

Ohiopyle Geology Walking Tour: Explore the Gorge

Water vs Rock

On this tour we will focus on the conflict between water and rock. Throughout Ohiopyle State Park you see where rock and water are waging the same battle they have waged over millennia. Water is trying to flow along its easiest path and rock is stunting its ability to do so. In some places this battle is quite evident, like at obvious waterfalls, but at others the challenge is more subtle.

Stop #11: Ohiopyle Falls

Perhaps nowhere in the park is the conflict between water and rock more evident than right here at Ohiopyle Falls. These falls are a large outcrop of Homewood sandstone. Large benches of rock like this are often referred to as nick points. We often think of water flowing from high to low points in an even gradient. But in places like Ohiopyle you have more of a terraced river bottom. About the nick point, the falls, you have a resistant bench of rock. Below the falls you reach layers of less resistant rock. It is the erosion of these layers that have created the falls in the first place. The rocks below the Falls (Lower

Yough) are more easily eroded than those above (Middle Yough). This explains why there are steeper more difficult rapids on the Lower as compared to the Middle section of the river.

Walk along the river towards the low bridge. Cross the street at the Falls Market and get on the low bridge at the Train Station.

Stop#12: Low Bridge

Stop for a moment as you cross the low bridge and look at the river's edge. Notice how the inside of the bend of the river (river left-facing downstream) there is a sandy beach while on the other side of the river, the bank is a rocky shelf. The water scours the outside of the river meander. Because water moves faster here it is more erosive. This "scour zone" is where the park's most unique species of plants are found. It takes quite a tough plant to live a life in the scours. They must tolerate flooding in the spring and virtually no water for the rest of the year. While on the inside of the meander small sediments are deposited because the waters slows down and can no longer carry them.

Stay on the bike trail and cross the Ferncliff Peninsula until you

reach the High Bridge, roughly a quarter of a mile.

Stop #13 High Bridge

Believe it or not this bridge is at the same elevation as the first bridge you crossed. Notice how much the river has dropped in just two miles. Believe it or not, if you look downstream off of the bridge you will see the spot where Ohiopyle Falls used to be! It has "migrated" or been eroded away to its current spot next to the Visitor's Center, a distance of roughly 2 miles. This migration has taken many thousands of years. Notice also how the river is working to erode the large boulders that create the rapids, particularly those in the middle of the channel. Their edges are rounded from years of water pummeling them. These boulders are made from the same rock that forms the Falls, Homewood sandstone. They fell off the sandstone ledge that traces along the edge of the gorge between Cucumber Falls and here. This ledge is the base for the trail we are about to walk on. Continue across the bridge, turn left onto the Great Gorge trail at the end of the bridge.

Next stop roughly .5 miles

Stop #14 Stream impact

As we walk along the ledge, on the Great Gorge Trail, keep your eye out for small streams that go under the trail. These small streams show erosion on a smaller scale than what we see in the larger Youghiogheny Gorge. When there are heavy rains they quickly erode and escape their banks and dump sediments into the river. The sediments that you see here were at the top of this slope just a few years ago. After heavy storms they have begun to migrate their way down the slope.

Continue walking along the trail until you reach a large metal bridge. Cross the bridge and make a left and follow the trail until you see Cucumber Falls.

Stop #15: Cucumber Falls

Cucumber Falls is an amazing spectacle. Believe it or not it is roughly the same height as Ohio-pyle Falls. So why do they look so different? There is a very deep pool of water under the Ohio-pyle Falls which makes it seem shorter. This is especially true as water levels rise. Secondly, the coal layer under Cucumber Falls is much thicker. Remember, coal layers are very easily eroded which causes a great, obvious undercut. Cucumber Falls faces another problem that Ohio-pyle Falls doesn't encounter, which is large

hanging ice. In the winter large icicles collect on the rock and over time that weight has an impact on the rock. Also remember that Cucumber Run is much smaller than the Youghiogheny River and cannot erode as wide a valley. Walk down the trail along the path and down the steps. Keep the creek to your left and walk until you reach the point where the creek flows into the river. Stop where you see a sign that says Meadow Run Trail ends

Stop #16: Mouth of Cucumber

This is where Cucumber Falls used to be. Just as Ohio-pyle Falls used to be below the high bridge, Cucumber Falls has migrated upstream from here roughly 400 feet. Do you remember how far Ohio-pyle Falls has migrated? (Roughly 2 miles) What do you think explains the difference in distance when they are cutting through the same rock layer? The difference is water power. Look at the difference in water flow between Cucumber Run and the Youghiogheny River. The river simply has more scouring power and can work through the layers faster. Face the Meadow Run trail sign and make a sharp Right. The trail picks up along the edge of the slope. Follow the yellow blazes through the

woods and along the river until you pass under the road bridge and reach the slides.

Stop #17: The Slides

Here at the beginning of the Meadow Run slides you are seeing another nick point, just like at Ohio-pyle Falls. However, at this spot the rock layers below the nick point are exposed for our view. When you look at the slides you see water's scouring power displayed at its finest. It often finds fractures in the rock which will cause the formation of the stream channel. In this case the channel is so clearly defined that it forms a tubelike waterslide.

Water versus rock—who is the winner? Currently we deem it a tie. In some places water is definitely having a major impact. But in the same token, resistant rock layers are ruling the landscape in other spots. In the end the conflict between the two provides for amazing opportunities to view this age old battle.

Head up the steps, cross the road and turn right onto the sidewalk which will take you back to the Visitor's Center.