

NCERA3 Meeting Report and Minutes

Business Meeting: Friday, October 1st, 2021
Country Inn and Suites Board Room, Fargo, MN

Field Tour: Saturday, October 2nd, 2021
Climax, MN and Hammond, MN

Project Participants attending

Hopkins, David G., David.Hopkins@ndsu.edu, North Dakota - North Dakota State University
Jelinski, Nic, jeli0026@umn.edu, Minnesota - University of Minnesota
McSweeney, Kevin, mcsween@illinois.edu, Illinois - University of Illinois
Moorberg, Colby, moorberg@ksu.edu, Kansas - Kansas State University
Schulze, Darrell G., dschulze@purdue.edu, Indiana - Purdue University
Slater, Brian K., slater.39@osu.edu, Ohio - Ohio State University (Attended Remotely Via Zoom)
Turk, Judith, jturk3@unl.edu, Nebraska - University of Nebraska-Lincoln

Project Participants unable to attend

Burras, C. Lee, lburras@iastate.edu, Iowa - Iowa State University

Business Meeting: Friday October 1st, 2021

1:00-1:10PM Convene

1:10-1:30PM Colby Moorberg (KSU) – Research and Teaching Updates

Open textbooks, Hydropedology and root ecology, wetland indicators, changes in pedology faculty at KSU.

1:35-2:00PM Judy Turk (UNL) – Research and Teaching Updates

Carbon dynamics in depressional wetlands (NE1938), Historical change in Nebraska soils, “Pedolagogy”, Scholarship of Teaching and Learning, Undergraduate research in soil judging.

2:05-2:25PM David Hopkins (NDSU) – Research and Teaching updates

Micromorphology laboratory, thin sections tour!

2:30-2:55PM Kris Osterloh (SDSU) – Research and teaching updates

Mineralogy study on K fertilization recommendations and rates, carbon mapping with a hyperspectral sensor.

3:00-3:10PM Break

3:10-3:30PM Brain Slater (OSU) – Research and Teaching updates

Research updates, National Soil Judging Contest, 2022

3:35-3:55PM Kevin McSweeney (UIUC) – Research and teaching updates

Land reclamation with Chinese collaborators (mine basins reclaimed with river sediment), teaching pits construction and lessons learned from the UIUC arboretum.

4:00-4:25PM Darrell Schulze (Purdue) – Research and Teaching updates

ISEE project updates, needed revisions for harmonization of parent materials map, visualizing soil profiles using machine readable data from OSDs

4:30-4:55PM Nic Jelinski (UMN) – Research and Teaching Updates

Cedar Creek biodiversity – soil development controlled study (25 years), Alaska non-NRCS data curation and harmonization

4:55-5:10PM Closeout

Field Tour: Saturday, October 2nd, 8:00AM-4:00PM

8:00-8:15AM Organizing vehicles and routes

8:15-9:30AM Travel to the Sand Hill Church, Climax, MN

9:15-9:30AM Area Orientation and Survey of Old Slumps/Maps

9:30-11:30AM Investigation of slump and soils at the Erickson Farm, Climax, MN

In late August, 2021, a portion of a field (currently in soybeans) on the Erickson farm north of Climax, MN on the Red River fell ~25ft in a rotational slump that occurred overnight. This received local and national attention in the media:

<https://www.southernminnesotaneews.com/bean-field-collapses-in-northwestern-minnesota/>

The slump sent sediment into the Red River and also created a long exposure of soil and glaciolacustrine sediments which can be viewed from the lower level of the slump.



Figure 1. View of an exposed Overly? soil profile on the face of the slump



Figure 2. Cracking due to continued rotation and movement in the soil/sediments on the lower level of the slump



Figure 3. Full exposure/face viewed from below



Figure 4. Varves and roots channels in glaciolacustrine sediments on face of slump



Figure 5. Beautiful prismatic structure from profile on face of slump



Figure 6. NCERA3 group in deep discussion



Figure 7. View across river showing fresh exposed and cracking sediments from material which was sent into and across the Red River from the slump

11:30AM-12:00PM Drive to Climax, MN

12:00PM-12:45PM Lunch

12:45-1:00PM Drive to Hammond township, MN to view large Soil Judging Pits

1:00PM-4:00PM Tour of large soil judging pits in wheat field, Hammond Township, Section 25

Large pits remained open following the Region V Soil Judging contest south of Crookston, MN. The NCERA3 groups visited three of these pits, on a “toposequence” across a quarter section of lake plain formed in glaciolacustrine sediments. The first soil was on a rise (Vertic Calciudoll), the second soil was on a talf (also a Vertic Calciudoll, but with a slightly thicker A horizon and a *bit* more poorly drained), the third soil in a dip (an Oxyaquic Hapludert).

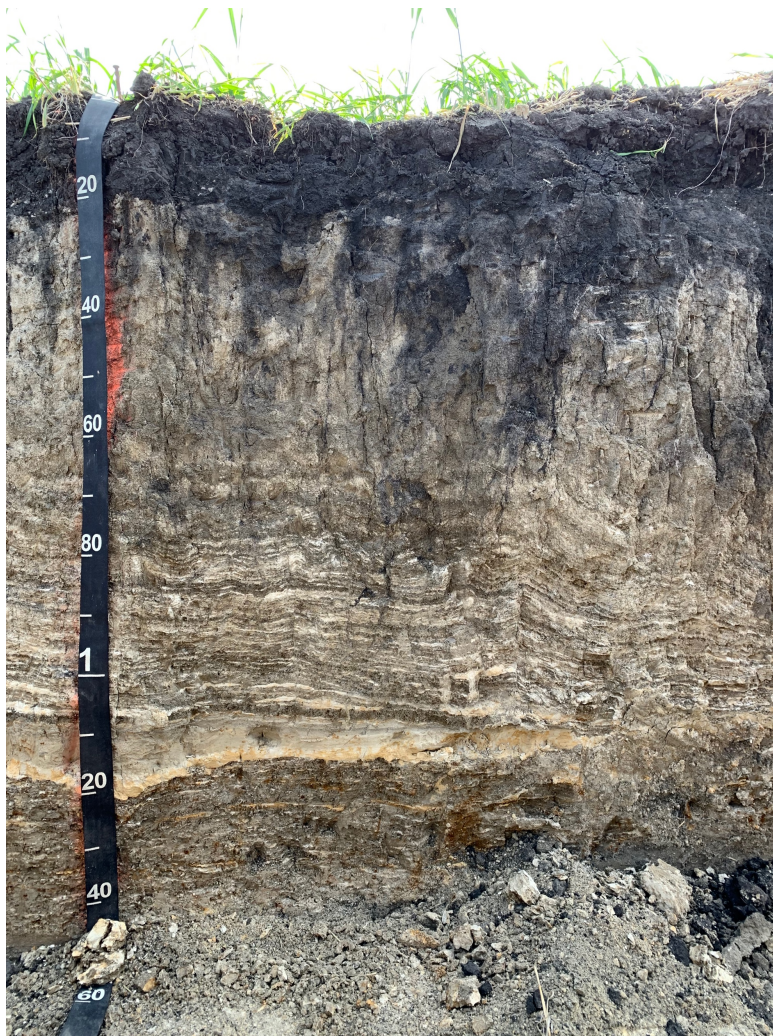


Figure 8. Vertic Calciudoll on a lake plain rise, formed in glaciolacustrine sediments



Figure 9. Evidence of shallow cracking and topsoil infilling in a Vertic Calcicudoll



Figure 10. Strong prismatic structure due to compaction in a Vertic Calcicudoll



Figure 11. An Oxyaquic Hapludert on a lake plain dip formed in glaciolacustrine sediments



Figure 12. Flat glaciolacustrine landscape in Hammond township, Polk County, MN