Soil Survey Interpreting the Inventory in a Digital World

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National Cooperative Soil Survey Conference
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Interpreting the Inventory in a Digital World

- Soil Survey Division National Leadership
  - Paul Benedict – National Soil Program Manager
  - Jon Hempel – Director National Soil Survey Center
  - Chris Smith – National Leader Technical Soil Services
  - Maxine Levin – National Liaison NCSS
  - Carolyn Olson – National Leader Climate Change
  - Thomas Reinsch – National Leader World Soil Resources
  - Larry West – National Leader Soil Research and Laboratory
  - Michael Robotham – National Leader Soil Interpretations
  - Cameron Loerch – National Leader Soil Standards
  - Susan Andrews – National Leader Soil Ecology
  - Dave Hoover – National Leader Soil Business Systems

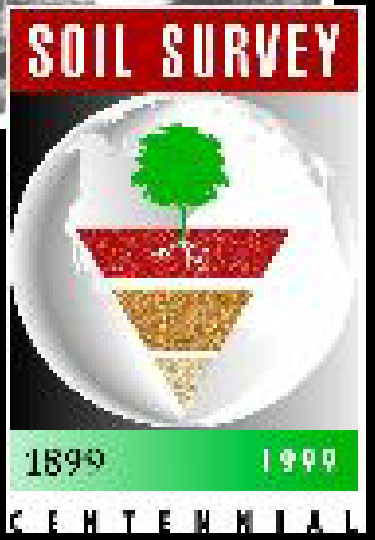
A Century + of Soil Survey

The United States Congress Has Directed The

Secretary Of Agriculture To:

- Inventory Soils of USA
- Keep the Inventory Current
- Provide Interpretations & Understanding to Users
- Provide Access & Promote Use of Soil Information

1899 - 2012



National Cooperative Soil Survey

Cornell University
New York State Agricultural Experiment Station

OHIO DEPARTMENT of NATURAL RESOURCES

Interpreting the Inventory in a Digital World

Soil Survey Division

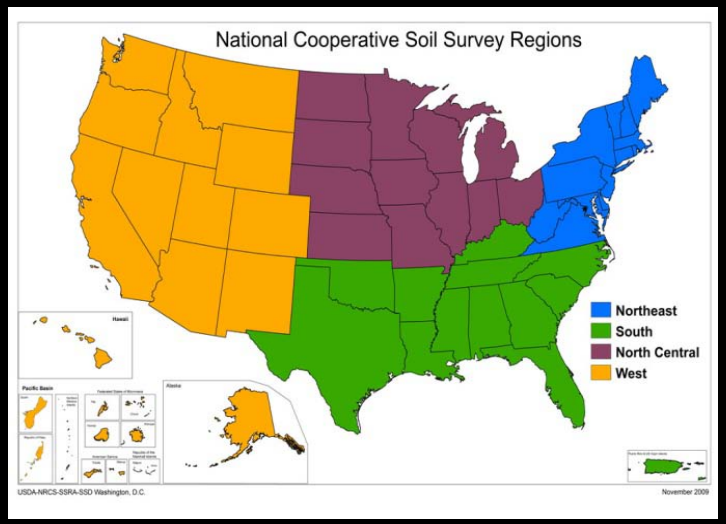
Program Plan

“2012-2017”

Give us your feedback

Interpreting the Inventory in a Digital World

NCSS Standing Committees - Chair & Co-Chairs



- Research
  - Larry West & Nancy Cavallaro
- Standards
  - Cameron Loerch
- New Technology
  - Dave Hoover & Phillip Owens
- Interpretations
  - Mike Robotham, Chris Smith & Bob Dobos
- Soil Change/Ecology
  - Susan Andrews

Interpreting the Inventory in a Digital World

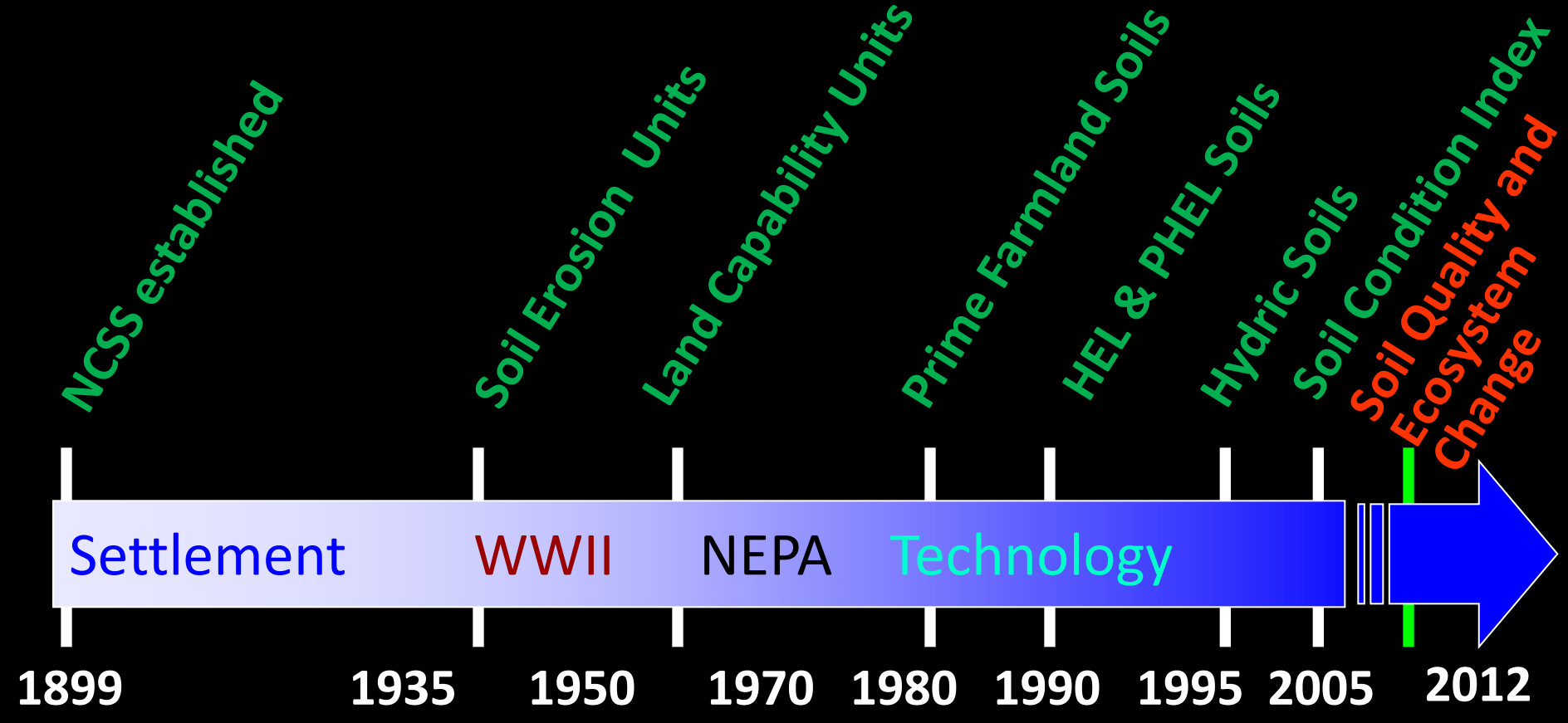
Guy Smith (1982) credited Milton Whitney with statement:

"We need a Soil Survey in order to be able to transfer experience, from research to the use of soils, from the fields or areas where we have experience to other Soils where it is applicable."

1/ NCSS Centennial Highlights SWCS, July 1998

Interpreting the Inventory in a Digital World

110+ Years of Meeting Customer Needs



Interpreting the Inventory in a Digital World - Standards

- Vasili Dokuchaev is largely credited with developing the factors of soil formation in the late 1800's.
- Hilgard, Coffey and Marbut brought early concepts in soil classification and mapping developed from the Dokuchaev School and Glinka to the United States.

- 1/ NCSS Centennial Highlights SWCS, July 1998

Interpreting the Inventory in a Digital World - Standards

- The need for Universal Soil Standards
  - IUSS Soil Classification - Chair Jon Galbraith
  - IUSS Working Group:
    Universal Soil Classification System & Standards
    Chair Jon Hempel
    - Members from each continent including:
      Africa, Russia, China, Brazil, Hungary, Australia, Germany, Korea, Italy, Netherlands, and United States
    - NCSS members: Curtis Monger, Jon Galbraith, Jon Hempel and Micheal Golden

Interpreting the Inventory in a Digital World - Standards

- **Cameron Loerch**
  National Leader Standards
  - NCSS ADHOC Working Group

    "Field Guide for Classifying Soils"
  - Chair Mickey Ransom
  - Members: Toby O'Geen, Joey Shaw, Curtis Monger, Mark Stolt, Paul McDaniel, David Weindorf, Janice Boettinger, Phillip Owens, John Galbraith, Joe Chiaretti

Interpreting the Inventory in a Digital World - Program Management

- Paul Benedict

  National Soil Program Manager

1. Program Fund Allocation to States

2. Management of MLRA Soil Survey Offices
   Stabilize the work force for field soil mapping, maintenance and enhancement
3. Response to Congressional Inquiries
   Report progress to Congress

Interpreting the Inventory in a Digital World - World Resources

- Thomas Reinsch
  National Leader World Soil Resources

"Revitalize Soil Management Support Services"

- Haiti Soil Survey – USAID Proposal
- Mexico Soil Training – USAID & FAS Funded
- Collaboration & Cooperation - Spain and India
- Iraq Technical Exchange – Includes NSSC Staff
- Latin America Soil Atlas – Cooperation with EU-JRC

Interpreting the Inventory in a Digital World - Soil Ecology

- Susan Andrews
  National Leader Soil Ecology
  "Environmental Issues and Sustainability"
  - Soil Quality
  - Soil Ecology Site Inventory
  - State & Transition Models
  - Dynamic Soil properties
  - Rapid Carbon Assessment – (Data Use)
  - Climate Change – (Carbon sinks)
  - Implementation of Farm Bill

Interpreting the Inventory in a Digital World - Soil Ecology

- Susan Andrews
  National Leader Soil Ecology
  "Environmental Issues and Sustainability"
- Soil Ecology Team - Forester, Ecologist, Biologist, Range Cons, Agronomist, and Soil Scientist
- Soil Change, DSP's & ESD's - new aspects to Soils
- Technical Standards for ESD's Underway
- Research related to climate change & ESD's needed
- Interpretations of Soil Function, Ecosystem Function and their relationships to Management are Needed

Interpreting the Inventory in a Digital World - Soil Business

- Dave Hoover

  National Leader Soil Business Systems

  "Technology Development"
  - Web Soil Survey
    - Content Manager
    - Author text, Historic reports, photos, etc;
  - Soil Resource Information Tool Box (SRITB)
    - Digital Mapping Tools
    - Pedon PC & Analysis Tools

Interpreting the Inventory in a Digital World - Soil Business

- Dave Hoover

  National Leader Soil Business Systems

  "Technology Development"
  - NASIS 6.x
    - Site/Point Integration
    - Dynamic Soil Property data
    - Ksat water monitored data
    - NCSS Lab Data & SSO Lab Data
    - Ecological site data
  - National Soil Geographic Database

Interpreting the Inventory in a Digital World - Interpretations

- Michael Robotham

  National Leader Soil Interpretations

  "Interpretations For Many Uses"

- Deepwater Incident
- Radioactivity Release
- Soil Ecology Interps
- Homeland Security

Interpreting the Inventory in a Digital World - NCSS Liaison

- Maxine Levin

  National Liaison to NCSS

  "Coordination and Planning"
- NCSS Regional and National Meetings
- NCSS Advisory Group Teleconferences
- Soil Scientist Leadership Workshops

Interpreting the Inventory in a Digital World - Soil Services

- Chris Smith

  National Leader Technical Soil Services

  "Coordination with ALL Disciplines"

  - Support State Soil Scientist
  - Support Resource Soil Scientists
  - Utilize National Technical Center Soil Scientists for Technology Transfer
  - Coordination with Programs and Science & Technology

Interpreting the Inventory in a Digital World - Research

- Larry West
  National Leader Research and Laboratory
  "NCSS Partnerships"
  - State & Local Lab Data entered into LIMS
    - Focus on Benchmark and Major Soils to Fill Data Gaps
  - Over 30 CESU Agreements with NCSS Partners
  - Rapid Carbon Assessment (Shared with Chris Smith)
    - Sampling to be complete by September 2011
    - Three Watersheds picked to Demonstrate how data can be used (Potential use in next Farm Bill)

Interpreting the Inventory in a Digital World - Research

- Larry West
  National Leader Research and Laboratory
  "Funding for NCSS Partnerships"
  - Univ. of Arkansas (Fayetteville and Pine Bluff)
  - Auburn University
  - University of California (Davis and Riverside)
  - Colorado State University
  - Dartmouth College
  - University of Florida
  - University of Georgia
  - University of Hawaii
  - Idaho State University
  - Utah State University

Interpreting the Inventory in a Digital World - Research

- Larry West
  National Leader Research and Laboratory
  "Funding for NCSS Partnerships"
  - University of Iowa
  - Kansas State University
  - University of Kentucky
  - Louisiana State University
  - University of Massachusetts
  - University of Missouri
  - University of Nebraska
  - University of Nevada
  - North Carolina State University

Interpreting the Inventory in a Digital World - Research

- Larry West
  National Research and Laboratory
  "Funding for NCSS Partnerships"
  - Oregon State University
  - Pennsylvania State University
  - University of Puerto Rico
  - Purdue University
  - University of Rhode Island
  - University of Tennessee
  - Tennessee Tech University
  - Texas A&M University
  - Tuskegee University
  - West Virginia University

Interpreting the Inventory in a Digital World

- Federal Lands Advisory Group
  - Plans to Inventory All Lands in US
  - Utilize TEUI Geospatial Toolkit (Mapping and Analysis)
  - Improve Connectivity of NASIS-ESIS-NRIS data
  - Consider NCSS QA for ***Ecological Site Correlation***

Interpreting the Inventory in a Digital World

- MLRA Soil Survey
  - Phase 1 - Harmonize the NCSS soil database
    - Timeline – *Now to 3 years*
      - MLRA Project Plans focus on "Data Map Units"
      - Selected Soil Properties: data voids, gaps and overshoots
      - Look at all map units within MLRA Soil Survey Area
      - Address county, state, national "data" miss-joins
  - Phase 2 – Spatial Enhancement
    - Timeline – 3 to 15 years
      - Geospatially use models utilizing LiDAR and Hyper-spectral imagery to align slopes with soil map units
      - Address spatial errors and better alignment of soil lines on landscape

Interpreting the Inventory in a Digital World

- Future Direction and Opportunities
  - Global Soil Partnership for Food Security, Climate Change Adaptation and Mitigation (FAO)
    - Elevates importance of Soils with Air and Water for Sustainability
    - International Scale – Soil Carbon
    - International Scale - Harmonization of Soil Data
    - International Scale – Standards (Universal Soil Classification System, Lab Methods, Horizonation)

Interpreting the Inventory in a Digital World

Thank you

for

your

Attention