



## A5. Natural Features Assessment

Understanding the physical conditions of the Rockport property is critical to designating management zones. Management zones must ensure that activities are compatible with the land's capacity, and sensitive areas are preserved and protected. This section reviews the ecological context of Rockport, including climate, soils, water bodies, wetlands and areas prone to flooding, woodlands, threatened and endangered species, and species of special concern.

### A5.1 Ecoregional Context

Rockport Property is located in the Presque Isle Subsection, sub-subsection VII.6.3, Cheboygan Ecoregion, according to the *Regional Landscape of Ecosystems of Michigan, Minnesota, and Wisconsin: A Working Map and Classification General Technical Report NC-178 (Fourth Revision: July 1994)* (Map 6). The following information is taken from NC-178.

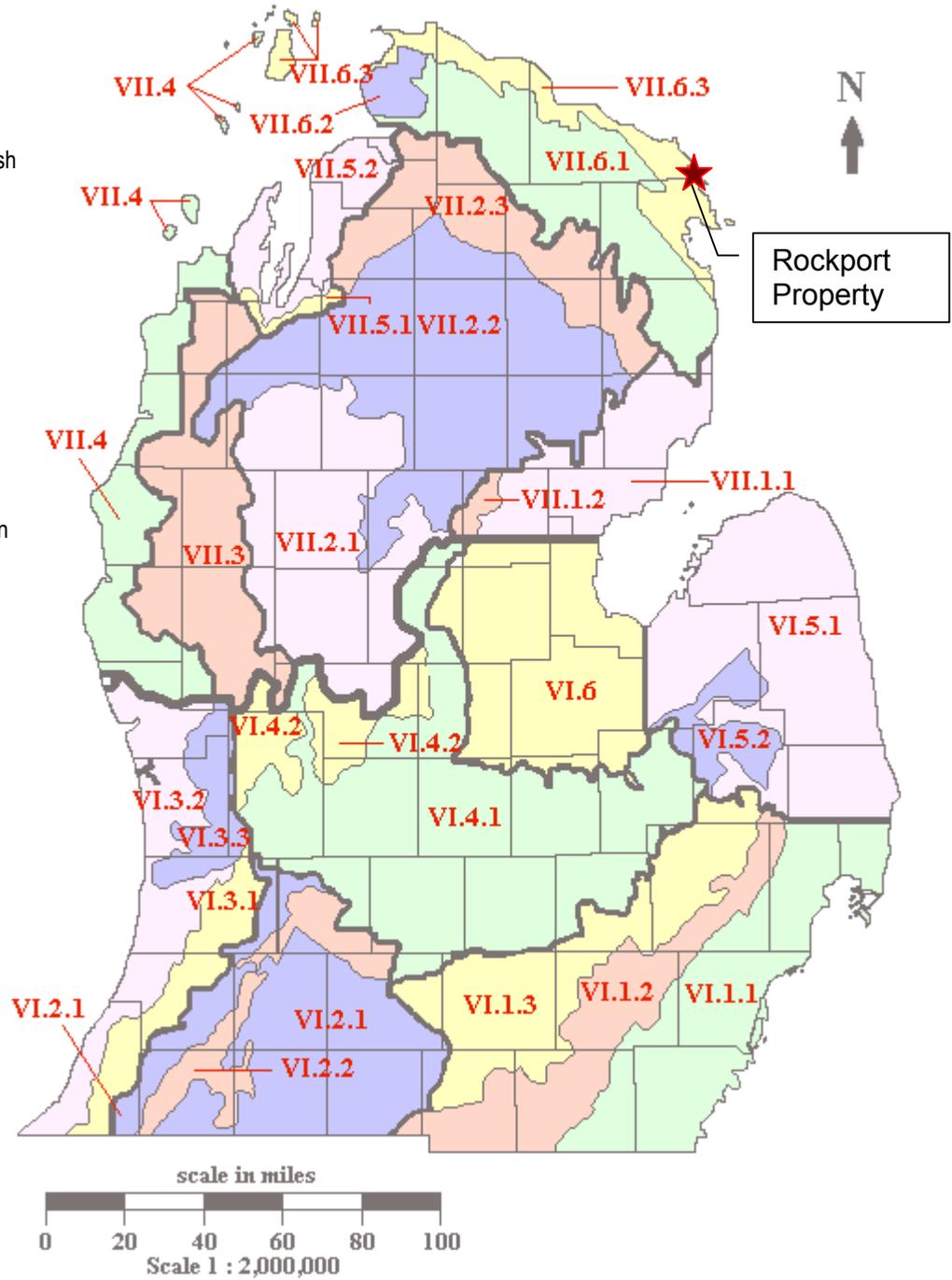
The Cheboygan sub-subsection comprises 836 square miles of northern Michigan land. Much of this relatively flat area of calcareous glacial lake plain is wetland, largely dominated by northern white-cedar forests. Broadly diverse lacustrine features are present, supporting vegetation characteristic of the northern Great Lakes shoreline. The elevation ranges from 580 to 750 feet.

Climate. The growing season ranges from 130 days near the inland edge, to 140 days along much of the Lake Huron shorelines. The longest growing season is about 150 days at the extreme southeast edge near Alpena (Eichenlaub *et al.* 1990). Extreme minimum temperatures are approximately -28°F at the southernmost point of the sub-subsection, and 36°F to the north, where Lake Huron does not appear to modify the extreme low temperature to any great extent. Average annual precipitation is 28 to 30 inches, and average snowfall is 80 inches along the entire length of the sub-subsection.

The National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center is another source for climate information. Climatological normals, average values recorded from 1971 to 2000, indicate the following:

## Map 6: Ecoregional Context

- Section VI.1 Washtenaw
  - VI.1.1. Maumee Lake Plain
  - VI.1.2. Ann Arbor Moraines
  - VI.1.3. Jackson Interlobate
- Section VI.2 Kalamazoo Interlobate
  - VI.2.1. Battle Creek Outwash Plain
  - VI.2.2. Cassopolis Ice-Contact Ridges
- Section VI.3 Allegan
  - VI.3.1. Berrien Springs
  - VI.3.2. Southern Lake Michigan Lake Plain
  - VI.3.3. Jamestown
- Section VI.4 Ionia
  - VI.4.1. Lansing
  - VI.4.2. Greenville
- Section VI.5 Huron
  - VI.5.1. Sandusky Lake Plain
  - VI.5.2. Lum Interlobate
- Section VI.6 Saginaw Bay Lake Plain
  - VI.6.1. Standish
  - VI.6.2. Wiggins Lake
- Section VII.1 Arenac
  - VII.1.1. Cadillac
  - VII.1.2. Grayling
  - VII.1.3. Vanderbil
- Section VII.2 High Plains
  - VII.2.1. Williamsburg
  - VII.2.2. Traverse City
- Section VII.3 Newaygo
  - VII.3.1. Onaway
  - VII.3.2. Stutsmanville
  - VII.3.3. Cheboygan
- Section VII.4 Manistee
  - VII.4.1. Williamsburg
  - VII.4.2. Traverse City
- Section VII.5 Leelanau and Grand Traverse Peninsula
  - VII.5.1. Williamsburg
  - VII.5.2. Traverse City
- Section VII.6 Presque Isle
  - VII.6.1. Onaway
  - VII.6.2. Stutsmanville
  - VII.6.3. Cheboygan



Source: *Regional Landscape of Ecosystems of Michigan, Minnesota, and Wisconsin: A Working Map and Classification General Technical Report NC-178 (Fourth Revision: July 1994).*

- ❑ Mean daily temperature during winter months (Dec, Jan, Feb): 20.3°F
- ❑ Mean daily temperature during spring months (Mar, Apr, May): 40.2°F
- ❑ Mean daily temperature during summer months (Jun, Jul, Aug): 64.2°F
- ❑ Mean daily temperature during fall months (Sept, Oct, Nov): 45.5°F
- ❑ Mean annual precipitation: 28.4 inches
- ❑ Average annual total snow fall, including ice pellets, sleet, and hail (data collected from 1964 through 2005): 84.7 inches

Bedrock Geology. For the Cheboygan sub-subsection, the glacial drift is discontinuous near the shoreline of Lake Huron. The underlying bedrock consists of Mississippian and Devonian marine and near-shore sedimentary deposits (Milstein 1987, Dorr and Eschman 1984). Limestone, dolomite, and gypsum are locally exposed and mined. Devonian bedrock in the subsection is a source for salt, brine, and major petroleum reservoirs (Dorr and Eschman 1984).

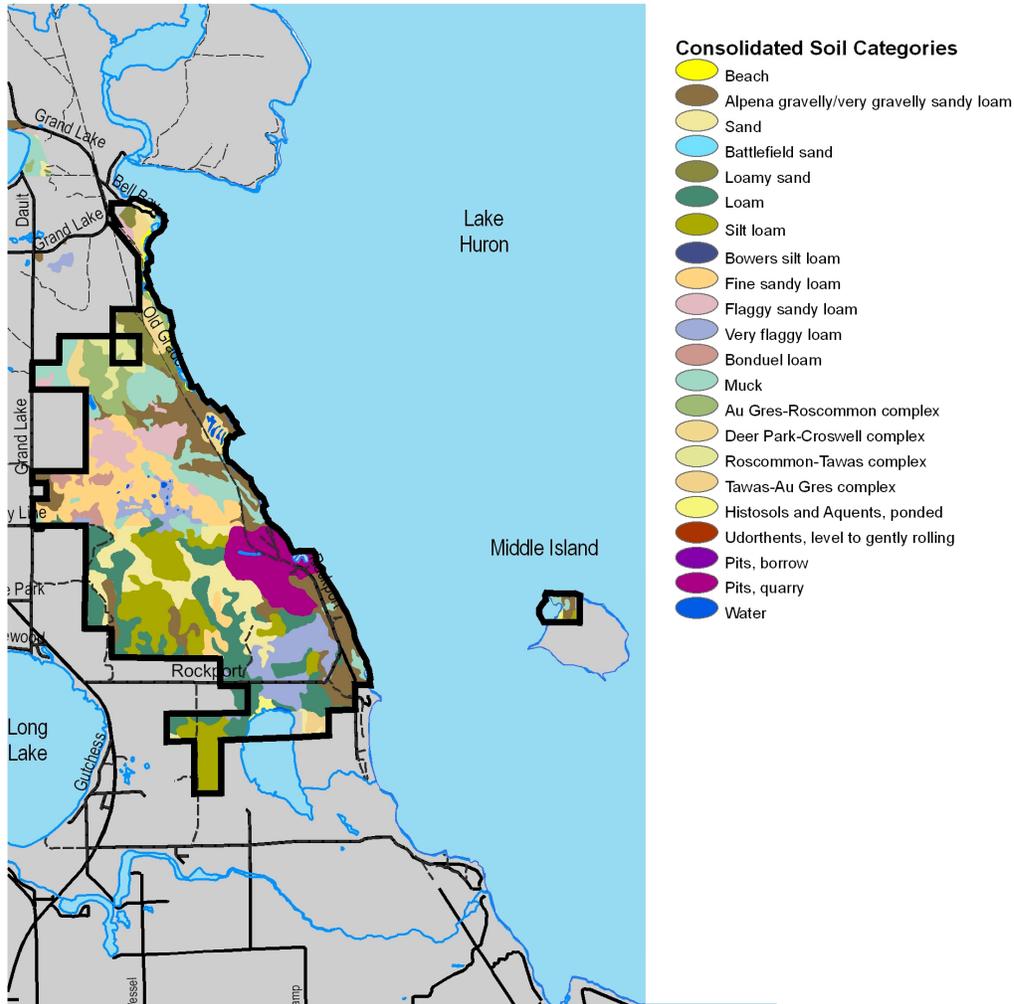
Rockport Property is situated on a calcareous sandy lake plain with mostly poorly drained soils. A narrow fringe of sandy soils with frequently exposed bedrock and cobble beach forms the border along Lake Huron, expanding into a series of old beach ridges alternating with wet depressions in the center of the park. Historically, the ridges were dominated by red and white pine, and the depressions primarily by lowland conifers such as white cedar, balsam fir, and white spruce. The north and south regions of the park are essentially flat, featureless lakeplain region that were historically dominated by white cedar swamp (source: Michigan Natural Features Inventory).

Landforms. sub-subsection VII.6.3 forms a narrow band of sandy lake plain, 2 to 10 miles wide, along the shoreline of Lake Huron (Comer *et al.* 1993a). Although a veneer of sand covers a large part of the sub-subsection's surface, limestone bedrock is near the surface of almost the entire sub-subsection; and exposed bedrock and cobble beaches are common.

The surface area in the Rockport vicinity is an exposed rim of a limestone deposit. Limestone reacted with the acidic surface water, accelerating its dissolution, and resulting in the formation of sinkholes and fissures. Sinkholes actually developed long ago, at a time when water covered the area. Huge coral deposits settled to the lake bed. As the glaciers receded, streams and lakes formed on the porous rock, which slowly dissolved the limestone. Over time, limestone cracks, primarily underground, became larger and the 'ceilings' thinner. Eventually the 'ceilings' collapse, forming a sinkhole.

**Soils.** The amount of wetland areas coupled with the close proximity to the climatic effects of Lake Huron results in a wide range of soil types (Map 7). The Lake effect results in one of the most floristically-diverse ecosystems in the Midwest. The majority of the soil consists of lacustrine sands, which range from excessively drained to very poorly drained.

**Map 7: Soils**



**Soils**  
Rockport State Park

Sources: MDNR, Michigan Geographic Data Library

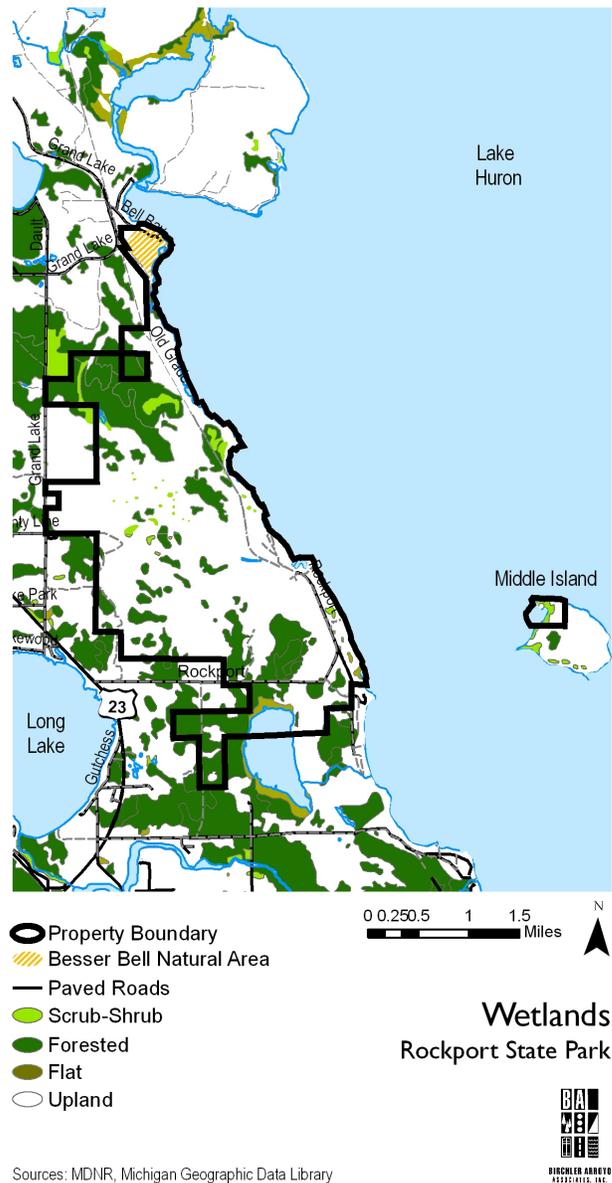


Lakes, Streams and Wetlands. In the Cheboygan sub-subsection, major lakes include Carp, Grand, Grass and Long. Long and Grand have linear basins formed by glacial erosion of the underlying bedrock. Large rivers in the sub-subsection are Thunder Bay, Ocqueoc, Black, and Cheboygan.

Map 8 illustrates the location of wetlands in the Rockport Property.. Approximately 6 to 8 sinkholes are located in the property interior. According to the USGS, sinkholes are common where the rock below the surface is limestone, carbonate rock, salt beds, or rocks that can be naturally dissolved by groundwater circulating through them. The rock dissolves, forming a hole. Land above the spaces is prone to a sudden collapse, which can be small or large. The sinkholes in Rockport are both dry and filled. Filled sinkholes can be an attraction for recreational divers.

Wetlands and fens are also prevalent in Rockport. Fens are distinguished from wetlands and bogs because they are typically fed by alkaline mineral-rich ground-water, and for the type of flora they support.

**Map 8: Wetlands**



Flood-prone Areas. The Federal Emergency Management Agency (FEMA)

has not mapped floodplains for this area of northern Michigan. Soil data from USDA Natural Resource Conservation Service was used to determine soils that exhibit properties characteristic of ponding and/or flooding. Based on soil data, there are several areas within Rockport that are prone to ponding and/or flooding (Map 9).

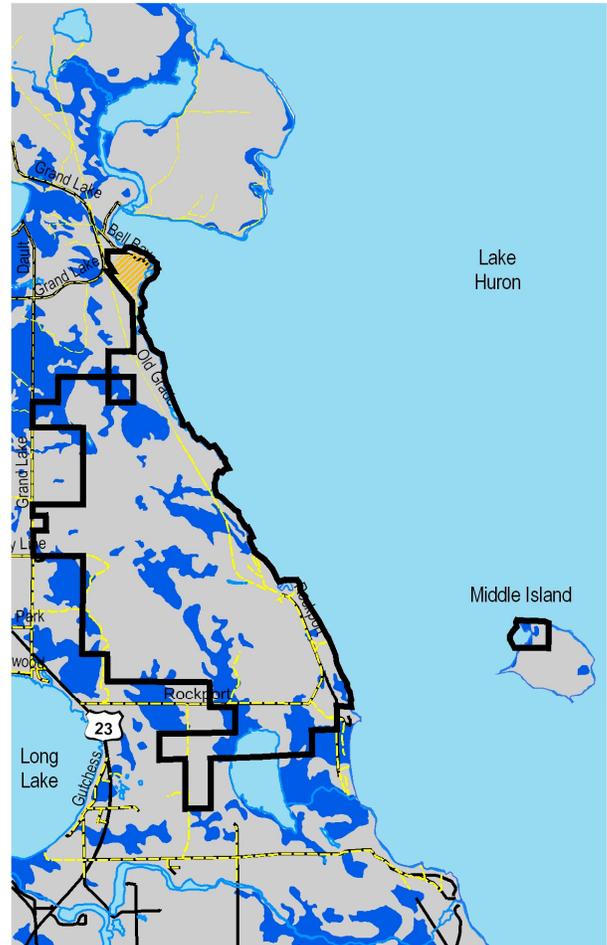
Presettlement Vegetation.

Originally, large areas of flat, poorly drained sand lake plain were dominated by lowland conifer forests. The most common species was the northern white-cedar. Northern white-cedars were dominant in areas where there was lateral water movement and they formed dense stands at the seepy, calcareous margins of adjacent sub-subsection VII.6.1. Tamarack was also a common dominant and often found growing with cedar. Tamarack was more common where drainage conditions were more impeded. Other wetland species common in the extensive wetlands of the sub-subsection included balsam fir, black spruce, eastern hemlock, white pine, balsam poplar, trembling aspen, paper birch, speckled alder, and shrub willows.

White pine and red pine were common co-dominants on the well-drained, low sand ridges of the lake plain, especially near the Lake Huron shoreline. These pines also grew together on gravelly or rocky sites near the Lake Huron shoreline.

Hemlock and white pine were also common co-dominants, often where the drainage conditions were slightly poorer than where white pine and red pine grew together. Paper birch and trembling aspen also grew on flat to

**Map 9: Areas Prone to Flooding**



- Soils Prone to Ponding
- Park Boundary
- ▨ Besser Bell Natural Area
- Dirt Roads
- Paved Roads

**Soils Prone to Flooding**  
Rockport State Park

Sources: MDNR, Natural Resources Conservation Service, Michigan Geographic Data Library

- Mixed
- Paved Roads
- Dirt Roads

Sources: MDNR, Michigan Geographic Data Library



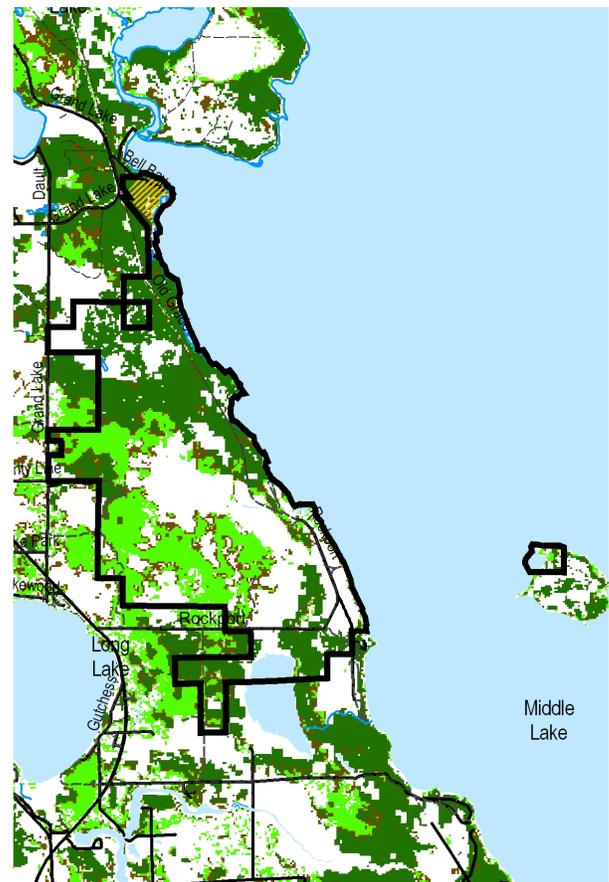
rolling parts of the sand lake plain. Although northern hardwoods were not generally extensive in the sub-subsection, some large tracts were located around Long and Grand Lakes, along the Cheboygan and Black Rivers, and locally along the Lake Huron shorelines.

Disturbances: Windthrows and burns are the two noted natural disturbances in the Cheboygan sub-subsection. One of the two large areas of burned timber occurred in the vicinity of Grand Lake. Mixed stands of white pine and red pine appeared to be the forest type most impacted by the fires.

Like many areas of Michigan, extensive logging altered the present landscape. Although both upland vegetation and wetland vegetation have been logged, the upland red and white pine forests have been greatly altered by logging while little has changed in the wetland vegetation. Today, there is a large beech, sugar maple forest in the uplands, which is primarily located on the western portion of the Rockport property.

The limestone quarry is a disturbance. The Great Lakes Stone and Lime Company of Rockport began operation in 1927. With the quarry came a booming settlement, including a school and homesteads. The community gradually vanished as the quarry's production slowed. The quarry operations halted in 1958. The last commission was to provide caissons for the construction of the Mackinac Bridge. Today, rock piles of tailings and disturbed land remind visitors of Rockport's history. (Sources: *Final Environmental Impact Statement/Management Plan* by the NOAA National Marine Sanctuary Program and *Preliminary Comparative and Theme Study of National Historic Landmark Potential for Thunder Bay, Michigan* by Jay C. Martin, 1996. Great Lakes Visual/Research, Inc. Lansing, MI.)

**Map 10: Woodlands**



- Park Boundary
- Besser Bell Natural Area
- Deciduous
- Evergreen
- Mixed
- Paved Roads
- Dirt Roads



**Woodlands**  
Rockport State Park



Sources: MDNR, Michigan Geographic Data Library

Present Vegetation. Rockport offers a variety of vegetation (Map 10). The limestone base provides a natural setting for Alvar glade communities. The sides and bottoms of the many sink holes found in its borders create an environment for unique species to grow. Sand dunes, dune swale complexes, fens, the primarily cobble beach, hardwood and lowland conifer swamps with pockets of shrub-thicket, and uplands of large beech and sugar maple forests are other examples of the rich range of ecosystems available in Rockport.

## **A5.2 Threatened, Endangered and Special Concern Species**

Rockport is a contiguous parcel of undeveloped land that provides a choice habitat for numerous varieties of plants and animals. Species of special concern, and threatened and endangered species sighted in Rockport are noted below.

Species of Special Concern. Most *Species of Special Concern* are noted as such because of their declining populations in the state. Should these species continue to decline, they would be recommended for Threatened or Endangered status. The goal is protection of ‘Special Concern’ species before they reach dangerously low population levels. Species of Special Concern listed in Rockport are:

- Beauty sedge
- Butterwort
- Climbing fumitory
- Prairie Indian-plantain
- Ram’s-head orchid
- Richardson’s sedge

Threatened Species. A “threatened” species is one that is likely to become endangered in the near future. Threatened species listed for Rockport are:

- Dwarf-lake iris (State and Federally)
- Houghton’s goldenrod (State and Federally)
- Pitcher’s thistle (State and Federally)

Endangered Species. According to the Michigan Natural Features Inventory (MNFI), the Piping plover, Migrant loggerhead shrike, Channel darter, Hines emerald dragonfly, and Prairie Warbler are endangered species that have been found in Alpena and Presque Isle Counties. To date, no endangered species have been identified within Rockport Park, however.

## A6. Cultural and Historic Resources



Rockport has features of great historic and cultural value. Rockport's limestone quarry offers a significant opportunity for prehistoric fossil viewing. There are also Native American archeological sites located within Rockport.

Presque Isle is a French word meaning “almost island”. The narrow peninsula located north of the park, and from which the county derives its name, afforded early missionaries, explores, and settlers with a short portage rather than a long, dangerous canoe trip.

Lake Huron was heavily trafficked for trade and transportation. As a result, many lighthouses were placed along the Lake Huron shoreline to guide ships safely to shore when the weather suddenly changes for the worse. Along the shoreline near Rockport are five lighthouses: three in Presque Isle County and two in Alpena County:

- ❑ Presque Isle Lighthouse Park and Museum is a combination of three historic buildings: a lighthouse tower, and two keeper's residences. Built in 1870 to replace the harbor light of 1840, the “New Presque Isle Light” is the tallest publicly accessible lighthouse on the Great Lakes, and visitors can climb to the top for a nominal fee to experience the extraordinary view. The unattached keeper's residence, which has been restored is now a museum that provides visitors a glimpse of the past local history and lifestyle. The lighthouse is usually open from May and to October.
- ❑ Old Presque Isle Lighthouse was build in 1840, and as such is one of the oldest existing lighthouses on the Great Lakes. The lighthouse was in operation from 1840 through 1871. The lighthouse complex consists of two structures, a light and keeper's dwelling. The light tower reaches a height of thirty feet, and guests are only charged a nominal fee to climb the lighthouse. The nearby dwelling is now an interactive museum, which allows visitors to blow fog horns and study unique artifacts. This lighthouse is also open from mid-May through mid-October.
- ❑ Forty Mile Point Lighthouse is located further north than Old and New Presque Isle Lighthouses, Forty Mile Point Lighthouse was built in 1896.

The lighthouse's original Fresnel lens still works to this day. In 1996, the Forty Mile Point Lighthouse Society began restoring the lighthouse complex. The park is open to the public year round, with the lighthouse open on weekends, from Memorial Day through mid-October.

- ❑ Middle Island Keeper's Lodge and Lighthouse is located between Presque Isle and Thunder Bay. Visitors can tour the lighthouse via Middle Island Boat Tours. After a boat ride of more than three hours, the tour begins on the island with a nature walk then tours the lighthouse complex. Overnight lodging for up to eight people is available in what was previously the Foghorn Building, which offers panoramic views of the water and lighthouse.
- ❑ Thunder Bay Island Lighthouse is located in the northern portion of Thunder Bay. Thunder Bay Island Lighthouse served as a critical marker for ships traveling frequently dangerous Lake Huron. Ships had to be aware not to get too close to the island because of the rocky shoals that could result in a shipwreck.

The Thunder Bay region is home to numerous shipwrecks. The unpredictable waters and weather of the region coupled with the heavy traffic Thunder Bay saw during the 19<sup>th</sup> century has produced an area that is now the Thunder Bay National Marine Sanctuary and Underwater Preserve. It is estimated that between 40 and 100 ships might be wrecked in this area.

Just north of South Point is the confirmed wreck of the Nellie Gardner. The Nellie Gardner was a wooden schooner-barge sent out to Alpena from Tawas in inclement weather. The Nellie Gardner tried to return to port, but struck a reef and broke into two pieces. The wreck is in only 20 feet of water and is in good condition, thanks to the cold, fresh water of Lake Huron.

The limestone quarry not only provides a place for fossil hunters, but the tailings piles and remnants from the community that thrived here during the quarry's heyday tell of the area's rich history between 1927 to 1958. Prosperous when in operation, the quarry's last charge was to supply the caissons for the Mackinac bridge. Much of the property was also logged. The railroad grade through the quarry site was operated by the Detroit and Mackinac railway.

## A7. Education and Interpretation



The DNR recognizes education and interpretation opportunities in terms of those that offer resource-based programming. Currently, there are no regularly-scheduled educational or interpretive programs offered at the Rockport property. The Thunder Bay National Marine Sanctuary hosts diving certification courses in Thunder Bay and performs field work of the Rockport sinkholes with Michigan Universities.