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The ins and outs of neoliberal natures

Patrick Bigger

Lancaster University, UK

Jessica Dempsey

University of British Columbia, Canada

Corresponding author:

Patrick Bigger, Lancaster University, Library Avenue, Lancaster LA1 4YQ, UK.

Email: p.bigger@lancaster.ac.uk

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Abstract

A decade – more or less – past the publication of the edited collection *Neoliberal Environments* and Neil Smith's 'Nature as an Accumulation Strategy', this forum aims to revisit and reflect on neoliberal natures, both out in the world and in the scholarly literature. In this time, there have been a number of advances in our conceptual apparatus for interpreting capital's productions of nature, ranging from financialization to vital materialism to world ecology. Further, the world has not stood still in the intervening decade. Various schemes for neoliberalizing nature have come and gone while others have launched, and the financial crisis led to widespread and often retrenched austerity even as extractivism showed no sign of abating. In light of these developments, we convened this forum to ask: what are the failures and accomplishments of neoliberal natures? Our use of the world accomplishments is not normative. We have gathered insights to reflect on the material-semiotic effects of neoliberal hegemony in the environmental register, and how critical scholars interpret, and even intervene in, those effects. The forum begins with an introduction that discusses what we see as the 'ins and outs' of the neoliberal nature's literature. That is, we ask what types of natures the authors in the literature have grappled with and what kinds of questions have been asked those arrangements. Reflecting on trends in the neoliberalization of nature and a bibliometric analysis of papers in the literature, we argue that while accomplishing much, there remain critical gaps in our explanatory frameworks driven by geography's troubling lack of ethnic and gender diversity.

Keywords

Neoliberal natures, feminist political ecology, financialization, commodification, geography

A decade – more or less – past the publication of the edited collection *Neoliberal Environments* (Heynen et al., 2007a) and Smith's (2007) 'Nature as an Accumulation Strategy', this forum aims to revisit and reflect on neoliberal natures, both out in the world and in the scholarly literature. In this time, there have been a number of advances in our conceptual apparatus for interpreting capital's productions of nature, ranging from financialization to vital materialism to world ecology. Further, the world has not stood still in the intervening decade. Various schemes for neoliberalizing nature have come and gone while others have launched, and the financial crisis led to widespread and often retrenched

austerity even as extractivism showed no sign of abating.

In light of these developments, we convened this forum to ask: what are the failures and accomplishments of neoliberal natures? Our use of the world accomplishments is not normative. Rather, we have gathered insights to reflect on the material–semiotic effects of neoliberal hegemony in the environmental register, and how we (namely, geographers and anthropologists) interpret, and even intervene in, those effects. We, and the contributors to this forum, recognize that definitions of neoliberalism can vary widely and the very utility of the concept is disputed (Rodgers, 2018).¹² Even those who accept and employ the concept (including us) are quick to highlight its variegation, contradictions, and incompleteness (e.g. Asiyabi, this issue; Heynen et al., 2007b, Mann, 2013). Nonetheless, we continue to find the concept sufficiently precise to add analytical purchase, along both political economic (e.g. Harvey, 2005) and the more-than-economic axes (e.g. Brown, 2015; Larner, 2007).

Several of the contributors to this forum have been key thinkers in this field of study. Mansfield's (2004, 2007) work on tradeable fisheries permits, Lave's (2012a, 2012b, 2012c) research on the intersection of environmental science and neoliberalism, Robertson's (2004, 2006, 2012) studies on wetland banking policy and, Simson's (2010, Simon et al., 2012) research at the nexus of CO₂ emissions, international development and technological fixes have all been influential over the last decade. Meanwhile, other contributors represent a new generation of scholars taking on the commodification, marketization and financialization of 'ecosystems services' and the various schemes meant to simultaneously fix uneven development, environmental problems and accumulation crises. This includes Kay's (2016, 2018) research on conservation easements in the US, as well as Asiyabi (2016, 2018) and Osborne's (2011, 2015) work in different settings and with different theoretical approaches on REDD.

This introduction is necessarily partial, as is the forum as a whole. In some ways, this is a testament to the growth and diversity of the neoliberal nature's literature (see Figure 1). The literature has expanded in a variety of important directions; for example, the dialog between urban political ecology and neoliberal natures has been particularly fruitful (see Heynen, 2014) although it is underexplored in this forum. In her 2010 overview of the literature, Karen Bakker noticed that most of the nature receiving attention in the literature were 'conventional' resources, whereas 'other types of socio-natures – such as human bodies, genetically modified organisms, ecosystem 'services' of various kinds – receive scant attention' (p. 3). In the intervening decade, geographers took on those gaps with gusto, particularly regarding ecosystem services (e.g. Dempsey and Robertson, 2012; Fletcher and Breitling, 2012; Kolinjivadi et al., 2017; McAfee and Shapiro, 2010; Sullivan, 2013) but also in relation to the biological (e.g. Collard, 2014; Guthman, 2011; Labban, 2014; Mansfield, 2012). In this introduction, we identify some contemporary gaps in the literature, highlighting emerging (or perhaps festering) problems to which we might usefully direct our attention.

The forum leans towards scholarship on market governance of environmental concerns. This is partially a result of the substantive areas in which we engage and partially reflects the directions in which the literature has grown; but also, we think, it reflects changes in capitalism's world ecology over the last decade. We begin this introduction by parsing some trends in the world 'out there' to set the context, then return to the literature. To aid in our analysis of the scholarly work, we compiled a data set of 1035 papers from geography and anthropology using keyword searches in Web of Science (see Note 2 describing our method). Using this data set, we are able to query the frequency of terms in titles, keywords and abstracts, as well as identify the most cited authors and papers in the literature. Through our data set, we show how the neoliberal nature's literature – like geography as a whole – remains dominated by White men, particularly in terms of the authors the field has drawn on most frequently. We discuss these findings in the second and third section of this essay, as well as gesturing to some directions for the literature as a whole. We are particularly interested in further explorations of how key constituent processes of neoliberalization are co-produced through longstanding more-than-economic practices and ideologies, particularly raced and gendered otherings on which manifestations of late liberal capitalism are predicated and through which neoliberalism, writ large, continues to be produced.

The neoliberal world out there

The last(ish) decade of neoliberal natures is bookended by the start of the financial crisis and the election of Donald Trump, including the swell and ebb of Latin America's 'pink tide', China's ever-growing economic and political power, the Occupy movement, the Arab Spring, the global commodities boom, the acceleration of biodiversity loss and soaring atmospheric CO₂ concentrations, to name but a few consequential events. Thinking through this decade, we can identify several distinct but connected trends in neoliberalization broadly, and specifically regarding its ecological manifestations. Ours is but one of a multitude of schema that have been used to identify the constituent pieces of the neoliberalization of nature (e.g. Bakker, 2010; Castree, 2008b; Heynen et al., 2007b). We do not aim for comprehensiveness; rather, we suggest these as important contextual trends for the forum: first, the move from government to governance; second, financialization and new environmental markets; and third, the generalization and ossification of austerity, and especially austerity's relationship to continuing or intensified extractivism.

From Copenhagen to disclosure: Preferring governance to government

The lack of action on climate change in this decade is one of the most illustrative and deeply troubling trends. In the past decade, we have witnessed a series of failed, or close to failed UNFCCC negotiations – with the most spectacular being COP 15 in Copenhagen, which

crushed many climate activists' hopes. Along with disappointing supranational agreements, in this decade, we **decisively** moved from climate change models to climate change impacts. Heat waves (Christidis et al., 2015), forest fires (Abatzoglou and Williams, 2016), aquatic mass die-offs (Hughes et al., 2017): all of it is happening. The decade saw a slew of socio-natural catastrophes, particularly super storms that impact the poor and racialized more than anyone else, from Houston to the Philippines, which experienced 5 of its 10 most deadly typhoons since 2006. Such superstorms can now, at least in part, be attributed to anthropogenic GHG emissions (Harvey, 2018). [AQ4] One of the bright spots in the last decade has been the concerted effort to mainstream climate change as a moral, ethical and/or justice issue, demonstrated perhaps best by the divestment movement's tagline: if it is wrong to wreck the climate, it is wrong to profit from it.

But even if climate change is increasingly understood in term of injustices along raced and classed lines, the outrageous, take-your-breath-away fact is that world oil production between 2006 and 2016 increased by 11%, and even more tellingly, world proven oil reserves grew by a third over the same time period (BP, 2017). Governments have been loath to impose meaningful restrictions on production, despite knowing that the vast majority of this newly exploitable oil must be kept in the ground. Instead, most states have preferred to dabble with regulations on the consumption side through mechanisms like automobile fuel efficiency standards, while trusting capital markets to regulate hydrocarbon producers through stock valuation. These valuations, according to (neo)liberal orthodoxy, should govern future capacities to extract those fuels, but stable share prices suggest capital markets foresee no impending slowdown in extraction. As Christophers (2017) demonstrates, this is emblematic of neoliberal governance strategies that rely on data disclosure and rational financial actors to achieve desired outcomes; the same logic that defines financial (self)regulation drives hydrocarbon (self)regulation. When it comes to the huge GHG emissions reductions that are necessary, such strategies have yet to deliver, a point made over and over by critics of mechanisms ranging from disclosure to emissions markets (Carton, 2014; Kama, 2014; Klein, 2015). Zombie climate neoliberalism lurches along, with little sign of the necessary braincrushing blow to the head (Lane and Stefan, 2014). The gap between an emphasis on disclosure of climate risks in capital markets and the felt effects of climate change on the bodies of poor people of color is appalling.

In many ways, the decade of inaction reflects the *sine qua non* of neoliberal natures – the shift from government to governance, or the re-placing of critical regulatory functions from the state to non/quasi-state actors, driven by policy failures (a la Copenhagen) and also by ideologies that privilege the efficiency and rationality of markets often coupled with a mistrust or outright disdain for direct state regulations. Yet, the deadlock in the

governmental sphere is also yielding innovations through the typical power structures of the state, namely the courts. There are a spate of climate justice-like cases that look to make fossil fuel firms and governments accountable for knowingly causing harm from New York to India,³ reflecting that discursive shift to understanding climate change in the terms of uneven costs and benefits that can be tried in court. However, such cases flow against the grain, as governance strategies for actual mitigation of environmental issues tend not only toward self-regulation, but also by actively facilitating new financial incursions into nonhuman natures.

Environmental markets to financialization: Failing forward

The phrase ‘financialization of nature’ hardly appeared before 2008, but is now difficult to avoid in the literature. However, questions remain over what actually constitutes financialization (Christophers, 2015), and perhaps more importantly, what bits of nonhuman nature are (and are not!) being enrolled into financial markets in ways that substantially produce new natures. We wholeheartedly agree with authors who are dubious about the precision of the term financialization; indeed, financialization is, in a sense the new neoliberalism, sometimes acting as a catch-all concept. However, much like neoliberalism, we find financialization has something to contribute if we are seeking to understand the specifics of cases where underlying natures are not only rendered marketable, but where financial representations of nature can be speculated upon in a way that derivative income streams (rents) themselves become the matter of financial management and experimentation.

In thinking about the failures of neoliberal natures, the literature is rife with accounts of schemes that have tried, and failed, to create fungible financial representations of sundry non-human natures through what Asiyambi (2017) summarizes as ‘new environmental finance’. Ranging from REDD (see Osborne, this issue) to regulatory carbon markets (Felli, 2015) to biodiversity offsetting (Daccache, 2013), attempts to isolate, render fungible, price and swap constituent pieces of non-human nature have emphatically failed to achieve the scale expected by authors in 2008; the ‘vertical integration of nature into capital’ (Smith, 2007: 33) has hit some snags. While tradeable permit systems for GHG emissions continue to expand, notably in China, they have not become structurally important for the circulation of capital; the total sum of money changing hands in global carbon markets was less than a seventh of the market capitalization of ExxonMobile in 2015 (Dividend Channel, 2015; International Emissions Trading Association, 2016). Lave (this issue) discusses the difficulties this ‘failure to launch’ creates in the neoliberal nature’s literature – she wonders why critical scholars expended so much energy and ink on such marginal market mechanisms.

While we agree with Lave that following the ‘neo’ can distract researchers, we also know

that such schemes can have significant localized effects (e.g. dispossession) and more broadly can legitimize continued extraction-as-usual (Felli, 2015). Furthermore, many market-based schemes seem to further sediment what we might call an international, racialized division of labour for climate mitigation, where brown and black bodies are called upon to change their lives in the service of (supposed) efficient, low-cost emission reductions. While writers like London et al. (2013) have flagged the (continuing) unequal distribution of toxics made possible through offsetting in tradeable permit systems, authors more squarely in the neoliberal nature's literature (including ourselves) have rarely engaged with the raced logics of market-based environmental policy (although see Baldwin, 2009, 2016), a point we return to in the conclusion.

If the last decade saw the rise and fall of carbon trading desks at major financial firms, the financialization of land appears here to stay. As Kay (this issue), Ouma (2016), Fairbairn (2014) and others have demonstrated, bankers have gone 'back to the land', along with institutional investors like university endowments, pensions and sovereign wealth funds. Kay (this issue) shows that de/re-regulatory moves and an interest in real assets have led financial investors to acquire land as a more flexible and adaptable asset, able to produce value through a range of commodities or through asset appreciation depending on prevailing conditions, both environmental and economic. Driven by recognition that climate change will put significant downward pressure on agricultural yields, the upheaval in commodity prices alongside the global financial crisis, and cliché observations about land like, 'they're not making any more of it', 'ag space' is a significantly more mainstream investment class than it was a decade ago (Kish and Fairbairn, 2017). While monetary flows are notoriously difficult to track down in agricultural investment (Ouma et al., 2018), farmland acquisition funds raised around US\$500 million in 2009, then grew to US\$3.9 billion in 2015 (Meyer, 2016). This is not to say that the enactment of 'finance gone farming' has been smooth (Ouma, 2016). Indeed, studies of financial engagement with agriculture have gone farther than most in heeding Bracking's (2012: 285) caution that, 'if we are to understand the future of the economic relationship between capitalism and environment . . . the particular process of financialization needs to be embodied rather than merely intoned'. While uneven, fractured and incomplete (which might be said of most financial engagements with 'nature', see Ouma et al., 2018), farmland and agro-food system are an expanding front in the finance-nature nexus. Further, this expanding confluence is not, and cannot, be a 'purely' political-economic process, but can be soaked in dispossession and violence depending on the context: the largest plurality of environmental activists murdered in 2017 was people trying to prevent the expansion of large-scale agribusiness (Watts, 2018).

Farmland is far from the only aspect of nature being subjected to new(ish) financial practices. For example, the invention and subsequent growth of the green bonds have been rather spectacular in dollar figures, but as an instrument the literature is only beginning to

engage with. Green bonds are being promoted as a straightforward way for investors to facilitate lower carbon economies, and they are less reliant on state regulatory (re)definitions than other environmental-financial products, like carbon markets. Invented in 2007, green bonds are projected to grow to US\$250 billion in 2018 (Chestney, 2018), though the specter of greenwashing looms over the entire asset class (Milhench, 2017). There is also a general growth in what is called 'impact investment' assets like 'socially responsible' mutual and private equity funds (Bracking, 2012; Rosenman, 2017). The growth of green finance has taken other directions as well, very much into the realm of financial engineering. Parametric insurance for smallholders (Johnson, 2013a), pooled disaster risk insurance facilities for small island states (Johnson, 2013b), and debt-for-nature swaps have all been trailed with varying levels of success in the last decade. Capital is nothing if not relentless, and many of these highly engineered interventions operate with the express aim of drawing new people, places and socio-natures into global financial circuitry, while (ostensibly) attending to climate mitigation/adaptation or biodiversity conservation. Once again we are struck by the kind of division of labour at play in global environmental policies where responsibility for global socio-ecological reproduction is often placed on the most vulnerable. Insofar as neoliberal capital is willing to respond climate change, the rich will get carbon capture and storage (CCS) while the poor will be 'gifted' GHG saving cookstoves (Simon, this issue) or offered 'life raft' micro-insurance policies for climate adaptation – all financed with partially subsidized debt. The constitution of this grim bifurcated response, where capital relies on techno-fixes and continuity while the everyone else is urged to become 'resilient', is built on longstanding inequities and marginalizations of colonial-capitalist expansion (both internal and external, Mies, 1986). But these imperatives are also in line with another key component of contemporary neoliberalization-austerity, and its twin, extractivism.

Austerity rules and extractivism

The retrenchment of austerity, indeed, the political visibility of austerity as a concept and category has been a defining characteristic of capitalist political economy over the last decade (Salzman et al., 2015). While the term suggests across the board belt tightening, austerity is redistributive (Mirowski, 2014) usually in an upward fashion, and not usually towards solving environmental problems. There was hope that the financial crisis might sound austerity's death knell as calls mounted for a 'new' new deal, and from some quarters, a green new deal. Appeals for ecologically inflected Keynesian policies continue to resonate (Cohen, 2017), and there are even indications that the IMF has come to recognize the immiseration inflicted by austerity and structural adjustment (Ostry et al., 2016). [AQ5] This belated and laughably insufficient *mea culpa* has not, of course, impeded other Bretton Woods institutions from facilitating the integration of parts of Global South into international financial circuitry through lending tethered to mechanisms like green bonds and insurance-linked securities for disaster relief,⁴ or financing new environmentally disastrous projects, like ongoing World

Bank support for thermal power plants (Roasa, 2016).

The link between austerity and neoliberal natures has long been present in the literature, but rarely in the foreground. While a somewhat blunt tool, in querying our data set of papers, only 27/846 (3%) of geography papers had austerity in the keywords, title or abstract, and only 3/189 in Anthropology (2%). Austerity goes hand-in-hand with green market-making and financialization: one hand starves while the other offers win-win-win promises. In our joint research on for-profit biodiversity finance, the first justification for profit seeking is always: 'there isn't enough cash to save nature and the state ain't gonna provide it'. At the same time, perennial, sometimes tax-cut fueled austerity is also central to ongoing, in some cases intensifying, resource extractivism facilitated by cash-strapped states (Apostolopoulou and Adams, 2015; Castree, 2008a). So environmental regulation through neoliberal governance practices is *de rigour* alongside intensified extraction that can bring resource rents to the state (through domains ranging from mining to urban development). For example, the janus-face of neoliberal capitalism's ecological regime makes it possible for the UK's Conservative government to claim to be 'the greenest in history' while simultaneously overriding a referendum to ban fracking in Lancashire. Elsewhere, the apparent contradiction has been dispensed with entirely. As Mansfield writes in this forum, the Trump election signals the return of 'nature as resource', that unimproved nature is bad and the belief that 'we can use nature without harm – to nature or to ourselves'.

While Trump's environmental ideology may lay at the extreme end of the spectrum, a recent review in *Nature* highlights erosion in regulation and regulatory budgets worldwide. In terms of environmental protection, politicians are using 'various tactics to render legal instruments toothless' (Chapron et al., 2017: 3) in countries like Canada, Sweden, Brazil, India, UK and Greece, demonstrating once again, that short-term goals responding to election cycles and market imperatives 'are often pursued at the expense of long-term environmental interests' (p. 3). This variety of short-termism is a global phenomenon, as politicians view restrictions on degradation and fostering growth as a zero-sum tradeoff, an instinct that has been productively discussed from a range of political and analytical positions, from Klein's (2015) opening chapter of *This Changes Everything*, to the degrowth literature (D'Alisa et al., 2014), to World Ecology's discussions of capital's crisis tendency of destroying the conditions of reproduction (Moore, 2015). However, like all things neoliberal (or geographical for that matter), we need to take some care not to portray identity where it does not, and perhaps cannot, exist. For example, there is a vibrant literature on 'not quite' neoliberal natures in Latin America (de Freitas et al., 2015) that has explored the natures and policies that were produced by 'pink tide' governments, against the grain of austerity, but often with the same bipolar approach to environmental protection and extraction present elsewhere.

Lockhart (2015) digs deeper into the case of the UK, where biodiversity offsetting was adopted as official policy, but failed in implementation because the state was, effectively, too ravaged by austerity to create the conditions whereby even neoliberal biodiversity policy might be rolled out. A simmering crisis of housing availability and affordability prompted less enthusiasm for any form of landscape conservation if it entailed imposing even nominal costs on developers. The narrative that a lack of affordable housing in the UK is driven by excessive, expensive environmental regulation typically refuses to acknowledge how the neoliberalization of housing and the liberalization of consumer finance, two of Thatcher's signature policy initiatives, is the catalyst of the housing crisis (Robertson, 2017). Instead of advocating for increased investment of social housing, this genre of explanation embraces neoliberalism's stock response to crises of its own making: solving market failures with 'freer' markets, and blaming 'restrictive policy', rather than austerity or liberalization, for social and economic problems.

The results indicate that the austere state is a significant, ever present, barrier to 'successful' neoliberal environmental governance. Austerity, accompanied by devolution of economic and environmental regulation to private sector actors, compels the state and other actors to find innovative new sources of finance and environmental governance, while simultaneously looking for ways to finance their basic services, facilitating extraction and degradation. This Janus-faced character of austerity and extraction is one direction we think scholars of neoliberal natures could usefully apply their talents, particularly if coupled with the already strong financialization literature. That is, following Asiyani (this issue), how might we more explicitly illustrate both the overarching relationship between neoliberal austerity, deregulation, extractivism, and regulatory/financial innovation, as well as specific iterations of that relationship operationalized in context-specific arrangements? And further, how might these situations be better understood if we were more attuned to the raced, classed, gendered and colonial constitution of both foundations and consequences of neoliberalization? Attending to these questions may be a useful way of challenging what Simon (this issue) calls 'stealth known unknowns', or the tacit forms of environmental knowledge that are circulated and become the basis for technocratic, rather than democratic, management. The need to challenge these kinds of knowledges is urgent. Austere conditions may be new for some, but they are long lasting for others: compare the outcry over the contaminated water in the White community of Walkerton, Ontario (Prudham, 2004), linked to neoliberal austerity and deregulation, and the 40 First Nations communities across Canada dealing with drinking water issues for more than a decade, including the Neskantaga First Nation in northern Ontario who has not had clean water since 1995 (Russell, 2018).

In this section, we framed some important trends in the neoliberalization of nature over the last decade and some ways the literature helps interpret those trends. In the next section,

we reflect on the dominant analytical foundations of the literature, exploring both what our literature has successfully illuminated, but also what our frameworks have potentially obscured. We dig into those blind spots to suggest a variety of practices for more robust, wide-ranging engagements with the constituent pieces of the neoliberalization of nature. These are not simply analytical tweaks, but a recognition that the neoliberalization of the university fundamentally impacts our collective ability to query and challenge neoliberalization elsewhere.

Looking inward and forward: Broadening the ‘actually existing’ analytical frames of neoliberal natures

A decade ago, Castree (2008a) reflected on the influence of an ‘institutional political economy’ approach in this literature, with emphasis ‘on Marx and Polanyi, state theory, regulation theory and economic sociology’ (p. 133). Political economy remains influential in the neoliberal nature’s literature, as reflected in Table 1, which outlines the discrete number of times an author appears in the reference list of the 846-paper geography neoliberal nature’s data set; note the frequency of citations to the likes of Harvey, Peck, Brenner and Jessop, reflecting Castree’s 2008 observation. In his contribution to this forum, Morgan Robertson situates neoliberal nature’s scholarship within a longer trajectory of eco-Marxism, namely James O’Connor and Elmar Alvater. A primary innovation of this literature, he suggests, was to ground the often abstract and monolithic arguments of eco-marxists through the methodological approaches more common in economic geography and sociology (e.g. Jamie Peck and Neil Brenner). As Asiyanbi (this issue) explains, much of the general approach displays a commitment to studying variegated, ‘actually existing’ processes (a terminology, for better or worse, firmly imprinted in geography’s lexicon). Further, as Robertson points out (this issue) this approach also aimed to avoid ‘gestural’, ‘unspecific’ ‘treatment(s) of nature’.

Table 1. Thirty most cited authors found in the reference lists of the geography neoliberal nature data set.

Name	Number of citations in data set
1 David Harvey	469
2 Karen Bakker	443
3 Noel Castree	439
4 Jamie Peck	424
5 Erik Swyngedouw	358
6 James McCarthy	344
7 Neil Brenner	234
8 Becky Mansfield	207
9 Michel Foucault	194
10 Morgan Robertson	189
11 Bob Jessop	188
12 Gavin Bridge	186
13 World Bank	181

14 Nik Heynen 179
15 Wendy Larner 168
16 Tom Perreault 147
17 Julie Guthman 143
18 Neil Smith 143
19 Bram Bušcher 132
20 Paul Robbins 129
21 Scott Prudham 122
22 Dan Brockington 117
23 Bruce Braun 116
24 Tania Li 116
25 Bruno Latour 115
26 Kathy McAfee 115
27 Tony Bebbington 111
28 Karl Marx 109
29 J.K. Gibson-Graham 105
30 Michael Watts 104

The ‘actually existing’ citation patterns of neoliberal natures

Our citation analysis in Table 1 suggests that the most referenced work in neoliberal natures remains relatively homogenous in terms of gender and ethnicity/race. In geography, 7 out of the 30 are women (23%), and, while this is always tricky-business, it seems that there are no people of colour on this list (if you go to 50 most cited, it gets worse: 18% women, and then slightly better on racialized authors at 4%).⁵

This is not surprising, given the broader White and male make-up of geography (e.g. Bonnett, 1997; Kobayashi et al., 2014; Mahtani, 2006; Peake and Kobayashi, 2002; Peake and Schein, 2000), reflective of Heynen et al.’s (2018) apt observation that the ‘geographies of injustice we examine also exist within the patriarchal [and racialized] conditions of our intimate social worlds’ (p. 1).⁶ Feminists and geographers of color like Pulido (2002), Gilmore (2002) and McKittrick (2006) compellingly argue that the whiteness and maleness of the discipline – a justice issue in its own right – also narrows analytical vision(s), restricting the kinds of questions asked and answers found, and this includes studies of the neoliberalization of nature (a point we return to below).

It goes without saying that we wholeheartedly agree with Mott and Cockayne (2017) that there is a need for scholars of the neoliberal nature’s literature to practice more ‘[c]areful and conscientious citation’ as one way to disrupt a sub-discipline that continues to exude ‘sameness’ (p. 960). And we don’t place ourselves outside of this problem – as authors, we know we have contributed to this problem. Of course there is a need to do much more than that, as Mott and Cockayne and many others have long argued, from Bonnett (1997) to Kobayashi et al. (2014). Rectifying these kinds of shortcomings in our literature, and our discipline more broadly, will require concerted, sustained work that goes beyond the establishment of equity offices.

To this end, a recently concluded large Canadian study (involving feminist geographer Audrey Kobayashi) found that ‘racialized and Indigenous faculty members are numerically

underrepresented, and they experience racism in a wide variety of forms, personal and structural, both explicit and extremely subtle' (Henry et al., 2017: 297). Despite growth in equity policies and 'dedicated offices', efforts 'to address racism are limited or ineffective' (p. 298). And – this is crucial – they found that the increasingly austere, neoliberal culture of the University exacerbates the struggles of Indigenous and people of color in Canadian universities as approaches to solving structural racism often focus on individuals rather than systemic problems. And even if diversity policies and new institutions are found ineffective, 'the very fact that **something** . . . exists often becomes an excuse to avoid doing more' (p. 303). These arguments will sound eerily familiar to any scholar of contemporary climate or biodiversity policy where a proliferation of initiatives, laws, policies and institutions mask that little is being accomplished, shielding decision makers from criticism. As with systemic problems like climate change, there is no silver bullet for addressing the ongoing whiteness of the University or geography. Henry et al. (2017) outline a 'dirty dozen' ways that gender and racial bias are maintained in the academy, ranging from wording of reference letters to Eurocentric disciplinary canons to disproportionate service work. Components of solutions range from doctoral student recruitment and the types of projects faculty support them to undertake (as suggested by Lave, this issue), to agitating for different kinds of, and more flexible, promotion criteria that are attentive to new models of scholarly engagement and analytical frameworks, all the way to organizing against the marketization of higher education that locks out working class students and many students of colour through huge fees, unsurvivable stipends and tenuous, casualized job prospects. In short, we must struggle against neoliberalism, and particularly its raced, gendered and classed aspects, in our own institutions if we are to improve our scholarly approach to contesting neoliberalization elsewhere. That is, while we think it is important to continue studying both old and new forms of hegemonic liberal processes (from austerity to financialization) as they continue to organize nature in ways that serve some more than others, there is a need to query them in other ways, and part of this is expanding whose perspectives are in the circle.

Close to non-existing analytical frames in neoliberal natures

Our data set suggests that feminist approaches are largely absent in the literature on the neoliberalization of nature.⁷ Searching through the abstracts, keywords and titles of the geography data set and only 17 papers use the term feminist, only 2% of papers; none of the anthropology papers use the term feminist. In geography only 47 papers turn up using the search term gender and since all the papers with term feminist are also captured in the search for the term gender, the two together total only 6% of the entire data.

In anthropology, 9/189 (5%) use the term gender. While other research is needed, this suggests that the effects of neoliberalizing nature are not being substantially queried through a feminist analysis and that very few employ a gender lens (recognizing that these are not the

same). Yet feminist approaches offer potent analytical frames for understanding neoliberalizing processes – from feminist geographical theorizations of finance (e.g. Pollard, 2013), feminist political economy (e.g. Fraser, 2014; Mies, 1986) and social reproduction theory (Bhattacharya, 2017), to name some of many. To illustrate, we point to the work by Mansfield (2012) on seafood consumption advisories, which productively draws from feminist literature on reproduction and Foucauldian theorizations of neoliberal biopolitics to demonstrate how responsibility for the health and well-being of the population is placed on individualized, gendered bodies.

Within neoliberal nature's literature, the kinds of questions largely not being asked, and answers not being found, also include those related to the co-constitution of neoliberalizing and racializing processes. Roberts and Mahtani (2010) identify this as a big gap within the broader geographical literature on neoliberalism, arguing that while geographers do draw out the uneven, often racialized effects of neoliberal processes, they fail to investigate how racializing processes can be constitutive of neoliberal processes. They push scholars to use racial analytics to **explain**, not simply describe.

Roberts and Mahtani's critique emphatically applies to the neoliberal nature's literature, which hardly seems to study even the racialized effects of neoliberal environmental governance. We queried our data set for the terms race, racial and racism in the titles, abstracts and keywords and only 26 discrete papers returned in geography. The terms white or whiteness only added three to those papers already identified, for a total of 29/846 (3%). In Anthropology, five papers return for the same terms – 5/189 (3%). While an admittedly a coarse analytical method, it does suggest limited engagement with a social fact we suspect most fellow travelers would agree is of vital importance.⁸ It also suggests, as per Roberts and Mahtani's argument, that we are missing an analytical approach that can help not only describe effects, but also explain.

There is exemplary work to point to in this regard, including papers by Pulido (2016) and Ranganathan's (2016) on the neoliberal water crisis in Flint, Michigan. The former outlines what an analytic of racial capitalism brings to explain the situation in Flint; the latter understands the crisis as paradigmatic of 'racial liberalism's illiberal legacies' (p. 19). Heeding Roberts and Mahtani's (2010) call, Ranganathan highlights the importance of foregrounding racial formations, defined as 'the historical processes by which economic and political forces determine racial categories' (p. 20) for understanding the spatial dynamics of property ownership in cities (and otherwise) and for explaining who is subject to poisoned water. Both Pulido and Ranganathan emphasize the way that 'racial logics infuse austerity', not only in differential, racialized effects, but as formative logics that undergird 'fiscal solvency above all else' (p. 4), including poisoning children with lead. Like so many other facets of neoliberalism, these articles point to how austerity is not 'neo' for many. Along these lines, Pasternak (2016) links present neoliberal austerity to the much

longer, racialized histories of settler colonialism in Canada, austerity is a long-standing tool of colonialism. More broadly, such scholars emphasize that colonial and racial hierarchies are foundational to the workings of capitalism and to the workings of liberalism, and thus also, to neoliberalism (for recent work in this vein see Krupar and Ehlers, 2017, McClintock, 2018, Pettygrove and Ghose, 2018).

Both Pulido and Ranganathan draw from the Black Radical Tradition (BRT) of DuBois, Robinson, James and Williams, which Pulido describes as the 'great engine of social change in the US', and thus also 'a great asset in the fight against neoliberalism and capitalism's complete domination of people, places and nature' (p. 12) (see also Heynen, 2016). Scholars like Pulido and Ranganathan demonstrate how the BRT **explains** intersecting processes of oppression and domination in the long and short(er) duree, (e.g. a crucial contribution also made by settler colonial studies and social reproduction theory). These analytical traditions push scholars to place the 'neo' moment in the 'longer historical, political and economic contexts in which vulnerability, contamination and decay are produced' (Pulido, 2016: 1), to understand present austerity and new financial experimentation, including crumbling infrastructures, as part of a longer lineage of colonial and racialized abandonment (see also Davis and Todd, 2017; Patel and Moore, 2017; Whyte, 2016). If neoliberal environmental governance is often understood as a kind of fix driven by a 'class practice of the most powerful, geographically mobile capitalists' (Glassman, 2007: 96), this literature calls us to think about hierarchical difference making as a crucial, inseparable part these same processes, 'accumulation by difference-making' (Dempsey and Collard, forthcoming). Indeed, if the neoliberal state is an austere one obsessed with fiscal solvency, it is also one that also has increased state capacity to protect extraction above all, as demonstrated in the military-grade response to Standing Rock in 2016 (Whyte, 2016), the growth of racialized state surveillance, such as that focused on Indigenous activists opposing fossil fuel extraction in Canada (Pasternak, 2014), and the increasing regularity of state or extrastate killings of environmental activists, often indigenous people, around the world (Watts, 2018).

In sum, neoliberal natures need currently under-represented theoretical approaches, from feminist to critical race and beyond. But – and this is a big but – it is crucial that these literatures not be viewed as the 'hot new thing', akin to putting on the latest, most fashionable shirt. These are embodied, praxis-filled literatures that emerge from long histories of struggle; they demand careful, slow reading as well as a heavy dose of responsibility and accountability to the struggles and communities from which they emerge. It is certainly not our place to describe what such accountability looks like, precisely, but we do know that there are risks of ongoing White and male appropriation and extraction that must be reflectively and thoughtfully considered, particularly when the neoliberal nature's literature – and especially the authors cite – remains so dominated by White and male scholars. This brings us back directly back the question of who is and isn't in

the University, and to questions of what kind of work is valued within it.

Conclusion: The dominance, marginality and failures of neoliberal natures

Perhaps above all, the neoliberal nature's literature is defined by incessant criticism, even criticism of some things that seem, on the surface, progressive. Holifield (2004) critiques environmental justice within the US Environmental Protection Agency, Guthman (2004) slices and dices organic food labelling, Baird and Quastel (2011) spear dolphin-safe tuna, and Huber (2016) slays even, gasp, carbon taxes: all of these are understood as examples of neoliberal market rule in more and more spheres of our lives and in many cases, more of the same profiteering by the 1%. These critiques matter, as they often draw attention to a problematic siloing or rendering technical of environmental issues within mainstream efforts, as though the 'environment' can be isolated from other issues, namely wealth inequality, persistent racial and gender injustices and ongoing colonialism. This scholarship refuses to be hedged in by the pragmatic or the necessary; it offers us what Brown (2009) calls untimely critique, one that insists on 'alternative possibilities and perspectives in a seemingly closed political and epistemological universe' (p. 14).

Yet we know that many of these institutions like the EPA or initiatives like organic farming and labelling are trying to improve air quality and reduce pesticides. A challenge, then, is how to know when 'these governmental forms are simply 'flanking projects' and when they represent real political gains' (Larner, 2007: 219), particularly significant gains for working people and the socio-ecological conditions that their lives depend on. As Mansfield (2007) asks, are new fisheries property markets animated by neoliberal imperatives or social justice? In her case, it's both and neither – infused with multiple logics. This is why empirical, closegrained 'context-contingent analyses' (Sparke, 2006, quoted in Heynen et al., 2007: 4) still matters, as much depends on one's entry point, on the specific conjuncture, on who and what is involved in conceiving or perhaps hi-jacking the 'neoliberal' project to be otherwise. This latter point is on display in Tracey Osborne's contribution to this issue, where she highlights the counter-movements to forest carbon markets. There she charts the emergence of an Indigenous approach to REDD, one that mutates a preeminent neoliberal climate change policy into a set of politics that advocate the 'de-commodification of land' and as a 'mechanism to reclaim forests from state governments'.

This leads to back that tricky question of whether or not neoliberalism is a helpful or hindering analytical and political concept for resistance. In a short response to the series of chapters in the book *Neoliberal Environments*, Larner (2007) suggested that the authors tended to gloss over 'contradictions and inconsistencies' that did not quite fit the label neoliberal. She suggested that the authors are focused on 'recognizing neoliberalism rather than taking the complexity of forms of environmental governance as their starting point' (p. 218). And by seeking coherence, she argued that these critical scholars could unwittingly be contributing to

a hegemony that doesn't really exist. But while the utility, accuracy or even riskiness of using of the term 'neoliberalism' remains a topic of debate, the continuing need for the pointed analysis that has typified the literature is clear, and might be made even more powerful with the inclusion of new scholars and an expanded analytical toolkit. Whether or not one agrees with Smith's (2007) suggestion that 'we are currently living through a period in which the core socio-economic relationship with nature is being dramatically transformed' (p. 17), or are just seeing slight variations in the long duree of the liberal capitalist organization of nature, there is still much work to do if we are to effectively contest the surprising, dynamic, novel, and pernicious inflections of capital that are yet to come.

Notes

1. For the purposes of this discussion, we agree with Pinson and Journal (2016) who define neoliberalism as, 'the set of intellectual streams, policy orientations and regulatory arrangements that strive to extend market mechanisms, relations, discipline and ethos to an ever-expanding spectrum of spheres of social activities, and all this through relying on strong State intervention' (p. 137).
2. With invaluable research assistance from Mollie Holmburg and Andrew Schuldt, the data were derived through the following method. First, a list of key terms was generated to query the Web of Science database and produce an initial list of texts. The search was limited to journal articles from the social science, and arts and humanities collections and texts listing geography and anthropology as the primary discipline, and the years 2000–2017. Web of science is not comprehensive, for example it does not index **Capitalism**, **Nature**, **Socialism**. Using the topic field, which indexes titles, keywords and abstracts, the following search terms were used: ((neo-liberal* or neoliberal*) or financializ* or marketiz* or commoditization or commodification or offsets or austeri* or privati*) AND (nature* or environment* or biodiversi* or climate or carbon or genes or adaptation or conserv* or water or wetland* or forest* or 'Urban political ecology' or energy Or agricultur* or mining or oil or fish* or 'fair trade' or disaster or hazard or 'ecosystem services' or certification or waste or pollution). The resulting list of 1404(Geo)/415 (Anthro) was pruned to 846/189 by eliminating articles deemed to be 'false positives', that is, where keywords appeared but did not touch on the neoliberalization of nature. Our criteria for sorting was the broad definition forged in Heynen et al. (2007a), where they call for consideration of the 'ways in which environmental governance, and environmentalism as a set of political movements, coincide, collide, articulate and even constitute the emergence of neoliberalism' (p. 9). We applied a broad criteria for substantive topics, including examinations of neoliberalism and bodies (e.g. Guthman, 2011), studies of neoliberalizing processes and disasters (e.g. Katz, 2008) and urban environmental processes (e.g. While et al., 2004).
3. By March 2017, 24 countries had climate liability cases: 654 cases in the US and 230 in other countries (see UNEP, 2017).
4. For example, the World Bank recently launched a new program for climate-vulnerable cities in the Global South to access catastrophe insurance; this is simultaneously a direct enrollment of new locations and scales into circuits of finance, as well as the deeper integration of those cities into financial circuits as they are 'capacitized' through 'technical assistance' in things like gaining a credit rating, producing climate data, and negotiating public-private partnerships – themselves a key

technology of austerity around the world as public coffers are (portrayed) as thin and requiring the capital, efficiency, and nous of private business.

5. Things improve ever-so-slightly but only on the gender front when one examines the most cited papers within our dataset, that is, the most cited papers of the 846-paper dataset. Of the 30 most highly cited papers, 30% have first authors that are women, none by people of color; the numbers stay the same in the top 50 most cited, 0 by people of color, 30% have women first author papers.

6. We repeated the exercise in Anthropology journals and found the cognate literature ever-so slightly more diverse in terms of racialized scholars.

7. We note the high citations of Wendy Larner, Becky Mansfield, and Julie Guthman (Table 1), all known for employing feminist approaches.

8. To add to our findings, we then searched the full text of the twenty most cited papers in Geography our data set and found that these terms appeared in only three papers, only one time in each.

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Scale and the accomplishments of the neoliberalization of nature

Adeniyi P Asiyebi

University of Sheffield, UK

Corresponding author:

Adeniyi P Asiyebi, University of Sheffield, Sheffield S10 2TU, UK.

Email: a.asiyebi@sheffield.ac.uk

What are the accomplishments of the ongoing process of neoliberalization of nature? The 'how' of this question is, arguably, as important as the 'what' of it. In other words, the epistemological concern around how we analyze the accomplishments of neoliberal nature is as crucial as what those accomplishments are. In this commentary, I reflect on the question of scale as one important dimension of the epistemological concern in articulating the accomplishments of neoliberalism. I suggest that the level at which scholars seek to understand the accomplishments of neoliberal nature matters, thus signalling a politics of scale, which connotes a number of imperatives. After outlining these imperatives, I consider the scalar tension in recent literature on financialization and Payment for Ecosystem Services (PES). I conclude by highlighting how the scalar tension might be steered in order to take account of the full range of ways in which neoliberal capitalism underlies significant socio-environmental change.

If, as Sayre (2005) claims, scale is inherent in all observations – and one could add, analysis and interventions – then a particular politics of scale becomes evident in the choices of social actors (Mansfield and Haas, 2006; Neumann, 2009). This is true of the scalar choices of scholars – be it general or specific; global, regional or local; the universal abstractive or the specific actual – as they seek to understand the logics, manifestations and accomplishments of neoliberal capitalism in the environment. And this awareness of the politics of scale has a long history in critical geographies of neoliberal capitalism and its metabolic relations with the environment. A trajectory of scalar engagement in the political economy of the environment can be traced to the 1980s and 1990s when the fruitful integration of historical materialism with geographical thought was stabilizing through the works of critical, especially Marxist scholars including Neil Smith, Henri Lefebvre, Doreen Massey, David Harvey, Erik Swyngedouw and others. Quite central to this literature was the spatiality of historical materialism and the dynamic co-production of social processes, scales and ecologies. These central ideas were accompanied by explicit elaboration of their implications for how we might apprehend capital's deepened penetration of the environment and social life broadly (Harvey, 1993).

Building on these early foundational works, scalar debates among geographers studying neoliberalism intensified in the early 2000s with at least two special issues in *Environment and Planning A* (34: 5) and *Antipode* (34:3). For instance, Brenner and Theodore (2002, 344) would theorize 'actually existing neoliberalisms', directing attention to the specific, variegated dimension of neoliberalism, or what Peck and Tickell (2002, 380) described as 'local neoliberalisms', emphasizing the variegated forms that neoliberalism takes in places. This literature was also clear about the ways in which local processes articulate with and mutually rework wider neoliberal structures. Yet close to the end of that decade, there was still the problem of the 'perplexingly amorphous' nature of neoliberalism and the lack of clarity as to 'what geographical scales and levels of theoretical abstraction we can identify it substantively' (Castree, 2008: 156; Heynen et al., 2007).

Nevertheless, the rapid proliferation of diverse case studies examining 'actually existing neoliberalisms' led to the recentring of the question of scale of analysis by the end of the 2000s. This saw renewed efforts to complement the erstwhile focus on the specifics with a rigorous theorization of general patterns in the operation of neoliberal natures and scholars' engagement with the process (Bakker, 2010; Castree, 2008; Heynen et al., 2007; Igoe and Brockington, 2007). For Castree (2010), grappling with the level at which neoliberalization should be understood requires the development of a schema of neoliberalism's ontological existence. For instance, he points to the '3 p's' of neoliberalism referring to its existence, at once, as an overarching **philosophy**; a general policy **programme**; and a suit of specific **policies** (Castree, 2010). Such a nested schema suggests at least two important imperatives: that analysts make explicit their scale of engagement

with neoliberalism and they specify what is at stake in engaging with neoliberalism at any particular level (cf. Mansfield and Haas, 2006). Heynen and Perkins (2005: 192) pointed to another imperative when they observed that ‘scalar dialectics is useful in understanding the impacts of neoliberalization on global and local environments’. Here, the focus is on analysing neoliberalization as a process and a web of relations as opposed to a ‘fetishized “thing”’ (Fletcher and Busscher, 2017; Heynen and Perkins, 2005: 192). Meanwhile, Peck and Tickell (2012), alert us to a methodological implication of such a dialectical work which entails breaking down the polarizing scalar tendencies between the **globalism** of Marxian political economy approach and the **localism** of poststructuralist approach. With this background, I turn to the scalar tension in recent effort to understand the accomplishments of the neoliberalization of nature.

Scale and accomplishments in financialization and PES

The way in which scalar tensions have played out in analyses of the accomplishments of neoliberalization is reflected in at least two major strands of work. One is the debate around environmental financialization, a core aspect of the deepening logics of capital in the environment. If the ongoing process of nature commodification is marked by the tendency to abstract, homogenise and universalise, this tendency appears even more amplified in the process of environmental financialization – a process defined by the rise of the financial sector, instruments and logics in the environment. Indeed, it is the largely virtual and performative dimension – e.g. flourishing financial discourses and concepts, spectacular events, symbolic transactions and alienating universalizing calculative practices – which is said to account for a significant part of the accomplishments of neoliberal finance in conservation (Dempsey, 2017; Sullivan, 2013, 2017). This is true insofar as the general level of aggregated performativity of finance is the focus of analysis here. Therefore, the implications of analysing financialization at this level must be made explicit: the reported level of performativity of finance is a direct consequence of this scale of analysis. As such, the call for ‘research effort to drill-down’ to specific material basis (Bracking, 2015: 2347; Dempsey, 2017), reflects a much needed imperative to go beyond the current scale of analysis by attending to the specific historical–geographical basis of financialization in places.

Linked to this is the major indication that, on the whole, the incursion of neoliberal capital into nature has been thin, variegated, hybridized, frustrated, even stymied in some places (e.g. Bigger, 2017; Dempsey and Suarez, 2016; Fletcher and Breitling, 2012; Milne and Adams, 2012). Indeed, as Dempsey (2017: 201) notes concerning the achievements of the financialization of conservation, ‘failure is a big part of the story to study and tell’. Yet even if capital appears to falter in remaking nature in its own image, it still shapes and transforms socio-ecologies in a whole range of other specific ways that may not neatly align with

descriptions of neoliberal success or failure. For instance, regardless of whether or not they lead to successful carbon markets, neoliberal carbon projects might, nevertheless, be linked to a range of other transformations including institutional restructuring that further centralizes forest governance, shifts in resource-based accumulation patterns and impacts on collateral resource economies e.g. timber, charcoal and non-timber forest products (see Asiyambi, 2016; Gray, 2017; Lohmann, 2016). These more-than-market impacts are another important aspect of the accomplishments of neoliberalization – the remaking of socio-ecologies in a whole range of ways often unforeseen and unintended. This difference between evaluations of ‘market-ness’ or neoliberal success/failure and the specific existing effects is thus, a quintessential scalar question. While the former tends towards an evaluation against the general features and logics of neoliberalism, the latter instead focuses on specific manifestations of the impacts of neoliberalism for what they mean in particular contexts. The second strand of the literature that illustrates the importance of the scalar tension for analysing the accomplishment of neoliberalism is the body of work on PES. A significant debate persists on whether and to what extent variegated PES projects manifest market principles and can thus be regarded as neoliberal (Fletcher and Buscher, 2017; Hahn et al., 2015; Van Hecken et al., 2018). While a number of studies here take a narrower conception of neoliberalism that equates to pure, functional markets or market-like exchange, others clearly emphasize the overarching neoliberal philosophy and provenance of projects that inevitably variegates as they unfold (see McAfee and Shapiro, 2010; Milne and Adams, 2012; Osborne and Shapiro-Garza, 2018). As such, a challenge in the PES literature is the tension between the strand that tends to under-specify the general neoliberal provenance of projects (see Fletcher and Buscher, 2017) and that which tends to under-emphasize the particularity of specific cases (see Van Hecken et al., 2018), thereby underscoring the scalar tension in this literature. Both Fletcher and Buscher (2017) and their interlocutors, Van Hecken et al. (2018) called for a similar response to the scalar tension – an integration of the micro and macro aspects of neoliberalism and a dialectical approach to structure and agency in neoliberal projects, respectively. Yet, the intensity of the debate between the two strands reflects the difficulty in thoroughly and consistently deploying a dialectical understanding of neoliberalism’s accomplishments in PES.

It is, thus, clear that the scale at which scholars analyse the accomplishments of neoliberal environments matters. This calls for sustained efforts at unravelling the politics of scale in the analysis of neoliberalism’s impacts, partly by making explicit the scales of analyses, what is at stake at different analytical levels and how analysts are empowered to render certain effects of neoliberalism visible at particular levels (Mansfield and Haas, 2006; Neumann, 2009). Another imperative here is to deepen scalar dialectics by galvanizing commitment to the processual nature of neoliberalization. A focus on relations and processes might take questions of accomplishments beyond teleological notions of ‘success’ and ‘failure’ and into

the actual ways that neoliberalism reworks the social world both, as planned and unwittingly. The recent body of work emphasizing the complex constitutive processes and assemblages of neoliberalization is important here (Asiyanbi, 2017; Sullivan, 2017; Wilshusen and MacDonald, 2017). Ultimately, questions of scalar tensions and relations are not merely a matter of analytical expediency, they are also politically charged, significantly shaping our understanding of the ways that neoliberalism is transforming socio-ecologies and how we might respond to foster more desirable futures.

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Financialization, adaptable assets and the evolution of neoliberal environments

Kelly Kay

University of California, Los Angeles USA

Corresponding author:

Kelly Kay, Department of Geography, University of California, Los Angeles, USA.

Email: kkay@geog.ucla.edu

In the introduction to their special issue of *Capitalism, Nature, Socialism* on neoliberal natures, Heynen and Robbins (2005) underscore the need to think of neoliberalism as a process – neoliberalization – emphasizing that it entails shifts in human–environment relations at a range of scales. While the authors focus primarily on four major shifts that are inherent to nature's neoliberalization (governance, privatization, enclosure, valuation) –

categories that are also picked up and extended by Noel Castree in his review of the literature (2008) – the centrality of these shifts is established using a set of criteria that I also find useful for understanding the changing nature of neoliberal natures. They write, ‘there has been a notable and disturbing shift in the way that more-than-human nature has been conceived, controlled, distributed, managed and produced’ (2005: 6). By focusing on these overarching categories of **conception, control, distribution, management and production** of nature, one can begin to understand how the relationship between capitalism and nature has shifted and mutated over the last 10–15 years.

I center this paper around one major evolution in socio-natural relations under capitalism, arguing that the growing power and presence of financial investor-owners in environmental conservation and management (Kay, 2017; Smith, 2009) has led to a reformulation of how value comes to be extracted from nature, reshaping trajectories of neoliberalization.

Or, to use the phrasing above, financial ownership of land, infrastructure and natural resources have critically altered the trajectories of how nature is conceived, controlled, distributed, managed and produced by capital. In particular, I argue that financial actors have come to prioritize natures that can be made adaptable, from which they can produce a range of distinctive (but still deeply interconnected) assets along a range of temporalities. As I have noted elsewhere, the focus on adaptability is a product of the structure of shareholder owned corporations, whose investors demand short time horizons of ownership coupled with high and consistent rates of profit from investments in land and resources (Kay, 2017). What is novel here, and what was under-discussed in some of the earlier literature on neoliberal natures, is the overt focus on both flexibility and time by this particular class of capitalist actors. While financialization marks yet another phase in the reworking of state–capital–nature relations in order to open up new arenas for accumulation – making it consistent with what much of the neoliberal natures literature describes – the reworking is one that is consonant with the changing nature of accumulation, particularly in the Global North.

Recent work on ‘flex crops’ in global farmland acquisition offers a conceptual example, one which I provide while also acknowledging that there are a number of critical differences with regard to land acquisitions across the Global North and South. This work focuses on how land comes to be viewed by investor-owners as an asset embodying both ‘flexible-ness’ and ‘multiple-ness’ (Borras et al., 2016), traits that are both distinct and interlocking, and which I argue carry relevance beyond global farmland acquisition. Using the example of palm oil, Borras et al. describe the range of possible futures that motivate investment in commodity production landscapes. As the authors argue, cooking oil can be produced in the present while awaiting an emergent biodiesel market. Further still, they note that the concurrent building of novel storylines about the future are critical for alternate pathways of profit-making with into the longer-range future, ‘to jump start business undertakings, e.g. to raise investments, lure investors, entice governments, persuade affected communities and

orchestrate favorable media coverage' (2016: 94). Further still, the same landscapes could be switched out of biofuels production altogether and into real estate (Baka, 2013), may have other useful property rights attached to them, or could potentially be enrolled in a range of extant or future environmental market schemes.

The growing interest in acquiring land and resources for adaptable purposes builds on, but also diverges from, trends of neoliberalization. The neoliberalization of nature is characterized by the reworking of the relationships and boundaries between states and markets. This includes, for example, the devolution or offloading of responsibility, the privatization of public assets and creation of new forms of and rights to property, and the preferencing of market-based transactions and solutions to environmental problems (Heynen et al., 2007). The demand for adaptable, or flexible, natures, however, stems primarily from the growing power and presence of finance capital in natural resource and agricultural industries (Gunnoe, 2014; Ouma, 2014). This is partially due to the fact that the 2007–2008 global economic crisis unleashed a new interest in acquiring productive assets like land, often because natural resource landscapes like timber are either uncorrelated or reverse correlated to stocks; and partially due to a major legacy of neoliberalization (and to the restructuring of state-market relations more generally): the fact that many extant environmental markets and governance schemes have been around long enough now to have had a chance to evolve, fail and adapt, providing new openings for experimental and adaptive forms of profit-making.

While it was acknowledged in many key publications on neoliberal natures that market actors are unlikely to provide the same long-term commitments or necessary infrastructural investments that the state would be required to, these actors were, at least in most instances, keeping the assets they acquired in the same industries. Swyngedouw (2005), for example, notes that the shift toward privatized management of water infrastructure meant that the state had to fill in the gaps with regard to long-term investments related to provisioning: 'put simply, there is a clear disincentive to invest in not directly profitable long-term activities like leakage control in contrast to productivity enhancing investments that improve short-term profitability. It is not a surprise, therefore, that the state or other parts of the public sector have to mediate these contradictions' (p. 55). While short-termism is a contiguous trait throughout scholarship on neoliberal natures (Heynen and Perkins, 2005; Peluso, 2007; Swyngedouw, 2005), the acquisition of land, resources and infrastructure for flexible uses along multiple temporalities diverges from what was described in earlier work on neoliberal natures. To this point: whether they have new owners, regulatory norms or governance structures, enclosed fisheries are still being used primarily to catch and sell fish (Mansfield, 2004), while privatized water utilities are still primarily in the business of provisioning water for household and agricultural uses (Bakker, 2005; Swyngedouw, 2005). Yet, with the example of farmland, financial investor-owners are not just interested

in finding the most profitable means of producing food, but also are looking to increase the value of land and the operations that take place on it in multiple and temporally variegated ways, viewing it as yet another asset class on which they can bet (Fairbairn, 2014).

My own work is focused in North America, a major testing ground for early neoliberal reforms (Harvey, 2007), and now a key site for testing creative approaches to the financialization of natures. While there is ongoing debate about the definitions of and conceptual limits to 'financialization' (Christophers, 2015), particularly with regard to farmland (Fairbairn, 2015; Ouma, 2015), within the US, there has been a measurable increase in investor-ownership of land and natural resources in recent decades (Gunnore, 2014). Two brief examples illustrate how investor-owners are increasingly interested in land and related infrastructure as assets that are 'flexible' and 'multiple', with regard to both uses and temporalities.

The recent acquisition of vineyards by Harvard University in drought-stricken Paso Robles, CA provides one example. Through one of its investment arms, Brodiaea Inc., the Harvard University Endowment has spent more than \$60 million since 2012 to purchase over 10,000 acres around California's Central Coast wine-growing region (Philpott, 2015). The acquisition has allowed Harvard to participate in the booming wine grape market in the short-to-medium term (Valdmanis, 2015), while the real estate value of the land itself serves as a hedge against inflation and a longer-term investment opportunity. Furthermore, by acquiring permits to drill some of the deepest wells in the region, Harvard is also betting on the growing value of an under-regulated and increasingly scarce public good: groundwater (ibid). In this instance, the enclosure of a common-pool resource, water, is not straightforward, and is bound up in a range of well-established markets (farmland, real estate), albeit ones that rely on the fictitious commodification of land. All of these opportunities can be exploited along a continuum of temporalities. Some of these profitmaking activities could and should be called neoliberal (e.g. the enclosure of groundwater) while others do not easily fit the description (e.g. growing grapes in a region with longstanding big agribusiness interests [Walker, 2004]).

Similarly, investor-owners are increasingly acquiring the landed assets and infrastructure of natural resource extraction and processing as a means of gaining access to lucrative tax credits and deductions. In Maine, where I have done research, it became common practice for private equity investors to acquire paper mills, reopen them and reap the benefits of New Markets Tax Credits and other state and federal tax benefits for providing employment in disinvested rural areas, and then shut down again once the tax credits run out (Richardson, 2015). The tax system becomes yet another avenue by which public goods – in this case, tax revenues – are able to be enclosed, but in this case, like the one described above, longstanding nature-society relationships form the basis of novel configurations of ownership, management, and control that generate alternate pathways of accumulation in

the very short term.

I want to be clear that I am not saying that there is something novel about buying land with the recognition that one could use it for multiple purposes. Small-scale farmers around the world regularly respond to commodity booms and busts by shifting their production toward more lucrative crops. Similarly, ranchers in many parts of the United States are aware of the fact that their land would likely fetch high prices for suburban real estate development, yet this development potential is not likely to be the reason that they acquired their land in the first place. What is new, however, is the increased presence of financial investors as a major class of owners, who – as a result of their shareholder orientations – use land differently, bear risk differently, engage community differently and generate profits differently. For this growing class of owners, natures are being produced as adaptable, and the temporalities of value production and extraction differ from the myriad attempts to neoliberalize nature that geographers wrote about extensively in the early-to-mid 2000s.

The editors of this forum have asked us to consider the material-semiotic effects of three decades of neoliberal hegemony in the environmental register. I began by noting that one way of charting the changing relationship between nature and capital is to utilize a set of five categories: **conception**, **control**, **distribution**, **management** and **production**. Through these categories, it is possible to follow continuities and differences in ways that provide a picture of the changing nature of neoliberal natures. I have argued that the growing power and presence of financial investor–owners in a range of landscapes and natural resource industries has meant that natures are being reframed, or **reconceptualized**, as flexible. **Control** has not just shifted from the public to private sector, as was the case under neoliberal governance, but in many instances it has also shifted from corporate to financial control. Financial investor–owners have differing motives and timelines, meaning they control land with differing aims and outcomes than other market actors. In certain ways, financialization diffuses **distribution**, as many land and resource owners are working on behalf of shareholders. Yet, while control has been defused in certain ways, there has nevertheless been a consolidation of financial/institutional ownership of natural resource landscapes (Gunnore, 2014). These lands are being **managed** to be adaptable assets, which can produce profits in a range of ways over a range of temporalities. Taking all of this into account, there is a real need to understand what sorts of natures are being **produced** through financialization, with close attention to differences across landscape types, as well as between the Global North and South. One hopes that future work on the intersections of neoliberalism and nature will pay close attention to these categories – which are in many ways emblematic of the broader concerns of political ecology writ large – and that this work will maintain continuity with one of the greatest strengths of the neoliberal nature’s tradition (Castree, 2008): empirically rich and place-based case research.

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Not so neo

Rebecca Lave

Indiana University, USA

Corresponding author:

Rebecca Lave, Indiana University, Bloomington, IN 47405, USA

Email: rlave@indiana.edu

It is a bit weird, or perhaps a lot contrary, to argue in this forum that neoliberal natures – one of the primary foci of critical nature/society research since the early 2000s – is not much to write home about (much less to write approximately three gazillion journal articles about). But over the last few years, I have come to think that there is very little ‘neo’ about neoliberal environmental conservation policies and practices, despite the fact that I’ve spent much of my academic life researching them.

Unlike in areas such as healthcare or education, where the advent of neoliberal policies produced starkly different outcomes, the reconfiguration of nature/capital in response to neoliberal policy looks much like its previous iterations. ‘Neoliberal nature’ is not just old wine, but old, old bottles. The shiny new labels (green finance! markets for ecosystem services!) have been pasted over basic processes of accumulation, exploitation, and expropriation that have characterized capitalism as an ecological regime (Moore, 2015) for more than half a millennium.

The on-the-ground consequences for people and ecosystems from the phenomena, we have been referring to as ‘neoliberal natures’ are important, but they are also old: enclosure, loss of livelihoods and sacrificing ecosystems to enable development. For example, Kelly Kay’s work analyzes a quintessential example of neoliberal nature: privatization via land trusts and conservation easements. And yet the consequences she describes in Maine today (Kay, 2017) look a lot like what Thompson (2013) has shown us about conservation in the Northeastern US since the 1800s: rich folks enclosing common resources and defending them with armed guards, creating eerily similar loss of livelihoods to what Kay describes today. Thanks to the excellent scholarship on neoliberal natures, we can point to many comparable examples. Sarah Knuth has argued the LEEDS certification and the green building movement simply remarket as green virtue building practices adopted for bluntly economic reasons (2016), and Lansing (2013, 2014) demonstrates that the much vaunted Payments for Ecosystem Services program in Costa Rica does little if anything to produce outcomes different from pre-neoliberal conservation practices, instead reproducing existing environmental management practices and political–economic inequalities.

The on-the-ground consequences for ecosystems are less certain, as studies of the physical impacts of neoliberal environmental management are fairly rare. In my work with Martin

Doyle and Morgan Robertson on stream mitigation banking (SMB) in the U.S. (e.g. Doyle et al., 2015), we found that this ecosystem service market effectively buttresses existing trends rather than changing them. Instead of better protecting the environment, as advocates for market-based environmental management claim, SMB reinforces existing restoration practices that are at best unhelpful for stream ecosystems (Sudduth et al., 2011, Violin et al., 2011). Further, SMB enables the continuation of weak enforcement of the U.S. Clean Water Act's mandate to prevent harm, facilitating the ongoing loss of stream habitat. In practice, then, this market-based approach reproduces the failures of the command-and-control approach it was supposed to improve upon. Thus the existing body of work on neoliberal natures strongly suggests that its impacts on people and landscapes are far from neo.

What then of green finance and the shiny new labels on those old, old bottles? As has become increasingly clear in the last few years, there is remarkably little fire to go with all the smoke financial types are blowing. The amount of money flowing through market-based conservation is tiny (Dempsey and Suarez, 2016), particularly when compared with estimates of the value of ecosystem services (Constanza et al., 1997, 2014). As Chris Knudson has shown, novel forms of risk insurance are not selling anywhere near as well as their promoters had hoped (2016), and conservation finance is similarly unimpressive in terms of capital flows and rates of return, as Jessica Dempsey and Patrick Bigger's ongoing research is showing (Dempsey and Bigger, unpublished). Further, as Kay (2017) has shown, even in the small markets that are actually moving forward, the purportedly novel tactics of green finance consist of old favorites, such as sub-dividing and selling parcels.

If not new impacts on livelihoods or ecosystems, perhaps what is really neo here, as Dempsey and Suarez (2016) have argued, is the conversion of environmental managers into good neoliberal subjects, so that the baseline values and expectations of the environmental community shift in fundamentally pro-market ways. I am unconvinced that this is anything more than pragmatic lip service to the current funding paradigm for many staff at environmental agencies and NGOs. Kate Bishop, for example, showed that a core group of development professionals managed to keep the same palm oil expeller projects running in West Africa for three decades by framing their work as exemplary of very different international development paradigms, from Appropriate Technology to microlending (Bishop, 2015). My hunch is that the current wave of allegiance to neoliberal conservation will be similarly transitory, particularly given the well-documented ambivalence of many in the environmental community towards market-based approaches (Dempsey, 2016, particularly ch. 4; Fisher and Brown, 2014; Sandbrook et al., 2013).

The novelty or lack thereof of neoliberal environmental management may sound academic, in the negative sense of that term, but I believe it raises a far more important question: what are the intellectual and political consequences of framing our analyses of

nature/capital through the lens of neoliberal nature? Put differently, what do we lose and what do we gain by claiming that the phenomena we study are somehow importantly different from nature/capital pre-1970s?⁹

We in the critical nature/society community need to consider the **intellectual** implications of that claim for the things we choose to study and those we choose to ignore. For example, which are we more likely to encourage: a dissertation project on green bonds or biodiversity offsetting, or on the incremental loss of life from poor air quality in communities adjacent to major roadways or the catastrophic loss of wetland habitat worldwide over the last century? Judging from what I see at conferences and in print, we seem to be endorsing the former, despite the latter's vastly larger eco-social impacts.

The choice to frame our objects of study as new also carries **political** implications. Surely new phenomena require new strategies of opposition, yet old strategies clearly remain useful. For example, the rollout of biodiversity offsetting policy at the European Union (EU) level was halted by some very old school organizing: from counter-demonstrations to coalition building to pamphlets (Lave and Robertson, 2017).¹⁰ Taking the political implications of our work a bit further, I have to come think that those of us who study the rare aspects of 'neoliberal natures' that may actually have a claim to novelty (the shiny labels on the old bottles) may be complicit in their reproduction. By continuing to heap academic attention on these relatively empty forms of market-based environmental management (bonds that are never issued, widely-touted markets with almost no transactions), we promote and legitimize the institutions we critique. I would thus argue that framing the phenomena we study as distinctively neoliberal is a mistake on both intellectual and political fronts.

To be clear, I am not saying that neoliberalism is unimportant and everyone should just get over it. It is abundantly clear that the impacts of neoliberal policies and technologies on education, healthcare, and housing, among other areas, have been and continue to be profound. I am making a more specific argument: that neoliberalism is, relatively speaking, a non-event in the history of nature/capital. Nor am I arguing that our decade and a half of work on neoliberal natures was a waste of intellectual time and energy. Quite the contrary: it would have been impossible to understand just how little neo there is about neoliberal environmental conservation without the superb body of existing research. Instead, my point is that when we frame market-based environmental management as an important inflection point in the ongoing articulation of nature/capital, we invite intellectual and political consequences that are actively unhelpful in the intertwined struggles for social and environmental justice.

Notes

9. For example, in the introduction to their now classic *Geoforum* special issue on Neoliberal Natures, McCarthy and Prudham (2004) trace neoliberalism's liberal roots, but they also refer to new social movements (278), new scalar dynamics (279), new risks leading to new social fractures (280), and

new forms of discipline (280) associated with neoliberalism's particular relationship to nature. Heynen and Robbins, in the introduction to their similarly germinal special issue of **Capitalism Nature Socialism** (2005), 'The Neoliberalization Nature', close the opening paragraph with the assertion that: 'Today, neoliberal capitalism drives the politics, economics and culture of the world system, providing the context and direction for how humans affect and interact with non-human nature and with one another' (p. 5). To my mind, however, quotes such as this are unnecessary to demonstrate that the 'neoliberal natures' literature is based on the assumption that there is something importantly different about this particular stage of capitalism: why else would so many of us having been referring to what we study as 'neoliberal' rather than simply as 'capitalist'? 10. See for example http://www.fern.org/sites/fern.org/files/Biodiversity1_EN.pdf, http://www.fern.org/sites/fern.org/files/Biodiversity2_EN.pdf, http://www.fern.org/sites/fern.org/files/Biodiversity3_EN.pdf. The 'duck' on the cover of the third is particularly fine.

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From the commons to the body to the planet: Neoliberalism/materiality/ socionatures

Becky Mansfield

Ohio State University, USA

Corresponding author:

Becky Mansfield, Ohio State University, Columbus, OH 43210, USA.

Email: mansfield.32@osu.edu

When I arrived at Ohio State in 2001, as a junior faculty member straight out of graduate school, I told my mentor Larry Brown that I had a series of articles planned on neoliberalism and nature. He told me this was a dead end, that neoliberalism was old news, done in the 1980s. Thank goodness I didn't listen. Instead, I was part of the wave of early scholarship addressing linkages between nature and free-market ideology and policy, and also part of the later wave of scholarship bringing specific attention to questions of health and the body. Recently I have been exploring parallels between emerging ideas about the body and the planet, in which nature is open, unbounded, and always socionatural. A key question for those of us interested in neoliberal natures is whether and in what ways these emerging conceptions of nature might facilitate, rather than undermine, capitalist accumulation and uneven development.

The broad questions we were asking in those first few years were many, including how neoliberal economic policy affects environments and how neoliberal precepts were being taken up in environmental governance.¹¹ The clearest threads of this scholarship were on enclosure of the resource commons, such as fisheries, forests and water. Addressing the interlinked processes of dispossession, commodification, marketization and privatization, this research addressed how such reforms were actually carried out, continuities with past enclosures, and their socioeconomic and environmental effects.

For me, this work collectively made three interlinked claims that now seem simple but

then – just 15 years ago – were new. First, the work on neoliberalism and nature focused extensively on the contradictions of neoliberalism, in particular helping to identify and elucidate the reregulatory side of market-based ‘deregulation’. Second, it is not just that neoliberalism affects environments and environmental governance, but that nature is central to neoliberalism, as to capitalism more broadly. As Heynen et al. put it, neoliberal ‘ideologies and promises are in part compelled and constituted through our changing relationship to nature’ (2007: 12). Third, it is not that neoliberalism responds to and acts on external nature, but instead both neoliberalism itself and the natures on which it acts are socionatures. In a move that prefigures the more recent turn to ‘new materialism’, inquiry was about how the materiality of nature influenced the forms and outcomes (including failures) of neoliberal governance; see for example my work on fisheries, Karen Bakker’s work on water, and Morgan Robertson’s work on wetlands. Indeed, it was the inescapable materiality of neoliberalism that drove many of the contradictions that this work also identified.

Given how resolutely material and socionatural this work was, it was surprising to me that the body was largely missing.¹² Along with others, I started asking, why should our interest in socionatural materiality end at the skin? In a surge of interest in the body over the past decade, scholarship has addressed themes such as devolutionary public health, opportunities and challenges for biocapital, and how the materiality of the body both configures and is configured by particular neoliberal shifts.¹³ On the one hand, the initial focus on the body was also part and parcel with another shift: to integrate questions about neoliberal **subjectivity** in our inquiries into neoliberal **political economy** (Larner, 2003).

Of particular interest was how devolutionary policy helped create – in fact required – the healthiest subject of self-care and responsabilization: not only is it our own responsibility, as individuals and families, to nurture the health of ourselves and our children, but we seem to take on this responsibility consensually, enforcing it in ourselves and others. For example, I analyzed how concerns about health risks of contaminated seafood in the US have led not to efforts to reduce pollution but to advisories to childbearing women about what to eat. Approaches such as this generate opportunities for capital accumulation not only through deregulation but as people seek more care (and tests, products, drugs, special foods etc) in their efforts to achieve health (Guthman and DuPuis, 2006). It also entrenches normative expectations and socioeconomic inequalities regarding individual efficacy, family structures and roles, and the ability access the means to health – not to mention regarding what health even means.

On the other hand, I see this turn to the body in political ecology as linked to the new understanding of nature, both bodily and earthly, that is emerging across popular and intellectual thought, including in the sciences. Regarding the nature of the body, ‘postgenomic’ sciences (such as epigenomics and microbiomics) increasingly figure bodies

as open, malleable, responsive multiplicities (Guthman and Mansfield, 2013). This challenges the idea of the body as a fixed, closed, and sovereign entity that is walled off from environmental influences, including human actions. Against both gene/environment and human/nature dualisms, in this view bodies are fully imbricated with sociobiochemical environments that influence the action of genes and development of organisms. At the same time, something similar has happened with the proliferation of 'Anthropocene' as an optic for thinking about the planet.¹⁴ Earth and atmospheric sciences increasingly figure the planet, too, as open, malleable and responsive. Used to identify the present as the geologic age of humans (especially in reference to the planet-altering effects of hydrocarbon energy, materials, fertilizers, etc.) this challenges the idea of nature as an external and pristine entity, walled off from human action. This view challenges not only the human/nature dualism but also the biological/geological dualism, undermining divides between living and non-living. In other words, whether referencing the nature of the body or the nature the planet, the emerging scientific orthodoxy – the new truth – is that nature and humans are not separate but always intertwine. This view aligns rather well with the earlier work on neoliberal natures as well as with the previous decades of work in political ecology (and related fields). Aligning with ideas about socionatures and the like, this view not only acknowledges human influence in nature (e.g. endocrine disrupting chemicals, climate change), but is, thereby, anti-dualist in its approach to nature.

And yet, what is so fascinating is that this anti-dualist view of unbounded, post-natural socionatures seems not to have undermined neoliberal deregulation, devolution and accumulation – as political ecologists expected and argued – but in many ways facilitates it (Mansfield, 2018).¹⁵ For one, the unbounded body and planet both seem more vulnerable and in need of care and protection. For another, the vulnerable, unbounded body and planet are also more open to intervention: health and well-being appear to be within our control, as long as we do all the right things. The end of pristine nature may raise anxiety about the future of life, but it also raises hope, particularly by authorizing intervention in natures both bodily and earthly to make them do what 'we' want. It is not just the promise of engineering that is friendly to capital, but also that this anti-dualist, post-natural view seems also to authorize adaptation rather than prevention. If environmental change is inevitable, then we need not prevent change, we need only find ways to adapt: build and buy the right products, technologies, medicines, and so forth. This is neoliberal self-care intensified: let potential harms proliferate while devolving responsibility for protection and even improvement to the individual family, and even as potential harms proliferate, the existence of actual harm is a sign of individual failure. In this version, unbounded anti-dualist nature is the embodiment of all-fetters off capitalism; in the latest fix to the contradictions of capitalism nature is endlessly produced in an 'economy of repair' (Fairhead et al., 2012: 242).

If trends in postgenomic and Anthropocene thinking seem to further entrench neoliberal nature, what then are we to make of the mixed messages of the Trump era? In its first six months, the Trump administration famously challenged neoliberal free trade, pulling out of the Trans-Pacific Partnership, while also doubling down on neoliberal deregulation, particularly in the environmental arena – not only pulling out the Paris Climate Agreement but constantly assaulting the Environmental Protection Agency’s regulations, for example trying to weaken ozone and methane regulations and fast-track approval of new chemicals (the real effectiveness of these assaults remains to be seen). Clearly, Trump too is interested in all-fetters off capitalism – particularly though certainly not exclusively in fossil fuel industries. Yet he also seems more interested in sovereign power than the free-floating, let-things-happen power of liberalism. He is definitely interested in his own sovereign power! But as a corollary this also extends to nature, about which his administration is remarkably old-fashioned: nature both bodily and planetary is indeed a fortress, a separate entity, unaffected by human action; emissions do not affect the climate; environmental exposures do not affect biology. In this view we can use nature without harm – to nature or to ourselves.

In other words, as those of us interested in neoliberalism and nature argued from the beginning, nature is at the heart of political economic debates. The approach of the Trump administration seems crisis prone at so many levels both economic and environmental. One of these levels may be clashes between fractions of capital at cross-purposes, divided by their material relation to nature. A sovereign fortress nature to dominate and use without worry? Or an unbounded socionature to dominate by continually engineering money-making adaptations for protection and improvement – while constantly trying to defer the responsibilities and downsides to (the most disadvantaged) individuals?

My point, though, is not to ask about which sort of nature is better for facilitating capital through its inevitable crises. **Rather, the point is to ask about what sorts of nature at what moments lead to what kinds of crisis – and for whom.** In other words, highlighting problems with the emerging anti-dualist view of unbounded socionature is not a call to return to traditional, dualist views of fortress nature. Instead, it is a call to continue to attend to the very material politics of uneven development, of multiple axes of advantage and disadvantage affecting differential existence (both human and nonhuman). As political ecologists, we should not embrace one view of nature or another as inherently better. Rather than taking a determinist view, we must acknowledge, explore, and contest the power relations that inhere – though in different ways – in all configurations of nature.

Notes

11. See the 2004 special issue of *Geoforum* on ‘Neoliberal nature and the nature of neoliberalism’ and 2005 special issue of *Capitalism, Nature, Socialism* on ‘Commodification of nature’, which were then collected in Heynen N, McCarthy J, Prudham S, et al. (2007) *Neoliberal Environments: False Promises and Unnatural Consequences*. London: Routledge, and also the 2007 special issue of

Antipode republished as Mansfield B (2008) *Privatization: Property and the Remaking of Nature-Society Relations*. Malden, MA: Blackwell.

12. Long of interest in areas such as feminist geography or medical geography, until recently the body was not a central object of inquiry in geography more broadly, including in political ecology.

13. See for example the 2012 special issue of the *Annals of the Association of American Geographers*, on 'Geographies of health'. Signaling a renewed interest in health and the body, the issue covers a range of geographical approaches and themes; articles such as those by Brown et al., Guthman, Scott et al., Sultana, and me touch on the themes I mention here.

14. See for example the 2015 special issue of the *Annals of the Association of American Geographers*, on 'Futures: imagining socioecological transformation', in which Anthropocene was a major theme.

15. There already exists robust debate about some strands of this thinking, such as with regard to the 'ecomodernist manifesto'. (See Robbins P and Moore SA. (2015) *Love your symptoms: A sympathetic diagnosis of the Ecomodernist Manifesto*. Entitle Blog – A Collaborative Writing Project on Political Ecology.) My aim is not to critique specific strands of thought, but to turn the focus back on political ecology, raising questions about what it means to adopt anti-dualist ideas about unbounded natures.

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The de-commodification of nature: Indigenous territorial claims as a challenge to carbon capitalism

Tracey Osborne

University of Arizona, USA

Corresponding author:

Tracey Osborne, University of Arizona, Tucson, AZ 85721, USA.

Email: t.osborne@arizona.edu

The commodification of nature is a central aspect and arena for analysis of neoliberal natures, which represents a set of environmental governance projects based on market logics and relations. The carbon market is one such project based on the commodification of carbon as a climate change mitigation strategy. Carbon markets, particularly in forest ecosystems, offer a revealing lens into the contradictions and politics of neoliberal natures. Scholars of the commodification of nature have explored various forms of resistance (McAfee and Shapiro, 2010; Wolford, 2005) – often drawing on Karl Polanyi’s concept of nature as a ‘fictitious commodity’ that undergoes ‘double movements’ of commodification and social regulation (Guthman, 2007; Prudham, 2005). Polanyi argued that because fictitious commodities such as land are deeply embedded in social, cultural and ecological values, subjugating nature to market logics unleashes protective countermovements that mitigate the destructive impacts of commodification (2001). However, insights from carbon markets in Indigenous communities point to a particular reading of Polanyi that advocates for a re-embedding of the economy not simply through market reform but the more radical de-commodification of land and nature (Lacher, 1999). In this intervention, I examine recent contestations and proposed alternatives to carbon markets in forests by Indigenous Peoples of the Amazon. I argue that the projects and processes of neoliberalizing nature produce not only a host of fallouts associated with them, but also produce a set of politics that are challenging the very foundations of capitalism.

The carbon market is a quintessentially neoliberal strategy for addressing climate change because it rests on the quantification and trading of units of nature (in the form of carbon dioxide equivalents) through a variety of projects that offset emissions produced elsewhere. While initially celebrated in the 1990s as a cost-effective mechanism for reducing greenhouse gases under the Kyoto Protocol, carbon markets have since faced fierce criticism and resistance especially when applied in forest ecosystems (Bumpus and Liverman, 2008; White, 2011). Scholars of the commodification of carbon have identified a range of issues and concerns associated with neoliberal natures, including the problems of measurement and calculation (Lansing, 2010; Lohmann, 2005), questions of access and land control (Corbera and Brown, 2010; Lansing, 2014; Osborne, 2011), and equity broadly defined in the form of sustainable development and livelihood outcomes (Milne and Adams, 2012; Osborne, 2015). Although supporters claim that forest-based carbon markets generate a ‘development dividend’ for local communities (Forsyth, 2007), many projects have failed to deliver promised local livelihood benefits and have constrained access to land and forest resources (Beymer-Farris and Bassett, 2012; Osborne and Shapiro-Garza, 2017). The contradictions of carbon commodification are consistent with much of the scholarship on the neoliberalization of nature, which strongly suggests that while outcomes are certainly uneven, in most cases the benefits are skewed toward powerful elites leaving marginalized people more vulnerable (Heynen et al., 2007, McCarthy and Prudham, 2004). As with the

commodification of other natures, the commodification of carbon has produced diverse forms of resistance in forest communities, that include appeals to the state, social mobilizations, as well as renewed claims to Indigenous land (Lohmann, 2010; McAfee and Shapiro, 2010).

Carbon countermovements in forest communities are a response to contradictions or the failures of carbon markets to: (1) develop a robust and effective market, (2) address the main drivers of deforestation and (3) deliver adequate benefits to local communities without constraining land access. While the double-movement may take diverse forms in response to the failures of neoliberal natures, one manifestation in the Amazon is oriented around Indigenous territorial land rights as an alternative to market-based climate strategies in forests.

Indigenous territorial claims as a response to REDD

Neoliberal natures have largely failed to develop and sustain a robust market in forest carbon. Modeled on carbon offset projects in forests and Payments for Ecosystem Services (PES) programs, REDD is a financial mechanism that places economic value on the carbon sequestration and storage services forests provide. REDD is an initiative of the UN, proposed as a cost-effective strategy for climate change mitigation by reducing emissions from deforestation and forest degradation through sustainable forest management, conservation and the enhancement of carbon stocks in developing countries (Duchelle et al., 2014; Stern, 2006). However, of the \$9.8 billion of aggregate pledges and investment for REDD, 90% has been derived through bilateral and multilateral public sources not carbon markets (Norman and Nakhouda, 2015). As REDD is currently excluded from compliance markets due to longstanding methodological concerns about credible carbon measurement, monitoring, and baseline setting, among other key issues, most REDD carbon credits are exchanged on voluntary markets. While in 2016, REDD represented the most highly transacted project type on the voluntary carbon market valued at \$41.2 M, it was still dwarfed by massive public funding for climate change mitigation in forests (Hamrick and Gallant, 2017). This demonstrates the first failure of neoliberal natures to develop and sustain a robust and therefore effective carbon market in forests. The result has been low carbon pricing and therefore limited socioeconomic benefits for carbon producers.

The second failure of neoliberal natures is the inability of carbon markets to successfully target the drivers of deforestation (Osborne et al., 2014). There is a certain irony that Indigenous communities of the Amazon with relatively low carbon footprints are being enrolled in strategies to solve a problem driven by fossil fuel combustion elsewhere. As the low and volatile prices of the carbon market are unable to compete with the opportunity costs of deforestation drivers linked to the commodification of other natures with more established markets – such as cattle ranching, soybean and oil palm production –

indigenous lands, which are often dedicated to subsistence needs and therefore viewed as having low or negligible market value, have been a target for REDD initiatives.

The third failure of neoliberal natures in forests relates to the ways in which carbon commodification can effectively enclose the land and forest resources of marginalized communities through the occupation of arable lands with project trees. One of the main concerns among Indigenous Peoples with regards to REDD is exclusion from forests and/or restrictions of resource access, which some communities have experienced in the wake of earlier carbon and conservation efforts (Osborne et al., 2014; Pokorny et al., 2013; Sunderlin et al., 2014). This issue is particularly salient in contexts where Indigenous Peoples lack formal land rights or where land tenure is uncertain, conditions under which some REDD pilot projects have been already inserted. While advocates argue the clarification of territorial rights can be instrumental in protecting Indigenous Peoples' sovereign rights and help resolve competing land use claims, property titles can also make access more precarious (Pokorny et al., 2013; Sunderlin et al., 2014). In addition, informal forest users have become marginalized in the tenure process as rights are clarified for others (Osborne, 2013). Land rights, therefore, remain an area of significant concern for Indigenous Peoples with regards to REDD (Schroeder, 2010; Thompson et al., 2011).

Indigenous responses to REDD have been diverse, ranging from negotiated participation as in the case of the Surui Indigenous community in Brazil, to complete opposition to the initiative in all its forms – market or non-market – as advocated by the Indigenous Environmental Network (Goldtooth, 2010). A more recently articulated response to the failure of carbon markets in forests has been the call for territorial rights before the implementation of REDD – 'No rights, no REDD' or as an alternative to REDD altogether. For example, some Indigenous Peoples of the Amazon have challenged REDD on its own terms by demonstrating that Indigenous territories store significant amounts of carbon, are highly biodiverse, and less costly to manage compared to existing REDD projects. Recognizing the targeting of Indigenous lands for climate change mitigation strategies, leaders of the Indigenous Amazonian federation COICA approached researchers of the Woods Hole Research Center to conduct an analysis of carbon storage within Indigenous territories and protected natural areas (Walker et al., 2015). The study found that Indigenous Peoples of the Amazon played an important role in forest stewardship, and that their territories are associated with low levels of deforestation and are responsible for storing nearly one third of the region's aboveground carbon (Walker et al., 2015). Based on this research, COICA is in the process of developing an Indigenous REDD program (COICA, 2013). Territorial rights for Indigenous communities, as articulated by COICA, represent conservation strategies based on the de-commodification of land, and has emerged as a mechanism to reclaim forests from state governments. Indigenous territorial claims as a response to carbon commodification brings into sharp

relief the longstanding history of land dispossession and the ongoing struggle to reclaim Indigenous lands (Escobar, 1998). In this way, the neoliberalization of nature is more than the contemporary set of projects and processes of environmental governance based on market logics and relations associated with neoliberalism. It is also and importantly linked to a longer history of agrarian capitalism. Therefore, neoliberal natures must consider a longer history of land dispossession as it informs the character of and locus of struggle: Indigenous territory. Furthermore, it demonstrates that the solution might lie beyond Keynesianism and market reform but involve a more radical de-commodification of land, labor and money.

In conclusion, this work contributes to previous scholarship on resistance to nature's commodification by focusing on Indigenous countermovements in the context of climate change. It demonstrates that embeddedness is not simply reflective of state-based protections, regulations and reforms, but articulated with cultural politics around territory and a more radical project of de-commodifying nature in line with indigenous sovereignty and cosmo-visions (Escobar, 1998; Lacher, 1999). Furthermore, territorial land rights for Indigenous Peoples in the Amazon have the potential to keep fossil fuels underground, thereby constraining the engine of capital, which can make way for alternative and more equitable approaches to climate change mitigation through Indigenous REDD. As a broader defense of life beyond carbon, Indigenous approaches to REDD as described here, provide alternative anti-capitalist worldviews that could transform the climate mitigation landscape in more effective and socially just ways.

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Before neoliberal natures

Morgan Robertson

University of Wisconsin, USA

Corresponding author:

Morgan Robertson, University of Wisconsin, Madison, WI 53706, USA.

Email: mmrobertson@wisc.edu

For many geographers, the publication of *Neoliberal Environments*, along with work near the same time by Smith (2007), Mansfield (2008) and Castree (2008a, 2008b), was a landmark moment in the study of the relationship between neoliberal capitalism and the environment. These works were, I suggest, the close of the first act – the moment when all the principals (and principles) are on stage and a summative aria is sung laying out the main threads that will structure the story going forward. The prehistory of ‘neoliberal natures’ is rooted, for most geographers, in the debates over nature within eco-Marxism in the late 1980s and early 1990s (e.g. Altvater, 1993; Benton, 1989) – centering around James O’Connor’s (e.g. 1994) key idea of the ‘second contradiction of capitalism’ and related questions over whether or not ‘nature’ (abstractly conceived) formed a barrier to capitalist accumulation or an essential ‘fictitious commodity’. Castree’s (1995) article in *Antipode* provides the best statement of the state of the field that led to the emergence of a concept of ‘neoliberal natures’, which I would pin to McAfee’s (1999) paper on the commodification of genetic information entitled ‘Selling nature to save it’. The key to her formulation was a detailed grappling with biology and ecology in a way that didn’t focus on issues of materiality. Instead, with a grounded and ethnographic instinct, she chose to view nature as capitalists were increasingly doing: as an informational or service commodity rather than a stock of material objects.

McAfee helped us bid farewell to the long debate over whether or not nature’s resistance

to capital was in its ontological materiality. Going forward, talk of 'nature' would no longer do: nature writ large was not an analytic topic legible in the study of neoliberal capitalism. Genes were. Water, fish, wetlands, ecosystem services. These were the objects that were being made to circulate and bear value, and as geographers we had to be just as specific about the measurement and epistemology of the thing as capitalists were. No more the chasing down of capitalist nature from the lofty starting point of underproduction/overproduction debates; rather, Castree (1995: 25) urged us towards specificity: 'take nature seriously as a material entity and actor in history, without hypostatizing it as a fixed, unchangeable, universal given separate from society'. This is a warning few of us need today, but Castree was showing the way forward at the time.

It is this groundedness that marked the novelty in this approach to capitalist nature from a Marxist perspective. Capital is not so powerful as to commodify everything with its touch, nor is nature so powerful as to resist capital through its material weight. Rather, McAfee's paper showed the ongoing and contingent process by which nature becomes, or does not become, capable of bearing value and taking the commodity form, an abstraction from something 'irreducibly complex'. While much of the early work on neoliberal natures dealt with the process of commodifying nature, this gross process was subdivided into subsumption, privatization, valuation and governance. Foreshadowing future developments in the literature, McAfee's main analytic focus was the world of global environmental policy and venues of governance rather than the realm of agricultural or industrial production that had dominated earlier discussions in green Marxism. The paper also forged then-novel methodological links with STS by holding equivalent the microtechniques of both finance and genomics that were required to distill the value of genes.

These are all elements that seem unremarkable now, even requisite. But to understand how the concern for neoliberal natures has taken the form it has, one has to see what it took shape against. Green and eco-Marxists circa 1990 wanted a way to talk about a nature that was spatially and temporally complex, and not simply read off of the logic of capital or conceived of as an inanimate surface on which capital played out. But they did so at a level of abstraction that was very high. Elmar Altvater, surely one of the most brilliant eco-Marxists, did not go further than to indicate that nature's complexity posed a problem for capital logic: 'The heterogeneity of physical transformation in real space and time – that is, the particularity of materials, place, and ecology – is at odds with the axiom of general comparability in the world marketplace imposed by capitalism' (1993: 79). His point made, he hands the baton off to ecologists, whose business it is to document that heterogeneity.

The explosion of work in economic geography on neoliberalism and the crisis tendencies of late capitalism in the 1980s and 1990s had exerted a strong gravitational pull on most of

human geography and the writers on neoliberal nature were no exception. Reading Altvater or Benton or Redclift on nature was somewhat unsatisfying if one had just come from reading a close and grounded examination of innovation amongst small fashion houses in Emilia-Romagna, or amongst high-tech firms on Boston's Route 128. One wanted to be in a position to both see the world of global capital and pursue and document its heterogeneity and contingency, as the economic geographers were doing. The bibliographies of the early writers on neoliberal natures are larded with the textured ethnographic approach of Michael Burawoy, and equally the post-structural concern for situatedness of Gill Valentine and Audrey Kobayashi. The incompleteness of capitalism and its aporetic spaces, following Gibson-Graham (1993) were at least as important as the grinding power of capital to remake nature in its own image, following O'Connor (1994) and a common misreading of Smith's (1985) 'second nature'.

Soon there were enough people working in this vein that 'neoliberal natures' became a thing – AAG sessions had been organized around the term starting around 2002, and Cori Hayden had used the term as the title of part one of her excellent book on bioprospecting in Mexico (2003). James McCarthy and Scott Prudham organized a special section of *Geoforum* in 2004, 'Neoliberal nature and the nature of neoliberalism', and of the *Geoforum* authors only two would be missing from *Neoliberal Environments*. Likewise, the book featured all but one of the authors in Becky Mansfield's (2008) special issue of *Antipode* on the privatization of nature (see Mansfield, 2008).

So on the one hand, we have a relatively coherent group of people who had been publishing in the same venues for a few years and influencing each others' work. On the other hand, these authors came from very different places. Many were pivotal in earlier work in political ecology (Peluso, Rocheleau, Swyngedouw, Robbins, Watts). Others were rooted strongly in economic geography (Brenner, Larner, Bridge, Theodore). There were geographers who we might identify primarily as historical, urban or feminist. Some approached the problem of nature as a 'Volume 1 Marxist', focusing on the commodification process and the constitution of value, and others approached the problem as a 'Volume 2 Marxist', focusing on production and its structuring effects on the environment.¹⁶ The former could be accused of seeing commodities without production and without realization, which threatens to drift into a kind of post-Marxist anthropology of commodities (à la Appadurai), untethered to the rigors of creating surplus value. One can see this in my own work on wetlands (e.g. Robertson, 2004). The latter could be accused of trying to make the hidden abode of nature's production look too much like a Manchester factory as it becomes the vehicle for crises of state or labor. I can see this in the earlier work of Prudham and McCarthy in their *Geoforum* special issue. Some wrote with a commitment to nature as (in an oft-repeated phrase) 'simultaneously material and discursive', while others saw the material/discursive binarism as the thing to be

demolished (cf. Bakker and Bridge's, 2006 overview).

'Neoliberal natures', then, was not the answer to a single question, but rather something articulated by a range of geographers seeking to incorporate sophisticated, grounded and ecologically literate accounts of nature into their observations of the varied projects of late capitalism. They knew what they didn't like, and it was the gestural treatment of nature, unspecified and monolithic, in the study of the governance or expansion of market relations in late capitalism. This is understandable, from a generational perspective: such a concept, for many, had been the nemesis against which they sparred in graduate seminars at the beginning of their careers.

What they also shared was the use of field-based case studies. Castree in 2008 weighed in on the limits of this, essentially saying that the pendulum had swung too far from 1995 and we had perhaps listened to him a little too well that 'much more attention has to be given to understanding the proximate (produced) natural processes at work in environmental degradation, in addition to the distal social-structural causes which Marxist analysis has traditionally been concerned with' (1995: 26, emphasis in original). By 2008, 'there is a danger that diverse investigations of nature's neoliberalization (in the plural) will obscure the common 'logics' and processes operating within or between otherwise different spatiotemporal settings' (Castree, 2008a: 137).

To vastly oversimplify, the development of neoliberal natures work from 1990 to 2007 is this: the study of nature under late capitalism had abounded in theoretical debates, but lacked case studies and biophysical literacy. The latter were then vigorously pursued, but perhaps at the expense of the former. As other essays in this forum will detail, much has changed in the past 10 years. The coherence of the concept of neoliberalism has been challenged (Brenner et al., 2010) – though in a way which, I believe, enriches the neoliberal natures approach rather than undermines it. The Volume 1/Volume 2 dyad has been augmented with a focus on the state and governance, noncapitalisms, finance and the concern for the reproduction of capital. At a stroke, Felli (2014) nearly banished the entire debate over the commodification and production of nature as it had unfolded since 1999, pointing out that the prices assigned to things like ecosystem services and wetland permits are much more legible as forms of rent. For twenty years we whistled past the question of where surplus value might come from if nature is produced – can nature be exploited in the same way as labor? Analogies can be made between ecological and labor inputs to production, to be sure, but where is the surplus value in the labor that creates a carbon credit? Or, how is nature alienated from the product of its own labor? How might this exploitation, rather than an exhaustion of stocks, create a crisis tendency analogous to the exploitation of labor? It doesn't really work. Felli stands alongside the largely honored-in-the-breach Chapter 11 of Harvey's *Limits to Capital*, and Guthman's (2002) argument on rent, at which most of us nodded at and made a note to re-read Harvey.

Especially in the process and service commodities with which a good deal of work on neoliberal natures is concerned, most of what is capitalized about nature can be considered a rent imposed on inputs that is established by the state. Value in the strictly Marxian sense is thus created without having to fit nature into the labor-sized hole in capitalism, requiring it to be a commodity, or abandoning the idea that nature is a social abstraction creating crisis tendencies.

In two decades, the tension over the under-specification of nature in capitalism has played itself out, but given rise to other tensions and further acts. Neoliberal natures does not mean what it meant in 1999 or 2007, but it continues to be a durable rubric under which to bring together our changing understanding of accumulation and governance in a capitalist society and our changing understanding of ecological relations.

Note

16. I am indebted to Paul Robbins for this observation.

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The rise of disingenuous nature and neoliberal stealth unknown–knowns

Gregory L Simon
University of Colorado, USA

Corresponding author:
Gregory L Simon, Department of Geography and Environmental Sciences, University of Colorado, Denver, CO, USA.
Email: gregory.simon@ucdenver.edu

In this intervention, I introduce two concepts – **stealth unknown–knowns** and **disingenuous nature** to animate and clarify key research and policy developments at the nexus of environmental governance, neoliberalism and environmental change. I use these concepts to (a) briefly distill important insights from geographers, political ecologists and other critical scholars of the environment who have explored neoliberalism as an interrelated ‘set of coherent ideologies, discourses, and material practices’ (McCarthy and Prudham, 2004: 276) and to (b) illuminate the complex and power-laden nature of knowledge production and management under an increasingly hegemonic neoliberal environmental governance doctrine. I argue that critical engagement with each concept is important for evaluating the construction and implications of environmental knowledge claims made by powerful market actors that ultimately shape how we come to understand and manage environmental change in diverse settings.

Neoliberal sensibilities as stealth unknown–knowns

Stealth unknown–knowns pertain to the tacit ideas and beliefs that inform our interpretation of the world, and that may influence efforts to privilege or disavow certain information within environmental management contexts. These ideas and logic frames linger outside of our conscious awareness yet are always active, exertive and at play. They structure our understanding of the world without us readily acknowledging their influence. Unknown–knowns are the suppositions and beliefs, as Žižek notes, ‘we pretend not to know about, even though they form the background of our public values’ (2004, 1). He continues, ‘they are the things we don’t know that we know—which is precisely, the Freudian unconscious, the “knowledge which doesn’t know itself,” as Lacan used to say’.

For political ecologists, **neoliberal** stealth unknown–knowns and their furtive influence are best characterized as underlying capitalist and market-based values and belief systems that privilege nature’s enclosure, efficient use, private sector management, market commensurable valuation, techno-centric treatment and profit maximizing potential. Over

the past several decades these values have soaked into the core fabric of mainstream environmental governance. The now engrained nature of neoliberal sensibilities has steadily increased, marking a transition from overt market triumphalism (Peet and Watts, 1993) to more mundane and standardized applications where capitalist logic and governance operates implicitly as assumed best practice (Goldman, 2006) – including programs targeting sustainable forestry, energy conservation and climate change mitigation (see below). And although they are underlying and typically non-controversial viewpoints, they are also profoundly influential as they circumscribe what knowledge and practices are possible. **Stealth** neoliberal logic within development practice is therefore important to reveal because its enactment by market actors arises oftentimes at the exclusion of other affected development subjects. Neoliberal sensibilities are thus stealthy not because they are performed in intentionally covert ways, but rather because they are achieved, oftentimes without hindrance, through hegemonic and taken-for-granted practices.

The production of disingenuous natures

This brand of surreptitious rationality is not without consequence for environmental governance. As the brief example from India below suggests, the application of neoliberal ideologies and beliefs oftentimes undergirds the production of faulty information in order to justify capitalist interventions. In an effort to make nature legible to the market, this process leads ultimately to the creation of ‘disingenuous natures’ that are understood and managed seemingly without controversy. Disingenuous natures are the management interventions and coinciding social-ecological conditions that emerge from faulty science, partial data and erroneous environmental narratives. They are **disingenuous** because – despite being constructed by surreptitious knowledge – they are understood and managed as if they were a legitimate, authentic and thus genuine depiction of social-ecological conditions (Simon, 2010). Acknowledging the disingenuous nature of certain environmental beliefs and imaginaries follows insights by Ferguson (1990) and Goldman (2006) who each note how particular representations of social-ecological ‘realities’ are useful to powerful entities not in their veracity or ability to effectively address pressing issues, but rather for their capacity to advance – through ‘green science’ at the World Bank for example (ibid) – the development agendas of State-led and market based development actors.

Unsurprisingly, when observed through a neoliberal looking glass, our view of environmental problems leads us to see market compatible answers. This means defining problems and solutions that are commensurate – indeed optimally aligned – with the commodification, marketization and financialization of nature. Here, market entities construct a series of socio-environmental ‘ends’ that necessitate a set of neoliberal policy and management ‘means’. For example, Thompson et al. (2011) note that programs such as REDD provide ‘a particular framing of the problem of climate change and its

solutions that validates and legitimizes specific tools, actors and solutions while marginalizing others'. Ultimately this process of neoliberal shoe-horning may lead, as Forsyth (2002) suggests, to 'land-use policies that have either simplified the underlying biophysical causes of apparent problems, or even imposed restrictions on the livelihoods of local people' (p. 50).

My own research in Andhra Pradesh, India provides a nice illustration of this process. Here, carbon market investors are using tens of thousands of improved cookstoves to mitigate (supposedly) household-driven deforestation from fuelwood collection activities. This long-standing narrative and disingenuous nature articulating 'backwards' forest communities as a threat to forest health was first espoused by colonial foresters as a scapegoating tactic to obfuscate their own extensive timber extraction activities. It was later utilized as a paternalistic management strategy by state forest agencies in order to create a series of local ecological exigencies that only well-resourced and authoritative bodies, such as the Indian Forest Service, would be able to manage (Sivaramakrishnan, 1999). For more than a century now this fictional forest disappearing at the hands of irresponsible households has proven to be an administratively convenient problem frame.

Today, market investors are repurposing this forest fiction, arguing that if 'irresponsible' households are driving deforestation due to woodfuel collection, then providing stoves that use less wood should curb rates of forest loss and, as a consequence, increase forest carbon sequestration potential (Simon et al., 2012). In rural India, this has become a convenient problem narrative precisely because it serves the offset requirements of the first-world driven carbon market, thus representing a neoliberal strategy described by Bumpus and Liverman (2008) as 'accumulation by decarbonization'.

In this contemporary context, the problem of household driven deforestation is a disingenuous nature devised administratively by the Fair Climate Network with technical assistance from the Indian Institute of Science; substantiated empirically using Gold Standard carbon monitoring methodologies under the Clean Development Mechanism; financed by international corporations and faith based organizations aiming to fulfill corporate social responsibility obligations; and legitimated discursively by the Global Alliance for Clean Cookstoves (a subset of the United Nations Foundation) tasked with educating the public and investors alike about the social and ecological virtues of clean cookstoves. As this vast network of actors suggests, this is a decidedly **first-world problem** at variance with more localized environmental accounts. Local forest users are not causing widespread forest loss. A long history of commercial forestry, urban and agricultural expansion, and many decades of logging under the British Raj suggest a decidedly different forest story. But for global carbon markets, and in order to manufacture a carbon market compatible problem, local forest loss **must necessarily** be driven by stove user forest demands.

This brief case illustrates how explanations of contemporary environmental degradation in India, and the multi-scale carbon market constructed to manage it, are informed by a taken-for-granted and hegemonic (read: stealth unknown-known) neoliberal sensibility resulting in *de facto* 'best management practices' (read: disingenuous nature) that foreclose other ways of understanding or responding to such landscape changes.

Insights from critical scholars of the environment

This type of disingenuousness is certainly not new. Examples abound throughout history where 'reifications. . .create actual "permanences" in the social and material world around us' (Harvey, 1996: 81). The notion of 'permanences', refers to regulatory, planning and material instantiations that are durable and that reinforce and deepen our acceptance of the 'reifications' over time; a process normalizing erroneous knowledge and reproducing public acceptance of, in this context, market-centric explanations of environmental change. The concept of disingenuous nature reflects findings from other scholars who have underscored the way powerful interests committed to neoliberal tenets may generate incomplete and distorted, yet seemingly credible and enduring depictions of socioecological systems. For example, scholars have demonstrated how recent efforts to chart 'sustainable' and 'green' transitions are imbued with capitalist overtones, including initiatives like the millennium development goals (MDGs) (Sheppard and Leitner, 2010) and post-MDG programs (Kumi et al., 2014). Researchers have also assessed specific market-based strategies like payments for ecosystem services (McAfee and Shapiro, 2010), reducing emissions for deforestation and forest degradation (REDD) (Osborne, 2015) and carbon offset markets (Bumpus and Liverman, 2008), to name but a few. Here, investigators have demonstrated how engrained and institutionalized neoliberal sensibilities lead us to manage disingenuous environments in a manner that reflects market compatibility, resource efficiencies and profit maximization priorities over other more democratic, intrinsic and ecocentric concerns.

Unsurprisingly, this privileging of certain environmental problems/histories and solutions/futures leads to 'widely known definitions and explanations of environmental degradation are, in actuality, uncertain, highly contested, and misleading' (Forsyth, 2003: 25). These misalignments, labeled elsewhere as 'maladaptation' or 'malmitigation' (Marino and Ribot, 2012), connote situations or 'fictions' (Peet and Watts, 2002: 26) (i.e., disingenuous natures) where landscapes are managed and maintained in ways that are compatible with market solutions but not necessarily the needs of effected communities. The concept of disingenuous nature therefore acknowledges a dissonance between intrinsic/use and exchange/market values of nature. Smith (1984), identifying these two modalities as first and second nature respectively, notes that 'the same piece of matter exists simultaneously in both natures; as physical commodity subject to the laws of

gravity and physics it exists in the first nature, but as exchange-value subject to the laws of the market, it travels in the second nature' (p. 79). Political ecologists and others have shown how **de facto** 'second nature' capitalist values lead institutions to manage socioecological conditions as 'fictitious commodities' (Polanyi, 1944) that do not reflect other intrinsic meanings – including those held nearby human and non-human actors. To some, these incongruences suggest that neoliberal environmental policies are fundamentally ill equipped to bring about just and equitable social-ecological changes (Klein, 2015). This is because market-based pathways offer a set of solutions that emanate from an ideational space and policy context that is internal to the problem; an imaginary of 'capitalism as the solution to, rather than progenitor of, uneven development' (Sheppard and Leitner, 2010: 185).

Reclaiming environmental governance, excavating disingenuous natures

Critical engagement with neoliberal stealth unknown-knowns and disingenuous natures is as important as ever. As Castree (2013) suggests, throughout history nature has been 'made sense of' both 'by us and to us' (p. 6). And in this contemporary 'post truth' policy environment – riddled with entrenched filter bubbles, and knowledge silos, and a dizzying barrage of alternative and redacted environmental information – **evaluating the construction and implications of environmental knowledge claims made 'to us' is particularly urgent** (Lubchenco, 2017). This is especially the case with ingrained neoliberal ideologies, which have a surreptitious influence on environmental governance that reinforces its legitimacy while obviating other ways of knowing and managing nature.

Indeed, as Lave (2015) and others have highlighted, the past several years has witnessed 'a deep shift in the character and organization' (p. 245) of control over the production of environmental expertise towards those in powerful positions. Given these developments, critical environmental researchers must assist diverse citizens, scientists and institutions to recover and redistribute environmental science, management and policy authority in more progressive, just and diverse directions. This goal will be achieved, in part, by slowing the spread of disingenuous natures – that is, by excavating knowledge distortions and biased information while also grappling with the local exigencies they produce.

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