for the book by introducing the notion of the hierarchical approach to ecosystem studies and then discussing different spatial domains in the soil, such as the drilloosphere, detritusphere, porosphere, aggregatusphere, and rhizosphere. The second paper by Lavelle et al. discusses the relationships between micro- and macrooorganisms, paying particular attention to mutualism as it relates to biodiversity and soil function. The third article by Wardle et al. compares effects of different disturbances such as mulching, cultivation, or herbicides on the diversity of the soil fauna. The authors conclude that both a functional group or species composition information can be considered reasonable indicators of the response of soil biota to disturbance. To our surprise only three chapters deal with the interrelationship of biodiversity and ecosystem processes, which somewhat misrepresents the importance of understanding the relationship between these. The idea of distinguishing functional, rather than taxon based guilds, is a consequence of our inability to fully assess the true biodiversity of soil biodiversity. And this functional guild concept is in turn defined by it's relation to the function and therefore the ecosystem process in question which the organisms in the guild are performing. Thus, this explicit discussion of biodiversity and ecosystem process is likely to be underrepresented.

The second section, entitled Microbial Population Dynamics, discusses approaches to the study of biodiversity of microbial populations at different taxonomic levels. The organisms considered range from mycorrhizae, fungi, bacteria, to ciliates. The taxonomic level at which these organisms are studied ranges from individual fungi anaerobically decomposing cellulose to whole microbial community wide fatty acid analysis. Several papers look at patterns of mycorrhizal diversity, of which most are reviews of the field. Burns' paper struck us as especially interesting because he speculates on the role of processes such as resource partitioning, disturbance, and competition, in shaping mycorrhizal communities, and suggests that some of the technological difficulties associated with our lack of understanding of ectomycorrhizal diversity and its determinants might soon be broken. He mentions use of minihabitats, rhizotrons, bionomics, and mycocosms for microscopic observation in conjunction with PCR-based identification methods as a new frontier. A bulk of this section is made up of papers using fatty acid analysis (Fa) to determine microbial diversity in different soils. The most notable of these papers is by Cavigelli et al., who try to use geostatistical techniques in conjunction with fatty acid analysis using semivariance analysis to determine new potential marker fatty acid methyl esters. Another interesting contribution by Andrén et al. uses a modeling approach to assess the role of biodiversity in relation to litter decomposition. They test concrete hypotheses and reject the hypothesis that diversity per se controls decomposition rate of litter. It comes as a surprise that chapters discussing functional diversity of soil microbes as it is currently determined using BIOLOG Cenozo utilization patterns, fatty acid analysis of trophic nematode community (Klironomos et al.),. Other articles deal with a wide range of processes such as root decomposition among an altitudinal gradient, and reviewing how earthworms in the soil system, assessing earthworms and plant community structure and diversity in watersheds as they are impacted by cropping patterns and tillage (Bohlen et al., and On-Site Bioreclamation Symposium was held in San Diego, CA, in April 1995. Of more than 375 papers reviewed, 27 are reported in this book, which is the fifth in a series of 10 books published from the symposium. The speed of publication is commendable since the publication date is also 1995.

This book was not designed for use as a reference book. It includes only a limited subject matter areas. It is not possible to purchase the entire series of 10 books to obtain a more complete and comprehensive overview of the remediation knowledge. Papers were grouped into single volume, from the 375 submitted and reviewed, from 275 articles included in this book. Several topics such as phospholipid analysis of extant microorganisms in situ bioremediation effectiveness, enzymes and other biodegradation, an overview of bioremediation, and biotransformation methods are not covered.