

OUTSTANDING GEOLOGIC FEATURE OF PENNSYLVANIA

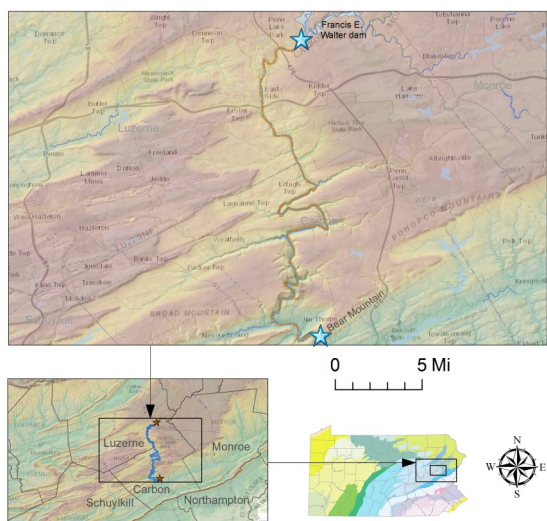
LEHIGH GORGE, LUZERNE AND CARBON COUNTIES

Stuart O. Reese, 2016



Location

Lehigh Gorge State Park, Carbon and Luzerne Counties, Christmans, Hickory Run, Lehigh, Nesquehoning, Weatherly, and White Haven 7.5-minute quadrangles



Geology

The scenic and rocky Lehigh Gorge winds through about 30 miles of the Anthracite Upland section of the Ridge and Valley physiographic province. The gorge can be traced from below the Francis E. Walter Dam to the cut through Bear Mountain, just downstream of Jim Thorpe, Pa. The Lehigh River drops over 740 feet in elevation as it flows down the gorge.

Approximately 2,825 feet of folded rocks in the gorge are exposed, representing a 60-million-year interval from the Late Devonian through the Late Mississippian (383 to 323 million years ago). Rock types include sandstone, conglomerate, siltstone, and mudstone. From youngest to oldest, the primary rock units are the Mauch Chunk, Pocono, Specht Kopf, and Catskill Formations. These rock units were deposited by ancient streams that flowed northwest from highlands to the southeast. It is thought that a 3- to 4-mile-thick sequence of rock was deposited above these units.

The folding of the rocks in the gorge took place about 300 million years ago during the mountain-building event known as the Alleghanian orogeny. The collision of the African and North American tectonic plates pushed rocks upward and over the area. Following the event, erosion removed as much as 20,000 feet of rock above the Mauch Chunk Formation. After most of those rocks were gone, a young Lehigh River began to make headward progress across the area, adjusting its path based on the structure of the bedrock folds. About 20,000 years ago, Wisconsin glacialiation peaked in northeastern Pennsylvania, and the glaciers reached as far south as the Lehigh Gorge State Park area. Evidence for this can be seen as glacial striation marks and layered sand and gravel deposits.



Left: Southern end of the Lehigh Gorge at Bear Mountain, as viewed to the northeast from the Flagstaff Mountain overlook. Borough of Jim Thorpe is in the valley on the left. Right: View to the south showing the rough terrain of the gorge. Borough of Jim Thorpe and Bear Mountain are in the distance. Photographs by Kevin Tarbert, Pennsylvania Geological Survey intern.

Recommended Reading

Inners, J. D., 1998, Rocks and ruins of the “Upper Grand”—An illustrated trail guide to the geology and historical archeology of Lehigh Gorge State Park, northeastern Pennsylvania: Pennsylvania Geological Survey, 4th ser., [Trail of Geology 16-114.0](#), 62 p. [Lehigh Gorge State Park](#) web page of DCNR.