Extinction in Public

Thinking through the Sixth Mass Extinction, Environmental Humanities, and Extinction Studies

DOMINIC O'KEY
University of Sheffield

Abstract This essay argues that the concept of extinction, polysemous if not overdetermined, is becoming an emergent keyword of contemporary public life as it faces the climate crisis. To make this argument the essay critically considers the ways in which extinction is currently being made public—within and by the environmental humanities but also in the wider public sphere of political and cultural contestation. The essay begins by problematizing the concept of extinction itself, positing that it makes sense to think of the Sixth Extinction as the first historical extinction event—that is, as a social articulation of an organic process in which the causes and impacts are at once natural and social. Then the essay discusses the different extinction imaginaries that have operated across modernity, before finally turning to the writings of the Extinction Studies Working Group, whose conception of extinction as a process rather than event, and whose arguments that mass extinction presents an ethical call to responsibility, have become a template for how extinction is thought about within the field of the environmental humanities. The essay ends by posing some companionly criticisms of the extinction studies project.

Keywords extinction, extinction studies, environmental humanities, public

Extinction is fast becoming a keyword of our present moment. Within the critical-discursive field of the environmental humanities as well as out on the streets amid grassroots environmental movements, the concept of extinction is being newly articulated as a part of contemporary public life as it faces the climate crisis. The term *extinction* is historically specific. It has meant different things to different people across different conjunctures: from Georges Cuvier's catastrophism to Charles Darwin's gradualism, from colonial race science to the global conservation agenda, and from Anishinaabeg notions of a broken treaty with nonhuman persons to the Voluntary Human Extinction Movement. Today, extinction stands as a polysemous if not overdetermined concept, the invocation of which instantly calls to mind an excess of images. For some it evokes a vision of the earth's geological pasts, of Cambrian trilobites and Cretaceous velociraptors. Others

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will think of a future without humanity—an entire civilizational collapse, imagined cinematically as a slow fade to black or an apocalyptic short, sharp shock.

For readers of this journal, however, it is reasonable to assume that the word extinction conjures first and foremost the Sixth Mass Extinction Event. This is the idea, increasingly established within the biological, zoological, and paleontological sciences alike, that the planet is currently experiencing a widespread and rapid decline in biological and cultural diversity, a dramatic drop-off in relation to the earth's geological time.[1] As *Our World in Data* explains, "We're not only losing species at a much faster rate than we'd expect, we're losing them tens to thousands of times faster than the rare mass extinction events in Earth's history."[2] And this relates only to what is known and measurable. A great deal of these extinctions, perhaps even the majority of them, are happening to unknown species. A low-to-middle estimate suggests that there are around eight million species on earth, yet only two million of these are known to science.[3] The Sixth Extinction thus extends well beyond established taxonomies.

In recent years, scholars working within the environmental humanities have had a lot to say about this idea of a Sixth Mass Extinction Event. Above all else they have argued that the concept of extinction is a decidedly socioecological phenomenon, one that raises questions about the intertwinement of nature and society. Ursula Heise's *Imagining Extinction*, for example, stresses that biodiversity, endangered species, and extinction are "primarily cultural issues, questions of what we value and what stories we tell, and only secondarily, issues of science."[4] In *Recovering Lost Species in the Modern Age*, Dolly Jørgensen likewise suggests that it is emotions that are fundamentally at stake in "how modern humans relate to nonhumans."[5] Where Jørgensen argues at once for an environmental history of emotions and emotional history of the environment, Ashley Dawson uses his book, *Extinction: A Radical History*, to posit a historical materialist account of the Sixth Extinction. He writes that although humans have long engaged in forms of ecocide, "it is only with the expansion of Europe and the development of modern capitalism that ecocide has taken on a truly global extent and planet-consuming destructiveness."[6] Elsewhere, Juno Salazar Parreñas's *Decolonizing Extinction* draws out some of the distinct features of mass extinction as a meeting point of colonial legacies, thwarted postcolonial autonomy, late capitalist financial speculation, and international conservation tourism. Based on seventeen months of fieldwork at wildlife centers in Sarawak, Malaysian Borneo, *Decolonizing Extinction* reveals how even orangutan sanctuaries function as sites of asset speculation and value extraction.[7] Across all of these works the Sixth Extinction is theorized as a social problem that manifests as an environmental one.

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[1] IPBES, *Global Assessment Report*; WWF, *Living Planet Report*; IPCC, "Summary for Policymakers."

[2] Ritchie and Roser, "Extinctions."

[3] Purvis, "Million Threatened Species?"

[4] Heise, *Imagining Extinction*, 5.

[5] Jørgensen, *Recovering Lost Species*, 5.

[6] Dawson, *Extinction*, 41.

[7] Parreñas, *Decolonizing Extinction*, 4.

Nowhere has this analysis of mass extinction been more prevalent than in the pages of this very journal. Indeed, since the launch of *Environmental Humanities* in 2012 the journal has published over one hundred articles that address extinction. By my calculation—made at the time of writing in late 2021—that's about 40 percent of its entire output, with a recent special section continuing this trend by exploring the particular geographical and spatial characteristics of the Sixth Extinction.[8] In fact the topic of extinction has become so predominant throughout the journal that it is not uncommon to read its contributors motivating their research and framing their analysis by appealing to a sense that we are living through a "time" or even "age of extinctions"—and this, even when extinction itself is not the given article's primary focus.[9]

And yet it feels necessary to point out before we go any further that planetary life has, crucially, never not been in a time of extinctions. This is something that often goes unsaid in much of the current work on extinction in the environmental humanities. By this I mean, first, that the earth has experienced five great die-offs across the past half-billion years—five geological moments in which planetary processes, transforming more rapidly than species could adapt, called time on extant organisms and paved the way for other life-forms to develop, spread, and thrive. Preceding *Homo sapiens*, these periods of mass extinction were each triggered by phenomena that were sometimes intrinsic and other times extrinsic to the earth itself: rises in oxygen levels and toxic algae blooms on the one side, and on the other an asteroid that—according to the Alvarez hypothesis—cascaded into the earth's surface sixty-six million years ago, ending the Cretaceous-Paleogene period and, with it, nonavian dinosaur life.[10]

But beyond these mass extinctions, there is also an ever-present natural rate of species loss, often termed the background rate, that impacts all biotic processes.[11] Biologists have tended to argue that this is an endemic background rate that is constitutive of evolutionary processes; they suggest that this natural force of extinction undergirds planetary life and that without it the tree of life would not branch off into new organisms and speciations. Paleontologists, however, have questioned this idea, arguing that extinction is not constitutive but instead just a feature of evolution. According to David M. Raup, "One can imagine an evolutionary system organized without extinction—and this may exist on planets elsewhere."[12] Thus while it is true that the age of life on earth has also been the age of extinction, there is no clear consensus on what extinction actually is: is it internal to evolutionary processes, or is it external, sparked by environmental shocks from without that overwhelm a given species in spite of whatever its competitive and adaptive capabilities?

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[8] Symons and Garlick, "Introduction," 289.

[9] See, for example, Crist, "Reaches of Freedom," 251; Ballard, "New Ecological Sympathies," 257. In this literature phrases like "a time of extinctions" and an "age of extinction" are often cited as originating in Rose and van Dooren, introduction to "Unloved Others." I discuss their work in more detail below.

[10] Alvarez et al., "Extraterrestrial Cause."

[11] On this, see Jablonski, "Background and Mass Extinctions," 129; Leakey and Lewin, *Sixth Extinction*, 228; Wang, "On the Continuity," 455.

[12] Raup, *Extinction*, 19.

The Sixth Extinction thesis posits something different. It hypothesizes both a continuation of and break with these former catastrophic events. The Sixth Extinction is an outcome not of natural (read: incidental) atmospheric and ecological upheavals alone but of a long chain of social decisions and actions that, by rearranging nature directly and indirectly, culminate in atmospheric and ecological upheavals. Today such social decisions—made from positions of elite power by a global minority who act, for the most part, on behalf of particular political and industrial interests, often without democratic accountability—continue apace in full knowledge of their destructive consequences. The Intergovernmental Platform on Biodiversity and Ecosystem Services sounds the alarm bells, warning that biodiversity is now "declining faster than at any time in human history" due to phenomena such as land-use changes, habitat reduction, global warming, monocropping, and over-fishing (what it euphemistically groups together as "human-induced changes" to the earth).[13]

However, it is important to state that the Sixth Extinction connotes more than just a staggering reduction of biotic life. The present decline of fungal, plant, and animal wildlife is inseparable from a dramatic loss of human community: of peoples, languages, cultures, practices, and livelihoods, often those of Indigenous and impoverished communities who have faced waves of dispossession and eradication across modernity, from early colonialism to late capitalist globalization.[14] The Sixth Extinction is thus the name for a complex interrelation between "the extinction of organic beings and the extinction of cultural formations," as Genese Marie Sodikoff puts it.[15] In a word, the Sixth Extinction is biocultural. Its causes and impacts are at once natural and social.

The Sixth Extinction must therefore be thought of as the first historical mass extinction event, if we take history to mean the realm of social action, the "ground and untranscendable horizon" of the modes of production in which we live, as Fredric Jameson once wrote.[16] Or, to formulate this in an even more dialectical manner, the Sixth Extinction could be termed natural-historical. It is a social and economic articulation of a previously organic process, one that is variously reorganizing, narrowing, and extinguishing natures, both human and nonhuman. This prompts a frightening thought: that modernity's impacts on the planet actually rival the five previous natural disasters that once pummeled and choked the earth. In other words, modernity is somehow cumulatively comparable to an asteroid smashing into the planet's surface.

This, then, is one possible meaning of the phrase "our time of extinctions" that's so often quoted by contributors to this journal: it is the recognition that humanity, as nature, is remaking nature, warping the background rates of extinction and thereby distorting the temporalities of nature. Because of this there is a fundamental tension that animates the way we conceptualize the Sixth Extinction. It is natural insofar as humans are a part of nature, yet it is ineluctably social because it is the outcome of particular ways of life that produce environmental shocks. Where the former perspective emphasizes a planetary continuity, the latter stresses that the Sixth Extinction is also discontinuous, by no means inevitable, and hence there to be fought against, slowed, or prevented. If we want to understand the Sixth Extinction—indeed, if we want to not just understand it but also establish the foundations for organizing a collective response to it—then it makes sense to hold onto both of these perspectives, to be vigilant about not sliding into the reductivism of flat ontology (humans are just an agent among other agents) nor Anthropocene chauvinism (humans are the only agent).

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[13] IPBES, *Global Assessment Report*, 10.

[14] See Maffi, *On Biocultural Diversity*.

[15] Sodikoff, "Introduction," 4.

[16] Jameson, *Political Unconscious*, 88.

It is, it must be said, hardly a new idea that societies have destroyed life-forms, shrunk habitats, and unraveled kinship relations. The critique of and resistance to the ruling class's domination of nature has existed in many diverse and overlapping forms across modernity. Yet there is something distinct about our contemporary moment; only recently have members of the scientific community come to study the planet as experiencing a world-historical environmental transformation. It is only now, in other words, that extinction in all of its valences is concretely emerging in public life as something that is happening and that implicates us. The notion of a global crisis in biocultural diversity rose to the fore in the 1980s. It was, as far as I can see, first named the Sixth Extinction in the 1990s.[17] The evidence of biological and cultural decline in the decades since has only strengthened the case for this name, even if it remains an open question among biologists and paleontologists whether all of this really does constitute a mass extinction event. They ask: Is the present crisis an entirely distinct period in geological and evolutionary history, a new "macroevolutionary regime" as David Jablonski argues,[18] or is it still merely an intensification of the background rate?[19]

Yet this debate testifies to the conceptual drift between scientific research and public usage. What's at stake here is whether the phrase "the Sixth Extinction" should be exercised precisely or strategically, scientifically or culturally, as a formal or informal category. Indeed just like the concept of the Anthropocene, the Sixth Extinction has two lives: "a scientific life involving measurements and debates among qualified scientists, and a more popular life as a moral-political issue," as Dipesh Chakrabarty writes.[20] The Sixth Extinction stands as both a specific scientific-technical definition and a valuable shorthand that conveys the gravity of the planetary situation in which we find ourselves.

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[17] See Wilson, *Diversity of Life*, 32; Leakey and Lewin, *Sixth Extinction*, 232. See also Myers, *Sinking Ark*.

[18] Jablonski, "Background and Mass Extinctions," 129. See also Raup and Sepkoski, "Mass Extinctions."

[19] Sepkoski, *Catastrophic Thinking*, 222.

[20] Chakrabarty, *Climate of History*, 158.

Extinction in Public

This tension between science and culture, this culturalization of scientific findings, has deepened in more recent years as the concept of mass extinction has made its way further and further into public life. Works of trade nonfiction like Elizabeth Kolbert's *The Sixth Extinction* (2015), a recipient of the Pulitzer Prize, have attained bestseller status. Millions of viewers have watched the BBC's blue-chip documentary *Extinction: The Facts* (2020), narrated by Sir David Attenborough. Popularized and appropriated, mass extinction is also becoming a site of commemoration, performance, contestation, and mobilization. The Remembrance Day for Lost Species, observed every November 30, has been marked by more and more people each year since its launch in 2011. In 2018, a new global climate movement dragged the biodiversity crisis even further into the public sphere, forcing the question of extinction onto national and international political and media agendas. The Fridays for Future school strikes, inspired by Greta Thunberg's activism, quickly became the biggest mass youth protest in history, with nearly 1.5 million people turning out weekly by March 2019.[21] That summer, Extinction Rebellion activists occupied city squares in what Andreas Malm describes as "the largest civil disobedience action the UK had seen in decades."[22] On Earth Day of 2019, XR conducted organized die-ins in the halls of museums across the country. This tactic, a mass lying-down and occupation of public space, did more than just politicize the scientific and natural-historical representations of extinction that are usually practiced by institutions like the Natural History Museum. It also called into question these institutions' historical and ongoing participation in the Sixth Extinction through their various affiliations with extractive industries.[23]

The momentum of Fridays for Future and XR was prematurely stalled by the rapid onset of the COVID-19 pandemic, but the disease's global proliferation also helped to reveal the urgency of their struggle. The very industrialized intrusion and extraction of nature that climate activists fight against, a model of intensive commodity production that produces global heating through plantations, quarries, ranches, and roads, is responsible not just for reducing biodiversity but also increasing the likelihood of zoonotic spillover events, in which novel microbes jump from nonhuman reservoirs into human populations.[24] Mass extinction, climate change, and pandemics are thus all consequences of a historical recomposition of the "human-animal interface."[25] And the global poaching crisis, made ever easier by deforestation, is part of this story too; the legal and illegal trade

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[21] Carrington, "School Climate Strikes."

[22] Malm, *How to Blow Up a Pipeline*, 16.

[23] For more on Extinction Rebellion's die-in at the Natural History Museum, see O'Key, "Why Look at Taxidermy Animals?," 649.

[24] On this, see Jones et al., "Global Trends in Infectious Diseases"; Wilkinson et al., "Habitat Fragmentation"; Johnson et al., "Global Shifts."

[25] Sivasundaram, "Human, the Animal, and the Prehistory," 314.

in wildlife has created an "extinction market" that, as Vanda Felbab-Brown details, also functions as an incubator for interspecies disease transmission.[26]

It is with all of this in mind that I wish to suggest that the Sixth Extinction is an emergent idea of the contemporary conjuncture.[27] It is a notion that, operating at both a scientific and cultural level, is being increasingly thought through in numerous corners of the world. Because of this, it is an opportune moment for us to interrogate what we talk about when we talk about extinction, to ask how, where, and why differing conceptions of extinction and mass extinction are gaining momentum and circulating in the arenas of public life.

I advocate for a critical consideration of the ways in which extinction is currently being made public—within and by the environmental humanities but also in the wider public sphere of political and cultural contestation. In this sense my adoption of the term *public* is inspired by Hannah Arendt's *The Human Condition*, in which Arendt argues that "the term 'public' signifies the world itself, in so far as it is common to all of us and distinguished from our privately owned place in it." Arendt differentiates the world from the earth: where the earth relates to the "general condition of organic life," the world pertains to what is built, inherited, shared, and contested. "To live together in the world," Arendt states, "means essentially that a world of things is between those who have it in common."[28] Today, as the condition of organic life becomes entangled with the public realm of action, the concepts of extinction, mass extinction, and the Sixth Extinction are becoming public in this Arendtian sense.

By adopting the title *Extinction in Public*, I wish to place special emphasis on the following kinds of questions: What is at stake, today, as the concept of the Sixth Extinction circulates around the world? What is understood by the phrase "anthropogenic extinction," and what is gained and lost by its invocation? How does this recently developed sense of extinction as a global-ecological and human-induced phenomenon relate with the concept's other historically articulated valences? Who is engaging with extinction, and who is not? Where, how, and to what ends?

Extinction Imaginaries

How, then, is extinction publicly evolving as a concept, and what is the prevailing extinction imaginary of the day? I take this term from David Sepkoski, whose recent book *Catastrophic Thinking* traces the historical development of extinction discourses in the West. Throughout, Sepkoski emphasizes how, because scientific knowledge is co-constructed with ever-jostling public values, any predominant idea about what extinction signifies is highly contingent on place, space and time, milieu and mindset.[29] Before the death of God, Sepkoski argues, extinction could not fully cohere as a concept in Christian countries because nature, as bountiful creation, was endlessly renewable. Only later could the sciences of the Victorian period conceptualize extinction; here, extinction was identified as a progressive force that allowed nature to achieve a constant yet dynamic equilibrium through the competitive struggle of organisms. But such ideas were also inseparable from the era’s imperialist projects, which conceived of colonized peoples as inferior races doomed to an inevitable biological decline. The Darwinian paradigm of extinction not only lent credence to colonial domination, enabling the justification of slavery, but was itself a product of a colonial episteme that hierarchically categorized life from the superior to the inferior.[30] A century later, Luis and Walter Alvarez proposed their new catastrophist theory of asteroid impact. Was it a coincidence that they did so in the shadow of nuclear fission and Cold War anxieties about mutually assured destruction? Sepkoski thinks not. Any notion of what extinction is, he says, at once shapes and is shaped by its specific locations of expression. The development of the concept of extinction is therefore historically specific to the evolving epistemologies of post-Enlightenment biological sciences.

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[26] Felbab-Brown, *Extinction Market*, 8.

[27] I take the word *emergent* from Raymond Williams, who argues that within any epochal analysis one must trace the dynamic interrelations between what is culturally dominant, emergent, and residual. The emergent, for Williams, points toward those "new meanings and values, new practices, new relationships and kinds of relationship [that] are continually being created." Williams, *Marxism and Literature*, 123.

[28] Arendt, *Human Condition*, 52.

What can we identify as the principal characteristics of today’s extinction imaginary? Sepkoski suggests that current understandings of extinction are changing due to a recent shift in public common sense. As the rise of new ecological thinking in the late twentieth century became institutionalized within scientific, policy, and global conservation discourses, biodiversity was reconceived as a normative good in and of itself rather than just an integral part of ecological balance and economic development.[31] The emergent idea of extinction as meaning a natural-historical mass extinction event is deeply informed by this noninstrumental valorization of nature’s diversity. But it is also articulated through the new catastrophism of climate science and Anthropocene discourses, which holds that endangered species have not failed biologically; instead, “we” have failed them. Today’s discourses about extinction are undergirded by this sense of a collective if differential responsibility for both the actual and potential future losses of biological and cultural diversity. David Raup once argued, contra Darwin, that extinction was not the result of bad genes but plain bad luck. Today, the dominant position appears to have shifted from bad luck to bad humans.

Yet Sepkoski’s book leaves unexamined the question of how this sense of a shared responsibility for mass extinction operates within our cultural moment. So let’s add to his story. Responsibility has become a key term within today’s extinction imaginary, often conjured in order to attribute causation and inspire action. Questions like “What is triggering this mass extinction event?” “Who is to blame?” and “How can we act?” have become ubiquitous across recent public and mediatized interventions into the biodiversity crisis. But when answers are offered they are often unsatisfactory: some critics blame a vague set of human activities for biodiversity loss, while others trace the current crisis back to a tragic flaw that is supposedly inherent to human nature—a desire for mastery, perhaps, or a compulsion to procreate, overpopulate, and overconsume. In *The Sixth Extinction*, for instance, Elizabeth Kolbert even goes so far as to say that the problem of mass extinction co-originates with the human species as such, "with the emergence of a new species maybe two hundred thousand years ago."[32]

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[29] Sepkoski, *Catastrophic Thinking*, 8–9.

[30] For more on this, see Brantlinger, *Dark Vanishings*.

[31] Sepkoski, *Catastrophic Thinking*, 14.

These responses are insufficient. For starters, "human activities" is a troublingly underdefined formulation. For all its rhetorical force and semantic convenience, there is something unshakably euphemistic about this expression. The phrase "human activities," by gesturing to a plethora of unspecified social relations, reduces and flattens them. Indeed this is a phrase that has already attracted strong criticism, especially in climate change discourses, because of the ways in which it loses sight of the vastly unequal systems that structure social-environmental relations.[33] Such reduction and flattening out also accompanies the assertion that the Sixth Extinction is an expected consequence of an innate human nature. There is, of course, a foundational truth and tempting irony to the idea that, in a world of millions of life-forms, it only takes "one weedy species" to overturn millennia of evolutionary processes.[34] However, this misanthropic position, ahistorical and scientifically imprecise, ultimately essentializes the human and hence disregards the particular natural-historical transformations of modernity.

The question of responsibility for mass extinction has been integral to the development of the environmental humanities. Nowhere is this better evidenced than in the development of extinction studies, a form of environmental humanities scholarship whose conception of extinction as a process rather than event, and whose arguments that mass extinction presents an ethical call to responsibility, have become something of a template for how extinction is researched and written about. Developed over the past decade by the Extinction Studies Working Group, a loose formation of mostly Australasian scholars, extinction studies has asked what academic writing can do "in the face of all this anthropogenic disaster"[35] across publications over the past decade, including a special issue of *Australian Humanities Review* (2011), the edited collection *Extinction Studies: Stories of Time, Death, and Generations* (2017), and a guest issue of *Cultural Studies Review* (2019) dedicated to the late Deborah Bird Rose, who cofounded this journal and played a pivotal role in shaping extinction studies into a defined domain of research. While theirs is not the only way of "doing" extinction studies, and while the working group itself is only an informal collection of researchers, each with their own discrepant methods and interests, it is inarguable that with these three collaborative volumes as well as across many sole-authored works, members of the Extinction Studies Working Group have set the tone and produced a significant common sense about what it looks like to conduct and publish environmental humanities research on extinction. But what is this common sense? What are extinction studies' arguments, methods, tenets, and styles? Drawing out the characteristics of the extinction studies project will allow us to make sense of not just this specific genre of environmental humanities scholarship but also its politics.

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[32] Kolbert, *Sixth Extinction*, 1.

[33] The critique of the phrase "human activities" as a vague and undifferentiated euphemism that can even disguise environmental colonialism is at least three decades old. See Agarwal and Narain, *Global Warming in an Unequal World*, 1–2.

[34] Kolbert takes the phrase "one weedy species" from Wake and Vredenburg, "Are We in the Midst," 11472. See Kolbert, *Sixth Extinction*, 8, 18, 266.

[35] Rose, "Slowly," 3.

The primary goal of extinction studies has been, in its own words, to "model an interdisciplinary, biocultural approach that can attend to the plural phenomena and entangled significance of extinction."[36] Such a goal has been inspired and legitimated by, but also coevolved with, the development of "philosophical ethology" and "multispecies ethnography," cognate modes of inquiry whose "passionate immersion in the lives of the nonhumans being studied" produces new ways of looking at animal subjectivity.[37] Synthesizing anthropology, environmental studies, and animal studies, these methodologies reconceive human subjectivity and lifeways—that is, human agency—as being necessarily interrelated with other lively species who have their own agencies.[38]

Inspired by philosophical ethology and multispecies ethnography, extinction studies offers a combination of continental philosophy, scientific literatures, environmental humanities approaches, and in situ research. Across its publications we find the work of Jacques Derrida and Emmanuel Levinas being brought into conversation with contemporary debates in biology, ecology, and ethology; theoretical works by Donna Haraway and Anna Lowenhaupt Tsing come to inform fieldwork in conservation centers, rainforests, and zoos, on the dirt roads of Australia and across the coastlines of equatorial islands. Members of the working group have called this approach a form of "lively ethography" and, elsewhere, "field philosophy."[39] It is a mode of research and writing that, by fusing together the embodied and place-based labors of fieldwork with the intellectual insights of continental philosophy, wishes to mutually challenge and enrich the established practices of both.[40]

Through this, extinction studies has developed a position on extinction itself, intervening into both the scientific and public notions of mass extinction with its argument that extinction must be understood not just as an end point—the final perishing of the last of a species—but as a complex and dynamic process that, unfolding across generations, severs intergenerational relations. Thom van Dooren argues that if we think of extinction only as an end, as a "singular event," then we ultimately reduce "species to specimens—reified representatives of a 'type' in a museum of life—in a way that fails to acknowledge their entangled complexity."[41] "There is no singular phenomenon of extinction," Rose and colleagues stress; "rather, extinction is experienced, resisted, measured, enunciated, performed and narrated in a variety of ways to which we must attend."[42] Hence the subtitle of the 2017 collection, which suggests that mass extinction is a rupture, a "violent termination of these gifts of time, death and generations."[43] In extinction studies, then, the Sixth Extinction is conceived of as a form of slow violence that implicates and impoverishes planetary life: "While charismatic endangered species occasionally grab a headline or two, all around us a quieter systemic process of loss is relentlessly ticking on."[44] The loss of one species, they reiterate, is also a collective loss. Because species coevolve with one another, because taxa are the relations they share with other life-forms, the loss of one species is the loss of a wider ecological network.

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[36] Chrulew and De Vos, "Extinction," 24.

[37] Tsing, "Arts of Inclusion," 19. On philosophical ethology, see Buchanan, Bussolini, and Chrulew, "General Introduction."

[38] Kirksey and Helmreich, "Emergence of Multispecies Ethnography"; van Dooren, Kirksey, and Münster, "Multispecies Studies."

[39] van Dooren and Rose, "Lively Ethography"; Buchanan, Bastian, and Chrulew, "Introduction."

[40] Buchanan, Bastian, and Chrulew, "Introduction," 386.

Members of the working group contend that this collective loss prompts an ethical argument: against human exceptionalism, for a multispecies community. This is where responsibility comes into view. Extinction studies suggests that because we share a deep evolutionary continuity with our nonhuman neighbors, and because we are ecologically entangled with nature, we have a fundamental accountability to the planet. Crucially, this is a vision of more-than-human ethics that is at once universalist and situated. "Responsibilities are complexly situated in time and place," Rose stresses.[45] The extinction stories of paradise birds, monk seals, dingoes, and snails are all different stories within the underlying story of mass extinction. As such, each situation requires its own "case-specific attention."[46] Alongside extinction studies' problematization of extinction, then, is the development of an environmental ethics informed by both a universal planetarity and situated specificity.

One of the working group's implicit contentions is that this double sense of a universal and situated environmental responsibility is cultivated through the very work of extinction studies itself—that is, through what its practitioners call "attention to others and expression of that experience: to stand as witness and actively to bear witness."[47] In other words, if on-site research with particular species provides opportunities for personal witnessing, then the writing-up of this experience becomes a public expression of ethics that invites the reader to also bear witness to extinction. Taking up Haraway's much-paraphrased line about it mattering which stories we tell, members of the working group conceive of their writing as a form of ecological witnessing through storytelling. Witnessing and storytelling (often termed "storying" in their publications) thus become the stylistic cornerstones of the project.

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[41] van Dooren, *Flight Ways*, 11.

[42] Rose, van Dooren, and Chrulew, introduction, 2.

[43] Extinction Studies Working Group, "About Us," *Extinction Studies* (blog), http://extinctionstudies.org/about/ (accessed July 28 2021).

[44] Rose, van Dooren, and Chrulew, introduction, 1.

[45] Rose, *Wild Dog Dreaming*, 18.

[46] van Dooren, *Flight Ways*, 7.

[47] van Dooren and Rose, "Lively Ethography," 89.

And it is precisely through these attempts to "story" mass extinction as a collective loss that extinction studies develops into a particular genre—even mood—of environmental humanities scholarship. Largely written in a contemplative and reflexive first-person style, these are compelling and self-consciously gentle texts that make use of the aesthetics of description as the ground for ethics. They weave together analysis and affect, combining ecological histories with meditative reflections on what it feels like, emotionally, to be conducting this research in a moment of planetary upheaval. Extinction studies publications thus share the elegiac impulse of broader extinction discourses that Ursula K. Heise discovered in her book *Imagining Extinction*. Following Heise, works like Thom van Dooren's *Flight Ways* and Deborah Bird Rose's *Wild Dog Dreaming* might best be described as "stories of decline [that] seek to mobilize readers' emotions through the lament, melancholy and mourning."[48] Van Dooren and Rose, cautious about conveying despondency, are well aware of this. They make a case for environmental witnessing as a kind of mourning in which we find an opportunity to critically "relearn our place in a shared world."[49] Looked at one way, then, the extinction studies project can be read as offering a form of critical lamentation for the Sixth Extinction. Yet the project's pairing of analysis with affect, its balancing of the anecdote, introspection, and academic citation, tends to follow familiar narrative pathways: redescribe the local fieldwork, analyze the global implications, express truthful feeling.

Even so, members of the working group have questioned this argument for witnessing as the grounds for ethics. Central to the extinction studies approach, Michelle Bastian states, "are notions of encounter, recognition, and detailed knowledge, not just for creating the extinction story, but—crucially—for developing a 'shared ground' as the basis of the ethical import of these stories."[50] In other words, it is through the given researcher's lively encounters with particular creatures, vividly described in a deliberately engaging academic prose, that extinction studies builds its case for multispecies ethics. However, because such an ethics rests on a situated encounter with the other, it might miss out on all those species that cannot be encountered—such as the endangered ecologies of the deep-sea floor that break down the carcasses of great whales, as Bastian focuses on. In other words, an ethics of recognition that is modeled on a more or less Levinasian form of witnessing requires a spatial or even epistemic proximity between the human and the nonhuman that cannot always be guaranteed—especially so in a time of intensifying loss, in a world in which many extinct species are irrecoverable or unknowable. To paraphrase Bastian, then: Would it be advantageous to nurture a multispecies responsibility that also accounts for a suspension of recognition, for missed encounters and the unknowable?[51] This question promises to reconfigure the field's ethics while also querying the very kinds of research that extinction studies undertakes.[52]

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[48] Heise, *Imagining Extinction*, 34, 72.

[49] van Dooren, *Flight Ways*, 144.

[50] Bastian, "Whale Falls," 456. Rick De Vos also theorizes the relationship between extinctions and encounters in De Vos, "Provocations from the Field."

Extinction studies, persistent in its call for a multispecies ethics, has also assumed an individualistic model of environmental commitment. Let me reiterate that one of its major claims is that, by knowing more about other critters' lives, by "thickening" our sense of their presence and vitality through description,[53] the reader will be drawn into new ethical responsibilities toward nature that break down human exceptionality. In a world in which the loudest reactions to the Sixth Extinction seem to be the doom-laden resignation of adaptation on the one side and the scientific-technological confidence of de-extinction and geoengineering on the other, it is heartening that the working group set out to make a decidedly "more modest, more earthly, and more mature response," one that compels the reader to nurture their own ecological ethics.[54] But with this, extinction studies also risks an idealist presupposition—idealist meant in the historical materialist sense—that the key problems of our day, the underlying reasons for today's global biocultural crisis, are human exceptionalism and dualistic thinking. This elides the important material conditions that must change if we are to stymie biocultural losses.

In fact extinction studies almost never makes use of the critical vocabulary we have at our disposal for understanding and critiquing the relationships between economy and ideology. To put this rather bluntly: although the working group criticizes Elizabeth Kolbert for not providing "a detailed discussion of the specific political, economic, and cultural forms of human organization most responsible for any given extinction,"[55] it never analyzes capitalism as the dominant regime of socioecological organization that is transforming nature and eliminating the wild. The mere absence of a concept does not necessarily mean its exclusion from a given analysis. But thus far the members of the working group have offered no detailed discussion, no explicit examination, of the Sixth Extinction as a crisis of capitalism that is intensifying in the wake of the period known as the mid-twentieth century's "great acceleration."[56] Perhaps this is a consequence of their work's insistence on specificity, on the "the complexity and ethical significance of specific sites of loss."[57] But they also stress that "learning to appreciate a particular . . . species in a particular place can never be an isolated act," as the articulation of one extinction story opens out onto an expanse or horizon of planetary loss.[58] Although extinction studies is willing to generalize the particularity of one extinction into a universal ethics, it does not elect to name capital as the generalized economic order of the day.

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[51] After this essay was drafted and revised, van Dooren published a response to Bastian's challenge to extinction studies in the pages of this journal: "I do not see our lack of physical proximity, the impossibility of a face-to-face encounter with these unknown others, to be a significant barrier to our own entering into, and indeed drawing others into, an *ethical encounter*." See van Dooren, "In Search of Lost Snails," 104.

[52] Indeed, as Juno Salazar Parreñas intimates, because of its methodological emphasis on witnessing and encounter, work in multispecies ethnography has predominantly been conducted by "those with the means to embrace an environmental cosmopolitanism by traveling the world." What would an extinction studies of the poor look like, then? See Parreñas, *Decolonizing Extinction*, 16.

[53] van Dooren, *Flight Ways*, 9.

[54] Rose, van Dooren, and Chrulew, introduction, 8.

[55] Rose, van Dooren, and Chrulew, introduction, 6.

[56] Ashley Dawson and Troy Vettese have written useful materialist accounts of the mass extinction: Dawson, *Extinction*; Vettese, "Marxist Theory of Extinction." For an Earth systems theorization of the "great acceleration," see Steffen, Crutzen, and McNeill, "Anthropocene."

[57] Rose, van Dooren, and Chrulew, introduction, 3.

The concept of extinction itself also proves to be troublesome for extinction studies—first, because its contributors have often hedged, and sometimes even taken for granted, the reality of the Sixth Mass Extinction Event itself. As I have noted above, there are many biologists, ecologists, and paleontologists who remain quite hesitant about proclaiming that we are living through an entirely new macroevolutionary regime. Yet the publications associated with extinction studies are quick to motivate their research by citing those other scientists who emphatically declare that life is facing "biological annihilation."[59] Extinction studies thus participates in what Sepkoski calls the new catastrophism of extinction discourses in the twenty-first century.

At the same time, extinction studies has often adopted a post-Enlightenment definition that, informed by Darwinian biological sciences, sees extinction as something that happens to nature and that makes species go extinct. This understanding of extinction—as something that afflicts passive nonhuman others—might well undermine extinction studies' own self-declared insistence on multispecies agency. It also overlooks the knowledges of other peoples, like the Anishinaabeg, who observe that animals actively withdraw from the world when societies break the long-standing treaties that exist between their kind.[60]

Finally, the working group's deconstruction of extinction ultimately results in a curious slippage, in which "extinction" itself might cease to be the object of their analysis. On the one side, and as Dolly Jørgensen points out, the field is predominantly concerned with potential future extinctions, offering "anticipatory" histories of imagined extinctions.[61] On the other, and as Luke Donahue argues, the field trains its attention on a form of collective death or mass unraveling of ecological relationships. Thus,

> Extinction Studies' rigor forces it, despite itself, to give up on the traditional, scientific conception of extinction; to give up on the difference between collective death and extinction; to give up on the specificity of extinction. If entanglements rather than discrete species are the units of life, how can we maintain a concept of extinction that is irreducible to death and destruction?[62]

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[58] van Dooren, "In Search of Lost Snails," 105.

[59] Ceballos, Ehrlich, and Dirzo, "Biological Annihilation," E6095.

[60] Audra Mitchell challenges the ostensible universalism of extinction discourses by recounting that, in Anishinaabeg stories, the deer refuse to offer themselves for food in plentiful numbers when humans have hunted more than is necessary. "Only when the Anishinaabeg alter their behavior and uphold their side of the treaty do the deer choose to return." Mitchell, "Revitalizing Laws," 915. This interrogation of extinction's meanings is continued in Mitchell, "Beyond Biodiversity and Species."

[61] Jørgensen, "Extinction and the End of Futures," 215.

[62] Donahue, "Survival and Extinction," 927.

In other words, if we want to understand the true gravity of the Sixth Extinction—as an anthropogenic event that is paradoxically continuous and discontinuous with previous mass extinction events—then it will be analytically helpful to retain an inherited definition of extinction despite its baggage. Only by holding onto what extinction was as an incidental phenomenon can we appreciate what extinction is today as a social form.

I offer these concise criticisms as companionly provocations. They are intended as sparks for further conversations about what it means to think through mass extinction in public.

Thinking through Extinction

Finally, let me explain the circumstances behind this special section, its occasion and its conditions of production. “Extinction in Public” is one outcome of a virtual symposium, held in October 2020, which featured research on British lepidopterists, Indigenous languages, museum curation across Europe, remembrance ethics for nonhumans, and collective direct action on their behalf. I organized this symposium as part of a two-year research and public engagement project, “Thinking through Extinction,” hosted at the University of Leeds and led by Stefan Skrimshire. A collaboration with museum and heritage practitioners at Manchester Museum, the art writing platform Corridor8 and artist-in-residence Lou Chapelle, “Thinking through Extinction” sought to explore how the Sixth Extinction is communicated and encountered by different publics. Part of a wider project on “Extinction as Cultural Heritage?,” led by Dolly Jørgensen and funded through a European Union JPICH Heritage in Changing Environments scheme, our project combined academic research, artist commissioning, and public cocreation in order to both study and encourage personal connections with and feelings about mass extinction.[63]

The project’s research agenda focused on the relationship between mass extinction and cultural heritage. Its signal academic publication asks how natural history museums, so used to exhibiting the extinctions which preceded modernity, are now grappling with extinction in its more recent anthropogenic forms.[64] To build on this we organized a two-day symposium at Manchester Museum, an institution that is reflecting on the ways it narrates extinction to different audiences. Our plan was to adopt the museum as a site for exploring together the public presence of extinction. Soon, though, the COVID-19 pandemic would transform our plans. As the museum’s doors shut in spring 2020, we were forced not just to move our symposium online but also to rethink our conceptual focus on the museum. Witnessing the emptying and closing of public spaces, we began to contemplate seriously the distinction between the private and the public, pondering how public feeling about mass extinction might change under the conditions of pandemic confinement.

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[63] See Eggleton, *Facing Extinction*.

[64] O’Key, “Why Look at Taxidermy Animals?”

This special section therefore derives first and foremost from a desire to think, from different perspectives, about the importance of extinction's movement through and uptake within different arenas of public life. It seeks to think through extinction in at least two senses: First, how can we think through—that is, traverse—anthropogenic extinction? But also: How does thinking or "thought" itself transform in light of it? Although these questions are ambitious, the final version of this special section that you are reading now is in fact much more modest. In its conception this special section was comprised of nine contributions, a collection of heterodox essays that promised to reflect on the relationship between extinction and public life, broadening the burgeoning fields of environmental humanities and extinction studies in the process. Yet as the pandemic raged on, the pressures began to bite. Nine became eight became six became two. Where I have focused on extinction studies, the two remaining contributors to this special section examine more broadly how mass extinction is circulating out there: in the language schools of Indigenous communities in Northeast Brazil that Diane Nelson, Nhenety Kariri-Xocó, Idiane Kariri-Xocó, and Thea Pitman discuss; and in the pages of science fiction and nonfiction storytelling which, as Julia Gibson shows, articulate forms of palliation that garner an extinction ethics. Although we narrowed our set to just three articles, this is not a reason to scrap the publication of this special section. Rather its publication is even more necessary: this special section's history of production, from conception to publication, stands as a testament to the difficulties of the pandemic, to the essays that never made it out there into public life, and finally to the perseverance of those who believed in this project.

DOMINIC O'KEY is a Leverhulme Early Career Fellow at the University of Sheffield. He is the author of *Creaturely Forms in Contemporary Literature: Narrating the War against Animals* (2022) as well as numerous other articles on literature, film, museums, and theory. He is an associate editor of the journal *Humanimalia*.

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