

The Sixth Extinction: An Unnatural History

By Elizabeth Kolbert

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In the autumn of 2009, Johan Rockström and colleagues published a feature report in *Nature* titled “A Safe Operating Space for Humanity”. The objective of the piece was to quantify the global status of 10 key physical processes, including ocean acidification and land-use change, as well as how far each could be pushed before drastic and irreversible environmental change was set in motion. According to the report, seven of these processes have yet to breach their limits. Of the three that already have—the nitrogen cycle, biodiversity loss, and global warming—biodiversity loss is without doubt in the worst shape. Indeed, according to Rockström et al. (2009), global biodiversity loss is occurring at a rate up to 1,000 times greater than it would be without human influence.

Considering this dire state of global biodiversity, as well as the obvious fact that human social processes are squarely responsible for such a state, it is surprising that environmental sociologists and other social scientists concerned with such unacceptable degradation have yet to seriously confront the matter. Perhaps the jolt needed to take on such an academic project will come from an unlikely source—a trade book. *New Yorker* staff writer Elizabeth Kolbert’s *The Sixth Extinction*, published by Henry Holt and Co., does well to make the case that the dramatic escalation in biodiversity loss is without doubt worth our attention.

For those familiar with Kolbert’s *New Yorker* oeuvre, it should come as no surprise that *The Sixth Extinction* is a lively, well-written book. As in her *New Yorker* pieces, we join her as she restlessly hops around both history and the planet in order to examine the current fortune of a certain threatened or extinct species; the fate of which, we are rightly assured, may well serve as a harbinger of many more. For example, we visit remote Panama to learn about the unexpected near disappearance of the once-ubiquitous Panamanian yellow frog, the victim of a novel African species of chytrid fungi rapidly spreading through international

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trade and leaving hosts of dead amphibians in its global wake. In a typical move, Kolbert uses the fate of this Panamanian amphibian as an opportunity to relay an important point about biodiversity loss—this time to explain how contemporary ecological changes are moving with such unprecedented alacrity that, for many species, characteristics that once helped them operate in certain ecologies are no longer useful, thus making them more vulnerable. To bolster this point she consults a whirlwind of paleontologists, veterinary pathologists, mycologists, herpetologists, various other “experts,” the marine fossil record of the past 600 million years, and even a local open-air market selling “what must be the largest selection of golden-frog figurines.” All this in little more than 15 pages. We never stay anywhere too long, however, as we are soon whisked off to an office in Paris that was once home to Georges Cuvier. There we learn about mastodons, how Cuvier introduced the concept of extinction to western science, about the scientific debates in which he was involved, and even his eating habits. From there, onward to Iceland. In total she travels to a dozen locations and introduces as many species in order to weave narratives on climate change, the extinction of the dinosaurs, invasive species, the contemporary status of bats in New England (it’s not good), ocean acidification, graptolites, and more. All to make the necessarily urgent point that human activities, now the principal driver of ecological change, have pushed biodiversity beyond the brink.

If some of these stories sound familiar, that may be for two reasons. First, over the past several years, roughly one-fifth of them have appeared in the *New Yorker* in almost the same form they are found here (while the ones that have not read as if they could have). Second, her style and, especially, the historical narratives she employs, are well worn. While not explicitly but certainly understandably, Kolbert draws heavily from previous work by the best communicators of evolutionary and scientific history; people such as Loren Eiseley (e.g., 1958), Donald Worster (e.g., 1994), Richard Lewontin (e.g., 1992), Richard Levins (e.g., 1996), Richard Leakey (e.g., Leakey & Lewin, 1995) and Steven Jay Gould (e.g., 2001). As such, for those familiar with these writers, neither the history of science she provides nor her explanation of physical processes will be new. This is especially salient for those familiar with Leakey, who less than two decades ago published a book on the same topic that even bears the same title as Kolbert’s.

This is not to say the book is redundant. For, unlike these other writers, Kolbert is not a trained scientist nor historian, but rather an accomplished journalist. She therefore provides a slightly different perspective as, instead of being told from on high how specific ecologies operate or why Darwin sided with Lyell in the catastrophism/gradualism debates, we learn as she does and share with her in the excitement of discovering novel ecological processes as well as the horror of their implications. Indeed, Kolbert is reflexive about her own naivety and does well to carefully incorporate the most current science while never coming

down too hard on either side of an open debate. She is also generally successful in capturing the historical contingency of ecological processes, and when she does relay technical information she does so in an approachable manner. Additionally, to state the obvious but still important point, Kolbert's work is more current as many of these forebears have passed on or are in the twilight of their careers.

Though, perhaps because of this admitted naivety, essential elements of this earlier work are missing. For example, Kolbert does not possess the theoretical depth of Gould, the historical scope of Eiseley or Worster, nor the political urgency of Lewontin and Levins. She never questions how contemporary ecological knowledge is built, nor does she take an in-depth look at the social processes that are setting in motion such abrupt ecological degradation.

These key limitations demonstrate the need for a current, more robust social science of biodiversity loss. For in order to find some sort of social explanation for why we human beings are undercutting our own ability to survive, not to mention the survival of many more beings, Kolbert does not seek any cultural, political, or economic (or political–economic for that matter) origins. Instead, she unfortunately turns to an ill-defined notion of human nature for explanation. The result is that, according to *The Sixth Extinction*, the blame for the biodiversity crisis lies in the ostensible fact that human beings can't help themselves but push the limits of the ecological world. It is simply in our genes to be so restless, to discover, to erase boundaries, and to destroy. Sticking to this logic, the only hope Kolbert can then find is that our better angels save ourselves from ourselves (and everything else) before it is too late.

Certainly environmental sociology and social science more broadly can develop a better explanation for the social drivers of biodiversity loss than this? We already have a host of macrohistorical explanations for coupled social and ecological change, but few have been robustly explored in terms of biodiversity loss. Even considering this book's faults, it will hopefully inspire some of us to take on this question. Ultimately, we cannot disagree with the eloquent urgency in these pages and we should commend Kolbert for bringing such urgency to a wider audience. Let us just make sure we do more than listen, but join the conversation.

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