

These maps show the maximum extent of glacial ice during the last glaciation about 18,000 years ago.

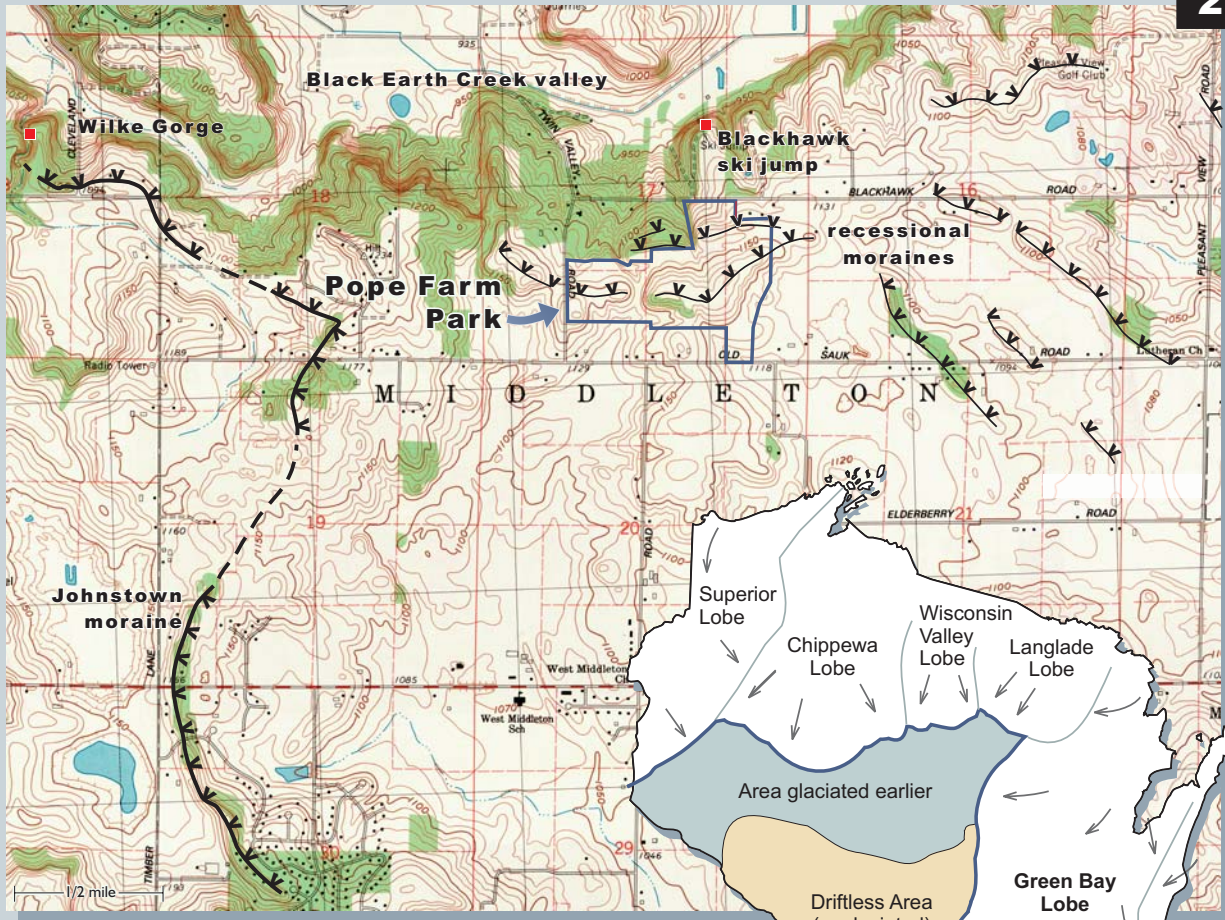


Did you know that the front of a glacier is called the snout? Above we see the snout of a glacier in Antarctica. This ice mass is flowing from the mountain seen in the background.

## The story of the glacier

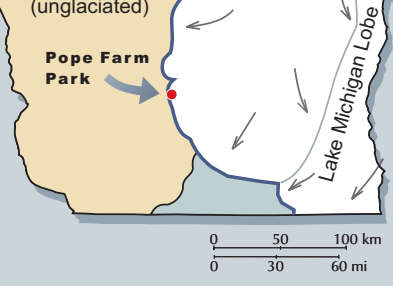
The Earth's climate has gone through regular cycles of warming and cooling during the past 2.5 million years. For much of the past 1 million years, these cycles have been about 100,000 years long. During the cool parts of these cycles, large glaciers expanded to cover much of northern North America, Europe, and Asia. About 26,000 years ago, the most recent of these great glaciers, the Laurentide Ice Sheet, flowed southward through the Lake Superior and Lake Michigan basins and into Wisconsin.

By about 10,000 years ago, the ice had melted back into the Lake Superior basin. Although glaciers have covered parts of south-central Wisconsin several times, here at the park evidence has been recognized for only the most recent glaciation.



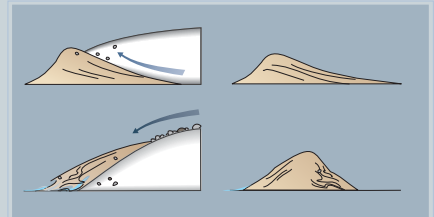
**Green Bay Lobe**

About 26,000 years ago the southern edge of the Laurentide Ice Sheet flowed into northern Wisconsin. One of the lobes of this ice sheet, the Green Bay Lobe, flowed southward through the Green Bay and Fox River lowlands. It reached as far south as the Janesville area and a short distance west of this park. The Green Bay Lobe reached its maximum extent between about 18,000 and 15,000 years ago. In this area the maximum extent of the Green Bay Lobe is marked by the Johnstown moraine.





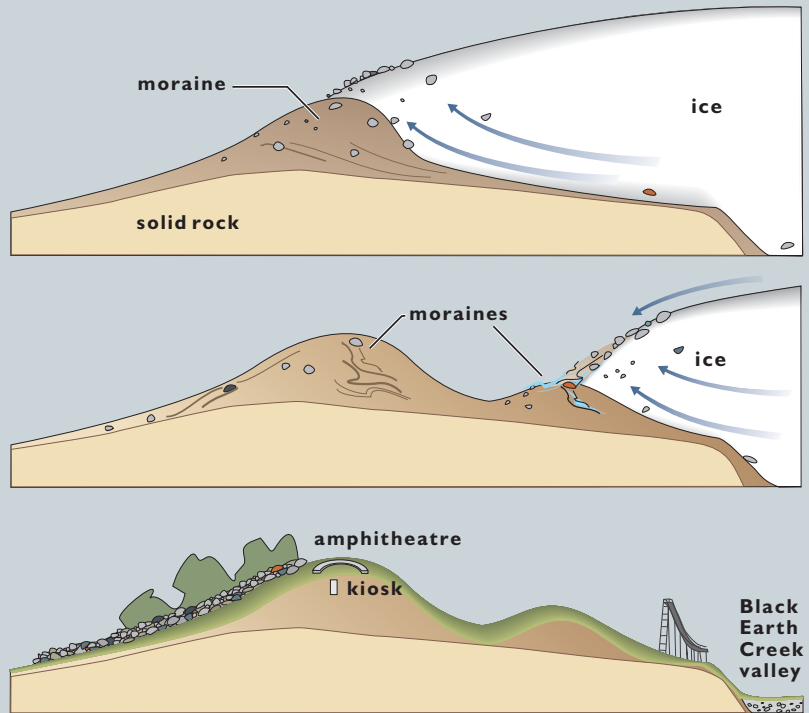
A small recessional moraine forms in front of a glacier in New Zealand. The lower part of the glacier is darker because it contains more rock debris. (Figure added to show scale.)



Most moraines are formed by a combination of processes. Some rock debris is carried at the base of the ice and stacked at the ice margin. Other debris accumulates on the ice surface and slumps off the edge of the ice.

**Recessional moraine**

As climate warmed, the margin of the ice sheet began to recede. At times the amount of ice flowing to the margin would equal the amount of ice that was melting at the margin. As a result, the margin would stay in one place for a number of years and rock material from boulders to clay carried by the flowing ice accumulated to form a ridge. This ridge, a recessional moraine, marks a place the glacier paused in its general recession. You are standing on one recessional moraine. There is another recessional moraine in the park. Can you find it?

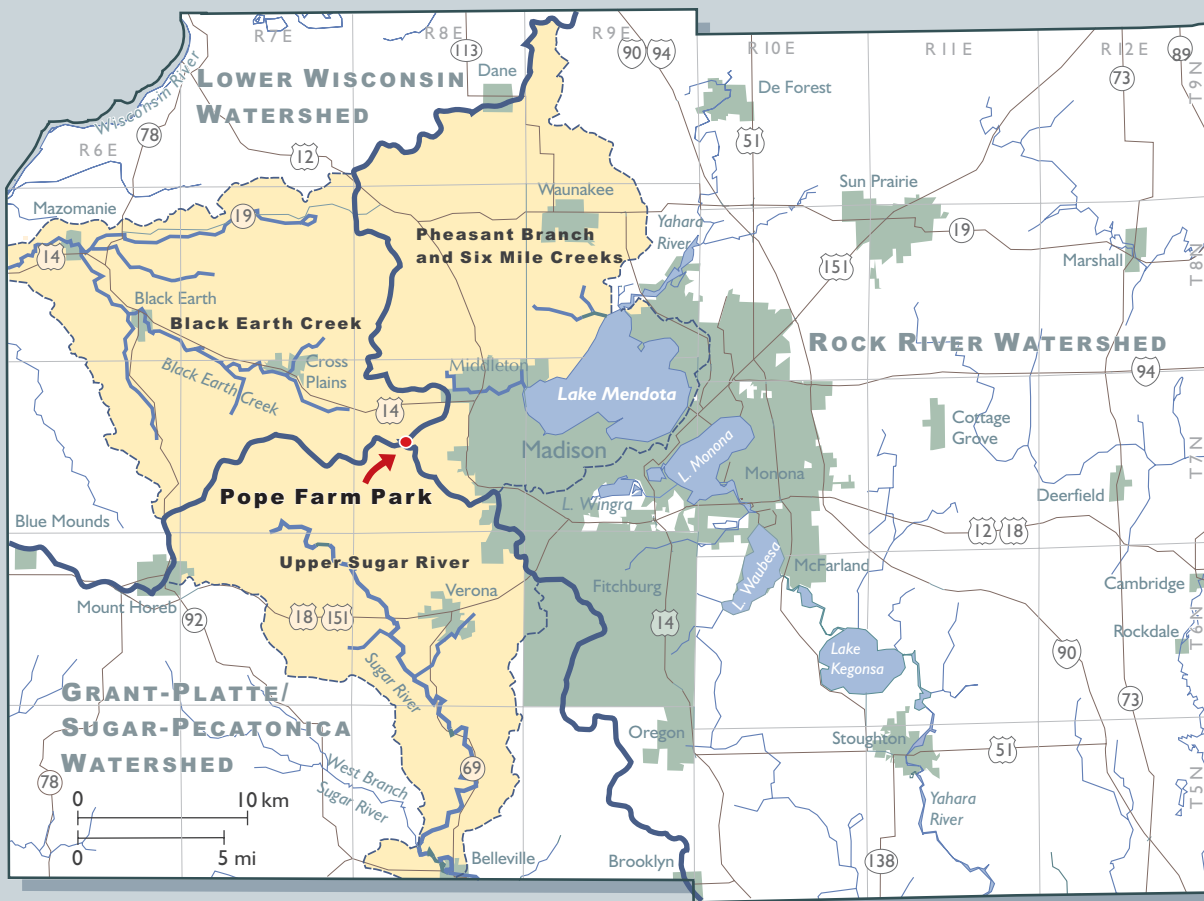




**Watersheds**

From where you are standing, water flows in three different directions into three different watersheds. To the south, water flows toward the Sugar River; to the north, water flows toward Black Earth Creek; to the east, water flows toward Pheasant Branch and Lake Mendota.

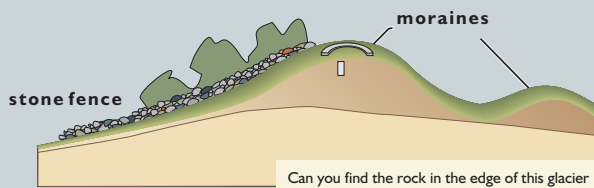
**Three watersheds** intersect Pope Farm Park. Their boundaries are shown in blue (above).

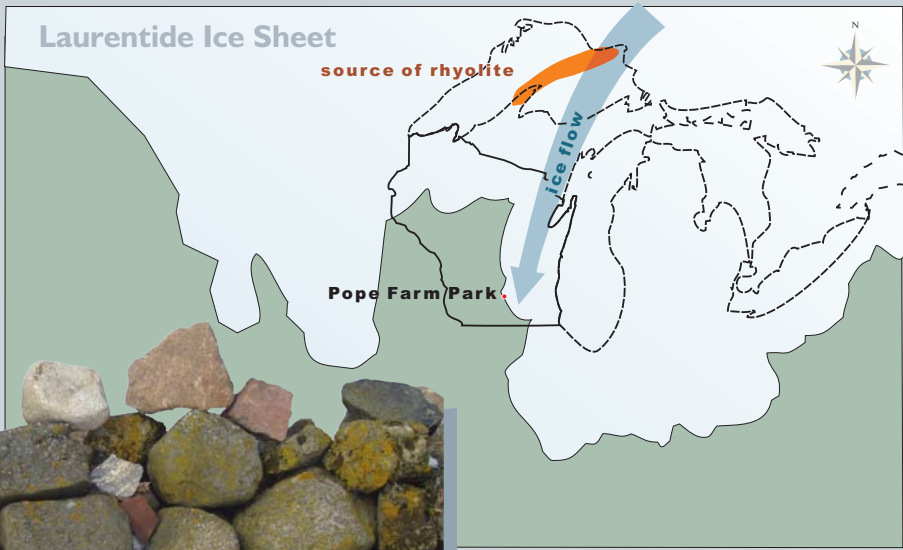




### Stone fence

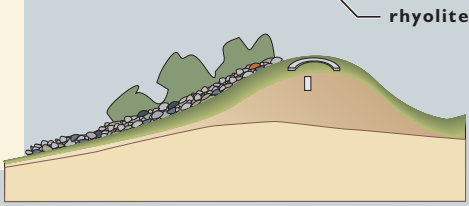
Some of the rocks in this stone fence were carried to here from as far away as Canada and northern Michigan by the glaciers. As the glacier melted the stones were left scattered across these fields. Each spring with the melting of the snow more rocks would appear at the surface as a result of frost action. Farmers removed the rocks from the fields and built this stone fence that drapes down from the moraine.





**Rhyolite**

Rhyolite is a distinctive type of rock you can see in the stone fence. This light red rock with orange or light blue spots is a volcanic rock. It comes from an east-west trending band of rock that extends eastward beneath Lake Superior from the Keweenaw Peninsula of Michigan. The flowing ice of the Green Bay Lobe carried these pieces of rhyolite to Pope Farm Park.





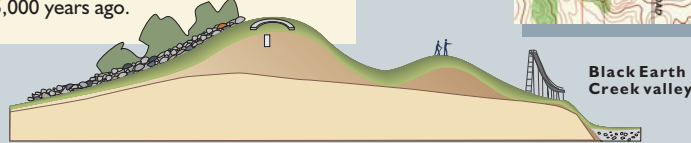
### Black Earth Creek Valley

You are standing on the second recessional moraine in Pope Farm Park. The Black Earth Creek Valley is in front (north) of you. Meltwater draining from the Green Bay Lobe flowed westward down this valley from about 18,000 to 15,000 years ago. At that time the river consisted of many channels that formed a braided pattern. The broad sandy plains that form the valley floor today are the deposits of those braided channels. Up to 200 feet of sand and gravel underlie these sandy outwash plains. Locally these deposits are mined for sand and gravel to be used for building roads and many other construction purposes.

The photograph of a braided glacial meltwater river in Alaska shows what the Black Earth Creek Valley likely looked like about 15,000 years ago.



Photo taken from ski jump looking westward.





recessional  
moraine



The photos show recessional moraines  
along the edge of modern glaciers.



### Recessional moraine

This hillside is on a recessional moraine where the glacier edge paused, and boulders, pebbles, and soil accumulated to form a ridge. You can see the rocks on the hillside today. Water carried much silt, sand, and gravel out into the fields to your right, making them easy to cultivate because there are few rocks. This is why the stone fence stops along the hillside.