NE1038 - Hydropedology: Genesis, Properties, and Distribution of Hydromorphic Soils

Minutes of Annual Meeting on June 17, 2012
University of Maine
Orono, ME

Participants

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Brief Summary

The 2012 meeting of the NE-1038 Multi-State Project Technical Committee was held at the Wells Conference Center at the University of Maine, Orono, Maine on June 17, 2012. Following introductions, project leader Mark Stolt (RI) opened the meeting at 10 AM by providing an overview of the projects three major objectives and how the work to date has supported the project.

NE-1038 members discussed the status of current pedology positions in the Northeast. Peter Veneman (MA) retired this year. Judy Turk, former student of Bob Graham, has taken a position at Stockton State College in NJ. We will approach her about joining our project. Geoffrey Davies and Elham Ghabbour in the Department of Chemistry and Chemical Biology at Northeastern University expressed an interest in joining the project and contributing their soil organic carbon fractionation expertise. Mark will contact them after the meeting.

Outreach Activities

Mark Stolt provided an overview of the past year's outreach activities. These included:

1. Mark and Marty published last year's outreach activity focused on improving estimates of soil organic carbon for hydric soil identification. Rabenhorst, M.C., and M.H. Stolt. 2012. Field Estimations of Soil Organic Carbon. Soil Science Society of America Journal.
2. Graduate Student Pedology Field Tour (2013)
3. Committee members interacted with the following groups and exhibited project-related field work.
    a. 2012 New England Hydric Soils Committee Meetings focused on mesic spodic indicator and developing and indicator to replace TF-2.

b. 2012 Northeast Cooperative Soil Survey Meeting: Tuesday morning, all members from the NE1038 meeting will update the USDA-NRCS on their respective research.
c. 2012 Mid-Atlantic Hydric Soils Committee winter meeting. Jan. 11 day-long field tour in Cumberland, MD: Business meeting the 10th.
d. Pennsylvania Association of Professional Soil Scientists Shale-Gas field tour in Waterville, PA July 18th.
e. 2012 Mid-Atlantic Hydric Soils Committee summer meeting. June 26th day-long field tour in Cumberland, MD: Business meeting the 27th.
f. Fracking and soils/wetlands related information transfer: 2012 Northeastern Area Association of State Foresters (NAASF)/Forest Resource Planning Committee's (FRPC) annual meeting; Penn State Goddard Forum on "Oil and Gas Development Impacts on Forested Ecosystems; Pennsylvania Department of Conservation and Natural Resources Gas Winter Meeting.

Research Activities

Three themed sessions were held focused on the multistate project participants' related research.

I--Hydric Soil Indicators for Problem Soils and Systems

1. Presence/absence of the Piedmont flood plain hydric soils indicator in the S. Piedmont Valley & Ridge Provinces (John Galbraith).
2. Identifying anthropogenic hydric soils to identify sinks using the Topographic Wetness Index (John Galbraith).
3. Red parent material indicator for New England (Mark Stolt).
4. Shallow spodic hydric soils (Bruce Vasilas).
5. Mesic spodic proposed indicator (Mark Stolt).
6. Recognizing hydric soils in Holocene age dunal landscapes (Marty Rabenhorst).
7. Development of a decision support strategy for the PA DCNR Bureau of Forestry to assess potential hydrological change due to shale-gas infrastructure development. This combines potential wet-soil modeling, and field-based hydrologic capture estimation techniques (Patrick Drohan).
8. Identifying hydric soil development due to shale-gas infrastructure (Patrick Drohan).
9. Use of IRIS tubes for monitoring hydrologic capture due to shale gas development (Patrick Drohan).
10. Mesic spodic proposed indicator in northern Pennsylvania (Patrick Drohan).
11. Discussion and next steps
    a. Sandy coastal plain soils of the Mid-Atlantic have similar problems with spodic hydric soils as those in New England. Discussion focused on the thickness of the E and spodic horizons criteria and the usefulness of muck soil surface. Marty and Mark pointed out that their recent NE-1038 paper showed the difficulty in actually correctly identifying muck from mucky mineral, suggesting the usefulness of muck was minimal (also not an indicator in New England). Issues between hydric soil definitions of muck, mucky peat, and peat in the "Hydric Soil Indicators" and those in the "Soil Description Manual" regarding sapric, hemic, and fibric materials.
    b. Plans were to continue to monitor spodic and red-parent material hydric soils and develop indicators.

II--Subaqueous Soils

1. Freshwater subaqueous soils (Mark Stolt). Focus on mapping and classification.
2. Building interps for estuarine SAS (Mark Stolt). Focus on ocean acidification from seasonal oxidation of sulfidic materials at the soil surface and effects on oyster recruitment and larval shell formation.
3. Discussion and next steps
    a. Extensive discussion took place on the classification of freshwater hydric soils (again). Although there was not total agreement, the consensus was to propose subaqueous Inceptisols (Wassepts) for those soils with histic or umbric epipedons or those soils with submerged subsurface diagnostic horizons (i.e. argillic). A subgroup example may be Argillic Subwassepts.
    b. A proposal will be circulated among the committee, and after review and edit moved to NRCS for their consideration.

III--Soil Organic Carbon

1. Determining organic horizon designations for Histosols and other organic soil materials using Na-pyrophosphate (Mark Stolt).
2. Carbon storage and sequestration in Delmarva Bays and Barrier Islands (Marty Rabenhorst).
3. Discussion and next steps
    a. Discussion focused on the application of Na-pyrophosphate vs field identification of organic soil material type based on rubbed fiber content. Additional studies were recommended.

The 2013 NE1038 multistate meeting location was discussed. The plan is to have an 8AM to 2PM NE-1038 meeting at the beginning of the 2013 Graduate Student Pedology Field Tour and continue the discussions during the field portion of the tour. Project members discussed having the 2013 committee meeting prior to the Soil Science Society of America meetings in 2013, but felt a week-long field tour and one day business meeting would be more beneficial for all.

The 2013 National Cooperative Soil Survey meeting will be June 15 through 21 in Annapolis Maryland. The pre-meeting field tour will run on Father's Day June 16th.

The 2013 Graduate Student Pedology Field Tour will not overlap. We are potentially starting the graduate student trip the first week of June. We will have a potential start in Salisbury, MD. The focus (east to west in MD) could be wetlands, marsh soils, paleosol dune complexes, Potomac River terrace soils, and Piedmont soils in the western part of the state.

Meeting adjourned at 4:30 pm.

Minutes prepared by Patrick Drohan and Mark Stolt.