

# Petobego State Game Area Master Plan



**MICHIGAN DEPARTMENT OF NATURAL RESOURCES**

**WILDLIFE DIVISION  
STEVE GRIFFITH  
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## **Intended Purpose and General Management Direction**

The Petobego State Game Area (PSGA) is located in the Northern Lower Peninsula Region (NLP) along the Grand Traverse-Antrim County border (Figure 1). Development of the PSGA began in 1948 when the Conservation Commission of the Michigan Department of Conservation approved the purchase of land containing the Petobego Marsh and land surrounding Petobego Pond and Tobeco Creek where it connects the marsh to the pond. Development of this area was designed to restore and enhance feeding and nesting habitat for waterfowl, and breeding habitat for muskrats and other furbearers. The Petobego Marsh was originally a lake that was drained during the late 1890's to extract marl from the lakebed. The marl operations did not prove profitable, and later a low stone and earthen dam was constructed across the outlet creek to partially reflood the area. Some years later it was operated as a private muskrat marsh, but this again proved unprofitable and the venture failed. The old dam was insufficient and it washed out prior to purchase of the land by the State. Funding for a new dam equipped with a stop-log spillway was approved in 1950, and completed in 1951.

Land within the PSGA was acquired using Pittman-Robertson (P-R) Act funds, tax reversion of private land, and recently purchases via the Natural Resource Trust Fund. The total area of PSGA is 672 acres. The PSGA is managed to provide quality habitat for waterfowl, white-tailed deer, ruffed grouse, and aquatic furbearers, and for recreational opportunities associated with these and other species.

Pittman-Robertson funds are a source of federal aid generated from taxes on sporting arms and ammunition and are apportioned to states for the purpose of wildlife population and habitat management, and wildlife-based recreation. Multiple use of areas supported by P-R funding is encouraged, provided it does not interfere with the primary purpose of wildlife management and habitat restoration.

In the future (50-100 years from now) we want the area to continue to contribute to sustainable populations of ruffed grouse, woodcock, and waterfowl, to provide valuable hunting recreation, and serve as a stronghold for Great Lakes coastal marshes and the wildlife they sustain.

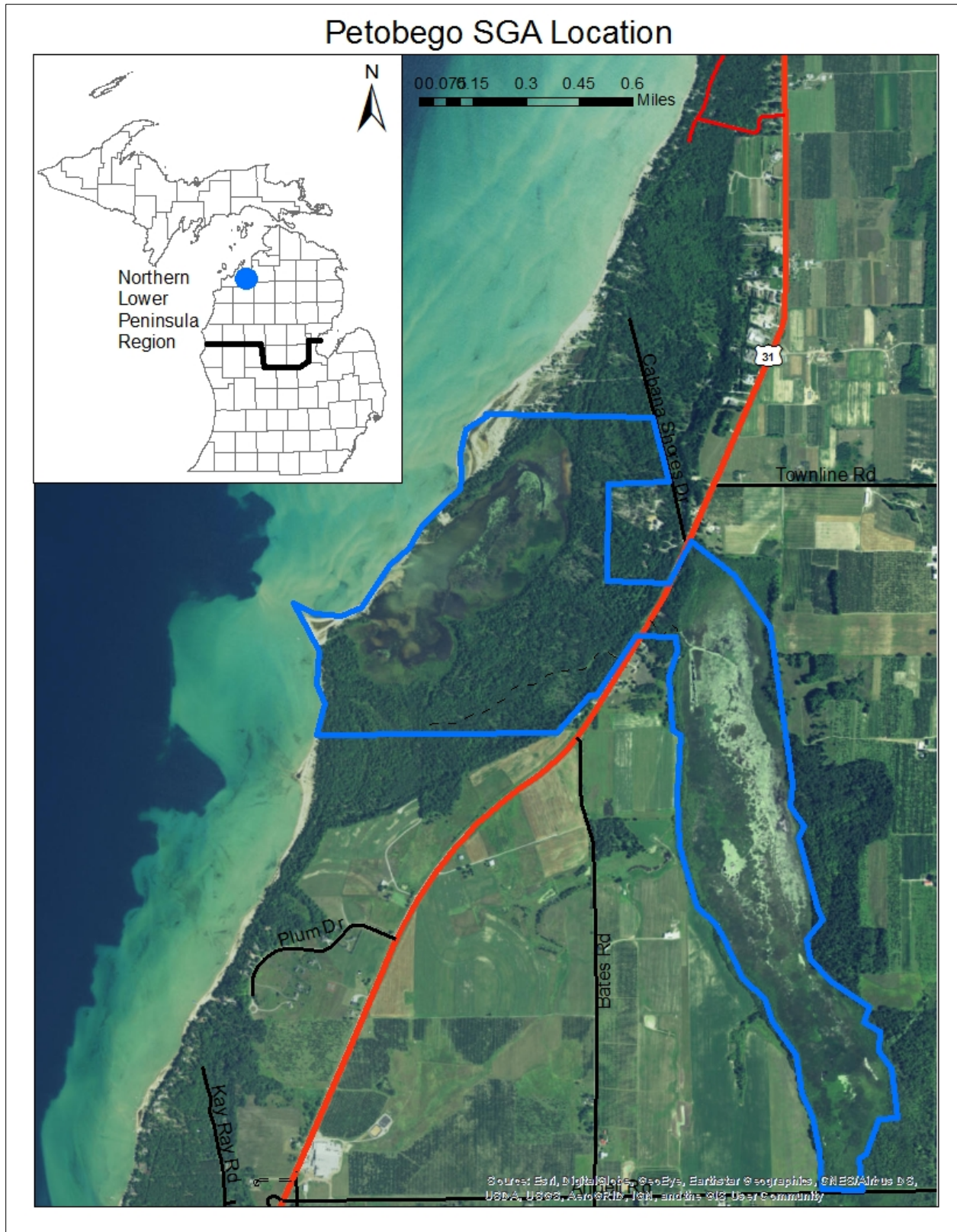


Figure 1. Location of the Petobego State Game Area.

## **Background**

At a local level, this plan helps fulfill goals and objectives of other higher level Department and Wildlife Division plans and initiatives. The Department goals (protect natural resources, sustainable recreation, strong natural resource-based economies, and strong relationships and partnerships), the Wildlife Division's Guiding Principles and Strategies (Goal 2-Manage habitat for sustainable wildlife populations, Goal 4-Enhance wildlife-based recreation), More Bang For Your Buck concepts (outstanding grouse, woodcock and turkey hunting, small game hunting, and high quality waterfowl hunting), the Division's NLP Regional Operational Plan, and NLP Regional State Forest Management Plan are all reflected in this master plan.

Additionally, this SGA is considered "in-scope" for forest certification, meaning the area is included within the scope of evaluation under MDNR's Forest Stewardship Council (FSC) and Sustainable Forestry Initiative (SFI) forest management certificates. As such, the area is categorized as a Special Conservation Area (SCA), type Wildlife Management Area, indicating wildlife management and recreation are the leading conservation objectives/values guiding management. Activities will follow processes and procedures outlined in the DNR's Forest Certification Work Instructions to ensure compliance with forest certification standards.

## **Wildlife Species**

True to the intended purpose of the game area when it was initiated in 1948, we will continue to focus our efforts on species and habitats that help meet our goals to provide quality hunting opportunities and to conserve valuable examples of native and rare wildlife and ecosystems.

While no comprehensive wildlife inventory has been conducted on the property, some surveys and staff observations provide information on species that occur there. A bird survey done in 2003 yielded species such as American and least bittern, northern harrier, Virginia rail, sora, sandhill crane, black tern, and solitary and spotted sandpiper. Additionally, the Michigan Natural Features Inventory database has documented occurrences of marsh wren, and bald eagle. Waterfowl species known to use the wetlands for breeding and during migration include Canada goose, mallard, wood duck, and blue-winged teal. Upland species include white-tailed deer, American woodcock, ruffed grouse and eastern cottontail rabbit. Continued upland forest management and maintenance and protection of the wetland habitats on the SGA will benefit a number of these species over the next 10 years (Table 1).

Table 1. A list of species or projects to be worked on during this planning period, reflecting opportunities for habitat or recreational management.

Common Name	Featured Species	T&E, Special Concern Species	Climate Change Vulnerable	Remarks
Bald Eagle		X		Great Lakes offshore; Great Lakes nearshore; coastal dune/beach
Cottontail rabbit	X			Brush piles
Least Bittern		X	X	lowland shrub; ephemeral wetland; pond; inland lake; coastal emergent wetland
Mallard	X			Hemi-marsh and shallow marshes
Marsh Wren		X	X	Deeper-water marshes
Ruffed Grouse	X		X	Young forests, aspen
White-tailed deer	X			Openings, food plots, mast trees
Wood duck	X			Wooded floodings, nest box maintenance
Woodcock	X			Openings

Ruffed grouse and aspen are both predicted to be climate change vulnerable which may impact our ability to effectively meet our desired future conditions outlined in Goal 2 (see below). We will monitor aspen regeneration as part of routine forest inventory and consider alternatives to aspen, as necessary.

## Existing Conditions

Located along the East Grand Traverse Bay of Lake Michigan, the PSGA has approximately 1.1 miles of shoreline consisting of beach, dune and interdunal swales.



These areas are host to the Lake Huron tansy, a state-listed plant species and potentially Pitcher's thistle. Due to its location, the SGA is subject to water level fluctuations as Great Lakes hydrological regimes change. This in turn may influence the wetland habitat on the area, as both wetlands are hydraulically connected to each other and Lake Michigan via Tobeco Creek. Two wetland areas occur on the SGA; a designated Great Lakes Marsh natural community and Ecological Reference Area adjacent to Lake Michigan, and an Emergent Marsh natural community and impounded flooding on the east side of US 31 (Table 2).

*Table 2. Current Natural Communities and Desired Future Condition on the Petobego SGA.*

<b>Natural Community</b>	<b>Number in SGA</b>	<b>Number Known in State</b>	<b>Number Known in Region</b>	<b>Rarity</b>	<b>Desired Future Condition</b>
Great Lakes Marsh	1	82	19	G2/S3	Maintain
Emergent Marsh	1	31	12	GU/S4	Improve/Expand

The Great Lakes Marsh Ecological Reference Area, or Petobego Pond, is approximately 133 acres in size. As an Ecological Reference Area, it serves as a high quality model of ecological reference for a Great Lakes coastal wetland ecosystem with the potential to host a unique assemblage wildlife and plant species.

There are three zones within most Great Lakes marshes: wet meadow, emergent marsh, and submergent marsh. In the wet meadow grasses and sedges typically dominate the zone, along with numerous other herbaceous genera. During dry times, shrubs and tree seedlings can establish. The emergent marsh is permanently flooded with shallow water throughout the growing season in most years. Dominant plants in the emergent marsh include bulrushes, spike-rushes, rushes, and cattails, in addition to submergent and floating plants. The submergent marsh has deep water and few or no emergent species. Dominant plants in the submergent marsh include numerous floating or submergent species.

Great Lakes Marshes are considered an imperiled community on a global scale because of their restricted occurrence to the Great Lakes and human manipulation. Invasive phragmites has been documented in Petobego Pond, impacting the ecological integrity of the marsh and jeopardizing its value for wildlife and recreation.

The emergent marsh and impoundment to the east of US 31 was historically a riverine wetland. In 1951, a water control structure was established on Tobeco Creek to recreate emergent marsh habitat for waterfowl and furbearer production. The Petobego Dam is a low hazard dam consisting of a 168-foot long earth embankment with a height of 10.5 feet. The principal spillway is a straight drop concrete spillway with four 5.0-foot-wide stop log sections. The spillway has a total weir length of 20 feet. The Dam is inspected every 5 years by the Department of Environmental Quality under Part 315,

Dam Safety, of the Natural Resources and Environmental Protection Act, 1994 PA 451. The last inspection dated October 7, 2015 deemed it to be in satisfactory condition. Vegetation in the resulting emergent marsh consists mainly of cattails, bulrushes, spike-rushes, and grasses. The flooding has been considered an Emergent Marsh natural community because the original surveyor equated the marsh community as being similar to one created by a beaver dam. The natural community designation is considered to be one of low quality because of its lengthy history of human disturbance.

The terrestrial portions of the PSGA consist of gently rolling, mostly forested land. A variety of vegetation types can be found on the area including extensive second growth upland forests of mostly oak, aspen, red maple with pine and hemlock. Lowland mixed coniferous forests of eastern hemlock, green ash, red maple, balsam fir, white cedar are associated with the Tobeco Creek drainages and interdunal swales. The few forest openings are likely remnants of oak savanna/barrens and agricultural activities. There are also several small pine plantations (Table 3, Figure 2).

*Table 3. Current cover types on the Petobego SGA based on department and inventory surveys from 2009.*

<b>Cover type</b>	<b>Acres</b>	<b>Percent of Game Area</b>
Aspen	54	8.0
Oak	7	1.0
Mixed Upland Deciduous	37	5.5
Low Density Trees	11	1.6
Herbaceous Open land	1	0.1
Upland Shrub	3	0.4
Low Intensity Urban	2	0.3
Planted Pines	5	0.7
Other Upland Conifers	72	10.7
Lowland Deciduous Forest	2	0.3
Lowland Coniferous Forest	5	0.7
Lowland Mixed Forest	36	5.4
Lowland Shrub	28	4.2
Emergent Wetland	249	37.1
Sand, Soil	26	3.9
Water	134	19.9
<b>Total</b>	<b>672</b>	<b>100.0</b>



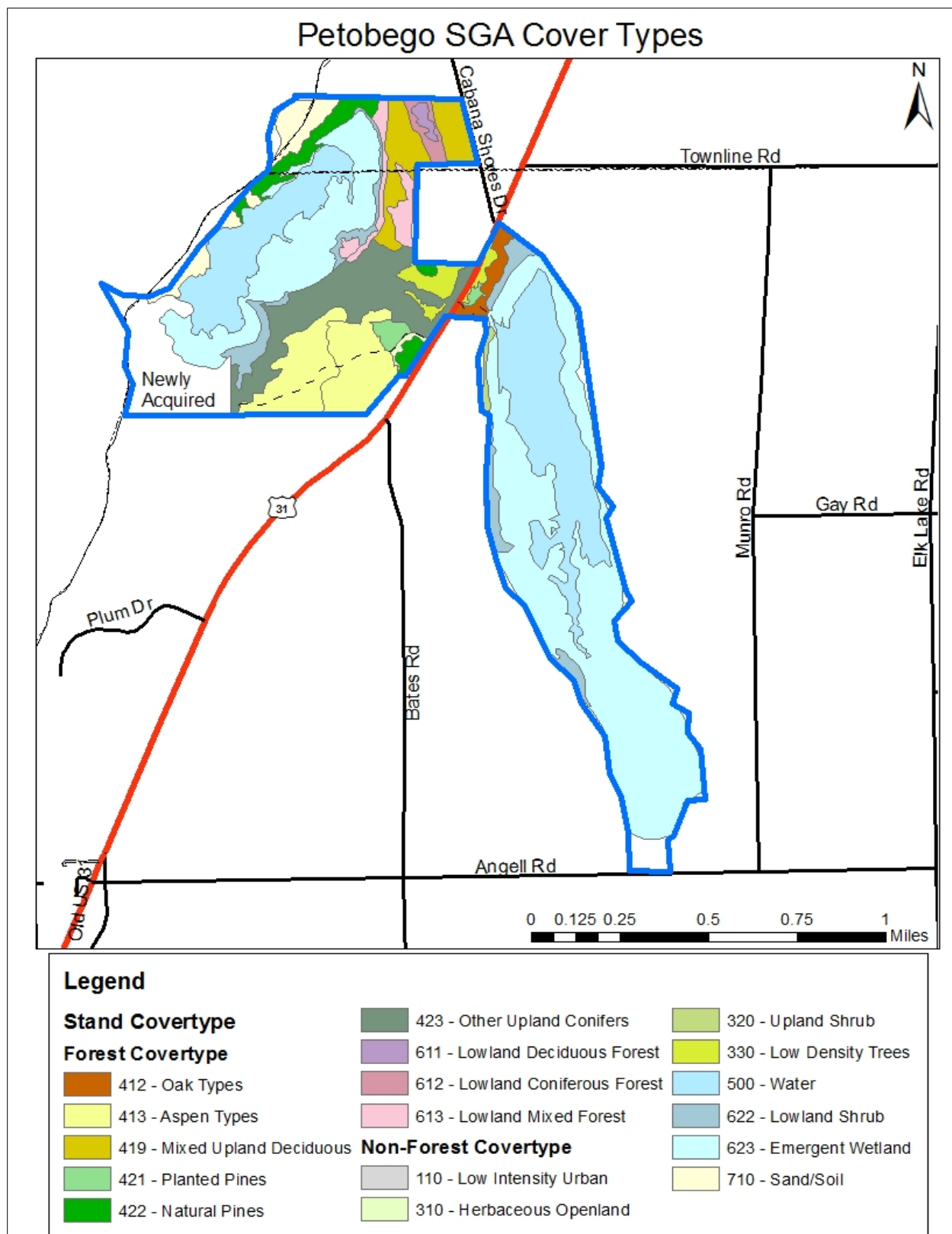


Figure 2. Major habitat cover type classes in the PSGA.

On the southern border of the SGA is the Maple Bay Farm County Park (MBF), owned by Grand Traverse County. At approximately 400 acres, it along with the Petobego SGA provides contiguous public land for recreation, shoreline activities, and sensitive habitat protections. The property was acquired in 2002 by Grand Traverse County via a cooperative effort including Grand Traverse County, the Michigan DNR Trust Fund, and the Grand Traverse Regional Land Conservancy. Part of this park (135 acres) has been enrolled in the Federal Wetland Reserve Program. The park contains multiple habitat types including beach, dunes, forested dune/swale complex, northern hardwoods, active croplands, and even native grass and wildflower plantings. Activities at the park include hiking, swimming, birdwatching, and regulated hunting in certain areas. Visitors to either area often utilize both.

## **Recreational Use**

The PSGA supports a diversity of recreational activities. Hunting opportunities include waterfowl, both on the wetlands and Lake Michigan, white-tailed deer, small game, and other upland game species. Trapping opportunities exist as well, with an emphasis on muskrat. Wildlife viewing opportunities are greatest around Petobego Pond where vegetation is more open and the opportunity to see Great Lakes shore bird species exists. The 1.5 miles of contiguous shoreline between the SGA and MBF is a popular hiking destination, and supports many water-related recreational opportunities, such as boating, paddle boarding, wind surfing, and fishing. Recreational hiking, cross country skiing, berry and mushroom picking occur on the PSGA, but are intermittent and the amount of use is difficult to determine.

State game areas in Michigan are under continual pressure for other uses, and those uses will be evaluated on a case-by-case basis for their compliance with State and Federal regulations, their compatibility with the establishing purpose of the SGA, and management endeavors that uphold that purpose.

## **Impacts on the Local Economy**

Contributions to the local economy come both from the recreation use and timber management of the area. In addition to the hunting, trapping, and fishing opportunities, PSGA and MBF are a very popular destination for nature viewing, hiking, cross country skiing, and water-related activities, which help to support local businesses. These recreational pursuits likely provide a direct boost to local restaurants, sporting goods stores, convenience stores and gas stations from visitors. Management on the area to maintain high quality wildlife habitat also results in commercial benefits to various timber harvest businesses.

## **Management Direction**

The desired future condition for the Petobego State Game Area primarily consists of promoting early successional forests and maintaining lowlands (Table 4). This is

described in greater detail in the Goals, Objectives and Management Actions that follow.

*Table 4. Desired future condition of cover types on the Petobego SGA.*

<b>Cover type and Habitat</b>	<b>Desired Future Condition</b>
Oak	Increase
Mixed Upland Deciduous	Decrease
Herbaceous Open land	Increase
Natural Pines	Maintain
Planted Pines	Decrease
Other Upland Conifers	Maintain
Lowland Deciduous Forest	Maintain
Lowland Coniferous Forest	Maintain
Lowland Mixed Forest	Maintain
Lowland Shrub	Maintain
Emergent Wetland	Increase
Aspen	Increase
Warm Season Grass	Maintain
Herbaceous Open lands	Increase
Cool Season Grass	Maintain
# of Forest Openings	Maintain
Mature Forest	Decrease
Unfragmented Forest	Maintain
Riparian Corridor	Maintain
Managed Wetlands	Maintain
Unmanaged Wetlands	Maintain

## **Goals, Objectives, and Management Actions**

The strategic direction for the PSGA, is to be implemented during regular planning cycles. This plan describes the goals or desired future condition for the area, the objectives under each goal, and the actions associated with each objective. Goals come primarily from the featured species and habitat issues relevant to PSGA.

**Goal I.** Promote mast sources for white-tailed deer, squirrels, and other wildlife, with an emphasis on the oak resource, and protect deer wintering resources.

**Rationale:** White-tailed deer and squirrels are highly desirable game species and managing for mature oak forests benefits them as well as numerous other wildlife species. Hard mast sources, like oak acorns and beech nuts are critical resources for wildlife species in the fall, while soft mast sources such as apples and other fruits and berries are important throughout the year. Eastern hemlock is a long lived coniferous species that provides important winter thermal cover for deer.

**Metrics:** Oak stand acres and/or percent oak component based on Michigan Forest Inventory (MiFI) data.

**Objective A.** Maintain the current extent of oak stands (34 acres) and find opportunities to increase the oak component in other stand types.

**Action 1.** Apply silvicultural prescriptions that promote oak regeneration.

**Action 2.** Promote shift from red oak to white oak species.

**Action 3.** Preserve mature oak trees that meet the definition of Legacy Trees that will provide a seed source and cavities for wildlife.

**Action 4.** When managing other forested cover types, including natural white pine stands and red pine plantations, identify opportunities for maintaining or increasing the oak component.

**Action 5.** Monitor for signs of oak wilt and treat immediately if found.

**Objective B.** Supplement beech and oak with additional sources of mast for wildlife.

**Action 1.** Plant native hard mast producing trees and shrubs suited to local conditions, such as white oak and hazelnut.

**Action 2.** Plant native and naturalized (i.e. apple) soft mast producing trees and shrubs suited to local conditions, such as hawthorn, serviceberry, mountain ash, crab apple, and sumac.

**Objective C.** Protect the hemlock resource for deer winter cover.

**Action 1.** Should the hemlock woolly adelgid (HWA) invasive forest pest be found within 5 miles of Petobego SGA, begin actively monitoring for HWA and treat immediately if found.

**Goal II.** Promote early successional management to provide habitat for American woodcock, ruffed grouse, cottontail rabbit, and white-tailed deer.

**Rationale:** Grouse and woodcock are highly desirable game species and managing for their habitat also benefits white-tailed deer and cottontail rabbits as well as numerous other wildlife species.

**Metrics:** Aspen stand acres and/or percent aspen component and age class distributions based on forest inventory data, number of forest openings, number of brush piles maintained, and acres of suitable forage planted (food plots or native grass/forb mix).

**Objective A.** Maintain the current extent of aspen (54 acres) and create a balance of age classes on a 40-year rotation such that approximately 25% of the stand type is in each 10-year age class.

**Action 1.** Implement clearcut treatments established in the last compartment cycle to start breaking up age classes.

**Action 2.** Increase aspen component as possible in appropriate mixed deciduous stands through implementing silvicultural practices.

**Objective B.** Maintain or increase acres of alder or component of alder in mixed lowland shrub stands on the SGA.

**Action 1.** Conduct winter hand cutting; explore opportunities to partner with MI United Conservation Clubs (MUCC) and Ruffed Grouse Society (RGS).

**Action 2.** Explore possibility to utilize RGS machine for large alder cuts.

**Objective C.** Maintain the current extent of openings and shrublands (15 acres).

**Action 1.** Seek opportunities to remove common juniper and white pine and replace with native warm season grass and forb planting.

**Action 2.** Seek opportunities to create openings and/or semi-open habitats appropriate to the landscape.

**Objective D.** Promote cottontail rabbit habitat through early successional habitat management and brush pile creation.

**Action 1.** Opportunistically improve cover by creating brush piles and/or hedge rows within and along openings.

**Action 2.** Explore opportunities to enhance natural woody browse and herbaceous forage with shrub plantings and herbaceous plantings.

**Action 3.** Promote patches of early succession habitat via available methods such prescribed burning, mowing, plantings, and silvicultural treatments.

**Goal III.** Manage wetlands to provide habitat for waterfowl, furbearers, and other wetland species, while protecting unique natural communities.

**Rationale:** Waterfowl and furbearers are popular game species and protecting and maintaining their preferred lowland habitats will provide hunting, trapping, and viewing opportunities. In addition, wetland communities are important habitat for a variety of wildlife species and protect water quality.

**Metrics:** Staff observations of wildlife activity and species presence/absence; acres of lowland habitat types within MiFI.

**Objective A.** Maintain wetland habitat at Petobego Flooding for breeding waterfowl and furbearer production.

**Action 1.** Evaluate water level management potential and determine whether to permanently remove the water control structure.

**Action 2.** Either remove the water control structure and replace with a fixed spillway, or implement drawdowns every 3-5 years for vegetation and mudflat management.

**Action 3.** Remove beaver dam at the water control structure and monitor the control structure and channel for accumulations of debris.

**Action 4.** Install wood duck nesting boxes and mallard nesting platforms.

**Objective B.** Protect Great Lakes marsh and emergent marsh natural communities to benefit waterfowl and provide hunting opportunities.

**Action 1.** Any management within or adjacent to the Great Lakes Marsh ERA will follow the Petobego Great Lakes Marsh ERA plan, including maintenance of hydrology and invasive species management.

**Goal IV.** Provide public access for recreation opportunities.

**Rationale:** Part of the requirements of receiving Natural Resource Trust Funds is providing suitable access to the acquired property or infrastructure. This is also a requirement of the Pittman-Robertson Act funds that were used to purchase most of the State Game Area land. Access will also need to be monitored to prevent or mitigate environmental damage and to ensure the land is used for its legally mandated purposes.

**Metrics:** Staff and partner observations of access sites, roadside and parking area car counts, monitoring for erosion and trespass issues, and monitoring and repair of infrastructure including, roads, trails, gates, and signs.

**Objective A.** Maintain current infrastructure and address access concerns in sensitive areas.

**Action 1.** Conduct routine maintenance in parking areas, roads and trails as needed.

**Action 2.** Ensure boundary is signed and replace any signage as needed.

**Action 3.** Address access issues that threaten the ecological integrity of the Great Lakes Marsh natural community, and follow guidance in the ERA plan.

**Objective B.** Evaluate opportunities for public access and erosion control on the newly acquired parcel.

**Action 1.** Establish a parking area and informational kiosk.

**Action 2.** Evaluate options for erosion control along the shoreline where people are accessing the SGA from East Grand Traverse Bay.

**Action 3.** Evaluate possibilities for a foot path connecting the new parcel to existing SGA land to the north.

**Objective C.** Evaluate opportunities to increase the size of and access to public land through parcel acquisition.

**Action 1.** As adjacent land becomes available, assess opportunities for acquisition.

**Objective D.** Establish a partnership with the Grand Traverse Regional Land Conservancy to further recreation and management opportunities.

**Action 1.** Create a Memorandum of Agreement or Understanding with the GTRLC to establish and maintain trails and evaluate the potential for an American Disabilities Act (ADA) accessible duck blind and viewing platform on the SGA.



## Acquisition and Disposal of Land

This is an important game area that provides a host of recreational opportunities for residents and visitors and our overall goal is to continue to provide these opportunities. Since the PSGA is in northern Michigan and within relatively close distance of Traverse City, the land acquisition strategy for the PSGA is to both fill-in state ownership by acquiring available blocks located within current state ownership and to expand the area by obtaining appropriate parcels that would facilitate access and mitigate property concerns with adjacent neighbors. Parcels will be evaluated as they become available and will be acquired on a willing seller basis only.

## Plan Review

This plan was available for internal DNR and Tribal review between April 17 and May 1, 2017. DNR comments included considering the potential for hemlock wooly adelgid, and for a more deliberate invasive species approach in the wetlands. Goal 1 was modified to include consideration of both hemlock wooly adelgid and oak wilt forest pests. Wetland invasive species strategies will be detailed in the Petobego Great Lakes Marsh ERA plan. Tribal comments included concerns regarding ground disturbing or intrusive activities in culturally sensitive areas. The DNR is committed to ensuring that management activities do not negatively impact culturally sensitive areas or species of concern, and will conduct land management reviews prior to conducting work on the ground. This plan was also available for public review and comment between June 11, 2017 and July 31, 2017. No comments were received. This plan will be reviewed within 10 years of the approved date.

## Approvals



8/28/17

Dale Rabe, Field Operations Manager

Date



09/07/2017

Rex Ainslie, Regional Supervisor

Date