2. Extinctions and Endings: Celia the Ibex and Lonesome George the Tortoise

Seven minutes.

For seven minutes, on July 30, 2003, scientists bought an extinct taxon back to life for the first time in human history. Using cells that had been collected and cryogenically preserved from Celia, the last Pyrenean ibex, an international team of scientists based in Aragón, Spain, managed to clone her, roughly two hundred kilometers from the where her species had existed for tens of thousands of years. (The method was similar to how scientists cloned Dolly the sheep several years earlier.)

For seven minutes, this ibex—this living, triumphant feat of biological techno-wizardry—seemed to prove that extinction wasn’t completely, totally, and irrevocably forever. That it might, just might, be possible to countermand the centuries of poor decisions we humans have made that put species in peril. If we could clone endangered or extinct species in a laboratory, the idea went, it might be possible to bring those species back to life. And if we could do this with an ibex from the Pyrenees, what about other endangered or extinct species? A northern white rhino? A wooly mammoth, even? *Jurassic Park* was only a beginning.

For seven minutes, after experiments that used hundreds of reconstructed embryos and dozens of failed embryo transfers,
scientists produced a living, breathing Pyrenean ibex. For seven minutes its heart beat, its blood pumped, its synapses fired. For seven minutes, science fiction was reality. And then, in the same amount time that it takes to cook a pot of pasta, *Capra pyrenaica pyrenaica* went extinct for a second time when that clone died.

To date, de-extinction has not been repeated.

The Pyrenean ibex—*Capra pyrenaica pyrenaica*—was, technically, one of four subspecies of Iberian ibex, two of which are still alive today. (Another subspecies, the Portuguese ibex, went extinct in the late 1800s from overhunting.) Tracing the evolutionary history of Iberian ibex is a bit tricky, but fossils from the Upper Pleistocene suggest that an ancestor to the Pyrenean ibex moved into the Iberian Peninsula at the beginning of Europe’s last glacial period somewhere between 120,000 and 80,000 years ago, eventually reaching southern France and the Pyrenees where it evolved into *C. pyrenaica pyrenaica* around 18,000 years ago.1 Ibex even appear in a plethora of Upper Pleistocene cave paintings from sites in Spain and Portugal, mixed into art panels with other animals like aurochs (a European wild ox that went extinct in the 1600s), bison, mammoths, deer, and horses. Although archaeologists debate the artistic, epistemic, and social meanings of the painted ibex, the animal was inexorably part of the area’s ecology and landscape. Pleistocene artists recognized that.2

The Pyrenean ibex were well adapted to extreme cold and snow of winter in the Pyrenees; ibex had short, brown fur and males had dark brown-black fur from their shoulders to their hooves. The ibex preferred a rocky scrubland habitat, making the cliffs and mountain outcrops of places like the Pyrenean massif an ideal habitat. (Aragón’s Ordesa Valley, carved out by glaciers 65,000 years

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2. Bicho et al., “The Upper Paleolithic Rock Art of Iberia.”
Extinctions and Endings

Both ibex sexes had horns, and the horns of the male ibex were long, curved, and, particularly in the nineteenth century, were prized as hunting trophies by hunters across Europe.

Humans have been hunting ibex in the Pyrenees for millennia—the problem for the ibex and its subspecies was overhunting. The earliest published account of the ibex was Gaston Phébus’s *Livre de la Chasse* (“Hunting Book”) published between 1387 and 1389, dedicated to Philip II, Duke of Burgundy. “The ibex challenges the hunter from the heights of his rocky perch,” Phébus writes, emphasizing the inhospitable terrain and elusive nature of the animal. “Following him is impossible: in a few dizzy leaps, from traverse to traverse, he disappears out of range of arrow or stone.”

The ibex had—has—many names. In Aragonese and Spanish, it’s a *bucardo*; a *herc* in Catalan; a *bouquetin* in French. In the centuries that followed the publication of *Livre de las Chasse*, the ibex—thanks to its iconic horns and elusive presence—became an internationally sought-after trophy, particularly among nobility who owned large expanses of land or summer homes in the area. (Some historians estimate that the bucardo became extinct in Basque country and Catalonia as early as the mid- to late eighteenth century. By the nineteenth century, hunting bucardos become linked to international, European bourgeois trophy hunting, spurred on in popularity by the reputation of the elusive animal.

This is where the bucardo becomes a different sort of overhunting story. Unlike the thylacines in Tasmania—animals that were feared and actively hunted with the intent to exterminate them—bucardos were hunted with a different intent. The more the bucardo was...
hunted, the more elusive it became, and the more hunters sought the animal as a test of hunting prowess. It was like the bucardo became an elusive ghost in the Pyrenees—its presence known, felt, and sought after, but its individuals rarely encountered. (Geographer Adam Searle points out that this an example of what the French philosopher Jacques Derrida called “hantologie”—the persistence of elements from the past.⁶) By 1900, there were fewer that one hundred Pyrenean ibex left.⁷

Hunting the bucardo was officially prohibited in the 1913, and in 1918 Parque Nacional de Ordesa y Monte was founded to protect its habitat. The goal was to stabilize and grow the bucardo population and bring the species back from the brink of extinction. Conservation efforts were halted by both the Spanish Civil War (1936–1939) as well as the decades of the Francoist dictatorship that followed. By the time ecologists completed their first extensive survey of the bucardo population in the national park in 1995, there were only three female bucardos in the Ordesa valley.

To facilitate a larger ibex gene pool—which in turn could help create a robust ibex herd—conservationists opted to try to hybridize the bucardo with other Pyrenean ibex to expand the bucardos’ genetic diversity. In January 1996, ecologists managed to cage-trap one of the remaining bucardo females; she was kept in captivity with Iberian ibex males to attempt to crossbreed, but she died of illnesses associated with captivity and inbreeding after ten months without having reproduced.

Eventually, in December 1996—after a tiresome political struggle to obtain governmental permissions—two fertile Iberian ibex males of the different subspecies were released by helicopter with radiotracking collars in the hopes that they would mate with the last bucardo. But the population of bucardo—or what would have been bucardo hybrids—did not increase. (Incidentally, the two introduced

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7. Church and Regis, Regenesis.
males died. However, one of the males, nicknamed Correcaminos—“road runner”—lived in the park for thirteen years, thus suggesting that the bucardos’ ecological niche might be successfully filled by a different ibex subspecies, although opinions about the idea of such ecological “success” differed.) By 1999, there was only one Pyrenean ibex left—Celia.

Celia was successfully trapped on April 20, 1999, tranquilized, and a clipping from one of her ears was taken; genetic material offers an archive of information to scientists for sequencing an organism’s genome, studying genetic diversity of a species, and, potentially, seeing how those elements change over time. Celia’s genetic material was cryogenically preserved with a sense of particular urgency, as obtaining her cells while she was alive offered the best possibility—the best last resort—that she could be cloned after she was dead.

It wasn’t long after Celia had been designated as the Pyrenean ibex endling that she died. On January 6, 2000, she was crushed by a falling fir tree. Park rangers recovered her body, a necroscopy of the body was completed. Her genetic material was already stored in a laboratory in Zaragoza, Aragón; her remains were subsequently reassembled by taxidermists. With the extinction of the bucardo, cloning became the last possibility for having a living bucardo on earth.

Celia’s cloning was a complicated process. Embryos were transferred to either a pure Spanish ibex subspecies or a hybrid of a Spanish ibex male and a domestic goat; some pregnancies terminated spontaneously. For all the efforts, the only “success” lasted seven minutes. “One bucardo female weighing 2.6k was obtained alive, without external morphological abnormalities,” the team reports in its scientific paper published six years later. “Although the newborn displayed a normal cardiac rhythm as well as other vital signs at delivery (i.e., open eyes, mouth opening, legs and tongue movements), it suffered from severe respiratory distress after de-

livery and died some minutes later.”9 A subsequent necropsy revealed a lung pathology.

In their publication, the authors describe the potential efficacy of hybrid foster mothers for gestating embryos of cloned animals but acknowledge that cloning endangered or extinct species is perhaps best understood as a last, desperate attempt to keep living individuals of these species. More than twenty years after her death, Celia’s material remains are geographically dispersed—pieces of her skin, bones, and genetic material are scattered and now act as points to triangulate the story of Celia, the endling.

“It was Wednesday, July 30, 2003, a turning point in the history of biology. For on that date, all at once, extinction was no longer forever,” synthetic biologist George Church and science writer Ed Regis triumphantly declared to their readers in *Regenesis: How Synthetic Biology Will Reinvent Nature and Ourselves.*10 (Synthetic biology combines physical and genetic engineering with evolutionary biology—among other disciplines—to actively design or redesign organisms with new, “useful,” human-centric purposes.) For many techno- acolytes, Church among them, Celia’s cloning was a “success”—the experiments showed that de-extinction was, technically, possible. (Saving frozen tissue samples—in places like San Diego Zoo Wildlife Alliance’s “Frozen Zoo” or The Frozen Ark in the United Kingdom—are ways to archive these animals.) What’s technically possible, however, has not translated into herds of ibex in the Pyrenees; the species is just as extinct as it was prior to the world’s only de-extinction event.

“What might it mean, then, for ibex to return?” geographer Adam Searle ponders. “These animals are not bucardo—rather, they are ecological and cultural proxies. The ways in which they are understood to belong in the Pyrenees is not straightforward, but shaped by myriad issues linked to tourism, hunting, and na-

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tionalism, among others.” In other words, even if another ibex is cloned in another lab, it will never be a bucardo—that moment is gone, as well as the species.

Today, conservation efforts for the other two subspecies have created cautious optimism about ibex populations rebounding. In a different sort of de-extinction story, populations of ibex—primarily western Spanish ibex—have been introduced into the French Pyrenees; fall 2020, for example, saw numerous ibex kids born in France where the ibex had previously been found but hunted to local extinction. This ibex is a twenty-first-century animal, filling the niche of the extinct Pyrenean ibex—a ghost-like, elusive species that became real. The population now stands at roughly four hundred individuals.

Extinction, of course, like all endling stories are. This particular endling story is also about de-extinction and the hope that we hang on finding a technological fix for addressing threatened species. It’s about valiant efforts at conservation, official protections, legislations, habitat sanctuaries—all of which were too little, too late for the species. Although Celia’s death doesn’t have the grim callousness of other endlings’ deaths—she wasn’t left out in the cold to die, for example—her death marks an ending in the *Capra pyrenaica pyrenaica* species narrative.

The story of Celia the endling has become synonymous with twenty-first century de-extinction efforts. And de-extinction is about heroic, grandiose—some might say futile?—attempts to roll back decades—centuries, really—of decisions in the name of “doing everything” in an attempt to reverse extinction.

But that endling telling is just one matryoshka layer of Celia’s biography. In April 2018, Adam Searle arrived in the village of Torla in Aragón to explore and piece together the story of Celia as part of his graduate research into de-extinction and political ecology. Searle wanted to study an endling, like Celia—and to record what stories people tell about her and her fellow bucardos.

“I was in a bar in Huesca, and I asked Pablo, an environmental activist from Ecologistas en Acción (Environmentalists in Action) to explain his feelings toward the bucardo and its clone,” Searle describes. “We spoke about it for a while. So how did you feel when Celia died, I asked him, which I thought nothing of. ‘Celia? Well, I don’t know, that’s not her name to anyone from here . . . it’s a name from outside, from the scientists who tried to clone her . . . her name is Laña, which comes from the local language of Aragonese, a name for a forest clearing in the Pyrenees.’”

Searle described to me how this exchange was a lightbulb moment for him and his research. In the last two decades of media surrounding the death of the ibex, the discussion has been about Celia the ibex, not Laña the bucardo. Why? In his interview with Searle, Pablo joked that it was because the letter ñ doesn’t exist in English, so perhaps the scientists at the lab in Zaragoza wanted to use a name that would be accessible, particularly across the English-speaking scientific press. “I think of this as ‘A Tale of Two Bucardo,’” Searle explained to me as we chatted about his research and endlings. “Both Celia and Laña connect with how we think about extinction and loss. There are many, many ways to talk about this animal and its afterlives.”

“Celia” and her narrative have become a product of the chapter in the ungulate’s life where she was an endling, a clone, and then the world’s only double extinction. In this story, Celia is unlucky, tragic, lost, alone, la última of her kind. (An endling of this trope is

very strong in David Quammen’s *The Song of the Dodo*, where he asks his readers to imagine the last, lonely, little old lady dodo bird at the end of her species.) In this sort of telling, an endling like Celia draws heavily in popular imagination and presentation to what environmental scholar Ursula Heise calls a “gender fiction” involving “elegiac tropes of the bereaved mother and wife, as well as that of the elderly lady with health problems.” It’s much more tragic, it invokes so much more pathos, for the story of an endling to be told as a sad old lady ibex who died, alone, without family to mourn her.

“Laña,” on the other hand, was the name and persona that people in Torla had ascribed to the bucardo in her life and memorialized after her death. The bucardo museum was founded in April 2013, amidst a whirlwind of discussion about possibly trying to clone Celia—that is, Laña—again. The museum, which successfully fought to curate Laña’s taxidermied remains, was emphatic in its commitment to the last bucardo being remembered in situ. That she should be “home” and visible to the community. “Being here, in Torla, meant that the bucardo could find new meanings outside the realm of technoscience,” Searle notes. “Laña lives on.”

Animal stories occupy a vital literary and cultural niche. The twentieth-century anthropologist Claude Lévi-Strauss commented that animals were “bons à penser”—“good to think.” (Sometimes translated as “good to think with”—a translation that sounds less messy in English.) We tell animal stories to tell ourselves about the natural world, of course. We also tell animal stories to talk about our human selves with the comfortable narrative distance that anthropocentrism offers.

Humankind has a long tradition of telling stories about animals. Step back in time to the cave walls of Pleistocene-era humans.

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around the world, and we find a plethora of animals painted and inscribed—visual animal stories as recorded and encountered by us today spanning tens of thousands of years. From fables to folk stories to fairy tales, humans tell stories about animals in a flurry of forms and have for millennia.

Why?

“Folk tales talk about human struggles and troubles. They carry universal truths of the human condition,” anthropologist Gessica Sakamoto Martini explained to me. Sakamoto Martini’s own work examines how the Cinderella story has changed, morphed, and transformed over time. “If someone feels powerless, then there is a fairy tale about that girl, or boy, embarking on a journey to reclaim personal power and agency. There is something deep about the stories, perhaps that’s why they were able to survive for so long.”

As a profoundly anthropocentric species, animal stories are a way for us to tell stories about humans while deemphasizing the human narrator. “As a rule, animal tales have little in common with the real lives and ways of animals,” famed folklore and literary scholar Vladimir Propp notes. “Animals are usually no more than conditional bearers of the action.” In other words, in the Western tradition of animal storytelling, giving animals certain characteristics, actions, and purposes often just makes them thinly veiled symbols of our own human foibles, vices, and limitations. (Some folklore scholars suggest that animal stories have helped transmit knowledge about animals that could potentially cause harm to humans and domesticated animals; in such instances, folktales would be important means of transmitting what might formally be called “folk-zoological knowledge.”) It’s into this familiar literary niche of animal stories that we’ve thrust many endlings.

“In Aristotelian poetics, the notion of character is secondary, entirely subordinated to the notion of plot,” literary theorist Roland Barthes argues. “There can be fables without characters, according to Aristotle, but there cannot be characters without fables.”

This question—the relationship between fable and characters—is at the very heart of endlings’ stories. Does the sixth mass extinction simply form such a powerful plot that it hardly matters which characters tell it? Or do endlings as characters exist, at the ready, able to slot into whatever sort of extinction narrative that we want? Either way, those familiar elements of narrative theory—those building blocks of stories described by Propp, Lévi-Strauss, and others—are inescapably at play.

Within various genres, there are a plethora of rhetorical and literary devices at work in ending stories. Devices like irony (“the expression of one’s meaning by using language that normally signifies the opposite”) and poetic justice (“the fact of experiencing a fitting or deserved retribution for one’s actions”), for example, can add layers of depth and meaning to increase an audience’s emotional response. Such devices, along with their literary cousins of metaphors and analogies, are ways for ending stories to resonate with their contemporary audiences, conveying a narrator’s meaning with the ultimate goal of persuading the audience toward the intended pathos of the stories. They are particularly effective at provoking an emotional response, and what are ending stories if not stories that we have steeped in emotion?

Ultimately, animal stories are about mediating the relationship between humans and nature, with nonhuman characters as the guide. Philosopher Kim TallBear points out that when Western

scholars “discover” alternative way of describing relationships with nonhumans, they ought to be aware that “indigenous peoples have never forgotten that nonhumans are agential beings engaged in social relations that profoundly shape human lives.”

Aesop’s fables might be the best-known example of Western animal stories that are supposed to teach readers a lesson. Like many sorts of stories, Aesop’s fables have changed over the centuries, evolving in their telling and purpose, growing in their connections to audiences. For example, in their original tellings, the animals in Aesop’s fables were used to justify the killing or exploiting of other, weaker animals. A hawk that seizes a nightingale, for example, or a wolf that captures a sheep. Interestingly, there are examples of contemporary science finding consistencies with animal behavior described in the fables; for instance, the is ample evidence that many corvid species, like crows, are capable tool-users and would have been able to raise the water level in a pitcher by adding pebbles to it, as Aesop describes. “We now know that modern science supports the behaviour of Aesop’s crow,” zoologist Jo Wimpenny points out in *Aesop’s Animals*, “and while we don’t know if Aesop had ever witnessed such behaviour in person, it is probable that his existing knowledge about these birds influenced his choice of animal in this fable.”

Today, Aesop’s fables are generally regarded as children’s stories, with easily identifiable and accessible morals, like “slow and steady wins the race” or “once bitten, twice shy.” Anthropologist John Hartigan Jr. points out that the fable—as a literary genre—is used to “preform the most basic of cultural concerns: the transmissibility of experience, observation, and thought.” But animal fables have always been told under the narrative auspice that we humans could

learn something about ourselves, our place in nature, and the nature of humankind through the fables’ telling. We use the animals to teach us to be better humans; not to be better nonhumans.

“[Aesop’s] fables are an argument that other species are worthy of attention for more than their functional uses, because we may be able or need to learn something from them,” Hartigan argues. “This mode of thought . . . is never very far from the allegorical. For naturalism, this may be abhorrent, but for cultural anthropologists, this is rather a reminder of what we’ve long known about any forms of social analysis: they cannot be rendered without the inflections of myth and meaning, specifically for us, as humans.”

It’s hard to look at a story like Benjamin’s, Qi Qi’s, or Lonesome George’s, though, and not wonder if Aesop wrote fables here in the Anthropocene, what would he make of endling animal stories? Do we tell them to learn a lesson? To remember the last of a species? To shape how we’ll talk about the future’s inevitable endlings? Or something more?

The story of Celia—Laña—and all endlings hinges on extinction. Species gave us a narrative arc for endlings; extinction gives us their end. So what is extinction, exactly?

In contemporary biology, ecology, and paleontology, scientists use “extinction” to talk about the death of a population of breeding organisms. Today, extinction is a basic tenet of contemporary scientific thinking—species evolve, they live, and eventually they will, probably, go extinct. An estimated 99.9 percent of all species that have ever existed are extinct. Extinct species number in the billions.

Although the fossil record shows that extinction is part of life on earth in deep time, current extinction rates are much higher than their precursors in the fossil records, due to environmental degradation, habitat endangerment, black market smuggling, and countless human decisions that put millions and millions of species in a jeopardy that they would not have been in otherwise.

In Western science, the concept of extinction was formalized by the early nineteenth-century French naturalist Georges Cuvier. Working with fossils at the Muséum National d’Histoire Naturelle in Paris (National Museum of Natural History), Cuvier published formal, anatomical descriptions of a mammoths, mastodons, and giant ground sloths, proposing that giant fossil bones belonged to species of quadrupeds that were no longer alive on earth. These bones “seem to me,” Cuvier said, “to prove the existence of a world previous to ours, destroyed by some kind of catastrophe.” These bones, Cuvier argued, belonged to animals that were éteint, disparu, or mort. Organisms that were no longer here on earth—l’extinction. Extinct.

It’s worth noting that, initially, “extinction” was a far from universally accepted idea. The third American president and naturalist Thomas Jefferson (1743–1826), for example, famously believed that it was impossible for a species to go extinct. “In the present interior of our continent there is surely space and range enough for elephants and lions, if in that climate they could subsist; and for the mammoth and megalonyxes who may subsist there,” Jefferson wrote in a report to the American Philosophical Society on February 10, 1797. “Our entire ignorance of the immense country to the West and North-West, and of its contents, does not authorise us so say what is does not contain.” Jefferson was convinced that mammoths—mastodons, technically—were out there in the to-be-discovered American wilderness and specifically instructed the famous explorers Meriwether Lewis and William Clark to see if they couldn’t find one during their 1803–1806 expedition of the then–Louisiana Purchase and Pacific Northwest. Needless to say, Lewis and Clark returned sans proboscidean.

29. Kolbert, “The Lost World.”
Extinction is a word that we use easily today, but the word itself predates its current scientific convention. In the early seventeenth century, long before Cuvier’s work with fossils, “extinction” applied to living organisms—beings—like human families or animal species. Rather poetically, linguist Kate Wiles explained to me, this Middle English use of “extinction” was derived from the Latin verb *extinguere*, meaning “to quench, extinguish, kill” and was typically used to describe flames, like candles, going out. For centuries, writers, artists, and philosophers borrowed heavily from this idea to intertwine the metaphor of flame and life. (“Out, out brief candle . . .” and the like.)³²

*Extinguish* was also used to mean “to put a total end to, do away with, blot out of existence,” which offers a fairly direct root for the modern sense of how we use *extinct*. (In 1603, for example, English writer Henry Crosse observed, “Two contraries, cannot joyntly hold possession, but one will ytterly extinct the other.”) Likewise, in 1615, the English poet and translator George Sandys wrote “This late mightie Empire [of the Turks] extinguish in Ægypt by the Mamalucks,” in his essay “A Relation of a Journey.”³³ It’s from the verb *to extinct* that the adjective *extinct* was derived. From the late fifteenth century, *extinct*-as-an-adjective was used in all the same ways as the verb—to put out a flame; to have lost passion, life, or hope; of a volcano that has ceased eruption; and, of course, people who were cut off and blotted out of existence. The Caxton printing of the “Golden Legende” (Lives of Saints) of 1483, for example, states that “All [the people] were . . . deed and extinct.”³⁴ The use of “extinct” or “extinction” shifted to include more than just a single individual and expanded to notions of race and familial lines—such that “race” was understood and used in the late seventeenth century. Daniel Defoe, in the *Life of Robinson*

³³. OED, s.v., “extinction.”
³⁴. Wiles interview.
**Crusoe** (1719), for example, writes: “My Father was dead, and my Mother, and all the Family extinct.”^{35}

And it’s this narrative pathos of a lineage being snuffed out that—directly or indirectly—offered a draw for the natural history community, decades later, to describe how entire species of animals could no longer be alive on earth. The idea that extinction is infused with narrative and metaphor is a powerful driver of biodiversity and wildlife conservation movements. We care about species going extinct—as evidenced by a plethora of books, documentaries, fundraising for awareness—because we have a tragic story. Extinction creates emotional stakes for us humans to care about nonhuman species.

“The noun *extinction* was, from the mid-sixteenth century, also used to talk about the quenching of fire or light,” medieval linguist Kate Wiles explained to me. “*Extinction* was also adopted by scientific communities, used in physics to talk about radiation, beams of light, x-rays, and, of course, fossil species, which might be why we associate the concept less with candles and hope now.”^{36}

Fast-forward two hundred years since Cuvier, and the question isn’t so much: “Do species go extinct?” (Short answer: “yes.”) The more pertinent question is: “How and when do species become extinct?” (Short answer: “It depends.”) For endlings, the question is, “Is extinction the end point of endling stories or could it be a narrative frame for endling characters?”

Narratively, extinction is a point of termination. Endlings offer a set of stories—poignant, wrenching stories—for us humans to tell ourselves and each other about the extinctions we’ve caused. An endling provides a character that offers a moral or lesson about why things like habitat loss, environmental degradation, hybridization, and climate change are so weighty.

Endlings—as characters, as organisms, as beings—also pull from

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^{35} OED, s.v., “extinction.”
^{36} Wiles interview.
a plethora of other types of stories, like myths, folk stories, and fairy tales, that we humans have told for centuries about how to process loss, hubris, guilt, and ruin. In Old Norse mythology, for example, ecological catastrophe plays a big part in stories like Ragnarok, when the apocalypse will be preceded by a terrible three-year winter, submersion of the earth in floods, and the destruction of everything.\cite{Extinctions and Endings} (After Ragnarok, the story goes, all will eventually be reborn.) Although Ragnarok isn’t about individual species becoming extinct, it does frame a kind of universal mass extinction event—perhaps not unlike how we’ve framed species loss and climate change here in the twenty-first-century Anthropocene.

Consciously or unconsciously, how we tell stories about endlings draws from literature where we think about being alone or the last. The most compelling literary parallel for endlings, however, draws from a tradition in Old English where poets would often reflect on ruined or empty places and imagine the people who once inhabited them.\cite{Extinctions and Endings} (As endling is an English, Western-based word and concept, it follows that it would draw so specifically from a Western literary canon.) Most of the poets, philosophers, and writers who were engaged with the theme of extinction—“life extinguished”—were doing so through Christian philosophical and religious contexts about the end of the world.

In the Old English poem \textit{Beowulf}, we see the emergence of a proto-endling-like character when the “last survivor” ruminates about what it means to be . . . well, the last. The last warrior, the last fighter, the last one of his kind. The audience knows this person only as someone who has treasure, wealth, and power, but no one is around for him to share it with. What is it, the survivor ponders, to be the end of his lineage, his culture, his people? In Maria Dahvana Headley’s recent (2020) translation of \textit{Beowulf}, the poem offers a particular relevance to the endlings of today as she opted to describe the death of the last survivor as an extinction.

\cite{Extinctions and Endings} Eleanor Parker, email interview with author, March 31, 2021.
Now there are no heroes, no soothing music,

...  

*We existed; now we’re extinct.*

And so the last survivor mourned, making his way

...  

wandering the world woefully, until death came...

Perhaps the most striking part of this is a narrative distance between himself and the audience, who “overhears” his lament. The last survivor is an endling, in the same way we have come to create other, nonhuman endlings—distanced characters that we, as audience members, understand because we’re living with characters like him in endling after endling after endling.

“In the context of *Beowulf*, which is so much about the rise and fall of kings and heroes, it’s a reminder of the limitations of human power and wealth,” medieval scholar Eleanor Parker explained to me over email. “The ‘last survivor’ there is left with all the treasures of his people, but they’ve become worthless once there’s no one to use or exchange them, so all he can do is bury them. It’s a ‘dust to dust’ kind of idea.” It’s not too much of a stretch to see how endlings stories become stories of last survivors.

Stories that are framed as a “Last Survivor” often deal with tribal groups or kingdoms that have become “extinct,” (“extinguished”) and poets are often focused on using the material remains they’ve left behind (either ruined buildings, or objects like the treasure hoard in the *Beowulf*, for example) to prompt reflections on mortality, the transience of life and what it would mean for the human candle to go out. Medieval archaeologist David Petts is quick, however, to point out that while medieval poets might have framed their literature in this way, it isn’t how contemporary researchers think

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39. Reynolds, “*Beowulf’s Poetics of Absorption.*”
40. Parker interview.
about loss and continuity in the past. “In archaeology, we don’t talk about the ‘death’ of a culture or a civilization particularly. It rather smacks of outdated models of early societies which saw them composed of distinct, bounded entities like peoples and tribes that might be seen as ‘dying,’” Petts explained to me. “Instead, today, the focus is much more on notions of transformation and continuity.”

Perhaps looking for continuity and transformation could be new ways to evolve in endling storytelling.

Headley’s use of the word *extinct* in her translation is striking—in no small part, because other no major translation of Beowulf uses that specific word in that specific, famous section. “Extinct” is wonderfully jarring to the reader. It feels so contemporary compared with the medieval world of the poem and so timely for her contemporary Anthropocene readers. Endlings and extinctions are fundamentally part of our world, today, but we’ve been telling stories about endlings for hundreds and hundreds of years as *Beowulf* attests.

It’s hard to imagine an endling that is more famous than the twenty-first-century Pinta Island Galápagos tortoise Lonesome George. When George was found on the small island in the northern part of the Galápagos archipelago in 1971, *Chelonoidis abingdonii*—George’s species—was thought to be long extinct from centuries of overhunting by buccaneers, whalers, and Galápagos settlers. (Prior to George, the last sighting of a Pinta Island tortoise had been by scientists in 1906.) In 1959, the Ecuadorian government created the Galápagos National Park to protect tortoise habitats; conservation efforts today form a backbone of eco-tourism that draws hundreds of thousands of tourists to the islands to see their animals.

41. David Petts, email interview with author, April 13, 2021.
42. Nicholls, *Lonesome George*.
Lonesome George was more than one hundred years old when he died on June 24, 2012, at the park. “He was a favorite with tourists—famous not because he was the largest tortoise, nor the oldest of the animals who can live 150 to 200 years,” geographer Elizabeth Hennessy points out in her history of the Galápagos tortoises. “George was famous because he was the last of his species.”

When Lonesome George died, the media emphasized how the tortoise was a cautionary tale, a reminder of how fragile species and ecosystems are, how much blame humans shoulder for causing extinctions. (Very Aesop-like.) “Mourning him was about mourning the history of human-caused extinction,” Hennessy points out. “His story puts into stark relief the ways dominant human conceptions of nature have changed over the past centuries from God-given resources for human consumption to beings with whom we share an earth-bound history of evolution.”

Tissue and blood samples were collected from George after his death; they have been frozen and stored in Ecuador, for future conservation possibilities or tortoise breeding strategies. (Policymakers considered these pieces of Lonesome George cultural patrimony of Ecuador and declined to send the specimens to the cryogenic “Frozen Zoo” in San Diego, where samples from many endangered animals are kept.) Today, a taxidermied Lonesome George has returned to the Galápagos after five years—time that included an exhibition at the American Museum of Natural History in New York City—and now has been installed as part of an exhibit at the park’s museum in the Galápagos, what some have wryly termed a “mau-

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44. Hennessy, On the Backs of Tortoises, 6
45. Hennessy, 7, 15
soleum.”46 Solitario Jorge was a last survivor come home, standing sentinel, to tell his stories to people who will listen.

Millennia of literature and storytelling have shaped how we understand organisms like endlings. We understand (more or less) what it is for a species to be extinct. We understand (more or less) that endlings have a unique biological, historical, and cultural niche. We ought to consider—to acknowledge—how we continually give endlings these human stories.

We tell them through tropes that we know, through literary traditions that are familiar, through an anthropocentrism that would seem to affirm us as the storytellers. (How we tell the story of Lonesome George as a twenty-first century “last survivor;” like Beowulf but with a tortoise protagonist.) Such anthropocentrism, however, does not allow animals their own agency and forces every nonhuman into our an “idea that nonhuman animals also have a stake in challenging our anthropocentrism,” philosopher Fiona Proby Rapsey argues. “Unless nonhuman voices on the matter of anthropocentrism are considered, our insights remain one sided and, well, anthropocentric.”47

The question goes even deeper than just anthropocentrism. It forces us humans to reconsider our premise of our species’ exceptionalism and the storytelling privilege that comes with it. Behaviors that we once thought were uniquely human are not as exclusive as we might have thought in the past. “We now have solid evidence of culture, morality, rationality, and even rudimentary forms of linguistic communication. The concept of death should also be counted among those characteristics to which we can no longer resort to convince us of how very special we are,” philosopher Susana Monsó argues in Aeon, summarizing her research on how animals experience and understand death. “It is time to rethink human exceptionalism, and the disrespect for the natural world that comes with it.”48

46. Jørgensen, Recovering Lost Species in the Modern Age, xvi.
47. Proby Rapsey, “Anthropocentrism,” 48, 51
48. Monsó, “Animals Wrestle with the Concept of Death and Mortality.”
If we listen to Qi Qi, Celia, Benjamin, Lonesome George, and other endlings, one wonders what their soliloquy—their “Lay of the Last Survivor”—might be. Would they describe being the lone surviving individual? Would they mourn their last-ness? Their extinction? Or would they tell us a new, different sort of endling story that we haven’t even considered?