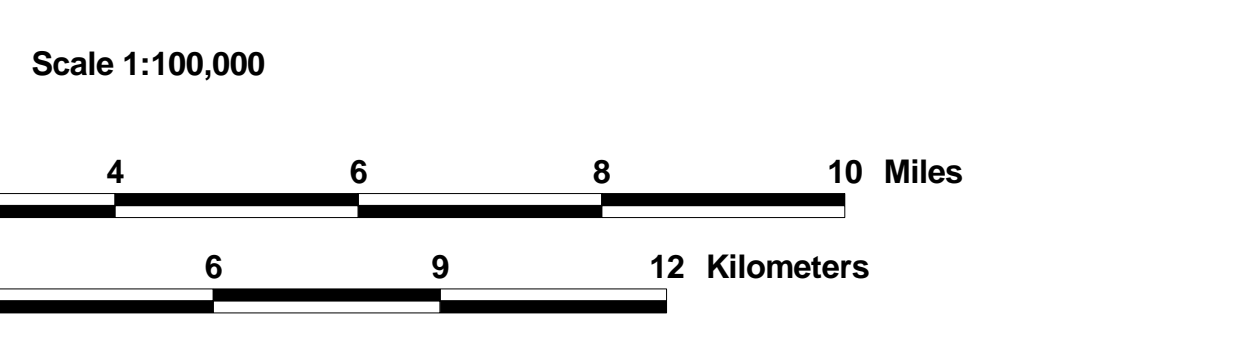
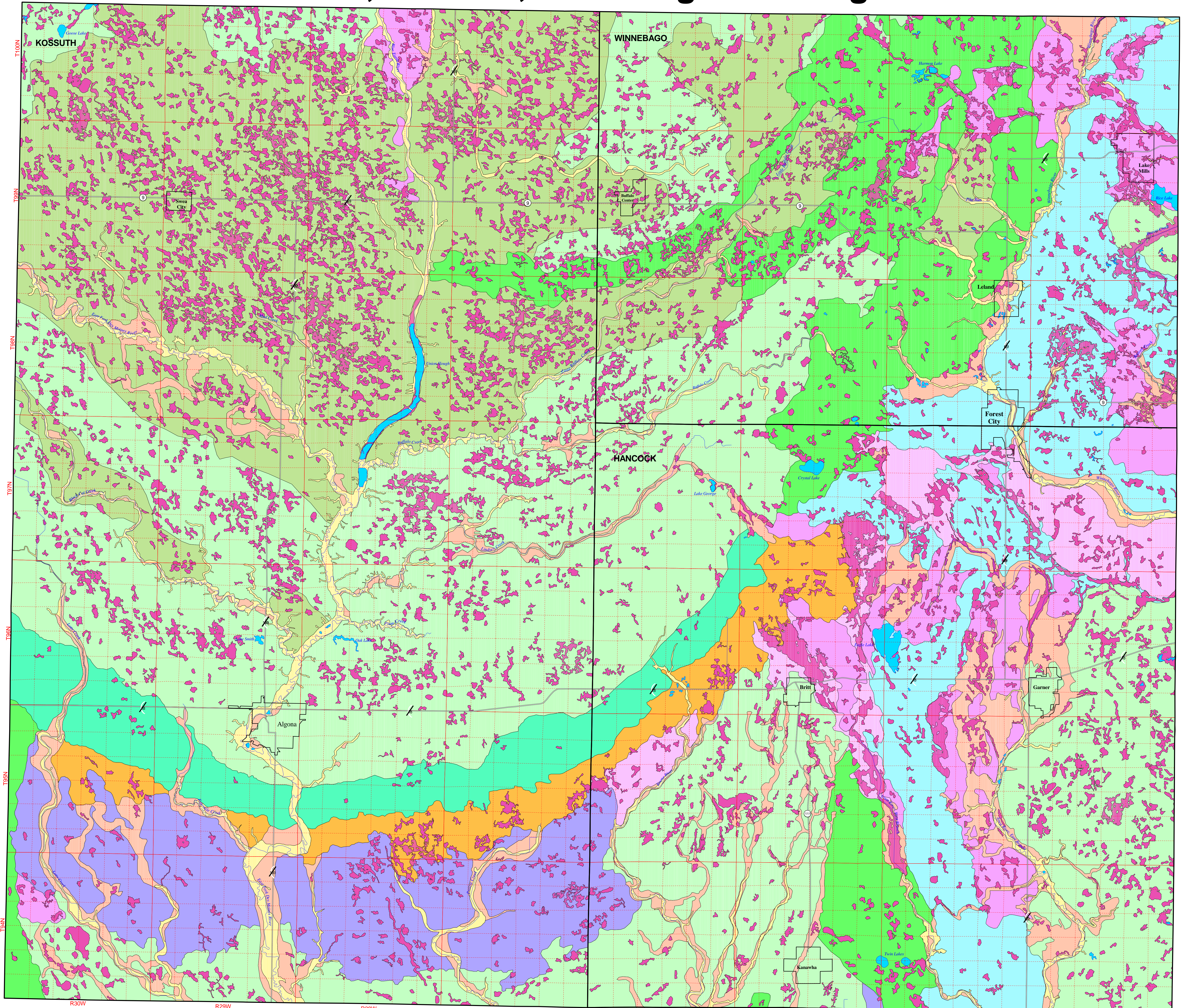


# Surficial Geology of the Des Moines Lobe of Iowa Hancock, Kossuth, Winnebago and Wright Counties



## Geological Survey Bureau Open File Map 99-1 June 1999

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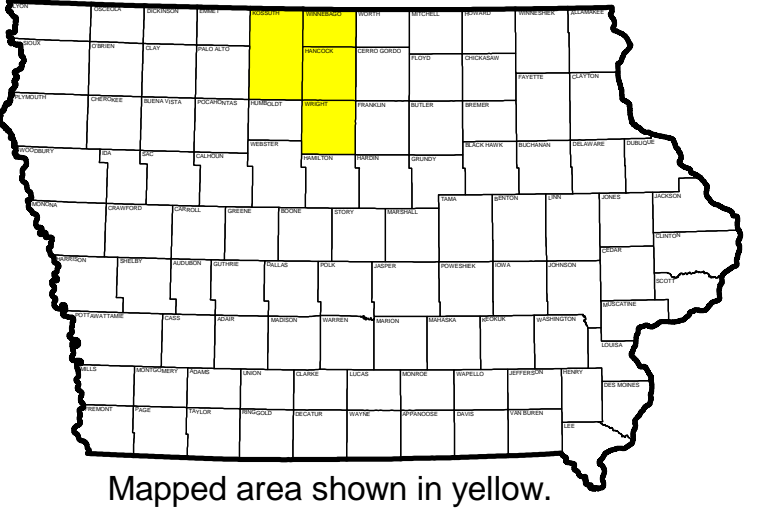


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## LEGEND

### Description of Mapping Units

#### Hudson Episode

- Qd-Mack and Peat (Hudson Formation-Woods Mts)** Generally 2 to 11 m of Mack to very dark gray, calcareous, blocky peat and silty clay loam calcareous and organic sediments in drained and undrained closed and semi-closed depressions. Overlies a gray calcareous, massive, dense loam (Hudson Fm. - Alden Mts) or may overlie Wash Creek Fm. sand and gravel. Low relief features that occupy depressions and low sags on the landscape. Seasonal high water table.
- Qd-Albion (Hudson Formation-Undifferentiated)** Variable thickness of less than 1 m to 5 m of a very dark gray to brown, micaceous, stratified silty clay loam, clay loam, loam to sandy loam alluvium and colluvium in stream valleys, hilltops and closed depressions. May overlie Hudson Formation or Alden Mts., Wash Creek Formation or Des Moines River. Occupies low relief, modern floodplain, closed depressions, modern drainage or landscape positions on the landscape. Seasonal high water table.

#### Late Wisconsin Episode

- Qd-Till plain (Des Moines Formation-Meigs Mts)** Less than 8 m of yellowish brown, often calcareous and fractured, stratified loam to silt loam to sandy loam (Des Moines Fm.) can be quite variable. Overlies gray calcareous, massive, dense loam (Des Moines Fm. - Alden Mts.). Low to moderate relief (3 to 8 m), undulating plain with irregular surface pattern. Seasonal high water table.
- Qd-Till plain with linear ridge forms (Des Moines Formation-Meigs Mts)** Less than 3 m of yellowish to grayish brown, often calcareous and fractured, stratified loam to silt loam to sandy loam (Des Moines Fm.) can be quite variable. Overlies gray calcareous, massive, dense loam (Des Moines Fm. - Alden Mts.). Low relief (Des Moines Fm. - Alden Mts.). Slightly undulating plain with irregular surface pattern. **Linear ridge forms (Des Moines Formation-Meigs Mts./Pike Rock Mts.)** Less than 8 m of yellowish brown, often calcareous, stratified loam to silt loam to sandy loam (Des Moines Fm.) can be quite variable. Occasionally, these ridges consist primarily of sand and gravel and exhibit evidence of synsedimentary collapse (Pike Rock Mts.). Overlies gray calcareous, massive, dense loam (Des Moines Fm. - Alden Mts.). Rises to well-defined linear ridge oriented transverse to glacial flow are most on all plains. Ridges are moderate to high relief features (3 to 8 m). Overall landform is a swell and wide topography. Seasonal high water table.
- Qd-Till escarpment (Des Moines Formation-Meigs Mts)** Less than 4 m of yellowish to grayish brown, usually calcareous and fractured, stratified loam to silt loam to sandy loam (Des Moines Fm.) can be quite variable. Overlies gray calcareous, massive, dense loam (Des Moines Fm. - Alden Mts.). Locally on topographic Meigs Mts. thickness can exceed 18 m. High relief steep scarp landform (Des Moines Fm. - Alden Mts.).
- Qd-Till ridge (Des Moines Formation-Meigs Mts)** Generally 1 to 15 m of yellowish to grayish brown, usually calcareous and fractured, stratified loam to silt loam to sandy loam (Des Moines Fm.) can be quite variable. Overlies gray calcareous, massive, dense loam (Des Moines Fm. - Alden Mts.). Moderate to high relief landform, thickness can exceed 30 to 8 m.
- Qd-Dark outwash channel (Wash Creek Formation)** Generally less than 3 m of yellowish brown coarse grained sand and gravel. Overlies gray calcareous, massive, dense loam (Des Moines Fm. - Alden Mts.) or in several locations Paleozoic limestone bedrock. In valley positions, it is the best indicator of older terraces. On the land surface, it is best defined by the high relief alluvium. Low relief landform that may be deposited to broad terraces, but narrow longitudinal terraces or in escape-charged gullies.
- Qd-Overwash fan (Wash Creek Formation)** Thickness can be quite variable from 3 to 12 m of yellowish brown coarse grained sand and gravel. May overlie yellowish to grayish brown stratified calcareous, stratified loam to silt loam to sandy loam (Des Moines Fm.) can be quite variable. Overlies gray calcareous, massive, dense loam (Des Moines Fm. - Alden Mts.) or may overlie a gray calcareous, massive, dense loam (Des Moines Fm. - Alden Mts.). Narrow low relief (less than 3 m) slope away from the source fans. Seasonal high water table.
- Qd-Lake plain (Des Moines Formation-Lake Mts)** Generally less than 3 m of dark grayish brown, massive, calcareous silty clay loam, silt loam overlying a thin bed of sand and gravel (c. 1 m). Overlies yellowish to grayish brown stratified calcareous, stratified loam to silt loam to sandy loam (Des Moines Fm.) can be quite variable. Overlies gray calcareous, massive, dense loam (Des Moines Fm. - Alden Mts.). Low relief broad plain with less than 3 m of local relief. Seasonal high water table.
- Qd-Colleget Lake sediment-hummocky isolated low-lying lake plain-degraded hummocks (Des Moines Formation-Lake Mts/Meigs Mts)** Generally less than 3 m of dark grayish brown, massive, calcareous silty clay loam to silt loam overlying a thin bed of sand and gravel (c. 1 m). In valley positions, it is best defined by the high relief alluvium. Stratified loam to silt loam to sandy loam (Des Moines Fm.) can be quite variable. Overlies gray calcareous, massive, dense loam (Des Moines Fm. - Alden Mts.). Moderate to high relief (3 to 8 m) hummocks, head-of-ridge, lanes and narrow linear drainage on glacial surface.

#### Complexes

- Qdgr-Supraglacial complex (Des Moines Formation-Pike Rock Mts/Meigs Mts)** Greater than 3 m but less than 15 m of yellowish brown, often calcareous and fractured, stratified sand and gravel with interbedded stratified loam (Des Moines Fm.) can be quite variable. In depressions and sags on the land surface, the sand and gravel may be buried by the Meigs Mts. Overlies gray calcareous, massive, dense loam (Des Moines Fm. - Alden Mts.). Moderate to high relief (3 to 8 m) hummocks, head-of-ridge, lanes and narrow linear drainage on glacial surface.
- Qdgl-Complex glacial till plain (Wash Creek Formation)** Greater than 3 m but less than 15 m of grayish brown, often calcareous, stratified sand and gravel. Overlies gray calcareous, massive, dense loam (Des Moines Fm. - Alden Mts.) or in several locations Paleozoic limestone bedrock. It may have sand and gravel at the land surface. In depressions and sags it may be buried by several meters of Des Moines Fm. Wash Mts. Low relief broad plain with less than 3 m of local relief. Seasonal high water table.

- Water features**

