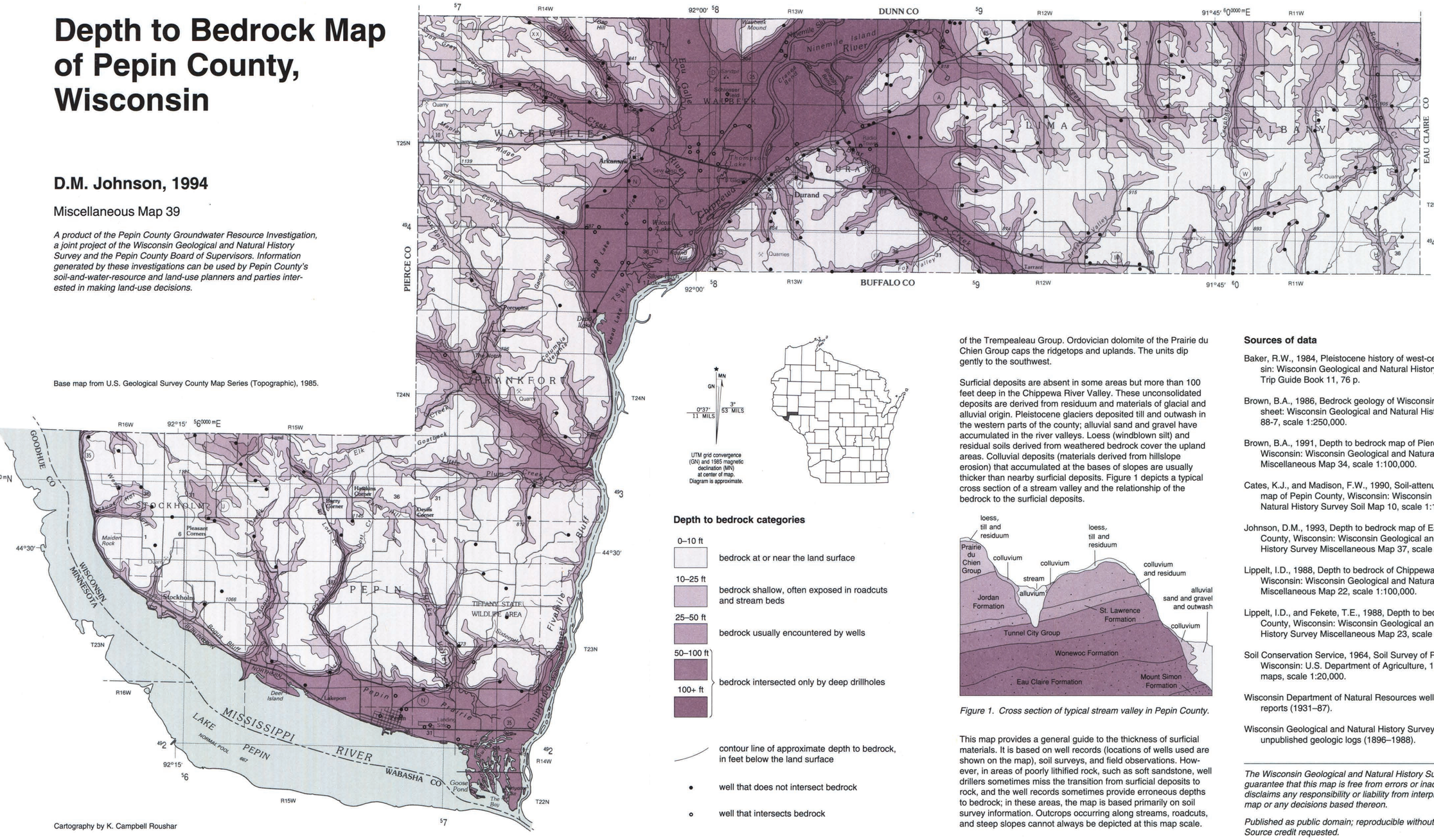
Depth to Bedrock Map of Pepin County, Wisconsin

D.M. Johnson, 1994

Miscellaneous Map 39

A product of the Pepin County Groundwater Resource Investigation, a joint project of the Wisconsin Geological and Natural History Survey and the Pepin County Board of Supervisors. Information generated by these investigations can be used by Pepin County's soil-and-water-resource and land-use planners and parties interested in making land-use decisions.



Base map from U.S. Geological Survey County Map Series (Topographic), 1985.

Cartography by K. Campbell Roushar

Published by and available from

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Scale 1:100,000

1 0 1 2 3 4 5 6 7
KILOMETERS

1 0 1 2 3
MILES

Depth to bedrock categories

- 0–10 ft — bedrock at or near the land surface
- 10–25 ft — bedrock shallow, often exposed in roadcuts and stream beds
- 25–50 ft — bedrock usually encountered by wells
- 50–100 ft — bedrock intersected only by deep drillholes
- 100+ ft — bedrock intersected only by deep drillholes
- contour line of approximate depth to bedrock, in feet below the land surface
- • well that does not intersect bedrock
- ○ well that intersects bedrock

Bedrock in Pepin County consists of Cambrian sandstone, shale, and dolomite, overlain by Ordovician limestone and dolomite. Cambrian lithostratigraphic units include the Mount Simon, Eau Claire, and Wonewoc Formations of the Elk Mound Group; the Tunnel City Group; and the St. Lawrence and Jordan Formations of the Trempealeau Group. Ordovician dolomite of the Prairie du Chien Group caps the ridgetops and uplands. The units dip gently to the southwest.

Surficial deposits are absent in some areas but more than 100 feet deep in the Chippewa River Valley. These unconsolidated deposits are derived from residuum and materials of glacial and alluvial origin. Pleistocene glaciers deposited till and outwash in the western parts of the county; alluvial sand and gravel have accumulated in the river valleys. Loess (windblown silt) and residual soils derived from weathered bedrock cover the upland areas. Colluvial deposits (materials derived from hillslope erosion) that accumulated at the bases of slopes are usually thicker than nearby surficial deposits. Figure 1 depicts a typical cross section of a stream valley and the relationship of the bedrock to the surficial deposits.

Figure 1. Cross section of typical stream valley in Pepin County.

This map provides a general guide to the thickness of surficial materials. It is based on well records (locations of wells used are shown on the map), soil surveys, and field observations. However, in areas of poorly lithified rock, such as soft sandstone, well drillers sometimes miss the transition from surficial deposits to rock, and the well records sometimes provide erroneous depths to bedrock; in these areas, the map is based primarily on soil survey information. Outcrops occurring along streams, roadcuts, and steep slopes cannot always be depicted at this map scale.

Variations in the distribution of deposits and the effects of erosion and mass wasting can result in significant differences in thickness over short distances. Because of local complexity, this map should be used only as a guide to general depth to bedrock. Detailed site-specific investigations, including drilling, are necessary to verify local conditions.

Sources of data

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