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Sahotra Sarkar

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Biodiversity and Environmental Philosophy

An Introduction

This book explores the epistemological and ethical issues at the foundations of environmental philosophy, emphasizing the conservation of biodiversity. Sahotra Sarkar criticizes previous attempts to attribute intrinsic value to nature and defends an anthropocentric position on biodiversity conservation based on an untraditional concept of transformative value. However, unlike other studies in the field of environmental philosophy, this book is concerned as much with epistemological issues as with environmental ethics. It covers a broad range of topics, including problems of explanation and prediction in traditional ecology and how individual-based models and Geographic Information Systems (GIS) technology are transforming ecology. Introducing a brief history of conservation biology, Sarkar analyzes the new consensus framework for conservation planning through adaptive management. He concludes with a discussion of the future directions for theoretical research in conservation biology and environmental philosophy.

Sahotra Sarkar is Professor of Integrative Biology and of Philosophy at the University of Texas at Austin. He is director of the Biodiversity and Bio-cultural Conservation Laboratory and works on the design of conservation area networks, primarily in Mexico and India. A former Fellow of the Wissenschaftskolleg zu Berlin, he is the author of *Genetics and Reductionism* and *Molecular Models of Life*.

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SAHOTRA SARKAR

University of Texas at Austin



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To Bill Wimsatt, teacher and friend

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Preface

By the mid-1990s, it had become clear that a new interdisciplinary science, conservation biology, was emerging, with concepts, techniques, practices, and traditions of its own and with the explicit goal of conserving biodiversity. The extent to which it was diverging from the disciplines that had spawned it – especially ecology, in which it claimed to have most of its intellectual roots – remained unclear. Two possibilities were clearly present: (i) conservation biology would emerge as a new applied subdiscipline within ecology, one of the many such emerging subdisciplines (for instance, metapopulation ecology and landscape ecology) that were transforming traditional ecology in unprecedented ways, or (ii) it would emerge as a discipline rather distinct from ecology, in part because it was co-opting resources from many other disciplines, including those belonging to the social sciences, and in part because it was explicitly a goal-oriented enterprise with the aim of conserving biodiversity. This normative goal required a type of philosophical justification that is unusual in the customarily purely descriptive scientific context. Conservation biology was both exciting and fashionable in the rich European and neo-European countries (which, along with Japan and a few other rich countries, comprise the so-called North) because it tapped into a growing “environmental movement,” which, since the 1960s, had begun to reconfigure the space of the traditional politics of the Left and the Right. Conservation biology was particularly interesting for philosophers of science – and also for anthropologists, historians, social scientists, and others who followed and interpreted the development of science – because it afforded a rather unique opportunity. Philosophers and these other scholars were given a chance to watch a science during its gestation, to see how a new conceptual framework comes to be formulated and refined; how new techniques are introduced, and how they interact with each other and with the developing framework; how technical, social, political, and other

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constraints modulate the theory and practice of a new science; and, especially, how conventions are introduced on pragmatic grounds and then become reified. It is unfortunate that few philosophers have so far availed themselves of this opportunity.

In the winter of 1996, I taught an upper-level undergraduate course in the Department of Philosophy at McGill University on philosophical issues raised by biodiversity conservation. The explicit agenda of the course was to go beyond traditional environmental ethics and to include discussions of conceptual and epistemological problems at the foundations of conservation biology. There were plenty of conceptual problems: How should we define biodiversity? Can we operationalize the definition? Should operationalization even be a requirement? How much can traditional ecology contribute to conservation biology, given ecology's relative lack of predictive success in the field? How should we make decisions given that we have to produce conservation plans within periods of time far too short for adequate data collection and analysis, let alone for the construction of reliable models? Can we even hope to quantify the uncertainties involved? Where does traditional environmental ethics fit in? What is the role of cultural, economic, and other social factors in conservation biology? What is our place – as individuals committed to biodiversity conservation – in the broader political environmental movement?

This book had its genesis in that course, though it does not claim to broach all of the questions just listed. By the time it was finally written – mainly during the first few months of 2002 – a new tentative consensus framework for conservation biology, dubbed “adaptive management,” had finally emerged, though it is as yet impossible to predict how long this consensus will last. This book is ultimately about philosophical problems raised by that framework. Much of this book is exploratory, trying to raise and refine philosophical questions rather than to answer them. Though there is considerable discussion of issues within traditional environmental ethics, the emphasis is on issues that have traditionally occupied the philosophy of science, and on how those issues interact with the normative ethical issues raised by attempts to conserve biodiversity. The material presented here has been used with a fair amount of success in a course called Environmental Philosophy that has been taught in the Departments of Philosophy and Geography and Environment at the University of Texas at Austin for the last six years.

This book is intended as an introduction to the issues that should be discussed under the rubric of environmental philosophy provided that the center of attention is biodiversity conservation (rather than, for instance,

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pollution, resource depletion, or environmental equity). However, it is not the sort of introductory philosophy textbook that consists of a recitation of the best arguments on both sides of a disputed issue with no attempt to adjudicate between them. (It is not intended as a textbook. At best, it should be regarded as a synthetic introductory text to be used in a classroom only if accompanied by a broad spectrum of materials that disagree with its conclusions.) It attempts to present a coherent anthropocentric position in environmental philosophy that nevertheless emphasizes biodiversity conservation at the possible expense of felt human preferences. It is also highly critical of certain environmental doctrines such as biocentrism and deep ecology. Within the philosophy of science, it defends conservation biology as a discipline radically different from ecology. Probably few, if any, of the analyses presented in this book will survive unscathed as more philosophers turn their attention to these problems – Chapter 8 already expresses doubts about many of them. If this book sparks more work in all of environmental philosophy, beyond just environmental ethics, it will have served its purpose.

Yet another disclaimer is necessary. In attempting to cover a wide range of topics in environmental philosophy, this book draws on a variety of resources beyond traditional philosophical domains, such as environmental ethics and formal epistemology. In the natural sciences, it draws on ecology, evolution, and conservation biology. Beyond that, it draws on topics from economics and operations research. I make no claim to professional expertise in any of these fields, except for parts of conservation biology. Experts in the other areas will probably find grounds for sound complaint against the discussions here – such is the price to be paid for attempting a synthetic work. I welcome all suggested corrections from such experts.

Finally, the “philosophy” in the title of this book is intended to be interpreted in a restricted sense and construed “professionally,” that is, as academic philosophy. This choice restricts both the scope of this book and its likely audience. Environmental “philosophy,” as popularly understood, often includes a myriad of discourses that have scant resemblance to academic philosophy, from religious ramblings to exhortatory programs designed to arouse indignation against those who would defile Earth. It is not being suggested here that these discourses are devoid of interest or, especially, that such exhortations are not practically and politically valuable insofar as they promote care of our environment. Nor is it being suggested that these discourses are intellectually uninteresting or undeserving of close scrutiny. Nevertheless, they do not constitute philosophy (in the academic sense) and will enter the discussions in this book only peripherally, if at all.

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An example will illustrate what is meant here. The fact that some place or some feature of biodiversity may have religious significance or value will sometimes be noted in this book. However, this fact will be interpreted to have only descriptive content and no normative force. The mere fact that some entity has religious value does not, by itself, entail that there is any normative *ethical* reason for us to value that entity. To attribute such a value to that entity would require further argument. In this book, appeal to religious belief will not be taken to provide any foundation for an environmental ethic, no matter how powerful it may be in generating action. It is often powerful. In the Western Ghats of India, a global hot spot of plant endemism and biodiversity, sacred groves are the last remnants of the tropical evergreen wet forests that once covered these mountains. Almost every other place has succumbed to habitat conversion, mainly during the British colonial era. Nevertheless, religious concern does not confer normative value on these important remnants of biodiversity. Some other, *philosophical* argument will be required to attribute that value without denying the pragmatic political utility of these religious concerns. Environmental philosophy will be construed here to fall squarely within the contemporary traditions of professional philosophy.

At the same time, philosophy of science (though not ethics and related areas) will be pursued from a naturalized perspective, as a discipline in continuity with the sciences, dealing more abstractly and self-reflectively with issues that arise within the sciences. There will be no discussion here of questions such as whether biodiversity is a “real property,” whatever that might mean, or whether “materialism” or even “naturalism,” when those terms are construed metaphysically, can be the foundation for environmental philosophy. Far too much has already been written on such topics without producing any palpable philosophical insight. Answers to questions such as those are also of little relevance to conservation biology. From the perspective adopted here, philosophy of science achieves its validation from the extent to which it can illuminate and, preferably, improve the practice of science itself.

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