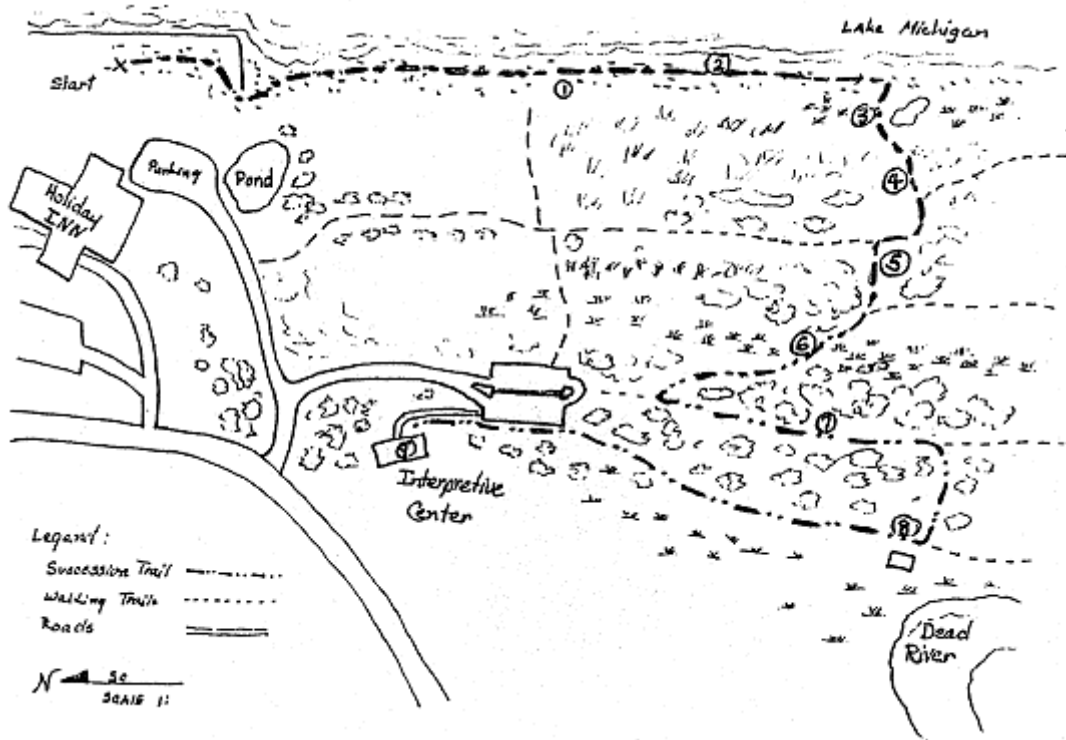


A
SPECIAL WALK
in the
DUNESLAND



AN INTRODUCTION TO ECOLOGICAL SUCCESSION

ILLINOIS BEACH STATE PARK



WELCOME TO THE ILLINOIS BEACH DUNESLAND

This leaflet is a guide to lead you through an unusual biological segment of Illinois. It will also introduce you to many of the dunesland plants and trees, help you to identify them and to learn their names and why they grow in certain places and not in others.

Before starting on the trail, it is important to study the map and read the short introduction to biotic communities. The walk begins at the beach in front of the Holiday Inn, then leads south along the Lake Front to Bridge Trail. The trail turns to the west through prairie and into an open oak forest, along a swale and over the dunes to Dead River. At the river the trail turns back north and ends at the Interpretive Center.

9 stops are shown by numbers on the map and are marked by corresponding numbered flags along the trail. These stopping points represent different communities or transition area between areas.

WHAT IS A BIOTIC COMMUNITY?

Everyone is familiar with the word "community" used to describe a village, town, or city. These communities vary not only in size but in composition and purpose. There are rural farm communities, industrial communities and urban complexes composed of a large city and its suburban areas. Their location and size are controlled by many factors such as water supply, soil conditions, climate and transportation routes.

In a similar way, plants and animals live together in communities that are even more dependant upon environmental conditions such as availability of water, soil composition, temperature, humidity, wind and many other factors. These communities of nature are called "biotic" communities, and the particular combination of conditions under which they exist is called their "environment".

Human communities change with the passage of time. Villages can become towns and cities - a change we call "progress". Similarly, biotic communities pass through stages, a process called "succession". The earliest stage in which a few plants take root in barren soil or exposed rock is called the "pioneer" stage. Gradually the nutrients being

released by decomposing plants and animals help enrich the soil which then can hold more moisture and support a larger plant population, thus the process of succession begins. Through many years a community may evolve into a mature forest or self perpetuating stage called the "climax" stage.

In order to examine the various stages of biotic communities, one usually must travel over a wide area (or stay put for many years). On this trail, however, you will pass through a variety of environmental conditions which have created a series of biotic communities in the same sequence as the successional stages, starting with the pioneer plants of the beach and ending at the climax prairie. The wide range of plant life which has developed within a well-defined series of plant communities makes this trail one of the most unusual features of the Dunesland.



1- FORMATION OF THE DUNESLAND

If you walk to the top of the dune you can get a view of the dunesland of Illinois Beach. The formation of the dunes dates back before the Ice Age. As the last great glacier was melting it left tremendous deposits of sand and gravel and a great lake (Glacial Lake Chicago). This glacial lake has, during the last ten thousand years, dropped to the present level of the lake we call Lake Michigan.

The drop in the lake was a gradual one. It is believed that there were times when the level stayed the same for many, perhaps hundreds, of years. It is probable that the level rose slightly from time to time before continuing its drop. The evidence of these changes in level can be seen in the numerous sand ridges, visible as you look to the south and west. These old ridges were formed by wave action- as are the present-day sand bar and beach ridges.

2- A PIONEER COMMUNITY

The beach consists of three zones or communities:

- 1-NEAR BEACH or STORM BEACH - At the waters edge where waves are constantly moving the sand no plant can gain foothold.
- 2-MID-BEACH or UPPER BEACH - Up a few yards from this area a few hardy plants have anchored themselves (although temporary) - the cocklebur and sea rocket predominate.
3. FAR BEACH or FOREDUNES - Where only the largest waves will reach (generally during winter storms) larger plants are able to establish themselves.



3- THE WETLANDS

On either side of the trail you will note the remains of an interdunal pond that is slowly filling in. The first pioneer communities in these wetlands are dominated by sedges, rushes, or marsh grasses. As the areas dry or fill with sand and organic material, plants of the prairie will gradually invade.

4- THE REAR DUNES

As you leave the beach and head west over the foredunes you enter a biotic community with a small amount of humus from earlier pioneer plants. But the high summer temperatures and cold winter winds present a formidable problem to the plants. It is here that we find such characteristic dunesland plants as Horizontal Juniper, Bearberry, Sand Cherry, Puccoon, Prickly Pear Cactus, as well as Little Bluestem, Canada Wild Rye and Sand Reed Grass. The roots and foliage of these plants add more humus to the soil thus aiding plant succession. The result is an extensive prairie dominated by Little Bluestem.



5- TRANSITION ZONE

Leaving the rear dunes you enter a transition zone from prairie to forest. The top of the dunes are still covered with the prairie plants typical of the foredunes. The swales have developed a richer humus thus offering better growing conditions which can support a shrub and open forest community. Black Oak, Choke Cherry, and Willow are the characteristic plants.



6- THE SWALES

The wet swales of the Dunesland have a succession of plant communities, but they have components different from those on the ridges. Although the soil of these swales appears to be murky, it is chiefly sand. As in the foredunes wetland the pioneer plants are the sedges, rushes, and marsh grasses. Next come shrubs, such as dwarf Birch and Red Osier Dogwood. Many of the older swales containing more humus are dominated by several kinds of marsh-inhabiting willows and cottonwoods. Finally as these areas fill in a black oak forest emerges.

7- THE BLACK OAK FOREST

The process of adding humus to sand is slow, and some botanists estimate that it may take up to several hundred years to progress from bare sand to a black oak forest and over a thousand years more for a black oak forest on sandy soil to change gradually into a deciduous forest typical of the temperate zone.

The Black Oak trees around you are small (up to 40 feet) in comparison to Black Oaks found elsewhere in the state (up to 80 feet) due to this poor sandy soil.

As the Oak grows it has a tendency to hollow out in the trunk and large branches. This hallowing makes it possible for a single tree to be an "apartment" house for wildlife.



8- DEAD RIVER

At this point you see Dead River as it winds its way from the marsh on its short journey to Lake Michigan (the complete distance of flow is about 2.5 miles).

The river acts as a drainage system for the marsh. Because there is such a gradual slope toward the lake, drainage is poor. During normal years the sloughs stay wet throughout the summer. Dead River, closed at its mouth after the spring thaws or after a strong northeast storm, becomes a quiet marshy lake rather than a river.

9- THE COMMUNITY OF MAN

At first glance much of the Dunesland looks like any ordinary marsh or prairie. But as you have seen the Dunesland contains a remarkable biological assemblage found in no other part of Illinois.

In a very short time you have walked through a variety of communities that we have broken down into segments, and studying them as units which suit man's need to classify everything around him.

As you walk back to the Lodge, put this leaflet away. Don't search for order among the bits and pieces - instead, simply enjoy being there and let Nature teach you what it will.