

# APPENDIX A

## Supporting Analysis

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## A.1 PARK SETTING

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### Park Profile

Area: 5300 Acres  
County: Mason County  
City: Ludington, Michigan  
Latitude: 44°45'0.5"N  
Longitude: 86°30'3.6"W  
T19N R18W  
Address: 8800 W. M-116  
Ludington, MI 49431  
Phone #: (231) 843-2423



Ludington State Park is located on the Lake Michigan shoreline of Hamlin Township in Mason County, approximately 8 miles north of the City of Ludington. The 5,300 acre state park is situated between Lake Michigan and Hamlin Lake, with several miles of shoreline and beaches on both bodies of water. The park



*Lake Michigan Shoreline, Ludington State Park.*

consistently ranks as the area's number one tourist attraction and has been referred to as the "Queen of Michigan State Parks". The park is bordered by the Huron-Manistee National Forest to the north, creating a large block of public recreation land. The park contains approximately seven miles of Lake Michigan shoreline. Huron Manistee National Forest adds another 4.5 miles, resulting in 11.5 miles of publicly held shoreline.

Ludington experiences a strong lake effect on its climate during most of the year. Heavy snowfall in winter produces a slower thaw into spring and cooler temperatures into early summer. Summers are often moderate, and warmer than usual temperatures often linger into fall and early winter. The area is prone to a noticeable temperate dip at night. Ludington receives precipitation similar to the rest of the state.

Source: [http://climate.geo.msu.edu/climate\\_mi/stations/4954/narrat.txt](http://climate.geo.msu.edu/climate_mi/stations/4954/narrat.txt)

The park offers a variety of recreation opportunities including hiking, biking, fishing, swimming, camping, and boating. The park is home to the Big Sable Point Lighthouse, a historic landmark that is popular with visitors. The expansive critical dune landscape is also an important feature of the park and the region.

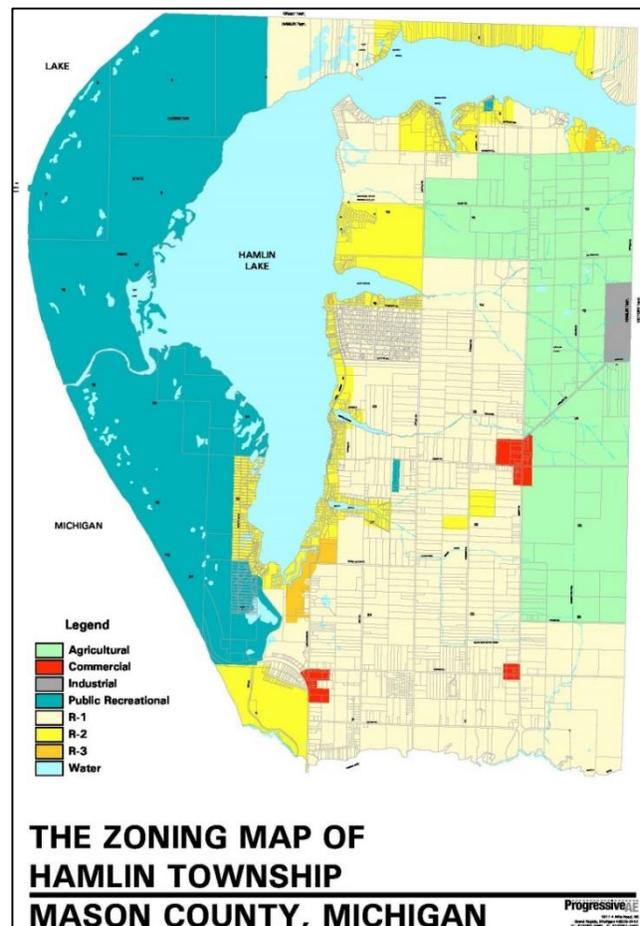
## **Community**

Ludington State Park is an important economic driver to the region; hosting over half a million day-use visitors annually and the largest number of camp nights in Michigan’s state park system. The park also benefits from its proximity to the City of Ludington and the services, attractions and events the city has to offer residents and visitors to the region.

Mason County covers approximately 794,240 acres, over 60% of which is water. Historically, the most important industries in the county were lumber and maritime trade. Although the lumber industry vanished from the county by 1900, many large lumber era mansions can still be seen in the area. The City of Ludington remains an important port city; home to the S.S. Badger, the largest car ferry on Lake Michigan, transporting passengers to and from Wisconsin. From 1992 to 2012, the S.S. Badger passenger ferry carried 2.5 million passengers, with 450 crossings per year. Tourism is a thriving industry with Ludington State Park, the Pere Marquette River and the Lincoln River popular destinations for wildlife viewing and fishing.

Ludington State Park is located within Hamlin Township. Hamlin Township, with 34.4 square miles of land area, is a community comprised predominately of agricultural and residential land uses. The state of Michigan is the largest land holder in the township with Ludington State Park stretching over seven miles along the Lake Michigan shoreline. The township, is rich in water resources with Hamlin Lake and Lake Michigan located within its boundaries.

The Zoning Map of Hamlin Township designates adjacent land areas to the east/south of the park as residential, with low density residential to the north and a combination of low and medium densities to the south. The land owned and mined by the Sargent Sands is zoned Public Recreational.



## A.2 DEMOGRAPHICS

The 2010 census data for Mason County shows a total population of 28,705. The 2014 census estimates report a slight increase in population to 28,824. The median age is 45.1 with a higher population of people age 65 or older than the state average. The median household income of \$40,683 is less than the Michigan average of \$48,669. The population density for Mason County in 2010 was 23.1 persons per square mile, with the highest density found in the City of Ludington with 2,398 persons per square mile.

The City of Ludington had the largest proportion of population, with a reported 8,076 total population in 2010. In 2010, Hamlin Township's total population was reported at 3,408, making it the most populated township in Mason County. Over 20% of the housing units in the county are used for seasonal, recreational, or occasional use. (U.S. Census Bureau)

Mason County's economy is directly related to its location on Lake Michigan, as well as other natural resources and attractions in the area. Tourism plays a significant role, with accommodation, restaurants, and service related businesses impacting the local and regional economy. Mason County's major employer is Spectrum Health, located in the City of Ludington with over 500 employees. (Mason County Master Plan, Update, 2013)

### **2010 U.S. Census Data for Mason County**

<b>People QuickFacts</b>	<b>Mason County</b>	<b>Michigan</b>
Population, 2012 estimate	28,680	9,883,360
Population, 2010 (April 1) estimates base	28,705	9,883,635
Population, percent change, April 1, 2010 to July 1, 2012	-0.1%	Z
Population, 2010	28,705	9,883,640
Persons under 5 years, percent, 2012	5.4%	5.8%
Persons under 18 years, percent, 2012	21.0%	22.9%
Persons 65 years and over, percent, 2012	20.2%	14.6%
Female persons, percent, 2012	50.5%	50.9%
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White alone, percent, 2012 (a)	95.9%	80.1%
Black or African American alone, percent, 2012 (a)	0.8%	14.3%
American Indian and Alaska Native alone, percent, 2012 (a)	1.1%	0.7%
Asian alone, percent, 2012 (a)	0.5%	2.6%
Native Hawaiian and Other Pacific Islander alone, percent, 2012 (a)	0.0%	Z
Two or More Races, percent, 2012	1.7%	2.2%
Hispanic or Latino, percent, 2012 (b)	4.1%	4.6%
White alone, not Hispanic or Latino, percent, 2012	92.3%	76.2%

Living in same house 1 year & over, percent, 2007-2011	85.7%	85.4%
Foreign born persons, percent, 2007-2011	2.0%	6.0%
Language other than English spoken at home, percentage 5+, 2007-2011	4.7%	9.0%
High school graduate or higher, percent of persons age 25+, 2007-2011	88.1%	88.4%
Bachelor's degree or higher, percent of persons age 25+, 2007-2011	19.5%	25.3%
Veterans, 2007-2011	2,982	711,613
Mean travel time to work (minutes), workers age 16+, 2007-2011	18.8	23.9
<hr/>		
Housing units, 2011	17,270	4,525,480
Homeownership rate, 2007-2011	75.3%	73.5%
Housing units in multi-unit structures, percent, 2007-2011	12.4%	18.1%
Median value of owner-occupied housing units, 2007-2011	\$121,500	\$137,300
Households, 2007-2011	12,312	3,825,182
Persons per household, 2007-2011	2.29	2.53
Per capita money income in the past 12 months (2011 dollars), 2007-2011	\$22,494	\$25,482
Median household income, 2007-2011	\$40,683	\$48,669
Persons below poverty level, percent, 2007-2011	16.6%	15.7%

Sources: 2010 US Census Quick Facts  
Mason County Master Plan, Update 2013-2014

### A.3 HISTORY OF THE LUDINGTON AREA

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Ottawa Native Americans were known to inhabit the lakeshore region long before the Europeans arrived. Traditionally they were migratory people travelling from northern to southern Michigan in the fall, where the climate was more hospitable in the winter months. They were the first mariners, travelling the shores of Lake Michigan where they fished and planted crops as well as gathering fruits, herbs and other food products.

The 1600s and 1700s were an age of discovery in North America for the European colonizing nations. In the mid to late 1600s Father Jacque Marquette, a Jesuit missionary and explorer, travelled through the area, bringing Christianity to the new world. Father Marquette died in 1675, by some accounts on the shores of the lake that would later bear his name (Pere Marquette Lake).

Early trappers and shingle makers made their way to the area as early as 1835. Burr Caswell was reported to be the first permanent settler of European descent in the area, arriving in a schooner from Chicago with his family in 1847. At that time, the area was heavily forested and travel was primarily by lake or Indian trails.

Later, the lumber industry took over with two prominent businessmen in the area, Charles Mears and James Ludington. Mears settled in the Village of Lincoln and Ludington established the town of Pere Marquette, which was renamed Ludington in 1873.

Ludington is known for its maritime industry, initially fueled by the lumber industry's need to move goods and workers. The completion of the Flint-Pere Marquette Railroad, terminating in Ludington, brought the first railroad car ferry service across Lake Michigan. Service was conducted between Michigan and Wisconsin and to Chicago. This cross-lake link, fueled by the lumber industry, established trade routes that kept the area economically viable even after the lumber industry dried up. By the 1950's, Ludington was the largest railroad car ferry port in the world.

In recent years, the Ludington area has become one of the most popular tourism destinations in the state. Draws include the S.S. Badger car ferry, area beaches, shops, restaurants, and cultural attractions.

## A.4 HISTORY OF LUDINGTON STATE PARK

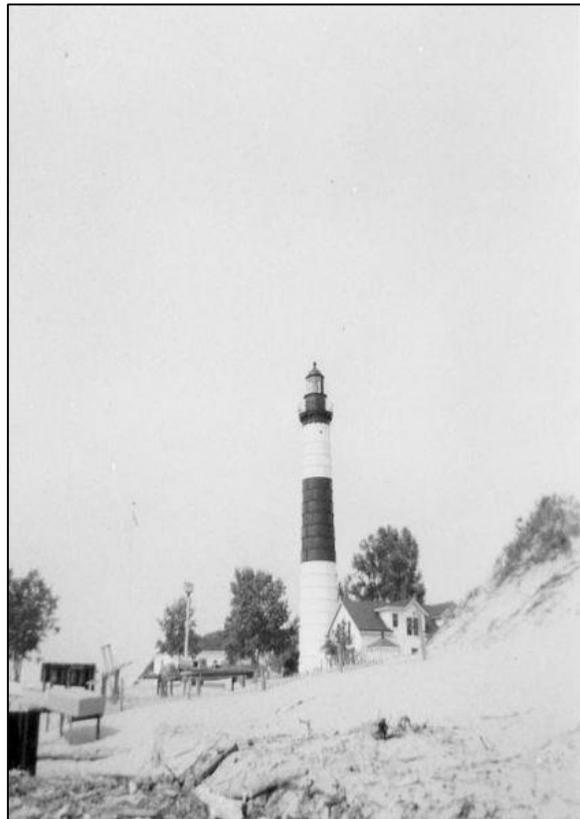
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In 1851, Charles Mears, a lumber baron from Massachusetts, began lumbering operations on the Little Sable River, now known as the Lincoln River. About a year later, he established a village called Big Sable, later renamed to Hamlin in honor of Hannibal Hamlin, Abraham Lincoln's vice president. Ludington State Park now occupies the area once known as the Village of Hamlin. Another significant change to the landscape was when Mears built a dam on the Big Sable River and backed the water up about nine miles to help transport his logs to the mill. This created what is now known as Hamlin Lake.

In 1855 twelve ships wrecked between Big Sable Point and the City of Ludington, and 48 lives were lost. Charles Mears, then a senator, began to ask Congress for money to build a lighthouse at Big Sable Point so ships on Lake Michigan could navigate around the point. In 1858, President Buchanan established a reservation at Big Sable Point and in 1866 congress appropriated \$35,000 for a new lighthouse. The 112 feet high lighthouse tower was lit for the first time on November 1, 1867.

Hamlin Village was swept away twice when the dam failed, once in 1888 and again in 1912, after the village had been abandoned. In 1913 the dam was rebuilt again, this time due to the interest of resort communities that were developing along the shores of Lake Hamlin. The dam was maintained by the Hamlin Dam Association until 1935.

The Michigan State Parks Commission began looking at the potential for a new park at Point Au Sable in 1920. In 1925 the Mason County Chapter of the Izaak Walton League spearheaded a campaign to have 800 acres of dunes and virgin pines, held by the federal government as the lighthouse preserve, deeded to the State of Michigan for park purposes. In 1926, Congress approved the transfer through enactment of a special bill, with the provision that the state build and maintain a highway to Big Sable Point Lighthouse. The state park was established in 1927. Although dedicated as a trunk line highway in 1928, the road was not completed until 1933.



*Historical Picture of Big Sable Point Lighthouse, n.d.*

Following the transfer of the lighthouse preserve, some 840 acres of adjacent state forest land was transferred to the Parks Division. The Izaak Walton League began seeking additional methods to acquire adjacent lands. Between 1931 and 1934 the State Park was enlarged to over 3,000 acres through a

combination of tax reverted land, purchases with the assistance of private donations, funds from Mason County, and land exchange. The park was officially named Ludington State Park in 1932.

In June, 1933, the Ludington-Pere-Marquette SP-2 (State Park and National Park Camp) Civilian Conservation Corps (CCC) Camp was established in the park: one of the first two such camps in Michigan state parks. It operated under formal military regulations and provided jobs to young men aged from 17 to 23. The camp was involved in park improvements; laying out trails, roads, parking areas, and campgrounds. The CCC also made vegetative improvements, planting beach grass on sand dunes, transplanting native trees and shrubs and eradicating 30 acres of poison ivy. They also constructed many other structures and features on the property including trailside shelters, toilet buildings, and picnic areas.



*The Beach House was constructed by the Civilian Conservation Corps in 1935, n.d.*

One of the most significant projects constructed by the CCC at the park was the Lake Michigan Beach House. Built in 1935, the Beach House is an Arts and Crafts style building designed by Architect Ralph B. Herrick. It is the only Arts and Crafts style building in the state park system. In 2013, the building was renovated and restored.

Ludington State Park was dedicated and officially opened to the public on August 15, 1936.

Development continued with the expansion (middle loop) of the Beechwood Campground and the development of the front loop of the

Pines Campground. The second and third loops of the Pines Campground were completed in 1944. The CCC was disbanded in 1941.

In the early 1950s many of the park features were in need of maintenance. Local citizens, aware of the state's limited funding for park maintenance, began "Operation Face-Lift" and rallied over 1,000 volunteers to fix up the park. Two years later, approximately 200 volunteers worked to complete unfinished jobs at the park.

There is a history of sand mining within and adjacent to Ludington State Park, south of the Big Sable River. In 1953, the Conservation Department (now DNR) entered into a 30-year lease agreement with Sargent Sand Company to mine sand from a specified 60-acre parcel in Ludington State Park. In consideration for initial extraction rights, the Company acquired other lands for state park purposes, with Royalty payments made to the State for continued extraction. In 1960, the Department of Conservation approved the exchange of 56.93 acres of dune land within the boundary of Silver Lake State Park for a mineral deed to 9.11 acres of Ludington State Park with Sargent Sand Company. This exchange enabled the acquisition of a key tract controlling access to Silver Lake dunes.<sup>1</sup>

From the mid-1950s to the present day, changes include the addition of the back camping loop at Beechwood Campground (1961) and the development of Cedar Campground (1968-69). The park store and Hamlin Lake bathhouse were constructed in 1971-72.

In 1971, over 1,200 acres of land was added to the park boundary, including 2 miles of shoreline west of M-116. An additional acreage in the south of the park was purchased in the 1980's and 90's. A Nature Center was constructed on the south side of the Big Sable River in 1978. This building was removed in 2013 after being rendered unusable due to snow damage in 2009.

In 2002, the Lighthouse Station Complex (57.5 acres) was deeded over to the DNR from the US Coast Guard with the understanding that State Historic Preservation Office (SHPO) would need to review and approve all future construction work at the lighthouse.

Over the years the state continued to acquire land through a variety of sources, bringing the total acreage to 5,300.

Sources: <sup>1</sup>State of Michigan Environmental Assessment, Ludington State Park, 1977

## A.5 LAND OWNERSHIP AND ACQUISITIONS

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The lands that comprise Ludington State Park have been acquired by the State of Michigan through a variety of funding sources. Often, conditions attached to the original funding source or other details of the property transaction encumber the future use or disposition of the land.

### Funding Sources

A Funding Source map identifies the sources used to acquire the lands that make up Ludington State Park. The map can be found in the Section A.13, Resource Maps of this document. The following details each funding source associated with the park.

#### Gifted Lands

- The first 800 acres of Ludington State Park were gifted to the State of Michigan from the Federal Government in 1926 for the purposes of establishing a park.
- In 1971 Sargent Sand gifted sand lease rights to 409 acres and 2 miles of lake Michigan shoreline to the State of Michigan making the purchase of additional lands from the Hamilton International Development Company possible.
- Other gifted lands include 300 acres from various individuals.
- In 2002, the Federal Government transferred ownership of the 57 acre lighthouse complex to the state. The conditions of the land patent are included in the Appendices. Failure to comply with the conditions would result in the land reverting to the Federal Government.

#### Recreation Bond Fund

Old Recreation Bond Fund was established under Act 257, P.A. 1968 for public recreation purposes.

- 369 acres in the north of the park were acquired in 1979 using this fund.

#### State Game Fund

Act 17, P.A. 1921 established a funding source for land purchased with revenue from a \$1.50 tax on hunting licenses. The primary purpose of this land is for wildlife management. Development of other recreation facilities is restricted.

- Two parcels totaling 101 areas were purchased using the State Game Fund.

#### Special Legislation

Acquisitions for park purposes through this source are tied to specific funding established by the legislature under authority provided in Act 27, P.A. 1944, and Act 50, P.A. 1944.

- Approximately 1,258 acres were purchased using this funding source, including 2 miles of lakeshore in the south of the park from Hamilton International Development Company. In 1971 Sargent Sand gifted via quit claim deed to the State of Michigan their sand lease rights they owned since 1937, thereby facilitating this purchase.

### Michigan Land Trust Fund (MLTF)

The "Kammer Recreational Land Trust Fund Act of 1976" via P.A. 204 of 1976 created the Michigan Land Trust Fund (MLTF) program to provide a source of funding for the public acquisition of lands for resource protection and public outdoor recreation. Funding was derived from royalties on the sale and lease of State-owned mineral rights.

- MLTF funded the purchase of four parcels totaling 67 acres at Ludington State Park.

### Michigan Natural Resources Trust Fund (MNRTF)

The MNRTF was created by a state constitutional amendment in 1984, which required that oil, gas, and other mineral lease and royalty payments be placed into the Trust Fund, with proceeds used to both acquire and develop public recreation lands. To implement the constitutional amendment, the Legislature passed the Michigan Natural Resources Trust Fund Act of 1985 (P.A. 101 of 1985, Act 101).

- 201 acres were purchase from Construction Aggregates Corp. in 1997 using the MNRTF with the restriction that this land remains available to the public for outdoor recreation in perpetuity.

### Other Funds

Parcels shown on the Funding Source map in the "Other Funds" category at Ludington State Park were purchased using the Old Recreation Bond Funds or Michigan Land Trust Fund (see descriptions above).

### Tax Reversion

The balance of land at Ludington State Park was acquired through tax reversion.

## **Easements**

The following is a list of easements impacting Ludington State Park:

### Acquired Easements

No acquired easements have been associated with Ludington State Park.

### Granted Easements

- Western Michigan Electric Company obtained an 80-foot wide easement in 1954 for electric lines to the Big Sable Point Lighthouse.
- Kimberly-Clark Corporation obtained an easement in 1942 along the north side of the lighthouse access road to operate and maintain a pipeline to the Big Sable Point Lighthouse.
- Consumers Power Company obtained a 10-foot wide easement in 1972 along the lighthouse access road to the Big Sable Point Lighthouse for the operation and maintenance of an electric line.
- General Telephone Company obtained a 10-foot wide easement in 1958 for the operation and maintenance of a telephone line to the Big Sable Point Lighthouse along the lighthouse access road.
- Consumers Power Company obtained an easement in 1998 to operate and maintain an electric line to the Pines Campground.

- DOW Chemical Corporation obtained the rights to build and maintain a power pole and guy wires in 1951.
- Consumers Power Company obtained an 8-foot wide easement in 1976 to operate and maintain an electric line to the park interpretive center.
- Consumers Power Company obtained an 8-foot wide easement in 1960 along the park access road to operate and maintain electric service to the park.

#### Deed Conditions

The acquisition of land from Hamilton International Development in in 1972 was subject to the following easements and leases:

- An electrical transmission easement to Dow Chemical Company
- A pipeline easement (brine) to Defense Plant Corporation adjacent to Highway M-116
- A lease agreement for access road to Sargent Sand Company

#### **Covenants**

The State of Michigan filed an Underground Storage Tank (UST) Restrictive Covenant with the Mason County Register of Deeds affecting 3.85 acres of land located adjacent to the Big Sable River in 1998. This was the result of corrective action required by the Michigan Department of Environmental Quality to address release from a UST.

#### **Lease Agreements**

The Sable Points Lighthouse Association obtained a 25 year lease agreement in 2002 for the operation and maintenance of the Big Sable Point Lighthouse including operating a gift shop, limited overnight accommodations for maintenance staff and running interpretive programs. A copy of the lease agreement is included in the Appendices D.

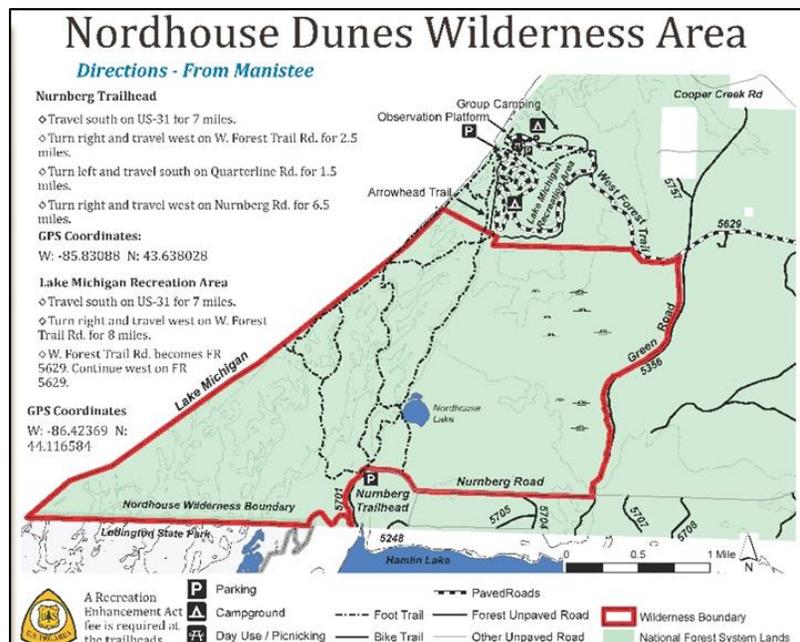
## A.6 RELATIONSHIP TO OTHER RECREATION RESOURCES

### Federally Owned Recreation Facilities

#### *Huron-Manistee National Forest*

The Huron-Manistee National Forests comprise almost a million acres of public lands extending across the northern lower peninsula of Michigan. The Manistee National Forest borders Ludington State Park to the north and provides recreation opportunities for visitors, habitat for fish and wildlife, and resources for local industry.

- The Nordhouse Dunes Wilderness Area is a federally designated wilderness area, located immediately north of Ludington State Park, encompassing 3,450 acres of National Forest. The wilderness area is popular for hiking, camping, hunting, nature study and wildlife viewing. There are approximately 10-miles of trail that can be accessed from two developed trailheads at the end of Nurnberg Road and Lake Michigan Recreation Area.
- Lake Michigan Recreation Area is located north of Nordhouse Dunes and has two campground loops open from May to September, and two from May to October. The Recreation Area offers opportunities for picnicking, hiking, bicycling, and sandy beaches.
- Pere Marquette National Scenic River flows west from Baldwin to Ludington, draining into Pere Marquette Lake and eventually Lake Michigan. The river provides many recreation opportunities for fishing, paddling, picnicking and camping.



*Excerpt from USFS for Nordhouse Dunes Wilderness Area Brochure. Lake Michigan Recreation Area is shown to the north of the Wilderness Area.*

### **State Owned Recreation Facilities**

*Orchard Beach State Park* – Located in Manistee, 30 miles north of Ludington State Park, Orchard Beach State Park is situated on a bluff overlooking Lake Michigan. Visitors will find 166 campsites, a cabin, modern restroom facilities, a large shelter and a sandy beach and hiking trails.

*Charles Mears State Park* – Located 25 miles south of Ludington State Park, in the village of Pentwater, Charles Mears State Park has paved campsites along Lake Michigan shoreline. The campsites are surrounded by fine sand, with a swimming beach adjacent to the harbor pier. The location is popular for shore and pier fishing.

*Pere Marquette State Game Area* – Located in Mason County, southeast of Ludington, the 400 acre State Game Area is dedicated to wildlife conservation and management by the DNR Wildlife Division.

*Manistee River State Game Area* – The 3,920 acre State Game Area buffers the edges of the Manistee River.

### **County and Municipal Owned Recreation Facilities**

Recreational resources are abundant in and around Ludington State Park. The local communities have developed recreation resources that serve their citizens as well as promote tourism and economic development. The recreation resources range from small neighborhood parks to large regional parks. Some of the most prominent include:

*Mason County Campground.* Located south of Ludington, the modern campground is owned by Consumers Energy and operated by Mason County under a lease agreement. Facilities include 56 modern campsites, picnic area, and an adjacent model airplane flying field.

*Mason County Picnic Area.* The 150 acre park is home to a 72 goal public disc golf course, the 3<sup>rd</sup> largest in the world. In addition, the park is improved with picnic facilities and modern restrooms.

*Buttersville Park and Campground.* Located on Lakeshore Drive between Lake Michigan and Pere Marquette Lake, the park offers excellent lake views, seasonal camping, and a picnic area with grills, playground, restrooms, and pavilion. The park is owned and operated by Pere Marquette Township.

*Stearns Park.* The City of Ludington’s largest beach, with 2,500 feet of shoreline, the park is a focal point in Ludington. The park hosts many events and features the Ludington North Breakwater Light, which is a half-mile walk and open for tours in the summer. The park provides picnicking areas, a skate park, playground, concession stands, and restroom facilities.

*Cartier Park.* Located on Lakeshore Drive, to the north of Stearns Park, Cartier Park is an 80 acre park with a natural area and camping facility on the Lincoln River.

The Ludington area benefits from several other community parks that provide a variety of recreation opportunities, these parks range from the Mason County Fairgrounds, roadside style parks and small neighborhood parks.

### **Privately Owned Resorts and Campgrounds**

Private resorts and campgrounds are numerous in the region. Along with the state, national, and municipally run park lands, the private campgrounds and resorts provide a diverse recreation opportunity for a wide audience.

### **Trails in Mason County**

#### *Nordhouse Dunes Wilderness Trail*

A part of the Nordhouse Dunes Wilderness Area, the 15 mile long trail allows visitors to explore the natural environment while still being close to the amenities found in nearby Lake Michigan Recreation Area.

#### *Lake Michigan National Recreation Water Trail – West*

The Lake Michigan Water Trail – West, extends along 105 miles of Lake Michigan shoreline from north of Ludington to Holland. This stretch of shoreline offers 38 public access launching sites and 17 public campgrounds on Lake Michigan and links canoers and kayakers to points of interest along the shore. Details of the trail including the location of rest stops and access points are provided on the following page.

#### *Hamlin Lake Water Trail*

A 20.7 mile paddling route has been identified around Hamlin Lake, with several access points around the south and east shoreline.

#### *U.S. Bike Routes*

Two U.S. Bike Routes (USBR) run through the city of Ludington. USBR-35 runs from Sault Ste. Marie, Michigan to Mississippi. The Michigan section runs along the Lake Michigan shoreline to New Buffalo. USBR-20 runs from Astoria, Oregon to Marine City, Michigan, crossing Lake Michigan by ferry from Manitowoc, Wisconsin to Ludington, Michigan. USBR-20 and USBR-35 share the same route through Ludington and provide easy access to the state park.

#### *Snowmobile Trails*

The nearest snowmobile trail to Ludington State Park is located in the northeast corner of Mason County near the community of Freesoil. From there, the trails travel east into Lake County and the Huron-Manistee National Forest.

### *Mason County Sculpture Trail*

The sculpture trail was launched in 2012 with nine sculptures at the Waterfront Park, and sculptures at the Ludington Library, Mason County Fairgrounds and Ludington State Park. The sculptures depict the history of the area and significant events. In 2014 the “Community Cooperative” sculpture was installed in Ludington State Park across from the park office. The sculpture depicts a community of animals living in an old tree. The sculptures link the park to the community and vis-a-versa.

# Mid Lower Peninsula

## Ludington to Manistee

Lake Michigan National Recreation Water Trail



**U.S. Bike Route 35 Directions**  
*Traveling North*

FROM LUDINGTON,  
 N. Lakeshore Dr. | Turn right (E) to W. Jagger Rd. | Turn left (N) to N. Jebery Dr. | Turn slight right (NE) to N. Angling Rd. | Turn right (E) to W. Fountain Rd. | Turn to left to N. Stiles Rd. | Turn right (E) onto W. Townline Rd. | Turn left to N. Quarterline Rd. | Turn right (E) to W. County Line Rd. | Turn left (N) to Maple St. | Maple Rd. becomes Maple St. into Manistee. | Maple St. becomes Washington St.

**LM Circle Tour Directions**  
*Traveling North*

FROM LUDINGTON, at the end of US-31 turn east following US-10/US-31 toward Scottsville. | In Scottsville, turn north to US-31 toward Manistee. | Continue north on US-31 into Manistee.

Lake Michigan National Recreation Water Trail has access sites and rest stops for trail users. Information available through - <http://www.wmich.edu/glcms/fin1/points/pdf/map-8.pdf>

## **Boating**

The Ludington area is known throughout the state as a prime fishing location. Numerous inland and Lake Michigan boating access sites are provided through federal, state, and local government entities. There are four developed boating access sites on Hamlin Lake: a DNR launch in Ludington State Park, U.S. Forest Service launch at the east end of the lake, and at Wilson Hill Park and South Bayou Park, administered by Hamlin Township. There is also a boating access site at Victory Park administered by Victory Township. The closest Lake Michigan boating access site is the Loomis Street Ramp, administered by the City of Ludington.

## **Events/Community**

### *Gus Macker*

Ludington hosts the nationally recognized 3-on-3 basketball tournament for a weekend each year. In past years, the community has hosted a maximum of 900 teams, which brings approximately 4,000 players to the courts and 25,000 spectators to watch the event. It is estimated that hundreds of thousands of dollars are brought into the community by the event which also has raised over \$1.3 million dollars for local charities over the years.

### *Friday Night Live*

Scheduled for four Friday nights in July, the downtown Ludington event features music, food, and great family activities. Three blocks of Ludington Avenue are blocked off allowing people to fill the streets and watch local entertainment, including the Baby Badger flotilla and the Scottville Clown Band.

### *Ludington Harbor Festival*

The arts and entertainment event occurs at the beginning of summer with the Ludington's Freedom Festival, Horse Shows, Ludrock, S.S. Badger Shoreline Cruise and the West Shore Art Fair.

### *Ludington Lakestride*

For 35 years, these 5K, 10K and half-marathon footraces have drawn thousands of runners to the shores of Lake Michigan. The half-marathon event takes racers north to Ludington State Park, where two miles of the route follow park trails, before leading runners south along Highway M-116 and the scenic Lake Michigan shoreline.

### *Ludington Lighthouse Triathlon*

This event, held annually in August, attracts over 400 athletes from 21 states. The bike portion of the race includes a route between the state park and Ludington.

## A.7 LEGAL MANDATES

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For all park General Management Plans, legal mandates are identified that serve to further guide the development of the General Management Plan and subsequent Action Plans. For our planning purposes, the term “Legal Mandates” refers not only to federal and state law, but also the administrative tools of “Policy” and “Directive” of the Natural Resource Commission, the Department of Natural Resources (DNR), and the Parks & Recreation Division. Examples include Orders of the Director, Parks and Recreation Areas State Land Rules and all other laws, commission orders, and rules or directives that apply to the park.

Specific to Ludington State Park the following legal mandates have been identified.

### FEDERAL STATUTE

<b>ENDANGERED SPECIES ACT, 1973</b>	
The purposes of this Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the Act.	
<b>NATIONAL HISTORIC PRESERVATION ACT, 1973 (As amended)</b>	
This is the primary federal law governing the preservation of cultural and historic resources in the United States. The law establishes a national preservation program and a system of procedural protections which encourage the identification and protection of cultural and historic resources of national, state, tribal and local significance.	

### STATE STATUTE

<b>NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT (NREPA) AND AMENDMENTS</b>	
PA 451 of 1994, Part 5	Gives the DNR authority to make rules to support its mission. This includes State Land Rules, Land Use Orders, Wildlife Conservation Orders, Fisheries Orders, and Watercraft Control.
PA 451 of 1994, Part 31 Water Resources Protection	Provides authority to DEQ to require a permit for any occupation, construction, filling, or grade change within the 100-year floodplain of a river, stream, drain, or inland lake.
PA 451 of 1994, Part 301 Inland Lakes and Streams	Requires a permit from the state (DEQ) to undertake certain activities relating to inland lakes and streams, such as dredging, fill, marinas, structures, alteration of flow, etc.
PA 451 of 1994, Part 303 Wetlands Protection	Requires a permit from the state (DEQ) to undertake certain activities in regulated wetlands, such as, dredging, fill, construction or drainage.

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT (NREPA) AND AMENDMENTS (Continued)	
PA 451 of 1994, Part 315 Dam Safety	A permit is required for dams with a "height" of six feet or more and that have a surface area of five acres or more at the design flood elevation. A permit is required for new dam construction, enlargement of an existing dam or impoundment, dam repair, dam alteration, dam removal, dam abandonment, or reconstruction of a failed dam.
PA 451 of 1994, Part 325 Great Lakes Submerged Bottomlands	A permit is required for all filling, dredging, and placement of permanent structures (i.e., docks, piers, pilings, etc.) below the "ordinary high water mark" and on all upland channels extending landward of the "ordinary high water mark" of the Great Lakes.
PA 451 of 1994, Part 351 Wilderness and Natural Areas	This law governs the identification, dedication and management of wilderness, wild and natural areas to protect natural values of the land. The northern portion of the park, north of the lighthouse, was <u>proposed</u> for legal dedication under the Wilderness and Natural Areas Act in 1987, but the dedication was never finalized through the legislative rulemaking process. According to the statute, this area must be managed as if it were dedicated until a final action is taken. The full legal description and NRC memo are included in Appendix F.
PA 451 of 1994, Part 353 Sand Dune Protection and Management	The law defines a "critical dune area" as a geographic area designated in the "atlas of critical dune areas" dated February 1989 that was prepared by the department of natural resources. Sec. 35304. (1) states that: A person shall not initiate a use within a critical dune area unless the person obtains a permit from the local unit of government in which the critical dune area is located or the department (DEQ).
PA 451 of 1994, Part 365 Endangered Species Protection	The law governs the those acts necessary for the conservation, protection, restoration, and propagation of endangered and threatened species of fish, wildlife, and plants in cooperation with the Federal Government.
PA 451 of 1994, Part 419 Hunting Area Control	Section 324.41901 establishes the powers of the DNR to establish safety zones for hunting.
PA 451 of 1994, Part 741 State Park System	The department shall create, maintain, operate, promote, and make available for public use and enjoyment a system of state parks to preserve and protect Michigan's significant natural resources and areas of natural beauty or historic significance, to provide open space for public recreation, and to provide an opportunity to understand Michigan's natural resources and the need to protect and manage those resources.
PA 451 of 1994, Part 761 Aboriginal Records and Antiquities	The state reserves the exclusive right and privilege to all aboriginal records and other antiquities including those found on the bottomlands of the Great Lakes.

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT (NREPA) AND AMENDMENTS (Continued)	
PA 35 of 2010, Part 741 Recreation Passport	This act amended the Michigan Motor Vehicle Code to provide for a State Park and State-operated public boating access site "Recreation Passport" that a Michigan resident may obtain by paying an additional fee when registering a motor vehicle.
PUBLIC HEALTH CODE	
PA 368 of 1978, Part 125, Campgrounds, Swimming Areas and Swimmers' Itch	Established to protect and promote the public health by establishing health code requirements and regulations that all public (including DNR) and private campgrounds must meet. Includes permitting, licensing, inspections and rules regarding sanitation, safety standards and public health. Also covers testing and evaluating quality of water at bathing beaches, safety and rescue equipment.

## ORDERS

The following Orders apply specifically to Ludington State Park.

### Land Use Orders of the Director

5.7 Certain environmentally sensitive and piping plover nesting areas, prohibited conduct, exceptions.

Order 5.7 (1) A person shall not do any of the following:

(b) Enter, use, or occupy any of the following described state-owned lands, as posted, from April 15 through August 31 except with proper written permission:

(v) Ludington SP - state-owned lands in sections 5-7, 18-19, 29-30, and 32, T19N R18W, Mason County.

5.12 Certain state parks and recreation areas, requirements for use, certain conduct prohibited.

Order 5.12. The following conduct shall apply to use of Michigan state parks and recreation areas:

Ludington state park, prohibited conduct.

(6) A person shall not do the following at Ludington SP:

(a) Park a vehicle of any type between the hours of 12:00 midnight and 6:00 a.m. in the parking areas adjacent to highway M-116 from the south limit of the park to the bridge over Big Sable River.

### Wildlife Conservation Orders

Wildlife is owned by all the people of the state of Michigan, and protection is administered and managed by the Michigan DNR. Hunting and trapping regulations including methods of take, bag limits, license quotas, and season dates are established by the Natural Resources Commission (NRC) and are described in the Wildlife Conservation Orders.

3.412 Early September Canada goose season; dates and closures, exceptions.

Sec. 3.412 The early September Canada goose season shall be September 1 to September 15 in the Lower Peninsula and September 1 to September 10 in the Upper Peninsula, except as follows:

(3) State parks closed; exceptions listed, the day following Labor Day to September 15 open season. Except as otherwise provided in this subsection and subsections (4), (5) and (6), all state parks shall be closed. All or portions of the following state parks, as described in chapter VII, shall be open from the day following Labor Day to September 15:

(e) Ludington state park.

7.20 Ludington state park, hunting and trapping allowed, exceptions.

Sec. 7.20 Hunting and trapping shall be allowed during established seasons on all state-owned lands within the dedicated boundary of Ludington state park except in the following described area: sections 17, 18, 19, and 20 in T19N R18W, Hamlin Township, boundaries as posted.

#### STATE LAND RULES

Parks and Recreation Areas – State Land Rules are issued by authority conferred on the Michigan DNR by Section 504 of 1994 PA 451 MCL 324.504. The rules cover entry, use and occupation of state lands and unlawful acts.

#### Hamlin Lake; Sable River Outlet - R281.753.4 - Controlled speed zone.

On the waters of the Sable river outlet of Hamlin lake, Hamlin township, Mason county, state of Michigan, lying westerly of a line beginning at the extreme northernmost point of Block 151 of the map of the Second Addition to Piney Ridge resort, a subdivision of the NW ¼ of the NE ¼ and the S ½ of the NE ¼ of section 20, T19N, R18W, as recorded in Liber 1 of Plats, page 45, Mason county records:

Thence across a bay of Hamlin lake on bearing 356° true a distance of 650 feet more or less to a point on a small island in Sable river outlet of Hamlin lake, thence continuing on said bearing 356° true, a distance of 650 feet more or less to the southerly extremity of a larger island in said Sable river outlet located easterly and adjacent to Lost lake in the southerly portion of section 17, T19N, R18W, thence along the easterly shoreline of said island a distance of 1,140 feet more or less to the northerly extremity of said island, thence northwesterly from said point a distance of 425 feet more or less to the northerly end of a foot bridge located along the east side of Lost lake at the outlet of said lake on the west shoreline of Hamlin lake, at a point near the east and west quarter line of section 17, T19N, R18W, no operator of any motorboat shall exceed a slow--no wake speed.

#### NATURE CONSERVENCY AGREEMENT

The majority of the undeveloped area in Ludington State Park is enrolled in The Nature Conservancy's Natural Areas Registry. This is a voluntary agreement to manage and protect natural features, and includes notification provisions for changes in management or property transfer. The agreement is included in Appendix F.

## A.8 NATURAL SYSTEMS AND NATURAL RESOURCES

### Ecoregional Context

Ludington State Park is located in ecoregion section VII.4, known as the Manistee. This region is characterized by sand lake plain and end moraine; upland hemlock-white pine forest, northern hardwood forest and conifer swamp.

### Climate

A strongly lake-modified climate results in a long growing season of 140 to 150 days (Eichenlaub *et al.* 1990). Lake-effect snowfalls are heavy, averaging 100 to 140 inches. Average annual precipitation is 32 to 34 inches. Average January low is 16 degrees Fahrenheit and the average July high is 80 degrees Fahrenheit. Annual precipitation averages 33 inches per year.

### Topography

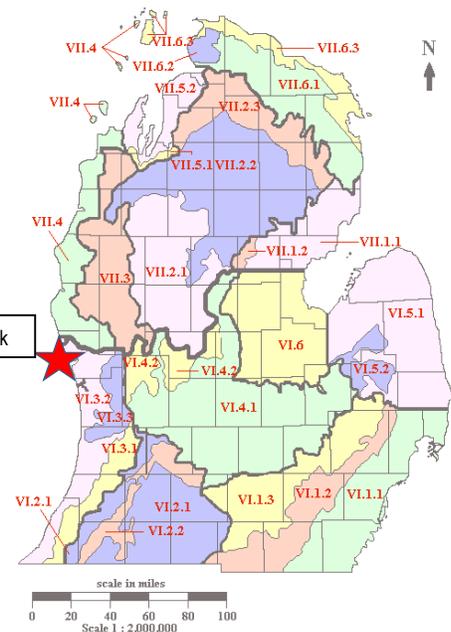
The topography of Ludington State Park varies greatly and is dictated by the dunes. Total elevation change is approximately 150 feet. The highest point at the park is 738 feet above sea level located just south of the Big Sable River on the east side of the park. The lowest is located on the shores of Lake Michigan, which is around 588 feet.

### Soils and Geology

The park consists of two primary soil types: Dune land – Quartzipsamments complex and Nordhouse fine sand. The most prominent type is the Dune land with the Nordhouse fine sand primarily located on the western edge of Hamlin Lake.

<b>86F</b>	Dune land- Quartzipsamments complex	Very steep slopes
<b>87F</b>	Dune land- Quartzipsamments complex	Level to steep
<b>62D</b>	Nordhouse fine sand	3-18% slopes
<b>62F</b>	Nordhouse fine sand	18-70% slopes

Ludington State Park consists of a relatively narrow strip of land bounded on the west by Lake Michigan and to the east by Hamlin Lake, The eastern shore of Hamlin Lake was formerly the shoreline of post-glacial Lake Nipissing. The area that is now Ludington State Park likely formed when two sand spits, one from the north and one from the south, grew together, sealing off an embayment and creating Hamlin Lake (Dorr and Eschman, 1970). The park is now dominated by sand dunes that have developed over hundreds of years as a result of fluctuating lake levels and wave and wind action.



Source: *Regional Landscape of Michigan and Wisconsin, A Working Map and Classification.* Dennis Albert. September 20, 1995.

## **Mineral Resources**

Surface sediments across the park consist of dune sand. Glacial drift thickness in the park varies between 600 and 800 feet. Multiple sand and gravel pits exist within one mile of the park boundary to the south and east including an extensive sand mining operation that borders the southern park boundary. The glacial drift is underlain by the Late Devonian Ellsworth Shale. The Ellsworth Shale has been quarried in other parts of the state for cement products.

The area just east of Hamlin Lake has been extensively explored for oil and gas. In this area, the Hamlin and Victory fields have been producing oil and gas from the Silurian Niagaran reef play since the early 1970s. In addition, there are a handful of active and formerly producing oil wells associated with the Devonian Traverse Limestone and a couple of wells producing natural gas from the base of the glacial drift. The nearest active State oil and gas leases are about five miles to the northeast of the park. Ludington State Park lands have been classified as non-leasable for mineral exploration and development.

## **Land Use Circa 1800**

Ludington State Park contained some of the largest areas of open dunes (un-vegetated) encountered by the General Land Office Surveyors in the 1800s. White pine was also quite common, especially in the north. Northern hardwood forests occurred behind the open dunes, dominated by beech and eastern hemlock.

## **Land Use 2006**

While hemlocks still exist to the south, the western edge of Hamlin Lake consists primarily of deciduous forest today with a mixture of pines throughout the property. Herbaceous ground cover of primarily dune grass, and large areas of "Great Lakes barrens" of scattered jack pine are present throughout the park.

## **Natural Areas and Environmentally-Sensitive Areas**

No legally dedicated natural areas are identified at Ludington State Park. However, the area to the north of the lighthouse extending east to Hamlin Lake (approximately 1,699 acres) was proposed for legal dedication in 1987. A map showing the proposed natural area is available under Section A.13, Resource Maps. The Natural Resources Commission (NRC) approved holding a public hearing on the dedication in 1987; the hearing was held and the public was overall very supportive of the dedication. A memo was drafted to the NRC in late 1987 indicating support from the DNR Director and staff and recommending that the dedication proceed. However, it was not acted upon. Under state law, this area is required to be managed as a natural area until such time as the area is dedicated or the proposal is rejected, neither of which have occurred to the best of our knowledge.

DNR entered into a voluntary agreement with The Nature Conservancy in the 1980s to include a large portion of Ludington State Park on the Michigan Natural Areas Registry. This registry site includes nearly

all undeveloped land in the park, both north and south of the Big Sable River. The agreement requires DNR to (1) manage the area to sustain and protect the natural features; (2) notify The Nature Conservancy of any changes in management practices that may impact the natural features; and (3) notify The Nature Conservancy of any intent to sell or transfer the property.

The majority of the park, including all major sand dune areas, is designated as Critical Dunes by the Department of Environmental Quality (DEQ). The legal definition of Critical Dunes is contained in Act 451 of 1994, Part 353 (Sand Dunes Protection and Management). The law states that a permit is required to construct anything or alter the soil or vegetation, although there is a list of special exceptions. In late 2012, the law was changed. The DEQ is in the process of revising the administrative rules related to critical dunes to reflect the new law. Links to the law and associated administrative rules can be found on the DEQ website: [www.michigan.gov/criticaldunes](http://www.michigan.gov/criticaldunes).

**Water Resources**

Hamlin Lake is a 5,350 acre inland lake that borders the east side of Ludington State Park. The lake has two major basins, with the lower (western) basin reaching depths of 80 feet and the upper (eastern) basin shallower at 34 feet. The Big Sable River enters Hamlin Lake at the east portion of basin and continues through Ludington State Park for approximately one-mile flowing into Lake Michigan. Ludington State Park offers tremendous access to Hamlin Lake, the Big Sable River and Lake Michigan.

**Rare Flora and Fauna**

According to the Michigan Natural Features Inventory (MNFI), the following species may be present at the park:

**Flora**

<b>Scientific Name</b>	<b>Common Name</b>	<b>State Status</b>	<b>Federal Status</b>
Orobanche fasciculata	Broomrape	Threatened	
Cirsium pitcheri	Pitcher’s thistle	Threatened	Threatened
Cypripedium arietinum	Ram’s head lady’s-slipper	Special Concern	

**Fauna**

<b>Scientific Name</b>	<b>Common Name</b>	<b>State Status</b>	<b>Federal Status</b>
Charadrius melodus	Piping plover	Endangered	Endangered
Haliaeetus leucocephalus	Bald eagle	Special Concern	
Trimerotropis huroniana	Lake Huron locust	Threatened	

## Exemplary Natural Communities

A natural community, as defined by the Michigan Natural Features Inventory (MNFI), is an assemblage of interacting plants, animals, and other organisms that repeatedly occurs across the landscape under similar environmental conditions. The following natural communities are known to occur at Ludington State Park:

- Dry northern forest
- Dry-mesic northern forest
- Emergent marsh
- Great Lakes barrens
- Interdunal wetland
- Mesic northern forest
- Open dunes

Descriptions of these natural communities can be found at the Michigan Natural Features Inventory at <http://mnfi.anr.msu.edu/communities/index.cfm>.

Of the above natural communities, the most important from a regional and statewide perspective are the Great Lakes barrens, open dunes, and interdunal wetlands. Ludington State Park contains some of the highest quality and largest examples of these three communities in the Great Lakes region.

“Open dunes is a grass- and shrub-dominated multi-seral community located on wind-deposited sand formations near the shorelines of the Great Lakes. Dune formation and the patterning of vegetation are strongly affected by lake-driven winds.” (MNFI) Open dunes are characterized by areas of open blowing sand, grassy vegetation, and pockets of shrubs and small trees. Ludington State Park has some of the best examples of open dunes in the state.

“Great Lakes barrens is a coniferous savanna community of scattered and clumped trees, and an often dense, low or creeping shrub layer. The community occurs along the shores of the Great Lakes where it is often associated with interdunal wetland and open dune.” (MNFI) At Ludington State Park, the most extensive Great Lakes barrens is located in the northern portion of the park, and it is dominated by jack pine. The Great Lakes barrens at Ludington and the adjacent Nordhouse Dunes is the largest by far in Michigan, and likely the best example in the world of this community.

Ludington State Park also contains some of the highest quality and most extensive examples of the interdunal wetland natural community. This community is also sometimes referred to as “wetpanne”. “Interdunal wetland is a rush-, sedge-, and shrub-dominated wetland situated in depressions within open dunes or between beach ridges along the Great Lakes, experiencing a fluctuating water table seasonally and yearly in synchrony with lake level changes.” (MNFI)

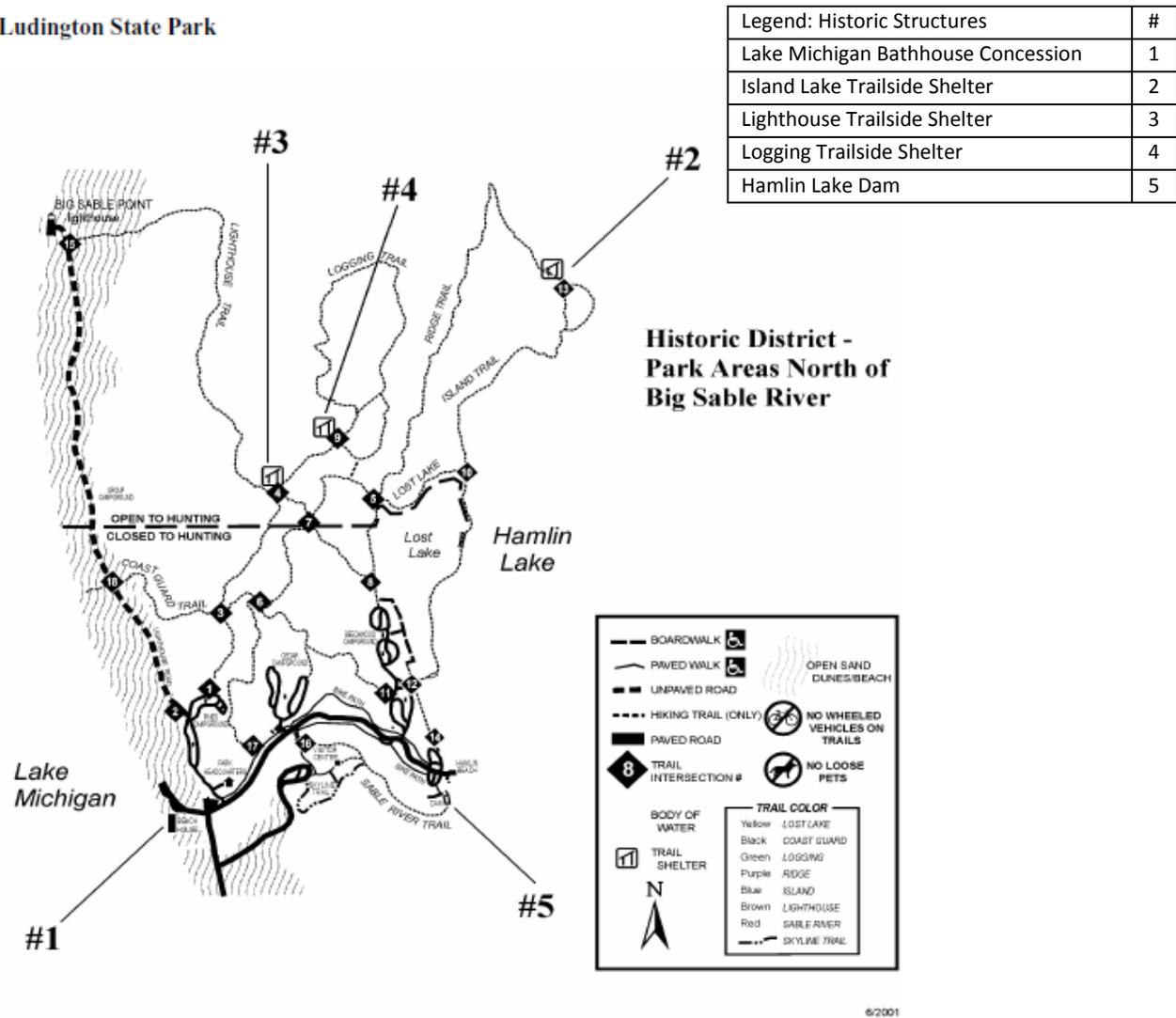
Sources: Dorr, J. A. 1., & Eschman, D. F. (1970). *Geology of Michigan*. Ann Arbor: University of Michigan Press.  
Eichenlaub, V., J. Harman, F. Nurnberger, & H. Stolle. (1990). *The Climatic Atlas of Michigan*. Notre Dame, Indiana: University of Notre Dame Press.  
<http://mnfi.anr.msu.edu/communities/index.cfm>.

## A.9 CULTURAL RESOURCES

### Historic Structures in Ludington State Park

There are a number of Civilian Conservation Corps (CCC) buildings in the park, which are either listed, or considered eligible for listing on the National Register of Historic Places (NRHP). These are illustrated on the map below.

#### Ludington State Park



#### Extant Historic Structures – Historic District – Park Areas north of Big Sable River

These structures, except for the Big Sable Lighthouse are all included in a Historic District in park areas north of the Big Sable River.

### Big Sable Point Lighthouse

- After several sinkings in the mid 1800's just off of Big Sable Point, President Pierce and President Buchanan reserved land for the erection of a lighthouse. The lighthouse, however, was not built until after the Civil War in 1867. The light station was built from multiple layers of rather soft yellow Milwaukee brick on a cut stone foundation. The lighthouse tower measures 100 feet tall to the focal point of the Fresnel lens and 112 feet in total height. Inside the tower, a set of cast-iron spiral stairs lead to the watch room and then to the lantern room where the Fresnel lens was located. The lens was transferred to the Rose Hawley Museum on April 21, 1986.
- The Fresnel lens was fixed at this lighthouse, which means that it did not rotate or flash. It was so powerful that in the daylight, the lens had to be covered to prevent sunlight from igniting the lamp.
- In 1900, the brick shaft of the lighthouse was clad in steel and painted white and black to preserve the soft brick and to distinguish the light from others in the area.
- A remodeled keepers dwelling included an expansion in 1908 for a second keeper of a fog signal.
- In 1909, the lamp was replaced with an oil vapor lamp.
- Indoor plumbing and electrification of the lighthouse occurred in 1949.
- The lighthouse, in 1983, was listed on the National Register of Historic Places (NRHP).

### Logging Trailside Shelter (Former Wellhouse)

- Built in 1937 by the Civilian Conservation Corp (CCC) from stone, logs and wood shingles, the structure is located on the Logging Hiking Trail. The former wellhouse is eligible for listing on the NRHP.

### Lighthouse Trailside Shelter

- Built in 1935 by the CCC from stone, logs, and wood shingles, the shelter is located on the Lighthouse Hiking Trail. The shelter is considered eligible for listing on the NRHP.

### Island Lake Trailside Shelter

- Built in 1935 by the CCC from stone, log and wood shingles, the shelter is located on the Lighthouse Hiking Trail. The Island Lake shelter is considered eligible for listing on the NRHP.

### Ludington Bathhouse Concession

- Designed by Ralph Herrick, the Bathhouse Concession was constructed by the CCC in 1935. The Arts and Crafts inspired designed building of brick and wood shingle siding was restored in 2012 and listed on the NRHP in 2013.

The trails north of Big Sable River are also eligible to be listed on the NRHP registry as a historic landscape since they were developed in the 1930's along with the shelters. These trails were laid out by nationally known architect Raymond Wilcox. There are no plans to apply for national registry at this time.

## Archaeology in Ludington State Park

There has been quite a bit of archaeological survey conducted in Ludington State Park. In 1996 and 1997, Michigan State University graduate student Sarah Gee surveyed substantial portions of the park. At least two other surveys have been performed in the park, both relatively limited in scope. In 2000, Mark Bruhy, with the USDA Forest Service, conducted a survey of a 58-acre parcel that includes the Big Sable Point Light Station (20MN191). In 2002, Mark Branstner of Great Lakes Research surveyed a five-acre area in the vicinity of the Hamlin Lake dam in preparation for a variety of improvements proposed for that area.

Thus far, 29 archaeological sites have been recorded within Ludington State Park. Those sites are listed below. The list includes pre-contact Native American sites, two shoreline shipwrecks, the logging-era town of Hamlin, a CCC camp, the Big Sable Point lighthouse, the Grand Pointe au Sable Life-Saving Station, a 1930s youth camp and a pre-1920s hunting camp. While much of the park has been surveyed, it is entirely possible that there are additional as yet unidentified sites in the park.

20MN72	Pre-contact campsite: 1996 survey could not relocate the site
20MN73	Pre-contact campsite: 1996 survey could not relocate the site
20MN75	Pre-contact campsite: 1996 survey could not relocate the site
20MN76	Pre-contact campsite: 1996 survey could not relocate the site
20MN77	Small pre-contact lithic scatter: Not eligible.
20MN78	Pre-contact lithic scatter
20MN79	Pre-contact lithic scatter
20MN80	Pre-contact campsite
20MN81	Pre-contact lithic find spot
20MN82	Pre-contact campsite: 1996 survey could not relocate the site
20MN83	Pre-contact campsite: 1996 survey could not relocate the site
20MN84	Pre-contact campsite
20MN85	Pre-contact campsite
20MN86	Pre-contact lithic scatter
20MN87	Pre-contact lithic scatter: 1996 survey could not relocate the site
20MN182	Shoreline shipwreck: George F. Foster
20MN185	Shoreline shipwreck
20MN186	Pre-contact scatter of lithics and ceramics
20MN187	Pre-contact lithic scatter
20MN188	Pre-contact lithic scatter
20MN190	Logging-era town of Hamlin and later CCC camp
20MN191	Big Sable Point Lighthouse
20MN192	Grand Pointe au Sable Life-Saving Station
20MN193	1930s youth camp; pre-contact lithic scatter
20MN194	Pre-contact lithic scatter
20MN195	Pre-1920 hunting camp
20MN196	Pre-contact lithic scatter
20MN197	Small scatter of pre-contact lithics and historical period artifacts: Not eligible.
20MN198	Pre-contact lithic scatter

## A.10 EDUCATION AND INTERPRETATION

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Interpretive services became part of this park in 1970 when Ralph Merrill was hired as the first Park Interpreter. In 1977 the Ludington State Park Nature Center was constructed and opened. This was always a seasonal facility. In 1980 cutbacks in statewide interpretive services saw the elimination of the interpreter's position. The Nature Center was remodeled and renamed the Great Lakes Visitor Center in 1986. Alan Wernette became the 3<sup>rd</sup> Park Interpreter in 1998. In March of 2009 the Visitor Center's roof collapsed. The building was not rebuilt and was

removed in 2013. In 2014 a grant allowed the development of interpretive displays for the historic Lake Michigan Beach House, which will become the home for the interpretive displays and services.

**Interpretive Mission** for Ludington State Park is, "to promote an understanding and appreciation of the natural and cultural resources found throughout Ludington State Park. This encompasses the sand dunes, Lake Michigan, Hamlin Lake, and Big Sable River."

**Users of Interpretive Service** at Ludington State Park vary depending on the season. In the summer months approximately 65 percent of participants are from out of the local 100 mile radius. Fall, winter, and spring about 80 percent of the participants are from local communities. Face to face interpreter programming draws around 35,000 participants each year. This does not include all the wayside interpretive panels located throughout the park.

**The Lake Michigan Beach House** recently went through a major renovation. The renovations reopened the upper level of the building to its original historic look. Plans are ongoing currently to put in interpretive exhibits on the upper level. This first stage of exhibits will focus on the Watershed of the Great Lakes which will include fisheries, water management, and Departmental messages on invasive species. This will not be a typical "visitor center" format. People will be able to access the building and exhibits without staffing being present during most of the day. Also, this will be a seasonal facility open mid-May through September. Thus, all exhibits need to be interactive while being as much as possible vandal proof.



**Community Partnerships** are with the Friends of Ludington State Park, Sable Points Lighthouse Keepers Association, City of Ludington, Ludington Area Visitors and Convention Bureau, Ludington Chamber of Commerce, and Mason County Soil and Conservation District. All these organizations help out at the Park in different ways throughout the year. The Friends of Ludington State Park help out both financially and in their labor assistance. They fund several yearly park projects and programs to the tune of around \$15,000.00 annually. They raise most of their funds through donations and park visitor memorials and contribute around 1000 hours annually to help out in the park.

**School programming** encompassed most private and public schools within the 4 county area (Mason, Oceana, Lake, and Manistee). The yearly repeat rate for school groups coming back is almost 100 percent. In addition, the Muskegon, Grand Rapids, Big Rapids, Mt. Pleasant, and Lansing area schools visit the Park on an annual basis for program opportunities. In 2014, 51 school groups comprising 2,178 students used the interpretive programs. Most of these students were elementary students (80%) followed by secondary students (19%), and college students (1%). Many in-state and out-of-state universities also use the park's unique resources for education and research purposes. The park's educational goal is to provide an opportunity for "learning about the Park's resources on a first-hand experience." This includes learning how invasive species are affecting the native resources.



**Public programming** is offered throughout the year with summer and winter months being the bulk of participation. The Park hosts almost 200 public programs and in 2014 drew over 21,000 participants. The goal is to offer a "first-hand learning experience about the Park's resources." Programming ranges from learning about sand dunes, river and lake ecology, and how invasive species affect the resources." In the summer roving programs have become a hit with park users and in the winter guided snowshoe ecology walks are popular. Fishing, canoeing, and archery programs are very

popular during the warmer months. In the summer months the Friends of Ludington State Park pay to have guest presenters come in to the Park's Amphitheater for free weekly entertainment programs.

**Wayside interpretation** continues to expand throughout the park from almost none in 1998 to at least 50 trailside interpretive signs. Topics range from natural resources to historic resources and how they relate to each other. In recent years more attention has been given to replacing and upgrading older signage.

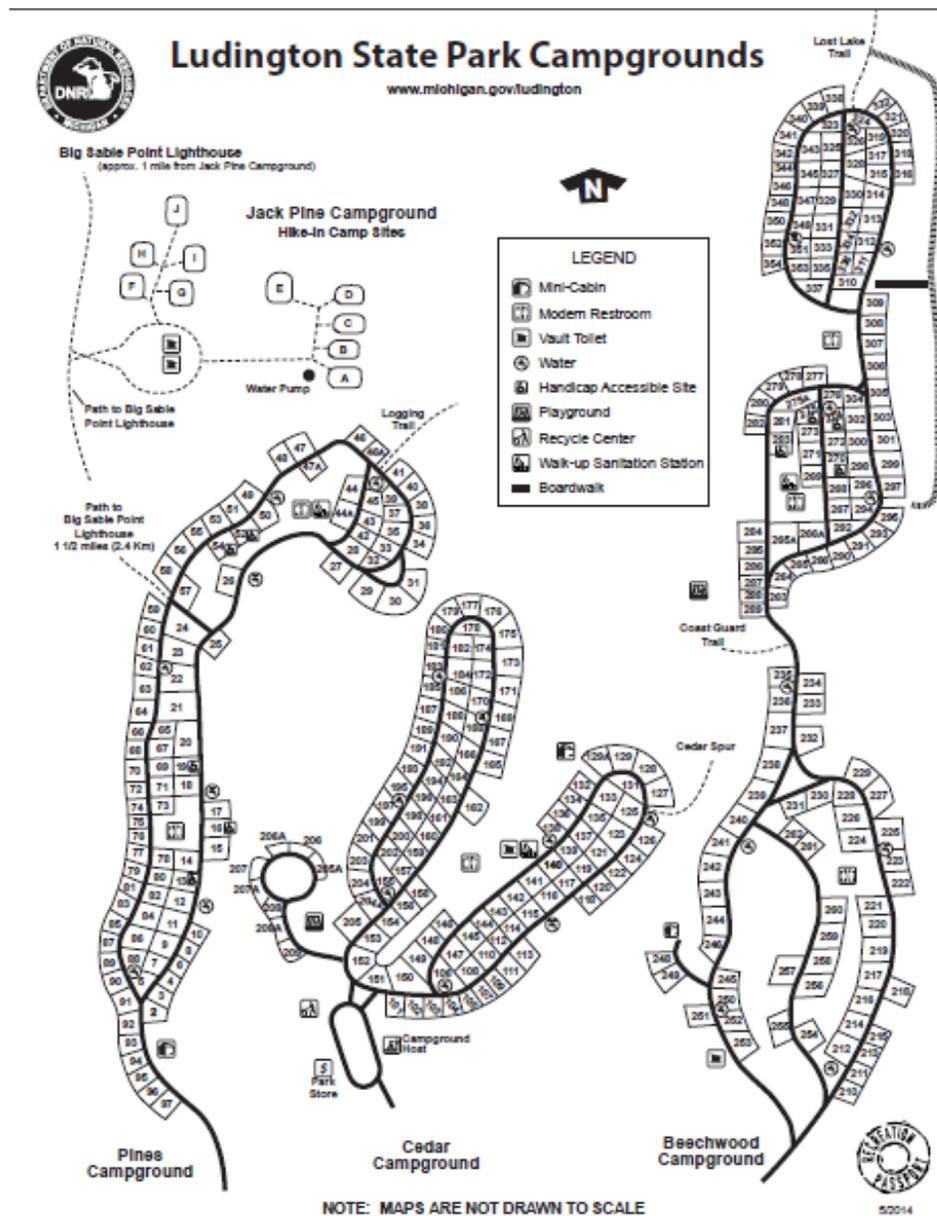
**Outreach programming** takes place mostly in the fall, winter, and spring seasons. Most of the outreach school programs are for the Ludington Area Schools. Every winter the park interpreter holds snowshoe programs for Muskegon Public Schools and Pentwater Area Schools. Averaging 20 outreach program per year, last year's offerings included a guided eco-snowshoe walk in the western suburbs of Chicago.

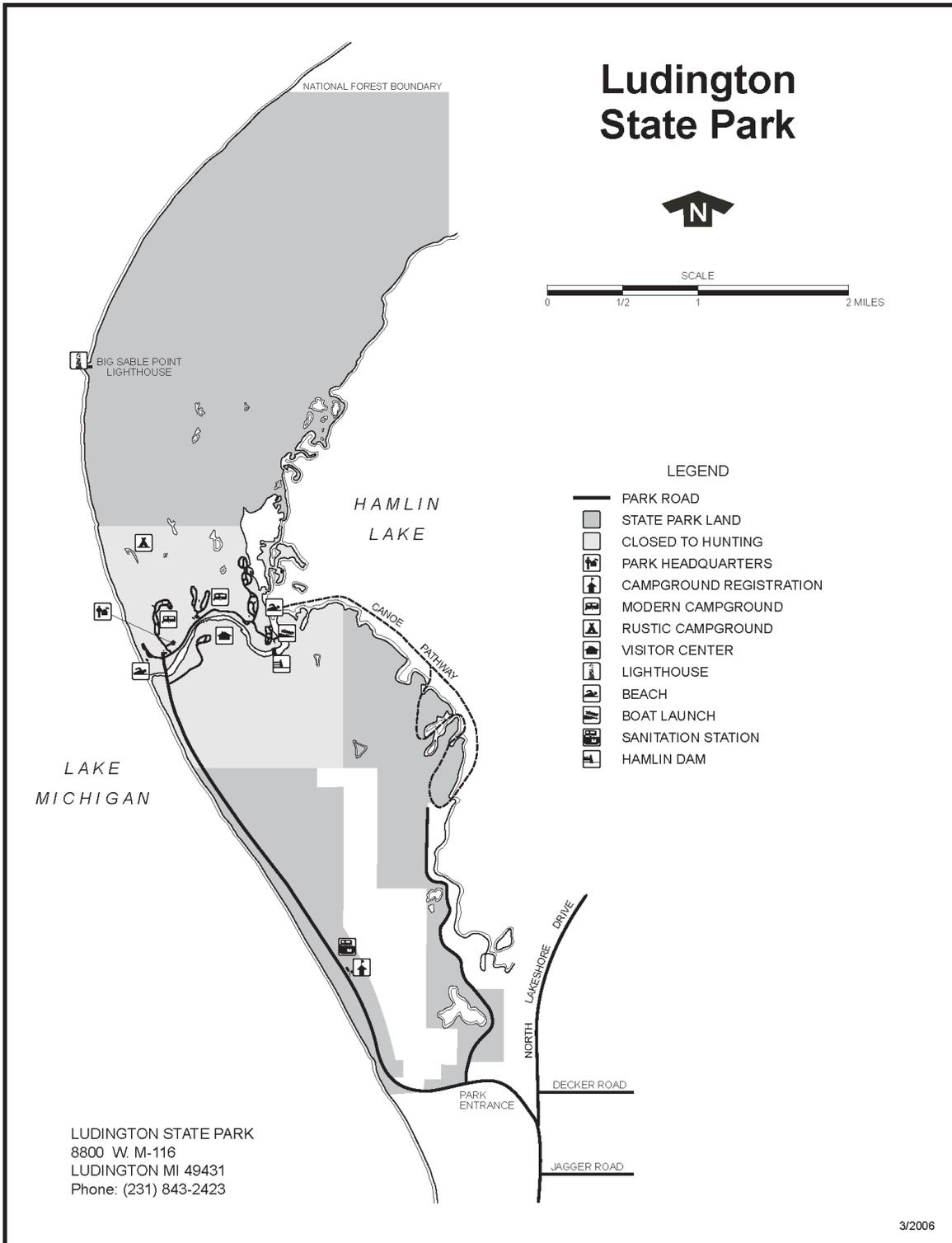


## A.11 RECREATION RESOURCES

### Camping

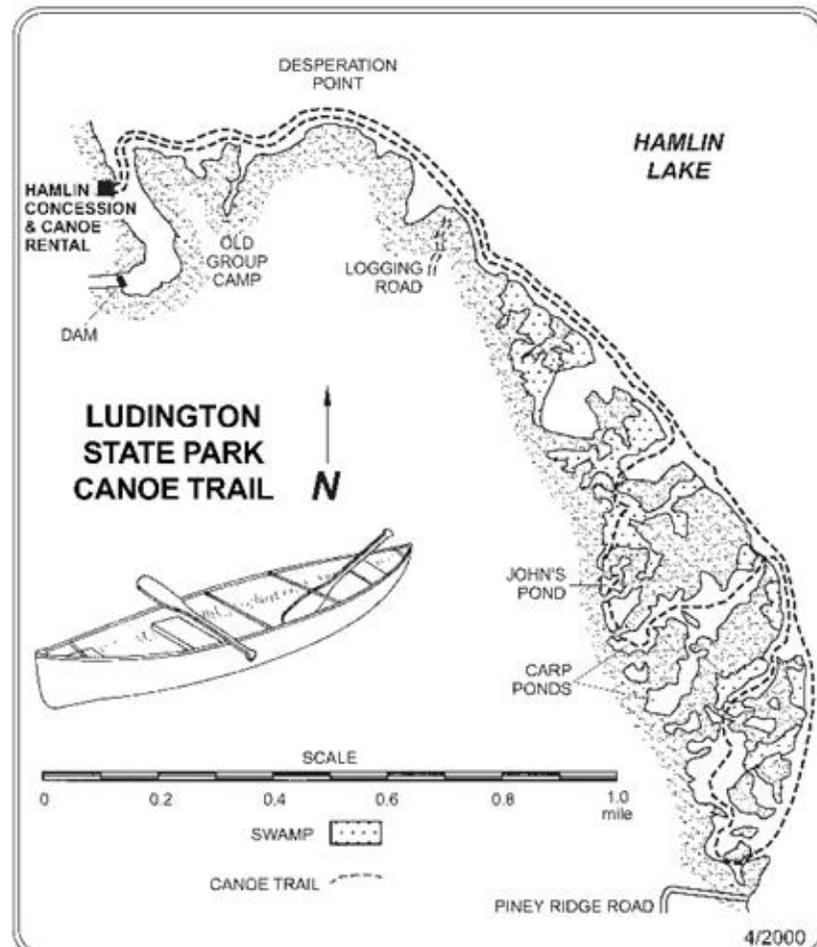
- Ludington State Park has 373 campsites divided into three modern campgrounds (Pines, Cedar and Beechwood) and one rustic hike-in campground (Jack Pine).
- A total of three mini-cabins are available with one located at each modern campground.
- Winter camping is available at Cedar campground.





## Trails

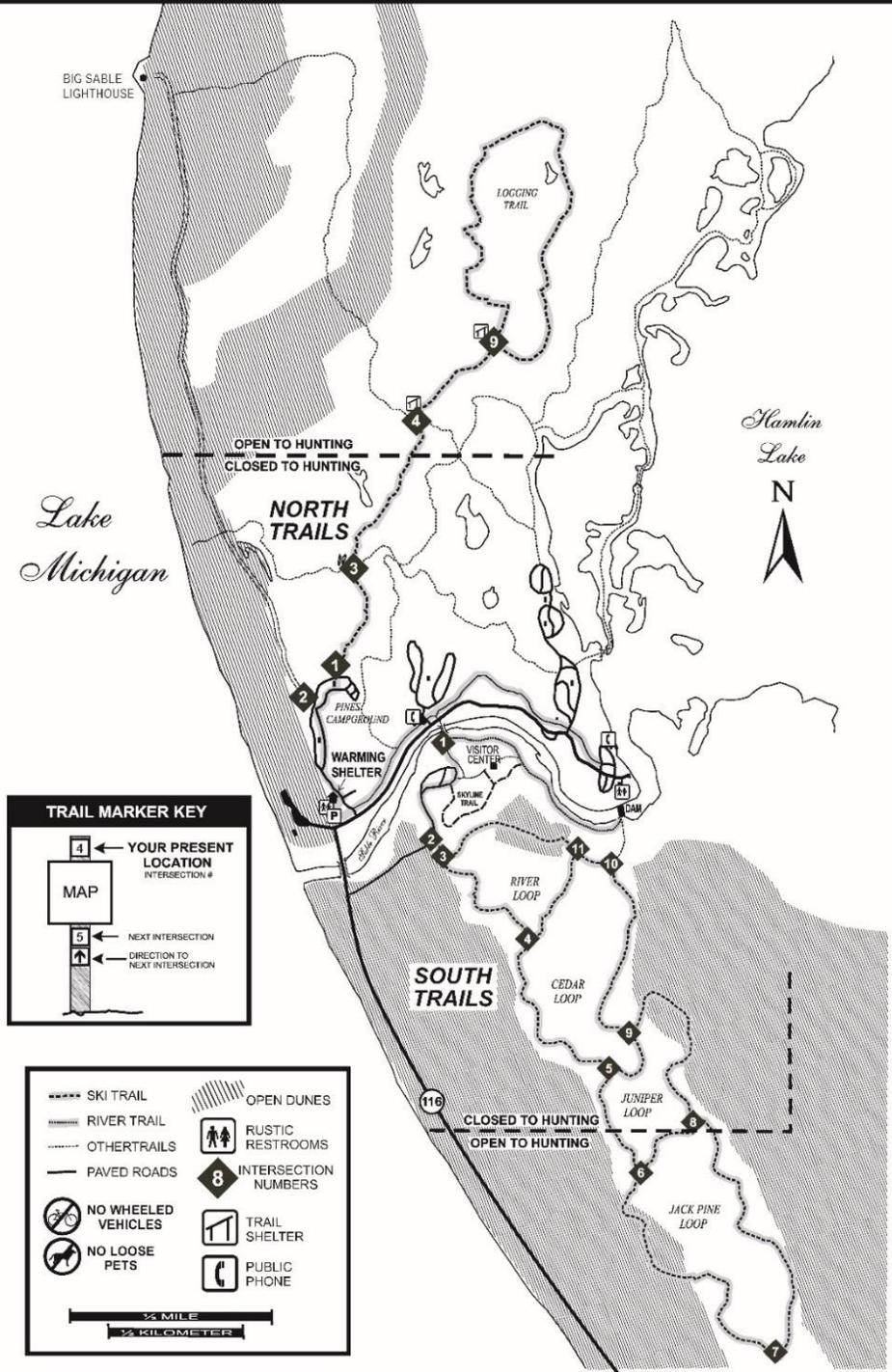
- A two mile paved bicycle trail runs along the Big Sable River and links the campgrounds to Lake Michigan and the day-use areas. Bike rental is available at the camp store.
- The four mile long canoe trail begins at the Hamlin Lake Concessions in Ludington State Park and follows the shoreline of Hamlin Lake around Desperation Point. Signs are located along the route to guide visitors.
- Lake Michigan Water Trail is a trail that runs the length of the Lake Michigan Shoreline. Visitors of the park have access to the lake and this trail.
- There are 21.5 miles of hiking trails offered at Ludington State Park. The trails wind through dunes and diverse ecosystems and include three shelters along the way to rest. A portion of the trail is ADA accessible.
- Approximately ten miles of trails are offered in the winter as cross-country ski trails complete with a warming shelter available at the trailhead parking area.





# LUDINGTON SKI TRAILS

Great Lakes, Great Times, Great Outdoors



**TRAIL MARKER KEY**

4 ← YOUR PRESENT LOCATION INTERSECTION #

MAP

5 ← NEXT INTERSECTION

↑ ← DIRECTION TO NEXT INTERSECTION

----- SKI TRAIL	▨ OPEN DUNES
———— RIVER TRAIL	♣ RUSTIC RESTROOMS
..... OTHER TRAILS	8 INTERSECTION NUMBERS
———— PAVED ROADS	▮ TRAIL SHELTER
🚫 NO WHEELED VEHICLES	☎ PUBLIC PHONE
🚫 NO LOOSE PETS	

1/4 MILE  
1/2 KILOMETER

11/2005

## Playground

- Playground equipment can be found at the Beechwood Campground, Cedar Campground, and at day use facilities. Equipment may include swings and slides.

## Picnic

- The day use areas have two sandy beaches, one located on Lake Michigan and the other on Hamlin Lake. Both areas have concessions that are open during the summer months. A picnic area with waist-high grills and tables is located at Hamlin Lake beach and along the Sable River. A picnic shelter is also available at the Hamlin Lake day use area.



*Picnicking at Ludington State Park.*



*Swimming at the Rivermouth to Lake Michigan, 2011.*

## Swimming

- There are two designated swimming beaches within the park; one at the shoreline of Hamlin Lake and the other at Lake Michigan.

## Metal Detecting

- Metal detecting is recognized as a legitimate recreation activity when it is conducted in ways that do not damage the natural and cultural resources in Michigan State Parks nor violate applicable state statutes. Metal detecting is allowed at Ludington State Park in designated areas only. Any items found must be reviewed by park staff and may be retained for further investigation.

## Lighthouse

- The Big Sable Point Lighthouse, managed by the Sable Points Lighthouse Keepers Association, is open for tours May through October and is accessed by a two mile hiking/biking trail.

## Hunting

- Approximately two-thirds of Ludington State Park's 5,300 acres is open to hunting. The best opportunities are for deer, squirrel and waterfowl hunting. The park also allows trapping in the open zones during specified seasons. The terrain ranges from dune and jack pine swales, brushy marsh and wetlands, to mature beech, oak and white pine forests. Refer to the following Park's Unit Map located in Section A.13, Resource Maps for hunting locations at Ludington State Park.

## Fishing

- Anglers will find an abundance of northern pike, largemouth and smallmouth bass, walleye, tiger musky and panfish in Hamlin Lake. Lake Michigan offers boaters and anglers recreation opportunities as well. In the spring and fall, there is the challenge of salmon, lake trout, steelhead, and brown trout that swim along the shoreline of Lake Michigan and in the Big Sable River below the Hamlin Dam. Along Hamlin Lake, Ludington State Park offers a boat launch, two handicapped accessible fishing piers, and miles of undeveloped shoreline.

## Boating

- Kayaks, canoes, row boats and paddle boats are available for rent at the Hamlin Lake day use area from May to October.
- A fully accessible boat access site is located on Hamlin Lake. The paved ramp features a skid peer and 77 parking spaces.



*Kayaker enjoys a calm day on Lake Michigan.*

## Watchable Wildlife

- The extensive trail system at Ludington State Park offers many opportunities for viewing wildlife including herons, egrets, waterfowl, deer, and other animals.

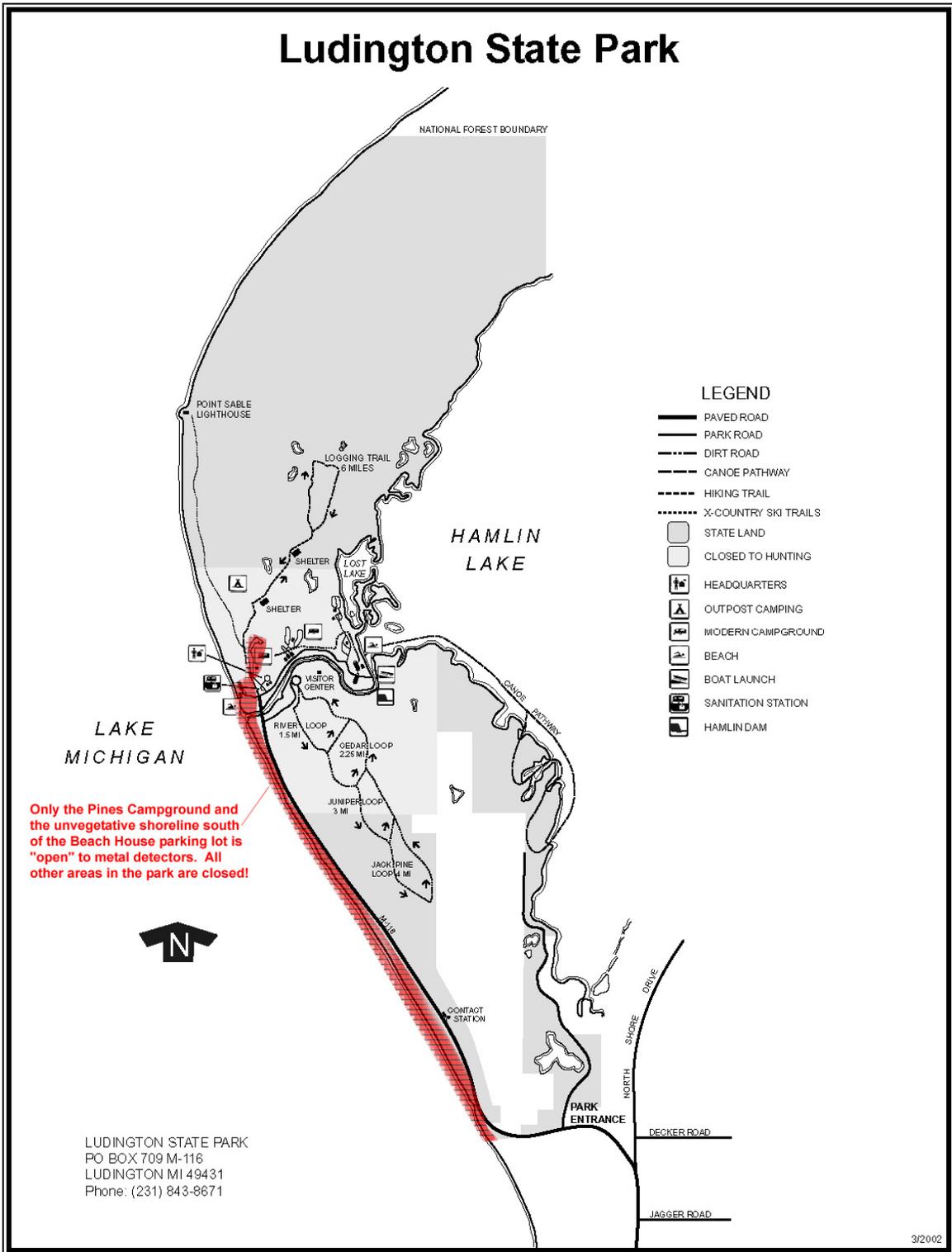
## Amphitheater

- The outdoor amphitheater at the state park is available for rental and is also used for the park's interpretive programs.



*The Birds of Prey program draws many to the amphitheater.*

# Ludington State Park



## A.12 PARK USE STATISTICS

### Park Use

The total number of day-use visitors for 2012 was 593,427. The total number of campers for the same year was 202,433. Total revenues (Camping Fees) generated by the park in 2012 was \$1,578,098.

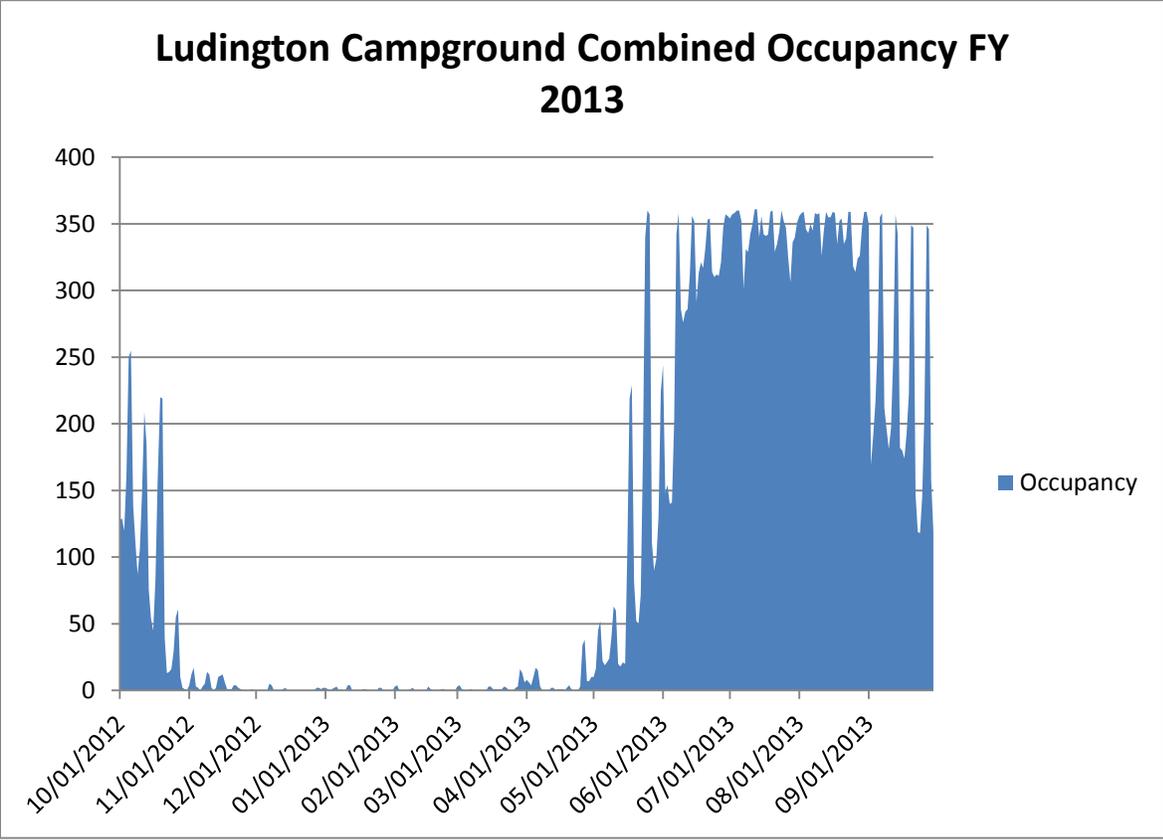
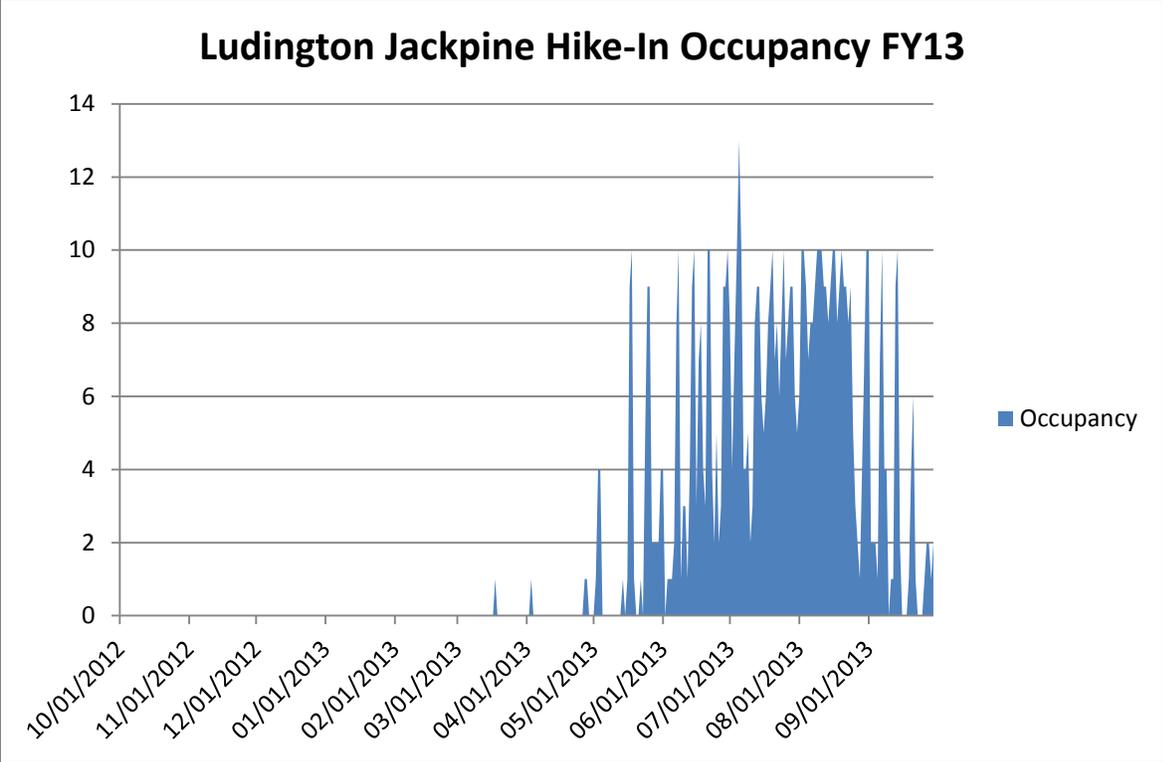
The majority of campers staying at Ludington State Park came from southwest Michigan, with Grand Rapids topping the list with 751 reservations taken and 2,658 nights.

### Top 10 Cities for Camping Reservations

City & State	Reservations	Number of Nights
Grand Rapids, MI	751	2,658
Holland, MI	380	1,419
Muskegon, MI	284	967
Hudsonville, MI	227	894
Kalamazoo, MI	226	780
Zeeland, MI	190	619
Grand Haven, MI	180	572
Ludington, MI	178	479
Rockford, MI	151	705
Jenison, MI	144	558

Ludington State Park campgrounds are close to full-occupancy from June through October, with weekends and holidays at peak levels. The highest level of campsite occupancy is in the months of July and August with over 21,000 campsites occupied during the two month period.

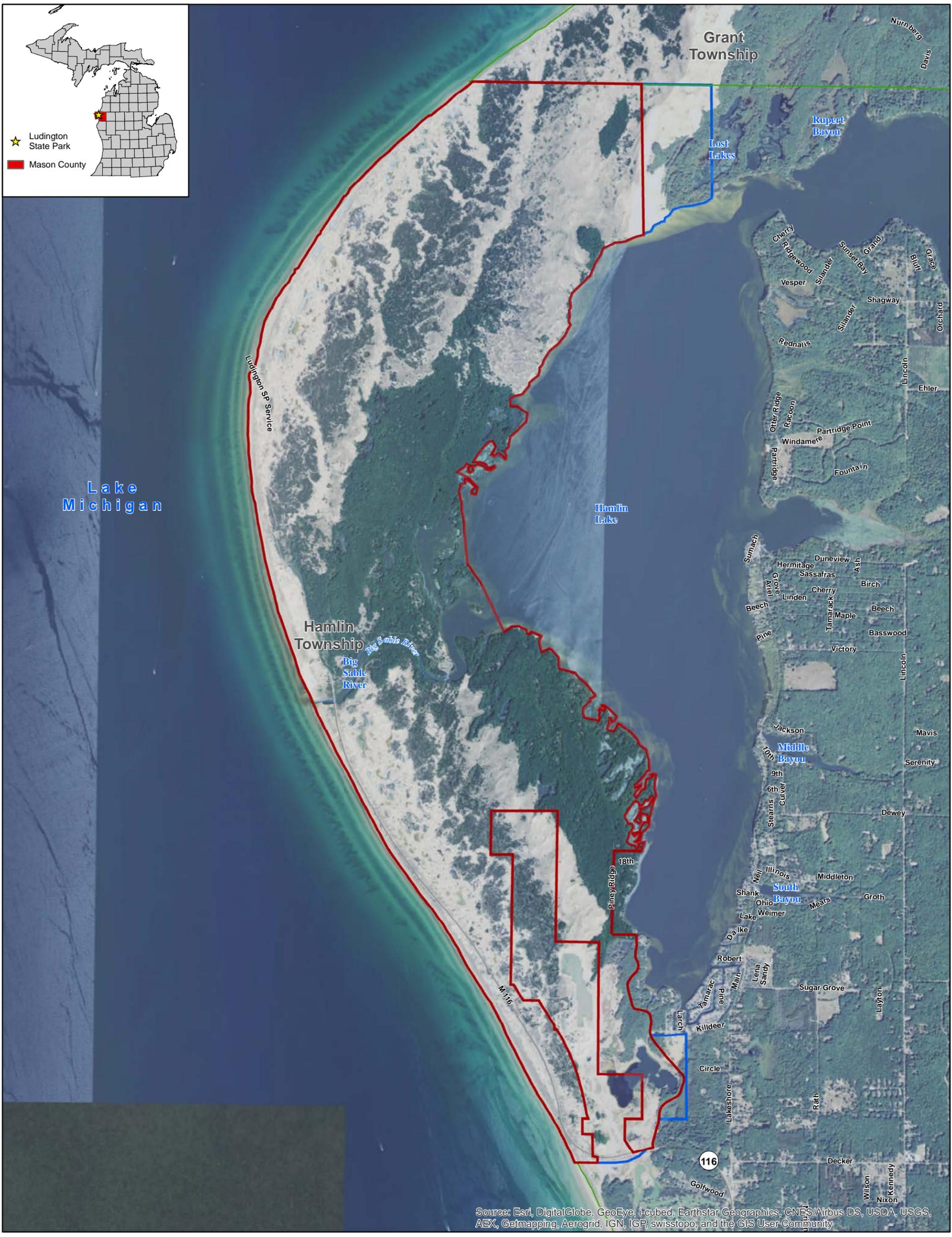
Month	Occupancy for All Ludington Campgrounds. 2013
January	24
February	16
March	65
April	176
May	3152
June	8789
July	10681
August	10768
September	6993
October	3126
November	130
December	19



## A.13 RESOURCE MAPS

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- Boundary Aerial
- Location
- Topography
- Land Cover 2011
- Critical Dunes
- Piping Plover Critical Habitat
- Natural Area - Proposed for Legal Dedication
- Trails
- Recreation Resources
- Funding Sources



Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

- Ludington State Park
- 2004 Project Boundary\* Approved by the NRC
- Municipal Boundary

## Ludington State Park

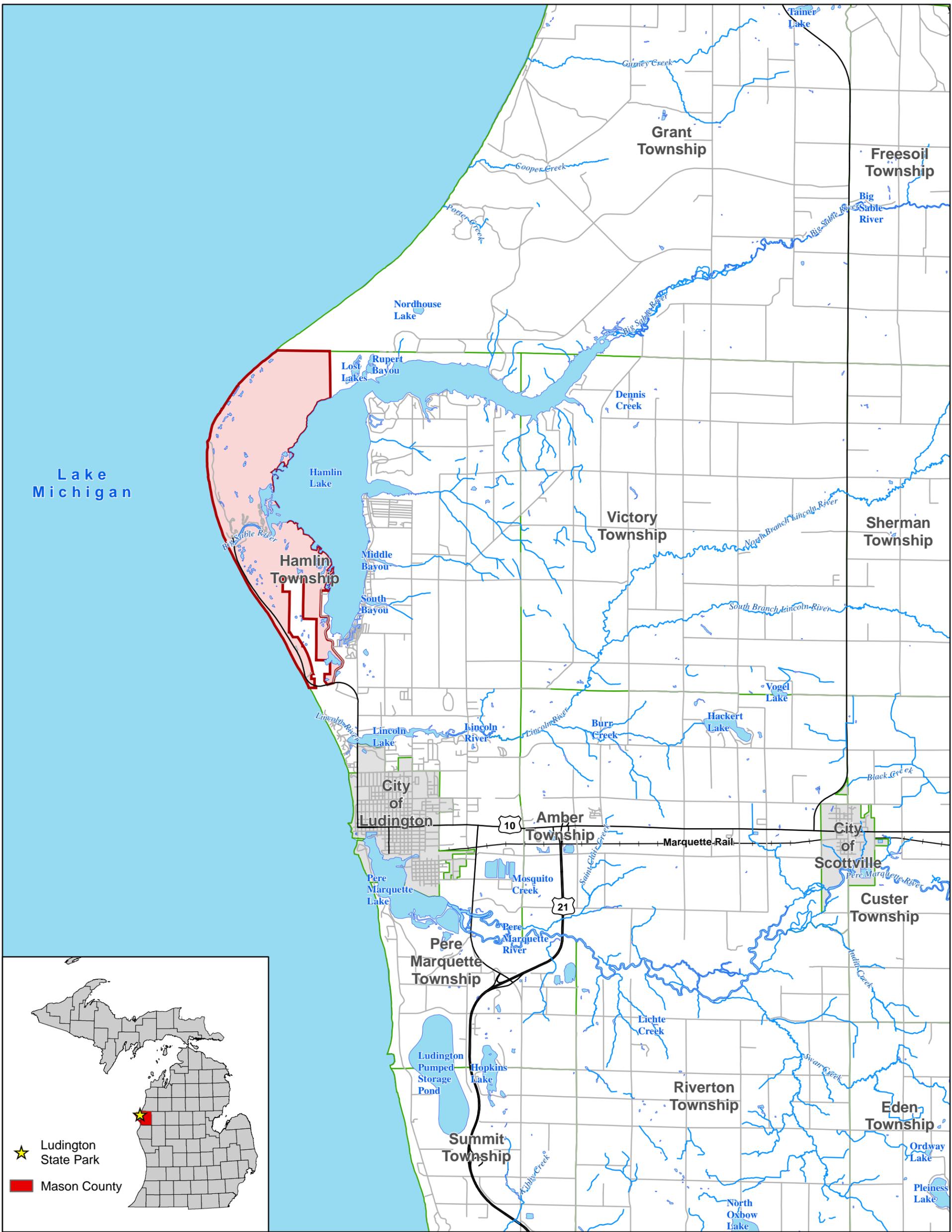
### Boundary Aerial

Hamlin Township  
Mason County, Michigan

\*A Project Boundary is a geographic area in which the DNR is seeking to acquire property that supports the mission of the DNR on a willing buyer/seller basis.



Sources: Michigan DNR, Michigan Geographic Data Library  
Map Created September 28, 2015



- Ludington State Park
- Municipal Boundary
- Lake or Pond
- River or Stream
- State Road
- Road
- Railroad

## Ludington State Park Location Map

Hamlin Township  
Mason County, Michigan





**clearzoning**  
CLEAR AND CONNECTED



Sources: Michigan DNR,  
Michigan Geographic Data Library  
Map Created September 28, 2015

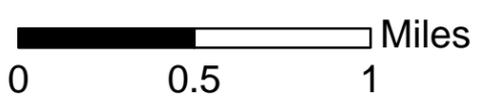


 Ludington State Park

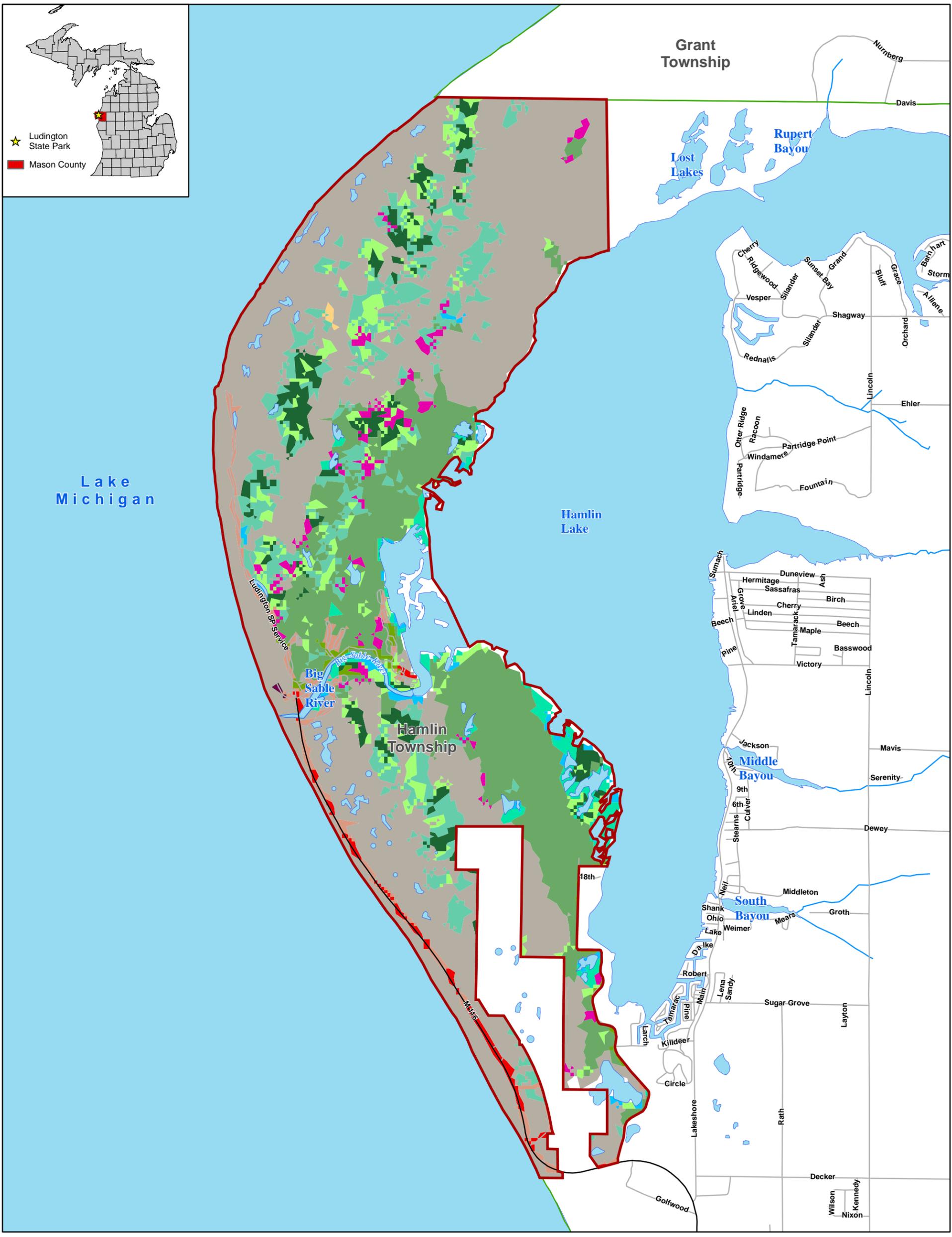
# Ludington State Park

## Topography

Hamlin Township  
Mason County, Michigan



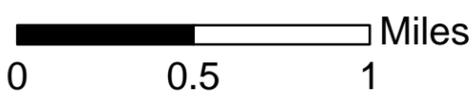
Sources: Michigan DNR,  
Michigan Geographic Data Library  
Map Created September 28, 2015



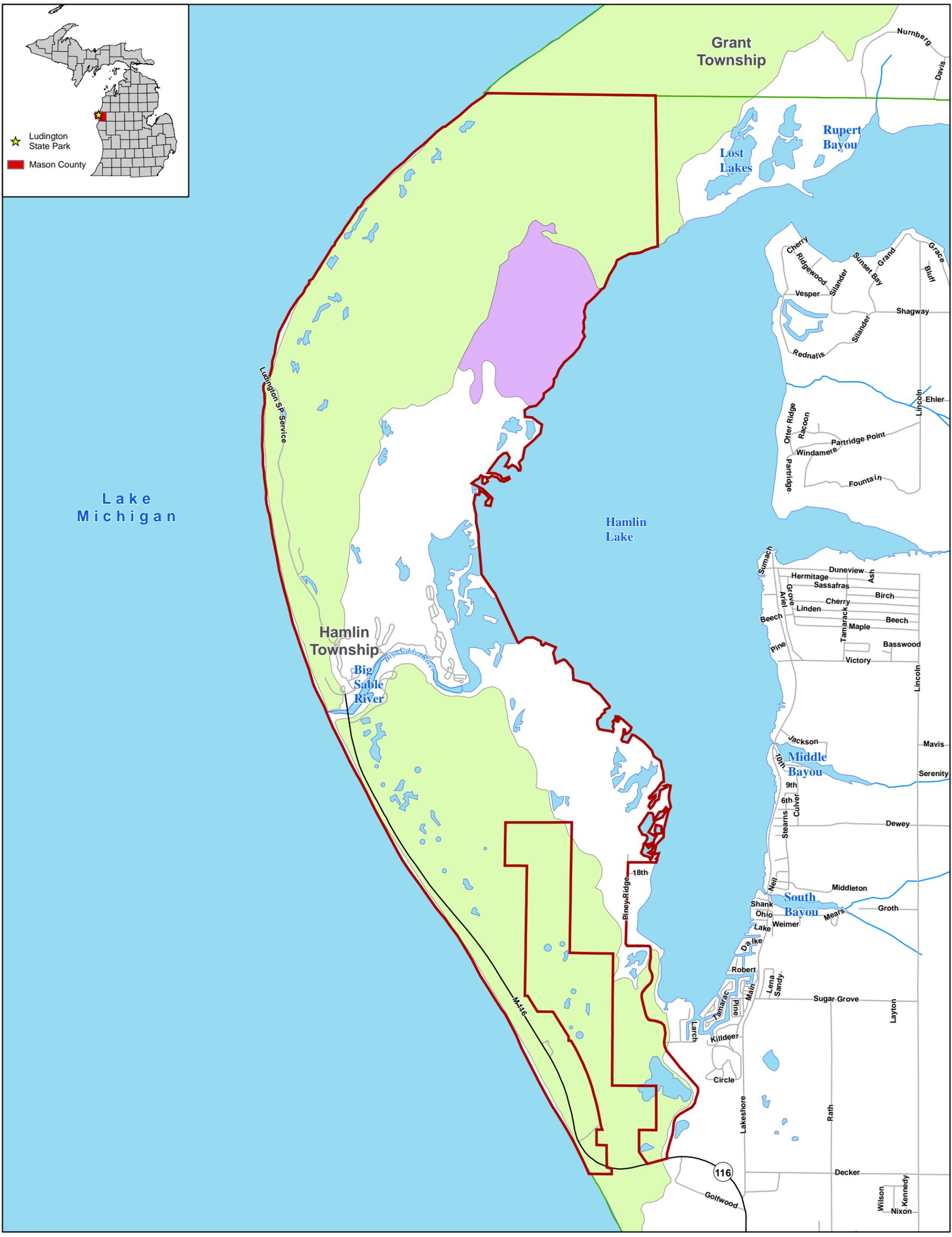
- Evergreen Forest
- Deciduous Forest
- Mixed Forest
- Cultivated Crops
- Emergent Herbaceous Wetlands
- Woody Wetlands
- Herbaceous
- Shrub/Scrub
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Ludington State Park

# Ludington State Park Land Cover 2011

Hamlin Township  
Mason County, Michigan

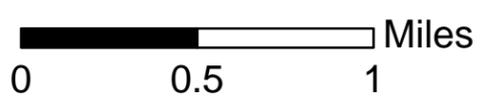


Sources: Michigan DNR,  
Michigan Geographic Data Library  
Map Created September 28, 2015

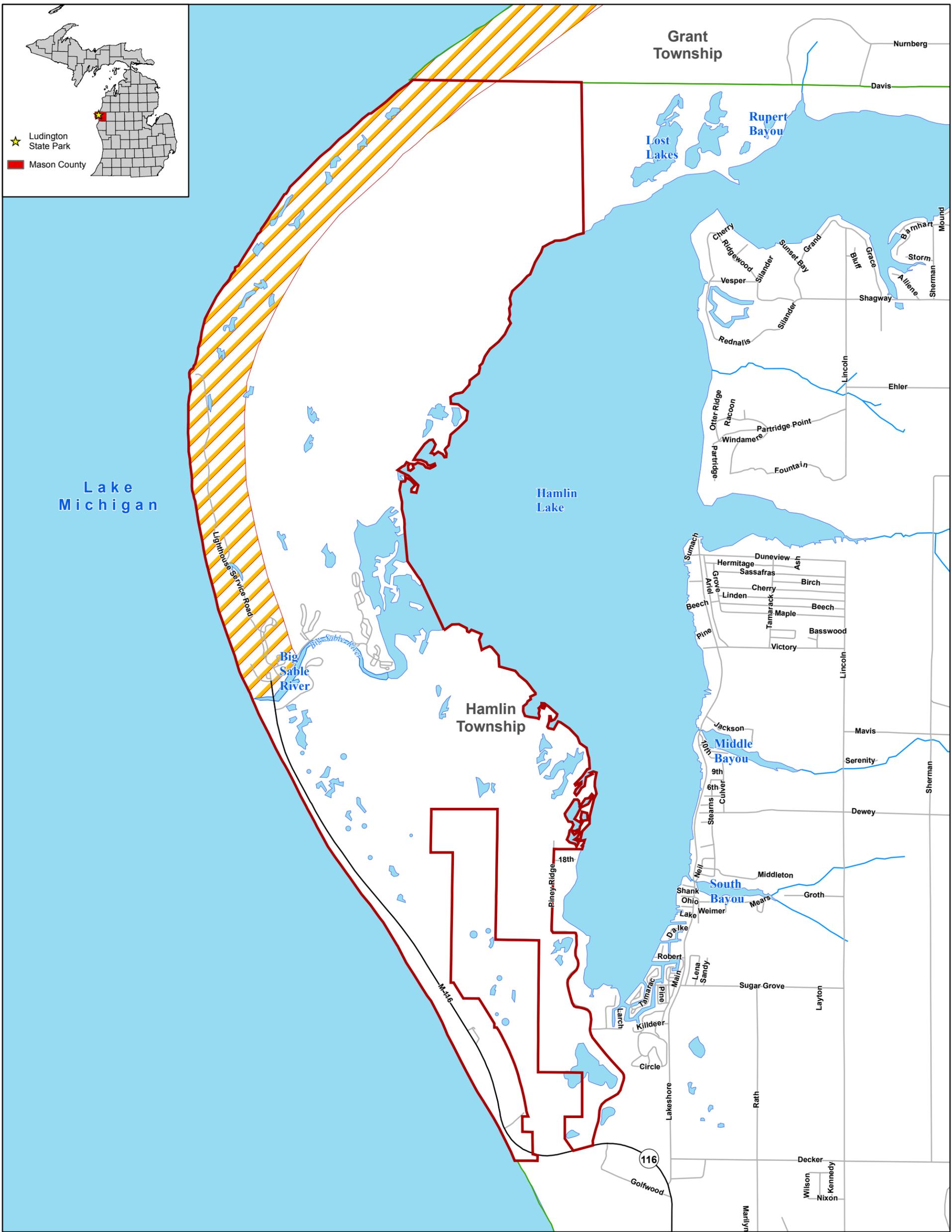


- Critical Dune Barrier dunes
- Critical Dune Exemplary dune associated plant community
- Ludington State Park

**Ludington State Park**  
**Critical Dunes**  
 Hamlin Township  
 Mason County, Michigan



Sources: Michigan DNR,  
 Michigan Geographic Data Library  
 Map Created September 28, 2015



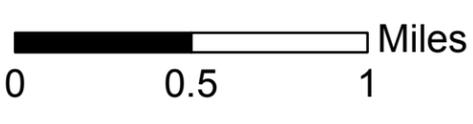
-  Dedicated Critical Habitat for Piping Plover\*
-  Ludington State Park

# Ludington State Park

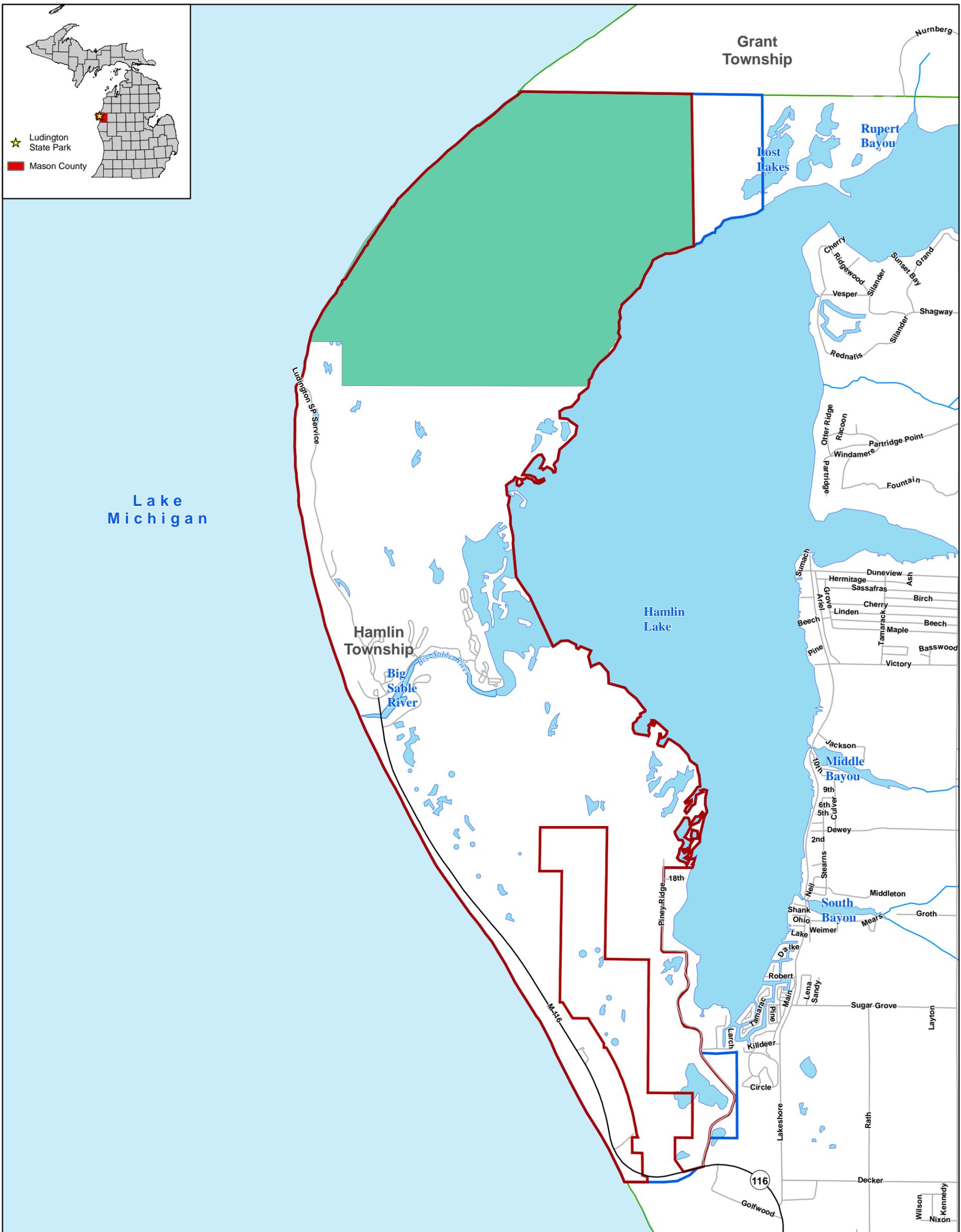
## Piping Plover Critical Habitat

Hamlin Township  
Mason County, Michigan

\*Note: Habitat for Piping Plover occurs along the entire park shoreline, but only the area shown is dedicated by the US Fish & Wildlife as Critical Habitat.



Sources: Michigan DNR,  
Michigan Geographic Data Library  
Map Created September 28, 2015

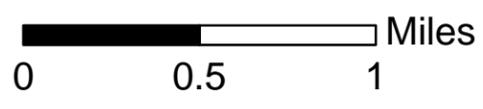


- Natural Area - Proposed for Legal Dedication
- Ludington State Park
- 2004 Project Boundary\* Approved by the NRC
- Municipal Boundary
- State Road
- Road

## Ludington State Park Natural Area - Proposed for Legal Dedication

Hamlin Township  
Mason County, Michigan

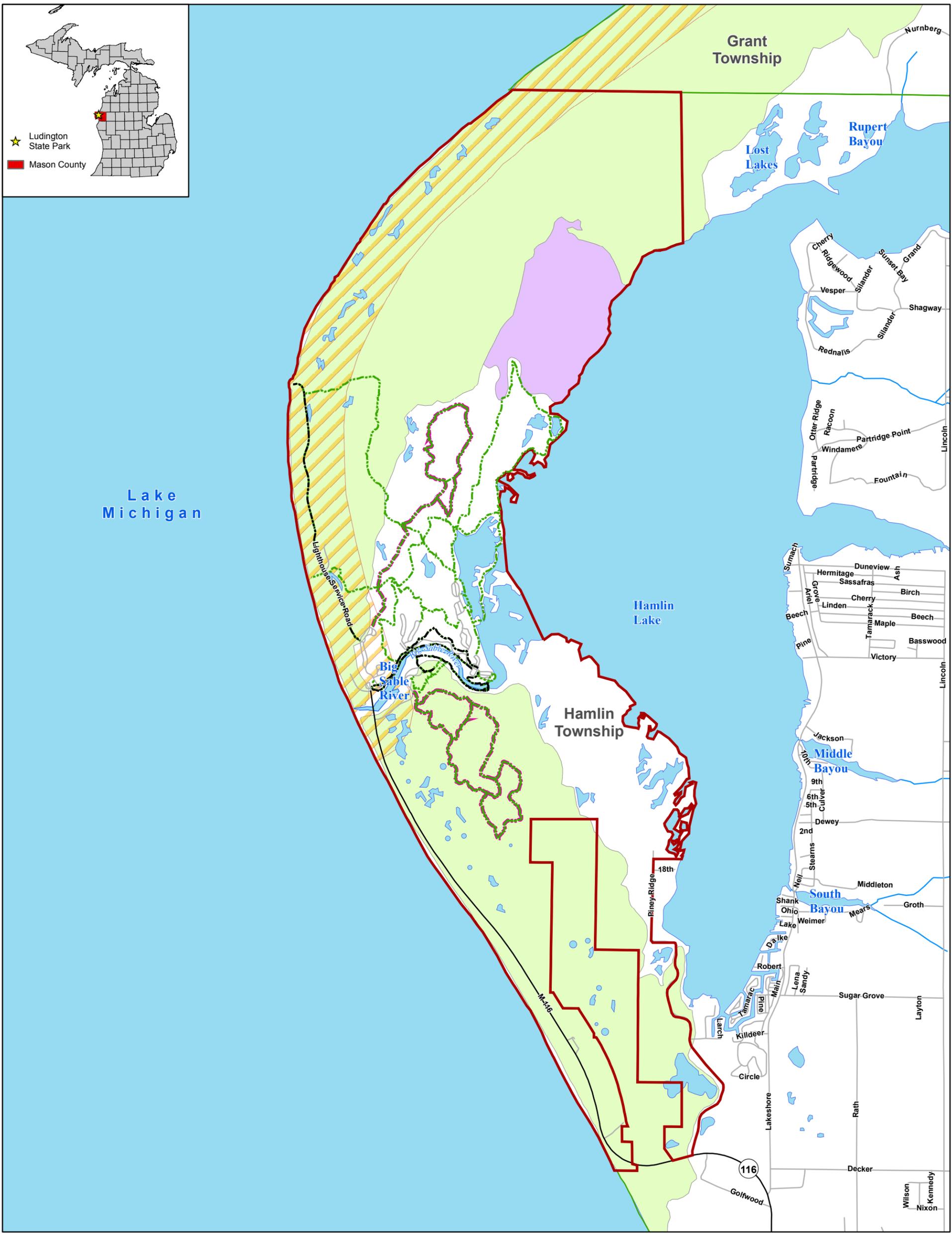
\*A Project Boundary is a geographic area in which the DNR is seeking to acquire property that supports the mission of the DNR on a willing buyer/seller basis.



CLEAR AND CONNECTED

Sources: Michigan DNR, Michigan Geographic Data Library  
Map Created May 27, 2015



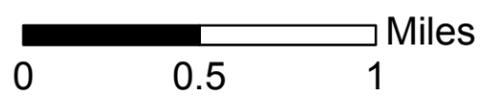


- Bike Trails
- Hiking Trails
- Hiking and Skiing Trails
- Dedicated Critical Habitat for Piping Plover\*
- Critical Dune Barrier dunes
- Critical Dune Exemplary dune associated plant comm
- Ludington State Park

# Ludington State Park Trails

Hamlin Township  
Mason County, Michigan

\*Note: Habitat for Piping Plover occurs along the entire park shoreline, but only the area shown is dedicated by the US Fish & Wildlife Service as Critical Habitat.



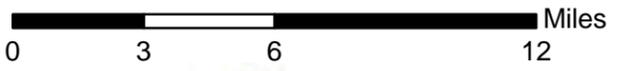
Sources: Michigan DNR, Michigan Geographic Data Library  
Map Created October 3, 2015

# Ludington State Park Recreational Resources

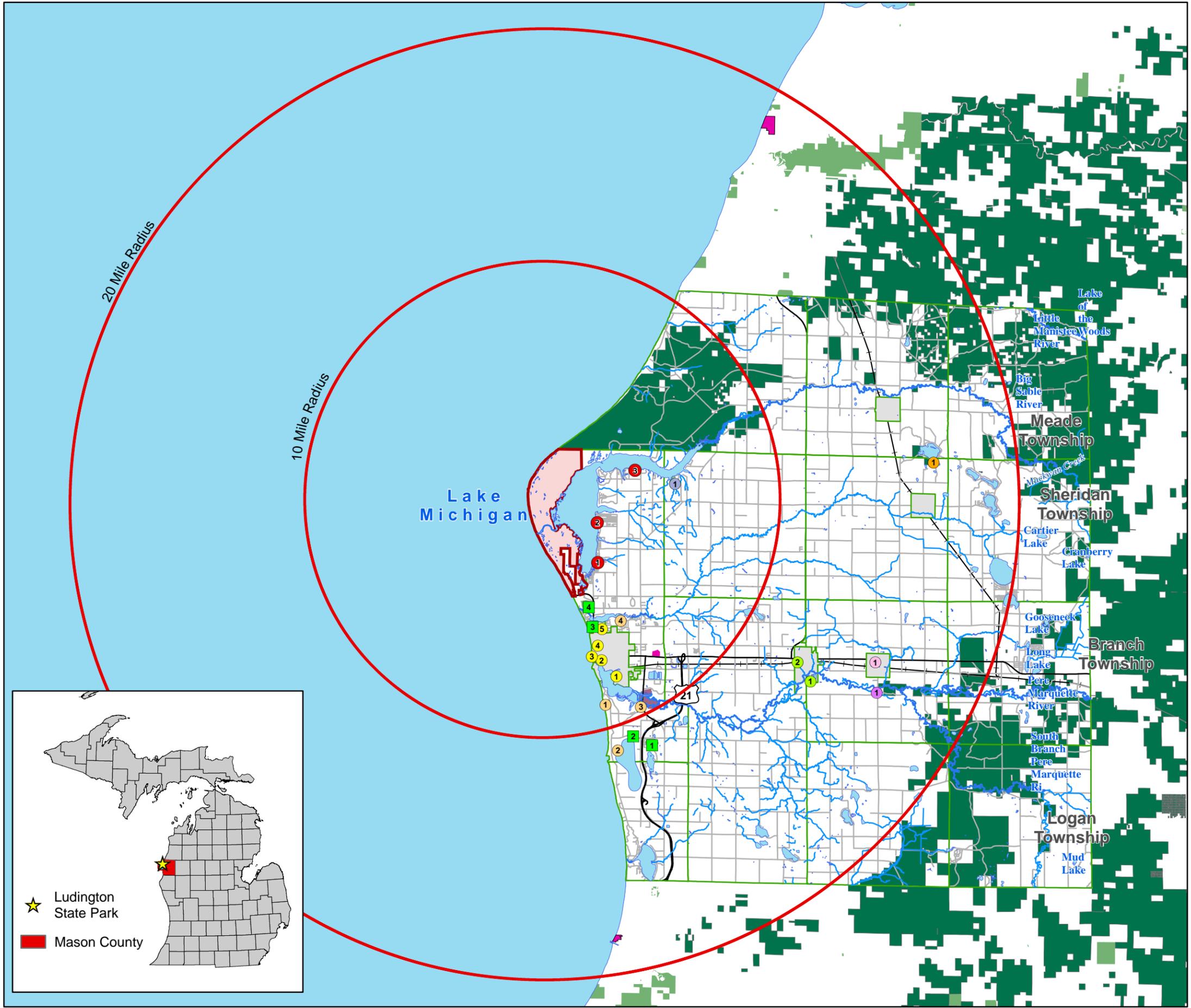
Hamlin Township  
Mason County, Michigan

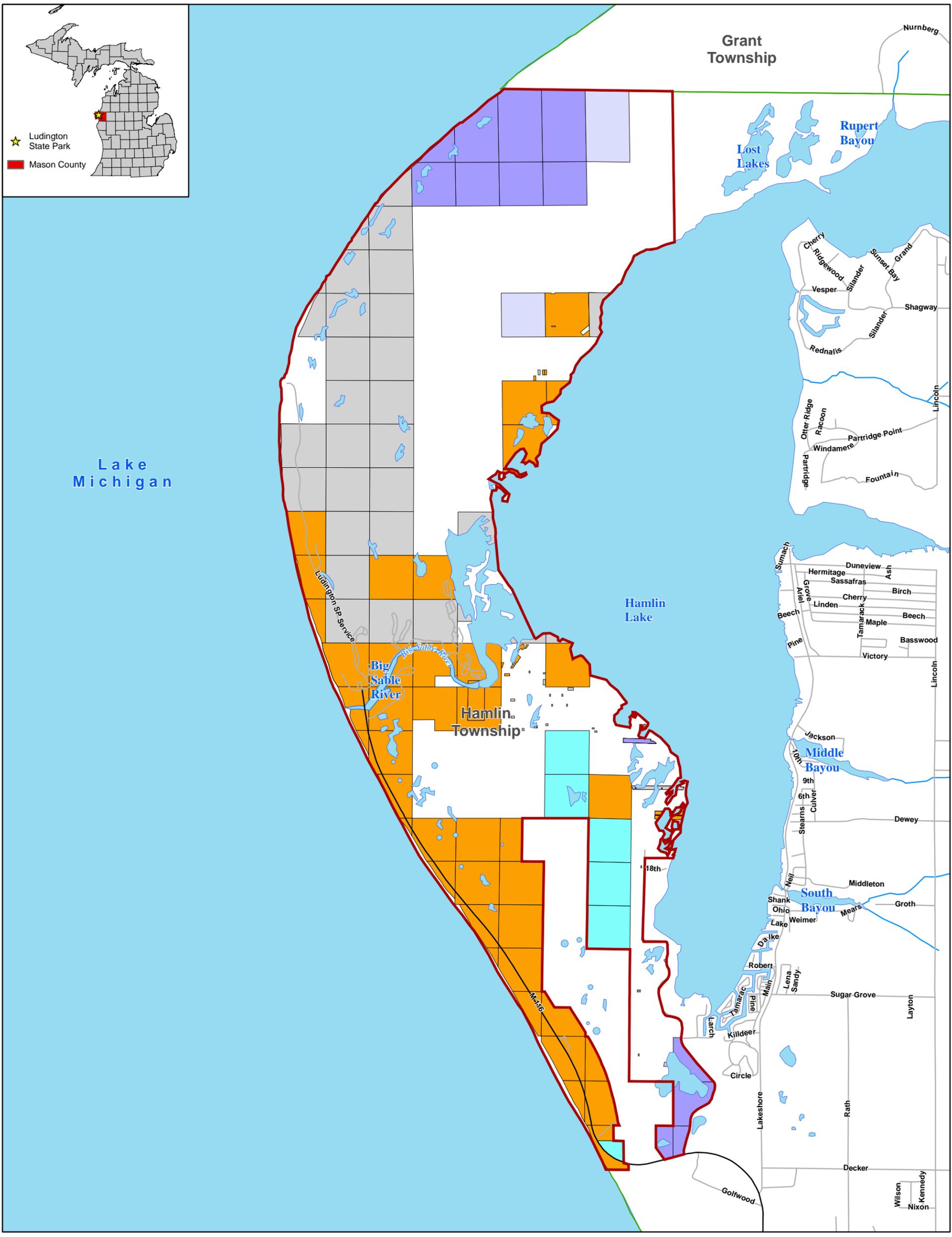


- Federal Recreation Land**
- Manistee National Forest
- State Recreation Land**
- Ludington State Park
  - Pere Marquette State Game Area
- County Recreation Land**
- Mason County Fairgrounds
- Municipal Recreation Land**
- City of Ludington
- 1 Peter Copeyon Park
  - 2 Ludington City Park
  - 3 Stearns Park
  - 4 Oriole Field
  - 5 Cartier Park
- City of Scottville
- 1 Riverside Park
  - 2 MacPhail Field
- Custer Township
- 1 Brandenburg Park
- Freesoil Township
- 1 Freesoil Township Park
- Hamlin Township
- 1 South Bayou Park
  - 2 Lakeshore Drive Park
  - 3 Wilson Hill Park
- Pere Marquette Township
- 1 Buttersville Park
  - 2 Mason County Picnic Area
  - 3 Suttons Landing Park
  - 4 Memorial Tree Park
- Victory Township
- 1 Victory Memorial Park
- Village of Cluster
- 1 St. Marys Field
- Private Recreation Land**
- 1 Lakeside Links Golf Course
  - 2 Mason County Campground
  - 3 Epworth Heights Golf Course
  - 4 Lincoln Hills Golf Club



Sources: Michigan DNR,  
Michigan Geographic Data Library  
Map Created March 23, 2015

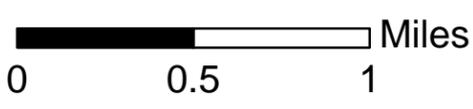




- Other Funds
- Gift
- Mich Natural Resources Trust Fund
- Special Legislation
- State Game Fund
- Ludington State Park

## Ludington State Park Funding Sources

Hamlin Township  
Mason County, Michigan





**DNR**  
MICHIGAN



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Sources: Michigan DNR,  
Michigan Geographic Data Library  
Map Created September 28, 2015

