OFS 2003 – 6c

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SURFACE SLOPES OF TAZEWELL COUNTY, ILLINOIS

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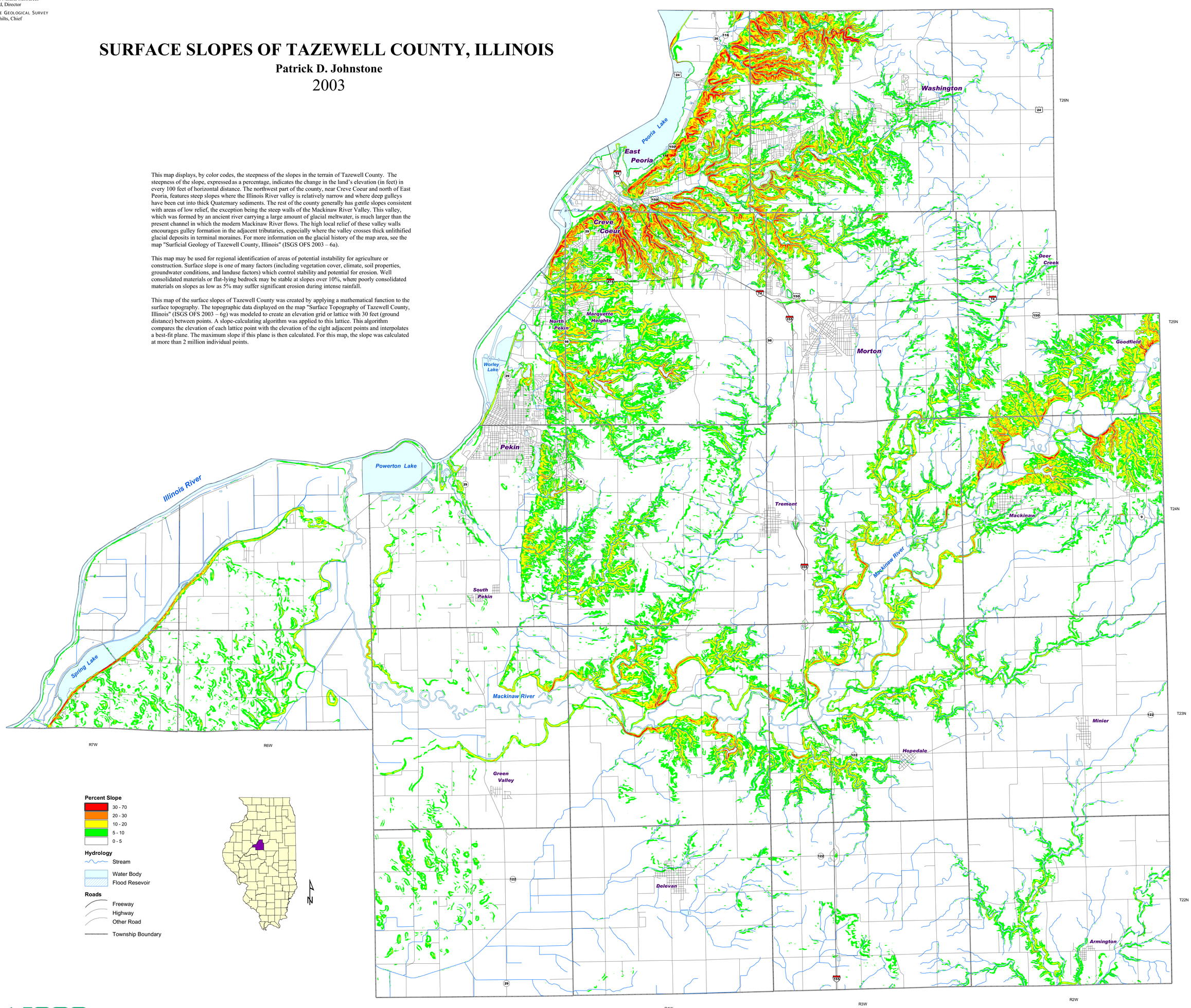
2003

This map displays, by color codes, the steepness of the slopes in the terrain of Tazewell County. The steepness of the slope, expressed as a percentage, indicates the change in the land's elevation (in feet) in every 100 feet of horizontal distance. The northwest part of the county, near Creve Coeur and north of East Peoria, features steep slopes where the Illinois River valley is relatively narrow and where deep gulleys have been cut into thick Quaternary sediments. The rest of the county generally has gentle slopes consistent with areas of low relief, the exception being the steep walls of the Mackinaw River Valley. This valley, which was formed by an ancient river carrying a large amount of glacial meltwater, is much larger than the present channel in which the modern Mackinaw River flows. The high local relief of these valley walls encourages gulley formation in the adjacent tributaries, especially where the valley crosses thick unlithified glacial deposits in terminal moraines. For more information on the glacial history of the map area, see the map "Surficial Geology of Tazewell County, Illinois" (ISGS OFS 2003 – 6a).

This map may be used for regional identification of areas of potential instability for agriculture or construction. Surface slope is one of many factors (including vegetation cover, climate, soil properties, groundwater conditions, and landuse factors) which control stability and potential for erosion. Well consolidated materials or flat-lying bedrock may be stable at slopes over 10%, where poorly consolidated materials on slopes as low as 5% may suffer significant erosion during intense rainfall.

This map of the surface slopes of Tazewell County was created by applying a mathematical function to the surface topography. The topographic data displayed on the map "Surface Topography of Tazewell County, Illinois" (ISGS OFS 2003 – 6g) was modeled to create an elevation grid or lattice with 30 feet (ground distance) between points. A slope-calculating algorithm was applied to this lattice. This algorithm compares the elevation of each lattice point with the elevation of the eight adjacent points and interpolates a best-fit plane. The maximum slope if this plane is then calculated. For this map, the slope was calculated at more than 2 million individual points.



Percent Slope

- 30 - 70
- 20 - 30
- 10 - 20
- 5 - 10
- 0 - 5

Hydrology

- Stream
- Water Body
- Flood Resevoir

Roads

- Freeway
- Highway
- Other Road
- Township Boundary

1:62,500

(1 inch equals approximately 1 mile)

1 0 1 2 3 4 Miles

1 0 1 2 3 4 5 Kilometers

Lambert Conformal Conic Projection

ISGS Illinois State Geological Survey

Illinois Department of Natural Resources

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