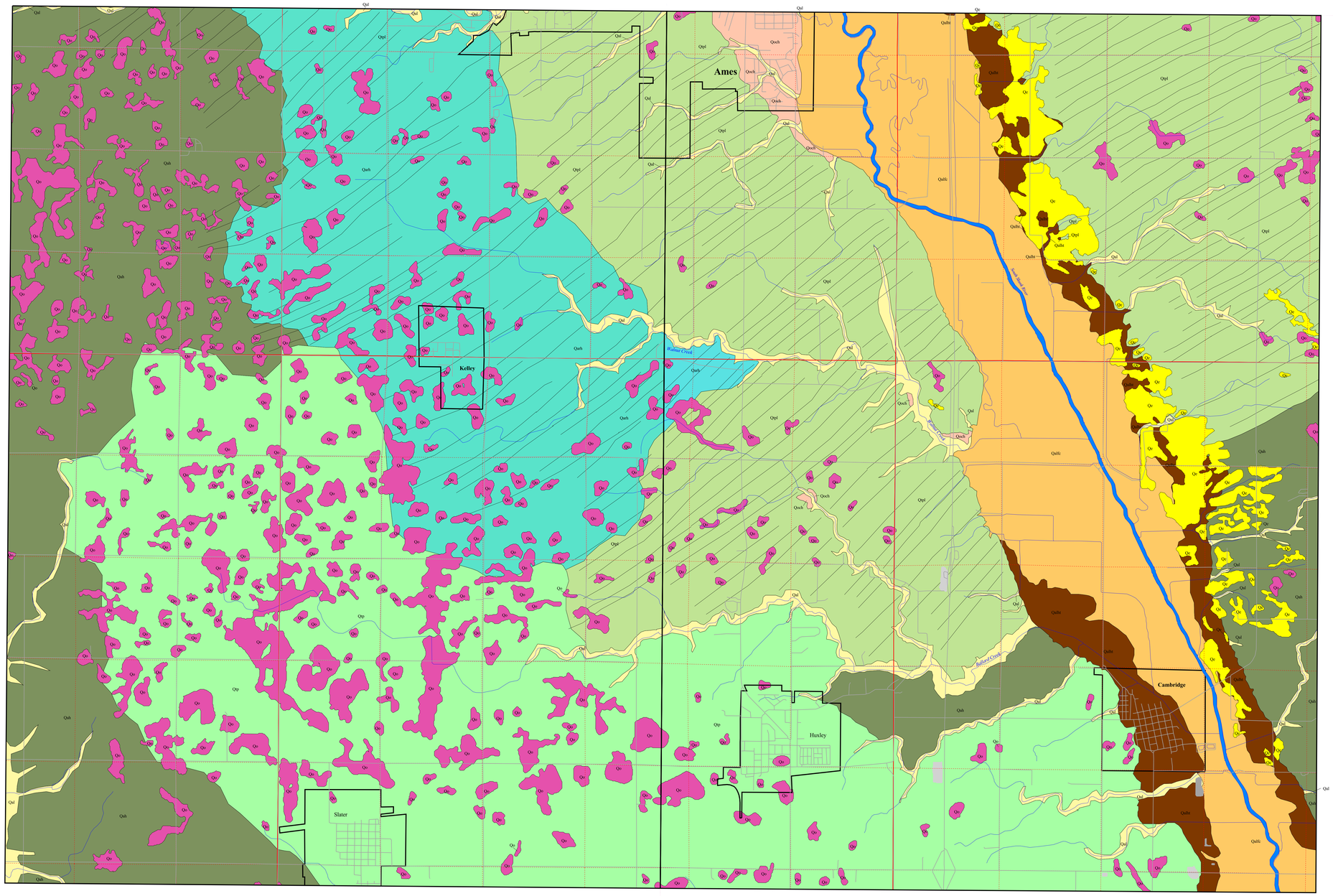
Surficial Geology of the Des Moines Lobe of Iowa
Slater and Huxley 7.5' Quadrangles



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0.5 0 0.5 1 1.5 2 Miles

0.5 0 0.5 1 1.5 2 Kilometers

SURFICIAL GEOLOGIC MAP
OF THE DES MOINES LOBE OF IOWA
Huxley and Slater 7.5' Quadrangles

Geological Survey Bureau
Open File Map 2001-2
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LEGEND

Description of Mapping Units

Hudson Episode

Qo - Depressions (DeForest Formation-Woden Mbr.) Generally 2.5 to 11 m of black to very dark gray, calcareous muck, peat and silty clay loam colluvium and organic sediments in drained and undrained, closed and semi-closed depressions. Overlies gray, calcareous, massive, dense loam diamicton (Dows Fm.-Alden Mbr.) or Noah Creek Fm. sand and gravel; Associated with low relief features that occupy depressions and low sags on the landscape. Seasonal high water table.

Qal - Stream Valley - Alluvium (DeForest Formation-Undifferentiated) Variable thickness of less than 1 m to 5 m of a very dark gray to brown, noncalcareous to calcareous, stratified silty clay loam, clay loam, loam to sandy loam alluvium and colluvium in stream valleys, on hillslopes and in closed depressions. May overlie Dows Formation (Morgan or Alden Mbrs.), Noah Creek Formation, or Mississippian or Pennsylvanian bedrock. Associated with low-relief modern floodplain, closed depressions, modern drainageways or toeslope positions on the landscape. Seasonal high water table and potential for frequent flooding.

Qe - Sand Dunes and Sand Sheets (Peoria Formation-sand facies) Generally less than 3 m of yellowish brown, massive, calcareous loamy sand to fine sand. It may overlie yellowish brown coarse-grained sand and gravel (Noah Creek Fm.), or it may overlie yellowish to gray-ish brown, usually calcareous, stratified loam to silt loam to sandy loam diamicton (Dows Fm.-Morgan Mbr.). Usually restricted to a narrow belt along major river valley bottoms or adjacent uplands on the Des Moines Lobe.

Qaltt - Des Moines and Skunk River Valleys - High Terrace (DeForest Formation-Gunder Mbr. and Corrington Mbr.) Variable thickness of less than 3 m to 7 m of very dark gray to brown, noncalcareous, silty clay loam, loam alluvium or colluvium. Overlies Noah Creek Formation. Occupies terrace and valley margin positions 2 to 3 meters above the modern floodplain. Seasonal high water table and low potential for flooding.

Qaltc - Skunk River Valley - Flood Basin/Channel Belt (DeForest Formation-Camp Creek Mbr. and Roberts Creek Mbr.). Variable thickness of 2 to 6 m of very dark gray to brown, noncalcareous, massive to stratified silty clay loam to loam to sandy loam alluvium and colluvium in the Skunk River valley. Alluvium overlies a thick (20-30 m) sequence of medium sand to pebbly sand outwash of the Noah Creek Formation. Associated with low-relief modern floodplain. Seasonal high water table and potential for frequent flooding.

Late Wisconsin Episode

Qtp - Till Plain (Dows Formation-Morgan Mbr.) Less than 8 m of yellowish brown, calcareous, fractured, stratified loam to silt loam to sandy loam diamicton; textures can be quite variable. Overlies gray, calcareous, massive, dense loam diamicton (Dows Fm.-Alden Mbr.). Low to moderate relief (3-8 m), undulating plains with irregular surface patterns. Seasonal high water table.

Qtpl - Till Plain with Lineated Ridge Forms (Dows Formation-Morgan Mbr.) Less than 8 m of yellowish to gray-ish brown, calcareous, fractured, stratified loam to silt loam to sandy loam diamicton; textures can be quite variable. Overlies gray, calcareous, massive, dense loam diamicton (Dows Fm.-Alden Mbr.). Low relief (less than 3 m local relief), slightly undulating plains with irregular surface patterns. **Aligned Ridge Forms** (Dows Formation-Morgan Mbr.) Less than 8 m of yellow-ish brown, often calcareous, stratified loam to silt loam to sandy loam diamicton; textures can be quite variable. Evidence of shearing is sometimes present. Overlies gray, calcareous, massive, dense loam diamicton (Dows Fm.-Alden Mbr.). Well to moderately well defined lineated ridges, oriented transverse to glacier flow, are inset on till plain. Ridges are moderate to high relief features (3-8+ m). Overall landform exhibits swell and swale topography. Seasonal high water table.

Qoch - Outwash Channels (Noah Creek Formation) Generally less than 7 m of yellow-ish brown coarse-grained sand and gravel. Overlies gray, calcareous, massive, dense loam diamicton (Dows Fm.-Alden Mbr.). In valley positions, it occurs at the land surface of older terraces. On the modern floodplain, it is buried by DeForest Fm. alluvium. Low-relief landforms expressed as broad terraces; long, narrow longitudinal terraces or cuspate-shaped point terraces. Outwash terraces in the Des Moines River valley are predominately benched on a gray, calcareous, massive, dense loam diamicton (Dows Fm.-Alden Mbr.). A few are benched on Pennsylvanian bedrock, which is primarily deltaic siltstone, sandstone and mudstone associated with the Cherokee Group.

Qah - Aligned Hummocky Ridge Forms (Dows Formation-Pilot Knob Mbr. / Morgan Mbr.) Greater than 4 m and less than 10 m of yellow-ish brown, calcareous, fractured, stratified sand and gravel with interbedded stratified loam diamicton or yellow-ish to gray-ish brown, calcareous, fractured, stratified loam to silt loam to sandy loam diamicton; textures can be quite variable. In depressions and sags on upland surfaces, the sand and gravel may be buried by DeForest Fm.-Woden Mbr. Overlies gray, calcareous, massive, dense loam diamicton (Dows Fm.-Alden Mbr.). Faint to well-defined aligned and elongated hummocks oriented transverse to glacier flow are inset on till plain. Hummocky ridges are moderate to high relief features (3-8+ m). Occasionally, these elongated hummocks consist primarily of sand and gravel and exhibit evidence of syndepositional collapse (Dows Fm.-Pilot Knob Mbr.). Overall map unit can be hummocky or swell and swale topography. Low to moderate relief (3-8+ m) on aligned hummocks. Seasonal high water table.

Qarh - Aligned Ridge to Aligned Hummocky Ridge Forms (Dows Formation-Morgan Mbr.) Greater than 3 m and less than 8 m of yellow-ish to gray-ish brown, calcareous, fractured, stratified loam to silt loam to sandy loam diamicton; textures can be quite variable. Overlies gray, calcareous, massive, dense loam diamicton (Dows Fm.-Alden Mbr.). Low to moderate relief, (less than 5 m local relief), slightly undulating plains with irregular surface patterns. **Aligned Ridges to Aligned Hummocks** (Dows Formation-Morgan Mbr.). Less than 8 m of yellow-ish brown, often calcareous, stratified loam to silt loam to sandy loam diamicton; textures can be quite variable. Evidence of shearing is sometimes present. Overlies gray, calcareous, massive, dense loam diamicton (Dows Fm.-Alden Mbr.). Faint to moderately well-defined aligned ridges to elongated hummocks oriented transverse to glacier flow are inset on till plain. Ridges or aligned hummocks are low to moderate relief features (3-8+ m). Overall landform exhibits swell and swale topography. Seasonal high water table.

Qpq - Pits and Quarries Limestone quarries and sand and gravel pits. Extent mapped as shown in county soil surveys.

Qf - Fill Areas of major land filling. Fill associated with railroad grades, highway grades and land leveling. Variable in texture ranging from loamy to sandy to concrete rubble. Extent mapped as shown in county soil surveys.

Axis of lineations

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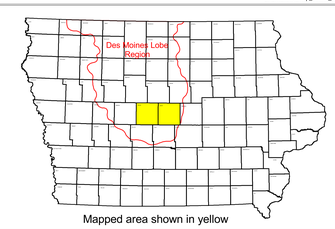

Mapped area shown in yellow