

Central Parks

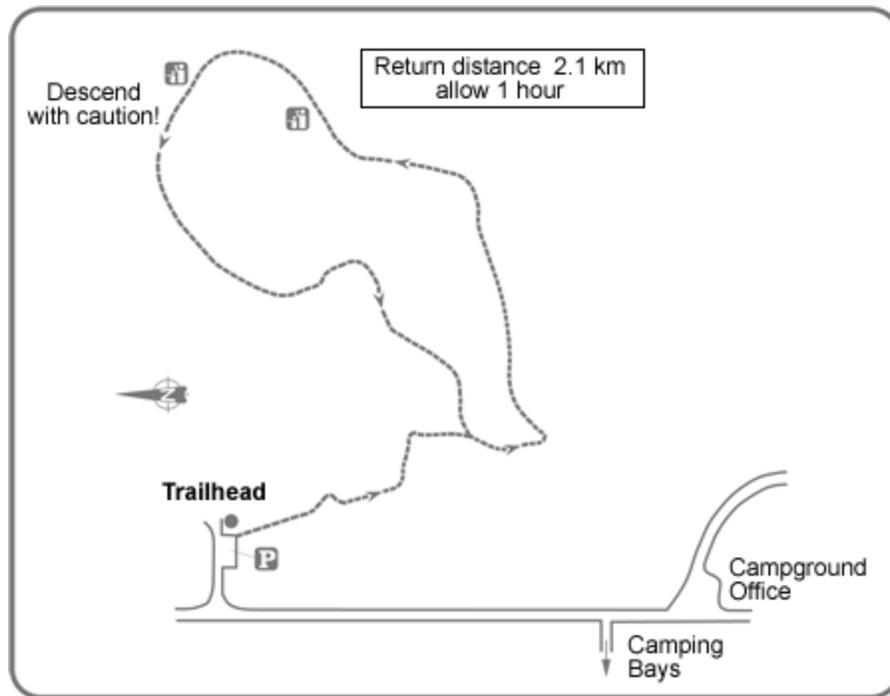
Grand Beach Provincial Park

Ancient Beach Self-guiding Trail



Trail Information

- Terrain is sandy and generally level. There are several inclining slopes and a steep, declining slope beyond the second viewpoint. Take your time going up and descend carefully.
- In season, insect repellent will make your hike more enjoyable. Sturdy footwear is recommended as well as long pants, to avoid direct contact with poison ivy.
- Please do your share to protect our park resources. Take only pictures and leave only footprints.



Trail map

1. Sandy Beach?

We usually think of sandy beaches stretched along lakeshores. However, this trail leads across beaches whose lake-glacial Lake Agassiz-disappeared about 8,000 years ago. The closest body of water is Lake Winnipeg, 3 km west of here.

There's sand a few inches beneath your feet. If you poked your finger through the pine needles and the thin layer of soil, you would find sand that is not too different from what is on today's east and west beaches.

This sand is part of the Belair moraine (see Figure 1), a hill-like landform deposited here by glacial activity more than 14,000 years ago.

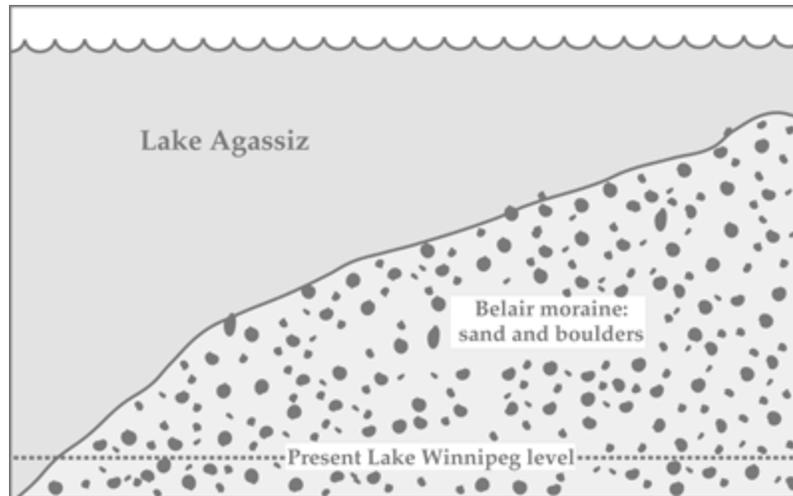


Figure 1: Western slope and material composition of the Belair moraine; not to scale

2. Boulders

The moraine is also made up of granite boulders, brought here by the glacier from the Precambrian Shield on the east side of Lake Winnipeg and adjoining parts of northwestern Ontario (see Figure 1).

3. More Boulders

Have you hiked the Spirit Rock Trail in the park? At the viewpoint you can see piles of large boulders eroded from the shore by Lake Winnipeg's waves. Here along the Ancient Beach Trail, the boulders were exposed in the same way by Lake Agassiz's waves. Water washes away the sand and other finer materials from the moraine leaving the heavy boulders behind.

This is the first prominent Lake Agassiz shoreline you'll come across. Today instead of being in the midst of crashing waves, you and the boulders are surrounded by a peaceful grove of aspen, birch and jack pine.

4. Scarp

You're now about halfway up this slope which is a scarp, or a small erosional escarpment between two beach levels (see Figure 2). Lake Agassiz's waves removed the light sand from the moraine's original slope. Exposed boulders from an earlier shoreline are visible just up the trail.

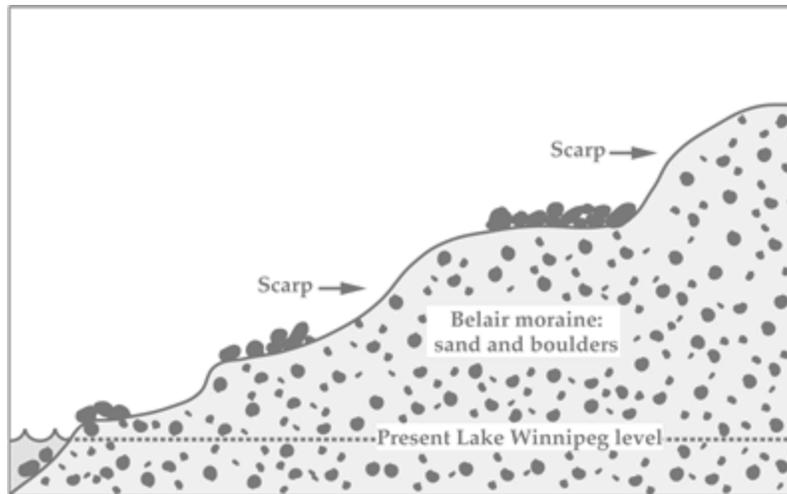


Figure 2: Moraine slope altered by wave action; not to scale

5. Bathtub

For several thousand years Lake Agassiz was very deep in this area, completely submerging the moraine. About 9,000 years ago the water level dropped sufficiently so that the top of the moraine emerged as an island. By about 8,000 years ago, the mighty Lake Agassiz which once covered much of southern Manitoba, including this area, had totally disappeared (see Figure 4). Simply, Lake Agassiz emptied like water from a giant bathtub or swimming pool. The "drain hole" however was not always in the same place. Lake Agassiz at various times drained into the Gulf of Mexico, the Atlantic Ocean, the Arctic Ocean via the MacKenzie River and finally Hudson Bay.

As the lake's level lowered over a period of several thousand years, its powerful waves eroded the slope of the moraine and beaches were created. Standing here on its shoreline, you would have been stranded on an island in a vast glacial lake (see [Figure 3](#)).

The moraine's highest elevation is about 259 m (850 feet) above sea level and Lake Winnipeg's average elevation is 217.4 m (about 714 feet). You are standing somewhere between the two elevations, or several stories above Lake Winnipeg's beach.



Figure 3: Belair moraine was once a chain of islands in Lake Agassiz. The arrow indicates the island you would have been standing on. (Adapted from Matile and Groom.) *Courtesy of Manitoba Industry, Trade and Mines*

6. Changing Scene

Looking out from this viewpoint, you can only imagine how the view has changed. Lake Agassiz did not shrink to become Lake Winnipeg. It disappeared completely. The Red and Winnipeg rivers, the main rivers now flowing into the south basin, followed winding courses to the narrows and into the north basin. (See Figure 4 for the southern extent of Lake Agassiz in its late stages.)

Lake Winnipeg has grown in the last 8,000 years. With the weight of the continental glacier gone, land at the north end of the lake has risen significantly, creating a natural dam. Over several thousand years, this created the present south basin. Lake Winnipeg is the world's 12th largest freshwater lake and the 6th largest in Canada.

Vegetation has also changed significantly. In the cool moist climate that dominated southern Manitoba following the disappearance of glacial ice, evergreen forests flourished. Following the disappearance of the glacial lake from what is now the south basin, the climate was drier and a few degrees warmer than today. Grasslands with small stands of aspen extended westward from here. About 3,500 years ago, as the climate became cooler and moister, the modern mixed forest of jack pine, spruce, trembling aspen and birch began to invade.

Please walk carefully as you descend the scarp!

7. Beach Line

Above, you can see another aspect of the old beach line you crossed on your way up. The boulders stretch all the way back to site three (3) through the dense forest growth.

Conclusion

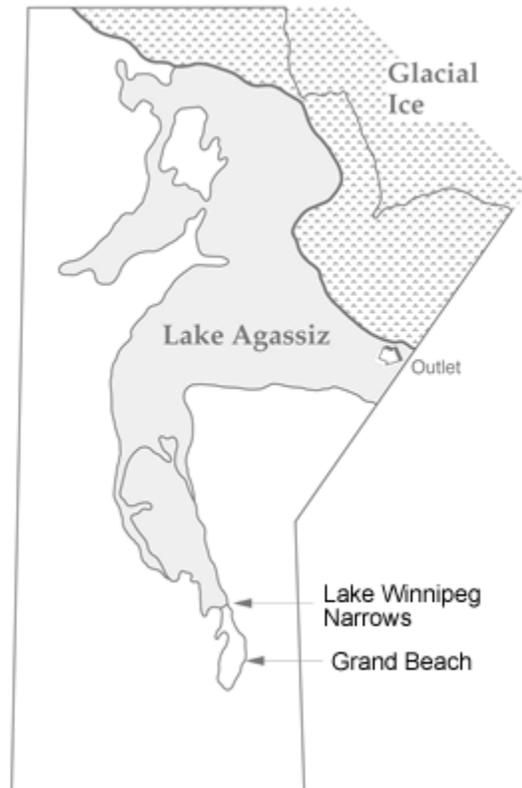


Figure 4: Estimated extent of Lake Agassiz during one of its late stages. Manitoba's boundary and the present shape of Lake Winnipeg are shown for reference. (Adapted from L.A. Dredge in *Glacial Lake Agassiz*.) Courtesy of the *Geological Association of Canada*

Grand Beach Provincial Park's landscape and forest covering have been a long time in the making. Along this trail Lake Agassiz waves once thundered, and on calm days gently lapped the shore. Today the only sound resembling waves is the occasional sound of wind in the treetops. Perhaps it is the wind looking for its vanished lake and hidden shorelines.

Further Reading

Glacial Lake Agassiz: GAC Special Paper 26. Edited by J.T. Teller and Lee Clayton. St. John's, Newfoundland: Geological Association of Canada, 1983.

Natural Heritage of Manitoba: Legacy of the Ice Age. Edited by James T. Teller. Winnipeg, Manitoba: Manitoba Museum of Man and Nature, 1984.

Matile, G. and H. Groom. *Late Wisconsinan Stratigraphy and Sand and Gravel Resources in the Rural Municipality of Lac du Bonnet and Local Government District of Alexander: Aggregate Report AR 85-2.* Winnipeg, Manitoba: Manitoba Energy and Mines, 1987.

Acknowledgement

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If you do not wish to have this brochure as a souvenir, please return it to the brochure box at the beginning of the trail.