ISCA/AWSS/MAPSS/PSCI Joint Fall Field Trip
October 27-28, 2010

Location: Mississippi River Valley in Adams and Hancock Counties near Quincy and Warsaw, Illinois

Agenda
Wednesday, October 27, 2010
6:00 – 7:00 pm Registration

7:00 – 9:00 pm Presentations

*Large Scale Geomorphology, Hydrology, and Land Cover Relationships and Impacts from Development of the Upper Mississippi River System* by Dr. Charles Theiling, US Army Corps of Engineers, Rock Island, IL


*Application of Optically Stimulated Luminescence Dating (OSL) on Loess and Dune Sand in Illinois* by Dr. Xiaodong Miao – Illinois Geological Survey, Champaign, IL

9:00 pm - ? Social time for interaction with fellow soil scientists

Thursday, October 28, 2010
8:00-8:15 am Depart from Stony Creek Inn

9:00 am Stop 1: Arrive at the Lima Lake bottoms to examine soils formed in a low-energy sedimentary environment. Texturing contest and refreshments available.

10:00 am Stop 2: Toe slope positions along the bluff to look at a soil pit (Jasper series) formed in silty/loamy material over outwash. Soil judging contest.

11:00 am Stop 3: is along a road cut into the bluff. Identify parent material

12:00 pm End of tour, depart for home.
Acknowledgements

We would like to thank the following individuals for their time and effort in helping to create this tour:

Matt Lemaire, Adams County District Conservationist, USDA-NRCS
Lori Bollin, Hancock County District Conservationist, USDA-NRCS
Abbie Sperry, Resource Conservationist, Hancock SWCD
Candy Chambers, Wildlife Refuge Specialist, US Fish and Wildlife Service
Charles Theiling, Large River Ecologist, US Army Corps of Engineers
Xiaodong Miao, Geologist, Illinois State Geological Survey
Don Walker
Ron Collman
Rick Francen
Bob Tegler
Mark Bramstadt
Roger Windhorn
Bob McLeese

And special thank you to those landowners who have given us permission to use their land for tour stops and soil core extractions:

Adwell Corp.
Dave McMurray
Andy and Ruby Wetzel
Joe Zumwalt
Sam Zumwalt
**Directions to Site 1 from hotel:**

Turn left (east) from hotel and proceed to I-172, turn north.

Drive 5 miles to Highway 24, turn west.

Drive 3 miles to Highway 96, turn north (right)

Drive 11 ½ miles to Lima, turn west on N. 2850th Avenue

Drive 2 miles to 500E., turn north (right)

Drive approximately 3 miles north to 150N, turn west (left).

Drive 1 mile to site

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**Directions to Site 2**

Return to county road 500E, turn north (left) and drive 3 ½ miles to site on left side of road.

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**Direction to Site 3**

Continue north on county road 500E about 3 ¾ miles. Park at the pump station on left hand side of road.
Map of Ursa, IL

Site 1

E 500 St

N 2850th Ave.

When using any driving directions or map, it's a good idea to do a reality check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning.
Site 1 – Lima Lake Bottoms

Lima Lake – consisted of a low-energy sedimentary environment. Historical records indicate that Lima Lake was about 2 miles wide and 5 miles long. Many bayous and backswamps. Area was leveed in the late 1800’s, drainage began in 1920’s. Most soils in the actual lake are Titus with some Zook and Darwin. Hancock has about 4500 acres of Titus and Zook. Adams has about 5100 acres of Darwin and Titus. Beaucoup and Sawmill soils on floodplain and adjacent to the lake bottoms. Hancock has about 1240 acres of Beaucoup and 1500 acres of Sawmill on Mississippi bottoms. Adams has about 2000 acres of “wet” Beaucoup on Mississippi bottoms.

Beaucoup – fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls
Very deep, poorly and very poorly drained soils formed in silty alluvium. Located on shallow floodplains. Slopes – 0-2 percent
RIC - Mollic epipedon – 10-24 inches thick
Clay content of the PSC section – 27-35 percent

Sawmill – fine-silty, mixed, superactive, mesic Cumulic Endoaquolls
Very deep, poorly drained soils formed in alluvium of Wisconsin-aged sediment. Located on nearly level floodplains and drainageways. Slopes – 0-2 percent
RIC - Mollic epipedon – 24-36 inches thick
Clay content of the PSC section – 27-35 percent

Titus – fine, smectitic, mesic Vertic Endoaquolls
Very deep, poorly drained soils formed slackwater sediments. Located on shallow depressions and backswamps. Slopes – 0-2 percent
RIC - Mollic epipedon – 10-24 inches thick
Clay content of the PSC section – 35-45 percent
Zook—fine, smectitic, mesic Cumulic Vertic Endoaquolls
Very deep, poorly drained soils formed in alluvium.
Located on floodplains and drainageways
Slopes – 0-2 percent
RIC - Mollic epipedon – 35-60 in.
Content of clay in PSC section – 35-45 percent

Darwin—fine, smectitic, mesic Fluvaquentic Vertic Endoaquolls
Very deep, poorly and very poorly drained soils formed slackwater sediments.
Located on shallow depressions and backswamps
Slopes – 0-2 percent
RIC - Mollic epipedon – 10-24 inches thick
Clay content of the PSC section – 45-55 percent

Wabash—fine, smectitic, mesic Cumulic Vertic Endoaquolls
Very deep, poorly and very poorly drained soils formed in alluvium.
Located on floodplains (shallow floodplain depressions and backswamps in Illinois)
Slopes – 0-2 percent
RIC - Mollic epipedon – 10-24 inches thick
Clay content of the PSC section – 45-55 percent
# Map Unit Legend

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
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<tr>
<td>37A</td>
<td>Worthen silt loam, 0 to 2 percent slopes</td>
<td>20.0</td>
<td>2.2%</td>
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<tr>
<td>403B</td>
<td>Jasper loam, 1 to 5 percent slopes</td>
<td>9.4</td>
<td>1.0%</td>
</tr>
<tr>
<td>1070</td>
<td>Beaucoup silty clay loam, undrained</td>
<td>7.5</td>
<td>0.8%</td>
</tr>
<tr>
<td>8070</td>
<td>Beaucoup silty clay loam, occasionally flooded</td>
<td>151.2</td>
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<td>8071</td>
<td>Darwin silty clay, occasionally flooded</td>
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<td>8162</td>
<td>Gorham silty clay loam, occasionally flooded</td>
<td>13.0</td>
<td>1.4%</td>
</tr>
<tr>
<td>8284</td>
<td>Tice silt loam, occasionally flooded</td>
<td>122.9</td>
<td>13.4%</td>
</tr>
<tr>
<td>8304</td>
<td>Landes loam, occasionally flooded</td>
<td>21.3</td>
<td>2.3%</td>
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<tr>
<td>8404</td>
<td>Titus silty clay loam, occasionally flooded</td>
<td>166.0</td>
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<tr>
<td>8405</td>
<td>Zook silty clay loam, occasionally flooded</td>
<td>229.4</td>
<td>25.1%</td>
</tr>
<tr>
<td>8682</td>
<td>Medway loam, occasionally flooded</td>
<td>168.7</td>
<td>18.5%</td>
</tr>
<tr>
<td><strong>Totals for Area of Interest</strong></td>
<td></td>
<td><strong>914.1</strong></td>
<td><strong>100.0%</strong></td>
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</tbody>
</table>
Geographic Extent of the BEAUCOUP Soil Series

Map created 1:22 PM 10/20/2010 http://www.cei.psu.edu/soiltool/semtool.html

This application is a product of the National Cooperative Soil Survey partnership of The Pennsylvania State University (Center for Environmental Informatics), West Virginia University, and the USDA–Natural Resources Conservation Service (National Geospatial Development Center and National Soil Survey Center).

Cooperative Ecological Studies Unit (CESU) Cooperative Agreement # 68-3A75-4-104
Geographic Extent of the SAWMILL Soil Series

Map created 1:20 PM 10/20/2010 http://www.cei.psu.edu/soiltool/semtool.html

This application is a product of the National Cooperative Soil Survey partnership of The Pennsylvania State University (Center for Environmental Informatics), West Virginia University, and the USDA—Natural Resources Conservation Service (National Geospatial Development Center and National Soil Survey Center).
Cooperative Ecological Studies Unit (CESU) Cooperative Agreement # 68-3A75-4-104
The Geographic Extent of the TITUS Soil Series.

This application is a product of the National Cooperative Soil Survey partnership of The Pennsylvania State University (Center for Environmental Informatics), West Virginia University, and the USDA-Natural Resources Conservation Service (National Geospatial Development Center and National Soil Survey Center).

Cooperative Ecological Studies Unit (CESU) Cooperative Agreement # 68-3A7S-4-104
Geographic Extent of the ZOOK Soil Series

This application is a product of the National Cooperative Soil Survey partnership of The Pennsylvania State University (Center for Environmental Informatics), West Virginia University, and the USDA–Natural Resources Conservation Service (National Geospatial Development Center and National Soil Survey Center).

Cooperative Ecological Studies Unit (CESU) Cooperative Agreement # 68-3A75-4-104
acres per soil survey area

- Data available
- Data not available
- No acres reported
- 305 or less
- 316 to 2082
- 2180 to 5548
- 5764 to 14310

This application is a product of the National Cooperative Soil Survey partnership of The Pennsylvania State University (Center for Environmental Informatics), West Virginia University, and the USDA–Natural Resources Conservation Service (National Geospatial Development Center and National Soil Survey Center). Cooperative Ecological Studies Unit (CESU) Cooperative Agreement # 68-3A75-4-104
Site 2 – Jasper fine sandy loam, 5 to 10 percent slopes, eroded

About 770 acres in Hancock County. Worthen, Drury and Camden and are commonly mapped on footslopes. (deep loess or loess over outwash)

Bedrock colluvial soils are mapped as Lacrescent

Jasper – fine-loamy, mixed, superactive, mesic Typic Argiudolls

Very deep, well drained soils formed in loamy material and stratified sediments on outwash plains (OSD says of Wisconsin age).

Some have a thin mantle of loess.

Slopes – 0-18 percent

RIC - Mollic epipedon – 10-20 inches thick

Depth to base of the argillic – 35-60 inches

Depth to carbonates – greater than 35 inches

Clay content of the PSC section – 20-32 percent

Sand content of the PSC section – 15-55 percent fine sand and coarser
Legend
- Camden
- Worthen_Adams
- Worthen
- Jasper
## Map Unit Legend

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
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</thead>
<tbody>
<tr>
<td>274A</td>
<td>Seaton silt loam, 0 to 2 percent slopes</td>
<td>17.2</td>
<td>5.3%</td>
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<tr>
<td>274B</td>
<td>Seaton silt, 2 to 5 percent slopes</td>
<td>19.1</td>
<td>5.9%</td>
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<tr>
<td>274C2</td>
<td>Seaton silt loam, 5 to 10 percent slopes, eroded</td>
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<td>274D3</td>
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<td>Jasper fine sandy loam, 5 to 10 percent slopes, eroded</td>
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<tr>
<td>802F</td>
<td>Orthents, loamy, steep</td>
<td>5.2</td>
<td>1.6%</td>
</tr>
<tr>
<td>874F</td>
<td>Dickinson-Hamburg complex, 10 to 60 percent slopes</td>
<td>23.9</td>
<td>7.4%</td>
</tr>
<tr>
<td>937F</td>
<td>Seaton-Hickory complex, 15 to 30 percent slopes</td>
<td>9.9</td>
<td>3.0%</td>
</tr>
<tr>
<td>937G</td>
<td>Seaton-Hickory complex, 30 to 60 percent slopes</td>
<td>30.5</td>
<td>9.4%</td>
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<tr>
<td>3333</td>
<td>Wakeland silt loam, frequently flooded</td>
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<tr>
<td>7349B</td>
<td>Zumbro loamy fine sand, 1 to 5 percent slopes, rarely flooded</td>
<td>11.5</td>
<td>3.6%</td>
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<td>8107</td>
<td>Sawmill silty clay loam, occasionally flooded</td>
<td>55.6</td>
<td>17.2%</td>
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<tr>
<td>8284</td>
<td>Tice silt loam, occasionally flooded</td>
<td>7.3</td>
<td>2.3%</td>
</tr>
<tr>
<td>8304</td>
<td>Landes loam, occasionally flooded</td>
<td>11.6</td>
<td>3.6%</td>
</tr>
<tr>
<td>8682</td>
<td>Medway loam, occasionally flooded</td>
<td>54.4</td>
<td>16.8%</td>
</tr>
<tr>
<td>W</td>
<td>Water</td>
<td>10.8</td>
<td>3.3%</td>
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<td>Totals for Area of Interest</td>
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<td>323.7</td>
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</table>
acres per soil survey area

- Data available
- Data not available
- No acres reported
- 1635 or less
- 1666 to 3321
- 3647 to 8136
- 9249 to 25573


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Site 3 – Dickinson-Hamburg complex, 10 to 60 percent slopes

Hancock is the only county in Illinois that has mapped this complex.
Only 330 acres in Hancock County.
Seaton-Timula or Stookey-Timula are more commonly mapped on bluffs.

Dickinson – coarse-loamy, mixed, superactive, mesic Typic Hapludolls
Deep, well drained soils formed in glacial or alluvial deposits and reworked by wind.
Located on uplands; or on treads and risers on stream terraces in river valleys
Slopes – 0-30 percent
RIC - Mollic epipedon – 12-19 inches thick
Depth to loamy sand or sand – 20-43 inches
Depth to carbonates – greater than 60 inches
Clay content of the PSC section – 10-18 percent
Sand content of the PSC section – 60-80 percent, less than 50 percent medium and coarser sand

Hamburg – coarse-silty, mixed, superactive, calcareous, mesic Typic Udorthents
Very deep, somewhat excessively drained soils on moderately steep to very steep convex shoulders or backslopes on uplands.
Formed in calcareous loess
Slopes – 20-90 percent
RIC - Depth to carbonates – less than 6 inches
Content of clay in PSC section – 6-12 percent
Content of sand in PSC section – 10-50 percent total sand, dominantly very fine sand, less than 3 percent fine sand and coarser.
Coarse silt to fine silt ratio 2-3 times as much coarse silt as fine silt.
## Map Unit Legend

<table>
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<th>Acres in AOI</th>
<th>Percent of AOI</th>
</tr>
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<tbody>
<tr>
<td>61A</td>
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<td>1.7%</td>
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<tr>
<td>134B</td>
<td>Camden silt loam, 2 to 5 percent slopes</td>
<td>6.6</td>
<td>2.7%</td>
</tr>
<tr>
<td>274A</td>
<td>Seaton silt loam, 0 to 2 percent slopes</td>
<td>18.3</td>
<td>7.5%</td>
</tr>
<tr>
<td>274B</td>
<td>Seaton silt, 2 to 5 percent slopes</td>
<td>22.5</td>
<td>9.2%</td>
</tr>
<tr>
<td>274C2</td>
<td>Seaton silt loam, 5 to 10 percent slopes, eroded</td>
<td>30.5</td>
<td>12.5%</td>
</tr>
<tr>
<td>440C2</td>
<td>Jasper fine sandy loam, 5 to 10 percent slopes, eroded</td>
<td>10.1</td>
<td>4.1%</td>
</tr>
<tr>
<td>874F</td>
<td>Dickinson-Hamburg complex, 10 to 60 percent slopes</td>
<td>28.3</td>
<td>11.6%</td>
</tr>
<tr>
<td>937F</td>
<td>Seaton-Hickory complex, 15 to 30 percent slopes</td>
<td>53.8</td>
<td>22.0%</td>
</tr>
<tr>
<td>1070</td>
<td>Beaucoup silty clay loam, undrained</td>
<td>2.1</td>
<td>0.9%</td>
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<tr>
<td>3331</td>
<td>Haymond silt loam, frequently flooded</td>
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<tr>
<td>8070</td>
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<td>3.5</td>
<td>1.4%</td>
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<tr>
<td>8284</td>
<td>Tice silt loam, occasionally flooded</td>
<td>23.0</td>
<td>9.4%</td>
</tr>
<tr>
<td>8304</td>
<td>Landes loam, occasionally flooded</td>
<td>0.1</td>
<td>0.0%</td>
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<tr>
<td>8682</td>
<td>Medway loam, occasionally flooded</td>
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<td><strong>Totals for Area of Interest</strong></td>
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<td><strong>244.9</strong></td>
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</table>
Geographic Extent of the HAMBURG Soil Series


This application is a product of the National Cooperative Soil Survey partnership of The Pennsylvania State University (Center for Environmental Informatics), West Virginia University, and the USDA–Natural Resources Conservation Service (National Geospatial Development Center and National Soil Survey Center). Cooperative Ecological Studies Unit (CESU) Cooperative Agreement # 68-3A75-4-104