
Preface

This book reviews the properties, behavior, distribution, genesis, and management of soils across the USA. It highlights the diversity of soils and the importance of soils to ecosystem services and productivity, agriculture, forestry, and urban infrastructure. Soils are a critical component of natural and managed ecosystems and perform functions that support the needs and well-being of the global human population; these include nutrient and water storage and supply for plant growth, hydrologic buffering, disposal and renovation of anthropogenic wastes, habitat for soil organisms, and support for roads, buildings, and other infrastructure. Soils are a major reservoir of global carbon and can, with proper management, serve as a sink for atmospheric carbon to reduce greenhouse gasses. Although most soils are relatively resilient, they are subjected to degradation if managed improperly or otherwise disturbed. Thus, conservation of the soil resource and its continued use to perform ecosystem functions to support the ever-increasing global population depends on understanding the properties of and processes occurring in the soil at any point in the landscape.

Discussions of the soil resource in this book are stratified geographically, based on land resource regions (LRRs) and, within the LRRs, major land resource areas (MLRAs). The major part of the book consists of chapters that discuss soils that occur in each LRR in the USA and its territories. Several chapters address multiple LRRs that have similar landscape and environmental characteristics. The book includes chapters that provide background information that may be needed to better understand concepts presented including processes important to soil formation, concepts and products of soil survey, and the structure and nomenclature of *Soil Taxonomy*. Also included are chapters discussing changes in soil properties related to human activities, and challenges facing soil science and soil survey in the future.

The wide diversity of soil conditions across the USA precludes any one individual that can synthesize the large amount of knowledge about the soils across the nation. Thus, multiple authors, each with extensive understanding of soils within their region, have written the chapters. The content of each chapter varies somewhat and reflects the diversity in the regions as well as the authors' interest and experience. We express our appreciation to all of the contributing authors for their dedication and effort in preparation of their chapter. We also appreciate the cooperation we received from the USDA-Natural Resources Conservation Service in allowing many NRCS staff to devote time to authoring chapters, providing data on properties and extent of soils in each LRR, and assistance with preparation of map figures.

Systematic mapping of soils on the landscape and interpretation of their expected behavior has been the objective of the National Cooperative Soil Survey (NCSS) since the late 1800s. Thousands of soil scientists from universities, state and federal agencies, and the private sector have strived to understand the soil resource and to develop the inventory of soils that is now widely available. Without the efforts of all these scientists and soil practitioners, this book would not have been possible. We dedicate this book to this unnamed cadre of dedicated soil scientists. Thank you!

The comprehensive inventory and availability of soil information across the USA is an example for many countries. It will continue to enable scientists and producers to design and

implement soil management systems that allow sustainable production of food, fiber, and fuel crops necessary to maintain the quality of life. The inventory of the soil resource will also allow research and direction on new challenges including sustaining and improving soil quality and health, soil sequestration of atmospheric carbon, renovation of wastewater, and storage and delivery of water and nutrients for plant production. It is our humble hope that the knowledge brought together in this book will be used to educate a generation that will continue to deliver solutions to the environmental challenges that we face, now and in the future.

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