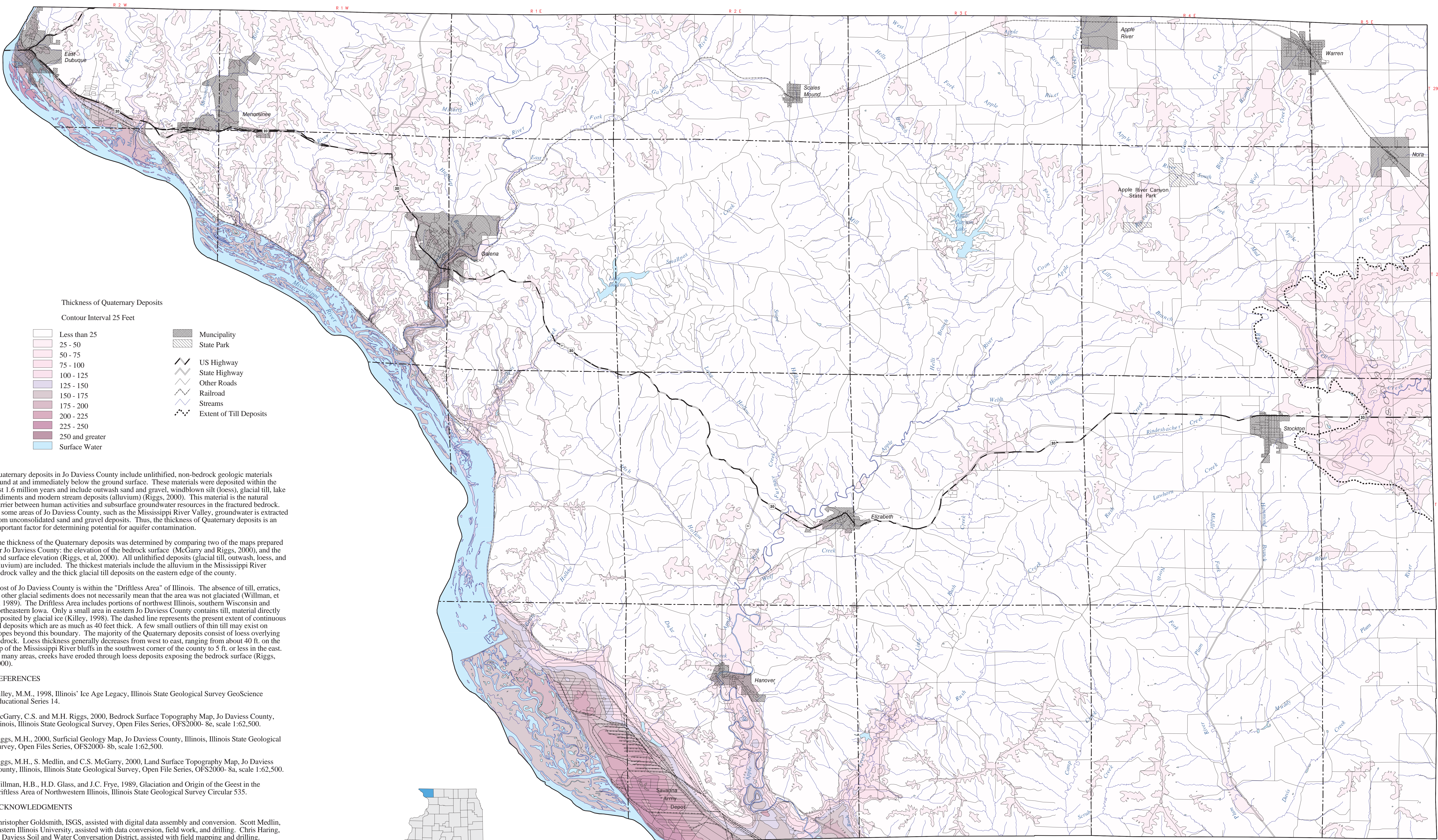


MAP SHOWING THICKNESS OF QUATERNARY DEPOSITS, JO DAVIESS COUNTY, ILLINOIS

Matthew H. Riggs and Christopher S. McGarry



Quaternary deposits in Jo Daviess County include un lithified, non-bedrock geologic materials found at and immediately below the ground surface. These materials were deposited within the last 1.6 million years and include outwash sand and gravel, windblown silt (loess), glacial till, lake sediments and modern stream deposits (alluvium) (Riggs, 2000). This material is the natural barrier between human activities and subsurface groundwater resources in the fractured bedrock. In some areas of Jo Daviess County, such as the Mississippi River Valley, groundwater is extracted from unconsolidated sand and gravel deposits. Thus, the thickness of Quaternary deposits is an important factor for determining potential for aquifer contamination.

The thickness of the Quaternary deposits was determined by comparing two of the maps prepared for Jo Daviess County: the elevation of the bedrock surface (McGarry and Riggs, 2000), and the land surface elevation (Riggs, et al, 2000). All unlithified deposits (glacial till, outwash, loess, and alluvium) are included. The thickest materials include the alluvium in the Mississippi River bedrock valley and the thick glacial till deposits on the eastern edge of the county.

Most of Jo Daviess County is within the "Driftless Area" of Illinois. The absence of till, erratics, or other glacial sediments does not necessarily mean that the area was not glaciated (Willman, et al, 1989). The Driftless Area includes portions of northwest Illinois, southern Wisconsin and northeastern Iowa. Only a small area in eastern Jo Daviess County contains till, material directly deposited by glacial ice (Killey, 1998). The dashed line represents the present extent of continuous till deposits which are as much as 40 feet thick. A few small outliers of thin till may exist on slopes beyond this boundary. The majority of the Quaternary deposits consist of loess overlying bedrock. Loess thickness generally decreases from west to east, ranging from about 40 ft. on the top of the Mississippi River bluffs in the southwest corner of the county to 5 ft. or less in the east. In many areas, creeks have eroded through loess deposits exposing the bedrock surface (Riggs, 2000).

REFERENCES

Killey, M.M., 1998, Illinois' Ice Age Legacy, Illinois State Geological Survey GeoScience Educational Series 14.

McGarry, C.S. and M.H. Riggs, 2000, Bedrock Surface Topography Map, Jo Daviess County, Illinois, Illinois State Geological Survey, Open Files Series, OFS2000- 8e, scale 1:62,500.

Riggs, M.H., 2000, Surficial Geology Map, Jo Daviess County, Illinois, Illinois State Geological Survey, Open Files Series, OFS2000- 8b, scale 1:62,500.

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

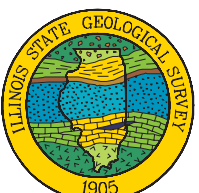
Willman, H.B., H.D. Glass, and J.C. Frye, 1989, Glaciation and Origin of the Geest in the Driftless Area of Northwestern Illinois, Illinois State Geological Survey Circular 535.

ACKNOWLEDGMENTS

Christopher Goldsmith, ISGS, assisted with digital data assembly and conversion. Scott Medlin, Eastern Illinois University, assisted with data conversion, field work, and drilling. Chris Haring, Jo Daviess Soil and Water Conservation District, assisted with field mapping and drilling.

FOR ADDITIONAL INFORMATION CONTACT:

Illinois State Geological Survey
Natural Resources Building
615 East Peabody Drive
Champaign, Illinois 61820
(217) 333-4747
<http://www.isgs.uiuc.edu>



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.