ISCA Fall 2006 Field Tour
Oregon, IL

Organized by:
Bruce Putman

Contributions from:
Mike Konen
Bill Kreznor
Steve Zwicker

October 21, 2006
ISCA Fall 2006 Field Tour
Oregon, IL

Organized by:
Bruce Putman

Contributions from:
Mike Kenin
Bill Kremer
Steve Zwicker

Glacial story not well understood until the 1970's & 80's
We know more today but still a lot of work to do...

Quaternary deposits of Illinois

- Intense periglacial erosion beyond ice-margin during the late-Wisconsin
- Permafrost, solifluxion, & cryoturbation
- Hillside runoff
- Complete or partial erosion of Sangamon Geosol

Rock River Hill Country

- <25 feet Quaternary materials common
- Complex geologic sedimentation and post-depositional erosion - sedimentation in many areas
  - The glaciers came and the glaciers melted
  - The wind blew and the dust flew
  - The soil grew
  - Several times...
- Multiple materials (Ellison, glaciofluvial, glacial till, loess, colluvial...)
- Multiple ages (Illinois Episode, Wisconsin Episode, Hudson Episode...)
- Palcosols eroded, blown, eroded, welded to modern soil...
- Surface and bedrock topography not always related

MLRA 108H
Illinois and Iowa Deep Loess and Drift, East-Central part
**Loess Thickness**
- 15 to 5' across county (west to east)
- Thinner on less stable landscape positions
- Mostly Peoria Silt
- Some Roxana Silt present on more stable landscape positions

**Idealized Stratigraphy**
- **Peoria Silt**
  - Loess
  - Some colluvial silt
  - ~25,000 - 12,500 KYBP (Hansel & Johnson, 1996)

- **Roxana Silt**
  - Loess
  - Some colluvial silt (Robein Member)
  - ~55,000 - 27,000 KYBP (Leigh & Knox 1993)
  - May contain Farendale Geosol in upper portion
  - Brownish pink
  - Often grittier (more sand) than Peoria Silt

**Illinois Episode glacial sediments**
- Multiple "tills"
- Tills variable in texture
- Local incorporation of sandstone within a till unit
- Outwash...

- **Bedrock**
  - Dolostone
  - Limestone
  - Sandstone

**Most soils developed in loess or loess and underlying material(s)**
- Common to have multiple parent materials:
  - Loess
  - Loess over till
  - Loess over till over bedrock
  - Loess over paleosol in till
  - Loess over paleosol in till over bedrock
  - Loess over outwash
  - Loess over outwash over bedrock
  - Loess over paleosol in outwash
  - Loess over paleosol in outwash over bedrock
  - Loess over bedrock
  - Loess over paleosol in bedrock
  - Loess over you get the picture... and remember there are multiple ages of glacial & eolian sediments...
A simplified and idealized pedogenository...

1. Dolostone exposed

2. Soil develops in dolostone

3. Erosion before and during IL Episode glaciation

4. Deposition of IL Episode glaciogenic sediments (fiss., outwash...)

5. Soil formation in IL seds during Sangamon
This complex geologic & geomorphic story has led to a complex pedologic distribution.

How can we better understand soil spatial relationships?
How can we better use & communicate this information in the land-use planning process?
Detailed Soil Mapping
For Subdivision Planning

A Prerequisite to On-site Soil Investigation

Comparison of Detailed and USDA Soil Map-Hydric Soils

Overlay of USDA and Detailed Soil Map Hydric Soil Areas
Red Shaded Area: Detailed Map
Blue Hatched Area: USDA Map

Methodology: Detailed Soil Map
Required by Ordinance in New City Since 1988
Required by Ordinance in 8 Counties in N.Y. Hills
Based on 200 by 200 Grid
Detailed Soil Descriptions at Grid Points
Surveying Method is Standardized

Combine Grid Data and Topography
Red Soil Types

Completed Soil Map
Hydric Soil Types Based on Local County Ordinance
Overlay of Soil Types from Existing County Legend
Examples of Limiting Layer, Per County Codes

<table>
<thead>
<tr>
<th>County</th>
<th>Limiting Seasonal Water Table Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lake</td>
<td>10&quot;</td>
</tr>
<tr>
<td>Mead</td>
<td>10&quot;</td>
</tr>
<tr>
<td>Keno</td>
<td>10&quot;</td>
</tr>
<tr>
<td>Oth</td>
<td>10&quot;</td>
</tr>
</tbody>
</table>

*Hydro Soils, i.e., Drummer, FI Pano, etc.
Oth = Hydro Soils *
*Requires the use of Curtain Drains

Soil Mapping in Bedrock Areas

Bedrock Does Not Always Follow Contours
May Require Numerous Intermediate Drains

Overall Land Plan-Designated Septic Areas

Septic areas zoned in suitable soils
20 Lots on 50 Acres
Septic Areas are Typically
12,000 to 20,000 Square Ft
Land Pads Should Show
Typical Locations for
House and Well
Septic Areas Must be
Completed Off before
Combination I
Do Not Stagger Houses
All Septic Areas
Avoid Tract Shaped
Septic Areas

Subdivision Drainage

Subdivision Tile System Must be Located
Drainage Laws State That Tile
Subdivision Must Be Wiped Off
Site Drainage and Use Current
Site Locations
Holding Drain Tile Should be
Abandoned and Replaced

Drain Tile Abandonment

Drain Tile Cannot Be Updated
Due to Road Locations/Houses
Detention Basins

A New System Must Be
Initiated
Summary:

- Detailed Soil Maps Provide Needed Information for Land Use Planning.
- Detailed Maps Should be Constructed Using Uniform Standards.
- Detailed Maps Do Not Eliminate the Need for On-Site Soil Testing.

159 – optional field exam

172 – optional – Fayette in Peoria and Roxana
### Section 905. APPENDIX A Illustrations and Exhibits

#### Section 905. EXHIBIT B Key for Determining Sewage Loading Rates (Gallons/Square Feet/Day)

<table>
<thead>
<tr>
<th>Structure and Parent Material</th>
<th>Single grain: Granular; Planar</th>
<th>Angular and Subangular Blocky; Prismatic</th>
<th>Structureless or Massive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In vfr ft</td>
<td>In vfr ft</td>
<td>fr ft</td>
</tr>
<tr>
<td>1</td>
<td>Fragmental Ext. or Very gravelly sand</td>
<td>&gt; 1.00&lt;sup&gt;a&lt;/sup&gt;</td>
<td>N/A&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>2</td>
<td>Medium sand Loamy coarse sand Loamy sand Coarse sandy loam</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>3</td>
<td>Fine sand Loamy fine sand</td>
<td>0.84</td>
<td>0.91</td>
</tr>
<tr>
<td>4</td>
<td>Sandy loam Fine sandy loam Gravelly sandy loam Gravelly loam Gravelly silt loam</td>
<td>0.75</td>
<td>0.84</td>
</tr>
<tr>
<td>5</td>
<td>Loam Silt loam Very fine sandy loam Sandy clay loam Silt Very fine sand Loamy very fine sand</td>
<td>0.62</td>
<td>0.75</td>
</tr>
<tr>
<td>6</td>
<td>Silty clay loam (&lt;35% clay) Clay loam (&lt;35% clay)</td>
<td>0.52</td>
<td>N/A</td>
</tr>
<tr>
<td>7</td>
<td>Silty clay loam (&gt;35% clay) Sandy clay (&lt;40% clay) Sandy clay (&gt;40% clay)</td>
<td>0.45&lt;sup&gt;b&lt;/sup&gt;</td>
<td>N/A</td>
</tr>
<tr>
<td>8</td>
<td>Sandy clay (&gt;40% clay) Silty clay</td>
<td>0.45&lt;sup&gt;b&lt;/sup&gt;</td>
<td>N/A</td>
</tr>
</tbody>
</table>

---SOIL PROPERTIES HAVE VERY SERIOUS LIMITATIONS; SUBSURFACE DISPOSAL NOT RECOMMENDED---

**FOOTNOTES:**

1. Disturbed soils are highly variable and require special on-site investigations.
2. Moderate or strong platy structure for the soil textures in Group 5 have a loading rate of 0.40 g/d/ft.
3. Planar structure having firm or very firm consistency and/or caused by mechanical compaction has a loading rate of 0.0 g/d/ft.
4. Weakly structured BC horizons of rolling and glacial till soils structured by tectonic processes have the same loading rate as structureless glacial till.
5. This soil group is estimated to have very rapid permeability and exceeds the minimum established rate in Section 905. Illustration H, Exhibit A of this Part.
6. N/A means not applicable.
7. These soil groups are estimated to have moderately slow to very slow permeability and are less than the minimum established rate in Section 905. Illustration H, Exhibit A of this Part.

(Source: Section repealed, new Section added at 20 Ill. Reg. 2431, effective March 15, 1998)
### PROFILE: #156 - Rozetta

**PROFILE CLASSIFICATION:** 2006 Keys to Soil Taxonomy (mineralogy class presumed to be superactive)

- Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalf

**EPIDEMON:** Ochre 6-7 in

**SUBSURFACE HORIZONS/FEATURES:** Argillic 7-41 in

**CONTROL SECTION:** 7 - 27 in (upper 20 in of argillc) Clay = 23.2%, Sand > 0.1 mm = 4.7%

**COUNTY:** Ogle

**LOCATION:**

**DATE SAMPLED:** 9/20/2006

**DATE DESIGNED:** 9/20/2006

**SAMPLED BY:** Zwicker & Kreznor

**DESCRIBED BY:** Zwicker & Kreznor

**PARENT MATERIAL:** Peoria Silt loess over Roxana Silt loess

**WEATHER:** Sunny, 70°F

**PHYSIOGRAPHY:**

**ELEVATION:** ~778 ft (237 m) estimated from top

**SLOPE:** 7%

**SLOPE POSITION:** Backslope

**DRAINAGE CLASS:** Mod well

**VEGETATION:** Recently abandoned as field succession (lots of weeds...)

**EXPOSURE:** Backhoe pit

### Soil Horizons

<table>
<thead>
<tr>
<th>Horizon</th>
<th>Lower depth (in)</th>
<th>Matrix color (most)</th>
<th>Matrix color (most)</th>
<th>Lab Texture by weight</th>
<th>% OC</th>
<th>Redox Features</th>
<th>Structure</th>
<th>Coatings</th>
<th>Color</th>
<th>Amount</th>
<th>Size</th>
<th>Shape</th>
<th>Type</th>
<th>Amount</th>
<th>Color</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ap</td>
<td>7</td>
<td>10YR 4/3</td>
<td>silt</td>
<td>25.1 14.9 60.0</td>
<td>0.53</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bt1</td>
<td>19</td>
<td>10YR 4/4</td>
<td>silt</td>
<td>25.3 19.6 55.2</td>
<td>0.24</td>
<td>10YR 5/3</td>
<td>c f f</td>
<td>2 f sbk</td>
<td>clf m</td>
<td>10YR 4/3</td>
<td>pf</td>
<td>fr</td>
<td>a s</td>
<td>0.62 (5A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bt2</td>
<td>34</td>
<td>10YR 5/4</td>
<td>silt</td>
<td>20.1 15.9 64.0</td>
<td>0.16</td>
<td>10YR 5/2</td>
<td>c f d</td>
<td>2 m pr</td>
<td>clf m</td>
<td>10YR 4/3</td>
<td>pf</td>
<td>fr</td>
<td>c s</td>
<td>0.75 (6D)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bt3</td>
<td>41</td>
<td>10YR 5/4 &amp; 5/6</td>
<td>silt</td>
<td>17.7 23.5 58.7</td>
<td>0.16</td>
<td>10YR 5/2</td>
<td>c f d</td>
<td>2 m pr</td>
<td>clf m</td>
<td>10YR 4/3</td>
<td>pf</td>
<td>fr</td>
<td>c s</td>
<td>0.75 (6D)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>60</td>
<td>10YR 5/4</td>
<td>silt</td>
<td>11.1 22.9 66.0</td>
<td>0</td>
<td>10YR 5/2</td>
<td>c f d</td>
<td>0</td>
<td>ma</td>
<td></td>
<td></td>
<td>fr</td>
<td>a s</td>
<td>0.52 (5L)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2C2</td>
<td>72</td>
<td>7.5YR 5/4</td>
<td>silt</td>
<td>20.6 14.2 65.2</td>
<td>0</td>
<td>10YR 5/8</td>
<td>c f d</td>
<td>0</td>
<td>ma</td>
<td></td>
<td></td>
<td>fr</td>
<td></td>
<td>0.62 (5L)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2C2 - Roxana

**Items to discuss:**
- Roxana vs Peoria Silt properties
- Redox depletion depth, amount, and septic design
- Landscape position and Roxana presence/absence
- Clay max in Ap, erosion
**PROFILE CLASSIFICATION:** 2006 Keys to Soil Taxonomy (mineralogy class presumed to be superactive)

**PHYSIOGRAPHY:** Fine-silty over clayey, mixed, superactive, mesic Typic Hapludalf

**TOPOGRAPHY:**

**ELEVATION:** - 778 ft (237 m) estimated from topo

**SLOPE:** 5%

**SLOPE POSITION:** Backslope in drainageway head

**LOCATION:**

**DRAINAGE CLASS:** Wet

**DATE SAMPLED:** 6/20/2006

**DATE DESCRIBED:** 6/20/2006

**VEGETATION:** Recently abandoned ag field succession (grass, weeds)

**SAMPLED BY:** Putman & Kenan

**DESCRIPTION:** Putman & Kenan

**PARENT MATERIAL:** Poorly Drained Spodosol (soil) over outwash (Sangamon Geosol) over dolostone

**EXPOSURE:** Basal exposure pit

<table>
<thead>
<tr>
<th>Horizon</th>
<th>Lower Limit (ft)</th>
<th>Mapped soil color (10YR)</th>
<th>Lab Texture (by weight)</th>
<th>Viscosity % OC</th>
<th>Mineral Structure</th>
<th>Color</th>
<th>Size</th>
<th>Shape</th>
<th>Fracture</th>
<th>Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ap</td>
<td>9</td>
<td>10 YR 4/3</td>
<td>silty loam</td>
<td>13.3</td>
<td>22</td>
<td>64.7</td>
<td>0</td>
<td>0</td>
<td>m</td>
<td>stlk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.98</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bt1</td>
<td>14</td>
<td>10 YR 4/4</td>
<td>silty clay</td>
<td>17.4</td>
<td>19.4</td>
<td>63.2</td>
<td>0</td>
<td>0</td>
<td>f</td>
<td>gr</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bt1</td>
<td>23</td>
<td>10 YR 4/4</td>
<td>silty clay</td>
<td>21.7</td>
<td>19.7</td>
<td>56.6</td>
<td>0</td>
<td>0</td>
<td>f</td>
<td>stl, clff</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.38</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2Bt1</td>
<td>28</td>
<td>5 YR 4/4</td>
<td>claysilt loam</td>
<td>48.3</td>
<td>27.3</td>
<td>24.4</td>
<td>9</td>
<td>3</td>
<td>m</td>
<td>abk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2Bt2</td>
<td>37</td>
<td>5 YR 4/4 &amp; 7.5 YR 4/8</td>
<td>silt loam</td>
<td>47.2</td>
<td>35.3</td>
<td>17.5</td>
<td>0</td>
<td>2</td>
<td>m</td>
<td>abk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.78</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3Cr/Bt3</td>
<td>42</td>
<td>10 YR 5/4 &amp; 10 YR 4/8</td>
<td>clay silty loam</td>
<td>28.9</td>
<td>49.5</td>
<td>21.6</td>
<td>22</td>
<td>0</td>
<td>c</td>
<td>stl, clff</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7.5 YR 3/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7.5 YR 4/3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7.5 YR 4/3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3R</td>
<td>60</td>
<td>Dolostone</td>
<td>clay loam</td>
<td>6.3</td>
<td>87.73</td>
<td>5.0</td>
<td>37</td>
<td>14</td>
<td>c</td>
<td>stl, clff</td>
</tr>
</tbody>
</table>

Ap - Some 1B pieces and smearing mixed in
Bt - platy structure not continuous across pit
2Bt2 and 2Bt3 - erratic throughout
2Bt3 - 75% 5 YR 4/4, 25% 7.5 YR 4/8
3Cr/Bt3 - 75% 5 YR 4/4, 25% 7.5 YR 4/8
Strongly contrasting particle size classes - 2006 Keys to Soil Taxonomy, page 297, rule C1 and page 300 rule 28, > 25% absolute difference in clay between upper and lower portions.

Items to discuss:
- How is Cr (paraclastic) handled in state code?
- Paleosol clay, structure, CF impacts on loading rate
- Use of f in horizon nomenclature
- How is f handled in loading rates?
- Use of b
- Correlated series with a paleosol in outwash and bedrock present
| Horizon | Lower | Material color | Mineralogy | Mineralogy | Lab Tests (wt% of dry weight) | Field Tests | Physical Properties | Structure | Coatings | Con. Ef. | Boundary | Loading
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ap</td>
<td>7</td>
<td>10YR 4/4</td>
<td>sil</td>
<td>18.0</td>
<td>3.82</td>
<td>0</td>
<td>1.15</td>
<td>*</td>
<td>**</td>
<td>fr</td>
<td>a</td>
<td>0.62</td>
</tr>
<tr>
<td>B1</td>
<td>12</td>
<td>10YR 4/4</td>
<td>silcl</td>
<td>27.5</td>
<td>12.8</td>
<td>0.42</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>fr</td>
<td>c</td>
<td>0.62</td>
</tr>
<tr>
<td>B2</td>
<td>19</td>
<td>10YR 4/4</td>
<td>silcl</td>
<td>29.3</td>
<td>12.2</td>
<td>0.37</td>
<td>1</td>
<td>10YR 5/6</td>
<td>0</td>
<td>fr</td>
<td>c</td>
<td>0.62</td>
</tr>
<tr>
<td>B3</td>
<td>27</td>
<td>10YR 4/4</td>
<td>silcl</td>
<td>28.9</td>
<td>17.0</td>
<td>0.29</td>
<td>2</td>
<td>10YR 6/2</td>
<td>0</td>
<td>fr</td>
<td>c</td>
<td>0.62</td>
</tr>
<tr>
<td>B4</td>
<td>35</td>
<td>10YR 4/4</td>
<td>silcl</td>
<td>24.9</td>
<td>11.6</td>
<td>0.23</td>
<td>2</td>
<td>10YR 6/2</td>
<td>0.02</td>
<td>fr</td>
<td>c</td>
<td>0.75</td>
</tr>
<tr>
<td>BCH1</td>
<td>48</td>
<td>10YR 5/4</td>
<td>sil</td>
<td>22.5</td>
<td>12.7</td>
<td>0.21</td>
<td>1</td>
<td>10YR 6/2</td>
<td>0.01</td>
<td>fr</td>
<td>g</td>
<td>0.69</td>
</tr>
<tr>
<td>BCH2</td>
<td>60</td>
<td>10YR 5/4</td>
<td>sil</td>
<td>19.1</td>
<td>18.2</td>
<td>0.15</td>
<td>1</td>
<td>10YR 6/2</td>
<td>0.04</td>
<td>fr</td>
<td>f</td>
<td>0.09</td>
</tr>
</tbody>
</table>

BOC2 - Clay films concentrated in coarser prism faces

Items to discuss:
Reworked loess in drainage way
Landscape position and hydrologic relationships
<table>
<thead>
<tr>
<th>Horizon</th>
<th>Lower depth (in)</th>
<th>Matt color</th>
<th>Particle size (weight)</th>
<th>Void</th>
<th>% OC</th>
<th>% OC</th>
<th>% OC</th>
<th>% OC</th>
<th>% OC</th>
<th>% OC</th>
<th>Volume Measurements</th>
<th>Structure</th>
<th>Clay</th>
<th>Size</th>
<th>Shape</th>
<th>Texture</th>
<th>Amount</th>
<th>Color</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ap</td>
<td>8</td>
<td>10YR 3/2</td>
<td>silt</td>
<td>9</td>
<td>21.9</td>
<td>69</td>
<td>0</td>
<td>0</td>
<td>1.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EB</td>
<td>13</td>
<td>10YR 4/4</td>
<td>silt</td>
<td>11.4</td>
<td>20.8</td>
<td>67.7</td>
<td>0</td>
<td>0</td>
<td>0.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bl1</td>
<td>25</td>
<td>10YR 4/4</td>
<td>silt</td>
<td>14</td>
<td>15.3</td>
<td>70.7</td>
<td>0</td>
<td>0</td>
<td>0.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bl2</td>
<td>33</td>
<td>10YR 4/4</td>
<td>silt</td>
<td>20.7</td>
<td>21.2</td>
<td>58</td>
<td>1</td>
<td>0</td>
<td>0.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2Bt1</td>
<td>40</td>
<td>7.5YR 4/6</td>
<td>clay</td>
<td>27.9</td>
<td>32.2</td>
<td>39.9</td>
<td>8</td>
<td>3</td>
<td>0.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2Bt2</td>
<td>65</td>
<td>5YR 4/6</td>
<td>clay</td>
<td>44.5</td>
<td>41</td>
<td>14.5</td>
<td>24</td>
<td>9</td>
<td>0.33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2Ct1</td>
<td>77</td>
<td>7.5YR 4/6 &amp; 5YR 4/6</td>
<td>gravel</td>
<td>4.3</td>
<td>84.6</td>
<td>11.1</td>
<td>66</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Items to discuss:
Paleosol clay, structure, CF impacts on loading rate
Use of b
<table>
<thead>
<tr>
<th>Horizon</th>
<th>Lower限 (in)</th>
<th>Munsell color</th>
<th>Lab Texture (by weight)</th>
<th>Color</th>
<th>Amount</th>
<th>Size</th>
<th>Content</th>
<th>Grade</th>
<th>Shape</th>
<th>Type</th>
<th>Amount</th>
<th>Color</th>
<th>Location</th>
<th>Con</th>
<th>Stl</th>
<th>Boundary</th>
<th>Loading (lbs/acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ap</td>
<td>7</td>
<td>10YR 4/2</td>
<td>sil 14.8 13.0 72.1 0  1.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>vf &amp; f</td>
<td>gr</td>
<td></td>
<td></td>
<td></td>
<td>fr</td>
<td>a</td>
<td>s</td>
<td>0.52 (SA)</td>
</tr>
<tr>
<td>Bt1</td>
<td>20</td>
<td>10YR 4/4</td>
<td>sil 26.2 14.2 59.6 0  0.41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>f</td>
<td>sbk</td>
<td>clff</td>
<td>m</td>
<td>10YR 4/3</td>
<td>pf</td>
<td>fr</td>
<td>c</td>
<td>0.75 (SO)</td>
</tr>
<tr>
<td>Bt2</td>
<td>26</td>
<td>10YR 4/4</td>
<td>sil 27.1 14.6 58.3 0  0.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>f</td>
<td>pr</td>
<td>clff</td>
<td>m</td>
<td>10YR 4/3</td>
<td>pf</td>
<td>fr</td>
<td>c</td>
<td>0.62 (SO)</td>
</tr>
<tr>
<td>Bt3</td>
<td>33</td>
<td>10YR 4/4</td>
<td>sil 24.4 14.0 61.6 0  0.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>f</td>
<td>abk</td>
<td>silf</td>
<td>m</td>
<td>10YR 4/3</td>
<td>pf</td>
<td>fr</td>
<td>c</td>
<td>0.75 (SO)</td>
</tr>
<tr>
<td>Bt4</td>
<td>39</td>
<td>10YR 4/4</td>
<td>sil 22.0 16.4 61.7 0  0.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>m</td>
<td>pr</td>
<td>clff</td>
<td>m</td>
<td>10YR 4/3</td>
<td>pf</td>
<td>fr</td>
<td>g</td>
<td>0.75 (SO)</td>
</tr>
<tr>
<td>Bt5</td>
<td>51</td>
<td>10YR 5/4</td>
<td>sil 17.6 8.0 74.4 0  0.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>m</td>
<td>sbk</td>
<td>silf</td>
<td>m</td>
<td>10YR 4/3</td>
<td>pf</td>
<td>fr</td>
<td>g</td>
<td>0.75 (SO)</td>
</tr>
<tr>
<td>2C</td>
<td>74</td>
<td>10YR 4/4</td>
<td>sil 14.6 26.9 58.5 1  0.18</td>
<td>Mn concreations</td>
<td>c</td>
<td>f</td>
<td>d</td>
<td>0</td>
<td>ma</td>
<td>10YR 5/3</td>
<td>c</td>
<td>f</td>
<td>d</td>
<td>0</td>
<td>0.02 (SL)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2C - Roxana
51-74 split for lab, 51-64, 64-74.

Items to discuss:
Roxana vs Peoria Silt properties
Landscape position and Roxana presence/absence