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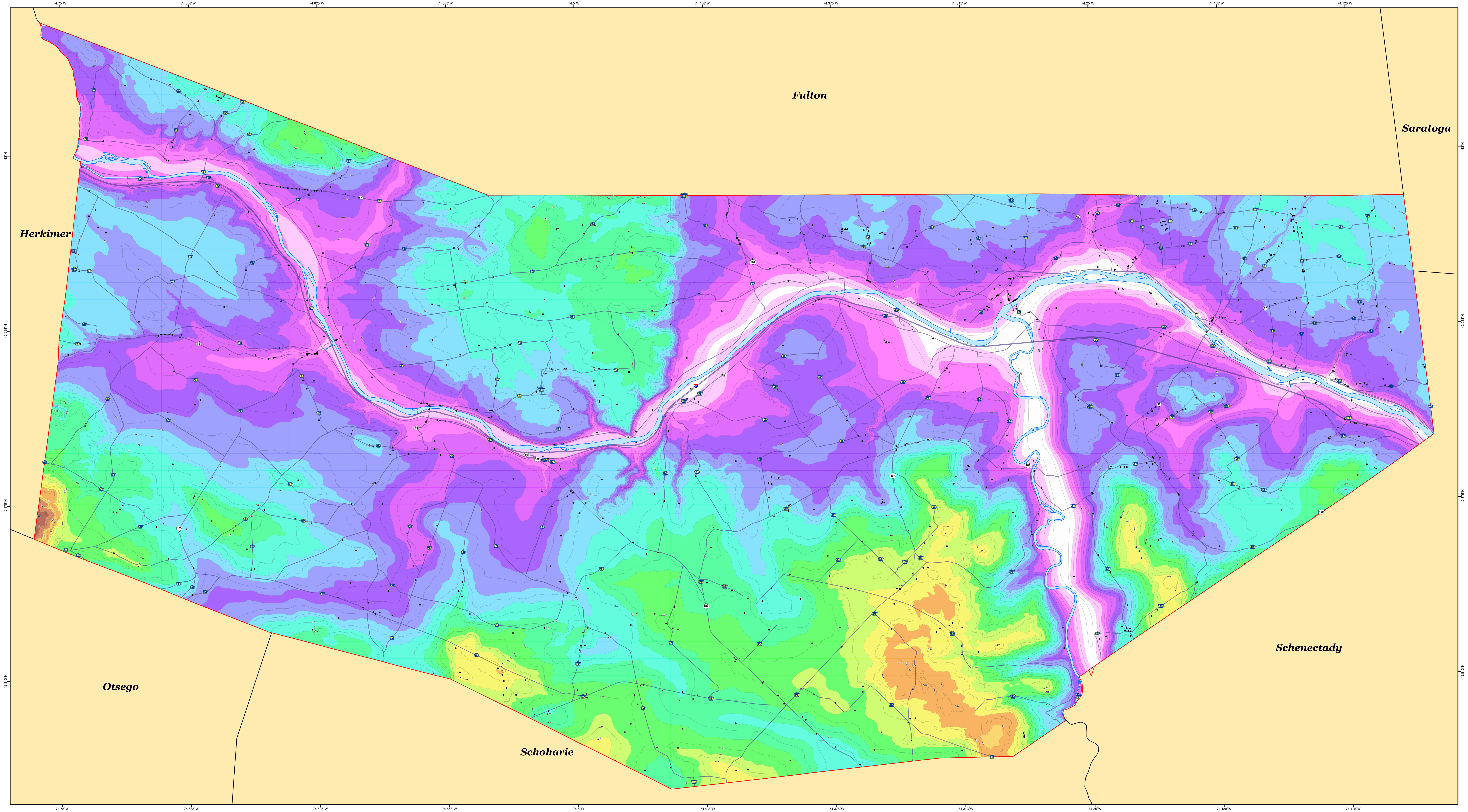
BEDROCK TOPOGRAPHY OF MONTGOMERY COUNTY, NEW YORK

Sara J. Powers and Karl J. Backhaus

2025



Digital Data and Cartography by S. Powers and K. Backhaus, 2025

Universal Transverse Mercator, Zone 18 N North American Datum of 1983

Geographic and hydrography data obtained from the NYSGIS Clearinghouse: (https://gis.ny.gov/)

SCALE 1:62,500

Kilometers: 0, 1.25, 2.5, 5, 7.5, 10

Meters: 0, 5,000, 10,000

Miles: 0, 0.5, 1, 2, 3, 4

Feet: 0, 4,000, 8,000, 16,000, 24,000, 32,000

NOTICE
This geologic map was funded in part by the USGS National Cooperative Geologic Mapping Program Great Lakes Geologic Mapping Coalition award number ***G24AC00531*** *in the year 2025.*

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Introduction

In 2025, under the guidance and funding provided by the United States Geological Survey - Great Lakes Geological Mapping Coalition award number G24AC00531, the New York State Museum - Geological Survey began and effort to conduct geologic mapping of bedrock elevations and thickness of drift across Montgomery County. Montgomery County, of eastern New York, is located within the Mohawk River Valley physiographic province and is surrounded by six counties: Fulton, Herkimer, Montgomery, Otsego, Saratoga, Schenectady, and Schoharie Counties. Surficial and subsurface bedrock point data and maps were compiled from publicly available sources, vetted, and organized within a comprehensive geospatial database. A technical workflow was developed to categorize the overall geology and differentiate underlying bedrock from the overlying unconsolidated sediments. The resulting bedrock topography map provides a detailed representation of bedrock topography across Montgomery County. This map is useful for various applications, including geological studies, engineering and construction, natural resource management (such as water or mineral resources), and environmental studies.

Methodology

A total of 1,073 bedrock control points were used to delineate bedrock topography in Montgomery County. These points consisted of 869 water wells, 148 engineering boreholes, 56 known bedrock outcrops and one NYSGS borehole. These data were compiled from a variety of public sources and imported into ESRI's ArcGIS Pro 3.4.3 software package. Ground surface elevations for all control points were extracted from a compilation of three separate digital elevation models (DEM) which were resampled to match a 1-meter LIDAR DEM cell size. Bedrock elevations were calculated at each location by subtracting the depth-to-bedrock from the ground surface elevation. 50-foot bedrock elevation contours were auto-generated and manually refined through a multi-step quality control process to resolve any interpolation errors. The finalized contours were converted into a 1-meter raster using the "Topo to Raster" tool, that represents countywide bedrock topography.

Explanation

- Data Point
- 50ft Bedrock Elevation Contour
- 100ft Bedrock Elevation Contour
- Highways
- Water Body
- Montgomery County Line
- Adjacent County

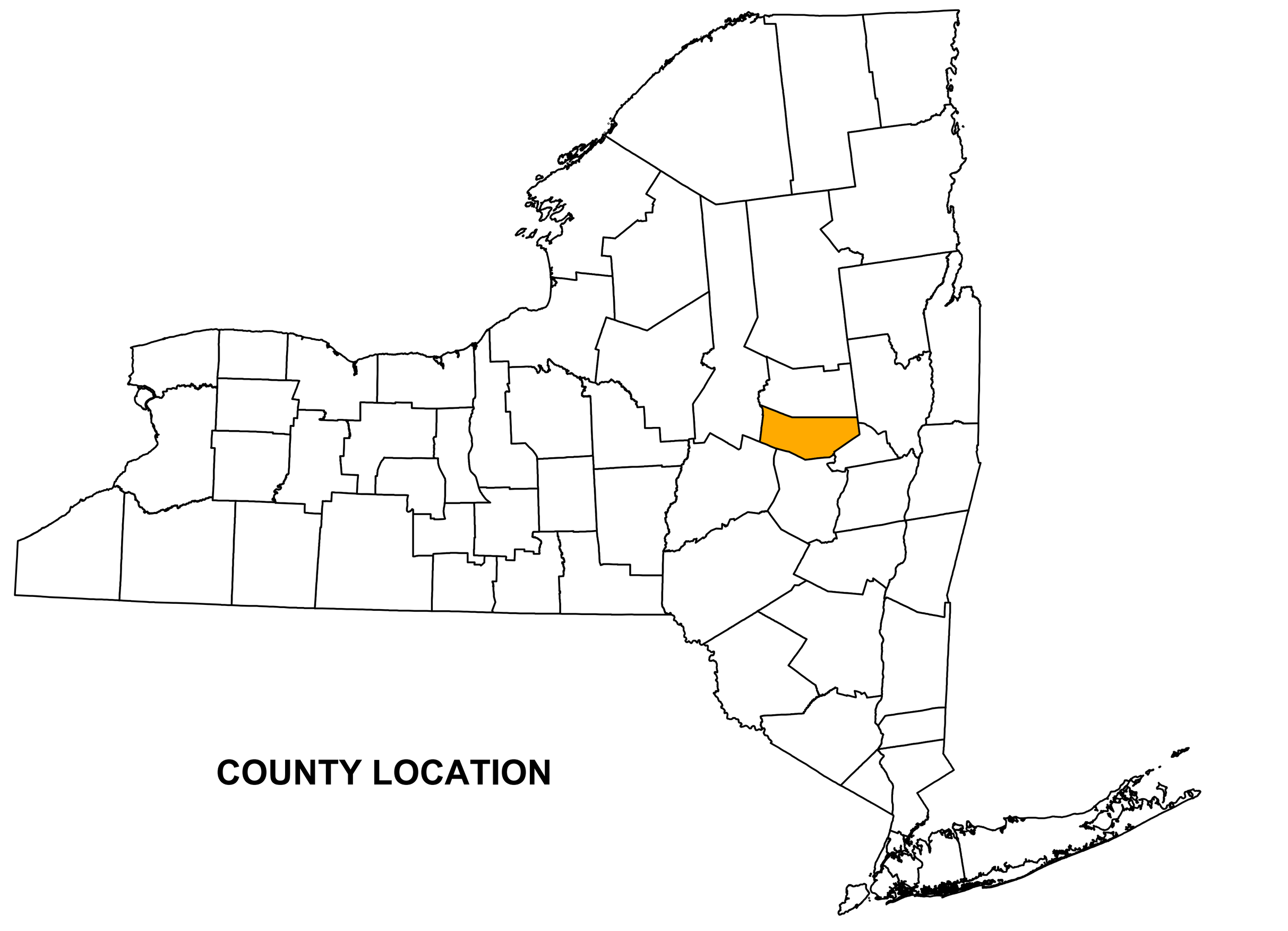
Bedrock Topography

Feet-amsl

- 50 - 150
- 150 - 250
- 250 - 350
- 350 - 450
- 450 - 550
- 550 - 650
- 650 - 750
- 750 - 850
- 850 - 950
- 950 - 1,050
- 1,050 - 1,150
- 1,150 - 1,250
- 1,250 - 1,350
- 1,350 - 1,450
- 1,450 - 1,550
- 1,550 - 1,650

Summary

The New York State Museum – Geological Survey has developed a detailed Bedrock Topography Map for Montgomery County. This map represents a compilation of various surficial and subsurface bedrock data sources, analytical methods, and quality control procedures. The resulting bedrock elevations reveal a range of distinct geological features including a variety of Proterozoic and Paleozoic bedrock erosional profiles, and evidence of past glaciation. These characteristics are likely the result of a variety of functions including bedrock stratigraphy, structural deformation, and erosional processes such as past glaciation and fluvial geomorphology. This map is significant for applications in geological research, engineering, natural resource management, and environmental studies. Continued research and work on subsurface geology will provide additional data and insight and enhance the geologic framework of bedrock geology throughout New York State.



COUNTY LOCATION

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