A Conservation Psychology with Heart

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According to Saunders, conservation psychology (CP) seeks to "conduct psychological research that is directly oriented toward the goal of environmental sustainability." Such research, writes Saunders, will be centered around "two broad outcome areas: a) motivating people to act in more environmentally-friendly ways, and b) encouraging people to care about the natural world and their role in it." In this commentary, I add to Saunders' *The Emerging Field of Conservation Psychology* in three areas: 1) ecopsychology, 2) research paradigms and methods, and 3) spirituality.

Ecopsychology

Outlining CP, Saunders demarcates CP in relation to other fields. Conservation biology as the template for the proposed CP is discussed, as are environmental psychology, environmental sociology, human ecology, and human dimensions from within the social sciences. The obvious 'sibling' to CP — ecopsychology — is noted but in passing. In Figure 1, ecopsychology does receive mention, and seems to have equal standing with the "other fields and subdisciplines" which make up the synthesis called CP.

If only unintentionally, Saunders' omission substantiates the contempt which seems to have been levelled against ecopsychology from much of mainstream psychology, including environmental psychology (e.g., Gifford in Dedyna 2003; ISSRM 2000). As Metzner (2003) states, ecopsychology seeks to "expand... and revision... psychology to take the ecological context of human life into account." This covers amending "understanding of human identity in relationship to place, to ecosystem and to nature" (Metzner 2003; see also Fisher 2002; Gomes 1998; Keepin 1991; Roszak et al. 1995; Winter 1996). In that, its goal is very close to what Saunders outlines for CP ("one of the fundamental characteristics of conservation psychology is the attempt to understand self-in-relation to nature"); as such, the contributions of ecopsychology to sustainability research and practice seem pivotal. In particular, with its psychotherapeutic modalities and interventions (e.g., Berger 2003; Burns 1998; Clinebell 1996), ecopsychology can assist in healing the pathologies that arise from the emotional disconnection from nature that not only affect many individuals (as Saunders indirectly mentions), but which also characterize western culture on the whole. Furthermore, the notion of the ecological self which ecopsychology advances seems to have great import for CP's mission (e.g., Mathews 1991; Winter 2000). Admittedly, ecopsychology has not had a very strong theoretical or empirical foundation. That is changing, however — ecopsychology is coming of age (e.g., Fisher 2002).

CP and ecopsychology differ in their stance toward mainstream psychology. While CP draws on mainstream psychology, its fields and subdisciplines, and locates itself within the discipline, ecopsychology has sought to overcome the anthropocentric, reductionist, rationalist and scientist biases inherent in modern psychology (see Kidner 1994). Anthropocentrism, reductionism, rationalism, and scientism have been cited as some of the root causes of the ecological crisis (Bowers 1993a, 1993b; Kidner 1994). A field of study which seeks to arrest environmental degradation and to foster care and love for nature, it seems, must find alternatives to those human ideologies and behaviors which are implicated in the crisis. Ecopsychology holds mainstream psychology in repute for what it has contributed and continues to contribute to the understanding of human-environment behaviors, at the same time alerting the discipline to its shortcomings.

Research Paradigms and Methods

In researching "how humans behave towards nature" and "how humans care about/value nature," Saunders displays an implicit bias toward quantitative paradigms and methods. Attitudes, values, motives, thoughts, feelings, and so forth are largely academic constructs which, as separate variables, hold little sway in lived experience. In lived experience, cognition, affect and behavior are intertwined and feedback on each other; thus, they cannot be separated for purposes of psychology research (Tappan and Brown 1989; see also Beringer 1994). Furthermore, action and behavior — the outwardly visible expressions of this synergistic interaction of the various dimensions of human being, including the unconscious — are framed and censored by social institutions and cultural mores (Anderson 1996; for the role of the unconscious in environmental decision-making see Maiteny 2002; for an alternative conceptualisation of environmental values-attitude-behaviour research see Finger 1994). Qualitative research and thick description of the lived experience of human-nature relationships and caring for nature enriches CP as well as environmental ethics. Such research will not only assist CP in achieving its mission, it will also help in creating the "compelling language" for human-nature relationships that Saunders and others request (see Martin 2002). Notwithstanding the methodological criticisms which have been voiced (see Chawla 2001), one of the values of significant life experiences (SLE) research for CP is its grounding in lived experience.

Environmental Sustainability and Caring for Nature — A Spiritual Perspective

Psychologists, as Saunders states, consider human behavior the root cause of the environmental crisis (see also Kidner 1994). Outside psychology, the ecological crisis of unsustainability has been traced back to being a spiritual crisis (e.g., Berman 1981; Oldmeadow 1999; Nasr 1968, 1976; Tacey 1995, 2000). Thus, remedies will have to go beyond behavioral to include spiritual approaches, and solutions will be found in the spiritual realms.

These analysts concur with psychologists that the ecological crisis is due to misguided human values, attitudes, and behaviors. They go deeper and further than behavior, however, in that they attribute these harmful values, attitudes and behaviors to the lack of a sacred cosmology, to an absence of the sacred in our lives. The source of misguided behaviors toward the Earth, in other words, lies not so much, and not solely, in the individual domain or in social institutions. It is more our collective cultural understanding in western society post-Enlightenment that is the root cause of the ecological crisis. Such cultural analyses of the ecological crisis correct the individualist bias so prevalent in psychology, including psychotherapy (see Hillman and Ventura 1992), as well as in environmental education. Psychology has largely bypassed and left unexamined the more profound force in environmental degradation: collective consciousness, which shapes individual behaviors and social institutions (cf. Edwards 2002). Cultural psychology can be drawn on to avoid a similar bias in CP; it has much to offer CP and should be added in Figure 1.

A sacred cosmology acknowledges a world or dimensions beyond the physical-material world (beyond in the sense of other than, as opposed to distant from). This spiritual world interpenetrates the physical-material world and, although largely invisible, is as real, if not more real, than the physical world (the world of matter and the five senses). The physical world depends on the spiritual world, for the spiritual world brings the material world into being, animates it, and sustains it (for more detail see Beringer 2000; Oldmeadow 1999; Nasr 1996).

Such an understanding of the universe or cosmos may be unfamiliar to the western mind, yet in cross-cultural comparison, *not* having such a worldview is an aberration. No matter which of the world's traditions one consults, and irrespective of whether these traditions are associated with mono- (Judaism, Christianity, Islam), multi- (Hinduism) or non-theistic (Buddhism) religions, all but the western understanding after the scientific revolution of the 16th-17th centuries held views in which the universe, including the Earth, was alive, animated by spirit. Corollary, in a sacred cosmology, humans are amphibious beings, living simultaneously in the spiritual as well as the physical worlds. This, their dual nature, gives humans their role as co-creators with spirit or the divine, as well as assigning them the responsibility as stewards of nature. How would psychology, including CP, change were such a worldview to penetrate the discipline? One obvious outcome would be that CP, to modify Saunders slightly, would "make... use of scientific approaches to study cognitive, affective, behavioral *and spiritual* aspects of the human-nature relationship" (term in italics added to Saunders' original statement) (see also Bateson and Bateson 1987; Nasr 1993; Roszak 1994).

"Psychology," Saunders cites D.G. Myers (2003) "is defined as the scientific study of human thought, feeling, and behavior." This echoes Kidner's (1994) definition, as well as dominant understandings within the field: psychology being the study of human behavior. If demarcated in this way, psychology — and, as a result, CP — will be unnecessarily limited in attempting to uncover the causes of unsustainable behaviors, and in developing pathways toward more benign practices.

In literal translation, psychology means the study of the soul. Yet the soul and spirit have long been left by the wayside by mainstream psychology, being, as they are, invisible, ephemeral, unproven phenomena. In western culture, the soul is a matter of individual belief, or faith; consequently, concerns of soul and spirit belong into the realm of religion, to be researched, if at all, via religious studies. Yet the soul and spirituality can be examined scientifically, i.e., systematically, thoroughly, and objectively. While the science of the soul may have been disregarded by mainstream psychology, it is not lost. Sacred psychology, one of the seven sacred sciences within the Ageless Wisdom (Theosophy), contains many insights on the human constitution as well as the human condition; these can be drawn on to illuminate why humanity is facing an ecological crisis at the turn of the 20th/21st century, and how to heal it (e.g., Bailey 1976, 1972, 1942, 1936; Besant 1912, 1909). A psychology, and, in extension, a CP which embraces in its objects of study matters of soul and spirit will go far toward helping secure environmental sustainability.

A psychology of soul and spirit not only offers expertise into the questions of "how humans behave towards nature" and "how humans care about/value nature," but perhaps more importantly, why people behave as they do, and what, with respect to a lived environmental ethic, they are psychologically capable of (see also Beringer 1994).

Accountability. Within a sacred cosmology, people are accountable to a higher authority — whether this be, for instance, their individual soul and its salvation, a God and a life after death, karma and reincarnation, their ancestors, and/or (seven) future generations. Spiritual analyses of the ecological crisis have alerted us to the fact that the lack of

accountability in a secular worldview — be it for our individual actions, for our corporate practices, and/or for our collective choices — is one of the main reasons for the current state of the environment.

The Divine Nature and Intuition. A psychology which expands the conceptions of human beings from consisting of body and mind (thoughts and feelings) to body, mind, and spirit makes room for the spiritual understanding of a lower self (the animal nature, the personality) and a higher self (the divine nature). Once the human constitution includes the spirit (or soul) realm, the analytic-rational mind as the prevalent way of knowing can give way to other, equally valid, forms of knowing, such as the intuition. How the intuition affects and possibly molds the human-nature relationship and how spirituality and spiritual experiences impact on caring for nature and on practicing an environmental ethic are two critical questions for CP.

Furthermore, the lower self — higher self-conception helps explain why humans act the way they do (toward nature and in other instances), as well as opening the way for spiritual practices to gain credibility in realizing an environmental ethic. Selfish behavior (the cause of much ecological suffering) is motivated by the lower self. The higher self, which many traditions locate in the heart (i.e., the spiritual heart, the heart chakra), is the seat of the universal qualities of love, compassion, forgiveness and selfless service. All spiritual traditions, including the major world religions, contain guidance, teachings and techniques to lift one's consciousness from the lower into the higher self, and to act from there (see also Scheidler 1975). In other words, spiritual traditions contain moralities as well as systematic instructions into these moralities. As re-search of lived experience has shown, an ethical system or moral code, instructions how to live ethically, and social institutions which maintain such moral codes are critical for conservation behaviors (Anderson 1996, 174-184).

Collective Consciousness. A psychology of the soul advises that human behavior is not the result of thoughts and feeling, motives, the unconscious, and so forth. Rather, thoughts, feelings, and behavior arise from consciousness, whereby consciousness includes both the mind and the unconscious (the shadow) (see also Irwin 2002; Keepin 1991; Scott 2003). Desired changes of behavior, therefore, must be preceded or accompanied by changes in consciousness. The implicit question in CP's mission, *what can and must we do to change people's behavior?* then translates into, *how do we change public consciousness?* Within this framework, how to further the evolution of (mass) consciousness so that humanity's ethics encompass care and respect for the natural world is a core task for CP.

Political Advocacy. A psychology of the soul, a sacred psychology, accepts the findings from comparative religion which point to shared fundamental convictions among the seven major religions: that ultimate reality is love, compassion, and mercy; that the way of humans to union with the divine is through love, and involves sacrifice, discipline and prayer; and that believers must seek their neighbor's well-being (the Golden Rule) (McKenna 2000, 278). As such, a CP which honors and learns from sacred cosmology and sacred psychology can identify universal values (e.g., love, compassion, sacrifice, discipline), and how these may apply to human-nature relationships. Such analysis adds to the exchange of ideas in theoretical and applied environmental ethics (e.g., Beringer 2002). Furthermore, by drawing on the ethical knowledge unearthed by studies of comparative religion and that contained in the Ageless Wisdom, psychology can take a lead role in discourses on humanity's and the planet's highest good. Relying on the best available science, it can move out of the ivory tower into political advocacy, taking a moral stand (as CP is doing), opposing choices which are ecologically unsustainable, and proposing and enforcing healthier alternatives.

Conclusion

If psychology and CP are concerned about environmental sustainability, they can no longer exclude the science of the soul, spirituality, and the body of knowledge known as the Ageless Wisdom (Besant 1912; Hodson 2001) or perennial philosophy (e.g., Huxley 1945), for these offer know-how into human and planetary conditions not covered in the accepted, mainstream academic disciplines, yet significant to CP. Scientists may question the source as well as methods of these teachings. This does not relieve them from scrutinizing this material and from testing it for its practical value in healing the Earth. Moreover, psychology can no longer ignore that modern science, including itself, is implicated in the ecological crisis (e.g., Bateson and Bateson 1987; Nasr 1993).

Practically, this means adding sacred psychology and comparative religion to those fields of study, subdisciplines and disciplines which comprise CP (see Saunders Figure 1). In the longer term, CP can initiate contemplations on how psychology may need to reform itself to be true to its mission of environmental sustainability. In this, ecopsychology has much to offer CP, in that it is the only field within (outside of?) psychology to attempt to transcend the anthropocentric paradigm which, due to its make-up, by default characterizes CP also.

Saunders' "hope that conservation psychology can provide insights about what it means to listen carefully to the heart and how to act with rational intention" will be more fully realized if and when psychology recaptures its soulful, sacred dimensions.

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Segmenting Audiences and Positioning Conservation Interventions

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North America still has basic and significant conservation issues after over 100 years of nature study, environmental education, and extensive political efforts. This fact is enough evidence for the need to formalize the study of conservation psychology as a means of refining conservation interventions. Saunders has bravely started us on a journey toward the systematic description of psychological research approaches that can assist in finding effective solutions to conservation problems. No single paper can address in depth the multi-dimensional issues required. My intention here is to recognize and extend Saunders' discussion and models through arguing that "conservationists" and their non-practicing counterparts are highly varied. Consequently, approaches to conservation problems and education must be similarly diverse. Rather than depend on simplistic linear models that tell us that Conservation Attitude A predicts Conservation Behavior B, conservation psychologists should embrace two common and interrelated marketing research strategies: market segmentation and product positioning. These strategies match characteristics of discrete groups of people to products or services that are responsive to each group's interests and motivations (Myers 1996). Such an approach clearly requires research. To be most effective, the research must address obvious pro-conservation variables, along with seemingly unrelated but persistent social forces that shape human behavior and end up constraining conservation behaviors.

My argument is based on the assumption that in the design of conservation interventions, practitioners have not always adequately considered the social worlds and subworlds that make up the "general public" targeted for interventions. As a hypothetical example, consider a skeptical conservation psychologist visiting for a season with school children on a field trip to a wildland park. The researcher might observe rural children bored with activities that are a little too much like their weekend backyard explorations. Meanwhile, urban children might seem uncomfortable, if not scared, of the woods, while suburban children, overly concerned with not getting dirty, might appear disinterested in picking through mud and algae during a pond study (Bixler and Floyd 1999). An evaluation of the relative effectiveness of the instructors might indicate differences in success with these dissimilar populations (Kostka 1976). Both the remedial redesign and evaluation of these and other types of programs would benefit from carefully considering the varied background, skills, and attitudes of the audiences, and matching them to both program-type and the qualities and abilities of personnel who will implement the activities. This is the research and design process of segmentation and positioning.

The construct of social worlds and subworlds (Unruh 1980) helps to justify segmentation approaches and explain why both conservation-oriented practitioners and researchers are not overly aware of the diversity of their audiences. This construct describes the processes whereby otherwise seemingly demographically identical people tacitly sort themselves into like-minded groups, reinforcing each other's values and interests while avoiding meaningful interactions with otherwise similar people. In the previous example, the *biophilic* child and her teacher are likely to directly praise their nature center instructor and thus reinforce her behavior. In contrast, the *biophobic* child retreats as quickly as possible and might go unnoticed. For both conservation programmers and researchers seeking participants, conservation-oriented people are more readily available simply because they occupy the same sub worlds, resulting in fewer first-hand experiences with groups unconcerned with conservation. Consequently both programmers and researchers are necessarily less effective in interacting with those who are not conservation minded.

Even with the increased precision provided by a segmentation/positioning approach to conservation interventions, researchers must adopt a stance of skepticism. There are many social, historical, cultural, and evolutionary influences that powerfully constrain conservation behaviors. One example of a constraint to conservation behaviors comes from an applied study that asked respondents for their perception of individuals who engaged in conservation behaviors, such as taking public transit and hanging clothes out to dry. Other conservation-neutral traits were included to disguise the purpose of the study. Respondents generally evaluated the characteristics of these individuals as socially undesirable because "poor people ride the bus and hang out their clothes to dry." The middle class respondents did not want to appear poor (Sadalla and Krull 1995). These data suggest both intrapersonal and interpersonal constraints on conservation behaviors. Either the respondents were unaware of the conservation benefits of these behaviors, or concern for social status was far more salient than practicing conservation. In such cases, an understanding of the social psychology of self-presentation, identity, and status seeking might be more important than an understanding of the conservation behaviors. Conservation psychologists must begin to recognize, describe, and study what may be a vast array of constraints to conservation behaviors (McKenzie-Mohr 2000). Self-presentation issues and other constraints to conservation

behaviors must become either part of conservation segmentation techniques or at least used as covariates.

Using conservation psychology research to match audience characteristics to conservation interventions should increase effectiveness of programs. Despite the greater specificity gained from such an approach, incorporating conservation constraints into segmentation research should rapidly produce general and situational/contextual typologies. These typologies would allow conservation program planners to identify and understand why some conservation program designs might not initially work or have few long-lasting effects. Saunders argues for the need to address both individual differences and groups in conservation psychology. Segmentation and positioning research provide many strategies for identifying conservation intervention relevant subgroups that are theoretically robust but highly actionable by practitioners.

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Conservation Psychology: The Practice of Compassion

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Ideas really do change the world. It happens in many ways. Words replace inchoate thoughts or feelings. A complex problem finds its voice. Some buried intuition is made conscious. When Betty Friedan published her landmark book *The Feminine Mystique* (1963), for example, she found the words to express "the problem without a name." Her articulation of those societal frustrations unleashed a world-changing transformation. It re-established the women's movement, launched a crusade for the Equal Rights Amendment, and put Friedan in leadership of the National Organization of Women (NOW).

The environmental movement was likewise unpacked through the progressive articulation of an ever-widening perspective. Most of the ideas that have changed our environmental consciousness appeared in the past half century. Aldo Leopold's classic *A Sand County Almanac* was first printed in 1949. A harbinger of things to come, Leopold's land ethic sketched a radically new view of science and human affairs. Henceforth, ecology would no longer be a straightforward descriptive or exploratory science. For in the application of ecological knowledge — we came to recognize — issues of human values and ethics were inescapable.

This insight would be voiced by many others. When *Silent Spring* (Carson 1962) made the best-sellers list, its title alone made clear what the future would hold if aesthetic and environmental concerns were ignored. Paul Sears' essay entitled "Ecology: A Subversive Subject" in *Bioscience* (1964) alerted scientists that ecology, if taken seriously, would "endanger the assumptions and practices accepted by modern society, whatever their doctrinal commitments." Other psychological roots were unearthed in Lynn White's (1967) analysis of western scientific and religious thought and Garret Hardin's (1968) exegesis of self-interest and the tragedy of the commons. The list goes on, but the point is the environmental movement of the latter 20th Century had perhaps more to do with psychological insights than with scientific breakthroughs.

The environmental and feminist movements — like the civil rights movement before them — arose from an imaginative re-framing of stubborn problems. Taken together, they illustrate the profound significance of reconceptualizing what lies right before our eyes. When this happens, it is often inherently interdisciplinary in both scope and in approach — hard data and sound policy analysis are galvanized through heart-felt concern and persuasive leadership.

A review of these past events reminds me of how my own life was affected. In the 1970s and early 1980s, I was an early advocate for the psychology of environmental concern. This was where my appreciation of the value and the challenges of interdisciplinary research was formed. From this discipline-based beginning, I went on to embrace an even broader mandate as dean of a college of human ecology. In this role, I became keenly aware of the need to speak clearly about interdisciplinary studies and to demonstrate why they are worthwhile. For when this does happen — when ideas are thrown into fresh combinations and new solutions are found — people listen with new ears. I have witnessed countless new research agendas, exciting areas of applications, and influential career paths crystallize and flourish under human ecology's broad, integrative umbrella.

This is the arena in which conservation psychology has established itself and will continue to grow. As this fledgling field moves forward, I share the optimism of its founders. It has firm roots in psychology, and draws from all corners of that field's rich theoretical and research traditions. At the same time, it offers creative bridges throughout the social and natural sciences, as well as in combination with the arts, humanities and applied fields. Like its older cousin conservation biology, conservation psychology — by its title — tells you exactly what it is. This clarity of purpose is an invaluable asset for communicating its research and applied potentials, not only within academia but in all sectors. I truly believe that the combined contributions of conservation psychology and conservation biology are at the forefront of a growing family of interdisciplinary, solution-oriented approaches to complex environmental issues. *Human Ecology Review* has always welcomed this dialog. To now have an entire issue of the journal dedicated to the theme of conservation psychology is especially fitting.

It is unlikely that a sustainable and beautiful future will come from any single plan. Instead, it will result from debates between diverse interests, from compromises, unforeseen collaborations — and well-informed advocates. The education of this process is at the heart of conservation psychology. I have seen many students over the years combine studies in psychology and ecology with courses in planning, communications, management and policy studies. They have become educators, researchers, directors of nonprofit organizations, and environmental leaders. Many of them might be considered — or consider themselves — conservation psychologists. But most have built their careers on their own, without clear institutional support or established academic programs. It is important for this situation to change. The time is ripe for farsighted institutions interested in bona fide interdisciplinary programs, at all levels, to seize this opportunity.

There is great beauty in mixing academic knowledge and human compassion — what Alfred North Whitehead called "the art of the utilization of knowledge." Medicine is not the dispassionate study of human disease. It is and always has been a harmonizing of biological science and human sympathy. Environmental conservation is essentially an extension of this healing tradition. Instead of focusing on a human individual or group, its subject matter enlarges to include other species, critical habitats, significant landscapes, or even the sustainable potential for all future beings.

The history of environmental changes shows us that the motivation to protect threatened species or ways of life seldom comes from mere awareness of these situations. It also requires an element of caring. For known facts and established behaviors to change, they must be transmuted by new values and insights. The psychological dimensions, in other words, are every bit as crucial as the scientific knowledge. Rachel Carson was a respected and careful biologist. She also loved nature.

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People to People: A Vital Component of People-Nature Relationships

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A long debate preceded the choice of the name "conservation psychology." It was clear that this emerging field needed to be interdisciplinary. So why should it be classified as "psychology"? There were already fields focused on human-environment relationships, such as environmental psychology, ecopsychology, and human ecology. Should work be integrated into one of these existing fields rather than appearing to subdivide efforts further? No one had easy answers, but in her article on "The Emerging Field of Conservation Psychology," Carol Saunders lays out the rationale for this new term. Fundamentally, the field of conservation psychology is intended to consolidate initiatives to understand human interactions with the natural environment.

Saunders acknowledges the complexity of this effort. She observes that:

> *Achieving more sustainable relationships with nature will basically require that large numbers of people change their reproductive and consumptive behaviors. In the grandest sense, such behavior change is the ultimate outcome for a science of conservation psychology.*

She cites Paul Stern (2000) and Stephen Gough (2002) to the effect that there are a number of different dimensions to pro-environmental behavior, each requiring different sorts of analysis, explanation and intervention. Stern notes that there are meaningful and reliable distinctions between private-

sphere environmentalism in the form of people's purchase, use and disposal of products that have an environmental impact, committed activism such as active membership in an environmental organization, more passive but still important support for public policies intended to protect the environment, and people's efforts to influence the places where they work. There is some overlap between these different categories of behavior and Stephen Gough's argument that people operate with different rationalities — which may involve the same person acting according to competing rationalities, depending on the context he or she is in.

The consequence is that conservation psychology not only needs to draw together a constellation of disciplines and subdisciplines within a unifying "superfield" of study, but equally importantly, it needs to distinguish the different spheres of action that it encompasses. When we are interested in all actions that affect "more sustainable relationships with nature," this is a tall order. The ambitiousness of this goal does not mean that it should not be pursued; but it does mean that a significant commitment of people, funding and institutions will be required in order to demonstrate how different spheres of rationality and action function, in individuals and in groups, and how they interact. It is also critical not to forget the sphere of irrationality, where psychology has a history of particular experience.

This said, the major argument that I want to make in response to Saunders' article is that it is necessary to complicate the picture further. She notes that one reason why psychology has historically ignored environmental topics is that it has been preoccupied with people-people relationships. Very true. More than twenty years ago, I chose environmental psychology for graduate study because psychologists as a rule showed no more awareness of their physical surroundings than fish show awareness of the water that supports them until they are pulled up gasping on the beach (or so it seemed to me, according to my imagination of the inner lives of fish). Today, as humanity discerns the looming outline of its own potential beach landing, the situation has changed enough for conservation psychology to appear a viable, even dynamic, endeavor.

Acknowledging that conservation psychology has many topics to tackle, Saunders reasonably suggests that collaborative research should be organized around the outcomes that it seeks to promote, and she proposes two broad categories of outcomes that are likely to cover many of the questions that the field will raise: conservation behaviors and care for the natural world. The first involves behavior change toward more sustainable relationships with the earth and the second involves emotions, values and ethics.

All of this makes good sense. My concern is not what Saunders puts into her suggestions but what she leaves out. She repeatedly describes the goal of conservation psychology as environmental sustainability, but she never mentions the second dimension of sustainability, in addition to nature protection, which has been integral to its definition since the publication of *Our Common Future* in 1987 — poverty reduction. Immediately following the much cited definition of sustainable development ("development that meets the needs of the present without compromising the ability of future generations to meet their needs"), this report notes that the idea rests on two key concepts: that there are limits to the environment's ability to meet present and future needs, and that the overriding priority should be given to the essential needs of the world's poor (WCED, 1987, 43). These two sides of sustainability were spotlighted at the Earth Summit in Rio de Janeiro in 1992 and again at the World Summit for Social Development in Johannesburg in 2002. Can conservation psychology be viable and leave one side of this equation out? In my view, it cannot.

There are two possible ways of looking at these two sides of sustainability. One way is to see them as two separate, disconnected paths: ecological sustainability that focuses on the protection of the natural world on one side, and social sustainability that focuses on the creation of a more just world on the other side. Saunders' failure to mention poverty reduction in her article implies this view. In this case, it is adequate for conservation psychology to focus exclusively on nature protection while poverty reduction, it can be assumed, will be left to the disciplines of sociology, political science and economics.

If, however, nature protection and poverty reduction turn out to be two sides of one issue, so that one goal cannot be achieved without attention to the other, then this bifurcated view is seriously limited. A growing body of research, as well as my own experience as I travel, suggest that the weight of the evidence falls here. As *The Jo'burg Memo*, a report of the Heinrich Boll Foundation in preparation for the World Summit for Sustainable Development, has summarized this conclusion, just as there can be no ecology without equity, there can be no equity without ecology (Sachs 2002). Ecosystems cannot be successfully protected without empowered local communities who understand how their well-being depends on a flourishing natural environment, and the poor cannot enjoy healthy and productive lives without safe and secure environments and access to sustainably managed natural resources. Given the current huge disparities between the levels of wealth and consumption between rich and poor nations and between rich and poor populations within nations, addressing both sides of the issue of sustainability will require a major commitment to the just and compassionate treatment of other people as well as the conserving and caring treatment of nature.

Attention to both sides of sustainability undeniably complicates the picture. But if these sides are inseparably linked, then pursuing one side alone will put the new field of conservation psychology in the condition of trying to run toward its goals on one leg. There are already good examples of how the two sides can be combined. Saunders mentions the research that has been conducted to understand the conditions under which people are likely to cooperate to collectively manage a commons (a natural resource system used by many individuals) (Ostrom et al. 2002). Because much of this work has been carried out in low-income communities where people's livelihoods depend on sustainable levels of local resources, many of the examples that this work describes are successful in so far as they address conservation and poverty reduction simultaneously. Related to this work are other efforts to put environmental protection and poverty reduction together, such as community-based wildlife management, the trade in non-timber forest products, and the fair trade movement. Psychology's experience related to individual motivation and behavior and social relationships has much to offer in all of these areas of study.

These areas of study can be potentially included within the fields of Human Dimensions and Human Ecology which Saunders mentions, but I am concerned that unless these components of sustainable behavior receive more articulated and focused attention, they risk being treated as tangential rather than central to the work of conservation psychology. Engaging with these areas is likely to draw in at least three other useful disciplinary allies — anthropology, political science, and ecological economics.

Attention to connections between poverty reduction and environmental protection will also require conservation psychology to broaden its focus on people-nature relationships by including people-people dynamics as well. Psychology's long history of studying social relationships is not at all irrelevant to environmental issues, even though the discipline's historical blindness to the physical environment has slowed the application of this heritage to efforts to address environmental problems. These people to people relationships have two facets. If one accepts the insight of the Frankfurt School of Social Research (and I do) that the exploitation of nature is part of a larger system that involves the exploitation of some people by other people through the means of nature (Held 1980), then one critical set of relationships that must be looked at are these people-environment-people systems. The dynamics of people-people relationships in dyads and groups may also have major environmental impacts further down the line.

I can illustrate some ways in which these components fit into the larger picture of conservation psychology through the example of three recent experiences. I spent part of the summer of 2003 in Honduras with my daughter, who works with Friends of the Earth International and its partner organizations in Central America. Newspaper headlines and talk featured the recent killing of three environmentalists who were protesting the illegal but relentless logging of old growth trees in the Olancho forest reserve, one of the most important ecological reserves in the country. The government had declined to investigate their murder, rumor had it, because members of the army and legislature had investments in the timber companies that were benefiting. Unfortunately, this is not new news. A major cause of the devastation of natural resources worldwide is conflict between the motives of financial gain for the nation's elite, including members of government, and the mission of environmental protection. The people who sell off resources are thinking of the natural world, but only in the abstract terms of how many dollars it can bring in board feet or in barrels of petroleum, and how its extraction and sale are likely to buy the allegiance of powerful political allies. In countries like Honduras which have poor human rights records, people who protest these abuses face life-threatening repression, and the poor who live in the exploited region are also likely to suffer immediate impacts. The networks of people-people and people-environment-people relationships that these situations involve are more critical to their perpetuation than any direct people-nature interactions.

As my daughter and I traveled together, she talked at length about the human relationships that empowered or handicapped the operations of the different environmental groups with which she worked and their efforts to function together in a coordinated way. Although these groups' ultimate goals were social justice and environmental protection, their success depended to a large degree on the quality of these people to people connections, quite apart from the people-environment interactions to which activities were ultimately directed. As Steve Zavestoski (in press) has shown, the quality of these human relationships, in and of itself, has a major influence on people's membership and commitment to environmental organizations.

My final example originates only a stone's throw away from Saunders' office, from the Hamill Family Play Zoo that Saunders and her colleagues at the Brookfield Zoo labored tirelessly and creatively to bring into existence, which won the 2002 American Zoo and Aquarium Association Exhibit Award. A graduate student and I interviewed the "play partners" at this exhibit one year after its opening to the public. Their mission was to foster care for the natural world among children and their families — but they found themselves faced with this charge in the midst of the high pressure of crowds whose numbers sometimes climbed as high as 4000 visitors a day. Under these conditions, several of the veteran

staff had concluded that one of the most effective things that they could do was to push family dynamics in the direction of greater respect for children's interests and views. Children, they found, naturally showed fascination with animals and a readiness to observe and imitate animals' behavior in sympathetic ways. Unless parents and other adults respected their children's perspectives, however, this interest was likely to be ignored, in time crushed. I came to these interviews with the assumption that here I was going to focus on the children and nature side of my research, temporarily setting aside the work on children's rights and international development that I also pursue (e.g., Chawla 2002). Instead, what the play partners showed me was that children's rights — an adult-child/people-people relationship — was a central dimension of the child-nature relationship, as one of the key principles of children's rights is respect for children's views.

Having urged that the vision for conservation psychology should be widened beyond the focus on environmental protection and people-nature relationships that Saunders describes, I want to express my appreciation for what *is* present in the proposal she has developed. In seeking to add, I do not in any way want to appear to detract from what she has done. Those of us who have been with the emerging field of conservation psychology since its beginning know that Carol, along with George Rabb, director emeritus of the Brookfield Zoo, have been driving forces inspiring the rest of us and giving us a sense of common direction. If the field of conservation psychology flourishes, it will be to a large measure because of the foundation that they have constructed. Let us all — from the fields of nature protection, poverty reduction, and human rights — add our contributions.

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Creative Disciplinary Transformation and Forging a Planetary Psychology

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It is difficult to imagine a more important and timely document addressed to psychologists than Carol D. Saunders' manifesto for Conservation Psychology. I will not try to deal with the substantive reasons for why such a call-to-arms is needed, because those are well expressed in Saunders' chapter. Let me only focus on a few points where my own expertise might help achieve the goals she proposes.

On How to Establish Conservation Psychology

First of all, I applaud the two-pronged approach Saunders outlines. A conclusion I have drawn from my own studies of creative changes in history — what Thomas Kuhn (1970) has called "paradigm shifts" — is that such changes occur when three of the sub-systems on which disciplines are based are well aligned. The first is what I have called the *domain*, which includes the knowledge specific to a discipline. The second is the *field*, which includes the gatekeepers of the domain. And finally the third component consists of the *practitioners* of the discipline who introduce novelty into the domain, which is then either accepted or rejected by the field (Csikszentmihalyi 1996, 1999). If these three sub-systems are in a favorable synchrony, the change will be adopted by the culture.

Saunders' strategy is to enrich the knowledge base of the social sciences with new content (thus transforming the domain), and at the same time to develop a network of scholars and practitioners bound together by a common concern for sustainability (thereby transforming the field). If these two components of the system are in place, then we might expect the third component to come on line — young scholars who are attracted by the emerging domain, eager to contribute to it and become part of the field. There is no question that this will happen, if the first two steps are well planned and followed with persistence.

But how to build a new domain, and a new field? There are several historical models one could follow. A recent example I have first-hand knowledge of has been the launching of the *superfield* (to follow Saunders' usage) of Positive Psychology. When Marty Seligman and I decided to try tweaking the discipline of psychology away from its almost exclusive focus on pathology, we made a few strategic decisions that, at least in these few years since their application, have been quite successful (Seligman and Csikszentmihalyi

2000). They may help provide some guidelines for Conservation Psychology as well.

First, we decided to focus on young psychologists rather than try changing the establishment. In his *Structure of Scientific Revolutions*, Kuhn (1970) claims that new ideas in science are almost always adopted by the younger generation of practitioners. So Seligman and I wrote to 50 of our most eminent colleagues asking them if they could think of a former student, less than 30 years in age, who was sympathetic to looking at the positive aspects of human behavior, and who showed promise for becoming one day the chair of a psychology department. This was the second choice we made — to *focus on young people of the highest potential*. This decision may seem elitist. It certainly does not have to be inflexible. But life is short, and if you have an important task to accomplish, you should consider playing the percentages in your favor.

Having identified four dozen or so candidates, we selected twenty on the basis of their CV's and publications, and invited them to a week long meeting at Akumal, a phone-less, TV-less village on the Mexican coast. This first of many such meetings accomplished the goal of *developing a network* of young professionals anchored by some more seasoned colleagues. At the same time, Seligman and I were busy to secure foundation support to *establish prizes for best work* in the emerging domain, organizing summer *workshops to train pre-doc and post-doctoral students* interested in doing research, and organizing national and international *conventions* on the topic. These last three initiatives bridged both domain and field in that they developed the knowledge base, and at the same time strengthened the professional commitment of young people interested in positive psychology.

To further establish the domain, a number of *special issues* of leading journals, *handbooks*, and *textbooks* have been published in the last few years. These and the many *small research grants* we have been able to distribute to fledgling scholars should begin to lay the foundations of an exciting new superfield, one that could serve as a model for Conservation Psychology, as well as support its goals.

On the Task Confronting Conservation Psychology

Let's assume that the strategy for constituting a new superfield works, and conservation psychology becomes a force in the discipline. The question that presents itself then is: What will it do? To a large extent that question is of course unanswerable, because as with any branch of science — or human endeavor in general — the end-point is invisible from the beginnings. This uncertainty is what makes science so exciting — each year new problems arise that could not have been foreseen twelve months earlier.

But if this superfield is to combine science with an applied goal — to enhance the probability of a sustainable life on this planet — then certain desirable outcomes are fairly clear. Saunders singles two of them out: first, to motivate people to act in more environmentally friendly ways; and second, to encourage people to care about the natural world and their role in it.

These outcomes are indeed what we ought to pursue if we want to achieve the goal of continued survival. The question is, what steps will most likely lead us there? Here I lean towards a direction that might be somewhat different from the one Saunders appears to favor. In her suggestions for how to achieve greater friendliness towards the natural world, she seems to focus on behavioral changes that are concrete and piecemeal. These should certainly be sought out and implemented. However, in my opinion, unless we go through a more radical sea change in our relation to the environment, we will not extricate ourselves from the present hazard.

The long decades of behaviorist psychology have led us to believe that people change their behavior because of the schedule of reinforcements they are exposed to. It is true that the behavior of organisms confined in cages, with no alternatives allowed, can be shaped this way. But it is not the way real historical changes have happened. Christianity, Islam, the French Revolution, the Soviet revolution of 1917 and its rejection some seventy years later, did not spread across the world because of stimulus-response conditioning, but because large segments of the population changed their image of who they were and what they wanted from life. It took great efforts for B.F. Skinner to condition some pigeons to play table tennis reluctantly. Millions of Chinese children learned the game on their own, because they wanted to compete for its symbolic rewards. For psychology to assist in any kind of large-scale historical change, it will have to modify its assumptions and its methods.

The main target of change, in my opinion, is the way we think of ourselves — as separate organisms detachable from the context in which we live. We learn to think of our skins as the boundary that separates us from everything else. This self-centered myopia may be especially prevalent in the industrialized nations that worship individuality above all else, but it is quite prevalent even in the least technologically advanced societies.

The reason for this myopia is that anything that happens to our skin and what is contained within it registers immediately in our nervous system. The feedback from events impinging on our bodies is noticed right away, and it tends to produce rewarding or aversive reactions. A mosquito bite upsets us, while we ignore the toxic dump nearby, even though it might make our lives and that of our children miserable forever.

This focus on individuality at the expense of the sustaining context is of course inevitable and endemic to all organ-

isms. But it becomes an issue of a different order of magnitude in humans, whom evolution has endowed with self-reflective consciousness. We not only *are* separate organisms, we also *know* we are. And this knowledge easily and almost inevitably leads to a sense of superiority. We get to feel that taking care of Number One takes precedence over everything else. As long as we get the morning coffee we so clearly deserve, made from the most fragrant beans grown on tropical hillsides, the thousand acres of rainforest that will have to be cut down to keep the supply coming will not concern us.

What can psychology do to compensate for this myopia? The question is not easy to answer. Despite so much that we have learned about human behavior in the past hundred years, we have not been very successful modifying it where it counts. Although we don't have accurate measures, it does not seem that the incidence of violence, addiction, exploitation, and greed has been appreciably reduced in the world — not even in the countries that have benefited from psychological knowledge the most.

However, we do not have much of a choice. If we do not try to achieve the goals Conservation Psychology is setting up for itself, entropy is likely to herd us towards a future as bleak as any fictional dystopia.

It would help to know, perhaps, how unicellular organisms were able to give up their separate existence millions of years ago, to join with others to form multicellular organisms. It is important to remember that in so doing the single cells, instead of blending into a uniform mass, were able to develop unique characteristics and specialized functions as brain, skin, stomach, or bone cells. Something analogous happened about ten thousand years ago, when farmers congregated in the first cities of Egypt and Mesopotamia, and were able to specialize in a variety of different crafts and occupations.

These early examples suggest that surrendering separateness and becoming part of a larger context will not forfeit one's individuality; on the contrary, it may enhance it. But while it is comforting to know that such transformations have taken place in the past, leading to more integrated as well as more differentiated organisms, this does not seem to help us much in the present predicament. What would motivate the average earthling to give up self-centeredness for allegiance to a wider biosphere?

Part of the answer, obviously, is education. It may be objected that our children are already exposed to hours and hours of nature shows. They see beefy young men wrestling crocodiles in Australia, whales caroling in the briny deeps, spiders mating in the sands of the Sahara. Unfortunately most of these shows emphasize the differences among life forms, the *otherness* of Nature. When they contain ecological messages, these are often ponderous and pedantic. The way we expose children to nature is more likely to enhance separation than a sense of belonging.

We need to find ways to erase the artificial mental barriers that separate the self from the rest of the universe. This would require, for example, a reasonably accurate and quick feedback system, a stream of information that measured the loss (or gain) of global survivability due to different causes, which each school, each newspaper would report daily. Something like the "Doomsday Clock" that the *Bulletin of Atomic Scientists* has been featuring on its covers for the past half century, but based on a wider array of inputs, and more widely disseminated. After a while, the implications of such information may accustom us to realize that it is dangerous to imagine that our self ends at the surface of the skin.

There is need for agreement on realistic estimates of the value of natural resources. In a culture where every value is expressed in financial terms, monetizing nature will soon be a necessity. That way we will know how much to charge those who defile a watershed, ravage a forest, extinguish a species, or pollute the air.

Psychologists are not qualified to take any of these steps alone. As Saunders correctly notes, we must work together with biologists, sociologists, economists, and political scientists to assemble the right information, and then we must assist those who control decision-making levers in politics, education, business, and religion so that the most promising policies are implemented. What psychologists can contribute to this effort is specific knowledge about human motivation and learning, about self-concept and developmental changes. It could be more, but it will have to do. The opportunity to help establish Conservation Psychology presents a one-in-a-lifetime challenge to young people concerned about the shape of the future, and the role of humankind in it.

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If We Build It, People Will Want to Help: The Management of Citizen Participation in Conservation Psychology

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Saunders presents an excellent agenda for maturing the emerging field of conservation psychology (CP). One component is greater cooperation between researchers and practitioners — an essential, if all too familiar, element in the evolution of new fields. But there is a fascinating attribute that sets us apart from many other new environmental fields. The animal of most interest to conservation psychologists not only can talk back, it's motivated to do so.

CP must concern itself with practitioner and researcher needs but it is important that we also meet the needs of everyday people, their desire to be listened to, to be respected, to make a difference. Within CP we must insure that people are not treated merely as the target of interventions nor as merely the subject in experiments. They are in fact participants, with us, in crafting the future. What CP is adding to their many pursuits is the constraint of sustainability.

We could claim that including citizen participation is an unfair burden. But is this true? What I'd like to suggest is that CP gains an enormous advantage by closely attending to people's urge to be involved, and we gain the *benefit* of highly motivated co-workers.

But while people want to participate, they are not passive recipients of information or goals. They have their own reasons for being involved. Humans are striving, goal-directed creatures motivated to seek, use and generate information in pursuit of their own plans. White (1959, 1971) characterized this notion as one of competence, a fundamental inclination to develop the capacity to effectively participate. In White's conceptualization, competence has attributes of both skill and motivation. The skill involves having the procedural knowledge needed to act effectively. The motive is a basic part of human nature: a tendency to continually develop competencies.

Half a century after White, the positive psychology movement is making much the same argument. Fredrickson (1998), in studying the functional role of positive emotions, found that such emotions motivate the building of physical, intellectual, and social competencies. McGregor and Little (1998) report that people pursue tasks that provide pleasure and personal meaningfulness. Yet they also report that people actively seek new tasks that broaden their competence. Seligman (1999) examined the effect of different types of behavior on well-being. His ingenious experiment involved participation in one pleasurable and one helpful activity. Seligman found that helpful actions made the entire rest of the day go better while the pleasure of pleasurable acts faded fast. What is most fascinating is that, to work, helpful acts must call upon one's personal competence.

If we accept the urge toward participation as innate, particularly when calling upon one's competence, then we are well advised to use this inclination. That said, we face the truth that avoidance of citizen participation in our projects is pervasive. This isn't entirely our fault; methods for obtaining participation seem to bring out the worst in everyone, justifying initial reservations. Procedurally we might follow Lewin's (1952) use of citizen meetings to present problems and develop solutions. An excellent update, targeted for CP, was recently done by Matthies and Kromker (2000).

When envisioning how CP might use this procedure three themes emerge:

- *Use multiple motives.* People participate for many reasons, and CP should use them all. Significant among these is self interest, including human fascination with problem-solving, the drive to broaden our competence, the clarity gained from direct action, and the sense of purpose derived from meaningful work. Whatever else CP uses to motivate participation, it can leverage the effect by also working with (rather than against) these various forms of self-interest. We will increase citizen involvement when we are sensitive to the multiple goals people strive for, creating settings that allow for simultaneous pursuit of these goals within the constraint of sustainability.
- *Capitalize on local knowledge.* Useful knowledge is not exclusively held by researchers and practitioners. The knowledge held by citizens is no less applicable than ours. In fact, their competence with regard to local issues can exceed ours. This issue is succinctly captured in Scott's (1998) summary of why efforts to improve the human condition so often go awry, "...I would say that the progenitors of such plans regarded themselves as far smarter and farseeing than they really were and, at the same time, regarded their subjects as far more stupid and incompetent that *they* really were" (343). For CP to progress we need to understand that undervaluing local knowledge will impede our goal of sustainability.
- *Anticipate lifelong participation*. People are motivated to participate long after we have done our job and left. People have lifelong involvement in whatever changes are made to their behavior and environment. Therefore CP must design interventions that expect to be modified and adapted. In fact, we need designs that take advantage of the tendency in humans to tinker with their world.

I truly believe that humans can be reasonable, clever, and decent under certain conditions. And I believe that CP knows something about those conditions. I also think that human talent is a vastly under-used resource. But to use this resource well requires that we turn our ingenuity into engaging long-term citizen involvement.

It is humbling to learn that we are not the sole source of expertise and that our designs will not remain unchanged. But perhaps a new field is better starting from a humble position than to end up there after a host of failed schemes.

Some researchers and practitioners have shown a sensitivity to the need for citizen participation. They've understood that success derives from plans that are compatible with not just environmental constraints but also with the precious resource of human motivation.

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Conservation Psychology: Challenges and Opportunities

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In a recent editorial in *Conservation Biology*, several colleagues and I argued that "to preserve the earth's natural heritage, the social sciences must become central to conservation science and practice" (Mascia et al. 2003). Although appreciation for the social sciences is growing within the conservation community, psychology remains on the margins of conservationists' consciousness. Carol Saunders' extremely valuable paper should help to catalyze conservation-oriented psychological research and its integration into conservation policy and practice. As the field of conservation psychology matures, however, its adherents will likely find themselves revisiting the issues of epistemic identity and research focus discussed by Saunders. New challenges are also likely to emerge as conservation psychologists increasingly engage in conservation research and policy processes.

The epistemic boundaries of conservation psychology may evolve or shift dramatically in the coming years. As conservation psychology and environmental psychology both mature, for example, these intellectual traditions may converge into a single academic literature or diverge into two very distinct fields of study. Epistemic evolution may similarly determine whether conservation psychology is ultimately considered a multidisciplinary field of study or a subdiscipline of psychology. My hunch is that conservation psychology (and analogues like conservation biology) will eventually be seen as a branch of "conservation science," best viewed as a problem-oriented field that draws upon the full range of academic traditions within psychology.

Ultimately, conservation psychology's research foci will define its epistemic identity. Saunders identifies two principal areas for conservation psychology research: 1) how humans behave towards nature, and 2) how humans care about/value nature. To the extent that these two research areas do not already capture it, conservation psychologists should also explore a third research area: 3) how humans learn/develop beliefs and knowledge about nature. Such research would provide conservationists with a better understanding of the basis for traditional or indigenous knowledge, help practitioners to develop more effective conservation education programs, and enable both scientists and practitioners to assess critically their own assumptions about the environment. Perhaps more importantly, while human-nature relationships clearly merit inquiry, many of the critical issues in conservation concern a fourth and fifth research area: 4) conservation-relevant human-human relationships, and 5) the relationships between humans and social institutions.[1] Indeed, the primary purpose of most conservation organizations is to modify existing social institutions to change individual behavior and thus conserve biodiversity. Conservation practitioners would benefit from conservation psychology research examining how and why new social institutions emerge and evolve over time, shape individual and collective behavior, and vary across cultures. Given that conservationists frequently work in unfamiliar cultural settings, there is a tremendous need for cross-cultural studies in all five research areas mentioned here.

Despite the widespread opportunities for new conservation psychology research, *existing* theory and knowledge probably provide the greatest potential for near-term

improvements in conservation policy and practice. Conservation psychologists, therefore, need to translate longstanding wisdom and the latest scientific findings into accessible and relevant policy guidance. This essential role may be unfamiliar to many university scientists, whose research responsibilities often end with publication, and for whom well-established knowledge is of little use except when teaching introductory psychology classes. At present, existing psychological theory and knowledge remain inaccessible to conservation practitioners. Translating academic jargon into plain English and placing this knowledge in the hands of conservation practitioners would provide valuable insights and enhance the efficacy of conservation policy and practice. As basic principles from psychology find their way into conservation policy and practice, novel research questions of theoretical and conservation significance will increasingly become apparent to both scientists and practitioners.

Another unfamiliar role for psychologists may be as participants in conservation policy processes. As practitioners increasingly find themselves not only studying conservation-relevant social institutions but also participating in institutional reform, another debate is likely to emerge in conservation psychology regarding the proper role of scientists in the policy process. As scientists, conservation psychologists attempt to describe, explain, and predict patterns and trends in conservation-relevant human thoughts, feelings, and behaviors. Such positivist knowledge is critical to the development of effective conservation policies and practices because it can help policymakers to predict *what will happen* under different policy scenarios. As mission-oriented practitioners, however, conservation psychologists may find themselves lobbying decision-makers regarding *what should be done* by advocating specific policies. Maintaining scientific integrity while advocating specific value-based policies is a challenge that has often faced conservation biologists and that will likely face conservation psychologists.

Perhaps the greatest challenge to conservation psychology is the historic natural science orientation of conservation policy and practice. Saunders' article provides an excellent first step in the effort to overcome the natural science-social science divide by outlining the epistemic boundaries of the field and its relationship to other conservation and social science intellectual traditions. With this framework in mind, the academic and conservation communities are positioned to integrate conservation psychology theory and knowledge into policy and practice. The academic community can facilitate this process by developing conservation-oriented cross-departmental initiatives, designing academic programs to provide psychology students experience as conservation practitioners, and creating opportunities for conservation practitioners to learn about conservation psychology. Governmental and nongovernmental conservation organizations can do their part by creating mechanisms to bring psychologists into their organizations, and by documenting and sharing success stories that illustrate the value of conservation psychology research to "on the ground" conservation results (Mascia et al. 2003). Effective conservation programs are never guaranteed, but they should be more likely with the scientific understanding of human thought, feeling, and behavior that conservation psychology provides.

Endnote

1. *Institutions* are the rules-, norms-, and shared strategies-in-use that constrain individual choice and shape behavior (Crawford and Ostrom 1995).

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Conservation Psychology as Self-Liberation

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With her review of the background, definition, intellectual niche, research directions, and collaborative potential of conservation psychology, Carol Saunders provides a trailhead for explorations into the frontier between the social and natural sciences. Forays into this new intellectual territory are bound to increase as society's environmental dilemmas and the search for positive responses intensify. As this field opens, it can benefit by looking to allied fields for insight and inspiration, caution, and direction.

Conservation biology emerged in the mid-1980s in response to several related trends: growing evidence of the extent of human-induced loss of biological diversity; appreciation of that loss at varied spatial scales and all levels of biological hierarchy, from genes to species to ecosystems; deeper scientific understanding of the structure and function of ecosystems; and heightened awareness of the social and economic causes and consequences of biotic simplification (Meine 1992a). Although the natural sciences and applied conservation fields had long informed the management of natural resources, increasing numbers of scientists, resource managers, and conservationists sensed a critical gap.

Traditional disciplines were unable to respond effectively or quickly enough to the systemic nature of the threats to biodiversity. Conservation biology, along with other emergent fields — restoration ecology, sustainable agriculture, environmental ethics, ecosystem management, ecological economics — grew between the disciplines, connecting knowledge from diverse sources to understand the problem and devise solutions.

In the process, conservation biology challenged the established disciplines. Indeed, it forced them to re-examine their philosophical premises (Callicott 1999). Agriculture, forestry, wildlife management, fisheries management, and other applied fields had long rested upon utilitarian assumptions that undervalued the full complexity of ecosystems, landscapes, and human communities (Meine 1995). This utilitarian worldview, bolstered by top-down modes of governance, strong economic models, and a buoyant confidence in ever more powerful technologies, provided scant space for alternative approaches. It marginalized those who looked first and foremost to the qualities of the land as a whole, to the long-term functioning of its soils and waters, to the diversity of its plants and animals and people.

The tension between these worldviews was present from the time of the conservation movement's birth in the early 1900s, and has challenged conservation's foremost thinkers and practitioners ever since (Meine 1992b). Aldo Leopold addressed it often in his career, most bluntly in a 1939 article, "The Farmer as Conservationist":

> *Sometimes I think that ideas, like men, can become dictators. We Americans have so far escaped regimentation by our rulers, but have we escaped regimentation by our own ideas? I doubt if there exists today a more complete regimentation of the human mind than that accomplished by our self-imposed doctrine of ruthless utilitarianism. The saving grace of democracy is that we fastened this yoke on our own necks, and we can cast it off when we want to, without severing the neck. Conservation is perhaps one of the many squirmings which foreshadow this act of self-liberation.* (Leopold, 1939, cited in Meine and Knight 1999, 306)

It was in response to the rule of "ruthless utilitarianism" that Leopold ultimately proposed his "land ethic" as a guide to conservation. Only by expanding the sphere of moral concern, he thought, could people acting individually and collectively hope to address complex conservation problems effectively.

Leopold had no illusions about the difficulty of the task. Yet, having come to appreciate the limits of narrow utilitarian motives in conservation, he saw no other choice. External measures — whether in the form of prices, incentives, programs, legislation, or other economic signals and governmental actions — could perhaps encourage some conservation behaviors. They would nonetheless always remain inadequate. "No important change in ethics," he surmised, "was ever accomplished without an *internal change* in our intellectual emphases, loyalties, affections, and commitments" (Leopold 1949, 209-210, emphasis added).

As conservation psychology assumes the challenge of understanding such "internal change," I would issue it a challenge of its own. Conservation psychology now seeks its place in a world dominated by a very different form of applied psychology — marketing. In his popular exposé *The Hidden Persuaders*, the late Vance Packard took on an advertising industry that, in retrospect, was just beginning to appreciate the full potential of modern psychology's tools ("Eager minds can be molded to want your products!") (Packard 1957, 158). An astounding generation's worth of advance in the arts of "psycho-seduction" has successfully rendered untold millions of human beings into perpetually needy consumers. No small accomplishment!

Conservation psychology, then, has a choice to make as it unfurls its banner. As an exercise in applied psychology, it can emulate the hidden persuaders, adopt their techniques (if not their goals), and turn the art of "psycho-seduction" toward conservation ends. It can regard conservation as another product that "eager minds" might be molded to want. In so doing, it would usefully contribute, no doubt, to a somewhat improved human impact than would otherwise be the case. Along the way, it might even gain all the trappings of an emerging field: new journals, annual meetings, research grants, faculty positions, recognized experts, impenetrable jargon.

Or conservation psychology can aim higher. It can seek to remove the yoke. It can help to free the human spirit from the ravages of ruthless utilitarianism. It can encourage critical thinking about the human place in a very real world of soils, waters, plants and animals, at a time when we desperately need it. It can inform an expanded and more *grounded* understanding of individual identity and human development. It can speak to people in a clear manner, illuminating the forces that shape our lives, societies, and worldviews. It can lead us to better understanding of who we are, how we came to be that way, and how the world we are creating will shape future generations.

In another book, *A Nation of Strangers*, Vance Packard wrote, "Knowing, in a deep-down sense, where you are from contributes not only to your sense of identity but to your sense of continuity" (Packard 1972, 275). Wendell Berry has said it even more succinctly: "If you don't know where you are... you don't know *who* your are" (Stegner 1992, 192). Conservation psychology, by showing how *where we are* is

connected to *who we are*, can become more than a new field. It can be an act of self-liberation.

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What Makes People Care? Moral Inclusion and Conservation Psychology

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People flocked to observatories to see Mars at its closest pass to Earth in 60,000 years. It was only marginally closer (0.5%) than in prior close passes, but the excitement it generated suggests the passion people bring to such fundamental questions of human existence: What does it mean to be part of a galaxy? To live on planet Earth? To be human? For centuries these enduring questions have animated philosophy, the humanities, the sciences, and, in the past century, psychology. For decades, the human-environment interaction has been an ongoing area of psychological research (e.g., Hart, 1997; Proshansky, Ittelson and Rivlin 1976; Searles 1960; Stokols and Altman 1987). Environmental psychology is a dynamic field and, like ecological change, it has continually evolved. Each new focus (e.g., sustainability) reinvigorates our commitment and contributes useful knowledge to pressing questions. In her forum essay, Carol Saunders urges attention to the critical challenges of environmental deterioration. She does so by encouraging multiple voices, approaches, and perspectives. I see *conservation psychology* as an urgent call for increasingly cohesive and focused efforts rather than a new field. As Saunders notes, many psychologists, including those who write for this issue, have made conservation psychology their life work.

"What makes people care about nature?" has spurred my work. In my approach, I seek to identify what makes people see nature as within their scope of justice (i.e., *morally included*) (Opotow, 1990). This means seeing justice as applicable to nature, sharing — not usurping — resources, and making sacrifices to secure natures' well-being even if that means changing the *status quo* to do so. People get excited about Mars, love appealing animals (e.g., pandas, whales), and are passionate about particular places, but it is more difficult to arouse concern for less appealing or visible aspects of nature. I have investigated, for example, conditions that could lead to the conservation of insects (Opotow 1993, 1994) and inclusionary issues underlying environmental conflicts over rangelands (Opotow and Brook, in press) and smog (Opotow and Weiss 2000). This work, conducted over two decades, has yielded a complex mosaic of findings. In brief, threat and conflict thwart moral inclusion, as does perceiving nature as unconnected to ourselves. In addition, our tendency to deny that environmental harms exist, deny our role (as individuals and collectives) in creating them, and deny others' (human and nonhuman) entitlements to resources and well-being also thwart moral inclusion.

In terms of conservation, moral inclusion means including diverse aspects of nature (animals, plants, habitats, and commons) as well as diverse human stakeholders within the realm of what matters to us. Doing so can offer broad-based and long-term support for environmental conservation. Conservation is therefore more complex than protecting nature; it also depends on recognizing the needs, interests, and perspectives of environmental stakeholders (individual, group, and institutional), and working cooperatively with them to foster conservation initiatives that are sustainable over time and its inevitable challenges.

Moral inclusion can evoke identity shifts when it prompts a reconceptualization of our relationship with and responsibility toward nature and other environmental stakeholders. For more than a decade, Susan Clayton and I have worked on questions of identity and fairness in environmental contexts because we have been struck by their potential to spark impassioned concern (cf., Clayton 2000; Clayton and

Opotow 2003). We have conducted our own research and have worked alongside kindred scholars from a variety of subdisciplines who contributed to two publications: a *Journal of Social Issues* (1994) on "Green justice: Conceptions of fairness and the natural world" and a book, *Identity and the Natural Environment: The Psychological Significance of Nature* (Clayton and Opotow, in press).

Carol Saunders' advocacy for conservation psychology offers passion and clarity about urgent environmental questions and models the ethos of inclusion. She argues for collaboration among many stakeholders to foster conservation: researchers from diverse disciplines, environmental practitioners and educators, policy makers, and public audiences and institutions. Environmental psychology offers conservation psychology continuity and a treasure-trove from decades of scholarship and practice. Conservation psychology offers a vision of what needs doing to apply psychological knowledge to environmental issues of enduring significance and for sparking public interest about the planet we share with many kinds of others.

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Thinking Through "Conservation Psychology": Prospects and Challenges

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I would offer the following thoughts on current *constructions, omissions, and emphases* with respect to the nature and confluences of what we are calling "conservation psychology." I write as an environmental psychologist working in multiple interdisciplinary conservation spaces.

Carol Saunders' paper addresses an initiative, agenda, and continuing discussion which is both very important and very timely with respect to the pressing environmental problems at issue, and with respect to what is arguably a critical juncture — and opportunity — concerning disciplinary and paradigm realignments and synergies in the environmental arena. There is a clear need and mandate for the social sciences, and psychology as a critical disciplinary player, to have more complementary and effective cross-disciplinary and interdisciplinary involvements with respect to conservation research and initiatives. It is also evident that there is a need for clarity and focus with respect to what this conservation psychology initiative and undertaking is about, the nature and relevance of the collective experience and expertise of those involved, how this differs from other discipline-based and/or multidisciplinary conservation fronts, and the ultimate mission and goals driving this enterprise. The discussion paper lays out and addresses the issues, questions, and possible directions for a conservation psychology in a helpful and cogently argued way, pulling together and giving form and substance to the deliberations and discussions that have taken place over the past several years at various conferences, workshops, and other venues.

Specification and Scope

Notwithstanding the appeal of "conservation biology" as a successful, seemingly analogous, model for a convergent, conservation-focused undertaking within psychology and across allied disciplines, there are difficulties and disjunctions in using conservation biology as a touchstone for conservation psychology when specifying the field. It is interesting to ask what one would change in the already multi-disciplinary domain of conservation biology, which includes human behaviour. What characterizes conservation psychology is the common interest and common purpose in psychological processes, parameters, and interventions relating to effective conservation initiatives and behaviour change. While this both explains and invites multidisciplinary approaches and involvements, such a focus and shared

agenda require the discipline-based expertise and experience of *psychology* and psychologists. A caution when thinking about a conservation psychology is that psychology is both an encompassing *discipline* as well as a *profession*, and psychological theory, thinking, and constructs occupy a parallel popular culture space in which they are very much a part of everyday social life and experience in virtually all cultures.

Returning to the position paper, it would seem that the specification and horizons of conservation psychology, in the summary descriptions provided, would appear to be too focused on several aspects of and approaches to behaviour and behaviour change, i.e., motivation and caring, and at the same time, somewhat less distinctive and centered than one might expect for a new and invitational, and presumably discipline-based field. There are many effective behaviour change and management strategies, for example, that do not focus on motivating people, and while encouraging people to *care about* the natural world and their role in it arguably cuts to the heart of moving people towards more ecologically informed and sensitive lifestyles and behaviors, such summary wording also tends to marginalize, if not exclude, working constructs such as attitudes, values, beliefs, and concerns (which have wide currency in conservation biology and protected area management arenas). As well, such wording suggests and in many cases privileges an individual level of analysis and intervention, when many would argue that what is sorely needed are alternative and ideally complementary initiatives at organizational, economic, political and societal system levels — and quite possibly ecosystem levels (e.g. Stern 1992, 2000).

Important Omissions

Other Disciplines, Fields, and Workforces. Notwithstanding the breadth of coverage and invitational flavour of this inaugural statement concerning Conservation Psychology, there are important omissions in the overview of other related and contributing fields. Those of particular note include art and environmental aesthetics, landscape architecture, phenomenal geography, place attachment and identity, culture and environment, protected area management, natural environment interpretation, risk appraisal and assessment, risk communication and representation, and natural history writing. Environmental aesthetics, for example, squarely addresses the nature and character of art, experience, and the natural environment (e.g., Berleant 1997, 2002; Kastner and Wallis 1998) and is a domain and field which has strong psychological roots (e.g., Berlyne 1971; Nasar 1988; Wohlwill 1976) and cross disciplinary interests and affinities (e.g., Kellert and Wilson 1993). The turning to an *ecological* aesthetics evidenced in North American land management and conservation practices constitutes a quiet revolution in how individuals and government agencies understand natural environment perception and appreciation (e.g., Gobster 1999; Gobster and Hull 2000; Shepard and Harshaw 2001). Landscape architecture and ecology, similarly, are increasingly intertwined design and planning fields which are integrally involved with the human experience of natural environments and elements, and the potential and often powerful shaping influence of landscapes and natural settings (e.g., Nassauer 1997; Spirn 1998; Thomson 2000). The overlap of landscape architecture and psychology is well illustrated by the work of the Kaplans (e.g., 1989, 1995, 1998) and others and with respect to restorative environments (e.g., Gerlach-Spriggs, Kaufman and Warner 1998; Hartig, Mang and Evans 1991; Hartig and Staats 2003; Ulrich 1993).

Human geographers and ecologists have, of course, had a long-term interest in the perception and experience of the natural environment, and how this experience profoundly influences human interaction and environmental consequences (e.g., Kitchen, Blades and Golledge 1997; McHarg 1969; Penning-Roswell and Lowenthal 1984; Shepard 1967, 1999; Tuan 1974, 1977). Phenomenal geography has brought the paired issues of environmental experience and consequences into sharp focus, and has much wisdom to offer a conservation psychology (e.g., Rodaway 1994; Seamon 1993; Seamon and Mugerauer 1985). Space does not permit even a cursory mention of other relevant fields and sources, with anthropology being a particularly grievous omission, but skipping through to natural history writing, a paradoxically non-obvious field and literature, it is worth reminding ourselves that some of the most powerful and accessible writings on people's connections to the natural world, what moves and persuades, and elevates or devastates, are found in the works of those writers who have spent considerable, reflective time with the natural world, and reported on their encounters (e.g., Berry 1988; Daynard 1992; Dillard 1974; Ehrlich 1985; Lopez 1979; Nabhan 1982; Snyder 1957; Suzuki 2002). These commentators include natural and social scientists, poets, philosophers, and historians, but more importantly they represent and articulate very informed personal and cultural views and experiences. There has been a broad, culture-based discussion and consideration of human connections with the natural world which has been going on for many decades (essays, poetry, books, recordings) which well express and celebrate these connections, their importance, and their potential loss. These popular culture representations gives eloquent voice to a collective experience and shared understanding which must be factored in to scientific appreciations of public understandings (as distinct from current "public understanding of science" initiatives).

History and Acknowledgement. It is arguable that the name "conservation psychology" and the field which is defined and explained are relatively new. There is also strategic value in launching and promoting the name and the field. However, there have been many psychologists and other social scientists who have been working in the conservation and/or natural resource management arena for at least 40 years in many parts of the world, though most notably in North America. Many of these individuals are working as professional social scientists in conservation domains (e.g., agriculture, forestry, and protected area management). There is an important distinction here between an area of research interest and involvement, on the one hand, and one's professional practice, occupation, and identity, on the other, which needs to be factored into any new cartography of disciplinary or research fields — particularly if the objective is a more inclusive and synergistic pooling of professional experience and expertise (Reser 2002).

It is important to acknowledge that the reciprocal and formative nature of the relationships between people and the natural environment, the escalating salience and issue of environmental degradation, and the valuable and critically necessary contribution of psychology and other social sciences were flagged early on, during a very noteworthy "greening" of psychology (Craik and Zube 1976; Daniel and Boster 1976; Proshansky, Ittelson and Rivlin 1976; Leff 1978; Zube et al. 1975). The APA in particular was fostering a more multidisciplinary and interdisciplinary focus on natural environment issues and concerns even earlier, with symposia and round table discussion proceedings from the 1970 national conference in Miami being published as both statement and invitation with respect to critical environmental initiatives (Wohlwill and Carson 1972). It is important to acknowledge their work, to draw from this wisdom and experience, and to present and promote conservation psychology as an emergent field which has an appreciable history and very solid disciplinary and cross disciplinary foundations.

It is worth noting that the "nature and ecology" working group of EDRA and many within the Population and Environmental Psychology Division of APA (American Psychological Association) and the environmental psychology division of IAPS (International Association of Applied Psychology) have promoted, profiled, researched, and presented many aspects of people/nature connections and conservation initiatives over the lives of these interest groups. In short, psychology and conservation, and psychologists working in the conservation field, have a history, a research and practice profile, an interdisciplinary character, and an intellectual and moral presence which has been and continues to be much more than a modest and largely academic niche area of environmental or social psychology (e.g., Bechtel and Churchman 2002; Bell et al. 2001; Gardner and Stern 1996; Gifford 2002; Oskamp 2000; Reser 2001, 2002; Schmuck and Schultz 2002). In the most recent *Handbook of Environmental Psychology* (Bechtel and Churchman 2002) no less than five chapters focus on conservation/sustainability issues (Bonnes and Bonaiuto 2002; Garling, Biel and Gustafsson 2002; Geller 2002; Vining and Ebreo 2002; Wiesenfeld and Sanchez 2002). Equally, of course, there have been many researchers from other disciplines who have made an enormous contribution to understanding human behaviour in and experience of natural environments.

Theoretical Perspectives: Conceptualizing the Connections. There is no question but that an absence of appropriate theoretical models has frustrated a more synergistic and collaborative conservation focus and effort, both within psychology and across allied fields. The need for conservation psychology to develop and disseminate useful models and measures is both noted and underscored in the discussion paper. What is missing, however, is reference to the kinds of ecological and transactional models that have been developed in environmental psychology and environment-behavior studies (e.g., Moore and Marans 1997; Wapner et al. 2000; Werner, Brown and Altman 2002; Werner and Altman 2000; Wicker 2002; Vining and Ebreo 2002). Such frameworks are integral to addressing the behaviour and experience sides of conservation issues and problems — and to achieving any measure of cross-disciplinary collaboration. There are also many constructs in the conservation domain with a strong psychological character or implication which require more adequate and coherent theoretical frameworks and operational standardisation. These include environmental concern(s), value(s), attachment(s), impact(s), and quality. What is sorely needed by those agencies, government departments, international environmental organizations, and communities working on conservation fronts are practical, meaningful, and credible frameworks, constructs, and measures/indicators relating to both the impacts of people on the natural environment and the impacts of the natural environment on people (Reser and Bentrupperbäumer 2001).

Emphases

Clarity, Constructs, and Language. A critical challenge for a conservation psychology will be to achieve a more familiar and transparent multidisciplinary and interdisciplinary enterprise (e.g., Klein 1996; Salter and Hearn 1996). This, in practice, may prove to be far more important than motivational or concern issues and interventions, or adaptation to cumulative degradation. Achieving this collaborative workspace and institutional and funding agency support will

require a more effective and self-reflective representation and communication of what insights psychological research can and does provide with respect to human experience, impacts and concerns — and effective behaviour change — respecting the natural environment. The emphasis on language as a key consideration in Saunders' paper is particularly noteworthy in the context of communication and collaboration:

- *We also need a more compelling language...*
- *to develop a more powerful vocabulary...*
- *at least minimally conversant with natural scientists...*
- *to establishing a richer human-nature language...*
- *so that we have a language to celebrate and defend it...*
- *to adequately express the essence of such caring.*

This language issue, including accurate and effective communication and representation, is complex, and involves the challenge of very different usage and meanings of terms and constructs across disciplinary, practice and lay divides, little standardisation of measures or meanings within or across research fields, and the politics and sensitivities of eco- and enviro-speak. One might direct attention to many exemplars of communication frustration and collapse, including the contested meanings and constructions of "nature" or "sustainability," but a parallel set of terms and constructs is particularly germane to a conservation psychology, that of "value," "values" and "valuing."

Much of the discourse with respect to conservation, the environmental movement, and community concerns has been about societal values, conservation values, environmental values, and the value, economic and otherwise, of the natural environment. This ultimate reference to environmental values has been enshrined and institutionalised in environmental protection legislation and policy in such a way that social science understandings of values are at substantial odds with environmental management discourse and practice. (Bazerman et al. 1997; Becker and Jahn 1999; Bell and Morse 1999; Reser and Bentrupperbäumer 2000). Bazerman et al. (1997), for example, canvas an impressive spectrum of psychological research (e.g., risk, valuation, mental models, standards) which turns conventional wisdom about perceived environmental change and how people value the environment on its head. A central issue, focus, and strategic target for conservation psychology would seem to be the nature and roles of human values and valuing.

Caring. To the extent that conservation psychology is characterized by and embraces "caring about" and "taking care of" the natural world, it shares clear and common ground and historical roots with the stewardship and rights of nature discussions of the early 70s (e.g., Barbour 1973; Leopold 1957; and Nash 1967), with these constructs necessarily linked to the development of environmental ethics generally (e.g., Attfield and Belsey 1994; Callicott 1999; Devall and Sessions 1985; Hargrove 1989; Naess 1991; Stefanovic 2000; Stone 1987; Zimmerman et al. 1993), and the historical and intellectual underpinnings of the environmental movement (Dunlap and Mertig 1992; Gottleib 1993; Pepper 1996; Roszak 1979). Indeed caring, stewardship, responsibility, and concern occupy an interesting and convergent emotional and semantic folk space which parallels an often passionate philosophical and ethical discourse. The use of "caring" as a clearly understood parameter in collaborative conservation research entails multiple issues and complexities relating to the history, use, and meaning of caring in various areas of psychology, in environmental ethics, impact assessment, and across often dramatic cultural and disciplinary divides. Notwithstanding these challenges, the currency and communication power of caring is clearly evident in its widespread use in many applied and research contexts in the form of *caring for country* and the natural environment, and in land *care* programs and initiatives across the world (Campbell 1994; Carr 2002; Young et al. 1991). But how does the conservation-minded non-psychologist researcher begin to make sense out of these myriad and confusing references to caring? An important challenge for a conservation psychology will be to marry and integrate what have been rather separate and independent research paths with respect to ethical and value considerations respecting the natural world and the respective roles of culture, child development, and education (e.g., Abramson and Inglehart 1995; Eckensberger and Zimba 1997; Geller 2002; Kahn 1999; Kellert 1996; Orr 1992).

Ecopsychology?

Finally, there is the vexed issue of where and how this newly constituted conservation psychology situates itself with respect to ecopsychology in its myriad forms (e.g., Fisher 2002; Roszak, Gomes and Kanner 1995; Roszak 1992; Sewall 1999), not be confused with various constructions of *ecological* psychology (e.g., Barker 1968; Howard 1997; Wicker 2002; Winter 1996). There are many psychologists working in the environmental arena who have serious reservations about a seeming psychological and conservation initiative and movement (i.e., ecopsychology) which draws from, in part, very mixed popular culture, new age, anti-psychiatry, and analytic and psychoanalytic roots, and which increasingly has a strong clinical, counselling, and often spiritual emphasis and application (Reser 1995). One need only type in "ecopsychology" in any available internet search engine (e.g., 10,200 hits using amazon.com, August, 2003) to appreciate the movement character of ecopsychology and the fact that much of this enterprise is incongruent with, if not inimical to, the research- and evidence-based practice of applied psychology, environmental management and planning, and conserva-

tion sciences. The envisioned collaborative promise of conservation psychology as a research, intervention, and advocacy initiative is, largely and practically, with natural scientists, environmental managers and agencies, and other social scientists. It is important to carefully and strategically consider how and indeed whether to distinguish conservation psychology's interest in and focus on caring and concern (as well as attachment, identity, restoration, etc.) from ecopsychology's seemingly overlapping constructs and agenda. This is a particularly difficult and challenging set of questions and issues, as there is a substantial area of interest and focus in ecopsychology which does map very legitimately onto the caring for the natural world front emphasised in the discussion paper. There are also a number of psychologists with a strong conservation interest who have chosen to work under the banner of ecopsychology, and the impetus of this coming together of common interests, common ground, and popular culture imagination and concern, is impressive and undoubtedly consequential with respect to a more societal conservation agenda and consciousness. But there are clear costs with respect to who will or will not join a collaborative research venture and field which does not clearly situate itself with respect to ecopsychology (Reser 1995, 2002).

Concluding Observations

It might seem that this response has been too concerned and perhaps too precious with respect to language and labels in the face of much positive energy and interest, daunting issues and problems, and a critical need to be there and make a difference. Unfortunately, the realities of effective conservation and environmental management are that any effective conservation initiative today, whether by way of research, theory or practical application, must be able to break through a chaotic and charged discursive landscape in which *natural*, *environment*, *sustainability*, *values* and *conservation* can mean whatever a vested interest chooses them to mean (e.g., Ellen and Fukui 1996; Soule and Lease 1995; Macnaghten and Urry 1998; Everden 1992; Harre, Brockmeister and Muhlhauser 1999). A priority and prerequisite is to *manage* this environmental discourse. As well, the tyranny of language takes on new meaning and implications in the light of what we now understand about the nature and role of text and visual languages in the social construction and social representation of self, risk, and environment (Farr 1993; Flick 1998; Bauer and Gaskell 2002; Grauman and Kruse 1990; Hall 1997). It may well be that shared societal *concerns* and corresponding *social representations* about the degradation of the natural environment proves to be a more effective target, vehicle, and construct than individual caring and/or attachment for framing and galvanising effective conservation initiatives at both *individual* and *system* levels.

The present summary characterisation of a conservation psychology, while invaluable, does not yet do justice to the nature and breadth of psychological, environmental psychological, environment-behavior studies, and other disciplinary fronts squarely addressing human perceptions, connections, experiences, and concerns with respect to natural environment well-being and sustainability (e.g., Altman and Wohwill 1983; Bechtel and Churchman 2002; Gifford 2002; Bell et al. 2001; Stern, Young and Druckman 1992; Werner 1999). While there is an excellent, albeit necessarily selective, coverage of relevant researchers and research fronts in the body of the article, this breadth is effectively and unfortunately lost in the summary description provided. One can think of many invaluable sources and domains not really touched upon. Psychologists working in forestry, agriculture, protected area management, environmental impact assessment and monitoring, and other environmental fields and agencies would understandably feel that their work and commitment was not really understood or appreciated as quintessential conservation psychology. Anthropologists, sociologists, and political scientists might conclude that their respective disciplinary investments in the institutional, social, and cultural contexts of people-natural environment connections and interdependencies have been effectively ignored. Landscape architects, ecologists, and planners might well be dismayed by a language and approach that seems to be uninformed by decades of a *design with nature* ethos and philosophy. Environmental educators and interpreters might understandably feel that a truly colossal and heartfelt investment and labor falls through the cracks in this new undertaking and enterprise. The challenge is the provision of a framework and space which can draw together these often independent lines of inquiry and research into a more coherent, convergent, problem and issue focused coalition.

It is sobering to consider what is out there with respect to more applied and management oriented discussions of social science and conservation (e.g., Cordell and Bergstrom 1999; Ewert 1996; Hammitt and Cole 1998; Higgins et al. 2000; Margolis and Salafsky 1998). These sources provide a very selective and problematic coverage of what social science is, what work is being undertaken, who is undertaking this research, what paradigms and methodologies are available, and what is current best practice. Psychology and psychology-based theory, findings, and insights are very inadequately characterised and represented, and environmental psychology gets scant mention. There is also a tendency, in this context, to see and understand conservation as naturally falling under *natural resource management* when its compass and mission is of course far broader than this. It is important that a conservation *psychology*, however multidisciplinary and problem-focused its orientation and ultimate mission,

reviews and corrects public and other discipline understandings and representations of psychology, psychological theory and research, psychological constructs and processes relevant to human-natural environment transactions, and that corpus of psychological research findings and current research fronts of particular relevance to conservation.

The paper by Carol Saunders sets out an exciting and challenging prospect and venue for a more concerted, focused, collaborative undertaking which can ideally consolidate, integrate, energize, and better profile and deliver what psychologists and colleagues from many other research and professional areas can contribute to the conservation of our natural world. Let's introduce ourselves to those we do not know, exchange ideas, strategies and findings, roll up our sleeves, and ensure that the impressive good work in which we all have been engaged finds realisation in fundamentally changing how individuals and society think, feel and behave with respect to the natural environment.

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Making Conservation Psychology Relevant to Practitioners

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Overall, Saunders does a good job in laying out her case for the field of conservation psychology. I would like to offer two relatively minor comments on her definition of where conservation psychology fits with regard to related disciplines and then propose a challenge as to how conservation psychology might make itself relevant to conservation practitioners.

Defining Conservation Psychology in Relation to Other Disciplines

In her work to define the niche of conservation psychology in relation to other established disciplines, Saunders gets

a bit tripped up by two long-standing nomenclature problems. The first issue relates to the domain of conservation psychology. The problem here is the ambiguous definition of the word "conservation." In her definition of conservation psychology, Saunders writes that conservation "is the protection, improvement and wise use of 'natural resources' to provide the greatest value for the present and future." Under this definition, conservation presumably refers to both "green/blue" environmental issues (conservation of biodiversity) as well as "brown" environmental issues (conservation of other natural resources such as water, fossil fuels, and soil as well as the mitigation of pollution problems). In the remainder of the paper, however, Saunders seems to focus more on green/blue issues rather than brown ones. It would be interesting to consider whether these two sets of issues could be addressed by a single conservation psychology discipline or would require distinct sub-disciplines.

The second issue concerns the relationship of conservation psychology to conservation biology. The problem here is that conservation biology has outgrown its original name. As Saunders says, conservation biology extends beyond the natural sciences to consider a range of disciplines that are related to the conservation of biodiversity. As a result, as Lidicker (1998) puts it, there is a tendency to "confuse conservation biology with conservation. They are not the same." To this end, I would argue that the most useful arrangement would be to create an overall discipline of biodiversity conservation science, of which (biodiversity) conservation biology and (biodiversity) conservation psychology would be two of many sub-disciplines. For what it is worth, at its most recent meeting, the Board of Governors of the Society for Conservation Biology (arguably the premier academic society focused on biodiversity conservation) at least flirted with the idea of changing the name of the group to, among other options, the Society for Conservation Science or the Society for the Conservation of Biodiversity.

Is Conservation Psychology Relevant to Practitioners?

Definitional issues aside, the fundamental question that Saunders' paper raises is "Does the world need a new discipline of conservation psychology?" From an academic perspective, the answer to this question depends on the discipline's ability to help increase our collective understanding of how the world works. Although I am not an expert here, Saunders seems to make a reasonably good case as to why conservation psychology might be needed in this regard.

From a practitioner's perspective, the answer depends on conservation psychology's utility as a tool that can help them be more effective and efficient in his or her day-to-day project work. In this context, a project can be defined as "any set of actions undertaken by a group of practitioners to achieve some defined end." The scale of a conservation project can thus range from actions by a local community to conserve a sacred grove over a couple of months to efforts by an international conservation group to conserve biodiversity across a continent over centuries (Salafsky et al. 2002). There are at least three levels at which the utility of any discipline can be judged from a practitioner's point of view:

Individual. The most basic measure of utility for a conservation practitioner is: "Is it helpful to have a conservation psychologist as part of my project team?" It is pretty clear to me what a biologist, anthropologist, or economist can and cannot do in the context of a conservation project and thus to figure out when it would be useful to have one around. In the case of conservation psychologists, if a project involves informal education of a broad audience through a media campaign, social marketing, or other similar tools (Salafsky et al. 2002), then it seems like it could be useful to include a conservation psychologist on the project team, although I suspect that the psychologist's commercial cousins, the specialists who work for advertising and public relations firms, might be even more helpful. If a project involves other tools such as setting up a park, conservation easement, or an ecotourism business, however, then it is less clear how a conservation psychologist could be of use (except in helping assess behavior modification as noted below). And in any case, the answer probably depends on how well the psychologist understands the local culture; it is hard to imagine the same person being equally effective in Wyoming in the United States and the Eastern Highlands of Papua New Guinea.

Methods. The second measure of utility for a practitioner is: "Can the methods of conservation psychology contribute to my conservation project?" For example, biological transects, anthropological interviews, or economic household surveys all have their uses in designing and monitoring conservation projects. In the case of conservation psychology, I am fairly ignorant as to how psychologists conduct their research and unfortunately, Saunders does not really fill us in on this count. I presume that we are not planning to put loggers and poachers on the analyst's couch or in Skinner boxes, but it would be interesting to know what might be done, how much it would cost and how quickly it would yield useful knowledge and results.

Disciplinary knowledge. The third measure of utility for a practitioner asks: "Can the knowledge and principles accumulated by the discipline of conservation psychology contribute to my project?" For example, conservation biology has given us principles regarding minimum critical population size, reserve design, and maintenance of ecosystem

functions, all of which are useful in designing conservation projects. In the case of conservation psychology, Figure 2 in Saunders' paper does a good job of laying out in broad strokes the theoretical areas that conservation psychology might focus on. But the devil is in the details; can conservation psychology create general and yet non-trivial principles (Salafsky and Margoluis 2002) that will be of use to practitioners? To me, the most fertile ground lies in the first of Saunders' topics — behavioral modification. Most conservation projects at their core involve an assumption that in generic form states "Implement Activity X to change Human Behavior Y which is a threat to Biodiversity Target Z." Currently, if there are one or more social scientists in the room during a project planning workshop when this type of assumption comes up, there is inevitably a long drawn-out discussion about the theoretical linkages between knowledge, attitudes, and behaviors that results in some vague suggestions being offered. It would be nice to get beyond the theory and get down to nuts-and-bolts principles as to the specific steps a project would need to take to effectively modify specific behaviors in a specific set of people under specific conditions. If conservation psychology can help develop these principles, then conservation practitioners will embrace it. If it can't, then it will simply be another academic exercise.

Overall, if we have learned anything over the past few decades, it is that biodiversity conservation is primarily not a biological problem, but rather a human social problem. We desperately need all the social sciences — including psychology — to come up with useful solutions to the challenges that we collectively face. That said, however, conservation practitioners do not need abstract theoretical debates. What they need are trained people, useful methods, and tested knowledge that they can use to improve their day-to-day work. It will be interesting to see if the discipline of conservation psychology can meet this challenge in the years to come.

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Action Research and Big Fuzzy Concepts

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Carol Saunders lists overlaps and common interests between conservation psychology and different branches of psychology as a blueprint for action. Conservation psychology seeks to change people's conception of the environment; cognitive psychologists study thinking. Social psychologists study competition and cooperation which are critical processes in conservation psychology.

Simon is posted at a bend in the river. His task is to fish out dead bodies floating by. Tired of retrieving waterlogged corpses, Simon wonders what is happening around the bend. How did these bodies get into the water? He proceeds upstream to find the answer.

Heini Hediger (1950) observed that zoo animals suffered in bare concrete cages with steel bars. Many animals were listless and inactive, failed to reproduce, and often became ill and died early. When he became curator of the Zurich Zoo, Hediger experimented with accommodations more similar to an animal's natural habitat, and used the findings to improve conditions for captive species. His work laid the basis for the conversion of prison-like zoos into wild animal parks without bars. Subsequent zoo reformers such as Terry Maple, the first psychologist to head a major American zoo, promoted the value of research-based knowledge for improving zoo conditions. Perhaps more than any other institution, the zoo benefited from the application of environment-behavior research.

This could be the end of a success story except that the supply of wild animals was drying up. Zoo researchers could not be content with improving conditions of confinement when the sources of their animals were threatened. Indeed zoos, no matter how progressive their policies and practices, were seen as contributing to species depletion. Ethical codes were developed governing acquisition and sale of animals. These, too, proved insufficient to reverse the loss of species in the wild. Someone needed to go around the bend in the river to learn why species were disappearing and how this could be reversed.

When zoologists hiked upstream, they did not like what they found. Illegal poaching was rampant and habitats on which animals depended were fast disappearing, largely because of human settlement. Animal behavior was not the problem, it was human action. Zoologists were not trained to deal with this type of situation. This might suggest that zoologists turn for answers to psychologists and other experts in human behavior. Unfortunately the research base in the behavioral sciences was inadequate to meet the challenge.

Psychologists had not done research on land acquisition and protection, and knew little about the practical details. This was not a case of failing to apply results from basic research studies. The situation required a different type of study that combined mission-oriented, value-laden research with attempts to improve a practical situation. This is the action research strategy developed by social psychologist Kurt Lewin (1946). The hallmark of action research is the direct involvement of the potential users of the information throughout all stages of the research. A good test of the success of action research is whether the local situation improves as a result of the research.

Lewin (1948) declared that lawfulness in science means an if-so relation, a linkage between hypothetical laws and hypothetical effects, but this does not tell us what conditions exist at a given time and place, do the job of diagnosis, or prescribe a strategy for change. Those tasks, Lewin maintained, must be performed at the local level where conditions are always unique. Hence the need for local research attuned to a specific time and place (Sommer 1990).

As a graduate student, I was taught that basic research leads to applied research which is followed by application. I abandoned this belief when I found that basic researchers, applied researchers, and practitioners inhabited different worlds, didn't talk much to one another, or read each other's journals. For the most part, basic research leads to basic research which leads to more basic research. A major challenge in developing a successful conservation psychology is less the breaking down of barriers between subdisciplines than breaking down barriers between research and application by combining the two in a single collaborative endeavor. I agree with Saunders that practitioners must set the research agenda. I would add that they should also be involved throughout the research. Studies must be designed with dissemination and utilization in mind, which is a major departure from the conventional academic research model. Action research is not business as usual for the researcher, it is a different type of business.

Of necessity, conservation psychology deals with concepts that are difficult to define and measure, such as caring for nature, land ethics, and biophilia. For most of my career in environmental psychology, I avoided such Big Fuzzies (Sommer and Sommer 2002), concentrating instead on aspects of problems that were accessible and easy to measure. With support from the U.S. Forest Service, I spent ten years investigating residents' attitudes toward city trees and residents' participation in tree planting programs. Throughout the research, I assiduously avoided the deeper complexities of people-tree relationships. The advent of Positive Psychology (Seligman and Csikszentmilahy 2000) emboldened me to directly confront aspects of trees that were difficult to define and measure. I hope that other researchers will not wait as long as I did. An effective conservation psychology calls for the investigation of small issues that are accessible and easy to measure *in the context of* big fuzzy concepts such as conservation ethics and attraction to nature.

Finally, Saunders discusses the relationship of conservation psychology to the earlier conservation movement. It would also be helpful to consider its connection to conservatism as a political philosophy. The fledgling field needs all the friends it can get. Keeping and protecting are common to both conservation psychology and conservatism but the former seems more motivated by altruism while the latter by self-interest. Perhaps common ground can be found at the place where altruism merges with enlightened self-interest.

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How Can Conservation Psychology Become Influential?

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The effort to define a field of conservation psychology has already been successful by one important measure: it has catalyzed interest among psychologists in the application of psychological knowledge to the condition of the planet and its life-support systems. For this, Carol Saunders and others deserve great credit.

The next task — transforming interest into influence — may be more difficult. Psychologists have been venturing into the environmental quality field for decades, with little success transforming their insights into policy. The new conservation psychology movement should avoid previous mistakes. In this regard, the effort to forge a link to conservation biology is commendable because it would connect psychologists to a field that has had some influence on environmental policy. Through this connection, psychologists can learn about what a field can do to gain a measure of practical influ-

ence. They may also find helpful allies. These comments focus on another essential thing conservation psychology needs to do to gain influence: produce credible knowledge that can be recognized as applicable and that, if applied, would make a detectable improvement in the environment. Saunders' essay, thoughtful as it is, falls short in directing psychologists toward producing such knowledge.

Defining the Field

Saunders offers two maps of the knowledge conservation psychology might produce. The more expansive definition is simply wrong. To define conservation psychology as "the scientific study of the reciprocal relationships between humans and the rest of nature" is to equate it with a much larger field — what is sometimes defined as human ecology, or "human-environment science" (Stern 1993) — a field much broader than psychology. Relationships between human beings and the rest of nature include many important phenomena that are open to scientific investigation, but about which psychology cannot hope to offer telling insights — for example, the operation of environmental protection agencies; technological innovation in agriculture and energy efficiency; the operation of markets for tropical hardwoods, ocean fish, and flood insurance; the law of property rights, and on and on.

This expansive definition perpetuates an intellectual error that I believe has been partly responsible for psychology's lack of acceptance in environmental policy circles. It presumes that all human activity is at root psychological, ignores the contributions of other fields in the human sciences, and suggests that psychologists can make significant contributions to a conservation mission without paying attention to those fields' perspectives and insights. Saunders notes that human-environment interactions do not occur only at the individual level, but she does not give sufficient prominence to another point: that to understand the interactions that do appear at that level (what conservation psychology can take as its purview), it is often necessary to consider the social, legal, political, economic, institutional, and technological contexts that shape individual thinking, feeling, and action. Some of what people might want to do out of commitment to conservation is not feasible — or even perhaps unthinkable — because of constraints on action and imagination that come from the world outside the skin.

Saunders' more realistic map of what conservation psychology might produce is in her research program, which emphasizes the study of "conservation behaviors" and "caring about/valuing nature." Psychology is clearly relevant here, even though it is not the only scientific field that is. I focus here on the potential for this research program to produce knowledge that, if used, could improve environmental quality.

Research on "Conservation Behaviors"

Research on "conservation behaviors" clearly has this potential if it is focused appropriately, that is, on the behaviors and the people that could have the greatest effect on the environment through behavior change (Stern and Gardner 1981a, 1981b; National Research Council 1992, 1997; Gardner and Stern 2002). It is difficult to calculate the environmental impacts of behaviors precisely, but unless a target for behavior change can pass the laugh test, research on it will not be taken seriously. Some inviting targets for behavioral research, such as decreasing littering in parks or getting people to turn lights off in unoccupied rooms have very little overall environmental impact, and it is not at all evident that the principles that alter these behaviors can be generalized to individual behaviors that really matter.

Which behaviors really matter? It is still generally true that with individual behaviors, the purchase of major consumer durables (motor vehicles, houses, and major appliances) has more impact than variation in their daily use, and the operation of major items is more important than the operation of minor ones (Stern and Gardner 1981a, 1981b). Among daily behaviors in the wealthy countries, it is hard to beat motorized travel as a target for behavior change. Such consumer behavior is not everything, though. Individuals can also affect environmental quality through environmental activism and citizenship, support of social movement organizations, and through their roles as decision makers in organizations (workplaces, schools, governments) (Stern 2000). Psychology can contribute to understanding these behaviors — but it has rarely focused on them.

How should psychologists study the important behaviors? To be effective, psychologists should recognize that theirs is not the most obvious discipline that can claim to understand these behaviors. Economics is a more obvious source of insight for consumer behavior, political science for citizenship behaviors, sociology for activism and social movement support, and organization and management studies for behavior in organizations. So, psychologists should examine target behaviors using all relevant approaches, not only "psychological" ones, and should demonstrate ways they can use psychological insights to challenge, complement, or improve upon what is already being contributed by other disciplines that are taken more seriously by decision makers.

Conservation psychologists should also connect their work explicitly to the strategies of behavior change that policy makers recognize, such as regulation, market-based incentives, technology development and implementation, and information dissemination. Psychology has something to say about all of these, but only if it speaks in language its listeners understand. For instance, psychology can help explain why people sometimes ignore strong financial incentives for

conservation and fail to respond to efforts to provide them with useful information (e.g., Stern 1986, 1999). It can help develop theoretical analyses that link knowledge of behavior change to realistic policy options, thus contributing both pure science and environmental decision making (e.g., National Research Council 2002; Stern et al. 1999; Stern 2000).

Saunders is right that the success of conservation psychology will be measured by change in environmental conditions. But the main focus should be on demonstrating significant change, not on which subdiscipline gets the credit. By engaging with the other fields of human-environment science and with the issues perceived by policy makers, conservation psychology can do better science and have greater impact on environmental quality.

Research on Caring About/Valuing Nature

Saunders identifies a number of intellectually interesting questions under this heading. However, the importance of these questions for environmental improvement has yet to be demonstrated. In some respects, the conservation mission seems to be clouding analysis and ill serving the science.

For example, Saunders assumes that caring about nature is one of "two pathways leading toward environmental sustainability." This claim rests on hope, not evidence. In the United States, where are the studies that show that experiences with "nature" make people into committed conservationists rather than committed snowmobilers or hunters? That environmentalists use less motor fuel per capita than average citizens, or eat food with a smaller footprint on the earth? That rural people, whose daily experience is closer to the earth, have smaller per capita environmental impacts than urban people? That interventions to increase personal connection to nature lead to behavior change that has more than symbolic value for environmental quality? None of these propositions is proven, and some are probably wrong. I am not saying that "caring for nature" doesn't matter, but the case must be made regarding how it matters, especially to skeptics who are unconvinced that conservation psychology has anything useful to offer.

Concepts central to the discussion of "caring about nature" seem to me ill-defined and burdened with unexamined assumptions. One example is the socially constructed and malleable concept of "nature," which is accepted as an objective reality in Saunders' essay. It would be important to a conservation mission to demonstrate that "nature" has restorative qualities for human physical or mental health, but what are the implications for the environment? If "nature" means wilderness, getting people "restored" in large numbers would seriously harm both the wilderness (because of the crowding) and the global environment (because of energy and materials used for travel). Focusing on "nature" directs attention away from the real need to know which human-dominated landscapes are better for the mind and soul. I feel "restored" as I write, overlooking a human-dominated landscape of abandoned farmland in the hills of New York State's Finger Lakes region. If someone suddenly restored the pre-Columbian landscape of hardwood forest, I would be unable to enjoy the view. Some people feel restored in an urban park or on a touristed beach. What land-use planners might want to learn from psychology is which human-dominated landscapes among the possible ones confer the greatest psychological or health benefits.

Another example is the notion of "environmental values." People worldwide have a variety of values that guide their lives (Schwartz 1994), the relationships of which to environmental issues are only beginning to be researched (for one research program, see Stern et al. 1999; Stern 2000). To promote a concept of "environmental values" unlinked to psychological theories of values risks reinventing the wheel. It also obscures difficult ethical and policy questions, such as whether the "environmental values" of preservationists are better or more worthwhile than those of snowmobilers or hunters. It is also worth noting the meanings of "environmental values" that resonate in the policy world. Policy makers often want estimates of the monetary value of wilderness and other "natural" landscapes, of species, or of ecosystem services, to inform difficult policy choices. Psychologists can contribute to this discourse (e.g., Kahneman and Knetsch 1992), and doing so could increase the practical acceptance of conservation psychology.

Conclusion

Saunders has done a great service in helping to define conservation psychology as a field of applied research and action and in catalyzing interest and discussion. I hope the result will be to help psychologists organize themselves to make the important contributions to environmental quality that they are uniquely positioned to make. But doing so will take hard work in examining and debating assumptions and in engaging with people who do not share those assumptions, or even a psychological vocabulary. Conservation psychologists need to recognize that they are the new kids on the block. To succeed, they need to engage with the residents and demonstrate that they bring something the old kids need.

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Steps to Transdisciplinary Sustainability Research

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Since the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, the concept of sustainable development has been acknowledged and emphasized as a superordinate goal that all nations and peoples should adopt to combat environmental degradation and its threat to human welfare. One product of UNCED, *Agenda 21*, a plan of action to be taken globally, has recently been reaffirmed at the World Summit on Sustainable Development held in Johannesburg in 2002. This plan also urges scientists to enhance sustainability research and to improve collaboration between natural and social scientists. The new field of conservation psychology intends to follow this call and to commit to encourage conservation of natural resources. There is no doubt that psychologists can and have to make contributions.

I agree totally with Saunders that psychology is still far from reaching its potential. There is not only a fundamental lack of collaboration between natural and social scientists, scientists and practitioners, but also between subdisciplines within psychology. As Saunders points out, one goal of conservation psychology is to overcome these problems by increasing use of psychological frameworks to study cognitive, affective and behavioral aspects of person-environment relationships; conservation psychology aims to reorganize research within psychology. A second goal is to enhance exchanges between different researchers and practitioners. These are doubtless essential goals. However, I am afraid that these goals are at very different levels, and the pathways described in the paper may be sufficient to satisfy the former but limited in achieving the latter goals. Proponents of conservation psychology should be careful 1) not to replace old disciplinary boundaries with new ones, and 2) not to forget that fostering an environmental ethic is only one tool to promote sustainable development.

Saunders' calls for more collaboration between various scientists and practitioners are related to what has been called "transdisciplinarity." Research is transdisciplinary if different scientific disciplines work on questions which are motivated by real-world problems. Another typical feature of transdisciplinarity is participation of practitioners. There is an important difference between the plan of conservation psychology as proposed in the paper, and the strategy of transdisciplinarity. As far as I can see, conversation psychology prefers a "bottom up" strategy of organizing research. Saunders suggest that the topics addressed by conservation psychology will be organized around: a) how humans behave toward nature, and b) how human caring about nature can be fostered. I am a bit confused at this point, because defining the questions in advance while at the same time declaring the need to work with practitioners on real problems seems contradictory to me. Defining a new subdiscipline and research questions may help to reorganize researchers and it may help to create a cohesive community among researchers from different disciplines who share the same questions. However, it does not remove the disciplinary boundaries. It just draws psychology's boundaries around somewhat different topical concerns. In my view, the key issue is not to provide a new field within a specific discipline, but to foster an alternative "research principle" that organizes research "top down," outside of a specific discipline. Transdisciplinarity proposes problem-oriented research that refers to a combination of concepts and methods from several disciplines. In such an endeavor, the specific research questions are, ideally, a result

of the exchange process and defined without recourse to specific disciplines.

Saunders provides an account of how psychology may be able to improve scientific contributions to sustainable development. The solution is to promote the relations between human and nature. I have no doubt that the attempt to study human-environment relations and thus improve caring about nature is a relevant issue. However, it is only one of many other issues captured in the notion of sustainability. For other researchers who are also committed to sustainability research but are focusing on other questions (e.g., how the built environment may improve energy conservation) as well as practitioners who set other priorities (e.g., a farmer may be worried about how to find a balance between economy and ecology), the focus on caring about nature will be too narrow. A research field designed to foster sustainability should not exclude those alternative approaches. Sustainability as declared at the conference in Rio is about the conflicts between society, economy, and environment and the goal is to find ways to manage a balance between these three aspects. Similarly, to foster human-nature connections is only one of many other necessary pathways toward sustainable development. There are definitely more barriers to take into account. For instance, there are many contextual or socio-structural barriers that hinder people from more sustainable life-styles. In my view, conservation psychology could strengthen its position by broadening its notion of sustainability.

In concluding, let me offer some notes about my experiences doing transdisciplinary research and working across disciplines. To my knowledge, Switzerland was one of the first countries that set into practice the recognition that environmental problems are of paramount importance to our societies, but that they cut across disciplines. In 1991, the Swiss National Science Foundation (SNF) of the Swiss Government initiated the Swiss Priority Programme Environment (SPPE) (*http://www.snf.ch/SPP_Umwelt/Overview.html*). The SPPE was designed to strengthen inter- and transdisciplinary research, and to promote the transfer of scientific knowledge into society, economics, and politics. As a Swiss researcher who also feels committed to make a contribution to sustainable development, I was lucky to have the opportunity to participate in this program. I agree with the ideas Saunders emphasized about how to foster the work together. In the SPPE it was very important that infrastructures were provided that supported the continuous exchange among researchers and the translation of the results into practice. Importantly, these infrastructures were at least partially provided and initiated by the SNF. For instance, the SNF initiated a special office, designed to support the interchange among researchers in this process. Internet networks were created, meetings and conventions involving researchers and practitioners, or sessions with politicians and journalists were also organized. The development of cooperation was observed and regularly evaluated by an external group of experts. But also within a specific group of researchers who gathered to work on a given issue, management and leadership were needed (see also Defila et al. 2000).

In my view, one very important aid to facilitate cooperation was the development of a "common perspective." The main purposes of such a common perspective or heuristic were: a) to identify who are the relevant actors in the system (e.g., consumers, managers, producers, farmers), b) to figure out where each sort of actor comes together (e.g., in the store, consumers are faced with food products available from producers and farmers), and c) to "position" the researchers and practitioners in this system, where they could work together (e.g., buying of food products is a domain where psychologists, life-cycle assessment experts and producers can work together). This heuristic was also the basis for the generation of specific empirical questions (e.g., life-cycle assessment: people can provide information about which food products are more or less environmentally-friendly, and psychologists can investigate how consumers process such information in environmental decision-making) (for an implementation of these questions see Tanner and Jungbluth 2003). Based on this research, concrete intervention could suggest how to facilitate more sustainable directions (see Hirsch-Hadorn, Maier and Wölfing Kast 2002, for an elaborate description of the heuristic and examples of transdisciplinary research conducted within SPPE and on the topic of sustainable nutrition).

Even though many researchers will recognize the need for inter- and transdisciplinary research, essential problems have emerged which have not been solved yet (see Scholz et al. 2000). One relevant problem is that the institutional structures of universities, based on segmentation and specialized disciplines, are still counter to transdisciplinarity. The process of transdisciplinary research is very challenging, time-consuming, and often frustrating. Much effort and time for the development of a common conceptual framework and a common goal are required; willingness for mutual learning, qualifications for joint planning and coordination of research, and for integrating the results in ways that help understand and deal with problems are needed. Apparently, such efforts and skills are not necessarily required and rewarded in traditional disciplinary research. Another problem is that transdisciplinary research clearly deviates from mainstream research. For instance, as a result of a common framework, concepts may be used which are unknown within a specific discipline and therefore not easily accepted. Researchers may have difficulty publishing in prestigious journals and competing with other colleagues on the market. Traditional disciplinary research does not provide appropriate criteria and standards

to evaluate the process and results of transdisciplinary research. These are essential issues which have to be overcome in the future so that transdisciplinarity can be successful. Conservation psychologists appear to be willing to fight for transdisciplinarity and sustainable development.

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Applying Psychology to Conservation

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Carol Saunders has done an admirable job describing the evolving field of *Conservation Psychology* (CP). In highlighting its applied and multidisciplinary nature, she positions the field well for helping facilitate concrete improvements in our relationships with nature. Her challenge to academics and practitioners to work together to create useful processes, rather than fragmenting energies, is key. Her sense of urgency is appreciated.

Correctly, she states that conservation is about active management of the interactions between humans and nature. Effective management requires careful analyses of the audience. Hence, Conservation Psychology, because it is about audience variables, can contribute in very practical ways. Importantly, she claims that CP research, in addition to descriptive and theoretical analyses, also explores how to cause change. CP research, be it experimental (for theory construction), formative (for planning interventions), or evaluative (to identify what has/has not worked) can be descriptive, predictive, and notably prescriptive, or any combination of the three. As Dr. Saunders states, the goal of CP is to apply conceptual and empirical findings to real-world problems of management. It is critical to focus on problems identified by practitioners.

There are few fields as multidisciplinary as the field of Conservation with its many physical science and social science dimensions. From an ecosystem perspective, conservation can be viewed as an amalgam of biological, physical, and chemistry-related studies of wildlife, plants, forests, water, and soils plus the social science fields of psychology, sociology, communication, education, geography, political science, and economics. Within these fields we have individuals practicing in a purely academic fashion (e.g., research scientists) and individuals practicing in a purely applied fashion (e.g., educators). We have individuals who tend to work autonomously and we have individuals that regularly interact with a client or audience. As Dr. Saunders aptly points out, conservation psychologists need to be conversant with physical scientists if their work is to be relevant. Conservation psychologists need to be conversant with all players — natural scientists, social scientists, practitioners, and their audiences. Vocabularies, definitions, and valid measures need to be devised that allow conservation psychologists to build these bridges effectively.

Saunders rightly identifies a need for more efficient ways to facilitate cooperation and share information between researchers and practitioners and refers to adaptive management and action research models as possible ways to do this. She cites Becker and colleagues' (1999) six-point "recipe" for CP projects. Yet, mention of the audience is absent in the model. As the social scientist on several multi-disciplinary conservation projects, it has been my experience that the following stages unfold: identify the required multidisciplinary project team, review literature for case studies and theoretical guidance, identify opportunities for theory development, contextualize/localize/operationalize theoretical variables, conduct audience research, design and implement project interventions, monitor and evaluate impacts, disseminate results. It is important that conservation psychologists be contacted early in the project planning process so that they can establish necessary research protocols and cleanly assess baseline levels of key psychological variables.

Saunders' proposed outcomes typology (values/behaviors — individual/group) is a good point of departure for studying CP topics of interest. As she states, pathways between values and behaviors, though related, operate in different time frames and require different research approaches. The need to better understand conservation behavior if one is to affect change in these behaviors is clear. It may be helpful

to distinguish between stopping behaviors (i.e., stopping a particular habit) and starting behaviors (i.e., initiating a new action), the latter possibly being easier to influence. The need to understand conservation-related values may be less clear. The causal link between values and behavior is tenuous at times. For instance, valuing nature may predict general support for biodiversity but not specific actions. Arguably, it is specific actions that are most usefully targeted by conservation practitioners. Yet, as Dr. Saunders hints, when behavior change is the objective, it is important to understand an audience's conservation-related values so that one can maximize the persuasive impact of conservation messages by minimizing the discrepancy between what the message says and the receiver initially feels.

In addition, her distinction between individual and group level outcomes is especially important in a conservation context. The need to understand and influence the values and behaviors of individuals is familiar ground for those interested in conservation psychology. The need to understand and influence the social norms and policies of groups may be new territory for some. Because issues dealing with forests, wildlife, and water resources frequently cross personal property boundaries and involve groups of people, as Dr. Saunders mentions, social dilemma and commons issues may come into play. She cites Werner's emphasis on the need to know how groups reach understandings. I would add the importance of studying variables that may be predictive of individual cooperative behavior in a commons context, such as community interaction, perceived community cohesiveness, behavior observability, and collective efficacy.

Saunders has presented a strong case supporting further development of the field of Conservation Psychology, a field within which interested academics from a variety of social science disciplines can communicate with each other, their physical science counterparts, relevant practitioners, and their audiences to identify needs, express interests, and apply their resources and skills to practical real-world issues. Given the magnitude of its potential impacts, the human dimension of the natural world is perhaps the key piece of the conservation puzzle. The value of CP is in better understanding this dimension and knowing how to influence it in ways that benefit nature and, in turn, ourselves.

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Intellectual Growth Management

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Having grown up in Southern California, I can explain *ad infinitum*, to anybody unfortunate enough to ask, the debilitating effects of (sub)urban sprawl. Sprawl wastes space and resources while it discourages communication and community. Sprawl is expensive, inefficient, and isolating. Sprawl seems to be a natural outcome of inattention and so it requires deliberate attention and sustained focus to mitigate it.

Sprawl in the intellectual world of scientific scholarship is no less destructive. It too wastes space and resources, while discouraging communication and community. It retards our progress at building knowledge or solving problems, it generates duplicated and uninformed efforts, it dilutes momentum, and disables community. That's why I believe Carol Saunders has made such an important contribution to the psychology of environmental problems by framing a definition and discussion of Conservation Psychology (CP) and attending to the mechanisms which can give it some focus and cohesion. We are looking at much needed intellectual growth management.

As Saunders has defined it, CP is the scientific study of human-nature relationships to enhance conservation of the natural world. It is also a network of researchers and practitioners. Focusing on the conservation of nature, CP operates more as a superfield than a subdiscipline, actively recruiting contributions from other social and natural sciences. By specifying the connections to conservation biology, environmental sociology, human ecology, natural resource management, and environmental psychology, among others, Saunders has issued a warm invitation to engage scholars from many disciplines in the study of our problematic human/nature relationships, and the formulation of strategies to build a sustainable world. (Sustainable to human beings, at least.) Given the general balkanization of psychology (Bevan 1991), I particularly appreciate her thoughts about ways to bring together people from different intellectual neighborhoods. With the common mission of conservation, she outlines a problem-centered approach, in which a particular conservation problem is selected, scholars are recruited from a variety of disciplines to address it, solution strategies are framed, their effectiveness is measured, and results are shared with larger disciplinary communities, as well as the public. Two other important strategies compliment the problem-based approach: encouraging scholars to attend conferences normally considered outside one's disciplinary custom,

and working in regional groups as interdisciplinary teams to address resource problems.

I believe the biggest threat to our fledgling CP is too much unorganized knowledge, rather than the paucity of it. Psychologists have been addressing environmental problems since the early 70s (Maloney and Ward 1973) even though they have not been supplying many useful frameworks for integrating their contributions. Consequently, the conceptual work that Saunders has done here to distinguish approaches and levels of CP is crucial.

First there is a useful distinction between focus on direct behavioral change versus the more indirect mechanisms of caring for and valuing nature. As psychologists, most of us are inclined to think of behavioral change first, and I would add my support to B.F. Skinner's point that whatever else we're interested in, if we don't change human behavior, we won't be able to sustain ourselves as a species (Skinner 1971). However, many psychologists are also interested in lots of other processes besides overt behavior, including emotions, thoughts, attitudes, values, and experience. The extent to which these other processes relate to, and help us better predict, human behavior constitutes an important research agenda. But a great many psychologists are focused on the more implicit constructs themselves, particularly clinical psychologists who are beginning to take up the important topics of ecopsychology and ecotherapy. How do experiences in nature change our sense of who we are? How does caring about other communities and species relate to mental health? These are important questions which sometimes receive less attention because they challenge our abilities to construct valid measures. And so I am glad to see that the rubric of caring, and related concerns of values, experience, and concern, are included as a central feature of CP.

Second there is the question of levels. Intellectual sprawl can threaten CP from within, as well as from without, and providing a conceptual map of types of questions, as Saunders' Figure 2 does, is an important offering. I agree that it makes sense to distinguish between individual and collective forms of behaviors and caring; it also makes sense to think about the different goals of research (theoretical, applied, and evaluative). This three dimensional framework would make a useful organizing model for a textbook on CP, which could be a crucial next step in the establishment of the field.

I do have one concern about the naming and framing of CP at this early juncture. It is about the term *conservation*. I'm not sure that focusing on conservation of nature will encourage attention to all the pressing environmental problems that we must address to sustain human life on the planet. Thus, while CP is broad enough to include under its umbrella such related problems as excessive consumerism and overpopulation, along with the obvious ones of recycling, renewable energy, and closed-cycle manufacturing (where wastes are utilized as inputs), I do wonder about other environmental problems that don't necessarily fall under the category of conservation. Does pollution? How about the question of sustaining indigenous peoples and cultures? Or reducing resource-based war? Or climate change? I remember the list serve discussion when the term Conservation Psychology was chosen for its title, and wondered then if the term was broad enough to elicit attention to the full range of human/nature relationships we need to address to ensure sustainability. I also realize that any label that is broad enough to include everything runs the risk of being so vague as to be meaningless and I agree that there is a nice analogy with Conservation Biology that is worth preserving, but I'd like to see some conceptual attention to the inclusion of environmental problems beyond conservation.

Nevertheless, we have here a very useful conceptual map and with it a new name to designate research that brings together a lot of talent from diverse corners of scholarship. Managing the growth of this supradiscipline will require just the kind of insightful and creative organizational work that Saunders has done. I hope to see it developed and sustained.

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Why Conservation Psychology?

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"Environmental deterioration remains one of the most serious and daunting challenges facing humanity." With some exceptions, most intellectuals today would agree. There is probably substantial though less agreement with the claim that "globalization and other factors have contributed to a future that is not sustainable." Finally, among social scientists, agreement probably exists with the statement that "because humans are the source of the problems as well as the hope for solutions, the role of the social sciences is important."

These are the opening claims of Saunders' exposition on Conservation Psychology (CP). I happen to agree wholeheartedly with each of them. Out of this shared sentiment, however, comes the question "Why conservation *psychology*?" After briefly paraphrasing what I see as the main argument for conservation psychology (CP), I will describe what I see as a number of problems with attaching a disciplinary label to this new field.

The argument for CP is rather straightforward: 1) environmental deterioration is a problem, 2) the state of deterioration is not sustainable, and 3) the social sciences play a key role in reversing this trend. A new field of study, CP, is needed to create stronger connections between the natural and social sciences, between research and practice, and between psychology and the other social sciences.

In particular, CP will focus on two areas of inquiry: 1) how to motivate people to act in more environmentally-friendly ways, and 2) how to encourage people to care about the natural world and their role in it. I will first discuss my reservations with calling this field conservation *psychology*, and then explain a few concerns with the narrowness of its inquiry.

In her definition and elaboration of CP, Saunders clearly lays out CP's position in relation to other fields (see Saunders' Figure 1). The argument seems to be that CP complements each of these other areas of study. One of CP's primary contributions, then, is its focus on creating networks of scholars across disciplines and subfields. If I understand this focus correctly, linking the field to psychology through its name seems problematic for three reasons.

First, it raises red flags. As a sociologist, even a sociologist trained in social psychology, I have to wonder how receptive scholars in a field called conservation psychology would be to the ideas I would bring. In my case, this initial hesitation has been easily overcome as I have been invited into the CP community with what I regard a genuine interest in making CP interdisciplinary. But there are other concerns. Saunders' exposition on CP seems aimed, in part, at "selling" the field to the broader discipline of psychology. For example, Saunders' abstract explains that the purpose of the interdisciplinary network of CP researchers "is to conduct *psychological* research that is directly oriented toward the goal of environmental sustainability." Her discussion of the possible contributions other sub-fields of psychology can make to CP sounds like an attempt to convince fellow psychologists that CP poses no threat to them. I do not see the need to legitimate for psychologists what is described as an interdisciplinary field. The only real advantage I can conceive of is to link CP to an institutional structure that can provide scholars with desirable resources (e.g., jobs). But this leads to my second criticism.

Suppose scholars committed to environmental sustainability, and trained in a variety of different disciplines, are willing to go outside their disciplinary homes in search of a community of scholars that promises to move society toward sustainability. Academics, and even practitioners, operate within institutional frameworks that impose on them various expectations, standards, and responsibilities, many of which they are required to adhere to for purposes of job retention and promotion. A sociologist early in her career, for example, might hesitate to enter the CP community of researchers. First, whatever she accomplishes in that community may be perceived by her tenure-granting peers as outside her discipline. Furthermore, the expectation may be that she publish in journals in her field, and as a first or sole author at that. The collaborative research she does in the CP research community will make it difficult to accomplish either. I've known too many colleagues with joint appointments in a social science and an environmental studies department who have been unable to convince both sets of colleagues of the significance of their work.

In all fairness, CP should not be penalized for the academy's resistance to interdisciplinary work. I raise this objection for another reason. CP must work to establish itself as a rigorous and respected field throughout the academy and among practitioners. By becoming an internationally-known field of high-caliber and accomplished researchers, young scholars entering the CP research community can be assured that their disciplinary peers will understand the rigor and importance of their work. My argument is that retaining *psychology* in CP's name may make doing so more difficult. I can offer no guarantee that a field named something else, like "conservation studies," would inspire the sense of rigor and respect needed. But no matter how rigorous, a field with psychology in its name will be regarded skeptically by other social scientists, not to mention natural scientists. Why not head off this skepticism by choosing a more discipline-neutral name?

Third, identifying this new field with the discipline of psychology is bound to draw in more psychologists than scholars from other disciplines. An unintended outcome may be that the majority psychologists keep the core research questions of CP oriented around issues of greater interest to psychologists than scholars in other disciplines. Furthermore, based on Saunders' definition, it does not appear that the word psychology is in CP's name incidentally. As I mentioned previously, Saunders abstract explains that one of the purposes of CP is "to conduct *psychological* research that is directly oriented toward the goal of environmental sustainability." A truly interdisciplinary field needs to encourage scholars from various disciplines to synthesize theories, methods and applications from their respective fields towards

the goal of more dynamic and comprehensive approaches to environmental sustainability. In spirit, I believe CP aims to do this. In practice, I fear the narrowness of CP's topics of inquiry may prevent such dynamism. I will discuss this fear in more detail next.

While the questions Saunders suggests CP should be concerned with are important questions, they hint at a form of reductionism. In focusing CP's domain around human conservation behaviors and caring about/valuing nature, certain substantial obstacles to sustainability are overlooked. The gap between attitudes and behaviors may represent structural barriers preventing individuals from carrying out behaviors consistent with their attitudes, rather than a failure to implement effective behavior change strategies. A quick example might help demonstrate how CP approaches environmental sustainability too narrowly. Some time ago Denmark mandated that dishwasher manufacturers meet certain water conservation standards. The new high-efficiency dishwashers became so popular with consumers that manufacturers were able to ramp up production and reduce costs. The new high-efficiency dishwashers were eventually cheaper than the old models, and households that previously could not afford a dishwasher now could. The end result was more households with dishwashers and therefore more water consumption.

Our current environmental crisis is more accurately a crisis of social organization. Saunders' definition of CP alludes to this, and suggests solutions lie in building bridges across disciplines and between researchers and practitioners. Yet the inclusion of psychology in its name, and the narrowness of its proposed areas of inquiry, give me pause.

Social organization (sociology's domain) includes the behaviors, attitudes, values, and beliefs of individuals (CP's domain), but it also includes the production and distribution of resources (economics' domain), decision-making systems that oversee resource distribution (political science's domain), the symbolic meaning systems that maintain social order (anthropology's domain), and other components of social systems.

I am sure that this complexity is appreciated by the founders of the field of conservation psychology, and I laud their efforts to try to stimulate discussion about how to address this complexity towards the end of achieving environmental sustainability. But given the issues I have raised, I would urge CP to reconsider its name and redefine its core areas of inquiry to reflect the interdisciplinary solutions it hopes to foster.