United States Department of Agriculture

NRCS Natural Resources Conservation Service

USDA

THE SOIL SCIENCE DIVISION

The Soil Survey Program was established by the Agriculture Appropriation Act of 1896 and is guided by executive orders and Secretary's memoranda. Subsequent legislation (1903, 1928, and 1935) clarified the purpose. In 1966, Congress expanded the scope and further clarified the intent of the Soil Survey Program in Public Law 89-560, the Soil Survey for Resource Planning and Development Act. The Division has been renamed the Soil Science Division.

Taken together, the statutory authorities direct the Secretary of Agriculture to:

1) Make an inventory of the soil resources of the United States;
2) Keep the inventory current to meet contemporary needs;
3) Interpret the information and make it available in a useful form; and
4) Provide technical assistance and promote the use of soil survey for a wide range of community planning and resource development issues related to both non-farm and farm uses.

The Program is a cooperative effort conducted by Natural Resources Conservation Service (NRCS) and other Federal agencies in collaboration with states and other entities. This consortium, the National Cooperative Soil Survey (NCSS) is governed by regional and national bylaws. Leadership for the Federal part of the NCSS is delegated to the Chief of the Natural Resources Conservation Service by the Under Secretary for Natural Resources and Environment (7 CFR 2.61). Together, the NCSS partners have created a foundational database for more than 94 percent of the Nation's soils. This figure includes a generalized soil survey of most of Alaska which does not meet NCSS standards. Removing these acres from the foundational database decreases the total to 85 percent.

FUTURE PROGRAM GOALS

The next phase of NCSS activities includes:

- insuring that data for soil map units is consistent across geopolitical boundaries, that soils important to Farm Bill programs occupying small areas within map units are depicted on soil maps;
- additional data collection on selected key soil properties to assure science-based information is provided;
- augmenting to the database to address emerging regional and national issues including:
  - soil quality,
  - nutrient management,
  - drought mitigation,
  - coastal hydrocarbon contamination, and other emerging environmental issues.

Program Priorities and Highlights

Rapid Carbon Assessment (RaCA) - Quantification, evaluation, and inventory of the Nation's soil carbon stocks through analysis of soil samples from locations across the conterminous U.S. Products will allow soil carbon management to be better integrated into conservation planning.

Dynamic Soil Properties (DSP) and Soil Quality - Evaluation and inventory of changes in soil properties that have occurred as a result of human management and natural disturbance. These can have a direct impact on a land manager's ability to meet productivity, economic and environmental goals.

Ecological Site Descriptions (ESD) - An accelerated effort to collect and evaluate ecological site information across the Nation's landscapes that began in late 2009 with a decision memo signed by Chief White. ESDs provide essential information to assist conservationists in recommending conservation practices for land areas with specific vegetative and physical characteristics, and to plan for and mitigate changes from human or natural disturbance.

Digital Soil Mapping (DSM) - Remote Sensing information (satellite imagery, lidar, IFSAR, multi/hyperspectoral imagery) along with digital environmental information(climate, geology, relief, elevation, aspect) and advanced geostatistical techniques have provided new avenues for developing soil survey information. DSM offers direct estimates of soil properties at increased resolutions that are crucial for land management and environmental decisions.

New User Interfaces - NCSS continues to work with university cooperators to remain on the cutting edge of soil information. Interactive platforms such as Web Soil Survey, smart phone apps, Google Earth, and Integrating Spatial Educational Experiences (Isee) are easy to use and provide instantaneous information in convenient formats for soil survey customers.

Soil Phosphorus Loading Potential Project - This new project characterizes the capacity of different soils to retain phosphorus. Outcomes will greatly aid the targeting of nutrient and sediment runoff conservation practice implementation.

International Activities - SSD places an emphasis on Department and agency international initiatives. SSD is providing leadership and training for soil survey to the Haiti Ministry Of Agriculture, Natural Resources And Rural Development to strengthen agriculture in support of USDA's recovery efforts in Haiti. SSD is also involved in work on the development of universal soil classification standards and cooperative science activities with Canada, Hungary, Iraq, Mexico, and Spain.

Charles E. Kellogg Soil Survey Laboratory - The Kellogg Soil Survey Laboratory is a world-class facility to analyze properties of soils sampled from across the Nation and world. The lab provides soil data, as needed, for routine and special initiative activities of the SSD and its cooperators.

Soil Survey Research - The SSD houses the only research scientists in NRCS. This staff leads investigations of soil properties, distribution, and behavior intended to enhance quality and efficiency of SSD programs. The SSD works closely with universities for targeted research that reaches beyond the capacity of the limited research staff.

Legislated Responsibilities - Legislative authority for the Soil Survey Program is noted above. The SSD also serves as the agency lead for the legislated responsibility for the Farmland Protection Policy Act and creation and maintenance of the official highly erodible land (HEL) and hydric soils lists. Each is used in many conservation programs and soil interpretations.