

Post-environmentalism: origins and evolution of a strange idea

Giorgos Kallis¹
Sam Bliss

Universitat Autònoma de Barcelona, Catalonia, Spain
University of Vermont, USA

Abstract

The publication of the *Ecomodernist Manifesto* in 2015 marked a high point for post-environmentalism, a set of ideas that reject limits and instead advocate urbanization, industrialization, agricultural intensification, and nuclear power to protect the environment. Where, how, and why did post-environmentalism come about? Might it influence developments in the future? We trace the origins of post-environmentalism to the mid-2000s in the San Francisco Bay Area and show how it emerged as a response to perceived failures of U.S. environmentalism. Through a discourse analysis of key texts produced by the primary actors of post-environmentalism, namely the Oakland, California-based Breakthrough Institute and its cofounders Ted Nordhaus and Michael Shellenberger, we show how the theory behind post-environmentalism mixes a deconstructionist trope familiar to political ecologists with a modernization core from liberal economics. We discuss the contradictions of post-environmentalist discourse and argue that despite its flaws, post-environmentalism can hold considerable sway because its politics align with powerful interests who benefit from arguing that accelerating capitalist modernization will save the environment. We conclude that political ecology has a much more nuanced take on the contradictions post-environmentalists stumble upon, disagreeing with those political ecologists who are choosing to ally with the agenda of the Manifesto.

Keywords: ecomodernism; ecological modernization; discourse analysis; environmental politics

Résumé

La publication du *Manifeste écomoderniste* (2015) a marqué un tournant pour le post-environnementalisme, un ensemble d'idées qui rejettent les limites et préconisent plutôt l'urbanisation, l'industrialisation, l'intensification de l'agriculture et le nucléaire pour protéger l'environnement. D'où vient le post-environnement, comment et pourquoi? Cela pourrait-il influencer les développements sociaux et économiques à venir? Nous faisons remonter les origines du post-environnement au milieu des années 2000 dans la région de la baie de San Francisco et montrons comment il a émergé en tant que réponse aux échecs présumés de l'environnementalisme américain. À travers une analyse de discours de textes clés produits par les principaux acteurs du post-environnement, à savoir le Breakthrough Institute basé à Oakland en Californie et ses cofondateurs, Ted Nordhaus et Michael Shellenberger, nous montrons comment la théorie derrière le post-environnement combine un trope déconstructionniste familier avec écologistes politiques, avec un noyau de modernisation qui s'identifie à l'économie libérale. Nous discutons des contradictions du discours post-environnementaliste et affirmons qu'en dépit de ses défauts, le post-environnement peut avoir une influence considérable parce que sa politique s'aligne sur des intérêts puissants qui tirent avantage de l'argument selon lequel l'accélération de la modernisation capitaliste sauvera l'environnement. Nous concluons que la plupart des politologues écologistes

¹ Dr. Giorgos Kallis, ICREA Research Professor at the Institute of Environmental Sciences and Technology (ICTA), Universitat Autònoma de Barcelona, Catalonia, Spain. Email: [giorgoskallis "at" gmail.com](mailto:giorgoskallis@gmail.com). Sam Bliss, doctoral student, Rubenstein School for Environment and Natural Resources and Gund Institute for Environment, University of Vermont, Burlington, United States. Email: [samcbliss "at" gmail.com](mailto:samcbliss@gmail.com). Acknowledgements: We thank three referees for their comments on the draft manuscript. Kallis's research benefited from support from the Spanish Ministry of Economy and Competitiveness (MINECO) under the "María de Maeztu" Unit of Excellence (MDM-2015-0552) and the COSMOS (CSO2017-88212-R) grant. Bliss's research was supported by Social Sciences and Humanities Research Council of Canada (SSHRC) funding for the Economics for the Anthropocene (895-2013-1010) grant. The authors have no conflicts of interest to declare.

ont une vision beaucoup plus nuancée des contradictions que rencontrent les environnementalistes, et nous ne sommes pas d'accord avec ces écologistes politiques qui choisissent de s'allier à l'agenda du Manifeste.

Mots-clés: ecomodernisme; modernisation écologique; analyse du discours; politique environnementale

Resumen

El *manifiesto ecomodernista* de 2015 señaló un momento culminante para el postambientalismo, un conjunto de ideas que rechaza los límites y en su sitio propugna la urbanización, la industrialización, la intensificación agrícola y la energía nuclear para proteger el medio ambiente. ¿Cómo surgió el postambientalismo? ¿De dónde? ¿Por qué? ¿Influirá la evolución del futuro? Localizamos los orígenes del postambientalismo en mediados de los años 2000, en el área de la Bahía de San Francisco, y demostramos como surgió como reacción al percibido fracaso del ecologismo en los Estados Unidos. A través de un análisis del discurso de textos clave producidos por los actores principales del postambientalismo, principalmente el Breakthrough Institute con sede en Oakland, California, y sus cofundadores Ted Nordhaus y Michael Shellenberger, mostramos cómo la teoría que está debajo del postambientalismo mezcla un tropo deconstructivista de la ecología política con teorías de la modernización de la economía liberal. Debatisimos las contradicciones del discurso postambientalista y argumentamos que, a pesar de sus fallas, el postambientalismo tiene una influencia considerable dado que su política se alinea con los poderosos intereses que benefician de argumentar que la modernización capitalista acelerada salvará el medio ambiente. Concluimos que la ecología política tiene una comprensión mucho más matizada de las contradicciones por las cuales tropiezan los postambientalistas. Llegamos a un desacuerdo con esos ecologistas políticos que eligen aliarse con la agenda del manifiesto.

Palabras clave: ecomodernismo; la modernización ecológica; análisis del discurso; la política ambiental

1. Introduction

Want to save the planet? Say bye-bye to nature.

This was the title of *USA Today's* Earth Day editorial on April 22, 2015. The guest authors, Michael Shellenberger and Ted Nordhaus, had just orchestrated the publication of *An ecomodernist manifesto*, co-written with prominent scientists like Columbia's Ruth DeFries and Harvard's David Keith (Asafu-Adjaye *et al.* 2015). The *Manifesto's* message – relayed by the *New York Times*, the *Guardian*, and the editorial board of *Nature* – was that "the faster we all move into nuke- and solar-powered cities, fed by corporate high-tech agriculture, the more we can protect nature" (Shellenberger and Nordhaus 2015).

The *Manifesto* marked a high point for North American "post-environmentalism." The prefix "post" indicates a new environmentalism after *The death* of the old environmentalism. Post-environmentalism is "an approach to ecological modernization in the United States which criticizes mainstream environmentalism's emphasis on placing limits on economic activity" (Buck 2013). Post-environmentalism shares a pro-growth outlook with ideas like the "green economy" (Sullivan 2017) and "blue economy" (Pauli 2010) but differs in that it promotes not so much the standard solutions like renewable energy, recycling, or efficiency, but instead things that environmentalists have traditionally opposed such as nuclear power, industrial agriculture, and fast urbanization. For post-environmentalists, environmentalists are villains of environmental inaction. Post-environmentalism is a unique and peculiar combination of ideas. Where did this strange mix of ideas emerge? And why? This is the first article to recount the history of post-environmentalism.

Political ecologists before us have deconstructed the *Manifesto*. Geographers Rosemary-Clare Collard, Jessica Dempsey, and Juanita Sundberg (2016) – who composed their own "Manifesto for abundant futures" (Collard *et al.* 2015) – criticized post-environmentalists for their amnesia regarding the violence of the modernization process and the social struggles that have been fundamental to all progress toward achieving equality and liberation for the groups modernization has oppressed. Philosopher Clive Hamilton (2016) likened the *Manifesto* to a theological text that endeavors to prove the goodness of a god (progress and modernization) by explaining how evil (humanity's domination and destruction of the natural world) is part of a greater good –

the "good Anthropocene."² Cindy Isenhour (2016) argued that the *Manifesto's* emphasis on technological advancement undermines justice-oriented proposals for climate mitigation and human progress. And Jesse Goldstein (2018) offered an ethnography of the business environmentalism of which Shellenberger, Nordhaus, and others are part, showing how the necessities of capitalist investment tame potentially disruptive innovation into profitable, incremental improvement in established markets.

This article is not a political ecological critique of the *Manifesto*. In a forthcoming book (Bliss and Kallis 2019) we deal with important questions around which the *Manifesto* has stirred lively debate: whether nuclear power is safe and cheap, whether industrial agriculture and big cities in fact spare land, whether modernization has been good for people or the environment.³ Here we want to go beyond the truth claims of post-environmentalists and explain the personal and historical processes that produced these claims. We approach post-environmentalism as an intellectual project with political intentions. That intention was to promote "a politics of possibility" (Nordhaus and Shellenberger 2007). Lest there was any doubt that post-environmentalism is political, its latest product was a manifesto and Michael Shellenberger ran for governor of California in 2018 (Shellenberger 2018).

To understand post-environmentalism, we focus on its discourse. A discourse is material: we study the texts, oral statements, and biographies of the people articulating and embodying post-environmentalism in their lives, thoughts, and personal and intellectual journeys. Our focus is on the duo who promoted the term, Ted Nordhaus and Michael Shellenberger (hereafter N&S), and the Breakthrough Institute they founded. We could have studied influential co-signatories of the *Manifesto* like Stewart Brand or Mark Lynas. We could have included the many thinkers and scientists developing similar ideas outside the umbrella of the Breakthrough and the context of the U.S. West Coast of the United States. But we focus on N&S and Breakthrough because of their centrality in shaping the ideas that concern us here. We examined reports, books, and the magazine published by the Breakthrough Institute. Ted Nordhaus was kind enough to respond to an email interview and to check a draft of this article for factual accuracy (Shellenberger was kind too but had limited time as he was running for Governor at the time of our research). We could have gone deeper by analyzing more archival material, writing a more complete history of the Institute and key characters, or looking at more communication outlets. We doubt that these would change the story we tell.

Section 2 looks at the origins of post-environmentalism, especially around the 2004 publication of *The death of environmentalism*. We position the story of N&S and the Breakthrough Institute within the political economy of California's Bay Area and attempts to revive progressive politics in the George W. Bush era. Section 3 identifies ideas with which we political ecologists are familiar that, mixed with a set of liberal theories from mainstream economics, form much of post-environmentalism. Section 4 shows how this mix ends up with self-contradictory positions on the relationships between humans and nature, facts and values, and politics and ideology. Section 5 shows that, given such contradictions, post-environmentalism has reached dead ends, but remains potentially powerful because its comfortable message appeals to elites. Section 6 concludes by arguing that it is wrong for political ecologists to flirt with post-environmentalism.

2. The origins of post-environmentalism

Post-environmentalism is brainchild of Michael Shellenberger and Ted Nordhaus, first articulated in the 2004 essay *The death of environmentalism* (hereafter *The death*). The two presented *The death* as a report to the Environmental Grantmakers Association, a coordinating body of U.S. environmental philanthropists and charities that together donate some US\$1 billion each year. In *The death's* first sentence, N&S describe themselves as "children of the environmental movement" (Shellenberger and Nordhaus 2004: 6). Shellenberger (2017) was, in his own words, "raised by hippies", and Nordhaus's father, his "intellectual mentor" to whom N&S dedicated their follow-up *Break through* (Nordhaus and Shellenberger 2007), was General Counsel of the

² These two articles (Collard *et al.* 2016; Hamilton 2016) were from a special commentary section in *Environmental Humanities* 7(1) called "Replies to an Ecomodernist Manifesto", edited by Eileen Crist and Thom Van Dooren (see the other contributions: Crist 2016; Latour 2016; Szerszynski 2016).

³ To explore this debate, see <http://www.ecomodernism.org/responses/>.

United States Department of Energy.⁴ Nordhaus's sister Hannah is an environmental journalist and his uncle William is the climate economist who won economics' version of the Nobel Memorial Prize in 2018.

By the time they published *The death*, N&S were in their thirties and already described themselves as "veterans" of the environmental movement. As Shellenberger recounts somewhat lyrically, after graduating from a Quaker college in Indiana in 1993, he loaded up his "Honda Civic with books and a few clothes and moved West to pursue the California Dream" (Shellenberger 2018). He worked for Global Exchange in San Francisco running activist campaigns, first in Latin America and then back home in fights against Nike and Walmart. Nordhaus worked for the Public Interest Research Groups, a North American federation of grassroots advocacy non-profits, and for a coalition pushing for water policy reform in California. At the turn of the millennium, he joined a small organization advocating for the protection of the Headwaters Forest in northern California. There he met Shellenberger, who was running the group's communication campaign.

N&S were also veteran opinion makers. They explain in *The death* that they had developed strategies for foundations, organizations, and political candidates. In 1996, Shellenberger co-founded Communication Works (Shellenberger and Nordhaus 2004: 35) and as he claims, he grew it into California's largest public interest communications firm before merging it in 2001 with the largest progressive advertising agency in the U.S. Nordhaus, meanwhile, was vice president of a leading opinion research company, Evans McDonough. As he wrote in *The death*, he specialized "in crafting strategic initiatives aimed at reframing old debates in ways that build power for his clients" (ibid.: 35). After *The death*, in 2005, the duo founded the research and consulting company American Enviroics.

We provide these historical facts because N&S's experience as pollsters is crucial if we want to understand their ideas and politics. As Nordhaus recounts,

I found most of my [environmentalist] colleagues completely out of touch with how most of their fellow Americans thought about the world and about the environment. They were simultaneously dismissive and wildly overconfident that public sentiment was with them. That went all the way back, long before I was a pollster, to my days running door to door canvasses. ... Every head of every environmental group and every chief lobbyist ought to be required to spend a week knocking on doors in middle income suburban developments trying to explain to people what they did.

The death was written in the early George W. Bush years. Democrats were soul searching after the defeat of Al Gore and the post-9/11 political shift rightward, wondering how they had lost touch with the working class. Like others on the left, N&S criticized the particularism of issue-specific interest groups. Environmentalists, like other progressives, they argued, did not offer an overarching vision that could speak to common Americans. They had reduced themselves to a special interest lobbying in legislative corridors. As Nordhaus recalls,

...an enduring frustration was with the stranglehold that environmental attorneys held over the policy and strategy [of] environmental NGOs. ... Creative thinking, policy, and action [were] consistently shutdown by the attorneys at places like [Environmental Defense Fund and the Natural Resources Defense Council], who only thought about litigating.

Environmentalists' emphasis on limits and regulation worked fine for water pollution or the ozone hole, Shellenberger and Nordhaus reasoned in *The death*, but this approach could not work against climate change, since in a fossil fuel-based economy limits on carbon emissions would mean limits on everything. The defeat of the Kyoto Protocol in Congress marked a new era, they claimed. As Shellenberger and Nordhaus (2004) predicted, Republicans would make climate change legislation impossible for some time. Thus climate change,

⁴ The "intellectual mentor" comment and all other uncited Nordhaus quotes come from our email interview, to which he responded on February 4, 2018.

they argued, called for an overhaul of environmentalists' strategy and the development of an integrated approach that did not artificially separate environmental issues from social and economic objectives.

In their political diagnosis and strategy, N&S drew from George Lakoff, a cognitive linguist at the University of California, Berkeley. Lakoff was arguing that Republicans, through a network of think-tanks and media, had changed the terms of public debate in ways that favored their politics. In their debt to Lakoff's ideas lies the key to understanding why N&S set up their project the way that they did. According to Lakoff (2010: 71–72),

We think in terms of typically unconscious structures called "frames" ... physically realized in neural circuits in the brain. ... Frame-circuits have direct connections to the emotional regions of the brain ... you cannot be rational without emotions. ... Since the synapses in neural circuits are made stronger the more they are activated, the repetition of ideological language will strengthen the circuits for that ideology in a hearer's brain. ... One cannot avoid framing. The only question is, whose frames are being activated.

Conservatives, Lakoff argued, spent decades establishing a robust communication system to build up frames in people's brains. Conservatives repeat short slogans that animate emotions. Progressives, by contrast, appeal to reason in long paragraphs. Proving conservatives wrong in rational terms, however, is self-defeating. When progressives respond to conservative claims about tax or regulatory burdens, they activate, in people's brains, the idea that taxes and regulations are burdens. Progressives fall into this trap and entrench conservative ideas in the public mind by opposing them; in his book *Don't think of an elephant!* Lakoff (2004) explains how when someone tells you *not* to think of an elephant, you cannot help but think of an elephant. To win the hearts and minds of centrists who hold a mix of conservative and progressive values – "biconceptuals" in Lakoff's terms – progressives must persistently promote positive frames that favor their own values.

The objective of getting centrist biconceptuals on board with an environmental agenda shaped N&S's politics. In *The death* they acknowledge Lakoff's ideas explicitly. Senators do not vote based on the technicalities of a proposal, Shellenberger and Nordhaus (2004) write, but on its framing. The environmental movement acts

...as though proposals based on "sound science" will be sufficient. ... Environmentalists are in a cultural war whether we like it or not. It's a war over our core values as Americans and over our vision for the future, and it won't be won by appealing to the rational consideration of our collective self-interest. ... Part of what's behind America's political turn to the right is the skill with which conservative think-tanks, intellectuals and political leaders have crafted proposals that build their power through setting the terms of the debate. ... Conservative foundations and think tanks have spent 40 years getting clear about what they want (their vision) and what they stand for (their values). (Shellenberger and Nordhaus 2004: 10–11)

And further:

All proposals aimed at dealing with global warming ... must be evaluated not only for whether they will get us the environmental protections we need but also whether they will define the debate ... divide our opponents and build our political power over time. ... The way to win is not to defend – it's to attack. ... Environmental groups have spent the last 40 years defining themselves against conservative values ... without ever articulating a coherent morality we can call our own. ... We must start framing our proposals around core American values and start seeing our own values as central to what motivates and guides our politics. (Shellenberger and Nordhaus 2004: 27)

As N&S explain, they wanted an environmental narrative that appeals not to progressive greens but to "blue collar swing voters and Reagan democrats" (Nordhaus and Shellenberger 2007: 8). Their frame was informed by American Environics' opinion polls, according to which Americans valued jobs more than anything; the environment was a low priority. The post-war prosperity during which environmentalism won its victories had ended and Americans lived in what N&S called a state of "insecure affluence." A winning framing should be constructed around growth, jobs, and national security, they concluded. It should be positive, promising a better future, not limits. Such a politics of possibility "must swim with, not against, the currents of changing social values" (Nordhaus and Shellenberger 2007: 6).

N&S proposed a program of large-scale government investment in low-carbon technology and infrastructure. Putting linguistics to work, they called it the "New Apollo project." N&S tested Apollo with working-class focus groups in Pennsylvania, content to see through a one-way mirror that people were responding positively (Nordhaus 2016a). N&S branded Apollo as a program that would revitalize the American economy with a US\$300 billion, ten year effort to accelerate the transition to clean energy. *The death* was the report attempting to sell the New Apollo project to foundations and philanthropists. Like conservatives with their Heartland and Cato Institutes, N&S also set up a think-tank to push the Apollo program. The [Breakthrough Institute](#) was not conceived only as an advocacy operation, but, as Nordhaus recalls, also as a space for research and dialogue over some "received environmental wisdom ... especially about energy systems." In short, this meant putting nuclear power on the table.

Although some environmentalists have accused N&S of being on the payroll of nuclear or agri-business interests, the publicly available information we found does not provide such evidence. Initial funding for Apollo and the Breakthrough came from billionaire George Soros and the charity foundation of deceased processed-food mogul Nathan Cummings. Additional backing came from Rachel and Roland Pritzker of the seventh wealthiest family in the United States, whose US\$29 billion fortune comes from the Hyatt Hotels chain (Forbes 2016). Rachel Pritzker was a founding member of the Democracy Alliance, a network of wealthy progressives coordinating their political donations since the Bush years. Like Lakoff, she thought that the Democrats were losing because their vision was failing to win hearts and minds. Pritzker moved to the Bay Area in the early 2000s and, as she remembers, "started hanging out with people who were having big and bold conversations" (quoted in Callahan 2017: 85). Among these kindred spirits were N&S, who had "made a name for themselves by advancing iconoclastic ideas" (ibid.: 85). Pritzker set up the Pritzker Innovation Fund with the intention to generate "new ideas that can create paradigmatic shifts in approach that break through polarization and gridlock by changing the terms of debate" (Pritzker, in Callahan 2017: 86). The fund was the Breakthrough Institute's largest source of money for a couple years after 2010.⁵ Pritzker is an associate of the Institute and a coauthor of the *Manifesto*.

Shellenberger, Nordhaus, and Pritzker had their conversations in the San Francisco Bay Area of the 2000s, in the wake of the dotcom crash. Google, Facebook, and other soon-to-be giants were emerging from the rubble. New technologies could make old political stalemates and social problems obsolete, tech evangelists believed. N&S wanted a narrative that "excites the high-tech creative class" and that talks of "America" as "an innovative nation" (Nordhaus and Shellenberger 2007: 8). The tech sector reciprocated with hype. A review in *Wired* magazine said *Break through* "could turn out to be the best thing to happen to environmentalism since Rachel Carson's *Silent Spring*" (Horowitz 2007).

To understand then the contents of the *Manifesto*, and post-environmentalism more generally, we must understand its origins: a critique of environmentalism designed by pollsters to appeal to centrists, moderate conservatives, and a broadly defined working class in the context of Silicon Valley excitement about innovation breaking through technological and political barriers.

⁵ Nordhaus, fact-checking a draft of this article for us via email on March 11, 2019, said that Rachel Pritzker is "presently a mid-sized Breakthrough donor." He clarified, "We met Rachel very briefly in 2005 at a Democracy Alliance meeting but really didn't get to know her until 2007, when she moved to the Bay Area." We do not think that the discrepancies in timeline between Nordhaus's and Pritzker's recollections (via Callahan 2017) substantially alter the narrative we present here.

3. Theoretical foundations of post-environmentalism

In post-environmentalism one finds a pastiche of ideas from political economy and ecology, social constructivism, modernization theory, and liberal economics. We do not suggest that N&S consciously constructed a transdisciplinary theory for post-environmentalism – they are not academics. Rather, they combined intellectual ideas to ground their changing beliefs and political strategies that coevolved with the evidence they encountered through polling, activism, and later the research of their think-tank, the Breakthrough Institute.

In post-environmentalists' critique of environmentalism, one finds ideas familiar to political ecologists. This is speculation, but Shellenberger's undergraduate studies in anthropology at UC Santa Cruz may be the reason. Ideas common to political ecologists trained in radical anthropology – about the social production of nature, the constructed and political nature of truth, the limits of apolitical technocracy, and the hypocrisies of bourgeois environmentalism – are central to post-environmentalism. Many political ecologists take the idea that humans are part of nature seriously and argue that societies produce new natures (Castree 2014; Heynen *et al.* 2006; Robbins 2012). As David Harvey (1996: 186) famously put it, there is nothing unnatural about New York City. The very first sentence of the *Manifesto* echoes this: "Humans are made from the Earth, and the Earth is remade by human hands" (Asafu-Adjaye *et al.* 2015: 6). In *Break through*, N&S go further, arguing that "Given that crude oil is natural, how could refining it and burning it be any less natural than, say, manufacturing solar panels from sand?" (2007: 133).

Much political ecology of the early 1970s responded to the Malthusianism of the time (Robbins 2012). Political ecologists are critical of ideas about eco-scarcity and have shown how those with power have often appealed to the notion of limits in racialized or classist ways to justify their control over the bodies and lives of others (Harvey 1996). In *Break through*, N&S center their critique of environmentalism on the idea of limiting human intrusion upon an external nature. N&S call for fighting global warming in terms of economic possibility, not ecological limits. "Few things", they argue, "have hampered environmentalism more than its longstanding position that limits to growth are the remedy for ecological crises" (Nordhaus and Shellenberger 2007: 15).

The idea that nature is not something out there upon which we intrude, resonates with many political ecologists. Political ecology's deconstruction of the idea of Nature with a capital N was, like its critique of limits, motivated by the fact that time and again those in power have invoked Nature – human and non-human Nature – to justify dominance and inequality as natural, inevitable aspects of the human condition (Harvey 1996). Appealing to limits and the authority of Nature has been used, political ecologists have claimed, to suspend politics by positing that the given state of affairs is outside the realm of collective decision making (Latour 2004). Political ecologists have also deconstructed apocalyptic discourses about Nature that create a constant specter of catastrophe and frighten people into accepting undemocratic states of exception (Swyngedouw 2010). N&S echo this when they charge environmentalists with becoming the priests of a new religion, willing to impose authoritarian measures to save a nature of their imagination, always warning of a pending apocalypse to scare people into submission (Nordhaus and Shellenberger 2007).

Political ecologists do not deny the existence of multiple natures, with a small n: out-of-equilibrium, continually changing biophysical environments that humans co-produce and are part of (Heynen *et al.* 2006; Robbins 2012). Which natures we choose to produce is ultimately a political question, political ecologists argue, a question about the kinds of worlds we want to live in. Likewise for N&S the question "is not whether humans and our civilizations will survive but rather what kind of a planet we will inhabit" (Nordhaus and Shellenberger 2011). Environmental conflicts are ultimately about the types of communities we want to construct and live in, they argue; environmental issues always have to do with what sorts of nature matter.

If humans make their environments, then ecological projects are political and political projects ecological, political ecologists have claimed (Harvey 1996; Heynen *et al.* 2006). In this political ecological spirit, *The death* also argues that environmentalism should not be about protecting a thing out there called the environment: "The environmental problem is not external to us; it's us. It's a human problem having to do with how we organize our society" (Shellenberger and Nordhaus 2004: 12). The way that environmentalists designate some issues as environmental, and others not, is arbitrary, N&S argue. They hold that an industrial

strategy for clean energy and green jobs is more relevant for the climate than any environmental legislation. But environmentalists, like other interest groups, split their own concerns from other progressive causes. This inhibits "...their ability to create the kinds of broad coalitions they need to achieve their goals" (Nordhaus and Shellenberger 2007: 5). The ontological diagnosis that humans are not separate from nature therefore has a strategic implication: environmental and social problems should be addressed together.

Another trope of *The death* that resonates with political ecology is its critique of environmentalists' fixation with a pure idea of science. "Most (not all) of the relevant facts are deeply contested. ... People with different values will see the world in different ways and emphasize different facts", says Nordhaus. That science is a political and social process that cannot be free of values is a premise of political ecology, or at least a deconstructionist trope within it. For Bruno Latour, a political ecologist of sorts, modernity was a project of separation and purification – separating nature from society and separating science, the objective study of nature, from politics, the domain of social action. Latour (1993) argued that despite the rhetoric of separation, modernity actually produced ever more complex entanglements of humans and non-humans, and of science and politics.

Political ecologists would agree with post-environmentalists that environmental problems are a question of how we envision and organize society, not about mere technological or legislative fixes; scientific questions are tangled up with political questions of values and the types of society one wants to create. On the question of desired social organization, however, the similarities between political ecology and post-environmentalism end. Political ecologists tend to distrust capitalism. Political ecological research has shown how capitalism makes the rich richer by degrading and dispossessing the environments of the poor (Robbins 2012) and how capital owners get to shape the kinds of natures we produce and live in (Heynen *et al.* 2006). In post-environmentalism one finds instead a celebration of capitalism's achievements while insisting that the term capitalism is not all that important. Stewart Brand, for example, says, "The capitalism question is interesting. I've yet to figure out what capitalism is, but if it's what we're doing, I dig it" (quoted in Worden 2012). Post-environmentalists prefer the neutral term "modernization" (Asafu-Adjaye *et al.* 2015: 28) to refer to capitalist processes of productivity and economic growth, and they emphasize the role of the state in driving these processes.

Political ecology emerged partly as a response to similar depoliticized discourses of modernization, which disguised the power inequalities of capitalism under a win-win-win rhetoric whereby the economy grows, the environment improves, and everyone is better off. For political ecologists, environmental change always has winners and losers and it is those with more economic and political power that often dictate who wins and who loses (Blaikie and Brookfield 1987; Martínez-Alier 2002; Salleh 1997). The post-environmentalist vocabulary, on the other hand, rarely speaks of power, inequalities, of the poor or of the 1 percent (and when it does, it attributes inequalities mostly to inevitable technological change). Instead of class interests, one finds references to "ecological elites" akin to the "politically correct" intellectual elites that conservative populists deride. These ecological elites are hypocrites, N&S tell us. They pay "for private university educations, frequent jet travel and iPads" while "rejecting economic growth [and] warning of overpopulation ... now that the societies in which they live are wealthy and their populations are no longer growing" (Nordhaus and Shellenberger 2011).

Post-environmentalism has thus developed a strange mix of a story. Its authors use elements of political ecology in service of a discourse that seeks to harmonize capitalist, working class, and environmental interests. Enter N&S's politics of aspiration, intended to "break through" right-left gridlock and appeal to the masses. Post-environmentalists base these politics on a romantic reminiscence of unity with purpose from the post-war era, when man walked on the moon and Americans were supposedly all middle class.

Three interrelated modernization theories that figure strongly in liberal (neoclassical) economics come to support this credo central to *Break through* and the *Manifesto*. First, there is the post-material thesis of a hierarchy of needs – material needs sit at the bottom and spiritual needs at the top (Inglehart 1981). Humans, according to this framework, deal with higher needs like environmental protection only after they have satisfied basic ones like food. N&S draw on this idea when they frame proposals in terms of growth and jobs, as if working-class people could not care about the environment as such. Second, there is the belief in stages of

development from underdeveloped subsistence economies to fully developed capitalist service economies (Rostow 1960). This development ladder mirrors what post-environmentalists call the "technology ladder", a hierarchy of increasingly artificial products separated from direct use of nature, which posits hunting and gathering at the bottom and rises to agrarian to industrial to service and finally digital economies (see Blomqvist *et al.* 2015). Third, there is the conviction that economic development at first comes with increasing costs – inequality and pollution – but after a certain point, more development decreases these costs. Growth leads to a better world, despite temporary misgivings, according to the Kuznets and environmental Kuznets hypotheses (Kuznets 1963; Selden and Song 1994). Post-environmentalist writings echo this belief in their story of human progress and decoupling growth from environmental damage (Asafu-Adjaye *et al.* 2015; Blomqvist *et al.* 2015)

Now, post-materialism, stages of development theories, and the Kuznets hypothesis (for both inequality and important pollutants) have been empirically and theoretically refuted – poor people care about and defend the environment (Dunlap and Mertig 1997; Martínez-Alier 2002); rich nations developed at the direct expense of poor ones, leaving them underdeveloped (Frank 1966; Hornborg 1998; Wallerstein 2004); neither inequality nor pollution inexorably fall as wealthy countries get wealthier (Piketty 2014; Stern 2004). But this does not deter post-environmentalists, along with the likes of "skeptical environmentalist" Bjorn Lomborg (2001) and Steven Pinker (2018), from celebrating the achievements of modernity and arguing that despite environmentalists' or leftists' misgivings, things are getting better, and the real danger is listening to critics and limiting the growth engine.

The ideas of Lomborg and Pinker, echoed by the Cato Institute's "Human Progress" website and buttressed with Max Roser's "Our World in Data" infographics, have their origins in neoclassical economics. William Nordhaus, uncle of Ted, has been a principal contributor (hence the strange mix of radical anthropology and neoclassical economics that underpins post-environmentalism). As far as the environment is concerned these ideas can be traced back to the debate in the 1970s around limits to growth, when economists developed a set of concepts around substitution, decoupling, and efficiency to rebut environmentalists' concerns about the self-destroying character of economic growth.

N&S have written also of a "modernization theology" that informs their work, according to which technology is "humane and sacred" (Nordhaus and Shellenberger 2011). Big modern technology is then a starting point rather than a conclusion for post-environmentalism. From this perspective, N&S revise the past and imagine the future, first of American environmentalism in *The death* and then of humanity as a whole in the *Manifesto*. In *The death*, N&S claim that political organizing did not win environmental victories in the United States; these victories were rather a natural outcome of the country getting rich enough to afford post-material sensibilities and cleaner technologies (Shellenberger and Nordhaus 2004). If anything, environmental groups have slowed down environmental progress by blocking economic growth and high-tech solutions (Environmental Progress 2017; Nordhaus 2017a). In the *Manifesto*, human history is told as an arrow of progress starting with hunter-gatherers all the way up the ladder to technologically advanced and more resource-efficient developed countries today.

4. The contradictions of post-environmentalism

Mixing political ecology with liberal economics is like mixing water with oil. A theory that brings together David Harvey and Steven Pinker is bound to have contradictions. By contradictions we do not mean just conflicting arguments over time or saying different things to different audiences (which N&S rarely do, trained as they are in communication). By contradictions we mean conflicting ideas in the very constitution of post-environmentalism.

Firstly, let us start with post-environmentalism's views on nature. To prove environmentalists wrong, N&S in *The death* deconstructed the separation between the natural and the social. But they also kept a modern view of nature as a separate thing out there that societies either develop or protect. The *Manifesto* and recent Breakthrough Institute publications for example advocate "decoupling" and "sparing" – that by using resources more intensively humans can separate from nature and save it, by say eating synthetic food or living in dense, artificialized cities that free up space for untouched wilderness (see Blomqvist *et al.* 2015).

This narrative also separates science from politics, creating a **second** core contradiction. *The death* rightly deconstructed the idea that scientists just decipher truth about the state of things. Yet *Break through* and later the *Manifesto* were structured as sets of truth claims about nature, society, and technology. In *The death* N&S criticized environmentalists for clinging too tightly to science and forgetting emotions. By the time of *Break through*, though, they criticized environmentalists as romantics who deny the Enlightenment's value of scientific reasoning (Kysar 2008). Post-environmentalism's potent early contribution was that it called on the environmental movement to own its values and stop depending only on science-based arguments that evade political questions. Yet, in *Break through* and more so in the *Manifesto* and the debates that followed its publication, post-environmentalists defended their agenda with data and scientific authority, not with their theology of sacred technology (see, for example, Nordhaus *et al.* 2015).

An illustration: in *Break through*, N&S criticize Robert Kennedy Jr.'s opposition to wind turbines in Cape Cod as characteristic of environmental elites' self-interested wishes to protect pristine views in their own backyards. But then N&S portray their own defense of massive wind turbines as rational and scientific, not ideological: large-scale wind turbines are better, they tell us, because they reduce carbon emissions at a lower cost than decentralized systems (Nordhaus and Shellenberger 2007). They would be consistent if they presented post-environmentalism as their own dream, linked to their culture, interests, and values, as good as any other vision of the good life. But instead of making their politics clear, N&S publicly defended their ideas in scientific terms. This is characteristic of other environmentalist discourses whose advocates claim the high ground of science. Yet N&S had argued in *The death* that they wanted to move beyond that.

Why would N&S hold such contradictory views? One may hypothesize that as opinion makers they became acutely aware of the prevalent perception that ideology should stay out of science. This is the modern, liberal notion of science that they rejected in *The death*, but upon which they built their politics of possibility in *Break through* and the *Manifesto*. Post-environmentalists deconstruct science, then, only to the extent that it serves their purpose of defeating environmentalism. When it came to their New Apollo mission and ecomodernism, they treated science as a matter of facts. This is not to say that deconstructing science is easy. As Yale Law School professor Douglas Kysar commented about *Break through*, "The incompleteness of Nordhaus and Shellenberger's account arises from the inability to explain why, having accepted the importance of 'creating new truths' as part of environmental politics, any *particular* set of new truths should be supported or accepted" (Kysar 2008: 2068, emphasis in original).

N&S implied that their story was right because it responded to how Americans think, and they knew how Americans think through their polls. But as Kysar rightly noted, even if post-environmentalists did indeed know how Americans think, on what basis could they defend the direction toward which they want to steer them to act? Furthermore, could they really know how Americans think? Are focus groups and opinion polls credible, given their recent spectacular failures to predict even voting patterns? Following post-environmentalists' own views about science, there is no reason why the science behind polls is not as politicized and value-laden as any other science. Indeed, one of the foremost researchers of environmental attitudes has contested American Enviro-nics' polls and their interpretation (Dunlap 2006). N&S provide limited evidence to back up their main claims that values have shifted rightward and away from concern for the environment. It is possible that N&S interpreted people's values and frames at least partly according to their own values, through their own frames. They avoided addressing such complications by regressing to a modern view of science according to which values are separate from facts and it is only others who mix them, never them.

The **third** contradiction of post-environmentalism has to do with its view of politics and voters. As opinion makers, N&S see voter preferences as malleable (how else would they make opinions?). Framing can change public views, they say in *The death*. But then in the modernist story told in *Break through* and the *Manifesto*, they consider people's preferences to be given and unquestionable. Their narrative is that people want development, they want to move to cities, they want affluent lives, and so on. The task is to develop a politics that speaks to these desires, not to change or limit them, N&S insist in *Break through*, criticizing environmentalists for thinking they know what people should want.

N&S selectively use each of these positions – people's preferences can change versus preferences are given – depending on their purpose. Environmentalists cannot change the American way of life, they argue in

Break through, because Americans' values are what they are. But when it comes to public skepticism of nuclear power, Shellenberger sets up a group to change it. In *The death*, N&S acknowledge that values are changeable and claim that conservative think-tanks have shifted Americans' values. But already in *The death* and then in *Break through*, they attribute this rightward shift to a state of "insecure affluence" caused by external technological and economic forces, not conservative propaganda and policy. Yet even insecure affluence was at least partly an outcome, not a cause, of conservative strategy and the policies of the Reagan Administration – free trade, financial deregulation, union busting, rolling back environmental protections. Neoliberal globalization did not just happen, like post-war social democracy did not just happen. Neoliberalism was a concerted political project to make labor precarious, keep wages down, cheapen foreign goods, and ultimately sustain profits and redistribute income upwards (Harvey 2001). Conservative opinion makers recited their market-fundamentalist frames – terms like "free trade" and "deregulation" – as part of this agenda. N&S adapted their politics to fit their own perception of the prevailing American values formed by forty years of economically conservative propaganda and politics. This was not in line with Lakoff's strategy to create new frames that attempt to shift values back toward the left by casting progressivism in a more positive light. We see how this irony played out in the next Section.

To summarize: post-environmentalists wanted to abolish the idea of a separate nature, but also want to separate humanity from nature to spare it. Post-environmentalists accept that science is value-laden, but then the science that supposedly supports post-environmentalism is not. Post-environmentalists see in environmental politics a clash of values and ideas, but then it is only the positions of others that are ideological, never theirs. Post-environmentalists cast preferences for affluence and growth as given and unchangeable, but then try to manipulate people's opinions about technologies like nuclear energy and industrial agriculture. These contradictions lead to dead ends.

5. The dead ends of post-environmentalism

First, conservatives shifted public opinion to their policies; post-environmentalists shifted policies, and their own views, to a public opinion dominated by conservatives. Shellenberger, Nordhaus, and other post-environmentalists started with socially progressive (left of center) ideas. But in trying to convince biconceptuals, they became biconceptuals themselves. "I definitely identified with the progressive wing of the Democratic party", Nordhaus wrote to us. "But I'm much more centrist today than I was a decade or two ago." That is quite a shift for someone who shared with us that he was influenced by Murray Bookchin, an anarchist environmentalist who inspired Kurdish revolutionaries. Shellenberger, likewise, was in the past an activist against Nike and a consultant for Hugo Chavez (Collier 2004). He now writes for *Forbes* and *Quillette*⁶ and ran for Governor of California as a centrist appealing to Republicans. A decade ago, the law professor Kysar (2008) wondered how post-environmentalists could match the money and power of conservatives with their frames and messages. In the end they did not have to. They reframed conservative preferences for nuclear power, big technologies, and GMOs as green and progressive. Post-environmentalists, one might conclude, won the framing at the cost of the content.

Second, *The death* criticized technological fixes and single-issue lobbying. Twelve years later Shellenberger founded Environmental Progress, a single-issue lobby group promoting a technological fix: nuclear power.⁷ To be sure, the Breakthrough Institute does not endorse Shellenberger's new organization, but the Breakthrough too has shifted toward nuclear since the New Apollo proposal. How this shift to nuclear happened is illustrative of the ways the post-environmentalist project evolved.

On the campaign trail in 2008, soon-to-be President Barack Obama called for a new Apollo Project, echoing N&S (see Klein 2008). In 2009, his Congress passed an energy bill promising clean energy investments that would total more than US\$150 billion over five years – basically N&S's proposal. It would be too much to attribute Obama's policy to the Breakthrough Institute, but the framing was unmistakably theirs. When Obama

⁶ <https://quillette.com/author/michael-shellenberger/>

⁷ <http://environmentalprogress.org/founder-president>

defended his clean energy investment in the 2011 State of the Union address, he talked of "breakthrough" technologies that have driven decades of innovation and created millions of new jobs (Obama 2011). Obama's Apollo was a disappointment, more Apollo 13 than Apollo 11. U.S. CO₂ emissions decreased by 7 percent from 2008 to 2014, mostly because of economic recession and, to a lesser extent, a shift from coal to natural gas, not to renewables or nuclear (Feng *et al.* 2015). The reduction was nowhere near the 8-to-10 percent reduction necessary each year for a 50-percent chance of keeping global average temperature increase under two degrees Celsius (Anderson and Bows-Larkin 2013). And as Nordhaus admits, "Promising millions of green jobs for blue collar workers ... was misguided."

It could be that clean energy sources cannot sustain the level and growth of production and salaried jobs that fossil fuels do. But such a possibility would not fit post-environmentalism's aspirational narrative that growth is necessary for sustainability. N&S attributed Apollo's failure to Obama going only halfway and to the limitations of solar and wind technologies – they cost too much, cannot be deployed fast, take up too much space, and do not generate jobs. Enter a new fix: nuclear power. It is dense, scalable, and it fuels growth. The vision did not have to change. The fix did. As opinion makers, N&S were "certainly cognizant of the fact that a climate strategy that was serious about nuclear was one that many conservatives might be more open to", recounts Nordhaus. For a project that wants to reduce carbon emissions while appealing to liberals and conservatives with a growth discourse, a clean, cheap, and limitless source of energy *must* exist. If not, it must be invented.

One can be more sympathetic to post-environmentalists and accept that given current political configurations, prevalent opinions, as well as the seemingly inevitable growth of production and consumption in Asia and the rest of the world, it is next to impossible to imagine viable political scenarios that do not involve some sort of green growth driven by technological breakthroughs. This does not, however, make such breakthroughs possible or green growth scenarios biophysically feasible. By its very constitution post-environmentalism has to insist that they are. What if they are not?

Third, post-environmentalism got consumed in a fraternal battle with environmentalists. By moving politically to the right to appeal to a working class they saw as conservative, post-environmentalists distanced themselves from the left and from other environmentalists. In *The death*, N&S placed themselves within the "we" of environmentalists. They were insiders, speaking to their community. Three years later, in *Break through*, N&S presented environmentalists as the main obstacle to environmental progress. When one reads the *Manifesto*, the package seems well theorized and coherent. But upon closer inspection it is an assortment of the precise opposites of everything U.S. environmental groups have happened to support over the years: geo-engineering instead of energy conservation; nuclear instead of renewables; GMOs, factory farms, and synthetic food instead of ecological agriculture; urbanization instead of zoning; aquaculture instead of fishing regulation; growth instead of environmental justice; research funding instead of regulations or a carbon tax; high-tech instead of low-tech solutions; separating from nature instead of harmonizing with it. Perhaps the best answer to the question of how this strange mix of ideas came about is through conflict between its promoters and various environmentalists.

Nordhaus argues that they arrived at these positions through rational reasoning, their views evolving as they encountered new evidence (see Nordhaus 2018). We do not want to suggest that N&S espoused nuclear power or industrial agriculture simply to be contrarian. Yet one cannot avoid thinking that personal emotions may have affected the evolution of their understandings. After all, it is N&S who claimed that emotions, not reason, shape human action. One of us witnessed the fierce reaction N&S encountered from the environmental justice community when presenting *The death* at Berkeley in 2005 (Nordhaus remembers it the same way). *The death's* critique was right in many respects: conservationists' obsession with pristine nature neglected working people; professional greens wasted their energy lobbying in legislative corridors for market-based solutions; climate groups inflated the promises of efficiency. But putting all environmentalists in one basket seemed wrong and arrogant to seasoned environmental justice activists who also viewed labor and environment issues together and called for public investment.

After the reaction against *The death* from fellow environmentalists, N&S seemed to take as their task in *Break through* to disprove each and every critic. Environmental justice activism in inner cities, they argued in

Break through, is NIMBYism (Not-In-My-Backyardism). It separates pollution from food, health, and security issues. And it stops growth, which N&S claim brings jobs and improves living conditions in inner cities more than any justice-oriented legislation (Nordhaus and Shellenberger 2007).⁸ Post-environmentalists ended up in similar battles with fellow eco-modernizers who happened to be more optimistic about renewable energy (see Nordhaus 2016b; Shellenberger 2019) or have more complicated views on cities or agriculture. Gradually, through their personal confrontations with various types of environmentalists, the post-environmentalists of the Breakthrough Institute became specialists in debunking environmentalism. Indicatively, Nordhaus recently criticized the Green New Deal proposal in the U.S. even though it in many respects resembles the New Apollo project and conforms with S&N's call in *The death* for bold visions that integrate social and environmental policies in support of a struggling working class.⁹ He has argued simultaneously that the Green New Deal is not radical enough, because it does not aim to nationalize energy-related industries, and that it is too radical, because economy-wide transformations are not politically feasible – only slow, quiet, incremental policies will work (Nordhaus 2019a, 2019b). Disparaging environmentalists (see Nordhaus 2017a for a characteristic illustration) might appeal to pro-growth liberals and conservatives, but N&S started out criticizing divided interest groups and ended up creating a new, sharper division.

Lastly, despite the intention to establish Breakthrough as a venue for dialogue, the Lakoffian framing tactics that N&S made explicit in *The death* caused unproductive exchanges. Following the conservatives' example, N&S invited polemical engagements with critics. They pushed detractors to deny their message, presumably heeding Lakoff's insight that the more you get people to react to your elephant, the more everyone thinks of your elephant. Post-environmentalists frame positive messages like ecomodernism, eco-pragmatism, and environmental progress and then critics must argue against these good things, unwittingly diffusing post-environmentalist ideas in the process. To contest post-environmentalists, you must respond with counter-frames, defending your reality against theirs. This is hardly a basis for debating entangled problems with uncertain and complex science.

Then what are the prospects of post-environmentalism? The *Manifesto* aspired to launch a movement but despite extensive media coverage just 80 people attended a pro-nuclear "march for environmental hope" in San Francisco in 2016, while climate deniers shadowed the launch of the movement in the U.K., which was, in the words of a *Manifesto* coauthor, "a screw-up of impressive proportions" (Lynas 2015). Recent political developments have created internal fractures. Shellenberger parted ways with the Breakthrough in 2016 to form his nuclear advocacy organization, while Nordhaus (2017b) expressed worry about a "nuclear zealot wing" threatening to turn post-environmentalism into a "nuclear cargo cult." The Breakthrough Institute has maintained a mixed approach on the energy question, emphasizing nuclear power but combined with large-scale wind and solar, unlike Shellenberger who is focused on proving that renewable energy is a folly (see Shellenberger 2019). Differences on the energy question mirror differences in politics. Nordhaus has made clear that post-environmentalism should have nothing to do with the Trump Administration, writing against those who might see an opportunity in Trump's possible support for nuclear power (Nordhaus 2016a).

Does this mark the death of post-environmentalism? No, not necessarily.

Prominent scientists, opinion makers, and politicians support nuclear power, industrial agriculture, and economic growth – on environmental grounds or not. China is retooling its cities; Iran and Turkey develop nuclear power and hydroelectric dams. Surprisingly, conservative regimes pursuing development as usual have not adopted the post-environmentalist discourse to justify what they are doing anyway as green. The post-environmentalist message that standard modernization is green, is convenient. It can appeal to anti-environmentalists because it eliminates everything reminiscent of an environmental policy. Post-environmentalism's power is not in its tiny body of self-identifying adherents or in its capacity to mobilize people, but in the fact that it appeals to those in power, as evident from its wide coverage by prominent media.

⁸ In his recent gubernatorial campaign, Shellenberger pushed this more, blaming poverty and homelessness in Californian cities on environmental groups that oppose development. Shellenberger had left the Breakthrough Institute by this point, in part due to differences in vision, yet Nordhaus had argued the same in another *USA Today* opinion piece (2017a).

⁹ The U.S. Green New Deal is a still-vague proposed policy package for addressing climate change and social injustice together, centered on a government jobs program to employ people to construct low-carbon energy infrastructure.

Even if the post-environmentalist discourse is contradictory then, as its makers intended, it has the power to remake reality in its own image, precisely because it swims with, not against, the current of power. N&S commented favorably on the infamous confession, made by a Bush aide, that Republicans made reality in Iraq, leaving other members of the "reality-based community" to study the truth that Republicans were producing on the ground (Nordhaus and Shellenberger 2007: 242). A future fashioned according to the recipes of the *Manifesto* might well turn out to be a disaster, but it will be the world of the *Manifesto* and the rest of us will be left to study it, one is left to think.

6. Lessons for political ecology

Faced with complex entanglements between society and nature, facts and values, and science and politics, post-environmentalists fell back on modern ideals: sparing nature with technology and defending their politics as scientific and non-ideological. Bruno Latour was honorary fellow at the Breakthrough Institute but left after the publication of the *Manifesto*, finding its view of modernization "an anachronism." Latour (1993) had famously argued that we have never been, and can never be, modern in the sense of separating society from nature or facts from politics. The *Manifesto*, he argued, is a "last gasp" attempt to separate humans and nature, "written entirely as if humans were still alone on stage, the only being who out of its own free will is in charge of apportioning space, land, money and value to the old Mother Nature" (Latour 2016: 223). "It sounds much like the news that an electronic cigarette is going to save a chain smoker from addiction" (ibid.: 220). It can't be that the only obstacle to environmental progress are the environmentalists, he added, urging post-environmentalists to define the enemy they are fighting better.

"Is ecomodernism a clever trick, a well packaged product of some PR, much like the electronic cigarette?" Latour (2016: 220) wondered. It would be unfair to reduce post-environmentalism to that, but post-environmentalism was indeed a communication project developed by two directors of PR firms. A cautious and complex story of humanity's entanglements within the web of life like Latour's could not be the frame for the simple messages Lakoff calls for. Like the conservative message makers before them, post-environmentalists wanted to communicate a straightforward vision; hence their story of post-war glory. But this narrative inevitably draws on conventional views of modernity that portray progress as a process of ever-greater control and separation between society and nature, reproducing a prevalent view of science as something pure and separate from ideology and politics.

Political ecologists have learned to live and work with the contradictions of modern entanglements. Accepting that nature is socially produced does not mean that anything goes or that shopping malls are as natural as mountains (Vogel 2016). Humans may recognize their interdependence and kinship with the non-human world and refrain from domination, which would violate this relationship (see Collard *et al.* 2016). Political ecologists have thought hard about the agency of the non-human world in terms of socio-natural assemblages (Bennett 2010). They take on the challenge of developing an ethics and a politics distinctively ecological, without regressing like post-environmentalists to the idea of a wilderness out there that must be spared. Limits and democracy are central in this.

Limits, mixed as they have been with Malthusian scarcity, have got a bad rap in political ecology (Mehta 2010). But recent work by political ecologists develops non-Malthusian theories of limits (Galluzzo 2018; Kallis 2019; Kallis and March 2015; Pellizzoni 2018). Limits from a political-ecological perspective are not an a-political boundary out there, but a personal and collective political choice *not to*: not to develop everything that can be developed. Precisely when nothing seems to limit us – as seemingly nothing does in the Anthropocene, with humans leaving little unaltered – it is essential to define our limits. Freedom requires limits, like the artist who needs a canvas or a keyboard in order to create. Collective self-limitation is necessary to avoid undesirable futures, and to leave space for the other; the idea of limitless growth is at the heart of the colonial project. When you cannot limit yourself in a relation, you can only dominate. Against the post-environmental premise that only a politics of growth is aspirational, we hypothesize that a positive politics can be developed around ideas of the simple and limited life as the good life, ideas that resonate with certain political, cultural, or religious traditions.

Self-limitation has to be the outcome of a democratic process if it is not to regress to limits by the few for the many. Democracy is in fact an organized process for deliberating our mutual limits together (Kallis 2019). Political ecologists have envisioned new models of discursive or ecological democracy (Dryzek 1992; Dryzek *et al.* 2013). If "the political" is a struggle about the different worlds we want to create, then the challenge is how to maintain procedural standards for assuring the quality of different truth claims (Funtowicz and Ravetz 2018) and how to sustain public spheres for the comparison of incommensurable values (Martínez-Alier *et al.* 1998). Political ecologists in a Foucauldian tradition have shown how environmental battles are wars of truth, what comes to be seen as truth being partly an effect of power (e.g. Sletto 2008). One may interpret this like conservatives and the post-environmentalists did: a call to wield power in the service of one's preferred truth. Democracy is instead about limiting such power over truth. Latour's (2004) political ecological vision is one of democratizing the scientific institutions that produce truth claims, making their ideological stakes transparent. The question remains, however, how humble, plural approaches, open to their weaknesses, transparent about their values, and willing to engage in dialogue, can politically compete with moneyed communication machines that spread simple messages.

Somewhat surprisingly, notable political ecologists have recently expressed sympathies for the agenda of the Breakthrough Institute. Noel Castree (2015), while maintaining concerns with the politics of N&S, comments that,

...the Breakthrough Institute shows how new organisations can foster new thinking [around] controversial issues like nuclear energy and making the case that they must be part of a green future; by combining idealism and pragmatism, its arguments can be readily used by political parties seeking to displace the mainstream ones; and it is aspirational, presenting environmental change as an opportunity to prosper in new ways founded on appealing values.

Paul Robbins, the author of the textbook with which many of us have learned or taught political ecology (Robbins 2012), is a senior fellow of the Breakthrough Institute. He dedicated his plenary at the 2018 POLLEN conference in Oslo to a cautious defense of post-environmentalism, which he finds "problematically apolitical" but a good basis for a modernist socialism (Robbins 2018, 2019; also Robbins and Moore 2015). Robbins half-jokingly yet eloquently summarized this vision in a tweet: "a combination of socialism, nuke power, de-extinction, cooperatives, natural gas and geo-engineering" (Robbins 2016). Geographer Matt Huber, in his proposal for socialist environmental politics, echoes post-environmentalist critiques of environmentalism for its overreliance on scientific authority, its insistence on limits, and its inability to inspire the working class (Huber 2019a). And then he claims the high ground of science when imagining an industrialized future of automated agriculture and renewable and nuclear energy, instead of "dystopian" and "unscientific" degrowth socialism (Huber 2019b).

N&S's bipartisan framing seems to have borne fruit here. One finds the ideas of the *Manifesto* reproduced in Steven Pinker's (2018) defense of liberalism as well as in the Marxist magazine *Jacobin's* special issue on climate change (e.g. Frase 2017; Phillips and Rozworski 2017). Within the political left, a version of the *Manifesto* with socialist or social-democratic politics is gaining ground (see Bastani 2019; Symons 2019).

This vision is wrong. Explaining why is beyond the scope of this article, as it requires showing why the ecomodernist future envisioned cannot be sustainable, and cannot be socialist either (see Kallis 2017). Let us close though with a few objections based on what we have presented in this article.

First, political ecologists have to choose their alliances carefully. There are apolitical aspects and particularisms in some environmental groups that need to be criticized from an amicable position. But political ecologists should stay on the side of those out in the streets fighting environmental injustices and extractivism (Klein 2014; Temper *et al.* 2015). It is unclear what purpose is served by siding with the likes of jokester-pundit and self-declared socialist Leigh Phillips (2015), who in post-environmentalist fashion has specialized in bashing environmental and social justice activists – to the extent of starting his book drawing a line from NGOs critical of biotechnology to eco-terrorism. Yet scholars like Robbins (2019) and Huber (2019) have cited Phillips's polemic as if it were a serious academic work.

Second, whether technology is neutral or embeds and reproduces the social relations of its production is a complicated question. Robbins, citing *Jacobin's* Peter Frase, argues that geo-engineering and genetically modified organisms "are not inherently objectionable, but potentially monstrous when developed by capitalist agribusiness for the purpose of profit maximization" (Robbins 2019: 4). We doubt this, but even if it were so there would still be a danger of allying political ecology with nuclear or GMO interests now, in the expectation that in a hypothetical socialist future these industries could serve the working class (we do not mean of course that as political ecologists we should not study how farmers adopt or appropriate GMOs for example, just as we study how farmers adapt to neoliberalism; the question is what political stance we take toward such changes).

Third, a fixation with specific technological fixes is very un-political. Robbins (2019), reporting from an automated small farm in Wisconsin, asks what the problem with milking robots is if they lead to less drudgery and more autonomy for small farmers, helping them stay in the countryside. The problem is that Robbins himself has taught us as political ecologists to be suspicious about promised lands of milk and honey, to always look for the hidden violence behind the peaceful vista and ask who will pay the cost. Who will mine the materials for the robots? Where will the energy come from? What happens to the migrant dairy workers whom robotic milkers replace? If farming is to be robotized, why would small automated farms stand any chance against large ones? And if robots do make small farms competitive, why would this matter in a hypothetical socialist future anyway?

Fourth, if the two of us among many other critics are right and the agenda of the *Manifesto* actually leads to more environmental destruction, not less, then modernist socialism is bound to be as destructive as modernist capitalism. Maybe that's not the case. But framing a political vision on the assumption that there is no alternative to technological advancement and growth forces one to defend the possibility of technological fixes no matter what the evidence shows, like the post-environmentalists do. This is an unscientific stance, utopian in the bad sense. Political ecology should remain open to the possibility that sustainable and egalitarian futures might require not only different, but also *less* production and consumption (Robbins 2019 remains open to this possibility).

Finally, Robbins (2019) and Huber (2019) confuse emancipatory calls for limits with a dystopian Malthusianism. On the contrary, the call for a good life for all with enough but not more is a positive vision, at least for political ecologists of degrowth inklings like the two of us. The assumption by some political ecologists, reminiscent of N&S in *The death*, that the working class must want "more" (Huber 2019) is empirically unfounded, and underestimates multiple motivations beyond mere material interest. The implications of the assumption that peoples' desires, molded by centuries of capitalism, are given and unchangeable cannot but be conservative, reducing socialism to capitalism with workers in command. A politics of more is a politics of growth, one that is a product of capitalism precisely because capitalists cannot share, only produce more. Capitalism's promise of a life without pain, with as few sacrifices and obligations as possible, is realized for an exceptional few but at the cost of systematic exploitation. This will not magically change by socializing the means of production. Socialism, a common aphorism has it, is about sharing – sharing our common planet better.

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