Progress in Soil Zoology

This book is the Proceedings of the 5th International Colloquium on Soil Zoology held in Prague, 17-22 September 1973. The meetings were organized by the Soil Zoology Committee of the International Society of Soil Science and the Czechoslovak Academy of Sciences, Institute of Land Use Ecology. About 200 scientists were in attendance which contrasts with about 118 participants at the 4th Colloquium held in Dijon, France, 14--19 September 1970.

The volume consists of 67 papers published in English, French, or German. Thirty of the papers were authored by eastern Europeans, 27 by western Europeans, and 10 represented studies in other countries of the world. Only three contributions were made by scientists in the USA. The proceedings are divided into an introduction and four sections, namely: (A) Stability and Diversity of Communities of Soil Organisms; (B) Influence of Abiotic and Biotic Factors on Communities of Soil Organisms; (C) Influence of Human Activities on Communities of Soil Organisms, and (D) Modern Methods of Investigating Soil Organisms and Their Influence upon Soil Properties. The soil animals emphasized include earthworms, springtails, mites, nematodes, protozoa, millipedes, centipedes, diplopods, beetles, and termites.

Many of the papers are ecological in nature and are concerned with specific soil animals, groups of soil animals, or most members of the soil fauna. The effects of climate, plant cover or crops, clearing, cultivation, air pollution, sewage effluent disposal, pesticide application, salt addition, trace elements, and other factors are considered. Other papers report studies on the role of soil animals in peat formation and organic matter decomposition, micropores/metrics of mites, digestive enzymes of litter-feeding soil animals, and improvements of methods for studying the soil fauna.

In the last paper Dr. J. E. Satchell states that the symposium represents a substantial part of the current research going on in soil biology throughout the world. (The proper term should be soil zoology, as soil microbiology is also included under soil biology). In the introduction H. Franz states that although interest and studies in soil zoology are increasing, virtually nothing is known about many soil animals and that in no other area of zoology is there so much work waiting to be done.

Some soil zoologists may overemphasize the importance of the soil animals in soil processes, but many soil microbiologists emphasize the soil flora and tend to disregard or give little attention to the soil fauna especially the larger forms. Darwin thought that the earthworms produced the soil humus and even now some soil zoologists still accept this view. The actual role of earthworms in soil humus formation is not fully understood. The earthworm bodies are largely protein. It is possible that organisms present in the worm gut and organisms growing on the organic residues in the castings may be relatively more important in soil humus formation.

There is a need, especially in the United States, for soil biologists to give more emphasis and attention to the important soil fauna. Most soil science departments and Land Grant Universities do not have a soil zoologist and many do not even have a soil microbiologist. Until soil biologists with specific training in soil zoology are available and become staff members of agricultural departments, it would be helpful if soil microbiologists gave more attention to soil zoology. Soil microbiologists who have the desire to upgrade their knowledge and teaching in the area of soil zoology would benefit from reading this volume, Progress in Soil Zoology.—J. P. Martin, University of California, Riverside.

Forest Soils and Forest Land Management.

This book is the proceedings of the Fourth North American Forest Soils Conference, held at Laval University, Quebec, August 1973.

This book, together with the proceedings of the earlier conferences, traces the development of forest soil science in the United States and Canada over the last two decades. Soil-site and land evaluation studies predominated in the first two conferences and forest fertilization received major emphasis for the first time at the third conference. These topics are again well represented at the fourth conference, which also considers in detail the environmental impact of forest management practices.

Forest Soils and Forest Land Management contains 42 papers arranged under six broad topics: Soil Physics, Biology, and Biochemistry; Nutrient Cycling and Soil Productivity; Forest Silviculture; Forest Quality of the Environment; Intensive Site Preparation; Forest Land and Site Classification; Soil and Site in Forest Management Decisions; and Information Requirements of Forest Land Managers. The papers are about equally divided between original research and review or application articles.

The impact on water quality of forest management practices, including timber harvest, mechanical and chemical site preparation, and fertilization, is the subject of eight papers. Several papers discuss impact of forest management practices on soils and wildlife. Increasing tree growth through fertilization is the topic of five papers, and another discusses forest fertilization for nonwood production. The importance of nitrogen in forest land management is emphasized by the large number and variety of papers concerned with this element. Nitrogen is the key element in two review articles and in several papers dealing with forest fertilization, nutrient cycling, and water quality.

This conference placed more emphasis on land use planning and the soils information needs of the land manager than the first three. Eleven papers deal with these topics and should be helpful in bridging information gaps between soil scientists and foresters, and between researchers and land managers. The book ends with a thought-provoking exploration of the moral responsibilities of the forest land manager to society.

The quality of editing and printing of Forest Soils and Forest Land Management is excellent, and the book is full of stimulating articles. Those interested in forest soil science from either the research or management aspects will want to read this book.—David H. Alphan, Research Soil Scientist, USDA Forest Service, Grand Rapids, Minn.