Imagining Extinction: The Cultural Meanings of Endangered Species. By Ursula K. Heise. Chicago: The University of Chicago Press, 2016. xiii + 280 pp. $27.50.

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Ursula K. Heise's absorbing and eclectic book distinguishes itself from writing about extinction's historical emergence and contemporary urgency. On the cusp of the sixth mass extinction in Earth's history, *Imagining Extinction* instead presents us with a metanarrative about the various modes, genres, and rhetorics of cultural engagement with biodiversity and species endangerment. Using an array of literary texts, aesthetic artifacts, and discursive interventions drawn from the late twentieth and early twenty-first centuries, Heise poses vital questions about how cultural lenses can shape our understanding of extinction as a scientific and ethico-political challenge. The strong syncretism of approach that characterized her agenda-setting *Sense of Place and Sense of Planet* (2008) is similarly on offer in this vibrant study. Heise starts by producing fresh accounts of the interchange among cultural spheres, juxtaposing conservation science with popular-scientific writing, fiction, and contemporary art to assess the stakes of conjuring extinction in an elegiac mode. She then reverses course to apply a cultural studies optic to ecology, reading biodiversity databases as epics. The book's latter half raises the stakes of this magpie methodology, undertaking a compelling rapprochement among environmental, animal welfare, and social justice discourses, and ending with a moving plea for justice across species.

Chapter 1 considers the shared logics of scientific and cultural discourses about extinction. Heise examines conservation science's preference for species as the relevant category of analysis despite definitional uncertainties, categorical tensions among *native*, *introduced*, and *invasive* species, and related issues. Revealing nuances typically absent from popular treatments, she points to how this emphasis tilts extinction discourse toward "flagship species" (24)—especially mammals and birds, rather than fish and fungi—as "proxies for ecosystems and biodiversity" (23). That such displacements have proven rhetorically useful and politically tractable is underscored by the widespread penchant for elegiac representations of single-species extinctions, which function as substitute discourses "for criticizing or resisting modernization and colonization" (23). Ranging from conservation biology to popular-scientific prose, experimental musical compositions (Lee Hyla, Sally McIntyre) to poetry (W. S. Merwin, Homero Aridjis), Heise probes the possibilities and limits of this melancholy commemoration of lost species. She also speculates about a comic approach to extinction in reading Douglas Adams and Mark Carwardine's *Last Chance to See*.

The generic lens continues into Chapter 2, which surveys biodiversity databases like the Encyclopedia of Life (EoL) and ARKive that "seek to inventory the totality of biological life on Earth" (62), as well as catalogs like the Red List of Threatened Species compiled by the International Union for the Conservation of Nature (IUCN). Heise reads these projects as poised between the conventions of Enlightenment encyclopedism and those of the constitutively open-ended genre that Franco Moretti dubs "modern epic." Alert to problems of emphasis and exclusion in such lists, Heise offers a searching account of how databases, while holding out "the potential of desentimentalizing extinction" (76), still exhibit narrative and elegiac features. She also shows how the "enumerative drive" (56) and "database aesthetic" (59) of conservation science jostle with elegiac representation in the ecofiction of Margaret Atwood (the *MaddAddam* trilogy) and Lydia Millet; in Maya Lin's multimedia memorial, *What is Missing?*; in the species-cataloging photographs of Joel Sartore; and in the biodiversity still life paintings of Isabella

Kirkland. Across these objects, the urgency of comprehending extinction *en masse* marks "the transition from individual mourning to the confrontation with global loss" (61).

Turning to the role of institutions, Chapter 3 considers how cultural perceptions about valuing the nonhuman world—both intrinsically and instrumentally—crystallize in environmental law. In the United States, the Endangered Species Act focuses on species primarily; laws elsewhere on the globe have the broader remit of defending biodiversity as such. In the European Union, scientific frameworks guard ecosystems as part of a "shared transnational patrimony" (89), whereas in a member state like Germany a complex tradition of folding nature protections into the conservation of culture, architecture, and landscape has meant a "superimposition of the traditional cultural meanings of *Landschaft* on the scientific implications of biodiversity and ecosystem functionality" (104). By contrast, Bolivia's revamped constitution has afforded radical legal protections that frame biodiversity's "strategic value and public interest for the country's development" (115). While fascinating on its own terms as an exercise in legal poetics—revealing "the narratives implicit in laws about biodiversity" (89)—this chapter lacks the verve and concreteness of the others. The way certain cultural norms shape environmental legislation and instantiate multilateral treaties is not subsequently reflected, and thereby unsettled, by readings of aesthetic or literary artifacts. This can create an impression of legal and bureaucratic inertia that is hard to square with, and may prove a drag on, Heise's ebullient vision of a "multispecies ethics and politics" (86) that would take cultural inputs as seriously as scientific guidelines.

The remainder of the book sets out that vision by assessing conservationist positions alongside related discourses (animal ethics, environmental justice, the Anthropocene) for moments of tension and overlap. Chapter 4 tackles the checkered history of environmentalist and animal welfare movements, showing how the two have worked together on occasion but have more often differed in their view of entities at risk (species and ecosystems or individual creatures), their institutional setting ("the wild" or laboratories, zoos, and slaughterhouses), and their interpretation of domestication (as existential threat or insufficiently humane project). From the vantage of threats to species and ecosystems, the chapter's critique of some Anglo-American rights-based, deontological, and legal accounts of animal welfare is on point, although inquiry in these areas remains vital and ongoing, a fact obscured by Heise's shift to (and apparent preference for) posthumanist animal studies. Her frequent yet thin appeals to questions of "value" and "the claims of nonhuman species on our moral consideration" (165) would arguably benefit as much from thinkers like Peter Singer, Martha Nussbaum, and Cass Sunstein as from favored theorists like Donna Haraway, Jacques Derrida, and Cary Wolfe. Cultural nuance is ultimately Heise's target, however, and the aim of "understand[ing] conservation and animal welfare advocacy as different perspectives on how modernization alters nature" (158) is well served by a reading of T. C. Boyle's novel *When the Killing's Done*, which pits a National Park Service employee against the founder of an animal protection society. (Other works with similar themes could be well served by Heise's cross-discourse analysis: Jonathan Franzen's *Freedom* comes to mind.)

Chapter 5 has a related task but a more varied palette in suggesting productive connections between conservationist and environmental justice discourses. Heise explores *Tú, la oscuridad*, a novel set in Haiti by the Cuban–Puerto Rican novelist Mayra Montero; the graphic novel *Virunga*, created by Stanford University undergraduates; and Amitav Ghosh's novel *The Hungry Tide*. These texts enmesh narratives about endangered species and the (often Euro-American) humans who care for them within broader scenarios of interethnic conflict, forced migration, sexual violence, and economic injustice. Heise thus tilts from familiar "environmentalism of the poor" topics like pollution to focus on how ecosystems are caught in webs of culture: "Biodiversity [. . .] is always a matter of socioeconomic context and cultural value first and foremost and a scientific issue second" (165). Extinction returns powerfully to the frame, with frogs, gorillas, dolphins, and tigers appearing as flash points for scientific and social combat, but also as vectors of symbiosis and community. Leaning on recent articulations of "multispecies ethnography" in anthropology, Heise offers a vision of "*multispecies justice*" where "the claims of both human and nonhuman well-being on conservationists' consideration [. . .] need to consider not just biological but cultural species" (167).

Finally, Chapter 6 amplifies "multispecies justice" as a response to the discourse of the Anthropocene, the widely debated moniker for humanity's influence at geological scale. Heise first articulates a prevailing ecocritical inclination toward speculative fiction and its "capacity to cast the present as a future that has already arrived" (203), citing Kim Stanley Robinson's *Mars* trilogy and recent "environmental nonfiction" (215) among many examples in this vein. She goes further, though, cannily declaring the Anthropocene itself as a "trope of speculative fiction," "the idea of a planet terraformed by humans" (217). Assessing Dipesh Chakrabarty's well-known account of the Anthropocene as a challenge to humanistic inquiry, Heise critiques his "negative universalism" (222) and offers a welcome corrective to the suspicion that the species concept, in Chakrabarty's rendering, is insusceptible of particularity: "what being a 'species' means, from a biological and ecological as well as a social perspective, is to be situated in a network of lived, existential relations with other species and with the inanimate environment" (225). Reprising her earlier work on "eco-cosmopolitanism," Heise concludes by widening the notion of "multispecies justice" to tackle the conceptual and scalar challenges of the Anthropocene. She deploys her theory in reading the novels of Orson Scott Card's *Ender* saga, which evidence how science fiction, like posthumanist theory, "relativizes human exceptionality" (227), while presenting a range of ethical scenarios for human and nonhuman species that echo new conservationist visions of "rewilding" and "de-extinction" (203). Although the chapter can hardly resolve some of the more riddling debates about the Anthropocene concept, it does neatly frame such discussions in species terms.

Imagining Extinction is an eloquent text, remarkable in its cultural and geographic range, spirited in its polemics, and evincing Heise's peculiar gift for making objects and texts across the spectrum dazzle with equivalent interest. The book provides compelling templates for reading extinction narratives afresh across literature, cultural studies, and art history. Heise's incursions into conservation science, biodiversity law, environmental ethics, and animal studies set a high standard for a diversified conceptual architecture. In the smallest of details, such as her careful notation of species by vernacular names and Latin binomials—Irrawaddy dolphin, *Orcaella brevirostris* (187)—she underlines how scientific enterprises are entangled with cultural frameworks. If there are moments where the synthetic powers of the text falter and undercut its more hortatory vision, as I have suggested, they are perhaps best seen as indicators of the variety of problems it tackles. "Decisions about biodiversity," Heise writes, "are in the end questions about value, about cultural frameworks of thought, and about historical traditions of social practice" (233). Notoriously hard to quantify or value in economic terms, biodiversity here receives an affirming cultural defense that will hopefully prove influential in environmental scholarship and activism to come.

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