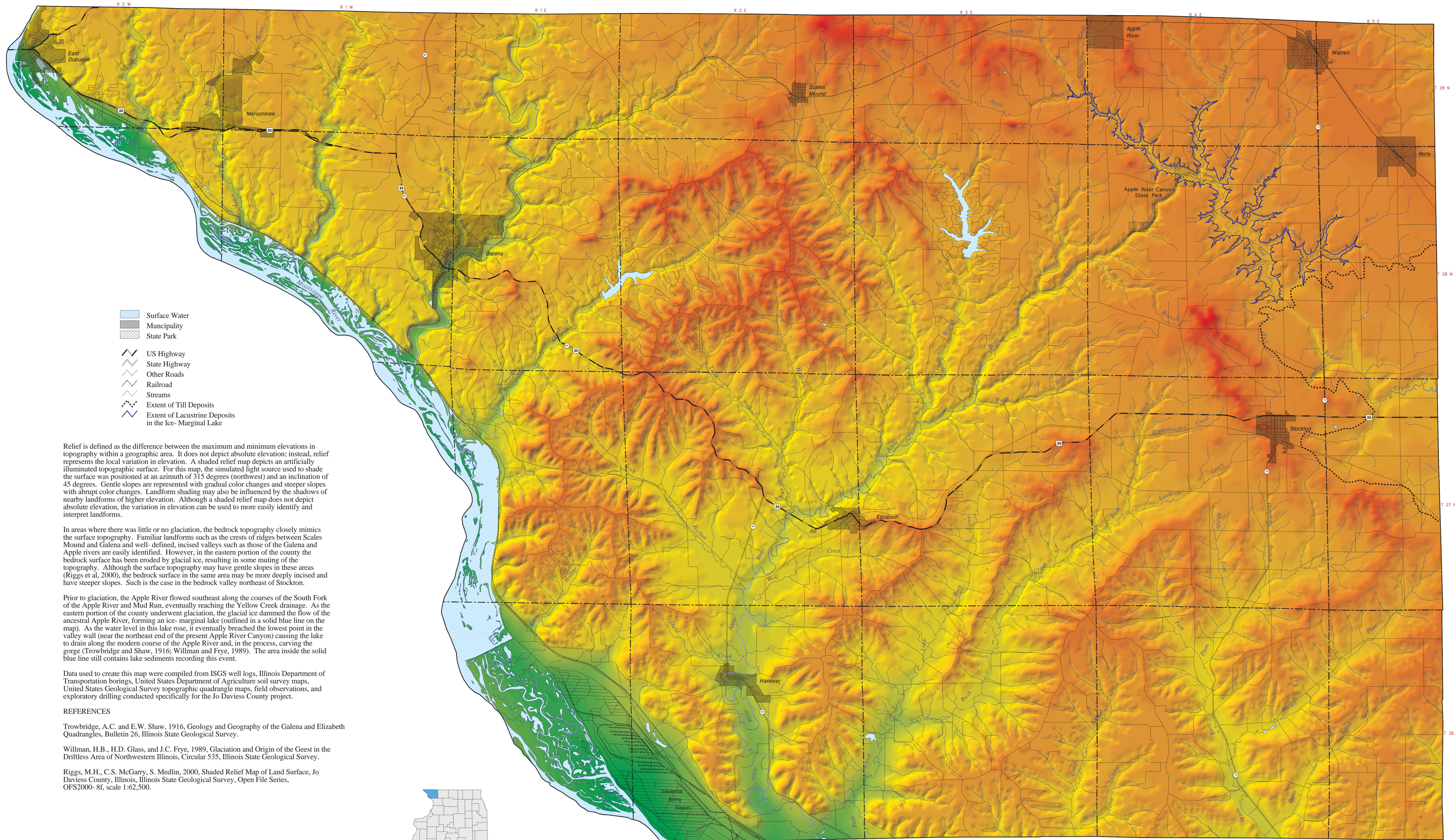


SHADED RELIEF MAP OF BEDROCK SURFACE, JO DAVIESS COUNTY, ILLINOIS

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- Surface Water
- Municipality
- State Park
- US Highway
- State Highway
- Other Roads
- Railroad
- Streams
- Extent of Till Deposits
- Extent of Lacustrine Deposits in the Ice-Marginal Lake

Relief is defined as the difference between the maximum and minimum elevations in topography within a geographic area. It does not depict absolute elevation; instead, relief represents the local variation in elevation. A shaded relief map depicts an artificially illuminated topographic surface. For this map, the simulated light source used to shade the surface was positioned at an azimuth of 315 degrees (northwest) and an inclination of 45 degrees. Gentle slopes are represented with gradual color changes and steeper slopes with abrupt color changes. Landform shading may also be influenced by the shadows of nearby landforms of higher elevation. Although a shaded relief map does not depict absolute elevation, the variation in elevation can be used to more easily identify and interpret landforms.

In areas where there was little or no glaciation, the bedrock topography closely mimics the surface topography. Familiar landforms such as the crests of ridges between Scales Mound and Galena and well-defined, incised valleys such as those of the Galena and Apple rivers are easily identified. However, in the eastern portion of the county the bedrock surface has been eroded by glacial ice, resulting in some muting of the topography. Although the surface topography may have gentle slopes in these areas (Riggs et al., 2000), the bedrock surface in the same area may be more deeply incised and have steeper slopes. Such is the case in the bedrock valley northeast of Stockton.

Prior to glaciation, the Apple River flowed southeast along the courses of the South Fork of the Apple River and Mud Run, eventually reaching the Yellow Creek drainage. As the eastern portion of the county underwent glaciation, the glacial ice dammed the flow of the ancestral Apple River, forming an ice-marginal lake (outlined in a solid blue line on the map). As the water level in this lake rose, it eventually breached the lowest point in the valley wall (near the northeast end of the present Apple River Canyon) causing the lake to drain along the modern course of the Apple River and, in the process, carving the gorge (Trowbridge and Shaw, 1916; Willman and Frye, 1989). The area inside the solid blue line still contains lake sediments recording this event.

Data used to create this map were compiled from ISGS well logs, Illinois Department of Transportation borings, United States Department of Agriculture soil survey maps, United States Geological Survey topographic quadrangle maps, field observations, and exploratory drilling conducted specifically for the Jo Daviess County project.

REFERENCES

Trowbridge, A.C. and E.W. Shaw, 1916, Geology and Geography of the Galena and Elizabeth Quadrangles, Bulletin 26, Illinois State Geological Survey.

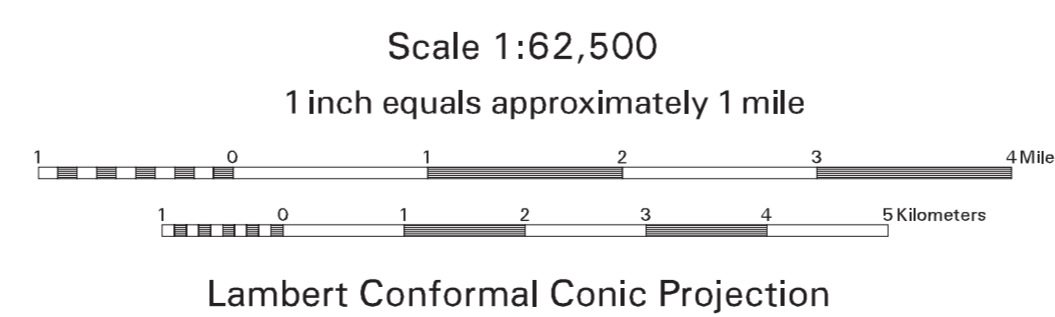
Willman, H.B., H.D. Glass, and J.C. Frye, 1989, Glaciation and Origin of the Geest in the Driftless Area of Northwestern Illinois, Circular 535, Illinois State Geological Survey.

Riggs, M.H., C.S. McGarry, S. Medlin, 2000, Shaded Relief Map of Land Surface, Jo Daviess County, Illinois, Illinois State Geological Survey, Open File Series, OFS2000- 8f, scale 1:62,500.



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This map was prepared by the Illinois State Geological Survey, in cooperation with the Illinois Department of Commerce and Community Affairs and the Jo Daviess County Board. It is part of a suite of maps created to assist local government in addressing geologic questions concerning capable sites for landfill development. Maps produced for this study are intended for regional land use planning purposes. More detailed mapping is needed for site-specific considerations. This map has been reviewed for scientific accuracy and edited to meet the quality standards of maps in the ISGS Map Series.