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Cinema, Nature, and Endangerment

Jennifer Lynn Peterson

Instead of taxidermy we have film.

—Gillian Beer, “Darwin and the Uses of Extinction”

Although analog film has become a rarity today, projected on fewer than 5 percent of global cinema screens, moving image media are flourishing like never before, having found new life in the proliferating forms of digital media.¹ Likewise, seemingly outmoded styles of film, such as silent cinema, are finding new life in the digital age.² New forms of media perpetually replace older forms, or so the argument goes; the older forms do not really die but persist in new and formerly unimagined ways. According to this line of thinking, the much-heralded death of cinema is not really a death but part of a regular technological life cycle. There is a cyclical nature to this view of media history that bears some resemblance to the idea of natural history. However, the concept of natural history has been knocked on its side by the emergence of the concept of the Anthropocene. What does the concept of life cycles have left to teach us about survival in the age of environmental crisis?

If photochemical film has reached the end of its first life cycle, perhaps film history can help us come to understand another, much larger death now under way: that of natural ecosystems and the animals and plants they support, commonly referred to as the sixth mass extinction.³ Perhaps film history might even help us understand what we are now facing: the end of livable climate conditions in the twenty-first century and the uneven dispersal of human and nonhuman suffering that entails. It is no wonder that we look away from these horrendous truths as they punctuate

our daily news cycle and, increasingly, our lives. Perhaps, in serving as evidence of endangered habitats and species, archival images of nature's past might bear potential to spark new ecological awareness.

This chapter explores some of the ways in which archival films can help us come to terms with the ecological emergency that is being revealed to us more fully each day. I use examples from film history to show how cinema's role as a machine for envisioning ecosystems can help us trace the evolving concept of "nature" across the long twentieth century. Specifically, I take as a case study a set of educational nature films from the 1920s and 1930s held by the University of Southern California's (USC) Hugh M. Hefner Moving Image Archive (HMIA). My goal is to model an ecologically inspired nonlinear historicism that uses the life cycle of cinema to help us think through ecological collapse.

Archival nature films, preserved and re-presented today, have implications for how we envision the future. As Daniel Rosenberg and Susan Harding have observed, "futures today seem to be reproducing themselves faster and more cheaply than ever. At the same time, their shelf lives appear to be getting shorter. . . . More and more, our sense of the future is conditioned by a knowledge of, and even a nostalgia for, futures we have already lost."⁴ This chapter argues that the futurity of old nature footage has two components: first, a nostalgia for a lost Eden in which nature appears unsullied by humanity's influence, and second, a utopian potential for sparking environmental awareness through a process of revitalization and remediation by digital media.⁵ This negative and positive antinomy should not be seen as an inhibiting binary but rather as components of a dialectic that holds promise for a process of overcoming. At stake is the struggle to undo the stubborn idea of the telos of nature, which has been challenged by the emergent concept of the Anthropocene. Moving between historical and contemporary perspectives, my emphasis is on how these films can be relevant to present-day concerns.

Archival nature films activate a powerfully affective mode of endangerment. Nature films made before the onset of the popular environmental movement in the mid-twentieth century do not typically present animals and plant species as endangered, but thanks to the passage of time, these films' original meaning has radically changed. Now that some of these films have been saved and are being rediscovered, they have the potential

to be revitalized and reconfigured for new uses. This reimagining has been enabled by the establishment and expansion of media archives in recent decades, thanks to the efforts of archivists, scholars, filmmakers, collectors, and fans, and has arguably entered a new phase with the confluence of Web 2.0 and accelerating evidence of global warming and other forms of environmental degradation. I will discuss three specific case studies in this chapter, but first I want to frame their potential within the context of endangerment, which is an increasingly important contemporary structure of affect.

In a generative essay, science historians Fernando Vidal and Nélia Dias coin the term *endangerment sensibility* to describe a “particularly acute” way of understanding the world through an attitude attuned to loss, disappearance, and preservation.⁶ Vidal and Dias are interested in endangerment as it applies to a range of entities, not just endangered biological species but also cultural artifacts, places, and languages. Endangerment relies on scientific knowledge: gathering information, making inventories, studying, and ranking. To classify an entity as endangered means to bring about efforts to preserve, archive, and catalog it. Such a classification is a declaration of value, and endangered entities “acquire significant political and moral valence inside and outside science.”⁷ The endangerment sensibility thus describes an affective response to hard data. Vidal and Dias characterize the endangerment sensibility’s central features as “a certain sentimental impulse, empathy extending to animals, landscapes and marginalized humans, as well as attention to one’s own affective experience.”⁸ While awareness of the phenomenon of extinction certainly predates the mid-twentieth century, the current understanding of loss and destruction is new, “fraught with guilty feelings and a sense of responsibility.”⁹ Not just a sensibility but a “regime,” endangerment names both a structure of affect and a set of complexly determined responses. “The endangerment outlook is both proleptic and regretful,” anticipating a future in which something is lost and anticipating a mourning process before the loss happens.¹⁰

The endangerment sensibility is traumatic but also potentially emancipatory; it looks backward and forward at the same time and is thus useful for the larger project of awakening to ecological awareness that is currently needed. Cinema, with its power to freeze time and capture the excess noise

characteristic of the photographic image, is an ideal medium for registering this sense of endangerment. But cinema, by which I mean not only analog film but also the old exhibition context these films formerly inhabited, is now itself a relic. These films come alive today not so much in the cinema but on digital screens. As reconfigured in the era of digital media, archival fragments hold a potential to activate unanticipated responses. As it heralds new forms of visualization by remediating outmoded films, perhaps digital media and even film history itself can help us shift into a new mode of thinking to meet the challenge of living within limited possibilities.

Endangerment: An Anthropocene Sensibility

One great paradox of ecological awareness in this moment is the realization that the future of the world and all who inhabit it has been irrevocably shaped by actions in the past. As Bruno Latour puts it, “it seems as though we have become the people *who could have acted* thirty or forty years ago—and who did nothing, or far too little.”¹¹ Rising CO₂ levels, deforestation, pesticides, and plastic pollution, to name just a few symptoms of the ecological crisis, passed the point of large-scale harm decades ago. The so-called Great Acceleration began in 1945, putting into place exponentially greater rates of resource extraction and waste production than ever before seen.¹² These specific conditions, along with the structural inequities of capitalism and continuing forms of imperialism, have brought about a host of unintended consequences to earth systems that we are now witnessing. We learn about the ecological impact of all this when it seems too late to do anything about it (or rather, after the forces of capitalist accumulation and consumption have produced an outcome in which nothing was done). However, as a chorus of voices point out, such an attitude of game-over despair is a barrier to life as it remains. This chapter, and my larger project of arguing for film history as a tool of awakening and adjustment, is indebted to Donna Haraway’s approach to ecological crisis. She writes, “I am not interested in reconciliation or restoration, but I am deeply committed to the more modest possibilities of partial recuperation and getting on together. Call that staying with the trouble.”¹³

As a sensibility, endangerment is well suited to the Anthropocene epoch. Although its precise moment of emergence would be hard to pin down (a task that lies beyond the scope of the present chapter in any case), the endangerment sensibility arguably infiltrates mass culture more thoroughly with each extreme heat wave, record-setting hurricane, and devastating wildfire. At the time of this writing, the United Nations–sponsored Intergovernmental Panel on Climate Change (IPCC) 2018 report has just been released, and the news is full of the study’s key findings. Headlines have focused on the report’s claim that we have only twelve years to curb carbon emissions, after which time, if nothing is done, the planet will pass 1.5 degrees Celsius of warming, which will trigger a planetary catastrophe.¹⁴ While news of climate change appears with growing frequency, this report takes a notably alarmist tone, and it has garnered more of a popular response than usual; even *Saturday Night Live* riffed on it for two minutes at the top of its news parody “Weekend Update” in its October 13 episode. By the time this chapter is published, more alarming scientific studies will have appeared. Against this backdrop, endangerment becomes a key sensibility for this moment of dawning mass awareness. The endangerment sensibility implies a perspective of scanning across different moments of history, incorporating a sense of what was, what is, and what might be. In this sense of multiple time frames, it shares some of the temporal disjunction of the concept of the Anthropocene itself.

Although the term is increasingly well-known in the humanities disciplines, here is a brief review. The term *Anthropocene* was introduced in 2000 by biologist Eugene Stoermer and Nobel Prize–winning chemist Paul Crutzen, who proposed that the human species’ rapid expansion has transformed the earth’s systems so radically that it has entered a new epoch.¹⁵ There is continuing debate about when the Anthropocene began, but each proposed date is tied to a measurable indexical trace left on the planet, known as a golden spike, such as carbon dioxide, nitrogen, or radionuclides measurable in ice and rock cores. The leading contenders for the onset of the Anthropocene are 1610, when the colonization of the Americas can be traced by a dip in planetary carbon dioxide levels; 1782, when the steam engine was invented by James Watt, resulting in worldwide carbon deposits by new coal-powered industries; or 1945, with the Trinity atomic bomb test, which heralded the onset of the nuclear age

and its subsequent plutonium fallout. According to one working group, sixty-five golden spikes of the geological time scale are currently being considered (others include plastic traces found in ocean and lake floor sediment). Scientific consensus on the Anthropocene's onset will come from the International Commission on Stratigraphy, which has yet to officially adopt the term as it continues to study it.¹⁶

Despite the official hesitation of geological science, many other academic disciplines have taken up the term *Anthropocene*.¹⁷ A consensus has clearly formed around the idea that we have entered a new geological epoch in which human actions have irrevocably altered the course of the planet's life cycle. The arts and humanities have been particularly enthusiastic in adopting the term, though its ethical valence is the subject of fierce debate. The conflict over the term *Anthropocene* centers on whether it privileges or decenters the *anthropos*, or humans. Some have argued that the term reinscribes an anthropocentric view of human dominance, and alternative terms, such as *Capitalocene* and *Chthulucene*, have been suggested. There is no doubt that the resource-burning capitalists of the United States and Europe bear most of the responsibility for this crisis, which disproportionately harms people with less wealth and fewer resources. However, I do not see the term as masking this uneven culpability. Moreover, the Anthropocene idea would seem to announce precisely the opposite of a triumphant reign of humanity. From this perspective, the Anthropocene displaces humans from the center of the universe by redefining them as merely one actant among many in a geological history in which the earth will, of course, outlast humans. From this perspective, global warming is earth systems' response to the blundering, selfish actions of (some) humans, all of whom it will eventually expel.

Regardless of what we call the era, the material traces of humanity are now embedded in the earth's soil, trees, and ice cores and are manifest in the millions of tons of plastic microfibers in the ocean. It is no far stretch to recognize that the Anthropocene has also left different kinds of traces in human culture. While some film historians have begun studying cinema as an industrial product that leaves a measurable footprint of waste, I am interested in cinema's ability to trace cultural forces.¹⁸ I contend that film, with its celebrated ability as a medium of capture, allows us to trace the visualization of what we call "nature" and that these traces

are particularly revealing before the rise of the mainstream environmental movement at mid-century. The endangerment sensibility that emerged with popular environmentalism changes the meaning of earlier cinematic visualizations.

The Anthropocene upsets traditional historical methodologies. As Dipesh Chakrabarty has written, “the discussion about the crisis of climate change can thus produce affect and knowledge about collective human pasts and futures that work at the limits of historical understanding. We experience specific effects of the crisis but not the whole phenomenon.”¹⁹ I suggest that the urgency of the current moment requires a new form of strategic ahistoricism. The reverse zoom of Anthropocene history (akin to the famous reverse zoom camera technique used in Alfred Hitchcock’s *Vertigo* [1958]) involves a dizzying confluence of human and nonhuman perspectives. Situating media history in its relation to geological history entails bridging incommensurate time scales, but it is precisely the disorienting perspective of the Anthropocene, where previously slow-paced geological and climatological transformations appear accelerated to the scale of human action, that makes these connections apparent.

Archival Films and the Nature Study Tradition

Film historians and archivists are creatures who dwell in a paradoxical habitat of love and death, attached both intellectually and affectively to the materials we study and preserve. As scholars such as Carolyn Steedman and Lorraine Daston have pointed out, the history of the archive is a history of loss, and the archive can be seen as a space of melancholy.²⁰ The fragments that remain are signs of everything that has not survived. These fragments are themselves fragile and in danger of disappearance. Jacques Derrida famously dubbed the impossible desire to preserve the past “archive fever” and linked it to the Freudian death drive. Observing the impossible dream of knowing the past through fragments, along with the impossible dream of understanding what these fragments will mean in the future, he wrote, “The archive: if we want to know what this will have meant, we will only know in the times to come. Perhaps. Not tomorrow but in the times to come, later on or perhaps never.”²¹ Latent

in the archival impulse is a utopian fantasy of understanding experience through fragments. Archival nature films present us with tantalizing fragments of nature's past.

Educational cinema was becoming institutionalized in the years before World War II thanks to the development of a nontheatrical distribution network in the 1920s, along with the introduction of 16mm film in 1923.²² Like other early educational genres, nature films were shown nontheatrically in classrooms and other venues, such as public halls and museums, and they were also shown theatrically as shorts before the feature film. Paralleling these two different exhibition contexts, these films were often released in 16mm for nontheatrical use and 35mm for theatrical exhibition. Generations of children and adults watched these simple films about animal and plant species, seasons, and ecosystems, which attempted to visualize natural history and foster a love of nature. Unlike narrative films, which quickly became outdated due to their use of the stars and styles of a particular cultural moment, these nature films had a longer shelf life and were often shown decades after they were made. Watching these pre-World War II films today, we see what nature looked like in an earlier era, which allows us to see how much "nature" has changed.

Early nature films used the modern form of cinema to present what was by this time an old paradigm of nature study involving a simple visual display of information.²³ The nature study movement that emerged as part of the progressive school reforms of the late nineteenth century aimed to cultivate direct observation of nature. The nature study method involved showing and (when possible) touching specimens and organisms, rather than learning complex facts about their biology. As Oliver Gaycken has written, "instead of objectivity's restraint, nineteenth century popular science retained ties to previous traditions of display and their engagement with the senses and the affective states of curiosity and wonder."²⁴ The nature study tradition was a form of popular science, and while it was discredited by modern science by the time these films were made, it has remained one of the predominant styles of nature documentaries to this day, and it proved influential for the nature literature tradition as well. These were popular films, not scientific tools, and they did not model up-to-date laboratory methods. Instead, these films present nature as an ideal domain: separate from the human realm, eternal, static.

The three 1920s nature films I discuss herein come from USC's HMIA, which holds a collection of 16mm educational films from the pre-World War II era donated by the late David Shepard. The 550-reel collection originated with Akin and Bagshaw, a Denver-based distributor of educational films whose territory ranged over ten states in the western United States. The collection contains many gems, including science films, travel films, and a number of Eastman Teaching films, and it is particularly rich in nature films. The thousand-foot reels came to the archive with titles written on the cans but nothing more. Searching through the collection is an act of discovery. Many of the films in the collection were previously unidentified or incorrectly labeled, including those I discuss in this chapter, two out of three of which I have been able to positively identify.

Films such as *Nature's Handiwork* (F. Percy Smith, 1921), *The Four Seasons* (Raymond Ditmars, 1921), and *Alaska's Eighth Wonder* (director unknown, circa 1925) presented popularized versions of scientific ideas about the life cycle of organisms, evolution, and earth systems. (All three of these films have been digitized and are available for online viewing at the URLs listed in the endnotes.) Early nature films exploited photochemical cinema's technological capacities to the limit, using slow motion, fast motion, microscopic photography, and an array of staging techniques, such as terrariums, aquariums, purpose-built sets, and careful lighting design, all in the service of offering visually striking perspectives on nature to the film spectator. Each of the three examples I analyze pushes on an aspect of cinema's potential to awaken an ecological awareness in the viewers of the past, and in viewers today.

Nature's Handiwork

Nature's Handiwork was part of the Kineto Review series of nonfiction shorts released in the United States by British-based distributor Charles Urban, starting in February 1921.²⁵ There were several such "screen magazines" in the 1910s and 1920s, and they were closely allied with the emergent form of the newsreel; these single-reel films emphasized a variety of general interest items and were shown theatrically before feature films. A 1922 advertisement for Urban's Kineto films lists *Nature's Handiwork* as one of fifty-two available titles ranging across a wide variety of subjects,

including films such as *Abraham Lincoln*, *Seeds and Seed Dispersal*, *Beasts of Prey*, and *Modern Banking*.²⁶ The Kinetograph Review series was part of Urban's ambitious project to film what he called a "Living Book of Knowledge." Film historian Luke McKernan explains that this series included a mixture of new material and footage "plundered" from pre-World War I films in the Urban back library.²⁷ *Nature's Handiwork*, however, was most likely filmed entirely after World War I.²⁸

As the title card of *Nature's Handiwork* informs us, the film is about the "Wondrous phases of life and transformation of caterpillars, moths, butterflies" (Figure 3.1). Made by F. Percy Smith, one of the first great auteurs of natural history in popular cinema, in collaboration with camera operator Charles D. Head, the film visualizes basic information in a striking way, presenting extreme close-ups of butterfly faces and showing the metamorphosis of moths using time lapse photography. It is an aesthetically accomplished film as well as a fascinating portrayal of what Smith and Head felt would be important to convey about insects to a



Figure 3.1. *Nature's Handiwork* (F. Percy Smith, 1921) presents insects as wondrous and nature as eternal. Frame enlargement courtesy of the University of Southern California Moving Image Archive.

popular audience. In focusing on insects, the film encourages a broadening of the spectator's appreciation for nature beyond the more commonly beloved animal realm of mammals. Indeed, Smith once said, "If I think anything is a pest, I make a film about it; then it becomes beautiful."²⁹ True to form, the film opens with an intertitle proclaiming, "The eggs of the Lepidoptera (butterfly) are very beautiful objects," followed by a series of shots that highlight the eggs' circle grid patterns. Most of the film's shots feature a pared-down background of black or white, decontextualizing the insects from their habitat (until the last few shots in the garden) in order to closely study their form and movement. The film exhibits a fascination with graphic shapes throughout: not just butterfly eggs but also scales, eyes, and a striking tongue montage make this visualization of information feel distinctly modern.

This single-reel film was imported to the United States and shown in commercial theaters, where it was projected in 35mm alongside various feature films.³⁰ It was also distributed on 16mm and shown in schools and other nontheatrical venues, where it remained in circulation for many years. The catalog *1000 and One: The Blue Book of Non-theatrical Films* lists both 35mm and 16mm silent prints available for rent from four different distributors as late as 1936, and the film was most likely being shown in classrooms well after World War II.³¹ Upon its theatrical release in 1921, reviewers praised *Nature's Handiwork* for its "surprising amount of informative data" and for being "truly remarkable in the photographic treatment of the subject matter and amount of information contained."³²

Almost one hundred years later, however, this film's meaning has changed. Take the sequence on the tortoiseshell butterfly (Figure 3.2). This footage renders spectacular the life cycle of an ordinary creature, for the tortoiseshell butterfly was one of the most common species in the United Kingdom when this film was made. But tortoiseshell butterfly populations have plummeted by 75 percent since the 1970s, when their numbers began to be monitored, and this stark decline has been all over the British news for the past few years. (The species' population fluctuates slightly year to year—the numbers improved in 2014 but have declined again in subsequent years.)³³ And the news is bad for all invertebrates, which are facing a so-called insect Armageddon in which all populations have declined precipitously in the past twenty-five years (insect biomass

has declined between 45 percent and 75 percent, according to different studies).³⁴ The causes are various but include pesticides, global warming, and habitat loss. This is a catastrophe of epic proportions, not just for the insects (which make up about two-thirds of all life on earth) but for many other species, including the birds who eat them as well as us humans, who depend on insects to pollinate our food. In light of climate change and other forms of environmental collapse, the nature study films of the early twentieth century register today less as films that cultivate a love of nature and more as melancholy chronicles of loss.

In drawing out the different meanings of this image of a tortoiseshell butterfly in different historical moments, I am not intending to naively reassert the original film's referential realism. Rather, the point is that the passage of time has transformed this image from a visual curiosity to a memento mori. Rather than beaming with pleasure and wonderment at the nature film's revelation of the world's creatures, we now shudder with



Figure 3.2. The small tortoiseshell butterfly, once common in the United Kingdom where *Nature's Handiwork* was filmed, now faces a severe population decline; its numbers have fallen by an estimated 75 percent since 1976. Frame enlargement courtesy of the University of Southern California Moving Image Archive.

dread and despair at their shrinking fortunes and, by extension, our own precarious future. Of course, I am exaggerating somewhat, for this response depends on the spectator's relative level of knowledge about the species being shown and environmental problems more generally. Ecological awareness in the face of threatened and collapsing earth systems is a process, and still a relatively new one. We are all at different points in this process, but it seems clear that new forms of mass subjectivity will form around awareness of planetary crisis as it continues to take shape. As yet, it is unclear what shape these new forms of environmental awareness will take. For now, it is an unpredictable process without end.

We are familiar with talking about how old films are threatened: by nitrate degeneration, by a lack of funding for storage and preservation, and by a general undervaluation by the culture at large. And of course, we all know that historical films show us things that are lost: the people have died, the cities have changed, the clothes and cars no longer exist. But natural history films purport to show timeless nature, enduring species, and regular life cycles. The individual animals may be dead, but the life-forms continue. Indeed, the very point of natural history films is to show that change is cyclical but nature is eternal. As it turns out, what we call nature is not as eternal as we had thought.

The Four Seasons

This logic of nature's eternal cycle is the subject of *The Four Seasons*, an ambitious four-reel feature released to great acclaim the same year as *Nature's Handiwork*. The HMIA holds two of the film's four reels, "Spring" and "Summer," on which I shall concentrate here.³⁵ In its day, *The Four Seasons* struck a chord: the film was a critical and commercial success around the country, often running as part of a double bill with the Harold Lloyd comedy *A Sailor Made Man*.³⁶ The complete film containing all four seasons was advertised with the tagline "Living a Year in an Hour."³⁷ Structured around the compression of time, the film offers fragmented images of plants and animals that are visually striking; however, the film presents very little information about each of the species depicted. The nature film's rhetoric of generalization reaches a kind of limit case in this film, but this generalization is itself significant.

The film was directed by Raymond Ditmars, herpetologist at the New York Zoological Park, otherwise known as the Bronx Zoo. Ditmars was already an established natural history lecturer and had published several books on wildlife before he started filming zoo animals around 1908.³⁸ He began selling footage to Pathé, which used his footage in its newsreels beginning in September 1913.³⁹ Like Smith, Ditmars is one of the most important directors of early nature films. Although they were based in different countries (Smith in England and Ditmars in the United States), the men shared much in common. Born within four years of each other (Smith in 1880 and Ditmars in 1876), neither man was formally educated, but both were frequently referred to as “professor” in the press. Also like Smith, Ditmars built a filmmaking “studio-laboratory” at his home in Scarsdale, New York, where he made films with his wife, Clara, as pictured



Figure 3.3. Husband and wife nature filmmaking team, as pictured in *Photoplay*, January 1919.

in an elaborate three-page story in the usually star-obsessed popular film magazine *Photoplay* in 1919 (Figure 3.3). Both Smith and Ditmars were popularizers who did not hesitate to downplay the naturalism of their subject matter in favor of cultivating popular appeal.

Educational film distributor Charles Urban distributed the films of both Smith and Ditmars. To some degree, we can observe that Smith's films prioritize striking visual compositions, whereas Ditmars's films focus more on constructing animal characters, though this distinction is not absolute. Ditmars trained his zoo animals to act for the screen, as he proudly explained in numerous articles for the press. "Monkeys . . . can register every mood that a human can—anger, despair and joy."⁴⁰ Ditmars's anthropomorphism runs counter to the (problematic) concept of non-human nature's absolute separation from the human that later came to dominate the nature film in wildlife series such as *Wild Kingdom* (which began in 1963 and has recently been revived on Animal Planet). However, both Smith and Ditmars relied on the camera's ability to produce in humans an anthropomorphic identification with other creatures, a phenomenon that several critics, including André Bazin, discussed some decades later.⁴¹

In *The Four Seasons*, the natural world is presented as eternal realm, fulfilling the telos of nature as an ideal domain whose organizing principle is the cycle of the seasons. The film shows an array of plant and animal species that perhaps seemed wide ranging at the time, but now seems limited and reliant on what Ditmars had on hand in the Bronx Zoo. We see pussy willows, apple blossoms, pollywogs, woodchucks, peacocks, bears, emus, bats, and deer, among other flora and fauna. Specific details and even species names are omitted; instead, "Spring" focuses on babies, introducing many of the aforementioned animal types in their infant stage. An intertitle tells us, "And all around this big, wide world, Nature entrusts her wild babies to the tenderness of maturing Spring." What this reel lacks in information it makes up for in striking visual imagery; each shot feels designed to elicit wonderment and a kind of sentimental affirmation that all is right with the world.

In "Summer," the natural world becomes a more dangerous domain. While nature is still presented as a nurturing habitat, this reel introduces a fairly long sequence about weather in which dramatic clouds gather

over the forest, lightning strikes, and a deluge of rain and hail follows. The emphasis on clouds in this sequence is interesting for its shift away from charismatic fauna to an insistence on the poetic drama of a summer storm. When the storm is over, we are shown “the grandeur of the departing storm from a mountain top, on a level with the boiling cumulous clouds.” Subsequent shots portray trees struck by lightning and a girl examining the damage while “standing upon a spot where painless and instant death would have been dealt a moment before.” Any threat that creeps into this world, however, is contained by the notion that nature is an ideal domain that admits struggle only within a limited system. Moreover, for the film spectator sitting safely outside the world of the film, the drama of nature depicted feels distant, a visual curiosity but not a bodily threat. In this aspect, the film certainly contributes its share to Francesco Casetti’s notion of the theater as a milieu of comfort, safety, and full visibility by providing a contrasting screenscape of nature as a domain of discomfort and danger.⁴² That is the properly historical reading.

But watching this film today, we might think how many of the animals shown in the film are now threatened, including bees, bats, frogs, trout, and polar bears (Figure 3.4). Because the film is so general in its categorizations, we cannot know how much this particular kind of frog is endangered, and the same is true for the rest of the species visualized. (The news is not good for amphibians in general, which are one of the most threatened taxonomic groups, and which have come to be known as canaries in the coal mine of climate change.⁴³) We can learn something from the lack of specificity in this film, however, for it foreshadows the way that today’s viewer might think in a similarly generalized manner about the loss of animal life on the planet. This generalizing effect, present in both the historical nature film and today’s emergent popular understanding of climate change, underscores the way in which complex and dynamic scientific topics become generalized into the tropes of mass culture.

Literary scholar Gillian Beer writes about how the visual technologies of modernity increase the appreciation of nature because they “enforce a stark recognition of how much is lost each time a species fails. Whereas in Darwin’s time, specimens . . . were mainly seen dead and static in museums, now we respond to movement and flight. Instead of taxidermy we have film.”⁴⁴ Gradually across the twentieth century, the



Figure 3.4. *The Four Seasons* (Raymond Ditmars, 1921) pays particular attention to the life cycle of frogs (without naming any specific species); amphibians are one of the most threatened taxonomic groups today. Frame enlargement courtesy of the University of Southern California Moving Image Archive.

popular conception of the environment shifted from viewing nature as robust, eternally engaged in a battle for survival, toward viewing nature as something vulnerable. Nature films such as these capture in amber a sense of what nature meant in the 1920s, showing the movement of organisms long dead. But like taxidermy, these nature films now constitute an outmoded form of display. Like stuffed specimens, the films have become aesthetic relics, conveying a sense of pastness when seen in the present.

The endangerment sensibility brings about a kind of ecological viewing condition that we might call Anthropocene film reception. Now that climate change is taught to elementary school children (and despite the efforts of numerous corporations and politicians to deny it), it would seem difficult to view these films today outside the endangerment sensibility. But this kind of reception context is relatively new, tracking alongside the increasingly apocalyptic news stories about the environment, and it

is relative to the spectator's own level of knowledge about environmental problems. I am well aware that this kind of interpretation is a form of presentism, one of the classic historian's fallacies that we are supposed to avoid. This reading is a deliberate projection of a contemporary idea onto media from the past. But the Anthropocene epoch has created such a singular situation that it challenges established historical methods and requires moving back and forth between thinking across the incommensurate time scales of the human and the planetary.⁴⁵

Alaska's Eighth Wonder

My final example is from a reel labeled simply "An Alaskan Glacier." For more than eleven minutes, this film shows us dramatic images of glacier ice breaking off, crashing down, and floating off in a roiling flood of icy water (Figure 3.5).⁴⁶ When I first encountered this reel in the archive, its stunning footage of melting glacier ice read to me as a film about climate change. But this was clearly the second reel of a longer film, and once I identified reel 1 (among the several other Alaska reels in the HMIA collection), I was able to learn more about the history of this specific glacier. Reel 1 gives the film its official title, *Alaska's Eighth Wonder*, and places the footage at Lake George, located about fifty miles north of Anchorage, which means the glacier shown is Knik Glacier (which is never named in the film). Lake George used to be known as the Self-Emptying Lake because it drained suddenly and regularly each year, flooding the nearby area. As it turns out, this film depicts an unusual natural phenomenon, a glacier lake outburst flood (also known by the Icelandic term *jökulhlaup*).⁴⁷ What this film recorded is the Knik Glacier's annual glacial outburst flood taking place sometime in the 1920s. The ice is crashing down in this film not because of climate change (which was not happening in the 1920s like it is now) but because of a regular natural phenomenon. In fact, the annual emptying of Lake George ceased in 1967, due to glacial recession caused by a range of factors, including climate change.

In its time, this film showed audiences a remarkable seasonal event in a faraway location. Unlike other Alaska films in the HMIA collection, which focus on local cultures and traditions in addition to the natural scenery, this film concentrates entirely on landscapes and glaciers. In its

Thousands of tons of ice
falling into the water



Figure 3.5. *Alaska's Eighth Wonder* (circa 1925) features dramatic images of a melting glacier. While this reads today as a film about climate change, in fact the film shows a naturally occurring glacier lake outburst flood at Knik Glacier on Lake George. This formerly annual phenomenon ceased in 1967 due to factors including climate change. Frame enlargements courtesy of the University of Southern California Moving Image Archive.

original context, this film fit into the popular science logic of natural wonders and amazing phenomena; it functioned as a curiosity. Today, however, even when we are told that this is not a film about climate change, the footage of melting glaciers and dramatic ice shears still makes us think of climate change.⁴⁸ Melting glaciers have of course become one of the most important symbolic images of global warming, and in the popular imagination, this is what such images signify. The passage of time has changed the meaning of this film. Our knowledge of the Anthropocene has created a new reception context in which it is impossible to view melting glacier images as anything other than harbingers of a warming world.

Ecological Awakening for a Limited Future

Because environmental catastrophe does not happen suddenly, with the flash of an atom bomb, we have trouble seeing it. Because its point of no return is not clearly marked, we have trouble understanding just how bad things are at any given time. Because ecological collapse (and, indeed, the environment itself) is massively distributed in time and space, we have trouble grasping its scope and scale. Nonetheless, an environmental awareness did develop across the long twentieth century, and film history, as glimpsed in archival nature films, provides us with an unparalleled opportunity to explore the forms this awareness took. Moreover, when viewed today, these films possess an uncanny visual power. As now-threatened species come to us visualized through the outmoded technology and styles of silent cinema, these films crystallize a temporal discontinuity. As these long-dead moths and frogs creep through a rupture in time, they bring a potential to spark new forms of ecological awakening.

Public consciousness is clearly lagging behind actual developments in the environmental crisis. Not just a melancholy sense of endangerment but a kind of shock to the senses or a startling awake is needed to galvanize public opinion and action. One consistent thread of environmental humanities scholarship argues that, while the scientists are collecting and interpreting the data needed to understand the calamitous deforestation, defaunation, and global warming afflicting the planet, it is the artists,

writers, and humanities scholars who are needed to produce stories about what is going on so that the public will listen, understand, and act. I contend that these modest archival nature films can contribute to this project of ecological awakening.

According to Timothy Morton, global warming is a “hyperobject” so colossal that it is nearly imperceptible to humans.⁴⁹ What Chakrabarty discusses in terms of incommensurable scales of time Morton conceives of as incommensurable scales of space; in both cases, new forms of awareness are needed to awaken humanity to this crisis, which is vastly larger than itself. *Ecological awareness* is a term that Morton uses across his body of work, where it signifies not just knowledge of the crisis but a sense of its uncanny nature.⁵⁰ Not everyone may be capable of ecological awareness, given the resistances our culture has already developed in response to it, but there is arguably a sizable section of the public that would be receptive to the uncanny lessons of such films. Today, these films can function as a kind of collective memory. As they circulate in academic conferences and classrooms, on YouTube and the Internet Archive, and as they serve as source material for contemporary found footage films, perhaps these films can awaken us from our complacency and spark new ideas about the history and future of the environment.

In a recent book, film scholar Catherine Russell discusses a contemporary filmmaking practice she calls “archiveology,” by which she means the current “practice of remixing, recycling, and reconfiguring the image bank.”⁵¹ Focusing on the experimental tradition of filmmakers such as Gustav Deutsch, Bill Morrison, Matthias Müller, and Nicole Védres, Russell analyzes the trend in which archival footage is recycled and appropriated in new films. Reading this work through the critical lens of Walter Benjamin, Russell argues that archival footage functions as a form of memory in which, following Benjamin’s lead, “the ‘richest prize’ is the correspondence between present and past.”⁵² I concur with Russell but would take her point further to argue that archival footage itself, whether or not it has been reactivated by an experimental filmmaker, harbors this power of uncanny discontinuity.

Writing in the years before World War II, during the time these archival nature films were made, Benjamin, along with Siegfried Kracauer and several other critics associated with the Frankfurt School, criticized mass

culture as a mode of distraction symptomatic of a society headed toward catastrophe. Their arguments were varied, yet they shared a consistent thread that the means to overcome this distraction were to be found within mass culture itself. One of Benjamin's favored (and much-quoted) means of initiating a process of awakening from the dream-world of mass culture was a surrealist practice he called "profane illumination." In this method, what is required is not so much an artwork but *a way of seeing* that reveals "the revolutionary energies that appear in the outmoded."⁵³ Benjamin was writing in a moment that Miriam Hansen has described as defined by "ongoing crisis—the triumph of fascism in Germany and the threat of its expansion in France, the collapse of an existing socialist regime with the reign of Stalinism—and the challenge to imagine an all-but-impossible future."⁵⁴ This moment of urgent crisis bears resemblance to our own moment almost a century later, in which it is becoming ever more difficult to imagine the future. As such, the utopian and even messianic strain of Benjamin's and Kracauer's writings has taken on new appeal in the current moment. This is not the place to work through the ways in which these theorists' work can be applied to the environmental humanities, but suffice it to say for now that Benjamin's commitment to a project of "awakening" is germane to our current need for ecological awakening.

The twentieth-century experience of cinema may have lost its former vitality, but perhaps a better way to conceptualize this is as a metamorphosis into digital formats. Films such as these, preserved in the archive and finding a new digital life online, can help us see what used to seem eternal and thereby shock us into seeing what is on the verge of being lost. There are thousands of these orphaned nature films in archives around the world, whose images wait to be adopted. We can hope that as scholars, curators, and filmmakers study, recycle, and remix these films, and as viewers become more adept at our digital culture's peculiar way of sampling historical images, these films' naive insistence on nature's timelessness can be reconfigured to help us radically rethink our sense of historical time on a planetary scale. Coming to terms with ecological loss is just one of several urgent tasks that face us today. Perhaps, out of the ruins of what we have lost, we might discover the engine for a utopian reimagining of our limited future.

Notes

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1. Motion Picture Association of America, *Theatrical Market Statistics 2016* (Washington, D.C.: MPAA, 2016), 8, https://www.mpa.org/wp-content/uploads/2017/03/MPAA-Theatrical-Market-Statistics-2016_Final.pdf.

2. See Paul Flaig and Katherine Groo, eds., *New Silent Cinema* (New York: Routledge, 2016).

3. Elizabeth Kolbert, *The Sixth Extinction: An Unnatural History* (New York: Henry Holt, 2014).

4. Daniel Rosenberg and Susan Harding, “Introduction: Histories of the Future,” in *Histories of the Future*, ed. Daniel Rosenberg and Susan Harding (Durham, N.C.: Duke University Press, 2005), 3.

5. Jay David Bolter and Richard Grusin, *Remediation: Understanding New Media* (Cambridge, Mass.: MIT Press, 2000).

6. Fernando Vidal and Nélia Dias, “Introduction: The Endangerment Sensibility,” in *Endangerment, Biodiversity, and Culture*, ed. Fernando Vidal and Nélia Dias (New York: Routledge, 2016), 2.

7. Vidal and Dias, 1.

8. Vidal and Dias, 2.

9. Vidal and Dias, 3.

10. Vidal and Dias, 5.

11. Bruno Latour, *Facing Gaia: Eight Lectures on the New Climactic Regime* (Cambridge, U.K.: Polity, 2017), 9, emphasis original.

12. J. R. McNeill and Peter Engelke, *The Great Acceleration: An Environmental History of the Anthropocene since 1945* (Cambridge, Mass.: Harvard University Press, 2016).

13. Donna J. Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham, N.C.: Duke University Press, 2016), 10.

14. Jonathan Watts, “We Have 12 Years to Limit Climate Change Catastrophe, Warns UN,” *Guardian*, October 8, 2018, <https://www.theguardian.com/environment/2018/oct/08/global-warming-must-not-exceed-15c-warns-landmark-un-report>.

15. Paul Crutzen and Eugene Stoermer, “The Anthropocene,” *Global Change Newsletter*, no. 41 (May 2000): 17–18, <http://www.igbp.net/download/18.316fi8321323470177580001401/1376383088452/NL41.pdf>. Stoermer had been using the term *Anthropocene* informally since the 1980s, but it did not gain traction until he and Crutzen joined forces to launch it.

16. University of Leicester, "Scientists Home in on a Potential Anthropocene 'Golden Spike,'" *ScienceDaily*, <http://www.sciencedaily.com/releases/2018/01/180115095158.htm>.

17. For a useful overview of the Anthropocene's dissemination as an idea, see Rob Nixon, "The Anthropocene: The Promise and Pitfalls of an Epochal Idea," in *Future Remains: A Cabinet of Curiosities for the Anthropocene*, ed. Gregg Mitman, Marco Armiero, and Robert S. Emmett, 1–18 (Chicago: University of Chicago Press, 2018).

18. Hunter Vaughan, *Hollywood's Dirtiest Secret: The Hidden Environmental Costs of the Movies* (New York: Columbia University Press, 2019).

19. Dipesh Chakrabarty, "The Climate of History: Four Theses," *Critical Inquiry* 35, no. 2 (2009): 221.

20. Antoinette Burton, "Thinking beyond the Boundaries: Empire, Feminism and the Domains of History," *Social History* 26, no. 1 (2001): 66, quoted in Carolyn Steedman, *Dust: The Archive and Cultural History* (New Brunswick, N.J.: Rutgers University Press 2002), 5; Lorraine Daston, "The Immortal Archive: Nineteenth Century Science Imagines the Future," in *Science in the Archives: Pasts, Presents, Futures*, ed. Lorraine Daston (Chicago: University of Chicago Press, 2017), 175.

21. Jacques Derrida, "Archive Fever," *Diacritics*, Summer 1995, 27.

22. See Charles R. Acland and Haidee Wasson, *Useful Cinema* (Durham, N.C.: Duke University Press, 2011), and Devin Orgeron, Marsha Orgeron, and Dan Streible, eds., *Learning with the Lights Off: Educational Film in the United States* (London: Oxford University Press, 2012).

23. See Jennifer Peterson, "Glimpses of Animal Life: Nature Films and the Emergence of Classroom Cinema," in Orgeron et al., *Learning with the Lights Off*, 145–67.

24. Oliver Gaycken, *Devices of Curiosity: Early Cinema and Popular Science* (New York: Oxford University Press, 2015), 4.

25. The HMLA's print of *Nature's Handiwork* is available for viewing at <https://vimeo.com/237481574>.

26. Ad for Urban's Kinetograph films in *Exhibitor's Herald*, August 5, 1922, 18.

27. Luke McKernan, *Charles Urban: Pioneering the Non-fiction Film in Britain and America, 1897–1925* (Exeter, U.K.: University of Exeter Press, 2013), 176–77.

28. Several reviews in the trade press credit Charles D. Head as a co-creator of the film, which indicates that this was a post-World War I production, for Smith worked with Head on the *Secrets of Nature* series beginning in 1922. McKernan observes that the smoothness of the animation looks like a more advanced post-war technique, and he writes, "I'd say from what we see of him at the end of the film that it is a post-war Smith." Email from Luke McKernan to the author, October 9, 2018.

29. Quoted in Gaycken, *Devices of Curiosity*, 87–88.
30. “The Screen,” *New York Times*, February 21, 1921, n.p.
31. *1000 and One: The Blue Book of Non-theatrical Films*, 11th ed. (Chicago: Educational Screen, 1935), 84. *Mogull’s 16mm Silent Picture Film Library* (New York, 1940) lists the film in distribution as late as 1940.
32. Lillian Gale, review of *Nature’s Handiwork*, *Motion Picture News*, February 12, 1921, 1392; “Short Subjects of Importance,” *Moving Picture World*, February 12, 1921, 852.
33. For an update on the small tortoiseshell butterfly’s population decline, see Patrick Barkham, “Fears Grow for Small Tortoiseshell Butterfly as Decline Continues,” *Guardian*, September 24, 2018, <https://www.theguardian.com/environment/2018/sep/24/small-tortoiseshell-butterfly-as-decline-continues>.
34. New York Times Editorial Board, “Insect Armageddon,” *New York Times*, October 29, 2017, <https://www.nytimes.com/2017/10/29/opinion/insect-armageddon-ecosystem-.html>. See also Ben Guarino, “‘Hyperalarming’ Study Shows Massive Insect Loss,” *Washington Post*, October 15, 2018, <https://www.washingtonpost.com/science/2018/10/15/hyperalarming-study-shows-massive-insect-loss/>.
35. The HMIA’s print of *The Four Seasons*, “Spring” can be viewed at <https://vimeo.com/237764828>; *The Four Seasons*, “Summer” can be viewed at <https://vimeo.com/237461338>. While the HMIA apparently holds only two of the feature’s four reels, the EYE Filmmuseum Netherlands holds a print of the complete film (with Dutch intertitles and color tinting), which can be viewed at https://www.openimages.eu/media/685757/Four_seasons_The. Reels 1 and 2 of the EYE print are somewhat longer than those held by the HMIA.
36. Dan Eatherley, *Bushmaster: Raymond Ditmars and the Hunt for the World’s Largest Viper* (New York: Arcade, 2015), 405.
37. Ad for *The Four Seasons*, *Motion Picture News*, November 29, 2921, 2258.
38. Eatherley, *Bushmaster*, 389.
39. Eatherley, 393; W. Stephen Bush, “A New Star,” *Moving Picture World*, February 28, 1914, 1095.
40. “Ditmars School of Dramatic Arts for Inhuman Beings,” *Film Fun*, April 1916, unnumbered page [11].
41. For an account of Bazin’s zoophilia, see Jennifer Fay, “Seeing/Loving Animals: André Bazin’s Posthumanism,” *Journal of Visual Culture* 7, no. 1 (2008): 41–64.
42. Cf. Francesco Casetti’s chapter in this volume.
43. U.S. Department of Agriculture, “Amphibians and Climate Change,” <https://www.fs.usda.gov/ccrc/topics/amphibians-and-climate-change>.
44. Gillian Beer, “Darwin and the Uses of Extinction,” *Victorian Studies* 51, no. 2 (2009): 326.
45. Dipesh Chakrabarty, “Climate and Capital: On Conjoined Histories,” *Critical Inquiry* 41, no. 1 (2014): 9.

46. *Alaska's Eighth Wonder* reel 2 (with the dramatic melting ice footage) can be viewed at <https://vimeo.com/237461251>. *Alaska's Eighth Wonder* reel 1 can be viewed at <https://vimeo.com/259759564>. A title card on reel 1 lists the following credits: "Photography by Tom Jackson, Edited by J. Maze." Despite conducting an extensive search in the trade press, I have not yet been able to trace any further information about this film. There was a National Geographic film called *Alaska's Eighth Wonder* released in 1919, also released under the title *Valley of 10,000 Smokes*, but the date of the camera, as well as a very different description of the footage, confirms that this is a different film.

47. See "Jökulhlaups," U.S. National Park Service, <https://www.nps.gov/articles/jokulhlaups.htm>.

48. Indeed, when I showed this reel at the Orphan Film Symposium in April 2018, several people later told me they had been moved to tears watching it. This was certainly due to the skilled live piano accompaniment by musician Stephen Horne, but it is also because, I contend, such images of glacier ice crashing today cannot mean anything else besides global warming.

49. Timothy Morton, *Hyperobjects: Philosophy and Ecology after the End of the World* (Minneapolis: University of Minnesota Press, 2013).

50. Timothy Morton, *The Ecological Thought* (Cambridge, Mass.: Harvard University Press, 2012), 54.

51. Catherine Russell, *Archiveology: Walter Benjamin and Archival Film Practices* (Durham, N.C.: Duke University Press, 2018), 11.

52. Russell, 13.

53. Walter Benjamin, "Surrealism," trans. Edmund Jephcott, in *Reflections*, ed. Peter Demetz (New York: Schocken Books, 1978), 181.

54. Miriam Hansen, *Cinema and Experience: Siegfried Kracauer, Walter Benjamin, and Theodor W. Adorno* (Berkeley: University of California Press, 2012), 76.