



How will biodiversity loss affect ecosystem functioning, ecosystem services, and human wellbeing?

In an age of accelerating biodiversity loss, this timely and critical volume summarizes recent advances in biodiversity-ecosystem functioning research and explores the economics of biodiversity and ecosystem services. The book starts by summarizing the development of the basic science and provides a meta-analysis that quantitatively tests several biodiversity and ecosystem functioning hypotheses. It then describes the natural science foundations of biodiversity and ecosystem functioning research including: quantifying functional diversity, the development of the field into a predictive science, the effects of stability and complexity, methods to quantify mechanisms by which diversity affects functioning, the importance of trophic structure, microbial ecology, and spatial dynamics. Finally, the book takes research on biodiversity and ecosystem functioning further than it has ever gone into the human dimension, describing the most pressing environmental challenges that face humanity and the effects of diversity on: climate change mitigation, restoration of degraded habitats, managed ecosystems, pollination, disease, and biological invasions.

However, what makes this volume truly unique are the chapters that consider the economic perspective. These include a synthesis of the economics of ecosystem services and biodiversity, and the options open to policy-makers to address the failure of markets to account for the loss of ecosystem services; an examination of the challenges of valuing ecosystem services and, hence, to understanding the human consequences of decisions that neglect these services; and an examination of the ways in which economists are currently incorporating biodiversity and ecosystem functioning research into decision models for the conservation and management of biodiversity. A final section describes new advances in ecoinformatics that will help transform this field into a globally predictive science, and summarizes the advancements and future directions of the field. The ultimate conclusion is that biodiversity is an essential element of any strategy for sustainable development.

This graduate level text is suitable for students, professional researchers, and practitioners in the fields of ecology and ecological economics.

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