Companion to Environmental Geography: Practices: Ethnography

Kevin St. Martin and Marianna Pavlovskaya

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Introduction

Ethnography has recently emerged as a powerful descriptive and explanatory approach within critical human geography. It has also become important to environmental geographers, particularly political ecologists, who increasingly employ it in fieldwork projects in both the global North and South. Traditionally, ethnography was closely associated with anthropology but it has also long intersected with geography, especially its cultural ecology tradition (Livingstone 1992: chapter 8). In addition, since the expansion of humanistic approaches in human geography in the 1970s, ethnography emerged as central to cultural geography and its critical response to positivist and structural forms of explanation. The current *tour de force* of ethnography in critical human, and increasingly environmental, geography is, however, most clearly a product of the turn in social science toward critical social and cultural theory, especially feminism, post-structuralism, and post-colonialism (e.g. Aunger 2004; Madison 2005; Noblit et al. 2004).

Ethnography is the direct observation and documentation of some group or community, their practices and habits, and, primarily, aspects of their culture. Generally, participant observation, or living amongst other people for a prolonged period, provides the foundation for writing a detailed anthropological monograph about the culture or community studied (e.g. the great ethnographies of Malinowski, Boas, or Mead). It seeks to explain social and cultural phenomena via a holistic understanding that comes from the researcher's immersion and time spent in the field. While this sort of ethnography is certainly

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still practiced, 'ethnography' has come to mean considerably more. Indeed, the ethnography being adopted by geographers today can not reduce to a single method or a single form of writing around which a research project is organized.

While geographers often label their work 'ethnographic' as a way to characterize the extended and immersed nature of one's research in place, their research is increasingly likely to include a plurality of qualitative methods beyond participant observation (e.g. in-depth interviewing, focus groups, oral history, archival research, or map biographies) and to break from traditional correspondence theories of knowledge that privilege direct and allegedly objective observation (for an overview see Cloke et. al. 2004; Crang 2002, 2003). While geographers rarely engage with traditional forms of ethnographic research, it is their continued (and renewed) presence in 'the field' – interacting with research subjects and places, searching for multiple ways in which realities are constituted by both the researcher and the subjects of research – that aligns them with contemporary ethnography (c.f. Madison 2006). In this sense, the emergent interest in ethnography signals a shift in methodological possibility across a variety of subfields in geography. This is particularly true for those subfields that were once distant from ethnography (e.g. economic, urban, political, or environmental geography) but are now open to ethnographic approaches as a way to operationalize epistemological innovations such as feminism or post-structuralism.

Environmental geography is focused on understanding the interactions between environmental and human processes rather than other societies or cultures *per se* and, as a result, has rarely relied upon traditional ethnographic methods or modes of explanation the privilege observation of and interaction with subjects. Recent changes in ethnographic practice have, however, made it more amenable to the varied objectives of environmental geography. Yet, the adoption of ethnographic methods by environmental geographers also implies a change in environmental geography. While the broad interests of environmental geographers remain the same (i.e. understanding human/environment interactions), the mode of understanding has changed given, amongst other things, critical social theory approaches that stress local knowledges, micropolitical processes, identity politics, the positionality of various actors and agents, and the social construction of nature generally (Castree 2003). While the traditional interests of environmental geography and those of ethnography have served to distance them from each other, the gap is now closing as both

are transformed in new directions that make their combination in critical, interdisciplinary, and multi-method approaches both possible and useful.

In this chapter, our primary goal is to consider the nature of and the potential for ethnography in environmental geography. While we are interested to see environmental geographers adopt ethnographic methods, we will not discuss individual methods themselves because there is already a large geographical literature on the subject (Cloke at al. 2004; Crang 2003). We begin by briefly looking into ethnography's origins in anthropology, its relationship to geography, and its recent transformation via critical social theory. We then discuss the potentials of ethnography and what ethnographic methods can offer to environmental geographers: we do so by identifying some of the important theoretical and empirical questions that these methods promise to illuminate. Finally, we examine issues related to the practice of ethnography as it relates to environmental geography; in particular, we address the question of politics and the rise of mixed methods in geographic research.

Ethnography's transformations

Like geography, anthropology has a complicated heritage in which the heroics of 'discovery' and travel are mixed with the colonial practices of gathering information about peoples and territories that were to become subject to imperial power (Blunt and Rose 1994). As such, much early anthropological and geographical work, using ethnographic methods, generated representations of 'primitive' societies in distant (global South) locations in need of European 'civilization'. In the global North, early ethnographies were also about 'others', albeit in select urban areas (e.g. poor neighborhoods) or rural locations (e.g. Appalachia).

While ethnographies of peripheral peoples and places are still common (and, indeed, vitally important when re-cast as distinctly post-colonial projects), ethnographic research now encompasses studies of governing elites, environmental NGOs, transnational development agencies, and complexly positioned subjects across scales and sites in both the global North and South.

> Instead of a royal road to holistic knowledge of 'another society,' ethnography is
> beginning to become recognizable as a flexible and opportunistic strategy for
> diversifying and making more complex our understanding of various places, people,
> and predicaments through an attentiveness to the different forms of knowledge

available from different social and political locations (Gupta and Ferguson 1997, p. 37).

Ethnography has been transformed such that 'the field' for ethnographic research has been not only expanded but 'decentered'; ethnography has been broadened and blurred beyond participant observation in a single community to a suite of methods applicable across a variety of sites and open to a variety of social science disciplines (Gupta and Ferguson 1997).

Ethnography's transformation is largely due to the influence of contemporary critical theory that works to deconstruct assumed subject positions, blur the boundaries between centers and peripheries, disrupt the distancing of 'others', and reveal the intermingling of local and global processes. As such, critical theory initially provided strong theoretical tools to critique ethnography's role in the construction of colonial and neo-colonial subjects as well as the European appropriation of resources (including human labor and knowledge). More recently, however, it has served to recast ethnography itself as a key method for producing inter-subjective and situated understandings of other people and their environments and has even re-positioned ethnographic research as a tool for local interventions that counter global hegemonic power.

While ethnography has had a long presence in geography, it is fair to say that at each point of intersection with the discipline it was understood differently and offered different potentials. Initially, ethnography was very popular with geographers, particularly those aligned with the cultural ecology tradition, in the first half of the 20th century. Its popularity waned, however, due to its association with an overly ideographic regional geography (Cloke et al. 2004; Livingstone 1992: chapter 9). The post-WWII rise of spatial scientific methods relegated ethnography, along with the description of specific places and peoples, to the margins of human geography. Ethnography was seen as primarily a descriptive approach that was unable to explain geographic (particularly spatial) phenomena. It was not until the advent of new humanistic approaches in the 1970s that ethnographic methods became a mainstay of cultural geography and its critical response to the excesses of both positivist and structural approaches (e.g. Ley and Samuels 1978). Ethnography would be recast as able to provide unique insight into human 'lifeworlds', how people actually experienced and related to places and environments.

The humanistic approaches of the 1970s and their interest in ethnography were influential but more as critique than as a new model for human geography research

(Livingstone 1992). The specificity of what ethnography revealed worked well to contradict structural assumptions and to reinsert people's lives into geography but it was not clearly linked to either a social theoretic or policy agenda in geography. Ethnographic methods remained marginal within human geography until at least a decade later when, aligned with feminist and post-structural critical social theory, they re-emerged as not only explanatory but, potentially, as ways to create knowledge that would inform change. As in anthropology, ethnography became relevant to critical explorations of urban, economic, political, and environmental processes across a variety of sites.

The adoption of a transformed (and transformative) ethnography is clearly seen within feminist geographic scholarship generally (e.g. Katz 1992) and feminist environmental geography in particular (e.g. Rocheleau 1995). As opposed to humanists who argued for the inclusion and better representation of people using ethnographic methods, feminists question the very possibility of any unbiased scientific representation within a discipline founded upon masculinist practices and ways of knowing. Traditional geographic fieldwork, after all, presumes a heroic (male) geographer traveling to observe other natural and social worlds while maintaining an objective distance from the subjects observed (Rose 1993). To transform the masculinist character of geographic fieldwork (c.f. Sundberg 2003), feminist scholars argue for ethnographic methods as a way of co-producing knowledge with subjects and enacting progressive change relative to both the researcher and the researched.

Following Donna Haraway's (1991) concept of situated knowledge, feminist scholars re-conceptualize practices of knowledge production as neither objective nor neutral but, using Cindi Katz's precise term, as "oozing with power" (1992, p. 496). Feminist scholars call for research that is self-reflective and conscious of its effects on the people it studies and represents. In addition, they insist upon a research practice aligned with a politics of emancipation and social change. A transformed and broadly defined ethnography, often in combination with other methods, facilitates both as is clear in the case of much environmental research that not only explicates environmental injustices but works to facilitate social change (e.g. Routledge 2002; Sundberg 2004; Wolford 2006).

Much contemporary work in human geography is inspired by critical social theories such as feminism and is, increasingly, informed by ethnographic methods. Such research continues to engage a range of important and challenging issues that are likely to be of interest to environmental geographers. These include, for example, the meaning of "the

field" and its masculinist character (Hyndman 2001; Rose 1993; Sundberg 2003); the gendered politics of fieldwork (Katz 1994; Staeheli and Lawson 1994), the ethical concerns and unequal modalities of power between academics and research subjects (England 1994); the politics of team research (Hanson and Pratt 1995); and the relationship of ethnographic methods to traditional (quantitative) research methods (Lawson 1995) or to new techniques such as Geographic Information Systems (GIS) (Pavlovskaya and St. Martin 2007).

That many of the above examples are from environmental geography indicates that they address issues increasingly important to the latter as it too begins to rely more on feminist and post-structural understandings amenable to and informed by ethnographic research methods (e.g. Robbins 2003; Schroeder 1999; St. Martin 2001; Wolford 2006). Environmental geography, with its pragmatic focus on environmental policy and its reliance upon positivist methods, was well insulated from both 1970s humanism and the broader "cultural turn" in human geography that would soon follow and to which ethnography was so important. Today, however, ethnography's influence and use spans the breadth of human geography's sub-fields (e.g. urban, economic, political, environmental, as well as cultural).

Ethnography's potentials

What makes ethnography, along with other qualitative methods, a powerful research method that is increasingly central to much human geography? How is it able to provide insights that are largely hidden from secondary data or statistical analysis? What issues does ethnography address that other methods cannot address? In this section we will discuss the potentials of ethnography that, we believe, have profoundly transformed the production of scholarship in environmental geography: its emphasis on explanation, its engagement with discursive practices and everyday life, its ability to understand production of environmental subjectivities and governmentality, its attention to issues of power, and its insight into the constitution of geographic scale.

Explanation instead of generalization

A particular strength of ethnography is that it seeks to explain the phenomenon observed. This is very different from quantitative research which seeks to either detect patterns and regularities or test a hypothesis that makes a generalized statement about a relationship between variables. Note that interpreting regularities or developing hypotheses also requires

qualitative work which is rarely acknowledged (c.f. Pavlovskaya 2006). While qualitative research, including ethnography, is often limited to single sites or a limited number of cases, its power emerges from its ability to construct an explanation based on an intimate and profound understanding of the phenomena, social group, or place in question. Information gathered via different ethnographic methods (e.g. archives, interviews, participant observation) is triangulated or checked for consistency allowing the connections between processes, events, and phenomena to emerge (Nightingale 2003). That depth of understanding allows for showing and explaining complexity, tracing connections between people and environments, and working across scales.

One example from geography is Cindi Katz' fieldwork in Sudan. Information gathered via interviews and participant observation over two decades allowed her to write rich ethnographies focused on the environmental knowledge of village youth and their families. She calls these accounts "topographies" (Katz 2001) and sees them as a means to embed local environmental knowledge and practices within local and global political economies, politics, warfare, and gender, ethnic, and race relations. As a result, a story about a particular place in Sudan becomes a way to understand, 'on the ground', the transformations of society and the environment that are produced by globalization. While not representative statistically, such an account is representative theoretically (Pavlovskaya 2006). To allow for this theoretical rigor, ethnographic explanation does not separate nature from economy or from culture. Instead, its thick 'topographies' assemble together the relevant driving forces, including discursive productions, and show their interplay in the constitution of a process, a group of people, or an environment.

Discourse as a maker of the world

Understandings of environmental processes and practices are, today, incomplete without a consideration of not only natural but economic, social, cultural, political and other events. This interdisciplinary approach, now clearly the trajectory of environmental geography, is aligned with the now commonplace understanding of 'nature' as socially produced (Braun and Castree 1998; Castree 2003; Demeritt 2002). Understandings of nature as a social construction and as, in part, an outcome of environmental discourse have yielded compelling research on how scientific knowledge, environmental policy, colonial representations, and theories of sustainability and/or economic development have come to produce particular

environments and landscapes. In addition, this work has linked those productions of, for example, forests (Agrawal 2005; Braun 2002; Robbins 2003), climate (Demeritt 2001), fisheries (St. Martin 2001), soils (Engle-Di Mauro 2006), or bedrock (Braun 2000) to particular manifestations of power in economic, social, or cultural realms.

The production of nature – via the practices that environmental discourses engender and the positionalities and subjectivities it creates – is, however, enacted and performed by people in particular places. How nature is 'made' is, then, accessible not only through an analysis of discourse but through, and perhaps necessarily so, field-based research. Ethnography, in this case, provides a means by which to understand how discourse is effectively performed and it, unlike analyses of discourse in print, opens the door to the micropolitics of environmental knowledge production, management, and resource use (e.g. Sletto 2005). Ethnography is central to a movement beyond the analyses of environmental discourse *per se* to an understanding of environmental governmentality, an understanding of the people, mechanisms, dynamics, and power relations produced through and within particular environmental regimes.

The power of ethnographic research combined with analyses of environmental knowledge/discourse is nowhere more powerfully demonstrated than in the work of Agrawal (2005) on 'environmentality'. Through a mixture of archival, interview, and participant observation techniques, Agrawal demonstrates how knowledge of forests and forest practices in the Kumaon region of India (from colonial times to the present) produces both environments and environmental subjects. The use of a broadly defined ethnographic approach provides a rich understanding of the production of Indian forests via discourse (e.g. via colonial accounting methods), both historical and contemporary struggles over the forest resources, and how local people come to see themselves in relation to the environment.

Subjectivities and actors

Ethnography gives meaning to those positions afforded by particular discourses (e.g. citizen, worker, capitalist, patriarch, housewife, fisherman, farmer, rancher, etc.) and helps to answer how they are experienced relative to economic, political, gender, and environmental systems of power and oppression. In this way, ethnography is widely used by Marxist and feminist researchers to examine how people not only experience but resist neo-liberal capitalism,

globalization, gender inequality, and environmental injustice (e.g. Little 1999; Rocheleau 1995; St. Martin 2007). Resistance is possible, particularly from a post-structural perspective, because an individual's subjectivity is neither fixed nor without agency. Subjectivity is also constitutive of reality and, insofar as it is always also "becoming," offers a potential site not only for observation but for intervention and change via, amongst other things, participatory research methodologies (Cameron and Gibson 2005; Gibson-Graham 2006; Kindon et al. 2007).

Understanding the contradictory production of environmental subjects is particularly important as emerging neo-liberal regimes worldwide create conditions for new types of environmental governmentality (Heynan et al. 2007; McCarthy and Prudham 2004). The enclosure of remaining common resources, withdrawal of state maintenance of resources, reliance on market solutions to environmental crises, and enrollment of local communities in conservation and resource management are all opportunities for not only increased capital accumulation but for the simultaneous disciplining of resource users into neo-liberal subject positions.

But these neo-liberal pressures are never complete and subjects act upon new environmental developments, policies, and practices in different and always contradictory ways, which, in turn, create openings for resistance. As Agrawal suggests,

> The relationships of subjects to the environment […] need to be examined in their emergence [… and t]o pursue such a making of environmental subjects, it would be necessary to give up the concept of subjects and interests that are always already given by their social-structural locations and instead examine how they are made (Agrawal 2005 p. 211).

To discover and understand how environmental subjectivities are emerging in particular social and geographic locations is possible with ethnographic methods, and environmental geographers increasingly use them to address just how complex socio-economic processes related to environmental regulation are actually enacted (and sometimes subverted) by environmental subjects in the context of, for example, the privatization of common resources (St. Martin 2007); expansion of cash-crop agriculture (Katz 2001; Wolford 2006); access to indigenous environmental knowledge (Nightingale 2003); and establishment of protected areas and access to them (West et al. 2003).

Juanita Sundberg, for example, has studied the 'identities-in-making' of women involved in the gathering of medicinal herbs in the Maya Biosphere Reserve in Guatemala by being "attentive to how disciplining discourses and practices are invoked, enacted, (re)configured, subverted, and transformed by individuals who chose to be "*for* some worlds and not others'" (Sundberg 2004 p. 47, quote from Haraway 1997, p. 37, emphasis in original). Clearly, as Agrawal (2005) has suggested, researchers need to examine knowledge, politics, institutions, *and* subjectivities, the latter being accessible, understood, and, potentially, alterable via ethnographic methods.

Understanding power

In the past, environmental research was seen as primarily empirical and distanced from power struggles as it was mainly concerned with informing pragmatic policy decisions. The exception was research by political ecologists who, since the 1970s, brought to environmental geography the concerns of political economy such as the enclosure of common property, uneven distributions of access to resources, and class exploitation as it relates to land and environment (Peet and Watts 1996; Robbins 2004). Clearly focused on questions of power and politics since its inception, political ecology has also often relied upon ethnographic methods to access the lived experiences of peasants and/or "land managers" subject to political-economic transformations and global structural forces.

Many of political ecology's major concerns are finding there way into more mainstream environmental research and policy development. The new focus on community impacts of regulations, community participation in environmental issues, and attempts to mitigate environmental injustices are all recent developments that clearly intersect with political ecology research. In the case of fisheries in the United States, for example, new federal regulations make clear that the impacts of fisheries regulations must be assessed relative to both 'fishing communities' and to questions of environmental justice (Olson 2005; St Martin 2006). While often contradictory, these mainstream adoptions of political ecology concerns nevertheless suggest a broadening of the environmental field such that questions of uneven and unjust impacts, if not power, might be acknowledged and addressed. With this broadening there is also an expansion of ethnographic methods as a way to address these issues.

Where power is understood as the result of political economic structures, ethnography has played an important role as the method by which political ecologists can closely examine the effects of power on local people, their livelihoods, and their environments. The question of power and its relationship to the environment is, however, not just a question of forces form above and their impacts locally but one of struggles across scales involving a host of individual moments, actors, and enactments (e.g. Sletto 2005). Since Foucault, understanding power requires not just an analysis from the top down but

> […] an ascending analysis of power, starting, that is, from its infinitesimal mechanisms, which each have their own history, their own trajectory, their own techniques and tactics, and then see how these mechanisms of power have been – and continue to be – invested, colonised, utilised, involuted, transformed, displaced, extended etc., by ever more general mechanisms and by forms of global domination. (Foucault, 1980).

In this conception of power, ethnography's role is again vital. Here it not only gives us access to impacts but works to explain power itself, how it emerges through and within daily interactions and how it is aligned with power mechanisms, practices, and dominations. Furthermore, similar to above concerning subjectivity, ethnography's explication of power can also be recast as an intervention into power, its maintenance, its disruption, or its redirection.

Scale, global/local

Understanding scale and the relationships between processes operating at different scales remains a major research task of geography. This is also true of environmental geography. Much of this work focused on the downward effects of 'macro' scale processes associated with power – global, national, and regional – where places and communities were most often seen as 'recipients' of those global processes be they economic, environmental, or cultural (Hart 2004). This is true for both traditional environmental geography that relies upon quantitative impact analyses and for political ecology that reveals impacts through a variety of methods including those that are ethnographic. As new understandings of scale as socially constructed rather than fixed have emerged (Smith, N. 1993), however, the local scale has become more than a recipient of impacts, it has also become the 'ground of globalization' (Katz 2001) and the site where processes operating at a variety of scales are manifest "in

location" (Gupta and Ferguson 1997). As a result of this recasting of scale, it becomes clear that ethnography can offer insight into and give meaning to a range of processes once thought inaccessible via methods limited to assessments of only 'the local'.

Using ethnographic methods, environmental geographers are breaking new ground and producing nuanced and grounded understandings of global (or local/global) processes. For example, environmental geographers have addressed the varying impacts of global climate change on places and people possessing different economic power and differing in terms of gender and race (Leichenko and O'Brian 2006), explored the differential impacts of hazards, both natural and technological (Steinberg and Shields 2007), documented the varying environmental outcomes of economic globalization as well as resistance to it (Wolford 2006), and, building upon political ecology traditions, compellingly revealed the diverse consequences of the global move toward neo-liberal forms of natural resource management (Robertson 2004).

Ethnography's practices

Much of the above assumes a 'new' ethnography. How that new ethnography might be actually practiced relative to environmental geography will be discussed below. We focus on an ethnography transformed by critical social theory. We discuss the implications of such an approach to the politics of research and as a dynamic method that mixes and merges with other geographic methodologies (e.g. GIS) and approaches to knowledge production.

Politics and participation

In environmental geography, being effective demanded a rigorous collection and rational analysis of environmental and social data as a way to achieve better resource management practices. Today, environmental geographers are more acutely aware of the non-instrumental and, perhaps, unplanned or unseen effects of their research and knowledge production (Castree 2003). This is especially true as they strive to integrate more local social and cultural processes into their research and are encountering the well know problematics of representation. For example, the very identities of research subjects and of researchers, the motivations and expected behaviors of resource dependent communities, etc. are constituted "*in* the action of knowledge production, not *before* the action starts" (Haraway, 1997, p. 29, emphasis in original, quoted in Sundberg 2004, p. 46). How identities are constituted is

complicated and made political by the unequal power relations between researchers and their subjects.

The positionality of researchers relative to the researched has been widely debated and addressed in the literature (see Crang 2003 for a recent overview) and ethnographic research, perhaps, most clearly illustrates the power dynamics of research due to its history of representing others as well as its overt embodied nature. Geographers have also attempted to address the problematic of unequal power between researcher and subject. They have, for example, volunteered skills to assist in community struggles as a form of compensation and a means to building reciprocal relations (see Cloke et al. 2004). During her ethnographic work in a Mayan community in Guatemala, Sundberg (2004) had to promise to help with labeling medicinal plants in English and "volunteered to assist in every way possible" (p.50). In his research on environmental activism in India, Paul Routledge (2002), similarly, was only allowed to 'observe' the activities of an NGO that was protesting new large-scale hotel developments after promising to participate in their action. Routledge, clearly breaking from the ethical canon of ethnographic research, spoke with hotel developers and managers disguised as a Western businessman interested in the booming tourist industry and its (often illegal) hotel construction.

These examples demonstrate that the traditional model of a 'detached observer' is increasingly irrelevant and that the dynamics of research need to be clearly exposed (rather than submerged). Such research suggests that the subjectivities of both academics and research participants are mutually affected, transformed, and (re)constituted during fieldwork as well as the analytical and writing stages, follow-up visits, and so on (Routledge 2002; Sundberg 2004; see Hyndman 2001 on fieldwork as unbounded).

While impossible to avoid, the politics of ethnographic representation can be directly addressed where participation is explicitly incorporated into the ethnographic method. That is, researchers can acknowledge the co-production of identities and environmental knowledge by both subjects and researchers and, using participatory forms of research, see that the desires and needs of both are addressed through the research process.

> Rather than viewing ethnographic intervention as a disinterested search for truth in the service of universal humanistic knowledge, we see it as a way of pursuing specific political aims while simultaneously seeking lines of common political purpose with allies who stand elsewhere […] (Gupta and Ferguson 1997, p. 37).

Participatory action research (PAR) is an approach where researchers not only recognize the effects of their research but they design projects around the possible transformations (e.g. of identity, politics, environments) they would like to enact. PAR relies upon a host of qualitative methods such as workshops, personal interviews, participant observation, team research, etc. that are clearly aligned with an explicitly political and participatory ethnography (Kindon et al. 2007).

Our research on the economic and environmental transformations of fisheries in New England uses a PAR approach to facilitate a 'community becoming' and a potential for community-based management of fisheries resources (St. Martin and Hall-Arber 2007). Using ethnographic methods we engaged members of fishing communities into a cooperative investigation of fisher's local environmental knowledge, territoriality, and sense of community. Fishers were recruited to conduct in-depth interviews with other fishers in their communities. In addition to eliciting rich narratives of community and environmental histories (the forte of ethnographic methods), the interviews also worked to generate a new subjectivity among the participants, one that emphasized their positionality vis-à-vis community, shared environmental knowledge, and common territories of resource utilization. The ethnographic approach in a PAR context proved vital as a means to foster a potential for community-based management practices and to counter the individualist neoliberal subject given by dominant forms of resource management.

Mixing methods

> Any serious decentering of 'the field' has the effect, of course, of further softening the division between ethnographic knowledge and other forms of representation flowing out of archival research, the analysis of public discourse, interviewing, journalism, fiction, or statistical representations of collectivities (Gupta and Ferguson 1997, p. 38).

The emergence of quantitative methods in the 1960s undermined ethnographic research and related qualitative methods and associated them with purely descriptive and, hence, unscientific work. Today, the scientific authority of qualitative methods has been re-established and they are being widely adopted. They are, however, increasingly seen as not single methods (e.g. participant observation) but as part of a suite of methods (qualitative and quantitative), any of which might be used on a given project. The combination of

methods is made possible by not only the broadening of ethnographic and other qualitative approaches across disciplines but by the re-thinking of quantitative methods and, even, GIS as tools for post-positivist research (Lawson 1995; Sheppard 2005; Pavlovskaya and St. Martin 2007).

Methods once seen as epistemologically incompatible are being successfully combined within "mixed method" research paradigms that often include ethnography (Creswell 2003). The success of such approaches is due to their ability to produce knowledge that otherwise would not be possible to create. This is particularly important in light of the simultaneous expansion of secondary data, mainly in digital form (e.g. remotely sensed data, census information, consumer databases, etc.), and its growing prominence in various types of analysis, including environmental policy (St. Martin and Pavlovskaya forthcoming).

Environmental geography is well-suited for mixed methods approaches. This is clearly demonstrated by political ecologists who are combining, for example, geomatics techniques with ethnographic methods (c.f. Turner and Taylor 2003). Hong Jiang (2003) argues for the integration of satellite imagery analysis with ethnographic accounts of landscape change. Combining these methods produced insights into environmental and cultural change in Inner Mongolia that would not have been revealed by either method alone. Paul Robbins' research (2003; see also Robbins and Maddock 2000) interrogates professional foresters' and villagers' concepts of 'forest' in India. Using remotely sensed images as well as in-depth interviews, his research not only reveals but explains the dissonance between both groups' categorization of forests.

Conclusion

The current popularity of ethnography in human geography is a result of the renewed attention to human subjectivity characteristic of many realms of human geography including, recently, environmental geography. Where in the past, the power of ethnography existed in its ability to comprehensively describe and thereby appropriate other peoples and resources, its strengths today suggest a number of ways that it can inform an environmental geography that is itself moving beyond the instrumental analysis of environmental impacts. These include ethnography's abilities to theoretically (rather than statistically) explain social and environmental phenomena, to explicate 'on the ground' just how environments and environmental subjects are constituted (and constitute each other) via practices of discourse

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and knowledge production, to document the dynamics and impacts of power as it is experienced and performed by people within particular environments, and to effectively examine a host of processes (e.g. social, economic, environmental, as well as cultural) as they are manifest "in location" rather than relegated to scales other than the local.

To access the potentials of ethnography, environmental geographers are fundamentally rethinking the objectives of research and 'fieldwork'. They are acknowledging the ways in which academic research constitutes environments and are beginning to use their research, via participatory ethnographic methods, as vehicles for social/environmental change. They are also pragmatically mixing methods to better complement the mixed and interdisciplinary strengths of environmental geography itself. To address questions of social practices and meanings relative to the environment, ethnographic approaches are merging with statistical, GIS, survey, and other methods long familiar and effectively used by environmental geographers. Environmental geography, as it hones its unique interdisciplinary contribution to understandings of nature/society relations, will increasingly rely upon the power of ethnography to explain those relations and, indeed, to transform them.

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