



APPENDIX A

Supporting Analysis

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A1. Location

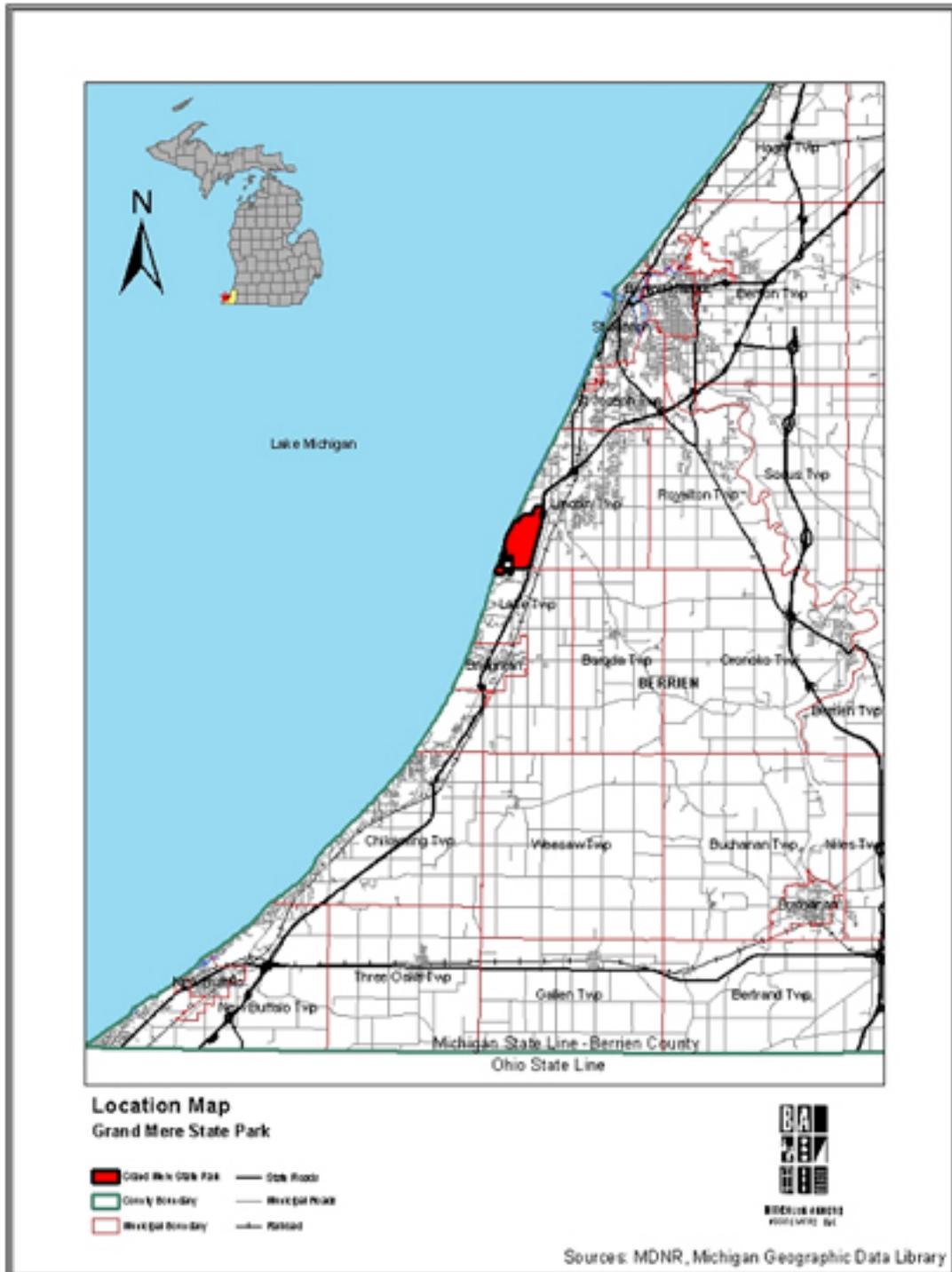
Location

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 $\frac{3}{4}$ 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).

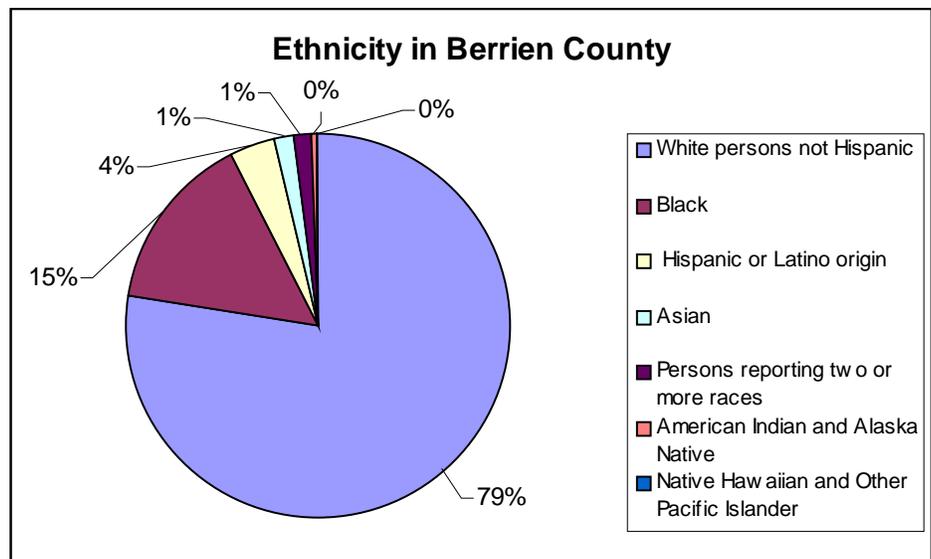


Table 1: Employment by Occupation

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).

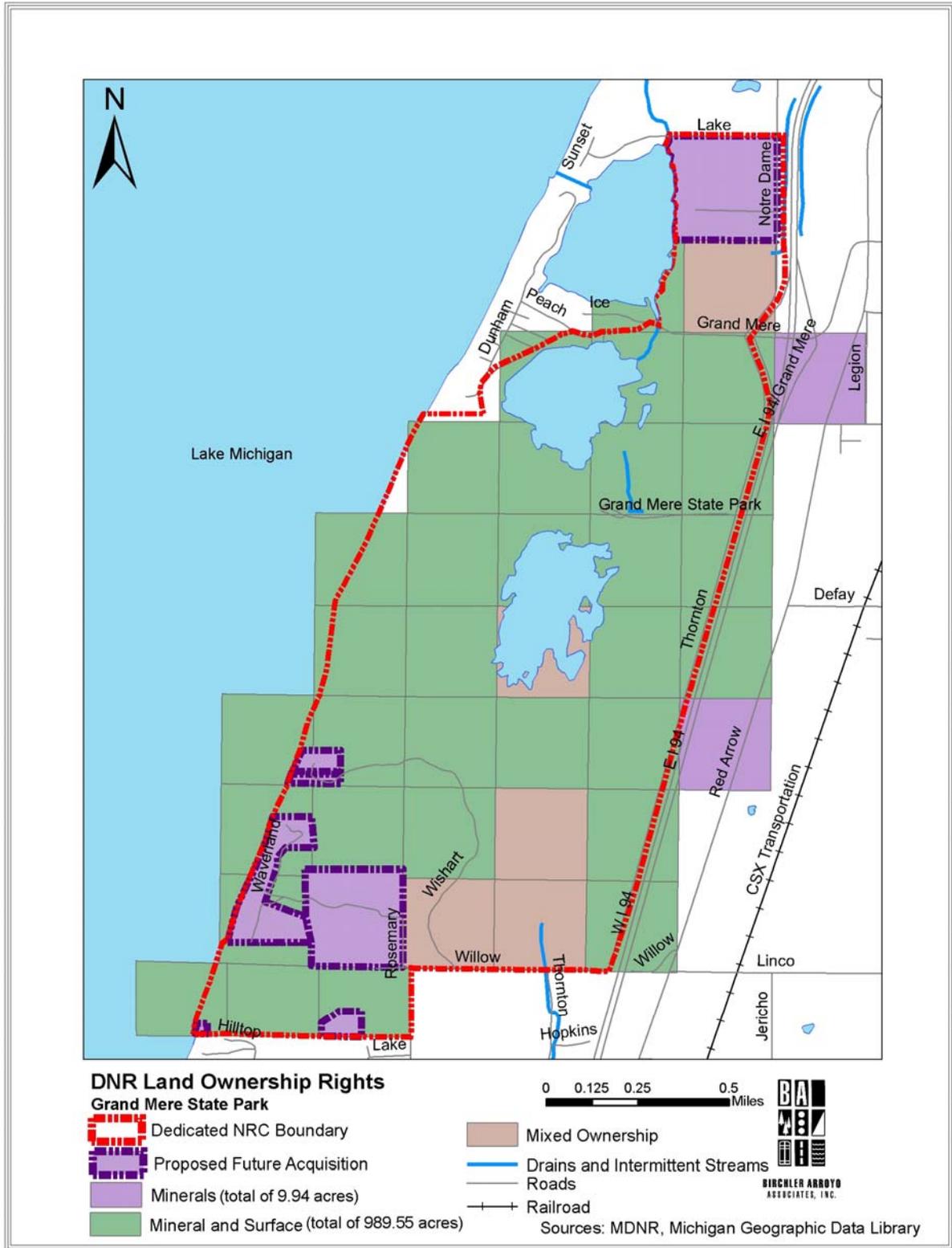
A highly diverse flora exists at Grand Mere, with over 550 species of plants documented within the park. Furthermore, Grand Mere lies in a unique place on the southern shore of Lake Michigan where plants typical of both northern and southern temperate latitudes grow together in the same community. Because 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.

Map 2: Land Ownership



A4. Existing Land Use, Zoning and Future Uses

Land Use

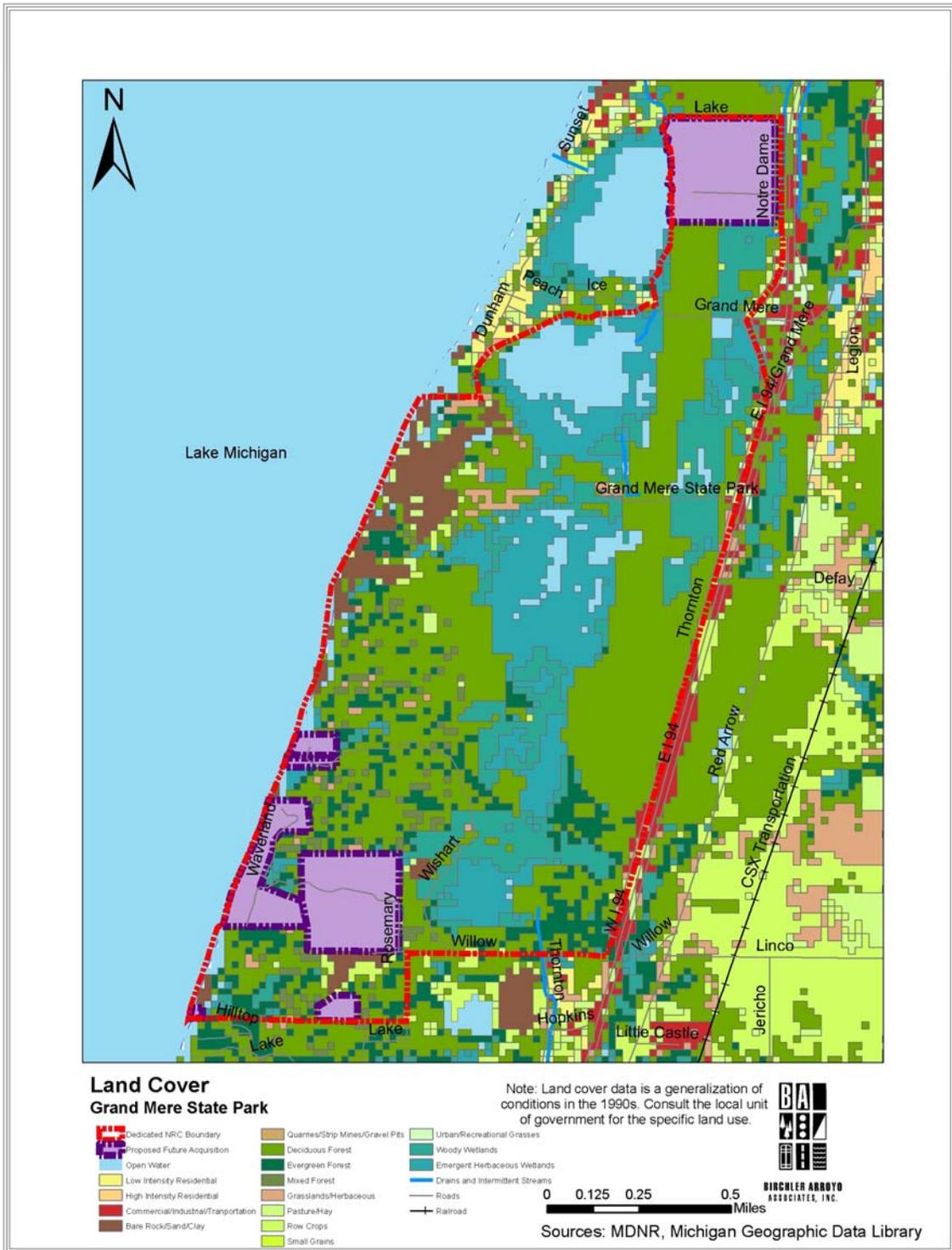
Existing land use, zoning district and future land use data for this section is based on information obtained from Lincoln Township and Berrien County. The data has been generalized for the purposes of this discussion. For exact representation, consult the local unit of government. A summary of the discussion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

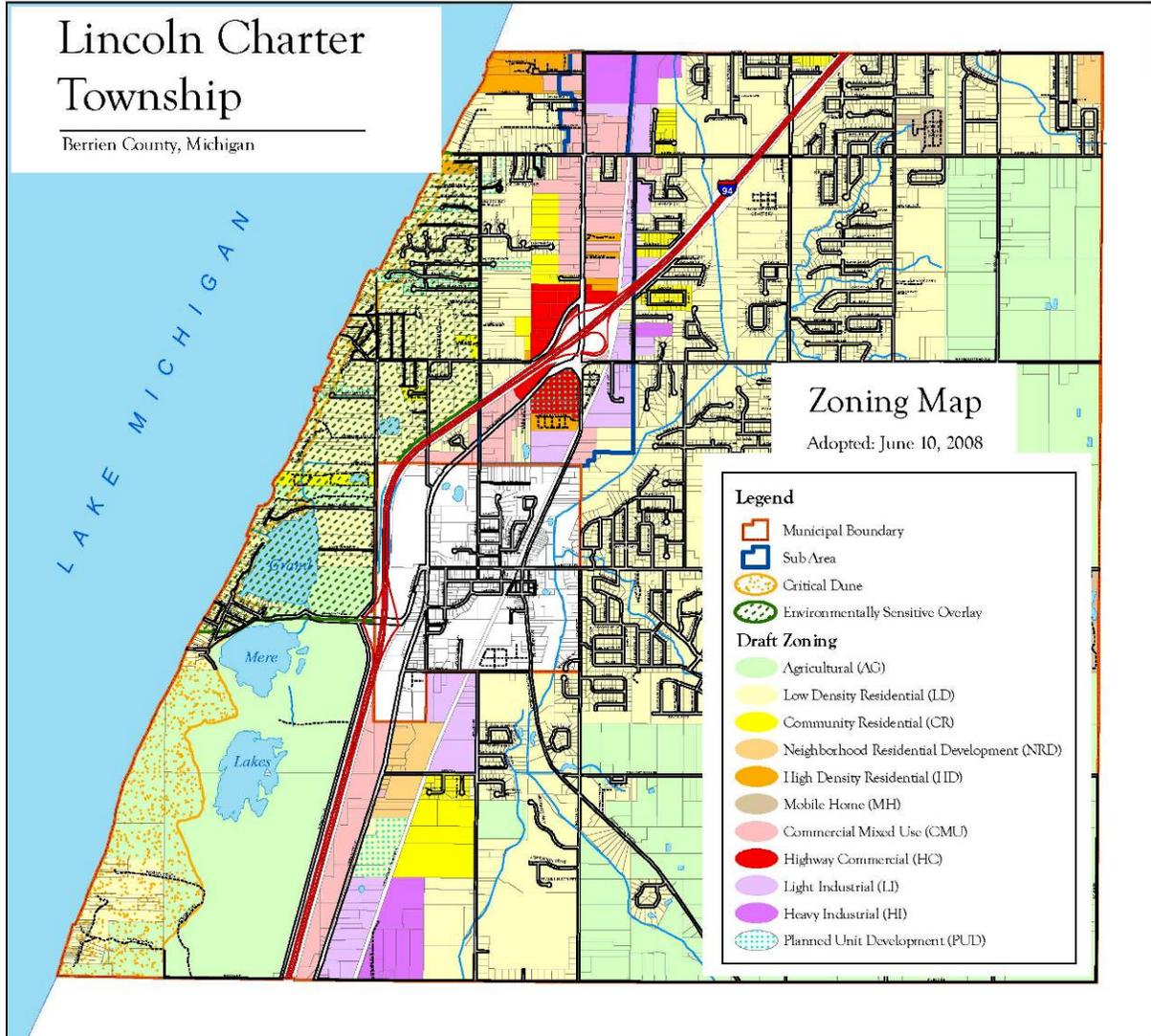
	Existing Land Uses	Zoning Districts	Future Land Uses
Grand Mere State Park	Recreational uses	Agriculture/ Critical Dune	Recreational
Land to the North (Lincoln Township)	Residential	Agriculture/ Environmentally Sensitive Overlay	Residential
Land to the South (Lincoln Township)	Residential	Agriculture/ 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	<i>NA - Bordered by Lake Michigan to the West</i>		

Map 5: Land Cover

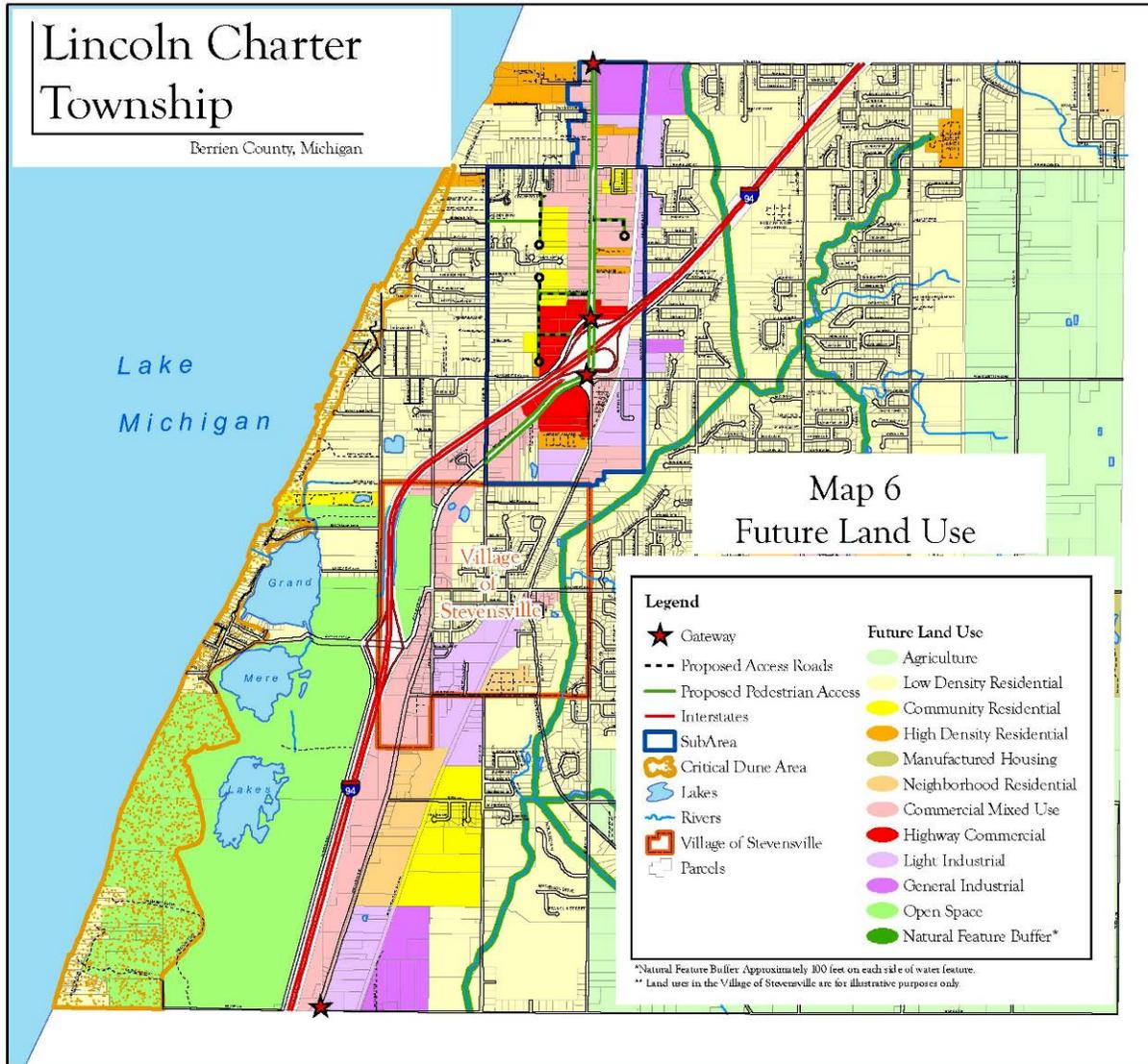


Zoning districts for the area are shown on Map 6. Zoning regulates how landowners may or may not use their property. The Park and most of the surrounding land is zoned.

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): 29.6°F
- Mean daily temperature during spring months (Mar, Apr, May): 57.4°F
- Mean daily temperature during summer months (Jun, Jul, Aug): 68°F
- Mean daily temperature during fall months (Sept, Oct, Nov): 40.8°F
- Mean annual precipitation: 36.97 inches
- Average annual total snow fall: 78.1 inches

Source: Michigan State University

Map 6: Ecoregional Context

Section VI.1 Washtenaw

VI.1.1. Maumee Lake Plain

VI.1.2. Ann Arbor Moraines

VI.1.3. Jackson Interlobate

Section VI.2 Kalamazoo

Interlobate

VI.2.1. Battle Creek Outwash

Plain

VI.2.2. Cassopolis Ice-

Contact Ridges

Section VI.3 Allegan

VI.3.1. Berrien Springs

VI.3.2. Southern Lake

Michigan Lake Plain

VI.3.3. Jamestown

Section VI.4 Ionia

VI.4.1. Lansing

VI.4.2. Greenville

Section VI.5 Huron

VI.5.1. Sandusky Lake Plain

VI.5.2. Lum Interlobate

Section VI.6 Saginaw Bay

Lake Plain

Section VII.1 Arenac

VII.1.1. Standish

VII.1.2. Wiggins Lake

Section VII.2 High Plains

VII.2.1. Cadillac

VII.2.2. Grayling

Outwash Plain

VII.2.3. Vanderbilt

Moraines

Section VII.3 Newaygo

Outwash Plain

VII.4. Manistee

VII.5. Leelanau and

Grand Traverse

Peninsula

VII.5.1. Williamsburg

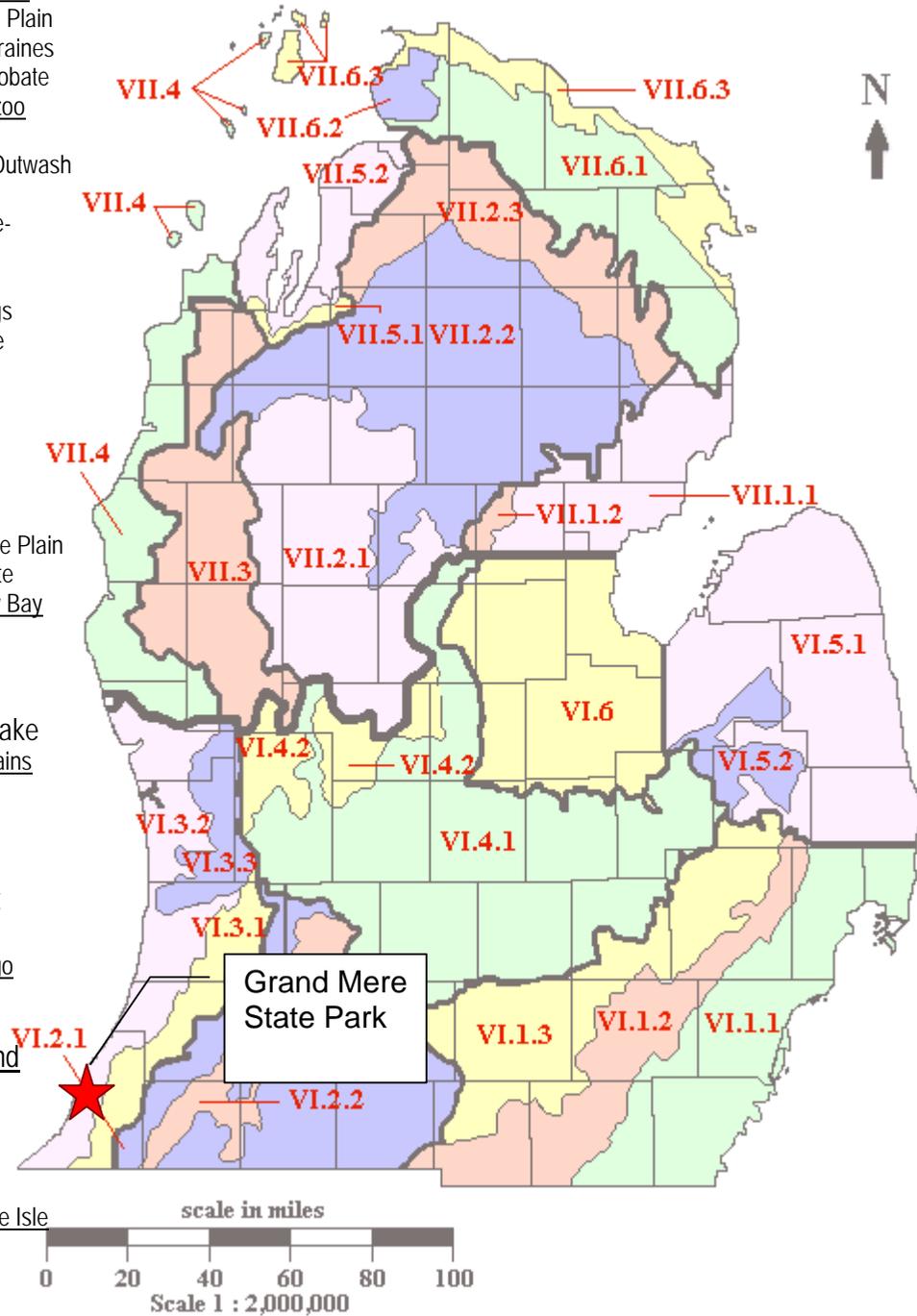
VII.5.2. Traverse City

Section VII.6 Presque Isle

VII.6.1. Onaway

VII.6.2. Stutsmanville

VII.6.3. Cheboygan



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

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

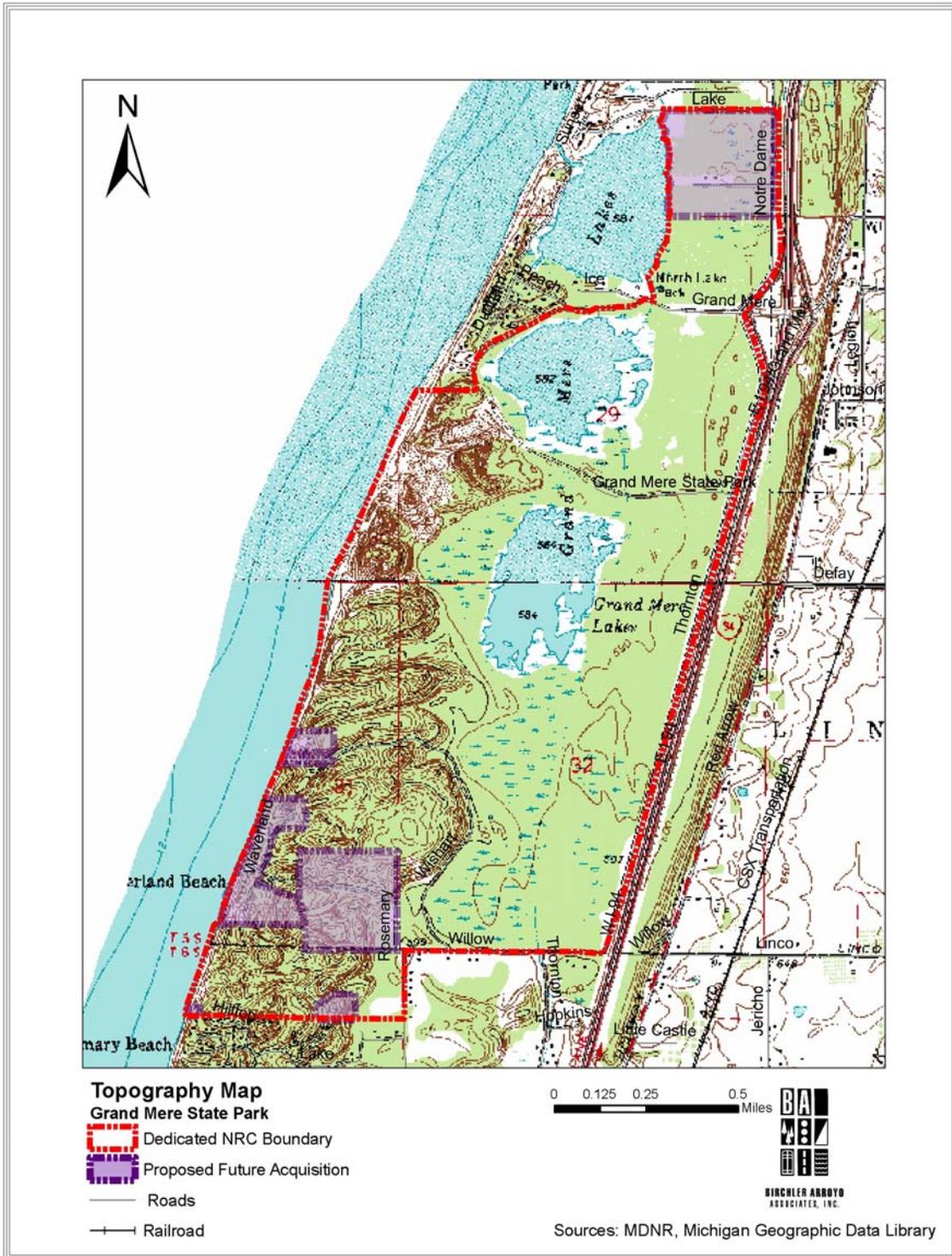
Scientific Name	Common Name	Federal Status	State Status
<i>Dendroica cerulea</i>	Cerulean Warbler		SC
<i>Dendroica discolor</i>	Prairie Warbler		E
<i>Dendroica dominica</i>	Yellow-throated Warbler		T
<i>Diarrhena americana</i>	Beak Grass		T
<i>Dodecatheon meadia</i>	Shooting-star		E
<i>Draba reptans</i>	Creeping Whitlow-grass		T
Dry-mesic Southern Forest			
<i>Dryopteris celsa</i>	Log Fern		T
<i>Eleocharis engelmannii</i>	Engelmann's Spike-rush		SC
<i>Eleocharis melanocarpa</i>	Black-fruited Spike-rush		SC
<i>Emys blandingii</i>	Blanding's Turtle		SC
<i>Epioblasma triquetra</i>	Snuffbox		E
<i>Eryngium yuccifolium</i>	Rattlesnake-master		T
<i>Eupatorium fistulosum</i>	Hollow-stemmed Joe-pye-weed		T
<i>Euphorbia commutata</i>	Tinted Spurge		T
<i>Euxoa aurulenta</i>	Dune Cutworm		SC
<i>Filipendula rubra</i>	Queen-of-the-prairie		T
<i>Fimbristylis puberula</i>	Chestnut Sedge		X
Floodplain Forest			
<i>Fontigens nickliniana</i>	Watercress Snail		SC
<i>Fraxinus profunda</i>	Pumpkin Ash		T
<i>Fundulus dispar</i>	Starhead Topminnow		SC
<i>Galearis spectabilis</i>	Showy Orchis		T
<i>Gentiana saponaria</i>	Soapwort Gentian		X
<i>Gentianella quinquefolia</i>	Stiff Gentian		T
<i>Gratiola virginiana</i>	Round-fruited Hedge Hyssop		T
Great Blue Heron Rookery	Great Blue Heron Rookery		
Great Lakes Marsh			
<i>Gymnocladus dioicus</i>	Kentucky Coffee-tree		SC
<i>Helianthus hirsutus</i>	Whiskered Sunflower		SC
<i>Helianthus mollis</i>	Downy Sunflower		T
<i>Hemicarpha micrantha</i>	Dwarf-bulrush		SC
<i>Hibiscus moscheutos</i>	Swamp Rose-mallow		SC
<i>Hieracium paniculatum</i>	Panicled Hawkweed		SC
<i>Hybanthus concolor</i>	Green Violet		SC
<i>Hydrastis canadensis</i>	Goldenseal		T
<i>Hypericum gentianoides</i>	Gentian-leaved St. John's-wort		SC
<i>Ictiobus niger</i>	Black Buffalo		SC
Interdunal Wetland	Alkaline Shoredunes Pond/marsh, Great Lakes Type		
<i>Ipomoea pandurata</i>	Wild Potato-vine		T
<i>Isotria medeoloides</i>	Smaller Whorled Pogonia	LT	E
<i>Isotria verticillata</i>	Whorled Pogonia		T
<i>Jeffersonia diphylla</i>	Twinleaf		SC
<i>Juncus brachycarpus</i>	Short-fruited Rush		T
<i>Juncus scirpoides</i>	Scirpus-like Rush		T
<i>Kuhnia eupatorioides</i>	False Boneset		SC
Lakeplain Wet-mesic Prairie	Alkaline Tallgrass Prairie, Midwest Type		
<i>Lechea pulchella</i>	Leggett's Pinweed		T
<i>Lepisosteus oculatus</i>	Spotted Gar		SC
<i>Linum virginianum</i>	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			
<i>Scleria pauciflora</i>	Few-flowered Nut-rush		E
<i>Scleria reticularis</i>	Netted Nut-rush		T
<i>Scutellaria elliptica</i>	Hairy Skullcap		SC
<i>Seiurus motacilla</i>	Louisiana Waterthrush		SC
<i>Silene stellata</i>	Starry Campion		T
<i>Silphium integrifolium</i>	Rosinweed		T
<i>Silphium laciniatum</i>	Compass-plant		T
<i>Silphium perfoliatum</i>	Cup-plant		T
<i>Sistrurus catenatus catenatus</i>	Eastern Massasauga	C	SC
Southern Hardwood Swamp			
Southern Wet Meadow	Wet Meadow, Central Midwest Type		
<i>Spartinophaga inops</i>	Spartina Moth		SC
<i>Speyeria idalia</i>	Regal Fritillary		E
<i>Spiranthes ochroleuca</i>	Yellow Ladies'-tresses		SC
<i>Spiza americana</i>	Dickcissel		SC
<i>Strophostyles helvula</i>	Trailing Wild Bean		SC
<i>Sturnella neglecta</i>	Western Meadowlark		SC
<i>Tachopteryx thoreyi</i>	Grey Petaltail		SC
<i>Terrapene carolina carolina</i>	Eastern Box Turtle		SC
<i>Tipularia discolor</i>	Crane-fly Orchid		T
<i>Trillium recurvatum</i>	Prairie Trillium		T
<i>Trillium sessile</i>	Toadshade		T
<i>Triphora trianthophora</i>	Three-birds Orchid		T
<i>Triplasis purpurea</i>	Sand Grass		SC
<i>Utricularia inflata</i>	Floating Bladderwort		E
<i>Utricularia subulata</i>	Zigzag Bladderwort		T
<i>Valeriana edulis</i> var. <i>ciliata</i>	Edible Valerian		T
<i>Valerianella chenopodiifolia</i>	Goosefoot Corn-salad		T
<i>Vitis vulpina</i>	Frost Grape		T
Wet Prairie	Wet Prairie, Midwest Type		
<i>Wilsonia citrina</i>	Hooded Warbler		SC
<i>Wolffia papulifera</i>	Water-meal		T
<i>Zizania aquatica</i> var. <i>aquatica</i>	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.

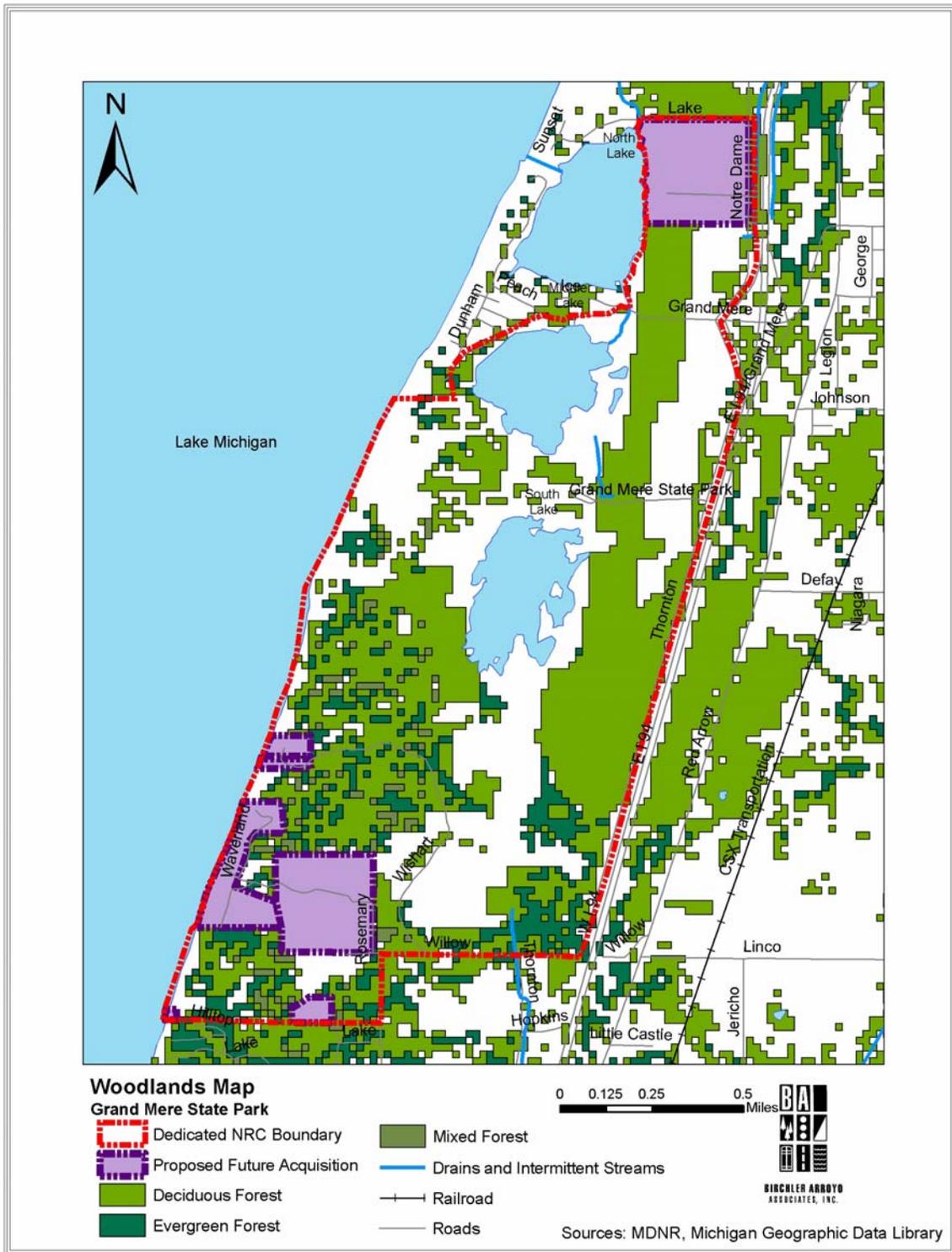
Map 7: Topography



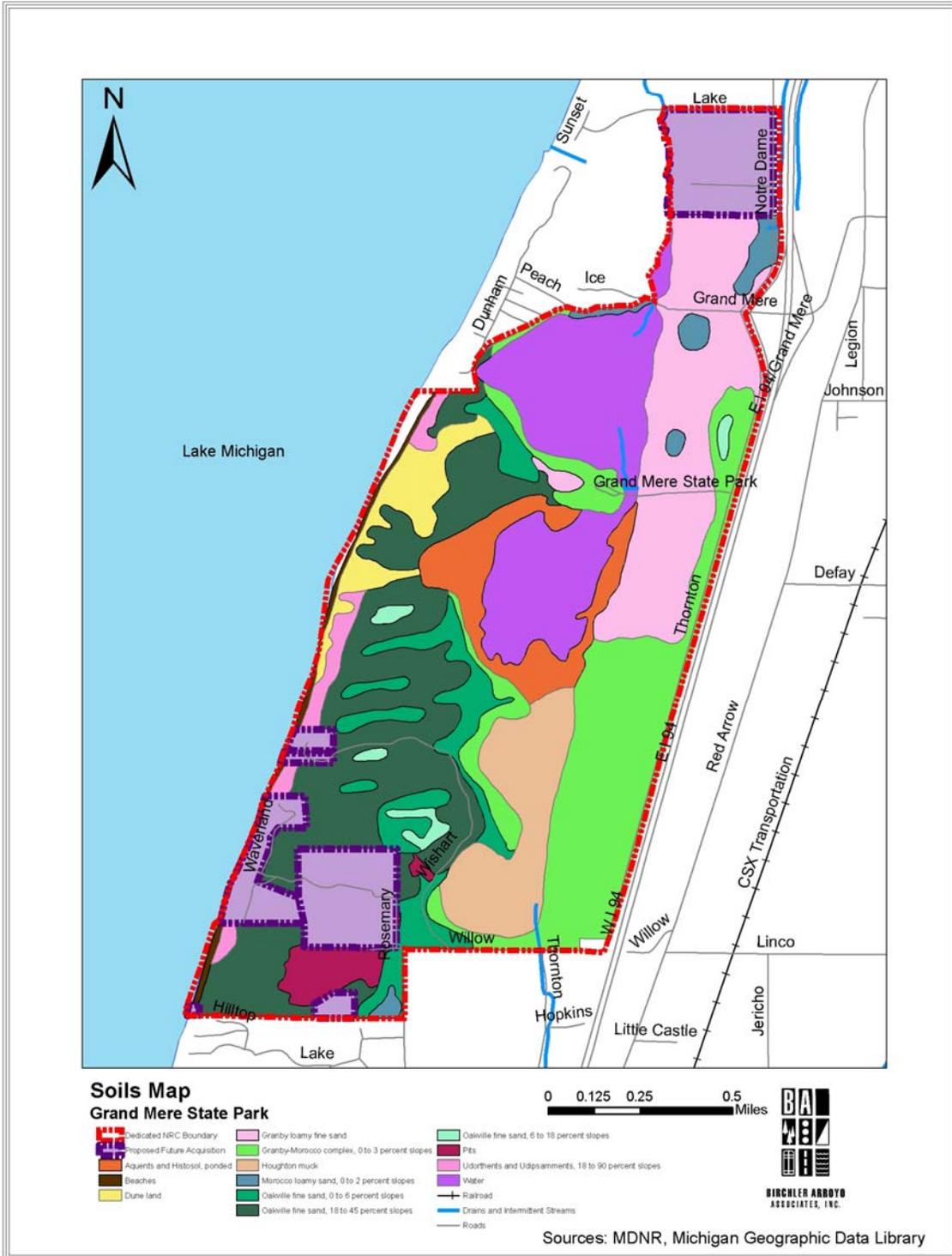
Map 8: Wetlands



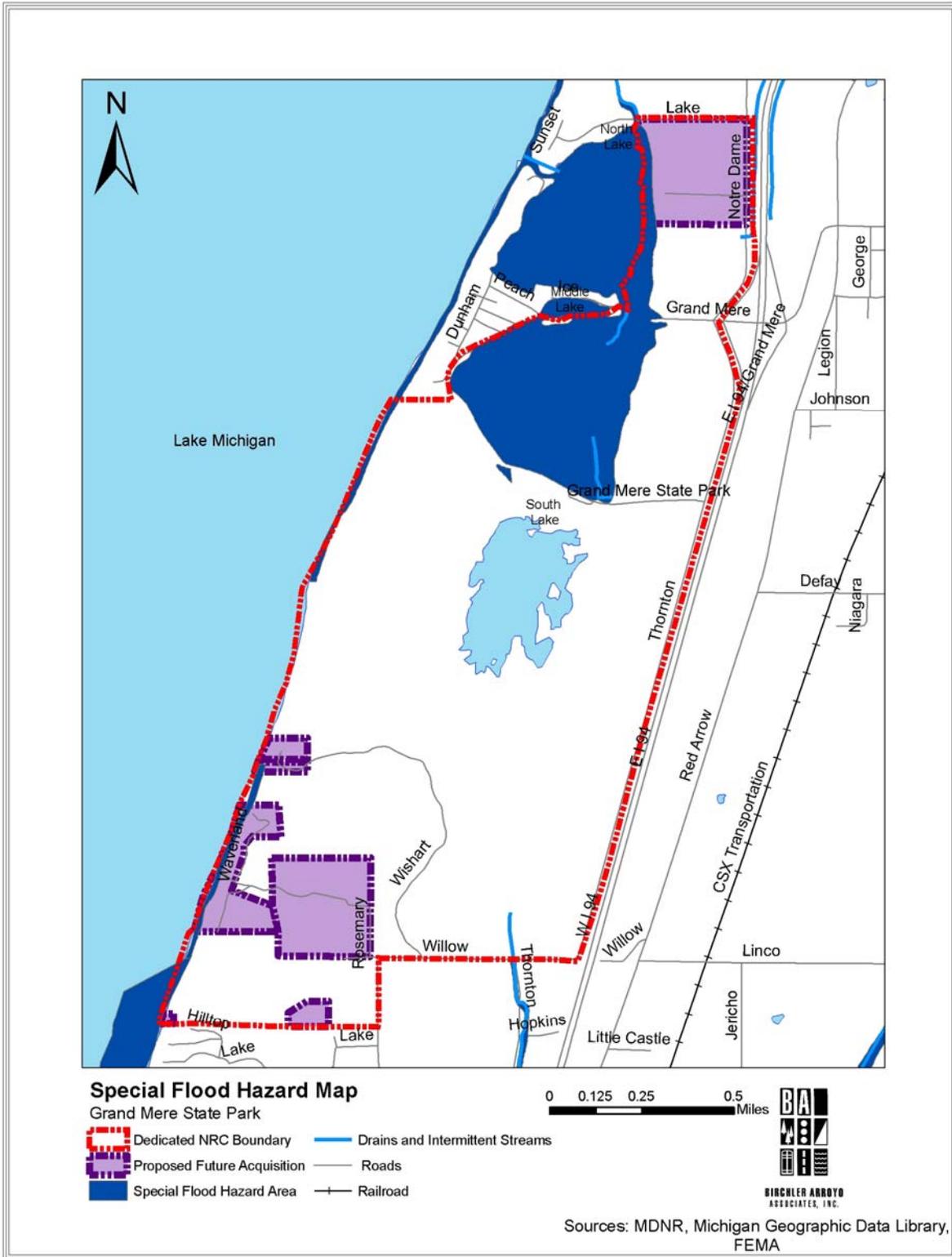
Map 9: Woodlands



Map 10: Soils



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. Red 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: (*Hamamelis 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 red 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 that 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

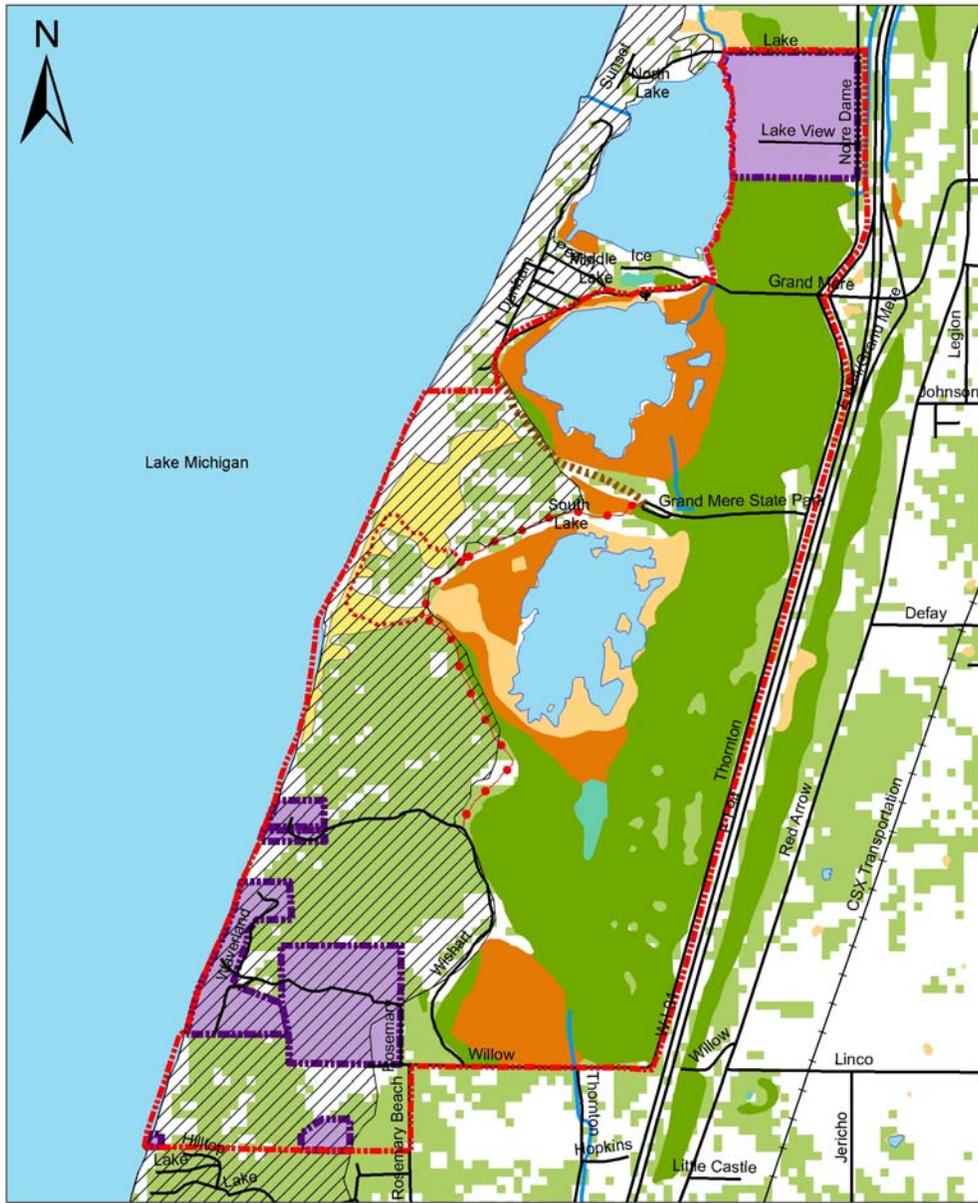
Grand Mere State Park offers dune areas, nature trails, a picnic area with shelter. Park activities include hiking, hunting/trapping, boating, fishing, and bird watching. Cross-country skiing is available in the winter months. A boat launch provides access to Middle Lake, a small inland lake with no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

Grand Mere State Park Recreational Resources



Dedicated NRC Boundary	Aquatic Bed	Railroad
Proposed Future Acquisition	Emergent Wetlands	FOOT TRAIL
Dune land	Forested Wetlands	HIKING TRAIL
Critical Dune Area	Scrub-Shrub Wetlands	NATURE TRAIL
Lakes	Drains and Intermittent Streams	
Woodlands	Roads	

0 0.125 0.25 0.5 Miles

Sources: MDNR, Michigan Geographic Data Library



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.

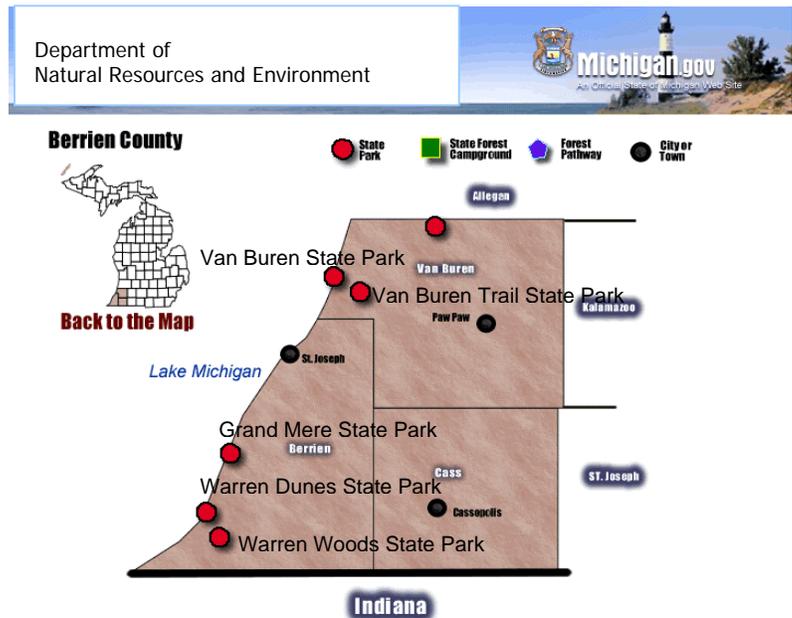
Warren Woods State Park is located approximately 5 miles from Grand Mere State Park. Two-thirds of Warren Woods Natural Area's 311 acres consist of a beech/maple climax forest. A quiet hiking trail leads over a bridge that looks over the rustic Galien River in this undisturbed natural area.

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 Mobiling	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															

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.

Direct Economic Effects to the Community

The MGM2 Model results indicate that Grand Mere State Park is contributing to the local economy (based on 2005 data):

- Direct Spending attributable to Grand Mere State Park totaled \$478,000
- Jobs created totaled (Note: jobs may include full-time, part-time and seasonal employment): 15
- Personal Income totaled \$163,000
- Value added (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 within the boundary 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 not 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

PARKS MANAGEMENT PLAN – WARREN DUNES, WARREN WOODS, GRAND MERE

My wife and I live in Bridgman, just north of Warren Dunes State Park. We petitioned the state in 2006 to include the north end of Warren Dunes in the natural area designation. I have hiked and birded the area for nearly three decades.

WARREN DUNES

I surveyed Warren Dunes State Park for the Michigan Breeding Bird Atlas I (1983-1988) and Atlas II (2002-2008). Species of Special Concern (SC) that nested in the park included Cooper's hawk, red-headed woodpecker and hooded warbler. One Michigan Endangered Species included the prairie warbler. Some of the most noteworthy nesters over the years were summer tanager and worm-eating warbler.

The mix of northern and southern species nesting in Warren Dunes is interesting. Some of the southern nesters include the summer tanager, prairie warbler and worm-eating warbler mentioned above. Northern species included magnolia warbler, Blackburnian warbler, Canada warbler and black-throated green warbler.

Other species seen during the breeding season, but not confirmed as breeding, include Louisiana waterthrush (SC) and American bald eagle (T).

The endangered piping plover has also been seen moving along the shore in Warren Dunes during migration.

SUMMARY

From a bird migration perspective, parks like Warren Woods, Grand Mere and Warren Dunes are vital. Neo-tropical migrants use the woodlands and beaches as refueling stops on their migration to northern breeding areas and back again in the fall.

We fully support placing more park area under the Natural Area designation. Keeping this land in the Primitive Zone is appropriate in our view.

Warren Woods, Warren Dunes as well as Weko Beach, New Buffalo Beach, Jean Klock Park, all owe their existence to Edward K. Warren. It is my hope that the Parks Management Plan helps perpetuate his legacy by keeping areas in the parks in a "primeval state" for the public to enjoy in perpetuity.

COMMENTS SUBMITTED BY:

Brad & Hannah Anderson
9738 Beechnut St.
Bridgman, Michigan, 49106
(269)465-3152

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