PREFACE

The focus of global ecology is the biosphere or the ecosphere conceived as one unified cooperative system with numerous synergistic effects that explain the unique properties of this sphere.

Part A of the book presents these unique properties of the biosphere, which are able to explain its life-bearing role. The biosphere is open to all other spheres, which determine its composition. The compositions of all the spheres are also presented in this part.

The biosphere supports the global cycles of the elements that are crucial for life. A quantitative representation of the global balances of energy and matter is covered in Part B, in addition to the important flows of energy, matter, and information in the biosphere.

Part C presents the results of the global cycles and flows and the biosphere properties: formations of patterns of climatic factors and marine currents.

The climate is of utmost significance for the life on Earth, but due to the huge impact of human activities on the biosphere, changes in the global climate are foreseen. It is probably the hottest environmental issue of today. The biosphere–climate interactions and climatic changes and their consequences for the life on Earth are discussed in Part D.

Part E covers ecological stoichiometry, which focuses on the application of stoichiometry for the quantification of the various biogeochemical cycles in the biospheres and in ecosystems.

The book is a derivative of the recently published *Encyclopedia of Ecology*. Due to an excellent work by the section editor of Global Ecology, Yuri M. Svirezhev, and the section editor of Ecological Stoichiometry, James Elser, it has been possible to present a comprehensive overview of global ecology and ecological stoichiometry as a useful tool to couple the global and ecological processes. Yuri Svirezhev considered his editorial work with the Global Ecology section as a great challenge and did his utmost to achieve a profound and comprehensive coverage of this ecological field, which was very close to his heart. Yuri passed away in February 2007, when about 90% of the work was done. I would therefore like to dedicate this derivative book to his memory.

I would like to thank James Elser and all the authors of the Global Ecology and the Ecological Stoichiometry entries, who made it possible to produce this broad and up-to-date coverage of ecotoxicology.

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