

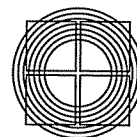
Integral Ecology

Uniting Multiple Perspectives
on the Natural World

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Michael E. Zimmerman, PhD

*With case studies by Gail Hochachka,
Brian N. Tissot, and Darcy Riddell*

Foreword by Marc Bekoff, PhD



INTEGRAL BOOKS
Boston & London
2009

INTEGRAL BOOKS

An imprint of Shambhala Publications, Inc.

Horticultural Hall

300 Massachusetts Avenue

Boston, Massachusetts 02115

www.shambhala.com

Frontispiece by Michael Garfield

©2009 by Sean Esbjörn-Hargens and Michael E. Zimmerman

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9 8 7 6 5 4 3 2 1

First Edition

Printed in the United States of America

Designed by DEDE CUMMINGS DESIGNS

© This edition is printed on acid-free paper that meets the American National Standards Institute Z39.48 Standard.

♻️ This book was printed on 30% postconsumer recycled paper.

For more information, please visit www.shambhala.com.

Distributed in the United States by Random House, Inc.,

and in Canada by Random House of Canada Ltd

Library of Congress Cataloging-in-Publication Data

Esbjörn-Hargens, Sean.

Integral ecology: uniting multiple perspectives on the natural world /

Sean Esbjörn-Hargens, and Michael E. Zimmerman; with case studies by Gail Hochachka, Brian Tissot, and Darcy Riddell; foreword by Marc Bekoff. —

1st ed.

p. cm.

Includes bibliographical references and index.

ISBN 978-1-59030-466-2 (hardcover: alk. paper)

1. Human ecology—Philosophy. 2. Nature. 3. Human beings.

I. Zimmerman, Michael E., 1946— II. Title.

GF21.E75 2009

304.201—dc22

2008032370

To Tatiana Rose, the queen of all those
unseen at Sea Frog Haven

—SEAN ESBJÖRN-HARGENS

To my wife, Teresa, and my daughter,
Lizzie

—MICHAEL E. ZIMMERMAN

Introduction: Whose Environment Is It?

The "key-log" which must be moved to release the evolutionary process for an [environmental] ethic is simply this: quit thinking about decent land-use as solely an economic problem. Examine each question in terms of what is ethically and esthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.

—ALDO LEOPOLD¹

Are you an environmentalist, or do you work for a living?

—BUMPER STICKER POPULAR
WITH OREGON LOGGERS

WHOSE ENVIRONMENT IS IT?

Digging in with its forelegs, a beetle extends its maxillary palps to grasp a tasty bit of decaying wood a few centimeters inside a 200-year-old Douglas fir, weakened by age and felled by a windstorm years earlier. A ravenous woodpecker, hopping along the tree's carcass in search of insects, begins its rapid-fire hammering, which resounds for half a mile or more. Perking up its ears at the arboreal anvil chorus, a bear saunters through stands of cedar and spruce along the way to its favorite valley stream, now roiling with salmon journeying toward their spawning ponds.

Flying in a helicopter over the same steep valley, formed by glaciers thousands of years ago, a British Columbia forester conducts a survey of conditions in the Mid and North Coast Timber Supply Area. At midday, a daring photographer moves in close to capture the image of a grizzly one-handedly spearing a salmon that leaps toward the top of the falls.

Meanwhile, in a side canyon, a gang uses chain saws and bulldozers to establish the road needed to haul out trees that will be cut for faraway markets. Some environmental activists, staging a sit-in to halt the road building, engage in a shouting match with the road crew and loggers. The loggers tell them to go back to the city so that local folks can make a living by doing real work.

A local council of First Nation (indigenous) people, who have long made a living by salmon fishing, announces yet another legal strategy to regain control of their ancestral land—mountains and streams, plants and animals, burial grounds and ritual sites—the future of which is being contested primarily by descendants of European settlers.

A politician in Victoria gets an earful from constituents who differ sharply about logging the coastal rainforests. That evening, on a prime-time news program broadcast across the United States, viewers are informed about tense confrontations building over the fate of the Great Bear Rainforest, otherwise known as the Mid and North Coast Timber Supply Area. Those watching easily make the connection between this troubled region and other disappearing rainforests. In another program, an ecosystem scientist uses satellite imagery and GIS (geographic information system) to show that the rainforest in question is the size of a small country, that significant portions of it have already been clear-cut, and that within 20 years—at current logging rates—all the old growth will be lumber and plywood for voracious consumers. Although he is speaking as a supposedly impartial scientist, the ecologist's tone of voice and facial expression give away his deep concern about the future of the rainforest.²

Which is the “real” rainforest? The beetle's? The woodpecker's? The bear's? The forester's? The photographer's? The salmon's? The road worker's? The environmentalist's? The logger's? The First Nation member's? The politician's? The television viewer's? The sawmill worker's? The plywood manufacturer's? Or the ecologist's? We maintain that the rainforest is composed of all these perspectives, and many others. This book is about how to organize and integrate all of these perspectives.

Being able to understand multiple perspectives is essential to sustainable solutions, as Darcy Riddell discovered in the campaign to preserve the Great Bear Rainforest in British Columbia. Along with many other people, she was involved in negotiating the historic April 2001 treaty, in which the provincial government and logging industry agreed to protect significant

portions of the Great Bear Rainforest; to continue good-faith discussions to protect other large segments of the rainforest; and to undertake ecologically informed logging in still other parts of the rainforest. After five more years of negotiation, on February 7, 2006, a comprehensive protection package was announced for the Great Bear Rainforest.

The package has four key elements: rainforest protection, improved logging practices, First Nation involvement in decision-making, and conservation financing to enable economic diversification. In total, 5 million acres of forest is to be permanently protected from logging, including new parks (3.3 million acres), previous parks (1 million acres), and new no-logging zones (736,000 acres). Stakeholders agreed to conservation-oriented land management practices to be guided by an Ecosystem Based Management approach by 2009. The overall framework was developed and approved by each First Nation, and grants them greater stewardship and decision-making power over resource development in their traditional territories. Finally, U.S. and Canadian foundations, and the BC government, raised \$90 million toward a financing package to fund conservation management projects and ecologically sustainable business ventures in First Nation territories.³

According to Riddell, whose account of this historic campaign appears as a case study in part four of this book, environmental activists at first exclusively identified with their own perspective (one of ecological science), according to which clear cutting was seriously degrading the coastal arboreal ecosystem. With these facts in hand, most environmentalists called for a complete logging ban. In so doing, however, they ignored or denied the possibility that well-intended individuals and communities could propose and defend different assessments of the very same facts. Recognizing that to create a sustainable, regional solution, everyone—including environmentalists—needed to understand the Great Bear Rainforest in light of at least some of those other perspectives, Riddell and a number of her colleagues learned about the array of economic, political, cultural, and social factors that drove current logging practices. Because she understood that many well-intentioned people had ties to the forest, Riddell and some of her colleagues began personal transformational practices aimed at reducing their “subtle superiority” based on their previous assumptions that only their ecological perspective was worth adopting. In this respect, Riddell and others practiced some important elements of Integral Ecology, even though most of them had never heard of Integral Theory.⁴

Soon environmentalists realized that they had to get serious about economics, rather than regard it exclusively as the human domain most responsible for destroying the rainforest. Hence, they asked large North American retailers to purchase lumber solely from companies who agreed not to clear cut temperate rainforests. This economic strategy engendered a more flexible attitude on the part of timber officials and British Columbia government representatives at the bargaining table because now loggers might be deprived of their usual markets. Loggers stopped their stalling tactics known as “talk and chop,” and they engaged environmentalists and First Nations in increasingly good-faith negotiations. The retail campaign against clear cutting did more than give economic leverage to those opposed to timber company and government intentions to log the entire Great Bear Rainforest; it also focused international attention and criticism on the logging practices employed by powerful groups.

With millions of concerned individuals now looking over their shoulders, those involved in the controversy listened more seriously and sympathetically to opposing views and interests. For instance, an increasing number of environmental activists saw the need to address the pressing economic and social circumstances of the region’s human inhabitants, whose ways of life were tied up in the rainforest. Clearly, a viable solution would have to include economic alternatives to unsustainable logging practices. As environmentalists stopped identifying exclusively with their “polarizing identities,” they transformed from “being outside agitators to solution-builders.”⁵ Unfortunately, this shift led some environmentalists to accuse others of selling out to the logging establishment. Despite such accusations, Riddell reports, “Negotiations also enabled opposite sides to engage one another with humanity and mutual respect, fostering [Integral] capacities of mutual understanding.”⁶ As we will see, integral capacities refer in part to the ability to cease exclusive identification with a particular position, such as modern (industrial logger) or postmodern (green environmentalist), and start sympathizing with multiple perspectives and realities. Riddell writes:

When [Integral] capacities emerge, complex issues and diverse perspectives can be more readily integrated into holistic, long-term solutions. Leaders acting from Integral capacities act as cultural empathizers and transformers who operate dynamically across multiple worldviews motivating people with diverse interests toward common ecological,

economic, cultural, political, and social goals. Leaders with Integral perspectives can foster healthy ecological worldviews, enabling mutual understanding, and fueling individual and cultural transformations of increasing scope and depth.⁷

THE NEED FOR AN INTEGRAL ECOLOGY

Growing recognition of the complexity of environmental problems has led leaders in environmental organizations, regulatory agencies, corporate offices, and academia to call for greater interdisciplinary, multidisciplinary, and even transdisciplinary models to describe, address, and resolve environmental problems. We agree—we need a more comprehensive map to understand and solve our most intransigent problems. Riddell’s application of one version of integral ecology demonstrates just how successful a comprehensive integration of multiple perspectives and disciplines can be. Yet until now, people have not had access to a robust theoretical model that organizes and integrates various disciplines and methods, and generates the most comprehensive solutions. We maintain that Integral Ecology is that theoretical model, built upon the distinctions of Integral Theory.

Integral Theory is a content-free framework developed by Ken Wilber and colleagues. According to Wilber, “the word *integral* means comprehensive, inclusive, non-marginalizing, embracing. Integral approaches to any field attempt to be exactly that: to include as many perspectives, styles, and methodologies as possible within a coherent view of the topic. In a certain sense, integral approaches are ‘meta-paradigms,’ or ways to draw together an already existing number of separate paradigms into an interrelated network of approaches that are mutually enriching.”⁸

As a result of its applicability within, across, and between disciplinary boundaries, Integral Theory has been widely embraced by individuals in many different fields.⁹ Applied in the context of environmental problems, Integral Theory organizes insights from more than 200 distinct perspectives to contribute to a more comprehensive understanding of the eco-socio-cultural dimensions involved. Surely there is the need for a model capable of such organization and integration, and surely the field of ecology could make use of such a model.

The Integral Model maintains that there are at least four irreducible perspectives, two of which have been almost entirely excluded from academic and popular ecological discourse. If we exclude any one of these

perspectives, we arrive at partial understandings and, unfortunately, partial solutions. We must include objective, interobjective, subjective, and intersubjective perspectives. The objective perspective examines the composition and exterior behavior of individual phenomena, including humans, bears, salmon, and beetles. The interobjective perspective examines the structure and exterior behavior of collective phenomena, ranging from ecosystems to political and economic systems. The data generated by these two perspectives are valuable, yet such data alone do not exhaust the “reality” of the phenomena under investigation, nor do they provide motivation for action. Motivation arises when we experience the phenomena in question through two additional perspectives—subjective (1st-person—I, me) and intersubjective (2nd-person—you, we). These perspectives constitute the interior aspects of phenomena, are traditionally associated with aesthetic experience and cultural values, and have largely been excluded from academic ecological discourse. We cannot understand our complex interiors through natural or social scientific methods, nor can we understand the natural world solely through our interior experience. We need both.

Integral Theory refers to these irreducible perspectives as *quadrants*, and we summarize them as experience (subjective, 1st-person), culture (intersubjective, 2nd-person/1st-person plural), behavior (objective, 3rd-person singular), and systems (interobjective, 3rd-person plural).¹⁰ We cannot understand any one of these perspectives through methods suitable for analyzing the realities of another. Hence, Integral Theory avoids reductionism, especially “gross reductionism,” or the reduction of all of reality to individual, objective phenomena (reducing all interiors and systems to atoms—individual “its”); and *subtle reductionism*, or the reduction of all interiors to interobjective phenomena (reducing the “I” and “we” perspectives to interwoven systems—“its”). The science of ecology has typically exemplified the latter form of reductionism, and this subtle reductionism has generated partial understandings of the natural world and continues to generate partial solutions to some of our toughest problems.

Clearly there is a need for subjective and intersubjective perspectives, because they show up at the bargaining table (we don’t just have ecological difficulties, we have human difficulties!). Intersubjectivity (2nd-person) arises between two subjects: I and thou, me and you.¹¹ Different people will experience and assess the same data in different ways. If the subjects involved do not consider the cultural matrices—beliefs, values, norms, religious traditions, ethnic self-identification—of the other subjects, it is difficult to

create common ground and understanding. Without understanding and flexibility, it is difficult to agree upon a sustainable solution. Understanding the presuppositions and beliefs that shape your opponent’s experience, and discerning how your own experience may be distorted by unyielding adherence to a particular position, are vital to creating common ground and successful, inclusive negotiations.

Genuine mutual respect is difficult to attain, even among experts from different fields, because experts often think that their particular method or perspective is the only correct or most valuable one. There is a need for an integral ecology that resists this method hegemony, the supposition that one or a few perspective(s) can provide the only useful and pertinent truth claims about a complex environmental problem. In resisting method hegemony, Integral Ecology creates a meta-framework that contextualizes and includes the partial truths of all traditions. Indeed, as one commentator stated, “Integral theory carries out a *demythologizing* [i.e., deabsolutizing] mission, in which it undermines the sacred reductionisms and absolutisms practiced by many different methodologies.”¹² Instead, it coordinates and organizes all these partial perspectives into a more coherent whole.

Not only does Integral Ecology study interiors in addition to exteriors, but it also studies how those interiors develop within organisms in general and humans in particular. Integral Ecology acknowledges that all organisms have subjective and intersubjective dimensions and describes how interior development in humans determines in profound ways our relationship to the natural world. Until now, ecologists and ecological discourse have mostly excluded an explicit recognition of interiors and their development—and make no mistake, there is a need to understand our interior individual and collective relationship to the natural world, for it is within our interiors that motivation to treat the natural world in healthier ways resides.

To conceptualize an ecosystem, for example, requires a highly developed level of cognition, a level unavailable to children (a level that was even unavailable to most adults many centuries ago). Different kinds of phenomena can manifest—and in that sense be—only within an adequate perspective, clearing, or worldspace (we will discuss this in great detail in chapter 5). If the worldspace needed for a phenomenon to appear is lacking, it cannot show up. In some sense ecosystems subsisted long before ecologists conceptualized them, but in another sense ecosystems, as specifiable phenomena, came into being only when we established the necessary cognitive

worldspace. Don't be misled; Integral Theory is not a subjective idealism. Things really do exist, but they manifest only within a worldspace capable of allowing for them.

Based upon decades of research in philosophy and social science, Integral Theory asserts that mind is not a mirror that reflects a pregiven reality. Instead, mind both enables and limits the ways in which things appear. Hence, the worldspace that a child can hold open is clearly more complex than a frog's, but less complex than a mature adult's. During maturation, the human worldspace expands and deepens enormously in many different ways. Because a more expansive and inclusive interior allows a more comprehensive worldspace to emerge, some assertions made about a given phenomenon are more comprehensive, and thus have greater validity, than other claims. Hence, integral perspectivalism is not equivalent to relativism. We do not assert that all perspectives are equal. Some truths are more comprehensive than others. Integral perspectivalism maintains that partial worldviews and partial perspectives reveal partial truths. These partial truths are accurate and essential, yet they must be integrated into a larger, more comprehensive picture. Without an Integral framework, we currently have no framework capable of integrating and organizing these partial perspectives and partial worldviews. Clearly, such a framework is needed.

This ever more comprehensive pattern arises in all 4 quadrants—experience (subjective), behavior (objective), culture (intersubjective), and systems (interobjective). Just as interiors develop (as when a child's worldspace evolves into a more complex, adult worldspace), so, too, exteriors develop (as when an acorn develops into a tree). Integral Ecology recognizes levels of complexity in all 4 quadrants, or throughout all four dimensions or perspectives: systems, behavior, experience, and culture:

- Ecosystems are composed of and influenced by natural and social systems.
- Ecosystems involve the individual behaviors of organisms, at all scales (including microbes and humans). These organisms are understood as being members (not parts) of ecosystems.
- Members of ecosystems have various degrees of interiority (perception, experience, intentionality, and awareness).
- Members of ecosystems interact within and across species to create horizons of shared meaning and understanding.

Integral Ecology creates a framework that allows all aspects of reality to connect with what has traditionally been associated with the scientific study of ecology. But instead of collapsing all connections into an "everything is ecology" position, Integral Ecology highlights the factors that differentiate interrelated phenomena. Thus, while everything can be viewed as (inter)connected, not everything is connected in the same way nor to the same degree! The cliché "Everything is interconnected" becomes "Everything is interconnected, but some things are more connected than others." In other words, there are spectrums of interconnection between variables both in terms of depth and span. As a result, depending on the perspective one is taking, some "parts" are actually not very connected to other "parts."

The four dimensions of any phenomenon co-arise and mutually influence one another in complex ways; none of them has ontological priority. Hence, when we address an environmental problem, we must do more than assess its ecosystemic aspects, such as whether an environmental toxin has altered the food chain. We must also inquire how the pollution affects (or is interpreted by) the aesthetic, recreational, economic, and cultural aspects of communities and organisms that depend upon it.

In short, Integral Ecology advances the development and application of a comprehensive approach to environmental issues. This approach organizes insights from various eco-approaches into an all-inclusive framework. This new framework has promising applications in many contexts: outdoor schools, urban planning, wilderness trips, policy development, restoration projects, environmental impact assessments, community development, and green business, to name a few. Integral Ecology transcends many of the problems that have assailed contemporary partial approaches to the environment and moves toward a developmentally informed understanding of individuals, communities, and systems. As a result, Integral Ecology draws on the expertise of many disciplines and offers extremely comprehensive, far-sighted, and flexible solutions for the environment—solutions that honor the interiors of animals and people and that can carry us into right relationship, at multiple scales, with the Earth.

ALDO LEOPOLD'S INCLUSION OF INTERIORS

Aldo Leopold, the dean of Anglo-American environmentalism, was a scientist, naturalist, writer, environmentalist, hunter, and farmer.¹³ His book, *A Sand County Almanac*, written 60 years ago, contains elements of an

integral ecology.¹⁴ As such he was a pioneer of perspectivalism. Over the years Leopold has consistently been cited by ecologists and environmentalists as one of the most important figures in their fields. In fact, *The Environmentalist's Bookshelf* identifies Leopold's *A Sand County Almanac* as the number one most influential book among environmentalists, based on a survey of over 200 experts in ecology and environmental studies.

Leopold defined the land as the Earth's many different habitats and their associated life forms. He recognized that the objective and interobjective (3rd-person singular and plural) methods used by natural science provided important insights into the land and land use. Yet he thought that insights afforded by these perspectives were often insufficient to prevent short- and long-term damage to the land. He believed that other perspectives were clearly needed, and so he employed other, equally valid, subjective and intersubjective perspectives, which he referred to as aesthetic (subjective) and ethical and cultural (intersubjective).

Leopold's land ethic anticipated the need to include consciousness, culture, and nature in the study of ecology in order to achieve a more comprehensive understanding. Leopold reports that his own objectifying, instrumentalist attitude (3rd-person singular) toward nonhuman life changed when, as a young man, he was hunting deer with some friends. Spotting a pack of wolves, he shot a wolf and one of her cubs, members of a species that was then regarded as a worthless and dangerous predator. As he approached the dying mother wolf, he observed "a fierce green fire dying in her eyes."¹⁵ At that moment, Leopold acknowledged that the wolf had a wolfish kind of subjective sentience, and an intersubjective relationship to him. Far from being merely a behavioral mechanism, the wolf exhibited something akin to, yet different from, the yearning, desiring, and fearing that Leopold himself experienced. The wolf had a life of its own. To understand the wolf required more than weighing and measuring it, analyzing the working of its organs, studying its behavior, and comprehending its function as one of the top predators in mountain country. It also required a subjective and intersubjective understanding and appreciation of what it must be like to be a wolf!

Having spent years in the regulatory trenches, and having trained in the natural sciences, Leopold was aware that introducing aesthetics and ethics into land-use policy would not be taken seriously by his colleagues, who were influenced by reductionistic materialism and behaviorism. In fact, he postulated that nothing short of an evolutionary advance—an advance in

which humans learned to take multiple perspectives and thus grew to recognize the interiority of other beings—would move society beyond modernity's instrumentalist view that the land is merely raw material for human ends.

Still, Leopold was unable to articulate adequately or defend his intuition that behaviorism (objectivism) and systems theory (interobjectivism) could only partially account for animal life and the land. He recognized the fundamental paradox of environmentalism: Environmentalists value the natural world but typically subscribe to a conception of nature that either excludes value (subjective and intersubjective perspectives) or regards it as a conventional fiction useful for enhancing human survival. In modern cosmology, as Kant feared, there is no place for aesthetic experience, morality, consciousness, and subjectivity. Environmentalists often speak of nature as a complex dynamic system in which humans, like other animals and plants, are merely strands in a cosmic web that lacks any hierarchy or direction. Yet, if humans are merely strands in a complex state of affairs—the *is*—they are in no way capable of calling for alternative actions based on moral obligation—the *ought*.¹⁶

With this book, we are building on the work of those like Leopold who recognized the need for including human and animal interiority in our understanding of the natural world and humanity's relationship to it.¹⁷ As a result, building on classical definitions, we define ecology as *the mixed methods study of the subjective and objective aspects of organisms in relationship to their intersubjective and interobjective environments at all levels of depth and complexity*.

INTERIORS AND ANTHROPOCENTRISM

Some critics (mostly scientific ecologists) complained that Leopold was anthropomorphic because he personalized accounts of animals in the wild.¹⁸ As far as positivism, behaviorism, and eliminative materialism are concerned, people fall prey to anthropomorphism even when they ascribe awareness, interiority, and personality to human beings! In addition to being criticized for being anthropomorphic, environmentalists have also often charged him with the crime of anthropocentrism.¹⁹

Even so, Integral Ecology transcends the anthropocentrism versus anti-anthropocentrism duality that characterizes so many environmental debates in the English-speaking world. Just as it is misguided for anthropocentrists to treat nonhuman life as if it had no intrinsic value, it is also misguided for

anti-anthropocentrists to ignore that humans are a remarkable development in terrestrial evolution.

Integral Ecology may seem anthropocentric, because in one of three values (i.e., *intrinsic value*) we maintain that humans are special, in part because humans are endowed with an interior depth that allows us to appreciate the intrinsic value of nature! However, in *extrinsic value* humans are less significant, and within *ground value* humans are of equal value with all life forms.²⁰ As Leopold remarks, "For one species to mourn the death of another is a new thing under the sun. . . . we, who have lost our [passenger] pigeons, mourn the loss. Had the funeral been ours, the pigeons would hardly have mourned us."²¹

Although humans have richly developed interiors and an astonishing capacity for language, interiority is not restricted to humans, which was Leopold's remarkable revelation. Indeed, Integral Ecology is radically non-anthropocentric insofar as it maintains that interiority goes "all the way down" (i.e., interiority is a basic feature of the universe).²² The capacity for experience, however meager, is found throughout nature. A deer and a human do not have the same interior experience. Clearly the human's is deeper in important ways, but they both have an experience and they both are of value and must be considered in an integral ecology. Ironically, only humans can have an ecological realization of "oneness" with nature—and even then the amount of humans who do is incredibly small, and the ones that stabilize this even smaller. Thus, ecocentric realization is an anthropocentric experience!

Darwin maintained that humans are not a special act of creation, but rather they descend from other animals as the result of chance mutations that proved adaptive, or advantageous. According to Darwinian naturalism, humans are intelligent animals that have evolved accidentally. Many environmentalists often seize on evolutionary theory (and other scientific claims) to reduce arrogant human self-importance, which in fact has at times led to mistreatment of nonhuman nature. In a noble effort to protect animals and habitats from anthropogenic destruction, many environmentalists strike anti-anthropocentric and even misanthropic poses. Indeed, some radical environmentalists would prefer that humankind disappear altogether, thereby removing an alleged cancer from the web of life.

This position is confused. The capacity for significant moral evaluation (even the capacity to evaluate human behavior as self-centered) dif-

ferentiates humans from nonhumans.²³ In fact, environmentalists have an interior depth that allows them to encourage humans to do the morally right thing and limit their rate of reproduction, preserve habitats, and protect nonhuman species. Yet, if humans are merely another animal species, there is nothing morally wrong with displacing other species as a human expression of the universe's drive to maximize reproduction (certainly, neither a biologist nor an environmentalist would morally critique a non-human species that maximized its reproduction). Of course, a population crash and even extinction may result if a species overshoots the carrying capacity of its habitat, but there is no moral failing involved.²⁴ If we assume a naturalistic conception of humankind, all we can recommend is that humans follow the prudential ought: we ought to alter our behavior toward the nonhuman domains so as to promote long-term human survival and well-being. Many environmentalists insist, however, that a *moral* ought also to apply here: we ought to limit our behavior, including our reproductive drive, so that other life forms can survive and prosper. This recommendation is confused because it cannot be reconciled with the naturalistic view that humans are merely one species among others, bound by the same laws that bind other species. We depict no other species as immoral when it seeks to maximize its own fitness. If we depict similar human behavior as immoral, we do so because we regard human beings as significantly different from all other known species. The (often tacit) presupposition that only humans are morally responsible for their behavior is a reminder that with the emergence of the human species, something novel, extraordinary, and dangerous occurred on Earth.²⁵ We will unpack the Integral Model and crucial arguments like this, ones that define or obscure the relationship between humans and nature, throughout this book.

PLAN OF THE BOOK

This book can be characterized as an advanced introduction to Integral Theory in general and Integral Ecology in particular. "Introduction" in the sense that it can be read by someone new to either Integral Theory or ecology and environmental studies. However, the more familiar one is with either domain of discourse, the more one will be able to grapple with the finer details of our presentation. "Advanced" in the sense that it can also be read by an advanced student of either field. An advanced student of Integral

Theory will benefit from seeing an exhaustive presentation of the Integral Model applied. An advanced student of ecology or environmental studies will gain much from seeing how an Integral framework can allow them to unite the many insights within their field. In fact, our endnotes are often geared toward the dedicated scholar-practitioners of Integral Theory. As a result, we feel this book serves those who are just becoming familiar with integral applications and to those who have been long-time scholar-practitioners of integrative efforts.

The book is divided into four parts. Part one introduces Integral Theory, the conceptual framework of Integral Ecology. Part two defines and explores the Who, How, and What of ecological phenomena. Part three applies the Who, How, and What framework to explore a variety of issues and present a number of real-life applications of Integral Ecology. Part four provides three detailed case studies where the Integral Model has been used for ecological and environmental purposes. In general the book moves from a focus on laying out the theoretical basis of Integral Ecology to giving concrete examples of it applied. Hence, each part is increasingly concerned with applications of Integral Ecology.

Part one introduces the theoretical framework of Integral Ecology and is divided into four chapters. This part focuses on theory, as we are summarizing thousands of pages of Wilber's writings and introducing his model in the context of ecology. However, the resulting foundation is capable of supporting a wide range of ecological endeavors. Chapter 1 asserts that Integral Ecology assesses environmental problems through many different perspectives, including objective and interobjective perspectives most commonly associated with the natural and social sciences and the subjective and intersubjective perspectives, which have largely been excluded from ecological discourse. In chapter 2 we begin our presentation of Integral Theory, and we specifically emphasize the quadrants. In the Integral Model, quadrants are both the four major dimensions of holons (from atoms to organisms) and the four major perspectives we can adopt in our research. In chapters 3 and 4 we discuss Integral Theory's contention that evolutionary development occurs in all quadrants. Chapter 3 examines how development has occurred in the exterior objective quadrants studied by the natural and social sciences. In chapter 4 we discuss development as it occurs in individuals and communities, or the quadrants representing the subjective and intersubjective domains.

Part two has four chapters, which explain how Integral Ecology embraces ontological, epistemological, and methodological pluralism. Chapter 5 defines Integral Ecology in a way that allows it to honor the 200+ distinct schools of ecology and environmental thought. In the next three chapters (6, 7, and 8), we clarify that what someone calls "reality" depends on *What* part of reality one is examining, *Who* is doing the examining, and *How* they examine (or which methods they use). Chapter 6 defines and explores the What and introduces the 4 terrains and their 12 niches. Chapter 7 examines the Who and introduces the 8 ecological selves. The 8 eco-selves represent the major developmental worldviews that currently exist and that profoundly influence how we relate to the natural world. Each of these worldviews has an important yet partial piece of the whole picture, and their contribution must be honored if we want to generate mutual understanding among various stakeholders. Chapter 8 presents the How, or the 8 modes of ecological inquiry. These modes of inquiry are the established methodologies (subjective, objective, intersubjective, interobjective) that reveal reliable and verifiable ecological data.

Part three is divided into three chapters, which introduce readers to a variety of applications of the Who, How, and What of Integral Ecology. Chapter 9 examines how Integral Ecology informs our understanding of living in and out of balance with natural systems. In particular we explore an all-quadrant and all-level approach to "being one" with the planet, and an all-quadrant, all-level approach to our understanding of our current ecological crisis. Chapter 10 introduces over a dozen practices we have developed to honor nature as a transformative path. Chapter 11 introduces 15 principles for applying the framework and provides project summaries, case studies, and applications of Integral Ecology in action.

Part four showcases three illustrative case studies by various Integral scholar-practitioners. Case study I presents an example of community development in El Salvador that includes human interiority toward environmental ends. Case study II presents an instance of using the Integral approach to address conflicts occurring over natural resources in Hawai'i. Case study III focuses on environmental activism in Canada's Great Bear Rainforest. In the conclusion, we detail over a dozen distinct advantages of the Integral Ecology framework, present a platform that summarizes these strengths, and then explore the limitations of and road ahead for Integral Ecology.

In spite of its 800+ pages this book still is only the briefest sketch of Integral Ecology. Throughout this volume we cover a lot of ground in order to stretch the Integral canvas as philosophically (part one), theoretically (part two), and pragmatically (parts three and four) as wide as possible. We do this by touching on key debates and controversies, offering powerful Integral distinctions, providing a new framework (i.e., Who x How x What), detailing eighteen personal practices of transformation, describing and drawing on over two hundred unique perspectives on the natural world, incorporating over 1,750 sources from the ecological and environmental literature, and pointing to twenty-three examples and three in-depth case studies of Integral Ecology in action.

We have provided this far reaching overview of Integral Ecology as a means of generating a creative space for exploration of the key ecological issues facing our communities and the planet. Much color, texture, and illumination remains to be added by you and others. Thus, what we present in this book is less about the details, arguments, and examples we give than it is about a new way of thinking about and responding to the ecological and environmental issues confronting us as we head into the 21st century. The two of us can afford—and expect—to be partial in the perspectives we present here but we as a planetary community can no longer afford to approach the natural world with anything less than some form of an integral approach to ecology. We offer this book up as an important step in that direction. May our clarity engender action, may our confusions invite inquiry.

PART ONE

The Historical Context and Conceptual Framework of Integral Ecology