

# Philosophical Foundations for the Practices of Ecology

WILLIAM A. REINERS  
JEFFREY A. LOCKWOOD



**CAMBRIDGE**  
UNIVERSITY PRESS

# Contents

---

	<i>Preface</i>	page ix
	<i>Acknowledgements</i>	xii
1	<b>Introduction</b>	1
2	<b>Conceptual confusion in ecology</b>	9
	The roots of confusion	9
	From the roots to the twigs of ecology: uncertainty about what is	15
	The tangled terminological bank	22
	Branching ways of knowing	25
	Our cacophonous confusion	28
3	<b>Causes of ecology's conceptual confusion</b>	37
	A philosophical armistice for ecology	37
	A little comparative theater: idealized physics versus actual ecology	38
	The bedevilment of complexity and variability	41
	The vexation of historicity	44
	The curse (and blessing) of scale	47
	A perfect storm: variation, history and scale	54
	The implications of ecology's demons	57
4	<b>Finding ourselves in philosophical terms</b>	67
	Ecologist, heal thyself	67
	A walk in the philosophical park	67

5	<b>Ecological pragmatism and constrained perspectivism: an introduction</b>	78
	Many perspectives, but not any perspective	78
	Giere's scientific perspectivism	80
	Ecology's broader perspective	82
	Perspectivism is not relativism	86
6	<b>Ecological pragmatism and constrained perspectivism: ontology</b>	90
	Existence as contingency	90
	An ontological commitment to ecological processes	91
	An ontological "middle way"	93
7	<b>Ecological pragmatism and constrained perspectivism: metaphysics</b>	97
	The properties of reality	97
	A metaphysical "middle way"	99
	Diversity as a metaphysical virtue of ecology	101
	Constraining perspectives to avoid ecological anarchy	102
8	<b>Ecological pragmatism and constrained perspectivism: epistemology</b>	106
	Ecology and politics: pluralism makes strange bedfellows	107
	Basic and applied ways of knowing	108
	Contingent knowing is genuine knowledge	113
9	<b>Ecological pragmatism and constrained perspectivism: a summary</b>	117
	World-making through philosophical and ecological collaboration	117
	Constrained perspectivism and the pragmatic tradition	124
	The consequences of constrained perspectivism for ecology	126
10	<b>The practice of constrained perspectivism in ecology</b>	130
	How do ecologists practice philosophy?	130
	General theory and pragmatism in population ecology	131
	Theory and contingencies in community ecology	133
	Theory and practice in ecosystem ecology	137
	How we perambulate through our research careers	141

How wants, needs and chance drive science: tales from Reiners' experience	142
How wants, needs and chance drive science: tales from Lockwood's experience	146
<b>11 What constrained perspectivism offers to the teaching of ecology</b>	155
Ecology is difficult	155
Framing the educational challenges: an overview	157
Baccalaureate teaching: what the students encounter	159
Baccalaureate learning: the nature of our students	165
Baccalaureate education: how might philosophy become integrated?	173
Graduate student learning: pursuing a career in ecology	178
Implications for "post degree" learners	190
<b>12 The heroic handyman and the future of ecology</b>	194
The handyman as liberator	195
The handyman saves ecology from a premature demise	197
<i>Glossary of philosophical terms</i>	201
<i>Index</i>	206