



**FOREST SERVICE MANUAL
NATIONAL HEADQUARTERS (WO)
WASHINGTON, DC**

FSM 2500 – WATERSHED AND AIR MANAGEMENT

CHAPTER 2550 – SOIL MANAGEMENT

Amendment No.: 2500-2009-1

Effective Date: February 12, 2009

Duration: This amendment is effective until superseded or removed.

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Date Approved: 02/11/2009

Posting Instructions: Amendments are numbered consecutively by title and calendar year. Post by document; remove the entire document and replace it with this amendment. Retain this transmittal as the first page(s) of this document. The last amendment to this title was 2500-2007-1 to 2540.

New Document	2550	9 Pages
Superseded Document(s) by Issuance Number and Effective Date	2550 (Amendment 2500-90-2, 7/16/90)	13 Pages

Digest:

2550 - This is a complete update and revision of the current direction.

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2550.1 - Authority

The authorities governing Forest Service soil management are:

1. The Organic Administration Act of 1897 (16 U.S.C. 473-475). Authorizes the Secretary of Agriculture to establish regulations to govern the occupancy and use of National Forests and "...to improve and protect the forest within the boundaries, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States."
2. Bankhead-Jones Act of 1937. The Secretary is authorized and directed to develop a program of land conservation and land utilization, in order thereby to correct maladjustments in land use, and thus assist in controlling soil erosion (reforestation), preserving natural resources, (protecting fish and wildlife, developing and protecting recreational facilities), mitigating floods, (preventing impairment of dams and reservoirs, developing energy resources), conserving surface and subsurface moisture, protecting the watersheds of navigable streams, and protecting the public lands, health, safety, and welfare.
3. The Multiple-Use, Sustained-Yield Act of 1960 (P.L. 86-517, 74 Stat. 215; 16 U.S.C. 528-531). States that the National Forests are to be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes. This Act directs the Secretary to manage these resources in the combination that will best meet the needs of the American people; providing for periodic adjustments in use to conform to changing needs and conditions; and harmonious and coordinated management of the resources without impairment of the productivity of the land. Sustained yield means achieving and maintaining into perpetuity a high-level annual or regular periodic output of renewable resources without impairment of the productivity of the land.
4. The National Environmental Policy Act (NEPA) of 1969 (16 U.S.C. 4321). Declares it is the policy of the Federal Government to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans. The Act requires agencies to analyze the physical, social, and economic effects associated with proposed plans and decisions, to consider alternatives to the action proposed, and to document the results of the analysis.
5. The Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 (16 U.S.C. 1600-1614) (as amended by National Forest Management Act (NFMA) of 1976 (16 U.S.C. 472a). States that the development and administration of the renewable resources of the National Forest System are to be in full accord with the concepts for multiple use and sustained yield of products and services as set forth in the Multiple-Use Sustained Yield Act of 1960. The Act requires the maintenance of productivity of the

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land and the protection and, where appropriate, improvement of the quality of the soil and water resources. The Act specifies that substantial and permanent impairment of productivity must be avoided and has far-reaching implications for watershed management in the National Forest System. This Act as amended contains the following sections and provisions pertinent to maintaining a sound soil management program:

- a. Section 3 paragraph 6b. This section directs the Secretary of Agriculture to make, and keep current, a comprehensive survey and analysis of conditions of, and requirements for, forest and rangelands of the United States, including a determination of the present and potential productivity of the land.
- b. Section 5. This section directs the Secretary of Agriculture to develop and maintain on a continuing basis, a comprehensive and appropriately detailed inventory of all National Forest System lands and renewable resources.
- c. Section 6 paragraph k. This section directs the Secretary of Agriculture to identify lands within the management area which are not suited for timber production.

2550.2 - Objective

Maintain or improve soil quality on National Forest System lands to sustain ecological processes and function so that desired ecosystem services are provided in perpetuity.

2550.3 - Policy

Responsible soil stewardship promotes and sustains biological and hydrologic function on National Forest System lands. Soils are essential for storing carbon and water. Soil inventories, soil quality assessments, monitoring and evaluation are required program elements for soil conservation and protection. This directive establishes the management framework for sustaining soil quality and hydrologic function while providing goods and services outlined in forest and grassland land management plans.

1. Manage forest and rangeland ecosystems to maintain or improve soil quality.
2. Collect and manage information about the properties, distribution, capabilities, condition, suitabilities, and limitations of soils associated with national Forest system lands in accordance with Agencywide inventory and data management policies.
3. Participate in watershed condition and assessment approaches and plans and incorporate evaluation of soil chemical, physical, and biological qualities in addition to other watershed functions when assessing watershed health.

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4. Utilize soils information to assess condition and analyze project effects when planning and implementing activities to ensure sustainable delivery of goods and services without impairing the productivity of the land.
5. Monitor and evaluate soil resources at regular intervals to detect changes in soil properties resulting from the implementation of land management plans.
6. Participate as an active partner in the National Cooperative Soil Survey (NCSS) program.

2550.4 - Responsibility

2550.41 - Chief

The Chief shall:

1. Ensure that soils on National Forest System lands are conserved and protected in order to maintain healthy watersheds that provide critical ecological services.
2. Ensure that soil surveys and terrestrial ecological unit inventories (TEUI) meet established corporate standards and provide information for administering National Forest System lands and sustaining the production of goods and services for the American public.
3. Ensure continued Forest Service participation in the NCSS and coordinate soil inventory activities and data sharing with all partners.

2550.42 - Deputy Chiefs

The Deputy Chiefs shall ensure Agency soil management strategy is integrated across deputy areas.

2550.43 - Washington Office Director, Watershed, Fish, Wildlife, Air and Rare Plants

The Director of Watershed, Fish, Wildlife, Air and Rare Plants shall:

1. Develop and implement an Agencywide soil inventory and soil management program strategy, ensuring that the program meets current agency land management needs.
2. Coordinate soil inventory and soil quality management programs with other Washington Office staffs and with and among the regions.

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3. Develop and maintain national soil inventory, TEUI, and soil management direction.
4. Establish, maintain, and evaluate a core set of soil criteria and indicators to evaluate the status and trend of soil resources on National Forest System lands and guide the conservation and protection of those resources.
5. Coordinate validation studies of soil quality criteria and indicators with Forest Service Research and Development to ensure soil quality measurements are appropriate to protect soil productivity.
6. Ensure soil surveys and TEUI comply with established standards and address the business needs of the Agency.

2550.44 - Regional Foresters

Regional foresters shall:

1. Provide strategic direction for all regional soil inventories, soil quality and soil management program activities.
2. Coordinate regional soil inventory and soil management programs.
3. Conduct periodic reviews of soil surveys and TEUI to ensure they comply with established standards and address the business needs of Forest Service users.
4. Plan, execute, and publish soil surveys and TEUI as part of the NCSS.
5. Ensure that training in the use of soil assessments, analysis, and monitoring protocols is available and provided to appropriate staff.
6. Coordinate effectiveness monitoring programs at a regional scale.

2550.45 - Forest and Grassland Supervisors

Forest and grassland supervisors shall:

1. Develop and implement a soil management program that maintains or improves soil productivity and watershed health on their administrative unit.
2. Conduct soil surveys or TEUI at an appropriate level to ensure the accomplishment of soil management objectives.
3. Develop, implement, and evaluate soil quality monitoring plans.

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4. Enter resource data into appropriate corporate databases.
5. Use adaptive management processes to assure compliance with soil quality standards.
6. Ensure that training in the use of soil surveys and TEUI, assessments, analysis and monitoring protocols is available and provided to appropriate staff.

2550.5 - Definitions

Desired Soil Condition. Soil physical, chemical, and biological properties that support the productive capacity of the land, its ecological processes, that is, hydrological function of watersheds, and the ecosystem services identified in land management plans.

Dynamic soil quality. That aspect of soil quality relating to soil properties that changes as a result of soil use and management or over the human time scale.

Ecological Type. A category of land with a distinctive (that is, mappable), combination of landscape elements. The elements making up an ecological type are climate, geology, geomorphology, soils, and the potential natural vegetation. Ecological types differ from each other in their ability to produce vegetation and respond to management actions and natural disturbances.

Inherent soil quality. That aspect of soil quality relating to a soil's natural composition and properties as influenced by the factors and processes of soil formation, in the absence of human impacts.

Permanent Soil Impairment. Detrimental changes in soil properties (physical, chemical, or biological) that result in the loss of the inherent ecological capacity or hydrologic function of the soil resource that lasts beyond a silvicultural rotation or land management planning period.

Substantial Soil Impairment. Detrimental changes in soil properties (physical, chemical, or biological) that result in the loss of the inherent ecological capacity or hydrologic function of the soil resource that lasts beyond the scope, scale, or duration of the project causing the change.

Soil Productivity. The inherent capacity of the soil resource to support appropriate site-specific biological resource management objectives, which includes the growth of specified plants, plant communities, or a sequence of plant communities to support multiple land uses.

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Soil Quality. The capacity of a specific kind of soil to function, within natural or managed ecosystem boundaries, to sustain plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation and ecosystem health. There are two aspects of the definition: inherent soil quality and dynamic soil quality.

2551 - Soil Quality Management

2551.02 - Objective

Maintain or improve soil quality on National Forest System lands.

2551.03 - Policy

1. Use adaptive management (FSM 1905) to design and implement land management activities in a manner that achieves desired soil conditions identified in the applicable land management plan.
2. Monitor resource management activities and soil conditions to ensure that soil and water conservation practices are implemented and effective.
3. Assess the current condition of soil resources.

2551.1 - Assessments

Soil assessments are conducted when knowledge of current soil quality conditions is required to advise decisionmakers whether adjustments in land management practices are needed.

2551.2 - Monitoring

Monitoring is conducted to detect changes in physical, chemical, or biological soil properties caused by management activities. Monitoring should follow established Agency protocols and include any soil management components found in land management plans. Specific items to monitor include:

1. Determine whether or not the components were implemented as prescribed.
2. Determine the effectiveness of the components.
3. Identify and prescribe corrective measures needed to the components.
4. Validate assumptions and coefficients used in developing the components. Make modifications as needed.

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2552 - Soil and Terrestrial Ecological Resource Inventories

2552.02 - Objectives

1. Maintain an accurate understanding of soil resources on National Forest System lands.
2. Ensure that any compiled or derived soil survey or terrestrial ecological unit inventory (TEUI) data, maps and interpretations, including that from other National Cooperative Soil Survey (NCSS) participants meets the Forest Service business needs.

2552.03 - Policy

1. Conduct TEUI according to procedures in the USDA Forest Service TEUI Technical Guide.
2. Conduct soil surveys at the land unit scale (1:24,000 or less) according to the NCSS standards outlined in the USDA National Soil Survey Handbook.
3. Enter soil survey and TEUI information into Agency corporate database(s).
4. Ensure that data are collected and preserved in electronic format in the appropriate Agency database(s) for new project-specific or site-level soil surveys and TEUI, special studies, and other non-standard or non-progressive soil inventories.