

# Depth to Bedrock Map of Trempealeau County, Wisconsin

K.J. Cates, 2001  
Miscellaneous Map 41

A product of the Trempealeau County Groundwater Resource Investigation, a joint project of the Wisconsin Geological and Natural History Survey and the Trempealeau County Board of Supervisors.

Bedrock underlying Trempealeau County consists of Cambrian sandstone, shale, and sandy dolomite, overlain by Ordovician dolomite and sandstone (fig. 1). Cambrian rock units include the Elk Mound Group (Mount Simon, Eau Claire, and Wonevok Formations), the Tunnel City Group (undifferentiated), and the Trempealeau Group (St. Lawrence and Jordan Formations). Ordovician dolomite of the Prairie du Chien Group caps the ridgetops. Small patches of sandstone of the St. Peter Formation may also be preserved on ridgetops and where it fills erosional channels in pre-St. Peter rock units. All the rock units dip gently to the southwest at 10 to 15 ft per mile.

Unconsolidated deposits are absent on many steeply sloped hillsides and on some ridgetops, but various types of unconsolidated materials cover the remainder of the county. In the Mississippi River Valley, outwash (sand and gravel deposited by meltwater from Pleistocene glaciers) is more than 150 ft thick. The outwash has been overlain by modern alluvium (stream-deposited sand and gravel); alluvium is more than 100 ft thick in the Black, Beaver, and Trempealeau River valleys and the Tamarack, Elk, and Pigeon Creek valleys. Loess (windblown silt) and residual soils derived from weathered bedrock cover the upland areas. Colluvial deposits (materials derived from hillslope erosion) have accumulated at the bases of slopes. Figure 1 depicts a typical cross section of a stream valley and the relationship of the bedrock to the surficial deposits.

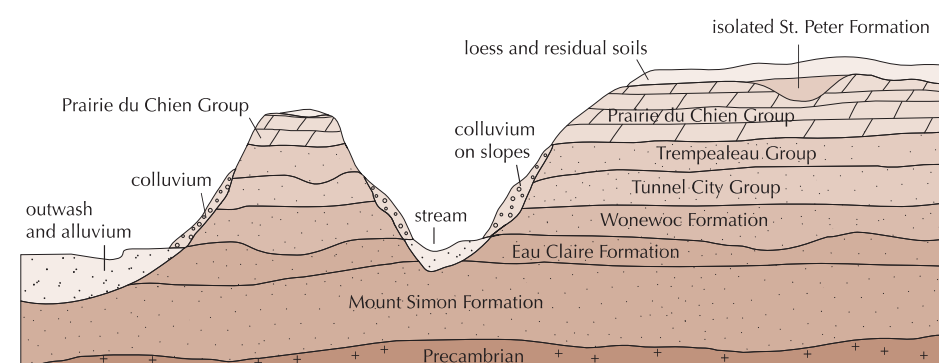


Figure 1. Cross section of a typical stream valley in Trempealeau County.

This map is based on depth to bedrock information from well constructor's reports (locations of wells used are shown on the map), geologic logs on file at the Wisconsin Geological and Natural History Survey, and information in Cates and Madison (1993). Additional information was taken from Johnson (1993). In areas of poorly lithified rock, such as soft sandstone, well drillers may not have identified the transition from surficial sand deposits to rock; in these areas, the map is primarily based on soil survey information (Soil Conservation Service, 1977) or surrounding well information.

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

## Sources of information

Cates, K.J., and Madison, E.W., 1993, Soil-attenuation-potential map of Trempealeau County, Wisconsin: Wisconsin Geological and Natural History Survey Soil Map 14, scale 1:100,000.

Johnson, D.M., 1993, Depth to bedrock map of Eau Claire County, Wisconsin: Wisconsin Geological and Natural History Survey Miscellaneous Map 37, scale 1:100,000.

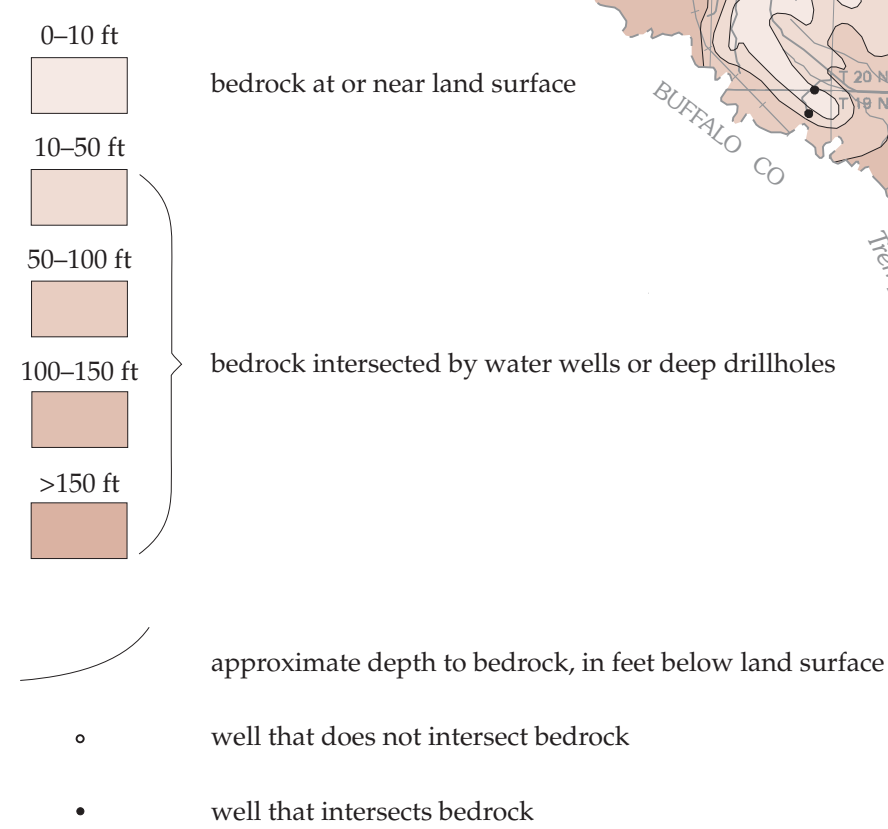
Soil Conservation Service, 1977, Soil Survey of Trempealeau County, Wisconsin, U.S. Department of Agriculture, 121 p. plus maps (scale 1:15,840).

Wisconsin Department of Natural Resources well constructor's reports (1931-87).

Wisconsin Geological and Natural History Survey published and unpublished geologic logs (1896-1988).



## Depth to bedrock categories



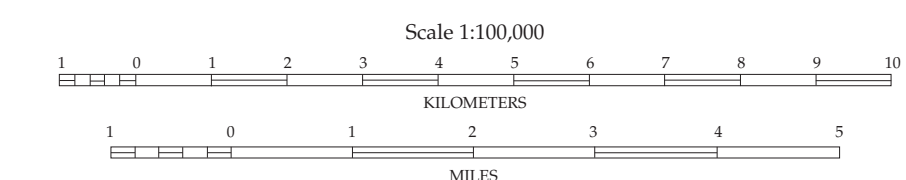
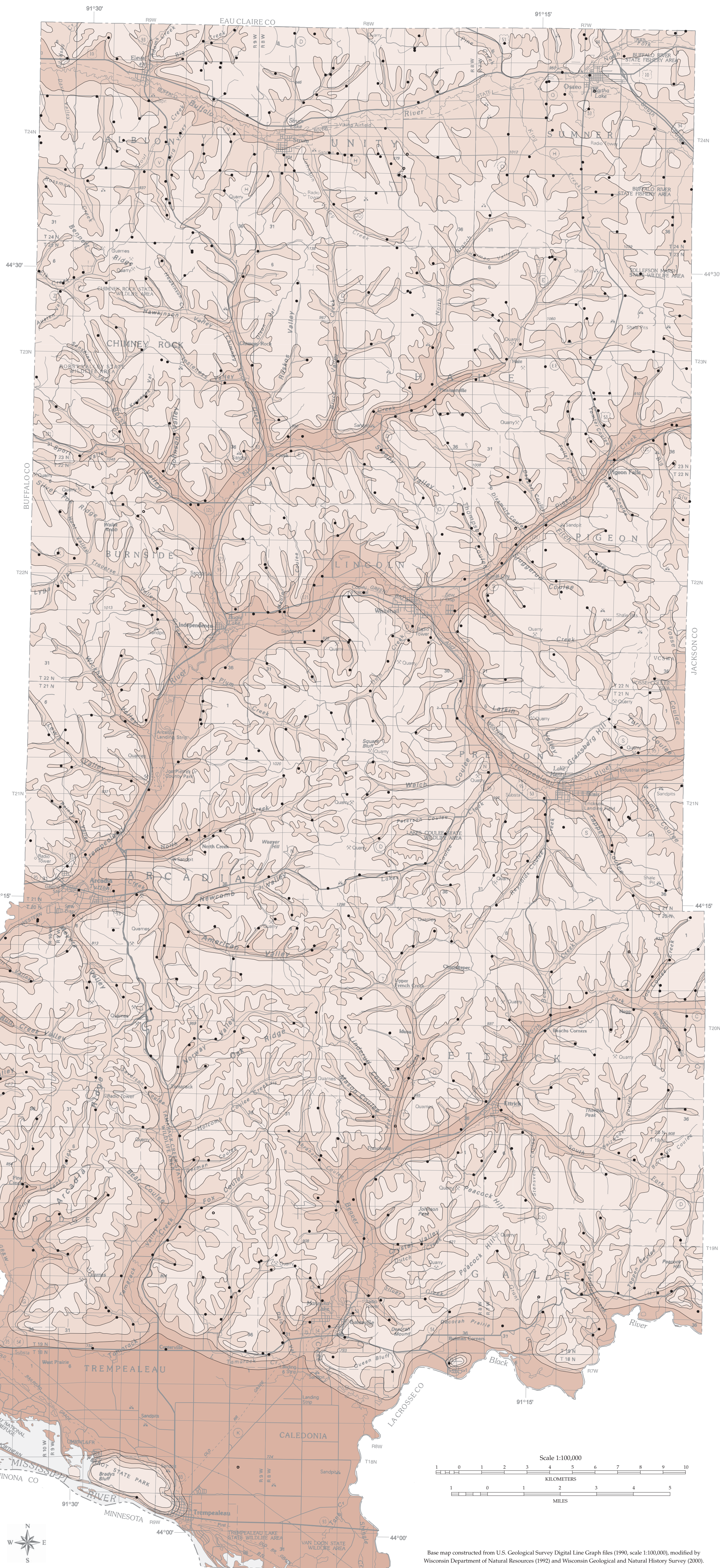
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**UW Extension**  
Wisconsin Geological and Natural History Survey  
3817 Mineral Point Road • Madison, Wisconsin 53705-5100  
☎ 608/263.7389 fax 608/262.8086 www.uwex.edu/wgnhs/  
James M. Robertson, Director and State Geologist

This map is an interpretation of the data available at the time of preparation. Every reasonable effort has been made to ensure that this interpretation conforms to sound scientific and cartographic principles; however, the map should not be used to guide site-specific decisions without verification. Proper use of the map is the sole responsibility of the user.

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Base map constructed from U.S. Geological Survey Digital Line Graph files (1990, scale 1:100,000), modified by Wisconsin Department of Natural Resources (1992) and Wisconsin Geological and Natural History Survey (2000).