

The Philosophy of Ecology

Ecology is indispensable to understanding the biological world and addressing the environmental problems humanity faces. Its philosophy has never been more important. In this book, James Justus introduces readers to the philosophically rich issues ecology poses. Besides its crucial role in biological science generally, climate change, biodiversity loss, and other looming environmental challenges make ecology's role in understanding such threats and finding solutions all the more critical. Beyond its centrality to philosophers of biology, when ecology is applied and its insights marshalled to address these problems and guide policy formation, interesting philosophical issues also emerge. Justus sets them out in detail, and explores the often ethically charged dimensions of applied ecological science, using accessible language and a wealth of scientifically-informed examples.

JAMES JUSTUS is Professor of Philosophy at Florida State University. He has written numerous book chapters and journal articles on the philosophy of biology, the history of analytic philosophy, and general philosophy of science.

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The Philosophy of Ecology

An Introduction

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Preface

In his inimitable way, G. E. Hutchinson (1965) coined the phrase “the ecological theater and the evolutionary play.” At the time, the metaphor complemented other attempts to fortify the value of the synthesis of Mendelian genetics and Darwin’s theory (achieved just a few decades earlier) against the perceived hegemonic zeal of the new molecular and cellular approaches in biology (see Wilson 1994; Dietrich 1998). But the insight behind Hutchinson’s metaphor extends far beyond just the Modern Synthesis. It captures the indispensable contribution both ecology and evolutionary science make to understanding the biological world. Both concern vast albeit overlapping portions of that world, in both space and time, and alone neither can supply a complete accounting of it without the other. Just as ecological and evolutionary sciences are at the core of biology, philosophy of evolutionary biology *and* ecology are at the core of philosophy of biology. This book is an introduction to philosophy of ecology.

Beyond its ambition to explain vast portions of the biological world, and the crucial light it sheds on evolutionary dynamics, ecology has likely never been more important as a science, and its philosophy more important to society. Climate change, habitat degradation, biodiversity loss, and numerous other looming environmental challenges make ecology and the inter-related environmental sciences that help us understand the threats and identify feasible solutions all the more critical. When ecology is applied and its insights marshaled to address these problems and to guide environmental policy, interesting philosophical issues emerge. This book considers a few such issues in its final chapters.

This project has had a very long gestation, and throughout its development I have been unbelievably fortunate to learn from so many, in conversation and from their writings. They include Soazig Le Bihan, Mark Colyvan,

Chris Eliot, Alkistis Elliott-Graves, Paul Griffiths, Chris Lean, Stefan Linquist, Alan Love, Roberta Millstein, Jay Odenbaugh, Viorel Paslaru, Carl Salk, Carlos Santana, Elliott Sober, Derek Turner, Samantha Wakil, and Michael Weisberg, among many, many others. In addition, a significant portion of this book was completed while I was a visiting fellow at the Pittsburgh Center for Philosophy of Science in 2018. Thanks to Colin Allen, Michael Dietrich, Karen Kovaka, Edouard Machery, Sandy Mitchell, and Armin Schulz for especially stimulating discussion and helpful feedback.

Although most of the material in this book is new, some parts draw on previously published work. Chapter 1 is based on an article in *Philosophical Topics* (Justus 2019) and reprinted with the permission of the University of Arkansas Press. Chapter 4 draws on material from two articles published in *Philosophy of Science* (Justus 2008b, 2014), and Chapter 3 builds on a section of Justus 2013. Thanks to the University of Chicago Press and Springer Publishing Company for permission to use this material.

Last, two individuals deserve special recognition. First, Hilary Gaskin at Cambridge University Press has been unbelievably patient, supportive, and understanding from this project's inception so long ago to its culmination. I am profoundly appreciative. The same homage, to an even higher degree if that's possible, extends to Michael Ruse. Without a doubt, he is the *sine qua non* that made writing this book possible. He has been both unwaveringly supportive and constructively coercive, in precisely the right balance. I owe him immensely, will forever be grateful, and am lucky to be his colleague.

Finally, my greatest debt beyond my parents Jim and Lisa is to my wife, Staci, and two children, Ike and Aviva. Without the former and her constant encouragement, I never would have pursued let alone finished this work. Without the latter it would have been completed much faster, but with much less joy.