



Hepatica
© MICHAEL KORE

A WEALTH OF HABITATS OFFER YOU HIKING, BIKING, BIRDING, WILDFLOWERS, AND WATER RECREATION



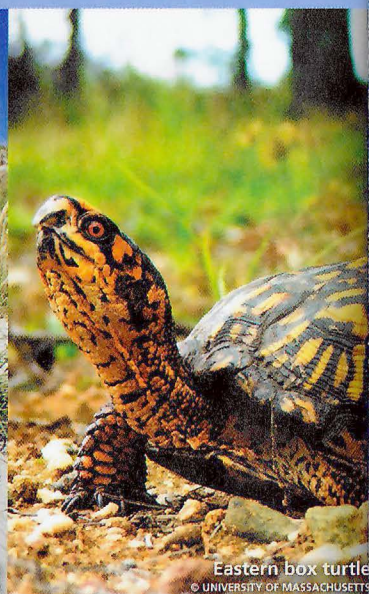
Mallard pair
© MICHAEL KORE



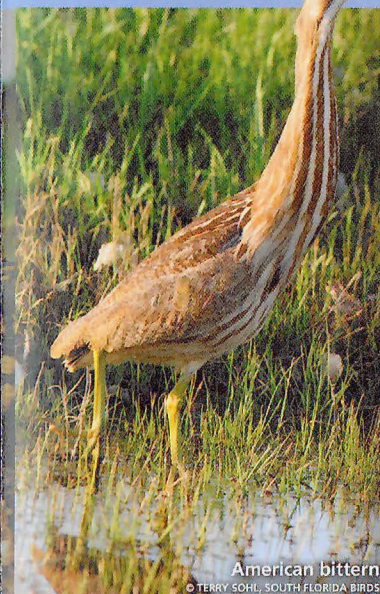
Yellow perch
© ENGELSTON UNDERWATER PHOTOGRAPHY



Marram grass
© VISUALS UNLIMITED



Eastern box turtle
© UNIVERSITY OF MASSACHUSETTS



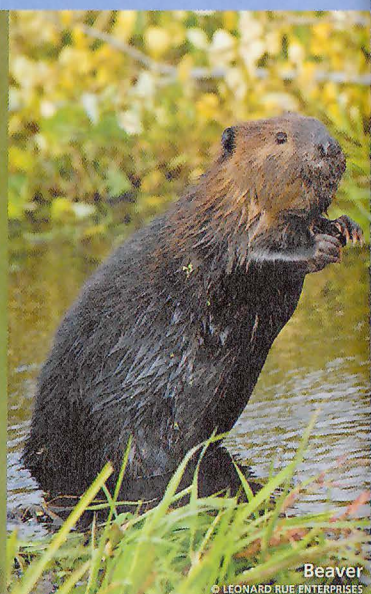
American bittern
© TERRY GOMEZ, SOUTH FLORIDA BIRDS



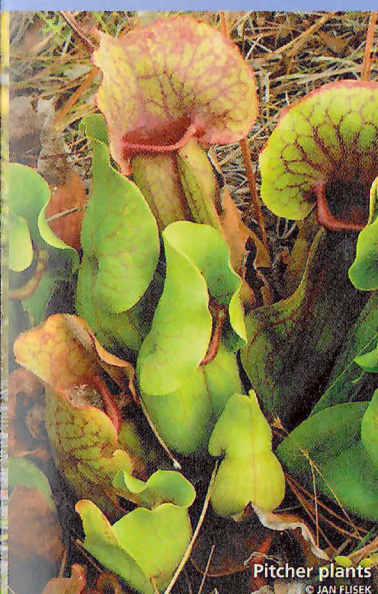
Lupine
© MICHAEL KORE



American goldfinch
© MAX ALLEN



Beaver
© LEONARDO RUE ENTERPRISES



Pitcher plants
© JAN FLUSEK

LAKE Indiana Dunes National Lakeshore is a National Park Service area. It has 15 miles of beach along Lake Michigan's southern shore between Gary and Michigan City in Indiana. Michigan is third largest of the five Great Lakes, whose origin lies in many episodes of glaciation by ice sheets up to 2.5 miles thick during 1.6 million years or more.

Water and beaches offer far more things to do than we can describe here. You could even travel the 35-mile Lake Michigan Water Trail (see map on the other side) and camp at the designated sites as you progress.

BEACH A beach is a transition between lake and land. Lapped by lake water, the lower beach hosts no plants big enough to see, but scavengers, from tiny carrion flies to gulls and shorebirds, feed on remains of fish, birds, and insects that wash ashore. Raccoons and skunks join in the feeding at night after bathers and sun worshippers have retired farther inland.

Plants, like sea rocket, bugseed, cocklebur, pigweed, and seaside spurge, do take hold higher up the beach, where only summer storms hit. These plants may begin the formation of a dune.

DUNES Marram grass on the upper beach is the real dune stabilizer. Safe from the elements, except for the heavy winter storms, the marram grass along with cottonwood seedlings and sand reed grass anchor the sand. It is easy to underestimate the key role these plants play in building the dunes and shaping the landscape around you.

Marram grass puts out seeds, but dual-purpose underground stems, or rhizomes, explain its tenacity. Rhizomes spread networks of new roots across dunes, further anchoring mounds of windblown sand captured by the grass blades.

PONDS BETWEEN DUNES When winds blow out a dune, a bowl can form and later be protected from wind. Then, organic matter from dead plants and animals can build up, enabling trees to grow.

If the bowl reaches down to the water table, a shallow pond may form and harbor wood ducks. Pond shorelines shrink in dry weather to form many smaller pools where toads lay vast masses of eggs in early spring. These intertidal pond habitats magnify the diversity of life in the dune environment.

MARSH Marshes form in many ways, from shallow backwaters of creeks or rivers, from former lakes or ponds, or from shallow lagoons created when a lake level drops quickly. Cattails and grasses advance toward the center of the marsh while water lilies, arrowhead, and spatterdock cover the open water. Red-winged blackbirds nestle in the reeds.

Marshes in the park host a rich mix of life, with more species and greater numbers than found in most habitats.

OAK SAVANNA Oak savannas look like prairies dotted with trees—black or white oak—and shrubs like chokecherry, shadbush, witch hazel, and sumac. Midsummer flowers include the lupine, birds-foot violet, aster, and blazing star. Dense forests that cover older dunes host spring-blooming flowers before tree leaves block the sunlight.

Trees take over a marsh that's filling in, forming a swamp forest of red maple, yellow birch, sourgum, and pin oak. Trees can take over older dunes so much that they become known as hardwood dunes, with oak, hickory, and white ash.

PRAIRIE The national lakeshore, at the upper- and eastern-most limits of tallgrass prairie habitat, features quality remnants of this ever-diminishing mixture of plants that once covered 140 million acres of North America. Tallgrass means tall: big bluestem, little bluestem, indiagrass, and switchgrass can grow to eight or nine feet tall.

Below ground is even more impressive: this prairie's roots reach down 15 to 25 feet, to survive fire and drought. Today, controlled burning uses fire to restore prairie that trees have invaded because fire has been suppressed for so many years.

RIVER How about a nice, mostly level, shaded lowland-forest trail along the Little Calumet River's south bank? The Heron Rookery Trail makes a great place to find wildflower displays in spring. Watch for rue anemone, trillium, spring beauties, bloodroot, and Dutchman's breeches.

The Little Calumet River Trail near Bailly Homestead also explores the river but in forests of hickory, oak, basswood, sassafras, and beech. It has a boardwalk that takes you through a swamp forest, too.

BOG You can visit Pinhook Bog only on a ranger-led walk, but try to do so. It's a fascinating, vibrant, otherworld with its own humid microclimate. What's more, everything—trees, boardwalk, and you—rests atop its floating mass of sphagnum moss. A huge chunk of glacier ice created the bog, which holds water because clay lines its bottom.

Cowles Bog is not a true bog but a fen—it has an underground water source. The National Park Service is restoring part of it to its natural condition. You can walk the Cowles Bog trails (see map on the other side) on your own.

PEOPLE, PRESERVATION, PROTECTION The National Park Service was only a month old when its first director Stephen T. Mather tried to save the Indiana Dunes from development in 1916. World War I derailed his attempt. The dunes and related glacial land forms were known to be treasures ever since an 1899 scientific article about them established the botanist Henry Cowles as the founder of plant ecology. Professor Cowles and others formed the Prairie Club of Chicago in 1908, wrestling with the region's booming industry of steel mills and power plants over whether to preserve Indiana Dunes.

Indiana Dunes State Park, created in 1926, did not end the bid for a national park. A proposal for a Port of Indiana sparked dunes resident Dorothy Buell and 19 other women to form the Dunes Council to expand the state park. Within a year the council had 2,000 members nationwide. Park opponents dismissed the education-oriented women's

council as a "tea club" of "harmless birdwatchers." But the council soon turned to political action and organizing. By 1963 a steel industry attorney called the council "a threat to industrial development" in the dunes.

In 1963 President John F. Kennedy proposed creating both a national lakeshore and a port for industry. Illinois Sen. Paul H. Douglas worked so tirelessly in Congress and in public to preserve the dunes that people called him "the third senator from Indiana."

In late 1966 Congress created Indiana Dunes National Lakeshore, whose 8,330 acres would eventually be expanded to over 15,000 acres today. The deal to protect the dunes also included creating the Port of Indiana.



Car camping in the old days
© CHICAGO HISTORY MUSEUM



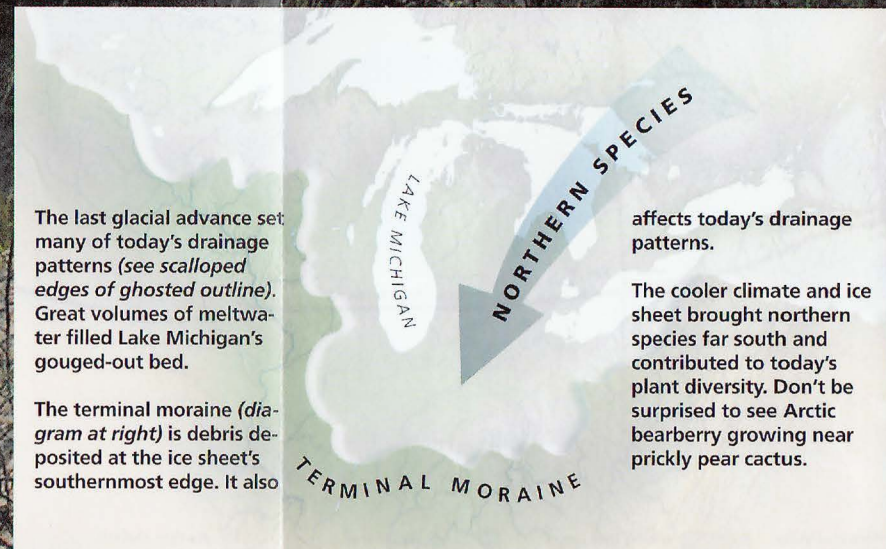
Working to preserve the dunes inspired many new enthusiasts for nature to get a feel for the area's diverse environments, whether its forests (far left) or the dunes themselves (left).

Great blue heron
© DORR

GOUGING GLACIERS' LIQUID RETREATS + PULSING WINDS AND WATERS = RIPPLED SHORELINES

Imagine great glaciers—ice sheets up to two and a half miles thick—covering most of Canada and reaching down into Indiana and Illinois. In the most recent ice age, the Pleistocene Epoch, from 1.8 million years ago to 10,000 years ago, huge ice sheets advanced and retreated over northern North America at least four times.

Lake Michigan originally took form 11,000 years ago when the mile-thick Wisconsin glacier, the last to cover this region, began to melt. When this massive ice slowly melted, it left behind Lake Michigan and four other Great Lakes. Like ice sheets before it, this slow-flowing mass scraped and pulverized mountains and bedrock into boulders and masses of rocky rubble and sand—more sand than you can imagine. As it melted, lake levels fluctuated and ultimately became lower. This made as many as seven succes-



The last glacial advance set many of today's drainage patterns (see scalloped edges of ghosted outline). Great volumes of meltwater filled Lake Michigan's gouged-out bed.

The terminal moraine (diagram at right) is debris deposited at the ice sheet's southernmost edge. It also

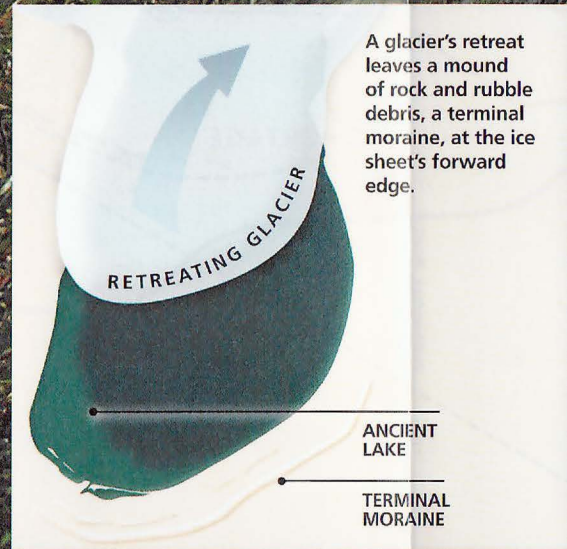
affects today's drainage patterns.

The cooler climate and ice sheet brought northern species far south and contributed to today's plant diversity. Don't be surprised to see Arctic bearberry growing near prickly pear cactus.

sive shorelines on Lake Michigan. Winds shaped the sands as dunes, with wetlands developing between the dunes. Older dunes built at higher lake levels stand farther from today's lakeshore than younger dunes. Many older dunes are cloaked in trees and some bear stable oak forest. The most recent and still active, still moving dunes are closest to the lake. They may be bare or be dotted with beach grasses that can stabilize them until they support shrubs and trees.

Because lake levels still fluctuate, this story goes on. The highest of all the Indiana dunes, 200-foot-tall Hoosier Slide, was mined for sand and hauled off by the railroad car-full, before national park advocates could save it.

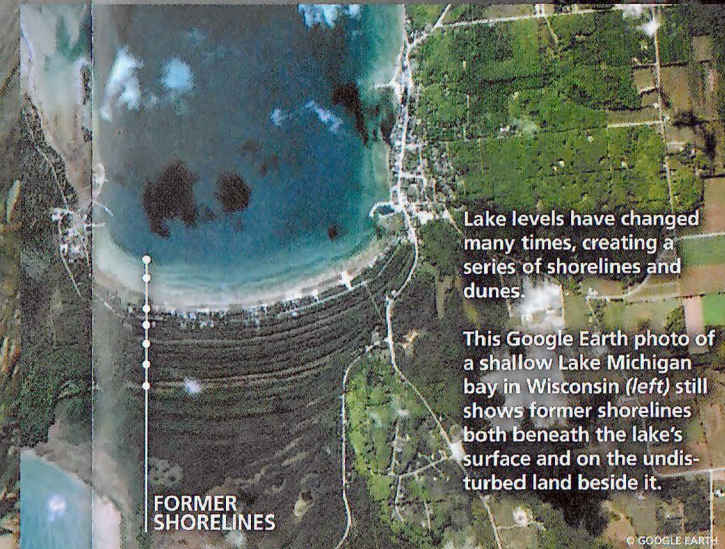
It can be difficult, even for trained eyes, to tell tree-covered older dunes from glacial



A glacier's retreat leaves a mound of rock and rubble debris, a terminal moraine, at the ice sheet's forward edge.

moiraines (left). Moiraines may look like old dunes, like ripples on the landscape. In a Google Earth image (right) some near-shore lake bottom may still show former shorelines. If the land has not been disturbed, the former shorelines may show as tightly packed contour lines on topographic maps.

Henry Cowles' scientific eye was prepared to see that he could walk through both time and space together at Indiana Dunes. Cowles walked inland from the lake and saw centuries of plant succession. He saw how plants take root in disturbed environments until their flourishing eventually creates conditions enabling other species to replace them. The mix of landscapes and the diversity of species that Cowles observed here remains remarkable today.



FORMER SHORELINES

Lake levels have changed many times, creating a series of shorelines and dunes. This Google Earth photo of a shallow Lake Michigan bay in Wisconsin (left) still shows former shorelines both beneath the lake's surface and on the undisturbed land beside it.

"Blue flag" iris
© DANIELLE LANGLOIS

Dune Succession Trail—through time
© BRIGITTE M. SULLIVAN

1 WEST BEACH

Swim, of course, but if it's too cold, grill at the picnic shelter, or follow a trail through dunes and forest and learn about plant succession—how plant communities replace each other over time. In fall and spring watch migrating waterfowl at Long Lake.

Great blue heron
© ANN AND ROB SIMPSON

Shore picnics are as popular now as ever before.
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2 PORTAGE LAKEFRONT AND RIVERWALK

Portage Lakefront offers a certified "green" building for ranger-led and community programs.



New in 2008, this national lakeshore site also features a riverwalk, accessible fishing pier, hike and bike trails, food service, ample parking, and a breakwater.

3 COWLES BOG

Want to tackle this national park area's most rugged hike? The Cowles Bog Trail takes you on a five-mile trek through wetlands and over wooded dunes to an isolated beach.

Henry C. Cowles and his students of plant ecology
© ANN AND ROB SIMPSON

Skunk cabbage by a hiking trail
© ROY TRIGGS

4 BAILLY - CHELLBERG

Explore this 1820s fur trading post and 1900-era Swedish farmstead. A trail winds through or by diverse habitats: the Mnoke Prairie, Little Calumet River, and beech/maple woodland. Check the park website (below, left) for event schedules.



Historic ring toss
© NPS / JOHN KEWLOZ

5 GLENWOOD DUNES

This is a trail for all seasons, with hiking, horseback riding, or winter skiing through the wooded dunes and wetlands. You will need to bring your own horse or skis.



Ride horses here or travel park trails on skis in winter.
© CATHEEN CLAPPER

6 LAKE VIEW

Lake View picnic area (wheelchair-accessible) overlooks Lake Michigan and offers a shelter. Or park here and witness stunning sunset views.



Kayaking on the Lake Michigan Water Trail
© CHRIS PURCELL

7 DUNEWOOD CAMPGROUND

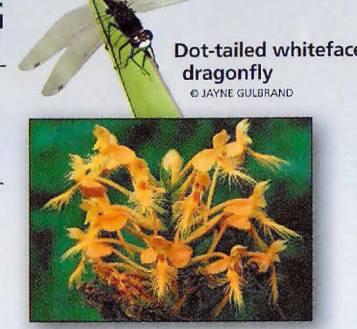
The campground is just over a mile south of Lake Michigan and offers modern wheelchair-accessible restrooms and showers and wooded sites. It is first-come, first-served, (fees). Open April through October.



Camping, 1929, in the days before lightweight gear
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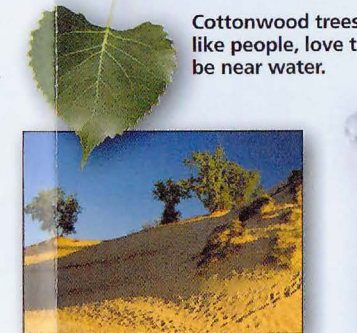
9 PINHOOK BOG

You can tour this fascinating bog—the gift of one huge chunk of stranded ice age ice—only on a ranger-led tour. The habitat is fragile. All you see rests on sphagnum moss, even the boardwalk and trees. Call the visitor center to find out when the next tour is offered.



Dot-tailed whiteface dragonfly
© JAYNE GILBERAND

Orange-fringed orchid
© JOHN GRICE



Cottonwood trees, like people, love to be near water.
© KENT R. KELLER

Dynamic, 126-foot-tall Mount Baldy dune looks serene in warm, low light.
© CHARLES E. MILLER

Watch for the bank swallows who nest in dunes.
© KENT R. KELLER

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Bikes may go on main roads—or try the Calumet Bike Trail or Marquette Trail.

SHORELINE SAFETY & RAILROAD CROSSINGS, TOO!

Regulations and Safety

Lake Michigan can be deadly, as high waves, rip currents, and sharp drop-offs along the lake bottom kill the unwary. Heed posted warnings. Swim at your own risk.

More people die at railroad crossings than in the lake. Do not drive by lighted signals or crossing gates.

Plants, animals, and all natural and cultural features are protected by federal law. Private lands exist in the parklands; respect all private property and do not trespass.

For firearms regulations and more safety regulations and information see *The Singing Sands* free park newspaper or the park website www.nps.gov/indu.

Emergencies or criminal or suspicious activities: Please call 1-800-PARKTIP (727-5847).

Visitor Center Indiana Dunes Visitor Center, on US 20 and IN 49, is open every day but Thanksgiving, December 25, and January 1. Stop there for activity schedules, information, and bookstore.

Accessibility We strive to make our facilities, services, and programs accessible to all. Call or check our website.

Beach and Much More The map shows access to the park's 15 miles of beaches and the national park areas not connected to the main lakeshore area, Heron Rookery and Pinhook Bog. Their land and waterscapes are important reasons why Congress preserved the area for this and future generations.

Environmental Education and Other Special Things To Do The Douglas Center and other park areas offer day-use environmental education programs. The Dunes Learning Center is a residential facility for schools and other organizations. Call 219-926-7561 (day programs); 219-395-9555 (residential programs); or go to www.duneslearningcenter.org.

Restrooms Restrooms are available at all sites except the Heron Rookery, Calumet Bike Trail, and Miller Woods area on weekends.

Please Note Indiana Dunes State Park (see map) has different regulations and charges fees and takes reservations. For state park information contact 219-926-1952 or www.state.in.us/dnr.

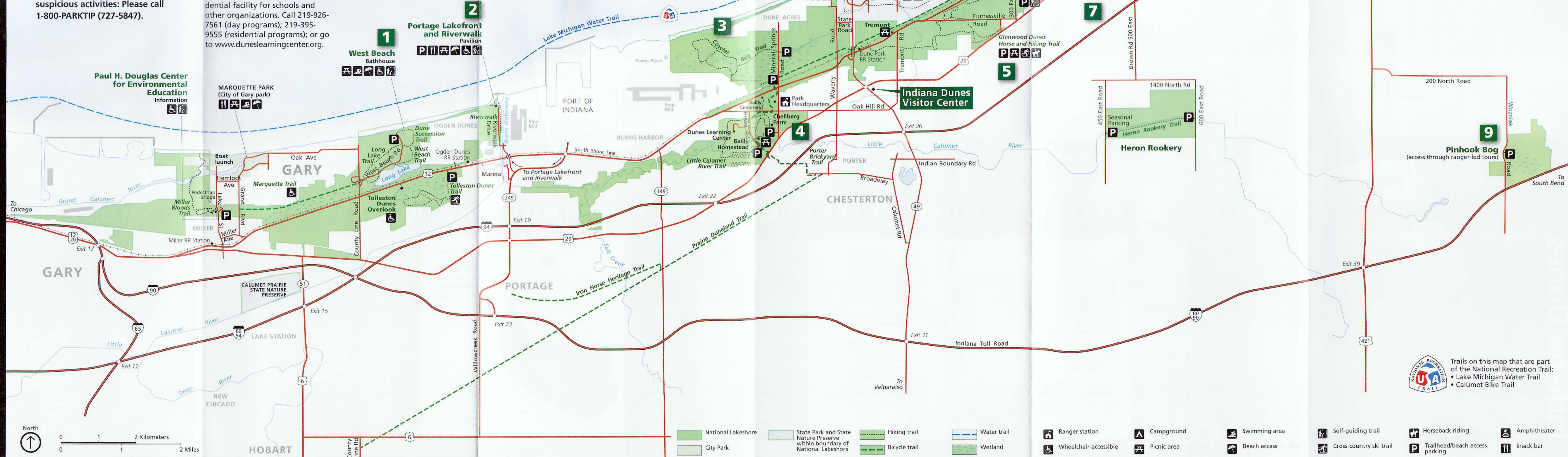
More Information Indiana Dunes National Lakeshore 1100 North Mineral Springs Rd. Porter, IN 46304-1299 www.nps.gov/indu 219-395-1882

Indiana Dunes is one of over 390 parks in the National Park System. To learn more about parks and National Park Service programs in America's communities, please visit www.nps.gov.

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LAKE MICHIGAN

Indiana Dunes National Lakeshore boundary extends 100 yards into Lake Michigan and National Park Service regulations apply. Areas of shore below Ordinary High Water are open to public use.



North
0 1 2 Kilometers
0 1 2 Miles

National Lakeshore
City Park
State Park and State Nature Preserve within boundary of National Lakeshore
Hiking trail
Bicycle trail
Water trail
Wetland
Ranger station
Wheelchair-accessible
Campground
Picnic area
Swimming area
Beach access
Self-guiding trail
Cross-country ski trail
Horseback riding
Trailhead/beach access parking
Amphitheater
Snack bar