Climate change, urban sprawl, abandonment of agriculture, intensification of forestry and agriculture, changes in energy generation and use, expansion of infrastructure networks, habitat destruction and degradation, and other drivers and pressures of change are occurring at increasing rates globally. They affect ecological patterns and processes in forest landscapes and modify ecosystem services derived from those ecosystems. Consequently, the landscapes that are rapidly changing in response to these pressures present many new challenges to scientists and managers. Although it is not uncommon to encounter the terms “global change” and “landscape” together in the ecological literature, there has been no adequate global analysis of drivers of change in forest landscapes and their ecological consequences. Providing such an analysis is the goal of this volume: an exploration of the state of knowledge of global changes in forested landscapes, with an emphasis on their causes and effects, and the challenges faced by researchers and land managers who must cope with these changes.

This book was based on the IUFRO Landscape Ecology Working Group International Conference that took place in Bragança, Portugal, in September 2010 under the theme “Forest Landscapes and Global Change: New Frontiers in Management, Conservation and Restoration”. The event brought together more than 300 landscape ecologists from almost 50 countries and 5 continents, who came to expand their knowledge and awareness of global changes in forest landscapes. We hope that the syntheses in this book, prepared by a diverse group of scientists who participated in the conference, will enhance the global understanding of a range of topics relevant to change in forest landscapes and stimulate new research to answer the questions raised by these authors.

First, we introduce the broad topic of forest landscape ecology and global change. This is followed by chapters that identify and describe major agents of landscape change: climate (Iverson et al.), wildfire (Rego and Silva), and human activities (Farinaci et al.). The next chapters address implications of change for ecosystem services (Marta-Pedroso et al.), carbon fluxes (Chen et al.), and biodiversity conservation (Saura et al.). A subsequent chapter describes methodologies for detecting and monitoring landscape changes (Gómez-Sanz et al.) and is followed by a chapter
that highlights the many challenges facing forest landscape managers amidst global change (Coulson et al.). Finally, we present a summary and a synthesis of the main points presented in the book (Azevedo et al.). Each chapter was inspired by the research experience of the authors, augmented by a review and synthesis of the global scientific literature on relevant topics, as well as critical input from multiple peer reviewers.

The intended audience for this book includes graduate students, educators, and researchers in landscape ecology, conservation biology, and forestry, as well as land-use planners and managers. We trust that the wide range of topics, addressed from a global perspective by a geographically diverse group of contributing authors from Europe, North America, and South America, will make this volume attractive to a broad readership.

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