

NTCHS 2017 Annual Meeting

Members Present:

Present: Lenore Vasilas, Richard Griffin, Aaron Miller, Jennifer Wollenweber, Tony Jenkins, Annie Rossi, Ron McCormick, Mike Walsinski, Jacob Berkowitz

Telecon: Paul Rodrigue, Karen Vaughn, Steve Monteith, Colby Moorberg, Dave D'Amor, Ralph Spagnolo, Mike Vepraskas, Wade Hurt

Tuesday September 5, 2017

- Introductions
- 2016 Minutes
 - Steve: Still have wells in sites from last year, IRIS tubes will come out this fall. Put tubes in transect from upland to wetland.
 - Karen: Angie and Karen planned field visit to sample but had to cancel, planning to get out this fall to describe adjacent uplands in more detail.
 - Still working on a potential indicator for these high pH, dark soils
 - Jacob: published study on use of alpha-alpha dipyridyl paper in SSSAJ
 - Steve: KSSL can run CCPI if special requests are made. Annie would like to run some samples soon on a small subset of NWCA sites that have the potential to be derived from red parent material.
 - Progress on the climate component for snowmelt addition to tech standard needs to be opened up to multi-state conversations.
 - Tony motions to accept minutes, all in favor.
 - Meeting minutes are accepted.
- NRCS updates
 - Lenore:
 - a number of typos in 8.1 Indicators. Also changed format for the way changes are made. Still keeping errata sheet but formatting was changed to be similar to hardcopy so changes can be printed, cut and pasted into hardcopy document. Changes will also be made to the electronic copy so that it is up-to-date and the version number will be changed. Current version of electronic copy is 8.1.
 - For hard-copies of Indicators, make request to the NRCS publication warehouse.
 - National list of Hydric Soils is via real-time download tool on the NTCHS website.
 - NWCA project and data will come from Annie later.
 - Steve:
 - still working on NWCA 2015 processing, about 78% done. Analyzing the intensification sites. 91 of those. Still working on supplying IRIRS tubes to field. Fiber analysis techniques still in process for organic soils.
 - Tony:

- New England has version 4 of their indicators, may have flow chart. Suggests we should look at their indicators for NE, with caution, and Tony is not completely comfortable that their indicators are fully data driven. Lots of harmonizing efforts on components that are hydric.
- Jennifer:
 - SDJR by MLRA basis, in MN, wetland teams do not perform offsite wetland delineations. If the soil mapped is not on their hydric list, it causes some legal issues. The problem lies mostly in trying to do conservation planning from a workstation, not by field visit.
- Aaron:
 - UT is trying to use the Red Parent Materials indicators, didn't get it together for this year, will hopefully present next year.
- Ralph EPA-:
 - Region 4 water tables dropping during summer months, causing growing season definition issues for southern states. Role of soils in stream restoration: in the southeast states, which kinds of projects could be done in a watershed to reduce sediments and nutrient loads. BMP panel thinking about soils more, committees building systems in streams using mulch and sand at intervals to raise water level and induce anaerobic conditions to reduce N. Not clear how well these structures work, they can blow out or not function as well. What are the role of soils in water quality improvement projects specifically in stream restoration? Mike suggests literature on riparian buffers, there should be plenty of data on Nitrate removal. Ralph suggests that NTCHS provides some type of resource central for informing the public about technical tools that help in the restoration process. Is this something we can provide? In regulatory world, wetland delineation is less of a concern, riparian restoration is increasingly the majority.
- Ralph:
 - talked about National Wetland Targeting tool which uses the hydric soils layer as a data component being released. Available in some states: [Watershed Resources Registry.com](http://WatershedResourcesRegistry.com).
- Mike:
 - asks what future of EPA will look like in next 3 years? Not much rollback in wetlands regulatory, lots of support for new tools like that presented above.
- Annie:
 - NWCA- over 2000 sites now sampled between 2011 and 2016. How are we going to use the soil data? Total P and heavy metals as indicators of stressors. Soils data can be used to indicate what stressors might exist outside of the buffer area. Looking at N/P ratios, Carbon storage, and other data based on disturbance criteria. Lots of data to be looked into for analysis. Tony asked whether, based on the results, we might be missing an indicator to identify hydric soils? There might be room for some investigate this in the future. Might be an exercise worthy of

effort. Soils data should be available to public by end of year. Special issue with Eco-Monitoring journal will focus on this dataset, some other papers to be published in near future.

- Jacob: USACE-
 - Problematic soils report-Northern CA claiming dark soils lacking redox. Many of these met A12, teams weren't digging deep enough. Other locations met other indicators. Need for more training for the staff.
 - Norfolk FA-claiming that Umbric surfaces as only indicator occurring on flats. All sites met another indicator, no problem seen.
 - Nashville TN-Cedar glades, limestone ridge, shallow soils don't meet indicators. Indeed do not meet hydric indicators. Need to apply tech standard to research, chapter 5 of regional supplement, and we will see what comes from that when completed.
 - AA-Dipiridyl paper strips- published some results from tests on using the strips.
 - Automated data sheets-awaiting public release, any day now.
 - Hydric soil tech standard-updated and reformatted in 2015. Posted to NTCHS website as ERDC/EL TN-15-X. Proposed we finalize publishing it by NTCHS with a clear citation. SSSAJ expressed interest in publishing as an "invited review", we need funding (~\$900) to publish as open access citable document. Lenore will look into some funding.
 - Problematic hydric soils derived from red parent materials- problem is that we have indicator but we don't know where all red parent material exists. CCPI should be used, but requires laboratory procedure, limited application due to missing data. Occlusion of Fe, AL-for-Fe substitution in lattice, larger crystal size: 3 hypotheses for low CCPI. National query for RPM samples to verify national coverage of geologies. Results of this correlated with SSURGO and geology maps to produce draft map of potential CCPI F21-capable locations. Comments came back from various entities across nation. Linked soil series to CCPI geologies and came up with second national draft and created 4 regions of RPM maps. Much confusion by public on how to apply this indicator properly, we might need to look at how this indicator is written, and the user notes, to see if there is a better way to help them use it. Probably need to educate the public where CCPI data is available, and how to access it.
- Ron:
 - BLM-Soils and ESD updates near Fairbanks. Seasonal ice everywhere. Solufluction a major problem in areas where permafrost is melting. Thixotropic video.
- Field Trip Overview
 - Jen: Field Trip overview- glaciated geology for almost entire state. We will be looking at Wisconsin-aged sediments. Exposed sediments <20ka in soils. Composition and colors tell about the types of sediments, Superior lobe contains reddish sediments we will look at tomorrow. Annual rainfall in areas we will see tomorrow range from 28 to 35".

- Mike:
 - complex young landscape, red parent material is in Lake Duluth area, clays 60 – 80%, 7.5YR to 5YR, CCPI of 32 in one sample; St. Luis sublobe probably CCPI pushing 31 to 32; Superior Lobe had CCPI in 20s. 1st site tomorrow is coarse-loame dense till, perches water, TF2 met criteria high up on slope. F21 brought line closer to real boundary. Stop 2 in outwash, red sands below surface. Stop 3 in clay plain site, glacial Lake Duluth, really haeavy lacustrine/till, some few pebbles, very red, very problematic, farmed 40ya, Alfisols sith some feint E horizons, site will barely, if ever, show F21, no other indicators. Some shallow wells for hydrology were installed in places with no indicators.
- Larissa Hindman: ESDs in MN-
 - “Till upland mesic hardwood forest” Sugar Maples-Yellow Birch/Mtn Maple. Upland till, red parent materials, deeper, with densic layers.
 - Bedrock Controlled Upland Hardwoods Forests- bedrock red soils, many shallow.
 - Depressional wet hardwood forests- Black Ash-Northern White Cedar/Speckled Alder, same as coarse-loamy dense but in depressions, swales.
 - Invasive earthworm species now affect all these sites. Incomplete SSURGO data in USFS. Emerald Ash borer will decimate the ash in near future.
- Thursday 9/7/2017 8:00am
 - Field Trip recap (see photos for each stop at end of document)
 - First stop—site had red parent materials, but some slope alluvium or other material on top was showing redox morphology and met F3 or other indicators. 50cm thick or so materials overlying red materials that were 7.5YR and high CCPI.
 - Second site-sandy site, red sands, met S5 where wet, where upland, o indicators met. F21 not needed here.
 - Third site was in old lacustrine materials with red colors. Here we needed to apply F21 in middle of wetland to make depletion requirement. Upland soils did not meet indicator. Boundary of wetland also met F21. We suggested that the local party collect some data to support the use of F21 in this region, perhaps install some IRIS tubes to go along with their well data. These sites are high clay and seasonally pond.
 - Notes and comments
 - F21 is a complicated indicator to apply, especially for non-soil scientists. We highly recommend training to field crews that will need to work in the areas where F21 is to be used.
 - Wade commented that he observed the need for F21 in this area.
 - Tony commented that there is value in the scatterplot data that Jacob presented Tuesday showing the correlation of hue redness

to CCPI, and he suggests that we should consider applying this to how we use F21 in the future.

- Jacob wants us to keep working in development of F21 guidance, perhaps in the tech notes, that clarifies how we should be using the indicator.
- Richard noted that all the red parent materials had a deeper red to purplish red hue and not a yellowish red, so focusing on hues is valuable.
- Jacob will draft some language to start a wider discussion on “unlocking” F21 nationwide for use in areas that meet the minimum requirements for:
 - Parent Materials (CCPI)
 - Redox depletion minimum
 - Hue requirements
- University updates
 - Richard-discussion of pasture systems with sodium or other salts, ways to improve production of plants based on catena hydrology.
 - Mike V.- rainfall assessment; determination of “Normal Rainfall”. Points out discrepancy in methodology in how we assess normal rainfall ranges. Suggests using the WETS approach gives us a more reasonable range for assessing normal water table conditions.
 - Wade-discussion of stripped matrix, in spodic materials. Soil temperatures; observed soils transitioning from thermic during 1970s to now hyperthermic in contemporary climate. This hyperthermic line is migrating north. Richard also has seen hyperthermic line moved north, I-10 being a good general line.
 - Karen-Problematic hydromorphic soils; calcareous soils in eastern Wyoming, and Mollisols in N. California (serpentinic).
 - Very wet soils, calcareous, in Wyoming that have no indicators usable for hydric ID. 70% or more CaCO₃, SiL to SiCL, 10YR7/1. Mesocosm study revealed a lack of Fe in system to help in morphology development. More work forthcoming.
 - Serpentinic magnesian soils had no redox morphology, in sloped slumps wetlands. Blueish-gray and black colors, very dark soils, 2% OC, high clay. When clods are moved to air, the colors change probably due to reduced matrix (mutable colors). Looking to reinvigorate the study, in terms of spatial extent, and development of an indicator to help with these sites.
 - Future work to investigate indicators for soils with monosulfide concentrations. Possible mutable colors indicator could be very useful.
 - Dave- USFS: Wants to follow up with Mike and Jacob on WETS study using some AK data. Will continue outreach for input on ways to fill research voids in AK hydric soils studies. Soil Science federal interagency group, promotes integration and cooperation in studies. 2012 planning

- rule has specific language for monitoring requirements to observe change on hydric soils. Increasing interest in riparian zones descriptions, functions. Definition is uplands that influence riparian zones, opportunities to include wetlands adjacent. National Forests assessment looking for vulnerabilities, has section for wetlands, ongoing effort with publication outlets opportunities. More technical updates in next meeting.
 - Colby-Thermokarst bogs in Fairbanks, methane study. How much O₂ diffusing to rhizosphere using planar Oxygen optodes. Significantly more methane production in wet years vs. drier years, warming soils and infusing Oxygen into soil, rainier climate projected for future....
- Updates to the hydric soils list
 - How we access the hydric soils list has been changes, now uses query to access latest and greatest list, and can be narrowed by search criteria. Spits out spreadsheet format, with realtime information.
 - Can be converted to spreadsheet easily.
 - To get national list, select “United States” under “state” list
 - This will be official list in eFOTG
- Changes to Indicators
 - Typos corrected
 - Errata is maintained in format that is hardcopy insertion-ready.
 - We are currently on version 8.1, Version changes will reflect any updates.
 - Some changes proposed for indicators
 - For A11 and A12, should be <15cm can be chroma >2.
 - Other random but obvious typos.
 - Recognize that histic epipedon doesn’t match taxonomy.
 - Some careful edits needed on the mucky/organic verbage throughout.
 - Aaron motions the changes should be accepted. All in favor.
 - Version 8.2 will be available soon.
- Next year’s meeting
 - Wyoming-problematic sites based on Karen’s work.
 - Utah red parent materials could be incorporated into the same meeting
 - Aaron will work with Karen and Meredith to plan next year’s meeting logistics.
 - Jacob proposes we meet next year in UT/WY, all in favor
- 10:55am--Meeting comes to close, adjourned to next year.

Field Trip Photos

Stop 1-Canosia Wildlife Area



Photo 1 Wet bog at base of slope.



Photo 2 Soils with red materials. However, depleted matrix not a problem here.



Stop 2 Cloquet Forestry Center



Photo 3 Here we also had red soils but were able to meet indicators.

Stop 3 Bergland Wildlife Area



Photo 4 Old Lake Plain, clayey lacustrine sediments.



Photo 5 Red parent materials with low CCPI, these soils only meet indicator F21