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The intersection between Political Ecology and Health Geography at the scale of the embodied subject.

Introduction

This progress report proceeds from a political ecology vantage point to explore the engagement by political ecologists with human health. Literature in political ecology, with an explicit interest in issues of health, remains a somewhat recent and narrow field of enquiry within the discipline. This paper explores this body of literature within its broader intellectual terrain along three tracks. First we introduce a brief genealogy of political ecology in order to highlight two important junctures that may be relevant to our larger discussion on political ecology and health: the localizing trend in political ecology towards issues of livelihood and individual experience and the 'reinvention' of nature to include the body material-semiotic 'natural' object. Second we assess some recent and literally field-defining essays in political ecology to assess their commitment, if any, to issues of human health. In this section we find a body of literature which has made explicit attempts to explore local, embodied livelihoods but which often times falls short of addressing explicit issues of health. Third we discuss the modest body of literature that effectively bridges political ecology with health geography. Here, we summarize how key arguments and positions within this work are consistent with both the discursive and material approaches found in political ecology.

A selective genealogy: livelihoods and embodied nature

Over roughly the last 20 years the field of political ecology has evolved from, and indeed responded 'politically' to, neo-Malthusian and cultural-ecological explanations of human behavior and environmental change. Scholars initially turned towards a more neo-Marxist interpretation, aiming to link processes of marginalization, exploitation and environmental change to broader political and economic processes. Political ecology effectively combined "the concerns of ecology and a broadly defined political economy" (Blakie and Brookfield 1987). In order to better account for multiple forms and relations of power as well as places and patterns of under-representation, political ecologists expanded their intellectual purview beyond political ecology's "structural legacy" (Moore 1993) by

integrating a stronger "theoretical coherence" (Peet and Watts 1996) including those of environmental security (Beck 1999, Dalby 2002), post-colonial studies (Braun 1997, Guha and Arnold 1995), feminist theory (Rocheleau, Thomas-Slayter and Wangari, 1996), science studies (Forsyth 2003, Latour 1998, 2004) and post-structuralism (Escobar 1996, 1999). Moreover, in its post-Marxist form (Bryant 2001), political ecologists became influenced by theories and politics of power (Peluso 1992, Neumann and Schroeder 1995), resistance (Neumann 2002, Gadgil 1997, Baviskar 2003, Moore 1996) and knowledge production (Fairhead and Leach 1995, 2003). By the early 1990s political ecologists (though not necessarily self-labeling themselves as such) had turned their attention markedly outward *and* inward. For these scholars, local outcomes and relationships were necessary for accurately understanding the multi-directional relationship between broader development and globalizing forces and local actors, environments and social justice/ecological change.

Taking a keen interest in community and individual politics, political ecology came to highlight such social-ecological features as "environmental health and sustainable livelihoods" (Peet and Watts 1996) and "community-level and regional political action…in response to local and regional degradation" (Hempel 1996). Whether defending or critiquing localism, attention to the individual and his/her livelihood strategies in the face of exogenous economic, political and ecological forces remains, to this day, a central element of research in political ecology.

Another important trend in geography during the mid 1990s was the debate relating to the social construction of nature (Braun and Castree 1998, Demerritt 1998, Escobar 1996, Soper 1996, Emel 1991). These ontological debates over the material and semiotic construction of nature have been premised on the one hand by the reflections of Marx and later Smith (1984) on the metabolic process by which 'second' nature is represented and produced. On the other hand, these debates have centered on concepts of what Heidegger (1962) refers to as the spatially contingent and unstable 'life of language' and 'temporality of being'. Destabilizing universal truths and promoting a pluralist conception of nature led to what Swyngedouw (1997) labels as 'socionatural' and Latour (1993) and later Whatmore (2002) refer to as 'hybrid' natures. Moreover, a construction-as-philosophical-critique as Demerrit (2002) terms it, challenges nature/culture, subject/object and representation/reality dualisms.

One important outcome of this flurry of constructivist scholarship was the expansion of the definition of nature to include the human body. Marx's theory of production had long rested heavily on the assumption that the human species is linked to nature through class-based social relations. However, the body itself as Braun and Castree (1998) note, is "…firmly situated within the complex technical, discursive and productive landscapes of late capitalism." This move within nature-society scholarship, allowing for a corporeal modality of nature, generated substantial discussion about the body as an artifact of strategies of accumulation (Harvey 1998) and scientific intervention (Haraway 1991). From these debates, intellectual advancements have enabled political ecologists to not only accept nature as a reflection of social relations and human subjectivities, but to also view the human bodyscape as part of a reinvented and contested nature.

Political ecology's core interests in individual livelihoods and contested, embodied natures might lead the casual observer to think, at first glance, that politics surrounding human health is a significant, if not dominant topic within the field of political ecology. This essay presents the case that while there are some explicit, and some less direct attempts, to bring issues of human health into political ecology, a large portion of the literature falls short of this connection. We also suggest that attention to human health is found within two methodological camps which mirror contemporary debates between political ecologists over the role and meaning of the term "ecology". In this context, human health in political ecology is used by researchers emphasizing both discursive-representational and material-empirical lines of political inquiry.

Health and environment in recent seminal texts and key debates

Paulson et al. (2003) present a valuable discussion on the state of politics in political ecology. The authors argue that three basic challenges currently confront the trajectory of political ecology: first is a challenge to pursue a more thorough understanding of politics and environment so as to better understand the relationship between them; second is to identify research methods that are more inclusive of these relationships; and third is the implementation of methodological frameworks that address real social environmental concerns in practical ways. The authors argue for an expansion of politics that operates

across multiple scales and contexts and which also move beyond traditional politics to struggles over human practice, meaning and representation.

Similar to Watts (2003), Paulson et al. make the case that the environment can be expressed by political ecologists in ways other than through material biophysical entities. For example, while significant work in political ecology couples ecological measures and concepts with political and economic analyses (Turner 1993, 1999, Zimmerer 1991, 1993, 1999, Bassett and Zueli 2000) other researchers tend to focus on how issues of power and representations and cultural-economic phenomena are central to ecological processes (Braun 1997, Schroeder 1999, Walker 2003).

Smilarly, Walker (2005) describes what he sees as a pivotal question for political ecology. What should the study of ecology actually entail: the study of politicized ecology in terms of power, struggle and representation over nature, or the study of biophysical environmental change? However, in both Walker and Paulson et al.'s review of 'politics' and 'ecology' in political ecology they seem to overlook the human body and its health as a form of contested nature. Limiting the debate over what ecology is to a discussion on the merit of a generic 'ecology' as material or representational subject leaves human health largely un-interrogated. As it so happens the issue of human health is never mentioned in either Paulson et al or Walker's summarizing discussion on political ecology.

For *these* authors human health seems to get lost in the relational categories assigned to political ecology- a set of relationships that Paulson et al. crudely outline "people, practices and biophysical phenomenon". Separating people from biophysical phenomenon denies 'people' any 'ecological' ground to stand on. Such a dichotomous relationship obviates any discussion of human health itself as a materially and representationally contested form of the biophysical.

A review of three recent book length texts in political ecology by Zimmerer and Bassett (2003), Forsyth (2003) and Robbins (2005) also sheds light on the current practices and direction of political ecology. Zimmerer and Bassett, in their edited collection, provide a wide array of case studies that seek a "tighter interweaving" of biophysical and social science understanding. As a collection of case studies designed to highlight a particularly geographic approach to political ecology, the authors also emphasize how "political-ecological processes incorporate and generate scaled spaces of interaction" (p4). With an emphasis on the "active

role" of biophysical processes in shaping human-environmental dynamics, human livelihoods, vulnerability and resistance remain central themes. For example Pelling, focusing on urban environmental risk in Guyana, effectively demonstrates how the structure and distribution of political, economic, social and environmental resources shapes an uneven geography of community and individual risk. While resident wellness is of central concern, empirically grounded health characteristics and trends are missing, unlike the rich ecological (e.g. Bassett and Zueli) and agricultural (e.g. Zimmerer) surveys described in other essays of the same volume. Despite all of its useful insight, an explicit tight interweaving of human health is negligible in this set of essays in political ecology.

Forsyth (2003) introduces a "critical" political ecology to reveal how environmental science and politics are co-produced and are mutually reinforcing at every stage. At its most basic level then, Forsyth challenges the idea that environmental science and politics are separate. Evaluating the role of power in the 'ultimate' framing of environmental problems, research designs and practical management applications, 'critical' political ecology investigates how supposedly neutral explanations of ecological reality are made. Forsyth's reference to environmental science, and its assumptions and orthodoxies invariably refer to nonhuman processes. Health sciences, in their absence, are not represented as a subset of environmental science while human health is left unattended and separate from issues of environmental health.

Robbins describes political ecology as it has been performed by scholars, from periods predating even the term political ecology to contemporary times. This text, which highlights common questions from all corners of political ecology's expansive intellectual terrain, describes political ecology as a critical ("hatchet") and progressive ("seed") alternative to apolitical explanations of society-ecology interactions. Significant portions of the book detail threats to livelihood with respect to changing power geometries, social relations and ecological conditions. However, only towards the end of the reader, during a discussion of "where to now?" does Robbins explicitly discuss livelihood in the context of bodily health. Here, health risks associated with chemical exposure in the context of Robbins' own work on suburban lawns (p210) and in migrant worker populations (p217) are only briefly touched upon. The role of human health studies (and medical geography for that

matter) within the field of political ecology never gets explicitly addressed in Robbins otherwise rich account of the field.

Locating human health in a broadly defined political ecology

Though still a small field, political ecology has engaged with human health concerns via three main avenues. The first, which has its origins in Focauldian biopolitics, is through recognition of the human body as itself deeply and integrally embedded in the larger biophysical ecological environment. The blurring of the line between the human body and nature allows political ecological frameworks to critically interrogate discursive strategies used by powerful political actors to define the limits of the body and to regulate accordingly while claiming to act in the interests of population health and security. The second main avenue on which political ecology has engaged with human health lies at the nexus between cultural ecology and political economy (Mayer 1996). Along this track, scholars with a focus on the political ecology of health and disease investigate the reach and impact of large scale political forces in disrupting biophysical ecosystems that are interdependent on humans and human health. The third field consists of work on environmental justice. This body of literature rests upon the ideal of equal treatment for all members of society and uses the uneven production and distribution of environmental resources, exposure to harmful externalities and formal political engagement as the basis of their concerns. The human body stands as both a site of degradation and subjugation as well as a site for activism, confrontation and change.

There are very recent developments (Mathewson 2004) that point to a way in which the first two avenues of political ecology of human health might be united which I will return to later. The first avenue of a political ecology which interrogates the relationship of the human body vis-à-vis nature, is illustrated in Martin's chapter "Fluid Bodies, Managed Nature" that appeared in 1998 in the compilation *Remaking Reality: Nature at the millennium*. Here, Martin offers a 20th century genealogy of popular medical conceptions and discourses of the body that set the stage for various human body/human health managerial projects by the state. Though Martin does not explicitly identify her work as political ecology, genealogies of this sort of are congruent with a political ecology project in that local, political histories figure prominently into Martin's analysis. She identifies the

major conception of the body in the first half of the twentieth century as being that of a fortress which requires well-defended borders to guard against that which is non-self. This image is overlayed with a conception of the body as a machine, a conception that resonates with Fordist-era mass production. The body is well-functioning insofar as it is periodically regular, and it is safe when its borders that are defended from outside influences that might jeopardize this regularity. Over time, beginning in the 1970s, this conception of the body was replaced by one in which chaos and complex systems theory played an increasingly important role in understanding the relationship between the body and its surroundings. Adaptability in "response to a changing internal and external environment" became the valued state of affairs for the body-system, with renewed interest given to highly porous and fluid body boundaries such as mucous membranes (Martin 1998 p.69). The body is no longer battling exogenous agents from the outside, it is in fact dancing with them. With a body that is literally open to the environment, management of that which the body comes into contact becomes increasingly important. "Virtually everything that a person experiences comes to seem relevant to health" (*ibid.* 75). Management of the body, in a post-Fordist era, will require a greater participation by the individual person for nurturance, management and development. Martin also sees these developments leading to a loss of self-determination in favor of a larger collectivity guided by 'right conduct' and authority. Martin gives the example of bio-surveillance techniques such as "home testing kits that pharmaceutical corporations are marketing for parents to use on their children's urine to detect drug use" (*ibid.* 79). Indeed, with this new paradigm of a collection of bodies with fluid boundaries, Martin warns that a discursive frame that embeds the human body deeper into nature invites familiar forms of oppression by a state apparatus determined to protect and manage bodies.

The origins of the state's interest in regulating and managing bodies is part of a larger project of governmentality concerned with the exercise of biopolitics. In *Discourses of the Environment* (1999), a collection of scholars engage with Foucault in order to improve understanding of the nature/society relationship, Rutherford introduces Foucault's description from *Discipline and Punish* of the disciplining power of biopolitics unleashed by state structures and institutions to "produce docile bodies 'that may be subjected, used, transformed, and improved'" (Rutherford p.38). State institutions utilize knowledge from the social sciences to manage the population; indeed, the techniques of biopower were necessary

for the development of modern society and the policing necessary to ensure productivity and security. Rutherford writes: “The task of administration rested above all on ever more detailed knowledge of the resources of the state, including all the characteristics of its population and particularly knowledge of geography, demography, natural resources, agriculture, climate, etc. The strength of the state…was directly linked to the well-being of the population” (*ibid.* 47). Biopower, which is concerned with ‘administering life’ developed along two distinct (yet related) tracks. The first, as Foucault puts it, is an ‘anatomo-politics of the human body’ that is focused on disciplining the individual body to increase its utility, manageability, and seamless integration into systems of economic control. The second track of biopower, a more recent development, is concerned with regulation and supervision of the ‘species body’, ‘the body imbued with the mechanics of life and serving as the basis of biological processes.’ Rutherford explains that Foucault saw the emergence of biopolitics as linked directly to “an expanding series of population discourses focusing on health, criminality, education, sexuality, etc.” (*ibid.* 51).

This is precisely how discursive constructions of the body and regulatory power exercised thereon are linked to concerns about health. As we look to contemporary concerns about population, environment, and health, the goal has shifted towards the managing of populations and resources in relation to their natural environments. The emergence of regulatory science, the proliferation of medical and social-scientific knowledge as normalizing or rules-setting disciplines, together with what Rutherford calls ecological govermentality, have joined to produce our distinctively modern biopolitics (*ibid.* 41 and 56). Regulatory bodies play the role of epistemic policing, by framing the nature of risk to the species body and by certifying what counts as scientifically valid knowledge about the natural world. Lanthier and Olivier’s (1999) chapter in the same collection as Rutherford’s also identifies medical discourse as playing an important role in creating the ‘healthy environment’ framework and in persuading individuals to be concerned about their environment. With bodies with fluid borders, the environment of concern delves closer and closer to the body itself. This is a liberalizing move that recruits self-policing, through the adoption of an ‘ecological consciousness’, as an instrument of biopower. Tension remains, however, because life seems constantly able to escape the technologies of biopower.

By bringing discursive constructions of the human body vis-à-vis the environment into relief, Martin, Rutherford, and others show one distinctive avenue by which political ecology can directly address the fitness or health of the human body.

In medical geography, progress towards questions of political ecology and health/disease has been slow coming but arrived gracefully and explicitly in 1996 with Mayer's article in *Progress in Human Geography* entitled "Political ecology as one new focus for medical geography." Generally speaking, medical geography as a field has had quite a late start in centrally engaging with political concerns surrounding health. In a 1986 *Antipode* piece, Mohan called for a more serious engagement with socio-political influences of health in medical geography. The field traditionally has principally operated via two often disconnected streams: disease ecology and health care access/delivery (Mayer 1982) with quantitative methods and spatial analysis figuring prominently into research methodologies. Isolated projects prior to Mayer's paper had introduced issues of political economy into the health/disease ecology nexus such as investigation of the relationship between global economic processes, development, and local disease patterns in Tanzania (Turshen 1977; 1984); between the transition to cash economy in Trinidad and increased dawn/dusk exposure to malaria-carrying vectors (Fonaroff 1968); and between rubber plantation-driven deforestation, proliferation of mosquito breeding pools, and malaria outbreaks in plantation workers (Meade 1976). However, none of this work had been unified into a theoretical framework coherent with the overall concerns of medical geography. Mayer's political ecology in medical geography framework relies on the importance of political context and integrating this with the cultural and disease ecological frameworks have been central to medical geography. In fact, Mayer writes that the major innovation in political ecology is the unification of cultural ecology with political economy (Mayer 1996 p. 447). He uses this framework to examine infectious disease outbreaks—past, present, and future—that depend on a particular arrangement of circumstances that bring human beings in contact with exogenous pathogens (1996; 2000) but leaves open questions on the applications of political ecology to understanding non-infectious disease patterns.

A limited number of authors have followed suit and utilized the political ecology of disease framework. Kalipeni and Oppong (1998) apply Mayer's political ecology of disease framework to examine the refugee crisis in Africa, exploring the role that political and civil

strife/warfare play in generating displaced populations who are forced to live in the unsanitary conditions of refugee camps which occasion the spread of infectious diseases such as cholera. They also examine non-infectious disease and health impacts arising from the attendant mental health impacts of trauma, torture, and rape, malnutrition and starvation arising from food shortages, and blockages in health care access due to political crises. In a more recent work (2005), the two authors engage a political ecology framework to describe the human health impacts of the ~37 million landmines in at least 19 African countries including Angola, which has the highest amputee population in the world at ~70,000. In addition to the direct physical assaults to the human body due to detonating mines spread clandestinely over a landscape, the authors also look at the restrictions to movement and agriculture due to mine fields. Another study (Richmond et al. 2005), using a political ecology of health framework, explores the health and 'well-being' of the 'Namgis First Nations community around Alert Bay in Western British Columbia whose traditional economic and cultural base, salmon-fishing, has been impacted by the introduction of salmon aquaculture. The innovation of this paper is that a political ecology of health framework links the political economy of salmon aquaculture with cultural 'demoralization' and attendant health problems such as problematic substance use (*ibid.* p.10). Harper (2004) illustrates another important health angle. Here, Harper writes about the connection between air quality and respiratory health in Houston. In both Harper and Richmond *et al.*, there is an additional engagement with local understandings of the link between ecological change and health.

In the small, yet diverse medical geographic (and medical anthropologic) engagements with political ecology and health/disease addressed thus far, the approach has essentially been one that considers the link between socio-political forces and biophysical processes that generate disease, trauma, erosion of livelihood, etc. Humans are seen as being part of a larger biophysical ecosystem that is disrupted due to political forces. There is little or no engagement with the discursive construction of the human body in relation to the larger environment or the co-opting of bodily discourses by political powers. Are these two avenues of political ecology and health irreconcilable? Recent work by Mathewson suggests a possible integrative route: through examination of the geographies of psychoactive plants (2004). Mathewson introduces the concept of moral geography to refer

to both the actual and symbolic terrain upon which traditional societies elaborate their customary livelihood and belief systems, and the cognate spaces in which they defend these practices and perceptions. For most indigenous peoples, the drugs in their culture, whether sacred or profane, are manifest in both their moral economies and geographies. (*ibid*. p.12-13)

Mathewson recognizes the central cultural, spiritual, and medicinal roles that psychoactive plants play in the ecological tie between indigenous peoples and their land/place/environment. Additionally, Mathewson ties in the critical role that body discourses and Foucaldian biopower play in "modernity's dual project of colonizing, regulating, and often criminalizing various states of mind or actions involving human bodies" (*ibid*. p.21). The human body is, after all, the place of juncture between the psychoactive plant used and the regulatory controls exercised thereon. In other words, the body is the point of contact between local moral geographies and often global biopolitics that regulate the body. This is a fascinating point of contact ripe for study that links the biophysical environment and discursive representations of the body as seen through the lens of political ecology and human health as enumerated thus far. Foucault, it turns out, did have 'drug' control in mind when discussing biopolitics and modes of social repression, control, and reproduction. In an interview conducted in 1971, Foucault asserted that "the campaign against drugs is a pretext for the reinforcement of social repression; not only through police raids, but also through the indirect exaltation of the normal, rational, conscientious, and well-adjusted individual. This prominent image can be found at every level" (*Actuel*).

Concerns over environmental equity and racism found within the environmental justice literature often take a keen interest in human health. This body of research is often times the result of a politically motivated attempt to draw connections between race, class, gender and exposure to undesirable/harmful land uses, access to natural resources and ability to engage with political decision making. More consistently than other works of political ecology, environmental justice examines ecological and political processes in order to reveal patterns and trends that produce social inequalities. As Harvey (1996) puts it, "The environmental justice movement…puts the survival of people in general, and the poor and marginalized in particular, at the center of its concerns" (p386).

The connection has been made between 'colonialism' and forms of racism found in environmental planning agencies. In this argument, the progress of the "colonizer" depends on both the dependency and exploitation of the "colonized" (Bullard 1993). Though

motivated by regimes of oppression and publicized through popular epidemiological fact-finding missions, the environmental justice movement can ultimately be viewed as liberating. Central to this movement is the emancipation of the human body from economic regulations and planning policies leading to inequitable health conditions, particularly for low income and minority populations.

Themes within the environmental justice literature vary in their attention to bodily health with some placing greater attention on scales of movement identity and mobilization (Towers 2000) and processes of inequity production and resolution (Williams 1998). Others have focused more intently on the politics of (im)mobilization (Lake 1996, Bullard 1993). Some researchers have given greater empirical attention to the inequitable exposure of certain populations to hazardous conditions (Mitchell and Dorling 2003, Bullard 1991). Despite its heterogeneity, environmental justice literature provides a good illustration of research that tends to engage specifically with the health of human populations in both rural (Perfecto 1992) and urban (Gandy 1997, Pulido et al. 1996) settings.

In this progress report we have described a trajectory in political ecology that illustrates an apparent interest in the human body and human health. The prevailing issue of livelihood has conveyed an interest by political ecologists for bodily health and well-being. Moreover the flexible definition of nature, in its many modalities, illustrates a willingness to treat the body as ecologically fluid with nature. Despite these trends, an explicit engagement with human health remains outside of the purview of most political ecologists. As a review of recent debates and seminal texts indicates, the human body and its health remain in the margins of political ecology research. In this report we also address apparent progress towards the integration of political ecology and medical geography. Three avenues of research offer promising material and intellectual terrain for future research: biopolitics and the regulation of the body, politically-driven ecological change and health, and environmental justice and health. These avenues remain consistent with representational and material intellectual tracks within political ecology.

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