

The Bedrock

The ridges, valleys, and stately hills of the park were carved from sedimentary rocks that formed 359–318 million years ago. During the Mississippian Period of geologic time, most of southern Indiana was covered by a shallow inland sea. Sand and silt from the Appalachian Highlands was carried into this shallow sea by the ancient Ontario River system and deposited as a vast delta. The delta intersected and covered broad areas, much like today's Mississippi River delta in the Gulf of Mexico. In time, the weight of overlying sediments and internal chemical reactions hardened the finely laminated delta deposits into silica-rich siltstone, sandy shale, and sandstone. Geologists have classified the rocks exposed in the park as belonging to the Edwardsville and Spickert Knob Formations of the Borden Group.

Evidence from nearby localities indicates that the deltaic rocks in this area were later covered by an additional 1,000 feet or more of limestone and other types of sedimentary rock. All record of these younger formations has been lost to erosion, however, as you will discover later in this story.

Many park visitors notice the multicolored bands that appear on the surface of bedrock outcrops. These red, dark gray, and black layers owe their color in part from iron compounds and organic material deposited in the sediments themselves and by groundwater that flowed through the pore spaces of the siltstone and sandstone.

Eroding the Landscape

After the Borden delta and later sediments were deposited in this area, the land was uplifted above sea level by tectonic forces. Exposed to weathering and running water, the soft, easily eroded shales wore away with the passing ages to form the symmetrical hills and valleys typical of this area. In some places, the more resistant sandstone layers within the Edwardsville Formation acted like an armor plate by protecting the rocks beneath them from the effects of erosion. Weed Patch Hill, parts of Limekiln Ridge,

and Hohen Point are typical hills capped by sandstone and rise more than 1,000 feet above sea level. Weed Patch Hill, in particular, is one of the highest elevations in Indiana and the high point of the nearby-Knobstone Escarpment at 1,058 feet above sea level.

The marked symmetry of the hills and valleys, as viewed from Hesitation and Hohen Points, is due to the homogenous, nearly horizontal bedding surfaces of the Borden rocks that eroded uniformly by stream action. Many overlooks provide superior views of the repeating hills and valleys; the Fire Tower is 460 feet above Salt Creek, while the north lookout is 290 feet and Abe Martin Lodge is 160 feet above the creek.

Untouched by the Glaciers

Although the continental ice sheets of the Pleistocene Epoch (2.6 million–12,000 years ago) did not reach this area, their presence north and east of the park is reflected by increased erosion and filling of local valleys with glacial debris. Glaciers have advanced into Indiana several times in the past 2.6 million years, but it was during one of the earlier glaciations (called the Illinoian) that the ice came the closest to the park. Meltwater from the ice sheet flowed down Salt Creek and its tributaries, leaving behind deposits of gravel and silt from as far north as Michigan and Ontario. Modern streams have all but eroded these sediment terraces. The effect of glacial meltwater in eroding sediments was dominant in the most recent deepening and shaping phase of the Salt Creek valley system.

The geologic story of Brown County State Park, with its deeply carved valleys and sinuous ridges, is largely an account of the erosive power of running water on ancient rocks that were themselves born of soil and rock eroded long ago from another, earlier landscape. By human standards, the hills of Brown County seem everlasting, but in fact they are only momentary features in the history of the changing earth.

