General Management Plan

Long-range management guidance focused on the specific natural resources, historic-cultural resources, recreation opportunities and the education-interpretation opportunities of…

Grand Mere State Park

This project was funded, in part, by the Michigan Coastal Management Program, Department of Natural Resources and Environment, and the National Oceanic and Atmospheric Administration U.S. Department of Commerce

The project was directed by Paul N. Curtis, Management Plan Administrator, Department of Natural Resources and Environment, Recreation Division with assistance from Birchler Arroyo Associates, Inc. and Jeff Johnson, Student Assistant.

PLAN APPROVALS:

Chief, Recreation Division	3/15/10 Date
Deputy Director, Stewardship	3/23/10 Date
Director, Department of Natural Resources and Environment	3/29/10 Date

DNRE

Grand Mere State Park

Dedicated NRC Boundary

Dedicated NRC Boundary

0 0.1 0.2 0.4 0.6 0.8 Miles

Sources: MDNR, Michigan Geographic Data Library

Table of Contents

Note: During the development process for this General Management Plan, the State of Michigan combined the Department of Natural Resources and the Department of Environmental Quality, forming the Department of Natural Resources and Environment (DNRE).

Every effort has been made to insert the new department name into this document. Note that the extensive mapping created from then-DNR data will be available from the DNRE and is fully intended to represent the future general management plans for the DNRE.

Executive Summary

1.0 Plan Process Overview

- 1.1 Planning Objectives
- 1.2 Planning Team
- 1.3 Management Plan Process

2.0 Core Values

- 2.1 Mission Statements
- 2.2 Statements of Purpose
- 2.3 Statements of Significance
- 2.4 Legal Mandates
- 2.5 Other Designations
- 2.6 Land Acquistion

3.0 Management Zone Plan

- 3.1 Primitive Zone
- 3.2 Natural Resource Recreation Zone
- 3.3 Scenic Overlay Zone

4.0 Future Plan Inserts

Appendices

- A Supporting Analysis
- B Public Participation Program Results
- C Planning Team Meeting Agendas and Minutes

Executive Summary

Photo: Charles E. Miller

Management Planning is a defined strategic process within the RD Strategic Plan (2009), reflecting the following Goals and Objectives:

- Goal 1, Objective 1.2: "Strengthen, update, and implement Management Plans."
- Goal 3, Objective 3.1: "Perform landscape level assessment of recreation opportunities in decision making."
- Goal 8, Objective 8.1: "Continue to use the CCMSP, MSWC, NRC, SWC, and Ecoregion Teams and partners to advise in RD planning, policy development, and issue resolution."

Grand Mere State Park is a 1,127-acre State-owned property on Lake Michigan, located in Berrien County. The Phase I General Management Plan (GMP) process for Grand Mere State Park was made possible, in part, by funding provided by the Michigan Coastal Management Program. The Department of Natural Resources and Environment (DNRE) Recreation Division (RD) oversaw the planning process. The endeavor represents a new planning philosophy of the RD. "Management Planning," a comprehensive, resource-based process, is the RD's adaptation of National Park Service planning methodology. During Phase 1, the GMP focuses on the four principles of the RD Mission Statement: to acquire, preserve and protect; (1) natural resources, (2) cultural resources, (3) provide public recreation, and (4) provide educational opportunities. The process includes a thorough inventory of Grand Mere's natural and historic/cultural resources, recreational opportunities and educational and interpretation opportunities.

With this base of knowledge and input of the Planning Team (made up of DNRE Department staff, government officials, stakeholders and the public), the Core Values for Grand Mere were developed. Grand Mere was determined to be significant for the following reasons:

1. The park has existed for 40 years and continues to grow. The area was identified as a Critical Dune Area by the State of Michigan under the Sand Dunes Protection Act of 1978.

2. The park contains magnificent high-relief dunes formed approximately 12,000 years ago and are a natural phenomenon found few other places in the world.

3. The lakes and wetlands provide the full range of natural communities, from open water aquatic to closed forest terrestrial communities.

4. The site contains a unique ecological area documenting the evolution of aquatic to terrestrial communities.

5. The park's remote natural atmosphere is perfect for nature study, due to the unique flora and fauna.

6. From the 1890's to 1912, South Lake contained cranberry bogs from which berries were harvested and sent to Midwestern cities.

7. The wetlands and lakes are significant waterfowl and songbird migration stopovers.

8. A hemlock swamp lies south of the lakes, representing hemlock-white pine-Northern hardwood forest that provides a unique habitat.

9. The Sand Mine Restoration Plan for the adjacent parcel, which will become part of Grand Mere, is a model for effective and significant restoration efforts in the Great Lakes dunes.

10. Grand Mere State Park is a relatively undeveloped area that provides unique recreational opportunities.

11. Grand Mere State Park provides unique hunting opportunities for waterfowl in southwest Michigan.

12. The inland lakes offer an opportunity to educate and entertain young anglers.

Considering the identity and significance of Grand Mere State Park, the Planning Team, with stakeholder and public input, established appropriate Management Zones and their extent of influence on the property. From a palette of nine standard zones, three were applied to Grand Mere State Park. The Management Zone map and a thorough review of each Management Zone are found in Section 3 of this Plan. A condensed review of the Management Zones is as follows:

- <u>Primitive Zone</u> comprises 1,028 acres (91%) and reflects a desired condition that emphasizes the natural resources. Most of Grand Mere State Park is a designated National Natural Landmark. A dedicated State Natural Area is proposed to better regulate uses and development within the park. A Primitive Zone would be managed to only allow dispersed and low frequency use for low impact recreational purposes.

- <u>Natural Resource Recreation Zone</u> comprises 99 acres (9%) and permits active recreation with moderate to high density of use conducted in a natural setting. The Natural Resource Recreation (NRR) Zone comprises a small amount of

Grand Mere State Park. The designation was applied to improve trails to for a variety of users and to allow for other uses compatible in this zone, such as rustic camping.

- Scenic Zone (overlay) comprises 51 acres (5%) and recognizes that there are aesthetic qualities to be preserved and protected in the Park. While there are many, those identified during the planning process, and noted on the management zone plan, are along Lake Michigan and at two high points of the dunes.

1.0 Plan Process Overview

A General Management Plan (GMP) guides the management of resources, visitor use, and general development at Grand Mere State Park over a 20-year horizon. The GMP provides the foundation for protecting park resources while providing for meaningful visitor experiences. The long-range vision and management objectives for the Park are derived from applicable legal directives, the purpose of the park, and the park's significant resources.

The GMP process for Grand Mere State Park was made possible, in part, by funding provided by the Michigan Coastal Management Program, Department of Natural Resources and Environment, and the National Oceanic and Atmospheric Administration U.S. Department of Commerce. The Department of Natural Resources and Environment Recreation Division (RD) oversaw the process and development of the Plan for the Park. A major component of the planning process was to ensure that extensive input was sought from DNRE professionals, community groups, stakeholders and the general public throughout the development of the plan.

GMPs develop as a result of a series of planning steps. Each step builds upon the previous, and action decisions focus on (1) the mission of the Recreation Division (RD), and (2) the specific Purpose and Significance of the park. There are four phases of planning, implemented in the following order:

- **Phase 1.** General Management Plan (GMP) that presents long-range (20-year) goals.
- **Phase 2.** Long-range Action Plan that identifies long range (10-year) goals to attain the GMP (requires review of Phase 1)
- **Phase 3.** Five-Year Action Plan, which outlines specific actions to implement (requires review of Phase 1 and Phase 2)
- **Phase 4**. Annual Action Plan and Progress Report to answer what will be done this year, and what progress was made on last year's plan.

This Plan represents **Phase I**. In this phase of planning, a 20-year vision for the park is defined, and critical questions are answered, such as: What will be the condition of flora and fauna? How will we address historic and cultural resources? What recreational opportunities could be provided? What education and interpretation efforts will meet the visitor? What will guide the manager's operational decisions? What will be the visitor's overall experience?

Phase I determines management zones, and describes a variety of activities that may be appropriate within that zone. Phase I does not determine specific uses. Identifying specific uses within each management zone is a function of Phase 2. Management Plans do not guarantee future RD funding to achieve them. RD will seek internal funding, alternative funding sources, partnerships and other potential mechanisms for implementing the desired future conditions defined in this plan.

The tool used by this plan is the designation of "Management zones." Management zones define specific characteristics of the land, addressing management for:

- Natural features
- Historic/cultural features
- Education/interpretation
- Recreational opportunities

These four elements represent the primary goals of the RD Mission Statement, and provide guidance for both planning and management decisions. Appendix A presents a detailed account of each of these elements. In addition, management zones prescribe values for:

- Visitor experience
- Management Focus
- Development

Within the parameters of this guidance, "Purpose" and "Significance" statements are developed for the park that establish its unique identity and focus. No two parks are the same and emphasis is directed at ensuring that the differences found from park to park are acknowledged, highlighted and celebrated.

1.1 Planning Objectives

The objective of this General Management Plan was to bring together RD Department staff, stakeholders, and the public who use the park into a planning process that will define and clarify the unique "Purpose" and "Significance" of Grand Mere State Park. Collectively, those attributes will be reinforced in the planning and management decisions that impact the park through the implementation of the Management Zone Plan. Future action plans, whether focused on a development proposal, a resource improvement initiative, an interpretive program, or day-to-day management of the park will be guided by this General Management Plan.

Extensive input was sought throughout the planning process. The Planning Team met several times to review and comment on the plan elements (see Section 1.2). In addition, the DNRE hosted a stakeholder workshop and two public participation workshops. Both the stakeholder and public participation workshops involved solicited written and verbal comments. The draft plan was available for review on a website and

the public was invited to email, call or mail questions or comments concerning this initiative. The results of the public participation program are provided in Attachment B.

1.2 Planning Team

Accomplishment of our planning objectives was and is dependent upon the valuable input provided by all members of the "Planning Team". The names of listed below are those who were critical participants in this planning process. Agendas, meeting minutes and attendance at Planning Team meetings is provided in Appendix C.

Name	**Representing**
❑ Mike Terrell	RD - Unit Manager (Warren Dunes, Warren Woods & Grand Mere)
❑ Andrew Montgomery	RD - Unit Supervisor (Warren Dunes, Warren Woods & Grand Mere)
❑ Kurt Maxwell	RD – Supervisor 2 (Saugatuck Dunes)
❑ Joyce Rhodes	RD – Unit Supervisor (Holland)
❑ Sherri Owsiak	RD – Supervisor 2 (Holland)
❑ Rollie Johnson	RD – Plainwell District Supervisor
❑ Paul Curtis	RD - Park Management Plan Administrator
❑ Paul Yauk	RD - Lands Manager
❑ Ray Fahlsing	RD – Stewardship Unit Manager
❑ Joe Strach	RD – Plainwell/Rose Lake District(s) Planner
❑ Jeff Johnson	RD – Student Intern (Management Planning)
❑ Carol Skillings	RD – Grants Coordinator
❑ Kim Dufresne	FMD – Forest Fire Supervisor
❑ Steve Cross	FMD – Forest Fire
❑ Tom Hoane	FMD – Minerals
❑ David Price	FMD - Planning
❑ David Vansumeren	LED – Plainwell District Lieutenant
❑ Brian Gunderman	FD – Biologist
❑ Kregg Smith	FD – Biologist
❑ Steve Chadwick	WLD – Acting Unit Supervisor
❑ Mark MacKay	WLD – Planner
❑ John Lerg	WLD – Karner Blue Butterfly Habitat Conservation Plan Coord.
❑ Janet Canode	OMET – Education and Outreach
❑ Rob Corbett	OLAF – Lands

DNRE – Coastal Zone Management Program

❑ Lynda Krupansky	CZM – Coastal Management Program

Planning Consultants

❑ David C. Birchler	Birchler Arroyo Associates, Inc.
❑ Jill Bahm	Birchler Arroyo Associates, Inc.

1.3 Management Plan Planning Process

Long-range planning for Grand Mere State Park includes a master plan for Grand Mere State Park, approved in 1986 that cited “sand dune preservation” as the primary management objective for the park.

The parcel south of Grand Mere State Park was intensely used for sand mining for many years. In 2000, as mining activities came to a close and the mining company prepared to turn the property over to the State, a Sand Mine Restoration Plan for Grand Mere State Park was prepared. This restoration plan, which has become a model for the sand mining industry, outlines management activities that will restore a diverse ecosystem at the former sand mine that replicates the surrounding natural ecosystem within Grand Mere State Park.

By 2003, TechniSand completed all mining by this date, as specified in a court agreement. All reclamation of the site by TechniSand was completed, meeting DNRE standards, in 2005. The State Park Stewardship Program (SPSP) continues restoration and management of the site indefinitely (with cooperation and volunteer assistance from TechniSand).

In 2007, Recreation Division of the received a federal grant from the Coastal Zone Management Program of the DNRE for the purpose of developing individual long-range Management Plans for Grand Mere State Park, Warren Dunes State Park, Holland State Park and Saugatuck Dunes State Park. Without the CZM grant, insufficient resources in staff or funding would have precluded these planning efforts.

2.0 Core Values

2.1 Mission Statements

Guidance for the General Management Plan stems from the Mission Statements of the Department and its Recreation Division, and the Purpose and Significance Statements that have evolved through the planning process. The core values found in these statements must be reflected in this long-range General Management Plan for Grand Mere State Park, and subsequently reflected in any shorter range action plans:

> **DNRE Mission Statement**
> The Department of Natural Resources and Environment is committed to the conservation, protection, management, accessible use and enjoyment of the State's environment, natural resources, and related economic interests for current and future generations.
>
> **RD Mission Statement**
> The Recreation Division's Mission is to acquire, protect, and preserve the natural and cultural features of Michigan's unique resources, and to provide access to land and water based public recreation and educational opportunities.

The core values derived from these statements are that RD will acquire, preserve and protect; (1) natural resources, (2) cultural resources, (3) provide public recreation, and (4) provide educational opportunities.

2.2 Park Purpose

Statements of purpose for Grand Mere State Park are based on park legislation, legislative history, special designations and DNRE policies. These statements reaffirm the reasons for which Grand Mere was identified as part of the State Park system. The purposes of Grand Mere are:

1. An additional adjacent 40-acre tract, a former sand mine reclaimed with significant restoration efforts, will be deeded to the State within the year.

2. To preserve and protect the park's unique natural resources for current and future generations.

3. To provide educational and interpretive opportunities for the public that reflect the mission of the DNRE and the unique qualities of Grand Mere State Park.

4. To provide opportunities for recreational uses and experiences that are unique to Grand Mere and compatible with the park's resource(s) base.

2.3 Park Significance

Park significance statements capture the essence of its importance to carry out the core values of our RD Mission. They recognize the natural and cultural heritage values of the park and the recreational and educational opportunities afforded. These statements describe the distinctiveness of Grand Mere State Park. Understanding these distinctions helps managers make decisions that preserve those special resources and values necessary to accomplish the park's purposes. Grand Mere is significant because of many factors, including but not limited to those stated below.

1. A 1,200-acre tract, most of which is now Grand Mere State Park, was designated a National Natural Landmark in April 1968. The park was created as a 393-acre parcel in 1973. Approximately 500 acres were added in 1986. The area was identified as a Critical Dune Area by the State of Michigan under the Sand Dunes Protection Act of 1978.

2. The high-relief dunes in Grand Mere were formed approximately 12,000 years ago during the recession of glacial lakes. Located between Lake Michigan and several inland lakes and unique wetlands, the park presents an array of natural features that are, together, quite unique.

3. The lakes and wetlands provide a unique ecological area that encompasses the full range of natural communities, from open water aquatic to closed forest terrestrial communities. The park contains a rare example of a wet mesic lakeplain prairie.

4. The site contains four low areas created during the evolution of postglacial ancestors of Lake Michigan, providing a unique ecological area documenting the evolution of aquatic to terrestrial communities.

5. The park's remote natural atmosphere is perfect for nature study. Notable plant and tree species include black oak, red oak, hemlock and white pine, wafer Ash and starflower. Within the inland lakes area, the fragrant water lily, yellow water lily, pickerel weed and various pond weeds can be found. South Lake contains wild rice, pitcher plant and humped bladderwort. The park also features a high-quality dry mesic southern forest.

6. From the 1890's to 1912, South Lake contained cranberry bogs from which berries were harvested and sent to Midwestern cities.

7. The wetlands and lakes are significant waterfowl and songbird migrating areas The park lies within a migration flyway where birds including hawks, common loons, cormorants, warblers, herons and songbirds are seen.

8. A hemlock swamp lies south of the lakes, representing hemlock-white pine-Northern hardwood forest type that extends south just into Berrien County. Because of the very dense canopy of hemlock, the conditions in that swamp are moist and cool, providing habitat for starflowers (Trientalis borealis), bunchberry (Cornus canadensis), goldthread (Coptis trifolia), purple avens (Geum rivale), and twinflower (Linnaea borealis). The park contains a disjunct northern forest community.

9. The 40-acre sand mine parcel adjacent to the southern park boundary was mined off and on between 1965 and 2003. Restoration efforts have been ongoing since mining ceased. The Sand Mine Restoration Plan for the parcel calls for replanting with a variety of natural vegetation that replicates the natural ecosystem found within Grand Mere State Park. The sand mining industry, the Department of Natural Resources and Environment and the community will be able to use this plan as a model for effective and significant restoration efforts in other disturbed Great Lakes dune areas.

10. Grand Mere State Park is a relatively undeveloped area. Its natural setting provides unique recreational opportunities. It features 4.5 miles of hiking trails, including approximately .25-mile of paved trail. Lake Michigan access is provided within the park, which contains one mile of shoreline.

11. Grand Mere State Park provides unique and important hunting opportunities for waterfowl in southwest Michigan.

12. North & Middle Lakes support populations of bluegill, pumpkinseed, yellow perch, black crappie, largemouth bass and northern pike. These lakes offer an opportunity to educate and entertain young anglers.

2.4 Legal Mandates

For all park General Management Plans, legal mandates are identified and serve to further guide the development of the General Management Plan and subsequent Action Plans. For our planning purposes, the term "Legal Mandates" refers to not only state law, but also the administrative tools of "Policy" and "Directive" of the Natural Resource Commission, the Department, and Recreation Division. Specific to Grand Mere, the following legal mandates have been identified.

1. PA 451 of 1994, Part 741 – State Park System – Natural Resource and Environmental Protection Act. This act is the re-codification of law that

established the Michigan State Park System and defined the powers and duties of same. Notable in this law is Section 324.74102 which identifies the duties of the department and reinforces those core values cited above. This section reads:

(A) "The legislature finds:

(i) Michigan State Parks preserve and protect Michigan's significant natural and historic resources.

(ii) Michigan State Parks are appropriate and uniquely suited to provide opportunities to learn about protection and management of Michigan's natural resources.

(iii) Michigan State Parks are an important component of Michigan's tourism industry and vital to local economies.

(B) 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 need to protect and manage those resources."

2. Restrictions of Land Purchase Funding Sources. Funds used to purchase recreation land can come with stipulations as to how the land can or cannot be used. The following are descriptions of the impacts of known funding sources.

- Michigan Land & Trust Fund (MLTF): Seventeen parcels totaling 558.68 acres were funded by the sale of oil, gas, and mineral leases on certain State land. Two additional parcels were purchased with MLTF totaling 16.89 acres and granted driveway easements. These are to be used for park purposes. The State Constitution was amended in 1984 to provide for a "Michigan Natural Resources Trust Fund" which was implemented in 1985. Most rentals, royalties, and other revenues derived from mineral, coal, oil, and gas interests on State-owned land are credited to the fund. Public Act 451 of 1994 redirected a portion ($10 million per year) of these revenues previously committed to this fund, to the Michigan State Parks Endowment Fund. Appropriations are used to fund grants to local units of government as well as State agencies to acquire or develop outdoor public recreation facilities.

- Michigan Natural Resources Trust Fund (MNRTF): Four parcels totaling 16.80 acres came from money spent annually to purchase land for resource protection, public outdoor recreation and to develop outdoor recreational facilities across the state. The trust fund was established in 1976 to provide a source of funding for public acquisition of lands for resource protection and public outdoor recreation. Funding is derived from royalties on the sale and lease of state-owned mineral rights. It is utilized for general program purposes.

- θ Special Legislation: Five parcels totaling 382.87 acres were acquired by this fund. Roughly one-third of the total park acreage has been acquired with this source. It is utilized for general program purposes

- θ Gift – One parcel of the park were acquired by gift from the Federal Government totaling 0.86 acres. These properties were provided to the state as a donation from private individuals or entities. They are used for general program purposes unless a specific deed restriction would otherwise dictate.

- θ Other: Seven parcels totaling 16.94 acres have been acquired without documentation in the Land Ownership Tracking System (LOTS).

- θ Recreation Bond Fund – One parcel was purchased with this fund, totaling 10.29 acres. These parcels were Water Access Sites acquired under Old Recreation Bond Fund. Act 257, PA 1968.

3. Public Act 451 of 1994, Part 303 – Natural Resource and Environmental Protection Act – Wetlands Protection. Wetlands are under the jurisdiction of the Natural Resources and Environmental Protection Act. Section 324.30305 prescribes activities not requiring a permit under the Act and uses allowed without a permit. This section reads:
   (A) Activities that require a permit under part 325 or part 301 or a discharge that is authorized by a discharge permit under section 3112 or 3113 do not require a permit under this part.
   (B) The following uses are allowed in a wetland without a permit subject to other laws of this state and the owner's regulation:
      (1) Fishing, trapping, or hunting.
      (2) Swimming or boating.
      (3) Hiking.
      (4) Grazing of animals.
      (5) Farming, horticulture, silviculture, lumbering, and ranching activities, including plowing, irrigation, irrigation ditching, seeding, cultivating, minor drainage, harvesting for the production of food, fiber, and forest products, or upland soil and water conservation practices. Wetland altered under this subdivision shall not be used for a purpose other than a purpose described in this subsection without a permit from the department.
      (6) Maintenance or operation of serviceable structures in existence on October 1, 1980 or constructed pursuant to this part or former 1979 PA 203.
      (7) Construction or maintenance of farm or stock ponds.
      (8) Maintenance, operation, or improvement which includes straightening, widening, or deepening of the following which is necessary for the production or harvesting of agricultural products:
         (a) An existing private agricultural drain.
         (b) That portion of a drain legally established pursuant to the drain code of 1956, 1956 PA 40, MCL 280.1 to 280.630, which has

been constructed or improved for drainage purposes.

(c) A drain constructed pursuant to other provisions of this part or former 1979 PA 203.

(9) Construction or maintenance of farm roads, forest roads, or temporary roads for moving mining or forestry equipment, if the roads are constructed and maintained in a manner to assure that any adverse effect on the wetland will be otherwise minimized.

(10) Drainage necessary for the production and harvesting of agricultural products if the wetland is owned by a person who is engaged in commercial farming and the land is to be used for the production and harvesting of agricultural products. Except as otherwise provided in this part, wetland improved under this subdivision after October 1, 1980 shall not be used for nonfarming purposes without a permit from the department. This subdivision does not apply to a wetland that is contiguous to a lake or stream, or to a tributary of a lake or stream, or to a wetland that the department has determined by clear and convincing evidence to be a wetland that is necessary to be preserved for the public interest, in which case a permit is required.

(11) Maintenance or improvement of public streets, highways, or roads, within the right-of-way and in such a manner as to assure that any adverse effect on the wetland will be otherwise minimized. Maintenance or improvement does not include adding extra lanes, increasing the right-of-way, or deviating from the existing location of the street, highway, or road.

(12) Maintenance, repair, or operation of gas or oil pipelines and construction of gas or oil pipelines having a diameter of 6 inches or less, if the pipelines are constructed, maintained, or repaired in a manner to assure that any adverse effect on the wetland will be otherwise minimized.

(13) Maintenance, repair, or operation of electric transmission and distribution power lines and construction of distribution power lines, if the distribution power lines are constructed, maintained, or repaired in a manner to assure that any adverse effect on the wetland will be otherwise minimized.

(14) Operation or maintenance, including reconstruction of recently damaged parts, of serviceable dikes and levees in existence on October 1, 1980 or constructed pursuant to this part or former 1979 PA 203.

(15) Construction of iron and copper mining tailings basins and water storage areas.

(16) Until 3 years after the effective date of the amendatory act that added this subdivision, removal of vegetation as authorized under section 32516.

(C) An activity in a wetland that was effectively drained for farming before October 1, 1980 and that on and after October 1, 1980 has continued to be effectively drained as part of an ongoing farming operation is not subject to regulation under this part.

(D) A wetland that is incidentally created as a result of 1 or more of the following activities is not subject to regulation under this part:
   (1) Excavation for mineral or sand mining, if the area was not a wetland before excavation. This exemption does not include a wetland on or adjacent to a water body of 1 acre or more in size.
   (2) Construction and operation of a water treatment pond or lagoon in compliance with the requirements of state or federal water pollution control regulations.
   (3) A diked area associated with a landfill if the landfill complies with the terms of the landfill construction permit and if the diked area was not a wetland before diking.

4. Public Act 451 of 1994, Natural Resource and Environmental Protection Act Part 323, Shorelands Protection and Management, The key state statute providing consumer protection from the natural hazards of coastal erosion and flooding as well as environmental protection of the State of Michigan's fragile coastal areas.

5. Public Act 451 of 1994, Natural Resources and Environmental Protection Act (Excerpt) – 324.41901. Regulation and prohibitions in certain areas; powers of department; area closures; hearings, investigations, studies, and statement of facts; regulations. This part of PA 451 establishes the powers of the Department to establish safety zones for hunting. In accordance with the Administrative Rules established by Wildlife Division for hunting safety, a 450 foot "Safety zone" is established around all occupied dwellings (which includes campgrounds). Under the State Land Rules, the Department also has the authority to expand the application of this 450 foot "Safety zone" to encompass "Day-Use Areas" such as beaches, picnic areas, boat launches, and parking areas, should the need arise. This is determined on a case-by-case basis.

6. Public Act 451 of 1994, Natural Resource and Environmental Protection Act (Excerpt) – 324.76102. Aboriginal records and antiquities; right to explore, survey, excavate, and regulate reserved to state; possessory right or title to abandoned property. Sec. 76102 (1) The state reserves to itself the exclusive right and privilege, except as provided in this part, of exploring, surveying, excavating, and regulating through its authorized officers, agents, and employees, all aboriginal records and other antiquities, including mounds, earthworks, forts, burial and village sites, mines or other relics, and abandoned property of historical or recreational value found upon or within any of the lands owned by or under the control of the state. (2) The state reserves to itself a possessory right or title superior to that of a finder to abandoned property of historical or recreational value found on the state owned bottomlands of the Great Lakes. This property shall belong to this state with administration and protection jointly vested in the department and the department of history, arts, and libraries.

7. Public Act 451 of 1994, Natural Resources and Environmental Protection Act Part 353 – Sand Dunes Protection and Management. Regulations to protect the critical dune areas of this state, allowing local units of government to exercise the primary role in protecting and managing critical dune areas in accordance with this part. The benefits derived from alteration, industrial, residential, commercial, agricultural, silvicultural, and the recreational use of critical dune areas shall occur only when the protection of the environment and the ecology of the critical dune areas for the benefit of the present and future generations is assured.

8. Prohibited Uses – From MCL 324.504 Order 5.1. A person shall not do any of the following in any state park or recreation area:
   (A) Possess or use fireworks in a manner prohibited by section 243a of Act No. 328 of the Public Acts of 1931, being § 750.243a of the Michigan Compiled Laws.
   (B) Without first obtaining proper written permission, peddle or systematically solicit business of any nature; distribute handbills or other advertising matter; post signs on any lands, waters, structures or property; or use any portion of a state park or recreation area for commercial operations.
   (C) From R299.922, Unlawful Acts, (v) To ride or lead a horse, pack animal, or other riding animal, or any animal-driven vehicle on any area except on roads that are open to the use of motor vehicles, trails, bridle-paths and campgrounds designated for such use by the department and on state forest lands not posted closed to such use or entry.

2.5 Other Designations

National Natural Landmark Status- Defined by the National Parks Service. This designation results from a cooperative agreement between the NPS and public/private landowners. A NNL is a national significant natural area that has been designated by the Secretary of the Interior. To be nationally significant, a site must be one of the best examples of a type of biotic community or geologic feature in its physiographic province. The goal of the program is to recognize and encourage the protection of sites containing the best examples of geological and ecological components of the nation's landscape.

2.6 Land Acquisition

Imbedded in its mission statement and core values is the acquiring of land with unique resources, or natural, historic, and cultural features. Land is to be acquired for the direct purposes of preserving and protecting natural and historical / cultural features and providing public recreation and educational opportunities.

3.0 Management Zone Plan

With guidance of the Planning Team and input from our stakeholders and the public, the park's "Purpose and Significance" statements were formulated. This established an identity for Grand Mere State Park as a place to be valued for its unique ecological features, Lake Michigan shoreline, recreational trails, and opportunity for natural resources education.

The Management Zone Plan, Figure 1, was developed in keeping with the park's unique Identity. Similar to the Purpose and Significance statements, the Management Zone Plan was also drafted with Planning Team, stakeholder and public support. The Management Zone Plan seeks to preserve and protect the resources, while creating low-intensity recreational uses, and educational and interpretation opportunities. To achieve this, the 1,127-acre Park was divided into the following zones:

This is Phase I of the General Management Plan for Grand Mere State Park. Phase I determines management zones for the park land. Management zones describe a variety of activities that **may be** appropriate within that zone. Identifying specific activities that **will occur** is a function of Phase 2 general management planning, and not a component of this phase.

- Primitive Zone comprises 1,029 acres (91%) and reflects a desired condition that emphasizes the natural resources. Land is managed to only allow dispersed and low frequency use for low impact recreational purposes. Attaining and maintaining a high quality natural resource condition dictates the extent to which recreational improvements or uses are allowed

- Scenic Zone (overlay) comprises 51 acres (5%) and recognizes that there are aesthetic qualities to be preserved and protected in the park. The lakeshore at Grand Mere is prized for its unique views.

- Natural Resource Recreation Zone comprises 99 acres (9%) and permits active recreation with moderate to high density of use conducted in a natural setting. There is still an emphasis on resource quality over recreation, but higher levels of uses are allowed

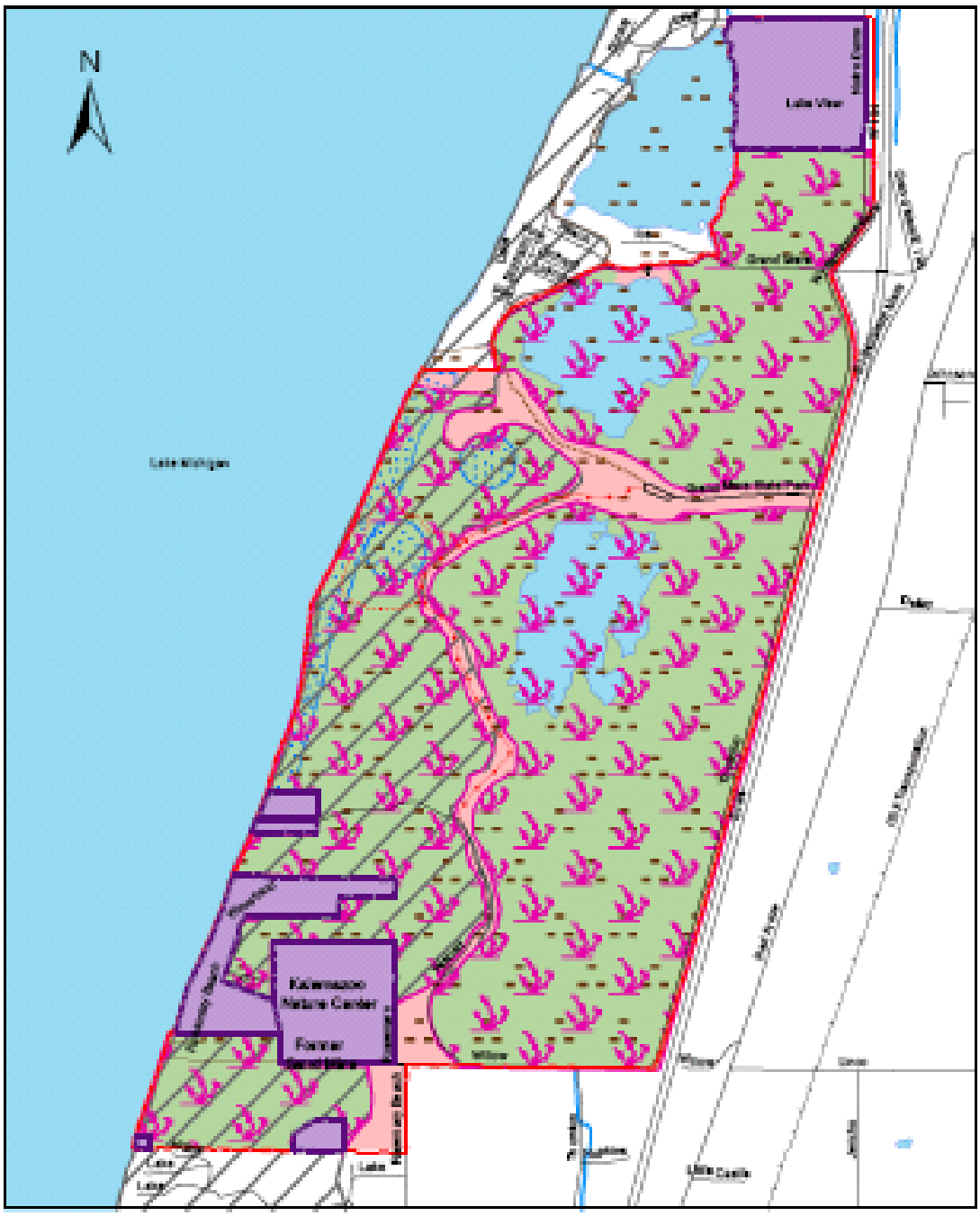
- Proposed Future Expansion: The Planning Team recommends acquisition of those properties within the 2004 NRC Boundary as shown on the map.

Other Plan Features and Recommendations

Natural Area Designation: A majority of the park is proposed to be designated as a Natural Area as defined in State Law 351 of Act 454 (1994). Mechanized vehicles for any other use than management are prohibited and no easements or rights-of-way are permitted. Grand Mere State Park is found to meet the following required characteristics:

- The park has retained or reestablished its natural character, or has unusual flora and fauna or biotic, geologic, scenic or other similar features of educational or scientific value
- Features have been identified and verified through research and study by qualified observers

Grand Mere State Park Management Zones


N
Lake Michigan
Lake View
Grand Beach
Grand Mere State Park
Kalamazoo Nature Center
Farmer Special Place
Lake
Willow
Dune Park
Old Chicago Road
Dune Park
Willow Creek
Lake
Lake
Lake

3.1 Primitive Zone

The majority of the land comprising Grand Mere State Park is designated Primitive Zone (91%). About 1/3 of the park contains regulated Critical Dune Areas and there is additional significant acreage of open water and regulated wetlands. Almost the entire park is a designated National Natural Landmark. Only foot traffic would be allowed in this zone to ensure that the natural features are not damaged or compromised by recreation.

A. Natural Resources. This zone will reflect natural processes, with vegetative management only allowed to restore and maintain natural ecological structure and processes (such as removing of invasive species), to address hazard trees, and to manage pests and disease. Land would be managed to preserve and protect the wetlands, open water aquatic and closed forest terrestrial communities, and wet mesic lakeplain prairie. Preserving this land is important because:

- The high-relief dunes in Grand Mere are a unique natural phenomenon not found anywhere else in the world.
- The diversity of natural communities supports a great diversity of flora and fauna.
- The four low areas within the park demonstrate the evolution of aquatic to terrestrial communities, perhaps among the very last sites on all the Great Lakes.

The management zone plan promotes the on-going maintenance and enhancement of these natural resources to ensure their success in the long-term. Native species and natural processes would take precedence over visitor accommodation.

B. Historic / Cultural Resources. Resources in this zone would be preserved, removed or allowed to waste away.

C. Recreational Opportunities. With the focus of this zone being preservation, protection and enhancement of the natural communities present within the zone, recreational opportunities are limited to low-intensity uses. Any uses must be dispersed, low intensity, off-trail or trail, self-reliant, outdoor activities. Activities that could occur in this zone are hiking, back-packing, primitive camping, cross-country skiing, nature observation. Opportunities for hunting, trapping and fishing are key to the significance of this park.

D. Education Opportunities. The ecological significance of the resources in the park presents a tremendous educational opportunity. Information can be relayed through the use of kiosks at trailheads and interpretive signage along trails and other appropriate locations.

Grand Mere State Park Primitive Zones
N
Critical Dune Area
Proposed Future Acquisition
Dedicated NRC Boundary
National Natural Landmark
PRD_Zone
Primitive Zone
0
0.25
0.5
1
Miles
Sources: MDNR, Michigan Geographic Data Library

E. Visitor Experience. Visitor experience would reflect a high degree of natural feel: a significant sense of solitude, and a lack of man-made improvements. There would be low interaction with others. Phase II of the planning process will consider how to minimize user conflicts such as noise and safety between hunters and other visitors.

F. Management Focus. Management would focus on maintaining the low-impact character of the zone, with emphasis on natural resource quality. Routine maintenance would be provided. Care would be taken to eliminate any detrimental impacts such as erosion, sedimentation or incursion of invasive species. Other management strategies would be based on recommendations in a future Stewardship Plan, including designation under the Natural Areas Act.

G. Development. The focus is to maintain as little evidence of human activity as possible. Only trail improvements, which can include boardwalks and/or overlooks, and resource restoration measures will occur.

3.2 Natural Resource Recreation Zone

Approximately 9% of Grand Mere State Park is Natural Resource Recreation (NRR). This zone encompasses the existing entry drive and hiking trails. The corridor, an old road bed, was designated NRR to allow for improved barrier-free access within the park.

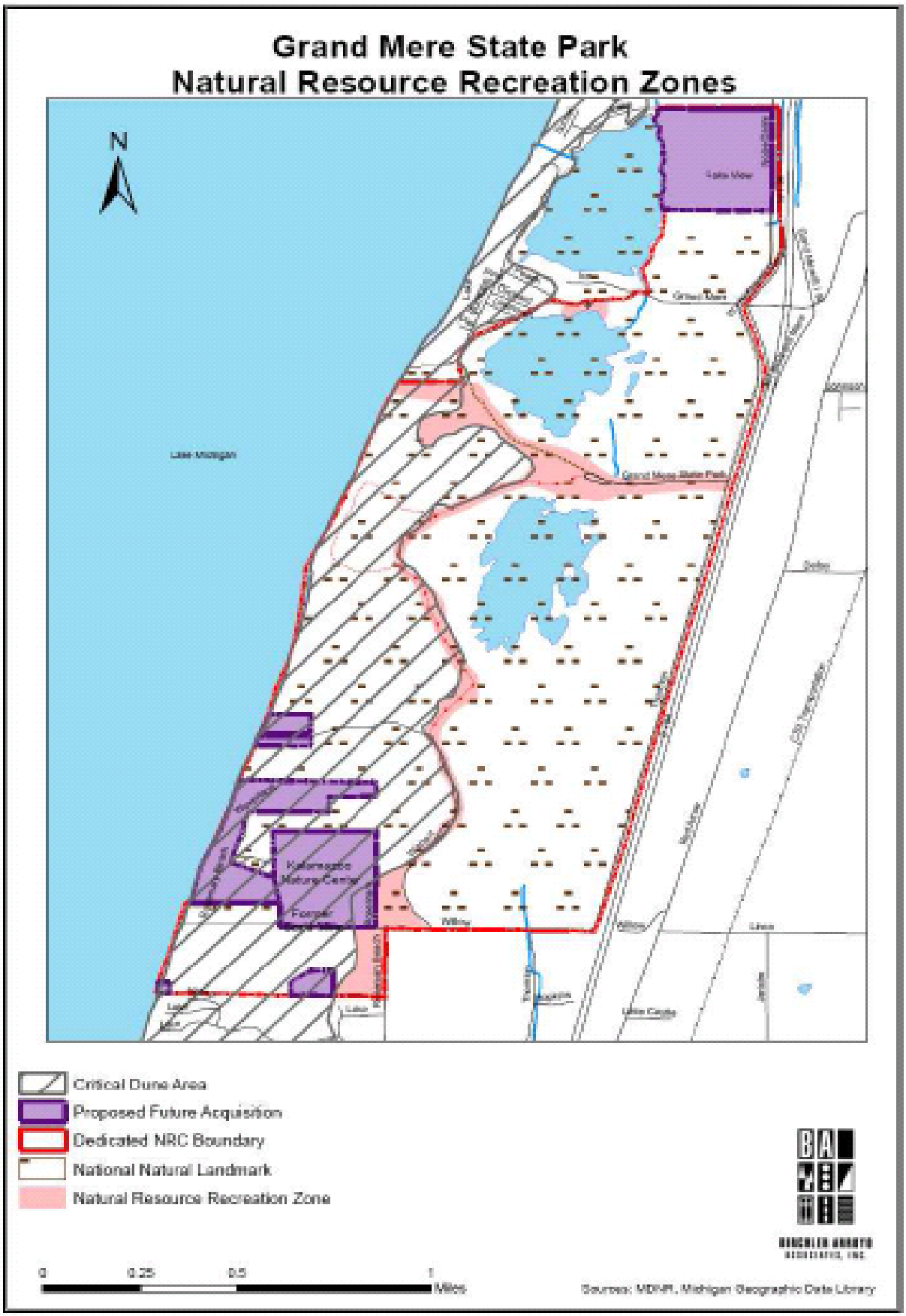
A. Natural Resources. This zone will reflect natural processes, with vegetative management only allowed to restore and maintain natural ecological structure and processes (such as removing of invasive species), to address hazard trees, and to manage pests and disease. Vegetation may also be managed to facilitate recreational use and maintaining an aesthetically appealing landscape.

B. Historic / Cultural Resources. Resources in this zone could be preserved, rehabilitated, removed or allowed to waste away. Historic structures could be adaptively used for operational uses or educational purposes.

C. Recreational Opportunities. Moderate to high levels of recreation will be permitted in this zone only. This will accommodate visitors engaged in diverse land and water activities and will allow rustic camping and hunting/trapping/fishing in designated areas. Only non-motorized uses will be permitted on trails.

D. Education Opportunities. Information can be relayed through the use of kiosks or interpretive signage at trailheads, along trails or overlooks.

E. Visitor Experience. Moderate to high visitor encounters are accommodated in the Natural Resource Recreation Zone. Activities for visitors to engage in could offer a variable time commitment, challenge and adventure. Moderate noise tolerance and moderate interaction with others can be expected.


Grand Mere State Park
Natural Resource Recreation Zones
N
Lake Michigan
Critical Dune Area
Proposed Future Acquisition
Dedicated NRC Boundary
National Natural Landmark
Natural Resource Recreation Zone
0
0.25
0.5
1
Miles
Sources: MDNR, Michigan Geographic Data Library

F. Management Focus. Management focuses on maintaining the use of the zone appropriate to the RD's mission. Public safety, protection of resources, and universal access are management priorities.

G. Development. A moderate level of development of facilities for support of visitor activities is permitted in this zone. Examples of development include restrooms, concrete/asphalt/gravel walkways and parking, trails, benches, picnic tables, rustic campsites, cabins and shelters for recreation and educational opportunities. Site hardening is allowed as necessary to facilitate activities and protect natural resources

3.3 Scenic Zone

The Scenic Zone (overlay) is established for scenic viewscapes. While there are many in Grand Mere State Park, those identified during the plan process total approximately 5% and are noted on the plan within the Primitive zone, accessible by trails designated NRR (above): the park's entire Lake Michigan shoreline and two high spots within the dunes at the north end of the park.

A. Natural Resources. This zone will reflect natural processes, with vegetative management only allowed to restore and maintain natural ecological structure and processes (such as removing of invasive species), to address hazard trees, and to manage pests and disease. Vegetation may also be managed to enhance the viewscapes of the zone

B. Historic / Cultural Resources. Cultural resources would be preserved, rehabilitated or removed. Historic structures could be adaptively used for operational uses or educational purposes.

C. Recreational Opportunities. Moderate levels of recreation would be allowed, compatible with the Primitive zone. Non-motorized activity only would be allowed on the trail and observation point; motorized activity would be allowed only on designated roads.

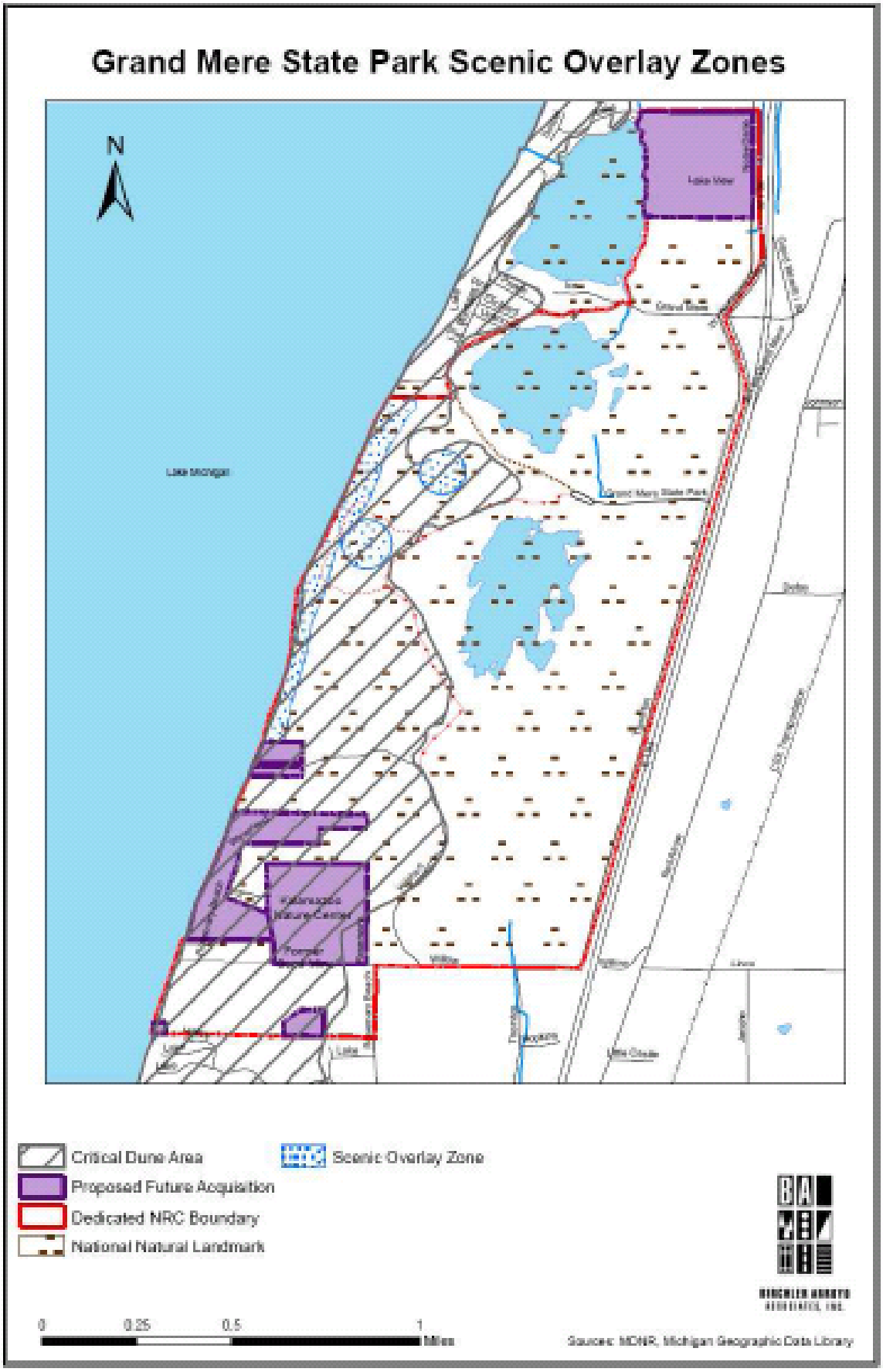
D. Education Opportunities. Interpretive signage may be used at key viewing points, trailheads, overlooks or the parking area. There may be opportunities for off-site interpretation as well.

E. Visitor Experience. High encounters can occur in Scenic Zones, where appropriate with the underlying zone. Visitors would be engaged in sightseeing activities by hiking or bicycle. A moderate time commitment, off-site interpretation and noise tolerance would be expected.

F. Management Focus. Management focuses on maintaining the quality of the viewscape. Public safety, and ensuring that other activities and/or development

within the Scenic Zone are compatible with the overriding purpose of the view quality are other management concerns.

G. Development. A moderate level of development is expected to support visitor access, interpretive activities and sightseeing, provided they are compatible with the Primitive Zone.


Grand Mere State Park Scenic Overlay Zones
N
Lake Michigan
Critical Dune Area
Scenic Overlay Zone
Proposed Future Acquisition
Dedicated NRC Boundary
National Natural Landmark
0
0.25
0.5
1
Miles
Sources: MDNR, Michigan Geographic Data Library

4.0 Future Plan Inserts

The following are items that will be added to this General Management Plan (GMP) as they are developed. The GMP serves as a guide for each subsequent plan.

10-Year Action Plan (LONG-RANGE ACTION GOALS TO ATTAIN GMP): Phase 2 of the Management Planning Process. Includes review and update of General Management Plan.

5-Year Action Plan (SPECIFIC ACTIONS TO IMPLEMENT): Phase 3 of the Management Planning Process. Includes review and update of GMP and Phase 2 Plan.

Annual Action Plan and Progress Report: Phase 4 of the Management Planning Process.

Operational/Management Resources: The following categories are established as a guide for the park manager to use to supplement this working document. Other categories can be added as needed.

- ❑ Annual Work Plan (This report ties in with Phase 4 – Annual Report of Management Planning)
- ❑ Stewardship Plan
- ❑ Staffing
- ❑ Budget
- ❑ Equipment
- ❑ Training
- ❑ Public Relations / Marketing / Outreach
- ❑ Programming (ie. special events, MCCC, volunteers, etc.)
- ❑ Public Health, Safety, and Welfare
- ❑ Water system
- ❑ Wastewater system
- ❑ Electrical system
- ❑ Law enforcement
- ❑ Emergency Access Plan
- ❑ Wildfire Management Plan
- ❑ CRS
- ❑ FOIA
- ❑ Raster Image Index
- ❑ Raster Images of historic park plans, and
- ❑ Park Infrastructure data.

APPENDIX A
Supporting Analysis

Table of Contents

A1. Location _____ A-1

A2. Demographics _____ A-3

A3. General History of the Park _____ A-5

A4. Existing Land Use, Zoning
and Future Uses _____ A-7

A5. Natural Features Assessment _____ A-11

A6. Cultural and Historic Resources _____ A-27

A7. Education and Interpretation _____ A-29

A8. Recreational Resources _____ A-30

A9. Park Use and Economic Impact _____ A-35

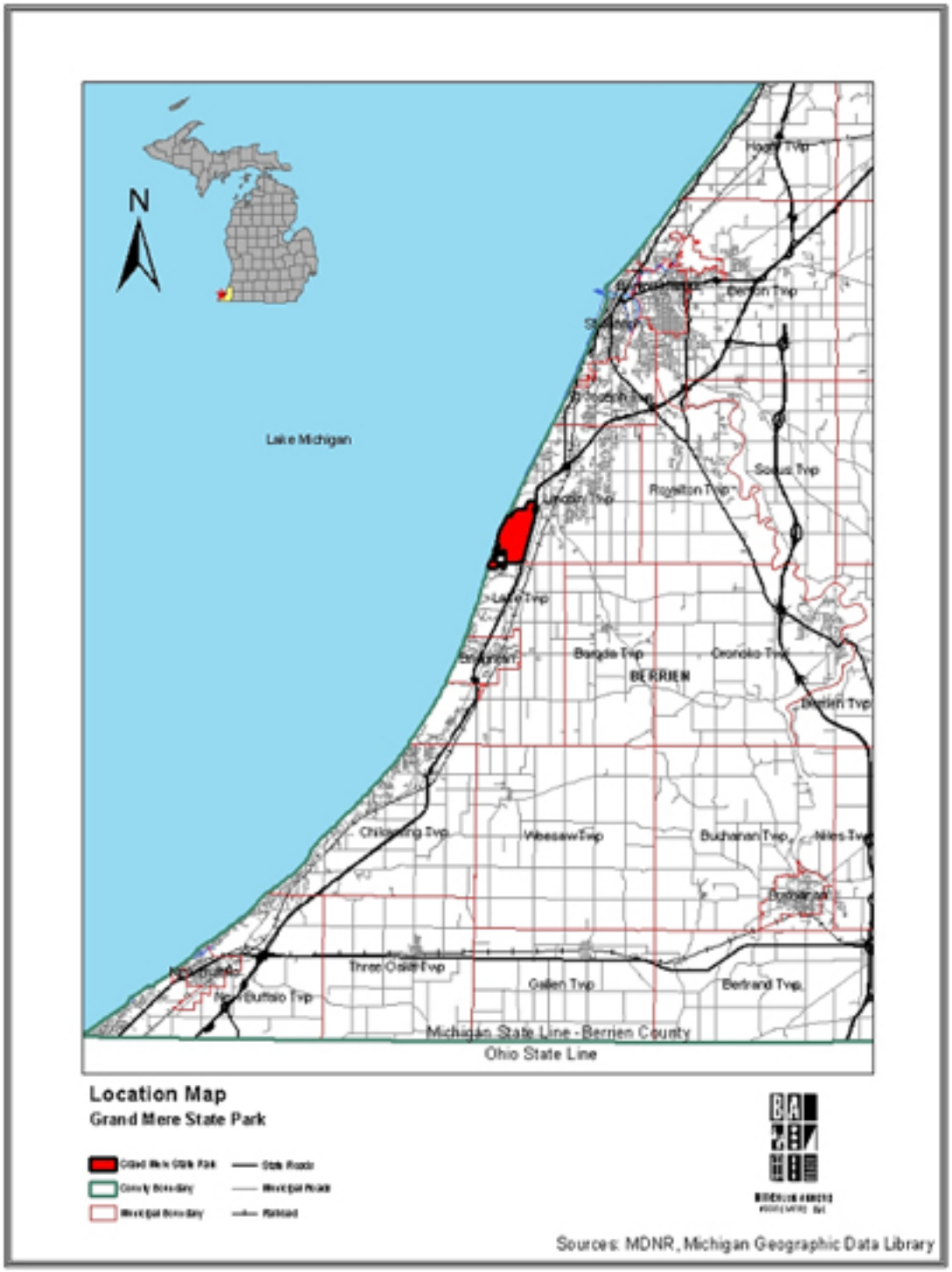
A1. Location

Location
Grand Mere State Park is located in Lincoln Township (Berrien County), eight miles southwest of the city of Benton Harbor (see Map 1). The park is 200 miles west of Detroit, 90 miles northeast of Chicago and 60 miles northeast of Gary, IN. The park covers about 985 acres and includes one mile of Lake Michigan shoreline.

Lake Michigan borders the park on the west. Residential neighborhoods, farms, and forests are located to the north and south. Interstate-94 lies east of the park.

Grand Mere State Park is characterized by magnificent sand dunes and deep blowouts. Three inland lakes lie behind the dunes in the undeveloped natural area. Grand Mere State Park is a mostly undeveloped park featuring hiking trails and a picnic shelter. A portion of the park is a designated National Natural Landmark and is often visited by naturalists and students. Its ¾ mile hiking trail from the parking area to the lakeshore is physically challenging, especially for persons with mobility limitations.

Map 1: Location

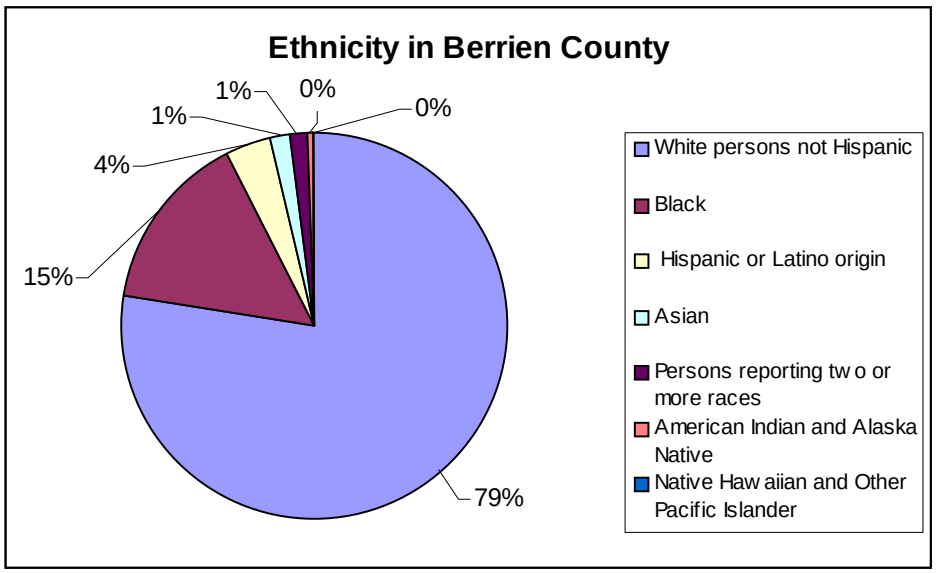


A2. Demographics

Population

The 2006 US Census population estimate for Berrien County is 161,705. In the last five years, Berrien County lost approximately 0.5% of its population, compared with a 1.6% gain in the state of Michigan's population. Projections by Berrien County suggest the county's population could grow to 167,284 by 2020, a 3.3% increase. The population is largely comprised of White, non-Hispanics (77.9%), followed by Blacks (15.1%) and those of Hispanic or Latino origin (3.9%).

Grand Mere State Park is located in Lincoln Township, which had a population of 13,952 (US Census Bureau - 2000).



Education, Income and Employment

Most people over the age of 25 living in Berrien County have graduated from high school; 19.6% have at least a Bachelors Degree. The median income per household is $38,567, lower than the US median household income of $41,994. In 2000, 9.3% of families in the area lived below the poverty level.

81,078 persons in Berrien County are in the labor force. The unemployment rate is currently 9% (Michigan Department of Labor and Economic Growth – July 2008).

Table 1: Employment by Occupation

Occupation	Percent Employed
Management, professional and related occupations	29.3%
Sales and Office	24.1%
Production, transportation and material moving occupations	21.3%
Service	15.3%

The manufacturing industry and educational, health and social services make up most of the Berrien County employment, followed by the retail trade and arts, entertainment, recreation, accommodation and food services.

Table 2: Employment by Industry

Industry	Percent Employed
Manufacturing	24.6%
Educational, health and social services	20.3%
Retail Trade	10.8%
Arts, entertainment, recreation, accommodation and food services	7.4
Transportation, Warehousing & Utilities	6.5%
Professional, scientific, management, administrative, and waste management services	6.4%

81.6% of Berrien County residents who commute to work drive alone. Others carpool (10.7%) or walk 2.9%. Very few take public transportation (0.6%). 3.3% work from home. The average commute time is 20 minutes.

A3. General History

History
The dunes at Grand Mere fall within a state-designated "Critical Dune Area." The area containing the present-day park was also designated a National Natural Landmark in 1968. The park was first created on 393 acres of land in 1973, and more than doubled in size with the acquisition of 490 additional acres in 1986. The master plan for Grand Mere State Park, approved in 1986, cited "sand dune preservation" as the primary management objective for the park.

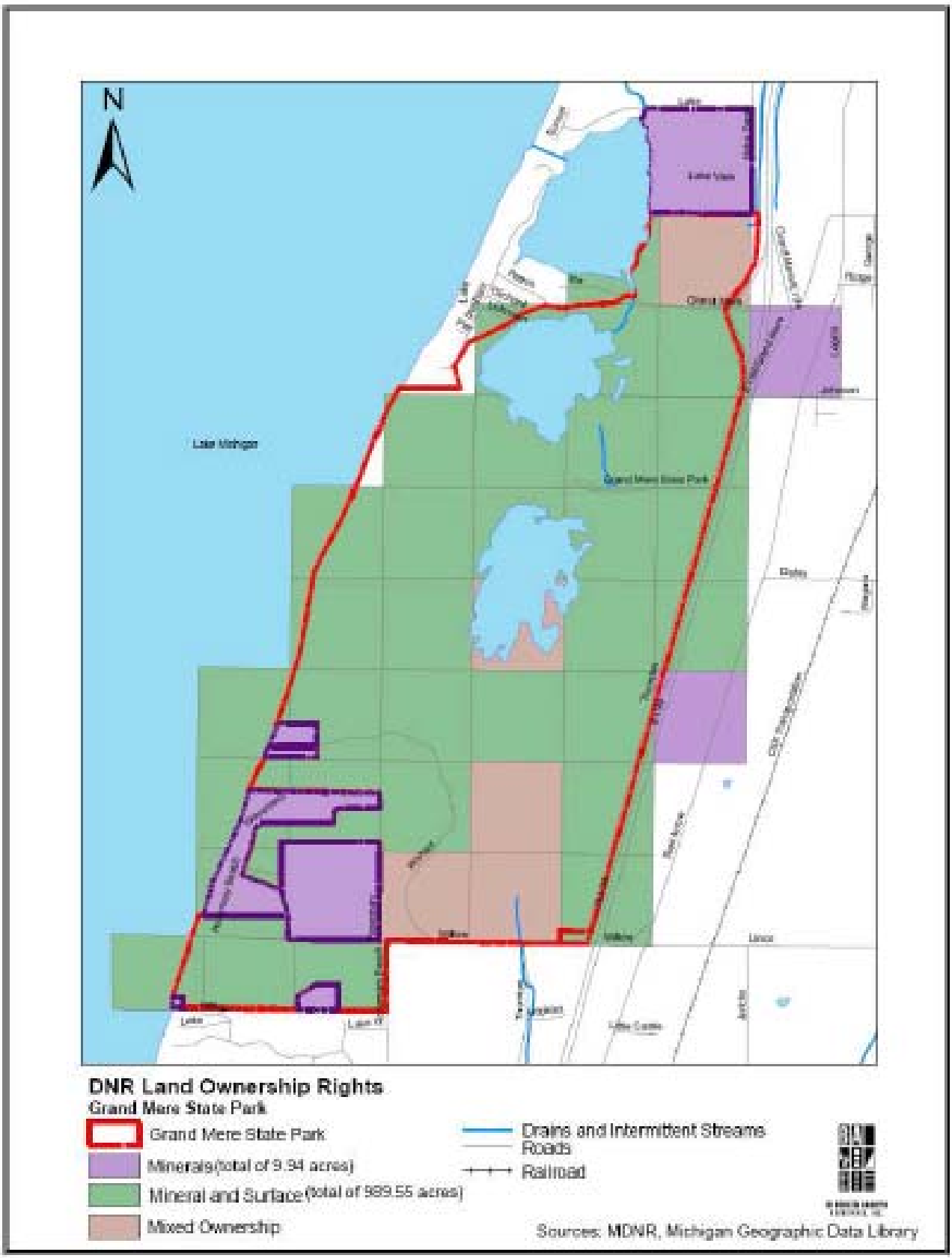
25 acres of the property were retained for sand mining. By 2003, TechniSand completed all mining by this date, as specified in court agreement. All reclamation of the site by TechniSand was completed, meeting then-MDEQ standards in 2005. TechniSand is released from further legal obligations for reclamation of the Peters property.

The State Park Stewardship Program (SPSP) continues restoration and management of the site indefinitely (with cooperation and volunteer assistance from TechniSand).

A highly diverse flora exists at Grand Mere, with over 550 species of plants documented within the park. Furthermore, Grand Mere lies in a unique place on the southern shore of Lake Michigan where plants typical of both northern and southern temperate latitudes grow together in the same community. Because of the unique flora, fauna, and geology of the dune and wetland features at Grand Mere, the park has long been used as an "outdoor laboratory" for natural resource teaching and research. The high quality natural features within this park have clearly been recognized for many years, and the imperative is in place to manage this park to protect and enhance these natural features.

Glenn Palmgren, Sand Mine Restoration Plan – Grand Mere State Park (2000)

Land Ownership
Map 2 shows the ownership status of Grand Mere State Park.


N
Lake Michigan
DNR Land Ownership Rights
Grand Mere State Park
Grand Mere State Park
Minerals(total of 9.94 acres)
Mineral and Surface (total of 989.55 acres)
Mixed Ownership
Drains and Intermittent Streams
Roads
Railroad
Sources: MDNR, Michigan Geographic Data Library

Map 2: Land Ownership

A4. Existing Land Use, Zoning and Future Uses

Land Use

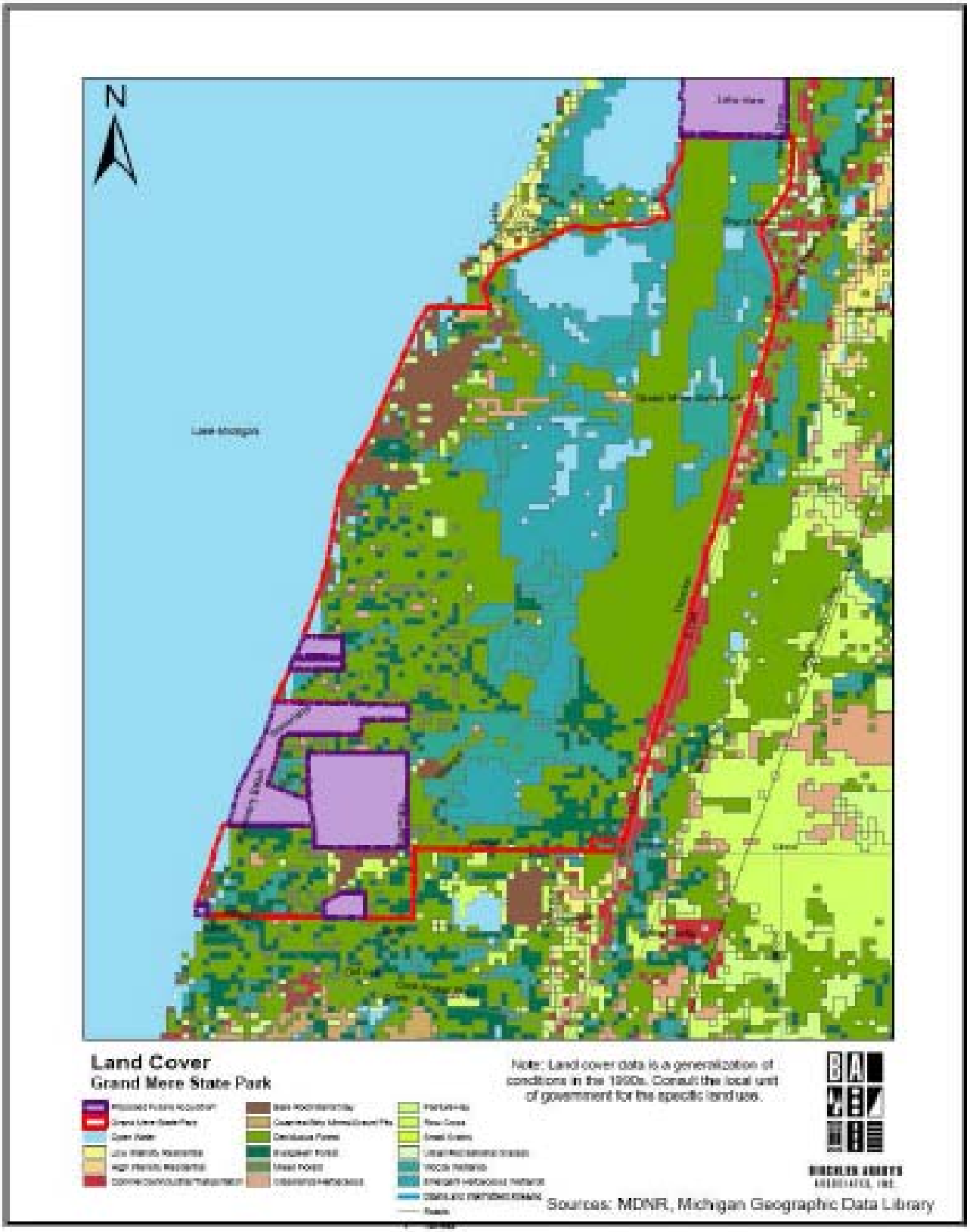
Existing land use, zoning district and future land use data for this section is based on information obtained from Lincoln Township and Berrien County. The data has been generalized for the purposes of this discussion. For exact representation, consult the local unit of government. A summary of the discussion that follows is provided on Table 3, and illustrated on Maps 3, 4 and 5.

Land uses around Grand Mere State Park consists of low-intensity development, and mainly consists of single family residential. Map 3 illustrates the existing land cover for the area. The land cover categories generally correspond to the existing land uses.

Table 3: Summary of Existing Land Uses, Zoning Districts and Future Land Uses for Land Surrounding Grand Mere State Park

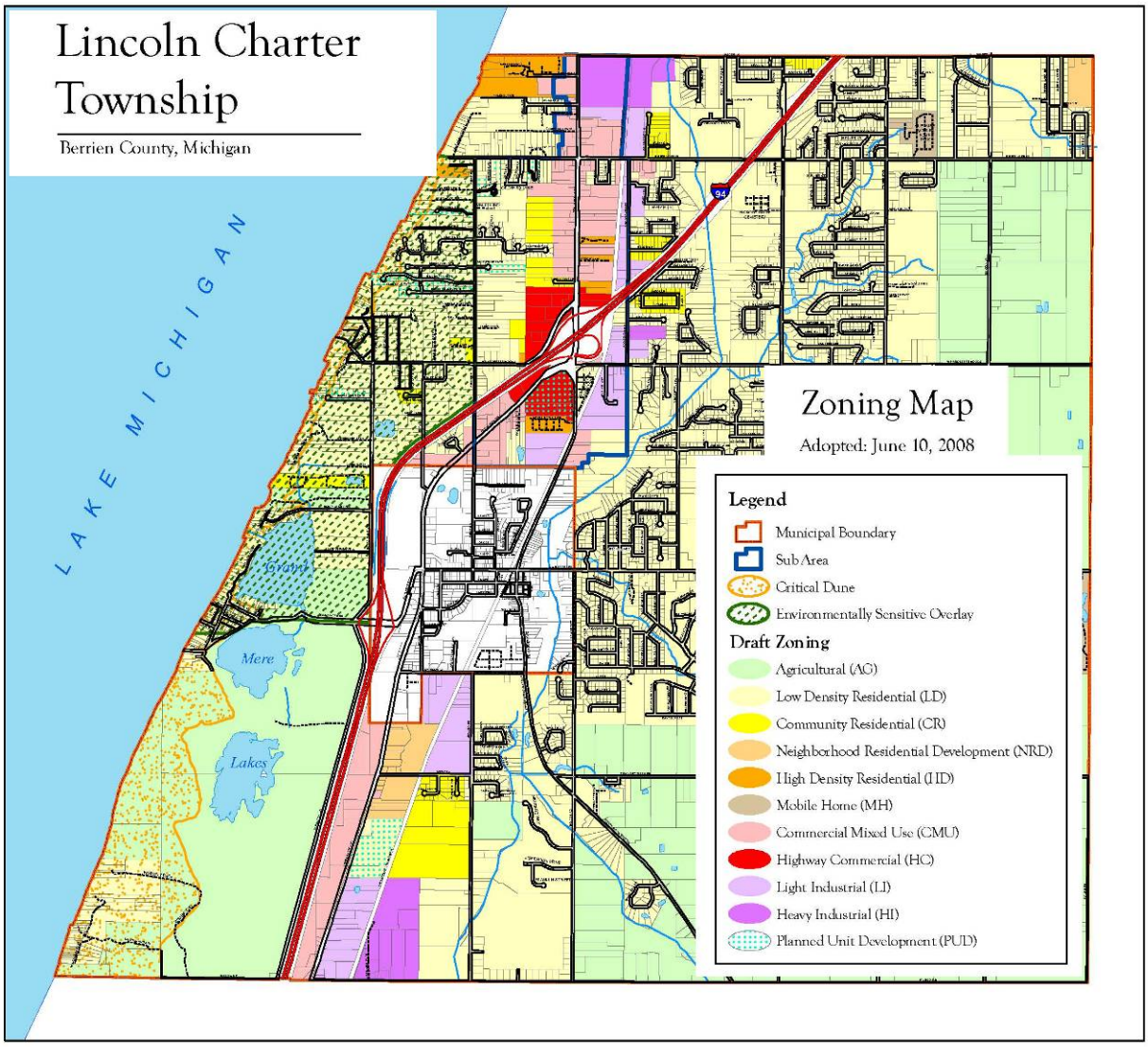
	Existing Land Uses	Zoning Districts	Future Land Uses
Grand Mere State Park	***Recreational uses***	***Agriculture/ Critical Dune***	***Recreational***
Land to the North (Lincoln Township)	***Residential***	Agriculture/ Environmentally Sensitive Overlay	***Residential***
Land to the South (Lincoln Township)	Residential	***Agriculture/*** Critical Dune	Recreational, Residential and Industrial
Land to the East (Lincoln Township & Village of Stevensville)	Interstate/Industrial	Commercial Mixed Use	Industrial
Land to the West	*NA - Bordered by Lake Michigan to the West*		

Map 5: Land Cover

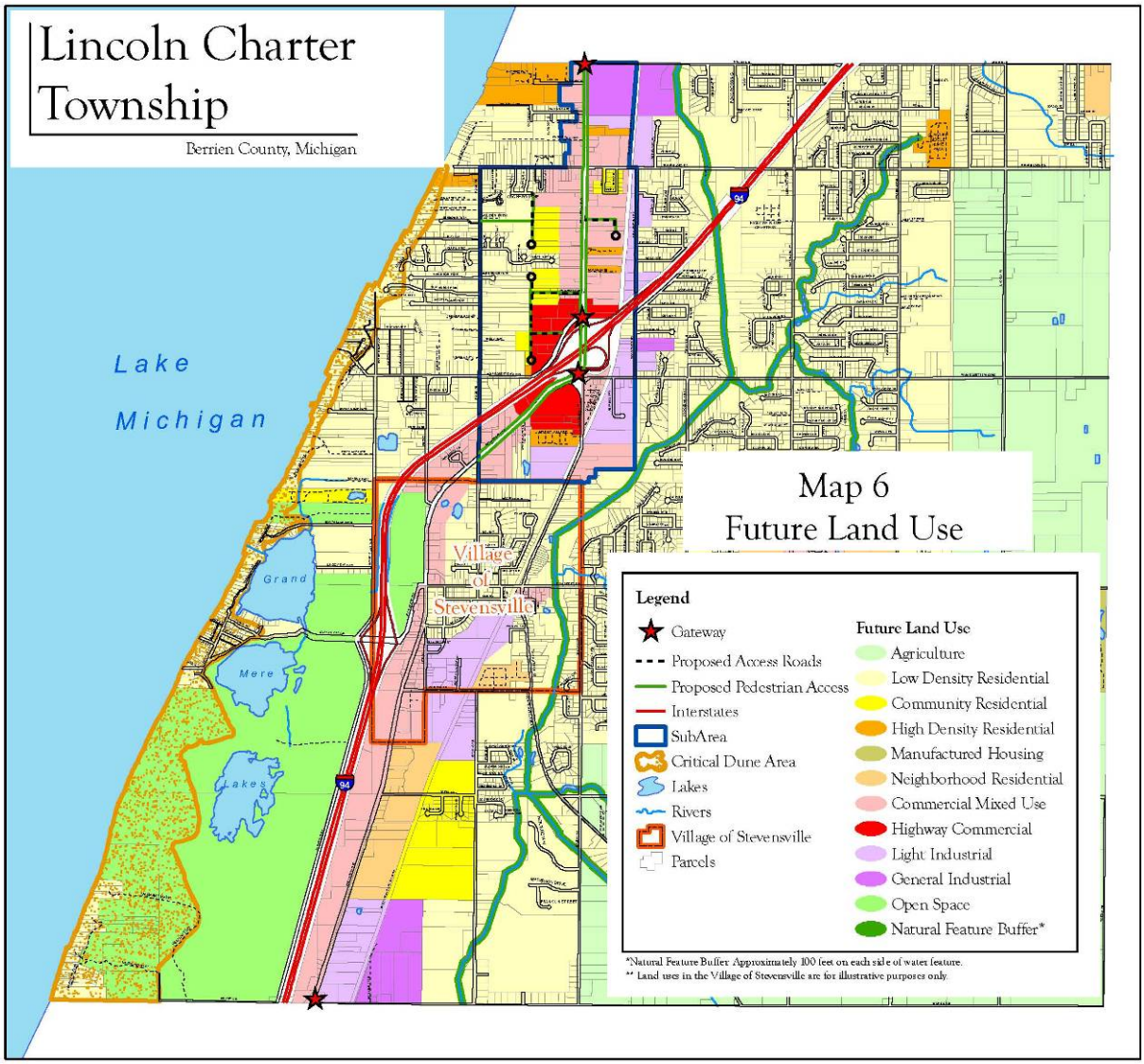


Zoning districts for the area are shown on Map 6. Zoning regulates how landowners may or may not use their property. The Park and most of the surrounding land is zoned.

Map 4: Zoning Districts



Map 5: Future Land Uses



A5. Natural Features Assessment

Understanding the physical conditions of Grand Mere State Park 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 Grand Mere State Park, including climate, soils, water bodies, wetlands and areas prone to ponding, woodlands, and threatened and endangered species, or species of special concern.

As noted by Glenn Palmgren in the Grand Mere Sand Mine Restoration Plan (2000), the geologic history within the park is very unique. Within the park, the dominant landforms are the sand dunes along the shore of Lake Michigan. A large bay of the glacial Great Lakes was present where Grand Mere State Park is today. During Algonquin Great Lakes time (roughly 12,000 years ago), a large spit formed from the south along the west side of the bay, nearly cutting it off from the glacial lake (Tague 1947). Most of the dunes at Grand Mere formed on this Algonquin sand spit during the later Nipissing Great Lakes period, approximately 4,500 years ago.

During the more recent post-Algoma period (3,000 years ago until present), a smaller spit from the north merged with the larger, dune covered southern spit, closing off the bay. As water levels fell, five lakes formed in this bay. The two southern lakes have subsequently filled in and have become the present-day tamarack swamp south of South Lake. While the lakes were forming in the bay as water levels fell, some smaller foredunes were formed along the shoreline of Lake Michigan. The topography and sandy soils of the park can be attributed to this glacial history

Middle Lake

A5.1 Water Resources

GMSP lies along a mile of sandy shoreline on Lake Michigan. Lake Michigan is the third largest of the Great Lakes, covering a surface area of approximately 22,300 square miles. The average depth of Lake Michigan is 279 feet and the maximum depth reaches 923 feet. The water quality of Lake Michigan is excellent for such recreational activities as swimming, fishing, sailing, and boating.

Middle Lake is approximately 50 acres. State Park rules apply. A State Park entrance permit is required. The boat access site is a gravel-surfaced ramp, only suitable for medium-sized and smaller boats. There are a total of three parking spaces available.

South Lake has subsequently filled in and has become the present-day tamarack swamp.

A5.2 Flora and Fauna

A highly diverse flora exists at Grand Mere, with over 550 species of plants documented within the park. Furthermore, Grand Mere lies in a unique place on the southern shore of Lake Michigan where plants typical of both northern and southern temperate latitudes grow together in the same community. Because of the unique flora, fauna, and geology of the dune and wetland features at Grand Mere, the park has long been used as an "outdoor laboratory" for natural resource teaching and research. The high quality natural features within this park have clearly been recognized for many years, and the imperative is in place to manage this park to protect and enhance these natural features.

The North and Middle Lakes support populations of bluegill, pumpkinseed, yellow perch, black crappie, largemouth bass and northern pike. Periodic winterkills affect the quality of these fisheries. All the lakes in Grand Mere State Park provide excellent habitat for reptiles and amphibians.

The dunes in Grand Mere historically supported a wide array of natural communities, including dry-mesic southern (oak-hickory) forest, rich conifer (cedar) swamp, southern (mixed hardwood) swamp, wetpanne and interdunal wetland (shrub swamp/emergent marsh), open dunes, and a wooded dune and swale complex.

Palmgren describes the natural communities as follows: Forested dunes and surrounding flat upland sites were characterized by **dry-mesic southern forest**. Blowouts of exposed sand and **open dune** , dominated by beach grass, sand reed, and little bluestem were common. The locations of blowouts changed over time, and were likely present in various areas within Grand Mere State Park in presettlement time. Typical dry-mesic southern forests are dominated by black and white oak, with northern pin oak on the driest hilltops and ridges. Northern red oak is common in valleys, on north slopes, and on wetland edges. In presettlement times on the southern shore of Lake Michigan, white pine and jack pine were common on most forested dunes, often dominant on southern slopes (Cowles 1899). In many cases pignut and shagbark hickories were also found on these wooded sites. Dry-mesic southern forests occur on dunes, outwash, and ice-contact features, with soil textures ranging from sandy loam to sand.

A5.3 Ecoregional Context

Grand Mere State Park is located in the VI.3.2 Southern Lake Michigan Lake Plain 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 8).

Climate

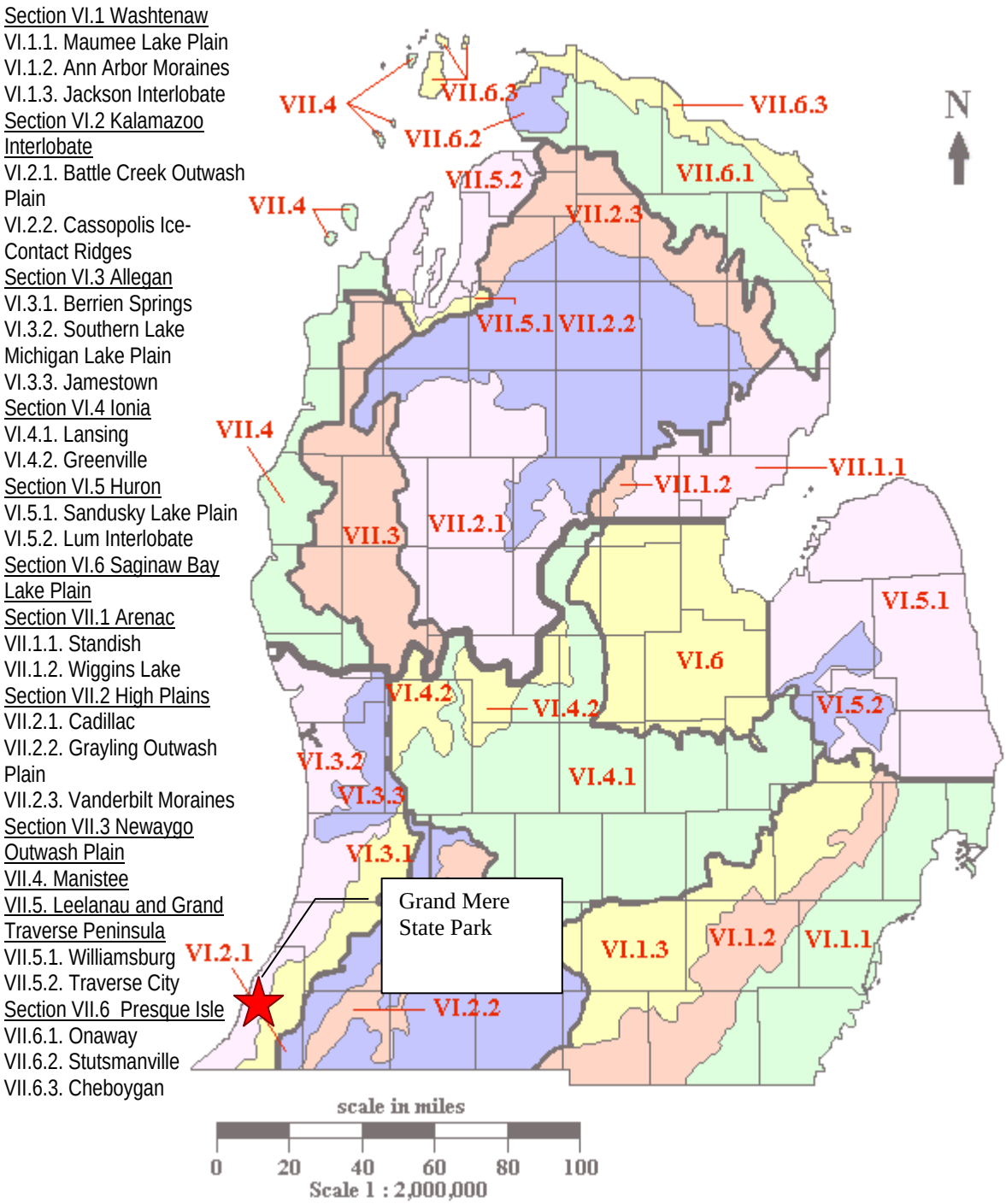
The climate of the section is strongly influenced by the Maritime Tropical air mass, with some lake-effect snows and moderation of temperature from Lake Michigan (Albert et al. 1986, Denton 1985, Eichenlaub 1979, Eichenlaub et al. 1990). Compared to the rest of the study area, the southern Lower Peninsula of Michigan has more warm humid air masses from the Gulf of Mexico and fewer cold dry air masses of continental origin. Winter precipitation is higher (7 to 10 inches; 23 to 26 percent of annual precipitation) and more of it falls as rain than in Wisconsin's Section V to the west or Michigan's Section VII to the north. The growing season is longer and warmer than that of Sections VII to XI and similar to that of Sections I to V.

- Mean daily temperature during winter months (Dec, Jan, Feb): 29.6ºF
- Mean daily temperature during spring months (Mar, Apr, May): 57.4ºF
- Mean daily temperature during summer months (Jun, Jul, Aug): 68ºF

- Mean daily temperature during fall months (Sept, Oct, Nov): 40.8ºF
- Mean annual precipitation: 36.97 inches
- Average annual total snow fall: 78.1 inches

Source: Michigan State University

Map 6: Ecoregional Context



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

Bedrock Geology. The sub-subsection is entirely underlain by Paleozoic bedrock; Devonian shale occurs in the southern quarter; Mississippian shale, sandstone, dolomite, and gypsum occur farther to the north (Dorr and Eschman 1984, Milstein 1987). Overlying glacial drift is generally thick, from 50 to 350 feet (Akers 1938). There are very localized bedrock exposures of Coldwater shale in Ottawa County. Oil wells tap petroleum reservoirs in the underlying Devonian-age marine deposits (Dorr and Eschman 1984).

Landforms: Sand dunes, up to 200 feet high, form a 1- to 3-mile-wide discontinuous band along the shore of Lake Michigan. The major period of dune formation was during Nipissing Great Lakes time, approximately 4,500 years ago; but smaller foredunes have formed during more recent times of low-water levels of Lake Michigan (Dorr and Eschman 1984).

Fine-textured end and ground moraines were concentrated in the southern half of the sub-subsection. Most of the moraines are flat to gently rolling.

Presettlement Vegetation: In the southern part of the sub-subsection, forests were dominated by beech and sugar maple on both fine-textured moraines and sandy lacustrine deposits (Comer et al. 1993a). In the northern half, forests dominated by eastern hemlock and beech occupied most of the sand lake plain and fine-textured moraines.

In the south, white oak and black oak were common along the bluffs and broad ridges above major rivers, including the Galien, St. Joseph, and Paw Paw. Farther north, upland conifer forest dominated by white pine, along with white oak and some black oak, occupied the bluffs and broad ridges above the major rivers, including the Grand, Muskegon, and Kalamazoo, and also the sandy plains adjacent to White and Muskegon Lakes. Native American fire management may have maintained the white pine and oaks along the rivers.

The dunes supported forests dominated by eastern hemlock and beech. Hemlock-beech forest was the dominant forest type along the dunes of the entire shoreline as far south as Benton Harbor, near the southern edge of the sub-subsection. Although hemlock and beech were the dominant species, white pine, red oak, white oak, and sugar maple were also present. At the northern edge, white pine became increasingly dominant on the dunes, often with hemlock or white oak as co-dominants. Several large areas of open, blowing sand (blowouts) were noted in GLO surveys. These areas, generally less than a half mile wide, extended as much as a mile inland from the shoreline.

The largest wetlands were located along the rivers, where both extensive marshes and lowland hardwoods, often dominated by either black ash or silver maple, formed broad bands for several miles inland from Lake Michigan. Both tamarack swamp and lowland hardwoods swamp were located in bowl-shaped depressions behind the dunes.

Further inland, small kettle depressions within areas of end moraine supported small marshes and both lowland hardwoods and lowland conifers. Broad depressions on both the flat sand lake plain and the ground moraine contained emergent marshes, wet prairies, and both lowland hardwoods and lowland conifers.

Natural Disturbance: The GLO survey found several blowouts in the dunes. Although not noted by the surveyors, seasonal water level fluctuations occur on the lake plain, often resulting in dominance by either prairie or marsh species tolerant of such fluctuations. Such fluctuations can result in major cyclical changes in plant composition in shallow ponds or depressions as water levels change over a period of several years.

Native American land management with fire may have had a major impact on the vegetation in portions of the sub-subsection. There were local references by surveyors to burned lands along the Galien River and to Indian fields and trails along the Kalamazoo, Grand, and Muskegon Rivers.

Present Vegetation and Land Use: In the past, white pine and hemlock were harvested on the sand lake plain. Sand was mined on some of the dunes, primarily for use as molding and foundry sand. Most of the lands of the sub-subsection are in agriculture. Farming of the sand lake plain required large-scale drainage. Poorly drained portions of the lake plain now support nurseries and blueberry and asparagus farming. Better-drained soils are converted to orchards and vineyards.

Some of the most droughty and most poorly drained sandy soils remain as wildlife management areas or as recreational lands, either forested or wetland. Large portions of the coastal sand dunes are protected as park lands, but there is also heavy residential development of sections of the dunes.

Rare Plant Communities: The wet prairies of the sub-subsection are distinct from those found in other parts of the State and are called lake plain wet and wet-mesic prairies. Many of the marshes, which occupy shallow depressions between beach ridges or sand spits (often several miles inland from the present lakeshore), are rich in disjunct species from the Atlantic and Gulf Coastal Plains of the U.S.

Rare Plants: Most of the rare plants are coastal plain disjuncts from the Atlantic and Gulf coasts; there are also species characteristic of the sand dunes of the Great Lakes. Carex platyphylla (broad-leaved sedge), Cirsium pitcheri (Pitcher's thistle), Echinodorus tenellus (dwarf burhead), Eleocharis melanocarpa (black-fruited spike-rush), Eleocharis tricostata (three-ribbed spike-rush), Hibiscus moscheutos (swamp rose-mallow), Juncus biflorus (two-flowered rush), Juncus scirpoides (scirpus-like rush), Lycopodium appressum (appressed bog clubmoss), Orobanche fasciculata (fascicled broom-rape), Panicum longifolium (long-leaved panic-grass), Potamogeton bicupulatus (waterthread pondweed), Pycnanthemum verticillatum (whorled mountain-mint), Rhexia mariana var. mariana (Maryland meadow-beauty), Rhexia virginica (meadow-beauty), Sabatia angularis (rose-pink), Scirpus hallii (Hall's bulrush), Scleria reticularis (netted nut-rush),

Sisyrinchium atlanticum (Atlantic blue-eyed grass), Utricularia subulata (zigzag bladderwort).

Rare Animals: Chlidonias niger (black tern), Clonophis kirtlandii (Kirtland's snake), Dendroica cerulea (cerulean warbler), Dendroica discolor (prairie warbler), Dendroica dominica (yellow-throated warbler), Hesperia ottoe (Ottoe skipper), Incisalia irus (frosted elfin), Lanius ludovicians (loggerhead shrike), Lycaeides melissa samuelis (Karner blue), Microtus ochrogaster (prairie vole).

Conservation Concerns: Sub-subsection VI.3.2 contains important tracts of sand dune (as does Subsection IV.4, directly to the north), many of which are protected in dedicated natural areas or as State parks. Residential development, sand mining, and off-road vehicle use remain threats to these dunes. The coastal plain marshes contain some of the highest concentrations of species on Michigan's list of threatened and endangered species; these shallow wetlands are constantly under threat from residential development, dredging and flooding for game management, and off-road vehicle use.

Disruption of coastal processes along the Lake Michigan shoreline, through creation of marinas and breakwaters, can destabilize other parts of the shoreline. The long-term effects of these processes have not been thoroughly evaluated, except where human lives and residences have been threatened.

Typical birds of presettlement dry-mesic southern forests included cerulean warbler; American redstart; broad-winged, Cooper's, and sharp-shinned hawks; passenger pigeon; ruffed grouse; wild turkey; blue jay; black-capped chickadee; great horned owl; hairy, downy, and red-headed woodpeckers; eastern wood-pewee; great-crested, least and acadian flycatchers; red-eyed and yellow-throated vireos; white-breasted nuthatch; common raven; blue-gray gnatcatcher; and scarlet tanager. Mammals found in these forests likely included gray squirrel, fox squirrel, eastern chipmunk, Virginia opossum, northern short-tailed shrew, northern bat, southern flying squirrel, white-footed mouse, woodland vole, common gray fox, common raccoon, and striped skunk. Currently, dry-mesic southern forests are ranked rare or uncommon in the state and widespread globally by the Michigan Natural Features Inventory. Open dunes and sand/gravel beaches are both currently ranked rare or uncommon statewide and globally.

A5.4 Threatened, Endangered and Special Concern Species

The Michigan Natural Features Inventory has identified species of special concern (SC), threatened (T), endangered (E), and extirpated (X) species as protected by the State of Michigan in Berrien County, and would likely be found in Grand Mere State Park. Some species have federal protection status and are noted as listed endangered (LE) or listed threatened (LT). Species identified as being considered for protected status are noted by (C).

Table 4: Summary of Threatened, Endangered and Special Concern Species
Source: Michigan Natural Features Inventory

Scientific Name	Common Name	Federal Status	State Status
Acipenser fulvescens	Lake Sturgeon		T
Acris crepitans blanchardi	Blanchard's Cricket Frog		SC
Adlumia fungosa	Climbing Fumitory		SC
Agrimonia rostellata	Beaked Agrimony		SC
Alasmidonta marginata	Elktoe		SC
Alasmidonta viridis	Slippershell Mussel		SC
Ambystoma opacum	Marbled Salamander		T
Ammodramus henslowii	Henslow's Sparrow		T
Ammodramus savannarum	Grasshopper Sparrow		SC
Amorpha canescens	Leadplant		SC
Androsace occidentalis	Rock-jasmine		E
Arabis missouriensis var. deamii	Missouri Rock-cress		SC
Aristida longespica	Three-awned Grass		T
Aristida tuberculosa	Beach Three-awned Grass		T
Aristolochia serpentaria	Virginia Snakeroot		T
Asclepias purpurascens	Purple Milkweed		SC
Asplenium rhizophyllum	Walking Fern		T
Astragalus canadensis	Canadian Milk-vetch		T
Baptisia lactea	White or Prairie False Indigo		SC
Berula erecta	Cut-leaved Water-parsnip		T
Bog			
Buteo lineatus	Red-shouldered Hawk		T
Cacalia plantaginea	Prairie Indian-plantain		SC
Calephelis mutica	Swamp Metalmark		SC
Camassia scilloides	Wild-hyacinth		T
Carex albolutescens	Greenish-white Sedge		T
Carex crus-corvi	Raven's-foot Sedge		T
Carex davisii	Davis's Sedge		SC
Carex gravida	Sedge		X
Carex oligocarpa	Eastern Few-fruited Sedge		T
Carex platyphylla	Broad-leaved Sedge		T
Carex seorsa	Sedge		T
Carex squarrosa	Sedge		SC
Carex trichocarpa	Hairy-fruited Sedge		SC
Castanea dentata	American Chestnut		E
Charadrius melodus	Piping Plover	LE	E
Chasmanthium latifolium	Wild-oats		T
Cirsium hillii	Hill's Thistle		SC
Cirsium pitcheri	Pitcher's Thistle	LT	T
Cistothorus palustris	Marsh Wren		SC
Clemmys guttata	Spotted Turtle		T
Clonophis kirtlandii	Kirtland's Snake		E
Coastal Plain Marsh	Infertile Pond/marsh, Great Lakes Type		
Commelina erecta	Slender Day-flower		X
Coreopsis palmata	Prairie Coreopsis		T
Corydalis flavula	Yellow Fumewort		T
Cuscuta campestris	Field Dodder		SC
Cuscuta glomerata	Rope Dodder		SC
Cyclonaias tuberculata	Purple Wartyback		SC
Cyperus flavescens	Yellow Nut-grass		SC
Cypripedium candidum	White Lady-slipper		T

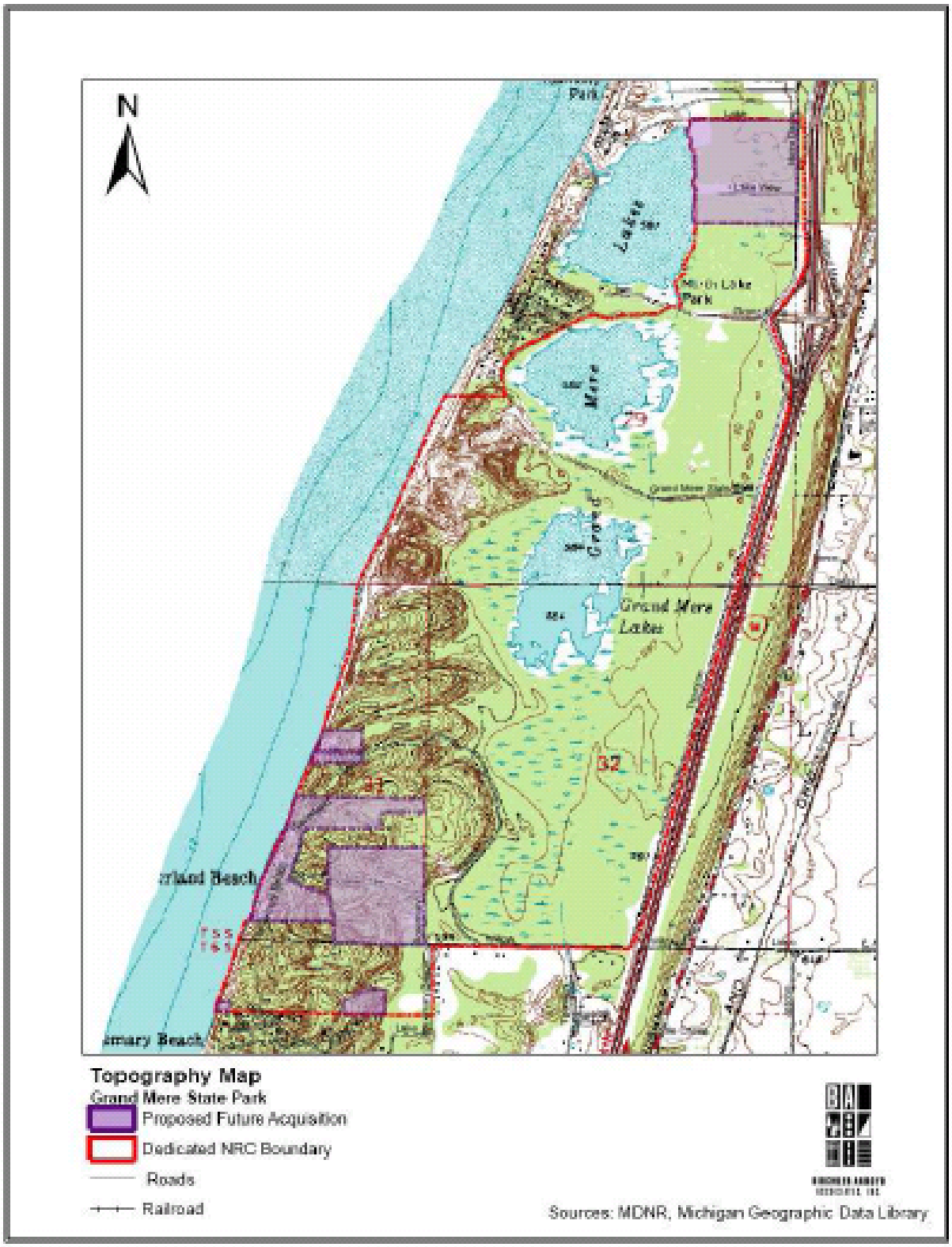
Scientific Name	Common Name	Federal Status	State Status
Dendroica cerulea	Cerulean Warbler		SC
Dendroica discolor	Prairie Warbler		E
Dendroica dominica	Yellow-throated Warbler		T
Diarrhena americana	Beak Grass		T
Dodecatheon meadia	Shooting-star		E
Draba reptans	Creeping Whitlow-grass		T
Dry-mesic Southern Forest			
Dryopteris celsa	Log Fern		T
Eleocharis engelmannii	Engelmann's Spike-rush		SC
Eleocharis melanocarpa	Black-fruited Spike-rush		SC
Emys blandingii	Blanding's Turtle		SC
Epioblasma triquetra	Snuffbox		E
Eryngium yuccifolium	Rattlesnake-master		T
Eupatorium fistulosum	Hollow-stemmed Joe-pye-weed		T
Euphorbia commutata	Tinted Spurge		T
Euxoa aurulenta	Dune Cutworm		SC
Filipendula rubra	Queen-of-the-prairie		T
Fimbristylis puberula	Chestnut Sedge		X
Floodplain Forest			
Fontigens nickliniana	Watercress Snail		SC
Fraxinus profunda	Pumpkin Ash		T
Fundulus dispar	Starhead Topminnow		SC
Galearis spectabilis	Showy Orchis		T
Gentiana saponaria	Soapwort Gentian		X
Gentianella quinquefolia	Stiff Gentian		T
Gratiola virginiana	Round-fruited Hedge Hyssop		T
Great Blue Heron Rookery	Great Blue Heron Rookery		
Great Lakes Marsh			
Gymnocladus dioicus	Kentucky Coffee-tree		SC
Helianthus hirsutus	Whiskered Sunflower		SC
Helianthus mollis	Downy Sunflower		T
Hemicarpha micrantha	Dwarf-bulrush		SC
Hibiscus moscheutos	Swamp Rose-mallow		SC
Hieracium paniculatum	Panicled Hawkweed		SC
Hybanthus concolor	Green Violet		SC
Hydrastis canadensis	Goldenseal		T
Hypericum gentianoides	Gentian-leaved St. John's-wort		SC
Ictiobus niger	Black Buffalo		SC
Interdunal Wetland	Alkaline Shoredunes Pond/marsh, Great Lakes Type		
Ipomoea pandurata	Wild Potato-vine		T
Isotria medeoloides	Smaller Whorled Pogonia	LT	E
Isotria verticillata	Whorled Pogonia		T
Jeffersonia diphylla	Twinleaf		SC
Juncus brachycarpus	Short-fruited Rush		T
Juncus scirpoides	Scirpus-like Rush		T
Kuhnia eupatorioides	False Boneset		SC
Lakeplain Wet-mesic Prairie	Alkaline Tallgrass Prairie, Midwest Type		
Lechea pulchella	Leggett's Pinweed		T
Lepisosteus oculatus	Spotted Gar		SC
Linum virginianum	Virginia Flax		T

Scientific Name	Common Name	Federal Status	State Status
Ludwigia alternifolia	Seedbox		SC
Lycopodium appressum	Northern Prostrate Clubmoss		SC
Mesic Southern Forest	Rich Forest, Central Midwest Type		
Mesodon elevatus	Proud Globe		SC
Microtus ochrogaster	Prairie Vole		E
Microtus pinetorum	Woodland Vole		SC
Morus rubra	Red Mulberry		T
Moxostoma carinatum	River Redhorse		T
Nelumbo lutea	American Lotus		T
Neonympha mitchellii mitchellii	Mitchell's Satyr	LE	E
Nicrophorus americanus	American Burying Beetle	LE	E
Oecanthus laricis	Tamarack Tree Cricket		SC
Oecanthus pini	Pinetree Cricket		SC
Onosmodium molle	Marbleweed		X
Open Dunes	Beach/shoredunes, Great Lakes Type		
Oxalis violacea	Violet Wood-sorrel		T
Panax quinquefolius	Ginseng		T
Panicum microcarpon	Small-fruited Panic-grass		SC
Panicum polyanthes	Round-seed Panic Grass		E
Pantherophis spiloides	Black Rat Snake		SC
Papaipema beeriana	Blazing Star Borer		SC
Papaipema cerina	Golden Borer		SC
Papaipema maritima	Maritime Sunflower Borer		SC
Papaipema sciata	Culvers Root Borer		SC
Papaipema silphii	Silphium Borer Moth		T
Phlox maculata	Wild Sweet William or Spotted Phlox		T
Platanthera ciliaris	Orange or Yellow Fringed Orchid		T
Pleurobema sintoxia	Round Pigtoe		SC
Polemonium reptans	Jacob's Ladder or Greek-valerian		T
Polygala cruciata	Cross-leaved Milkwort		SC
Polymnia uvedalia	Large-flowered Leafcup		T
Pomatiopsis cincinnatiensis	Brown Walker		SC
Populus heterophylla	Swamp or Black Cottonwood		E
Potamogeton bicupulatus	Waterthread Pondweed		T
Potamogeton pulcher	Spotted Pondweed		T
Prairie Fen	Alkaline Shrub/herb Fen, Midwest Type		
Prosapia ignipectus	Red-legged Spittlebug		SC
Protonotaria citrea	Prothonotary Warbler		SC
Psilocarya scirpoides	Bald-rush		T
Pycnanthemum muticum	Mountain-mint		T
Pycnanthemum pilosum	Hairy Mountain-mint		T
Pycnanthemum verticillatum	Whorled Mountain-mint		SC
Rallus elegans	King Rail		E
Rhexia virginica	Meadow-beauty		SC
Rhynchospora macrostachya	Tall Beak-rush		SC
Rich Tamarack Swamp	Forested Bog, Central Midwest Type		
Rotala ramosior	Tooth-cup		SC
Sabatia angularis	Rose-pink		T

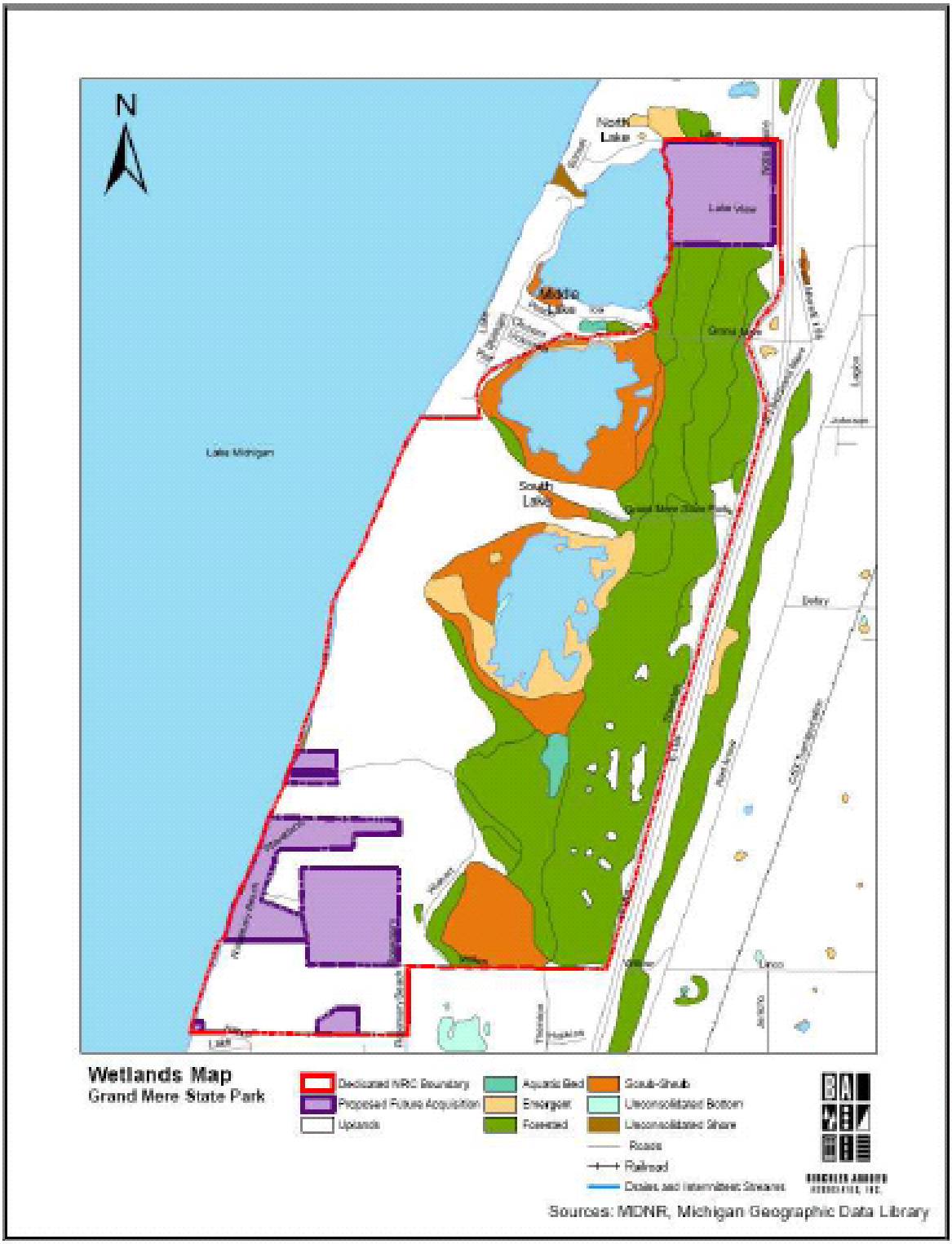
Scientific Name	Common Name	Federal Status	State Status
Sand and Gravel Beach			
Scleria pauciflora	Few-flowered Nut-rush		E
Scleria reticularis	Netted Nut-rush		T
Scutellaria elliptica	Hairy Skullcap		SC
Seiurus motacilla	Louisiana Waterthrush		SC
Silene stellata	Starry Campion		T
Silphium integrifolium	Rosinweed		T
Silphium laciniatum	Compass-plant		T
Silphium perfoliatum	Cup-plant		T
Sistrurus catenatus catenatus	Eastern Massasauga	C	SC
Southern Hardwood Swamp			
Southern Wet Meadow	Wet Meadow, Central Midwest Type		
Spartiniphaga inops	Spartina Moth		SC
Speyeria idalia	Regal Fritillary		E
Spiranthes ochroleuca	Yellow Ladies'-tresses		SC
Spiza americana	Dickcissel		SC
Strophostyles helvula	Trailing Wild Bean		SC
Sturnella neglecta	Western Meadowlark		SC
Tachopteryx thoreyi	Grey Petaltail		SC
Terrapene carolina carolina	Eastern Box Turtle		SC
Tipularia discolor	Cranefly Orchid		T
Trillium recurvatum	Prairie Trillium		T
Trillium sessile	Toadshade		T
Triphora trianthophora	Three-birds Orchid		T
Triplasis purpurea	Sand Grass		SC
Utricularia inflata	Floating Bladderwort		E
Utricularia subulata	Zigzag Bladderwort		T
Valeriana edulis var. ciliata	Edible Valerian		T
Valerianella chenopodiifolia	Goosefoot Corn-salad		T
Vitis vulpina	Frost Grape		T
Wet Prairie	Wet Prairie, Midwest Type		
Wilsonia citrina	Hooded Warbler		SC
Wolffia papulifera	Water-meal		T
Zizania aquatica var. aquatica	Wild-rice		T

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. A "threatened" species is one that is likely to become endangered in the near future. An endangered species is one that is in danger of extinction throughout all or a significant portion of its range.

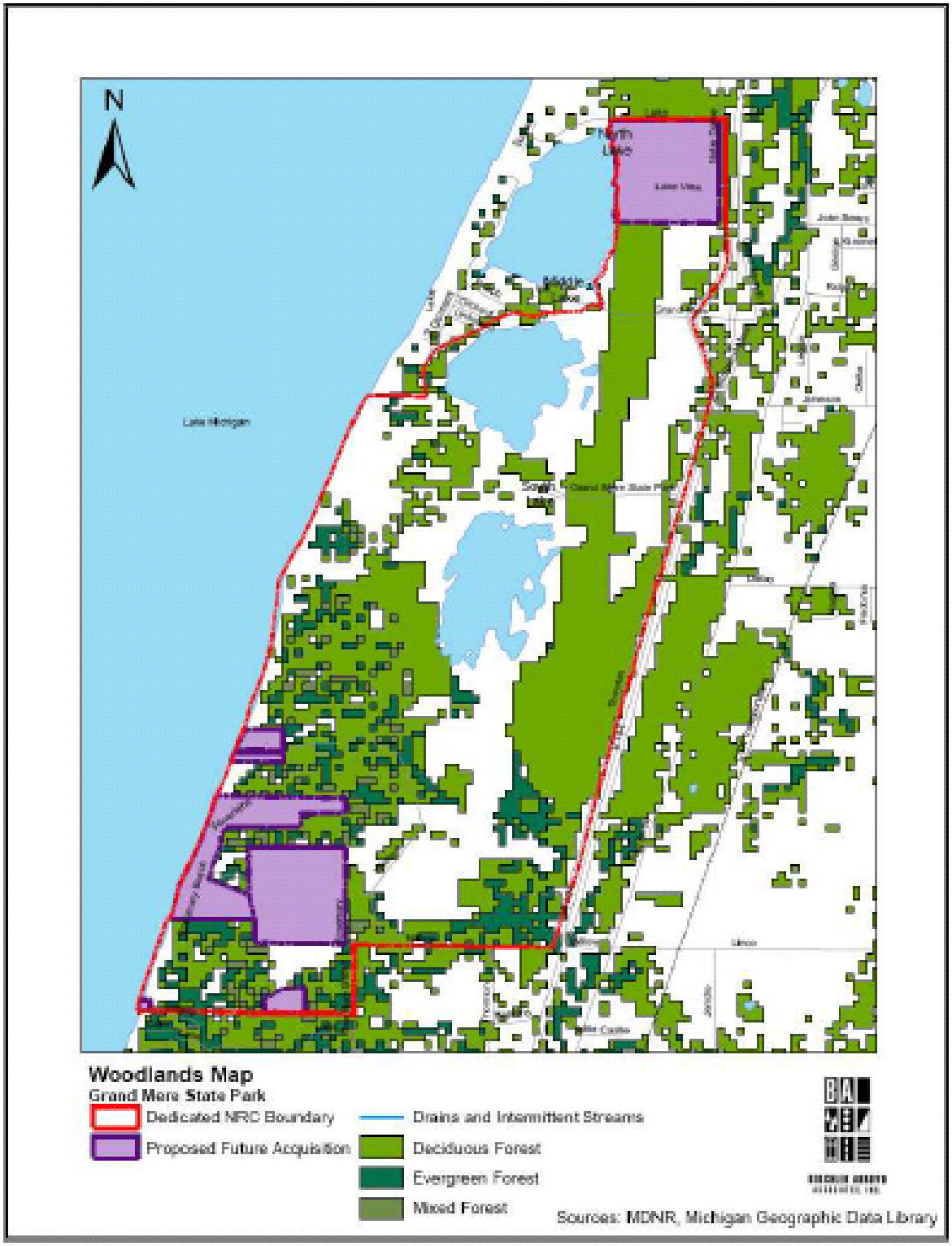
Map 7: Topography



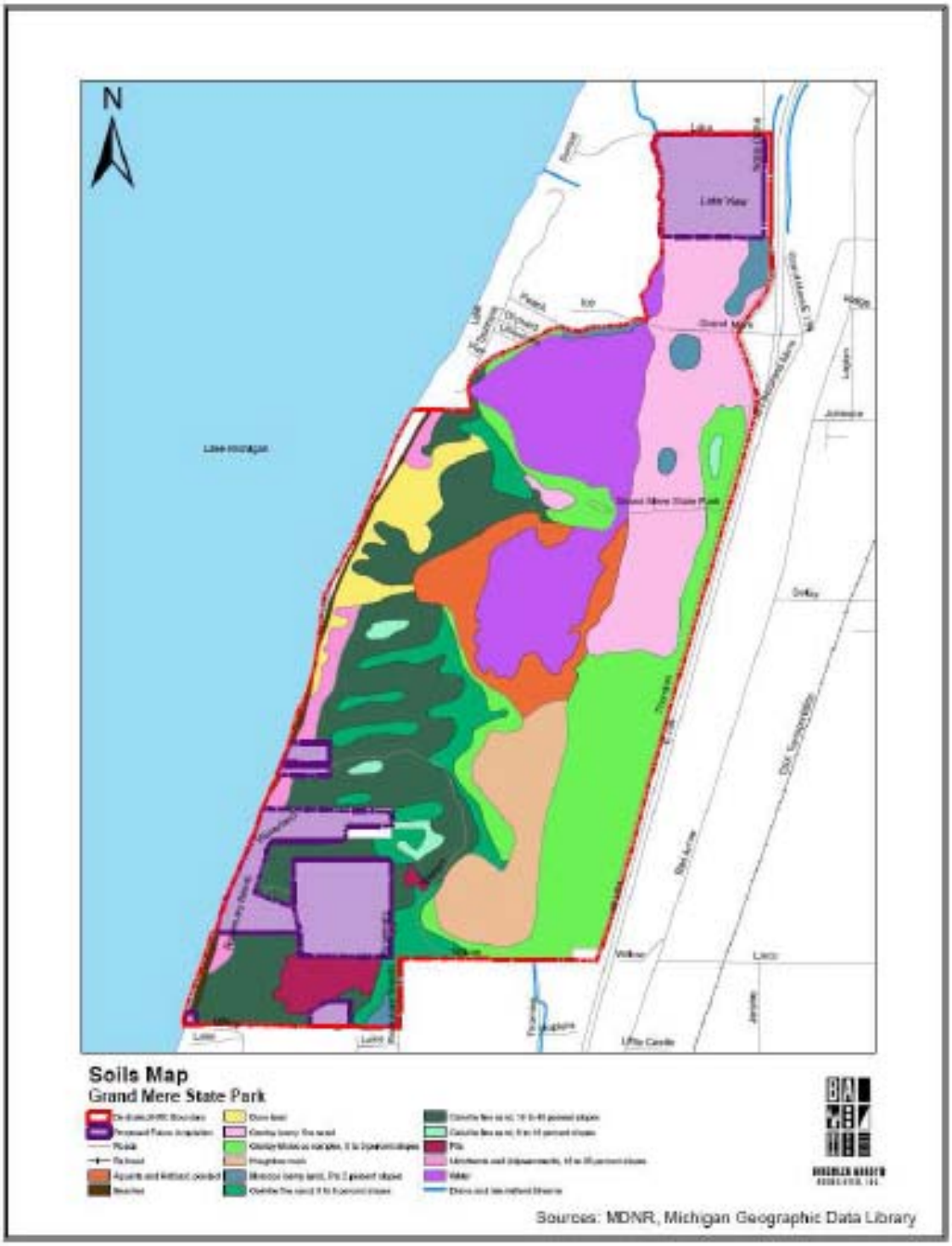
Map 8: Wetlands



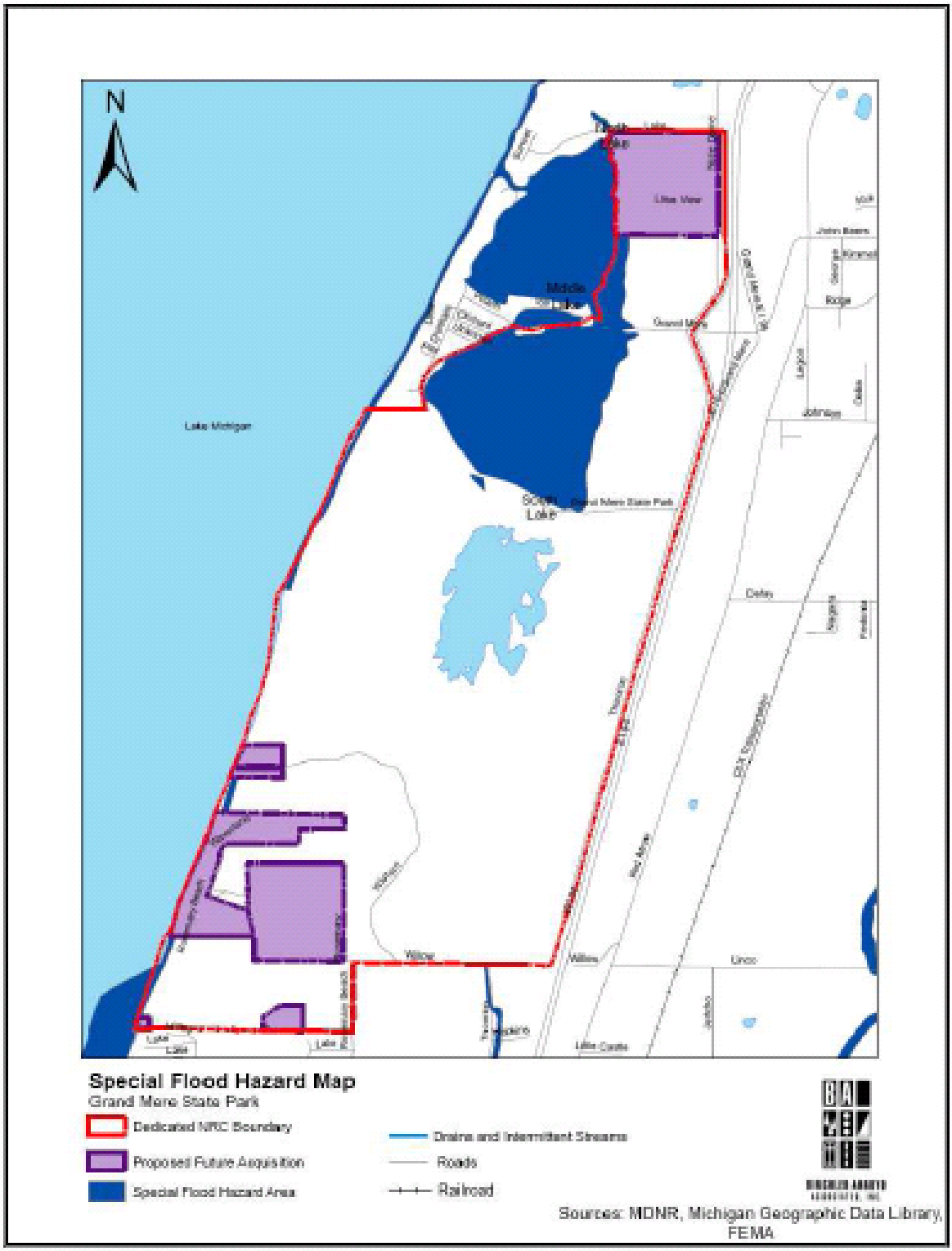
Map 9: Woodlands



Map 10: Soils


N
Soils Map
Grand Mere State Park
Sources: MDNR, Michigan Geographic Data Library

Map 11: Special Flood Hazards



A6. Cultural and Historic Resources

Land Use History

The area surrounding Grand Mere State Park has a rich cultural history, dating back to occupation by the Miami and Pottawatomi Native Americans. The first European-American to settle the area was Major Timothy S. Smith in 1827. A trail was located where Wishart Road runs today, skirting the western edge of the tamarack swamp and South Lake, and following today's nature trail and park entrance road between Middle and South Lakes. Another trail connected to this trail and skirted the western and northern edges of Middle Lake (where Grand Mere Rd runs today).

Mr. T.W. Dunham operated a sawmill on the northwest corner of Middle Lake, beginning in 1867. Mr. Dunham planted a peach orchard on the northwest corner of South Lake after his lumber business declined. It was later learned that a Native American village was reportedly buried by shifting sands at the location of the peach orchard. The Dunham Resort was a well-known place to visit to the northwest of Middle Lake on the shore of Lake Michigan in the early 1900s.

In the early 1900s, the boggy area surrounding South Lake was used for intensive cranberry cultivation. Several other orchards and nurseries were attempted in the Grand Mere area in the 1920s and 1930s, but none succeeded. Waverland Beach (first known as the Fox-Lind subdivision and then "Wave Over Land Beach") was started as a subdivision of beachfront homes in 1908.

Thirty acres of trees were cleared by the Manley Sand Company in 1965 (at the present-day Manley-Peters mine), and mining was started at that site in January 1966. Around this time, the Grande Mere Association purchased 22 acres at Waverland Beach and started the Grande Mere Nature Study Preserve (held in title by the Kalamazoo Nature Center). The State eventually purchased 393.16 acres from the Shapiro estate in 1973 and established Grand Mere State Park. The Nature Conservancy acquired 490.5 acres of property (mostly from Manley Brothers and Peters), and sold that land to the State in 1986. Through this acquisition, Manley Brothers retained the right to mine 25 acres of the property, which would then be turned over to the State.

Throughout the history of Grand Mere, the notable land cover changes within current park boundaries were: 1) the selective logging (presumably of white pine) associated with the Dunham sawmill, 2) the establishment of Dunham's peach orchard, 3) the cranberry operation on South Lake altering vegetation composition, 4) mining at the Manley-Peters sand mine, and 5) remnants of scattered orchards and nurseries that may have been within the present park boundaries.

Glenn Palmgren, Sand Mine Restoration Plan – Grand Mere State Park (2000)

A7.
Education and Interpretation

Students doing research on the unique features of the park frequently visit Grand Mere. There are currently no formal interpretive programs and little interpretive signage within the park. The park brochure does describe a self-guided nature tour, including information on the various flora found within the trail area.

Grand Mere State Park -Self Guided Nature Trail

1. The Great Sauk Trail: One of the principle Native American Migration Routes in Michigan passed close to the Grand Mere area. During the 1600's and 1700"s several different tribes traveled through the area to each the St. Joe River. These tribes would camp along the shores of the inland lakes where they could fish as well as hunt beaver, muskrat, waterfowl, frogs and turtles before moving on.

2. Musclewood: (Carpinus caroliniana, bluebeech, hornbeam)Thrives in moist rich soils mainly along lakes and streams in the understory of hardwood forest. It is readily identified by it's muscle-like ridges of the trunk. It's other name, Hornbeam, is from the words "horn" (for toughness) and "beam" (for tree) referring to it's very tough and hard wood.

3. South Lake: When the glaciers retreated, they left an area know as the Great Lakes Basin. In addition to the five largest freshwater lakes in the world, many smaller freshwater lakes are found across the terrain of Michigan. Here is South Lake, sister to North Lake. Two lakes, south of this lake, have since filled in are now wooded swamps, and remnants bogs. The waters from this inland lake system drain into Lake Michigan from an outlet off North Lake.

4. Tree cavities: Whether found near the ground or high up, tree cavities are beneficial nesting boles for many woodland creatures. Opossum, squirrel, fox, raccoon, bats and wood ducks are just a few of the animals that use tree cavities to raise young or seek safety. Cavities are formed when tree limbs and knots decay and fall off, exposing the sapwood and heartwood.

5. White Oak: (Quercus alba)* The classic White Oak of Eastern U.S. is found growing in moist well-drained uplands and lowlands. It is slow-growing, long-lived (500-600 years) and differs from it's cousin in the Red Oak by having round-lobed leaves instead of bristle-tipped lobes of the red oak. It's acorns mature in one season and are an important food crop for squirrel and deer. It's also called "Stave Oak" because it's wood, when cut into narrow strips (staves), is an outstanding material for making light barrels for whiskey.

6. Ferns: In place of flowers, fruit and seeds that enable most plants to propagate themselves, ferns have spores. Spores are a single-celled reproductive organ. They are dust-like and are hidden on the underside of the frond and upon maturity, burst, and scatter where they germinate. Ferns are characterized by compound leaves (frond) with divided leaflets. The four most common ferns found here are bracken, royal, sensitive and cinnamon.Red Oak: (Quercus rubra)* The red oak, whose leaf lobes are bristle-tipped, produces acorns that mature the second year. Read oak demands more moisture than white oaks, but they also tolerate colder climates. In the northern Lower and Upper peninsulas, red oak can be found on sandy, well-drained soils with white and red pines. It is an important lumber tree, it's wood being used in flooring, furniture, fence posts, railroad ties and pilings. It is a rapid grower and is an important landscaping tree for parks and lawns.

8. Tipovers: In bottom land wood communities where the water table is close to the surface, the root complex of trees have a tendency to spread out laterally rather than grow downward. As the trees mature, much of their mass is above ground and they literally become top heavy without a deep root system to stabilize them. Periodically during strong storms with high winds, a tree will blow over, pulling it's root system out of the ground. Occasionally, enough roots remain in the ground to keep the tree alive and it continues to grow literally laying down on the job. Otherwise, it will probably decay and provide food and shelter for forestland creatures.

9. Witch-Hazel: (hammamells virginiana) The interesting note on this tree is the time of flowering. Flowers appear in October and November and continue well after leaf fall. The tree is shade-tolerant, slow growing and short-lived. The forked twigs were used by water diviners or "well witchers" to seek water. Witch-Hazel astringent is obtained from the leaves, twigs and bark and used in lotions and medicinal extracts.

10. Sassafras: (Sassafras albidum) Favors well-drained soil and ample sunlight. It is easily identified by three distinct shapes of leaves on the same tree; unlobed, 2-lobed "mitten" and 3-lobed (rarely 5-lobed). Oil of sassafras is distilled from the bark of the roots. It is used to flavor medicines, candy, tobacco and soap. Sassafras tea, made from the rood bark (which has a distinct root beer odor) was used as a spring tonic to "thin the blood".

*Oak Trees: Oaks are divided into two groups, white and read oaks, each group is comprised of many species. There are more than 400 oak species in the world. The white oak group is characterized by leaves with rounded lobes and acorns tat mature in their first year. The red oak group has leaves with bristle-tipped lobes and acorns that mature in their second year.

Text from Grand Mere State Park Trail Guide

A8. Regional Recreational Resources

This section presents the recreational resources available at Grand Mere State Park as well as recreational facilities in the southwest Michigan region.

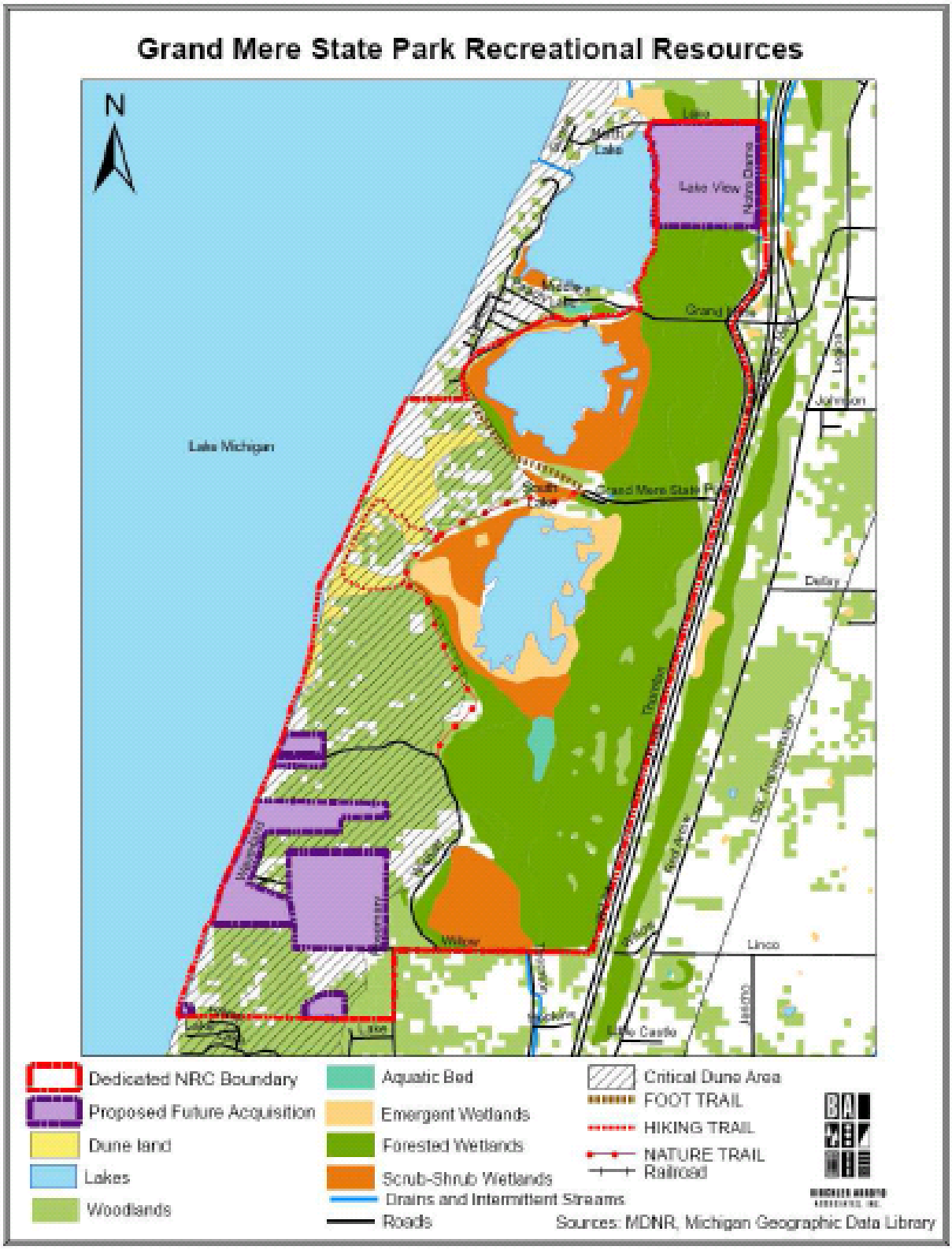
A8.1 Recreational Resources - Current Land Use within the Park

Grand Mere State Park offers dune areas, nature trails, a picnic area with shelter. Park activities include hiking, hunting/trapping, boating, fishing, and bird watching. Cross-country skiing is available in the winter months. A boat launch provides access to Middle Lake, a small inland lake with no access to Lake Michigan. These waters offer fishing, boating and hunting opportunities. See Map 12.

Areas of Conflict within Grand Mere State Park

With diverse and multiple interests come the potential for conflict between users and/or between users and the natural resources or historic/cultural values of the Recreation Area. Conflicts will be reviewed during Phase II of the General Management Plan process.

Map 12: Park Resources



A8.2 Regional Recreational Resources - State Parks

Warren Dunes is approximately 3 miles south of Grand Mere State Park along Lake Michigan. Warren Dunes has three miles of shoreline, six miles of hiking trails and is open year-round. It also has a dune formation that rises 260 feet above the lake with spectacular views and 1,952 acres of recreational opportunity.

Warren Woods State Park is located approximately 5 miles from Grand Mere State Park. Two-thirds of Warren Woods Natural Area's 311 acres consist of a beech/maple climax forest. A quiet hiking trail leads over a bridge that looks over the rustic Galien River in this undisturbed natural area.

Van Buren Trail State Park, about 24 miles from Grand Mere State Park, is a 15-acre linear park featuring a dirt or gravel surfaced multi-use trail that runs between Hartford and South Haven.

Van Buren State Park, about 31 miles from Grand Mere State Park, has one mile of sandy beach and high dune formations along the Lake Michigan shoreline**.** This 400-acre park offers camping, hunting, swimming and hiking.

Indiana State Dunes National Lakeshore, about 35 miles from Grand Mere State Park, is approximately 15,000 acres, contains 25 miles of Lake Michigan shoreline and eight beaches. It is situated between Gary and Michigan City, IN. Camping facilities are available at Dunewood Campground (just south of US 12 via Broadway) in the National Park, at nearby Indiana Dunes State Park, or at private campgrounds.

Indiana Dunes State Park, located about 44 miles from Grand Mere State Park, contains 2,182 acres and three miles of Lake Michigan shoreline. Recreational opportunities here include swimming, camping, hiking, fishing, picnicking and cross-country skiing.

A8.3 Regional Recreational Resources - State Forest Lands/Federal Lands

There are no State forests or Federal lands in the nearby area of Grand Mere State Park.

A8.4 Regional Recreational Resources - Local Recreation Opportunities

Determination of existing recreational facilities and programs is an essential step in the recreation planning process. Regional facilities are summarized in Table 5 at the end of this section.

North Lake Park, located at the northern end of Grand Mere State Park features a shelter, picnic area and fishing site on North Grand Mere Lake.

Lincoln Township Beach and Nature Trail is adjacent to Grand Mere State Park to the north, and features stairs and a look-out onto Lake Michigan.

Lincoln Township Community Center, about three miles from Grand Mere State Park features a picnic shelter, sport fields and winter ice skating.

Rudnick Park, about 5 miles from Grand Mere State Park features fishing and a picnic area.

Glenlord Beach, approximately 5 miles from Grand Mere State Park, includes stairs and a look-out on Lake Michigan and the west end of Glenlord Rd.

Lakeshore Youth Baseball and Softball Park is located about 5 miles from Grand Mere State Park and is home to ball fields and concessions.

Sarett Nature Center, located about 15 miles from Grand Mere State Park in Benton Harbor, contains nearly five miles of trails, including boardwalks and observation platforms within a 500-acre nature center. One of the trails is barrier free. Trails that run atop the Paw Paw River bluffs provide great views of the river valley below, and boardwalks down in the floodplain give an up-close look at wetland habitats and wildlife. This site also contains a unique alkaline wetland called a fen.

Fernwood Botanic Garden, located in Niles, approximately 23 miles from Grand Mere State Park contains gardens surrounded by forest on 105 acres of cultivated and natural areas along the scenic St. Joseph River valley. This park contains miles of trails, an art gallery, fern conservatory, nature center, cafe, and gift shop. Fernwood offers many possibilities for learning and enrichment, including classes, workshops, lectures, concerts, trips, exhibits, and special events.

Trails

The "Backroads Bikeway" trails provide twelve self-guided tours on paved area roads, with lengths from 5 to 60 miles. The routes follow secondary roads over rushing streams and through picturesque rolling hills, patchwork farmland and beautiful meadows, parks and forests. Attractions along the way include the New Buffalo Railroad Museum on the Union Pier, Lake Michigan Trails, Warren Woods State Park, Warren Dunes State Park and Grand Mere State Park.

Warren Dunes Trail (35 Miles) Pedal through the peaceful, rustic villages of New Troy, Baroda, Stevensville, Bridgman, and Sawyer. Climb the sand dunes, picnic, swim and camp at Warren Dunes State Park.

Grand Mere Trail (50 Miles) This trail runs along the Sunset Coast countryside, runs through Stevensville and into Warren Dunes State Park.

Boat Launches/Marinas

There are several marinas at Lake Macatawa, providing over 100 transient slips in addition to reserved slips.

Table 5: Summary of Regional Recreational Resources
Sources: Berrien County, Lincoln Township, Lake Township, State of Michigan

Recreational Resource	County	Municipality	Features																
			Picnic Area	Hiking	Hunting/ Trapping	Biking	Play-ground	Equestrian	Swimming	Boat Launch	Snow Mobilin g	XC Skiing	Concession/ Vending	Camping	Drinking Water	Rest Rooms	Showers	Sport Field/Ct	Fishing
State Resources																			
Grand Mere State Park	Berrien	Lincoln Township	X	X	X					X		X							X
Warren Dunes State Park	Berrien	Lake Township	X	X	X		X		X			X	X	X	X	X	X		X
Warren Woods State Park	Berrien	Lake Township		X															
Van Buren Trail State Park	Van Buren	South Haven		X		X						X							
Van Buren State Park	Van Buren	South Haven	X	X	X		X		X										
Indiana Dunes National Lakeshore		Porter, IN	X	X		X	X	X	X				X	X	X	X	X		X
Indiana Dunes State Park		Chesterton, IN	X	X		X			X			X							X
County Resources																			
Galien River	Berrien	New Buffalo Township		X															
Love Creek	Berrien	Berrien Springs		X		X						X							
Madeline Bertrand	Berrien	Niles	X	X		X	X					X							
Rocky Gap	Berrien	Benton Township	X						X										
Silver Beach	Berrien	St. Joseph	X				X		X									X	
Municipal Resources																			
Lincoln Township Community Center		Lincoln Township	X				X											X	
Glenlord Beach		Lincoln Township																	
Lakeshore Youth Baseball & Softball Park		Lincoln Township											X					X	
Lakeshore Youth Soccer Park		Lincoln Township																X	
North Lake Park		Lincoln Township	X																X
Rudnick Park		Lincoln Township	X																X
Township Beach & Nature Trail		Lincoln Township		X															

Operated by Alpena County.

A9.
Park Use and Economic Impact

A9.1 Park Use

Grand Mere State Park has a beautiful location on Lake Michigan, providing an opportunity for visitors to experience the beauty unique to this part of the state. This draw brings approximately 45,000 people annually (2007 data).

A9.2 Economic Impact

To determine the park's economic value to the community, the Money Generation Model Version 2 (MGM2 Short Form) was applied. Dr. Dan Stynes of Michigan State University developed this economic analysis tool. The MGM2 Short Form is an update of the MGM model developed by Dr. Ken Hornback for the National Park System in 1995. The purpose of the model is to estimate the impact of park visitor spending on the local economy. These economic impacts are reflected in terms of sales, income, employment, and value added.

This MGM2 Model uses three factors for determining economic impact or tourism spending: *number of visits* multiplied by the *average spending per visitor* multiplied by a *multiplier,* which estimates the extended effects of direct spending. The formula produces a very basic analysis that is ideal for the non-economist and an excellent tool for obtaining a base-line assessment of the economic impacts of Grand Mere State Park.

<u>Direct Economic Effects to the Community</u>
The MGM2 Model results indicate that Grand Mere State Park is contributing to the local economy (based on 2005 data):

- <u>Direct Spending</u> attributable to Grand Mere State Park totaled $478,000

- <u>Jobs</u> created totaled (Note: jobs may include full-time, part-time and seasonal employment): 15

- <u>Personal Income</u> totaled $163,000

- <u>Value added</u> (total income plus business taxes) totaled $245,000

Total Economic Effects to the Community

Total economic effects reflect 'Direct Effects' plus the 'Secondary Effects' of visitor spending on the local economy. Secondary Effects (sometimes called 'Multiplier Effects') capture economic activity that results from the re-circulation of money spent by the park visitors in the community. Based on 2005 data, the estimated total economic effects for Grand Mere State Park are:

- Total Spending: $632,000
- Jobs: 18
- Personal Income: $214,000
- Value Added: $340,000

Appendix B
Stakeholder & Public Input Workshop Results

Public Participation

The Department of Natural Resources and Environment Recreation Division (DNRE-RD) emphasized that comments on the general management plans would be accepted at any time during the process. The formal public participation program included an extensive public participation component in the general management plan process. The participation initiatives are summarized below, and the results are presented in this Appendix.

- **February 12, 2009** Stakeholder Workshops: The purpose of the two workshops was to obtain comments on the draft General Management Plans for 1) Holland State Park and Saugatuck Dunes State Park, and 2) Grand Mere State Park, Warren Dunes State Park and Warren Woods State Park. With assistance from the Planning Team, approximately 138 people and organizations were identified as stakeholders. Invitations to the Stakeholder Workshops were sent by email, mail and phone. Thirty-five people attended the two workshops. The sign-in sheet is included in this Appendix.

  Stakeholders were invited to comment at the meeting. Stakeholders could also comment by completing a survey. The surveys were provided at the workshops and were also available on-line.

- **April 30, 2009** Public Input workshops for Grand Mere State Park, Warren Dunes State Park and Warren Woods State Park. The above noted people were again contacted regarding the public input workshops by mail and email. Stakeholders and others were encouraged to share this information with interested members of the general public. Two sessions, one from 2:30 – 5:00 p.m. and the second from 6:30 – 9:00 p.m., provided opportunities for the public to attend, learn about the process and comment on the draft plans. Approximately 25 people attended the two sessions.

  There were three opportunities to provide comments:
  1) Comment at the workshop.
  2) A hard-copy survey available at the workshop
  3) The survey was available online

Comments provided in response to February 12, 2009 Stakeholder Workshop (Grand Mere State Park)

Grand Mere

- May be important to develop information about nearby commercial sand mining (potential impact on Critical Dunes).
- Can lily pads in North/Middle Lake be cleared to facilitate fishing by young children?
- Any plans for active recreation on former sand mine.
- Citizens Committee for Michigan State Parks is promoting a new funding mechanism for State Parks from auto license fees – Michigan vehicle license plate would replace daily or annual permit; add this information to drop-io and BA Websites.
- There was overall concurrence to expand the "Natural Area" designation
- Preserve the habitat in these parks that attracts birds; consider the construction of a viewing platform or tower on South Lake to provide an unobstructed view of the lake and wetlands

Comments provided in response to April 30, 2009 Stakeholder Workshop
Grand Mere

- Louisiana Waterthrush (not Warbler)
- Warren Dunes & Grand Mere are not appropriate areas for hunting – most access through Weco.
- How does RD identify zone boundary on the ground.
- Is snowmobiling always allowed in any Natural Resource Recreation zone?
- Grand Mere trail system not appropriate for snowmobiling due to small size, Critical Dune, Natural Area.
- Concern that Grand Mere should be protected from heavy use.
- Do any State Parks permit vendor equipment rentals?
- Sarett Nature Center runs many educational programs for school children in these parks.
- Nature center programs frequently experience conflict with hunters at Grand Mere (early goose season is reason)
- Noise of firearms a little out-of-character with resources at GMSP.

Survey Responses

- **Statements of Purpose**
  - Maintain the way it is; don't accessible to wheel chairs or strollers – point to hiking

- **Statements of Significance**
  - I enjoy the hiking

- **User Conflicts/Issues**
  - Sometimes running into hunters – we had dark clothing – perhaps better signage for non-hunters

Meeting Notes (Paul N. Curtis)

Meeting with the Rosemary Beach Association (RBA)
Regarding the Grand Mere SP – Phase 1 – General Management Plan

September 28, 2009

1:15P – 4:15P
Warren Dunes SP – Headquarters

Attending:

- Paul N. Curtis, DNRE
- Mike Terrell, DNRE
- Dave Gordon, RBA
- Sharon McAloon, RBA
- Stu Voights, RBA
- Carolyn Hesse, RBA
- Tom Richards, Waverland Association

Notes:

- The RBA participants of this meeting represent a sub-committee for the Association. They are charged to explore the impacts of the DNRE planning process on their Association and to report back.

  Prior to the meeting, Dave Gordon provided me with a list of questions. Attached is that list with responses included.

- The meeting started with introductions. I provided all with a folder of information, including:

  - Business card for future contact
  - List of questions/responses
  - Map of Grand Mere SP
  - Map of Grand Mere SP Boundaries (2004 and 1984 NRC)
  - Map of Phase 1 – Management Zones
  - RD - Standard Management Zones (definitions)
  - List of stakeholders
  - 2009 Michigan Hunting and Trapping Guide
  - Michigan Waterfowl Hunting Guide (2009-2010 seasons)

  Additionally, I had a larger map of the Management Zones available for discussion.

- I went through a PowerPoint presentation that explains the Management Planning Process in general and Phase 1 of that process in greater detail. That was followed by another presentation that explains Phase 2 of the process.

  I noted to the group that many of the questions raised by RBA would be addressed in this overview.

  - Intermixed with the presentation, we addressed some of the zone recommendations for the park, and we had much discussion about the 2004 NRC Boundary. **We clarified for RBA that our interests at the south end of the park lie only with**

those inholdings north of the south boundary of the park…we do not have an interest in acquiring any parcels south of that line (RBA).

- The zone map still needs some corrections for clarity, which I acknowledged.
- It was recommended that text in the plan be inserted to clarify or better describe what is meant by "Proposed Future Expansion." (Note…we will change this to read "Proposed Future Acquisition")
- Dave Gordon then went through the list of questions, point-by-point. These were adequately answered.

The meeting adjourned, and I assured RBA that they will be invited to future (Phase 2) planning (no suggestion of dates).

Paul N. Curtis Responses – 9/10/2009

(For meeting with Rosemary Beach Association on 9/28/2009 @ Warren Dunes SP – HQ)

A. Questions regarding the Plan

1. Please provide an overview of the Grand Mere State Park General Management Plan Draft dated April 2009 (which will be referred to herein as the "Plan"), including the map that indicates the locations of Grand Mere State Park Management Zones (which will be referred to herein as the "Map"; collectively the Plan and the Map will be referred to as the "Plan").
   Please describe in general terms the Plan and the timeframe for implementing the Plan. How does the State envision the unfolding and evolution of the Plan over the next 5 or more years? In other words, what does DNRE hope to accomplish in 5 years, ten years, twenty years, etc? Is the April 2009 draft the current draft? Will there be a final plan? If so when?
   Will do this through a brief PowerPoint that explains the management planning process. (NOTE…this will address other questions posed below.)
2. Please define what DNRE is designating as Rosemary Beach and Waverland Beach and the other properties identified in the Map. Please describe the areas designated as "Proposed Future Expansion."

   Areas on the map denoted with purple color are those that are desired for future expansion. These are all within the 2004 NRC (Natural Resource Commission) established boundary for the park and total approximately 137 acres. Future acquisition of these lands will be on a willing seller basis.
3. What is the purpose for expanding the size of Grand Mere State Park (which will be referred to as "GMSP" or the "Park")? What is the ultimate goal for the Park size? The Plan describes the Park as currently being 985 acres in size. It appears from information on page 17 of the Plan that the goal is to increase the size of the Park to 3,738 acres. How is this expansion going to occur? Are there plans to include more properties than those located at Waverland Beach, the end of Wishart Path and the Kalamazoo Nature Center? What parcels would be included?

   The plan referred to was in draft form and reflected some errors that have since been corrected. The size of the park today (current

ownership) is 1,127 acres. The size of the 2004 Boundary is approximately 1,264 acres.

The purpose for identifying lands for future acquisition is to 'fill-in' ownership within the designated boundary of the park.

4. Please describe the areas where DNRE intends to expand Grand Mere State Park. Are Rosemary Beach and/or Waverland Beach considered high or low priority for DNRE acquiring land? Are properties in the area north of the current Park boundaries, between Lake Michigan and North and Middle Grand Mere Lakes (this latter area was historically known as and will be referred to as "Grand Mere Resort") being considered? Are other areas are being considered? Why or why not?

The map clearly identifies the 2004 NRC Boundary and the relationship of that to the areas of interest. Rosemary Beach is not part of that. If property <u>within the boundary</u> of the park comes up for sale, we will be interested in acquiring it.

Grand Mere Resort is not within the dedicated boundary and we do not have an interest there.

5. The Plan contains a "condensed review" of the Management Zones. Please provide more detailed information on what uses and purposes will be allowed in the Primitive Zone, the Natural Resource Recreation Zone and the Scenic Zone at Grand Mere State Park. Will additional trails be placed in the areas designated as Primitive Zone? Will hiking or other activities be limited across dunes in the Primitive Zone to limit damage to the dunes and prevent blowouts? Is the primary goal to preserve this unique natural resource which has been designated a National Natural Landmark or to provide another public recreational opportunity? Please give specific information on the planned uses for the Natural Resource Zone north of Rosemary Beach. What safety issues, traffic flows, are anticipated for this area?

I will provide the "Standard Definitions" of our Management Zones and briefly explain them. As stated in the (Draft) plan, the great majority of the park (91%) is zoned 'Primitive' with the intent of preserving and protecting the special natural resources found here and providing appropriate, dispersed recreation for hiking, hunting, birding, etc.

This plan recommends establishment of a state designated "Natural Area" (state law) for this entire zone to ensure protections that the National Natural Landmark designation cannot (no legal teeth).

Additionally, the area west of Wishart Trail (and extension of that old roadbed to the north) is protected under the Critical Dunes Act.

The purpose of the Natural Resource Recreation Zone (9%) is to provide the zoning necessary to allow for the existing day-use opportunities that already exist (e.g. boat launch and picnic

shelter) and for the potential for future rustic camping and/or camping cabins or yurts, and ADA trail development through the Primitive Zone for persons with disabilities. (NOTE…in this Phase 1 Plan, no specific actions are identified. That occurs in the Phase 2 Plan that establishes Long-Range Action Goals for the next 10 years.)

6. Will the size of the area designated as a National Natural Landmark on the Map be changed if and when the Plan is implemented? If so, what would the changes be? What if any protections do this provide? Will additional areas be given this designation and be protected?

   See note above re. proposed "Natural Area" designation under state law. That designation would be pursued in Phase 2 (Long-Range Action Goals) of the planning process.

7. If DNRE acquires the land that is now privately owned at Waverland Beach or the two properties at the end of Wishart Path, how will those areas be managed and designated – Primitive Zone or something else? How would the public access these areas? Are any parking lots or other facilities planned for these areas? Will the roads to these areas be abandoned? Will the primary access, facilities and parking continue to be at the present parking lot just off Thornton with the only access to Lake Michigan at the ends of trails or will new parking lots and facilities be developed at the areas that are now Waverland Beach and/or the homes at the end of Wishart Path? If the State acquires some, but not all of the parcels of land at Waverland Beach, does the State plan to allow public access to the beach across the parcels the State has acquired?

   In general, we do not 'zone' lands that we do not own. When property is acquired, we'll modify the plan (through a public process) and apply the appropriate zone designation. The exception here is the reclaimed sand mine which will be turned over to the state. A small portion of that area is recommended to be zoned Natural Resource Recreation Zone to allow for development of a small parking area and perhaps a picnic shelter for purposes of education/interpretation of the reclamation.

   Specific long-range actions will be addressed in Phase 2 planning.

8. What are the State's plans with respect to Rosemary Beach? If the State acquires one or both of the parcels that the State has indicated that it wishes to purchase and that are currently owned by Gottschalls and Calabrese/Foy, how does the State plan to use those parcels? If the State acquires parcels in Rosemary Beach, does the State plan to provide public access to the beach through the property that is currently Rosemary Beach? If the State ultimately acquires Rosemary Beach, would the road into Rosemary Beach be abandoned and/or would public facilities be constructed at Rosemary Beach?

   We have no plans for acquisition of Rosemary Beach…only those areas identified in the plan.

9. Can DNRE acquire beach front for use as a public park even if DNRE does not acquire the rest of the property covered by the same deed?

Verbal discussion…not sure what is being asked…we can clarify this when we meet.

10. According to the Plan GMSP is underutilized; what does that mean? How will utilization be increased and what activities will be allowed? What volume and types of activity does the plan anticipate over the next 5 years? Has the State done any studies to predict the volume of public use of the Park after it is expanded? If so, what are the results of those studies? How will Grand Mere accommodate the increased influx of tourists? Will there ultimately be the kind of facilities and access there is at Warren Dunes - public facilities, structures?

Not many people go there. In 2007, the following types and numbers of permits were sold at the park:

- **(12) Annual Permits**
- **(1,037) Daily Permits**
- **(26) Senior Permits**
- **(3) Annual Non-Resident Permits**
- **(361) Daily Non-Resident Permits**

We do not have actual counts for people visiting, but our estimate for 2007 is that there were approximately 46,000 people who visited this park. To put this in perspective, Warren Dunes SP had an estimated visitation in 2007 exceeding 900,000.

Per the plan, this park is <u>not</u> being zoned for any significant increases in users. This is supported by the fact that 91% of the park area is zoned 'Primitive' for low-impact dispersed use.

11. On page 22 of the Plan, it is stated that visitors would sightsee in Scenic Zones by hiking or bicycle. Does the State plan to have bike trails at Grand Mere? If so, where? Or will all trails be limited to hiking and cross country skiing?

Thank you for pointing this out, it needs clarification. No bicycles are allowed in the Primitive Zone (where the majority of the Scenic Zone locations are). Therefore, if the Phase 2 Plan identifies bicycle use as desired and appropriate, the only place it could be allowed is in the Natural Resource Recreation Zone (this would allow access to the beach at the north end of the park, and access to 'near' the two high point locations identified as circles on the plan).

12. Will the size of the area where hunting is allowed be expanded? Will hunting with rifles be allowed? Please clarify where hunting will be allowed and the hunting seasons.

I don't foresee any changes in the area identified as "State Land Closed to Hunting" that currently exists. Waterfowl and deer hunting is done with shotguns. No rifle or handgun use is allowed in the park.

See "Hunting Guide" for seasons….

B. Opportunity to obtain information and participate in the planning process

1. The Plan mentions that stakeholders were involved and that there was a stakeholder workshop. Who are those stakeholders? The Plan also mentions two public participation workshops. Do any of the people who participated in any of these workshops own property at Waverland Beach, Rosemary Beach or Grand Mere Resort? Did the State try to contact or to provide actual notice of these workshops or the Plan to any of the people who own property at Waverland Beach, Rosemary Beach or Grand Mere Resort? If so, please describe and/or provide information on DNRE's efforts to provide actual notice to owners of property at Waverland Beach, Rosemary Beach and Grand Mere Resort.

   (98) stakeholders are on the distribution list developed by our planning consultant. Most represent groups, organizations, and local government. (Very few participated in the Stakeholder Workshops)

   For local property owner input, we rely on the "Public Input Workshop" forum. These were 'Public Noticed' on April 13, 2009 for meetings on April 29 and April 30 to address all four parks.

   Additionally, these plans were posted on the web for additional opportunity for comment.

   You will be directly notified of future (Phase 2) planning when that takes place.

2. What is the current status of the planning process? Is there still an opportunity to comment on the April 2009 Draft Plan? Will another draft Plan be issued and will there be an opportunity for public comment on that? Will the opportunity for public comment be reopened on the current Plan and any further redrafts or revisions? There are errors on the Map; will the errors be corrected and will there be an opportunity to comment on the corrected Map and Plan?

   I am reviewing final edits now, and welcome any input for needed corrections (edits). The recommendations of the plan are at the final stage and will be forwarded on for approvals.

3. Since the Plan mentions that this is the first Phase of the planning process, what are the opportunities to participate in the additional Phases of planning and implementing the Plan?

Phase 2 – Long-Range Action Goals is the next step, and stakeholder and public input workshops are part of that process. We did not have you listed as a 'Stakeholder' in our first Phase of planning, but will add you to the list for Phase 2. Please identify the appropriate contact name for your association. We will also add the internal property owners to the list.

4. What will be in Phases 2, 3, and 4 of the Plan and when will drafts of those Phases be available for review and comment?

Refer to PowerPoint of planning process…

5. How do we place our names on the list of interested persons to be notified of additional workshops and meetings and to receive other notices?

See response to #3 above….

6. Is there a website or other location such as a file at the public library, where we can obtain more information about the Plan? Where the website has inaccuracies, how does one get them corrected?

The website location for information on this planning process is:

www.drop.io/michdnrwest

The website of our consultant is:

www.birchlerarroyo.com

C. Questions regarding land acquisition

1. What is the source of funds for the expansion? Are private or non-profit organization funds or donations involved? Are any Federal "stimulus funds" involved? How much money is available for land acquisition to expand GMSP? Will any funds come from the Natural Resources Trust Fund or State Parks Endowment Fund?

The two primary sources of funding for land acquisition are:

- **Michigan Natural Resources Trust Fund**
- **Land Exchange Facilitation Fund**

The State Park Endowment Fund is not used for land acquisition.

2. What is the position of officials at Stevensville, Bridgman, Lincoln Township, and Lake Township regarding the expansion?

I have heard no comments.

3. Does DNRE plan to use eminent domain to acquire any property? We understand that DNRE would only buy property from willing sellers. What happens if an owner of a key property does not want to sell? Would the State bring a condemnation proceeding?

   The DNRE does not use 'eminent domain' to acquire property. We purchase properties on a "willing seller" basis. That means that unless a property is put on the market, or is offered directly for sale, gift, or exchange to the DNRE, we will not pursue it.

4. What has been the mechanism for acquisition of property for use as park land in other parts of the state? Have condemnation proceedings been used? Will condemnation proceedings be used here?

   See above response

Appendix C
Planning Team Meeting Summaries

A G E N D A

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
RECREATION DIVISION
Grand Mere – Warren Dunes/Warren Woods State Parks
General Management Plans and Regional Assessment Project

DATE: July 22, 2008
TIME: 1:45 - 5:00 pm
PLACE: Lake Township Hall
3220 Shawnee Rd., Bridgman, MI

1. Introductions
2. Project Overview
3. Exercise
   - Your interests
   - First impressions of each park's significance
   - First impressions of each park's purpose
4. Summary: What was heard
   Summary Report to be emailed - please provide your email address on the sign-in sheet.
5. Planning Team Meeting Schedule
6. Local Citizens Advisory Committee

Meeting Minutes

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
RECREATION DIVISION
Grand Mere State Park, Warren Dunes State Park & Warren Woods State Park
General Management Plan Project
DATE: July 22, 2008
TIME: 1:00 - 5:00 pm
PLACE: Lake Township Hall
3220 Shawnee Rd., Bridgman, MI

1. Project Overview
Paul Curtis, DNRE-RD Management Plan Administrator, began the meeting by providing an overview of the General Management Plan process.

2. Exercise:
Birchler Arroyo Associates led an issues / solutions exercise. A brief description of each park was given, after which participants were asked to identify issues and solutions, as well as the significance and purpose of Grand Mere, Warren Woods, and Warren Dunes State Parks. This meeting followed a tour of all three parks, which took place earlier in the day.

A. Grand Mere State Park

1. Issues
   - Doesn't appear on State Highway Map (visibility)
   - Currently "neglected" – budget
   - Underutilized, non-revenue producer
   - Many features of Warren Dunes without the crowds
   - Cross Country skiing / hunting conflict
   - Some unauthorized ORV use
   - Dumping
   - Invasive species require control
   - ¾ mile hike from parking to beach not for casual visitor
   - Users park at Township's informal parking area (Township beach 66' access) causes occasional conflict
   - Loop trail over dune is very steep/challenging – often attempted by people who need assistance to return (not adequately signed).
   - Nude sunbathing conflicts with private owner neighbors
   - Private property owners on GM Road have cut brush/trees for views of Middle Lake.
   - Losing vegetation to herbivores, insects & disease.

2. Solutions
   - Brush removal around parking area may reduce some problems

- Resolve ownership / access easement issues in southern part
- Increase use to put peer pressure on problem users
- Need increased presence of staff as well as users (stewards)
- Not much more than a roadside stop at present. Needs development of facilities to encourage use.
- Use should be low impact, interpretive-oriented type

B. Warren Dunes State Park

1. Issues
   - Protect dunes – "sacrificial" dune not only one being used by adventure seekers with dune boards, etc.
   - Need more education about why the dunes require protection
   - Engage out-of-state visitors in the education process
   - We need more info about the ecology of the dunes from an expert
   - How many more park users can the dunes handle, what # employees are needed?
   - Missing children are often found in the Painter Creek "Clay pit" – safety issues.
   - Chicago-area beaches are often private. Warren Dunes is a tradition for many Illinois residents.
   - Warren Dunes is like "up north" for many Illinois residents
   - Safety issues related to foundations and other remnants from burned-out church camp (on Warren Foundation land).
   - North of Painter Creek is relatively undeveloped, critical dune area Everything south & east is more developed area
   - Ginseng is being poached
   - Garlic mustard and other invasives are difficult (impossible) to control
   - Very low use by minority populations
   - Mentoring program intended to introduce city kids to natural areas
   - Very limited Native American evidence
   - Warren Dunes infrastructure is aging, especially given the extremely high use
   - Warren Dunes gives a poor first impression of the State Park System
   - Lack of stewardship by out-of-state visitors may relate to condition of facilities
   - $2 million annual improvement fund for 98 parks (Need $840 million)
   - Auto-bicycle conflict on park road

2. Opportunities
   - Major Great Lake access (many users out-of-Michigan)
   - Significance: *Major revenue generator for the State system, *Could be showpiece to introduce visitors to full State Park system

3. Warren Woods Issues
   - "Tree carving" a minor problem
   - Greater use may bring more invasive species

- Portion is state-dedicated Natural Area
- Path is not barrier-free but has reasonable accommodation while protecting resource
- Park is “heavily” used as research site.

3. Attendance: Members of the Management Planning Team for Warren Dunes, Warren Woods, and Grand Mere State Parks:

Lt. David Van Sumeren, Plainwell District
Joe Strach, District Planner
Jeff Johnson, Student Assistant
Drew Montgomery, Warren Dunes Unit
Michael Terrell, Warren Dunes Park Manager
Roland Johnson, RD Plainwell District Manager
Jill Bahm, Birchler Arroyo Associates, Inc
David Birchler, Birchler Arroyo Associates, Inc
Rob Corbett, OLAF, lands
Janet Canode, Office of Communications
Steve Chadwick, Wildlife Biologist
Kim Dufresne, FMD Fire
Tom Hoane, FMD, Mineral Geologist
Brian Gunderman, Fisheries Biologist
Mark MacKay, WLD DNR Planner
David Price, FMD, Planning
John Lerg, WLD
Paul Curtis, RD Park Mgt. Plan Admin.

A G E N D A

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
RECREATION DIVISION
Grand Mere State Park – Warren Dunes State Park
General Management Plans – Planning Team Meeting #2

DATE: September 30, 2008
TIME: 2:00 – 5:00 pm
PLACE: Lake Township Hall (3220 Shawnee Rd., Bridgman)

1. Brief Review of Background Analysis for GMSP & WDSP (2:00-2:30)
2. Discussion of Core Values & Preliminary Identification of Management Zones

- Grand Mere State Park (2:30-3:15)
- Warren Dunes State Park (3:15-4:00)

3. Group Reports to Planning Team (4:00-5:00)

Results from group exercise to be compiled into GMP statements of purpose and significance and will be distributed after meeting.

MEETING SUMMARY

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
RECREATION DIVISION
Grand Mere State Park – Warren Dunes State Park
General Management Plans – Planning Team Meeting #2

DATE: September 30, 2008
TIME: 2:00 – 5:00 pm
PLACE: Lake Township Hall (3220 Shawnee Rd., Bridgman)

Attendees: David Price, Rob Corbett, Paul Curtis, Joe Strach, Jeff Johnson, Paul Yauk, Carol Skillings, Janet Canode, Ray Fahlsing, Drew Montgomery, Mike Terrell, David Birchler, Jill Bahm

1. Brief Review of Background Analysis for GMSP & WDSP

David Birchler summarized the background analysis to date. A few corrections to the slides will be made.

2. Discussion of Core Values & Preliminary Identification of Management Zones

Attendees were divided into two groups and discussed each of the two parks. Their ideas and observations resulted in the suggestion of specific management zones for the parks.

3. Group Reports to Planning Team

Warren Dunes State Park

- This park has significant recreational opportunities for visitors, including a beach, an accessible sand dune, camping, hiking and the clay pits along the Painterville Creek; these areas should be identified as Developed Recreation
- The park headquarters and campground office should be identified as Visitor Services
- Due to the nature of the critical dune area between the beach, campground and the sand mine, this area should be identified as Primitive and/or Backcountry
- A Scenic Overlay is suggested at the top of the dune above the beach and the beach parking lot (for sunset viewing)
- It should be noted that Painterville Creek is a designated county drain
- An activist group is interested in expanding the currently designated natural area. It should be noted that in a designated natural area, no machines are permitted, except for rescue. Consider excluding the shoreline from natural area designation to allow DNR maintenance machines to move along the beach area.

- Weko Beach (owned by Bridgman Township) to the north of WDSP is a popular beach in the area, covering 42 acres and offering camping. A significant number of Weko Beach patrons gain access to WDSP beach without paying the park entrance fee that supports operations.

Grand Mere State Park

- GMSP is a rustic year-round day-use park with considerable shoreline access to Lake Michigan and a unique ecology
- GMSP provides a great educational opportunity, showcasing the history of landforms and important natural communities such as mesic southern forest, mesic northern forest, dry mesic southern forest, mesic lakeplain prairie, open dunes and critical dunes
- Since most of the park is undevelopable and the majority of the park land is identified as a critical dune area, the bulk of the property should be identified as Primitive
- Particular attention should be given to the wet mesic lakeplain prairie in the northeast part of the park, which should be noted as a Environmentally Sensitive Zone Overlay
- A Natural Resource Recreation Zone should be considered along the entry road, the day use site, the old sand mine sites and the boat access site
- A Scenic Overlay should be considered along Lake Michigan and at two high points west of the area between Middle and South lakes.

Wrap Up: The management zone maps will be drafted based on the comments from today's meeting. At the next planning team meeting, the zones will be reviewed along with statements of Core Values for the parks.

A G E N D A

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
RECREATION DIVISION
Grand Mere State Park – Warren Dunes State Park
Warren Woods State Park
General Management Plans – Planning Team Meeting #3

DATE: December 11, 2008
TIME: 1:00 – 4:00 pm
PLACE: Plainwell Operations Center
621 N. 10th Street , Plainwell, MI 49080

Lunch will be available at noon with Holland & Saugatuck staff

1. Review & Finalize the Management Zones for each park (1-2 p.m.)

Please review the attached map composites prepared from your comments at the September Team Meeting

2. Discussion of Statements of Purpose and Significance for each park (2-3 p.m.)

Please review the first few pages of the attached draft chapter

3. Identification of Key Stakeholders (3-3:30 p.m.)

Please bring names and contact information of those you would recommend and help us brainstorm other that should be invited into the management planning process

4. Review of Warren Woods – Paul Curtis (3:30 p.m.- 4 p.m.)

Meeting Summary
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
RECREATION DIVISION
Grand Mere State Park – Warren Dunes State Park
Warren Woods State Park
General Management Plans – Planning Team Meeting #3

DATE: December 11, 2008
TIME: 1:00 – 4:00 pm
PLACE: Plainwell Operations Center
621 N. 10th Street , Plainwell, MI 49080

In attendance: David Price (FMD), Carol Skillings (RD), Janet Canode (OMET), Kim Dufresne (FMD), Kayla Krajniak (student), Glenn Palmgren (RD), Mark MacKay (WLD), Paul Curtis (RD), Mike Terrell (RD-WDSP), Rollie Johnson (RD-Plainwell), Brian Gunderman (FISH), Steve Chadwick (WLD), Jay Wesley (FISH), Jill Bahm, David Birchler

Review & Finalize the Management Zones for each park

Warren Dunes:

- Expand the dedicated natural area through all the noted Primitive Zone, except the portion noted as Developed Recreation, shown in the current natural area; the proposed boundary change will show the creek as the boundary adjacent to the primitive camp (Glenn will verify).
- The Natural Resource Recreation zone will be modified to be adjacent to the critical dune boundary.
- The text should acknowledge that the designated zones will continue to support the active uses within the park.
- It was noted that the City of Bridgman has a trail at the north end, at Weko Beach, down the highway to the Warren Dunes parking lot; it may be possible to connect within the park further north. The city may be interested in connecting to the park's old church camp.

Grand Mere:

- It was suggested that the Natural Area designation be expanded to include the dry mesic southern forest area.
- The Natural Resource Recreation Zone allows for development of universally accessible trails because it is an old roadbed.

Warren Woods:

- The natural communities include mesic southern forest.
- The entire park should be designated as Primitive Zone; however, the natural area should not be proposed for expansion at this time.
- It should be noted that the lease terms for the property require opportunities be provided within the park for educational uses.

Discussion of Statements of Purpose and Significance for each park

- Warren Dunes: Mike Terrell will send the shape file containing the graphic representation of the leased portion of the park. This will be added to the section on legal mandates. Additional language regarding the elemental occurrences of sand and gravel beach, mesic southern forest, interdunal wetlands, and open dunes will be included. The number of visits will be verified and a statement that the park "is a significant source of revenue for the park system" will be added. Hang-gliding will be noted as a unique activity. Very significant migratory bird resource. Most diverse staff and users in State Park System. Purpose of park is lake access and recreation.
- Grand Mere: The first three points will be combined. Notes about the elemental occurrences of (high-quality) dry mesic southern forest and the disjunct (relic) northern forest community will be added. Historically the lakes were farmed as a cranberry bog. Strengthen the point that sand mine restoration efforts are an educational and an industry model. It will also be noted that the relatively undeveloped area and natural setting provide a unique recreation opportunity. A statement that the park provides a great opportunity for waterfowl hunting will also be added. Prime example of the natural progression of lakes (2 of original 5 are now cedar swamp).

Identification of Key Stakeholders

- The team brainstormed a list of stakeholders for both parks; additional research into contacts will be completed by the team.

Review of Warren Woods – Paul Curtis

Comments:

- The natural communities include untouched, old growth mesic southern forest.
- The management zone for the entire park will be Primitive.
- It was decided by the planning team to consider expanding the dedicated natural area at a later date.
- The property is currently under lease by the State and the lease terms require educational components for the property.
- The bridge over the river is a requirement of the State's lease, however, it could be considered in conflict with the Natural Area designation.
- Significance:
- A portion of the park has a National Natural Landmark designation.
- The park contains "A" rank for 98 acres of mesic southern forest and high-quality floodplain. The floor of both promotes growth of other species not found in the rest of Michigan.
- Seasonal fishing for walleye, steelhead and coho salmon are found in the Galien River, which runs through the park.
- River runs through lacustrine sand, which contributes, to its constantly changing route.
- Park supports variety and unique concentration of flood plain bird species.

- The park provides unique opportunities to view bird species, including the Louisiana Warbler, which is found within this park.

Recommendations to Approve

▪ November 30, 2009	RD Section Chiefs
▪ Dec. 9, 2009	Citizen's Committee for Michigan State Parks
▪ Dec. 15, 2009	Southern Lower Peninsula – Ecoteam
▪ Dec. 15, 2009	RD Management Team
▪ February 2, 2010	Statewide Council