

4.2 MA 1 – Great Lakes Islands Management Area

Summary of Use and Management

The Great Lakes Islands management area (MA) consists of the Fox Island group and the Beaver Island group in northern Lake Michigan and Bois Blanc Island in northern Lake Huron (Figure 4.1.1). All of the islands, except Bois Blanc, are wildlife research areas administered by Wildlife Division. Timber on Beaver Island is managed for wildlife habitat maintenance. The Forest Resources Division administers 10,300 acres of state forest land on Bois Blanc Island, including three designated natural areas. Timber management opportunities on Bois Blanc Island are limited due to economics and logistics of travel. Expected trends within this 10-year planning period are increased recreational pressure, especially protecting key habitat for threatened and endangered species such as piping plover; introduced pests and diseases; and respecting traditional tribal use of the islands.

- Ecological classification – North and South Fox islands and High Island fall within the Manistee sub-region, Beaver Island falls within the Cheboygan sub-region and Bois Blanc Island falls within the St. Ignace sub-region as classified by Albert (1995).
- Landform – The Fox Islands and High Island consist of sand dunes or other lacustrine features. Beaver Island is generally similar to other lake plains in the state, much of it a series of beach ridges and adjacent wet depressions. Bois Blanc Island has flat sand or clay deposits where only a few inches of elevation change can alter drainage conditions.

Ownership and size:

Bois Blanc acres total 23,700 acres in size. The state of Michigan administers 10,300 acres (43%) of this land. The state land includes three designated natural areas: 1) Mixed Forest - 968 acres, 2) Northshore - 817 acres and 3) Snake Island/Mud Lake - 244 acres. Approximately 5,400 acres of state forest land on Bois Blanc Island are designated as managed lands as part of Candidate Conservation Agreement with Assurances for the eastern massasauga rattlesnake in Michigan. Timber management opportunities on the island are limited due to economics and logistics/operability, thus the best management type must be matched to the circumstances and site conditions.

- Beaver Island Group
 - Beaver Island is approximately 36,800 acres in size. The state of Michigan administers about 12,300 acres (33%) of this land. State lands have a history of timber management and opening maintenance. There are no current plans to prepare any new sale contracts until the planning process is completed with the Island Committee. The results of past sales could dictate future management opportunity. The island has an active deer management group that is conducting some habitat management activities. The island has a year-round population of 551. The island group has piping plover critical habitat.
 - High Island is approximately 3,600 acres in size and completely owned by the state of Michigan. It is considered one of the most beautiful islands in the state and contains unique geology and biology. The island is an outcrop of limestone bedrock covered with a relatively thick layer of glacial drift. The central part of the island (a high plain) is separated from the rest by an escarpment ranging in height from a few feet to upward of 200 feet or more. Parts of the west side of the escarpment are covered with high perched sand dunes (in excellent condition) with mostly open dune vegetation. Farther west is an area of sandy beach ridges of former lake levels, which has some interesting and beautiful cedar and upland forests. The island has an array of Michigan shoreline features and associated ecosystems that support a number of rare, threatened and endangered plant and bird species.
 - Garden Island is approximately 4,600 acres in size and all but 107 acres is owned by the state of Michigan. The island has specific significance to Native Americans.
 - Hog Island is approximately 2,300 acres in size and completely owned by the state of Michigan. It is one of the least disturbed islands in the Beaver Island group and is a natural, scenic, recreational and scientific gem. The island is largely forested (including pockets of old-growth northern hardwood), but includes extensive great lakes marshes that are important spawning grounds for perch and smallmouth bass, interdunal wetlands and uncut coniferous swamps and bogs. The island provides habitat for the state-threatened common tern, and three state-threatened plant species that are found only on the shores of the Great Lakes: Lake Huron tansy, Pitcher's thistle and Houghton's goldenrod.
- Fox Island Group
 - North Fox Island is 820 acres in size. It was purchased by the state of Michigan in 2000.
 - South Fox is 3,433 acres in size. The island includes a cemetery where members of the Grand Traverse Band of Native Americans are buried. Deer were introduced onto the island in 1915. Hunting is permitted on state land by permit only. There is a lighthouse on South Fox that was built in 1867 and operated until 1959. Portions of the island's shoreline are classified as piping plover critical habitat.

Great Lakes Islands - NLP

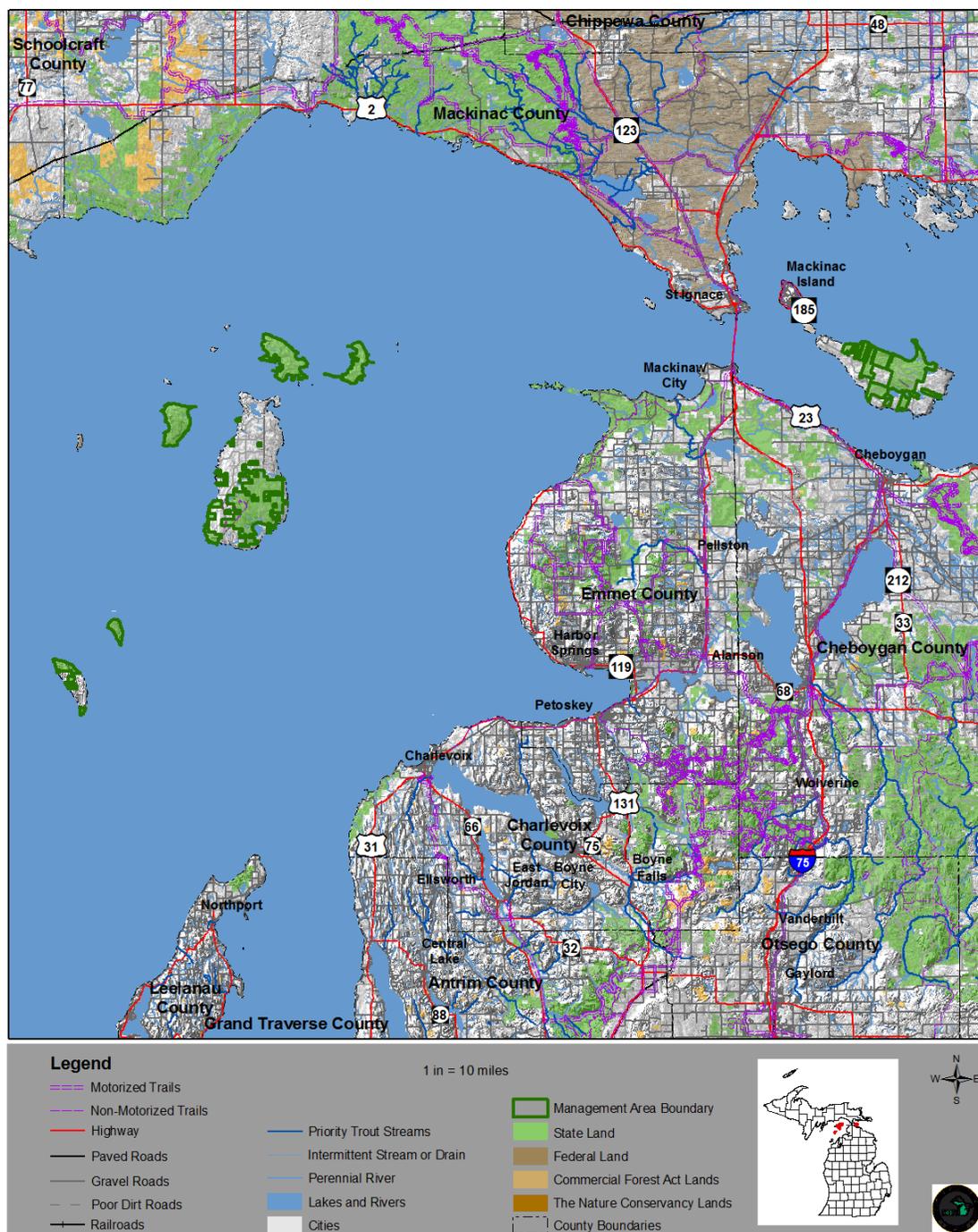


Figure 4.1.1. A map of the Great Lakes Islands management area (dark green boundary) in northern Lake Huron and northern Lake Michigan.

4.1.1 Forest Cover Type Management Direction

All of the Islands, with the exception of Bois Blanc, are administered by DNR Wildlife Division. The state forest land on Beaver Island will continue to be inventoried and be subject to forest management for wildlife habitat objectives as economics and logistics allow. The other Great Lakes islands in the management area are wildlife research areas administered by the Wildlife Division.

The state forest land on Bois Blanc Island will continue to be inventoried and with the exception of the natural areas, be subject to forest management as economics and logistics allow.

4.1.2 Featured Species

Each of the featured species outlined below includes recommended practices with regard to forest management.

The following have been identified as featured species for this management area during this 10-year planning period:

- Eastern massasauga rattlesnake
- Pileated woodpecker
- Piping plover
- Ruffed grouse
- White-tailed deer.

The primary focus of wildlife habitat management in the Great Lakes Islands management area will be to address the habitat requirements identified for the listed featured species. Based on the selected featured species, some of the most significant wildlife management issues in the management area are large blocks of early successional forest, maintenance of open-land complexes, habitat corridors and fragmentation, retention of large over-mature trees and buffers and the provision of snags.

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

Eastern Massasauga Rattlesnake

The goal for eastern massasauga rattlesnake in the northern Lower Peninsula is to maintain available habitat. Eastern massasauga rattlesnakes inhabit open wetland as well as adjacent upland open cover types that support gestation and parturition. Populations in northern Michigan will often use lowland coniferous forests, such as cedar swamps, as well as open wetlands. Upland sites may range from forest openings to old fields, agricultural lands and prairies. State forest management for the species should focus on maintaining suitable habitat in priority areas in accordance with the Candidate Conservation Agreement with Assurances. Approximately 5,400 acres of state forest land on Bois Blanc Island are designated as eastern massasauga rattlesnake managed lands per the Candidate Conservation Agreement with Assurances.

Wildlife Habitat Specifications:

- At occupied sites maintain ≤50% canopy from trees and shrubs in wetland and upland vegetation types, maintain patches of suitable habitat at greater than 250 acres, restrict mowing and burning to November to March when eastern massasauga rattlesnake are in hibernation and refrain from manipulating water levels between November and March at sites where eastern massasauga rattlesnake are known to occur.
 - Implementation of eastern massasauga rattlesnake Candidate Conservation Agreement with Assurances in appropriate management areas will be sufficient to meet eastern massasauga rattlesnake wildlife habitat specifications in this management area.

Pileated Woodpecker

The goal for pileated woodpecker in the northern Lower Peninsula is to maintain available habitat. Pileated woodpeckers prefer stands greater than 40 years old for foraging and greater than 70 years old for nesting and roosting and abundance is positively related to the density of trees >12 inches in diameter at breast height. State forest management should focus on the maintenance of a component of large diameter trees (>12 inches in diameter at breast height) at the landscape scale.

Wildlife Habitat Specifications:

- Maintain a component of large diameter trees greater than 12 inches in diameter at breast height.
 - Implementation of Within-Stand Retention Guidance, factor-limited acres, uneven-aged management in the northern hardwoods type, special conservation areas with objectives for big tree management and continued mortality from insect and disease will be sufficient to meet the pileated woodpecker habitat specifications for large trees in this management area.

Piping Plover

The goal for the Great Lakes piping plover is to maintain a breeding population of a minimum 100 nesting pairs. Piping plover select open, sparsely vegetated sandy coastal habitats for nesting, rearing young and foraging. The recovery plan Northern Lower Peninsula Regional State Forest Management Plan MA 1 Great Lakes Island

for the Great Lakes piping plover (2003) defines potential breeding habitat as areas with beach width >7metres (23 feet), shoreline length >0.4 kilometers (0.25 miles), dune area >1.95 hectares (4.82 acres), patches of >0% cobble or debris and areas of beach with up to 50% vegetation cover. State forest habitat management should focus on protecting critical habitat on other occupied shoreline.

Wildlife Habitat Specifications:

- At known breeding sites work with partners to limit human activity near nests, construct predator exclosures around nests and control avian and mammalian predators as needed.
 - Implementation of Great Lake Piping Plover Recovery Plan at occupied sites will be sufficient to meet the habitat specifications for this species.
- In other critical habitat, support land acquisitions and conservation easements.
- At active sites, support public education and increased awareness to help avoid disturbance to nesting birds.

Ruffed Grouse

The goal for grouse in the northern Lower Peninsula is maintain available habitat. Ruffed grouse prefer young (6-15-year-old) even-aged deciduous stands that typically support 8,000-10,000 woody stems/acre. Although ruffed grouse use many different forest types (aspen, birch, oak-hickory), aspen can support higher densities than those attained in other forest types. The juxtaposition of different age classes allows for different life history requirements to be met within a small area and promotes higher grouse densities. Ideal aspen stands will be of 40-160 acres under a 40-year rotation with staggered harvests of 25% every 10 years in 10-40 acre harvest units. Larger harvest units should have irregular boundaries and include one or two 1-3-acre unharvested inclusions. State forest management should focus on maintaining and balancing the age-class distribution for aspen and oak cover types in priority landscapes.

Wildlife Habitat Specifications:

- Maintain the aspen cover type and the aspen component in mixed stands within the management area.
- Balance the age-class distribution of aspen and continue management to regenerate oak to maintain young forests across the management area.
- Maintain the upland shrub cover type specifically junberry, hawthorn, cherry and other mast producing shrub components.
 - Successful implementation of these wildlife habitat specifications will require partnerships with conservation partners and may be difficult given the challenging economic and logistic conditions for commercial timber harvest on the islands.

White-tailed Deer

The goals for white-tailed deer habitat in the northern Lower Peninsula are to: 1) Maintain spring and summer forage and improve recreational access through openings management; 2) Maintain the overall proportion of potential woody browse such as aspen; 3) Maintain or increase the oak component in forest stands and promote oak regeneration; and 4) Maintain and promote functional shelter in wintering complexes.

Wildlife Habitat Specifications:

- Annually manage at least 3,000 acres of forest openings across the ecoregion to provide spring and summer forage and recreational opportunities.
- Maintain the aspen cover type and the aspen component in mixed stands within the management area.
- Move to balance the age-class distribution of aspen and continue management to regenerate oak to maintain young forests across the management area.
- Conduct silvicultural practices that conserve the oak component in forest stands and promote oak regeneration.
- Manage cedar and hemlock with the main objectives of regeneration and providing future functional cover.
- Promote hemlock on appropriate sites using silviculture to increase within-stand hemlock components.
 - Successful implementation of these wildlife habitat specifications will require partnerships with conservation partners and may be difficult given the challenging economic and logistic conditions for commercial timber harvest on the islands.

4.1.3 Rare Species and Special Resource Area Management

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

Past surveys have noted and confirmed twelve listed species as well as six natural communities of note occurring in the management area as listed in Table 4.1.2. 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 4.1.2. Occurrence information for special concern, rare, threatened and endangered communities and species for the Great Lakes Islands 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
Boreal forest		S3/GU	Confirmed				Upland & Lowland Sp/F	Mid
Dry-mesic northern forest		S3/G4	Confirmed				White Pine	Late
Limestone cobble shore		S3/G2G3	Confirmed				Upland open/semi-open	N/A
Mesic northern forest		S3/G4	Confirmed				Northern Hardwood	Late
Poor fen		S3/G3	Confirmed				Lowland open/semi-open	N/A
Birds								
Piping plover	<i>Charadrius melodus</i>	LE/E/G3/S1	Confirmed	MV	Moderate	Open dunes	Upland open/semi-open	N/A
Common moorhen	<i>Gallinula chloropus</i>	T/G5/S3-4	Confirmed	PS	Very High	Great Lakes marsh Coastal plain marsh	Lowland open/semi-open Lowland open/semi-open	N/A N/A
Common loon	<i>Gavia immer</i>	T/G5/S3-4	Confirmed	HV	Very High	Emergent Marsh Emergent Marsh Bog	Lowland open/semi-open Lowland open/semi-open Lowland open/semi-open	N/A N/A N/A
Bald eagle	<i>Haliaeetus leucocephalus</i>	SC/G5/S4	Confirmed	IL	Moderate	Bog Hardwood-conifer swamp Northern hardwood swamp Poor conifer swamp Floodplain forest Dry northern forest Dry-mesic northern forest	Lowland open/semi-open Lowland Mixed Black Ash Tamarack Lowland mixed Jack Pine, Red Pine White Pine	N/A Mid Late Late Mid Early Late
Osprey	<i>Pandion haliaetus</i>	SC/G5/S2-3	Confirmed	PS	Low	Mesic northern Forest Coastal fen Northern hardwood swamp Floodplain forest Hardwood-conifer swamp	Northern Hardwood Lowland open/semi-open Black Ash Lowland Mixed Lowland Mixed	Late N/A Late Mid Mid
Snail								
Deepwater pondsnail	<i>Stagnicola contracta</i>	E/G1/S1	Confirmed	HV	Very High	Inland lake Submergent marsh	Aquatic Lowland open/semi-open	N/A N/A
Plants								
Calypso or fairy-slipper	<i>Calypso bulbosa</i>	T/G5/S2	Confirmed			Rich conifer swamp Boreal forest Limestone bedrock glade Volcanic bedrock lakeshore Wooded dune & swale complex Dry northern forest Dry-mesic northern forest Great Lakes barrens Volcanic bedrock glade	Tamarack Upland & Lowland Sp/F Upland open/semi-open Upland open/semi-open Upland open/semi-open Jack Pine, Red Pine White Pine Upland open/semi-open Upland open/semi-open	Late Mid N/A N/A N/A Late Late N/A N/A
Pitcher's thistle	<i>Cirsium pitcheri</i>	LT/T/G3/S3	Confirmed			Open dunes Wooded dune & swale complex Great Lakes barrens Sand and gravel beach	Upland open/semi-open Upland open/semi-open Upland open/semi-open Upland open/semi-open	N/A N/A N/A N/A
Ram's head lady's-slipper	<i>Cypripedium arietinum</i>	SC/G3/S3	Confirmed			Rich conifer swamp Boreal forest Volcanic bedrock lakeshore Hardwood-conifer swamp Poor fen Wooded dune & swale complex Dry northern forest Dry-mesic northern forest Great Lakes barrens Limestone bedrock glade Volcanic bedrock glade Granite bedrock glade	Tamarack Upland & Lowland Sp/F Upland open/semi-open Lowland Mixed Lowland open/semi-open Upland open/semi-open Jack Pine, Red Pine White Pine Upland open/semi-open Upland open/semi-open Upland open/semi-open Upland open/semi-open Upland open/semi-open	Late N/A N/A N/A N/A N/A Late Late N/A N/A N/A N/A
Dwarf lake iris	<i>Iris lacustris</i>	LT/T/G3/S3	Confirmed			Open dunes Alvar Wooded dune & swale complex Boreal forest Limestone bedrock glade Limestone cobble shore Limestone bedrock lakeshore	Upland open/semi-open Upland open/semi-open Upland open/semi-open Upland & Lowland Sp/F Upland open/semi-open Upland open/semi-open Upland open/semi-open	N/A N/A N/A Mid N/A N/A N/A
American shore-grass	<i>Littorella uniflora</i>	SC/G5/S2S3	Confirmed			Submergent marsh	Lowland open/semi-open	N/A
Lake Huron pansy	<i>Tanacetum huronense</i>	T/GST4T5/S3	Confirmed			Open dunes Limestone cobble shore Wooded dune & swale complex	Upland open/semi-open Upland open/semi-open Upland open/semi-open	N/A N/A N/A

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

As shown in Figure 4.1.2, there are seven islands in this management area that consist of a Great Lakes islands special conservation area as well as nine other special conservation areas. There are four non-dedicated natural areas: McFadden Point (Beaver Island – 65 acres), French Bay (Beaver Island – 138 acres), High Island wilderness area (3584 acres) and Hog Island wilderness area (2264 acres). There are also four potential Type 2 old growth areas: Lime Kiln Island (136 acres of boreal forest), Point La Par (242 acres of dry-mesic northern forest), Bois Blanc Island (231 acres of mesic northern forest) and Central Cedar Swamp (21 acres of rich conifer swamp). The Beaver Island Archipelago and all other islands in this management area (with the exception of Bois Blanc Island) are a state wildlife research area and a special conservation area (Figure 4.1.2).

Also shown in Figure 4.1.2, there are three high conservation value areas on Bois Blanc Island. These high conservation value areas are the Bois Blanc Island Mixed Forest (993 acres), Snake Island/Mud Lake (272 acres) and Northshore (833 acres). There are also five critical dunes that are also high conservation value areas. They are on Beaver Island (parabolic dune), High Island (transverse dune), Garden Island (dune-swale complex and transverse dune), Hog Island (dune-swale complex and transverse dune) and at Point Catosh on Bois Blanc Island (dune-swale complex)(Figure 4.1.2).

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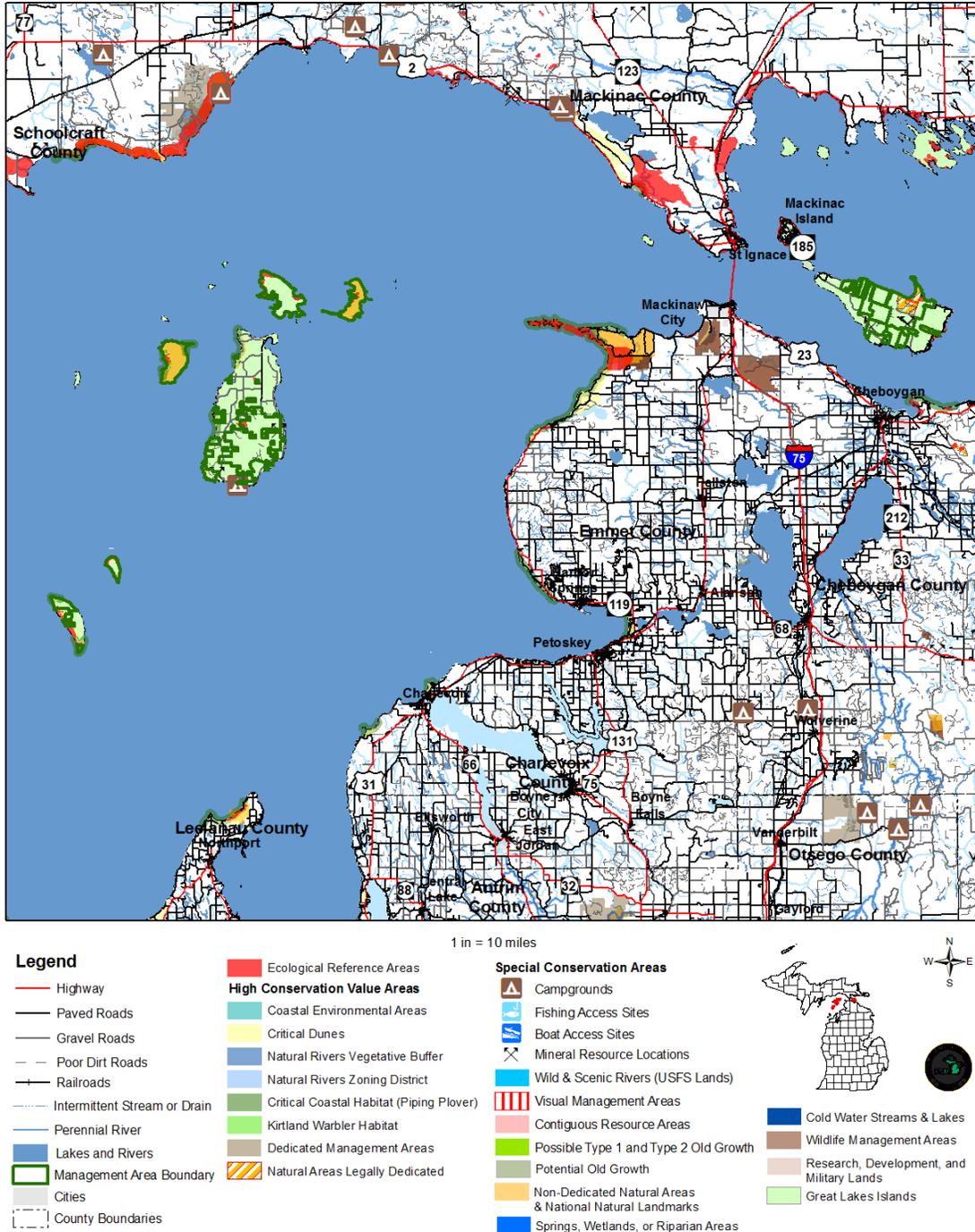


Figure 4.1.2. A map of the Great Lakes Islands management area showing the special resource areas.

There are also four ecological reference areas (Figure 4.1.2) that are partially or mostly on state land. The ecological reference areas represent the following natural communities: poor fen (10.02 acres), limestone cobble beach (6.91 acres), boreal forest (350.35 acres) and bog (148.24 acres). These ecological reference areas will be managed to enhance and protect their natural vegetative and associated wildlife communities as directed by an ecological reference areas-specific management plan. These individual management plans will be developed over the life of this planning period.

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.

4.1.4 Forest Health Management

Although forest health issues span the entire landscape, some specific threats are more important in this management area due to the species composition, site quality or other factors. Some of the more important forest health pests in this management area include exotic and invasive species, primarily reed grass (*Phragmites*) that floats in from the mainland, as well as incidental transmission by human activities of other species such as spotted knapweed, garlic mustard and purple loosestrife.

Beech bark disease is prevalent throughout the northern hardwood cover type on Beaver Island.

To minimize biological, social and economic impacts due to forest health pests:

- Continue to carry out surveillance activities for exotic plants and animals;
- Develop an action plan for controlling or eliminating invasives; and
- If feasible, follow the Beech Bark Disease Guidelines.

4.1.5 Aquatic Resources

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

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

Forested stands adjacent to designated high priority trout streams will specifically be managed to discourage beaver use in accordance with both DNR Policy and Procedure 39.21-20 Beaver Management and IC 4011. There are no designated high priority trout streams in this management area.

4.1.6 Fire Management

Swamp types, which are a major component of this management area, are rarely impacted by natural fire regimes. However, disturbance through fire has played an important role in the initial propagation and maintenance of oak and natural oak/pine types and small inclusions of aspen or grass/upland brush types.

4.1.7 Public Access and Recreation

Access is limited to plane or boat due to the remote character of these islands. Where access is limited on state forest land, the DNR will continue to seek access across adjacent private property.

Due to the remote and isolated nature of the parcels on the Great Lake Islands there are few facilities or trails on the islands. However, there are opportunities for dispersed recreation throughout the state forest lands.

4.1.8 Oil, Gas and Mineral Development

Future management of oil, gas and mineral resources on the Great Lakes Islands will depend on logistics, economics and environmental considerations. The funding source for each island and the associated management emphasis may also impact the potential development of oil, gas and minerals.