Ecotones

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The Role of Landscape Boundaries
in the Management and Restoration
of Changing Environments

Edited by
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EDITORS' FOREWORD

We live in a changing world; one in which there is much concern and discussion about the topics of global change, loss of biodiversity, and increasing threats to the sustainability of ecosystems. The effects these changes may have on the environment have lead governments and scientists to make predictions as to how soon changes might occur, where, and with what impact for large and small regions of the Earth. Along with this concern for change in various regions has come the need to understand the role of boundaries between these regions and between landscape elements.

Much previous ecological research has dealt with processes within relatively homogeneous landscape units or even the collective characteristics of a composite landscape. Now, however, there is an appreciation that abiotic and biotic components move across heterogeneous landscapes and that the boundaries between these units take on important control functions in this dynamic spatial system. Furthermore, landscape boundaries (or ecotones) are important not only in satisfying life-cycle needs of many organisms, but generally are characterized by high biological diversity.

Three years ago the editors recognized the need for greater understanding of ecotones, and agreed to convene a meeting of recognized experts to discuss the role of landscape boundaries in the management and restoration of changing environments. Funding was secured in February 1988 by members of the Ecological Society of America (ESA)'s Public Affairs Committee and Public Affairs Office to develop an International Symposium in cooperation with the United States Man and the Biosphere (MAB) Program. It was with the support and encouragement of ESA's Public Affairs and Executive Committee members that this Symposium was held at the University of Toronto in August of 1989.

There were three major scientific events occurring in 1988 that made plans for our symposium particularly compelling. First, U.S. MAB had recently reorganized around five themes articulating human-natural system interactions, including the unique opportunities in the international network of Biosphere Reserves. Second, the International Geosphere-Biosphere Program (IGBP) was just beginning the organizational phases of a ten year, major research program on global processes. This large program is international in scope and focuses on geosphere-biosphere phenomena of time scales from decades to centuries. Finally, and most importantly, there was a widespread renewed attention toward the need to understand the environmental processes occurring in the boundaries between landscape units.

The 1989 symposium was the first opportunity for a large segment of the North American scientific community to discuss a developing, international, scientific interest in these boundaries. The symposium itself, building on two small international conferences in 1988, included presentations on the characteristics of ecotones, how ecotones respond to environmental change, and the ways in which ecotones can be most appropriately managed. This symposium served as a comprehensive planning tool for the North American research community, and encouraged the ecological community to play a catalytic role in shaping research efforts on landscape boundaries.

Many individuals deserve recognition for their efforts in making this volume a success. The dedication and persistence of each of the contributing authors is gratefully acknowledged. We thank Cecile Ledsky and Roger Soles of the United States Man and the Biosphere Program for their support and enthusiasm for this project. Financial assistance was provided by the United States Man and the Biosphere Program (U.S. State Department) and by the Ecological Society of America. All of the articles in this volume were evaluated by anonymous reviewers. Production of the volume would not have been accomplished without the advice and expertise of Raymond Prach. In addition, we appreciate the interest and cooperation we have received from Gregory Payne, Editor at Chapman and Hall.

Finally, we are especially grateful to staff of the Ecological Society of America's Public Affairs Office who devoted long hours and considerable talent to editing, proofreading, and formatting the papers which follow. We thank Yaffa Grossman, Mari Jensen, Tara Fuad, and Alfreda Thomas: their assistance has been invaluable and greatly appreciated.

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