

# BEDROCK TOPOGRAPHY OF ONONDAGA COUNTY, NEW YORK

Julia E. Rogerson, Avery W. Blake and Karl J. Backhaus

2024

## Introduction

Beginning in 2019, under the guidance and funding provided by the United States Geological Survey - Great Lakes Geological Mapping Coalition (award G20AC00418), the New York State Museum - Geological Survey began a statewide effort to conduct geologic mapping of bedrock elevations throughout New York. Onondaga County, of western New York, extends from the Central Lowlands to the Appalachian Plateau physiographic provinces. The county is nestled between Cayuga, Cortland, Madison, Oswego and Otsego counties. Onondaga County is also located along the south shore of Oneida Lake. Surficial and subsurface bedrock point data and maps were compiled from publicly available sources, vetted, and organized into a comprehensive geospatial database. A technical workflow was developed to categorize the overall geology and differentiate between the underlying bedrock and overlying unconsolidated sediments. The resulting bedrock elevation map provides a detailed representation of bedrock topography across Onondaga 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 2,337 bedrock control points were used to delineate bedrock topography in Onondaga County. These points consisted of 1,479 water wells, 596 bedrock outcrops, 105 engineering boreholes, 103 thruway engineering boreholes, and 54 waterfall locations. These data were compiled from a variety of public sources and imported into ESRI's ArcMap 10.8 software platform. Ground surface elevations for all control points were extracted from a compilation of three separate digital

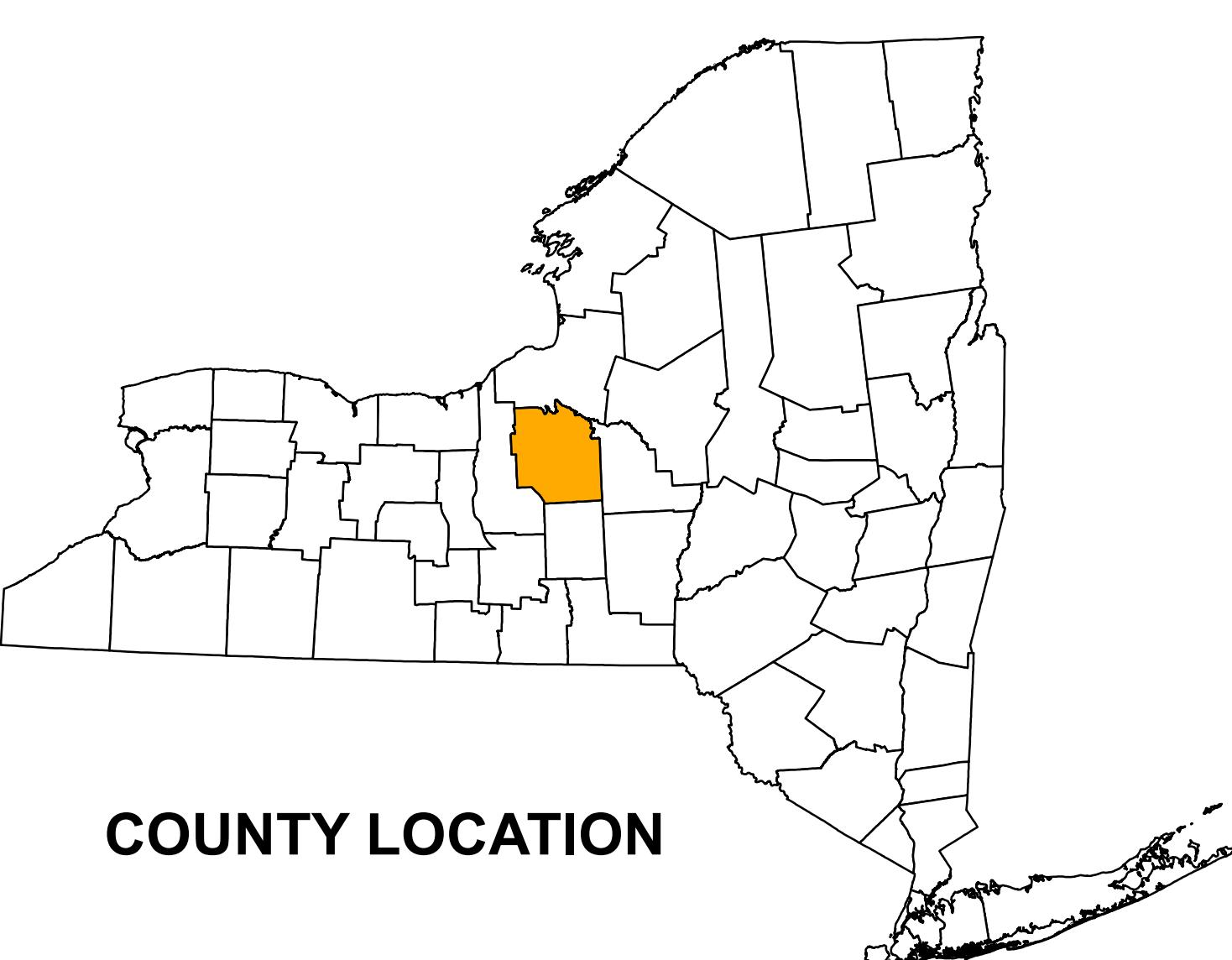
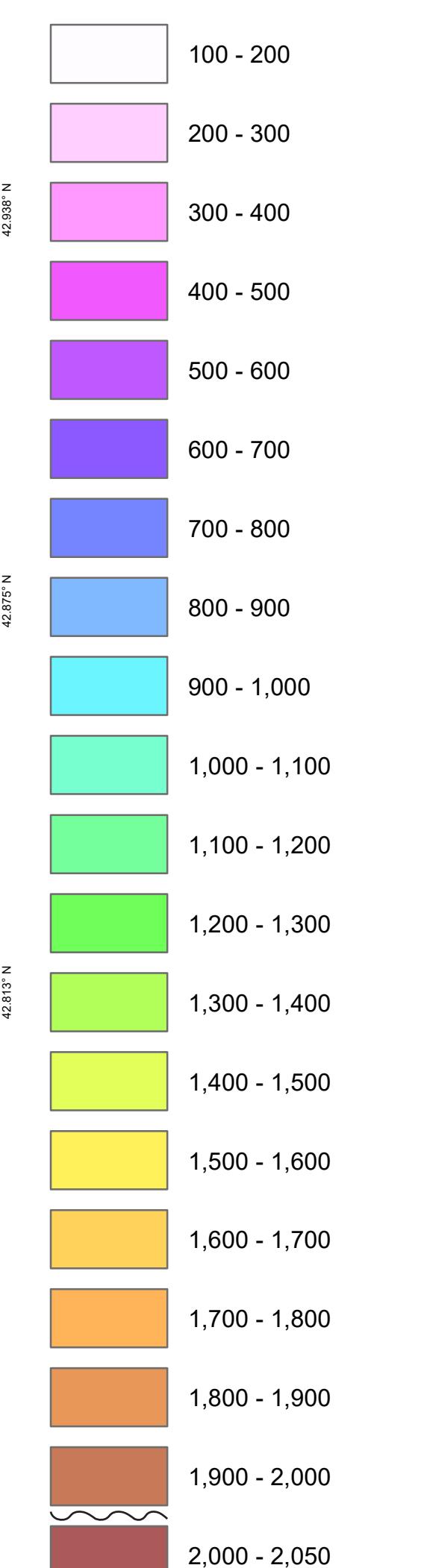
elevation models (DEM) which were resampled to match a 1-meter LIDAR DEM cell size. Bedrock elevations were calculated at each location by subtracting the depth-to-bedrock from the ground surface elevation. 50-foot bedrock elevation contours were auto-generated and manually refined through a multi-step 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 county-wide bedrock topography.

## Explanation

- Data Point
- 50ft Bedrock Elevation Contour
- 100ft Bedrock Elevation Contour
- Highway
- Onondaga County Line
- Adjacent County
- Water Body

## Bedrock Topography

### Feet-amsl



## COUNTY LOCATION