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Nota di contenuto	Cover; Contents; List of Contributors; Introduction; Section 1-The Living Soil and Ecosystem Services; Introduction; 1.1 Soil as a Habitat; 1.1.1 Introduction; 1.1.2 Conditions in soils; 1.1.3 Adaptive strategies of soil organisms; 1.1.4 Self-organization and the spatial organization of soils; 1.1.5 Discrete scales in soil function; 1.1.6 The challenge of an eco-efficient use of soils; 1.1.7 Approaches to soil ecological research; 1.1.8 Conclusions; 1.2 Soil Biodiversity and Functions; 1.2.1 Soil biodiversity; 1.2.2 How to investigate soil communities; 1.2.3 Diversity-function relationships 1.2.4 Taking a holistic view to soil diversity-ecosystem functioning1.2.5 Conclusions; 1.3 Ecosystem Services Provided by the Soil Biota; 1.3.1 Introduction; 1.3.2 Understanding ecosystem functioning; 1.3.3 Understanding ecosystem structure: revisiting the functional group concept; 1.3.4 Understanding effects of environmental drivers and land management on ecosystem functioning and services; 1.3.5 Working with nature; 1.3.6 Landscape context; 1.3.7 Conclusions; Synthesis; Section 2-From Genes to Ecosystem Services; Introduction; 2.1 From Single Genes to Microbial Networks; 2.1.1 Introduction 2.1.2 Analyzing microbial genes to understand ecosystem functioning2.1.3 Methodological approaches to the gene-based study of microbial communities and networks; 2.1.4 Genes in microbial networks of organic matter decomposition and biodegradation of

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 2.2.1 Introduction
 2.2.2 The role of plant functional traits in bridging species interactions with soil community dynamics; 2.2.3 The role of plant genetic variation on soil communities; 2.2.4 The role of plant genetic variation on ecosystem processes; 2.2.5 The evolutionary implications of plant-soil linkages; 2.2.6 Conclusions and future directions; 2.3 Delivery of Soil Ecosystem Services: From Gaia to Genes; 2.3.1 Introduction; 2.3.2 Ecosystem services delivery and Gaia theory; 2.3.3 At what biological levels are soil ecosystem services produced? 2.3.4 At what spatial scales can we describe and quantify soil ecosystem services? 2.3.5 Use of soil ecosystem services in a policy context; 2.3.6 Conclusions; Synthesis; Section 3-Community Structure and Biotic Assemblages; Introduction; 3.1 Succession, Resource Processing, and Diversity in Detrital Food Webs; 3.1.1 The surprising diversity of soil communities; 3.1.2 From litter and carrion to soil organic matter: detrital succession in soils; 3.1.3 Mechanisms and models for detrital succession; 3.1.4 Can successional specialization explain coexistence and the diversity in soils? 3.1.5 Latitudinal gradients in soil diversity: detrital food webs thwart ecology's oldest pattern

Sommario/riassunto

This multi-contributor, international volume synthesizes contributions from the world's leading soil scientists and ecologists, describing cutting-edge research that provides a basis for the maintenance of soil health and sustainability. The book covers these advances from a unique perspective of examining the ecosystem services produced by soil biota across different scales - from biotic interactions at microscale to communities functioning at regional and global scales. The book leads the user towards an understanding of how the sustainability of soils, biodiversity, and ecosystem services c
