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# The limits of 'neoliberal natures': Debating green neoliberalism

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## Abstract

This paper presents a meta-analysis of recent critiques of geographical scholarship on 'neoliberal natures'. The analysis juxtaposes distinct (and at times divergent) conceptualizations of neoliberalism – as political doctrine, as economic project, as regulatory practice, or as process of governmentalization – and also of nature – as primary commodity, as resource, as ecosystem service, or as socio-natural assemblage. Strategies for developing a more systematic account of the variegation of neoliberal natures are discussed, with the goal of provoking scholars of neoliberal natures to reflect upon their core conceptual and methodological commitments, while contributing to broader debates over neoliberalism and the 'nature of nature'.

## Keywords

environment, markets, nature, neoliberalism, political ecology, political economy, resources

## 1 Introduction

The past few decades have witnessed a rapid increase in the involvement of private corporations in resource ownership, biotechnological innovation, and the provision of ecosystem services. Simultaneously, markets (and market proxies) have been deployed as mechanisms of environmental governance at multiple scales. Advocates present these developments as a welcome 'greening' of capitalism that will resolve critically urgent environmental crises, and promise a virtuous fusion of goals of economic growth, efficiency, and environmental conservation. Opponents reject these developments as 'greenwashing' of the appropriation of resources and the environmental commons for private profit, which will deepen socio-environmental inequities.

The ensuing debate on 'neoliberal natures' has elicited sustained interest on the part of

geographers (for edited collections, see Heynen et al., 2007; Mansfield, 2008a; for a recent review, see Himley, 2008). Studies have been conducted of Bolivia's water wars, carbon emissions trading, the commodification of pets, bio-prospecting, wetland banking, international trade in human organs, and genetically modified organisms, to cite just a few examples (Bakker, 2004, 2005; Bridge, 2004; Dibden et al., 2009; Goldman, 2005; Guthman, 2004, 2007; Heynen and Perkins, 2005; Heynen and Robbins, 2005; Liverman and Vilas, 2006; McAfee, 2003; McCarthy, 2005a, 2005b, 2005c; 2006a; McCarthy and Prudham, 2004; Mansfield, 2004, 2007a; 2007b; Perreault, 2005, 2006;

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Prudham, 2004, 2005, 2007; Roberts, 2008; Robertson, 2004, 2007; St. Martin, 2005, 2007).

This paper explores recent critiques of geographical scholarship on neoliberal natures (see Bakker, 2005, 2009; Braun, 2008, 2009; Castree, 2006, 2008a, 2008b; Harris, 2009a, 2009b; Himley, 2008; Littlefield et al., 2008). My goal is two-fold: to unpack conceptual blind spots and methodological pitfalls within this literature and to suggest constructive responses. In this context, the title of the paper has a dual meaning: the limits to nature's neoliberalization (in the spirit of Harvey's *Limits to Capital*); and the limitations of conceptual frameworks deployed within the 'neoliberal natures' research agenda.

This discussion is offered in a spirit of engaged pluralism (Barnes and Sheppard, 2009). My goal is to bring three strands of geographical scholarship on neoliberal natures into dialogue. Political economic approaches (inflected with the concerns of political ecology) are the foil for much of my analysis.<sup>1</sup> I also invoke two other perspectives on neoliberalism and nature that are articulated within the broader 'material turn' in geography (Bakker and Bridge, 2006; Jackson, 2000; Whatmore, 2006): relational approaches, particularly as developed within cultural geography; and an analytic of environmental governance, particularly as developed within political ecology. It is not my intention to shore up (crumbling) distinctions between subfields of geographical inquiry; nor do I intend to narrowly delimit the definition of neoliberal natures. Rather, as explored below, I suggest that the overlaps between (and divergences among) these approaches are productive territory: for example, the distinct (and at times divergent) conceptualizations of neoliberalism – as political doctrine, as economic project, as regulatory practice, or as process of governmentalization – and also of nature – as primary commodity, as resource, as ecosystem service, or as socio-natural assemblage.<sup>2</sup>

Inevitably, some readers will disagree with my attempt at framing these approaches and the associated attempt at dialogue. These disagreements are both legitimate and reflective, I would argue, of broader tensions across the discipline and indeed beyond. The goal of the paper is not to resolve these tensions, but rather to engage with them – as a means of responding to recent critiques, and exploring avenues for rethinking scholarship on neoliberal natures.

My analysis of these critiques is structured around two interrelated challenges which they present to scholars of neoliberal natures: the call to move 'beyond nature', on the one hand (section II); and the call to move 'beyond neoliberalism', on the other (section III). This framing is not meant to imply a rejection of these terms, nor is it intended to imply an assertion of a post-neoliberal transition. Rather, the term 'beyond' is used to signal a critical engagement with the ontological status of both neoliberalism and nature, in order to stimulate dialogue about conceptual blind spots, and associated methodological commitments. By way of illustration, let me reframe these critiques as a set of questions with which (critics argue) the neoliberal natures literature has not yet grappled. Why do some types of neoliberalization processes occur with respect to some types of socio-natures, and not others? How can we account for the articulation between local expressions of neoliberal projects and broader processes of neoliberalization? How might our analyses account for the co-constitution (or co-production) of socio-natures and neoliberalization processes?

As the paper progressively unpacks these questions (and associated critiques), I develop the following argument: scholarship on neoliberal natures would benefit from an expansive view of socio-nature (rather than narrowly defined nature-as-resource), an incorporation of non-dualistic understandings of agency, and a more systematic account of the variegation of neoliberalization. This would, in turn, imply reworking our definitions of neoliberalism,

through integrating multiple dimensions of neoliberalization – affective, libidinal, and cultural, as well as political, ecological, and economic. In making these arguments, my goal is to suggest how scholars might engage more comprehensively with the multiple entanglements between socio-natures and capital under neoliberal modes of governance, while accounting more fully for the co-presence of the non-human – both animate ‘nature’ and inanimate ‘things’ – within conventional human worlds.

## II Beyond nature?

Let me begin with a question. What is the ‘nature’ in ‘neoliberal nature’? More precisely, which ‘natures’ are the foci of our concern, and how are they defined? In response, let me begin by examining the framing of nature in two flagship collections on neoliberal natures (which focus on political economic approaches): Mansfield’s *Privatization: Property and the Remaking of Nature-society Relations* (2008a); and Heynen et al.’s *Neoliberal Environments* (2007). A scan through these two volumes generates a list of natures: agricultural foodstuffs, land, fish, gold, trees, water, wetlands, wildlife (such as deer and elk), and urban green space. These volumes largely define nature as a resource, often narrowly circumscribed as primary commodities. Other types of socio-natures – such as human bodies, genetically modified organisms, ecosystem ‘services’ of various kinds – receive scant attention (although for two exceptions see Prudham, 2007, and Robbins and Luginbuhl, 2007). A recent review of the literature (Himley, 2008) suggests that this pattern is relatively consistent: studies in this vein have tended to focus on the encroachment of capitalist economic relations on what we conventionally delimit as ‘the environment’ and ‘resources’, which are usually (albeit implicitly) defined as non-humans.

As a result, political economic approaches to the study of neoliberal natures have given rise to the following critique: this research adopts an

overly constrained view of agency and fails to confront the political subjectivity of socio-natures (Braun, 2008). This is the case, I suggest, because scholars of neoliberal natures often implicitly rely on a humanist view of the subject, and an associated anthropocentric conception of political subjectivity. Little reference is made, for example, to the range of terms (Latour’s ‘hybrids,’ Swyngedouw’s ‘socio-natures’, Haraway’s ‘cyborgs’) employed by scholars of political ecology, human ecology, and science and technology studies (STS) to invoke the necessity of dispensing with the humanist model of the subject, and associated nature-society dualism so central to modern thought (Haraway, 1991; Latour, 1993; Swyngedouw, 1999). Braun argues that the ‘concerted attempt among political economists to understand the ways in which non-human nature resists its incorporation into particular political economic and spatial forms’ is limited by its failure to incorporate the ‘non-human . . . as a constitutive element of social and economic life’ (Braun, 2008: 668). His argument suggests that it is no mere coincidence that scholars operating from a political economic perspective have generally shied away from studying bio-cultural entities, or animals: they raise questions of agency of the *co-constitution* of humans and non-humans that are difficult to handle within the conceptual frameworks typically employed in this literature (although for an exception see Robbins and Luginbuhl, 2007). The (inadvertent) consequence is a failure to address the full scope of environmental processes and socio-natural entities subsumed within processes of neoliberalization.

Let me give a counter-example: Nast’s work on pet love under neoliberalism (Nast, 2006). Nast documents the commodification and spatialization of pet–human relationships that are articulated with political economic processes of neoliberalization. She argues that these pet–human relationships are characterized by new practices, such as dog yoga (‘doga’) and the cloning of pets. These practices entail an

intensification of the affective ‘work’ required of pets, but are also, Nast argues, a form of commodification of pet lives (and loves). These arise, she argues, in response to a range of alienations associated with post-industrial lives and places, including changes in family and community structures, aging, and patterns of labour mobility. The post-industrial ‘isolations and narcissisms’ with which Nast is concerned stem from, but are in turn enrolled in, broader socio-spatially uneven processes of wealth accumulation and investment. The surprising proliferation and intensification of pet services and relationships over the past 20 years, in other words, are part of a dual process: the intensification of nature accumulation and hyper-commodification of consumption under neoliberal regimes of capital accumulation, which have created the affective conditions for the growth and diversification of the capitalized pet economy. The neoliberalism of nature, from this perspective, is simultaneously economic, social, libidinal, emotional, material and cultural (see also Guthman, 2009; Mansfield, 2003, 2008b, 2008c).

Nast’s work is an example of the conceptual commitments of ‘animal geographies’, which frame animals as co-constitutive actors in construction of human societies and economies, while querying the boundaries between the human and non-human (Hinchliffe et al., 2005, 2007; Philo and Wilbert, 2000; Whatmore, 2002; Wolch and Emel, 1998). This framing of socio-natural entities as actors is notably absent from the majority of the literature on neoliberal natures. Contrast, for example, Nast’s work with political economic approaches: the multiple dimensions of neoliberalization processes versus political economic questions of capital accumulation and labour; affective interiorization versus biophysical limits; individual bodies versus resources; the consumption versus the production of neoliberalized natures.

Of course, it is important to moderate this critique with recognition of the fact that political economic approaches to neoliberal natures are

often sensitive to biophysical difference, and thereby to a certain vision of nature’s agency. After all, much scholarship in this vein has been influenced by Neil Smith’s (1984) seminal work on the production of nature and related debates over the social construction of nature. Nature’s agency is usually framed as a set of constraints upon human action, and specifically as a set of limits to capital accumulation (hence the characterization of nature as ‘uncooperative’ and ‘unruly’ in many studies). Nature is, in this framing, neither passive nor inert.

The preceding rejoinder is true, but this misses the central point, I think, of Braun’s argument, which focuses on the need to extend political adjudication to non-humans (see also Escobar, 1998). Framed in this way, the challenge is to go beyond the truism that nature is socially constructed to ‘theorise the manifold forms in which it is culturally constructed and socially produced, while fully acknowledging the biophysical basis of its constitution’ (Escobar, 1999: 3). Accepting Braun’s critique, in other words, implies that scholars of neoliberal nature should adopt a non-anthropocentric view of the agency of nature, and interrogate the status of non-humans as political subjects. In this way, we might produce better accounts of the interrelationships between ecological processes, non-humans and humans – whereby agency is both enabled and constrained. And we would be more sensitive to the pitfalls of characterizations of nature as a passive backdrop to (or victim of) political economic forces. This approach poses, of course, a direct challenge to the modern, Western notion of distributive justice (from which non-humans are generally excluded) and the humanist model of the subject upon which studies of neoliberal natures are conventionally predicated. There is nothing novel in this insight; here, I simply note that this issue is one that scholars of neoliberal natures – particularly those of a political economic persuasion – have not yet addressed in a sustained manner.

Where might we look for examples of such an approach? Political ecology offers an example

of what might be termed a ‘co-production’ approach, in which accounts of the ecological (as well as economic and political) *effects* of nature’s neoliberalization are combined with documentation of constraints imposed upon capital accumulation by the biophysical characteristics of specific resources. Often, this entails selectively adopting methods and frameworks from ecological sciences and political ecology. Robbins’ account of the enrolment of grass seeds in the social construction (and material production) of the North American lawn is one example of an approach which integrates knowledge derived from the ecological sciences (Robbins, 2007). Klepeis and Vance’s (2003) account of the environmental impacts of agricultural neoliberalization policies is an example of the integration of methods from ecology.

In pointing to these examples, I am aware of the need for caution regarding the potential pitfalls of so-called ‘new ecology’ approaches (Scoones, 1999; Zimmerer, 2000), particularly the easy appeal of ‘integrative research’ (for a recent discussion, see Demeritt, 2009).<sup>3</sup> To some extent, these pitfalls might be addressed by addressing the production and social construction of scientific knowledge.<sup>4</sup> Robertson’s analysis of the role of ecological science in the commodification of wetlands, via the production of knowledge about aspects of wetlands that might be codified and rendered exchangeable via ‘wetland banks’, is one example. Some scholars have pushed this agenda even further, through querying the practices by which analytical categories such as ‘ecology’ and ‘economy’ are actively constituted through practices of scientific inquiry (eg, Mitchell’s 2002 account of the interrelationships between human and non-human actors in colonial Egypt).

### *I Blood diamonds*

Another way in which scholars of neoliberal natures might address the question of the co-constitution of humans and non-humans could

be through engagement with scholarship on emotional and affectual geographies (see Pile, 2010, for a recent review).<sup>5</sup> This literature suggests that relationships with non-humans are not solely instrumental (as conventional definitions of resources suggest); they are also characterized by multiple non-instrumental values and emotions. Affective connections and emotional relationships between humans and non-humans play an important role in configuring political and ethical sensibilities; and, in turn, this plays a role in shaping consumption desires and resource extraction practices (Hinchliffe, 2008; Hinchliffe et al., 2007; Lorimer, 2005).

Let me give a concrete example of how an understanding of concepts of emotion and affect might contribute to research on primary commodities: the case of conflict diamonds. Easily accessible ‘alluvial’ diamonds (scattered in surface deposits, requiring only artisanal mining technologies) are much more likely than Kimberlite diamonds (concentrated in subsurface deposits, requiring intensive technology) to finance armed struggles by rebel movements. The former, characterized as ‘blood diamonds’ by NGO campaigners, have shaped global commodity circuits as well as the tactics and outcomes of armed struggles around the world (Le Billon, 2008). As Le Billon suggests, paying careful attention to the different biophysical characteristics of resources and their interactions with strategies of resource extraction can teach us much about the mutual constitution of resources and political economic projects. For example, analyses of the pathways by which ‘blood diamonds’ are incorporated into global commodity chains can inform us about the causes of the unintended violence wreaked on artisanal mining communities by ‘fair trade’ campaigns.

But the non-instrumental values attached to resources like diamonds are also central to an analysis of their enrolment in commodity chains. The socio-cultural construction of desire is, for example, at the heart of the cartelization of the

global diamond industry; the resulting social construction of scarcity has political economic outcomes (such as higher diamond prices) but cannot be explained solely in political economic terms. Desire must also be understood with reference to what Lorimer (2005) terms ‘nonhuman charisma’: the desirability of diamonds, their imbrication with commodified cultural tropes (often related to rites of passage). At the other end of the commodity chain, in diamond-producing areas, both hope and fear (and their manipulation) play a central role in minerals extraction, armed conflict, and resistance (Le Billon, 2006; Lorimer, 2005). Non-governmental actors, in turn, rely on an invocation of affect in their consumer-targeted campaigns to halt the consumption of ‘blood diamonds’. Arguably, the emotive effect of advertising slogans such as ‘Diamonds are a rebel’s best friend’ have been critically important in the dramatic changes which the diamond commodity chain has undergone in the past decade (Le Billon, 2006).

Understanding diamonds, in short, requires reference not only to political economies and ecologies, but also to the non-instrumental values that flow between humans and non-humans when resources are co-produced. The political economic transformations we assemble under the broad label of neoliberalism are enacted, in other words, upon the human and the non-human alike. This requires attention to the broad range of practices (from the desacralization of ‘natural elements’ to the creation of client subjectivities) through which the neoliberalization of nature unfolds, and demonstrates how the concept of affect might extend our understanding of the relationship between the humans and other socio-natures under neoliberalism.

### **III Beyond neoliberalism?**

How might the preceding discussion be articulated with recent debates in geography over neoliberalism? I will make the case, below, that our accounts of neoliberalization will be more

comprehensive if we expand our definition of what ‘counts’ as nature (not merely defined instrumentally, as a resource), and if we acknowledge the multiple dimensions of the relationships (not solely political and economic) between humans and non-humans. As a result, moving beyond ‘nature’ provides suggestive insights, in line with ongoing debates in geography over the meaning, scope, and analytical utility of the term neoliberalism (Bakker, 2005; Larner, 2003).

In order to develop this argument, let me turn to the question of how scholarship on neoliberal natures already does move ‘beyond neoliberalism’, beginning (again) with a consideration of political economic approaches. Perhaps most obviously, the case study approach (a hallmark of this body of research) dispenses with the notion of neoliberalism as an ideal-type, through careful specification of the specific processes at work in ‘actually-existing neoliberalisms’. Moreover, this body of research moves us beyond neoliberalism-as-doctrine, through offering a rebuttal to proponents of ‘free market environmentalism’ (or ‘green neoliberalism’, as opponents term it).<sup>6</sup> This is accomplished through documenting the limits to nature’s neoliberalization, which arise not only because neoliberalism takes place within existing political economic formations with which it has an antagonistic relationship, but also because of the articulation of labour and accumulation strategies with ecological processes in specific biophysical settings, which create barriers and constraints to capital accumulation. A number of studies have causally linked these limits to the process of re-regulation (or ‘roll-out neoliberalization’), offering an explanation of why the implementation of neoliberalization processes is accompanied by an intensification of facilitative government activity, thereby countering widespread assumptions of the ‘retreat of the state’ under neoliberalism (eg, Lockie and Higgins, 2007).

In short, scholarship on neoliberal natures has already done a great deal to move us beyond

hegemonic, oversimplified understandings of neoliberalism. Nonetheless, this body of research has been the object of a compelling critique: this literature, taken as a whole, is compromised of disparate, unconnected case studies (Bakker, 2005, 2009; Castree, 2005, 2008a, 2008b). This, in turn, inhibits the ability of geographers working on neoliberal natures to ‘connect the dots’ between cases. Castree, in particular, argues that little work has been done on identifying commonalities in drivers, patterns, and effects of neoliberalization processes – such as the privileging of private property rights, market-mimicking regulatory strategies, state-led market proxies, and commodification strategies. Collectively, geographers are thus unable to account for variegation; specifically, they are unable to generate convincing explanations of the neoliberalization of nature as a historically and geographically differentiated, yet global (or at least translocal) phenomenon.

This is troubling, because there is tremendous variation in the articulation of neoliberalism with different types of socio-natures. Take, for example, the case of primary commodities: whereas neoliberalization has been widespread and far-reaching in some cases (such as tropical foodstuffs in developing countries), it has been much more restricted in others (such as water) (Bakker, 2005; Cashin et al., 2000; Daviron and Ponte, 2005; Talbot, 2004). Other cases, such as oil, are relatively mixed: nationalization has remained important (although often via ‘hybrid’ forms), but other dimensions of neoliberal economic strategies – a shift from state to private control of oil extraction, intensification of extraction rates, and price deregulation – have been widely implemented (Le Billon and Cerantes, 2009).

Reframing this critique in terms of the concept of variegation might help clarify why this point is analytically crucial (Brenner et al., 2010; Peck, 2008; Peck and Theodore, 2007). If we accept the claim that capitalism is variegated, this implies that we cannot adequately explain processes of

neoliberalization if we have not accounted for the commonalities and differences in patterns of ‘actually-existing neoliberalisms’ across different types of resources in different places. Having identified these commonalities and differences, we need to theorize their emergence in the context of distinct neoliberal experiments. This implies accepting the assertion that these experiments are neither entirely homogenous (and generically reproduced) nor entirely heterogeneous (and unique). Rather, local experiences of the neoliberalization of nature reflect the interplay of inherited institutional lineages, policy landscapes, local economic and political dynamics, and the multiscale dynamics of regulatory restructuring. In light of this formulation of variegation, the problem with a case study approach (specifically, site- and resource-specific studies of neoliberalization) is that it enables differentiation to be empirically documented, but foregoes an analysis of the systematic production of geoinstitutional differentiation, insofar as it neglects to articulate local cases with translocal neoliberalization processes.<sup>7</sup> As a result, scholars of neoliberal nature limit their ability to when, where, and why neoliberal projects are implemented, succeed and/or fail.

How might this critique be refuted? One response is that the biophysical characteristics of resources, and the socio-economic processes with which they are associated, vary so dramatically that expedience (and analytical rigour) demands a case study approach. Another response is that the tendency to engage in resource-specific case studies arises from a refusal (admirable, although often implicit) to engage in analytical abstractions about ‘nature’ as a general, unitary category: biophysical differences are so significant as to render abstraction impossible. These justifications are sometimes offered to defend the fact that the majority of scholarship on neoliberal natures is devoted to case studies.<sup>8</sup> But both of these justifications are unconvincing, in my opinion. On the one hand, differentiation is constitutive of

translocal neoliberalization processes (rather than a phenomenon that could be used to dispute the existence of such processes). On the other, the refusal to examine the 'context of context' amounts to myopia regarding the patterning of processes of ecological as well as political economic change (Brenner et al., 2010). If we dismiss these rebuttals (as I think we should), then Castree's critique stands.

### *I Conceptualizing variegation*

How, then, might we take Castree's critique forward? One strategy would be to try to develop conceptual frameworks that might account for variegation as a dialectic between geoinstitutional differentiation and translocal (but not generic) patterns and processes. Table 1 offers one potential approach to categorizing variegation: a descriptive typology. Here, my purpose is to categorize the primary vectors of variegation through mapping generic neoliberalization strategies across a coarsely defined set of socio-natures. The range of tactics (vertical headings) represents an attempt at an expanded conceptualization of the dimensions of neoliberalization: affective, relational, ecological, and economic. The range of socio-natures (horizontal headings) spans a broad range of categories of socio-natures – primary commodities, ecosystem services, and affective bodies. Accordingly, the typology brings together literatures that do not normally 'speak' to one another, yet which all engage with different aspects of the neoliberalization of socio-nature.

Several caveats obviously apply. Typologies should not be interpreted as an attempt at a unified description in an overly tidy, rigid, ideal-type format; this is certainly not my intent. Table 1 captures only a small sampling of the literature; it is not intended to be comprehensive, but rather to provide one (and not the sole) example of how we might categorize scholarship on the multifaceted patterning of the neoliberalization of socio-nature. Moreover, my classification of

neoliberalization strategies and socio-natural categories might be queried; the categories are not definitive, but rather descriptive and inductive. Finally, the categorization in Table 1 is overly coarse: each category might be subdivided (for example, eco-system services are usually divided into provisioning, regulating, and supporting services); as a result, insufficient attention is given to differentiation within these categories.

In light of these caveats, Table 2 offers one example of a more nuanced approach to conceptualizing variegation, focusing on resources. Key to the distinct categories drawn in this table is the insight that private property rights are more difficult to establish for some types of resources (such as flow resources) than others. As a result, different practices of neoliberalization are more likely to be applied to different kinds of socio-natures – because of their different biophysical characteristics, behaviours, and articulation (co-constitution) of labour and consumption practices; for example, in the case of fresh water, private companies are more likely to engage in private-sector participation than full-blown privatization, which will be the preferred strategy where private property rights can be well established. Different resources are also differentially articulated with labour: in some cases, labour processes are more constrained by the biophysical characteristics of socio-natures (such as variability in resource stocks). To formalize this distinction, I have used a distinction between 'extractive' or 'cultivation-based' industries<sup>9</sup> (Benton, 1989; Boyd et al., 2001), each of which is likely to be associated with a distinct strategy of neoliberalization.

A few caveats deserve mention here. Table 2 is reflective of a certain delineation of the category of nature-as-resource, and an associated (constrained) vision of nature's agency. Moreover, the boundaries between categories are not easily policed: for example, is water static or mobile as it flows through the hydrological cycle? Finally, because resources are relational, it is impossible to definitely assert that any one

**Table 1.** Neoliberalizing socio-natures: a descriptive typology (adapted from Bakker, 2009, in dialogue with Castree, 2008a, 2008b, 2009)

	<b>Primary commodities</b> (including cultivated and extracted resources)	<b>Affective bodies</b> (including humans, companion species, bio-cultural entities)	<b>Ecosystem services</b> (including regulating and supporting functions such as crop pollination)
<b>Privatization</b> (private ownership of property/private property rights)	Privatization of gold resources in Guyana (Bridge, 2002)	Whole organism patents (Prudham, 2007) Commodification of breast milk (Boyer, 2010)	Patenting biological processes (Dickenson, 2007; van Dooren, 2008)
<b>Marketization</b> (markets determine resource allocation and pricing)	Water markets in Chile (Budds, 2004) Tradeable quotas in ocean fisheries (Mansfield, 2007b)	Markets in human organs (Scheper-Hughes, 2005) Global trade in oocytes and embryos (private assisted reproduction services) (Waldby and Cooper, 2008)	Carbon emissions trading (Bailey, 2007a, 2007b) Wetland 'banking' (Robertson, 2004)
<b>Market proxies</b> (market-simulating processes; delegation of state functions to private actors)	Corporatization of state water supply in South Africa (McDonald and Ruiters, 2005)	Workfare policies (Peck, 2001)	Outsourcing of government water quality monitoring to private sector (Prudham, 2004)
<b>De-regulation and re-regulation</b> (liberalization, voluntarist regulation)	'Fair trade' regulation of diamond sector (Le Billon, 2006) Industry-determined agri-environmental and food standards (Guthman, 2007; Higgins et al., 2008)	Liberalization of trade agreements on bio-prospecting (Hayden, 2003; McAfee, 2003) Risk-shifting of workers' health and safety issues through individual 'responsibilization' policies (Gary, 2009)	Liberalization of trade agreements governing capital flows to the water sector (Brown et al., 2008) Forest Stewardship Council certification (Eden, 2009)
<b>Rescaling governance</b>	Rescaling of environmental trade agreements (McCarthy, 2004)	Communities as legitimate forest users under decentralized neoliberal forest governance (McCarthy, 2006b)	'Green' governance of ecosystem services via multilateral financial institutions (eg. Global Environment Fund) (Goldman, 2005)
<b>Real subsumption</b> (Biotechnological modes of production)	Biotechnological agricultural innovations (McAfee, 2003)	Dolly the sheep and other genetically modified organisms (Franklin, 2007) Private IVF/assisted reproduction services (Gupta, 2008)	Patented technologies substituting for ecosystem services (Robertson, 2004)
<b>Externalization</b> (of social and environmental costs)	Agricultural pollution costs shifted to workers and non-human socio-natures (Dibden et al., 2009; Higgins et al., 2008)	Costs of social provisioning shifted to women under neoliberalism (Bakker, 2003; Sutton, 2010)	Neoliberal cost-cutting increases fresh water pollution burden in Ontario, Canada (Prudham, 2004)

(continued)

**Table 1 (continued)**

	<b>Primary commodities</b> (including cultivated and extracted resources)	<b>Affective bodies</b> (including humans, companion species, bio-cultural entities)	<b>Ecosystem services</b> (including regulating and supporting functions such as crop pollination)
<b>Ecological/social fix</b> ( <i>environmental/ social degradation as a source of profit</i> )	'Green' mining technologies (Warhurst and Bridge, 2003)	New types of pets/pet practices as the internalization of social alienation for profit (Nast, 2006)	Payment for ecosystems services in Mexico (McAfee and Shapiro, 2010)
<b>States of exception</b> ( <i>reconfiguration of identity, citizenship</i> )	Indigenous identities mobilized through neoliberalization of gas in Bolivia (Perreault, 2006)	Constrained/suspended citizenship for globalized workers (eg, caregivers) (Pratt, 2004)	Eco-tourism/Recodification of existence value of natural landscapes as 'ecosystem services' (Duffy, 2008)
<b>Alienation</b> ( <i>of emotional, affective relations</i> )	Rescripting of indigenous identities with respect to neoliberal land tenure reforms and livelihoods (Bury, 2005; Valdivia, 2004)	Neoliberal sexual actors (Adam, 2005) Transnational sexualities and the production of desire under neoliberalism in China (Rofel, 2007)	Commodification of biodiversity via intellectual property rights transforms indigenous worldviews of the sacred (Posey, 2002)

**Table 2.** Resource neoliberalization: differentiated strategies

<b>Private property rights Resource type</b>	Clear property rights (eg, 'static' or 'fixed' resources)	Diffuse/weak property rights (eg, 'mobile' or 'flow' resources)
'Extractive' resources (eg, minerals) (Stocks less volatile; labour processes more predictable)	Privatization	Market proxies
'Cultivated' resources (eg, agriculture) (Stocks more volatile; labour processes less predictable)	Real subsumption	Marketization

strategy of neoliberalization will be systematically preferred: the categories in Table 2 might easily mutate, depending on historical and geographical context.

With these caveats in mind, let me offer four reasons why this sort of typological thought-experiment is useful. First, these typologies dispense with the notion of neoliberalism as an ideal-type, coherent, unitary category. Rather, they suggest that neoliberalization unfolds as a range of strategies, which vary depending on the target (eg, property rights versus governance practices) and the type of socio-nature. Not all strategies of neoliberalization apply to all types of resources: for example, real subsumption (the manipulation of biological processes – to produce systematic increases in or intensification of biological productivity (ie, yield, turnover time, metabolism, photosynthetic efficiency) in the pursuit of higher rates of profit) does not apply to abiotic resources.<sup>10</sup> The conceptual precision enabled by distinguishing between these different strategies of neoliberalization might enable a response to one of the major pitfalls of this literature: scholars often use the term 'neoliberalism' (or cognate terms, such as 'privatization') in a variety of ill-defined, often conflated ways, often implicitly assuming that neoliberalism is hegemonic in effect (and, at times, monolithic in form). Greater conceptual precision means that it is less likely that scholars

will be able to conflate different processes under the umbrella term neoliberalism.

Second, these typologies offer a starting point for dialogue about comparative analysis. Specifically, Table 1 suggests that comparative studies might be made of the range of neoliberalization strategies applied to a specific type of socio-nature (a 'vertical' approach); and/or studies of a specific neoliberalization strategy as applied to a range of socio-natures (a 'horizontal' approach). Both typologies remind us, though, that comparison can not be done in a formulaic fashion, given the broad range of strategies via which neoliberalization is enacted, and the fact (as Table 2 suggests) that neoliberalization is relationally defined – in this instance, in articulation with the different biophysical characteristics of resources. This rests on an assumption that processes of neoliberalization may be very different, and have different causes, in different instances. But this does not foreclose the possibility of comparative analysis. Rather, the typologies are intended to build on the discussion of variegation (above), through suggesting one strategy through which we could develop more systematic bases upon which to assess the degree to which cases are 'like' or 'unlike', and potentially amenable to comparative analysis.

Third, these typologies are useful as a thought-experiment about how variegation is, in part, mediated through the co-constitution of

neoliberalization and socio-natures. Specific neoliberalization processes will have very different trajectories and effects when articulated with different types of socio-natures. In other words, strategies of neoliberalization are modulated by different kinds of socio-natures – not only because of their different biophysical characteristics, but also because of their articulation with labour practices, consumption processes, and affective relationships.

## 2 Rethinking genealogies of neoliberalization

A fourth and final comment on the utility of these typologies: they might provoke us to think more broadly about ways in which we define neoliberalism, and the genealogical narratives we devise to justify and explain those definitions. Let me formulate this as a question: what (if anything) is distinctive about neoliberal natures? This question arises because of the fact that political economists have long recognized that capitalism is predicated upon our metabolism of nature (eg, Benton, 1996; Burkett, 1999; Foster, 2000; Smith, 1984); take, as an example, the well-recognized parallels between contemporary accounts of ‘accumulation by dispossession’ and historical enclosures (eg, Perelman, 2000; see also Glassman, 2006; Harvey, 2003). In other words, why talk about neoliberalism; why not just talk about capitalism?

The answer hinges, in part, on the qualitative differences that characterize new practices of capital accumulation (eg, real subsumption) brought to bear on new types of socio-natures (eg, biocultural entities) that have emerged over the past 30 years.

Readers familiar with this literature will have in mind regulation-theoretic accounts of neoliberalism as a political and economic project that rose to the fore of public policy in the 1970s as a (politically contested) response to the crisis of Fordism.<sup>11</sup> These accounts do not, however,

generally take into account the environmental dimension of (re)regulation processes (with notable exceptions, such as Alan Lipietz). The 1970s was also a decade during which widespread awareness emerged of the fact that an instrumentalist approach to nature as a ‘source’ for resources and ‘sink’ for wastes was reaching (human-perceived) limits; in turn, mass environmental movements emerged. The response, on the part of capital, was a shift to intensive accumulation strategies: the commodification of new types of socio-natures, and the search to convert environmental externalities into sources of profit, joined well-established strategies of ‘ecological fixes’.<sup>12</sup> Simultaneously, the production of neoliberal natures has become a global project, mediated by international financial organizations. Environmental governance – from local to global scales – has been captured by the doctrine of ‘liberal environmentalism’, which asserts the belief in the ‘compatibility of environmental concern, economic growth, the basic tenets of a market economy, and a liberal international order’ (Bernstein, 2000). This doctrine gradually achieved near-hegemonic status during the 1970s and 1980s (albeit at different paces and in distinct ways across locales), from the 1984 Brundtland Report (Our Common Future), to the Rio Environment and Development Summit in 1992, and the ‘greening’ of multilateral development banks and development policy as symbolized by the creation of the Global Environment Facility in 1991 and consolidated by the Johannesburg Summit in 2002 (Bernstein, 2000). Simply put, whereas market principles were often viewed in opposition to environmental protection and conservation in the mid-twentieth century, they had by the end of the century become reconciled with economic growth and entrenched in mainstream environmental policy as emblemized in the doctrine of sustainable development (Hartwick and Peet, 2003). The neoliberalization of socio-nature must thus be understood as, simultaneously, a disciplinary mode of regulation, and an

emergent regime of accumulation that redefines and co-constitutes socio-natures.

A central irony of these processes is that they purport to present a solution to environmental crises which capitalism has played a role in creating. These crises are simultaneously discursive, social, and material. They arise from the social construction and political mediation of a very real set of deteriorating environmental, social and economic conditions, raising questions about the limits – cognitive and material – of our models of resource exploitation and our instrumentalist approach to nature and to the reproduction of bodily life. There is nothing particularly new, of course, about fears of environmental threats. But the modern notion of environmental crisis derives its potency, in part, from the discursive mediation of popular perceptions of ‘global’ threats – albeit locally mediated and experienced – that have come to the fore in both policy and public discourse over the twentieth century (Guha, 2000).

Framed in this way, the debate over neoliberal natures takes on a qualitatively new dimension in which psychological and political struggles over ‘ecological fixes’ play an important role (Bakker, 2004). In Beck’s formulation, this is characterized as the negotiation of the risks posed by environmental ‘bads’ (rather than goods), spurred by the fear of their effects which comes to dominate collective politics and individual psyches in industrialized societies (Beck, 1992). The threat posed by capitalist modernity is not merely to an existing social order, but rather a deeply existential threat to the basis of life itself. In making the connection between psyche and society, Beck’s notion of the ‘risk society’ suggests a broad interpretation of Polanyi’s concept of the ‘double movement’ – in which capitalism oscillates between dis-embedding and re-embedding economic activity from society (Polanyi, 1944). In other words, the neoliberalization of nature threatens to alienate and dis-embed ‘nature’ from the socio-natural relations by which it is constituted. The result has been a series of struggles

to resist the neoliberalization of socio-natures, a central theme of which has been the re-embedding of our societies and economies within lifeworlds. If the neoliberalization of nature dis-embeds the economy not just from society, but also from the socio-ecologies upon which we all depend, then restraining technoscience, reinventing capitalism, and re-imagining our world-views, scalar politics and scalar ontologies of socio-nature are urgent tasks. We might thus reframe the ‘double movement’ as a set of intertwined struggles over the material conditions of reproduction (in its broadest sense) as well as production.

Reframing the ‘double movement’ in this way is predicated upon what some might view as a heterodox conceptualization of neoliberalism, and an equally heterodox genealogical account of the emergence of ‘green neoliberalism’. I would argue that this is necessary if we are to produce comprehensive accounts of the neoliberalization of socio-natures, broadly defined. Again, the discussion above is not intended to be definitive, but rather suggestive of the pathways that we might explore with this goal in mind.

## IV Reflections

In making these arguments, let me emphasize that I am not suggesting that we should abandon the concepts of neoliberalism and nature, nor dilute them to the point where they are all-inclusive, and thus analytically unhelpful. Rather, my suggestions are aimed at stimulating dialogue on better strategies for confronting the conceptual polysemism of both ‘neoliberalism’ and ‘natures’. These arguments are made with the intention of provoking scholars of neoliberal natures to reflect upon their core conceptual and methodological commitments, while contributing to broader debates over neoliberalism and the ‘nature of nature’.

Let me briefly recapitulate. I have suggested above that we might search for a more expansive

understanding of neoliberal natures as the outcome of cultural, social, and psychological – as well as political, economic, ecological – struggles over our understandings of and relationships between socio-natures, both human and non-human. An expanded understanding of what ‘counts’ as nature (beyond a narrow view of nature-as-resource) implies a reformulation of how we trace genealogies of neoliberalism, as both a multiscale disciplinary regime and a project of accumulation, wherein the disciplining of socio-natural actors is articulated with translocal processes, yet refracted through local conditions.

This implies, in turn, an engagement with the multiple dimensions of neoliberalization – as a cultural formation and as ecological process, as well as a set of political and economic processes and governing practices (Kingfisher and Maskovsky, 2008; Ong, 2007). In doing so, the co-constitution of socio-natures and neoliberalization becomes a central problematic. A more nuanced view of the agency of nature (together with an expanded account of the variety of natures subject to neoliberalization) would broaden and deepen our accounts, while enabling greater conceptual precision regarding effects *and* viable alternatives. This, in turn, suggests an expanded understanding both of neoliberalism (cultural, psychological, libidinal, as well as economic and ecological) and the socio-natures with which it is articulated. The typologies (presented as Tables 1 and 2) were intended to suggest one strategy for engaging in dialogue about variegation, but were not intended to reify categories via which variegation is expressed.

Potential pitfalls to these suggestions were discussed above. Here, let me point to potential opportunities. Take, for example, the issue of the effects of neoliberalization processes on socio-natures. In much of the literature, the effects of neoliberalization processes are assumed to be necessarily (and often solely) negative. But careful attention to the problematic of variegation suggests a different, more ambivalent viewpoint: the impacts of neoliberalism – particularly

in the environmental realm – are not always uniformly negative for all actors. Accepting that neoliberalization is variegated suggests the possibility that outcomes may be positive as well as negative in specific geo-historical contexts. In other words, reregulation of the environment under neoliberalism produces a shift in the ‘costs’ and ‘benefits’, and their allocation between different users – with some aspects of what we conventionally classify as ‘the environment’ appearing to gain (while others lose) in the encounter (Bakker, 2005; Harris, 2009a). This has a further implication for the study of resistance, insofar as the ambiguous implications of neoliberalism for the environment are reflected in the fractures between different fractions of environmental movements. For example, mainstream environmental NGOs such as the World Resources Institute are openly supportive of ‘market environmentalism’ (and of the technoscientific innovations which fuel it), whereas ‘deep ecology’-inspired environmental groups (such as Earth First!) also tend to be anti-capitalist (and sometimes anti-technology) in orientation.

My framing of the political ambivalence of ‘green neoliberalism’ contrasts with much of the literature on resistance to the neoliberalization of nature within geography, which tends to focus on anti-capitalist, alter-globalization movements. Subtler questions of identity, and the divergent views on markets within environmental organizations and environmental movements more generally, are rarely systematically addressed (for an exception, see Harris, 2010). In short, the conceptual commitments sketched out in this paper might be useful in working through critical accounts of alternatives and resistance to neoliberalization.

The work of analysing resistance should, to put it simply, take into account this messiness rather than glossing over it. Let me point to one promising approach that stems from recent work in Gramscian political ecology. A focus on struggles over the co-constitution of resources and social

relations enables the identification of counter-hegemonic forms of (re)production allied with alternative concepts of nature-society relations (see Ekers and Loftus, 2008; Holifield, 2009; Karriem, 2009; Wainwright and Mercer, 2009). I would argue that these sorts of approaches are necessary if scholars of neoliberal nature want to engage seriously with questions of resistance, not only as ‘discursive erasure threatened by neoliberal theory’ (Gibson-Graham, 2008: 620), or as struggle – on the part of both humans and non-humans – to enrolment in specific practices which we term ‘neoliberal’, but also as creative engagement with processes of neoliberalization in which socio-natures reshape and reframe – in positive as well as negative ways – the conditions of their own reproduction.

Let me close with some comments directed at sceptics. On the one hand, some might argue that those of a political economic persuasion can deploy their own versions of relational approaches without adopting concepts or terminology from cognate subdisciplines. Others might resist the codification implicit in the typological thought-experiment I have presented, and reject the call to articulate analyses of political and economic processes with accounts of assemblages of socio-natures. This paper has positioned itself in opposition to these views, in the spirit of ‘engaged pluralism’ (Barnes and Sheppard, 2009). Let me offer three justifications for this. First, I have argued that dialogue can generate useful insights: for example, those of a political economic persuasion have much to learn from considering the degree to which a commitment (whether implicit or not) to a humanist view of the subject leads to a constrained research focus on resources as primary commodities, excluding other types of socio-natures. Second, I have argued that grappling seriously – and simultaneously – with relational ontologies and the problematic of variegated capitalisms might allow scholars of neoliberal natures to develop a more comprehensive account of the multifaceted articulation of neoliberalization with socio-natures. Third, this might

in turn deepen our contributions to what Neil Smith terms a ‘new political theory of nature’, leading to more fruitful engagement with post-neoliberalism – not as an assertion of a putative political economic transition (of whose existence we should, in my opinion, be sceptical – cf. Peck et al., 2010), but rather as a thought-experiment fully attentive to emergent political, cultural, socio-economic, and socio-natural forms, and better equipped to anticipate and explore alternatives to neoliberal imaginaries.

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### Notes

1. This focus is not intended as a covert attempt at colonizing the concept of ‘neoliberal natures’; rather, it is an explicit attempt to situate the positionality of my critique.
2. Space constraints do not permit more than an allusion to related work by scholars in anthropology, political science, and sociology, including Arun Agrawal, Michael Goldman, Tania Li, and Timothy Mitchell.
3. There is an obvious parallel here with debates about the degree to which political ecologists should use methods derived from the ecological sciences (Walker, 2005). Attempts to reconcile the concerns of anthropology and ecosystems ecology in the 1970s covered much of the same ground (Abel and Stepp, 2003; Biersack, 1999; Kottak, 1999; Little, 1999).
4. It is beyond the scope of this paper to deal with the potential contributions of science and technology studies or actor-network theory to this particular point. See Callon (1998); Latour (1993); Murdoch (2001).
5. The terms emotion and affect are not interchangeable, and definitions vary in the literature. So let me offer a simple definition of affect: an unconscious relational capacity of radical openness to other bodies, experienced by humans and non-humans alike (Anderson, 2006; McCormack, 2003). Affect is, in this definition, distinct from and prior to the conscious experience of an emotion (although debate exists as to whether affect is pre- or post-cognitive).

6. 'Free market environmentalism' may be defined as a mode of resource regulation that promises a virtuous fusion of economic growth, efficiency, and environmental conservation (eg, Anderson and Leal, 2001). Proponents argue that, through establishing private property rights, employing markets as allocation mechanisms, and incorporating environmental externalities through pricing, environmental goods will be more efficiently allocated, thereby simultaneously addressing concerns over environmental degradation and inefficient use of resources. In short, markets will be deployed as the solution rather than the cause of environmental problems.
7. In using the term 'translocal', I am not implying an assumption of convergence, or of some missing 'master narrative', but rather of a set of common patterns, origins, and drivers, which are mediated through historically and geographically specific contexts.
8. A third response might point to the prevalent emphasis within the discipline of geography on case study-based approaches, and inductive theorization, as discussed in the exchange between Castree (2008a, 2008b, 2009) and Bakker (2009). Contrast this with the research agenda that emerged in political science around Elinor Ostrom's conceptualization of common-pool resources in the 1980s (Ostrom, 1990).
9. Of course, this distinction is not fixed, but is rather the contingent outcome of resource management practices (groundwater, for example, may be 'extracted' or 'cultivated', depending on the balance between extraction and renewal rates). Similarly, Bunker (1989) distinguishes between 'extractive industries' (eg, mining) and 'transformative industries' (eg, manufacturing) (see also Barham et al., 1994). Benton (1989) offers another categorization, which distinguishes between nature-based (ie, primary commodity) production and industrial production (ie, manufacturing). These framings may be read as a critique of the focus of mainstream political economy on labour as a transformative process (rather than an adaptive process); the mainstream approach overlooks the fact that the biophysical characteristics of 'natural resources' shape appropriation process and affect profit rates. But see Burkett's (1999) critiques of Benton's analysis, in particular his resuscitation of a nature/society dualism.
10. Boyd et al. (2001) distinguish between the 'formal' and 'real' subsumption of nature; in the former case

the extraction of nature 'as is', and in the latter case the intensification of biological productivity involving commodities amenable to manipulation via biotechnological innovations with the goal of increased profit via higher yields, improved disease resistance, and more rapid maturation rates (Boyd et al., 2001).

11. See Harvey (2005) for a more detailed discussion. Key moments in the emergence of neoliberalism as a doctrine (and political practice) include: the Latin American experiment with authoritarian market reform; structural adjustment in developing countries in response to the debt crisis; and so-called 'shock therapy' in former Soviet states.
12. The terms 'extensive' and 'intensive' are distinct from those used in regulationist analyses. In the latter approach, 'extensive' accumulation has a spatial dimension, referring to the pre-Fordist strategies of mass exploitation, conjoined with the exploration, conquest and consolidation of overseas sources of raw materials and outlets for produced goods. The regulationist term 'intensive' refers to a (Fordist) regime of accumulation that is characterized by a set of strategies focused on the intensification of production, linked with real rising buying capacity, creating a 'virtuous' upward spiral of growth. The analogy here would be that nature is first produced extensively, and subsequently capitalized intensively.

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