

The Starrucca in spate: erosion, deposition, and mass wasting associated with the Ivan and Thanksgiving 2004 and Spring 2005 floods in northeastern Pennsylvania.

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Starrucca Creek drains an area of about 75 mi² on the Glaciated Low Allegheny Plateau of northeastern Susquehanna County and adjacent Wayne County, Pennsylvania. The main stem rises on a high divide near Ararat and flows mainly north and west 15 mi to its confluence with the North Branch Susquehanna River at Lanesboro. Bedrock in the watershed consists of gently south-dipping Late Devonian-age sandstone ("bluestone") and shale. Overlying Late Wisconsinian glacial deposits are widespread stony till and local ice-contact gravel and lacustrine clay. Broad alluvial terraces border the Starrucca for much of its length.

The Starrucca Creek valley was recently hit by three flood events within six months. Following 30 hrs of rainfall from Tropical Storm Ivan, the stream overflowed its banks on September 18, 2004. Two months later, on November 28, a second flood was the result of heavy rain over the Thanksgiving weekend, as the stream inundated a significant, but lesser, area of its floodplain. The Spring flood of April 2-3, 2005, brought on by snowmelt combined with two intense rainfalls, was a repeat of Ivan, but had greater erosional and depositional effects. Water damage to most properties in the three events was confined to basement flooding. A massive Ivan debris slide at Lanesboro knocked a house trailer off its foundation, causing its abandonment.

Extensive channel and floodplain erosion and deposition along the main stream and its tributaries accompanied all three floods. Gravelly channel and point bars choked the Starrucca for much of its length, and sand bars and imbricated cobble bars formed locally on the floodplain, particularly as a result of the Spring flood. Just north of the Starrucca boro line, the creek largely returned to its natural channel from a straight, manmade channel excavated in 1959. In this same area, it is now periodically engaged in deepening old "braid" channels on its floodplain. Combined scouring from all three floods seriously undermined piers of the historic Starrucca Viaduct (1848) at Lanesboro.

Among past notable floods on Starrucca Creek were those of 1865, 1903, 1936, and 1972. Flood and seasonal high-water events in the 19th and early 20th centuries were particularly destructive to the Erie/D&H railroad and the numerous tanneries, acid factories, and sawmills on the Starrucca's floodplain.