SECOND EDITION

# CONSERVATION PSYCHOLOGY

Understanding and promoting human care for nature

Susan Clayton & Gene Myers

WILEY Blackwell

# Conservation Psychology

# Conservation Psychology

## Understanding and promoting human care for nature

Second Edition

**Susan Clayton and Gene Myers**

WILEY Blackwell

This edition first published 2015 ©2015 by John Wiley & Sons Ltd

First edition published by John Wiley & Sons Ltd 2009

*Registered office:* John Wiley & Sons, Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK

*Editorial offices:* 9600 Garsington Road, Oxford, OX4 2DQ, UK
The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK
111 River Street, Hoboken, NJ 07030-5774, USA

For details of our global editorial offices, for customer services and for information about how to apply for permission to reuse the copyright material in this book please see our website at www.wiley.com/wiley-blackwell.



*Library of Congress Data applied for.*

A catalogue record for this book is available from the British Library.

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books.

Cover image: Volunteers restoring streamside habitat. Photo courtesy of Nooksack Salmon Enhancement Association & Phil Humphries

Typeset in 10/12pt AGaramondPro by SPi Global, Chennai, India.

1 2015

# Contents

# Preface to the Second Edition

The role of psychology in conservation has grown dramatically since the first edition of *Conservation Psychology*. We are delighted by this development, although it has made our attempt to cover the field even more difficult. With this edition of the book, we have accepted the impossibility of including everything in this field. Instead, guided by the interests of our likely readers, we have reordered some of the material in a way that we hope will be more accessible and highlighted new developments in applied conservation. We have also described the promising intersection between conservation psychology and positive psychology. As originally, we are grateful to all the people working on this enterprise as well as to the students and practitioners whose interest is driving new research. This edition is dedicated to those who are doing their best to apply psychological insights to conservation practice.

# About the Companion Website

This book is accompanied by a companion website:

www.wiley.com/go/clayton/conservation

The website includes:

- Pdfs of all figures from the book for downloading
- Powerpoints of all tables from the book for downloading

# 1

# Introducing the Field of Conservation Psychology

- **Conservation**
- **Psychology**
- **Human care for nature**
- **The roots of conservation psychology**
- **The utility of conservation psychology**
- **The practice of conservation psychology**
- **The organization of the book**
- **Conclusion**
- **References**

Humanity faces environmental challenges on every level from local to global. Human population growth and human activities are negatively affecting the ecological processes that support life as we know it, and the effect of these changes on human well-being will be profound. Recent quantitative assessments of the human impact on nature give a sobering picture; the Millennium Ecosystem Assessment found that that about 60% of the earth's ecosystem services are being used unsustainably. Using ecological footprint methodology, the Global Footprint Network (Global Footprint Network, 2013; http://www.footprintnetwork.org) has calculated that humanity's load on the biosphere is about 150% of earth's capacity, up from 70% in 1961. These trends result from individual behavior patterns as well as from the societal infrastructure constituted by our institutions, governance systems, and ways of interacting. At stake are two inextricably linked sets of values: concern for the present and future quality of human lives and care about the vitality of the biosphere and its other inhabitants.

We were drawn to write about conservation psychology not only by these uncompromising facts and future possibilities but also by a perception that our primary discipline, psychology, could do more to address these realities. This is clear across areas of conservation and natural resource research. We want to urgently ask: Are psychologists on those research teams? Are they prepared to intelligently deploy their skills in these new contexts (do they know their ecology and economics)? Are other social or natural science specialists ready to seek those skills (do they understand human motivations and biases)? A growing body of psychological research is relevant to conservation. Collectively, however, psychology is at best midway into effectively putting its resources at the disposal of individuals and groups working for a more healthy relation to our planet. We have yet to see a sea-change in the work of psychologists toward

*Conservation Psychology: Understanding and promoting human care for nature*, Second Edition.
Susan Clayton and Gene Myers.

www.wiley.com\go\clayton\conservation

addressing sustainability. This book is for the reader with some interest in psychology, whether as a psychologist or just that of a normally curious and reflective human being, and concern about contemporary threats to environmental and social well-being posed by the way humans relate to ecological systems. Our goal is to describe the many ways in which psychology is relevant to environmental sustainability and vice-versa.

## Conservation

We define *conservation psychology* as the use of psychological techniques and research to understand and promote a healthy relationship between humans and the natural environment. Let us unpack the book's title. "Conservation" should not be identified with turn-of-the-twentieth century resource conservation, with its strictly utilitarian focus. Instead, we associate "Conservation" with its rebirth in the 1980s, in which it was applied to a whole new set of ideas, including landscape and continent-wide ecosystem planning, and especially to Conservation Biology. That field was born of a sense of crisis and some within it openly avowed value-laden positions (Soulé, 1985). The same goes for conservation psychology: the goal is not only to understand the interdependence between humans and nature but also to promote a healthy and sustainable relationship.

> What's in a name?
>
> There is no consensus on what to call the kind of psychological research that we discuss here. "Conservation Psychology" is well represented in books, handbooks, and organizations, but some workshops or groups have opted for "Sustainability Psychology," "Green Psychology," or other titles. Even "Environmental Psychology" is sometimes used as if it refers only to research that relates to environmental protection and conservation, although there is a wide range of environmental psychology research on topics that are almost completely irrelevant (such as workplace design or crowding). Although the name "Conservation Psychology" was carefully chosen after discussion at a few workshops in the early 2000s, the specific name is less important than the ability to find relevant research. We review research whose authors might not identify by the term conservation psychology in the hopes of making it more available to anyone interested in promoting a healthy and sustainable human–nature relationship.

The explicit value basis of conservation psychology is unfamiliar to some scientists, who would prefer to simply describe behavior rather than take a stance with a prescriptive component (cf. Crosby et al., 2004). But psychology already has a clear value basis: the goal of promoting human well-being. If choosing research questions with an eye to their relevance compromises the integrity of one's results then all of medical research would be suspected. Weak or inappropriate methodology and nonvigilant thinking are the real threats to experimental validity, not a preference for sustainable behavior. There is wide consensus about the value of the natural environment, but not always about the need for change or the direction of change in order to promote sustainability. Conservation psychology seeks to direct rigorous research toward the goal of sustainability and to rely on the results of that research to make recommendations about specific techniques.

## Psychology

"Psychology" also requires explication. Many people are at first surprised when we say the two words together, "conservation psychology." But soon they get it: oh yes, environmental problems are a result of human behavioral choices, and because addressing those problems will require changes in patterns of behavior, we need to understand people. Psychology can be defined as the scientific study of mind, brain, and behavior. It is often misunderstood by the public, who – partly on the basis of exposure to "pop psychology" theories promoted by non-professionals – confuse psychology with psychiatry and with an emphasis on therapy. Although many psychologists do work to promote individual mental health, psychology as a discipline has both a broader agenda and a greater emphasis on scientific research. The two, linked, goals of psychology are to understand human behavior and to promote human well-being. Psychological research and practice are based on the assumption that the promotion of human welfare requires an understanding of human behavior that is based on rigorous empirical study.

Understanding human behavior means, in part, understanding how individuals are affected by the setting in which they find themselves. This includes the natural environment and changes in that environment due to things such as climate change, overpopulation, and the loss of wild landscapes. People spend a great deal of time and money interacting with aspects of the natural environment; indeed, a significant proportion of human behavior occurs in a setting that, if not directly in nature, invokes nature through windows, pictures, or potted plants. This means that environmental changes will affect everyday human experience. Environmental issues are social issues as well, and socially constructed perceptions of environmental change have an impact on human social behavior.

Promoting human welfare requires awareness of how intimately it is connected to the natural environment. It is well known that environmental toxins can have direct impacts on human health. Less visible are the possible effects on mental functioning. There is a large body of research documenting the detrimental effects of lead, mercury, and PCBs on cognitive functioning and sometimes social behavior (see Moore, 2003 for a review). Less directly, environmental problems will ultimately affect the well-being of everyone on the planet: global warming and overcrowding affect social behavior and intergroup conflict, and opportunities for interaction with animals and nature affect emotional well-being and stress reduction. The goal of sustainability articulated by the World Commission of Economic Development (WCED, 1987) report explicitly linked the two goals of environmental health and human development, including attention to human as well as environmental welfare.

A brief review of some key environmental problems shows the ways in which humans are implicated (see Oskamp, 2000):

- Global climate change is generally agreed to be a result of human action. There is a wide range of probable effects on humans. Direct effects include a possible effect of increased temperature on aggression (e.g., Anderson, 2012) and the probability of increased serious weather events with concomitant damage to human dwellings and built environments. Indirect effects may include eco-migrations, with concomitant increase in intergroup conflict (e.g., Hsiang et al., 2013; Reuveny, 2008), along with negative impacts on mental health due to stress, anxiety, and reduced social support (Clayton et al., 2014).
- Pollution of the air, water, and soil is a clear by-product of human manufacturing processes. Impacts include not only increased susceptibility to cancer and possible effects on

reproduction but also more psychological effects such as decreased cognitive functioning (due, e.g., to exposure to lead or mercury).
- Resource depletion, for example, the depletion of water resources and the collapse of fish populations, results from human overuse. Any of these will require a major shift in the way humans conduct their lives such as where they live and how they are employed.
- Loss of biodiversity is a result of the three problems described above as well as the increased development of wilderness to house a rising human population. An anthropocentric argument to preserve biodiversity is often couched in terms of potential benefits to humanity from, for example, as-yet-undiscovered drugs made from natural sources. But surveys show that humans value wilderness for more difficult-to-quantify reasons as well and feel that human experience would be diminished by its loss (Kellert, 1996; Manfredo, 2008).

Psychology has a broad purview, spanning topics from the biophysical to the cultural with diverse methods that range from observation of naturally occurring behavior to analysis of brain activity and hormone levels. We want to enlist this full spectrum of psychology in the urgent task of conservation. This includes the following core areas:

- *Clinical psychology* is the study of mental health and well-being, as well as abnormal behavior.
- *Developmental psychology* examines continuities and changes that are associated with growth across the lifespan, in perceptual, social, and cognitive and other areas of capabilities.
- *Cognitive psychologists* examine information processing: the mental models that people use, and the abilities and tendencies that affect the way people respond to information.
- *Social psychology* looks at interpersonal behavior, and the ways in which people are affected by others.
- *Physiological psychologists* utilize amazing new technologies to explore the neural, endocrinal, and bodily processes that underlie behavior.

There is no definitive list of specialties, and there are many other ways in which people define their subdiscipline.

Conservation psychology should not be considered as a subdiscipline, but as a field or area of focus (see Sommer, 2000, for a discussion of the difference). That field or focus is not only practical and applied, but also theoretical and fundamental. The conceptual part of conservation psychology involves persistently and deeply asking what is the human place in nature, and what is nature's place in the human being. The world today offers many ways of actually testing this: What is a human being, deprived of contact with nature, or supplied with technological simulations of nature? Is he or she missing anything? Is a nature DVD as good as a potted plant, an arboretum, a million acres of wild land for discerning in our hearts what it means to be a living creature on a living planet?

We can explore this query in terms of how it could be addressed within different core areas. Clinical psychologists can (and do) explore the positive effects on mental health of exposure to nature. Developmentalists examine the significance of early exposure to nature on the formation of an enduring environmental empathy and ethic. For cognition–brain–communication specialists: our simplified protocols for perceptual and cognitive stimuli are like nursery tunes compared to the symphonic acoustics we evolved in; what can those variations tell us that we have not even asked yet about our minds? Physiological psychologists should not neglect the impact of synergies of environmental toxins on behavior (kudos to those already doing this). Social psychologists can study ways of constructing effective and persuasive communications about the significance of nature-based experiences and design socially based behavioral interventions. Conservation psychology should attract psychologists from all the areas mentioned,

as well as others not described. Organizational, health, population, and psychologists from across the spectrum can contribute to the goals of this field.

## Human care for nature

The last part of our title references "care for nature." Care may sound like too casual a term, but its familiarity is a strength. We all recognize that to act with intention, to inquire, to get activated, requires that one "give a damn" – that one "care." In the midst of legitimate concern over the harm that people are inflicting upon the natural environment, it is easy to feel pessimistic about the extent to which people care about nature. As people waste energy, consume resources at an unsustainable rate, undermine life-support systems, and pollute the environment, it may seem as though they have to be threatened or enticed to engage in pro-environmental behavior, as if it were against their own self-interest. However, people do

| | |
|---|---|
| We should clean up the environment because it's just the right thing to do | 93% agree |
| When I see trash in places like the beach or the woods, I want to pick it up immediately | 87% |
| I am concerned about the health of our oceans | 85% |
| Preserving places for animals to live has its own virtues even if humans don't benefit | 85% |
| I like to have activities in my life that bring me close to nature | 85% |
| Nature has lots of solutions to our current problems, like more trees to make shade and more wetlands to stop flooding | 84% |
| Personal health is the best reason to reduce pollution | 83% |
| Wild animals need more places to live in the way they always have | 83% |
| How essential to do something about increase in water shortages | 82% |
| Oil companies have too much power in America today | 81% |
| I love going to the ocean | 81% |
| Animals have a moral right to be protected | 81% |
| If we don't do something our oceans will be in worse shape five years from now than they are today | 80% |
| The extinction of plants and animals threaten human life | 80% |
| How essential to do something about garbage and grime in the environment | 80% |
| I make a strong effort to recycle everything I can | 79% |
| It's not fair that oil and coal companies get big tax breaks | 79% |
| A human-caused disaster (oil spills or nuclear leaks) is a call to action to change the way we live | 78% |
| When plant species go extinct, we could be losing drugs that could cure things like cancer or heart diseases | 78% |
| It will not matter to children if all the lions and bears have to live in zoos | 78% |
| Our children's lives will be worse off because of our generation's wasteful habits | 78% |
| How essential to do something about loss of plants species that could lead to medicines | 78% |
| I feel better knowing that people are protecting land from development forever | 76% |
| How essential to do something about worsening health of oceans | 76% |
| America needs to lead the world in solving environmental problems | 75% |

**Fig. 1.1** Shared environmental values among the American public. (Ecoamerica (2011). The American Climate and Environmental Values Survey. Available at http://www.climateaccess.org/sites/default/files/ecoamerica_ACEVS%20report.pdf).

care about the environment. They demonstrate this in ratings of photographs, in descriptions of favorite places, and in survey responses (Fig. 1.1).

Does care mean anything more than personal preference? It does have a stronger sense – that of an obligation we learn to accept and own, to take into our very identity. Care is personal because it seems discretionary *what* we give a damn about; people care about all variety of things, mostly the things that are close to them and that serve to define them: other people, places, and values. Care develops within social contexts, usually in relationships. Children have a lesson in care around ages 8 to 11 years through friendships that are conditional: if care is not reciprocated, the friend soon is gone. There is similar conditionality in our relationship with the earth. In way that are recognized and in ways that are not, the natural environment takes care of our needs, suggesting that we need to think about the needs of the environment in return (Fig. 1.2).

Care is not only an emotional response, but also a type of action. We sometimes refer in the book to "care about" which denotes an emotional response, an attitude of concern. "Caring for" has a behavioral sense; we use the phrase in everyday life when we talk about caregivers and caretakers. If we care about the environment, we need to care for it. There are many ways to express care.

Care sounds like something you do privately, since we use it to talk about personal relationships. Yet, there is no question that in the stronger senses of care unveiled above – as an internalized obligatory motivation, as based in a universal valuing of cherished relationships – we care collectively too. Patriotic sentiments and action, helping to maintain one's church, involvement in community organizations all represent collective care. Caring together can mean working together to stop actions by others, but threats to nature are sometimes best addressed by caring about human-to-human relations and institutions. We mean that by our


**Fig. 1.2** A reciprocal relationship with nature. Photo credit Susan Clayton.

title also. The most courageous and novel interventions for nature – by individuals in moral impasse, or by institutions in policy innovation – may be in the human–human realm.

Fully instantiated, care includes cognitive, affective, and behavioral components. In order to care about an issue, people must be informed. Regarding environmental issues, people must recognize the ways in which their behavior can affect the environment and the ways in which those environmental changes in turn will affect the things they value. Beyond thought, however, people must feel: they will experience positive emotions associated with nature, and negative ones that are stimulated by the threat of environmental degradation. Finally, people should act in ways that will express both their knowledge and their emotions, and that may tend to minimize or alleviate the environmental threats they are facing.

Probably not everything we want conservation psychology to include falls clearly under this flag of care. Even in this volume, many other angles are taken: self-interested benefits, matters of rights and justice, and strategies that simply work better with people. The richness of seeking more sustainable and harmonious relationships between people and nature and institutions cannot be reduced to any term. We use "care" here as a fundamental starting point, of giving a damn, and doing something about it. Conservation psychology cannot be about much more unless it begins with that.

## The roots of conservation psychology

Within environmental studies, any list of early influential articles would probably include Garrett Hardin's (1968) piece on the "tragedy of the commons" and Lynn White's (1967) article on "The historical roots of our ecological crisis." Both of these provocative (and flawed) essays drew attention not to unexpected consequences of technological advances, but to the ways in which people thought about the environment and how that influenced their treatment of it. At about the same time, serious research on the relationship between humans and their environment led to the development of *environmental psychology* as a subdiscipline of psychology. "Environment" was defined as the physical (rather than social) context, including both natural and built components. At first, environmental psychologists primarily focused on the ways in which environments had causal impact on human behavior. With the rise of the environmental movement, there was more attention to the natural environment and more acknowledgment of the ways in which human behavior has an impact on the environment. Bonnes and Bonaiuto (2002) review the development of environmental psychology from a focus on the spatial-physical environment to concern with sustainable development. A thorough and more recent review of environmental psychology can be found in Gifford (2014).

From the beginning, environmental psychology has included researchers concerned with the health of the environment, and a great deal of research relevant to conservation psychology has been done by environmental psychologists. Detailed discussion of the relationship between environmental and conservation psychology can be found in a recent handbook (Clayton, 2012, Chapters 1 and 34). Some of the relevant psychological research has addressed the impacts of exposure to nature for individual well-being; the ways in which humans interact with nature; perceptions of nature and of environmental risks; decision making about environmental policies; conceptions of environmental ethics; and the ways in which people's self-concepts are intertwined with the natural environment. Important psychological constructs include knowledge, behavior, values, and attitudes, at the individual level; norms, incentives, barriers, and behavior settings, at the system level. Psychologists are employed by, or consult for, environmental management agencies, planning authorities, and government bodies (Reser, 2007).

The field of conservation psychology arose not in response to a lack of research, but in response to a lack of visibility and identification: both psychologists and nonpsychologists are often unaware of the body of psychological research related to sustainability. Conservation psychology also seeks to provide a community for psychologists across all subdisciplines who want to reflect their concern for the future of the planet in their professional identity.

Although the natural environment has only recently begun to attract widespread attention from psychological researchers, there have long been psychologists who have argued for its importance, as demonstrated by a quote from Alfred Adler: "We are living on the surface of this planet, with only the resources of this planet, with the fertility of its soil, with its mineral wealth, and with its climate and atmosphere. It has always been the task of mankind to find the right answer to the problem these conditions set us, and even today we cannot think that we have found a sufficient answer" (Adler, 1956, p. 131). Relatedly, psychiatrist Harold Searles stated in 1960 that "The nonhuman environment, far from being of little or no account to human personality development, constitutes one of the most basically important ingredients of human psychological existence" (p. 5). Conservation psychology proposes to carry forward the distinctive spirits of each of these insights into today's world of nature and universe of psychology.

## The utility of conservation psychology

Conservation psychology encompasses both basic and applied research. Applied, because a primary goal is to address and ameliorate environmental problems. But "there is nothing so practical as a good theory," to quote Kurt Lewin (1951). Psychological research has yielded some broad conclusions that have important relevance for conservation. They include the idea that behavior is strongly affected by the consequences that follow that behavior; that people learn not only behaviors but also attitudes, values, and norms from those around them; and that people change over time, in ways that are genetically preprogrammed as well as responsive to environments. The effect of specific experiences varies according to the developmental stage at which they are encountered, and some important experiences or influences have a disproportionate impact early in development. These principles are clearly relevant to understanding the interdependence between humans and nature.

Two core aspects of human behavior are worth identifying even though they almost go without saying. One is that behavior is a function of multiple causes, many of which are irrational and/or outside conscious awareness. This means that people do not always know what's good for them, and even when they do they may not act on it; logical argument about the importance of addressing environmental threats is not enough to affect behavior. A second is that behavior is susceptible to change. Patterns of behavior that may seem like inevitable consequences of "human nature" are nevertheless malleable, responding to both unintentional and intentional influence. Even something as fundamental as reproduction shows huge variability across both time (the birthrate declined by almost 50% between 1910 and 1994 in the U.S.) and culture (ranging from 11 births per 1,000 people per year in Italy to 45 per 1,000 per year in Tanzania) (Howard, 2000). An understanding of the core influences on behavior can allow for positive interventions to promote a healthy human–nature relationship.

Between them, Saunders (2003) and Mascia (2003) articulate a set of areas for conservation psychology research that reflect psychological knowledge and our complex definition of care. Saunders argued that conservation psychology should address (1) how humans care about nature and (2) how humans behave toward nature. Mascia added the cognitive component,

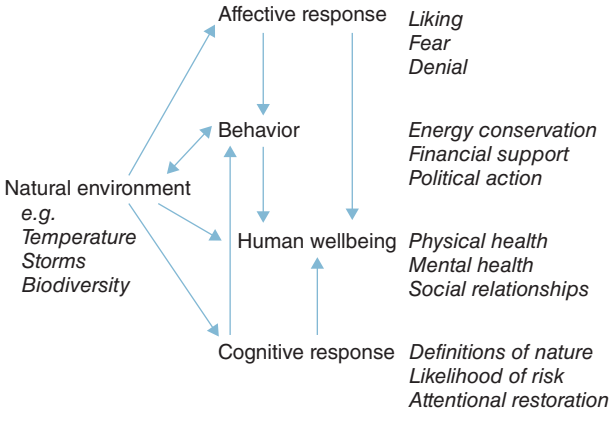


**Fig. 1.3** A simplified model of the human-nature relationship.

(3) how humans develop beliefs and knowledge about nature. He also recognized that humans function within a social context by adding two more foci (4) human-to-human relationships that are relevant to conservation, and (5) the relationships between humans and social institutions. See Fig. 1.3 for a diagram of the general processes of concern to conservation psychologists, and some specific examples.

Conservation psychology aims to apply the concepts and the techniques of psychological research to conservation areas. This might include, for example:

- Using survey research to assess community attitudes toward particular conservation initiatives
- Drawing on the results of attitude change research to design persuasive messages
- Drawing on the results of behavior research to encourage sustainable behavior
- Consulting with architects and designers to provide ways for people to interact with nature
- Designing environmental education programs that will promote pro-environmental attitudes
- Conducting research on the effects of exposure to nature in order to enhance the argument for protecting nature
- Observing social interactions in order to understand the ways in which environmental values are created and transmitted

Psychology can also promote the recognition that economic motivations are not the only forces that guide behavior. Clayton and Brook (2005) discuss the ways in which self-presentation motives and other identity concerns can supersede the desire to protect the environment, and described the success of the Toyota Prius over the comparable Honda Civic hybrid as due to the way in which the Prius satisfies self-presentation concerns by making a more visible statement about its owner's environmental values than the less distinctive Civic hybrid. This analysis was later corroborated: in a survey reported in the New York Times, the top reason people gave for buying a Prius was that it "makes a statement about me" (Maynard, 2007).

A lack of psychological information can be harmful. For example, Robert Cialdini, a specialist in the psychology of social influence, has documented the "understandable, but misguided, tendency to try to mobilize action against a problem by depicting it as regrettably frequent" in public service announcements and other pro-environmental messages

(2003, p. 105). In controlled research, Cialdini and colleagues have demonstrated that such a message can identify a descriptive social norm by stating that many people engage in this negative behavior. Littering and polluting, for example, are common. Because people are highly guided by social comparison, they may choose to do as others are doing rather than to set themselves up as paragons. Thus, the well-intentioned attempts to increase pro-environmental behavior may actually backfire.

*Caveats and cautions*. Among the vast body of research on sustainable behavior, many studies have focused on behavior changes that are not particularly useful (Gardner & Stern, 1996). Psychologists sometimes target individual-level changes in cases where the important decisions and behaviors occur at the organizational or the governmental level. This does not mean that individual behavior is irrelevant, but that not all behavioral changes are equally significant. In some cases, target behaviors might be lobbying organizations, or voting for particular policies. Recycling paper will have a lower impact than purchasing a fuel-efficient car. In addition, claims can also be made about benefits of nature that are based on anecdote but not backed up with data, or that fail to acknowledge the complexity of the human–nature relationship. Nature presents costs as well as benefits, and there are aspects of nature that people do not like (Bixler & Floyd, 1997)! Psychologists and others need to resist the temptation to be satisfied with simple answers.

It is partly out of such origins that the field of ecopsychology emerged. Ecopsychology is rooted in concern with the ways in which people relate to nature, and the consequences for both human and environmental health. As such, it provides an important reminder that people live in nature as fish do in water, and that degradation of the environment is likely to affect people in ways that are more subtle than increased risk of cancer. Its agenda is to link personal and social change, connecting individual therapy with environmental stewardship. The relationship between ecopsychology and psychology has been contested (see Beringer, 2003; Reser, 1995). Not all ecopsychologists are trained as psychologists, and writings on ecopsychology have been criticized for a lack of scientific objectivity, referencing concepts such as spirituality and indigenous wisdom that are difficult to clearly define. More recently, ecopsychology has moved to embrace both scientific and humanistic traditions with the intent of plumbing the depths and practicality of the human place in nature (Kahn & Hasbach, 2012).

## The practice of conservation psychology

Since the first edition of this book was published, conservation psychology has grown exponentially – both in its research base and in its application. Interdisciplinary workshops and symposia have brought psychologists together with other conservation professionals to discuss ways of working together. University centers, such as the Columbia University Center for Research on Environmental Decisions, or the Yale University Project on Climate Change Communication, promote research on the psychological aspects of environmental issues. Governmental and policy groups and NGOs have hired psychologists to be part of their teams. Individual psychologists, including PhD students, are reaching out to applied settings to investigate the factors that will best promote conservation (Clayton et al., 2013).

For several years, a summer Conservation Psychology Institute has been organized by Carol Saunders and sponsored by Antioch University. This institute provides conservation professionals and other interested participants with a multiday introduction to relevant psychological methods and findings in order to enable the participants to encourage environmental behavior and concern in their own work environments. Topics include cultural and

individual frameworks for thinking about the human relationship with nature, message framing, behavioral interventions, and the role of natural environments in human health and well-being.

Doug McKenzie-Mohr, a key proponent of a social marketing approach to promoting pro-environmental behavior, provides many examples of applied settings in which psychology has been useful. In a 2000 article, for example, he describes an intervention to reduce peak summer water usage (McKenzie-Mohr, 2000). A first step identified barriers to efficient lawn watering. Targeted interventions then addressed these barriers by providing information and prompts and eliciting signed commitments to water less often. The social marketing condition decreased watering by 54%, compared to only 15% for a comparison group that only received the information.

The vast body of research in conservation psychology means that, even more than for the first edition, this book cannot hope to be comprehensive. Our goal, rather, is to describe the range of research topics that are included and to summarize the main points of what is currently known about the relationship between humans and the natural world.

## The organization of the book

This volume is designed to present a body of research related to how and why people care for nature, in order to make it accessible and useful to both psychologists and nonpsychologists. We split the volume into three sections. The first section, "Human experiences of nature," describes a context for the human–nature relationship by examining some specific ways in which people interact with nature. We group the primary settings into "Domestic nature" (Chapter 2), "Managed nature" (Chapter 3), and "Wild nature" (Chapter 4). Each of these settings has its own unique significance and interest. Under "domestic nature," for example, we examine the abundant literature on companion animals as well as the more sparse research on gardens. We take a critical look at the evidence for benefits, as well as the mechanisms that have been suggested to explain these benefits. We also include a discussion of the very preliminary evidence concerning virtual, or simulated, nature. Managed nature includes zoos and urban parks. We describe the intended purpose of these public services and review evidence about their impact, in particular the ways in which they promote caring for nature. In the chapter on wild nature, we review the literature on the benefits of outdoor experiences and on attitudes toward wildlife. This is also where we talk about research on natural disasters. This section of the book serves as a reminder that the natural environment is a source of benefits and positive experiences as well as of stressful and even traumatic experiences and fear about environmental degradation.

In our second section, "Thinking about nature," we step back to review the ways in which people perceive and interpret their environments. Here, we address the ways in which the environment and environmental issues have psychological significance for people. Chapter 5 deals most directly with cognitive constructs: conceptions of nature, attitudes, values, and language regarding nature. Because perceptions of climate change have generated such attention, Chapter 6 focuses more sharply on the ways people think about environmental risk. Chapter 7 introduces the concept of morality. Many people consider the environment to have moral significance. How do beliefs about justice, ethics, and fairness affect the way we think about nature? In chapter 8, we examine evidence that nature has intimate, personal significance for people's sense of themselves and their personal and social identities.

In the last section, "Encouraging a sustainable relationship between humans and nature," we take a more practical look at interventions. Chapter 9 provides an overview of the extensive

research on behavioral interventions – one of the most well-established areas of study within conservation psychology. Chapter 10 examines international issues, including models for community-based conservation programs and concerns about the positive and negative impacts of environmental issues on international conflict. Chapter 11 reviews the research on environmental education. The interdisciplinary connections of conservation psychology are highlighted in these chapters, and Chapters 9–11 attempt to build bridges to other communities of practice as well as other fields of study. There is much more such bridging and calibration to be done.

Finally, Chapter 12 offers a more positive view. In our own experience, as well as that of others we have spoken with, studying environmental topics may lead to a sense of pessimism or even despair. We wrote this book because of our own optimism in the face of environmental challenges, and in Chapter 12 we encourage the reader to respond in the same way. The chapter provides an overview of conservation psychology's intersections with the growing field of positive psychology, which focuses on human well-being, sense of purpose, and strengths. In addition to describing some psychological insights about sources of hope and optimism, this overview suggests directions for research addressing the human potential not only for resilience but also for flourishing in the face of environmental challenges. Human behavior is a major source of environmental problems, and human behavior can be a source of solutions as well.

## Conclusion

Conservation psychology is mission driven. It suggests choosing research questions based on the promise that rigorously produced results will lead to better solutions. It is about "promoting" human well-being by way of attending to nature, because the two are inseparable. Conservation psychology aims to capitalize on the extraordinary breadth of psychology, and is an "identity" open to *every psychologist* who wants to bridge the disconnect between their professional specialty and their personal sense of responsibility toward the planet. Psychology's strength is its great scientific tradition; thus, the "understanding" embedded in our title. Conservation psychology wants to tap every variety of this talent in several possible kinds of endeavors: applied interdisciplinary conservation teamwork that can immediately use tools of psychology; using theory and findings of psychology to help recast the foundations of major institutions to be truer to human in nature, and to nature in humans.

Conservation psychology is a new and rapidly developing field. Our aim in this volume is to give a sense of the focus and purpose of conservation psychology and to summarize the research on some of the most important topics. In this way, we hope to introduce the field to those for whom it is new and to package the information in a way that makes it useful to those who might wish to join the collective of conservation psychologists as well as those who are in a position to apply what has been learned. Protecting the environment must be a collaborative effort, and communication among people with different specializations is an important first step.

At the heart of conservation psychology is a recognition of the bidirectional relationship between humans and the natural environment: how nature affects people and how they in turn affect the environment. Understanding why nature is significant to people strengthens the argument for conservation. Understanding the ways in which nature is significant to people enables the construction of initiatives that will promote conservation. In the face of the environmental challenges and changes that have already begun, evidence from psychological research has an important part to play in considerations of environmental policy.

## For further information, visit these websites

Society for Environmental, Population, and Conservation Psychology, www.apadivisions.org/division-34/ (XXXX-a).
Society for Human Ecology, www.societyforhumanecology.org/ (XXXX-b).
Society for Conservation Biology's Social Science Working Group, www.conbio.org/workinggroups/SSWG/ (XXXX-c).
Environmental Design Research Association, www.edra.org (XXXX-d).
North American Association for Environmental Education, www.naaee.org (XXXX-e).
International Association for People-Environment Studies, www.iaps-association.org/ (XXXX-f).
European Psychological Association's Environmental Psychology division, www.dgps.de/fachgruppen/umwelt/ (XXXX-g).
Community Based Social Marketing, http://www.cbsm.com/ (XXXX-h).

## References

Adler, A. (1956). *The individual psychology of Alfred Adler*. (H. Ansbacher & R. Ansbacher, Eds.) New York: Basic Books.
Anderson, C. A. (2012). Climate change and violence. In D. Christie (Ed.), *The encyclopedia of peace psychology*. Hoboken, NJ: Wiley-Blackwell.
Beringer, A. (2003). A conservation psychology with heart. *Human Ecology Review 10*(2), 150–153.
Bixler, R. & Floyd, M. (1997). Nature is scary, disgusting, and uncomfortable. *Environment and Behavior*, *5*(2), 202–247.
Bonnes, M., & Bonaiuto, M. (2002). Environmental psychology: From spatial-physical environment to sustainable development. In R. Bechtel & A. Churchman (Eds.), *Handbook of environmental psychology*. New York: Wiley.
Cialdini, R. B. (2003). Crafting normative messages to protect the environment. *Current Directions in Psychological Science*, *12*(4), 105–109.
Clayton, S. (Ed.) (2012. *The Oxford handbook of environmental and conservation psychology*. New York: Oxford.
Clayton, S. & Brook, A. (2005). Can psychology help save the world? A model for conservation psychology. *Analyses of Social Issues and Public Policy*, *5* (1), 87–102.
Clayton, S., Litchfield, C., & Geller, E. S. (2013). Psychological science, conservation, and environmental sustainability. *Frontiers in Ecology and the Environment*, *11*, 377–382.
Clayton, S., Manning, C. M., & Hodge C. (2014). *Beyond storms & droughts: The psychological impacts of climate change*. Washington, DC: American Psychological Association and ecoAmerica. Available at http://ecoamerica.org/wp-content/uploads/2014/06/eA_Beyond_Storms_and_Droughts_Psych_Impacts_of_Climate_Change.pdf.
Crosby, F., Clayton, S., Downing, R., & Iyer, A. (2004). Values and science. *American Psychologist*, *59*, 125–126.
Gardner, G., & Stern, P. (1996). *Environmental problems and human behavior*. Boston: Allyn & Bacon.
Gifford, R. (2014). Environmental psychology matters. *Annual Review of Psychology*, *65*, 541–579.
Global Footprint Network (2013). *The national footprint accounts*, 2012 edn. Oakland, CA, USA: Global Footprint Network.
Hardin, G. (1968). The tragedy of the commons. *Science*, *162*, 1243–1248.
Howard, G. S. (2000). Adapting human lifestyles for the 21st century. *American Psychologist*, *55*(5), 509–515.
Hsiang, S., Burke, M., & Miguel, E. (2013). Quantifying the impact of climate on human conflict. *Science*, *341*, DOI: 10.1126/science.1235367

Kahn, Jr.,, P. H. & Hasbach, P. H. (Eds.) (2012). *Ecopsychology: Science, totems, and the technological species*. Cambridge, MA: MIT Press.

Kellert, S. R. (1996). *The value of life: Biological diversity and human society*. Washington, D.C.*: Island Press*.

Lewin, K. (1951). *Field theory in social science: Selected papers*. New York: Harper.

Manfredo, M. (2008). *Who cares about wildlife?* New York: Springer.

Mascia, M. (2003). Conservation psychology: challenges and opportunities. *Human Ecology Review*, *10*, 163–164.

Maynard, M. (2007, July 4). Toyota hybrid makes a statement, and that sells. *New York Times*, *A1*, A11.

McKenzie-Mohr, D. (2000). Fostering sustainable behavior through community-based social marketing. *American Psychologist*, *55*, 531–537.

Moore, C. (2003). *Silent scourge: Children, pollution, and why scientists disagree*. New York: Oxford.

Oskamp, S. (2000). A sustainable future for humanity: how can psychology help? *American Psychologist*, *55*, 496–508.

Reser, J. P. (1995). Whither environmental psychology? *Journal of Environmental Psychology*, *15*, 235–257.

Reser, J. P. (2007) *Psychology and the natural environment. A position statement prepared for the Australian Psychological Society*. Melbourne: Australian Psychological Society.

Reuveny, R. (2008). Ecomigration and violent conflict: case studies and public policy implications. *Human Ecology*, *36*, 1–13.

Saunders, C. (2003). The emerging field of conservation psychology. *Human Ecology Review*, *10*, 137–149.

Searles, H. F. (1960). *The nonhuman environment in normal development and schizophrenia*. New York: International Universities Press.

Sommer, R. (2000). Discipline and field of study: A search for clarification. *Journal of Environmental Psychology*, *20*(1), 1–4.

Soulé, M. E. (1985). What is conservation biology? *BioScience*, *35*, 727–734.

White, L. (1967). The historical roots of our ecological crisis. *Science*, *155*, 1203–1207.

World Commission on Environment and Development (WCED). (1987). *Our common future*. New York: Oxford University Press.