Sleeping Bear Dunes

National Park Service
U.S. Department of the Interior

Sleeping Bear Dunes
National Lakeshore

Empire Bluff Trail

www.nps.gov/slbe

Hiking Safety Tips

- Choose a trail appropriate to your ability.
- *Travel with a companion and notify someone of your route and expected return time.*
- Deer rifle season is November 15 – 30. Other hunting seasons occur throughout the year. Bright colored clothing is recommended.
- Stay off of steep bluffs to avoid falls and dislodging rocks that can injure people below.
- *Snow avalanche or sand slide danger is present year-round on the steep dunes and bluffs*
- Be careful of your footing. Trails include uneven ground, exposed roots, etc.
- Carry drinking water.
- If you venture off the marked trail, use a map and compass.
- Poison ivy is common. Learn to recognize it. Remember "Leaflets three, let it be".
- Be prepared for mosquitoes.
- Skiers: Be aware of changing snow conditions. Alternate freezing and thawing can turn gentle slopes into icy, advanced hills.
- Darkness comes early in the winter. Allow plenty of time to return to your car before dark.
- Dress for the weather. In winter, carry extra clothing and emergency supplies.
- In case of emergency, seek help at the nearest ranger station, campground office or visitor center.

Park Ranger-Emergency Dispatcher Police, Fire Ambulance
231-326-5134 or 911

Regulation for Mainland Hikers

- Vehicles, including bicycles, are permitted on roads only.
- Snowmobiling is prohibited except on rights-of-way along state and county roads.
- Collecting plants and other natural, historical and archeological items is not permitted. Exceptions: Certain edible fruits and mushrooms may be collected in limited quantities for personal use.
- Pets on trails must be kept on a 1.8-meter (6-foot) maximum, hand-held leash. Pets are prohibited on ski trails December 1 through March 31 and at the Dune Climb throughout the year.
- Glass is banned on all park beaches.
- Fires are permitted only in campground and picnic area fireplaces and on areas of bare beach sand between the water and the first dune.
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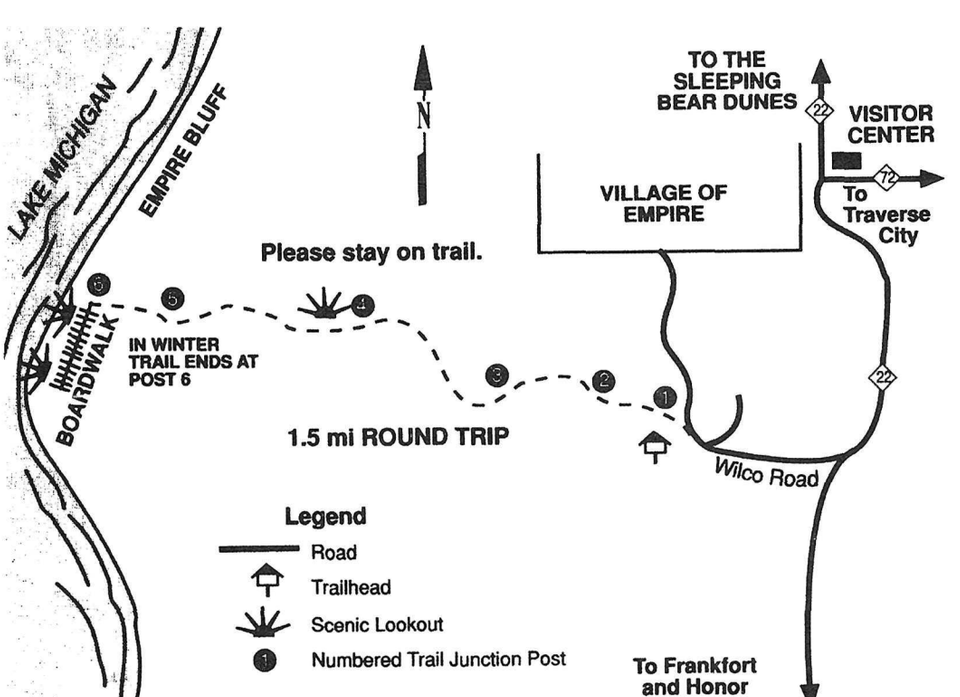

Protect Your Park
Please stay on designated trails. This will help prevent erosion and damage to vegetation. Off-trail hikers can quickly produce paths that take years to re-vegetate. Avoid disturbing plants and animals. Threatened and endangered species are found throughout the park.

1. The Ice Age
The hilly terrain and scattered boulders are evidence of glaciation. Only about 11,800 years ago, the last glacier melted from this area. Glaciers pick up rock and soil as they move across the land and, upon melting, deposit the debris irregularly to form hills and valleys. Glacially transported boulders located far from their point of origin are known as erractics, literally "travelers." The bedrock in this area consists of sedimentary rocks such as limestone and shale, but is buried under several hundred feet of glacial deposits. The boulder is a glacial erratic. It must have come from a distant place, perhaps Michigan's Upper Peninsula or Canada.

2. The Old Farm
These glacial soils are quite sandy and not very fertile for farming. However, certain crops, including hay can be grown here successfully. This McCormick Deering No. 7 mowing machine was manufactured sometime between 1929 and 1940. This horsedrawn mower cuts a swath about five feet wide. The enclosed gearbox, a significant improvement over earlier models, allowed for efficient gear lubrication, prevented hay from getting tangled in the gears and provided safer operations for man and animal. With the development of modern farm equipment, many pieces of old machinery such as this one were abandoned in the fields. A number of old farms are scattered throughout the park and help to preserve the flavor of another era.

3. Beech-Maple Forest
Over the years the natural process of plant decay has improved the fertility of the sandy glacial soils. Still they can hardly be called rich. In the summer the trees cast a dense shade. Plants of this forest must be able to tolerate low light levels. Many of the forest wildflowers such as the trillium, bloodroot and Dutchman's breeches bloom in the early spring before the leaves appear on the trees. Young trees deprived of sunlight grow very slowly. If a nearby tree falls, allowing sunlight to reach the young trees, they show a rapid spurt of growth. Before long the gap in the leafy canopy is closed and dense shade prevails again.

4. The Old Orchard
The Grand Traverse region, known as the Cherry Capital, is well suited to growing various kinds of fruit trees. In about 1910, the Empire Lumber Company planted extensive orchards on the logged-over lands. An orchard extended all the way from the Village of Empire (you may be able to catch a glimpse of it to the north, through the trees) up the hill to this meadow. The apple and plum trees growing here today do not seem to be from these old orchards, but may have sprung up from fruit discarded in the area.

Lake Michigan plays an important role in moderating the local climate. After the long cold winter, the icy waters keep air temperatures cool in the spring. This helps to prevent fruit trees from blooming too early when a killing frost might still occur. Orchards on sloping ground benefit from natural air drainage. Heavy, cold air seeks low ground, while slopes and uplands stay slightly warmer. Thus, the hilly glacial terrain makes ideal orchard country.

5. Old Logs
The old logs you see here, and the fallen trees throughout the forest, are decomposing (rotting). This is an important part of the life cycle of the forest. It frees nutrients, which would otherwise not be available.

Bacteria and insects are among the first organisms to make use of the dead wood. They break it down for use by other life forms. Fungi and mosses also break down dead wood and utilize its nutrients. As decomposition advances, more complex plants such as flowers and tree seedlings start to use rotten wood for nutrients, moisture and shelter. Advanced decomposition also adds nutrients and organic matter to the soil, which benefits still other organisms.

6. Empire Bluff Overlook
Standing here about 122 meters (400 feet) above Lake Michigan, you can survey a large portion of Sleeping Bear Dunes National Lakeshore. Lobes of ice once occupied Platte Bay to the south and the Empire Embayment to the north. Glacial meltwaters deposited the sandy layered sediments of the Empire Bluff. South Bar Lake, just north of the Village of Empire, was once a part of Lake Michigan. Longshore currents deposited the sand bar that now separates the two lakes.

Beyond the Empire Embayment, the Sleeping bear Dune itself, which gives its name to the entire dunes complex, the National Lakeshore, and the other features in the area, appears as a small hill on the top of the high, sandy bluff. Historically the dune was a landmark for travelers on Lake Michigan. Its location and dark vegetation drew attention to it. Now wind erosion has destroyed much of the dune.

About eleven kilometers (seven miles) offshore is South Manitou Island. Among its points of interest are an 1871 lighthouse, historic farms, perched sand dunes, and a grove of large, old white cedar trees. The entire National Lakeshore includes about 275 square kilometers (105 square miles) and was authorized by Congress in 1970 to preserve the outstanding natural features of this area: glacial phenomena, sand dunes, beaches and forests.

This is the end of the "self guided" portion of this trail. Ahead you see a section of boardwalk that extends for 152 meters (500 feet) south along the shoulder of the Empire Bluff. This boardwalk has been installed to prevent erosion and gullying of the fragile bluff face. **Please do not descend the bluff for your own safety and to protect the natural setting.**