

PREFACE

The quincentenary of the Columbian Encounter was met with an outpouring of concern about how this event and its repercussions were to be interpreted. Environmental impacts have ranked high among the concerns raised. Some professionals view the encounter as a significant antecedent of contemporary global environmental change, at least in the areas of land cover and land use. Current modelling of some environmental changes requires an understanding of changes associated with the encounter. Others seek to compare the nature-society relationships of European and Amerindian cultures, with revisionist interpretations vilifying the former and canonizing the latter. Of this discourse, however, little has been drawn on the evidence and interpretations available from the best and most up-to-date a large body of scholarly work on the environmental and land-use history of the periods and places in question.

This book addresses these same concerns, but it draws on the accumulated work of professionals who have spent much of their careers involved in field and archival research on the subjects in question. It is based on the Scientific Symposium "Principles, Patterns and Processes: Some Legacies of the Columbian Encounter" of the VIIIth General Assembly of SCOPE (Scientific Committee on Problems of the Environment), held in Sevilla, Spain, January 20-25, 1992. This symposium was developed in a meeting held at SCOPE, Paris, in the spring of 1991 that included Francisco di Castri, Veronique Plocq, Antonio Gómez Sal, Fernando González Bernáldez, and myself. As the organizing hosts of the Sevilla meeting, Drs. González Bernáldez and Gómez Sal, representing SCOPE, España, sought to link it with the then forthcoming quincentenary of the first voyage of Cristobal Colón. They and Dr. di Castri believed that 1492 was indeed a good point at which to date the beginning of the globalization of sustained continental exchange of biota and land uses, an exchange that

entailed significant environmental transformation, particularly for land cover. An assessment of the kinds of land-use/cover changes that took place might offer important insights into many kinds of contemporary global environmental change. I strongly concurred.

We agreed to develop a scientific symposium on the land-use/cover theme addressing three basic questions. What kinds of land-use/cover changes associated with the encounter were global, or at least transcontinental, in significance? What were the underlying processes that drove them? And were these changes direct antecedents of contemporary global land-use/cover change? Subsequently, a fourth question emerged: Was the “quincentenary” literature on environmental change relatively accurate? The first three questions required the symposium to address the actual land-use/cover changes occurring in the period in question and to assess the processes that led to these changes and the nature of the environmental impacts that followed. The fourth question addressed a larger concern that was swirling around the quincentenary, was revisionist thinking about the Columbian Encounter creating and reinforcing myths about nature-society relationships in the New and Old Worlds and about the environmental consequences of the encounter?

With these aims and questions in mind, we proceeded to identify those land-cover changes that may have been globally significant at that time and/or the antecedents of current global change. Here we did not have to rely on our own insights and work, but could draw on a large range of literature from the sciences, social sciences, and humanities (see Chapter 1). The potential topics are, of course, too numerous to have been handled in a two and one-half day symposium. We emphasized the Europe-America connection to remain consistent with the Columbian Encounter theme. But we also sought to balance this focus with several general assessments of hemisphere-wide conditions leading up to the encounter and through to the industrial revolution, and with brief examinations of the European and African land-use/cover conditions and impacts related to the encounter.

We were fortunate to entice an outstanding group of experts, most of whom have spent the better part of their professional careers engaged in field and archival research on various aspects of the symposium’s subject. Additional experts were invited to participate in the symposium, serving as panelists and commenting on the papers. Several of these commentaries were so insightful that the editors felt they warranted publication and included them in volume.

*The book consists of three parts. The first provides summary and overview papers. Chapter 1 by Turner and Butzer—previously published in *Environment* as a synthesis of the symposium's findings in the light of the research and experience of the two authors—introduces and summarizes the themes in this volume. It outlines the supposed associations among contemporary global environmental change, the 1992 UNCED (United Nations Conference on Environment and Development, held in Rio de Janeiro), and the Columbian Encounter. It then reviews what the two authors see as the evidence for land-use/cover questions, drawing upon the symposium, the papers in this volume, and their own extensive research experience on the subject. It sets the tone for the volume through several basic observations: (i) that much of the conventional wisdom about land uses in Europe and the Americas before and after the Columbian Encounter does not stand the test of evidence; (ii) that the environmental consequences of the encounter were a mix of the positive and the negative; and that (iii) while much land-use change can be traced to the Columbian Encounter, (iv) much of what is considered contemporary land degradation is more the product of the rise of an industrial ecology and economy. Chapters 2 and 3, by Tudela, and Douglas and Hodgson respectively, describe the broader global conditions (with various regional emphases) immediately relevant to land uses and cover and their changes before and after the encounter. In Chapter 4, Bifani discusses the importance of the decision making centers both the hierarchical level in which the decision is taken as well as the distance from the involved land. As the end of the first part, Di Castri (Chapter 5) establishes the ways of the globalization and analyzes their consequences from the times of the Encounter to the present days.*

Part 2 collects the specific issue papers of the symposium. In Chapter 6, Bernáldez assesses the land-cover conditions and land-use systems of central Spain at the time of contact. He shows that, far from being ecological destructive and unsustainable, the agro-pastoral systems in Spain in 1492 were in relative balance with the environment and technology of the time. Continuing with the introduction and adaptation of livestock systems as to Mexico, Butzer and Butzer (Chapter 7) document the initial explosion of livestock and the processes by which the system was brought under environmental and production control.

The next three chapters consider the consequences of the encounter for the forests of the New World. The first two deal with the tropical lowlands, an environment unfamiliar to the Spaniards but long used by Amerindians. Siemens (Chapter 8) and Smith

(Chapter 9) examine the Gulf Coast of Mexico and Amazonia respectively. Both authors document the dramatic changes in land use previous and subsequent to the encounter. Each indicates that the tropical forest regions encountered by the Spaniards and Portuguese had been significantly altered by previous Amerindian uses, albeit of different intensities and histories. In Chapter 10, Foster shifts our attention to the Anglo-Amerindian encounter in the northeastern United States, the deforestation of New England by European settlers, and the subsequent land-cover impacts of the industrial revolution.

Groves, in Chapter 11, takes us across the Americas and elsewhere in surveying some of the major consequences of the unintended transfer of weeds. The impacts of this transfer appear to have been much more localized in their scale than those of deforestation, re-forestation, and the extension and contraction of grasslands. Finally, Pieri (Chapter 12) searches for land-cover impacts in western Africa that may have followed from the depopulation of the area to supply slaves for the Americas. This cruel transfer was itself a product of massive land-use changes and Amerindian depopulation in the West Indies.

Part 3 takes us from the encounter to modern times, drawing in part on the excellent commentaries of the symposium participants. Fernández Alés, Martín and Merino (Chapter 13) take us through the transformations of a coastal area in southern Spain, not far from the harbor from which Cristobal Colón sailed, to its modern state as a national park. Ezcurra (Chapter 14), in turn, sketches the environmental history of the Basin of Mexico to its current problems associated with its massive growth in population and industry. Chapters 15 and 16 return our attention to the country side. Fuentes-Quezada, Miethke, and Avilés examine rural changes in the Mediterranean climates of Chile, and López-Hernández considers the modern impacts on the American tropics of livestock production, a land use that by all measures is exotic to this region of the world.

Finally, Ruttan (Chapter 17) discusses the lessons of the symposium for issues of modern land-use and development. He concludes that while the impacts of the encounter on biotic transfer are important for understanding agricultural land use their production (and environmental) consequences have run their course. Current important problems are the product of radical shifts to a new stage of land use history.

The papers by no means exhaust the range of environmental and nature-society issues associated with the Columbian Encounter. They do illustrate, however, what kind of understanding can be gained from linking current or recent past conditions to their

longer-term antecedents and what relevance this understanding has for contemporary global environmental change. Some of this understanding is essential for the global change community, some is not. It offers important data for testing and parameterizing global environmental models. It sets the cultural-historical context for modern land uses, such as the desire for cattle and grazing land in much of Latin America. It informs us that much of the Americas, from the mature forests of tropical Amazonia to the tall grass prairie of Canada, was not untouched or "pristine" at the time of the Columbian Encounter, that the Columbian Encounter significantly changed the land uses and land covers of the Americas and less intensively and directly modified other areas of the world, and that the encounter did trigger global land-cover changes associated with the transfers of biota and technologies. It is less clear that an understanding of the Encounter helps to explain the magnitude and pace of current environmental changes or to address environmental and related land-use/cover problems that have arisen in the industrial and post-industrial political economies of today.

B. L. Turner II
Worcester, MA