An Ecological-Marxist Response to the Half-Earth Project

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Abstract
The deepening biodiversity crisis in the Anthropocene has led to polarised debates within the conservation movement regarding its objectives and guiding principles. Within this intellectual milieu, the Half-Earth project’s call to enclose at least half the planet within protected areas has been defended as an ecocentric approach that overrides the concerns of anthropocentric ‘critical social scientists’. One group of advocates has even attacked such scientists as ‘neo-Marxists’ dedicated to the ‘mastery’ of nature. To steer the debate in a more constructive direction, we offer an ecosocialist response to the ecocentric advocacy of the Half-Earth project, specifically from the perspective of Marx’s theory of metabolic rift. While we are sympathetic to the project’s motivation and admire its audacity, we note important deficiencies in the ways the moral imperative has been asserted against social justice, and in the problematic comprehension of the underlying drivers of biodiversity loss, which threaten to undermine its objectives. Nonetheless, opposition to capitalist instrumentalism serves as an important point of possible convergence between conservation and anti-capitalist struggle. Further engagement with the ecological-Marxist critique of capitalism could strengthen efforts to address the biodiversity crisis while resolving important shortcomings in the Half-Earth project.

Keywords: ecocentrism-anthropocentrism dichotomy, conservation ethics, metabolic rift, protected areas

INTRODUCTION

Despite substantial growth in conservation efforts, loss of biodiversity (increasingly referred to as a biodiversity crisis) is accelerating globally (UNEP 2019). Advocates of ‘new conservation’ argue the deepening crisis indicates conservation needs to demonstrate clearer human benefits (meaning profitability, in more neoliberal iterations) in the Anthropocene, where pristine nature no longer exists. Proponents of wilderness preservation counter that the same trends illustrate the shortcomings of focusing on human welfare, and that humanity’s growing impact is what makes saving remaining wilderness more urgent (e.g., Soulé 2014). Prominent figures on both sides have maintained this polarised debate, rendering invisible many alternative positions that conservationists/environmentalists have elaborated (Holmes et al. 2017).

Discussion of the ‘Half-Earth’ proposal to place at least half the planet in protected areas risks following this polarised format.¹ After Büscher et al. (2017a) raised concerns regarding the potentially destructive and self-defeating consequences of attempting to operationalise the Half-Earth proposal, Cafaro et al. (2017: 400) responded that these concerns should be reframed in terms of ‘interspecies justice’, which ‘will also require limiting human numbers’. Several co-authors of this counter-response are more explicit, arguing that the dispute with Büscher et al. constitutes a ‘battle of worldviews between anthropocentrism and ecocentrism’ (Kopnina et al. 2018b: 123). Kopnina et al. (2018a: 142) further alleged in Biological Conservation that ‘[s]cholars calling themselves “critical social scientists”’ concerned with fortress-style
conservation promote ‘a neo-Marxist worldview…based on the interpretation of Marxism as supporting “mastery over nature.”’

This false ad hominem attack on critical scholarship highlights the divide between the social and natural sciences, and the need for a more constructive dialogue. Notably, the ecological red-baiting here misrepresents both the ‘critical’ social sciences and ecologist-Maxist (or ecological-Marxist) views. Whatever Marx’s influences on the social sciences, characterising all of their critical wings as ‘neo-Marxist’ is problematic. Within the Marxist tradition, meanwhile, many recognise that Marx and Engels were among the foremost critics of the bourgeois notions of the mastery of nature, and that this tradition has been carried forward in various forms of ecosocialism, even if neglected in other strains of Marxism (Foster and Burkett 2016; Saito 2017). Given the need to combat the reactionary and authoritarian forces, hostile to both social and environmental concerns, that have been gaining influence around the world (Klein 2017), conservationists would be wise to seek allies in the Left instead of enemies.

To encourage a more constructive debate, we offer an explicitly ecosocialist account of the biodiversity crisis, based on Marx’s theory of metabolic rift, both in an effort to overcome ecocentric-anthropocentric dichotomies, and to address some issues misrepresented by Kopnina et al.2 After providing a brief overview of metabolic rift, we examine Kopnina et al.’s arguments for the Half-Earth project. Though sympathetic to their concerns, we caution that by itself the Half-Earth proposal offers an insufficient response to the biodiversity crisis, based on fundamental misconceptions of the underlying and systemic forces driving the destruction of nature. Nonetheless, opposition to the instrumental valuation of life emerges as an important site of convergence between the concerns of conservation and those of progressive social movements. Further engagement with metabolic-rift analysis could therefore help conservationists link their concerns to such progressive politics and advance the Half-Earth project as part of a powerful movement capable of challenging capitalism’s instrumental valuation of humans and non-humans alike.

THE METABOLIC RIFT AND THE BIODIVERSITY CRISIS

The concept of metabolic rift emerged from a re-examination of classical Marxism that overturned several false assumptions, including that Marx and Engels advocated the domination of nature and regarded it as nothing more than an input into commodity production (Burkett 1999; Foster 2000; Saito 2017).1 Importantly, the theory of metabolic rift emphasises the organic relationship between ecological issues and the Marxian critique of political economy that was overlooked in some Soviet and Western versions of Marxism, rather than attempting to graft environmental concerns onto these interpretations of the Marxian tradition (Foster and Burkett 2016; Lefebvre 2016). As space precludes an exhaustive discussion of the metabolic rift, we simply provide a basic overview focusing on aspects pertaining especially to conservation.

Marx’s theory of metabolic rift follows from his materialist dialectic (Foster 2000), in which nature and society constitute an oppositional unity. This concept is perhaps best understood as a recognition that humans are part of nature broadly speaking, yet the relationships comprising society are distinct. On the one hand, society exists within but also extends beyond the borders of society, with different aspects of it still variably autonomous (Engels 1883). In this understanding, nature-as-reality constitutes a differentiated totality, meaning that all its interrelated aspects are part of nature in some way, but that this does not mean that all these different aspects can be treated as essentially the same, or understood using the same methodologies (Trotsky 1999; Napoletano et al. 2019). Conceptually, the oppositional unity of nature-society requires transcending the binary of dualism and monism itself (Mészáros 2005). Thus, on the one hand, the unity is sympathetic with Büscher et al.’s (2017a) concerns that the language of the Half-Earth project is problematic in as much as it implies that half the Earth (itself a part of nature) can be declared the property of society and the other half that of nature, thereby ignoring the fact that nature and society are part of one-another. On the other hand, the oppositional, non-identical essence of this unity is sympathetic with Kopnina et al.’s (2018a) concerns that eliminating all distinctions ignores that the more autonomous parts of non-human nature require space and resources to continue their reproduction and evolution, even as these are never completely separate from society (Wienhues 2018).

Understanding this simultaneous unity and non-identity of nature-society and its implications without falling into contradictions requires acknowledging mediation (Mészáros 2005), in which there is a dynamic interchange—metabolic relationship—between the two parts. Society’s material and conceptual relationships with nature are governed by social labour as the trans-historical mediator of the social metabolism (Marx 1973, 1976; Foster 2000). Conceptually, this means that knowledge of nature is mediated by incomplete social conceptions of it (Soper 1995), and that this is part of a broader category of social metabolism that brings together ideas of nature and humanity’s material interaction with it (Lefebvre 2016). In this, there is a necessary ‘metabolic interaction’ between humans and the Earth, which is a “natural” process of production involving the material exchange of matter and energy to support life (Marx 1975a: 209, 1976: 283). This interaction—the social metabolism—is shaped and regulated by the historically specific political-economic organisation of labour and production of society. Thus, Marx outlined a triadic scheme, consisting of ‘the universal metabolism’, ‘social metabolism’, and the metabolic rift, as part of analysing the
ecological contradictions that arose in relation to capitalism. The ‘universal metabolism of nature’, or earthly metabolism, consists of cycles and processes within the broader biophysical world that create and regenerate ecological conditions (Marx 1975b: 54–66; Foster 2013; Clark et al. 2019). The social metabolism operates in relation to this universal metabolism. The historical organisation of the social metabolism influences whether or not, and what types of, ecological rifts arise, as the demands of the social metabolism become more or less antagonistic with respect to the universal.

Within class society, this social metabolism becomes an alienated mediation, as control over social labour has been wrested from the producers by the ruling classes (Mészáros 2005). Class society, of course, predates capitalism, such that Marx incorporated ‘the long pre-capitalist history of hierarchy, exploitation and nature destruction’ (Kopnina 2016a: 180) into his analysis (Saito 2017). However, once capital—which is the basis of Kopnina’s (2016b: 9) ‘industrial ideology’ of perpetual compound growth (Harvey 2014)—imposed itself as the unregulated regulator of the social metabolism (Mészáros 1995), alienation underwent quantitative and qualitative changes. Several alienated mediators (private property, rent, money, etc.) subsequently have become institutionalised between humans and nature (and their own labour, their malleable internal nature, and relations to each other). The growth imperative of capital and these alienated mediators, which prevent society from consciously regulating its social metabolism, constantly push expansion of production and consumption, the ongoing expropriation of nature as a ‘free gift’ to capital, and more extreme exploitation of the working classes. The endless accumulation of capital becomes implicated in the intensity, volume, technical composition, and spatial configuration of a social metabolism governed by an ever-increasing expansion of commodity production largely decoupled from—and increasingly antagonistic to (Foster 2014)—any sense of social needs.

In this system, ‘quantity rules absolute’, meaning that growing returns on investment constitute the primary concern. Qualitative concerns, such as those associated with natural limits, are not part of this capitalist accounting system (Mészáros 1995: 41,107). Instead, capital displaces the problems associated with transcending these limits throughout its metabolism—most obviously in space, as the bypassing of local environmental and labour regulations through intra- and inter-national reconfigurations of production and consumption to reduce monopoly capital’s production costs readily attest (Foster 2011), but also through technical changes and shifts in the intensity and volume of the social metabolism (Foster et al. 2010). Thus, the singular focus of capital produces a social metabolism that operates in ways that increasingly exceed and deplete the regenerative capacities of ecosystems and the earthly metabolism (Burkett 1999). This alienation from nature manifests in various metabolic rifts—ruptures in and between ecological processes—harmful to humans and non-humans alike.

The social metabolism of capitalism is altering ecosystem dynamics and life cycles throughout the Biosphere. For example, the fishing industry harvests fish at a faster rate than they can reproduce, creating a corporeal rift in life cycles, contributing to the collapse of their populations. Though helpful in reducing the rate of population collapse, marine protected areas are insufficient to address this ecological rift (Clausen and Clark 2005; Longo 2012; Longo et al. 2015; Pauly 2019). Moreover, the system of capital accumulation through which nature’s use-values are commodified leads to the ‘Lauderdale paradox’, whereby nature as a common source of wealth is divided into private property and plundered in pursuit of endless monetary gain for a few. Attempts to marketise biodiversity often compound the existing contradictions, worsening ecological conditions (Mészáros 1995, 2005; Foster et al. 2010; Foster and Clark 2018a).

This suggests how an instrumental treatment of nature arose under particular historical circumstances, why it has proven so destructive, and why it continues to be contested. Critically, capital is no more anthropocentric than ecocentric, since its concern with both humans and the rest of nature is limited to the extent that they are necessary to its perpetual growth. As Marx (1976: 638) noted in his discussion of the metabolic rifts associated with capitalist agriculture and urbanisation, this entails subjecting both non-human nature and workers to the same instrumental treatment responsible for their abuse, ‘simultaneously undermining the original sources of all wealth—the soil and the worker’. Though often occluded by idealistic rhetoric (Bricmont 2006), the instrumental valuation of humans despite formal principles of universal human rights (Mészáros 1995) is evident every time these formal principles are travestied to justify savage brutalities and aggression, against humans and non-humans alike, on behalf of capitalism’s imperialist system (Harvey 2014; Holleman 2018).

### Habitat Loss, Land Change, and the Geographic Rift

Given the centrality of habitat loss and degradation to the biodiversity crisis (though not necessarily in every localised instance [UNEP 2019]), the ways the metabolic rift is promulgated through the geography of capitalism is of particular relevance to conservation. The recognition of a geographical rift (Napoleatano et al. 2015) addresses this challenge by emphasising the spatial disjunctures in metabolic and value flows due to the uncontrolled mechanisms through which the landscape is configured (Lefebvre 1991). The abstract space of capital—where use-values are subordinated to exchange-values—itself becomes an alienated mediator imposed by the system of capital accumulation (Napoleatano et al. 2019), encouraging illusions such as the one that space can be divided between nature and society (Lefebvre 1991). The ongoing historical processes through which alienated space is produced can be grasped by abstracting three moments—i.e., mutually constitutive relations in a complex whole—from historical examples: 1) Land expropriation:
formal, legal severing of the organic relationship between the community and land through direct seizure or restrictions on particular practises, which creates a class of people dependent on wage labour and transforms land into private property (including the collective private property of the state) readily utilised in the accumulation of private wealth (described in detail in Marx’s [1976] account of the expropriation of the peasantry). 2) Territorial dispossession: the physical removal of the connection to real property (Foster and Clark 2018a), primarily, though not exclusively, through forced migration. In addition to further increasing the supply of wage-labourers and land available to capital, this introduces a spatial as well as juridical dimension to alienation, often increasing the scale of other ecological rifts. 3) Commodification: the conversion of land, nature, and their use-values into fictitious commodities and financial assets whose sole use-value to capitalists and landowners is rent-yielding ability (Polanyi 2001; Harvey 2006). Rent then becomes a key alienated mediator between humans and land, granting capital stricter control over estranged labour and making exchange-value the key determinant in the spatial configuration of capital, with use-values provisioned by space and nature rendered instrumental to the pursuit of abstract value and its embodiment as money (Lefebvre 1991).

Though mutually reinforcing, not all three moments are readily apparent in every instance of land change, as for instance in cases where livelihood restrictions stop short of the immediate dispossession of communities (Cernea 2006). Also, because alienation is an ongoing and contested process rather than a static category (Mészáros 2005), geographic rifts are not restricted to territory governed by communal/usufruct arrangements, as territories within the regime of private property where everyday life has partially been reasserted are also susceptible to expropriation (Lefebvre 1991). Because this alienation is also subjectively shaped by one’s class and other social positionalities, more immiserated and disempowered groups disproportionately suffer the consequences of expropriation and dispossession in comparison to the wealthiest (Burkett 1999), whereas the expropriation of the capitalist class controlling society’s wealth is ultimately necessary to heal the metabolic rift (Marx 1976; Foster et al. 2010).

In this context, protected areas can be an important, if not essential, mechanism to slow capital’s depredations of nature in the short term, and to some extent can represent a nascent challenge to capital’s appropriation of nature as private property, despite being enmeshed in the territorial logic of the system of capitalist states responsible for the biodiversity crisis (Soper 1995). Stopping here, however, and failing to take into account how all three moments of the geographic rift manifest in different processes of alienation at multiple scales—or, worse, directly contributing to such processes—will merely shift rather than achieve conservation’s stated aims of resolving the immediate pressures and underlying drivers of the biodiversity crisis (UNEP 2019), ultimately allowing the generative contradictions to intensify.

**Intentional and Unintentional Consequences of Forced Displacement**

The most obvious way conservation can contribute to the geographic rift is the forced displacement of local communities from lands targeted for protected areas, both through the direct dispossession (i.e., direct forced eviction) or the more subtle process of expropriation-without-dispossession, whereby land-use restrictions and other measures that undermine livelihoods and compound political marginalisation are imposed (Cernea 2006; Igoe and Brockington 2006). Though conservationists may (erroneously) assume such areas are transformed into public rather than private property, and appeal to a greater good (e.g., Kopnina et al. 2018a: 145), the practise still reflects (ongoing) primary (mistranslated as ‘primitive’ in [Marx 1976]) accumulation, and hence exacerbates alienation, especially in that most of the burdens fall on the displaced communities, while the capitalist system of private wealth benefits (Kelly 2011). In the above terminology, conventional authoritarian conservation interventions intended to prevent the commodification and destruction of nature, such as by declaring the land as state property, are self-destructive in that they essentially displace one moment of the geographic rift (commodification) onto the other two (land expropriation and dispossession), thereby exacerbating rather than alleviating the underlying problem of the alienated social metabolism. The end result is a larger segment of society that is further alienated from nature and available to use as wage-labour, as well as the expansion of land open to capital’s depredations. This underlying problem is also captured in more concrete form in critiques of conservation as an attempt, rooted in the colonial enterprise, to rationalise the capitalist plunder of nature (Peluso 1992; Holleman 2018). Kopnina et al. (2018a: 145) importantly note that ‘protected areas have been entangled with imperial and colonial injustices’, but do not address the systemic nature of such entanglement or that it is ongoing.

This intrinsic link between capital and conservation is particularly evident when expropriation feeds into eco-tourism and other mechanisms (e.g., bioprospecting, extraction, conservation offsets, forest markets) to render investment in nature profitable (Brockington and Igoe 2006; Dowie 2009). More than greenwashing or the colonisation of conservation by neoliberal ideology, these attempts to decree conservation and accumulation identical reflect an increasingly desperate capital looking to conservation to simultaneously resolve its social-ecological contradictions and the surplus-absorption problem, although all available evidence indicates conservation will not be able to do either (Büscher and Fletcher 2015).

For these reasons, dismissing criticisms of authoritarian conservation as anthropocentric is not only overly simplistic, but also inaccurate and self-defeating. Many critics of forced displacement have explained how authoritarian conservation tends to backfire on the rest of nature as much as on society, including conservation itself (Agrawal and Redford 2009). Honey-Rosés (2009: 24) provides an example of one way this can happen: according to local legend, communities in the
area now known as the Monarch Butterfly Biosphere Reserve in Central Mexico protested the unilateral imposition of a protected area on their territories by the Mexican government in 1986 by logging and burning the forests. As with the high-profile killings of lions by Masai in East Africa (Dowie 2009), this illustrates how local communities accustomed to facing exclusion and political marginalisation, with strong cultures of subaltern resistance, can undermine authoritarian approaches to conservation (Holmes 2007).

The scandal in which the World Wildlife Fund (WWF) became embroiled in early 2019, in turn, illustrates the political backlash authoritarian conservation can generate. Following an investigative report indicating that the WWF has been supplying and working with paramilitary forces responsible for significant human-rights abuses, including torture, rape, and murder, in Asia and Africa, the organisation’s funds were reportedly frozen in Germany (Survival International 2019), a formal investigation into the organisation was initiated by the UK Charity Commission (Suliman 2019), and the US House Natural Resources Committee began looking into all federal conservation grants to determine whether any have been used to support groups associated with human-rights abuses (D’Angelo 2019).

Finally, Büscher et al.’s (2017a) concerns that dispossession of local communities opens up territories to mineral and other forms of extraction challenges the implicit assumptions of Kopnina’s (2016a: 177) defence that ‘most displacements in recent history were hardly caused by conservation agencies but by large industrial or agricultural projects and the system of “industrocentrism”’. The thesis of an ‘ecotourism-extraction nexus’ calls attention to the ways that forced displacement for conservation and extractive undertakings are intrinsically linked (Büscher and Davidov 2016; see also Büscher and Davidov’s [2013] collection) as a systemic feature of capitalist society. Similarly, critiques of the World Bank’s Mesoamerican Biological Corridor point to the same problematic as the ecotourism-extraction nexus. The corridor project, ongoing despite several setbacks, has been described as an attempt to ensure ‘long-term, unrestricted access for capital to natural areas and resources’ (Carlsen 2004: 52) by opening the region’s genetic resources to bioprospecting, greenwashing extractive and infrastructure projects and forced displacements associated with them, and implementing various market-based conservation schemes, all under the auspices of the US project of ‘hemispheric domination’ (Grandia 2007: 480). The promotion of plantation forestry within this corridor in particular illustrates the paradoxical but rational—from the perspective of capitalist investors—overlap between extraction and ecotourism that the idea of an ecotourism-extraction nexus emphasises. Additionally, Carlsen’s (2004: 61) argument that ‘the unifying principle of the MBC [Mesoamerican Biological Corridor] is not fundamentally conservationist, but is the development of a new model of economic integration for the region, and the need to attract international financing to carry it out’ illustrates what Büscher and Davidov (2016: 164) describe as the ‘symbolic’ elements of displacement of alternative relationships with nature in the nexus.

In all of these examples, a narrow focus on the so-called immediate drivers of habitat loss within the boundaries of designated protected areas facilitates the neglect of the larger-scale and systemic impacts of extractive industries and the structural, political-economic forces undergirding them—a problem that Büscher et al. (2017a) caution the Half-Earth project’s focus on protected areas reinforces. Criticisms of protected areas cannot, therefore, be dismissed as simply anthropocentric.

Instrumental valuation of the world has accompanied the rise of capitalism to dominance globally, but the alienation from nature and humanity underlying this instrumentalism is an ongoing process, and can be challenged (Mészáros 2005; Foster and Clark 2018b). Some local communities may resist conservation as much as extractive interventions because of the risk of alienation and robbery. Still, compelling moral, legal, and pragmatic reasons exist to negotiate with them as de facto, even if not de jure, right-holders to the territories in question, and avoid resorting to authoritarian interventions by nation-states that frequently hide destructive geopolitical and political-economic motives behind appeals to conservation (Colchester 2000; Dowie 2009). Just as scapegoating immigrants for wilderness loss has been used to ‘green’ white-nationalist and other anti-immigrant sentiments in the USA (Levison et al. 2010), the a priori assumption that local communities pose a threat to nature is bound to a colonial mindset that legitimises practises deleterious to both humans and non-humans (Peluso 1992; Soper 1995).

Precisely because ‘the solution of overthrowing the elites is not available to conservationists’ (Kopnina 2016a: 180) by themselves, they need to participate in collective resistance to the social-ecological depredations and injustices of global, imperial capitalism if they hope to ultimately resolve a biodiversity crisis represented as much by the commodification as the destruction of nature (Foster 2000; Holleman 2018). Kopnina (2016a: 178), however, denounces anti-colonial struggle, claiming no meaningful distinction exists between indigenous and other rural communities and ‘more recent settlers into the “new world”’, all of whom she sees as ‘colonising’ nature and imposing a ‘human-nonhuman apartheid regime’ (Crist 2015: 90). The ‘shrill rhetoric’ (ibid.: 93) here is misleading, and the parity false in as much as the effects, scope, and scale of many communities’ interactions with non-human nature are in no way comparable to the destruction and suffering (human and non-human) wrought by European colonialism, and continuing under European/Anglo-American imperialism (Turner and Butzer 1992; Zinn 2003). Moreover, attempts to use human atrocities as metaphors for ecological degradation cuts both ways, such that the forced displacement of indigenous communities for wilderness preservation has been referred to as ‘ethnic cleansing’ (Angus 2011).

Kopnina’s (2016a: 179) contention that ‘removal of people from protected areas’ amounts to nothing more than ‘the
administration of non-dualism in a world already morally skewed in favour of humans’ (here confusing humans with capital) belies a lack of critical self-reflection on the post-colonialist critique of authoritarian conservation—not to mention an even stronger dualistic conception of ‘natural’ versus inhabited landscapes than what Kopnina’s claim was meant to refute (Büscher et al. 2017b; see also Lefebvre 1991). Those of us whose wealth and privilege are based on the ongoing plunder of nature within an imperialist hierarchy, enabled by the historical expropriation and outright extermination of local peoples, should consider the implications of trying to legitimise further expropriation with appeals to saving nature, particularly given the ways powerful elites have historically manipulated abstract, moralistic imperatives to legitimise actions with less noble aims (Soper 1995). Such reflexivity is especially important in cases where recent imperial interventions have contributed to genocide and other atrocities (e.g., Central America [Faber 1993; Herman and Peterson 2010]) tightly linked to displacements, deforestation, and other conservation concerns. Another pertinent reason the magnitude of conservation-induced displacement is dwarfed by that of extraction—beyond the lack of records (Brockington and Igoe 2006)—is that the self-defeating consequences of forced displacement have proven far more dangerous to conservation in terms of undermining its legitimacy, scaring off corporate donors upon which conservation’s non-governmental organisations depend, and turning local communities whose collaboration is needed into ‘enemies of conservation’ (Colchester 2000; Agrawal and Redford 2009; Dowie 2009: xv-xxix).

Moreover, forced displacement merely shifts, while often exacerbating, the geographic rifts associated with anthropogenic land-change, which in the most poorly planned cases go no farther than the protected areas’ boundaries or buffers (Wittemyer et al. 2008). Even if displaced persons are forced into more distant urban areas, the outcomes tend to be ultimately self-defeating, because this increases the urbanisation of poverty and subsequent conversion of ecologically valuable land in the urban periphery into ‘sacrifice zones’ for informal settlements (Davis 2007). Additionally, it feeds into a process of capitalist urbanisation that increases pressures on tropical forests and exacerbates mechanisms of the global metabolic rift, as the capital system continues to subject the world to its myopic logic of accumulation (Foster et al. 2010; Napoletano et al. 2015; Dawson 2019).

Commodification of Nature

That commodification is a moment of geographic rift is helpful in understanding why community-based conservation is also not a panacea. As Kopnina (2016a) correctly notes, local communities are not easily disentangled from global capitalism, and conservation is not the only, or even principal, source of land expropriation, dispossession, and commodification. Thus, local communities face constant pressure to transform their territory into fictitious capital, either in pursuit of profits through production or by appropriating the profits of other enterprises through rent (Harvey 2006). Even those who attempt to resist such pressure can be coerced or manipulated into acquiescing, particularly by agricultural and extractive enterprises and their state backers, who wield disproportionate power. That said, surrender to capital is not inevitable, and many local communities resist the incursions of capital or only partially partake in commodity exchange.

In some such cases, conservation interventions promoting non-market alternative livelihood options can help offset pressures to subordinate nature to accumulation (Carlsen 2004), though these may not be sustainable if they are premised on intensifying the exploitation or expropriation of unwaged (e.g., reproductive and informal) labour (Fraser 2018). Put simply, essentialisations of local communities as ecological villains, heroes, or passive recipients of bourgeois ideology are all inappropriate, as the relationship to non-human nature is conditioned by numerous contingent factors in the social metabolism, and their articulation within the imperial system of capitalism resides at the heart of the biodiversity crisis (Colchester 2000; Holleman 2018).

Like instrumentalism, imperialism is inherent to capitalism, and recognising its role is necessary to avoid these debilitating essentialisations. As the metabolic rift emphasises, the capital system is predicated on constant growth and expansion, not because of an industrialist ideological commitment, but a real system of production and consumption premised on the competitive accumulation of wealth through private property (Marx 1973). This is why even partial failures to maintain compound growth generate periodic, sometimes devastating, economic crises that nonetheless allow conditions for further economic expansion to develop, and why systemic de-growth or even a steady state would mean the death of the system altogether, with capital resisting its demise accordingly (Harvey 2014). In addition to facilitating access to nature, communities in capital’s periphery provide valuable opportunities for short-term ‘fixes’ to problems of overaccumulation, which typically entails subjecting both human and non-human nature to catastrophic devaluation, ‘creative destruction’, and expropriation, intensifying the social-ecological contradictions in the long term (Harvey 2006; Smith 2016). The ways nature preservation can find itself enmeshed in such imperialism is readily apparent in attempts to render conservation directly profitable, where it is claimed that capital can resolve social-ecological and economic problems together by merely investing in nature instead of destroying it. This means conservation interventions alone are not only insufficient to resolve the systemic problem of perpetual growth, but may temporarily mask it. Though ‘[c]onservation, in ideal terms, is not about capital accumulation, but about biodiversity loss’ (Kopnina 2016a: 178), it is increasingly enmeshed in the desperate search for new opportunities for profitable investment ever more difficult to find under monopoly-finance capital (Foster 2014)—a reality conservationists need to address if they do not want to see their intentions undermined.

Recognising that rent primarily governs capitalist land-use also helps illustrate how the geographic rift is directly
implicated in habitat loss and degradation. As productive (e.g., agricultural), residential, and commercial land become increasingly degraded in one location due to declining soil fertility, contamination, infrastructure congestion, etc., the differential rent available on less degraded land increases. Particularly with tropical deforestation, this rent differential drives deeper incursions into forests, as well as (forced) in-migration to forest frontiers (Faber 1993; Dobrovolski 2012). Importantly, such rent differential, coupled with the way space is simultaneously homogenised and abstracted by capital and naturally prone to monopolisation (Lefebvre 1991; Harvey 2006), could pose an unforeseen obstacle to the Half-Earth project: if increasing protected-area coverage reduces land available to capital, this may rapidly raise differential rents, making each additional parcel progressively more expensive for conservation. Again, this is not to argue that protected areas are inherently counter-productive, but to caution that attempting to implement them without considering the structural tendencies of capital will likely become so (Napoletano et al. 2015).

REASSESSING THE CASE FOR THE HALF-EARTH PROJECT

Though the above just covers the barest essentials of how the metabolic rift pertains to the biodiversity crisis and conservation, it offers a vantage point from which to critically interrogate the three premises, derived from Kopnina et al.’s arguments, for an ecocentric framing of the Half-Earth project: 1) the intrinsic value of nature, 2) a species-wide shared human responsibility for the biodiversity crisis, and 3) wilderness preservation through protected areas as the core of conservation’s response. Though generally sympathetic to the proposal for a global network of protected areas, we consider such measures alone insufficient. This is particularly so considering Kopnina et al.’s problematic claims that the underlying problem is strictly ideological, and the corresponding claim that it can be resolved by imposing the ‘correct’ ideology, irrespective of the material factors and social relations that bolster and reproduce the hegemonic one—an approach that Marx described as more dangerous, and conservative, than merely naive (Arboleda 2017). Nonetheless, the Half-Earth project still represents a potential, if contradictory, challenge to the territorialis and instrumental logic of capital, so rather than contending that the project be abandoned, we propose that engagement with metabolic-rift analysis could help reformulate the problematic aspects into a more defensible and effective response to the biodiversity crisis.

The Intrinsic Value of Nature

The centrepiece of Kopnina et al.’s defence of the Half-Earth project is their ecocentrism-anthropocentrism dichotomy. Here they compound the problems inherent to reducing a complex spectrum of ethical positions to a static binary (Soper 1995) by conflating the common definition of ecocentrism as extending moral consideration to non-human nature with a more restricted version that prohibits granting any part of humanity preferential consideration, which is seen as ‘the exclusion of or [done] at the expense of other species’ (Kopnina et al. 2018b: 114). This shifts many ecocentric positions (Batavia and Nelson 2017) to Kopnina et al.’s anthropocentric category, allowing them to assert that all critical scholars who object to forced evictions and other authoritarian measures premised on a particular vision of nature—even if such scholars are also concerned with the consequences for non-humans—are guilty of anthropocentrism because they are more concerned with humans. Without denying that the plight of non-humans receives insufficient attention—including from ecosocialists (Gunderson 2011)—we caution that rejecting the work of critical scholars like this compounds the suffering of other organisms by ignoring legitimate critiques of authoritarian conservation as both ecologically and socially self-defeating, while simultaneously perpetuating acrimony that discourages more constructive or sympathetic engagement with preservationists’ concerns. Leopold’s (1949) conservationist imperative of enlarging ‘the boundary of community’ to include all non-humans, and any meaningful concept of ecological justice, would be undermined if, in the process of expanding our sphere of concern, we were to negate all valid moral considerations, including vital questions of equality and justice, at the base of human society itself (Wienhues 2018).

The conception of intrinsic value underlying Kopnina et al.’s reading of ecocentrism also conflates two distinct meanings. Washington et al. (2017: Y) argue that intrinsic value means that nature is ‘inherently good…whether humans perceive this or not’, whereas anthropocentrism entails ‘only acknowledging instrumental value’ to humans (Kopnina et al. 2018a: 142). Here, any subjectivist position that credits humans with the ability to value nature in itself, but sceptical of the mysticism of asserting that an inherently subjective concept like ‘good’ resides outside the valuing subject, is incorrectly accused of embracing only an instrumental value of nature—a conflation commonly made by advocates of an objectivist perspective on nature’s intrinsic value (O’Neill 1993). In addition to internalising the false bourgeois assertion that, absent an external authoritarian imperative imposed by more enlightened minds, humans cannot value something they derive no direct material benefit from (Benton 2001), this argument merely shifts the uncertainties of subjective valuation from the ontological to the epistemological level by positing goodness as inhering in nature in itself without explaining how this is revealed to humans, or translated into specific normative requirements (Soper 1995). Despite assertions to the contrary (e.g., Kopnina 2016a: 179), such moral absolutism necessarily establishes a nature-culture dualism by implying that ‘natural’ pre-human mass extinctions (Erwin 2006) were ‘good’ or neutral, but anthropogenic extinctions are ‘bad’. In pointing out these problems, we are not attempting to legitimise anthropogenic extinctions or minimise the biodiversity crisis, but demonstrate that trying to simplify the issue with moral absolutisms leads to immanent contradictions (Soper 1995). This is why we
suggest moving beyond simple ecocentric-anthropocentric dichotomies towards the latent shared interests of humans and non-humans in a more cooperative metabolic relationship, which may provide a stronger case for the Half-Earth project.

**Species-Wide Shared Human Responsibility**

Against concerns that authoritarian conservation unfairly punishes those least responsible for the biodiversity crisis, Kopnina et al. (2018b: 121) contend that, given the formal universalisation of human rights, ‘humanity as a whole’ should be presumed guilty of ‘transgressing the rights of nature’. In a contradictory blend of abstract idealism and pragmatism, they argue that because ‘continuous advocacy is needed to represent non-humans (who will never speak for themselves), development of a post-racial, post-gender, post-class collective responsibility for other species is necessary’, but without actually confronting the forces holding these divisions in place. On the contrary, Kopnina (2016a: 180) asserts that efforts to materially transcend social hierarchies would be ‘naïve at best, and more likely dangerous’ (Kopnina 2016a: 180), ‘especially because we live on a planet of limited resources’ (Kopnina et al. 2018b: 116–117). Hence, we are asked to accept that humanity be treated as an abstract, undifferentiated species for the sake of adjudicating responsibility for the destruction of nature, though at the concrete level Kopnina (2016a: 179) does not ‘deny the destructive reach of industrial elites’ exceeds that of the imiserated.

By using such abstraction to draw a sharp divide between intra-species and inter-species justice, and rejecting the idea that victims of the former injustice may be less culpable for the latter, Kopnina et al. effectively render the two ideas of justice mutually exclusive, contrary to their claims that inter-species justice presumes intra-species justice. On this basis, they allege that scholars critical of authoritarian conservation and neoliberal advocates of new conservation are essentially the same, sharing a ‘rejection of the intrinsic value of nature, and enthusiasm for anthropocentric instrumentalism’ (Kopnina et al. 2018a: 142).

Here the ontological status of the species concept—still debated in biology (Lévêque and Mounolou 2003)—is stretched beyond its breaking point. In portraying ‘all human beings as equal “enemies” of nature’ and deliberately shifting responsibility away from the social relations and interests most responsible for biodiversity loss while encouraging fixes of dubious efficacy most burdensome to those least responsible for it (Soper 1995: 207), Kopnina et al. are advocating a reverse speciesism that borders on the misanthropy they claim to reject. Moreover, the identity asserted between Right and Left critiques of conservation confute vital differences that conservationists need to recognise, as the genuine concern for others in the Left critique readily extends to the rest of nature, and is in fact essential in defending against the Right’s egocentric opposition to conservation as a barrier to private gain (ibid.). As the previous examples of authoritarian conservation backfiring demonstrate, severing conservation’s (sometimes) already tenuous relationship to progressive politics because they do not reflect one’s particular vision of ecocentrism would truly be ‘naïve at best, and more likely dangerous’, rendering conservation powerless to confront the imperialist system of capitalism behind the biodiversity crisis and allowing the ongoing despoliation of nature under society’s alienated metabolism, to the detriment of all (Brosiwwmer 2004; Dawson 2016; Holleman 2018).

Though sceptical of absolute normative statements at the high level of abstraction that the debate over forced displacement has occurred, we are unable to envision a legitimate case for contemplating the forced displacement of indigenous and other subaltern groups, either by appeal to nature’s intrinsic value or a greater human good. We also suspect that forced displacements are rarely, if ever, truly necessary, provided local communities are approached in good faith. The possibility of reaching compromises seems particularly likely if Kopnina et al.’s (2018a: 142) claim that the Half-Earth project includes ‘the full range of reserves’ is to be believed, and that the project will not be premised on exclusionary wilderness preservation. Therefore, we suggest that forced displacement of indigenous and impoverished communities be categorically rejected as an option for the Half-Earth project.

**Wilderness Preservation through Protected Areas**

The question of how to resolve the biodiversity crisis leads to what Kopnina et al. (2018a: 142) refer to as the ‘ecological principle’ of the Half-Earth project, that habitat loss and degradation are the leading causes of biodiversity loss. This translates into a case for protected areas on the grounds that ‘traditional conservation has demonstrated that large natural areas with minimal human impact (i.e. wilderness) are the most sustainable (and cost-effective) of all management regimes’ within a network of reserves with varying degrees of protection. Though protected areas should not be idealised as spaces outside the territoriality of capital, we grant that they can to some degree restrict the material that capital can use to exploit its workers, and can complicate its attempt to devalue and expropriate all nature as a free gift to its own ceaseless accumulation (Soper 1995). In this sense, the Half-Earth project can be seen as a sort of ‘half-critique’ of capitalism (John Bellamy Foster pers. comm. 2018). However, Kopnina et al. fail to adequately address the drivers underlying the ‘leading causes’, thereby compromising the project’s viability.

Though both the ecological basis (e.g., Margulies and Bersaglio 2018) and cost-efficacy (e.g., Colchester 2000) of wilderness preservation as a conservation strategy have been challenged, this does not preclude including intact areas of minimal disturbance within a network of protected areas wherever possible, especially to maintain the ecological integrity of ecosystems, habitat protection, and migration corridors, which would serve to increase the overall diversity represented by the network—provided this avoids denigrating all ecosystems and landscapes where humans and non-humans together have produced something novel as artificial and
degraded (Grey 1993). In any case, protected areas alone will not check extractive and agricultural industries, against whose awesome political and economic influence—built on territorial dispossession and pillage of nature—ideological appeals to nature’s intrinsic value will prove to little avail as long as the capital system sustains their power. Indeed, given Kopnina’s own aforementioned admission that agriculture and extractive industries have been so much more successful than conservation at displacing human populations, Cafaro et al.’s (2017: 400) assertion that the formal designation of protected areas will protect non-human nature from capital’s ‘ravenous demands for natural resources’ seems dubious.

A look at Mexico’s mineral laws offers a concrete counter-example: these laws explicitly define mineral exploitation as a public utility regulated solely by the federal government, with preference over any other land use, including biodiversity conservation. Reporting that as of 2010 concessions had been reported within 63 of the nation’s 169 national protected areas (NPAs), Armendáriz-Villegas et al. (2015: 17) explain that ‘obviously, currently in Mexico a NPA decree does not represent an obstacle to mega mining projects.’ Under these circumstances, militant opposition by affected communities is often more effective at contesting the destruction of nature than formal protected-area status, further strengthening the case against dispossessioning such communities in the name of conservation (Carlson 2004). This is why conservation must confront the underlying growth imperative and alienation with which it is interwoven, not just as an ideological problem, but a material force at the heart of capital as an imminent threat to biodiversity (Clark and York 2005; Foster et al. 2010).

Kopnina et al., like many other ecocentric conservationists, suggest that this problem can be resolved through population control or ‘scaling down and pulling back’ humanity (Crist 2018: 1243). They assert that population growth constitutes the true existential threat to biodiversity, particularly in the Global South, where it allegedly ‘leads directly to land clearance and bio-simplification’ (Kopnina et al. 2018a: 145). Given that ‘efforts to reduce excessive consumption in developed countries seem to be failing as total consumption and per capita consumption continues to increase’ (ibid.: 146), the urgency of population control is further compounded in their view. Effectively, the South is once again being told to cover the North’s ecological debt (Hollemann 2018). Moreover, Kopnina et al. (2018b: 116) use these assertions to attack social justice by reducing it to wealth distribution, and then contending that overpopulation and overconsumption altogether render ‘[m]any prescriptions typically made by social justice advocates…fanciful because they do not take into account the material aspirations of those currently consuming little, and the logical consequences of enabling everybody to consume more’. The use of vague assertions and abstract generalisations regarding overpopulation against progressive struggle, obscuring social drivers of social-ecological crisis and how they relate to and interact with complex population dynamics, has prompted extensive critique (contra Kopnina et al.’s [2018a] and Cafaro et al.’s [2017] assertions that critical scholars ignore the issue), most of which does not need to be repeated here (rather, see, e.g., Williams 2010; Angus and Butler 2011). Suffice it to say, population growth has been identified as a social driver of environmental change, but treating it as the independent explanatory variable—or even the ‘prime mover’ of a group of correlated variables (Wilson 2002: 131) explaining degradation, resource demands and consumption, and habitat loss—obscures the dominant social and economic drivers that define the Anthropocene (Hamilton and Grinevald 2015). Moreover, asserting that wealth redistribution is fanciful while population control is pragmatic is disingenuous, particularly as coercion is widely accepted as a means to achieve the former (as seen, for instance, in the fact that tax evasion is a punishable offense in most nations), whereas its use to achieve the latter is (rightfully) regarded as unacceptable by most people. Turning population control against wealth distribution is doubly odd in that advancing equality, education, and employment opportunities for women—the basis of Crist et al.’s (2017: 260) population control ‘within a framework of human rights’—by definition entails wealth redistribution and related social changes.

The dangers of such rigidly held ideological views on population are further illustrated in Kopnina et al.’s assumption, contrary to the basic growth imperative of capital, that reducing the size of the human population alone would actually decrease material and energy demands. Capital builds vast amounts of waste directly into the social metabolism, compounding the ever-increasing scale and intensity on which capitalism operates as it reproduces itself (Foster 2014; Harvey 2014). As Marx (1973, 1974) himself noted, the social-ecological contradictions of capital preclude merely redistributive politics, and can only be addressed by confronting production, distribution, exchange, and consumption as moments in the totality of capital accumulation, with production as the key to grasping the others. The metabolic shifts associated with the rise of monopoly capitalism in the twentieth century further alter these dynamics, as finding ways to productively (i.e., profitably) invest the massive profits extracted from workers with the aid of machines and the pillage of non-human nature become more important than more conventional concerns with falling profit-rates (Foster 2014). This has prompted a blurring of the production process and sales effort (Veblen 1923; Baran and Sweezy 1966; Dawson 2003), and massive increases in investment and production decisions that are profoundly wasteful in material, energy, and labour, but nonetheless profitable (e.g., automobile, military spending, planned obsolescence, useless packaging). Accompanying this is the ongoing conversion of luxury commodities into necessities (e.g., through the destruction of public transit) and attempts to ‘create’ new needs by finding additional ways to expropriate use-values formerly provided by nature (e.g., through contamination of public drinking water) that have characterised capital from the start (Harvey 2006). This, in turn, means that the problem of accounting for how much of the ridiculous consumption patterns of the astronomically
rich distort per-capita estimates is compounded by the extent to which the impacts of even basic necessities are distorted by the waste built into them (Foster 2014). Therefore, the ecosocialist challenge to capitalism entails a far more fundamental change than a simple redistribution of wealth; it involves the wholesale transformation of society from one premised on the endless accumulation of capital by a few, which continues to increase the scale and scope of the ecological crisis and deepen inequality, to one based on substantive equality, ecological sustainability, and enriching human development (Mészáros 1995).

Daly (1996, 2007), an ecological economist, stresses that our current society, based on endless economic growth, is clearly unsustainable and impossible to maintain, given its increasing violation of biophysical limits—i.e., those conditions associated with the universal metabolism of nature. Neither reducing the number of people nor elevating global consumption to a per-capita average set by an imaginary “middle-class American consumer” (Kopnina et al. 2018a: 146) can substitute for the necessary task of shifting decisions as to what constitutes genuine human needs and desires and how they will be met from monopolistic corporations to a democratic society committed to a cooperative co-evolution with the rest of nature. Unfortunately, Kopnina et al. prevent serious discussion of these real issues by reducing conceptualisation of complex social-ecological relationships to another false dichotomy: advocacy of population control versus the position that society is immune to any biophysical limitations (a dichotomy that some critics of environmental neo-Malthusianism admittedly also erroneously adopt [see Angus and Butler 2011]).

Such an abstract dichotomy also obscures important empirical problems with population control as the solution to biodiversity crisis. First is the fact that most countries in the South already have programmes in place to reduce fertility, even as countries in the North (particularly Europe)—panicked by population declines—are trying to boost fertility (UNDESA 2003). This raises doubts about how pragmatic cooperative, non-coercive global population control is in a capitalist system where the structuring principle from the individual to international level is antagonistic and entails constant competition for growth (Mészáros 1995). Second, fertility transitions are poorly understood by demographers, and are influenced by so many contingent and intersecting factors that attempting to influence them through either coercive or non-coercive policies is rarely effective, and both types of policies inevitably trigger unintended secondary effects (Cohen 1996). Finally, even if such population control were practical under capitalism, it would not address the problem that capital requires compound growth to survive. If it cannot count on a growing population, capital can and will seek other ways to expand its markets through the creation of new needs and further expropriation of nature, given its growth imperative, while wreaking further havoc on humanity and the rest of nature and continuing to relentlessly drive humanity’s ultimate carrying-capacity to zero (Harvey 2014; Foster and Clark 2018a). Under these circumstances, the dubious but frequently invoked standard of two billion people (e.g., Kopnina et al. 2018a: 146) is no more sustainable than twenty billion, with both numbers largely meaningless in isolation from the numerous socio-political conditions that society must agree on when deciding its desired population size (Cohen 1996).

The issue of compound growth and monopoly capital also undermines Wilson’s (2017) dematerialisation thesis that economic growth will be increasingly decoupled from raw-material and energy consumption through more efficient production and durable commodities. This assertion is historically belied by the Jevons paradox (Foster et al. 2010), whereby gains in relative decoupling (more efficiency in the use of inputs) generally do not result in absolute decoupling, since savings from improved efficiency are instead channelled back into expansion. Kopnina et al. (2018a: 143) exacerbate Wilson’s error by combining it with a proposal to regulate markets ‘to protect biodiversity (e.g., via an allocated monetary value)’ in a ‘market biocentrism’ that is allegedly not neoliberal because it reluctantly embraces markets as a ‘last resort’ to address the urgency of biodiversity crises. This neglects the reality that the environment is now widely perceived as capitalism’s greatest ‘market failure’, producing a slew of market ‘corrections’ that have yet to prove effective (Parrique et al. 2019). The empirical problems with such market-based decoupling are moreover compounded by the fact that monetary valuation by definition reduces its object to the instrumentality (Foster 2012) that Kopnina et al. claim lies at the heart of the biodiversity crisis.

The notion that monetary valuation should extend directly to those aspects of nature that defy strictly instrumental valuation through measures such as contingent valuation furthermore exemplifies what Marxists call ‘commodity fetishism’, whereby alienation from nature and community lead to the belief that only things with prices have ‘real’, socially recognised value (Foster 2002; Burkett 2009). Even when coupled with more direct market regulation, what Kopnina et al. (2018a) effectively advocate is what they explicitly reject: that the true value of nature can and should be expressed, however circuitously, in strictly instrumental terms. Such practise compounds human alienation from nature (Burkett 2009), obscures focus on one of the central social drivers of habitat destruction and environmental degradation (i.e., capital), and further deepens the metabolic rift and the biodiversity crisis, undermiming the stated objectives of the Half-Earth project. That Kopnina et al. propose marketisation while claiming that social-justice based opposition to authoritarian conservation is essentially identical to neoliberalism is quite remarkable.

Thus, from an ecosocialist perspective, informed by metabolic-rift analysis, the Half-Earth project’s goal of a global network of protect areas is laudable—provided it is done without compounding alienation from nature through forced displacement, commodification of nature, etc.—but inadequate, particularly in its treatment of the underlying and structural drivers of biodiversity loss rooted in the imperialist system of capitalism (Holleman 2018). This inadequacy is compounded by the way Kopnina et al. appeal
to a problematic ecocentric-anthropocentric dichotomy that threatens to isolate conservation from critical scholarship and any generally progressive movement in defence of capitalism’s subalterns that does not, in the first instance, extend ‘the label of “marginalised”…to a global community of all living beings’ (Kopnina 2016a:183) where humans are denied any preferential consideration. Despite these shortcomings, though, the issue of the instrumental approach to nature touches on some of the most basic aspects of the alienated metabolism between society and nature associated with the metabolic rift, and could provide an important point of convergence for conservationists who are willing to engage with activists who do not necessarily share a restricted vision of ecocentrism, but are nonetheless concerned with the fate of nature (Foster and Burkett 2016).

**DISCUSSION AND CONCLUSIONS**

There are three important insights that advocates of ecocentric conservation can gain from engagement with metabolic-rift analysis: 1) The way capital extends the same instrumental valuation to humans and non-human nature means that the struggle over conservation is by definition one over social justice, with the converse also being true, that every struggle over social justice affects conservation to some degree. 2) The extent to which this combined struggle is often obscured by alienation from nature, and the corresponding illusion that problems displaced in the social metabolism are resolved, belie normative appeals that neglect the way humanity’s relationship with nature is always socially mediated through labour. As a result, a society plagued by hierarchical class antagonisms will necessarily exhibit an antagonistic metabolic relationship with nature and vice-versa, making the struggle against capitalist alienation an important common cause. 3) Conservation efforts at any scale will reverberate through the rate, volume, technical composition, and spatial configuration of the social metabolism, often in unanticipated ways, and will therefore never be politically neutral or free of influence by the underlying imperial capital system and its class rule so long as it operates. Indeed, conservation efforts undertaken in isolation from more systemic challenges to capital will allow capital to continue shifting its contradictions instead of allowing society to confront and overcome them.

In other words, conservation is enmeshed in an inherently socio-political process, and no appeals to scientific objectivity or ecocentrism can negate this. Interventions that exacerbate social injustices, poverty, disempowerment, and alienation, even if they seem viable at the moment, link to historical processes of imperialism that will deepen the metabolic rift and worsen the biodiversity crisis if allowed to continue (Dawson 2016; Holleman 2018). As the failures of global environmental governance to date illustrate, hope for a cooperative co-evolution between society and nature at a global level is futile as long as the basic structuring principle of society’s system of metabolic control is antagonistic and accumulative from the micro- to the macro-scale (Mészáros 1995).

Ecosocialists in turn need to recognise that dismissal of ecocentric conservationists’ concerns with the plight of non-human nature as mere ploys to shift attention from revolutionary class struggle is also problematic, and may say more about the alienated consciousness of some Marxists. Marx himself, recent studies have shown, was deeply concerned about the plight of non-human nature under capitalism, which made his fury at the hypocrisy of capitalists who would debase the cause of animal welfare by invoking it while subjecting humans to horrific abuses that much more formidable (Gunderson 2011; Foster and Clark 2018b). Similarly, recognition that categories such as wilderness and species are socially constructed is not—contrary to what some advocates of post-structuralism seem to believe (Napoletano et al. 2019)—a license to behave as though such necessarily subjective social categories are devoid of referents in reality, including living organisms who will be profoundly affected by whatever action or inaction we take (Soper 1995).

The basis of convergence here could be shared recognition of the need to confront capital’s systemic of alienated metabolic control, which is not the same as confronting ‘industrialism’ or even capitalism as an abstract ideology (Foster 2000). Whether reluctantly or enthusiastically, mistakenly succumbing to the ideology of capitalist triumphalism and assuming that the biodiversity crisis can or must be resolved without challenging the fundamental structures of capitalist society is particularly dangerous at this juncture, as further delays to the necessary structural transformations will likely prove catastrophic for wide segments of humanity and non-human nature (Foster et al. 2010). We hope that by offering a careful assessment of Kopnina et al.’s arguments for the Half-Earth project, we prompt further debate and discussion between ecosocialists and conservationists.

This brings us to one last point to be made regarding the ecosocialist position. Recognising that ‘almost all our environmental, political, social and cultural distresses are the product of a system that seeks out surplus value in order to produce more surplus value that then requires profitable absorption’ (Harvey 2006: xxvii) does not mean waiting for these distresses to be automatically resolved by an inevitable revolution that will one day free humans and non-humans from the domination of capital. As the ‘eco’ prefix suggests, the ecosocialist position is based on recognition that the end of capitalism is necessary to remove its inherent barriers to a less antagonistic co-evolution between society and the rest of nature, but that realising the possibility of such a metabolic restoration will require conscious, cooperative action now. Put the other way around, freedom from capitalism’s system of alienated mediation is necessary to achieve a non-instrumental valuation of non-human nature, but requires that humanity act in the here and now to bring this possibility about, both for its own sake and that of Earth’s non-human inhabitants and wonders.

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NOTES

1. Wilson’s (2017) *Half-Earth* emerged after the ‘Nature Needs Half’ project, but both entail placing at least 50 percent of the planet in protected areas. We combine both proposals under ‘Half-Earth’.

2. The body of work associated with Kopnina et al. includes the following: Crist (2015, 2018), Kopnina (2016a, 2016b), Crist et al. (2017), Washington et al. (2017), Kopnina et al. (2018a, 2018b), and of course Cafaro et al. (2017). We are generally more interested in going further with issues raised in this work than in point-by-point rebuttals to each claim. Also, we do not claim to represent the views of all critical scholars or ecosocialists.

3. In focusing on the theory of metabolic rift, we are intentionally avoiding a lengthy debate over whether Russia and its counterparts (Kopnina 2016a), heavily criticised by numerous Marxists, provide a valid metric of the ‘environmental performance’ of ‘socialist nations’ (Kopnina et al. 2018: 142). Here we simply note that if we grant that historically ‘often-times, the establishment of protected areas have been entangled with imperial and colonial injustices’ does not mean we should categorically reject conservation (Kopnina et al. 2018a: 145), intellectual honesty demands that we do not use the past ecological outcomes of so-called socialist countries (especially given they were operating in a system of global capitalism) to reject ecological Marxism. Conversely, we can legitimately call on conservationists to seriously address instances where conservation is invoked to legitimise other injustices, as we can on Marxists to criticise authoritarian regimes that claim to be socialist (see Williams 2010).

4. The only instance where Kopnina et al. (2018a: 143) permit ethical preference is in living nature over ‘ecosystems and geo-diversity’—a distinction they posit a priori with no further explanation.

REFERENCES

Agrawal, A. and K. Redford. 2009. Conservation and displacement. *Conservation and Society* 7(1): 1–10.

Angus, I. 2011. Deep ecology versus ecocentrism, part 1. *Climate & capitalism* https://climateandcapitalism.com/2011/06/19/deep-ecology-versus-people/. Accessed on February 3, 2019.

Angus, I. and S. Butler. 2011. *Too many people?* Chicago: Haymarket.

Arboleda, M. 2017. Revitalizing science and technology studies. *Environment and Planning D* 35(2): 360–378.

Armendáriz-Villegas, E.J., M. de la A. Covarrubias-Garcia, E. Troyo-Díezegui, E. Lagunes, A. Arreola-Lizárraga, A. Nieto-Garibay, L.F. Beltrán-Morales, et al. 2015. Metal mining and natural protected areas in Mexico. *Environmental Science & Policy* 48: 9–19.

Baran, P. and P. Sweezy. 1966. *Monopoly capital*. New York: Monthly Review.

Batavia, C. and M.P. Nelson. 2017. For goodness sake! *Biological Conservation* 209: 366–376.

Benton, T. 2001. Marx, Malthus and the greens. *Historical Materialism* 8(1): 309–332.

Brockington, D. and J. Igoe. 2006. Eviction for conservation. *Conservation and Society* 4(3): 424–470.

Brosnimmer, F.J. 2002. *Ecocide*. London: Pluto.

Briemont, J. 2006. *Humanitarian imperialism*. New York: Monthly Review.

Burkett, P. 1999. *Marx and nature*. New York: St. Martin’s.

Burkett, P. 2009. *Marxism and ecological economics*. Chicago: Haymarket.

Büscher, B. and V. Davidov (eds.). 2013. *The ecotourism-extraction nexus*. London: Routledge.

Büscher, B. and V. Davidov. 2016. Environmentally induced displacements in the ecotourism-extraction nexus. *Area* 48(2): 161–167.

Büscher, B., R. Fletcher, D. Brockington, C. Sandbrook, W.M. Adams, L. Campbell, C. Corson, et al. 2017a. Half-Earth or whole Earth? *Oryx* 51(3): 407–410.

Büscher, B., R. Fletcher, D. Brockington, C. Sandbrook, B. Adams, L. Campbell, C. Corson, et al. 2017b. Doing Whole Earth justice. *Oryx* 51(3): 401–401.

Cafaro, P., T. Butler, E. Crist, P. Cryer, E. Dinerstein, H. Kopnina, R. Noss, et al. 2017. If we want a whole earth, nature needs half. *Oryx* 51(3): 400–400.

Carlsen, L. 2004. Conservation or privatization? In: *Mexico in transition* (ed. Otero, G.), Pp. 52–71 London: Zed.

Cernea, M.M. 2006. Re-examining ‘displacement’. *Social Change* 36: 8–35.

Clark, B.J. Foster, and S.B. Longo. 2019. Metabolic rifts and the ecological crisis. In: *The Oxford handbook of Karl Marx* (eds. Vidal, M., T. Smith, T. Rotta, and P. Prew). Pp. 651–658. New York: Oxford University.

Clark, B. and R. York. 2005. Dialectical materialism and nature. *Organization & Environment* 18(2): 318–337.

Clark, B. and R. York. 2012. Techno-fix. In: *Ecology & power* (eds. Hornborg, A., B. Clark, and K. Hermele). Pp. 23–36. London: Routledge.

Clausen, R. and B. Clark. 2005. The metabolic rift and marine ecology. *Organization & Environment* 18(4): 422–444.

Cohn, J.E. 1996. *How many people can the Earth support?* New York: Norton.

Colchester, M. 2000. Self-determination or environmental determinism for indigenous peoples in tropical forest conservation. *Conservation Biology* 14(5): 1365–1367.

Crist, E. 2015. I walk in the world to love it. In: *Protecting the wild* (eds. Wuerther, G., E. Crist, and T. Butler). Pp. 82–95. Washington, DC: Island.

Crist, E., C. Mora, and R. Engelman. 2017. The interaction of human population, food production, and biodiversity protection. *Science* 356(6335): 260–264.

Crist, E. 2018. Reimagining the human. *Science* 362(6420): 1242–1244.

Crist, E. 2018. Reimagining the human. *Science* 362(6420): 1242–1244.

D’Angelo, C. 2019. How US Government funds meant to stop poaching may have ended up funding torture. Mother Jones. https://www.motherjones.com/politics/2019/06/how-us-government-funds-meant-to-stop-poaching-may-have-ended-up-funding-torture/ Accessed on September 29, 2019.

Daly, H. 1996. *Beyond growth*. Boston: Beacon.

Daly, H. 2007. *Economics and sustainable development*. Northampton: Edward Elgar.

Davis, M. 2007. *Planet of slums*. London: Verso.

Dawson, A. 2016. *Extinction*. New York: OR.

Dawson, A. 2019. *Extreme cities*. London: Verso.

Dawson, M. 2007. *The consumer trap*. Urbana: University of Illinois.

Dobrovolski, R. 2012. Marx’s ecology and the understanding of land cover change. *Monthly Review* 64(1): 1–7.

Dowie, M. 2009. *Conservation refugees*. Amherst: MIT.

Engels, F. 1883. *The dialectics of nature*. Moscow: Progress.

Erwin, D.H. 2006. *Extinction*. Princeton: Princeton University.

Faber, D. 1993. *Environment under fire*. New York: Monthly Review.

Foster, J.B. 2000. *Marx’s ecology*. New York: Monthly Review.

Foster, J.B. 2002. *Ecology against capitalism*. New York: Monthly Review.

Foster, J.B. 2011. The ecology of Marxian political economy. *Monthly Review* 63(4): 1–16.

Foster, J.B. 2012. The planetary rift and the new human exemptionalism. *Organization & Environment* 25(3): 211–237.
Foster, J.B. 2014. *The theory of monopoly capitalism*. New York: Monthly Review.

Foster, J.B., B. Clark, and R. York. 2010. *The ecological rift*. New York: Monthly Review.

Foster, J.B. and P. Burkett. 2016. *Marx and the Earth*. Boston: Brill.

Foster, J.B. and B. Clark. 2018a. The expropriation of nature. *Monthly Review* 69(10): 1–27.

Foster, J.B. and B. Clark. 2018b. Marx and alienated speciesism. *Monthly Review* 70(7) 1–20.

Fraser, N. 2018. From exploitation to expropriation. *Economic Geography* 94(1): 1–17.

Granda, L. 2007. Between Bolivar and bureaucracy. *Conservation and Society* 5(4): 478–503.

Grey, W. 1993. Anthropocentrism and deep ecology. *Australasian Journal of Philosophy* 71(4): 463–475.

Gunderson, R. 2011. Marx’s comments on animal welfare. *Rethinking Marxism* 23(4): 543–548.

Hamilton, C. and J. Grinevald. 2015. Was the Anthropocene anticipated? *The Anthropocene Review* 2 (1): 59–72.

Harvey, D. 2006. *The limits to capital*. London: Verso.

Harvey, D. 2014. *Dust bowls of empire*. New Haven: Yale University.

Holmwood, H. 2018. *Dust bowls of empire*. New Haven: Yale University.

Holmes, G. 2007. Protection, politics and protest. *Conservation and Society* 5(2): 184–201.

Holmes, G., C. Sandbrook, and J.A. Fisher. 2017. Understanding conservationists’ perspectives on the new-conservation debate. *Conservation Biology* 31(2): 353–363.

Honey-Rosés, J. 2009. Disentangling the proximate factors of deforestation. *Land Degradation and Development* 20(1): 22–32.

Klein, N. 2017. *Nitro is not enough*. Chicago: Haymarket.

Kopnina, H. 2016a. Half the earth for people (or more)? *Biological Conservation* 203: 176–185.

Kopnina, H. 2016b. Nobody likes dichotomies. *Anthropological Forum* 26(4): 1–15.

Kopnina, H., H. Washington, J. Gray, and B. Taylor. 2018a. The ‘future of conservation’ debate. *Biological Conservation* 217: 140–148.

Kopnina, H., H. Washington, B. Taylor, and J. J. Piccolo. 2018b. Anthropocentrism. *Journal of Agricultural and Environmental Ethics* 31(1): 109–127.

Lefebvre, H. 1991. *The production of space*. Oxford: Basil-Blackwell.

Lefebvre, H. 1996. *Apply the Brakes*. Minneapolis: University of Minnesota.

Leopold, A. 1949. *A Sand County almanac*. New York: Oxford University.

Lévéque, C. and J.C. Mounolou. 2003. *Biodiversity*. West Sussex: Wiley.

Levison, J., S. Piggott, R. Poswolsky, and E. Ward. 2010. *Apply the Brakes*. Chicago: Center for New Community.

Lewontin, R.C. and R. Levin 1997. The biological and the social. *Capitalism Nature Socialism* 8(3): 89–92.

Longo, S.B. 2012. Mediterranean rift. *Critical Sociology* 38(3): 417–436.

Longo, S.B., R. Clausen, and B. Clark. 2015. The tragedy of the commodity. New Brunswick: Rutgers University.

Margulies, J.D. and B. Bersaglio. 2018. Furthering post-human political ecologies. *Geoforum* 94: 103–106.

Marx, K. 1973. *Grundrisse*. New York: Penguin.

Marx, K. 1974. *Early writings*. New York: Penguin.

Marx, K. 1975a. *Texts on method*. Oxford: Blackwell.

Marx, K. 1975b. *Karl Marx Frederick Engels collected works vol. 30*. New York: International.

Marx, K. 1976. *Capital Vol. 1*. New York: Penguin.

Mészáros, I. 1995. *Beyond capital*. London: Merlin.

Mészáros, I. 2005. *Marx’s theory of alienation*. London: Merlin.

Napoleanno, B.M., J. Paneque-Gálvez, and A. Vieyra. 2015. Spatial fix and metabolic rift as conceptual tools in land-change science. *Capitalism Nature Socialism* 26(4): 198–214.

Napoleanno, B.M., J. Paneque-Gálvez, Y. Méndez-Lemus, and A. Vieyra. 2019. Geographic rift in the urban periphery. *Journal of Latin American Geography* 18(1): 38–64.

Parrique, T., J. Barth, F. Briens, C. Kerschner, A. Kraus-Polak, A. Kuoeken, and J.H. Spangenberg. 2019. Decoupling debunked. Brussels: European Environmental Bureau.

Pauly, D. 2019. *Vanishing fish*. Vancouver: Greystone.

Peluso, N.L. 1992. *Rich forests, poor people*. Berkeley: University of California.

Polanyi, K. 2001. *The great transformation*. Boston: Beacon.

Saito, K. 2017. *Karl Marx’s ecocapitalism*. New York: Monthly Review.

SI (Survival International). 2019. Germany freezes funding to WWF following human rights abuse in Congo. www.survivalinternational.org/news/12178. Accessed on September 29, 2019.

Smith, J. 2016. *Imperialism in the twenty-first century*. New York: Monthly Review.

Soper, K. 1995. *What is nature?* New York: Wiley-Blackwell.

Soulé, M.E. 2014. The ‘new conservation.’ In: *Keeping the wild* (eds Wuerthner, G., E. Crist, and T. Butler). Pp. 66–80. Washington, DC: Island.

Trotsky, L. 1997. *Trotsky’s notebooks, 1933–1935*. New York: iUniverse.

Turner, II, B.L. and K.W. Butzer. 1992. The Columbian encounter and land-use change. *Environment* 34(8): 16–44.

UNEP. 2019. *Global environment outlook 6*. Nairobi: United Nations Environment Programme.

UNDESA. 2003. *Fertility, contraception and population policies*. New York: United Nations Department of Economic and Social Affairs.

Veblen, T. 1923. *Absentee ownership and business enterprise in recent times*. New York: W. Huebsch.

Washington, H., B. Taylor, H. Kopnina, P. Cryer, and J.J. Piccolo. 2017. Why ecocentrism is the key pathway to sustainability. *The Ecological Citizen* 1: Y–Z.

Wienhues, A. 2018. Situating the Half-Earth proposal in distributive justice. *Biological Conservation* 228: 44–51.

Williams, C. 2010. *Ecology and socialism*. Chicago: Haymarket.

Wilson, E.O. 2002. *The future of life*. New York: Alfred A. Knopf.

Wilson, E.O. 2017. *Half-Earth*. New York: Norton.

Wittemyer, G., P. Elsen, W.T. Bean, A.C.O. Burton, and J.S. Brashares. 2008. Accelerated human population growth at protected area edges. *Science* 321(5885): 123–126.

Zinn, H. 2003. *A people’s history of the United States*. New York: Harper Collins.

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