

## **NE1038 Annual Meeting, October 16, 2011**

### **Participants**

- Patrick Drohan (The Pennsylvania State University) patdrohan@psu.edu
- John Galbraith (Virginia Tech) john.galbraith@vt.edu
- Ray Knighton (USDA-NIFA) RKNIGHTON@NIFA.USDA.GOV
- Maxine Levine (USDA-NRCS) maxine.levin@wdc.usda.gov
- Henry Lin (The Pennsylvania State University) henrylin@psu.edu
- Monday Mbila (Alabama A&M University) monday.mbila@aamu.edu
- Marty Rabenhorst (Univ. Maryland) mrabenho@umd.edu
- Mickey Spokas (Univ. Massachusetts)
- Mark Stolt (Univ. Rhode Island) mstolt@uri.edu
- Jim Thompson (West Virginia State University) James.Thompson@mail.wvu.edu
- Bruce Vasilas (Univ. Delaware) bvasilas@udel.edu
- Jon Wraith (Univ. New Hampshire) Jon.Wraith@unh.edu

### **Brief Summary of Minutes of Annual Meeting**

The 2011 meeting of the NE-1038 Multi-State Project Technical Committee was held at the San Antonio Convention Center San Antonio, Texas on October 16, 2011. Following introductions, project leader Mark Stolt (Univ. RI) opened the meeting at 11 AM by providing an overview of the projects three major objectives and how the work to date has supported the project.

### **Outreach Activities**

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

1. The Graduate Student Pedology Field Tour was held in Rhode Island, and 37 people attended, including State Conservationists from RI and CT. Photos from this tour are available on Jim Turenne's WWW site:  
<https://picasaweb.google.com/JimTurenne/2011NortheastPedologyTour?authuser=0&feat=directlink>
2. Mark Stolt and Marty Rabenhorst (Univ. MD) conducted independent assessments of "the Ability of Hydric Soil Practitioners to Estimate Soil Organic Carbon Content" in the Mid-Atlantic and New England regions using members of the regional hydric soil technical committees.

#### Discussion of Soil Carbon field assessment:

- a. Henry Lin suggested sets of standards be created for practice; Bruce Vasilas suggested this be brought to the field.
- b. Henry Lin inquired if the upper expected accuracy was 70%; Mark Stolt and Marty Rabenhorst were not sure without further testing, but noted that Mark's student Matt Richardson was exceedingly competent at the method. This was attributed to practice with samples.

- c. Marty noticed that having knowledge of the soil's bulk density was important for accurate estimation, and suggested that perhaps the use of a field scale could help achieve this accuracy?
- d. Maxine Levine noted that collaborative opportunities exist with the Soil Survey program to use their new VNIR equipment in these activities.

## **Research Activities**

Four themed sessions were held focused on the multistate project participant's related research.

### *I--Remote Sensing of Wetlands and Wetland Conditions*

1. Predicting potentially wet soils in Pennsylvania using LiDAR (Patrick Drohan)
2. Using LiDAR to determine hydroperiod effects on soil properties in Delmarva Bay Wetlands (Marty Rabenhorst)
3. Developing wetness indices using LiDAR and Landsat imagery to detect wet soils and Landsat time-series and Z-score to detect wetland disturbance (John Galbraith)
4. Regional approach to soil organic carbon inventory using legacy data and pedometric techniques (Jim Thompson)
5. Soil hydrology dynamics in the Shale Hills Catchment (Henry Lin)
6. Conclusions and next steps:
  - a. Patrick Drohan was asked by Mark Stolt if he thought of proposing that the fragipan diagnostic horizon be dropped from Soil Taxonomy (fragic properties would remain). Patrick liked this idea, and felt a proposal could be devised to do so. Part of the justification of doing this is the fact that in soils with fragic properties, or fragipans, the hydrologic limitation is met regardless of the classification. Part of the justification for dropping the fragipan diagnostic subsurface horizon is the difficulty/ambiguity in recognizing there is a pan that meets all diagnostic subsurface horizon criteria. Jim Thompson offered research sites from West Virginia to help explore this issue.
  - b. Given the number of LiDAR projects, project members felt there was potential for more collaboration, and potential review papers outside of soil science journals.

### *II--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. Hydric soil indicators for predicting hydroperiod (Bruce Vasilas)
3. Hydroperiod and field indicators of some North Alabama soils (Monday Mbila)
4. Red parent material indicator (Mark Stolt or Marty Rabenhorst)
5. Shallow spodic hydric soils (Bruce Vasilas)
6. Mesic spodic proposed indicator (Mark Stolt)
7. Recognizing hydric soils in Holocene age dunal landscapes (Marty Rabenhorst)
8. Conclusions and next steps
  - a. Discussion took place on potential data sharing between Delaware and Maryland in regards to the shallow spodic hydric soils research.
  - b. Discussion took place on expanded research on the mesic spodic indicator beyond New England. There is a potential for more research in Pennsylvania, Delaware, West Virginia, and Virginia.

- c. Discussion took place on expansion of projects evaluating red parent materials in Pennsylvania and Virginia.

### *III--Subaqueous Soils*

1. Anthropogenic subaqueous soils (Patrick Drohan)
2. Freshwater subaqueous soils (Mark Stolt)
3. Building interps for estuarine SAS (Mark Stolt)
4. Conclusions and next steps
  - a. Extensive discussion took place on the classification of freshwater hydric soils. Patrick Drohan presented several potential classifications for former subaerial Ultisols. There was debate as to whether this was an accurate reflection of genesis, or whether that mattered. Some felt that the classification should represent the pathway of soil formation, and the notion of a subaerial soil now flooded, did not accurately portray the subaqueous pathway in an anthropogenic environment. Others felt this was not a problem. Drohan will put forth a proposal to add the use of "Wass" to other Orders beyond Histosols and Entisols; the recent discovery of Inceptisols in Rhode Island subaqueous environments may also result in the addition of "Wass".
  - b. Patrick Drohan mentioned the expansion of projects in Pennsylvania, and work on E. Coli that might make funding more successful in all subaqueous soil research.

### *IV--Soil Organic Carbon*

1. Carbon across the landscape--Subaqueous, riparian-upland (Mark Stolt)
2. Carbon Pools, Sequestration, and Spatial Distribution in a Forested Catchment (Henry Lin)
3. Prediction of C pools in Natural vs Anthropogenic Landscapes (Patrick Drohan)
4. Sequestration and Stocks of Piedmont Slope Wetlands (Bruce Vasilas)
5. Sequestration and stocks in Vernal Pools (Mickey Spokas)
6. Carbon storage and sequestration in Delmarva Bays and Barrier Islands (Marty Rabenhorst)
7. Conclusions and next steps
  - a. Some discussion took place regarding the changes in carbon pools due to human activity. Ray Knighton noted that the nitrogen analyses with our carbon accounting would be a good addition, and perhaps make funding more likely from NIFA.
  - b. Some discussion took place on the idea that line of research is a good crossover into the ecology field, and could be used as a way to reach out to ecologists to show them what soil science can contribute

### **Comments and suggestions from project administrators** (*Jon Wraith and Ray Knighton*)

1. Substantial discussion took place as to whether a two day or shorter meeting was needed, and whether we could meet in conjunction with another meeting.
  - a. Several in attendance felt the costs of going to multiple meetings were prohibitive, and that working within the timeframe of another meeting was helpful to keep costs down.

- b. Henry Lin inquired as to how many Multistate Project groups met for more than one day; it seems the Physics group is the best example.
  - c. There was debate as to whether graduate students should participate. One potential problem with their participation is added costs.
  - d. The Project Administrators suggested a one day meeting was likely sufficient for our group.
2. Discussion took place on the status of NIFA funding. Our project administrators noted that NIFA funding and staff could face significant cuts in the coming year.
3. Our project administrators suggested we incorporate research focusing on assessing carbon changes across the landscape and reactive nitrogen.
  - a. The addition of reactive nitrogen into our research would be beneficial, and perhaps increase funding success with proposals.
  - b. In addition, research on climate change adaptation and mitigation was popular for funding, and fit our general area of research.
  - c. One potential question for the group is “what are the baseline carbon pools in these systems we are studying?”
  - d. A potential program to focus on is the critical thresholds/foundational program (this may change under new leadership at NIFA).

The next meeting site and time period was not determined. One suggestion was prior to the Northeast Regional Soil Survey Conference in Maine. Maxine Levine offered us a space for the meeting if we chose to use that venue.

Meeting adjourned at 4:30 pm.

Minutes prepared by Patrick Drohan, Pennsylvania State University.