

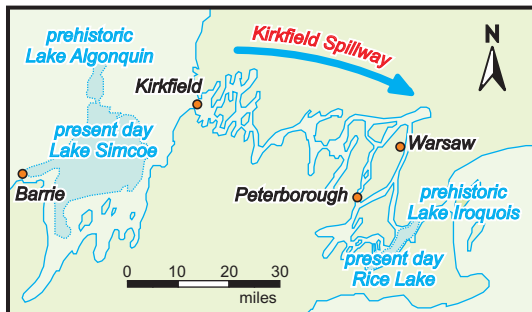
How were the caves formed?

The Warsaw area is characterized by limestone bedrock formed in the Paleozoic era seas that covered the entire region over 350 million years ago. This bedrock was shaped through a series of Pleistocene epoch glaciations, including the Wisconsin ice age which ended 10,000 years ago.



At the height of this ice age 20,000 years ago much of Ontario was covered in sheets of ice two to three kilometers thick. When these glaciers began to retreat 12,000 years ago, meltwaters created prehistoric Lake Algonquin (the present-day upper Great Lakes and Lake Simcoe) and Lake Iroquois (present-day Lake Ontario).

The flow of glacial meltwater from Lake Algonquin to Lake Iroquois formed the Kirkfield Spillway, which included the Indian and Otonabee Rivers. The ancient rivers were very different from the shallow, placid Indian River of today, being more like the modern-day Niagara River. The deep, swift, glacier-fed river shaped the landscape found within the conservation area, leaving behind caves, kettles, limestone cliffs and ledges, underground channels and other interesting natural features.



The caves were created by the chemical erosion of the limestone bedrock. Limestone has a distinctive crystal structure and it will fracture and crack in a specific pattern. As the ancient river flowed over the bedrock it made its way into and through these cracks. High carbon dioxide levels made the river water slightly acidic and it dissolved the limestone over thousands of years, widening the natural cracks and fissures in the rock. In time the river was flowing both over and through the bedrock, in its surface bed and in underground channels. This type of landscape is known as karst topography.

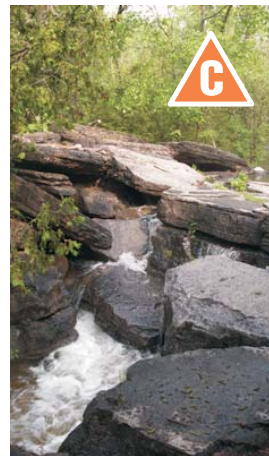
karst (kärst) *noun* - a region made up of porous limestone containing deep fissures and sinkholes and characterized by underground caves and streams. [German, after Kras, name of the hinterland of Trieste, Slovenia]

As the glaciers retreated, the weight of ice carried by the bedrock lessened and it rose up in a process known as isostatic rebound. The shifting of the bedrock and continued erosion caused the collapse of underground river channels, leaving behind a series of caves and the broken limestone landscape we see now.

The site is geologically stable today and the rebound of the bedrock means there is no longer water flowing through the caves, although there are still many underground river channels flowing through the area.

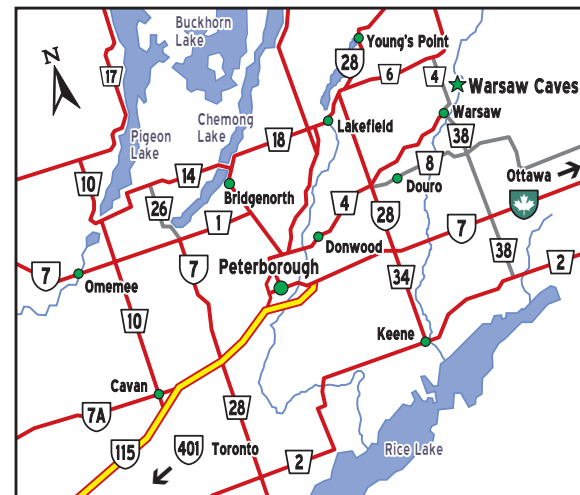
B Opposite the caves is a trail that leads to the kettle formations and a scenic lookout 30m above the Indian River. Trail maps of the park and a river canoe guide are available at the gatehouse or online for download at www.warsawcaves.com.

There is a small footbridge at the point where the river disappears underground. When the water is low you can leave the trail here and follow the old river bed. A short walk will bring you to a feature known as the Falls. Water only rarely flows over the Falls now, but you can see clear evidence of the erosive power of the huge volume of glacial meltwater that coursed through this channel thousands of years ago.



How were the kettles formed?

Along the course of the old riverbed there are a number of potholes or round depressions in the bedrock known as rockmills or kettles. These were formed when granite stones trapped in the river current were spun around in place, grinding their way into the underlying limestone.



Warsaw Caves Conservation Area and Campground is located just 30 minutes northeast of Peterborough.

Watch for and follow these signs.



Warsaw Caves

Conservation Area and Campground



Spelunkers Guide to the Caves



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Spelunkers Guide to the Warsaw Caves

The Warsaw Caves Conservation Area and Campground takes its name from a series of seven caves found in the park. This guide will provide you with some information about the geologic history of the site and tips for exploring the caves and other special features.

spelunker (spi-luhng-ker) *noun* - a person who explores caves, especially as a hobby; a caver; a potholer. [From obsolete spelunk, cave, from Middle English, from Old French spelunke, from Latin spēlunca, from Greek spēlunx.]

! *Before you go: The caves, the uneven terrain, and other natural features of the park can be hazardous. Visitors use the site at their own risk and must exercise caution. Have fun, but conduct yourself in a safe and responsible manner!*

What do I need to go spelunking?

Make the most of your exploration of the caves by being properly prepared. A visit to the Warsaw Caves is not a walking tour – it is more like an adventure in an underground jungle gym!

- ✓ wear sturdy, good fitting shoes
- ✓ wear clothing that you don't mind dirtying
- ✓ use a flashlight or a headlamp (headlamps are available for sale at the gatehouse)

Helmets, climbing ropes, and other climbing gear are not required.

Keep in mind that you are sharing the park with others. Please be respectful of the site and other users.

- ✓ be polite and act safely in close quarters
- ✓ don't go caving alone – take a buddy
- ✓ young children should be supervised
- ✗ don't litter – carry out your empty water bottles and food wrappers!
- ✗ don't smoke – butt out before you go caving
- ✗ don't move rocks or logs, and don't damage trees
- ✗ don't deface the caves in any way
- ✗ no dogs in the caves, please



These caves are linked!



You can easily enter cave #1 by either of two large openings. From the first chamber you make a descent of roughly 4.5m by way of several ledges. To the right is a passage that ends at a large chamber. To the left is a narrower passage that will lead you to cave #2.

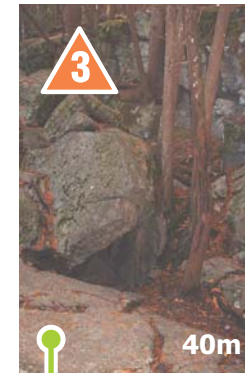
The entrance to the second cave is a bit more of a squeeze, but it opens up into a chamber from where you can move in any one of three directions. Straight ahead across the flat polished rock is the passage that leads to cave #1. If you look at the ceiling here you will see some of the few fossils on the site. To the left of the flat polished rock is a descent that dead ends at a series of lower chambers. If you move to the left, but bypass the descent, you will find a passage leading to cave #3.

You have to enter cave #3 feet first – use your right foot to find your footing as you lower yourself through the cave entrance. Once you are in you again have a choice of three directions of travel. To the right beyond a mound of rocks is the passage to cave #2. To the left is a horizontal crevice that you crawl through to reach a circular chamber. If you climb up past the right hand side of the crevice you will come to a pair of exits to the surface.

You will have to wiggle your way into cave #4 feet first, but it is – quite literally – the coolest of the caves. This is the ice cave where the temperature is always about 2°C and where you can find ice well into the summer season. To the left you can crawl your way into a small chamber or, to the right, through a narrow, hard-to-see passage that leads to cave #5.

For those who may be uncomfortable in an enclosed space, you may want to begin your explorations with cave #5. It is easily accessible and is the most open and spacious of the caves. Standing on the flat trail roughly a half dozen metres before the entrance of cave #4, turn sharply to the right and make your way up the slope to cave #5. Or you can continue to follow the trail from here past the last three caves and on to the Damsfly Pond.

From the entrance of cave #5 you can go left – feet first to secure your footing – to enter a narrow passage that leads back to cave #4. To the right you can follow a short open passage that offers several vertical climbs to the surface.



Cave #6 resembles a long corridor with high ceilings. The entrance is very steep, so be careful when lowering yourself in. If you feel uncomfortable entering here, there is another unmarked entrance 15m further down the trail. From the entry marker, moving to the left will lead you to a dead end, while moving to the right will take you down a passage that has several vertical exits.

To get to cave #7 you need to carefully make your way across large slabs of broken limestone and descend through a crevice to the entrance. The cave itself is open to the sky. After making your way into the cave you will travel a short distance to an open area. You can exit here or continue on to another open area from where you have the choice of exiting or making a 10m underground belly crawl to the next exit.

After leaving the cave #7, make your way down to the path visible at the bottom of the slope. You can return up the trail to your left to the parking lot or follow the trail to the right to get to the Damsfly Pond. The Indian River begins to re-emerge here after flowing underground for several hundred metres. In summer, if you sit quietly you can hear the beating of the wings of the large numbers of black-winged damselflies that are often found here.

