

Urban Political Ecology*

Anne Rademacher

Department of Anthropology and Department of Environmental Studies,
New York University, New York, NY 10003; email: ar131@nyu.edu

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Abstract

As urban environments transform across the globe, debates over urban nature and its future forms have introduced important critical questions. How, for instance, do we study emergent, dynamic configurations of nature and culture in cities? How do we conceptualize the city as a field site when urbanization encompasses the full spatial continuum from city to countryside? How do we understand the place of history in an environmental era often categorized as unprecedented? This article traces political ecology from its noncity origins to its present engagements with urban life and forms. It argues that ethnographic work both enriches and complicates recent debates about the urban past, present, and future, and it calls for more vigorous and refined anthropological engagement with the biophysical sciences, the theoretical and methodological challenges of scale, and the work of historical contextualization in the history-evasive era now widely known as the Anthropocene.

INTRODUCTION: ENCOUNTERING THE URBAN ANTHROPOCENE

It is an oft-repeated narrative that nevertheless bears repeating: At some point in the past several years, human society became primarily urban. Demographic projections sketch a future in which well over half of the world's population will live in cities within a few decades. This urban turn, most recently marked by the overwhelming popularity of a new epochal term—the Anthropocene—punctuates overall population growth projections that expect a planet of 10 billion people by 2050.¹ From policy to government to academic arenas, anxiety and urgency frame anticipation of a world of cities—either larger versions of those we know today or entirely new ones nervously imagined. Regardless of the disciplinary optic, humans must confront the material and social experience of living on a planet dominated by concentrated human settlements and their associated processes as never before. Likewise, the idea and assumed consequences of inhabiting this urban planet compel specific anxieties; animate political action; and organize new affinity groups, identities, and ideologies. In a wide array of disciplines, dramatic reworkings of core concepts such as nature and the urban, and the politics that attend them, have emerged in the Anthropocene's wake. In large part, concern for human beings and their own future compels such projects; in this sense, the Anthropocene is profoundly anthropocentric.

On an ever-more-urban planet, scientific conventions for understanding ecology through biophysical systems, energy, and nutrient flows have undergone profound transformation. With the rise of the field of urban ecosystem ecology,² the location, contours, and attributes of nature as it has been historically conceptualized in the physical sciences have shifted to recognize ecology in cities. New urban ecosystem models incorporate human beings and social processes rather than labeling them as disturbances (e.g., Pickett & Cadenasso 2002, 2006, 2008; Pickett et al. 2004), and most new models combine human social conditions and dynamics with models of biophysical change (Pickett & Cadenasso 2002).

Likewise, the social sciences have embraced new conceptualizations of nature, and urban nature, as never before. Yet here, the long history of social analyses of science reminds us that the biophysical sciences offer only one in a constellation of competing and meaningful understandings of urban nature, each potentially located in a privileged or empowered social position at different moments. Social scientists have long noted that regardless of whether they are located in the city or countryside, biophysical scientific accounts of nature tend to enjoy an authoritative position relative to cultural logics or other competing accounts of environmental problems. It is usually natural scientists, engineers, and planners who assume the authoritative voice that scientific knowledge enables; therefore, the work of these actors most directly translates to the powerful position of creating strategies for environmental management and intervention (Mitchell 2002a,b). Scientific forms of inquiry, and their subsequent diagnostics, usually assume a privileged place among multiple and complex ways of knowing and experiencing socionatural change (for useful elaborations highlighting that knowledge is not simply the discovery and reportage of facts, see Bryant 1998; Blaikie 1985; Brookfield 1999; Bocking 2004; Jasanoff & Martello 2004; Mitchell 2002a,b). Work

¹Many scientists now use the term Anthropocene as a label for our current geologic era. The term is meant to signal an era that replaces the previous Holocene, one that is characterized by an anthropocentric, human-dominated planet. There is no precise start date for the Anthropocene, but its advent is generally located at or near the Industrial Revolution.

²Notable in the biophysical sciences is the generative work of researchers associated with the two urban sites among the US National Science Foundation's Long-Term Ecosystem Research initiatives. Since 1980, the United States National Science Foundation has supported long-term ecosystem research at several sites in North America (<http://www.lternet.edu/>). Two of these are expressly urban sites: the Baltimore Ecosystem Study (<http://www.lternet.edu/sites/bes>) and Central Arizona-Phoenix Long-Term Ecosystem Study (<http://caplter.asu.edu/>). Both sites maintain extensive online libraries of data and analyses.

in political ecology has repeatedly shown that exclusively scientific approaches may generate critically incomplete understandings of why people undertake specific forms of action in relation to the nonhuman environment.

Social scientists also recognize that, although aggregated figures and future models can convey the magnitude and rapidity of urban environmental transformation, they are ill equipped to capture the spatial configurations, social experiences, and claims to power embedded in the socio-natural processes that characterize increasingly numerous and dense human settlements. They cannot convey how social agents actively refashion these conditions or struggle over the present and future qualities of the urban experience. Historical spatial and social legacies, past and present economic trajectories, and culturally embedded ideas of nature and culture are just a few key dynamics inevitably flattened in most conventional discourses of the twenty-first-century urban environment.

Debates about the material and political stakes of an increasingly urban planet have brought renewed anthropological attention to cities and their ecologies, thereby opening important critical questions. How, for instance, do we study emergent, dynamic configurations of nature and culture in cities? How do we conceptualize the city in a world that many Lefebvrian scholars profess to be “completely” urban? How do we understand the making of history in an era often categorized as unprecedented and therefore somewhat evasive of historicization? How do we know, as Taylor & Buttel (1992) once famously asked, that we have environmental problems?

In this article, I identify a set of convergence points between urban anthropology and political ecology that promise to assist us in understanding how ethnographic work and anthropological analysis may enrich and complicate contemporary debates about the urban ecological past, present, and future. In my review, I draw from ongoing collaborative work with colleagues in anthropology, geography, history, and sociology, specifically from a productive partnership with K. Sivaramakrishnan. Together with a network of urban anthropologists, we seek to actively engage the theoretical and methodological challenges presented by the complex ecologies of urbanism in South Asia and across the globe (Rademacher & Sivaramakrishnan 2013).

POLITICAL ECOLOGY OUTSIDE THE CITY

Although theoretical discussions of “nature-cultures” (Demeritt 1994; Haraway 1989, 1991, 1997; Latour 1993a,b, 1999; Swyngedouw 1996; Zimmerer 2000) have long framed social thinking about the environment, anthropologists have only recently employed ethnography to explore the social life of environmental knowledge, perception, and problem definition in cities. This is not to say that anthropology has ignored urban contexts, but only in the past decade have questions framed in environmental terms joined more established bodies of work on issues such as the politics of place (Baviskar 2003a, Gregory 1998, Hansen 2001), segregation and citizenship (Caldeira 2001, Holston & Appadurai 1999, Low 2003), urban governmentality (Chakrabarty 2002, Chatterjee 2004, Joyce 2003, Scott 1998), and cultures of consumption and class formation (Davilla 2004, Davis 2000, Liechty 2003, Mankekar 1999, Mazarrella 2003, O’Dougherty 2002).

In fact, it was outside of city contexts that inquiries into the social dynamics of environmental problems gained particular momentum late in the last decades of the twentieth century. Depending on their primary disciplinary location, genealogies of political ecology often begin with the groundbreaking work of Wolf (1982), whose critique of cultural ecology as an explanatory frame for environmental change formed the foundation for an analytical agenda that would come to be known as political ecology (for useful accounts of political ecology, see Angelo & Wachsmuth 2014, Heynen 2013, Robbins 2004). Blaikie’s (1985) investigation of the ideological, social, and political dimensions of soil erosion in the Himalayas followed soon afterward. This body of work

eventually traced associations between capitalism and socionatural connections and disconnections (Forsyth 2003, Zimmerer & Bassett 2003). Drawing theoretical links to Gunder Frank and Wallerstein, it problematized then-conventional diagnoses of environmental degradation and exposed connections between proximate causes of environmental change and the more distant, but nevertheless powerful, processes that reproduce them. Work in the field soon addressed how discourses of environmental change established and reinforced specific power relations and their associated institutionalized forms (Peet & Watts 1996, Peluso & Watts 2001), bringing political ecology into direct dialogue with poststructural studies of development and its international institutions (Escobar 1996, Ferguson 1994).

Because natural resource stocks are often found at the margins of dense human settlements, early ethnographic work associated with political ecology was largely located in rural or agrarian settings (e.g., Brosius 1999a,b; Tsing 1993). From this vantage point, scholars outlined the complex cultural politics of conservation, development, and state making (Baviskar 1995, Fairhead & Leach 1996, Ferguson 1994, Mosse 2003, Sivaramakrishnan 1999); identified key linkages between modern ecology and territoriality (Brosius & Russell 2003, Saberwal 1999, Vandergeest & Peluso 1995); and used the resulting insights as the basis for new thinking on the political formation of environmental subjects (Agrawal 2005). Work at the intersection of political economy and the nonhuman (but largely nonurban) world also sparked new thinking on the historical production of ideas and imaginaries of nature (Grove 1989, Peet & Watts 1996, Raffles 2002, Williams 1980) as well as questions of environmental knowledge and practice (e.g., Blaikie & Brookfield 1987; Brosius 1999a,b; Bryant 1992; Bryant & Bailey 1997; Escobar 1996, 1998, 1999; Peet & Watts 1996). Through careful ethnographies and histories newly attuned to political ecology, research has also gleaned detailed ethnographic insight into the ways that people who occupy marginalized spaces, socialities, and categories—such as the category of indigeneity—may simultaneously contest, and be complicit in, specific forms of natural resource extraction and use (Brosius 1999a, Li 1999).

Yet, even as most political ecology studies focused on rural or otherwise marginal geographies and social worlds, they also called for more careful attention to the ways that centers of institutional and state power affected rural power relations (Dove 1991). Work in this vein gave us deeper ethnographic grounding in the bureaucratic mechanisms that compel and organize discourses of environmental change (Saberwal 1999, West 2006). From here, the political ecological dimensions of the development encounter have been discerned; ethnographic studies of local forest employees, conservation officers, and development professionals have shown how structures of organizational and bureaucratic authority intertwine with establishing and maintaining environmental order (e.g., Brosius et al. 2005, Tsing 2005).

Throughout the 1990s, political ecology scholarship demonstrated how social power is produced through projects of material and conceptual boundary making. This was accomplished in at least two ways. First, scholars showed how social groups use environmental resources to designate and reinforce political, economic, and institutional separations between the state and society (Gupta 1995, Mitchell 1991) and therefore argued that these resources could not be fully understood outside of their attendant social power dynamics. Second, scholars demonstrated that social groups devise spaces, cultural meaning, and ideologies of belonging in both natural and cultural spheres, calling into question their separability and underlining their mutual production (Arnold & Guha 1995, Raffles 2002, Sivaramakrishnan 2002, Skaria 1999).

Nevertheless, early studies in political ecology tended to locate a key object of analysis—nature—outside of territories of dense human settlement, that is, outside the city. In so doing, its practitioners shed new light on fundamental social and political processes, but their focus on the

countryside or rural margins inadvertently produced a set of scholarship located almost entirely outside of cities. Over time, anthropologists working in the tradition of political ecology have come to analyze “nature” as a category that can signal relationships and processes that extend far beyond natural resources; indeed, nature often captures histories, identities, and collective aspirations tightly bound up with claims to power, economic benefit, and moral grounding. This is in addition to, and further intertwined with, experiences of the nonhuman, biophysical world.

BRINGING BACK THE URBAN

In some ways, the impulse to study social projects of boundary making—that is, designating specific spatial markers to differentiate city and countryside, or center and margins—brought political ecology into the productive configuration often shorthanded today as urban political ecology. My intention in this article is not to capture the entire body of past and present work that may be accurately described as urban, political, and ecological; instead, I sketch two nodes of convergence between urban and environmental scholarly praxis that have been particularly generative of new ethnographic understandings of socionatural change. These intersections then point toward a potentially robust and important research agenda in anthropology.

The first node tends to locate its theoretical anchors in the Lefebvrian assertion that, by tracing the capitalist flows that bind city and countryside, we are poised to recognize a completely urban world (Lefebvre 2003). From this vantage point, urban political ecology may be characterized by its primary attention to the multiscaled conceptual and material systems that organize flows of capital, labor, information, and power. These systems include cities but are never confined to them or defined by their boundaries. Geographers have been particularly prolific in generating such mappings (e.g., Harvey 1973) and have recently advanced highly influential propositions such as Brenner’s (2014) suggestion of planetary urbanism. This idea takes issue with definitions of the urban and urbanization that use the city and its demographic contours as a primary basis for analysis. Instead, planetary urbanism emphasizes the almost infinite connectivity between concentrated city zones and their hinterlands. Grounded as they are in ethnographic forms of evidence, however, anthropologists and other ethnographers working in this vein have pursued more place-based, historically specific inquiries into the social life of the contemporary rural-urban continuum, the cultural and political categories that organize power dynamics across them, and the omnipresent tension between seemingly universal characteristics associated with ideas of infinite connectivity—such as global nature—and the historical, geographic, and sociocultural particularities of these categories in specific places.

A second cluster of contemporary political ecology scholarship asks how the intellectual agenda of political ecology that evolved in nonurban contexts may shed new light on our understanding of socionatural dynamics in cities. Here, the urban continues to signal cities and city life as specific contexts for sociality. Although Lefebvre’s concern with the urban as a set of interconnected processes is acknowledged in this cluster of work, it does not automatically configure the ethnographic field of inquiry. Instead, field sites in this second group are usually located within or across specific cities or city neighborhoods, allowing researchers to explore how various forms of social asymmetry may be reproduced or reconfigured in the practice of place-specific urban environmental politics and management. This form of urban political ecology, which may also be called the political ecology of the city, affirms the fallacy of a clear rural-urban divide but nevertheless asks whether and how sociocultural and nonhuman natural life in dense human settlements is experienced in ways distinct from its noncity counterparts. Here, deeply historicized, ethnographic methodological strategies are essential for identifying and analyzing these distinctions.

URBAN POLITICAL ECOLOGY FOR A COMPLETELY URBAN WORLD

These two strains of urban political ecology emerged in response to at least three somewhat distinctive scholarly conversations that sought to rethink modern urban/rural and nature/culture binaries. One involved formally problematizing Western analytical conceptualizations of ideal nature as located outside the city and wholly separable from human culture (e.g., Cronon 1983, 1991, 1995; Latour 1993a,b; Worster 1977); a second grappled with turn-of-the-century globalism and economic globalization (e.g., Ong 1999, Sassen 1991, Tsing 2000). A third group, primarily composed of geographers, proposed analytics for studying the urban that emphasized scale, especially the large-scale, interconnected material and social flows associated with late capitalism. Here the formulation of an idea of urban metabolism³ provided a crucial theoretical and methodological basis for a wide range of work (Castells 1996; Gandy 2002; Kaika 2005; Smith 1984; Swyngedouw 1996, 1999). Meanwhile, *Social Nature* by Castree & Braun (2001) and Braun's (2005) subsequent work encouraged geographers to attend to what Braun called in his article title, "a more than human urban geography." These three scholarly conversations combined with growing sensitivity to the social and political dynamics of scientific knowledge (e.g., Callon 2009, Franklin 1995, Fischer 2007, Latour 1988) to generate a rich and dynamic stage for recent ethnographies of urban nature and urban sociality. Emergent ethnographic work in urban political ecology easily transcends disciplinary classification and continues to inform the overall project of more fully understanding urban social and environmental transformation in the twenty-first century.

Building on major shifts in thinking on modernity and globalization (e.g., Appadurai 1996); new ethnographic approaches to the rural-urban continuum (e.g., Ferguson 1999); and path-breaking ethnographies of transnational connections, global institutional life, and networks (e.g., Riles 2000), anthropologists identified a clear need for ethnographic nuance in studies of twenty-first-century urban transformation. In her now classic work of political ecology, Tsing (2005) demonstrated how historical specificity, ethnographic empiricism, and multiscaled ethnographic inquiry could generate parallel projects of retheorizing global urbanization and understanding twenty-first-century sociomateriality. At the same time, a small but influential group of ethnographers began to investigate how competing discourses and multiple experiences of adverse environmental change in city settings generated new social affinities, multiple ecologies, and competing representations of the past, present, and future (e.g., Alley 2002).

Though not necessarily identifying exclusively with a Lefebvrian notion of the urban, anthropologists working to bring an urban optic to the political ecology agenda build on these works and the theoretical and methodological agenda they outline. In so doing, more recent ethnographies have examined urban environmental degradation and its asymmetrical social consequences in terms of multiple framings of, and forms of knowledge about, nature and environmental change (e.g., Auyero & Swistun 2009, Rademacher 2011). Here, industrial natures and degraded city landscapes are recounted through competing discourses, but they are also noted as generative of new affinities, sometimes surprising political maneuvers, and distinctly moral social logics.

Exemplary here is the work of Auyero & Swistun (2009), who offer a complex ethnographic account of tensions between the production and control of authoritative environmental knowledge—that is, that knowledge accepted as facts about biophysical processes—and the social and cultural meanings associated with the everyday life realities that such knowledge creates. These meanings,

³Scholars of the urban environment define and deploy urban metabolism in different ways, but its use in the social sciences usually signals interconnected circulations of capital, labor, information, and social power as they intersect with the biogeochemical cycles and biophysical processes that sustain human and nonhuman life. Genealogies of its usage in the social sciences often invoke Marx's formulation of commodity exchange under capitalism and the fundamental nature-culture encounter in which human labor combines with, and in doing so transforms, the earth.

and the social processes through which they are produced, are critically important as they are closely associated with human agency and the capacity to undertake collective social and political action. The precise meaning of urban ecology among a range of differently powerful actors is for these authors an important analytical lens for asking how and why certain forms of social and environmental change take place. Rarely, they show, do the scientific or other authoritative facts of a socio-natural situation provide ample explanation for the precise form and content of such change.

Likewise, new ethnographic work on environmental bureaucracies and state making, such as Mathews (2011), builds on earlier studies of scientific authority and state power while demonstrating the impossibility of grasping political ecology at the margins without attending to operative power relations and socialities in centers of concentrated state making. As noted in *Ecologies of Urbanism in India* (Rademacher & Sivaramakrishnan 2013), the socio-natural experience of city life often involves engagement with, and the formation of, specific ideas and practices of urban civility. Here, questions of consumerism, the fate of “community,” and new and often exclusive definitions of citizenship figure prominently. As Anjaria (2009) argues, exclusively class-based analytical assumptions break down in these emergent forms of urban civility; his work shows how a surprising cluster of “powerful builders, corrupt state officials, and small-scale hawkers as urban villains suggests the uneven and contradictory nature of urban reconfiguration” (Anjaria 2009, p. 393). That reconfiguration often involves a range of urban environmental discourses and actions, including urban “greening,” advancing the cause of urban sustainability, or framing political contests in terms of environmental justice. Competing ideas and practices of environmental citizenship and civility are insufficiently captured by a singular analytic that understands all urban environmental governance in terms of transitions from steward of social welfare to catalyst of public-private partnership or “global city” status (e.g., Smith 1984, Roy 2009).

Recent ethnographic efforts to bring an urban analytic to political ecology are also grounded in lively debates about nonhuman agency. Building on much earlier observations by Mitchell (2002a) and Tsing (2000, 2012), but now making these observations in urban contexts, urban political ecologists confront afresh the untenability of fixed nature/culture dualities. Urban nature, after all, seems quite capable of generating itself, even, and sometimes more so, under socially unstable circumstances. The ethnographic experience of “unintentional nature” is located neither in opposition to urban space, nor outside of urban political processes. The task of ethnographers is to observe urban nature not only in relation to sociality, but also as it is understood to generate new relationships with human life.

Whether described as “agency for nature,” as “multispecies ethnography” (Kirksey & Helmreich 2010, Ogden et al. 2010), or through a host of other terms, sensitivity to the sometimes profound role of nonhuman nature in structuring (Abrams 1982)—albeit with tremendous dynamism and unpredictability—the human individual and collective capacity for agentive action has compelled new analyses of power relations, new historiographies, and a particularly complex idea of the human agent. Multispecies ethnographies, together with the field of science and technology studies⁴ and its use of actor–network theory (Callon 1998; Latour 1988, 1993a,b; Latour & Woolgar 1986), flourish among a host of scholarly movements and “posthumanities” (Wolfe 2009). But the work of assembling robust ethnographic and clearly historicized portraits of urban socio-natural transformation, and of reaching beyond the laboratory and other conventional

⁴Latour’s formulation of actor–network theory, which traces the proliferation of that which is created, investigated, and managed through scientific practice, focuses in large part on these objects as hybrids. Agency, particularly the agency of such hybrids and other nonhuman actors, is a central concern. Although ethnography is in no way absent from this body of work, it tends to engage the laboratory as its primary site, showing the inevitable instability of the objects of scientific inquiry.

domains in which we analytically locate urban scientific knowledge production and ideas of urban nature, is notably scarce in these otherwise vibrant fields.

A recent example of the way anthropologists are advancing scholarly conversations about the lived practices and meanings of a twenty-first-century, interconnected urban world is Choy's (2011) *Ecologies of Comparison*. This account of environmentalist practices in late 1990s Hong Kong looks at local and international conservation mobilizations; contests over the knowing, naming, and claiming of particular "indigenous" or "distinctive" species; and the clusters of place narratives told by environmentalists. Choy (2011) focuses productively on social practices of specification, exemplification, and comparison, addressing how the lived experience of environmentalism in a specific time and place actively connects some species while disconnecting others. The political and historical context, in the wake of the transfer of sovereignty to mainland China, is critically important, and it automatically figures into any analysis of transnational or regional connectivity. Through the optic of environmental advocacy and politics in this period, Choy shows how new and carefully scaled notions of social and biophysical belonging are forged while others are erased, resulting in a layered analysis of clear material and political consequences. In its complexity and historical specificity, his work demonstrates the potential limitations of a purely Lefebvrian formulation of this major global city and its socionatural environment. *Ecologies of Comparison* illustrates the crucial contributions that ethnography can make, not only in helping analysts move beyond urban political ecology's theoretical abstractions, but also by showing how abstractions are powerful social gestures with consequences for human action, socionatural change, and our shared and unshared accountings of loss and gain in a world of rapid urban environmental change.

BRINGING BACK NATURE: POLITICAL ECOLOGY IN AND OF THE CITY

Debates over the precise configuration of socionatural agency in a given place and time also animate a cluster of ethnographic urban political ecology scholarship that applies the intellectual agenda of more traditional political ecology to field sites in cities. As Sivaramakrishnan and I wrote in preparing *Ecologies of Urbanism in India*, this is an arena in which ethnographers tend to investigate

the legal and property regimes that regulate natural resource claims, noting how appeals are issued and mediated. These claims—be they to "open space," water, or land—are deeply relevant to (city) life, and may resonate in particular ways with questions of citizenship, civility, informality, and equity. . . . Political ecology (in the city) has come to include the social studies of relevant sciences like terrestrial ecology, forestry, environmental risk, and intellectual property based on place-based knowledge. Such studies of expertise. . . extend to areas like urban planning, architecture, hazardous waste management, and public health engineering that are central to questions of nature and environmental sustainability in the city. (A. Rademacher & K. Sivaramakrishnan, unpublished concept note)

Such a political ecology of the city recognizes that historically shared ideas of urban life were often based on the extent to which nature, agrarian sociality, and the countryside were considered absent from a particular sociospatial configuration. In this sense, the very social and geographic category of the city signaled a largely anthropogenic domain in which human cultural, political, and economic life dominated. In short, the city was nature's opposite, defined by the extent to which nature was excluded. With such historical opposition no longer theoretically tenable, contemporary anthropologists are poised to see how prevalent ideas and practices of nature actually

operate in everyday, lived social life in cities. The ubiquity of claims to livable, sustainable, or green cities underlines just how infused with notions of nature the idealized twenty-first-century city often is.

Exemplary among ethnographers whose work has brought the city into political ecology is Amita Baviskar. Whereas her early studies in political ecology addressed the multiscaled dynamics of major rural development projects and processes in India (Baviskar 1995), her more recent scholarship has “come to the city,” first by tracing water resources and water courses as they traversed rural and urban socio-natural terrain (Baviskar 2004), and then by focusing on the politics of “natural” or green public spaces in Delhi (Baviskar 2003a). Baviskar’s trajectory reflects the long-standing conceptual and empirical arc of political ecology, and the reader of her collected works can appreciate from multiple vantage points how India’s capital city serves as an epicenter of regional natural resource use and control. In this work, the city repeatedly figures in the political ecology rubric as a distinctive space in which ideas about the proper place and form of nature throughout modern India are forged. In contrast to a great deal of dominant urban theory, Baviskar’s analytics derive in large part from her ethnographic account, generating such useful concepts as “bourgeois environmentalism” (Baviskar 2003a) and her formulation of a “cultural politics of natural resources” (Baviskar 2003b). These have inspired a proliferation of anthropological work on city phenomena as diverse as urban slums (e.g., Ghertner 2013, Doshi 2013), urban water provision and its politics (e.g., Anand 2011, 2012, 2015), and rapid growth urban formations on the edges of major cities (e.g., Gururani 2013). The diverse work of these scholars also underlines the importance of emergent urban middle-class notions of environmental civility and its associated environmental practices, preferences, and aspirations.

Addressing the built forms of cities, including buildingscapes and infrastructure, represents another particularly productive domain of contemporary urban political ecology in cities that stands to benefit from more ethnographic accounts. Following an analytical path first forged in early work such as Caldeira’s (2001) *City of Walls*, this cluster of political ecology of the city makes diverse inquiries into the forms and social practices of urban public spaces, notions and practices of security, the social life of urban infrastructure (e.g., Furlong 2012; Meehan 2013), and the changing dynamics of urban citizenship and civility. Though not explicitly a work of urban political ecology, Caldeira’s early focus on the highly fortified residential apartment complexes that proliferated in São Paulo helped to generate diverse and productive inquiries. Recent studies that have further refined these themes include Zeiderman’s (2015a,b) studies of environmental risk and security, Anand’s (2011, 2012) accounts of water infrastructure and supply in Mumbai, Gidwani’s (2013) analysis of the formality and informality of waste work in Delhi, and the robust body of work exploring how specific forms of housing and specific landscape features come to imply environmental order in the rapid growth cities of the Global South (Cohelo & Raman 2013). In particular, work by Cohelo & Raman (2013) underlines the ways that water and land constitute the physical infrastructure of urban life and are therefore simultaneously biophysical and social. In this vein, the urban built form becomes an “environmental problem” (Rademacher 2009, Taylor & Buttel 1992) through which we may understand contemporary ideologies of urban nature and sociality.

TOWARD ECOLOGIES OF URBANISM IN ANTHROPOLOGY

The rich and growing body of ethnographic political ecology scholarship reviewed here presents anthropology with an opportunity to critically assess the problems, anxieties, and challenges signaled by an Anthropocene urban present. Among the many key urban political ecology arenas that will benefit from further anthropological engagement, at least three emerge as opportunities

to complicate and enrich debates that could otherwise remain in the realm of social theory or universalized, ahistoricized discourse.

First, even in its earliest, primarily rural forms, political ecology was criticized for seeming to be “all politics and no ecology” (Vayda & Walters 1999). But as political ecology has grown to encompass the urban-rural continuum and to locate its analytics in cities as well as their hinterlands, so too has ecology come to model ecosystems as attuned to human social dynamics as they are to biophysical systems. Urban ecosystem ecology stands poised to engage with the grounded social analyses that only situated ethnographies can offer; ethnographic urban political ecology may therefore open and expand debates about urban ecosystems so that they are better equipped to shed light on power relations, social processes, and the plurality of ecologies that vie for positions of power and influence in lived social practice. At the same time, by taking seriously the place of biophysical change in shaping the experience and practices of human agents and by granting the biophysical environment a meaningful analytical position, anthropologists are poised to productively engage these questions, which constitute some of the most difficult and unresolved theoretical questions in the discipline.

At this crucial juncture in human history and in urban political ecology, it may be useful to return to a point advanced in *Ecologies of Urbanism in India*:

[T]he urban environment is never an exclusively social construct. Biophysical settings, including dense urban landscapes, are not infinitely malleable, regardless of our recognition that social forces are crucial for delineating the form and content of environmental categories (Benton 1989, Gupta & Ferguson 1992, Mosse 1997). As Sivaramakrishnan has argued elsewhere (1999, p. 282), any concept of nature is, in fact, “produced through the interaction of biophysical processes that have a life of their own and human disturbance of the biophysical.” Thus nature is conceived out of this interaction between the human and the biophysical. Sivaramakrishnan continues, “Human agency in the environment, mediated by social institutions, may flow from cultural representations of processes in ‘nature’ but we cannot forget the ways in which representations are formed in lived experience of social relations and environmental change.” (Rademacher & Sivaramakrishnan 2013, p. 15)

Rather than engaging science as an ahistoricized and static way of knowing, urban political ecology presents ethnographers with dynamic socionatural processes through which human and nonhuman biophysical change can be observed, evaluated, and problematized. The highly contingent, culturally inflected human experience of nonhuman nature, framed in urban ecosystem ecology as an important knowledge gap among scientists, constitutes a critical field of inquiry and an arena ripe for the contributions of ethnographic urban political ecology. As Braun (2005) noted more than a decade ago, clearly engaging ecosystems and systems thinking as bases for urban biophysical knowledge demands more focused attention and stands to gain critical insights from serious anthropological attention.

Second, as with the discursive frame that organizes a great deal of contemporary anxiety about the future of our urban planet, most existing ethnographic studies in urban political ecology have focused on the large, rapid growth cities of the Global South. The relative absence of ethnographic attention to secondary cities, smaller towns, and wholly new cities marks another key opportunity for anthropologists to sharpen our collective understanding of the social and cultural dynamics of socionature in relation to scale. By attending to the experience of cities of various sizes and ages, we may complicate theoretical models that consider all “urban” processes as universal and singularly experienced. Likewise, we may glean how the socionatural configurations of differently scaled cities beget specific forms of urban nature, contests over which hinge on different material and biophysical stakes.

From here, we may productively ask, To what extent and at what kinds of scales and regional configurations are urban environments across certain cities comparable? Although primarily spatial questions such as these may be the norm for urban geographers, anthropologists have yet to offer grounded ethnographic evidence for whether and when such comparisons make sense in arenas of everyday life and meaningful action. Following the previous point about a more robust engagement with ecosystem ecology, we may also investigate how scale affects ethnographic findings about the kinds of socionatural formations that promote idealized visions of urban ecological vitality, function, and sustainability.

Third, transparently anthropocentric as it may be, the declaration of an Anthropocene Era is undeniably important across disciplinary arenas. Chakrabarty's (2009) recent influential call to rethink the work of history in light of this era has brought the *longue durée* of socionatural engagement—its past, present, and possible futures—into sharp theoretical focus across the social sciences and humanities. A call for disciplinary scholars to reconsider the place of nonhuman nature, nonhuman agency, and biophysical processes in all manner of inquiry, this work underlines the impossibility and irresponsibility of future scholarship that considers nature without social life, or vice versa.

But the academic promise of thinking through the lens of a wholly new era is accompanied by an omnipresent urge to assign it privilege; the danger of a multidisciplinary undertaking preoccupied with an unprecedented present can easily lead to ahistoricism, universalism, and a loss of refined analytical tools for understanding why urban social and environmental change take place in different ways in different places. To be sure, proclamations of a new era such as those signaled by ideas such as the Anthropocene or planetary urbanism orient our thinking in constructive and, in some ways, inexorable directions. However, an overwhelming focus on the present and future often leads—intentionally or otherwise—to a diminished capacity to appreciate the extent to which history, historicity, place, and historically grounded identities are crucial tools for understanding why nature making occurs in different ways, and with very different stakes, across different places. Indeed, deceptively simple categories such as the sustainable city, urban nature, city green spaces and parks, or the urban environment are neither automatically transhistorical nor universal. Although certain global-scale processes and dynamics may affect all urban places, the way they are experienced, engaged, and reconfigured in everyday city life compels social action on the environment's behalf.

To grapple with the multiple ecologies of urbanism that are simultaneously lived in cities across the globe not only requires historical sensitivities; it necessitates ethnographically sophisticated analytics that address how urbanites actively reconfigure place-specific fragments of meaning to create, and recreate, urban nature in the present. In this domain, anthropology has always located its core interests, theories, and methods. Our sustained engagement with these matters, then, can only enrich a robust field. The promise of the florescence of new work under the rubric of urban political ecology is its capacity to capture the extent to which core concepts such as urban, the city, nature, and ecology have assumed specific and, in some cases, new cultural and political stakes.

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LITERATURE CITED

- Abrams P. 1982. *Historical Sociology*. Ithaca, NY: Cornell Univ. Press
- Agrawal A. 2005. *Environmentality: Technologies of Government and the Making of Subjects*. Durham, NC: Duke Univ. Press
- Alley K. 2002. *On the Banks of the Ganga: When Wastewater Meets a Sacred River*. Ann Arbor: Univ. Mich. Press
- Anand N. 2011. Pressure: the politechnics of water supply in Mumbai. *Cult. Anthropol.* 26:542–64
- Anand N. 2012. Municipal disconnect: on abject water and its urban infrastructures. *Ethnography* 13:487–509
- Anand N. 2015. Leaky states: water audits, infrastructure and the politics of infrastructure. *Public Cult.* 27(2):305–30
- Angelo H, Wachsmuth D. 2014. Urbanizing urban political ecology: a critique of methodological cityism. *Int. J. Urban Reg. Res.* 39:16–27
- Anjaria JS. 2009. Guardians of the bourgeois city: citizenship, public space, and middle-class activism in Mumbai. *City Commun.* 8:391–406
- Appadurai A. 1996. *Modernity at Large*. Minneapolis: Univ. Minn. Press
- Arnold D, Guha R. 1995. *Nature, Culture, Imperialism: Essays on the Environmental History of South Asia*. Delhi: Oxford Univ. Press
- Auyero J, Swistun D. 2009. *Flammable: Environmental Suffering in an Argentine Shantytown*. Oxford, UK: Oxford Univ. Press
- Baviskar A. 1995. *In the Belly of the River: Tribal Conflicts over Development in the Narmada Valley*. New Delhi: Oxford Univ. Press
- Baviskar A. 2003a. Between violence and desire: space, power, and identity in the making of metropolitan Delhi. *Int. Soc. Sci. J.* 55:89–98
- Baviskar A. 2003b. For a cultural politics of natural resources. *Econ. Polit. Wkly.* 28:5051–55
- Baviskar A. 2004. *Waterlines: The Penguin Book of River Writings*. Delhi: Penguin
- Benton T. 1989. Marxism and natural limits: an ecological critique and reconstruction. *New Left Rev.* 178:51–86
- Blaikie P. 1985. *The Political Economy of Soil Erosion in Developing Countries*. New York: Longman
- Blaikie P, Brookfield H. 1987. *Land Degradation and Society*. London: Methuen
- Bocking S. 2004. *Nature's Experts: Science, Politics, and the Environment*. New Brunswick, NJ: Rutgers Univ. Press
- Braun B. 2005. Environmental issues: writing a more-than-human urban geography. *Prog. Hum. Geogr.* 29.5:635–50
- Brenner N, ed. 2014. *Implosions/Explosions: Toward a Study of Planetary Urbanization*. Berlin: Jovis
- Brookfield H. 1999. A review of political ecology: issues, epistemology, and analytical narratives. *Z. Wirtschaftsgeogr.* 131–47
- Brosius JP. 1999a. Comments on Escobar's "after nature: steps to an antiessentialist political ecology." *Curr. Anthropol.* 40:16–17
- Brosius JP. 1999b. Green dots, pink hearts: displacing politics from the Malaysian rain forest. *Am. Anthropol.* 101:36–57
- Brosius JP, Russell D. 2003. Conservation from above: an anthropological perspective on transboundary protected areas and ecoregional planning. *J. Sustain. For.* 17:39–65
- Brosius JP, Tsing A, Zerner C. 2005. *Communities and Conservation: Histories and Politics of Community-Based Natural Resource Management*. Walnut Creek, CA: AltaMira
- Bryant RL. 1992. Political ecology: an emerging research agenda in third world studies. *Polit. Geogr.* 11:12–36
- Bryant RL. 1998. Power, knowledge, and political ecology in the third world. *Prog. Phys. Geogr.* 22:79–94
- Bryant RL, Bailey S. 1997. *Third World Political Ecology*. London: Routledge
- Caldeira T. 2001. *City of Walls: Crime, Segregation, and Citizenship in São Paulo*. Berkeley: Univ. Calif. Press
- Callon M, ed. 1998. *The Laws of the Markets*. Oxford, UK: Blackwell/Sociol. Rev.

- Callon M. 2009. Some elements of a sociology of translation: domestication of the scallops and the fishermen of St. Brieuc Bay. In *Power, Action, Belief: A New Sociology of Knowledge?* ed. J Law, pp. 196–223. New York: Routledge
- Castells M. 1996. *The Rise of the Network Society: The Information Age: Economy, Society and Culture*, Vol. 1. Cambridge, MA/Oxford, UK: Blackwell
- Castree N, Braun B. 2001. *Social Nature: Theory, Practice, and Politics*. New York: Wiley-Blackwell
- Chakrabarty D. 2002. Of garbage, modernity and the citizen's gaze. In *Habitations of Modernity: Essays in the Wake of Subaltern Studies*, ed. D Chakrabarty, pp. 65–79. Chicago: Univ. Chicago Press
- Chakrabarty D. 2009. The climate of history: four theses. *Crit. Inq.* 35:197–222
- Chatterjee P. 2004. *The Politics of the Governed: Reflections on Popular Politics in Most of the World*. New York: Columbia Univ. Press
- Choy T. 2011. *Ecologies of Comparison: An Ethnography of Endangerment in Hong Kong*. Durham, NC: Duke Univ. Press
- Cohelo K, Raman NV. 2013. From the frying pan to the floodplain: negotiating land, water, and fire in Chennai's development. See Rademacher & Sivaramakrishnan 2013, pp. 145–68
- Cronon W. 1983. *Changes in the Land: Indians, Colonists, and the Ecology of New England*. New York: Hill & Wang
- Cronon W. 1991. *Nature's Metropolis: Chicago and the Great West*. New York: Norton
- Cronon W. 1995. The trouble with wilderness; or, getting back to the wrong nature. In *Uncommon Ground: Rethinking the Human Place in Nature*, ed. W Cronon, pp. 69–90. New York: Norton
- Davilla A. 2004. *Barrio Dreams: Puerto Ricans, Latinos, and the Neoliberal City*. Berkeley: Univ. Calif. Press
- Davis D. 2000. *The Consumer Revolution in Urban China*. Berkeley: Univ. Calif. Press
- Demeritt D. 1994. The nature of metaphors in cultural geography and environmental history. *Prog. Hum. Geogr.* 18:163–85
- Doshi S. 2013. Resettlement ecologies: environmental subjectivity and graduated citizenship in Mumbai. See Rademacher & Sivaramakrishnan 2013, pp. 225–48
- Dove M. 1991. Anthropology of development versus development anthropology: mediating the forester-farmer relationship in Pakistan. *Pract. Anthropol.* 13:21–25
- Escobar A. 1996. Constructing nature: elements for a poststructuralist political ecology. See Peet & Watts 1996, pp. 46–68
- Escobar A. 1998. Whose knowledge, whose nature? Biodiversity, conservation, and the political ecology of social movements. *J. Polit. Ecol.* 4:53–82
- Escobar A. 1999. After nature: steps to an antiessentialist political ecology. *Curr. Anthropol.* 40:16–17
- Fairhead J, Leach M. 1996. *Misreading the African Landscape: Society and Ecology in Forest-Savanna Mosaic*. Cambridge, UK: Cambridge Univ. Press
- Ferguson J. 1994. *The Anti-Politics Machine: Development, Depoliticization, and Bureaucratic Power in Lesotho*. Minneapolis: Univ. Minn. Press
- Ferguson J. 1999. *Expectations of Modernity: Myths and Meanings of Urban Life on the Zambian Copperbelt*. Berkeley: Univ. Calif. Press
- Fischer MJ. 2007. Four genealogies for a recombinant anthropology of science and technology. *Cult. Anthropol.* 22:539–615
- Forsyth T. 2003. *Critical Political Ecology: The Politics of Environmental Science*. London: Routledge
- Franklin S. 1995. Science of cultures, cultures of science. *Annu. Rev. Anthropol.* 24:162–85
- Furlong K. 2012. Municipal disconnect: on abject water and its urban infrastructures. *Ethnography* 13:487–509
- Gandy M. 2002. *Concrete and Clay: Reworking Nature in New York City*. London: MIT Press
- Ghertner A. 2013. Nuisance talk: middle class discourses of a slum free Delhi. See Rademacher & Sivaramakrishnan 2013, pp. 249–76
- Gidwani V. 2013. Value struggles: waste work and urban ecology in Delhi. See Rademacher & Sivaramakrishnan 2013, pp. 169–200
- Gregory S. 1998. *Black Corona: Race and the Politics of Place in an Urban Community*. Princeton, NJ: Princeton Univ. Press
- Grove R. 1989. *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism 1600–1860*. Cambridge, UK: Cambridge Univ. Press

- Gupta A. 1995. Blurred boundaries: the discourse of corruption, the culture of politics, and the imagined state. *Am. Ethnol.* 22:375–402
- Gupta A, Ferguson J. 1992. Beyond culture: space, identity, and the politics of difference. *Cult. Anthropol.* 7:6–23
- Gururani S. 2013. Flexible planning: the making of India's millennium city, Gurgaon. See Rademacher & Sivaramakrishnan 2013, pp. 119–44
- Hansen TB. 2001. *Wages of Violence: Naming and Identity in Postcolonial Bombay*. Princeton, NJ: Princeton Univ. Press
- Haraway DJ. 1989. *Primate Visions: Gender, Race, and Nature in the World of Modern Science*. New York: Routledge
- Haraway DJ. 1991. *Simians, Cyborgs, and Women: The Reinvention of Nature*. New York: Routledge
- Haraway DJ. 1997. *Modest_Witness@Second_Millennium.FemaleMan_Meets_OncoMouse: Feminism and Technology*. New York: Routledge
- Harvey D. 1973. *Social Justice and the City*. Baltimore, MD: Johns Hopkins Univ. Press
- Heynen N. 2013. Urban political ecology 1: the urban century. *Prog. Hum. Geogr.* 38:598–604
- Holston J, Appadurai A. 1999. *Cities and Citizenship*. Durham, NC: Duke Univ. Press
- Jasanoff S, Martello M. 2004. *Earthly Politics: Local and Global in Environmental Governance*. Cambridge, MA: MIT Press
- Joyce P. 2003. *The Rule of Freedom: Liberalism and the Modern City*. New York: Verso
- Kaika M. 2005. *City of Flows: Modernity, Nature, and the City*. London: Routledge
- Kirksey SE, Helmreich S. 2010. The emergence of multispecies ethnography. *Cult. Anthropol.* 25:545–76
- Latour B. 1988. *Science in Action: How To Follow Scientists and Engineers Through Society*. Cambridge, MA: Harvard Univ. Press
- Latour B. 1993a. *We Have Never Been Modern*. Transl. C Porter. Cambridge MA: Harvard Univ. Press
- Latour B. 1993b. *The Pasteurization of France*. Cambridge, MA: Harvard Univ. Press
- Latour B. 1999. *Pandora's Hope: Essays on the Reality of Science Studies*. Cambridge, MA: Harvard Univ. Press
- Latour B, Woolgar S. 1986. *Laboratory Life: the Construction of Scientific Facts*. Princeton, NJ: Princeton Univ. Press
- Lefebvre H. 2003. *The Urban Revolution*. Minneapolis: Univ. Minn. Press
- Li T. 1999. *Transforming the Indonesian Uplands: Marginality, Power and Production*. Amsterdam, The Neth.: Harwood Acad.
- Liechty M. 2003. *Suitably Modern: Making Middle Class Culture in a New Consumer Society*. Princeton, NJ: Princeton Univ. Press
- Low S. 2003. *Behind the Gates: Life, Security, and the Pursuit of Happiness in Fortress America*. New York: Routledge
- Mankekar P. 1999. *Screening Culture, Viewing Politics: An Ethnography of Television, Womanhood, and Nation in Postcolonial India*. Durham, NC: Duke Univ. Press
- Mathews A. 2011. *Instituting Nature: Authority, Expertise, and Power in Mexican Forests*. Cambridge: MIT Press
- Mazzarella W. 2003. *Shoveling Smoke: Advertising and Globalization in Contemporary India*. Durham, NC: Duke Univ. Press
- Meehan K. 2013. Tool-power: water infrastructure as wellsprings of state power. *Geoforum* 57:215–44
- Mitchell T. 1991. The limits of the state: beyond statist approaches and their critics. *Am. Polit. Sci. Rev.* 85:77–96
- Mitchell T. 2002a. Can the mosquito speak? See Mitchell 2002b, pp. 327–360
- Mitchell T. 2002b. *Rule of Experts: Egypt, Technopolitics, Modernity*. Berkeley: Univ. Calif. Press
- Mosse D. 1997. The symbolic making of a common property resource: history, ecology and locality in a tank-irrigated landscape in South India. *Dev. Change* 28:467–504
- Mosse D. 2003. *The Rule of Water: Statecraft, Ecology, and Collective Action in South India*. New Delhi: Oxford Univ. Press
- O'Dougherty M. 2002. *Consumption Intensified: The Politics of Middle Class Daily Life in Brazil*. Durham, NC: Duke Univ. Press
- Ogden L, Hall B, Tanita K. 2010. Animals, plants, people, and things: a review of multispecies ethnography. *Environ. Soc.* 4:5–24

- Ong A. 1999. *Flexible Citizenship: The Cultural Logics of Transnationality*. Durham, NC: Duke Univ. Press
- Peet R, Watts M, eds. 1996. *Liberation Ecologies: Environment, Development, Social Movements*. New York: Routledge
- Peluso N, Watts M. 2001. *Violent Environments*. Ithaca, NY: Cornell Univ. Press
- Pickett STA, Cadenasso ML. 2002. Ecosystem as a multidimensional concept: meaning, model and metaphor. *Ecosystems* 5:1–10
- Pickett STA, Cadenasso ML. 2006. Advancing urban ecological studies: frameworks, concepts, and results from the Baltimore Ecosystem Study. *Austral Ecol.* 31:114–25
- Pickett STA, Cadenasso ML, Grove M. 2004. Resilient cities: meaning, models, and metaphor for integrating the ecological, socio-economic, and planning realms. *Landsch. Urban Plan.* 69:369–84
- Rademacher A. 2009. When is housing an environmental problem? Reforming informality in Kathmandu. *Curr. Antropol.* 50:513–33
- Rademacher A. 2011. *Reigning the River: Urban Ecologies and Political Transformation in Kathmandu*. Durham, NC: Duke Univ. Press
- Rademacher A, Sivaramakrishnan K, eds. 2013. *Ecologies of Urbanism in India: Metropolitan Civility and Sustainability*. Hong Kong: Hong Kong Univ. Press
- Raffles H. 2002. *In Amazonia*. Princeton, NJ: Princeton Univ. Press
- Riles A. 2000. *The Network Inside Out*. Ann Arbor: Univ. Mich. Press
- Robbins P. 2004. *Political Ecology: A Critical Introduction*. New York: Blackwell
- Roy A. 2009. Civic governmentality: the politics of inclusion in Beirut and Mumbai. *Antipode* 41:159–79
- Saberwal VK. 1999. *Pastoral Politics: Shepherds, Bureaucrats, and Conservation in the Western Himalaya*. Oxford, UK: Oxford Univ. Press
- Sassen S. 1991. *The Global City: New York, London, Tokyo*. Princeton, NJ: Princeton Univ. Press
- Scott J. 1998. *Seeing Like a State: How Certain Schemes To Improve the Human Condition Have Failed*. New Haven, CT: Yale Univ. Press
- Sivaramakrishnan K. 1999. *Modern Forests: Statemaking and Environmental Change in Colonial Eastern India*. Stanford, CA: Stanford Univ. Press
- Sivaramakrishnan K. 2002. Forest co-management as science and democracy in West Bengal, India. *Environ. Values* 11:277–302
- Skaria A. 1999. *Hybrid Histories: Forests, Frontiers, and Wildness in Western India*. Delhi: Oxford Univ. Press
- Smith N. 1984. *Uneven Development: Nature, Capital, and the Production of Space*. New York: Blackwell
- Swyngedouw E. 1996. The city as a hybrid: on nature, society, and cyborg urbanisation. *Capital. Nat. Social.* 7:65–80
- Swyngedouw E. 1999. Modernity and hybridity: nature, regeneracionismo, and the production of the Spanish waterscape, 1890–1930. *Ann. Assoc. Am. Geogr.* 89:444–65
- Taylor P, Buttel F. 1992. How do we know we have global environmental problems? Science and the globalization of environmental discourse. *Geoforum* 23.3:405–16
- Tsing A. 1993. *In the Realm of the Diamond Queen: Marginality in an Out of the Way Place*. Princeton, NJ: Princeton Univ. Press
- Tsing A. 2000. The global situation. *Curr. Antropol.* 15:327–60
- Tsing A. 2005. *Friction: An Ethnography of Global Connections*. Princeton, NJ: Princeton Univ. Press
- Tsing A. 2012. Unruly edges: mushrooms as companion species. *Environ. Hum.* 1:141–54
- Vandergeest P, Peluso N. 1995. Territorialization and state power in Thailand. *Theory Soc.* 24:385–426
- Vayda A, Walters B. 1999. Against political ecology. *Hum. Ecol.* 27:167–79
- West P. 2006. *Conservation Is Our Government Now: The Politics of Ecology in Papua New Guinea*. Durham, NC: Duke Univ. Press
- Williams R. 1980. *Problems in Materialism and Culture: Selected Essays*. London: New Left Books
- Wolf E. 1982. *Europe and the People Without History*. Berkeley: Univ. Calif. Press
- Wolfe C. 2009. *What Is Posthumanism?* Minneapolis: Univ. Minn. Press
- Worster D. 1977. *Nature's Economy: The Roots of Ecology*. San Francisco: Sierra Club
- Zeiderman A. 2015a. *Endangered City: The Politics of Security and Risk in Bogota*. Durham, NC: Duke Univ. Press

- Zeiderman A. 2015b. Zones of uncertainty: governing urban environmental hazards. In *Modes of Uncertainty: Anthropological Cases*, ed. L Samimian-Darash, P Rabinow, pp. 182–200. Chicago: Univ. Chicago Press
- Zimmerer K. 2000. The reworking of conservation geographies: nonequilibrium landscapes and nature society hybrids. *Ann. Assoc. Am. Geogr.* 90:356–69
- Zimmerer K, Bassett T. 2003. *Political Ecology: An Integrative Approach to Geography and Environment-Development Studies*. New York: Guilford



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