

4.32 Sands Plains Management Area

Summary of Use and Management

Vegetative management in the Sands Plains management area (MA) (Figure 4.32.1) 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 aspen and jack pine; maintaining the conifer component in northern hardwood stands; promoting longer lived species in recreational areas; 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: Kirtland's warbler, spruce grouse and upland sandpiper. Management activities may be constrained by site conditions and the skewed age-class distributions. Balancing age classes and potential insect (jack pine budworm) infestations will be issues for this 10-year planning period.

Introduction

The Sands Plains management area is on an outwash plain in central Marquette County. The state forest covers 5,724 acres and is in widely scattered parcels. The major ownership in this vicinity is non-industrial private and county forest lands. The management area is dominated by the aspen, red pine and jack pine cover types. Other attributes that played a role in the definition of this management area include:

- Dominated by two natural communities: dry-mesic northern forest and dry northern forest;
- low-range in site quality;
- This area is a popular recreational area for hunting, motorized and non-motorized forest recreation close to the communities of Marquette and Gwinn;
- 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 Sands Plains management area are shown in Table 4.32.1.

Table 4.32.1 Summary of cover types, composition, limited factor area, manageable area and projected harvest area for the Sands 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
Aspen	25%	1,428	40	1,388	462	0	1,428	278	0
Red Pine	17%	973	0	973	150	322	973	88	322
Jack Pine	17%	952	7	945	244	0	952	135	0
Northern Hardwood	11%	650	35	615	0	299	650	0	299
Oak	9%	487	0	487	156	160	487	49	213
Upland Open/Semi-Open Lands	7%	391	0	391	0	0	391	0	0
Lowland Open/Semi-Open Lands	1%	75	0	75	0	0	75	0	0
Misc Other (Water, Local, Urban)	1%	49	0	49	0	0	49	0	0
Others	13%	719	105	614	188	78	719	66	172
Total		5,724	187	5,537	1,200	859	5,724	616	1,006

Sands Plains

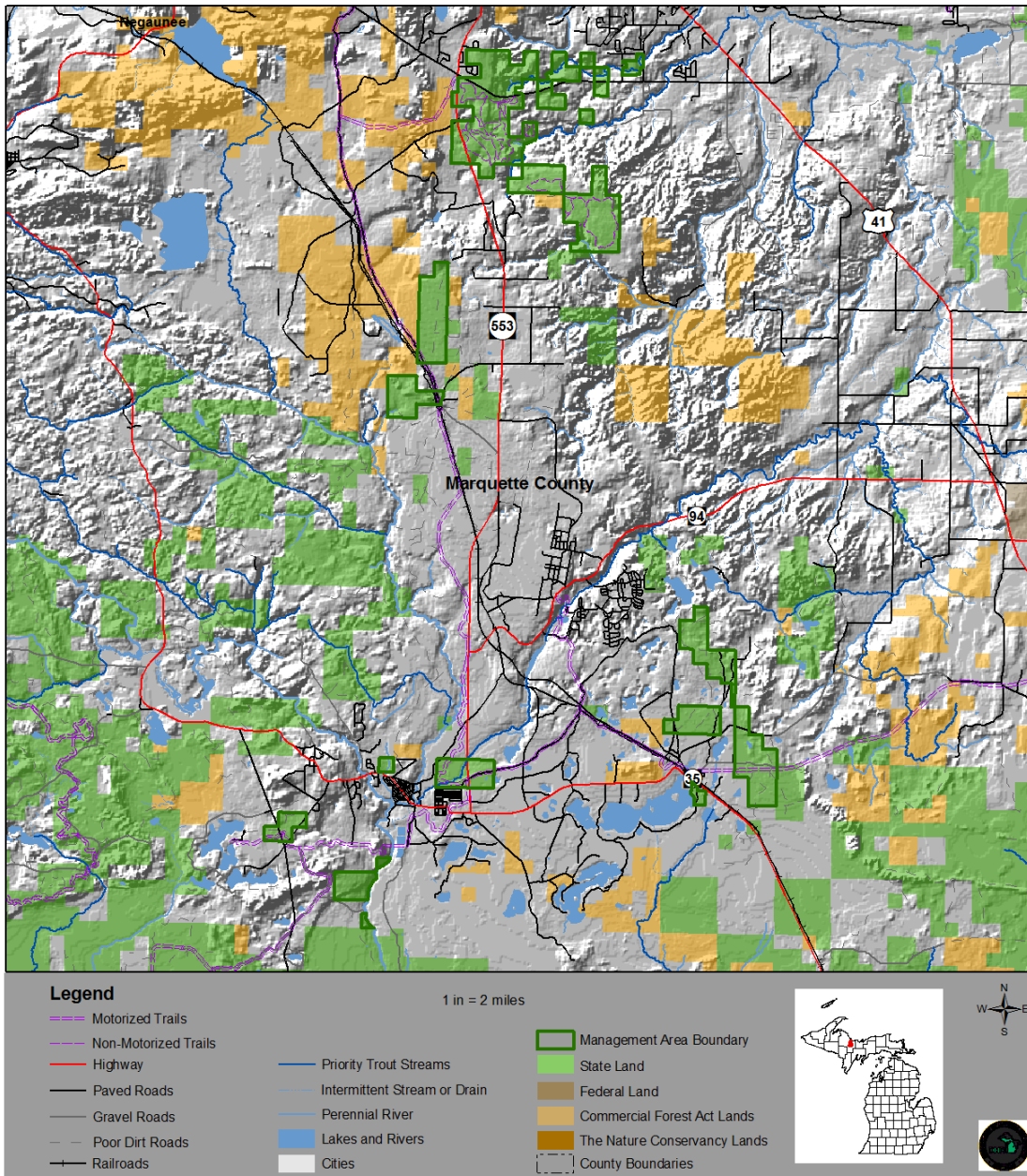


Figure 4.32.1. Sands Plains management area (dark green boundary) in relation to surrounding state forest and other lands in Marquette County, Michigan.

4.32.1 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 Sands 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.

Aspen Cover Type

Current Condition

The aspen cover type covers 1,428 acres (25%) of the management area (Table 4.32.1) and is poorly distributed across age-classes (Figure 4.32.2).

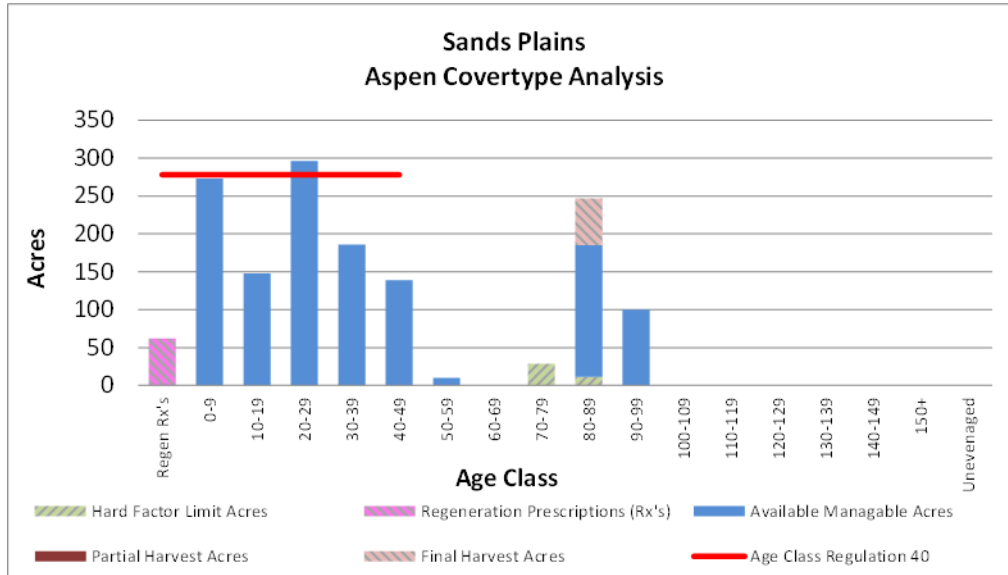


Figure 4.32.2. Graph of the age-class distribution for the aspen cover type on the Sands Plains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Work towards a more balanced age class over a 40-year rotation (indicated by the red line in Figure 4.32.2);
- Provide a supply of forest products;
- Provide for a mix of habitat conditions for a variety of wildlife; and
- Provide for a variety of hunting-type opportunities.

Long-Term Management Objective

- Harvest and regenerate approximately 278 acres each decade.

10-Year Management Objectives

- Harvest and regenerate 462 acres over this 10-year planning period with much of this acreage will coming from older age classes;
- Identify low quality off-site aspen stands for conversion to more ecologically appropriate cover types mitigating an aspen acreage loss during this planning period through identification of replacement acreage prior to conversion; and
- Maintain mature large-tooth aspen if present as retention.

Red Pine Cover Type

Current Condition

The red pine cover type covers 973 acres (17%) of the management area (Table 4.32.1) and is poorly distributed across age classes (Figure 4.32.3). Red pine stands occur on dry-mesic sandy soils, similar to the aspen stands in this management area. Red pine is ideally suited for these soil types. Nearly 80% of the red pine in this management area is of plantation origin. The spike in the 40-49 year-old age class and in the 80-89 year-old age class on Figure 4.32.3 is indicative of the planting efforts that established many of these stands.

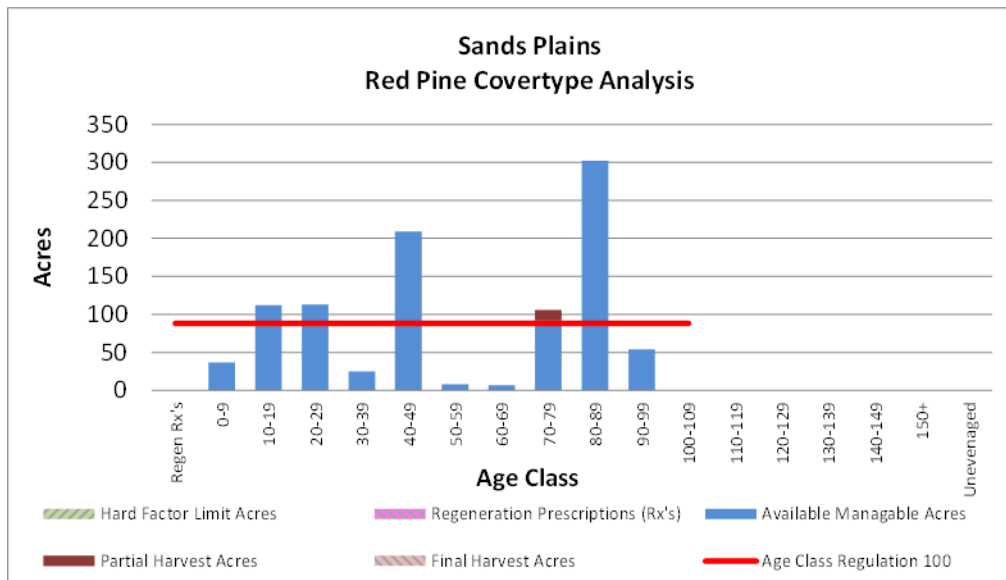


Figure 4.32.3. Graph of the age-class distribution for the red pine cover type on the Sands Plains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Maintain the same number of acres of red pine in the management area and at approximately the same ratio of plantation pine to natural origin pine (973 acres total red pine and 774 acres in plantations); and
- Work toward a more balanced age classes in the plantation origin red pine by reducing the spikes in the 40-49 year-old and 80-89 year-old age classes to provide an even supply of forest products.

Long-Term Management Objectives

- Once age-class distribution is improved, harvest and regenerate 88 acres and thin 322 acres each decade;
- Plantation stands will be managed on an 80-year rotation with intermediate harvests (thinning) as basal area guidelines are met;
- Where possible along recreation trails, convert plantation red pine to natural origin red pine; and
- Both natural origin and plantation stands will be thinned as necessary.

10-Year Management Objectives

- Thin 322 acres of red pine stands during this 10-year planning period; and
- Harvest and regenerate 150 acres of red pine stands in this planning period.

Jack Pine Cover Type

Current Condition

The jack pine cover type comprises 952 acres (17%) of the management area. Most of the jack pine is unevenly distributed across age classes spiking in the 20-29 year-old age class (Figure 4.32.4). Few acres of jack pine have limiting factors and these stands are expected succeed to white or red pine.

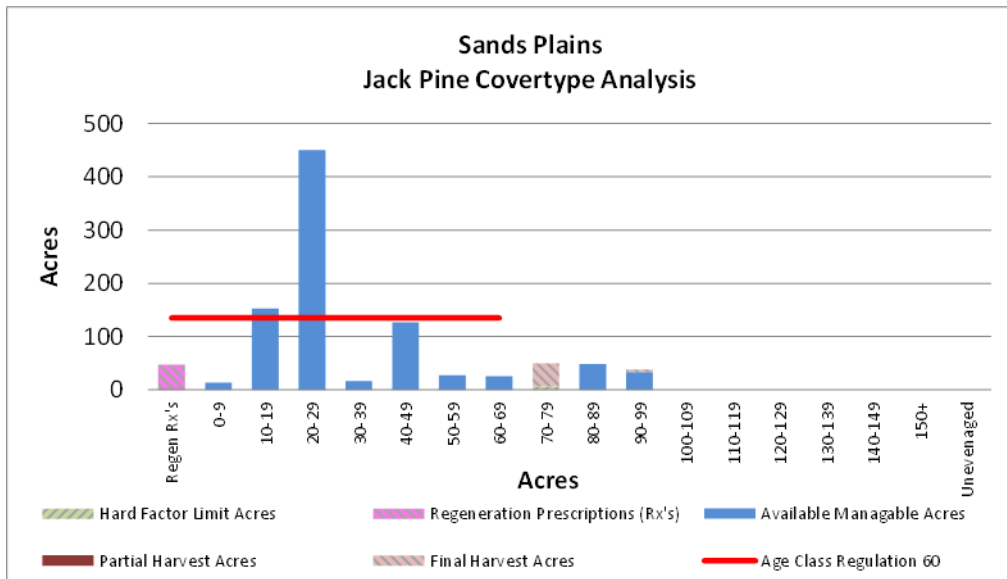


Figure 4.32.4. Graph of the age-class distribution for the jack pine cover type on the Sands Plains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Balanced acres in each age class up to 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, harvesting about 135 acres per decade once age classes are balanced;
- Work to reduce the spike in the 20-29 year-old age class; and
- Manage portions of the jack pine in this area in older age classes in retention patches.

10-Year Management Objective

- Harvest 244 acres during this planning period coming from stands above the 70-79 year-old age class.

Northern Hardwood Cover Type

Current Condition

Northern hardwood stands make up about 650 acres (11%) of this management area. They occur on medium-quality sugar maple sites. Few 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 is typically managed using an uneven-aged harvest system based on basal area rather than age.

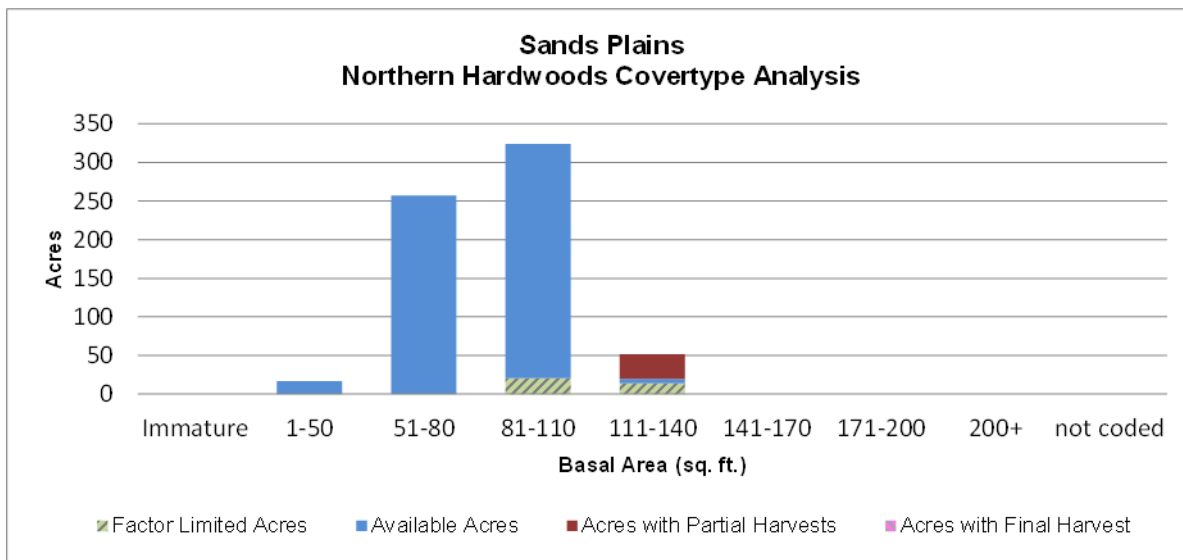


Figure 4.32.5. Graph of the basal area class distribution for the northern hardwoods cover type on the Sands Plains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Sustainable regeneration and recruitment of northern hardwood species leading to an all-age structure.

Long-Term Management Objective

- Using an uneven-aged system, selectively harvest high-quality northern hardwood stands on a 20-year cycle resulting in an estimated 299 acres harvested each decade.

10-Year Management Objective

- Approximately 299 acres should be harvested in this 10-year planning period. Maintain hemlock, white pine and upland cedar where possible in stands that are harvested.

Oak Cover Type

Current Condition

Oak is present on 487 acres (9%) of this management area (Table 4.32.1) and is important to wildlife for mast production. Most of the oak is over 60 years old and many of the stands are in decline. Some of the oak in this area is pin oak, a scrubby oak of poor timber quality. The remaining red oak is of fair quality.

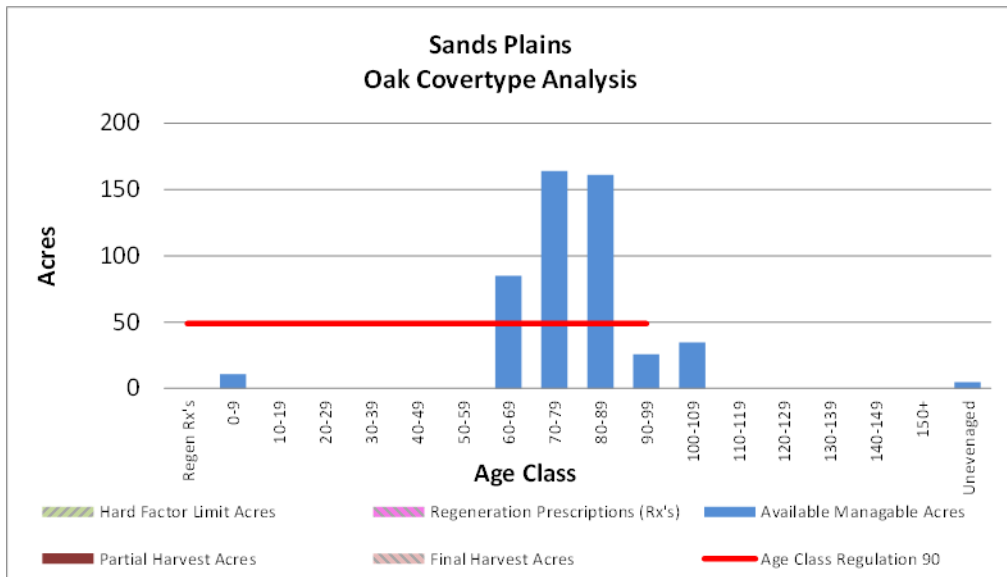


Figure 4.32.6. Graph of the age-class distribution for the oak cover type on the Sands Plains management area (2012 Department of Natural Resources inventory data).

Desired Future Condition

- Maintain a component of oak in mixture with natural red and white pine;
- Some oak and aspen mixed stands will be maintained where opportunities exist; and
- Oak will be managed in this management area for hard mast production.

Long-Term Management Objectives

- Maintain oak as a component of mixed upland types through harvesting;
- Pin oak will be regenerated on a 90-year rotation;
- Red oak stands will be regenerated on a 160-year rotation;
- Improve age-class distribution by harvesting and regenerating 49 acres and thinning 213 acres of oak each decade; and
- Monitor oak stands for oak wilt.

10-Year Management Objectives

- Thin about 160 acres of oak stands to increase hard mast production
- Harvest and regenerate about 156 acres of oak over this 10-year planning period; and
- Convert oak stands affected by oak wilt to a pine type.

Other Forested Cover Types

Current Condition

Other forested types make up 719 acres and are made up of white pine (194 acres), lowland spruce/fir (178 acres), upland mixed forest (109 acres), lowland conifers (72 acres), upland spruce/fir (39 acres), natural mixed pines (36 acres), mixed upland deciduous (29 acres), planted mixed pines (25 acres), upland conifers (24 acres), paper birch (nine acres) and cedar (four acres). Together these types make up about 13% of the management area.

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;
- Featured species habitat requirements will be taken in to 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 266 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 (391 acres – 7%), lowland open/semi-open lands (75 acres – 1%) and miscellaneous other (water, local, urban) (49 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.

4.32.2 Featured Wildlife Species Management

Wildlife considerations in the Sands Plains management area include accommodation of many species associated with xeric forest habitat such as Kirtland's warbler, upland sandpiper, black-backed woodpecker, eastern bluebird and spruce grouse. The primary focus of wildlife habitat management will be to address the habitat requirements identified for the following featured species: Kirtland's warbler, spruce grouse and upland sandpiper. Based on the selected featured species, some of the most significant wildlife management issues in the management area are: large open land complexes; habitat fragmentation; mature forest (jack pine, black and white spruce and tamarack); 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.

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 and Michigan Technological University).
 - 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 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 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.

Upland Sandpiper

The western Upper Peninsula goal is to provide suitable breeding habitat for upland sandpiper in select appropriate WUP management areas. State forest management during this planning period will focus on maintaining large opening complexes and using the compartment review process to schedule jack-pine harvests associated with permanent openings on a sustainable rotation and schedule harvests adjacent to burns or schedule similarly-aged jack pine treatments in close proximity to each other.

Wildlife habitat specifications:

- Maintain dynamic opening complexes of 250 acres or larger.
- Open blocks within complexes should be within one mile of each other.
- Where possible, strive to consolidate patches into larger opening complexes, by creating temporary openings associated with permanent openings. This could be accomplished by scheduling jack pine clear-cuts associated with permanent openings on a sustainable rotation, scheduling harvests adjacent to burns or schedule similarly aged jack-pine treatments in close proximity to each other.
- Work with adjacent landowners within the management area to maximize the amount and distribution of open land habitat.
- Mow or burn patches every 3-5 years to eliminate woody vegetation succession as the budget allows.

4.32.3 Rare Species and Special Resource Area Management

All forest operations must be reviewed for potential conflicts between rare species and proposed forest operations following the guidance in "*DNR's Approach to the Protection of Rare Species on State Forest Lands*" (IC4172). This is especially important when listed species are present, 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 four listed species and no natural communities of note occurring in the management area as listed in Table 4.32.2. 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 151 acres of potential old growth have been identified within the Sands Plains management area (Figure 4.32.7). 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.

There are no high conservation value areas or ecological reference areas identified in this management area as illustrated in Figure 4.32.7.

Table 4.32.2. Occurrence information for special concern, rare, threatened and endangered communities and species for the Sands 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 Dry northern forest	Jack Pine Jack Pine, Red Pine	Early Early
Mammal								
Tri-colored bat (Eastern pipistrelle)	<i>Perimyotis subflavus</i>	SC/G5/S2S3	Confirmed	PS	Very High	Caves	Caves	N/A
Plants								
Narrow-leaved gentian	<i>Gentiana linearis</i>	T/G5/S2S3	Confirmed			Sand and gravel beach Northern wet meadow Intermittent wetland Northern hardwood swamp	Upland open/semi-open Lowland open/semi-open Lowland open/semi-open Black Ash	N/A N/A N/A Late
Fir clubmoss	<i>Huperzia selago</i>	SC/G5/S3	Confirmed			Open dunes Intermittent wetland	Upland open/semi-open Lowland open/semi-open	N/A N/A

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.

4.32.4 Forest Health Management

Although forest health issues span the entire landscape, some specific threats are more important in this management area due to the species composition, site quality or other factors. Some of the more important forest health pests in this area include:

- White trunk rot of aspen
- *Hypoxylon* canker
- Jack pine budworm
- *Diplodia* shoot blight of pine
- *Sirococcus* shoot blight.

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. Garlic mustard and Japanese knotweed are the only species of concern that been documented in or near this management area.

Sands Plains

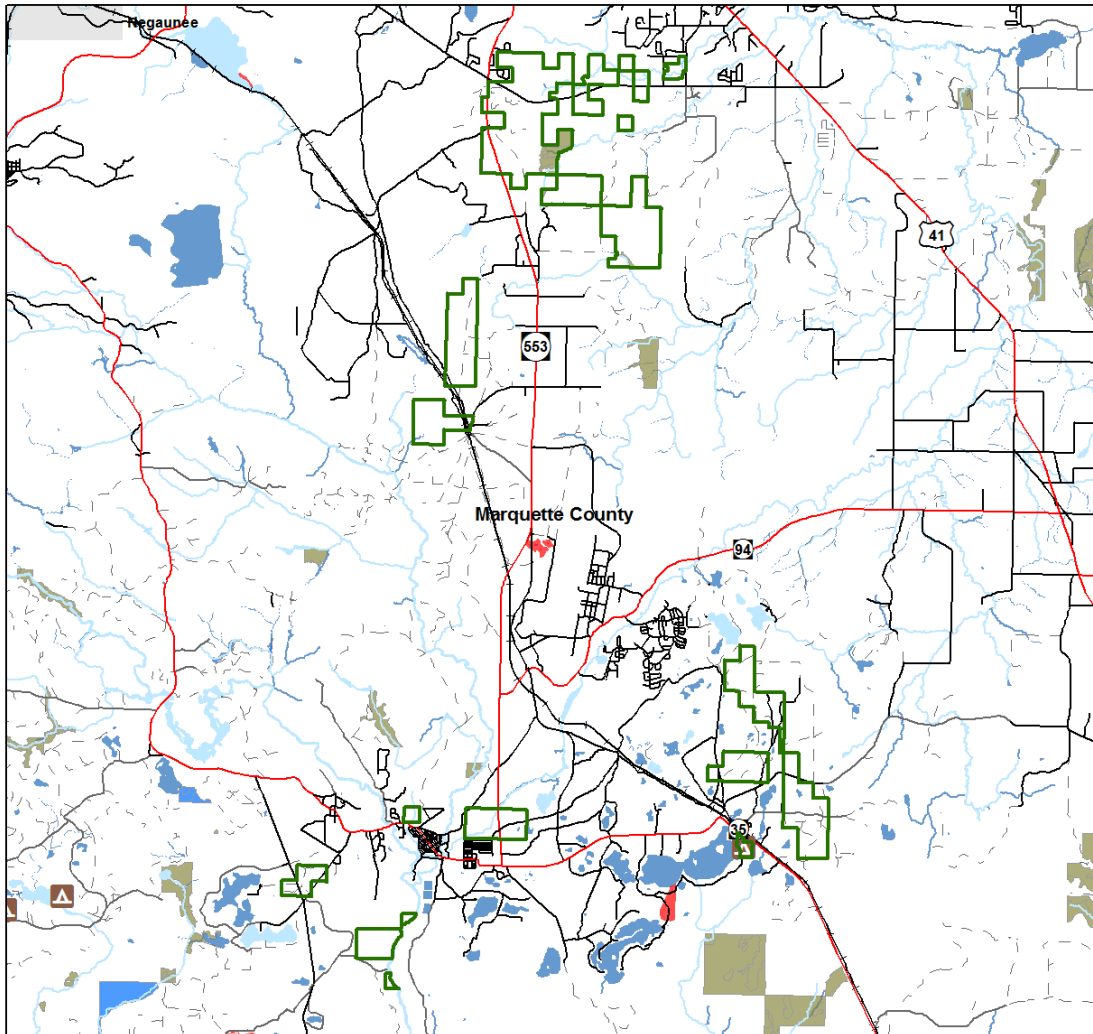


Figure 4.32.7. A map of the Sands Plains management area showing the special resource areas.

4.32.5 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 4.32.1.

4.32.6 Fire Management

This area is dominated by fire-adapted communities ranging from barrens at its heart. Dry and dry mesic northern forest communities make up the bulk of the land area that remains. This area was probably always subject to periodic stand replacement fires that spread rapidly over large areas, frequently in single events. Wildland-urban interface and intermix issues remain a primary concern within this management area.

- This management area falls within the Sands Plains Zone Dispatch area, which provides plans for initial attack, based on fire danger level. It calls for elevated readiness and aggressive response to reported wildfires during periods of VERY HIGH and EXTREME fire danger.
- Continued evaluation and maintenance of establish fuel breaks adjacent to the Sawyer development.

4.32.7 Public Access and Recreation

This area has good public and management access. The Little Lake State Forest Campground and its boating access site are located in this area as shown in Figure 4.32.7. The Blueberry Ridge Pathway and Thunder Valley Equestrian Trail are located in this area and shown in Figure 4.32.1.

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

4.32.8 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 an end moraine of coarse-textured till, glacial outwash sand and gravel and postglacial alluvium and lacustrine (lake) sand and gravel. The glacial drift thickness varies between 100 and 400 feet. Sand and gravel pits are located in the management area and there is potential for additional pits.

The Precambrian Jacobsville Sandstone and Archean Granite/Gneiss subcrop below the glacial drift. The Jacobsville was used as a building stone in the past.

Old iron mines are located five miles to the west of the management area. Metallic mineral exploration has occurred in the general area of the management area in the past and there could be some potential.