INTRODUCTION

Environmental anthropology of yesterday and today

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Environmental Anthropology Today (London: Routledge, 2011), pp. 1– 33.

Theoretical trends and schools of thought in the field of anthropology evolve rapidly. Anthropological literature must keep abreast, not only of these intellectual shifts, but also of pressing global, political, and social issues. Thus, this volume, like others before it, seeks to provide updates on the state of the science and the theoretical and methodological trends of the day. Yet, there is another, more important reason why such a volume is necessary now, 'today', of all days, and another reason why this will serve as more than just another update on the discipline. Today, we face some of the greatest environmental challenges in global history. Understanding the damage being done by communities, large and small, and the varied ethics and efforts contributing to its repair is of vital importance. For these reasons, environmental anthropology today is different and arguably more critical than ever before. This volume thus poses the question and raises the challenge: What can increasing the emphasis on the environment in environmental anthropology, along with the science of its problems and the theoretical and methodological tools of anthropological practice do to aid conservation efforts, policy initiatives, and our overall understanding of how to survive, culturally and physically, as citizens of the planet?

Anthropology of the Environment or Environmental Anthropology is a specialization within the field of anthropology that studies current and historic human-environment interactions. Environmental anthropology is largely considered to be the applied dimension of Ecological Anthropology which encompasses the broad topics of primate ecology, paleoecology, cultural ecology, ethnoecology, historical ecology, political ecology, spiritual ecology, human behavioral and evolutionary ecology, and the like (Biersack 1999; Sponsel 2007). The recent shift towards the applied side of the study of the human-environment relationship is driven largely by environmental concern. This volume is also a product of such concern and is thus based on the belief that environmental anthropologists can offer a unique contribution to the

study of our modern society and the environment on which this society is dependent. The following chapters demonstrate how innovative and intensive new methodologies, questions, and broader subject pools are bridging the gap between environmental anthropology as an academic discipline and environmental anthropology as a policy-tool and applied science.

This volume builds upon the existing work in the field by distilling the most important theoretical as well as methodological and ethnographic contributions from ecological and environmental anthropology. This is accomplished by including chapters written by several of the field's prominent scholars whose earlier work has defined the field of environmental anthropology. We also include the work of young scholars in order to create a cross-generational conversation that encompasses the past achievements, the current state of the art as well as the future of environmental anthropology. Both established academics and newcomers to the field address the types of interdisciplinary, environmentally focused projects that complement or sometimes challenge traditional anthropological approaches. While much of the literature within the field of environmental anthropology draws upon the existing anthropological practice and methodology applied within the environmental or ecological context, our volume promotes both innovation in theory and methodology, as well as engaging in the interdisciplinary dialogue with other social scientists addressing environment or ecology. Unlike most volumes in environmental anthropology, which stress either theoretical or applied approaches, contributions to our volume represent a meeting ground of both applied and more theoretical approaches.

As the following chapters demonstrate, this volume is premised on the idea that it is truly in this nexus of theory and methods that anthropologists offer their greatest gifts to environmental preservation. This is the arena in which environmental anthropologists can demonstrate how the wealth of ethnographic and ecological information that they accumulate and process, as well as their familiarity with individual cultures and cultural affinities to local landscapes, can enhance environmental policy, education, activist efforts, and the design and implementation of culturally and environmentally sensitive conservation programs. This is perhaps nowhere more effective than in recent interdisciplinary efforts that combine ethnographic data collection with biological ecology and ecosystem science, cultural and ecological history, survey methods, mapping technology, and public policy initiatives, just to name a few. Many recent works, for example, address pressing

environmental concerns such as climate change, natural disasters, biological diversity, etc. These efforts are exemplified by anthropologists such as Anthony Oliver-Smith, Susanna Hoffman, Susan Crate, Barbara Rose Johnston, Carole Crumley, Michael Dove, James Brosius, Luisa Maffi, Andrew Vayda, Kay Milton, Patricia Townsend, and many of this volume's contributors. Such research demonstrates first-hand how environmental anthropologists are contributing to our understanding of global environmental problems and conservation efforts while also participating in the construction of local level solutions by providing a window into the impacts of environmental change and globalization processes, as well as environmental perception and behavior.

The marriage of anthropology with the hard sciences is penetrating all areas of environmental anthropological investigation – from the most positivistic analyses of changing soil chemistries to the study of spirituality and conservation. The following chapters demonstrate exactly this range. Research presented in chapters by Gene Anderson and Leslie Sponsel, for example, demonstrate how in-depth analyses of spirituality and traditional belief systems correlate to resource use and long term sustainability. These works combine the study of traditional beliefs with the local history of environmental change, resource use, sustainability and/or degradation in traditional societies, and demonstrate how a thorough understanding of communities that have successfully maintained equilibrium with their environment may provide a model for sustainability in other areas. Daniel de Vries applies a similar analysis of belief systems and the link between environment and cultural behavior to a western problem in his analysis of Hurricane Katrina and the long overlooked link between accurate risk assessment in natural disasters and cultural beliefs about the local environment. On a similarly environmentally pressing note, Bob Pokrant and Laura Stocker examine the contribution of anthropology to climate change research and policy through a focus on the relationship between development planning and climate change policy and practice. Meanwhile, Emilio Moran demonstrates how to document and map such examples of cultural and environmental change with the use of GIS mapping systems. Such technology, Moran demonstrates, enables researchers to directly analyze landscape change and note the connection to changes in land-use, population size, and sociopolitical relationships between regions. These examples reinforce the current move in environmental anthropology towards supporting

local, regional and global conservation efforts by providing well-rounded analyses of human-environment interactions by emphasizing the links between biological ecology data, cultural dynamics, and human behavior.

This volume also highlights other interdisciplinary ventures, as well as innovative methodologies and rejuvenations of traditional anthropological theories. For instance, several of the volume's contributors combine 'traditional' anthropological theory with interdisciplinary theoretical approaches drawn from political science (Larsen), pedagogical studies (Efird, Kopnina), site-based planning, environmental change analysis, special analysis and impact assessments (Moran), and eco-system services (Trusty). Others engage in socially involved, rather than strictly scientific and/or detached debates, arguing that their research may serve to motivate community conservation projects (Shoreman-Ouimet), local awareness of environmental problems (Hirsch et al.), environmental justice (Maida), environmental policy and politics (Larsen), conservation economies and regional scale analyses (Haenn), greater engagement of schools in environmental education (Efird, Kopnina), and increased attention to emic temporal perception in climate-related risk assessment (de Vries).

Methodologically, this volume evaluates the already-existing practice of ethnography of human-environment interaction as well as calls for greater interdisciplinarity. Rather than relying solely on the systems approach formerly applied to the study of the interrelationship between culture and the environment, this volume also introduces new methodological tools, including consumption diaries and concept mapping, designed to track the use of resources from food to electricity (Kopnina); and Participatory Action Research (PAR), which has proven particularly helpful in community efforts to improve local environments (Maida and Hirsch et al.) Ethnographically, this volume adds new case studies from around the world to illustrate how the theoretical domains of environmental anthropology can be explored through innovative and environmentally engaged fieldwork.

In addition to working with biological and ecological data, mapping systems, and a range of new methodologies, many of today's environmental anthropologists are also finding value and inspiration from the humanities and other social scientists. Following this trend, many of the chapters of this volume reference the work of environmental sociologists and the ways in which they have integrated the environment into their discipline through the New Ecological Paradigm (NEP). Developed by environmental sociologists

William R. Catton and Riley Dunlap (1978a and 1978b), the New Ecological Paradigm is a way of conceptualizing human beings and human behavior in the context of the larger environment in which all species live, as well as a method of assessing environmental values and beliefs. The paradigm was pioneered around the same time as many anthropologists (Vayda and Rappaport 1968; Hardesty 1977) were cultivating the study of the relationship between culture and the environment. The point of revisiting its applications to environmental anthropology comes both from the insight to be gained from interdisciplinary efforts, but more so from the ways in which the NEP situates human beings in the environment as opposed to viewing the environment strictly from a human or cultural perspective. Although anthropologists will rightly remain foremost dedicated to understanding human culture – this volume argues that anthropologists also have a role to play in and tools to stave off environmental destruction. Thus we see combining anthropological method and theory with the emphasis that the NEP puts on the environment and human vulnerability to, and dependence upon it, as a productive way to elicit more environmentally-engaged research among environmental anthropologists.

The following sections will address the rise of environmental anthropology and reflect upon the current developments within it. They also address the anthropocentric nature of much environmental anthropological research and present an argument for shifting from a relativistic approach to the study of human-environment interaction to one that more objectively addresses the role of human communities in environmental degradation and repair. Finally, the following sections discuss environmental anthropology in the context of the New Ecological Paradigm, addressing its usefulness to the field of anthropology and demonstrating the ways in which environmental anthropologists are becoming increasingly environmentally conscious in their research topics and ethnographic emphases.

What is meant by environmental anthropology?

The contributors to this volume argue that the discipline of environmental anthropology is well suited to address the causes of recent environmental degradation. As Kay Milton (1996: 24) so articulately noted, any discipline that can claim to be the study of human ecology should also be able to claim a

central place in the way environmental problems are examined and addressed. Cultural studies of particular (local, cultural) incidences of human interaction with nature can contribute greatly to the understanding of such interaction at the grass-roots level. At the theoretical level, environmental anthropologists can contribute both their unique cultural explanations, which are particular to the contexts in which environmental problems are studied, and general or universal explanations, based on the theory of human nature.

However, it is not just the ideology that is of importance but the subject matter itself that dictates the impact of environmental anthropological research. As Marxist anthropology is often concerned with the study of interaction between social classes, and feminist anthropology is often concerned with the study of women, environmental anthropology has at its core (while not the only subject), the human relationship with ecology, the environment, and environmentalism. The field of environmental anthropology draws upon various domains within anthropology from ecological to cultural anthropology and across disciplines from the humanities to the social and natural sciences.

According to Barnard and Spencer's (1996: 169) definition, ecological [or environmental] anthropology focuses on the complex relations between people and their environments and directs our attention to the ways in which a particular population purposefully or unintentionally shapes its environment, and the ways in which its relations with the environment shape its culture and its social, economic and political life. Moreover, according to the Society of Applied Anthropology, ecological anthropology assists policy-making and program planning by combining expertise in ecology with methods and tools for understanding the social and cultural dynamics of communities potentially affected by policy decisions. Simply stated, ecological or environmental anthropology is 'anthropology which puts more than usual emphasis on the interface between cultural and ecological factors' (Barnard and Spencer 1996: 186). The extensive body of relevant scientific knowledge in environmental anthropology includes: understanding and building on the social organization of communities in larger social systems for use in identifying and solving environmental problems; understanding local environmental knowledge for use in the preservation of local and global environments; recognizing and addressing differences in cultural perceptions, categories, linguistic terms, values and behaviors related to the environment in order to confront differences and improve communication among specific cultural/ethnic groups

with respect to addressing environmental concerns; as well as identifying and utilizing culturally specific styles of communication and rhetoric typical of designated groups to enhance communication and mutual understanding among groups.

In this volume we hope to demonstrate how these uses for and tools of the discipline can be expanded to include a more direct concern for the environment itself, as well as with the local communities that engage with it. The contributors to this volume demonstrate that studies need not choose between dividing culture from nature nor unifying them as an interactionist whole. Instead, the following chapters demonstrate examples of, ways of thinking about, and the execution of projects that examine environmental problems, and the ways in which human communities, regardless of size or status, affect the environment; as well as how they may be adapting to environmental change.

In general, ecological anthropologists investigate the ways that a population shapes its environment and the subsequent manners in which these relations form the population's social, economic, and political life (Salzman and Attwood 1996: 169). Ecological anthropology, as described by one of the discipline's prominent scholars, Tim Ingold, is 'an understanding that proceeds from a notion of the mutualism of person and environment' (Ingold 1992: 40). This type of mutual understanding is only possible because environmental anthropologists study such a range of topics, often emphasizing the non-Western viewpoint, sometimes working together with nongovernmental organizations (NGOs), participating in policy debates and acting as advocates and allies of local populations of farmers, indigenous peoples, or urban minority groups. They also draw attention to the socio-cultural aspects of environmental problems, contributing a much-needed counter-balance to the emphasis on the ecological, physical, and economic dimensions that often dominate debates and decision-making. The authors of this volume argue that anthropology of the environment affords valuable insight into our relationship with the environment, which may assist policy-makers, project designers, and peoples impacted by today's environmental problems.

According to Orlove and Brush (1996) environmental anthropologists have also been credited for pointing out the importance of the participation of local people in conservation programs, such as in the participation of local populations in protected area management or of farmers and traditional communities in plant genetic resources. The work of environmental anthropologists has also helped to more effectively link local populations, national

agencies, and international organizations to the natural environment in which such groups operate. Examples of such anthropological work include the documentation of local knowledge and practices that influence the selection and maintenance of crop varieties and the conservation of rare and endangered species in protected areas, as well as addressing different concerns and definitions of biodiversity held by local populations and international conservationists (Orlove and Brush 1996: 329).

A brief history of environmental anthropology

Dove and Carpenter (2008: 61), note that a number of key developments in the history of environmental anthropology can be identified. First, there is a move from the studies of communities as self-enclosed entities towards recognizing them as part of wider political-ecological systems and questioning their 'boundedness'. Secondly, there has been a move away from synchronic and toward diachronic approaches, as well as a general shift in the field away from assumptions of equilibrium toward assumptions of disequilibrium (Crumley 1994; Balee 1998). As in all general trends, major exceptions exist. While the shift in emphasis from equilibrium to disequilibrium largely reflects biological ecology and observable patterns in nature, many scholars emphasize the important examples of cultures in which equilibrium has been maintained for generations, arguing that they have maintained a sustainable system of existing in their local environment (see Sponsel and Anderson in this volume). These examples, it is argued, provide excellent models for the possibility of sustainability as well as for the role of belief systems in environmental preservation.

Third, environmental anthropology is not just becoming more involved with politics, but starting to become more political itself. Fourth, environmental anthropology has become increasingly influenced by post-structural theory. This is manifested through greater reflexivity, an interest in studying environmental discourse, and a view of the environment as both material reality and a product of discourse. Finally, environmental anthropology is becoming increasingly interdisciplinary, freely crossing the boundaries between the natural and social sciences, as well as the humanities. The following section provides a brief history of the major periods in the evolution of environmental anthropology.

While ecologists and environmental scientists had begun to acknowledge

nature's characteristic dynamism as early as the 1950s (Cronon 1996a), ecological anthropologists at this time were reacting against Franz Boas' and Alfred Kroeber's subordination of environmental forces to cultural influence, and seeking constants in the relationship between humans and the environment.
Characterizing this early period in the history of the specialization is the work of Julian H. Steward, which analyzed the adaptations of human labor to available natural resources and examined the role of ecology in ethnic relations and the symbolism of culture in relation to the environment (Steward 1949; 1955). Julian Steward (1955) was one of the first to emphasize ecological forces in the evolution of culture. Steward's notion of cultural ecology theorized that adaptive responses in similar environments gave rise to cross-cultural similarities. The theory centers on the concept of the 'culture core', or the constellation of features that are most closely related to subsistence activities and economic arrangements (Steward 1955: 37).

Cultural ecology distinguishes between different kinds of socio-cultural systems and institutions, it recognizes both cooperation and competition as processes of interaction, and it postulates that environmental adaptations depend on the technology, needs, and structure of the society and on the nature of the environment (ibid 44). Steward was adamantly opposed to reductionist, particularly cultural reductionist theories of culture change. He argued that while the culture of any society constitutes a holistic system in which technology, economics, social and political structure, religion, language, values, and other features are closely interrelated, the different components of a culture are not similarly affected by ecological adaptations (Steward 1955). He believed, much to Boas' dismay, that it is social structure that responds to environmental requirements. This basic structuring, Steward argued (1968: 50), is related most immediately to cooperative productive activity, and it is manifest in community and band organization and in essential kinship systems.
According to Bennett's (1999: 213) analysis, Steward's ultimate goal was for human ecology to be recognized as an instrument for the solution of problems: in the biological realm, human adaptation to the environment; in the cultural, 'how culture is affected by its adaptation to the environment.'
This period in ecological anthropology was also largely marked by the work of Fredrik Barth in his study of the relations between ethnic groups, demonstrating the importance of environmental factors (1966; 1969); and Clifford Geertz's analysis of the role of ecology in the symbolic 'passion' of

a culture (Geertz 1959; 1963). Both Barth and Geertz built on Steward's work by describing complex and interdependent cultural and ecological systems. The extent to which ecology could potentially frame and shape the cultural condition had a powerful impact on anthropology and led to a number of theories on the interaction between culture and the environment. After all, as Kroeber himself once argued, 'no culture is wholly intelligible without reference to . . . environmental factors with which it is in relation' (Kroeber 1963: 6). Though quite different in their own right, E. E. Evans-Pritchard (1940), Alfred Kroeber (1963), and Marvin Harris (1968) working with the concepts of cultural ecology and cultural materialism, exemplified efforts to understand the influence of environmental factors (Kottak 1999: 23). Derived from Herskovits' (1926) study of a boundary between the livestock and agricultural spheres, Evans-Pritchard and Harris further developed the concept of the 'cattle complex', or in Evans-Pritchard's words, 'cattle idiom' and in Harris' term 'sacred cow.' Harris is best known for his history of anthropological theory and development of the cultural materialist approach. Clearly influenced by Steward, cultural materialism is based on the idea that similar technologies applied to similar environments produce similar arrangements of labor in production and distribution, and that these in turn call forth similar kinds of social groupings, which justify and coordinate their activities by means of similar systems of values and beliefs (Bennett 1999: 231). Translated into research strategy, Harris' principle of techno-environmental, techno-economic determinism assigned priority to the study of the material conditions of socio-cultural life (ibid). The effect of this deterministic theory, however, was the materialist characterization of all ecological theories of culture, thereby instigating a shift away from the study of human-environmental interactions in anthropology.

In an attempt to rectify this materialist reputation, the majority of ecological anthropologists pulled away from causational theories of culture and began to apply the methods of cultural ecology on the micro-level. Thus ecological ethnography was born, pioneered largely by the work of Roy Rappaport and Andrew Vayda through the development of the concept of 'ecological populations.' Although largely influenced by his scholarship, Rappaport and Vayda saw Steward's approach as somewhat inadequate. They believed that the original concept of cultural ecology implied correlation to mean causation, and to treat the 'culture core' as if it included only technology (Netting 1977: 10). Furthermore, they found Steward's selection of

ecological features to be lacking important factors such as other organisms, other human groups, and the study of the interaction between culture and biology and genetic and physiological effects (ibid). As a way of incorporating these various factors into a cohesive cultural ecological analysis of the Tsembaga rituals, Rappaport (1968) adopted a functionalist framework, which not only allowed him to present the interrelatedness of cultural features, ecology, and behavior, but also accommodated these theories about how cultural and ecological institutions relied on one another to maintain a homeostatic balance. The problem with this however was that Rappaport's ritual analysis implies a constant, unwavering pattern of fluctuation, and makes no mention of the possibility that the system will give way to growth or development of any kind. Furthermore, the boundedness, or micro-level nature of Rappaport's study, as Moran (1990) notes, forces the questions: how do ecosystem boundaries change through time and how do shifts in boundary definition relate to internal and external structural or functional relations?

Together with the 'cultural materialism' of Harris, the 'ethnoscience' of Berlin, Conklin (1957), and Frake (1980) Rappaport's 'ecological ethnography' highlighted the fact that indigenous groups have traditional ways of categorizing resources and regulating their use (Kottak 1999). The basic units of ecological anthropology in the 1960s were thus, not surprisingly, the 'ecological population and the ecosystem' (often discussed as discrete units characterized by distinct cultural features), and ethno-semantic domains (such as ethnobotany). Methodologically, this period of the sub-discipline's evolution was characterized by the development of systems theory and negative feedback (Ellen 1982; Hardesty 1977). Systems theory, as proposed by Clifford Geertz (1963), offered insights on the future of such a society, but was ultimately disregarded by anthropologists who recognized its neglect of history. Focused on the complex networks of mutual causality, systems theory requires the delineation of a system's boundaries and a model from which the system's behavior can be studied and predicted. Geertz believed the concept of 'eco-system' to be the logical conclusion to the interplay of culture, biology, and the environment. Geertz described an eco-system, theoretically, as 'a dynamic set of relationships between living and nonliving things through which energy flows and materials cycle and because of which other problems of survival are worked out' (Hardesty 1977: 14). Geertz believed

that if one can determine the constellation of features which are most unequivocally related to the processes of energy interchange between man and his surroundings in any given instance, then they can also determine which environmental features have primary relevance for those same processes (Geertz 1963: 8). These early ecological anthropologists, however, were criticized for their presumed preoccupation with stability rather than change, and the simplicity of their systems (including self-enclosed cultures unaffected by global forces of technological and social change) (Friedman 1974; Wolf 1982). Many critiques pointed out that few groups could exist on local resources and live in clearly demarcated areas or ecosystems free from intrusions of globalization. Volumes, such as Hardesty's (1977) Ecological Anthropology, started adding global perspective to human-environment interaction.

Breaking from the deterministic, equilibrium-based approaches of the above cultural ecologists, researchers in the field of historical ecology attempted to present a more holistic perspective on the relationship between humans and nature, emphasizing the idea that the subject of study is indeed a changing, fluctuating relationship rather than any objective 'thing', in particular (Balee 1994). While many historical ecologists of this time acknowledged the role that equilibrium plays in environmental development and human-nature relationships, their historical research illustrated the inconsistency of equilibrium and proved that it may not be as sensitive or so easily destroyed as environmentalist arguments indicate. Netting (1981) exemplified how an ecological anthropologist can use the concept of equilibrium without depicting it to be the life-blood of the environment. In Balancing on an Alp, Netting (1981) extended the ecosystem analysis from its typical appraisal of how people survive in their surroundings and respond to life-threatening situations to include how those factors can change from one generation to the next and the ways that people meet novel challenges and unprecedented problems outside their local subsistence system. While the goal is still to trace strategies of sustainability, which inherently connote the presence of mechanisms of equilibrium, Netting describes equilibrium more as a descriptive tool than an ecological law. Equilibrium, Netting concludes, is not the result of natural forces and a burden for humans to maintain, rather, it is created by humans in the first place, for the physical benefits it has shown to confer (Netting 1981: 225). Life is just simpler, it seems, when we are at one (literally) with the world.

In the 1970s, theory (such as functionalism and cultural materialism) became more blended with political awareness and policy concerns, and is largely related to the rise of the environmental movement and emergence of nongovernmental organizations (NGOs). According to Conrad Kottak's (1999: 23) review of new ecological anthropology, the emerging discipline attempt[ed] to understand and devise culturally informed solutions to such problems/ issues as environmental degradation, environmental racism, and the role of the media, NGOs and environmental hazards in stimulating ecological awareness and action. Concerns about the loss of biodiversity led to the creation of protected areas and the realization of the importance of the local populations' participation in conservationist efforts and the value of traditional ecological knowledge and history in the preservation of local environments.

One such study exemplifying this interdiscipinarity of theory and methods was historical ecologist, William Balee's (1994) analysis of the Ka'apor of the Amazon. By focusing on the interpenetration of culture and the environment, instead of human adaptation to the environment, he was able to comprehend the historical bases for the current relationships and dominance hierarchies between local indigenous groups. In Footprints of the Forest (1994), Balee's main concern is with how the Ka'apor interact with the plants in the diverse vegetational zones of their homeland. According to Balee (1994: 1), ethnobotany focuses on the similarities and differences among societies in the use, management, classification and nomenclature of plants. Brought together, the methods of ethnobotany and historical ecology help Balee to synthesize historical, cultural, ecological, and sociological data into a comprehensive theory about the history of the Ka'apor.

These techniques provide evidence supporting Balee's claim that knowledge of the natural world not only helped the Ka'apor to control their territory, but also that indigenous environmental knowledge, itself, can act as a dating technique by illustrating how long a certain group has occupied a territory and the linguistic roots of their ecological vocabulary. Balee was able to argue that differences in historical ecology lead to differences of mental economy among Lowland South American cultures (Balee 1994: 114), no doubt a broader conclusion than many previous ecological anthropologists were able to derive from their data sets. As Moran (2006) aptly points out, this type of inclusion of a historical dimension in ecosystem studies provides an appreciation of the processes of stability and change in human ecosystems.

During this period in the history of the sub-discipline, research in cultural

and environmental history and cultural ecology converged on the environmental politics of protected areas (Stearman 1984; Stearman and Redford 1995). Several distinctive features of anthropology that make it particularly well suited for studying protected areas are outlined in multiple articles published in the Annual Review of Anthropology (Oliver-Smith 1996; Smith and Wishnie 2000; Moran, King, and Carlson 2001; Maffi 2005; West, Igoe, and Brockington 2006; Dove 2006; Acheson 2006; Muhlausler and Peace 2006; Charnley and Poe 2007). Orlove and Brush's (1996: 333) article 'Anthropology and the Conservation of Biodiversity' stresses the commitment to long-term field studies in the relatively isolated regions in which protected areas are established; the exposure to biology in four-field departments; and the willingness to study not only local populations but also reserve managers, international conservationists, biologists, government officials, and staff of NGOs.

The period between the 1980s and 1990s is distinguished largely by the way in which environmentalism itself became an object of study for anthropologists interested in discourse, ideology, and postmodernism. In addition to conducting scholarly research, anthropologists also engaged in the debates over protected areas in other ways: as advocates for indigenous rights organizations such as Cultural Survival (Clay 1988), as observers of local communities' interactions with NGOs (Conklin and Graham 1995; Kottak 1999; Tsing 1999), as political analysts in interactions between Western activists and non-Western governments (Brosius 1999), as policy-makers in international institutions such as the World Bank (Davis 1988) and the World Wildlife Fund (Wells, Brandon and Hannah 1992). Anthropologists also acted as cultural intermediaries who arrange for the publication of interviews with local inhabitants of protected areas, and as expert witnesses in court cases in which indigenous land claims are adjudicated (Kemf 1993; Merlan 1991). In both academic and advocacy roles, anthropologists have argued strongly for the participation of local populations in the planning and management of protected areas. These arguments are sometimes based on social justice claims (Clay 1998)—that the often poor and marginal inhabitants of protected areas should not bear the costs of conservation—or on human rights claims, in which local populations have entitlements as citizens of the states that administer the protected areas, as native or indigenous peoples with specific claims to sovereignty over their territory, and as human beings who participate

in the planet-wide interactions among different species (Johnston 1994, 1995).

Insights from the work of contemporary environmental anthropologists have been particularly valuable in providing both culturally specific; context grounded case studies of human interaction with the environment (McElroy and Townsend 1989; Milton 1996; Haenn 1996; Townsend 2000; Vivanco 2006; Argyrou 2005; West 2005; Haenn and Wilk 2006; Moran 2008; Dove and Carpenter 2008). Some anthropologists argue for a greater understanding of native perceptions of nature and environment, rather than adopting Western top-down approaches and epistemologies (Blaser 2009; Kalland 2009). Some have pointed out those factors missing from the study of human-environmental relationships and our methods of assessing long-term sustainability (Moran 1990; Netting 1993). Others address global politics and developmental or industrialization issues and their effect on the local communities (Browder & Godfrey 1997; Chetham 2005; Maida 2007). Yet other groups of anthropologists focus on the human-nature relationship from both historical and cultural perspectives (Strang 1997; Moran 2006). A number of researchers have also recently taken it upon themselves to write volumes solely devoted to the theories and methods of environmental anthropology (notably, Kay Milton, Nora Haenn and Richard R. Wilk, Patricia Townsend, Tim Ingold, Emilio Moran, Andrew Vayda, Carl Maida and Veronica Strang).

The latest period in environmental anthropology is marked, according to Dove and Carpenter (2008: XIV), by the continued influence of postmodern theory which adds yet another self-reflective, subjective, and interpretive dimension to anthropological interest in the interaction between humans and their environment. Work on 'ethno-ecological landscapes', 'environmental discourses', 'environmental narratives', 'environmental perceptions', 'cultural ecologies' and all sorts of 'social constructions' (of nature, of environment, etc.) may seem like a far cry from the more political, applied and even activist trends in environmental anthropology (for example, Escobar, 1996). Yet, 'constructions' can be used not only in postmodern rhetoric of conceptual deconstruction, but also as a potent political tool used by policy-makers and indigenous communities. In Peter Brosius' words (1999: 37),

> . . . A broader, transdisciplinary florescence in environmental scholarship in the last decade has had a decisive influence in alerting us to the importance of recognizing the cultural and historical contingency

of ‘nature’ and the significance of this contingency for understanding the ways in which various kinds of political agents construct and contest nature.

These reflective, constructive, interpretative works are currently complemented in the field by the efforts of more solutions-oriented researchers aiming to develop more effective methodologies for understanding human behaviors towards, and relationships with the environment. For instance, researchers Vayda and Walters (1999) question the rationale for establishing spiritual and political ecology as subfields. Critical of the conceptualization of culture in human ecology, these authors also argue for events rather than culture, structure, or system as the main object of inquiry. Together, these approaches are making strides towards reconciling the antagonistic relationship between culture and the environment and may give theoretical guidance for the further development of environmental anthropology.

Recently, research centers and institutes focusing on Environmental Anthropology have emerged. The Anthropological Center for Training and Research on Global Environmental Change (ACT), for instance, is an interdisciplinary training and research center focusing on the human dimensions of global environmental change headed by Emilio Moran, one of this volume’s contributors. The center specializes in the study of variable local causes of human activities and provides solutions to the use, conservation, and restoration of human ecosystems. ACT’s research and training objectives focus on how particular local populations manage resources and how those activities may be monitored using remote sensing technologies and field studies. Furthermore, Anthropology of the Environment, a section of the American Anthropological Association, the professional society of American anthropologists, hosts a forum for over a thousand anthropologists interested in ecology, the environment, and environmentalism (http://www.eanth.org/index.php). A number of American universities have also started offering degrees in environmental anthropology in the last decade and many international universities host anthropologists specializing in environmental or ecological anthropology.

The environment in environmental anthropology

In an article published by American Anthropologist, reviewing the history and present state of the art of the ecological anthropology, Kottak (1999: 33)

issues a remarkable statement:

People must come first. Cultural anthropologists need to remember the primacy of society and culture in their analysis and not be dazzled by ecological data. Funding sources that give priority to the hard sciences, fund expensive equipment, and support sophisticated technology should not lead us away from a focus on cultural specificity and social and cultural variables. Ecological anthropology must put anthropology ahead of ecology. Anthropology's contribution is to place people ahead of plants, animals and soil.

In contrast to Kottak's polemical ideal, this volume highlights current research that investigates the environment and environmental issues in order to balance the attention paid to environmental and human wellbeing in environmental anthropology, policy initiatives, and conservation efforts. Considering the richness and diversity of literature in the field of environmental or ecological anthropology to date, it may seem like an oversimplification to assert that human exceptionalism is still part and parcel of mainstream anthropology. Yet, we do dare to assert that mainstream anthropology often focuses on people or cultures and the(ir) 'environment' as a dependent variable and tends to overshadow human agency in the destruction of the natural habitat, by focusing on topics such as access to resources and/or by not paying close enough attention to physical, chemical, biological, and socioeconomic factors in ethnographic analyses (Netting 1993). In the recent article in American Anthropologist , signaling the danger of marginalization of anthropologists in (environmental) policy debate, Charnley and Durham are concerned that the danger is not in anthropologists 'being dazzled by ecological data,' but rather that 'environmental anthropology is becoming anthropology without environment' (Charnley and Durham 2010: 411). The danger of marginalization of environmental anthropologists from the policy debate stems from anthropologists' reluctance to engage with quantitative and environmental data, and the discipline's phobia of the tables and figures, 'which are effective for communicating research findings to policy makers' (Ibid). In this volume, our contributors address both Environment and the People or People as part of the Environment, rather than relying on traditional reification of human(ity) and culture; and discuss broader-based, more holistic methodologies for assessing the long-term impacts of human communities on the local and global environment. Some of the contributors to this volume, notably Moran and Kopnina, show that anthropology's

methodological reach is not limited to ‘traditional’ ethnographic studies, and that methodologically mixed approaches may aid both anthropologists in their daily practice and indeed instruct policy makers, urban planners or environmental educationalists.

Ironically enough, one of the fundamental obstacles to putting the environment back into environmental anthropology, is culture. This stems from the dilemma in anthropology as to whether culture is itself an object of analysis, or whether it is simply part of a broader framework for the analysis of something else, usually something that is seen as part of culture and therefore as ‘cultural’ in nature (Milton 1996:10). Because studies in environmental anthropology inevitably, and rightly so, involve culture, culture often becomes the focal point to the extent that it obviates the environment and the stresses upon it. When taken to the extreme, in the form of constructionism, this perspective makes the environment little more than a product of culture and therefore further minimizes the objective existence of nature and therefore the gravity of human-induced environmental damage. This situation is further compounded by the frequent reliance on the assumption that cultures are structured systems, which has led anthropologists to exaggerate the problematic nature of cultural change and to focus on minutiae without seeing the bigger picture when it comes to the impact that communities can have on local environments. Anthropologists, as Milton (1996: 17) phrased it, have been more inclined to use the microscope than the wide-angle lens.

This, combined with an ambivalence over the role of globalizing processes in cultural analysis and a preoccupation with relativism, can lead to the neglect of or simply an inability to see, not only large scale culture change (Milton 1996) but also large-scale implications of local-level environmental damage. Without conversely minimizing the significance of cultural adaptation to and modification of the environment, this volume seeks to re-emphasize the environment in the discipline of environmental anthropology and demonstrate the ways in which, when conducted with the environment, as well as culture, in mind, environmental anthropology can aid environmental efforts at the local and global scales.

Although anthropologists, in general, are moving away from the humannature dichotomy some recent work seems to be reconstructing such a perspective in its efforts to reverse the notion that people degrade nature (Posey 1998; Fairhead and Leach 1996). Posey (1998) and Fairhead and

Leach (1996) argue, for instance, that what we have assumed to be remnants of natural forest surrounded by degraded savanna, were in fact created by people. Posey's ethnographic accounts of natural habitats created by the Kayapó' Indians are classic examples of environmental anthropology's ethnography. Much more rare are examples of those groups instrumental in felling hectares of pristine forest just next to such human-planted enclaves. However, this work has received much criticism from other researchers. Turner (1993) noted that the Kayapó's relationship to 'their' forest (as well as their experience and participation in wage labor) was ambiguous. Posey's conclusion was also criticized by geographer Eugene Parker, who argued that far from being created by the natives, the forests' islands were natural, the result of forest advance at the edge of savannah (Parker, 1993: 721). The fact remains that what may appear to be objective facts about humanenvironmental history and their current relationships are often subjective observations that deserve further analysis and consideration.

Typical of many anthropologists, the aforementioned authors are defending the weaker position of the local community and their local land use practices against the dominant policymakers (Fairhead and Leach 1996: 260). Despite popular sentimentality popularized by the recent Hollywood blockbuster Avatar (2009) depicting alien 'people' living in close harmony with nature and struggling against the utilitarian ambitions of the Earthlings, critics continue to discredit this 'noble savage'-like depiction of tribal peoples who are at 'one with nature' and represent the true 'natural men' (see Sponsel in this volume). Aside from the outdated straw-man arguments critiquing those who might claim that all traditional societies are 'at one' with nature, more grounded arguments simply attest that indigenous peoples have 'human vices just as we do' (Wagley 1976: 302), do not necessarily view animals and plants as something worth protecting (Allendorf et al. 2006; Infield 1988), are capable of overuse and poor decision-making (Netting 1993), and that the majority of traits that perhaps once enabled traditional societies to live in greater harmony with the environment than more industrialized groups, are slowly diminishing (Brosius 2006).

In turning their gaze to the processes of 'development' and its effect on local communities, anthropologists have noted that factors such as population growth, the inequitable distribution of wealth, and the growth of industrialized nations have served to widen the relative gap between the rich and poor (Bodley 2008a,b). In fact, in examining the relationship between economic

and technological progress and the health and welfare of local communities, Bodley (2008) argues that increased consumption, lowered mortality, and the eradication of all traditional controls have combined to replace what for most tribal peoples was a relatively stable balance between population and natural resources, with a new system which is imbalanced.

An example of the negative effect of population growth on the health and welfare of local populations is described in Warren M. Hern's (1992) article 'Family Planning, Amazon Style' which links high fertility to health and economic problems of the Shipibo Indians. While in the field, Hern received multiple requests to supply the villagers with Western contraceptives as families, and particularly women, admitted to having many more births than wanted. In explaining this unprecedented growth, the author lists a number of Western interventions that disrupted traditional means of controlling population growth, such as abstinence, abortion, infanticide, use of herbal contraceptives and polygyny. Starting from the influence of Christian missionaries and in recent years, 'Westerners' who prohibited 'parochial practices' and introduced Western medicine, the Shipibo experienced a population growth of 4.9 percent per year, with an average of ten births per woman. The Shipibo watched the timber cutters, cattle ranchers, commercial fishermen, and the farmers of commercial crops cause deforestation and flooding that eliminated traditional crops and game on which the Shapibo relied. Spurred by economic necessity, the Shapibo 'themselves are drawn into the money economy and sometimes sell products from scarce animals (such as water turtle eggs) in order to get cash' (Hern 1992: 172). Imported goods became the norm as traditional resources became rapidly exhausted. As a result, depletion of natural resources, poverty and disease have followed. While (Western) medical technologies, and 'progressive social practices' that prohibit traditional methods of population control, and wage labor are praised as goods for 'progress', the native population seems to succumb more and more to poverty and disease. Due to such 'development', Hern (1992: 174) concludes,

> many human societies that controlled their fertility in the past have lost the tradition of doing so in the frenzy of modern cultural change. The old methods that reduced births have not yet been replaced by the new technologies of fertility control. The result is chaos, suffering, more cultural change, and in some cases, even more rapid population growth.

Reflecting on the dangers of 'progress,' to local cultures and the relativity of the very concepts of 'progress' and 'quality of life' many anthropologists question the 'goodness' of industrialization and the whole enterprise of 'development', including the 'democratic sharing' of the green revolution, medical technologies and other 'seductive blessings' (Diamond 1987). In stark contrast to development anthropologists employed by organizations such as IMF and the World Bank who may be sympathetic to the ideas of 'development', many environmental anthropologists are wary of such ideas when they are imposed on local populations (Tsing 1999). Indeed, in this endlessly complicated time of growing economic need and environmental deterioration, the internalization of the ideas of 'progress' as well as the seemingly global acceptance of wage labor and consumerism (in which 'native' populations contribute to the further degradation of their own culture and environment) pose new ethical challenges for the increasingly 'engaged' anthropologists.

While the contributors to this volume recognize that environmental problems most frequently originate from top-down policies, they remain objective to the fact that environmental damage can be caused by communities of all sizes. Small size or adherence to traditional lifestyles should not, necessarily, exempt a population from its environmental responsibility, just as it doesn't exclude them from suffering the repercussions of ecological deterioration. The point is not to determine which is to blame for the global environmental crisis, the industrial or non-industrial world, but rather simply to assess on a case by case basis and as a part of larger ethnographic studies, what it is that communities are doing for or against their habitat that could have long term ramifications. In general, we believe that this type of emphasis could bolster anthropology's understanding of areas where education, aid, or intervention may be needed; as well as gamer local ecological knowledge, and a more complex understanding of the human-environment relationship that may be helpful in other areas around the world.

Notions of nature

Environment, interpreted in the most common contemporary (Western) sense, may mean anything from 'nature' to 'surroundings'. When we speak of 'nature' we may refer to what in the words of the philosopher and poet Ralph Waldo Emerson, consists of 'essences unchanged by man; space, the air, the river, the leaf.' When we refer to environment as surroundings, we often speak of influences, contexts and conditions surrounding human existence and activity. Of interest to many postmodern writers, especially those following a

constructionist view (Mason 1990; Chaloupka and Cawley 1993; Burr 1995; Escobar 1996), however, is the notion that the concept of nature is a socially constructed entity, created by the 'actors' themselves, and largely a product of language. From this perspective, nature is not only represented by language but created by it and ultimately becomes little more than an offshoot of social reality (Kidner 2000: 264). This makes it impossible to judge one attitude toward nature as better or worse; more beneficial or more harmful than any other for, according to this logic, there is no nature outside the human perception of it (ibid). Thus from the constructionist viewpoint, to paraphrase David Hume's famous dictum, 'if the tree falls in the forest but nobody hears the sound', the tree has not really fallen. While Emerson depicts nature as independent of the human place in it, the latter, constructionist view, refers to a dependent construct wholly connected to the human perception of it (Kopnina and Keune, 2010).

According to Catton and Dunlap (1978a and 1978b), the environment can be defined in terms of the following categories: Biophysical (the world outside humans); Natural (greater emphasis on 'ecosystem' including all living organisms); Built/modified (human-constructed surroundings); and Social (culture and society that people develop). The biophysical environment is conceived of as the world outside humans. The natural environment is similar to the biophysical one, with the greater emphasis on 'ecosystem' including all living and non-living organisms that occur naturally on Earth. Catton and Dunlap (1978a) distinguished between built, modified and natural (physical) environments and social environments. The biophysical and natural environments in common discourse are mostly associated with nature or wilderness. The other two types of environment, built and social, refer to, respectively, human-constructed surroundings, including public and private homes and urban landscapes; and to the culture and society that people develop and in which they interact. In Durkheimean terms, humans depend upon only three kinds of environment: the organism, the external world and society (Durkheim [1893] 1984: 285– 86).

As discussed in a previous section, ecological anthropologists working in the 1960s and 1970s (Vayda and Rappaport 1968) emphasized the importance of the environment outside of but influential upon human cultures – often 'biologizing' cultural ecology by adding concepts like population, energy flow and ecosystem from the field of biology. With the surge of post-modernism, however, that perspective was largely overshadowed by the notion of the

environment existing as a human construction. Today, the shift towards the environment as important in its own right, for its own sake as well as for that of all human beings, is again dominating environmental anthropological literature with the emphasis shifting towards the human impact on the environment. This is not surprising for the applied social science given the fact that current public discourse often associates environment with 'issues' or 'problems' that are often lumped together under one umbrella. These include climate change, aridification and desertification (drying up of regions, often associated with erosion), risks involved in nanotechnology, air and water pollution, and many others. Placing environment in the context of globalization, we may note that environment is also presently seen as a commodity, or as a public good. Biological diversity is defined in the Convention on Biological Diversity as 'the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexities of which they are part; this includes diversity within species, between species and of ecosystems' (Reid et al. 1993). Environment in the narrow sense of 'nature' (pristine wilderness) which exists independently of humans (or to use the judicial or moral jargon, having a 'right to exist') is often relegated to the domain of environmentalist groups. Policy-makers, developers, and (social) scientists often have divergent perspectives which are sometimes at odds with environmental activists. But it is the interplay between both human and environmental interests that earns a focal point in this volume.

Environmental 'issues' or 'problems', viewed both as historical developments and scientific, as well as socially constructed controversies are often grouped under 'degradation discourse', where the 'underlying narrative in fact tells us that people degrade nature, and thus that nature should be saved from culture' (Dove and Carpenter 2008: 3). However, some anthropologists question the assumption that culture threatens nature (Posey 1998) and assert that nature, in fact is socially constructed (Escobar 1996). The controversy concerns the very definition of 'environmental problems' or 'degradation', the extent and origin of these problems, and the ways these problems can be addressed. Lomborg (2001), for example, argues that claims of overpopulation, declining energy resources, deforestation, the loss of biodiversity, and climate change are not supported by scientific data. Conservative think tanks, often supported by industrial lobbyists, promote skepticism as a key tactic of the anti-environmental counter-movement (Jacques et al. 2008). Most

observers, however, agree that the increase in human activity adversely effecting the environment is particularly linked to the processes of industrialization, urbanization and population growth (see recent publications of UN Environmental Programme; Intergovernmental Panel on Climate Change (IPCC); The Global Environment Facility (GEF), US Global Change Research Program; Millennium Ecosystem Assessments (MEA), etc.). Recently, Lomborg himself revised his position regarding mitigation of anthropogenic global warming and announced his agreement with 'tens of billions of dollars a year to be invested in tackling climate change' and declared global warming to be 'undoubtedly one of the chief concerns facing the world today' (Lomborg 2010).

This volume is based on the assumption that the unprecedented loss of biodiversity as well as climate change, in the twenty-first century, are largely due to human activity. It is from this objective stance that the following chapters make their claims regarding the role of environmental anthropology in the larger effort to understand human-environment interactions and to preserve the environment for itself and its inhabitants.

Introducing the New Ecological Paradigm to anthropology

Anthropologists often share the concerns of sociologists or political scientists but come to them through a different route.
Kay Milton (1996: 9)

William Catton and Riley Dunlap wrote a series of articles defining environmental sociology (Catton and Dunlap 1978a; 1978b; 1980; Dunlap and Catton 1979; 1983; 1994). Referring to paradigmatic definition of environmental sociology, Catton and Dunlap (1978a; 1978b; 1980) assert that Western society shares a variety of background assumptions that they termed the Dominant Western Worldview (DWW) (Dunlap et al., 2002). Frustrated with anthropocentric bias within sociology, they argued that contemporary sociologists needed to address the relationship between society and the biophysical environment, just like many anthropologists have done in various ways since the turn of the nineteenth century. Catton and Dunlap accounted for the oversight by examining the taken-for-granted assumptions of mainstream sociology and explaining how those assumptions led the discipline to ignore the biophysical environment (Bowman 2010). The authors described a sociological paradigm termed Human Exemptionalist Paradigm (HEP)

based upon a shared anthropocentrism that – irrespective of particular theoretical orientation (Marxist, functionalist, symbolic interactionist, etc) – led sociologists to treat modern societies as 'exempt' from ecological constraints. To rectify the situation, they advocated the New Ecological Paradigm based on an alternative set of background assumptions. Instead of assuming, for example, that humans have a cultural heritage in addition to (and distinct from) their genetic inheritance, and thus are quite unlike all other animal species, as expressed in HEP, the authors argued that environmental sociology (should) recognize that despite exceptional characteristics, humans remain one among many species that are interdependently involved in the global ecosystem (see also Hornborg and Crumley 2007). A similar approach, many of the contributors to this volume argue, can be developed for environmental anthropology.

There is a traditional preoccupation in anthropology with the position of the 'underdog,' and 'traditional way of life' that has to be defended against Western encroachments of, for example, conservationists that want to ban people from using natural resources. However, mainstream anthropologists often do not address factors such as population growth, increasing use of natural resources, and the spread of capitalist materialistic values when defending the traditional way of life. Little has been said, for example about the role of the 'poor', the 'native', the 'indigenous' in participating in the global process of environmental degradation. Although very often orchestrated from the top (the West, the wealthy, the state, or corrupt local governments), the destruction of natural habitats both by over-consuming upper-classes and the struggling poor is rarely the subject of participant observation. This poses methodological challenges, to be sure. Access to communities openly committing such crimes and/or opening up the lines of communication with such individuals is much harder than doing so with underprivileged victims of environmental tyrants, (see Shoreman-Ouimet in this volume). As it stands, however, narratives of the brave struggle of indigenous peoples or the urban poor against those in power often neglect the possibility that the real 'power' destroying biodiversity may, in some instances, lie within the people—be they poor and indigenous, or the rich and cosmopolitan. It is the notion of the 'power to destroy' that we emphasize here—the idea that in today's world few communities are spared the pressure to adapt to their environment in such a way that doesn't require manipulating the ecosystem. While not all of these communities could possibly be considered 'anti-environmental', they

represent the hastening deterioration of local environments. As a result, we believe they offer prime opportunities for contemporary environmental anthropologists interested in documenting human-environmental relationships as well as slowing or repairing environmental damage to examine the connection between local environmental knowledge, decision-making frameworks, and behavioral outcomes (Nazarea 1999).

The time has come for ethnographies to be more complicated—they need not stick to one side or one cause. They can depict cultural reality and reveal conflicting truths. In fact it is hard to imagine a community in which individuals' actions or agendas don't somehow contradict the group's larger environmental, social, political, or religious ideologies. Although we could never deny the paramount importance of 'native' or 'local' involvement in shaping environmentally sound practices and protection of their own natural heritage and environment, the tendency of ecological anthropologists not to also note the opposite side of the coin and the ways in which that same society might also cause environmental injury is consistent with HEP ideology and the prioritization of culture over nature. Such ethnographic over-simplification, in short, ignores human agency in both the negative and positive aspects of environmental preservation.

The goal here is not to eradicate cultural relativism from environmental anthropological research or condemn marginal groups to takeover by big conservation. The fact remains that no one fonnula can be realistically or conscientiously applied to environmental problems in different cultures, in different geographical regions; and local perspective, participation, and perhaps even initiation, should be considered as basic to environmental repair as it is to its destruction. However, we are questioning the dependence upon relativism that can keep the social scientist from objectively recognizing and commenting on the environmental damage caused by even the most marginal communities, and which therefore also impedes their ability to thoroughly understand the link between local knowledge and environmental behavior.

If the goal is to depict or protect a community's way of life, are we not working against them and ourselves by neglecting the degradation of the environment on which they and other communities depend? This volume is thus intended both to highlight the productive work currently underway by anthropologists concerned with environmental degradation as well as serve as a plea for more environmentally-engaged, conservationist anthropology that crosses disciplinary lines and combines information such as the history

and biological ecology of local environments with ethnographic data. As the following chapters demonstrate, such work has much to contribute to environmental education, community-based conservation, policy initiatives, and outreach programs.

However, equally important to recognizing and analyzing the environmental damage done by a given community is, conversely, analyzing and describing the ways in which a community may be making an effort to repair and/or protect the environment. Sometimes this type of behavior is rooted in cultural and religious beliefs (see Anderson in this volume); while at other times such actions can seem to contradict past behavior (see Shoreman-Ouimet in this volume). By analyzing these beneficial behaviors and their origin, we garner local environmental knowledge, and learn something about native perceptions of the local environment and methods of classifying and prioritizing various elements in the ecosystem (Conklin 1961; Nazarea 1999). Furthermore, we can make associations between their cognized world, and the cultural beliefs and values that are powerful enough to inspire communal action in the name of the environment (see Maida and Hirsch et al., in this volume). This type of research and these sorts of details demonstrate the positive aspects of human-environmental relationships, which one could argue is equally as, if not more important than, emphasizing the negatives in terms of perpetuating environmentally beneficial behavior and motivating environmental conservation elsewhere. The following chapters thus take into account a range of environmental and social issues in populations around the world. They present various examples of environmental degradation, ethics, and knowledge, as well as instances of environmental conservation efforts and learning. Furthermore, they provide valuable methods of accessing such knowledge and provide insightful theoretical frameworks for assessing and synthesizing such information. All this, we believe, can aid anthropological and conservationist efforts to understand various cultural perspectives and mediate environmental problems.

Organization of the volume

The remainder of the book is divided into three sections: Theoretical Perspectives, Methodological Challenges, and Anthropologists and the Real World.

The Theoretical Perspectives section includes conceptually motivated chapters

building upon the theoretical framework in anthropology as well as other social sciences. Chapters by Leslie Sponsel, Gene Anderson, and Peter Larsen open up interdisciplinary dialogue, as well as elaborate on the 'classical' themes in anthropology, outlined in this Introduction.

Lesley Sponsel bridges the gap between politics and spirituality in his chapter entitled 'The Religion and Environment Interface: Spiritual Ecology in Ecological Anthropology'. Sponsel begins by defining spiritual ecology as a diverse and complex arena of intellectual and practical activities at the interface of religions and spiritualities on the one hand, and on the other, of ecologies, environments, and environmentalisms. His chapter reviews in historical perspective anthropological contributions to the development of spiritual ecology since the late nineteenth century from the work of pioneers such as Edward B. Tyler and James G. Frazer, in the mid-twentieth century from O. K. Moore, Ake Hultkrantz, Roy A. Rappaport, and Gerardo Reichel-Dolmatoff and then the more recent contributions of Stephen J. Lansing, Philippe Descola, Eugene N. Anderson, Kelly D. Alley, Kay Milton, and others. The chapter identifies the main trends, questions, and issues in research, and then identifies key needs and problems for future research. Finally, it places the actual and potential contributions of anthropology in the larger context of the multidisciplinary and multi-faith activities in basic and applied work on spiritual ecology.

In his chapter 'Drawing from Traditional and "Indigenous" Socioecological Theories', Gene Anderson exemplifies Sponsel's broader discussion of spiritual ecology by presenting research and findings from his own research on traditional and 'indigenous' socioecological theories. Here, Anderson discusses a possible future for environmental anthropology by arguing that although traditional ecological knowledge and belief systems continue to be disregarded as sources of serious social theory, traditional and local people have managed, in most cases, to conserve environments and manage resources sustainably. According to Anderson, these wider systems of consciousness and ideology are ignored partly because many are founded on beliefs in 'spirits' or 'supernaturals' that 'rational' social scientists do not accept. Yet, quite apart from the highly debatable meanings of the words in scare quotes, most of the actual moral and ethical teachings involved do not necessarily depend on the 'supernatural' material. For instance, Native American societies of the Northwest Coast of North America construct personhood to include all beings, and their societies include local trees, bears, and mountains. They

therefore treat all these beings with care and respect. These moral messages are in turn propagated through oral traditions and through spectacular and aesthetically compelling visual arts. Anderson believes that this presents opportunities for using traditional cultural materials to motivate conservation and sustainable management, while also providing some knotty problems for philosophers. According to Anderson, 'our universities have quite literal walls between 'ontology,' 'epistemology,' 'religion,' 'social science,' and 'art.' Indeed, they are often in different buildings.' The Northwest case shows these distinctions are not only shaky, but are possibly dangerous. Anderson ends with a plea for an environmental anthropology that takes traditional cultures seriously, including their philosophies of knowledge and emotion.

Peter B. Larsen closes this section with an interdisciplinary piece entitled 'Environmental Politics and Policy Ambiguities in Environmental Anthropology'. Here, Larsen discusses the evolving relationship between environmental anthropologists, policy, and politics. According to Larsen, anthropological approaches to environmental policy and politics are today at the forefront of social theory interlinking with political science, human ecology and the wider social sciences. Whereas the wider epistemological field arguably is more dominated by environmental lawyers, economists and natural scientists, there is growing recognition of the kinds of socio-cultural and context-based analysis anthropologists bring to the table. Larsen's chapter portrays a number of different ways in which environmental anthropologists have engaged with policy processes and politics in their work. It seeks to describe both the theoretical and empirical diversity at stake ranging from hands-on involvement in policy design towards conceptual debates in political ecology. Larsen presents various cases to demonstrate that anthropologists have approached the environmental policy field in both creative and far-reaching ways, ranging from analyses of global level environmental processes and transnational environmentalism to local level studies of natural resource management politics. In so doing, Larsen addresses some common themes characteristic of environmental anthropology and identifies new directions for research, with particular emphasis on emerging conceptual challenges associated with the fields of environmental policy-making and politics, not only specific to environmental anthropology, but also linked to the wider ethnographic and anthropological enterprise as a whole.

In the Methodological Challenges section, Emilio Moran, Helen Kopnina, Daniel de Vries, and Carl Maida present detailed discussions of the methodological

challenges and innovations in environmental anthropology today.
The section begins with Moran's chapter on the application of GIS to environmental anthropology research. Moran reviews the evolution of spatial thinking within anthropology, particularly in environmental anthropology, pointing out that while spatial thinking has been central to theorizing in geography, it has had a less important place in anthropology. Moran explains how the growth of anthropological engagement with the importance of place has roots in archeological approaches, the use of aerial photography by some cultural ecologists, and has exploded since the 1990s as more anthropologists have begun to use GIS and satellite remote sensing data in their environmental research. This increased use of spatial analysis has also led the field to be more interdisciplinary, more team-based in its field research, and more integrative than in the past. The chapter reviews this progress and points to future directions that this integration is likely to take or require from environmental anthropologists in both training and in practice. Moving from a technical to a more engaged approach, Helen Kopnina addresses an innovative methodology in the case of environmental education in her chapter 'What About That Wrapper? Using Consumption Diaries in Green Education'. Here, Kopnina discusses her preliminary findings on the use of consumption diaries in green education. Consumption diaries are chronological documents recording the purchase, use and waste of material, including edibles and utilities. Consumption diaries are both analytical tools and a means of stimulating environmental awareness. This chapter discusses both the technique and the results produced by analyzing the diaries collected from upper-elementary school-aged children and their parents in Amsterdam, The Netherlands. Kopnina combines qualitative and quantitative methods to unravel childrens' and parents' perceptions and awareness of consumption and draws from recent research on the role of green education as an important driving force behind the 'greening' of society to help answer the underlying questions: How successful is green education in the Netherlands? How can green education be stimulated further? Focusing on the critical role of education in building a sustainable future and preparing students for green jobs, this chapter examines the possibility of including the study of (responsible) consumption in the school curriculum.
Continuing with the theme of innovative methodologies, in his chapter 'Time and Population Vulnerability to Natural Hazards; The Pre-Katrina Primacy of Experience', Daniel de Vries discusses how anthropologists

can better understand and utilize the connection between social time and population vulnerability to natural hazards. de Vries argues that while environmental anthropologists have made progress in showing how perceptions of reality are dependent upon culturally specific assumptions, the modernist tendency to see time as a chronological, quantitative, measurable ordering of events has remained a particularly stubborn scientific premise rarely challenged in the analysis of human-environment interactions. Furthermore, while the changing relationship of humans to time can be seen from the way in which globalization has 'compressed' time and space, hegemonic discourses of linear time are reflected both in objects, such as time-measurement through nuclear clocks, or scientific practices, such as the favoritism of historical analysis over the 'subjective' investigation of culturally shared memory. Linear, Newtonian time, de Vries argues, can be seen as one of the final frontiers of the paradigm of environmental control which underlies the Dominant Social Paradigm. Here de Vries reviews the potential implications that this cultural bias disfavoring the 'social' aspects of time can have from the perspective of risk perception in urbanized floodplains. Based on qualitative fieldwork among residents, engineers, and planners historically dealing with flood hazards, de Vries demonstrates how social time can be studied anthropologically by focusing on the relationship between community wide experiences of surprise and the quality of temporal reference making practices, such as landscape monitoring, memory-networks, and the attribution of meaning. In doing this, he argues that the lack of recognition of non-linear temporal practices in shaping cultural models of risk can seriously increase a population's vulnerability to natural and/or man-made hazards, and as such increase the potential for disaster. The chapter ends by proposing a better integration of social time in emergency preparedness and early warning management programs, and concludes that building system resilience is for a large part dependent on effective management of the temporal aspects of stakeholder cultural models of the environment.

Turning the discussion back to a more traditionally ethnographic methodology in 'Participatory Action Research and Urban Environmental Justice: The Pacoima CARE Project,' Carl Maida discusses the usefulness of participatory action research (PAR) in environmental anthropology, specifically in the area of environmental justice. Based upon long-term ethnographic fieldwork in Pacoima, an urban community confronting toxics, such as household

lead, toxic dumping, and diesel pollution, his work investigates how, through resident coalition-building on behalf of the community, PAR has helped to mitigate these toxic threats to area homes and neighborhoods. Pacoima, a community of 101,000 persons in the northeast San Fernando Valley in the City of Los Angeles has endured multiple crises, including deindustrialization, transnational migration, and environmental degradation, compounded by natural hazards, including the 1994 Northridge Earthquake. A largely African-American community until the mid-1990s, Pacoima is predominantly Latino. The trauma of the earthquake forced residents to acknowledge that their community's built and natural environments had become progressively degraded well before the earthquake. The shared experience of the disaster helped to establish a place-centered community identity among neighbors, many recently migrated into the area, as they began to reconstruct after the temblor. As neighbors set out to repair their homes and to clean up their blocks, they also extended their helping resources to people in adjacent neighborhoods. A grassroots organization, called Pacoima Beautiful, which was initially formed to help residents clean up but then grew to promote environmental education, leadership development,
and advocacy skills to residents, has an agenda of civic engagement on behalf of environmental awareness and community building. An action research approach designed to enhance the quality of life in the community, together with the cultivation of an aesthetic sensibility, informed the various projects undertaken by Pacoima Beautiful. Maida's chapter focuses on the tension between lay and professional knowledge among stakeholders as they set priorities and develop strategies to carry out a broad-based action research agenda on behalf of identifying toxic substances, understanding the health implications of potential toxic risks, and ameliorating those risks. The chapter introduces the process of community-based PAR, and through ethnography, demonstrates how the Pacoima-based CARE (Community Action for a Renewed Environment) project followed a PAR approach that resulted in long-term community capacity to improve the local environment.

In the last section, Anthropologists and the Real World, Bob Pokrant and Laura Stocker, Teressa Trusty, Nora Haenn, Eleanor Shoreman-Ouimet, Robert Efird and the joint chapter by Jennifer Hirsch, Sarah Van Deusen Phillips, Edward Labenski, Christine Dunford, and Troy Peters present a wide

array of ethnographic case studies depicting the ways in which environmental anthropologists are making conservation and environmental well-being part of the larger discussion of culture and the human-environmental relationship. Building upon theoretical and methodological insights from the previous sections, these chapters present rich, context-specific ethnography that is characteristic of environmental anthropology today. However, the contributions in this section also provide valuable interdisciplinary data that could complement scholarship in other social science areas, as well as aid informed policy makers in the fields ranging from urban ghettos to rural communities.

In 'Anthropology, Climate Change and Coastal Planning,' Bob Pokrant and Laura Stocker discuss humanity's response to climate change as one of the main global challenges of the twenty-first century. This chapter examines the contribution of anthropology to climate change research and policy through a focus on the relationship between development planning and climate change policy and practice. The first part of the chapter examines the contribution of Environmental Anthropology to the study of humannature interactions. It shows that present-day Environmental Anthropology and cognate areas are actively engaged in both academic and policy-oriented research relevant to climate change and climate variability. Such research includes historical understandings and adaptations to weather and climate variability; debates over the social construction of climate change science; the relevance of local knowledge to natural resource management; environmental discourses; unequal ecological exchange and world systems theory; local responses to environmental globalization; and the relationship between development planning and climate change. The second part of the chapter focuses on current debates over the relationship between development planning and climate change, drawing from on-going research on adapting to climate change in coastal Bangladesh and Western Australia for illustrative purposes. The authors critically examine various approaches to coastal planning that seek to integrate development and climate change objectives; the contribution of anthropology to improve culturally informed governance practices among researchers, policy-makers and local communities; and their implications for the promotion of more socially and environmentally sustainable futures for coastal populations.

On a more culturally specific note, in her chapter 'From Ecosystem Services to Unfulfilled Expectations: Factors Influencing Attitudes Toward

the Madidi Protected Area,' Teressa Trusty examines communities, attitudes and conservation in the Madidi National Park and Integrated Natural Management Area, Bolivia. According to Trusty, in Bolivia, very few protected areas are created at the behest of indigenous inhabitants and other rural residents. Instead, these parks and reserves reflect national and international interests in conserving biological diversity. It was concern for the quiet voices of those impacted by the creation of these areas that led Trusty to this research, which explores the patterns and variations in environmental values and beliefs amongst residents of rural communities located within and along the northeastern border of Madidi protected area in northwestern Bolivia. Since its creation in 1995, the park has become a focal point for a range of ideas and attitudes about conservation, rights to resources, and development. Residents of the region, both natives with a long history in the area and more recent migrants from the Andean highlands, share a similar understanding about the park and its purpose. However, they diverge in their attitudes toward the park, reflecting their expectations for benefits from the park and how these have been fulfilled or not. Here, Trusty integrates ideas from political ecology and cognitive anthropology to explore these divergent views and the factors that influence them ranging from the actions of conservation actors in the region to the distinct characteristics of the study communities. Further investigating the impact of conservation and national park bureacracy on local communities, in her chapter, 'Who's Got the Money Now?: Conservation-Development Meets the Nueva Ruralidad in Southern Mexico,' Nora Haenn draws on anthropology's holistic tradition to address a prickly question: Does environmental conservation exacerbate social inequality? Researchers currently debate whether or not conservation practices widen the gulf between rich and poor and whether conservation organizations have focused on cultivating wealthy donors at the expense of strengthening local programs that serve lower income households. Haenn's chapter follows the holistic tradition to show that, at least in some cases, conservation programming may have little effect, one way or the other, on the economic well-being of local peoples. Haenn demonstrates how holism emphasizes the idea that the context surrounding any given phenomenon is as important as the phenomenon itself; and illustrates how in applying holistic approaches to human-environment relations, anthropologists have made surprising findings. For example, Fairhead and Leach, examining the historical context of forest cover in West Africa, found that claims to deforestation there may be

exaggerated (Fairhead and Leach 1995 and 1996). Anthropologists working in the area of political ecology regularly seek answers in geographical contexts, examining the ways distant and powerful actors might affect local ecologies. Since its earliest days, political ecology has shown how some local environmental actors may knowingly act unsustainably but are powerless to do otherwise, as they work under the direction of state and international authorities (Stonich 1993). Applying a holistic perspective to the Calakmul Biosphere Reserve in southern Mexico, Haenn outlines a 'regional economy' and compares this depiction with a 'conservation economy' to examine conservation's financial impact. Haenn compares this 'conservation economy' to a broader set of financial flows, including states subsidies and remittances from international migration. The article concludes that, in light of this comparison, the impact of conservation programs on local livelihoods is relatively small.

Like the inhabitants of the Calakmul Biosphere Reserve, many rural US communities have been dubbed 'anti-environmentalist' for their utilitarian view of the land and opposition to outside conservationists. In her chapter, 'Middle Out Conservation: The Role of Elites in Rural American Conservation,' Eleanor Shoreman-Ouimet demonstrates how wealthy landowners and social elites have successfully established water management districts and conservation organizations that are improving environmental quality and redefining the role of agriculture in environmental preservation. Focusing on what Shoreman-Ouimet refers to as 'Middle-out' conservation whereby local elite negotiate between local landowners and federal authorities, this chapter examines the role of social influence and local history and the relatively small role of Western environmentalism in the development of conservation programs. It furthermore demonstrates the need for anthropologists to expand their communtity base by paying increased attention to supposed 'antienvironmentalists' and other communities who have been excluded from the environmentalist discourse for their use-based environmental philosophy. Minorities, rural landowners and commodity farmers have much to contribute to the global discussion on environmental preservation and in the United States own and operate large amounts of valuable land. Emphasizing their efforts to improve land and water quality is thus not only important for what it may teach anthropologists and ecologists about the connection between land use and its preservation, but also for the positive message it sends to other communities who may be encouraged to make similar strides

towards environmental preservation.

In his chapter 'Learning By Heart: An Anthropological Perspective on Environmental Learning in Lijiang,' Robert Efird reiterates Kopnina's earlier point that anthropological studies of the ways in which we learn about our environments are both remarkably scarce and increasingly significant. Environmental learning is not just a means of acquiring empirical knowledge; it can also play an important role in shaping our attitudes and behaviors towards our environments. Efird thus argues that knowing more about the intergenerational process whereby people acquire this environmental knowledge and belief may help local communities preserve this knowledge and its effective transmission. As governments in nations ranging from the U.S. to the People's Republic of China officially endorse the teaching of environmental education in schools, studies of environmental learning in sustainably managed ecosystems may also serve as a useful reference in worldwide efforts to teach children to live more sustainably.

Like Carl Maida's work in the previous section, Jennifer Hirsch, Sarah Van Deusen Phillips, Edward Labenski, Christine Dunford, and Troy Peters demonstrate the applicability of and ethnographic vigor involved with the PAR approach in their chapter 'Linking Climate Action to Local Knowledge and Practice: A Case Study of Diverse Chicago Neighborhoods.'

This work was done by The Field Museum in concert with the US Forest Service, social network researchers from Northwestern University, community leaders, and the City of Chicago Department of Environment (DOE) staff. The chapter presents ethnographic research commissioned by the City of Chicago DOE to understand socio-cultural viewpoints on climate change as it works to develop locally relevant programs for engaging the city's diverse communities in its recently released Chicago Climate Action Plan. The overall focus of the chapter is on the importance of taking an anthropological approach to climate change mitigation and adaptation in order to facilitate the development of effective climate action programs, addressing this issue in terms of three specific points: 1) To address climate change, it is important to consider socio-cultural perspectives on climate change and the environment. Hirsch's et al. research illustrates that top-down policy models make cultural assumptions that potentially clash with local cultural models based on communities' understandings of the environment and the impact of individual behaviors on climate. 2) The socio-cultural perspectives that anthropologists uncover in diverse communities can be incorporated into climate action

programs, which the authors illustrate through programs that the City of Chicago has adopted based on their ethnographic findings. 3) Finally, the authors address the role of anthropologists in developing climate action programs and how traditional anthropological methods might be tailored to have the greatest impact on policy implementation. The authors consider questions of how to translate anthropological research into actionable items to help mediate between policy agencies and communities. The focus here is on how their participatory action research methodology allows us to engage both with the diverse communities of Chicago and the DOE as a social entity, and as a cultural broker.

As these brief summaries indicate, the contributors to this volume confront the theoretical, methodological and ethnographic challenges that face environmental anthropologists today. It is our hope that this volume might serve as a resource, reference and perhaps even as an inspiration for students and practicing anthropologists, as well as for people everywhere interested in the environmental and social sciences and concerned with the future of our planet and its population. Enjoy.

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