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Environmental Narratives for Social Change

Matthew Schneider-Mayerson,
Alexa Weik von Mossner, W. P. Malecki,
and Frank Hakemulder, Editors

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Introduction

Toward an Integrated Approach to Environmental Narratives and Social Change

MATTHEW SCHNEIDER-MAYERSON, ALEXA WEIK VON MOSSNER, W. P. MALECKI, AND FRANK HAKEMULDER

Knowing that you need to tell a new story does not always mean you know what to say, or how to say it. This is, in some ways, the situation we find ourselves in today. Most environmentally engaged scholars, thinkers, and activists agree that to respond to the existential challenges we currently face, we need new narratives about who we are, how we're entangled with the rest of the natural world, and how we might think, feel, and act to preserve a stable biosphere and a livable future with as much justice as possible. But what kinds of stories should we tell? To which audiences? Through what media? Are some stories more impactful than others? Are some counterproductive? And how can scholars of literature, theater, art, digital media, film, television, and other cultural forms contribute to, expedite, or shape the historic socioecological transformation that is now underway?

In this introduction, we argue that to aid the planning, development, and execution of effective, justice-oriented strategies for cultural production and communication, environmentally engaged scholars ought to attempt to integrate insights, data, experiences, and hypotheses from both the humanities and the social sciences and ground their theories in available empirical scholarship. What is needed at this moment is a holistic, interdisciplinary, data-driven approach to environmental narrative, which might aid and inform cultural production and communication. What is needed, in short, is an empirical form of ecocriticism.

Empirical Ecocriticism is an invitation to this new area of research. It is at once a manifesto, a toolkit, a proof of concept, and a conversation. It familiarizes readers with some of the methods used by empirical ecocritics, demonstrates their application in concrete case studies, and provides critical reflections on the value, challenges, and potential of studying the reception of environmental storytelling. In a world that is experiencing regular, unprecedented, and escalating socioecological catastrophes, with the possibility of ecological and sociopolitical collapse on the horizon, the development of an empirical form of ecocriticism, synergistically combining the methods of and knowledge from the humanities and social sciences, is not just potentially fruitful. It is necessary.

Storytelling in an Age of Accelerating Crises

It's now widely understood and acknowledged that we are living through an extraordinary time of accelerating socioecological crises. The primary and most ubiquitous manifestation is anthropogenic climate change. Readers of this book likely do not need a reminder of the scale of the climate crisis, but in 2020, California experienced its first gigafire, with over four million acres burning in two months; 2021 had major wildfires ravaging Southern Europe; and 2022 saw a recurring heat wave in Siberia, with largely uncontrolled blazes destroying remote forests. The Atlantic hurricane season gets more and more destructive, with economic costs of $60 billion per year. The consequences of climate change are now felt all over the world, with unprecedented heat waves from Australia to Europe making daily life unbearable and causing premature deaths. The chances of fatal floodings increase every year, from Nigeria to Pakistan. The psychological costs are incalculable. All of this death, violence, suffering, and trauma is distributed unequally— borne first and most by the people (and nonhuman animals) who bear the least responsibility.

While climate change is the most grave, urgent, and permanent of the challenges we face, it is accompanied by a broader environmental crisis, characterized by deforestation, ocean acidification, desertification, defaunation, species extinction, air pollution, and plastic pollution. Of course the last few years will be remembered as the time of the coronavirus pandemic. While it is not yet clear whether land use and climatic changes directly contributed

to the spread of Covid-19 to humans, scientists note that the emergence of zoonotic viruses are linked to deforestation and other stressors on wildlife (Tollefson 2020), and they expect more viruses to emerge as the climate changes (Ryan et al. 2019). By the time you read these words, there will surely be more unprecedented symptoms of these overlapping and cascading emergencies. As their manifestations become more obvious and undeniable, awareness and concern are also growing. Finally, belatedly, we are witnessing a public recognition of the incredible gravity, urgency, and existential stakes of ongoing socioecological crises.

This recognition does not always include an acknowledgment that culture, values, and stories are at the heart of the problem (Hulme 2009). This is partially because of the modern tendency to view environmental issues as problems that are approached and ultimately resolved through science, technology, and policy. All three are important and necessary, but we often forget what they are, and what they are capable of doing. Science helps us understand the world and develop projections for different future trajectories, while technology and policy are tools to shape the world. But a tool can be used in many different ways. A hammer can be used to pound a nail into a board—the first step in constructing a sustainable modular house for climate refugees, let's say. But it can also be used to smash a window or bludgeon an animal to death. That's what our technology and policy have often been doing, except the windows we're breaking are part of our only home, the teeming biosphere of planet Earth, and the animal represents the growing number of birds, fish, reptiles, insects, and other creatures that are disappearing as a result of human activity.

What controls the planetary hammers we hold in our hands? The direction of the world we're shaping is being determined not by science, technology, and policy but by the desires, values, and priorities of those who wield these world-shaping tools, as well as the systems in which they're embedded. These desires, values, and priorities are in turn shaped by the environmental (or antienvironmental) attitudes, affects, beliefs, and behaviors of average people, as well as economic and political elites. And while economic and political systems operate according to their own logic, inertia, and path dependencies, they generally require the participation, consent, or, at the very least, quiescence of individuals and communities. As such, the attitudes, affects,

beliefs, and values of average people—primarily those in high-consumption, rich, and geopolitically powerful countries—are a critical site of struggle in responding to the monumental socioecological challenges of the present moment.

Mediated Crises and the Importance of Narratives

One of the primary weapons in this struggle over desires, values, and priorities has been expository messages relying on statistical data and arguments. This strategy has engendered a mountain of admirably detailed and impeccably researched scientific reports, political manifestos, and educational pamphlets. It has also yielded stunningly meager results. A troubling number of people still deny that there is a global environmental crisis, while others admit its existence but do not believe it merits any significant changes in the global economy or their own lives. This is despite having been bombarded for quite a long time with expository messages explicitly stating that such beliefs are not only wrong but will lead to catastrophe. Why are such messages not more effective?

As with many seemingly irrational but common behaviors—such as people maintaining habits they know to be deadly, or failing to follow medical advice that is essential to their survival—the answer seems to lie in the nature of the human mind (Ariely 2008; Martin et al. 2018). The causes of our resistance to expository, fact-based environmental messages have been identified for some time now by scholars in fields such as environmental psychology and environmental communication. Among the primary culprits are disattention, incomprehension, and negative cognitive responding (Marshall 2014; Mercier 2016). Exploring these obstacles helps us understand why expository messages have disappointed, and why narratives—and empirical ecocriticism—hold such promise.

Let's take each of these in turn. First, because many people do not consider environmental issues to be relevant to their daily lives, they are simply not paying attention to environmental messages (Marshall 2014). Second, even if they are encouraged or forced to pay attention, they have a hard time translating those messages into immediately comprehensible terms because humans have a hard time understanding anything that is not directly accessible to everyday perception, including the macroscale processes of climate change

(Marshall 2014; Slovic 1998). Third, even if people comprehend the planetary processes to which environmental messages frequently refer, those who are more skeptical about the existence, anthropogenic nature, or gravity of these problems tend to engage in negative cognitive responding. They search for weaknesses in scientific reports and for corroboration in messages to the contrary; as a result, they give too much weight to the dubious claim that environmental issues are not major problems (Marshall 2014; Mercier 2016).

These tendencies have led many activists, science and environmental communicators, journalists, and strategists to turn to other forms of communication, and narratives have been identified as a promising possibility. Hyperbolic headlines such as "Stories to Save the World" (Armitstead 2021) and "Can Books Save the Planet?" (Ullrich 2015) epitomize the widespread hope in the environmental potential of stories, which is premised on their capacity to overcome the obstacles that limit the efficacy of expository messages. Narratives are well equipped to address the problem of disattention because a strong narrative frame can make any topic interesting and engaging, no matter how unimportant or dull we might otherwise find it (Malecki et al. 2019a). Stories can also help tackle the problem of incomprehension because humans, as "storytelling animals" (Gottschall 2013), inevitably use narratives to make sense of the world and their own lives (Green et al. 2002). This has been demonstrated by empirical research and has also become the common wisdom of the marketing, public relations, and political consulting industries, which typically rely on storytelling to move products and elect candidates (Salmon 2010). Through their emotional engagement and absorbing power—their transportation effects—narratives can make us less susceptible to internal doubts, and thereby make us more willing to seriously consider ideas and values that might have previously seemed dubious or objectionable (Green and Brock 2000; Nabi and Green 2015). There is a rising hope, then, that environmental narratives can be an important complement to statistics and factual arguments.

Beyond the theoretical, there is the basic fact that in many places today, environmental (or antienvironmental) attitudes, affects, beliefs, and values are inevitably influenced by culture and media because that is how we frequently interact with and learn about the world. They are inculcated first when we are young, by lullabies, cartoons, children's books, school textbooks,

films, and advertisements. As we mature, they are inevitably shaped by the unique combination of media that each of us consumes and are exposed to throughout our lives, including but not limited to pop music, photographs, films, documentaries, shareable videos, GIFs, memes, TV and streaming shows, advertisements, radio programs, podcasts, plays, short stories, sermons, prayers, poems, novels, graphic novels, fine art, and video games, as well as Twitter and Instagram posts and TikTok videos. In the United States in 2020, the average person consumed 5.7 hours of traditional (linear) media every day. Another 7.5 hours was spent with digital media, some of which is likely to be shareable videos and other narrative content (Dolliver 2020). In Germany, the combined total was 10.3 hours (Enberg 2020); in the United Kingdom, 9.0 (Fisher 2020); in Japan, 7.5 (Cramer-Flood 2020b); in the world's most populous countries, China and India, the totals were 7.0 and 6.0 hours, and growing quickly (Cheung 2020; Cramer-Flood 2020a). In this context, it is undeniable that media constitute a key site of intervention.

Given the ubiquity of media and the proven potential of storytelling, there are good reasons to be hopeful about the persuasive power of environmental narratives. But for that hope to transform into something sufficiently solid to serve as a basis for effective communication strategies, we need to study the impact of such narratives directly and empirically. This is what empirical ecocriticism sets out to do.

Beyond producing new knowledge, our goal is to contribute to the social change that is needed to respond to the web of environmental, social, and political crises that the world finds itself enmeshed in today. At this point in time, nudges in consumer behavior and tweaks in policy will not address the scale of problems such as the climate crisis, widespread plastic pollution, mass extinction, a growing migration crisis, gaping inequality, and metastasizing fascism. While most of the case studies in this book focus on microlevel social change, or shifts in attitudes, beliefs, and behavior, these constitute a necessary foundation for macrolevel social change such as transformations of industrial, legal, and economic systems (Harper and Leicht 2018). Indeed, as numerous contributors note, small and temporary changes from a single cultural text mean we can expect more significant and lasting transformations from a torrent of texts, which is exactly what this moment demands. Given this desire for social change, we are interested not only in whether

cultural texts foster more awareness of injustice and looming catastrophe, but whether they are more or less likely to lead to enduring changes in consciousness, behavior, and political engagement. In this way, we hope that research in empirical ecocriticism might be of some use to communicators and storytellers. We see ourselves working alongside tens of millions of authors, artists, filmmakers, and creative workers as well as activists, organizers, frontline responders, caregivers, teachers, innovators, engineers, policy makers, and others who are reorienting their work and their lives to respond to the challenges of this historical moment.

Empirical Ecocriticism and Interdisciplinary Synergy

Unfortunately, there is a gulf between common beliefs about the power of environmental storytelling—expressed by humanists, media and literary critics, authors, artists, and other cultural producers—and the state of research on this topic. This is partially because the scholarly literature on environmental narratives is so fragmented that it is difficult for researchers and practitioners to assemble a reliable picture of how compelling narratives really are, how they work, and how they affect actual audiences. While scholars in the environmental humanities provide an abundance of fascinating arguments about all kinds of formal, thematic, intertextual, cultural, and ideological factors that might contribute to the power of environmental stories, they typically do not test their claims with the aid of empirical methods. In fact, apart from a growing list of important exceptions (Caracciolo 2021; Easterlin 2012; Garrard et al. 2019; Slovic 1998; Weik von Mossner 2017), ecocritics rarely connect their arguments to the copious empirical data on the psychological and social work of stories. In contrast, while scholars in the environmental social sciences pay some attention to the psychological mechanisms of narrative impact in making claims about environmental stories and use empirical methods to test those claims, they typically neglect formal dimensions (such as voice, style, and narrative perspective) as well as intertextual aspects (such as genre and tradition).

This has led to a gap in the research on environmental storytelling that is an obstacle to the development of a holistic perspective on how environmental stories work and how they might do more. Few seem to notice this gap. Ecocritics tend not to see it because empirical methods and systematic

data analysis are often considered foreign and even antithetical to contemporary literary and cultural criticism. Environmental social scientists tend not to see it because they often consider cultural production to be a subject of secondary or tertiary significance, and the kind of thematic, formal, and intertextual analysis that are central to ecocriticism are infrequently applied within the social sciences. Because these academic fields have been and remain siloed, few have remarked on this gap or seem interested in closing it.

This is the goal of empirical ecocriticism: to expand our understanding of the psychological, social, and political work of environmental narratives through synergy by integrating the environmental humanities and environmental social sciences. Empirical ecocriticism aims to take the most relevant claims about environmental storytelling made within the environmental humanities and contextualize them within the scholarship in the social sciences. Similarly, it connects relevant claims from the environmental social sciences to existing humanistic scholarship on environmental narratives and submits them to empirical tests, so that the resulting data can be analyzed under the brighter light of both bodies of knowledge. The aim is to obtain conclusions that will be valid according to the established conventions of the social sciences and appropriately sensitive to the aesthetic, ethical, psychological, cultural, historical, and political dimensions of narratives.

Empirical ecocriticism can draw from and contribute to a number of fields and subfields, including narratology, ecomedia studies, environmental aesthetics, ecomusicology, the philosophy of literature, media studies, environmental psychology, the sociology of literature, and the anthropology of popular culture. As it exists today, it is primarily indebted to three fields: ecocriticism, environmental communication, and the empirical study of literature. The established methods and insights of each of these fields inform and guide the interdisciplinary work of empirical ecocritical researchers. Instead of continuing to develop as isolated monocultures, empirical ecocriticism can be the soil in which more productive polycultures and interdisciplinary synergies might grow. Empirical ecocriticism can also offer something in return because the combination of ecocritical and empirical methods in the same study enables new insights. In the following sections, we briefly describe how empirical ecocriticism draws on the work that each of these fields is doing and how it might contribute to them.
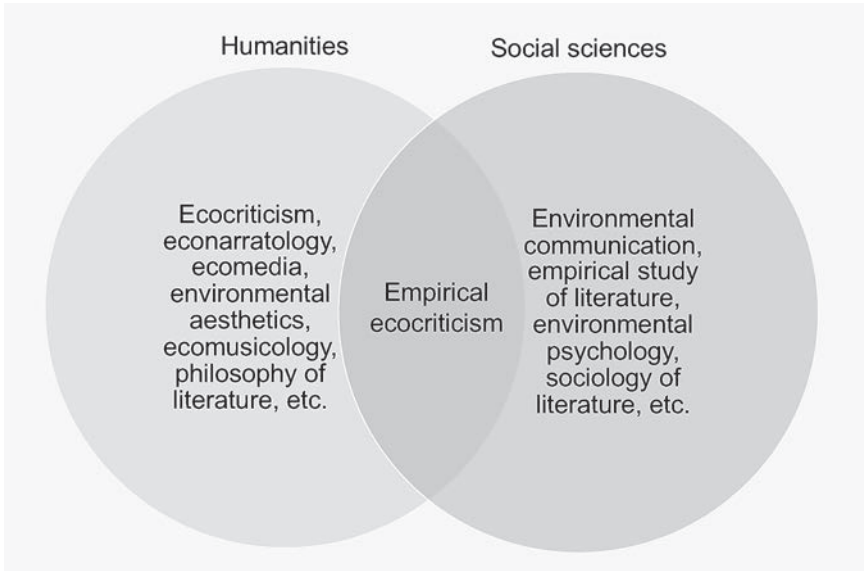
Figure I.1. Empirical ecocriticism's relationship to scholarship in the environmental humanities and social sciences.

Integrating Ecocriticism

As suggested by its name, empirical ecocriticism builds on ecocriticism's focus on the relationship between cultural texts and environmental issues. It is from ecocriticism, and the larger field of environmental humanities, that it takes its acute attention to the ecological dimensions of a broad range of narratives. Empirical ecocriticism has begun to contribute to this burgeoning field of research by investigating a core assumption of many ecocritics: that environmentally engaged narratives have a positive impact on readers' attitudes, feelings, and behaviors in relation to the more-than-human world.

This assumption is particularly pronounced in some of the early and pathbreaking works of ecocriticism. In her introduction to the foundational *Ecocriticism Reader,* Cheryl Glotfelty (1996) suggests that one of the typical questions posed by ecocritics is "How do our metaphors of the land influence the way we treat it?" (xix), highlighting the socioecological effects of narrativization. In *Seeking Awareness in American Nature Writing,* Scott Slovic (1998), the longtime editor of *ISLE: Interdisciplinary Studies in Literature and*

Environment, explores the way that creative nonfiction stimulates "environmental consciousness" (7) in readers. In *Writing the Environment: Ecocriticism and Literature,* Richard Kerridge and Neil Sammells (1998) observe that ecocriticism "seeks to evaluate texts and ideas in terms of their coherence and usefulness as responses to environmental crisis" (5). And in *Writing for an Endangered World,* Lawrence Buell (2001) expresses a similar hope that an "'ecocentric' form of literary imagining" would lead to a "reorientation of human attention and values" that will "make the world a better place" (6).

Ecocriticism has diversified over the past twenty-five years, and some contemporary scholars are more skeptical about the role of environmental narratives in socioecological change and what Nicole Seymour (2018) calls ecocriticism's "instrumentalist approach to environmental art" (26). This approach, which Seymour also locates in more recent works, such as John Parham's *Green Media and Popular Culture* (2016), leads its proponents to evaluate "cultural texts on their capacity to inculcate 'proper' environmentalist feelings," "educate the public, incite quantifiable environmental activism, or even solve environmental problems" (26). Seymour fears that this instrumentalism not only risks "confirm[ing] the negative reputation of environmentalism as didactic, prescriptive, and demanding" (27) but also overshadows environmental narratives' capacities, such as "bearing witness to crisis, enacting catharsis, serving as cultural diagnosis, and so on" (27). Studies that explore these capacities include not only Seymour's own work but also Mark Bould's trade book *The Anthropocene Unconscious* (2021), which claims that "all the stories we tell are stories about the Anthropocene" (18) and that what is urgently needed is a new way of reading them. Invested in a similar project, Min Hyoung Song's *Climate Lyricism* (2022) singles out the lyric "as a mode of literary attentiveness" (4) that reveals climate to be present in most literary texts, and calls on readers to engage with it. Such projects are valuable, timely, and important. Even so, we are still interested in learning how "bearing witness to crisis" or offering "a cultural diagnosis" affects the people exposed to those narratives. Even if it is true that all narratives are actually about the socioecological dynamics of the Anthropocene, this does not mean that they are likely to have the kinds of effects on audiences that we and some other ecocritics might wish.

Perhaps, in a moment of existential crisis, we ought to rethink "instrumentalism" as a pejorative term. In *Narrative in the Anthropocene,* Erin James (2022) divides environmental humanities scholars with an interest in narrative into two camps. There are those "who suggest that the top priority of such scholarship should be the pursuit of the right type of narrative," a group that includes Val Plumwood (2002), Ursula K. Heise (2016a), and Christophe Bonneuil and Jean-Baptiste Fressoz (2016), as well as Greg Garrard, Gary Handwerk, and Sabine Wilke (2014). Then there are those who are "critical of narrative's anthropocentrism" (James 2022, 9), including Claire Colebrook (2014), Timothy Morton (2013), and Timothy Clark (2015), who have suggested that rather than trusting in the power of narratives to change the world for the better, the environmental humanities should "focus on probing the limits of the human imagination" (James 2022, 9). We are skeptical about whether lines can be drawn so neatly; most ecocritics in the first camp are well aware of both the capacities and limitations of narratives, for example. Further, Seymour (2018) freely acknowledges that despite her critique of ecocritical instrumentalism, her own work engages "in some form of instrumentalism itself" in its attempt to "broaden the recognized repertoire of environmental affects" (28).

Empirical ecocriticism supplements the "instrumentalist" ecocritical approach by providing empirical data. In this way, it constitutes a tool that humanists can use to predict which texts are more likely to have desired psychological and political effects. It is interested not so much in the inevitable limitations of storytelling or in how one can or should read texts, but rather in how they are being read right now—not whether a text is "environmental" or not, but how it affects actual readers. What empirical ecocriticism can add to ecocriticism's theoretical claims, then, is empirical evidence that might support, problematize, or refine ecocritical hypotheses. Ideally, the field will develop in close conversation with other branches of ecocriticism, including feminist and environmental justice ecocriticism, environmental rhetoric, affect studies, Indigenous studies, and ecomedia, which will be mutually inspiring and fruitful, leading to new research questions, new research designs, and new insights about how environmental narratives engage and influence actual audiences (or fail to do so). Empirical ecocriticism intersects with some of these branches already, as demonstrated by the chapters

in this book that touch on the emotions that are elicited by environmental documentaries and climate fiction, and the ways that narratives about environmental injustice can perpetuate or help mitigate the negative outcomes that affect some groups more than others. As the case studies in this volume also demonstrate, the answers provided by empirical research are not always straightforward, and they do not always confirm the hypotheses that informed them. They can be surprising; sometimes they challenge our intuitions and favored theories. But they add a richness to ecocritical investigations because they provide insight on what flesh-and-blood readers, viewers, and audiences do with the narratives they are exposed to.[1]

We expect that this volume will spark conversations about ecocriticism's relationship to the social sciences. Some ecocritics may worry that empirical methods are not fine-grained enough to capture the experience of encountering environmental narratives. Others might point out that such methods have a history of being used for morally, socially, and politically questionable purposes. Still others might feel such methods are incompatible with the cherished disciplinary identity and practices of the humanities—indeed, that they are part and parcel of a kind of disciplinary imperialism, a quantitative creep that threatens the very existence of the humanities. As trained humanists, we are sensitive to all of these concerns. We want to be clear about what empirical ecocriticism is and is not.

We note, first, that empirical ecocriticism includes qualitative, participatory, and action-oriented methods as well as quantitative instruments. As demonstrated by the case studies in this book, empirical instruments, when properly calibrated, can be sensitive to multiple dimensions of our interactions with texts. Second, empirical methods have a long history of being used for exemplary purposes, such as developing vaccines, advocating for pro-environmental policies, and supporting progressive movements. Ultimately, no method, including humanistic methods such as philosophical analysis and literary criticism, has an unblemished historical record. Third, empirical ecocriticism adopts a position of methodological pluralism and pragmatism, seeking merely to supplement the methods typically used within ecocriticism and the environmental humanities, and motivated primarily by research interests inherent to the field. We do not advocate for empirical research because we believe it is epistemologically superior but rather for pragmatic

reasons: as the most appropriate tool for a specific job (Price 2010). We do not claim, for example, that empirical methods can determine the meaning or aesthetic value of a text, or provide historical or cultural context. And fourth, we note that ecocriticism as a field has always been open to and benefited from interdisciplinary methods and empirical research. Indeed, the flagship journal of ecocriticism is named *Interdisciplinary Studies in Literature and Environment,* and ecocritics such as Glen Love (2003), Nancy Easterlin (2012), and Ursula K. Heise (2016b) have drawn on the natural sciences, including ecology. While some ecocritics might be dubious about empirical methods, it is worth noting that these are often the same methods that scholars, citizens, and policy makers generally trust to provide us with information about climate change, declining biodiversity, and environmental injustice, among other things.[2]

Most of these points are elaborated on in the methodological chapters that follow this introduction, while other critiques and considerations are articulated by the senior scholars from ecocriticism, environmental communication, and the empirical study of literature we invited to write the short reflections that comprise the final section of this book.

Integrating Environmental Communication

Empirical ecocriticism brings ecocriticism and the environmental humanities into close contact with environmental communication. For the last two decades, researchers in this field have applied social scientific methodologies to understand different forms of environmental communication, with the (often unstated) goal of maximizing the efficacy of such communication to address urgent socioecological problems. This type of empirical research has been highly influential on contemporary climate communication. It has emphasized, for example, the need for messaging that addresses specific audiences, and that is authentic, bold, accurate, imaginative, and empowers people to take meaningful action (Boykoff 2019). While environmental communication researchers have been primarily interested in journalism and activist rhetoric (Comfort and Park 2018), a number of important studies have examined the influence of environmental narratives, such as film (Bilandzic and Sukalla 2019; Howell 2011; Leiserowitz 2004), on beliefs, attitudes, and behavior. The past few years have seen calls for a diversity of approaches to

environmental communication (Moser 2016), along with an increased attention to the impact of environmental literature and art (Boykoff 2019).

However, since both environmental communication and ecocriticism assumed their current forms in the mid-1990s (Slovic, Rangarajan, and Sarveswaran 2019), the two fields have operated like trains running on parallel tracks. Both fields are heading in the same direction, powered by the same concerns, and now and then their passengers glance at their neighbors, make eye contact, and smile. Until recently, however, there has been a distinct lack of communication and collaboration, let alone integration. This is to the detriment of both fields as well as our collective ability to have a holistic understanding of the function, efficacy, and potential of environmental communication and environmental media at a moment in which environmental storytelling has assumed an absolutely critical significance.[3]

From environmental communication, empirical ecocriticism draws its application of social scientific methodologies, which help us establish whether the hypotheses generated by ecocritics, environmental humanists, and other scholars are verifiable according to the scientific method. In order to learn, for example, whether climate fiction influences readers' awareness of environmental injustice (Schneider-Mayerson 2020), or whether narrative empathy can make readers care about the plight of nonhuman species (Malecki et al. 2019b), an empirical ecocritic might choose to conduct interviews, a focus group study, a survey, or a controlled experiment. Empirical methods are not perfect—no method is—but they are the most reliable methods available to empirically examine the impact of any stimulus, and to predict the impact of similar stimuli in the future. When they are practiced well, they acknowledge and are transparent about their limitations.[4] Empirical ecocriticism has already led to groundbreaking collaborations between environmental communications scholars and ecocritics, such as the collaboration between one of the editors and five social scientists at the Yale Program on Climate Change Communication, which produced the first experimental test of the influence of climate fiction on readers (Schneider-Mayerson et al. 2020), a subject that hundreds of ecocritics, journalists, cultural critics, and authors have speculated about over the last decade. Such collaborations promise to enrich both fields while allowing them to jointly build on the knowledge developed within each of them.

Although empirical ecocriticism is primarily aimed at contributing to ecocriticism, we expect that it will also constitute a valuable contribution to environmental communication. First, empirical ecocriticism helps address a significant gap in environmental communication. While most research in environmental communication does not focus on narratives, empirical ecocriticism is squarely focused on the influence of novels, short stories, poetry, children's literature, film, television, video games, music, and theater, among other media—an orientation that might help empirical researchers of environmental media centralize their knowledge, learn from each other, and facilitate interdisciplinary collaboration. Second, environmental communication scholars have rarely been concerned with the formal and aesthetic features of the texts they have studied, whereas nuanced narrative elements such as narrative voice, perspective, genre, fictionality, and the construction of the protagonist are of crucial importance to empirical ecocritics. Third, environmental communication rarely includes textual analysis, whereas empirical ecocriticism can combine social scientific methodologies with the kind of textual analysis that has long been the métier of ecocriticism. Finally, and perhaps most important, empirical ecocriticism frequently draws on the theories and hypotheses that have emerged from decades of scholarship in ecocriticism and the environmental humanities, whereas environmental communication has almost entirely ignored this vast body of work.

Integrating the Empirical Study of Literature

Empirical ecocriticism also draws from and can contribute to the empirical study of literature, an approach to literary texts and their readers that also uses methods originating in the social sciences (Kuiken and Jacobs 2021). The empirical study of literature originated in the 1980s, when nascent collaborations between literary scholars, psychologists, and sociologists became more formalized. The alliances that were formed then were characterized by an interdisciplinary blend of literary theory and hypotheses that were based on close reading of texts and the use of rigorous methodologies, both qualitative and quantitative, to explore the processing and effects of literary reading.

Much of the work in the empirical study of literature concerns investigations into the processing of literary texts, and empirical ecocriticism can make

use of such insights as a basis for its hypotheses. The differences between empirical ecocriticism and the empirical study of literature are in emphasis. Empirical ecocriticism is primarily interested in how its findings might be applied in society at large—in literature, theater, or education, for example. Second, research in the empirical study of literature often focuses on the role of specific textual features in the reception process; to date, empirical ecocriticism has taken a more global approach to texts. Finally, empirical ecocriticism is concentrated on a particular set of themes and issues, all revolving around the socioecological issues described earlier.

To some readers the empirical study of literature will be less familiar than ecocriticism or environmental communication. To explain its proximity to empirical ecocriticism, it may be helpful to describe two relevant areas of research in this field: studies that focus on the cognitive processing of literary texts and studies that examine the practical applications of the power of literature. The first group aims to reveal the more fundamental processes that underlie literary reading, which might explain the role that literary texts can have on, for instance, raising readers' awareness of environmental injustice. Results from research on the processing of metaphors (Bambini et al. 2019) and the emotions evoked by sound in poetry (Kraxenberger et al. 2018) could deepen our understanding of literary communication, helping us to more precisely locate those aspects of the text that are most impactful. Scholarship in narratology has generated numerous claims about how particular modes of narration affect readers; in the empirical study of literature, these hypotheses are tested experimentally (Bortolussi and Dixon 2013; Salem, Weskott, and Holler 2017). For example, the structure of stories is assumed to determine reader responses such as surprise, curiosity, and suspense (Brewer and Lichtenstein 1982), and these functions of narrative structure have been examined in controlled experiments through the manipulation of literary texts (Balint, Kuijpers, and Doicaru 2017). Likewise, assumptions about how readers' affiliations and sympathies can be influenced by narrative perspective can be tested empirically (Hakemulder and Van Peer 2015). All such narrative techniques that maintain or change readers' engagement with stories are of obvious relevance to researchers in ecocriticism and environmental communication. However, these connections have rarely been made.

Similarly, empirical scholarship on the impact of literary style has rarely been considered by ecocritics. Foregrounding (stylistic devices that deviate from "normal" forms of discourse) is often considered to be fundamental to literature, where it is responsible for deautomatizing readers' perceptions—a powerful aspect of fiction that can make readers experience, as if for the first time, the way that many humans treat nonhumans (for example). The response to foregrounding is one of the most systematically studied topics in the empirical study of literature (Van Peer et al. 2021), with research including the examination of the neurological pathways of processing literary versus nonliterary texts, and the role of foregrounding in readers' aesthetic appreciation (Jacobs 2015). It would be valuable for empirical ecocriticism to be informed by insights from such work.

A second group of studies pertains to the practical uses of literature in social contexts, such as literary education or therapeutic settings. While the first group of studies focuses on the reading process as a result of an interaction between specific readers and specific textual characteristics, the second considers reading strategies and didactic approaches. For example, Martijn Koek and colleagues (2016) examine whether a particular approach to literary education can enhance students' critical thinking, and Marloes Schrijvers and colleagues (2019) study whether literary education can stimulate reflection on oneself and others. Mark Bracher and colleagues (2019) investigate the potential of literature education to foster compassion. Generally, the results suggest that the impact of literary reading depends on individual variables (such as reading experience), textual characteristics (such as content and form), and how the texts are read. Such insights are crucial for empirical ecocriticism, suggesting it is probably not just simple exposure of any group of readers to environmental media that will have a desired impact. Research in the empirical study of literature can inform how impactful narrative encounters can be facilitated.

The empirical study of literature can profit from empirical ecocriticism in at least two ways. First, at a time when the humanities are increasingly defining themselves in terms of their relationship to ongoing environmental crises, interdisciplinary collaboration could contribute to the search for practical solutions. Thus, empirical ecocriticism amplifies the relevance and

significance of the empirical study of literature. Second, empirical ecocriticism can be a source of new and important hypotheses for the empirical study of literature that the latter might not generate by itself.

Structure and Chapter Outlines

The purpose of this volume is to launch empirical ecocriticism and offer some critical reflections on its attributes and potential. As such, we have assembled a book that aims to be informative and instructive to readers who are new to this field while also providing valuable insights for those who are already familiar with it.

The volume is divided into three sections. The first section, Methods, presents a range of empirical methods borrowed from social science disciplines such as psychology, communication studies, and anthropology that can be used productively by empirical ecocritics, along with some pertinent examples. The first two chapters describe a variety of qualitative and quantitative methods, from phenomenological analysis to randomized controlled experiments. We highlight these methods because they are widely accepted in the social sciences and can yield generative answers to ecocritical questions. Because most humanists are not trained in these methods, we want to provide a sense of what they can achieve and the kinds of research questions for which they are best suited. Readers already familiar with these methods might nevertheless be interested in their specific application to environmentally oriented narratives. However, we do not assert that these are the only empirical methods that can be applied in empirical ecocritical research. The selection of methodology depends on the questions one wants to examine, and it is important to keep in mind that empirical methods are constantly evolving. What counts as a reliable and productive method can vary considerably from one discipline to another, and we have no desire to define or limit the range of appropriate methods for empirical ecocriticism, which is epistemologically flexible and open to new and exploratory methodologies. This is demonstrated by the third chapter in this section, which describes an innovative form of participatory action research.

First, in "Experimental Methods for the Environmental Humanities: Measuring Affects and Effects," W. P. Malecki discusses the experimental method, explaining why experiments can be useful for studying questions

that are central to the environmental humanities and concern complex causal relations. Can narratives improve social attitudes toward nonhuman animals? Can they promote interspecies empathy? Could the dominant emotional tone of pro-environmental messages—dramatic, somber, and serious—be counterproductive? The chapter explains not only why experimental methods can be useful in answering such questions but also how to go about using them. It discusses a variety of experimental instruments and protocols, such as laboratory experiments, natural experiments, questionnaires, statistical analyses, brain scans, and implicit attitude tests where millisecond-long differences in how we respond to different stimuli reveal our unconscious biases. Malecki explains the advantages and limitations of these instruments and some of the epistemological and ethical challenges of experimental research.

In the second chapter, Paul Sopcak and Nicolette Sopcak discuss when and how researchers should use "Qualitative Approaches to Empirical Ecocriticism." These methods are most appropriate when we do not fully comprehend the concepts or processes we are dealing with and we want to deepen our insights while being attentive to the complexity of the phenomena we study. For example, what is the lived and felt experience of reading climate fiction? How can different qualitative methodologies get at this experience in different ways? Focusing on three major research traditions (phenomenology, ethnography, and grounded theory), Sopcak and Sopcak take readers on an armchair walk-through of research trajectories, helping them determine which kinds of research questions match which method; what kind of data should be collected; and what kind of results one can expect. As an introduction to qualitative methods, this chapter will help researchers select the most appropriate methodology and avoid the most common mistakes.

The method discussed in the third chapter, "Exploring the Environmental Humanities through Film Production," involves researchers becoming active participants in cultural production. Drawing on the established methods of active participant observation and participatory action research, its aim is not to generate knowledge *about* people but to generate knowledge *with* them through collective action. This novel method, known as field to media, is geared specifically to studying the process of creating music videos.

Researchers can cooperate on such videos with local communities, as performer, producer, editor, or director, and in this way contribute to a socially and culturally richer understanding of the process of making media and the perspectives and experiences of the communities involved. Rebecca Dirksen, Mark Pedelty, Yan Pang, and Elja Roy argue that this approach could be particularly useful for empirical ecocriticism because it can provide empirical insights into ecomedia that are experiential as well as culturally and socially nuanced. They illustrate this by describing studies they have conducted in four different locations—the Salish Sea region, Bangladesh, China, and Haiti—both participating in and gathering data on the creation of music videos that concern the environmental challenges that are particularly pressing in these places.

The second section, Case Studies, showcases six case studies, demonstrating a wide variety of possible methods, from controlled experiments to qualitative interviews to corpus linguistics. The texts at the center of these investigations are similarly diverse: from literature to film to theater, fiction to nonfiction. Some of the case studies present quantitative results that allow the authors to formulate general claims about impact, while others opt for a fine-grained analysis of how readers and viewers from specific cultural backgrounds respond to specific aspects of a narrative. We hope that by including such a wide variety of studies this section will not only be informative but will give readers a sense of what is possible, along with ideas for future research.

The first case study, "Does Climate Fiction Work? An Experimental Test of the Immediate and Delayed Effects of Reading Cli-Fi," is the result of a collaboration between an ecocritic, Matthew Schneider-Mayerson, and five environmental social scientists: Abel Gustafson, Anthony Leiserowitz, Matthew H. Goldberg, Seth A. Rosenthal, and Matthew Ballew. They conducted an experimental study to measure the immediate and delayed effects of climate fiction on readers via short stories by Paolo Bacigalupi and Helen Simpson. They found that whether the stimulus was a speculative dystopian story or a realist story exploring the psychological dynamics of climate change awareness and denial, reading climate fiction had small but significant positive effects on several important beliefs and attitudes about global warming, observed immediately after participants read the stories. Although

these effects diminished to statistical nonsignificance after a one-month interval, the authors note that longer texts, such as novels, can be expected to have more significant and longer-lasting effects. Finally, they discuss the need for environmental media to not focus exclusively on threats but also promote self-efficacy and response efficacy—the sense that one can take action, and that such an action will be effective.

How do different narrative perspectives encourage different emotions? How do different emotions lead to different behaviors and levels of political support for environmental policies? In "The Roles of Exemplar Voice, Compassion, and Pity in Shaping Audience Responses to Environmental News Narratives," Jessica Gall Myrick and Mary Beth Oliver explore these critical questions through the lens of environmental news stories. Many environmental news stories are narratives, describing environmental problems from the perspective of those directly affected. News-based narratives about environmental injustice can encourage audiences to experience compassion for those directly affected and increase intentions to assist the victims of environmental injustice; they can also evoke pity, an ambivalent emotion that can promote negative stereotypes. Myrick and Oliver found that when the victims of environmental injustice are given more of a direct voice in a news narrative, readers experienced more compassion and less pity. Compassion was associated with greater political support for regulating water quality and heightened intentions to seek further information about the issue. In contrast, pity was unrelated to political support and was negatively related with the intention to seek more information. Their results demonstrate the significance of perspective in environmental justice narratives and highlight the connections between affect, behavior, and politics.

In "The Reception of Radical Texts: The Complicated Case of Alice Walker's 'Am I Blue?,'" a team of three ecocritics, Alexa Weik von Mossner, W. P. Malecki, and Matthew Schneider-Mayerson, and two psychologists, Marcus Mayorga and Paul Slovic, presents the results of an experiment conducted in the United States. The study is the latest in a series of attempts to tackle a conundrum posed by Alice Walker's notorious story, "Am I Blue?," which was banned in 1994 by the California State Board of Education for being anti–meat eating, and which has been hailed by activists and scholars

alike as a text that effectively advocates for animal rights. The authors designed an experiment to study the narrative impact of the story on American readers, seeking to replicate the results of an earlier study, conducted in Poland, while also testing new hypotheses about the cultural situatedness of reception and the impact of two text-immanent features. Some of the results are counterintuitive, providing a reminder of the difficulty of predicting the reception of rich and complex literary texts. While partially confirming the researchers' hypotheses about the effects of human–animal comparisons and the depiction of emotional rather than physical violence against animals, this study suggests that sociopolitically "radical texts" (Ross 2011) may fail to have the desired effect on readers who do not already share their perspective.

Environmental humanists have frequently highlighted the multiple and conflicting temporalities of the Anthropocene, but pivotal concepts such as "slow violence" (Nixon 2011) have rarely been examined empirically. In "Screening Waste, Feeling Slow Violence: An Empirical Reception Study of the Environmental Documentary *Plastic China*," Nicolai Skiveren presents the results of a qualitative reception study of the 2016 documentary *Plastic China*, which portrays the social and environmental consequences of the international plastic recycling industry in China. The study investigates the experiences of a group of Danish viewers using qualitative interviewing to map their diverse affective reactions to the film as well as the active efforts they made to interpret it. In discussing their responses, Skiveren uses Stuart Hall's encoding/decoding model of communication, demonstrating one way that empirical ecocritics might utilize the framework of audience reception studies as a way to not only evaluate the capacity of environmental media to communicate or represent complex ecological issues but also to identify some of the obstacles.

A large number of people are or have been involved in environmental media not only as consumers but as producers. In "All the World's a Warming Stage: Applied Theater, Climate Change, and the Art of Community-Based Assessments," Sara Warner and Jeremy Jimenez discuss the influence of applied theater on the environmental beliefs and behaviors of participants—one of the first empirical studies of the impact of environmental theater. They describe their three-year project, conducted by a group of academics,

artists, and local residents who created community-based plays about climate change's impacts on the Finger Lakes region of New York, and highlight the potential for applied theater to serve as both a method of science communication and mode of knowledge production. Drawing on participant surveys, interviews, and other assessment strategies embedded throughout the process, they draw tentative conclusions about the impact of their productions and discuss how applied theater can offer an alternative method for understanding what can count as valid data while simultaneously engaging participants in the work of creating new knowledge.

In the last chapter in this section, "Tracing the Language of Ecocriticism: Insights from an Automated Text Analysis of *ISLE: Interdisciplinary Studies in Literature and Environment,*" Scott Slovic and David M. Markowitz, an ecocritic and a corpus linguistics analyst, argue that a useful methodology for empirical ecocriticism is the automated analysis of texts. To demonstrate this potential, their chapter examines publications from ecocriticism's leading journal, *ISLE: Interdisciplinary Studies in Literature and Environment,* in search of patterns that reveal information about writing style and authorship over time. Slovic and Markowitz's data include fifteen years' worth of publications, and they used automated text analysis software to quantify language patterns across four key indicators: word count, rate of analytic thinking, jargon, and concreteness. The data suggest that articles published in *ISLE* have become longer, more specialized and theoretical, and more abstract over time. Through their analysis, they introduce a model for the automated analysis of environmental texts, which scholars might develop and apply in the future, while situating empirical ecocriticism within the history of ecocriticism.

Readers will note that most of the case studies in this book are coauthored. Indeed, collaboration is of vital importance for this type of research. Conducting social scientific studies often involves too many procedures, skills, and data for one researcher to handle. It requires knowledge of social scientific methodologies, careful planning of a research design, locating or recruiting an appropriate sample, collecting data, and submitting it to rigorous and unbiased analysis. Empirical ecocriticism is even more challenging, requiring an expertise in ecocriticism as well as social scientific methods. Few scholars have expertise in both areas, so empirical ecocriticism tends to be a team effort; the integration at the heart of empirical ecocriticism is

reflected in the authors' home disciplines. We hope that this book will encourage readers to reach out to colleagues with complementary interests and skills.

The third section, Reflections, contains short essays on the value, limitations, and potential future directions of empirical ecocriticism. Ursula K. Heise, a leading ecocritic, situates empirical ecocriticism among approaches that examine the reception of literary and cultural texts and more recent quantitative and interdisciplinary approaches, including econarratology. Heise concludes that empirical ecocriticism "stands to play a crucial role in linking the study of environmental communication with the study of environmental literature" and to "enhance the many types of humanities research that understand academic work to be in dialogue with social activism and the collective search for justice among and beyond humans." Greg Garrard, also a leading ecocritic, explores some potential objections to empirical ecocriticism among humanists, such as "differences in epistemic culture . . . and scholarly discourse between the humanities and social sciences" and the potential for the reification of fluid subjectivities through quantification. Nonetheless, empirical ecocriticism "signals a welcome commitment to facts, procedural rigor, and productive interdisciplinarity," and as such, Garrard "applaud[s] its challenge to untested assumptions" and "its openness to interpretive as well as quantitative methods."

David I. Hanauer, a leading scholar of the empirical study of literature, cautions that while narrative persuasion is a critical topic, it is not a simple or straightforward applied research paradigm, and it does not always produce actionable results. This is especially so, he notes, with the most urgent issue of this historical moment: climate change. As such, Hanauer argues for an approach to environmental art, literature, and media that is similar to the theater productions developed by Warner and Jimenez for their case study, involving homegrown and immediate environmental issues of relevance for local publics, enacting collective action, and producing participatory artistic outcomes. Finally, Helena Bilandzic, a leading scholar of environmental communication, affirms the need for a more multifaceted and synergistic research approach to environmental narrative, including collaboration between researchers in ecocriticism and environmental communication. Bilandzic identifies and discusses three important areas of exploration

for empirical ecocritics: the effects of different aesthetic and formal textual features on audiences, the risk and reward of persuasive intent in environmental media, and the multicausal and gradual process of changes in attitude and behavior.

Empirical Ecocriticism has been assembled in a spirit of interdisciplinarity and collaboration. Its primary goal is to demonstrate the work that empirical ecocriticism is capable of and invite scholars from various disciplines to join us and expand the range of narratives investigated, audiences examined, and methods used. We view this book not as a definitive statement on empirical ecocriticism but as an invitation to discussion, to further theorizing and integrated research, and ultimately to the development of more productive and justice-oriented forms of environmentally engaged literature, art, and media. Secondarily, we hope that the methodologies, case studies, and reflections in this volume precipitate a lively conversation about how ecocritics, environmental humanists, and other scholars of environmental media can contribute to ongoing efforts to address the existential socioecological crises of our time.

Notes

1. While this interest in the impact of literature on readers (and the world at large) is rare within traditional literary criticism, it is not unheard of. In its reader-focused orientation, empirical ecocriticism draws on the concerns of reader-response theory, a school of criticism that flourished from the 1970s to the 1990s. Associated with critics such as Stanley Fish and Wolfgang Iser, the reader-response school articulated an extreme antiformalist position, arguing that the meaning of a text is constructed (or co-constructed) by its readers. Though reader-response theory has fallen out of favor—in some guides to literary theory, the chapter on reader-response theory has been replaced with a chapter on ecocriticism—this interest in readers has been picked up by scholars in gender studies, queer studies, translation studies, historicism, and cognitive literary studies.

2. Many people also rely on other epistemic sources, such as personal experience and Indigenous knowledge, and we are not asserting that these sources are any more or less valuable. We are merely noting here that despite some humanists' concerns about empirical methodologies, we frequently rely on them in both our personal lives and our scholarship.

3. For a more extensive discussion about the relationship between ecocriticism and environmental communication, see Slovic, Rangarajan, and Sarveswaran (2019).

4. As editors, we tried to model the value of acknowledging limitations by inviting the authors of the essays in the Reflections section to write about the limitations of empirical ecocriticism, as well as its value and potential.

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Contributors

MATTHEW BALLEW is research affiliate at the Yale Program on Climate Change Community of Yale University.

HELENA BILANDZIC is professor of communication research at the University of Augsburg, Germany.

REBECCA DIRKSEN is Laura Boulton professor of ethnomusicology and associate professor in the department of folklore and ethnomusicology at Indiana University. She is author of *After the Dance, the Drums Are Heavy: Carnival, Politics, and Musical Engagement in Haiti* and coeditor of *Performing Environmentalisms: Expressive Culture and Ecological Change.*

GREG GARRARD is professor of environmental humanities and associate dean of research in the faculty of creative and critical studies, University of British Columbia Okanagan. He is author of *Ecocriticism,* coauthor of *Climate Change Skepticism: A Transnational Ecocritical Analysis,* and editor of *The Oxford Handbook of Ecocriticism.*

MATTHEW H. GOLDBERG is associate research scientist at the Yale Program on Climate Change Communication at Yale University.

ABEL GUSTAFSON is assistant professor of public relations and environmental communication in the department of communication at the University of Cincinnati.

FRANK HAKEMULDER is associate professor of liberal arts and sciences at Utrecht University and affiliated professor at the Reading Center at the University of Stavanger. He is author of *The Moral Laboratory.*

DAVID I. HANAUER is professor of applied linguistics at Indiana University of Pennsylvania and the lead assessment coordinator of the SEA-PHAGES program in the department of biological sciences at the University of Pittsburgh. He is author of eight books, including *Poetry as Research* and *Scientific Writing in a Second Language.*

URSULA K. HEISE teaches in the department of English and at the Institute of the Environment and Sustainability at UCLA. Her books include *Chronoschisms: Time, Narrative, and Postmodernism; Sense of Place and Sense of Planet: The Environmental Imagination of the Global;* and *Imagining Extinction: The Cultural Meanings of Endangered Species.* Heise is editor of *Futures of Comparative Literature: The ACLA Report on the State of the Discipline* and coeditor of *The Routledge Companion to the Environmental Humanities.*

JEREMY JIMENEZ is associate professor in the foundations and social advocacy department at State University of New York Cortland.

ANTHONY LEISEROWITZ is founder and director of the Yale Program on Climate Change Communication and senior research scientist at the Yale School of the Environment.

W. P. MALECKI is university professor of literary theory at the University of Wrocław, Poland. His most recent books are *Human Minds and Animal Stories: How Narratives Make Us Care about Other Species* and the coedited collection *What Can We Hope For?*

DAVID M. MARKOWITZ is assistant professor in the school of journalism and communication at the University of Oregon.

MARCUS MAYORGA works as a behavioral scientist in industry.

JESSICA GALL MYRICK is associate professor of media studies in the Donald P. Bellisario College of Communications at Penn State University.

MARY BETH OLIVER is Donald P. Bellisario Professor of Media Studies at Penn State Univeristy in the department of film/video and media studies. She is coeditor of several books, including *Media Effects: Advances in Theory and Research.*

YAN PANG is visiting assistant professor of music at Point Park University. She is coauthor of *Cool Math for Hot Music, All About Music, Basic Music Technology,* and *The Future of Music.*

MARK PEDELTY is professor of communication studies and anthropology at the University of Minnesota and fellow at the Institute on the Environment. He is author of several books, including *Ecomusicology: Rock, Folk, and the Environment* and *A Song to Save the Salish Sea: Musical Performance as Environmental Activism.*

SETH A. ROSENTHAL is project director at the Yale Program on Climate Change Communication.

ELJA ROY is assistant professor in the department of communication and film at the University of Memphis.

MATTHEW SCHNEIDER-MAYERSON is associate professor of English and environmental studies at Colby College. He is author of *Peak Oil: Apocalyptic Environmentalism and Libertarian Political Culture,* coeditor of *An Ecotopian Lexicon* (Minnesota, 2019), and editor of *Eating Chilli Crab in the Anthropocene: Environmental Perspectives on Life in Singapore.*

NICOLAI SKIVEREN is principal investigator of the research project "Bridging the Gap: Qualitative Empirical Ecocriticism and the Impact of Environmental Narrative," funded by the Carlsberg Foundation.

PAUL SLOVIC is president of Decision Research and professor of psychology at the University of Oregon.

SCOTT SLOVIC is University Distinguished Professor of Environmental Humanities at the University of Idaho. He is coeditor of *Nature and Literary Studies* and *The Bloomsbury Handbook to Medical-Environmental Humanities.*

NICOLETTE SOPCAK is the qualitative research lead on the BETTER WISE project in the department of family medicine at the University of Alberta. She is a certified member of the Canadian Counselling and Psychotherapy Association (CCPA) and works as psychotherapist in private practice.

PAUL SOPCAK teaches philosophy and comparative literature at MacEwan University, Canada.

SARA WARNER is associate professor in the department of performing and media arts and director of LGBT studies at Cornell University. She is author of *Acts of Gaiety: LGBT Performance and the Politics of Pleasure.*

ALEXA WEIK VON MOSSNER is associate professor of American studies at the University of Klagenfurt, Austria. She is author of *Cosmopolitan Minds: Literature, Emotion, and the Transnational Imagination* and *Affective Ecologies: Empathy, Emotion, and Environmental Narrative;* editor of *Moving Environments: Affect, Emotion, Ecology, and Film;* and coeditor of *The Anticipation of Catastrophe: Environmental Risk in North American Literature and Culture* and *Ethnic American Literatures and Critical Race Narratology.*