
Introduction

Nature and Knowledge—Contemporary Ecologies of Value

Patrick Gallagher and Danielle DiNovelli-Lang

Current efforts to locate value in material nature arise from the contrary notion that there is no value in nature. The roots of this paradox are entangled with the birth of classical economics, which distinguished itself from what it deemed the superstitions of both its European past and the exotic elsewhere by claiming to have discovered that the wealth of nations lay not in land (as the physiocrats believed), nor in money (as the mercantilists thought), but in the productivity of human labor, which alone could make more of the “necessaries and conveniences of life” from a finite and basically inert natural substrate (Locke [1690] 1960). Once the productive capacity of the land was formally separated, or “disembedded,” from its particular natural qualities (Polanyi 1944), it became a puzzle to retroactively determine the value of the latter’s contribution to the overall means of production. The articles collected in the present volume each operate squarely in the context set by this classical riddle, which situates value, on the one hand, and nature, on the other, as the two absolutely necessary yet diametrically¹ opposed elements of the modern political economy of “sustainability”.

The opposition between value and nature is closely related to the opposition between “exchange-value” and “use-value” in classical political economy. David Ricardo and Adam Smith readily conceded that nature had abundant use-value, but they argued that since the value it rendered was provided gratuitously it did not factor into exchange-value. When Marx explicated the crucial difference between use-value and exchange-value in his critique of political economy, he too invoked nature, which was already defined as the source of the former and not the latter. Yet, there is a crucial difference between Marx’s critique of political economy and the political economists he criticizes: it lies in his understanding of labor as being essentially the “metabolism between man and nature” rather than an unnatural capacity of man unrelated to the requirements of the reproduction of the species. “Nature,” he wrote, “is just as much the source of use values (and it is surely of such that material wealth consists!) as labor, which itself is only the manifestation of a force of nature” (Marx [1891] 1946: 8). Together, nature and labor make the world we live in, and are “the everlasting ... condition[s] of human existence” (Marx [1867] 1976).

As the capitalist mode of production becomes increasingly entrenched, according to Marx, the domination of nature by man, use-value by exchange-value, and living by dead labor, portends a simultaneously ecological and humanitarian crisis in which the masses can no longer access the minimum natural material required for their collective survival. What makes such destructive relationships possible is the rigid distinction, unique to capitalism, between human beings’ “natural” ability to create different use-values, on the one hand, and the vital energy



expended in any given laborious operation, on the other, which follows from the treatment of labor as a commodity. In other words, the problem for Marx is not the actual absence of value in nature, as in classical and neoclassical economics, but the way that the uniquely capitalist opposition between the exploitable productivity of labor (as human nature in the determinate, biophysical sense) and its spontaneous, creative expression (as human nature in the indeterminate, ontological sense) is brutally sustained by the devaluation of *both* human and nonhuman nature as the inert limit to the possible instead of its freely generative source (Federici 2004).

Ecology as Economy

An equally damaging consequence of classical economists' insistence that nature remain apart from exchange-value was the eventual creation of an economic sphere that operated completely independently of the time and space of human and animal reproduction. Once the relative wealth, and well-being, of nations began to be measured in flows of money (the pure expression of exchange-value) instead of available natural resources, "it [was] possible to imagine the central object of politics as an object that could increase in size without any form of ultimate material constraint" (Mitchell 2011: 143). It is thus in the nature of "the" economy, as such, to guarantee that any effort on the part of economists and ecologists to reincorporate nature into their idea of value will continue to be subject to the concern, as in the case of ecosystem services today, that "the spreading of the ... concept has in practice set the stage for the perception of ecosystem functions as exchange values that could be subject to monetization and sale" (Gómez-Baggethun 2010: 1215). While for some this might have seemed to be the whole point (Engel et al. 2008), this concern nevertheless highlights the contradiction inherent in constructing a set of values permanently removed from the very sense of nature that would be capable of independently providing such "services".

At the same time neoclassical economists were inventing an economy of marginal utility, evolutionary biologists were inventing a new kind of nature that matched the economists' powerful translation of innumerable relationships into a single, balanced equation. As the marginalist revolution took hold in neoclassical economics, the very notion of "ecology" began to emerge for the first time as a study of the "economy of nature." Neoclassical economics may have marginalized nature, but in doing so nature emerged as its own contained sphere of study—often in its early stages simply as a bourgeois hobby space for the very political economists themselves—that could be imagined as a sort of "simplified economy" (Elton 1927).

This parallel development of economy and ecology predates by centuries the emergence of separate disciplines to deal with each putatively separate sphere. Carl Linnaeus ([1749] 1762) is widely credited with creating the phrase the "economy of nature", which was later picked up and developed by Darwin in the *Origin of the Species* (1859) and by Ernst Haeckel (1866), from whose ideas emerged the early foundations of ecology as a field of inquiry in the late 1800s (Mooney and Ehrlich 1997). Linnaeus's foundational work portrayed "nature as a system of mutually independent contractors exchanging alienable goods" (Muller-Wille 2003: 165).

The potential for ecosystem services finally to incorporate the functions of nature as *exchange* values is often imagined as a radical break, both in economic and ecological traditions. It is not. The move toward valuing "intact nature" as a quantifiable baseline through the idea of "ecosystem services" and "natural capital" should better be considered a kind of natural evolution for twentieth-century ecology, a continuation of its ongoing production in relationship to classical and now neoclassical economics. This resonance is furthered by a contradiction shared by the Linnaean economy of nature and what Polanyi called the double movement of market

expansion: a simultaneous belief in “notions of equilibria” and “feedback loops” and an economy of the nation modeled upon “mechanistic notions of force” (Muller-Wille 2003: 155). This political-economic ideology of the natural is predicated upon continued interventions from some entity outside the self-contained system. In Polanyi’s time this entity was still the liberal-democratic state. Today it is the awkward partnership between a corporatized state and a web of non-state institutions that intervene to sustain a world market and a “neoliberal nature” capable of circulating within it (Bakker 2009; Castree 2008; McCarthy and Prudham 2004).

The Value of Knowing

While contemporary conservation biology and ecology can trace much of their foundation to the remarkable integration of economic modeling into the realm of nature, there has historically been a less productive and influential engagement with more ethnographic social sciences such as human geography and cultural anthropology. In important ways, however, conservation scientists that advocate for the economic valuation of nature imagine the valuation of nature and an “ecosystem service” approach to conservation as a more anthropocentric response to a persistent humanistic critique. Yet, despite the rise of the notion of valuing “ecosystems” for the benefits that they provide to people, there remains tension between anthropologists and conservation-oriented scholars regarding how to think about nature and value. A common ethnographic approach to value is to simply talk about the way people talk about value—that is, to take value as a form of social discourse, a strategically invoked language for articulating meaning relationally (see Graeber 2001). Value in this approach is something that is produced through human relationships and contingent upon them for its meaning. This radically relativist argument that value is culturally produced often places anthropologists peripherally to much of the discussion on value in nature, which is determined to discover (for the ecologists) or construct (for the economists) a standard measure of environmental health and/or wealth. Their interventions are then a degree removed from the direct valuation of nature, and are cast instead as the valuation of knowledge of nature.

The frequent translation of the problem of value in nature into an epistemological question is revealing. It reaffirms that value and nature remain on opposite sides of some sort of chasm that knowledge is poised to bridge—thus, reliable scientific information about nature ideally informs human values and, more critically, these values in turn inform the kind of environmental knowledge pursued. At the same time it also, quite ironically, indicates an idealist bias that persists in the valuation of nature even on the part of scholars who would otherwise insist that society, for instance, is a product of material labor. The resulting inability to address the critical nonhuman components of social life has led many humanistic scholars to abandon all of the above categories, following Bruno Latour and others in charting a “common world” (Latour 2004) in which nature, value, and even knowledge are no longer relevant concepts. So at nearly the same moment as conservation movements began considering humans, many in the humanities and social sciences have been making precisely the opposite move—toward considering nonhumans. Their work elegantly bypasses the problem of value in nature, but it does not solve it. What the articles collected in the present volume of *Environment and Society* demonstrate is that we still need such a solution, one that bears with it a renewed commitment to a relational approach. This is not a question of relating value to nature, but of understanding that “nature” and “value” are both, to paraphrase Donna Haraway (2010), “names for relationships”. To make them less exploitative than they are at present will involve proactively expanding the terms of relation in order to make meaningful moves in this complex social and material arrangement that we refer to sometimes misleadingly simply as “nature”.

The contributors to this volume approach the fractured relationship between value and nature from different disciplinary backgrounds and epistemological legacies: agroecology, cultural geography, anthropology, natural resource management, resource economics, and marine science, among others. But they share the dichotomous approach to value borne along in the very history of the disciplines: subjective vs. objective, moral vs. monetary, intrinsic vs. instrumental, use value vs. exchange value. Thus, the resolution of the problem of value in nature depends for one group of authors mostly subjectively on which humans you ask and/or how you ask them (Burke and Heynen; Freitag; Meek), while for the second group it depends mostly objectively on how you count the nonhumans (Benabou; Clifton, Cullen-Unsworth and Unsworth; Dalsgaard; Goldstein) (of course, we reproduce the dichotomous approach with our own crude categorization of the pieces—editors’ prerogative). In making their case, the authors are each obligated to make reference to the opposite approach as the problematic form of evaluation to which the other appears as a solution. Taken together, the articles highlight value’s incessant oscillation between subjective desire and objective measurement; and they remind us of the foundational role “the production of nature” as an object, not *of* but *for* value, has played in sustaining this duality as a crisis-inducing antagonism (Smith 1984).

The Articles

The authors interrogate, from various angles, the relationship between knowledge, nature, and value. They explore what kind of knowledge is needed to speak meaningfully about nature, and they thus highlight the way in which hegemonic forms of value can stem from hegemonic forms of knowing nature. Several of the authors (Burke and Heynen; Freitag; Meek) suggest that opening up fields of knowledge at this intersection of nature and value might also serve to produce more diverse ways of valuing nature, which might create a space for a greater plurality of voices in conservation and land use policy.

Brian J. Burke and Nik Heynen show how many efforts to value underrepresented forms of environmental knowledge in the southern United States nevertheless reproduce hierarchies that correspond to neoliberal values. Highlighting the relationship between power and knowledge in the production of environmental facts and values, they urge us to pursue the empowerment of marginalized people as a necessary first step toward a more egalitarian praxis of environmental science.

Amy Freitag’s article shows how the pedagogical value of creative problem solving has been taken up by three sciences with successful collaborative knowledge-creation programs. By exploring the role of “citizen science” and “alternative knowledge” in ecology, ethnobotany, and meteorology, Freitag demonstrates how the move toward more inclusive ways of knowing and valuing need not be entirely new—that alternative futures often lie in a closer analysis of how we have and are still producing knowledge in creative, plural ways even within what appear to be homogenous domains.

David Meek provides further empirical examples for contesting the “primacy of the market as arbiter of value” through his review of the literature concerning agroecology movements. Meek posits that agroecology offers a space for articulating resistance and imagining alternatives to the hegemony of neoliberalism. Both neoliberalism and the various movements of resistance to it are “value systems” that seek to articulate the terms of access to “nature”, he argues, thus denaturalizing any broad claim as to how it should be valued.

The general debate, embracing the polarized notion of value discussed above, tends to pit instrumentalist valuations of nature against intrinsic values, or ethically rich “cultural” val-

ues versus ethically empty economic values. This tension, and the way in which it comes to be resolved in scientific and political practice, often boils down to the perceived need for measurement. The presumed importance of measurement is its ability to make the plural values of nature coldly calculable. But, as Benabou, Clifton and colleagues, Dalsgaard, and Goldstein point out, a great deal of highly contested social work lies beneath the deceptive veneer of calculated values.

Julian Clifton, Leanne C. Cullen-Unsworth, and Richard K. F. Unsworth reviewed dozens of peer-reviewed studies that attempted to value the total services provided by three kinds of marine ecosystems—sea grass meadows, mangrove swamps, and coral reefs. Controlling for size and method of calculation, they found that each published value differed by several orders of magnitude from comparable systems. They conclude that the “imposition of a theory of economic valuation that assumes homogeneity and predictability in a context characterized by spatially and temporally variable resources and unpredictable stakeholders will inevitably lead to conflicting interpretations over the relevance of data generated and the nature of the ‘problem’ itself.”

Steffen Dalsgaard explores the way in which carbon has become an organizing object around which to calculate diverse forms of environmental impact. He reviews the various carbon accounting initiatives that emerged following the Kyoto Protocol and concludes that the forms of accounting that developed served a dual role of valuation *and* differentiation. That is, the work of making nature circulate as a commodity is dependent not solely upon its commensurability, but also on its capacity for being branded—made into a distinctive product through the assignment of qualities that, reviving an old theme, are largely disconnected from any of its actual material attributes.

Sarah Benabou traces the production of a similar, but distinctive, market in “offsets”. Using Michel Callon’s notion of framing, she reviews the way in which the production of fungible offsets in regulatory and market settings is dependent upon the work of market actors to identify and “contain” externalities. Containment then implies an ongoing, active form of work that is required to sustain the market in nature as, in fact, “natural”. She highlights how the expertise necessary to sustain natural markets is increasingly cultivated by private corporations and other nongovernmental organizations, yielding a self-contained environmental accounting practice which, ironically, lacks accountability.

Jenny E. Goldstein’s article turns our attention to the “afterlives” of degraded forests in Indonesia. Her review of valuations of disturbed forests shows that there is not a fixed relationship between value and ways of knowing even within the apparent domain of “neoliberalism”. Her article shows the way in which changing conceptions of value can actually produce new ways of knowing, as Indonesians seek to reimagine wastelands as future productive sites. In this way, her empirical data also offers the unique potential to consider two of the geographer Neil Smith’s arguments in relation—the production of nature and the dynamics of gentrification. Under a “natural capital” argument, you could claim that the disturbed forests of Indonesia represent a space of long-term underinvestment in capital, which under this new framing has actually produced a form of future nature with tremendous value in waiting. At this moment, when the production of value in nature and the production of nature as value are ironically joined in the revaluation of waste, the crucial question of who can claim these lands and how reemerges in sharp relief.

If there is some hope to be located in this at times sobering collection of articles, it is in recognizing the tremendous social labor that goes into creating the “natural” force of markets in nature. Just like nature itself, the markets made in this domain are deeply social, and sometimes flimsily constructed. By highlighting and explicating the creative contingency of socrionatural world making, the authors in this collection have penetrated the veneer of nature’s value to reveal a rich ground for social inquiry—and action.

PATRICK GALLAGHER is a doctoral candidate in the Department of Anthropology at Stanford University. His work examines the cultural politics of nature and the making of a science for valuing ecosystems in coastal Belize.

DANIELLE DINOVELLI-LANG is assistant professor of anthropology at Carleton University, in Ottawa, Ontario. Her research concerns how concepts of value, nature and indigeneity work through Alaskan resource politics. She writes and teaches on human-animal relations, political economy, and environmental anthropology in colonial and postcolonial situations.

NOTE

1. For Marx (see below), they are dialectically, not diametrically, opposed.

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