NSSC Update

Larry T. West
National Leader – Soil Survey Research and Laboratory

Structure and Personnel Changes

- Structure
  - National Geospatial Development Center changed to Geospatial Research Unit of NSSC
  - Function unchanged
- NSSC Director
  - Bob Ahrens retired Dec. 2008
  - Jon Hempel (Aug. 2009)

National Leaders

- Interpretations
  - Karl Hipple retired Jan. 2010
  - Maxine Levine acting
  - Position advertised soon
- Standards
  - Craig Ditzler retired May 2010
    - Project leader for soil survey of Dubai, UAE
  - Marc Crouch acting
  - Position advertised soon
- World Soil Resources
  - Hari Eswaran, Washington
- Technical Soil Services
  - Chris Smith, Washington
- Research and Laboratory
  - I am still here
- Soil Business
  - New position
    - supervision of GRU, databases, GIS, remote sensing, digital soil mapping
  - Jon Hempel acting
  - Advertised and closed

NSSC Personnel

- 26 soil scientists
  - Conservationists, editors, computer specialists
- New since 2008
  - Joe Chiaretti – Standards
  - Doug Dotson – Laboratory
  - Sue Southard (NPS liaison; Davis, CA) – Interpretations
  - George Teachman – Interpretations
  - Shawn McVey – Standards
  - Skye Wills – Research (statistics)
- Retired
  - Tom Reedy
  - Arlene Tugel
  - Dave Lightle
  - Alan Price

Interpretations

- Web Soil Survey enhancements
- NASIS 6.0 – released in Spring
- Calculated K and T
  - Consistent, science-based interpretations
  - Major changes in some states
  - Evaluation underway
  - Proposed implementation, Jan. 2011
- Subaqueous Soil Interpretations – initial interpretations design/criteria
- NCCPI – irrigated systems
  - Environmental susceptibility

Interpretations

- National committee for urban interpretations – George Teachman
- Web-based guide to make and test new interpretations
- Dynamic Soil Properties
  - Working toward production phase
- WSS marketing
  - American Society of Landscape Architects
  - American Society of Biological and Agricultural Engineers
    - Continuing education session
  - Other non-traditional groups

Standards

- 11th edition of Keys to Soil Taxonomy recently published Maintenance of Soil Survey Standards
- Field Book for Describing Soils in revison
  - New edition expected in 2011
- National Soil Survey Handbook
  - Several parts being revised
    - Soil Investigations
- Discussions of revision of Soil Survey Manual
- Discussions of revision of Soil Taxonomy
- Universal Classification System (world wide use)

Training

- 11+ courses
- Remote Sensing Applications for Soil Survey.
- Digital soil survey
  - To be offered by Purdue (principles) and Dartmouth (Arc SIE)
  - Expected to be available for university students and NCSS people Spring, 2011
- 4 NCSS courses will be via the internet (instructor led) in 2011
  - Digital Soil Survey Data Editing
  - Digital Soil Survey Data Management
  - Management of Soil Survey by MLRA
  - Application of Soil Data Viewer and ArcGIS for Technical Soil Services
- Developing large sets of OJT modules to assist field staffs and to provide consistency in across the NCSS

Training

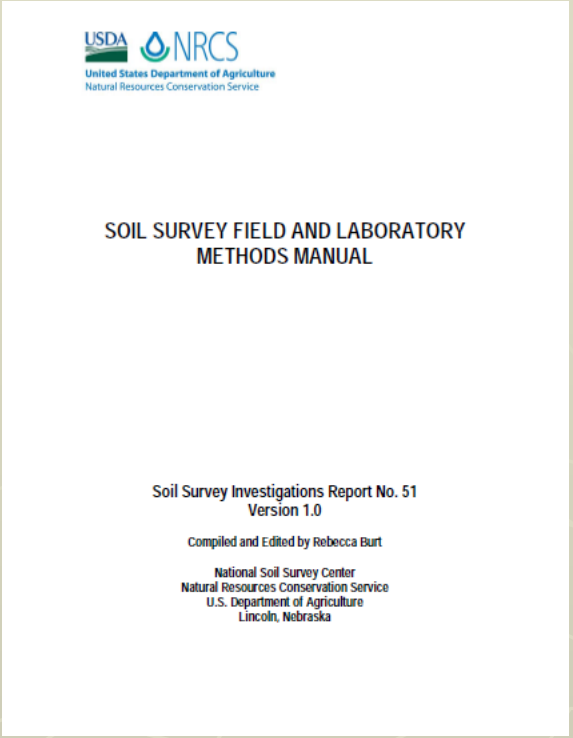
- Soil Geomorphology Institute – currently in session at UC-Davis
  - Principles of soil geomorphology, pedology, hydrology, and stratigraphy to better understand the landscape for map unit design and landscape modeling
  - 3 week intensive session w/ 6-7 days in field
  - Rotating locations
- Soil Scientist Institute
  - Alternant years with SGI
  - Scheduled for 2011 at Kansas State University

Soil Survey Laboratory

- 5 soil scientists
  - Reinsch – Asst. NL Research and Laboratory
  - Tuttle – geophysical
  - Harms – SCAN and SNOTEL
  - Pullman – sample and analysis scheduling
  - Dotson – laboratory database
- 1 Chemist - Ferguson
- 18 technical staff
- 2 clerical
- 6 STEP students
- Supervisory soil scientist position advertised

New Areas of Support

- SSO laboratories
  - Equipment for basic analysis
    - Immediate data needs
    - Pre-screening of sites for complete analysis
  - Methods manual
  - Safety manuals
- IRIS tubes
  - Used to evaluate seasonal soil saturation
  - Hydric soils and wetlands
  - Interpretations


USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

SOIL SURVEY FIELD AND LABORATORY METHODS MANUAL

Soil Survey Investigations Report No. 51
Version 1.0

Compiled and Edited by Rebecca Burt

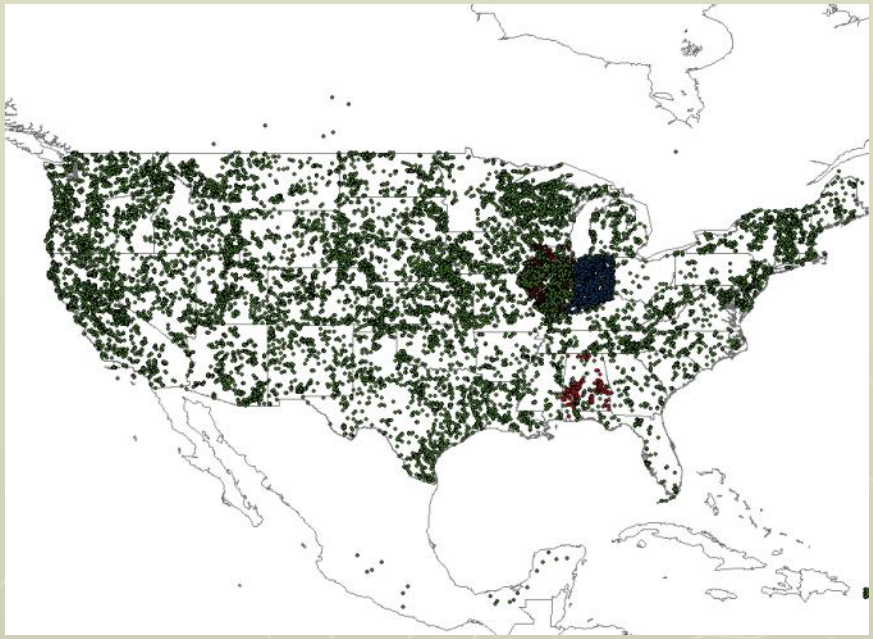
National Soil Survey Center
Natural Resources Conservation Service
U.S. Department of Agriculture
Lincoln, Nebraska

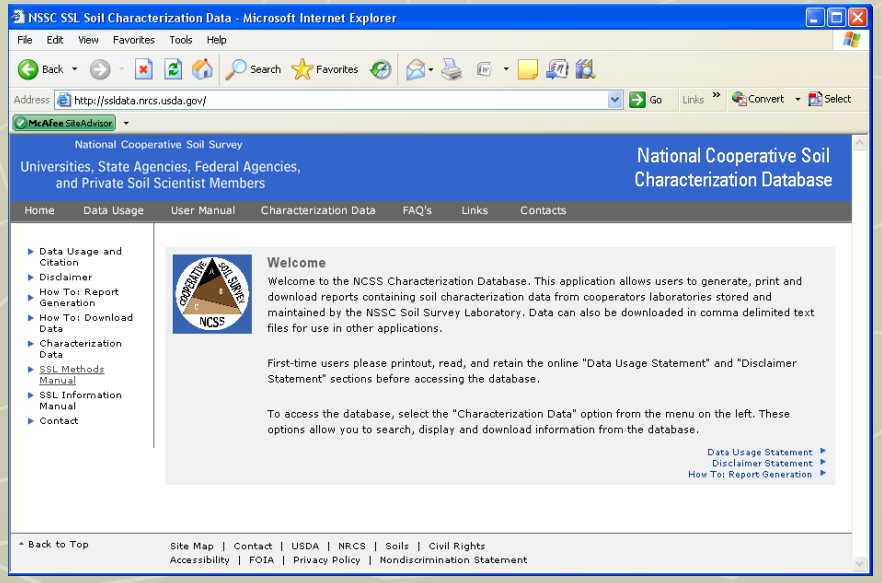
Soil Quality Analyses

- Particulate organic matter (POM)
  - Rapid turnover pool in Century model (COMET-VR)
- Active carbon
  - Indicator of carbon aggregation or degradation
  - Kit for field office use
    - Demonstration
    - Rapid results
- β – Glucosidase (BG)
  - Fungal enzyme
  - Early indicator of soil degradation and recovery

NCSS Database

- ~200 visits/day to data web site
- SSL ~ 30,000 pedons
- Data from 26 universities will be incorporated
- Will double size of database





Research Staff

- Research Soil Scientists
  - Jim Doolittle (PA) – GPR and EMI
  - Mike Wilson – soil chemistry (trace metals)
  - Rebecca Burt – soil chemistry
  - Phil Schoeneberger – soil geomorphology; soil hydrology
  - Doug Wysocki – soil geomorphology
  - Ellis Benham – soil mineralogy
  - Moustafa Elrashidi – nutrient dynamics and management
  - Cindy Stiles – DSP, hydric soils
  - Skye Wills – statistics

Research Activities

- Electromagnetic induction (EMI)
  - Salinity in Great Plains
- Ground penetrating radar (GPR)
- Chemistry/Geochemistry
  - Trace element data for urban areas
  - Bioavailability of trace elements in NYC and CO soils
  - Selenium in western states
  - Nutrient and trace element runoff and leaching
- Sampling approaches
  - Latin hypercube
- Soil quality
  - Soil change with conversion from CRP
  - Carbon assessment
  - Active carbon in landscape
  - Dynamic soil properties

Cooperator Research Projects

- SSD funded
- MLRA SSOs/Research staff/Laboratory involved
- 2009 Projects
  - Soil Survey Investigations of Freshwater Subaqueous Soils; U of RI
  - Soil-Landscape Investigations of MLRA 115B/120 Loess and Loess Veneer Benchmark Catenas; Purdue
  - Modeling Spodosol Distribution in Northern Idaho Landscapes (MLRA 43A); U of ID
  - Hydropedology of a Benchmark Catena in the Carolina Slate Belt; NC State
  - Vesicular horizon function in the arid western United States; hydropedology and recovery from disturbance; UC-Riverside
- Plan to fund at least 4 projects in 2010
  - RFP out
  - July 1 deadline

Liaison Activities

- Research Soil Scientists + Reinsch
- Support for MO and SSO projects
  - Design, implementation, analysis, publication
- Examples
  - IL, IN, KY study of Benchmark soils on loessial landscapes
  - Beaver Creek, WY watershed – remotely sensed data as mapping and sampling aid
  - Panther Creek watershed, OR – soil geomorphic relationships; ecosystem services

Questions?

Comments?