

## Preface

The scientific community has voiced two general concerns about the future of the Earth. Climatologists and oceanographers have focused on the changes in our physical environment—changes in the climate, the oceans, and the chemistry of the air that we breathe. These concerns led to major environmental treaties such as the Convention on Climate Change and the Montreal Protocol on Substances that Deplete the Ozone Layer. A second general concern addresses issues of conservation and the extinction of species. This, too, has been addressed internationally through the Convention on Biological Diversity; however, there is increasing evidence that these two broad concerns are intertwined and mutually dependent. Past changes in the biodiversity of the Earth have both responded to and caused changes in the Earth's environment. An assessment by the United Nations Environment Programme has documented the current status and large recent changes in the Earth's biodiversity.

The Intergovernmental Panel on Climate Change (IPCC) has compiled scenarios of changes in climate, atmospheric composition, and land use. These scenarios have had considerable impact on national and international policies aimed at reducing these global changes or mitigating their impacts on society. Despite the large magnitude and societal importance of past changes in biodiversity, however, there have been no comparable scenarios of how the biodiversity of the Earth may change in response to global changes in environment.

The purpose of this book is to develop future scenarios of biodiversity for the next century in 10 terrestrial biomes and in freshwater ecosystems based on global scenarios of changes of the environment and the understanding by ecological experts of the sensitivity of biomes to these global changes. The scenarios presented in this book are not intended to be predictions; however, we hope that they will provide a starting point for careful assessments that must be made at national and regional scales. These regional assessments would provide a basis for planning future policy and research.

The book is based on a workshop supported by the U.S. National Center for Ecological Analysis and Synthesis (NCEAS) and the InterAmerican Institute for Global Change Research in which experts on biodiversity change were assembled for the major terrestrial biomes of the world. This exercise stems from an activity of the Global Change and Terrestrial Ecosystems (GCTE) core project of the International Geosphere-Biosphere Programme (IGBP).

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