

indiana dunes

Along the southern shoreline of Lake Michigan is a landscape in which rapid change has been the only constant. The climate, the landscape, plantlife, wildlife, and human activity have all changed dramatically here in recent time.

Climatic Change: An Icy Land Becomes Warmer

Like most places, Indiana Dunes has a geologic history that is millions of years old. Here, though, the land was wiped clean and a new set of surface features emerged in a process that ended about 10,000 years ago. The event responsible for this new beginning at Indiana Dunes was the most recent ice age. Because the landscape was so completely changed by the ice age, all the natural land features seen here today can be explained by it.

When the climate warmed and the great ice sheets melted, a countryside emerged that was just as cold and barren as the North Slope of Alaska is today. The most prominent of the new land features was a long, curved ridge of gravel, silt, and boulders known as the Valparaiso Moraine. Stretching across the countryside south of present-day Lake Michigan, it formed the shoreline of a great lake that was much larger than Lake Michigan. Only very slowly and haltingly did the waters of the lake recede.

As the water level fell, great quantities of quartz, a mineral very common on the earth's surface, were uncovered. Wind and waves, taking up where the grinding power of ice had ended, eroded the quartz into smaller and smaller particles. The result was sand—a vast supply of sand that was constantly replenished as the water left more land exposed to the wind.

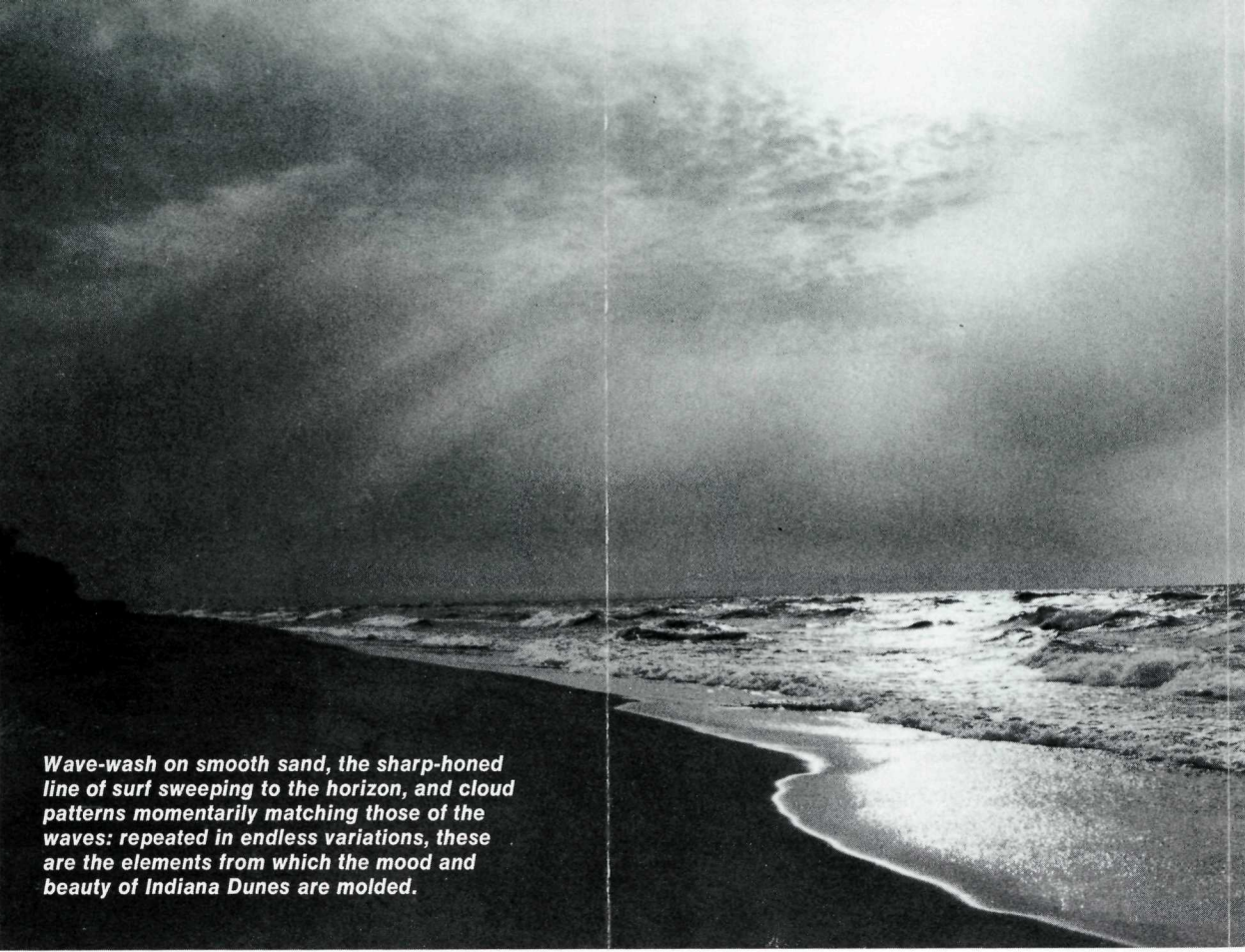
Where lake levels remained constant for centuries, water created shorelines complete with sand dunes and steep banks. Geologists can easily spot those old shorelines as they parallel the present-day shoreline some distance inland. For purposes of identification, those temporary lake levels have been given names. Lake Chicago was the name of the most prominent level here.

The Growth Of A Dunescape

Dunes are created whenever three conditions are met: 1. a plentiful supply of sand combines with 2. wind that almost always blows from one direction and 3. a natural trap—that is, a landscape feature that causes the wind to drop the sand.

Along Lake Michigan, the sand is lifted by northwesterly winds that blow unhindered across the openness of the lake. A short distance inland, however, plants, dunes, and hills slow the wind and cause it to drop its cargo. The result is shoreline dunes. These dunes are generally arranged from lakeshore to inland forest in order of increasing age, though old dunes are sometimes found near the lake. Those located away from the lake (the backdunes) are often hundreds or even thousands of years old. Soil has formed on them and forests cover their slopes. Dunes nearest the lake (the foredunes) are in the process of receiving sand blown up from the beach and are newly formed.

Lakeside dunes, because their sand is constantly being shifted by the wind, are *active*; inland dunes with sand securely held in place by soil are *stabilized*. Frequently, trampling or erosion will tear loose the plant cover and soil on stabilized dunes, exposing the sand beneath to the wind. In such cases, bowl-shaped depressions called *blowouts* are created.



Wave-wash on smooth sand, the sharp-honed line of surf sweeping to the horizon, and cloud patterns momentarily matching those of the waves: repeated in endless variations, these are the elements from which the mood and beauty of Indiana Dunes are molded.

Plants For A Changing Landscape

Many different kinds of environments exist at Indiana Dunes. Because of that, a wide variety of plants grows here. Along the shore are plants that can outreach the shifting sand by growing new roots and runners. Cottonwood trees and marram grass are good examples. Behind the blowing, shifting sand of the foredunes are plants such as jack pine, sandcherry, and cottonwood that grow well in dry, infertile places. Further inland, where the soil, wind, and moisture conditions are less influenced by the lake, forests like those in many places across the Midwest are found. Botanists and ecologists call this sequence *plant succession* when plant types replace each other in one place and *biotype succession* when plant types succeed each other across a changing landscape. Interspersed among the dunes are wetlands—marshes, ponds, swamps, and bogs. Pinhook Bog, a well-developed sphagnum bog typical of the northern lake states, is located within the authorized park boundary. The bog, privately owned, is not open to the public.

The Indiana Dunes area has been for many years of great interest to scientists. Here, ecologists like Dr. Henry Chandler Cowles worked out the first theories of plant succession. Botanists also frequented the area because it is an outpost for species that do not commonly grow elsewhere in this area. Nearly alongside one another live southern dogwoods, northern tundra bearberries, flowers from the Plains, and even cactuses from the Southwest.

A Meeting Place For Birds And Mammals

Just as plants and dunes maintain a close relationship, so do plants and birds. At Indiana Dunes are birds that you might associate only with other sections of the continent. Their occurrence here is due to the variety of habitats and to the Lakeshore's location along a migration route that leads birds north and south along the length of Lake Michigan. The ponds and marshes in the Lakeshore are excellent places to see many varieties of birds, sometimes including such species of the far north as snow buntings and evening grosbeaks and such southern species as Louisiana waterthrushes, Carolina wrens, and mockingbirds. In like manner the presence of prairie-like areas brings in such plains birds as meadowlarks and bobolinks.

The southern shore of Lake Michigan is sometimes an outpost for mammals more common elsewhere, but in general, the wildlife here differs little from many places in the midwest. Deer, raccoons, opossums, woodchucks, squirrels, and chipmunks are seen frequently. There are also reptiles such as frogs, toads, salamanders, lizards, turtles, and snakes. One example of the latter is the harmless but rather threatening-looking hognose snake, common on the dunes.

The Changing Roles Of Man

The Miami and Pottawattomie Indians who hunted and gathered food along the southern shore of Lake Michigan before the coming of the white man made no lasting changes on the land—though the countryside still echoes with their place names. In like fashion, the French trappers and missionaries who lived with them in the 1700s did little to alter the landscape. This was a place in which birds by the millions gathered and beavers lived in almost every marsh and river. In those years, it was even possible to canoe from Michigan City to what is now Gary on a long narrow watercourse that was nestled inland from the shoreline.

Beginning in the mid-1800s, the shorelands south of Lake Michigan began to undergo man-caused changes. With the exception of successful conservation campaigns in the 1920s and 1960s to create Indiana Dunes State Park and Indiana Dunes National Lakeshore, economics has determined land use here. Among the factors that influenced the Indiana Dunes area are:

- Transportation—Footpaths were replaced by major east-west roads, now including interstate highways. Several railroads were constructed across the area. Ships from around the world dock at the Port of Indiana.
- Agriculture—Forests became fields, and lakes, marshes, and bogs were drained as farmers cultivated the area's rich and not-so-rich soils.
- Industry—Situated in mid-America, close to natural resources and markets, "Calumet" has become one of the great industrial regions of the world.
- Population—As economic opportunities expanded, population increased. The southern shore of Lake Michigan can now be considered part of greater Chicago.

Conservation And Continuity

Human and natural changes are still occurring along the southern shore. While the area remains important as a transportation corridor, an industrial complex, and a population center, a newer factor now influences land use here—recreation. In response to public demands, efforts to preserve the Indiana dunes began as early as 1916. But it was not until 1923 that Indiana Dunes State Park, with some 890 hectares (2,200 acres), was established.

Legislation to provide for the preservation of the dunes as part of the National Park System was first introduced in Congress in 1961. Indiana Dunes National Lakeshore, totaling about 3,240 hectares (8,000 acres), was authorized in 1966. After sufficient lands were acquired for effective administration, the Lakeshore was formally established in 1972.

Indiana Dunes is still a new and developing park. Lands are still being acquired. In some areas only limited, interim facilities are provided. Planning is underway for visitor facilities that will be consistent with the protection of these important natural and historic features. As the park is completed, change will be primarily of the natural sort. The forces that have shaped this land for centuries will continue to do so.



For Your Safety
Be cautious when swimming and boating.
Most beaches are unprotected and storms sometimes occur quite suddenly.
Watch your children especially closely when they are in or near the water. We want your visit to be pleasant.

Administration

Indiana Dunes National Lakeshore is administered by the National Park Service, U.S. Department of the Interior. A superintendent, whose address is Indiana Dunes National Lakeshore, RR 2, Box 139A, Chesterton, IN 46304, is in immediate charge. Tel. (219) 926-7561.

Indiana Dunes State Park is administered by the Division of State Parks, Department of Natural Resources, State of Indiana. Entrance and user fees are charged. A manager, whose address is Indiana Dunes State Park, M.R. Box 322, Chesterton, IN 46304, is in immediate charge. Tel. (219) 926-1215.

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

