

Ecological Understanding

The Nature of Theory and the Theory of Nature

STEWART T.A. PICKETT JUREK KOLASA CLIVE G. JONES

This widely-anticipated revision of the groundbreaking book, *Ecological Understanding*, updates this crucial sourcebook of contemporary philosophical insights for practicing ecologists and graduate students in ecology and environmental studies.

What is good scientific practice in ecology? This essential issue is both widely discussed and contentious. It is also a philosophical matter. However, the vast majority of ecologists know very little about the contemporary philosophy of science that informs these discussions. This book brings together key insights from recent work in the philosophy of science, enlivened with ecological examples, to better inform ecologists about the fundamentals of what constitutes good science.

This second edition contains new ecological examples, an expanded array of conceptual diagrams and illustrations, new text boxes summarizing important points or defining key terms, and new references to philosophical issues and controversies. While the first edition was recognized for its clarity, this revision takes the opportunity to make the exposition of complex topics still clearer to those without a philosophical background.

Readers will gain an understanding of the goals of science, the structure of theory, the kinds of theory relevant to ecology, the way that theory changes, what constitutes objectivity in

contemporary science, and the role of paradigms and frameworks for synthesis within ecology and in integration with other disciplines. Finally, it shows how theory can inform and anchor the public use of ecological knowledge in civic debates—especially important in helping ecologists to more effectively develop their arguments in public discussions about important contemporary environmental issues.

KEY FEATURES

- Explains the philosophical basis of ecology in plain English.
- Contains chapter overviews and summaries.
- Text boxes highlight key points, examples, or controversies.
- Diagrams explain structure and development of theory, and integration.
- Evaluates and relates paradigms in ecology.
- Illustrates philosophical issues with classic and new ecological research.

STEWART T.A. PICKETT has contributed conceptual developments in ecology for nearly thirty years. He has advanced ecological frameworks in disturbance, succession, conservation, and ecosystems. Widely known as an ecological synthesizer, he is Director of the transdisciplinary Baltimore Ecosystem Study, Long-Term Ecological Research program. These experiences lead him to a clear and ecologically relevant philosophy of science, and its use in ecological integration and outreach.

JUREK KOLASA'S work has provided new insights into the structure and variability of complex, multi-species assemblages. He has conducted pioneering investigations into complexity of community interactions and their effect on

species extinctions and biodiversity at various scales of time and space. He has extensively explored the conceptual foundations of these complex areas of study, and has used both classical philosophy and contemporary philosophy of science to clarify the foundations of these ecological frontiers.

CLIVE G. JONES'S research addresses the links between species and ecosystems focusing on ecosystem engineering by species, ecological complexity and ecological theory. He is the author of over 160 publications including 5 books. His work has earned him several honors including a John Simon Guggenheim Memorial Fellowship and a Chaire Internationale de Recherche Blaise Pascal.



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