

South Regional NCSS Conference

Research Priorities Committee

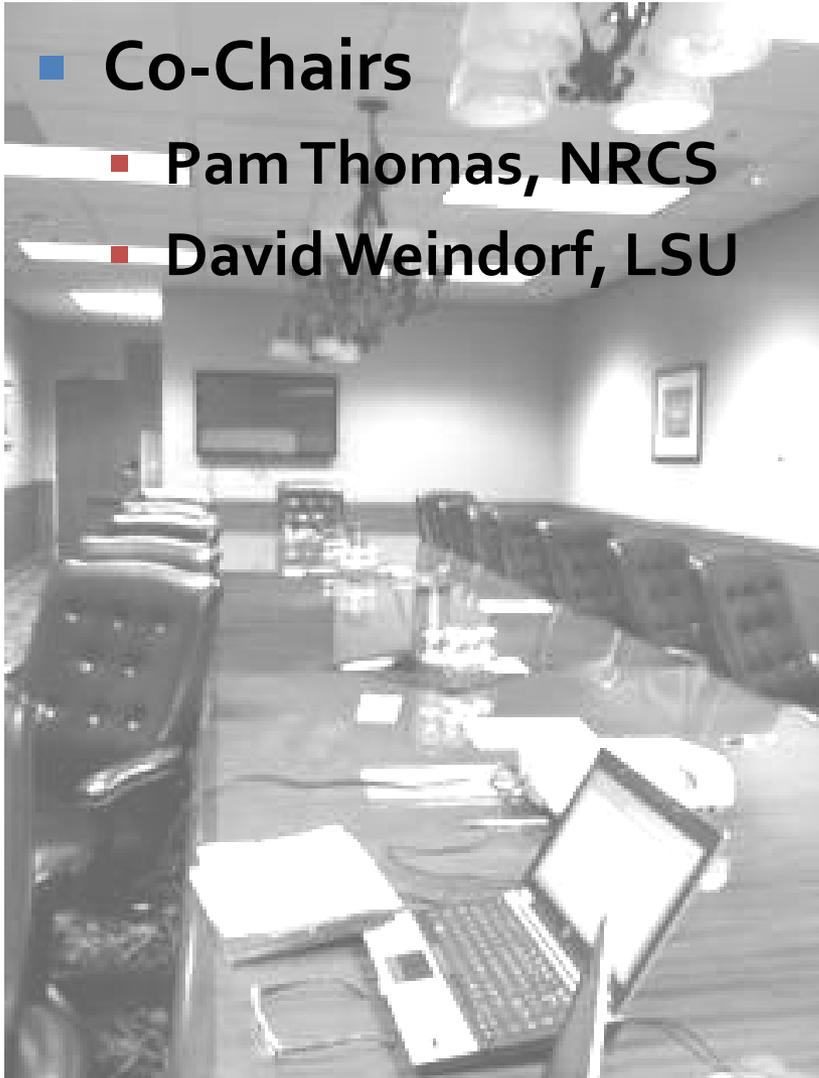
Bowling Green, KY

May 21-25, 2012

Team

■ Co-Chairs

- Pam Thomas, NRCS
- David Weindorf, LSU



■ Participants

- Tasos Karathanasis, UK
- Christine Morgan, TAMU
- Larry West, NRCS
- Luis Hernandez, NRCS
- Charlie Ogg, NRCS
- Dan Wing, NRCS
- Maxine Levin, NRCS
- Matt McCauley, NRCS
- Tanja Williamson, USGS
- Soil Ecosystems committee



Charges

1. Recommend research that is regionally important.
2. Recommend research that would assist in addressing short-term soil survey mission needs; what are the current gaps in knowledge?
3. Recommend research that would contribute to Ecological Site Inventory and Dynamic Soil Property Initiatives.
4. Recommend research that would assist in addressing urban and suburban soil properties.
5. Identify global research areas that would benefit from pedological research and inclusion of soil survey concepts and data.

1. Recommend research that is regionally important.

- **Shawnee Hills loess soils project (IL, KY, IN)**
 - Assess factors controlling soil development and spatial variability.
 - Develop model of soil distribution on landscapes.
 - Evaluate water movement through the landscape.
 - Determine variables that serve as markers of soil type, pedogenesis, and water movement.
 - Determine factors influencing formation and location of fragipans on landscapes.
 - Establish baseline elemental soil profile signatures and compare elemental signatures by geomorphic component.
 - Study the influence of landscape position on the accumulation or loss of soil carbon.

1. Recommend research that is regionally important.

- **Plinthic project (southeast U.S.)**
 - Using electric resistance tomography to study water tables
- **Mica**
 - Need data on compaction, erositivity, interpretations
- **Gypsum**
 - TX, OK – getting data on the middle ground
- **Groundwater Spodosols**
 - water movement/dynamics

1. Recommend research that is regionally important.

■ Elevate our Cooperators

- Cooperators can use NRCS \$\$ as seed money gather data
- With data Cooperators can compete for funding from non-traditional sources

1. Recommend research that is regionally important.

- Focus on projects that cross-cut across disciplines
 - Wastewater treatment (graywater)
 - Urban-suburban soils
 - ^a Udothents-Urban land map units do not provide information as to soil properties or interpretations
 - Food security and nutrition
 - ^a Soil health

Charge 1. Recommendation

Recommend research that is regionally important.

Continue funding multiple projects

Increase funding levels per project; currently 4
for \$40,000

Mix of regional and global priority areas that are fundable vs areas that address NCSS needs

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

■ **Soil Data Join Recorrelation (SDJR)**

- Table until 2013 National NCSS Conference to allow for the process to define areas that need further study

■ **Benchmark soils**

- Good concept, inconsistent application
- Continue to emphasize benchmark soils data cleanup – student projects, student interns
- Redefine / reevaluate the importance of benchmark soils; not just what they are but why they are (ecologically, geographically)

Charge 2. Recommendation

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

- **Minimum datasets**
 - Need for eastern forests
 - PLSS veg surveys from 1800's
- **What are the threshold transitions from one state to another?**
- **Spatial-temporal variability in Dynamic Soil Properties and Ecological Sites**
- **Need new methods for estimating infiltration**
- **Soil disturbance**
 - How fast will the soil recover – rates of change

Charge 3. Recommendation

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

Threshold transitions from one state to another

Spatial/temporal variability of dynamic soil properties
variability predictability, e.g., sample more with higher
variable properties

New methods for estimating infiltration

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

- **Predicting compaction**

- Relate to runoff

- **Stormwater design**

- How and where to evaluate the soil (A vs B vs C horizons, etc)
- Dispersal of clay

- **Low-impact development**

- Objective is to maintain hydrology; soils generally are not considered

4. Recommend research that would assist in addressing urban soil properties

- **Very fine sands and silts**
 - Distinctions between vfs and silt
 - Wind erosion; compaction; infiltration
- **Urban development**
 - Effects on surface and drinking water quality, quantity, and distribution
- **Loss of prime farmlands soils**
 - Occurring at an ever accelerating pace
 - Important but not a research topic
- **Wastewater treatment and dispersal**
 - Elevated to regional/global research issues

Charge 4. Recommendation

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

It's important.

Downtown urban areas – leave alone

Suburban areas with various densities; runoff, compaction,
rain gardens

Soil quality at the suburban – rural interface
e.g., for rural areas adjacent factories/refineries, what is the
effect on soil properties (community gardens – heavy metals)

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

- **Soil science/survey needs to be at the table**
 - **Nutrient Dynamics in Soil**
 - Pedologists have a unique skill set
- **Encourage NRCS to communicate global research issues and opportunities to Cooperators**
 - Global Soil Map, Global Soil Partnership (FAO), US Study Center (Sydney), Soil Security Initiative

Charge 5. Recommendation

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

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Additional Recommendation

- Joint committee meetings
- Most of our research priorities need input from other committees

