

Cuyahoga Valley

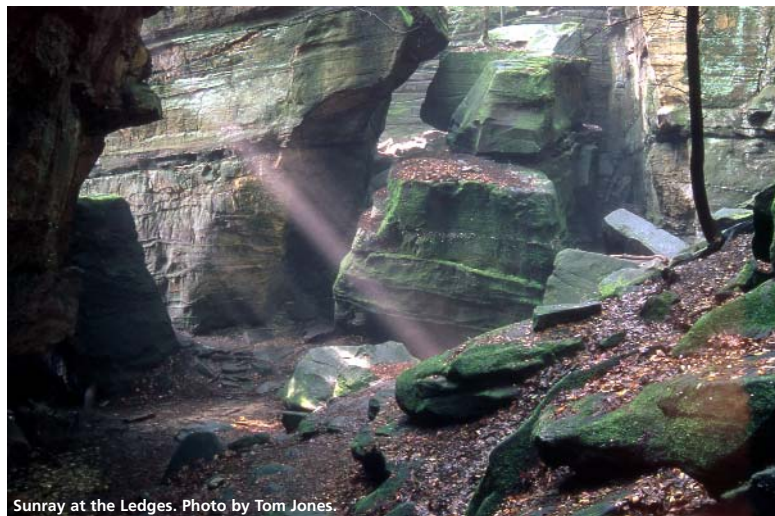
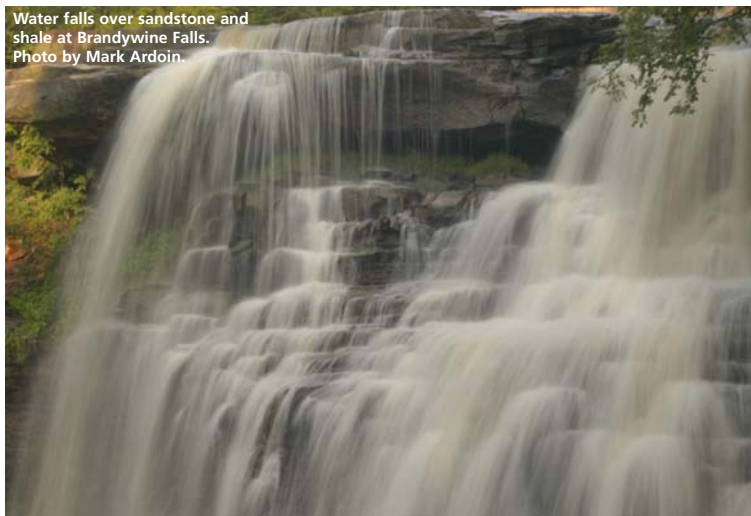
National Park Service
U.S. Department of the Interior

Cuyahoga Valley National Park



Rock, Ice, and River

Water falls over sandstone and shale at Brandywine Falls. Photo by Mark Ardoin.



Bedrock, glaciers, and rushing rivers... geologic stories of a place do not involve one chapter. Instead multiple events have shaped and reshaped the land. Yet we only have evidence from the existing landscape to trace the story of what happened.

The natural landscape of Cuyahoga Valley National Park (CVNP) is diverse and often rugged. River terraces, steep valley walls, meandering streams, ravines, waterfalls, and rock ledges all give texture to the valley. The geologic evidence found in these features tells of seas, glaciers, and rivers that have all left an imprint on the land.

Geographic Setting

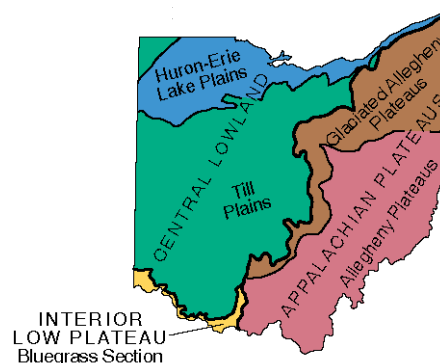
CVNP sits where two major regions of North America meet. Here, the final influences of Appalachian mountain-building give way to the vast plains of the interior of the country. Most of CVNP falls on the Appalachian's Allegheny Plateaus; however, its northern tip crosses onto the plains.

In the park, the transition is not easily noticed. Nearby the transition can be dramatic. The Portage and Allegheny escarpments--broken lines of steep hills--mark the edge of the plateau and offer striking views of Cleveland and Lake Erie.

CVNP also sits near a north-south continental water divide, found south of the park in Akron.

Rivers north of the divide flow to Lake Erie and the Atlantic Ocean. Rivers south of the divide flow to the Ohio River and the Gulf of Mexico.

Physiographic Regions of Ohio.
Courtesy of Ohio DNR,
Division of Geological Survey.



Bedrock: The Time Before Glaciers

Layers of sedimentary rock, hardened from materials left by ancient seas and streams, create the park's bedrock. The oldest rocks rest at the bottom, with successively younger layers on top. Between 410 and 286 million years old, the bedrock dates from the Paleozoic Era, before dinosaurs roamed the earth.

CVNP's most common bedrock includes Bedford Shale and Berea Sandstone, both

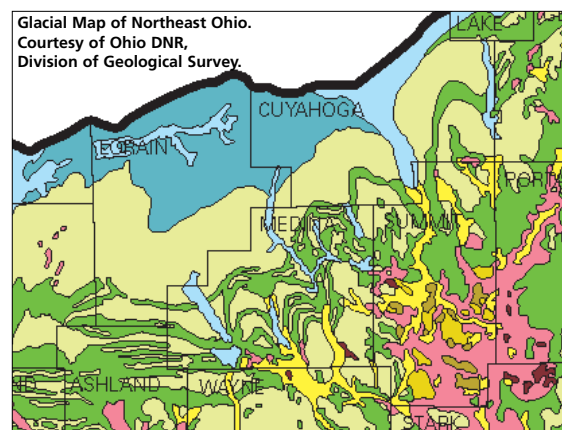
formed from sea deposits. They can be seen at Brandywine Falls, where the harder sandstone caps the waterfall. The highly textured Sharon Conglomerate, formed from sand and quartz pebbles carried here by ancient streams, crops out at the spectacular Ritchie Ledges in Virginia Kendall Park.

The Valley Under Ice

Two million to 10,000 years ago, an Ice Age gripped the planet. Four major ice advances moved like bulldozers, scouring the land and pushing tons of sand, silt, clay, and rock. Glaciers both enlarged the ancient river valleys and filled them with deposits, burying features that had existed for thousands of years. Resistance from the Portage and Allegheny

escarpments forced the glaciers to grind to a halt in northeast Ohio. This is recorded in linear piles of debris dropped by glaciers called end moraines. They mark the furthest advance of the glacial ice. Where glaciers encountered the escarpments, end moraines took on unusual, contorted shapes very unlike the typical end moraines seen in western Ohio.

Ice Age deposits had profound effects on CVNP's soils and ground water. Where melt water deposited sand and gravel, artesian waters can yield over 500 gallons per minute. Water gurgles in the artesian wells along the Ohio & Erie Canal Towpath Trail at the Jaite Mill. More commonly, clays derived from glacial deposits fostered soils devoid of groundwater. Finally, where ice or glacial debris dammed streams, Ice Age lakes left deposits that helped create the park's fertile soils found on river terraces.



Underneath It All: Ancient River Valley

The Cuyahoga River is often credited for carving its namesake valley. Yet it was not the first river to sculpt the park's bedrock. Before glaciers buried its work, an ancestral river cut a deep valley near the current Cuyahoga Valley. This river flowed to the now extinct Erigan

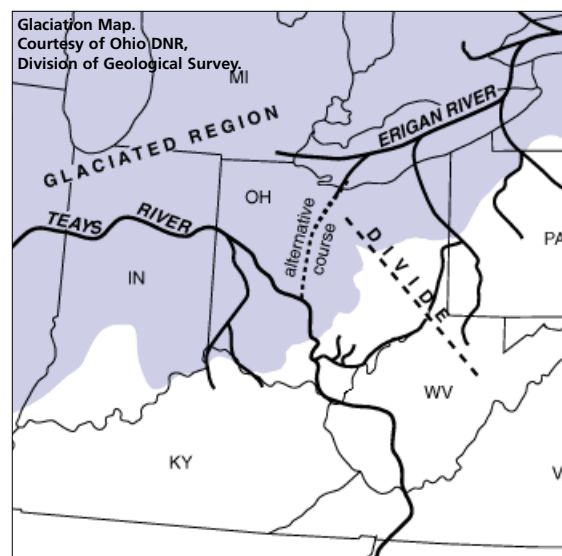
River, an east-west river that mirrored the shore of Lake Erie's current location. The ancestral river system created a rugged landscape, similar to that now found in southeast Ohio beyond the reach of glacier's smoothing influence.

The Cuyahoga: The Crooked River

As glaciers retreated, the region's natural landscape began to take its modern form. Glaciers had enlarged the Erigan River Valley, creating lowlands where water could accumulate. A complex succession of lakes filled the basin until Lake Erie took its current configuration less than 4,000 years ago. Rivers like the Cuyahoga re-carved valleys, sometimes following routes that align with the buried valleys, but sometimes finding less resistance from alternate routes.

Unlike other rivers north of the watershed divide, the Cuyahoga River initially flows away from Lake Erie. From its origins in Geauga County, it flows southwest until it encounters the north-south continental water divide in Akron where it makes an U-turn to the north, earning its nickname "Crooked River."

In CVNP, the river's closely spaced ravines can drop nearly 600 feet in a few miles. If



vegetation disappeared, the ravines would resemble the intricately eroded badlands of the western United States. This rugged land stands out along the Buckeye, Salt Run, and Old Carriage Trails.

The Legacy of Geology

The park's geology is reflected in its natural and human histories. The valley's carved topography fosters biological diversity. The uplands, dry valley slopes, moist ravines, and valley floor all support differing plants and animals. Cool, moist areas such as the Ritchie Ledges offer places where plants that grew here closer to the end of the Ice Age still survive. Being at the meeting point of two regions of the country adds to the diversity: species from both regions may be found in the park, although Appalachian species are more common.

The land created opportunities and barriers for people. The Ohio & Erie Canal and Valley Railway took advantage of the natural corridor offered by the valley. But, it is the barriers that ultimately created the opportunity for CVNP. After World War II, suburbs began to consume the land surrounding Cleveland and Akron. However, unstable soils and lack of ground water caused suburban development to largely bypass the valley, leaving available open space that let people envision the possibility that has become Cuyahoga Valley National Park.

15610 Vaughn Road
 Brecksville, Ohio 44141
 (216) 524-1497 or (800) 445-9667
www.nps.gov/cuva or www.dayinthevalley.com

