

# *Locating the Political in Political Ecology: An Introduction*

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Recent debates within political ecology have motivated serious reflection about key concepts and methods in this relatively new field. In the introduction to this special issue, we briefly chart the intellectual genealogy of political ecology, identify vital challenges faced today, and present a new set of studies that respond to these concerns. We conceptualize power as a social relation built on the asymmetrical distribution of resources and risks and locate power in the interactions among, and the processes that constitute, people, places, and resources. Politics, then, are found in the practices and mechanisms through which such power is circulated. The focus here is on politics related to the environment, understood as biophysical phenomena, together with human knowledge and practice. To apply these concepts, we promote multiscale research models that articulate selected ecological phenomena and local social processes, together with regional and global forces and ideas. We also advocate methods for research and practice that are sensitive to relations of difference and power among and within social groups. Rather than dilute ecological dimensions of study, this approach aims to strengthen our ability to account for the dialectical processes through which humans appropriate, contest, and manipulate the world around them.

**Key words:** political ecology, politics, power, methodology, environment, practice

Recent debates within political ecology, as well as critiques of the approach as a whole, have motivated serious reflection about the methods, concepts, and studies that make up this relatively new field. As environmental issues become increasingly prominent in local struggles, national debates, and international policies and programs, scholars are paying more attention to conventional politics, as well as to more broadly defined relations of power and difference in the interactions between human groups and their biophysical environments. This move has generated questions about the role of politics in environmental scholarship, as well as concerns that ardent efforts to illuminate political phenomena may leave ecological detail in the shadows. A new wave of research highly conscious of these debates is

manifest in the studies collected here, at a crossroads in the tradition.

In their foundational text, Blaikie and Brookfield (1987: 17) define the field in the following way: “the phrase ‘political ecology’ combines the concerns of ecology and a broadly defined political economy. Together this encompasses the constantly shifting dialectic between society and land-based resources, and also within classes and groups within society itself.” During the past two decades, a basic notion of political ecology as the coming together of political economy and cultural ecology has been applied and developed through research, analysis, and practice across disciplines including anthropology, biology, geography, and political science. The analytic focus on factors that shape relations of power among human groups, and that influence relations between these and diverse aspects of their environments, has led to results that challenge dominant interpretations of the causes of environmental degradation and contest prevalent prescriptions for solving such problems.

A variety of political ecology approaches has developed around a shared set of concepts. The first is a refined concept of *marginality*, in which political, economic, and ecological expressions may be mutually reinforcing: “land degradation is both a result and a cause of social marginalization” (Blaikie and Brookfield 1987:23). Second is the idea that *pressure of production on resources* is transmitted through social relations that result in the imposition of excessive demands on the environment (Watts 1983b). And third is the recognition of a *plurality* of positions, perceptions, interests, and rationalities

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in relation to the environment (Blaikie 1985:16)—an awareness that one person's profit may be another's toxic dump.

Inquiry and action along these lines have generated debate and dissent over political ecology's research methods, its conceptual apparatuses, its internal logic, and its ability to wrestle with new issues and problems thrown up by history. In this context, such critiques as Vayda and Walter's (1999) bold argument "Against Political Ecology" have motivated political ecologists to rethink and clarify their approaches, specifically in terms of how to integrate and balance political and economic concerns and methods with ecological ones.

This introductory essay effort briefly charts the intellectual genealogy of political ecology, identifies key challenges faced in the current development of the field, and presents a new set of studies that respond to these concerns. Our decisions to highlight certain strands of the field's history and current debates reflect our own trajectories and interests as authors, and necessarily represent only a partial view of the complex heritage, multiplicity of issues, and diversity of positions that energize political ecology. Challenges that we identify as key are: How can we conceptualize politics more specifically in the context of environmental analysis? What kinds of methods help us to fruitfully place both politics and ecology in environmental research and practice? What are the implications of these approaches for practical action?

Political dimensions of the environment are manifest in multiple and changing ways in a world interconnected by increasingly efficient communication and transportation technologies, yet situated within and reliant upon specific geophysical locations. The studies presented in this collection put into practice concepts of environment that include not only biophysical phenomena, but also human knowledge and practice. They suggest that analyzing the politics of environment does not merely add another dimension to an already complicated field, but enables a more vital study and practice. While their topics of study and types of analysis privilege different aspects of political, economic, and ecological processes, the papers in this collection are unified by a common approach to politics as a contested and negotiated domain in continual dialectic relationships with biophysical environments.

## Intellectual Genealogies

The intellectual and political origins of the couplet "political ecology" dates to the 1970s when a variety of rather different commentators—journalist Alexander Cockburn, anthropologist Eric Wolf, and environmental scientist Grahame Beakhurst—coined the term as a way to conceptualize the relations between political economy and Nature<sup>1</sup> in the context of a burgeoning environmental movement (Keil and Faucett 1998; Watts 1983b). Political ecology's originality and ambition lay in its efforts to link social and physical sciences through an explicitly theoretical approach to ecological crises that was capable of accommodating general principles and detailed local studies of problems as diverse as water pollution in Delhi, soil erosion in Nepal, and deforestation in Para-

Questions about the social relations of production and about access and control over resources—the basic toolkit of political economy—were applied in efforts to understand forms of environmental disturbance and degradation and to develop models for environmental rehabilitation, conservation, and environmentally sustainable alternatives. From the beginning, then, political ecology was analytical, normative, and applied, a unity confirmed by the 1989 creation of the policy-oriented journal *Land Degradation and Rehabilitation* by founding figures in political ecology. From early on, theory and practice were shaped by concerns for marginal social groups and issues of social justice, concerns that have taken the forefront in recent publications such as *Liberation Ecologies* (Peet and Watts 1996) and *The Environmentalism of the Poor* (Martinez-Alier 2002).

By highlighting political economic relations and systems, political ecologists opened the possibility of bringing into the analysis social relations that are not necessarily proximal to the ecological symptoms, a move that would distance them from conventions of human and cultural ecology that situated causes of and solutions to environmental crises in local-based problems such as poor land management, inappropriate technology, or overpopulation. In one landmark study, Hecht and Cockburn (1989) anchored the causal dynamics of rapid deforestation in eastern Amazonia in factors that motivated those who cleared tropical rainforests to create pasture for cattle ranching that was, in fact, both economically inefficient and environmentally destructive. The authors found that macrolevel political-economic forces, not the least of which were the rents and subsidies generated by the Brazilian junta and successive democratic governments, created conditions of high profitability that influenced varied social forces acting on the environment, including ranchers, peasants, workers, and transnational companies.

Building on previous efforts to link culture and environment in anthropology and geography, political ecology arose in response to a combination of forces including changing applications of evolutionary thinking, the new sciences of ecosystems and cybernetics, the growing visibility of third world peasantries (notably in China and in Vietnam), and consequences of the cold war and the atomic bomb. We provide here a highly truncated account of postwar confluence among these sets of ideas.

In the mid-20th century, anthropologist Julian Steward opened new possibilities for comparative analysis of the relationships between humans and the environment with an approach he called cultural ecology, whose central objective was to explain cultural similarities in light of similar environments, subsistence patterns, and economic arrangements. In Steward's (1972:36) own words, "The problem is to ascertain whether the adjustments of human societies to their environments require particular modes of behavior or whether they permit latitude for a certain range of possible behavior patterns." Steward (ibid.:42) made culture-environment relations a point of departure for explaining *cultural types*, "constellations of core features which arise

out of environmental adaptations and which represent similar levels of integration.”

In a move that would define cultural ecology for several decades, Andrew Vayda and Roy Rappaport (1967), in what came to be known as the Columbia school of ecological anthropology, argued that human ecology should not make cultures the units of analysis, but instead should follow an ecosystems model that would treat human populations as one of a number of interacting species and physical components. In anthropology and geography, this school of thought provided the most sophisticated body of theory to demonstrate how subsistence people in isolated regions could maintain “adaptive structures” with respect to their environments. In Rappaport’s (1968) terms, “cognized models” of the environment—embodied in various ritual, symbolic, and religion practices—were means for the kind of environmental adaptation that was of interest in Western ecological sciences and evolutionary theory. Thus, the pig killing rituals of the Tsembaga Maring of highland Papua New Guinea functioned as a thermostatic device preventing overpopulation by pigs and maintaining some sort of balance in the fragile tropical ecology.

Research done in the mid-20th century, including that by ethnobotanists (Berlin, Breedlove, and Raven 1974; Conklin 1954)<sup>2</sup> has been criticized for lack of attention to power and inequality and for focusing too narrowly on the local to the exclusion of the dynamics of colonialism and the encroachment of a global capitalist economy (Peet and Watts 1993).<sup>3</sup> In retrospect, however, Dove (1999:290) argues that: “In the context of the then-prevailing deprecation of indigenous societies under the aegis of high-modernist development theory, the detailed descriptions of vernacular technology and knowledge central to early ecological anthropology can now be read as politically empowering counterdiscourses.” Indeed, even the decision to include humans in discussions of ecology challenged dominant paradigms that radically separated human from environmental sciences.

A second genealogical strand, closely linked to the first, stems from important connections between community ecology and new explorations of cybernetics and systems theories, which derived from the theory of machines and from artificial intelligence developed particularly during the Second World War. Central figures here were Gregory Bateson (1972) and Howard Odum (1971) who, while very different in intellectual orientation, provided languages and concepts for thinking about humans in eco- and living systems, as well as the flows of matter, information, and energy that coursed through human practice with respect to the environment. The impact of Bateson’s theories of cybernetics is manifest in Rappaport’s (1984) analysis of the Tsembaga Maring and in his epilogue to *Pigs for the Ancestors*.

A third lineage is rooted in the social science of the nuclear age and the postwar development of human responses to hazards and disasters. In the context of a deepening cold war, the immediate threat was of atomic disaster, which generated a number of government-funded studies on the perception of,

and responses to, environmental threats. Geographers Gilbert White, Ian Burton, and Robert Kates (see Watts 2002 for a review) were very much part of this work in the 1950s and 1960s, focusing on differing sorts of “natural” perturbations in the United States—tornadoes, earthquakes, floods—and on the perceptions and behaviors of threatened communities and households. Centers for disaster studies appeared around the country as sociologists and geographers schooled in survey research, cognitive studies, and behavioralism sought to understand why individuals misperceived, ignored, or responded in diverse ways to environmental threats.

By the 1970s, Clark University, the University of Colorado, and Ohio State University had emerged as centers of hazard or disaster research (often with financial backing from the real estate industry and the federal government). Much of this work drew on organic analogies of adaptation and response, but it was also sensitive to cultural perceptions and to questions of organizational capacity and access and availability of information. Systems thinking and organization theory were again central to the intellectual architecture of this body of scholarship (Watts 1983b), and the research led scholars to realize that disaster prevention, preparations for it, and responses to it were highly political.

These three approaches—ecological anthropology, ecosystems-cybernetics, and natural hazards-disaster research—differed in focus, theory, methodological approach, and geographical sites, but together they defined a terrain from which an interdisciplinary political ecology could emerge.

In geography and anthropology, key impulses for this new approach came from two related sources. First was the proliferation of peasant studies (Shanin 1970; Wolf 1969) and critiques of colonialism (Asad 1973), which brought to the fore questions of social differentiation, exploitation, and the impact of international markets on the rural poor in the third world. Second was the growth of Marxism within social sciences and development studies (Bryant 1998) in a variety of guises (world-systems theory, dependency theory, structural Marxism) that advanced concepts of control and access to resources, marginalization, surplus appropriation, and relations of production and power.

These two tendencies confronted cultural ecology by going beyond the study of isolated or subsistence communities in putative harmony with their physical environment to examine the impact of markets, social inequalities, and political conflicts operating on larger scales and to analyze forms of social and cultural disintegration associated with the incorporation of local communities into a modern world system. In the context of larger shifts of scientific paradigms from an equilibrium to a nonequilibrium stance, attention to maladaptation and disequilibrium took precedence over earlier focus on adaptation, self-regulation, and homeostasis (see also Biersack 1999 and Rappaport 1993, 1994).<sup>4</sup>

The vital resurgence of interest in Marxism motivated numerous scholars to identify points of potential convergence between political economy and cultural ecology (see Bryant and Bailey 1997). In a work that helped launch

political ecology, Eric Wolf (1982) pointed out that Marx's theory of production rests on two axiomatic understandings of the human condition (which are also axioms of modern anthropology and political ecology). The first is that *Homo sapiens* is a part of nature. The second is that it is a social species; that is, members of the human species are linked to other humans, and to other aspects of nature, through social relations. Marx used the term *production* to refer to the mutually dependent relations among nature, human labor, and social organization, and he identified as *modes of production* the historically specific sets of social relations through which labor is deployed to wrest energy from nature by means of tools, skills, organization, and knowledge (Wolf 1982:73).

The dialectic mutuality of the material and the social, so vital in the mode of production concept, had given way in mid-20th century anthropology to polarized antagonism between those who privileged material explanations and those who privileged symbolic meaning and social explanations (Ortner 1984:134).<sup>5</sup> In the following decades, structuralism, practice theory, structural Marxism, and feminist anthropology sought to transcend this paralyzing dichotomy, while debates among materialists on whether to locate key determinative forces in the harnessing of energy (White 1949), in the mode of production and reproduction (Harris 1979), in technology (Sahlins and Service 1960), or in specific structures of social relations (Friedman 1974) led to a renewed interest in dialectic approaches to understanding biological dynamics in the context of social-political organization of production and cultural-ideological systems.<sup>6</sup>

During the 1990s, diverse scholars continued to draw on and reinterpret concepts from cultural ecology and political economy, bringing them together with methods, concepts, and analytic turns from a wide range of theoretical fields. A key result of this cross-fertilization has been the development of more nuanced characterizations of the social and cultural identities that influence humans' roles in environment dynamics. Early studies in political ecology focused on the "land manager," considering his relationship to nature in a "historical, political and economic context" (Blaikie and Brookfield 1987:239). Yet the land managers who were taken as objects of scrutiny were overwhelmingly male, rural, third world subjects and, rather curiously, apolitical. In Blaikie's (1985) study of soil erosion, for example, and Watt's (1983b) discussion of pastoralism in West Africa, there is almost no discussion of peasant resistance or of gender and household dynamics in association with soil problems.

So political ecology of the 1990s and beyond opened up the category by giving greater salience to the ethnic identities, gender roles and relations, institutions, governance apparatuses, political involvements, and other social factors that condition the knowledge, decisions, and actions of diverse land managers. Notable here are feminist insights into the gendered character of environmental knowledge and practice (Braidotti et al. 1994; Carney 1996; Gezon 2002; Mackenzie 1995; Schroeder 1993; Shiva 1988; Rocheleau, Thomas-Slayter, and Wangari 1996), concern with indigenous rights and

territorial autonomy (Bassett 1988; Jones 1995), and critical analyses of institutional and development processes informed by movements for social and environmental justice (Bryant 2002; Guha 1994; Peet and Watts 1996; Zimmerer 2000).

Another important development at the end of the 20th century was the articulation of diverse critiques of the knowledge and power that underlie environmental sciences, discourses, and practices (Braun and Castree 1998; Brosius 1999; Escobar 1996; Watts 1998; Zimmerer 1996). In addition to self-identified political ecologists, scholars operating under other rubrics, including ecological anthropology, science studies, and environmental history, have contributed significantly to these epistemological debates (Cronon 1995; Harding 1991; Harding and Figueroa 2003; Merchant 1992, 1994; Worster 1993).

## Current Challenges of Political Ecology

New findings from these innovative studies, internal debates among their authors, and methodological and theoretical arguments leveled by outside critics are all contributing to the evolution of methods and models in current political ecology. Three basic challenges confront political ecology today: the first is to define politics and the environment in ways that facilitate a more thorough examination of the relationships between them; the second is to identify methods for carrying out and analyzing research that encompasses relations between politics and environment; and the third is to develop ways to apply the methods and findings in addressing social-environmental concerns. A brief articulation of these challenges will be followed by a presentation of the articles collected in this volume, which respond to these challenges in diverse ways.

### 1. How Can We Conceptualize Politics More Specifically in Environmental Analyses?

During the 1990s, significant debate and contention arose around methods and concepts used to address the political in political ecology (Bryant and Bailey 1997; Escobar 1999; Peet and Watts 1996; Watts 2002). While the first generation of political ecology work had been criticized for its lack of a serious and consistent treatment of politics and for its abstract or vague conceptualization of political economy, later scholars have been accused of assigning too much importance to political controls over natural resources, being driven by populist political agendas, or prioritizing politics to the point of abandoning ecology altogether. At the heart of this issue are questions about what constitutes politics and how it is related to ecology.

Early political ecology made the key theoretical move of replacing the "human" in human ecology with a Marxian inflected "political economy." This move meant shifting emphasis from biophysical characteristics of human life, analyzed through theories of evolution and adaptation, toward the study

of social and cultural dimensions of human life embedded in political economic contexts. Yet Marxist concepts of political economy have been stretched to encompass a wide range of phenomena, and applications that followed from Blaikie and Brookfield's (1987) "broadly defined political economy" were certainly not of a theoretical piece. For Watts (1983a), political economy drew upon a Marxian vision of social relations of production as an arena of possibility and constraint; for Blaikie and Brookfield (1987:21) it meant a concern with effects "on people, as well as on their productive activities, of on-going changes within society at local and global levels"; while for Martinez-Alier, political economy became synonymous with economic and ecological distributional conflicts (Guha and Martinez-Alier 1997:31).

Other takes on the political have included analyses of conventional geopolitics (Sachs 1993), grassroots and academic engagement with environmental issues (Brosius 1999), and red-green political activism (Atkinson 1991), so named for the links it forged between movements for social and environmental justice. Political ecologists have also drawn from poststructural and practice theories, developed by scholars including Bourdieu (1977), Giddens (1984), and Ortner (1989), which approach politics more broadly as power relations that pervade all human interactions, characterized by challenge and negotiation, and infused with symbolic and discursive meaning.

Donald Moore's (1998a, 1998b, 1999) work illustrates this latter approach by situating studies of micropolitics within historicized state and colonial contexts. His analysis of tensions between rural actors and representatives of the state in a protected area along a river in Zimbabwe demonstrates how competing understandings of the landscape (related to gender, education, generation, and the nature of one's authority) play a formative part in struggles that are simultaneously material and symbolic and that shape the distribution of resource rights (Moore 1998a). Gezon (1995, 1997) similarly examines ecological politics in conflicts that emerged between villagers on the periphery of a protected area in Madagascar. Her analysis of transcripts of local trials administered by village elders reveals the complex ways people establish as well as challenge rights to land access, basing their claims on a variety of sources of authority—from norms of extended family rights to indigenous ethnic politics to state regulations and the moral and financial authority of international conservation organizations.

In sum, political ecology's weak specification of political economy and the political, its sometimes vague use of these terms to refer to exogenous forces and systems, together with creative applications that locate politics in unsuspected places, have led to uncertainty and debate about the nature and place of politics in environmental analysis. At this point, a more explicit conceptualization of power and politics is needed to better operationalize research on environmental changes and conflicts and to develop better ways of addressing practical problems of resource degradation and social marginalization.

This collection approaches power in two important ways. In line with Alf Hornborg's (2001:1) definition of power as "a social relation built on an asymmetrical distribution of resources and risks," all authors explore how power circulates among and between different social groups, resources, and spaces. Some also look for power in the ways people, resources, and places are constituted. As Judith Butler (1997: 2, emphasis in original) argues:

We are used to thinking about power as what presses on the subject from the outside, as what subordinates.... This is surely a fair description of what power does. But if, following Foucault, we understand power as *forming* the subject as well, as providing the very condition of its existence and the trajectory of its desire, then power is not simply what we oppose but also, in a strong sense, what we depend on for our existence.

Politics, in turn, is understood as the practices and processes through which power, in its multiple forms, is wielded and negotiated. This collection focuses on politics that are related in various ways to social relations of production and decision making about resource use, and it finds that these are exercised in diverse arenas, on multiple scales, and infused with cultural knowledge and value. Following political economists (cf. Roseberry 1988), we do not place these political processes outside of, or even adjacent to, the domain of the material, but rather we see them as inextricable dimensions of it. Each study in this collection identifies specific contexts in which power and politics operate, together with related discourses and representations of the environment through which people communicate. While strands of ecological anthropology have long raised questions of perception and cognition, these papers pay more attention to how environments and environmental knowledges are constructed by a panoply of actors, including local men and women, scientists, regulators, and politicians. They ask how and why particular forms of knowledge predominate and circulate in ways that affect biophysical and social outcomes and analyze relationships between regimes of knowledge in a world where "the resources for inventing natures and cultures are unevenly distributed" (Escobar 1998:1).

When culturally situated knowledges and discourses are excluded from research models, the environment is sometimes treated as an unproblematic category, an arena of "natural laws." Stott and Sullivan (2000) explore the implications of this convention through case studies that demonstrate how scientific research designs and data presentations are guided by assumptions about how to ask questions and which methods to apply in investigating them. They argue that the results of such studies may (consciously or not) legitimize the interests of certain interest groups over others, thereby entering the political arena. In exploring "antiessentialist" conceptualizations of Nature, political ecologists are seeking to better understand how the idea and experience of nature is "always constructed by our meaning-giving and discursive processes, so that what we perceived as natural is also cultural

and social” (Escobar 1999:2). Raffles’ (2002) recent work on Amazonia provides an excellent extended case study of how humans shape what appear to be “pristine” natural environments, recalling Posey’s (1983) earlier work on Kayapó forest builders.

Increasing attention paid by political ecologists to the discursive and interactive aspects of human knowledge and action has given rise to concerns that “the environment” is disappearing from political ecology research. Vayda and Walters (1999:168) have suggested that much political ecology scholarship is in fact “politics without ecology” that should be labeled “political anthropology” or “political science.” They argue that “some political ecologists do not even deal with literally the influence of politics in effecting environmental change but rather deal only with politics, albeit politics somehow related to the environment” (ibid.). These concerns fuel vital debates about what we understand by “environment,” and what form “Nature” should take as an object of scrutiny.

Political ecologists are seriously concerned with biophysical entities and events, yet they have consistently pointed to limitations of assuming that these are the only expressions of environment. Political ecologists such as Karl Zimmerer (1996) and Matt Turner (1999) use ecological methods and concepts to research biophysical events and complement these with social, political, and economic analyses. Other political ecology research focuses on legislative, financial, or cultural phenomena hypothesized as vital to ecological processes. We argue that studies that document erosion and those that analyze tenure policies are both political in nature, insofar as they use categories and questions grounded in certain visions and interests, and that they are both ecological, insofar as they seek to understand the interrelationships between organisms and their environments. The papers in this issue work to incorporate political dynamics into environmental analyses in ways that do not dilute the study of the ecological, but rather strengthen our ability to account for the dialectical processes through which humans appropriate, contest, and manipulate the world around them, and to understand and act on the ecological and social impacts of those processes.

## **2. What Kind of Research Methods and Models Help Us Place both Politics and Ecology in Environmental Research and Practice?**

Efforts to operationalize political ecology theory in field research and analytical methods are raising challenging questions. How can we explore the circulation of power in different contexts? How do we study phenomena across diverse scales? How can we identify and study differences and relations among actors? How do our goals for social and environmental justice and liberation influence our research designs and questions?

While early political ecologists sought to demonstrate impacts of marginalization, land tenure, or production pressure

on environmental changes such as soil erosion and deforestation, they often failed to explore how the environment is negotiated and affected through actions in arenas such as the household, the workplace, the community, and the state. Current research continues to seek better methods to learn about and from participants in these arenas and also to investigate the workings of knowledge, discourse, and practice in social movements, urban landscapes, institutions like the World Bank, national and global governance, and other spaces. To this end, the case studies in this issue combine methods such as participative observation in farming practices, discourse analysis of texts and legislation, examination of archival records, and sociological analysis of complex institutions.

A second significant challenge is to design studies that allow us to see—and analyze—relations of difference and power within and among these myriad locales. Earlier studies often lacked attention to how diverse social actors negotiated and fought over access and control of resources, and how such struggles shaped environmental outcomes and attitudes. That changed in the late 1990s when a burst of research was published on the roles and relations of differentiated actors in multiple sites and spaces of environmental negotiation (Gezon 1997, 1999; Harvey 1996; Li 1999; Guha and Martinez-Alier 1997; Paulson 2001; Rangan 2001). These scholars, who emphasized not only class, but also ethnic, gender, and religious dynamics and movements, have developed research questions and tools that help to open up and disaggregate formerly opaque categories of resource users (or land managers) labeled as “farmers,” “tribesmen,” “business,” or “authorities.” They start by identifying social differences and self-identifications that may be pertinent to environmental issues, then implement surveys, focus groups, participative research activities, or interviews in ways that allow the findings to be disaggregated.

These attempts to identify and study multiple spheres and social axes of power and difference correspond with a broader methodological challenge to develop multiscale research designs and methods. This collection brings together extended case studies that encompass phenomena manifest in one or more specific geographic locales, together with that of nonlocal arenas of power and decision making, to identify relations and influences between these spaces.

Political ecologists have long shared an interest in exploring multiple scales and have engaged in broad experimentation and ardent debate around questions of how to prioritize and link together sites of study ranging from the household garden to the whole earth. They have also realized that scale as an analytical category is no more self-evident than nature and have recently brought critical attention to our uses of scale as an analytic construction and cognitive model, selected from among countless possibilities, each of which has theoretical, practical, and perhaps even political implications (Brown 2002; Levin 1992; Tsing 2001). In recent years, for example, attention to the “global” has often meant attention to causes and consequences of aggregated environmental

phenomena such as global warming or deforestation at scales so large they eclipse local level events and experiences. The field of biodiversity conservation is currently rent by a heated debate between theorists and decision makers who privilege the global and those who prioritize the understanding of local biophysical processes together with the sociopolitical practices and knowledges involved therein (see Turton 2000 and Horta 2000).

While localities are affected by global decision making, political ecologists such as Guha and Martinez-Alier (1997) point out that they are not passive recipients; rather, global environment and development ideas become enmeshed in local struggles in ways that sometimes have larger impacts. This collection demonstrates the application of multiscale research models that bring together selected ecological phenomena, local processes through which actors develop and negotiate environmental management strategies, and global forces and ideas that influence ecological conditions and sociopolitical dynamics. Strategies used link in-depth ethnographic research within particular locales with “studying up” through interviews with authorities and corporate leaders, analysis of legislative and political material, and research into the relevant “gray literature.”

The question of where to start and how to move between scales—in research and in analysis—is particularly tricky because it involves deeply embedded assumptions about causality, history, space, and time. Many contributors to this collection heed Vayda and Walters’ (1999:169) call “to begin research with a focus on the environmental events or changes that we want to explain.” But in contrast to Vayda and Walters, they define environmental events as biophysical *and* social. This model corresponds with the call to study real people and places made by James Greenberg and Thomas Park in the inaugural issue of the *Journal of Political Ecology*. Greenberg and Park (1994:1) credit Marx for foregrounding “the dialectic between individuals, their productive activity in human society, and nature that political ecology seeks to address by his insistence that one must begin not with abstract premises or dogmas (Marx and Engels 1970 [1846]:42) but with the productive activities of real individuals.”

Differences arise in the strategies scholars develop to draw relationships among people, practices, and biophysical phenomena, and to contextualize them in larger historical and ecological processes. Vayda and Walters (1999:169) propose an approach called “event ecology” in which studies begin by examining specific environmental events and “work backward in time and outward in space so as to enable us to construct chains of causes and effects leading to those events or changes.” In this collection, Gardner builds a web of multidirectional causality rather than a chain of causes and effects, while Brogden and Greenberg, and Derman and Ferguson argue that in some cases research should be initiated not with ecological phenomena, but with political battles or legislative changes that may be spatially distant from, or temporally prior to, the ecological changes of concern.

In sum, the investigation of environmental issues in diverse contexts and on different scales, together with methodological attention to relations of difference and power within and among spheres, present possibilities for more complex understandings of the causal connections among diverse factors at play. Each of the authors in this collection establishes links between multiple sites and forces, links that may be multidirectional and dialectical, not simply linear. With these models, they contribute to the vital questions: Where and how do we look for causes? and, Where should we work on solutions?

### 3. Implications of the Political for Practical Action

The studies of environmental degradation and conflict brought together in this issue lead to implicit, if not explicit, recommendations for action, and many political ecologists are purposefully engaged in such action. Barbara Rose Johnston (1994) has promoted stronger relationships between research and practice through refinement of analytical models for understanding the social context of environmental decision making in the edited volume *Who Pays the Price?* She has elaborated on concepts of environmental justice within a human rights framework (1997), and encouraged anthropologists to become involved in policy settings. Awareness of the deep and complex ways dynamics of social and political power affect ecological systems informs the dual commitment expressed by Karl Zimmerer (2000:357, emphasis in original): “Political ecology seeks to contribute *both* to sound environmental management (including nature conservation) and to the empowerment of disadvantaged social groups.” Growing attention to struggles and strategies of poor people, people of color, and women engaged in conflicts over ecological resources and risks has thrown new light on studies of the environmental and environmentalism. Peet and Watts’ (1996:2) edited volume, *Liberation Ecologies*, highlights the “liberatory or emancipatory potential of current political activity around environment and resources.” Rocheleau, Thomas-Slayer, and Wangari (1996:18) note the heightened sense of agency and empowerment that results from women’s increased involvement worldwide in development and grassroots organizing around environmental issues, management, and conflicts.

A vital international movement has promoted political action toward more equitable distribution of economical *and* ecological resources and risks. The journal *Capitalism, Nature, Socialism* was established in 1988 out of the Center for Political Ecology in Santa Cruz, California, and continues to embrace a red-green scholarly and activist stance. In 1990, the companion journal *Ecología Política* was founded in Barcelona under the direction of Joan Martínez-Alier, expressly to bring together scholarship on social conflict in resource management with analysis of green political actions and visions.

Enrique Leff (1999:15) argues that this intimate tie among politics, practice, and theory pushes all of us—even

privileged scholars—to include our own positions and actions in the frame of analysis.

An important goal of political ecology is to understand and participate in the ensemble of forces linking social change, environment and development. This goal suggests new questions for political ecologists. How do we situate ourselves in the circuits of power-knowledge (say, the apparatus of biodiversity production) that we seek to understand?

Vital questions about our roles as environmental scholars and practitioners—questions that are deeply political—resonate through the preceding discussions of concepts and methods. These discussions are part of a quest to find ways of asking questions and gathering information that facilitate struggles for greater social and environmental justice, and they lead to the related challenge of developing practical applications for the new information and visions obtained through this scholarship.

Political ecology, together with the “new ecological anthropology” in general (Kottak 1999:23), has been as much about finding practical solutions to environmental problems as it has been about building new methodological and theoretical approaches to study those phenomena. Concerning the founding of the Anthropology and Environment Section of the American Anthropological Association in 1996, Carole Crumley (2001:ix) wrote that anthropologists “must enter current debates over environmental issues by as many avenues as possible, on our own behalf as well as that of those whose lives and circumstances we study.” And in Peluso and Watts’ (2001) *Violent Environments*, scholars from numerous disciplines analyze and explore practical solutions to ominous environmental problems.

The means political ecologists have employed to collect, analyze, and apply data overlap in vital ways with those of applied anthropology in general. Some of the shared elements include: concern with environmental decision making and conflict resolution; attention to and mutual collaboration with various kinds of social groups and social movements; interest in the distribution of benefits, costs, and risks on various scales; and concern with development models and discourses, together with their environmental and social consequences. Political ecologists have insisted, however, that practical engagement with different stakeholders be part of a methodological commitment to understanding how environmental uses and conditions are affected by economic and political systems, as well as by discursive and cultural constructions of the environment. Tsing (2001:4) argues that analysis or involvement in projects must begin with questions of “what counts as ‘the environment’ in any given political negotiation, corporate strategy, research initiative, livelihood trajectory, or policy program? How are new ‘environments’ created within these projects?” To understand the circulation of power within and among stakeholder groups, researchers and practitioners examine how people engage in power relations with others, be it through face-to-face interactions, media communications,

institutional decision-making processes, or transnational negotiations and cybernetworking.

## Political Ecology in Practice: Case Studies

The papers collected here respond to the challenges discussed above by applying concepts and methods that encompass and interrelate political and ecological dimensions of specific cases studied. Each study identifies politics of difference and power within specific sites and pursues links with political and economic relationships and systems that extend beyond those sites. They also consider discourse and representation in analyzing environmental outcomes and offer new possibilities for engaging with power and political processes.

The collection opens with a study of events surrounding a sharp reduction in oil exploration in the Gulf of Mexico by Thomas McGuire and Andrew Gardner. They make a compelling case that even environmental changes happening in the United States need to be situated within broader political economic contexts, including global flows of capital. The analysis begins with an anomaly in which high oil prices in the late 1990s did not result in anticipated increases in investment for exploratory drilling and expanded production. While some of their findings come from interviews with people in local communities, McGuire and Gardner also analyzed responses, decisions, and published statements from the oil industry. They found that in the context of a particular defining event—the merger of two of the world’s largest oil companies—most major oil companies were expending their energies on corporate reorganization, mergers, and downsizing, not in exploration. This decision cascaded through the industry, and shifting corporate environments strongly influenced employment and resource use decisions in Louisiana, disrupting historic ties of loyalty between workers and companies. One unintended consequence is that companies, now better positioned with their stockholders, are not finding an adequate workforce to carry out the job of finding and producing oil and gas.

Michael Dove analyzes relationships between Pakistani farmers and the National Forest Department by focusing on contested conceptions of tree shade, a topic that does not initially appear to have much to do with politics. In this setting, power circulates within the Forest Department and its relations with U.S. agencies, through face-to-face interactions between government foresters and local farmers, and in how farmers interpret and respond to institutional decisions and programs. In studying both from below and from above, Dove shows how the conceptual and epistemological foundations of resource practices, such as the categorization of shade types, may have profound political implications and occupy a pivotal place within complex political negotiations. He underscores the importance of approaching environmental issues not only as struggles over material resources, but also as struggles over the social construction of environmental knowledge and representations.



Susan Paulson's work in the Bolivian Andes also explores dynamics of power and value on multiple scales, ranging from local farming practices to national legislation and international aid policies. Her study uses a series of participative methods to illuminate temporal and spatial dimensions of resource use to examine changing relationships between the gendered organization of labor and the social construction of landscapes during a sustained political push toward agricultural modernization. Starting with documentation of the degradation and erosion of slopes, together with the reduced productivity and social value of women farmers, Paulson resists categorizing these as local problems with technical solutions. Instead, she scales up to wider relations of power and difference that show how produce and labor markets are orchestrated to facilitate the flow of energy and benefits away from the mountain community, and specifically away from slopes and other spaces and resources used mainly by women.

Through a case study in Murang'a District, Kenya, Fiona Mackenzie analyzes the exercise of power in gendered struggles to control and access land in highly complex situations of legal plurality, and considers how these struggles interrelate with land management practices to affect conditions of biodiversity. Like Paulson, MacKenzie pays attention to gendered patterns of labor and migration, and to gender inequities in institutions (including coffee growers' associations and savings and loans) that reveal important mechanisms influencing environmental use patterns. Methodologically, Mackenzie demonstrates a model for connecting ethnographic interviews and observations with analysis of historical and institutional archives to establish an image of local dynamics that is not simply set against a backdrop of "the global," but rather interacts iteratively with it. Her results draw attention to the need to design conservation measures, as well as productive policies and strategies, that are responsive to differences within specific power-resistance and power-knowledge contexts.

Like Mackenzie, Andrew Gardner rejects research models that circumscribe inquiry to the local "community" level and seek proximal causal relations and instead argues for rich, holistic, and open-ended ethnographic practices. He combines rapid appraisal among Bedouin herders in Saudi Arabia with the examination of extralocal institutions and government policies and the analysis of regional climate and other environmental trends. Gardner's investigation of increasing disease and mortality among Bedouin herds in the wake of the 1991 Gulf War starts from the popular hypothesis that smoke from oil fires caused the declines. Yet, his study identifies additional contributing factors, including a decade-long drought, changes in border policies, the expanded use of pickups and water trucks, governmental price supports for barley, and the growth of a cheap expatriate labor force. With this study, Gardner makes the case that forces driving environmental change function at multiple levels and that they interact in webs of multidirectional causality.

Bill Derman and Anne Ferguson examine how dynamics between policy-related rhetoric about water as a free public good and legislation of water as a private commodity shape water management decisions and influence patterns of water use in Zimbabwe. Their paper argues that research on environment issues should sometimes focus on ecological events and sometimes begin with analysis of environment-related policy and planning, which can be relevant long before material environmental consequences may be observed or documented. Their methods and analysis challenge concepts of ecology that isolate Nature (as environment minus humans) from the power-knowledge dynamics that shape human manipulations of the material world. This study underscores the need for environmental scholars and practitioners to engage with environmental phenomena from multiple points of entry, including those that illuminate relations of power, knowledge, and resistance, and those that reveal social differentiation of access and control over the material domain.

Mette Brogden and James Greenberg close the collection with an analysis of land-use trends in Arizona and growing conflicts over ranching and real estate development. By applying concepts of territorialization and commodification, the authors highlight political dimensions of the processes through which physical landscapes are carved up and allocated to different uses, as well as the legal and financial structures that support these processes. They examine these phenomena in historical and current contexts of ecological systems, land markets, individual motivations, and local government and party politics. Urban sprawl is approached as an emergent systemic outcome of happenings in all these spheres, an outcome that takes the form of changes in land use as well as changes in the juridical and bureaucratic environment for land management. In this changing environment, urban environmentalists and ranchers find themselves pitted against each other, even though neither group finds the urban sprawl desirable. This study demonstrates the need to reexamine prevalent rules, norms, and institutions for environmental conflict resolution and points the way toward new political approaches that foster knowledge-sharing and collaboration between disputing stakeholders.

Together, these studies provide relevant examples of the workings of power on multiple scales and in multiple contexts, developing an understanding of politics that goes beyond institutions of governance to encompass struggles over human practice, meaning, and representation in relation to the environment.

## Notes

<sup>1</sup>We use capitalized form of "Nature" here, and avoid using nature as a common noun, to underscore the difficulty of identifying any aspect of the environment as an objective entity that can be understood and referenced in a way that is free from culturally shaped human cognition. In a similar manner, we have also avoided making reference to "human-environment" relations, attempting to reject the dichotomy between humans and the biophysical environment in which they live. As Ingold has noted (1987:2), "It may seem obvious, but is often

forgotten, that an environment can only be defined relative to a being or beings whose environment it is, whether a single individual, a local or regional population, or an entire species.” David Harvey (1998:332) proposed examining the environment not as pristine nature, but as a set of “radically different environments that have been created under several centuries of capitalism,” and in which “the circulation of money is a prime ecological variable.” See also Haraway (1989), Descola and Pálsson (1996), and Escobar (1999).

<sup>2</sup>Later work in ethnobotany and symbolic ecology has taken greater care to note the political and economic context of local understandings of the biophysical environment. See, for example, Descola and Pálsson (1996), Nazarea (1999), Kempton (2001), and Balée (1998), where scholars consider situated knowledge in the context of such dynamics as sustainable resource use, conservation, globalization, and mode of production.

<sup>3</sup>Within ecological anthropology there were also critiques of an overemphasis on bounded local analyses. Kottak (1999:24) noted with regard to his study of the Betsileo of Madagascar in the 1970s that Rappaport’s model did not allow for an understanding of “the role of stratification and the state in determining differential access to strategic and socially valued resources.”

<sup>4</sup>Some scholars who continued to embrace the language of ecology would turn to analyses like those of Botkin (1990), who rejected homeostasis in favor of dynamic and “discordant harmonies,” focusing on patterns that were recognizable yet continuously and unpredictably changing.

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