

OUTSTANDING GEOLOGIC FEATURE OF PENNSYLVANIA

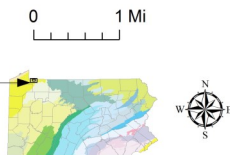
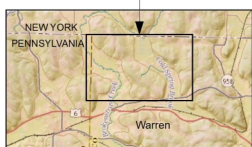
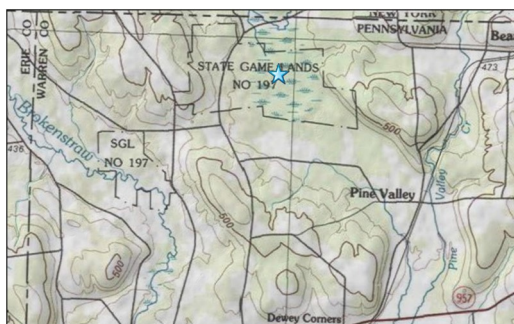
TAMARACK SWAMP, WARREN COUNTY

Stuart O. Reese, 2016



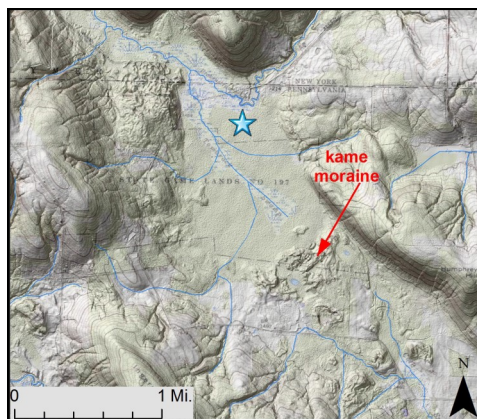
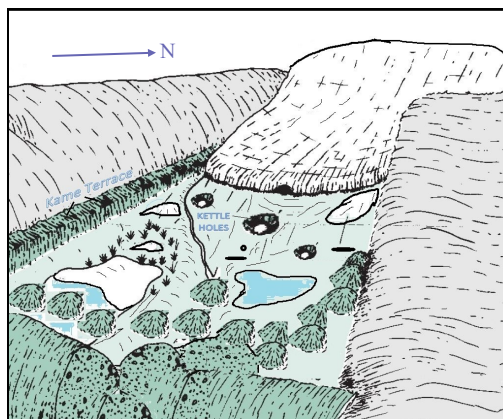
Location

State Game Lands 143, Warren Co., Columbus Twp., lat: 41.989, lon: -79.555; Columbus 7.5-minute quadrangle



Geology

Tamarack Swamp is approximately 4 miles north-northeast of the village of Columbus in Warren County. It is situated within State Game Lands 197 on the Pennsylvania-New York border and forms the headwaters of Brokenstraw Creek, which flows to the north. Before glaciation, however, the creek flowed to the southeast. About 23,000 years ago, this area of northwestern Pennsylvania was covered by a continental glacier. When the glacier was retreating, sediment within the melting ice was deposited as a kame moraine that blocked the wide channel of Brokenstraw Creek. This morainal dam reversed the flow of the creek, and ultimately the channel was abandoned. Kettle ponds formed from melting blocks of ice that established depressions in what would become the Tamarack Swamp. After clay and silt from nearby runoff settled in the ponds, acidic bogs of organic matter developed to form the base of the swamp. Tamarack Swamp was designated a National Natural Landmark in 1977.



Scenes of morainal deposits left by a melting glacier. The image on the right shows the terrain of the area with PAMAP lidar elevation data (with vertical exaggeration). The moraines are 30 to 40 feet higher than the swamp elevation to the north. This effectively dammed the valley, blocking the formerly southeast-flowing stream. Surface water of Tamarack Swamp now drains to the north into Brokenstraw Creek, which flows into New York before turning back to the south to reenter Pennsylvania about 3 miles to the west.

Dark waters of Tamarack Swamp. Photograph courtesy of the National Park Service, which refers to the area as having “the finest examples of acid kettle hole bogs in glaciated northwestern Pennsylvania.”

Recommended Reading

Sevon, W. D., Fleeger, G. M., and Shepps, V. C., 1999, Pennsylvania and the Ice Age (2nd ed.): Pennsylvania Geological Survey, 4th ser., [Educational Series 6](#), 30 p.

[Tamarack Swamp](#) web page of the National Park Service.

State Game Lands 197 on the [Pennsylvania Game Commission Mapping Center](#) website.