

NATIONAL EARTH SCIENCE TEACHERS ASSOCIATION

FIELD TRIP

A Field Study of the Geologic Wonders of Southeastern Missouri: Elephant Rocks, Johnson Shutins, and the Taum Sauk and Hughes Mountains

1. Elephant Rocks <http://www.mostateparks.com/elephantrock.htm>

Imagine giant granite rocks standing end-to-end like a train of circus elephants. That's what you'll see at Elephant Rocks State Park. About 1.5 billion years ago, hot magma cooled forming coarsely crystalline red granite, which later weathered into huge, rounded boulders. Standing atop a granite outcrop, one of the largest elephant rocks, Dumbo, tops the scales at a whopping 680 tons!

2. Johnson Shutins <http://www.mostateparks.com/jshutins.htm>

One and a half billion years ago, hot volcanic ash and gases spewed into the air, then cooled, forming igneous rock. Later, shallow seas covered the rock, depositing sedimentary rock. The land rose. The sea fell. The weather began tearing down the land, exposing the volcanic rock beneath it. Waters of the Black River became confined, or "shut-in," to a narrow channel. Water-borne sand and gravel cut deeply even into this erosion-resistant rock, swirling, churning...carving potholes, chutes and spectacular canyonlike gorges.

3. Taum Sauk Mountains (Possible special tour by Power Company if we can arrange it)\ <http://www.mostateparks.com/taumsauk.htm>

On Dec. 14, 2005, the upper Taum Sauk reservoir on Proffit Mountain breached, sending more than 1.3 billion gallons of water cascading (in 13 minutes) down the mountain toward Johnson's Shut-Ins State Park. Water rushed through the park, leaving a path of destruction from Highway N, through the campground, past the store, through the shut-ins and down the East Fork of the Black River.

When the water receded, the landscape was completely changed. The water and rocks scoured a hole at the base of the mountain, then rocks created a dam across the river and formed a six-acre lake. The park superintendent's home was gone. Trees stripped from the hillside were piled 15 feet high on the few trees left standing in the campground. Sand and clay covered roads, campsites and trails, sometimes more than 8 feet deep. A part of the Ozark Trail was washed away.

Then there was the river. The crystal-clear, gravel-bottom river became a river of sand. And the shut-ins? While the water dropped gravel and boulders in pockets

throughout, the hard, rhyolite rocks of the shut-ins remain basically the same.

4. Hughes Mountain

The Devil's Honeycomb Trail explores a vast glade on the huge dome-like outcropping of Pre-Cambrian rock that caps Hughes Mountain. The pinkish, multi-sided rhyolite columns for which the trail is named formed when ancient lava flows cooled and contracted. Pleasant mountain breezes sweep the rocky expanse, and panoramic vistas stretch away in three directions, making Hughes Mountain an ideal place to admire the sunset. This fantastic rock landscape is named for John Hughes, whose family owned the mountain from the early 1800s until the Department of Conservation bought it in 1985. To protect this unique landscape, the 430 acres on and around Hughes Mountain are a designated Missouri Natural area. A wide expanse of rock covers about 150 acres on the mountain's upper reaches. Unique Pre-Cambrian rhyolite formations over a billion years old are scattered around the summit. The 1.5-mile path exploring Hughes Mountain, the Devil's Honeycomb Trail, is named for these ancient rhyolite formations. When you see them, you'll know why. Small columns of rock nested together in tight beds, they look exactly like vertical honeycombs. Surface: Solid rock on the rock dome; packed earth or gravel on approach trail.