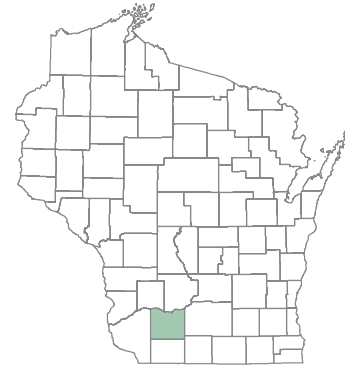


Wisconsin Geological and Natural History Survey  
 Preliminary Hydrogeologic Maps  
 of Iowa County, Wisconsin  
 Plate 2

Madeline B. Gotkowitz

2010



This map shows the susceptibility of groundwater in Iowa County, Wisconsin. Groundwater susceptibility is an estimate of the likelihood that contamination at the ground surface will reach the water table. All groundwater resources are vulnerable to contamination to some degree, but it can be useful to compare the relative susceptibility of areas within a large region. This map is derived from four features of the landscape that affect subsurface transport of contaminants:





- 1. Type of bedrock**—Bedrock that is commonly fractured, such as shallow dolomite or limestone, is highly susceptible to contamination. The fractures provide direct and rapid pathways for contaminants to reach the water table. Groundwater within sandstone formations is less susceptible because sandstone contains fewer well-connected fractures.
- 2. Depth to bedrock**—Soil and sediment overlying bedrock slows down seepage to the water table and provides a buffer between the land surface and bedrock fractures. A greater depth to bedrock increases groundwater protection.
- 3. Depth to the water table**—A greater distance between the ground surface and the water table provides a longer travel time for contaminants to degrade or decay in the subsurface.
- 4. Groundwater recharge**—In general, areas receiving more recharge are more susceptible because contaminants may be transported with recharge.

Not all factors that influence the transport of contaminants were considered in this evaluation of groundwater susceptibility. Such factors are independent of the natural groundwater system and may change over time. For example, sources of contamination are likely to vary as land use and development alter the landscape. An additional caution related to this map is that groundwater susceptibility cannot be directly measured; it is estimated from the four variables listed above.

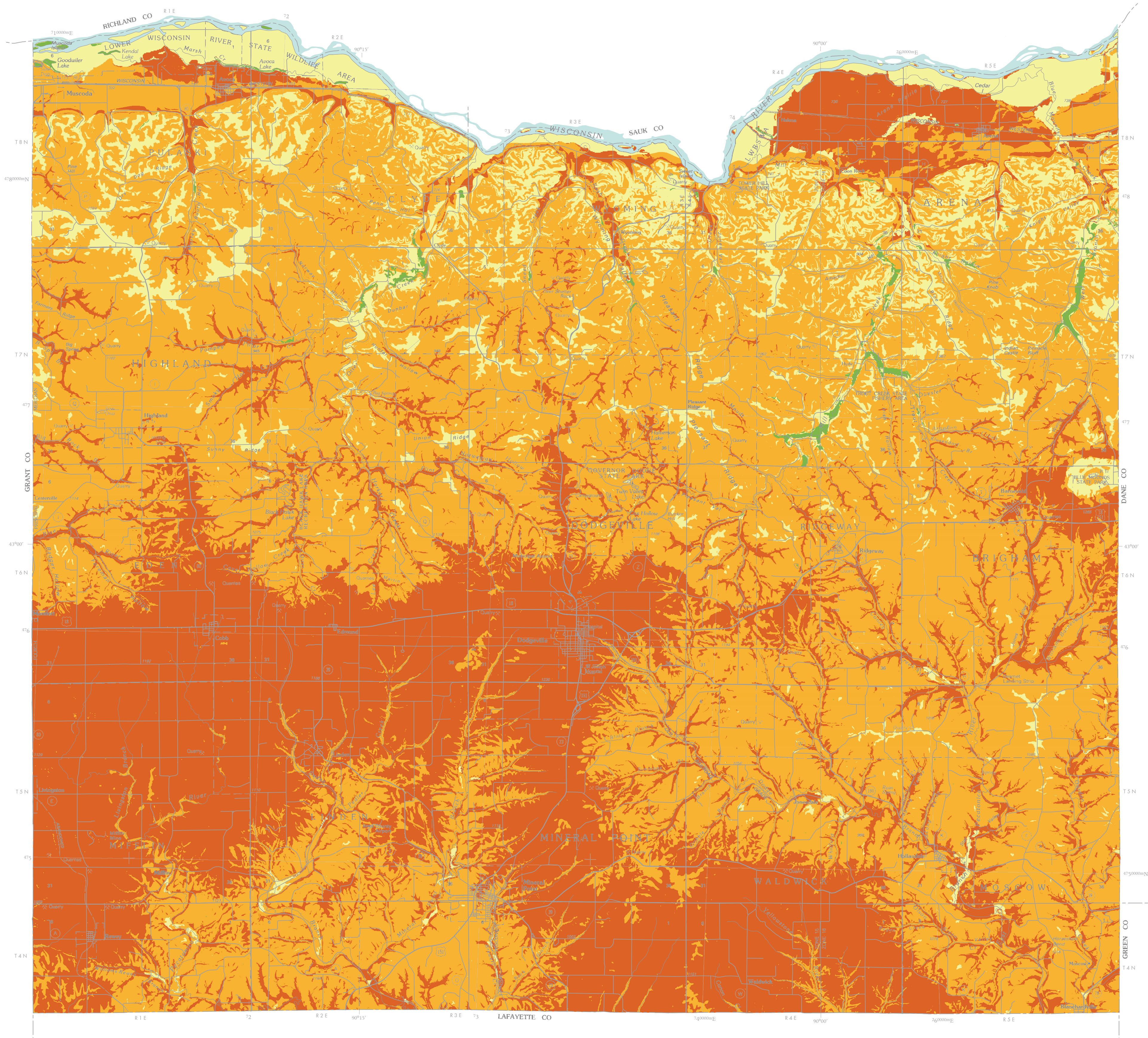
Areas most susceptible to groundwater contamination are those with the potential for rapid contaminant transport from the land surface to shallow groundwater. This includes areas where the Galena Formation is close to the ground surface and where the Wisconsin River valley contains sandy soil overlying sand and gravel. In comparison, areas mapped as moderately to highly susceptible have lower recharge, a greater depth to the water table, and bedrock with few fractures. Areas least susceptible to contamination include wetlands adjacent to streams and rivers. Wetland soil limits infiltration, and these are areas where groundwater discharges to nearby surface water. Although contamination can reach the water table in this setting, extensive groundwater contamination is unlikely.

A grid of 10-meter by 10-meter cells was overlain on the county map. Each cell was assigned a value of 1 to 5, with 5 being the most vulnerable, for each of the four categories. The values were summed for each cell, with the higher scores indicating greater aquifer susceptibility. The edges of the resulting grid of susceptibility rankings were smoothed, so that the regions of aquifer susceptibility are mapped at a level of detail similar to the level of accuracy of the inputs to this assessment.

**SUSCEPTIBILITY**

-  Most susceptible
-  Highly susceptible
-  Moderately susceptible
-  Least susceptible

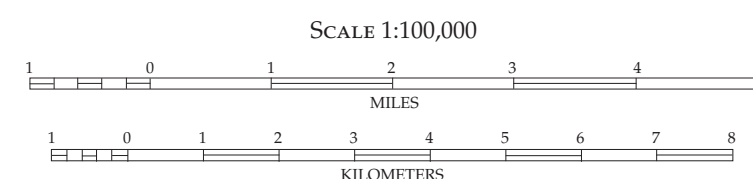
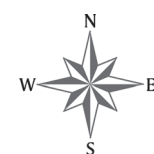
*This map represents work performed by the Wisconsin Geological and Natural History Survey and is released to the open files in the interest of making the information readily available. This map has not been edited or reviewed for conformity with Wisconsin Geological and Natural History Survey standards and nomenclature.*



**PLATE 2. PRELIMINARY GROUNDWATER SUSCEPTIBILITY MAP OF IOWA COUNTY, WISCONSIN**

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 Cartography by K.C. Roushar



The base map was constructed from U.S. Geological Survey digital line graph files (1990, scale 1:100,000) and modified by the Wisconsin Department of Natural Resources (1992) and the Wisconsin Geological and Natural History Survey (2007).

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