

**2012 Southern Regional
Cooperative Soil Survey
Conference
May 21-25, 2012
Bowling Green, Kentucky**

**“Soil Survey for the
Future – Continuing the
Mission”**

PROGRAM TOPICS

- Soil Data Join
Recorrelation – Rationale
and Methods
- Tri-State (Kentucky,
Illinois, Indiana) Soils
Systems Study
- Ecological Site Inventory
and Development
- Soil Health and Quality
Initiative
- Digital Soil Mapping –
Research and Application
- Future Mission of Soil
Survey



MAJOR TOPICS

- [Re-Structuring for the Next Generation of Soil Surveys](#)
- [Soil Data Join Recorrelation \(Harmonization\) – Methods, Rationale, and Examples](#)
- [Soil Quality and Ecosystems Branch: New Endeavors for Soil Survey](#)
- [Digital Soil Mapping – Past, Present, Future](#)
- [Rapid Assessment of U.S. Soil Carbon for Climate Change and Conservation Planning](#)
- [Subaqueous Soil Mapping and Interpretation Development](#)
- Soil Quality Initiative
- Impacts of Commodity Crop Prices on USDA National Food Security Act Wetland Policies
- [The Shawnee Hills Project and Soil Systems Research](#)
- [Overview of Soils Program in the Southern Region](#)
- [Portable X-Ray Florescence Spectrometry Applications in Soil Science](#)
- [Cloud Based Soil Survey Land Use Visualization Web 2.0 Spatial Database](#)

Taxonomy Committee

A proposal to clarify the mineral soil surface.

Asks to refer to the “mineral soil surface” as “the first mineral horizon”

Recommendation is to not change the statement as requested.

Proposed amendment to soil depth classes of Soil Taxonomy and root restricting depth in Taxonomy and the Soil Survey Manual

The more comprehensive Anthropogenic & Human altered & transported materials proposals may fix this. Probably need to roll this Proposal into that one, if it isn't already entirely addressed there.

A set of proposals to expand the definition of the abrupt textural change and add mention of its presence as a standalone criterion in certain taxa of the Aridisols, Mollisols, and Alfisols orders of Soil Taxonomy

No concerns with proposal

Proposal for adding anhydrite soils to USDA soil taxonomy

Neither this Committee nor the National Leader can see any reason why the proposal should not be approved at this time.

A proposal to add a new subgroup of Petrocalcic Calciudolls to Soil Taxonomy and includes references to literature documenting the new soils

Not sure if these soils would still classify as Calciudolls if new taxa for human transported materials are established, but for the time being it appears to be a legitimate and consistent addition of a new subgroup of Petrocalcic Calciudolls.

A set of proposals to improve the classification of Udolls in Argentina

Needs more consideration & discussion; possibly by a committee that has more time to look into all the areas potentially impacted and is knowledgeable of soils with these properties.

Review and test The ICOMANTH proposal on anthropogenic soil classification and changes to Soil Taxonomy as it applies to the South region.

Would need more review & checking to assure that any inconsistencies or unintended consequences have been eliminated.

Additional suggested changes to Soil Taxonomy:

Changes to Chapter 3: Horizons and Characteristics Diagnostic for the Higher Categories – Melanic Epipedon

Melanic epipedon color requirements

Looks like a needed change. Recommend approval

Standards Issues

Soil Survey Manual (how to best maintain, update, add chapters, and proposals to utilize cooperators to co-author and review)

Recommendations:

- 1) This regional committee is prepared to act as a bridge with cooperators to identify needed changes in NSSH, Field Guide for Describing and Sampling soils, and Soil Survey Manual.
- 2) Need more information from NSSC regarding information transfer site options (ie. Opening share point to Cooperators). Appropriate links for Cooperators would be useful under the Partnership website location.
- 3) Another option would be under the Soil Taxonomy website location. Appropriate links for Cooperators would be useful

Subaqueous Soils Committee

Research needs identified include carbon studies on the coastal plain and subaqueous soil systems (critical for sequestration and carbon cycle balance), shoreline restoration and management validations (climate change adaptation strategies).

Recommendations:

This issue should be elevated to the National level and the National Committees either a task force or in conference committees.

Also the SAS issue should be passed along to the Federal Land Advisory Group (FLAG). The National Hydric Soil Technical Committee should be aware via review and collaboration with the SAS efforts.

Research Priorities Committee

Charge 1:

Recommend research that is regionally important.

Recommendations

1. Continue funding multiple projects.
2. Increase funding levels per project; currently four at \$40,000 per project
3. Mix of regional and global priority areas that are fundable versus areas that address NCSS needs.

Charge 2:

Recommend research that would assist in addressing short-term soil survey mission needs; what are the current gaps in knowledge?

Recommendations

1. . Soil Data Join Recorrelation (SDJR)
 - a. Table until 2013 National NCSS Conference to allow for the process to define areas that need further study.
2. Benchmark soils
 - a. Continue to emphasize benchmark soils data cleanup; can be accomplished by undergraduate student projects and/or student summer NRCS interns.
 - b. Redefine / re-evaluate the importance of benchmark soils; not just what they but why they are important (ecologically, geographically, etc).

Research Priorities Committee

Charge 3:

Recommend research that would contribute to Ecological Site Inventory and Dynamic Soil Property Initiatives.

Recommendations

1. Research in to what are the threshold transitions from one state to another.
 - a. Spatial/temporal variability of dynamic soil properties;
 - b. Variability predictability, e.g., sample more with soil properties that have higher variability.
2. Research needed into developing new methods for estimating infiltration

Charge 4:

Recommend research that would assist in addressing urban/suburban soil properties.

Recommendations

1. In suburban areas with various housing/industrial densities, research is needed to understand runoff and compaction; best placement/design of rain gardens
2. Research is needed on soil quality at the suburban – rural interface, e.g., for rural areas adjacent factories/refineries, e.g. effect on soil properties (heavy metals) in community gardens.

Research Priorities Committee

Charge 5:

Identify global research areas that would benefit from pedological research and inclusion of soil survey concepts and data.

Recommendations

1. Pedologists have a unique skill set in soil landscapes; as such, soil science/survey needs to be involved in global research areas.
 - a. Encourage NRCS to communicate global research issues and opportunities to Cooperators. For example, Global Soil Map, International Soil Partnership, US Study Center (Sydney), Soil Security Initiative.
 - b. Soil scientists have expertise in nutrient dynamics and need to participate in regional and global discussions and research in this arena.

Additional Recommendation

1. Most of our research priorities need input from other committees.
2. Solution is to schedule joint committee meetings during the committee meeting sessions.

New Technologies Committee

Visible NIR - Status portable NIR Units that the NRCS has already invested in
Recommendations

1. Great Potential but needs more research
2. Could be used to predict carbon content and other soil properties

X-ray fluorescence - Description This technology can assess a wide range of elements (e.g., Ca, K, Ph, Fe) fairly accurately but not perfectly. Reliability is directly related to atomic size.

Recommendations

1. Develop NRCS Protocol in laboratory and field number of replicate measures required for a given area of measurement

LiDAR - Universal agreement that LiDAR is critical..

Recommendations

1. Sharing Facilitate sharing between local, state, regional, national private and governmental organizations (e.g., website clearinghouse with data or links to data). NRCS could lead on this nationally. This could pay for itself by reducing replication of effort.

Mobile Data Devices - Ability for NRCS to add information.

New Technologies Committee

Gamma ray measured passively in flight - Potentially Useful Potential useful for aiding the mapping of soil texture, depth to carbonates, and parent materials based on reports from Christine Morgan.

Recommendations

Work with researchers to evaluate the utility of this technology on US soils with suite of sensors (e.g., LiDAR, EMI, resistivity).

GPR (Ground Penetrating Radar) - The NRCS currently owns several systems and has staff with expertise.

Modeling Approaches - Indices integrate multiple spatial datasets at different spatial and temporal resolutions

Gridded SSURGO data - Currently the NRCS has released 10-m grids and can link to interpretations much faster than vector data only modest roughness at polygon borders (10 m is not a bad choice)

General Recommendation -

Soil Business leadership needs to give recommendations on computer field equipment to be compatible with future CDSI and field operations.

Soil and Ecosystem Dynamics Committee

Item 1:

Review the current list of benchmark soils and identify recommended additions/changes to the list with regards to prioritizing the development of ecological site descriptions (ESDs).

Recommendations

The Committee recommends that ESDs developed on current benchmark soils should be designated as such.

Item 2:

The Committee will explore the adaptation of the ecological sites (ESs) for use on croplands and discuss how dynamic soil properties can be effectively integrated into all ESs.

Recommendations

The Committee acknowledges that most highly productive cropland will stay in cropland and that the current ESD model may not be the most useful for landowners/conservation planners.

Soil and Ecosystem Dynamics Committee

Item 3:

Create criteria for a minimum dataset for dynamic soil properties and ecological sites. The current USDA-NRCS Soil Change Guide utilized four criteria including relationship to soils function and practicality. The Committee will discuss these criteria and how best to select dynamic soils properties useful for conservation planning or ES differentiation.

Recommendations

This is being addressed at the WO level and draft lists have been developed. These lists will be sent to Committee members for further discussion.

Item 4:

How can the carbon data from the RaCA project best be used?

Recommendations

Potentially useful for dynamic soil properties but has limited to no use with regards to the development of ESDs.

Soil Interpretations Committee

Item 1:

Local (state) Interpretations

Recommendations

1. Requesting that the NSSC develop step-by-step instructions (procedures) for local interpretations
2. National leadership coordinate roles responsibilities between State Soil Scientists (they have responsibility for interpretations) and the MLRA soil survey offices (they have the expertise)
3. Since it is critical that the NCSS cooperators be involved in planning and implementation, national leadership should emphasize the role of the cooperators.

Item 2:

Mica Issue

Recommendations

1. The National Soil Survey Center will be asked to coordinate development of interpretations
2. This should be coordinated with the research committee to ensure that any field research is addressed

Soil Interpretations Committee

Item 3:

Demand for Fertility and Water Quality Related Issues

Recommendations

1. Aluminum saturation and ECEC are a major issue in the south region. Aluminum is not routinely populated, but should be.
2. The Total Acidity calculations need to be run in NASIS.
3. Since it is critical that the NCSS cooperators be involved in planning and implementation, national leadership should emphasize the role of the cooperators.

Item 4:

Urban Interpretations

Recommendations

1. Continue this conversation at the NE NCSS conference (Roy Vick is participating)

Soil Interpretations Committee

Other Recommendations

1. Develop interpretations for off-road vehicles – ATVs and 4X4s
2. Incorporate dynamic soil properties into interpretations
3. Incorporate ecological data into interpretations
4. Real interpretations to be utilized in subaqueous soils
5. Allow for rapid response to natural and biological disasters in creating or modifying interpretations to address cleanup. Examples are Katrina, the Gulf Coast oil spill, and Animal carcass disposal that is disease-specific (pH)
6. The NRCS should publish Interpretation criteria guides for distribution and use by all the NCSS

Cooperators Meeting

Item 1:

Cooperators are greatly disturbed with the way the last reorganization (s)? were handled by the NCSS leadership and the lack of opportunity for input or feedback

Recommendations

Recommendation to establish an official cooperators committee to serve continuously as an advisory council to the cooperative soil survey program and coordinate planning priorities and directions with other cooperators. We envision this committee to consist of two members from each region elected during the regional NCSS Conferences to serve on a 3-year term.

Cooperators Meeting

Item 2:

Some states in our region and possibly others do not have active participation in soil survey activities either by not having an officially designated representative to the CSS program or by not enjoying a productive relationship between cooperators.

Recommendations

- Increase efforts to improve active participation and involvement of more cooperator representatives in CSS activities including participation in regional and national CSS Conferences.
- MO leaders taking initiatives in cultivating better relationships between state soil scientists and cooperators.
- Communicate to the cooperator representatives that their active involvement should be continuous and not just for the annual conferences.
- Explore options to include more cooperator participants in the NCSS program and not only the officially designated representatives, particularly addressing new technology research initiatives.

Cooperators Meeting

Item 3:

Emphasize the importance of sustaining the funding provided by the National Soil Survey Center for projects of regional interest addressing soil-landscape relationships at different scales and their impact on improving soil use and management interpretations.

Recommendations

Encourage the Soil Survey Center to expand these funding initiatives for projects of national significance similar to the establishment of a comprehensive national soil data base (benchmark soils, others)

Item 4:

Emphasize the importance of maintaining continuous funding support through MOU's to the cooperators' soil characterization Laboratories contributing analytical services in support of the cooperative soil survey program on a MLRA basis.

Cooperators Meeting

Item 5:

Increase efforts to improve communication channels (increasing web site accessibility?) between NRCS and cooperators on new developments, changes, on-going issues relevant to the CSS program etc. (Soil Taxonomy revisions, soil interpretation changes, new technology initiatives, soil survey priorities). .

Recommendations

Encourage cooperators to have more active participation by providing direct comments and suggestions on issues under consideration and keep them informed of their status

Next South Regional Soil Survey
Conference

June 23rd through 27th

Nashville. Tennessee