2.4. A map of the Baraga Plains management area showing the special resource areas.

4.2.5 - 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 are shown in Figure 4.2.1.

4.2.6 – Fire Management

With the exception of wetland northeast of Big Lake, the state forest here is largely comprised of lands that were, under natural conditions, subject to frequent stand replacement fires. This fire regime produced a barrens and dry northern forest community. Recreational development around Big Lake indicates the need for wildland urban interface fuel hazard reduction. All of the state forest land within this area falls within the Baraga Protection Area and the Baraga Plains Zone Dispatch.

- All wildfires within the management area should be subject to appropriate initial attack response. Pre-planned response, based on fire danger level, calls for elevated readiness and aggressive response to reported wildfires during periods of VERY HIGH and EXTREME fire danger days.
- Work with Baraga County on their Community Wildfire Protection Planning process that targets this area.
- Prevention activities should target users of the Big Lake Campground, the Baraga Plains Off-Road Vehicle trail and residential/recreational property owners adjacent to state forest lands.
- Prescribed fire proposals should be prioritized, planned and conducted, especially when they enhance protection of the Big Lake area from wildfire.
- Use prescribed fire to maintain large openings in the Baraga Plains Waterfowl Management Area

4.2.7 – Public Access and Recreation

This area has good public and management access. Motorized vehicle trails include multiple snowmobile trails and the Baraga Plains ORV trail that loops through the area (Figure 4.2.1). There is a state forest campground at Big Lake. The North Country hiking trail crosses the South end of this area along the Sturgeon River (Figure 4.2.1). This trail extends east of the Baraga Plains road and northerly around the east side of Big Lake. A portion of the plains has been designated as a waterfowl refuge and waterfowl hunting area. The area is fairly well used by waterfowl hunters in the fall.

- The DNR will continue to maintain the public access to this area.

4.2.8 – 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 and no economic oil and gas production has been found anywhere in the Upper Peninsula.

Surface sediments consist of glacial outwash sand and gravel and postglacial alluvium, with minor amounts of an end moraine of coarse-textured till and lacustrine (lake) sand and gravel. There is insufficient data to determine the glacial drift thickness. Sand and gravel pits are located in the management area and there is potential on the uplands.

The Precambrian Michigamme Formation subcrops below the glacial drift. There is no current economic use for the Michigamme.

Metallic mineral exploration appears not to have occurred in this management area. However, there still is potential for metallic mineral exploration in the future.