National parks are not unique to the United States, and neither is the issue of climate change. How the media and nongovernmental organizations talk about the impact of climate change on national parks can and does influence our understanding of and response to the issue. This essay was first published in National Parks beyond the Nation: Global Perspectives on "America's Best Idea."

THE TROUBLE WITH CLIMATE CHANGE

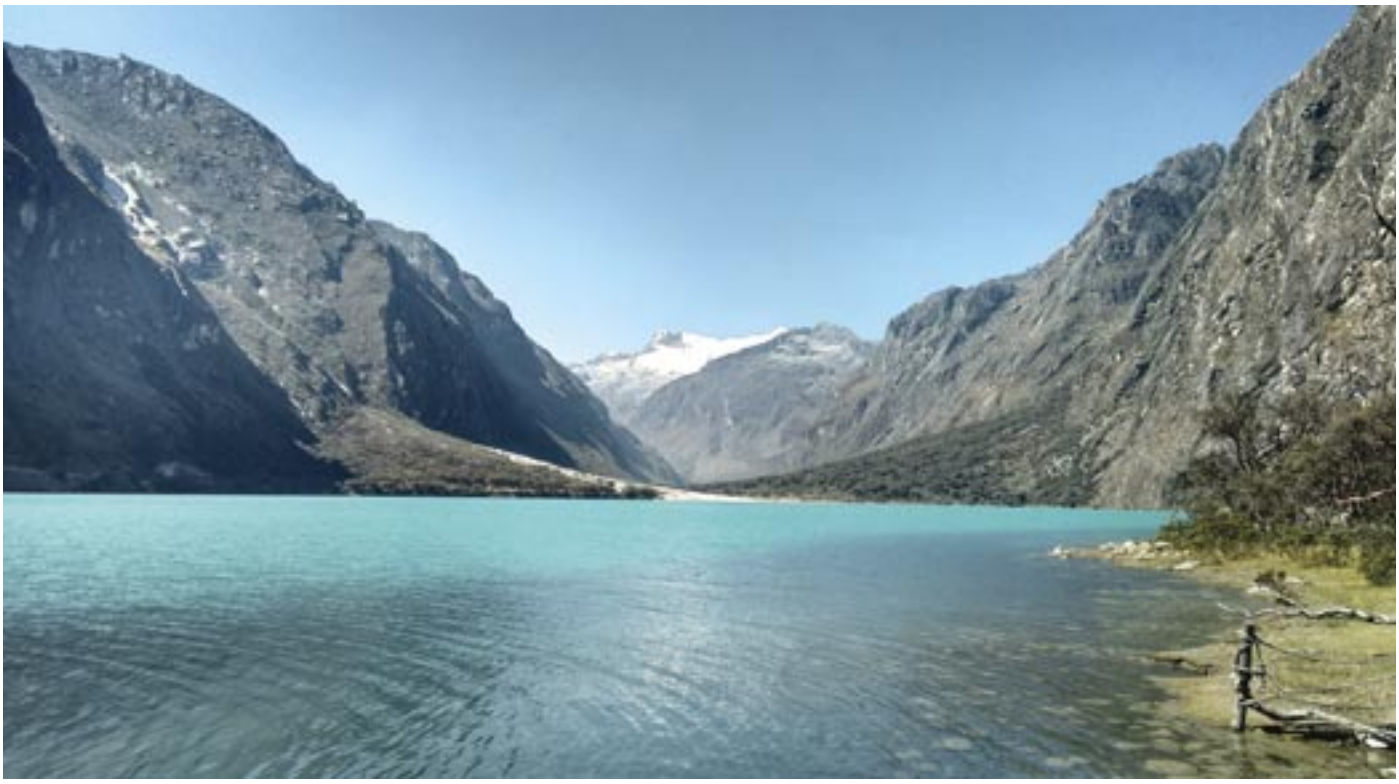
AND NATIONAL PARKS

Global warming is threatening what many see as the world's most pristine environments: national parks from Glacier in the United States to Kilimanjaro in Tanzania, Sagarmatha (Mount Everest) in Nepal, and Huascarán in Peru, among many others. Worse, many see global warming as driven by the same nefarious forces that people hope to escape in parks—industrialization, natural resource exploitation, development and sprawl, consumerism, and rampant capitalism—thereby making climate change particularly offensive when it tarnishes the parkland sanctuary. Melting glaciers, forest fires, hungry polar bears, species migration and extinctions, diminishing water supplies, depleted scenery, declining tourism economies—these are what the media and environmental groups report as the most severe consequences of climate change in the world's national parks. As the Rocky Mountain Climate Organization and Natural Resources Defense Council recently asserted, "Human disruption of the climate is the greatest threat ever to our national parks."[1]

Media accounts and environmental groups' reports about climate change in national parks reveal a great deal not only about climate impacts but also about embedded ideas of wilderness, human-nature interactions, and the place of parks in national narratives of nature.[2] Journalists and nongovernmental organizations (NGOs) typically have to—or at least choose to—simplify their coverage of climate change in national parks. What they decide to convey to readers and, more importantly, what they leave out actually reveals a great deal about their values, ideas, and perceptions of both climate change and national parks. In many cases, the climate change discourse on national parks resembles the declensionist narrative of environmental degradation that has long been at the center of the environmental and wilderness preservation movements—a narrative that scholars have also critiqued.[3] When news stories and climate reports simplify human-environment dynamics, exaggerate global warming impacts, or avoid discussion of complex human-nature dynamics, they can also perpetuate a certain "traditional" view of national parks.[4] I

BY MARK CAREY

JOASAN500, CREATIVE COMMONS



A popular tourist destination, the Llanganuco Lakes are located at the base of Peru's Mount Huascarán. Media accounts fail to mention the role of water rights, reservoirs and dams, and shifting land- and water-use practices that all affect watershed hydrology.

thus argue that the last fifteen years of media accounts and environmental groups' reports on climate change in national parks actually divulge as much about popular perceptions of parks and the relationship between people and nature as they do about climate change impacts. What's more, these portrayals that depict climate change as such a tragic threat may even impede more effective efforts in climate change adaptation, because they emphasize tourist wishes and the aesthetics of park landscapes, or they portray people as passive victims, instead of delving deeper into ecosystem processes, social-ecological systems, human livelihoods, natural hazards, resource management, social justice, and many other critical issues affected by global climate change.[5]

In addition to uncovering these narratives of national parks embedded in climate discourse, this essay also strives to break out of the pervasive and highly restrictive believer/skeptic dichotomy that characterizes much climate research. After studying climate change and glacier retreat impacts in the Andes for more than a decade, I can attest to the fact that climate change has already unleashed catastrophic consequences that killed thousands of residents around Huascarán National Park. Further, my research underscores how more marginalized populations often suffer disproportionately from climate-related hazards, resource conflicts, and biophysical changes stemming from climate change.[6] But just because I understand the deadly effects of climate change does not mean I should step into the mold that pits global warming "believers" against "skeptics." Clinging to one of these two climate "camps," I believe, has derailed scholarship and made it nearly impossible for scholars to critique any aspect of climate discourse without coming across as a skeptic.[7] What's more, the language that refers to believers and skeptics gives the discussion strong religious overtones, thereby shutting down open, critical analysis of climate change. Finally, an uncritical adherence to the "believers" camp out of fear of providing ammunition for skeptics runs the risk of potentially doing social science and humanities research in the service of Western science or environmentalist groups' priorities, both of which scholars have long critiqued for being socially constructed and having embedded agendas of their own.[8]

The goal in this essay is to critically examine media accounts and NGO reports of climate change impacts in Huascarán National Park in Peru and Glacier National Park in Montana. Both Huascarán and Glacier are located in high mountain glaciated environments, are globally high-profile parks, and have received significant international attention related to climate change. This analysis involved an exhaustive search for news articles examining these parks written during the last fifteen years. Media accounts and news articles influence public views and also offer helpful insights into popular perceptions. Interestingly, most journalists tended to cite and quote environmental organizations, rather than scientists or even park officials, as the climate experts in their news stories. Therefore, this research also involved analysis of reports by influential environmental NGOs—not park officials or scientists—because they are the ones overwhelmingly represented in the media. Media reports in Spanish from Peru and in English from the United States and the United Kingdom were consistent in their portrayal of parks and climate change: they all linked people and parks in Peru. The Spanish-language sources, however, rarely mentioned Glacier National Park; therefore, a divergent view between Glacier and Huascarán was not possible to detect from this research. Of approximately 100 news articles and a dozen NGO reports found on national parks and climate change, about one-third of them were devoted entirely or significantly to Huascarán and Glacier. This research also included historical analysis to help juxtapose past depictions of Huascarán and Glacier against more recent accounts. The historical perspectives show

not only how perceptions changed over time, but also how the issues identified as global warming impacts also reveal long-standing cultural values and ideas about national parks.

PARKS AND PEOPLE IN PERU

The iconic Huascarán National Park in the Peruvian Andes has attracted significant international attention related to climate change. In fact, international NGOs have petitioned the World Heritage Committee more than once to designate Huascarán—along with a handful of other parks such as Glacier and Sagarmatha (Mount Everest)—as an "endangered" site precisely because of the effects of global warming. The climate discourse about Huascarán reveals several things about perceptions of national parks in Peru. First, nature is generally portrayed, or idealized, as static scenery, and Huascarán is often cast as a place primarily for recreation and tourism. Second, environmental processes and socioenvironmental dynamics are usually simplified, while certain societal or environmental changes are misattributed to climate change. Third, deterministic predictions about future climatic/environmental changes tend to minimize human agency and ignore past adaptation accomplishments, thereby turning Peruvians into passive victims. Despite many similarities in the depiction of climate change in Huascarán and Glacier National Parks, the conceptualizations of climate impacts in the two parks also illuminate a fundamental difference in the perceptions and meanings of U.S. and Peruvian national parks. In Peru, the parks are not discursively separated from people as they are in the United States. Rather, Huascarán National Park is inextricably connected to human populations through natural hazards, natural resources, the tourism economy, and water supplies.

Huascarán National Park was created in 1975, and it remains one of the country's preeminent parks. It protects a significant part of the upper elevations within the Cordillera Blanca, a 200-kilometer-long mountain range that includes twenty-seven peaks above 6,000 meters, including Peru's highest, Mount Huascarán (6,768 meters). Huascarán became a UNESCO biosphere reserve in 1977 and was first inscribed on the World Heritage list in 1985. The Cordillera Blanca is the highest and most glaciated tropical mountain range in the world, and parkland varies from 2,500 meters to 6,768 meters above sea level, offering a host of ecological life zones, ecosystems, plant and animal diversity, and climatic variation within the park. The park also protects the *puya raimondi*, the world's largest bromeliad, and is home to animals such as the spectacled bear and Andean condors.[9] Yet the park also has strong foundations in recreation, tourism, and mountaineering. The roots of the park's creation, in fact, lie in tourism promotion as much as plant and animal conservation.[10] Interestingly, the early proposals and recommendations for the park barely mentioned the park's glaciers; instead, they focused on its lakes, flora and fauna, forests, high mountains, and geology.[11] Today park descriptions focus on the glaciers themselves, as in Glacier National Park.

With shrinking glaciers highlighted as the principal climate change impact in Huascarán National Park, media accounts imply that glaciers and other aspects of the natural environment in national parks should remain as static scenery primarily for tourists to enjoy. Many articles focus on the effects that glacier retreat will have or has had on tourism and mountaineering, and they cite a 20 to 35 percent loss of Cordillera Blanca ice since the late 1970s as evidence of this impact.[12] Some also lament the loss of the ice caves, which were a beautiful feature of Huascarán's Pastoruri Glacier before they melted.[13] Another complained, "The glacier looks like a patient dying of a virus." But the real problem expressed in this news story is that the glacier terrain is "not normal" because it is unstable and problematic for mountain climbers.[14] Accounts also tend to exaggerate the rate of future glacier retreat, thereby making a statement about how changing park scenery is lamentable. Some accounts suggest twenty years for the disappearance of glaciers, and one journalist lamenting ice loss in Huascarán National Park and other World Heritage sites noted that Peru will lose "almost all [glaciers] within the next 7 years."[15] The claim that Cordillera Blanca glaciers will disappear even in fifty years cannot be found in scientific literature, and informally I have heard glaciologists say total ice loss in the Cordillera Blanca would likely be on the scale of centuries, not decades.[16]

Iconic species also appear prominently in climate discourse, suggesting how the nature in national parks is often identified as charismatic flora and fauna—even if news stories provide little evidence of climate impacts on these species. As one representative news article mentions for Huascarán, "the Andes are home to many rare species. The mountains are populated by llamas which can be found living at high altitudes, predominantly in Peru and Bolivia. The South American condor, the largest bird of its kind in the Western hemisphere, is also found here as are pumas, camelids, partridges, *parinas*, *huallatas* (geese), and coots."[17] The article's focus on climate change impacts leads the reader to believe these species are actually affected by climate, but there is no evidence provided. Moreover, the statement that llamas are a rare species would be like suggesting that white-tailed deer are rare in Massachusetts or cows unusual in Iowa. Of course, climate change does threaten species inhabiting national parks, and in some cases species might migrate outside park boundaries, thus creating new dilemmas for park managers.[18] But when climate change news stories claim that climate change affects bears, llamas, condors, and other symbolic species without offering any evidence of those impacts, then the articles reveal a tendency to associate national parks with iconic species and charismatic fauna rather than other lesser-known species or ecosystem processes.

Most media accounts of climate change impacts in Huascarán National Park reveal a very different perspective than exists for Glacier National Park in the United States: local people in Peru are shown to be intimately tied to the national park, unlike the common portrayal of U.S. parks that (mis)depict them as standing in isolation from all surrounding populations. The two contrasting popular narratives of people connected to parks in Peru and of vacant wilderness parks devoid of nearby populations in the United States are thus affecting the ways in which people learn about climate change impacts—and vice versa. One way the link between people and nature in national parks comes up for Huascarán is through an emphasis on natural hazards associated with climate-induced glacier retreat. In the United States, in contrast, the disaster narrative for parks often centers on the natural environment: disappearing glaciers or threatened plant and animal species that must migrate or go extinct. In Peru, climate change has already caused catastrophic consequences in Huascarán from glacial lake outburst floods (GLOFs) that have killed thousands of residents.[19] Glacial lakes formed at the foot of retreating glaciers after the end of the Little Ice Age in the mid-nineteenth century. As the ice retreated, lakes formed that were precariously dammed behind unstable moraines. In 1941 Lake Palcacocha burst through its moraine dam and killed 5,000 people in the city of Huaraz. Two

ONDANDO, CREATIVE COMMONS

Mount Huascarán as seen from the Carhuaz-to-Chacas road that crosses through the park. Unlike their descriptions of Glacier National Park, the media depicts local people in Peru as intimately tied to the national park.

additional GLOFs occurred in 1945 and 1950 that killed nearly 1,000 people and destroyed one of the country's largest hydroelectric stations at Cañón del Pato. Other types of glacier disasters originating in the park have caused even more deaths, including the 1962 glacier avalanche that killed 4,000 people in Ranrahirca and the 1970 earthquake-triggered avalanche in Yungay that killed at least 6,000 people (based on studies completed since official documents put the death toll at 15,000).

News stories about climate change in the park generally mention this history of disasters and the potential for more in the future, though they sometimes exaggerate the potential impacts. A 2007 report written by a variety of international NGOs and published by UNESCO exemplifies these views. The section of the case study report on Huascarán asserted that "the livelihood of two million people living within the immediate vicinity of the Huascarán National Park is threatened by high-altitude glacial lakes with the combination of climate change, local seismic activity, and increased glacier and hill slope instability."[20] Another news story offers a similarly high number, suggesting that "millions of people in the Peruvian Andes live under threat from catastrophic floods caused by global warming."[21] Recent census data and GIS spatial analysis, however, reveals that fewer than a half million people live in all the surrounding areas. And the portion of those people exposed to potential glacier and glacial lake hazards is much smaller.[22] Media reports make other exaggerations by claiming, for example, that 70,000 people died in the Yungay glacier avalanche in 1970.[23]

Another way news stories connect the national park to surrounding populations—and thus blur nature and culture together in ways that discourse about Glacier does not—is by noting the effects of climate change and glacier retreat on the tourism economy around Huascarán National Park.[24] But in many cases, the media reports misrepresent or oversimplify the human impacts. In one confusing example, the author mentions the loss of "picturesque glaciers" and then refers to local testimony from an elderly man who said, "We used to walk to those glaciers from my school. It would take six hours. Today I can walk there in two and a half hours. Some of the glaciers will be gone forever."[25] It is unclear how the glaciers got closer to this man's community—since everyone lives on slopes at elevations below glacier tongues—unless glaciers had advanced, not retreated. Such "evidence" to illustrate the effects of climate change impacts in and around Huascarán National Park actually undermines the point and clouds understanding of climate change and glacier shrinkage impacts. Another article argues that "the drastic melt forces people to farm at higher altitudes to grow their crops, adding to deforestation, which in turn undermines water sources and leads to soil erosion and putting the survival of Andean cultures at risk."[26] It's unclear why people would be *forced* to move higher because the glacier shrunk, especially because the water still runs downhill. But the insistence on linking park changes to human changes demonstrates the close connection between local residents and Huascarán. This also occurs when media accounts refer to so-called climate refugees, people around the park who will be displaced by climate change.[27] Articles about climate refugees near Huascarán do not definitively show how climate change affects the economic drivers of migration, which are usually identified as the most influential for triggering migration.[28] Nevertheless, the focus on human migration, the tourism economy, natural hazards, and human vulnerability demonstrates how depictions of the national park include people, which is a sharp contrast to the more common U.S. view of parks as isolated wilderness where nature and culture usually do not discursively connect.

Even though the climate discourse helps link people with parks in Peru, the media articles still present a view of nature and environmental processes that is devoid of human influence, behaviors,

and decision making. This view is particularly notable in the portrayal of climate change impacts on freshwater supplies. Many articles note the potential negative effects of glacier shrinkage on regional water availability, which would also have a major effect on hydroelectricity generation and industrial-scale irrigation on Peru's Pacific coast.[29] There is little doubt that long-term continued glacier shrinkage will affect water supplies, but the media accounts often ignore the critical role that people play in the hydrologic cycle in and around the national park. They fail to ever mention the role of water rights, reservoirs and dams, and shifting land- and water-use practices that all affect watershed hydrology. For example, one article recounts the perspectives of a local resident who said that, as a child, he played in rivers that were too large to cross by foot but that are now easy to jump over "without ever touching the water."[30] He blames this river change on the retreating glaciers that are vanishing because of climate change. But it seems just as likely that this supposed river change could have resulted from fluctuations in upstream water-use practices (new water withdrawals), rather than glacier retreat. Another local resident living next to Huascarán National Park lamented, "We all get our water from there. But if the ice disappears, there won't be any more water."[31] This framing suggests that 100 percent of the region's water comes from glaciers, which is not the case. Other articles expand the impacts well beyond the national park by noting that glacier retreat in Huascarán is causing an "irreversible crisis because of water scarcity."[32]

But glacier runoff is a lot more complicated than these media accounts indicate, and the way journalists simplify hydrology unveils important insights about how they view human-environmental processes. Most scientific studies, in sharp contrast to the media accounts, suggest that glacier runoff has not yet begun to decline and that water flow from glaciers may, in fact, be in a period of increase, not decrease. These studies project a decrease of water flow of up to 23 percent by the year 2080 or 21 percent by 2050–59.[33] One new study, however, reports that seven of nine studied watersheds surrounding Huascarán National Park have seen reduced dry-season discharge that probably began around 1970. But the study maintains that even once these watersheds lose 100 percent of their glaciers—which will not occur for a long, long time—water flow for the western half of the Cordillera Blanca will decline between 2 and 30 percent, depending on the watershed.[34] This is a significant proportion of water, but a much smaller percentage than many news accounts imply when they suggest the imminent disappearance of all water in the region as glaciers shrink. The media and NGO reports also tend to overlook the important role that groundwater supplies play in the region's hydrology.[35] Moreover, they ignore how people affect those water supplies through subsistence and large-scale agriculture, human consumption, hydroelectricity generation, mining, reservoir management, and social action and protest.[36] News stories miss the ways in which these upstream water-use practices affect the rest of the watershed and interact with climate impacts.

These depictions of climate impacts and hydrologic fluctuations without much regard for the role of people reveals a broader trend that Mike Hulme refers to as environmental reductionism in climate change scenarios. As Hulme explains, this "new climate reductionism is driven by the hegemony exercised by the predictive natural sciences over contingent, imaginative, and humanistic accounts of social life and visions of the future."[37] In short, the increasing dominance of predictive quantitative models fails to account for social change and human ingenuity. This climatic reductionism is playing out in the media coverage of Huascarán National Park, and the rendering implies that Peruvians are simply passive victims waiting hopelessly for climate change to ruin their lives—whether through shrinking glaciers, glacier disasters, or evaporating water supplies. As one article exemplifying this view puts it: "The ice loss means less water, less food, and less hope for our future generation."[38] A more accurate interpretation of climate-glacier-water dynamics would suggest that Peruvians may be forced to change their water management strategies, and this will likely cause unequal impacts because some people are more (or less) vulnerable. And these impacts will be conditioned based on a variety of social, political, economic, cultural, and environmental factors that all intersect as the climate changes.

The portrayal of Peruvians as passive victims is also ahistorical. For one, it denies seventy years of successful Peruvian engineering and science to prevent GLOFs from within Huascarán National Park. Peruvians were enormously effective in adapting to the threat of outburst floods, although these accomplishments are rarely conveyed in media reports. Peruvian engineers have drained and dammed thirty-four glacial lakes in the park since 1951, and they developed flood prevention strategies that they are now increasingly sharing with the rest of the world, especially in the Himalayan region.[39] Categorizing Peruvians as waiting passively for their water to run out also overlooks how they have increased water use from Huascarán National Park rivers dramatically over the past half century. They expanded hydroelectricity generation, increased irrigated agriculture, and provided drinking water for a growing population. Human ingenuity, new technologies, economic investments, shifting management practices, and changing laws have all shaped historical water use in the region—and these factors no doubt will affect the future, even though most climate models and media accounts ignore them. This is not to say, of course, that climate change impacts in Huascarán National Park will not cause significant consequences. Rather, the point is that climate change does not occur in a social vacuum. Understanding the effects of climate in a national park (or anywhere) thus requires a much deeper analysis of human forces and the interconnected dynamics between coupled natural-human systems—precisely the kinds of insights that environmental historians have been offering for decades. Climate discourse does link parks and people in Peru, but only to a limited degree given these simplifications of the hydrosocial cycle and other environmental processes.

STATIC SCENERY IN GLACIER

Glacier National Park has also attracted worldwide attention in the face of climate change. It was here, in 1997, where Vice President Al Gore hiked to the base of the shrinking Grinnell Glacier and pledged to fight against global warming.[40] Since then, the park's disappearing glaciers—among other climate impacts—have attracted consistent and increasing national media attention. While these news stories point to real climate-related problems in the park, they also reveal three trends in the conceptualization of national parks: the emphasis on lost scenery for tourists rather than the inclusion of local populations; the portrayal of static nature; and the misattribution of climate change impacts that perpetuate simplistic depictions of social-ecological systems.

The U.S. Congress established the 1-million-acre Glacier National Park in 1910 to protect its rugged and unparalleled mountain scenery. In 1932 Glacier National Park combined with the adjacent Waterton Lakes National Park on the Canadian side

of the border to form the world's first International Peace Park. Glacier became a UNESCO biosphere reserve in 1976. Since 1916, Glacier has been managed by the U.S. National Park Service, which was created "to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."[41] This law and the 1910 enabling legislation for Glacier National Park set up contradictory objectives: to preserve nature but to manage wildlife and the natural and cultural scenery for tourists more than ecosystem health or scientific objectives. From the outset, the park founders also evicted Blackfeet Indians from Glacier, thereby establishing and perpetuating popular narratives (and policies) of national parks as devoid of people, even if that meant actively dispossessing Native peoples.[42] Such portrayals have spilled over onto other neighboring populations because, in the case of Glacier, the discourse rarely mentions how the park's natural resources help local populations as depictions in Peru do.

Recent climate change discourse about Glacier National Park reflects this historical legacy of the park in a key way: it portrays the park primarily as scenery for tourists. A typical news story lamenting climate change notes that glacier loss should motivate tourists "to take a road trip through Glacier National Park, Montana this summer before it is gone." After mentioning the likelihood of complete glacier loss in Glacier by 2020, the article concludes by noting that "with mountains not snow-capped as much or as long into the summer, the scenery that draws most visitors to Glacier—including stunning waterfalls and lakes—would be affected."[43] Glaciologists recognize that glaciers are indicators of long-term changes in the climate system because the ice responds to various climatic conditions.[44] But news articles do not always draw this connection. Instead, it is common for articles to focus on the mere loss of the ice as the main climate story, which then conveys the idea that visible scenery is more important than water supplies or habitats. Often these articles note how the number of park glaciers has decreased from 150 in 1850 to twenty-six in 2006, and so, as one article mentioned, the ice "simply faded away to expose bare mountainsides."[45] The article does not detail the consequences of this glacier retreat, nor does it suggest that glacier retreat is an indicator of climate change. Instead, the article primarily laments the loss of ice, implying that it is the replacement of ice with "bare mountainsides" that is tragic. This point of view, of course, is very subjective, because a rock aficionado might appreciate the elimination of glaciers, just as ecologists were thrilled to establish Alaska's Glacier Bay National Park nearly a century ago precisely because the glaciers were retreating, which allowed them to study plant colonization and succession on newly opened landscapes.[46] Lamenting glacier retreat is a point of view that demonstrates how journalists value the tourist scenery in national parks.

This cultural construction of glaciers in recent years stands out when compared to past representations of glaciers in the national park. An analysis of a dozen guidebooks written about Glacier between 1910 and 1995 shows how past commentators did not apply such value judgments to glacier changes. For one thing, glaciers have only come to be the focus of Glacier National Park in the past decade or so. Previously, commentators remarked on the glaciers as one among many other remarkable features of the park. The geologist Marius R. Campbell pointed out in 1914 that glaciers "can hardly be considered [the park's] most striking feature. The traveler passing through it for the first time is generally impressed more by the ruggedness of the mountain tops, the great vertical walls which bound them, and the beauty of the forests, lakes, and streams, than by the glaciers."[47] Robert Sterling Yard noted in 1920 that "Glacier National Park is so named because in the hollow of its rugged mountain tops lie more than 60 *small* glaciers, the remainders of ancient monsters which once covered all but the highest mountain peaks."[48] Most guidebooks focused on the lakes, waterfalls, and majestic mountain vistas, not glaciers, in their description of tourist destinations in the park.[49] When authors did discuss glaciers, they usually portrayed them as dynamic, ever-changing bodies of ice that come and go, carving the magnificent landscape in the process.[50] As one wrote in 1963, "The growth and decay of the early glaciers was uneven and interrupted. There were numerous fluctuations and periods of little change. The ice may have completely disappeared from the area even within historic times."[51] The point to note in these depictions of Glacier's glaciers up until the late twentieth century is their recognition of glaciers that retreat and advance, even disappear—and they explain this without value judgment. In fact, these authors recognize that it is precisely because of significant glacier retreat that the park's scenery exists, thereby contrasting with today's lament for lost ice as if glaciers were static, unchanging living things.

When journalists underscore the rate of glacier retreat and show deep nostalgia or longing for the supposedly good old climate of the past, they convey a belief that national parks should remain static and unchanged. Commentators talk about "losing" parks to climate change, while others mention how climate change creates "an ecosystem out of balance" or how it upsets "intact ecosystems."[52] Some refer to past climatic conditions as allowing parks to be "healthy" or having "undisturbed ecosystems."[53] Global warming, on the other hand, causes national parks to lose their "natural condition" and become "an ecosystem out of balance."[54] This suggestion that past environmental conditions were static can occur with discussions of species migrations in national parks. Researchers note that global warming will drive species to higher areas to maintain their ecological and climatic niche. Few of the media accounts, however, indicate that climatic shifts have always occurred; they neglect to say that the real issue is the rapid rate of change in recent decades. Without discussing the various rates of change, readers are left to (mis)assume that static landscapes and climates existed until the last few decades. Still others talk about seeing Glacier and other parks threatened by climate change and melting ice as destinations to see "before they [the parks] die."[55] Glaciers, pikas, and forest fires will likely undergo dramatic alterations from climate change.[56] But nature is also in constant flux, and the idea of static, unchanging nature is inaccurate.[57] The media accounts do little to clarify these differences, even if they are likely referring to the stunning rate of changes and the value of anything that is lost. Without such explanations, their messages convey the sentiment that national parks are unchanging—indeed, that they are places where the scenery and environments should not change. In many ways this view corresponds to the 1916 enabling legislation that created the National Park Service and set out to preserve parks "unimpaired for the enjoyment of future generations." Critics of wilderness have since pointed out that nature in national parks is as much a cultural construction as it is "wild," while they have also shown that nature is never static.[58] These traditional views of national parks as static wilderness, however, continue to exist, and the global warming narrative exemplifies how the static wilderness

JAMES G. LEWIS

Glaciers have only become the focus of Glacier National Park in the past decade or so. Most guidebooks used to focus on the variety of landscape features such as wildlife and high peaks. Now media accounts exhort readers to visit soon before the glaciers disappear, giving the impression that there is little of interest beyond the glaciers in the park's one million acres.

ideal both reflects this view and is perpetuated through such media accounts of climate change in Glacier.

Perceptions of the impact that glacier retreat in Glacier National Park will have on freshwater supplies helps illustrate the different views of parks in the United States and Peru. In Montana the impact of glacier shrinkage on human societies is largely absent, except for tourists, as news stories instead refer vaguely to environmental impacts. One news article about that process explained the rate of past glacier loss in Glacier, as well as the predicted outcome of having no glaciers by 2030. But the article never mentions any effects of these shrinking glaciers except to report that "climate change is eliminating glaciers and harming the park environment."[59] Another account explains that "there's more to glaciers than just beauty. They also play a crucial role in the ecosystem, and their disappearance may have widespread consequences."[60] It says glaciers provide water and help with the health of aquatic and riparian ecosystems, just as another article claims the disappearing glaciers are "endangering the region's plants and animals."[61] But how? Most articles do not explain precisely how, even though a few scientists have been studying climate-glacier-hydrology dynamics in Glacier.[62] Despite their studies, the U.S. Geological Survey still explains on its website that "few measurements of glacier volume or mass have been made. Measurements of area alone can be misleading; changes in mass and/or ice flux can result in significant changes to the glacier and to streamflow below the glacier even when glacier area remains stable. Though hydrologic changes such as these can have important ecologic effects downstream of the glaciers, the nature and extent of changes in runoff volume, and stream temperature have not been measured or analyzed."[63] In fact, it is not even clear what percent of the water supplied to Glacier National Park and surrounding areas comes from glaciers, or how much water supplies will decline if glaciers vanish altogether. This lack of evidence makes it difficult to determine if glacier shrinkage will, in fact, result in "losing an important source of fresh water."[64] Without much data available or analysis of the complex ways in which glacier volume affects downstream water supplies, it seems the media reports might be exaggerating the worries about glacier retreat for downstream hydrology.

But more relevant for what this climate discourse says about perceptions of national parks is the way the concerns about glacier-water fluctuations rarely mention local people—even though tens of thousands of people live outside Glacier National Park, including those on the Blackfeet Indian Reservation, and even though the Hungry Horse hydroelectric station outside Glacier generates more energy than the Cañón del Pato station outside Huascarán. Still, the discourse about Glacier largely overlooks the presence of local people, which contrasts markedly to portrayals of the national park in Peru. These views of climate change impacts thus illustrate how U.S. national parks can be viewed as an isolated landscape, where static nature is separate from people but preserved—preferably unchanged—for tourists. Despite a few decades of critical scholarship on national parks and wilderness, the traditional views of parks as untarnished by and disconnected from human beings remain prevalent, embedded in depictions of climate change impacts and continuing to drive NGO and environmental group agendas in parks.

CONCLUSIONS

Key similarities stand out in the analysis of popular media about Huascarán and Glacier National Parks. In both parks, climate discourse reveals embedded ideals about static nature and the way

T. J. HILEMAN, GLACIER NATIONAL PARK ARCHIVES

Changes in Iceberg Glacier in eastern Glacier National Park are noticeable when comparing these photos taken in 1940 (left) and 2010 (right). It is common for media accounts to focus on the loss of the ice as the main climate story.

parks should preserve scenery primarily for tourists. Yet this discursive analysis also shows how perceptions of national parks in the two countries are also quite distinct. Unlike the discourse about Glacier that characterizes the park as an isolated, island wilderness area separate from human societies and culture, portrayals of Huascarán National Park tend to focus on its inextricable interconnections with surrounding societies. In particular, media and NGO accounts reveal that Huascarán is the source of many natural hazards that affect Peruvian populations; they also note how the park is central to the local tourism economy and a vital source of water and other ecosystem services. The severe human impacts of climate change that journalists discuss for Huascarán also reveal how much more acute climate effects are in the Andes than in northern Montana. What's more, nature and culture do not seem nearly so discursively divided in Peru as in the United States. Despite blurring nature-culture boundaries, however, journalists do nonetheless reveal a type of environmental reductionism for Huascarán that overlooks the role of cultural ingenuity, ignores the possibility of human adaptation to climate change in the future, and minimizes past Peruvian accomplishments. Overall, though, this utilitarian view of the socioeconomic and natural resource dimensions of Huascarán National Park contrasts markedly with the representation of Glacier National Park, which is portrayed primarily as tourist scenery and a place of biodiversity, with only limited mention of surrounding human populations.

Cautiously using these two parks as representations of national parks in Peru and the United States suggests key differences in the purpose and meaning of parks in the two countries, at least as uncovered in the popular media. The principal distinction lies at the heart of the U.S. Yellowstone model: evicting local people (both physically and discursively) from national parks to create supposed pristine wilderness landscapes.[65] In Latin America park developers have, to a degree, avoided this Yellowstone model through time. Instead, national parks with human residents have been common, and parks for utilitarian purposes—such as watershed conservation for urban populations—have been the norm.[66] Fortress conservation that blocks out everyone except tourists through policies and rhetoric has been the main practice in the United States. But in Peru as elsewhere in Latin America, national parks have never been as divorced from local populations as in the United States.

The analysis of climate discourse in national parks also has implications for responses to global warming. Many of the media accounts do not discuss broader implications of glacier retreat and species changes in these two parks. Nor do they recognize and convey the complexity of human societies or the role of both human and nonhuman variables that can cause environmental or societal changes. National park narratives thus penetrate the discussion of climate change impacts and affect the types of responses or solutions that might emerge. In Huascarán, a change in the representations could bring human variables into the climate change equation even more explicitly and meaningfully than they have been. More realistic identification of populations exposed to glacier hazards could target the placement of disaster prevention programs and direct attention to issues of socioeconomic and political inequality that exacerbate vulnerability and lead to disproportionate impacts of climate change. Recognition of past

JAMES G. LEWIS

Peruvian achievements in the prevention of GLOFs could assist other regions. Finally, the acknowledgment of human water management practices alongside discussion of climate-glacier-hydrology frameworks would link societal and environmental forces while also projecting future scenarios that actually have people in them. In Glacier the discourse tends to focus on more cosmetic issues such as glacier (scenery) loss, rather than trying to discern the effects of glacier shrinkage for downstream water users, or the impacts of ice loss on stream ecology, or the potential impacts on the tourism economy. Media reports tend to recapitulate the same themes about lamentable glacier shrinkage without digging deeper into other human or ecosystem issues, such as species migration, forest fires, or precipitation and snowpack changes. A different narrative could shift the climate discourse toward actual impacts that require the implementation of adaptive measures. This different approach to climate change adaptation might be impossible, however, without first generating fresh narratives of nature and new perspectives on national parks. □

Mark Carey is professor of history and environmental studies in the Robert D. Clark Honors College at the University of Oregon. *This article first appeared as a chapter in Adrian Howkins, Jared Orsi, and Mark Fiege, eds.,* National Parks beyond the Nation: Global Perspectives on "America's Best Idea" *(University of Oklahoma Press, 2016). The work is based in part on research supported by the National Science Foundation grants No. 1010550 and No. 1253779.*

NOTES

1. Stephen Saunders, Tom Easley, and Suzanne Farver, *National Parks in Peril: The Threats of Climate Disruption* (Denver, CO: Rocky Mountain Climate Organization and Natural Resources Defense Council, 2009), v.
2. Bill McKibben, *The End of Nature* (New York: Random House, 1989); Mike Hulme, *Why We Disagree about Climate Change: Understanding Controversy, Inaction, and Opportunity* (New York: Cambridge University Press, 2009).
3. For example, J. Baird Callicott and Michael P. Nelson, eds., *The Great New Wilderness Debate: An Expansive Collection of Writings Defining Wilderness from John Muir to Gary Snyder* (Athens: University of Georgia Press, 1998); Candace Slater, ed., *In Search of the Rain Forest* (Durham, NC: Duke University Press, 2003); William Cronon, "The Trouble with Wilderness; or, Getting Back to the Wrong Nature," in *Uncommon Ground: Rethinking the Human Place in Nature*, ed. William Cronon (New York: W. W. Norton, 1996), 69–90.
4. For more on coupled human-natural systems, hybrid landscapes, and social-ecological systems, see B. L. Turner and et al., "Illustrating the Coupled Human–Environment System for Vulnerability Analysis: Three Case Studies," *Proceedings of the National Academy of Sciences* 100, no. 14 (2003): 8080–85; Richard White, "From Wilderness to Hybrid Landscapes: The Cultural Turn in Environmental History," *Historian* 66, no. 3 (2004): 557–64; Oran R. Young et al., "The Globalization of Socio-Ecological Systems: An Agenda for Scientific Research," *Global Environmental Change* 16 (2006): 304–16.
5. For more on how parks became places for recreation more than species preservation or scientific research, see Susan R. Schrepfer, *Nature's Altars: Mountains, Gender, and American Environmentalism* (Lawrence: University Press of Kansas, 2005); Patrick Kupper, "Science and the National Parks: A Transatlantic Perspective on the Interwar Years," *Environmental History* 14, no. 1 (2009): 58–81.
6. Mark Carey, *In the Shadow of Melting Glaciers: Climate Change and Andean Society* (New York: Oxford University Press, 2010); Mark Carey, Adam French, and Elliott O'Brien, "Unintended Effects of Technology on Climate Change Adaptation: An Historical Analysis of Water Conflicts below Andean Glaciers," *Journal of Historical Geography* 38, no. 2 (2012): 181–91.

7. For the work of two scholars who have critiqued both "camps," see Hulme, *Why We Disagree about Climate Change*; Roger Pielke, Jr., "Misdefining 'Climate Change': Consequences for Science and Action," *Environmental Science and Policy* 8 (2005): 548–61.
8. See, for example, Cronon, *Uncommon Ground*; Richard Drayton, *Nature's Government: Science, Imperial Britain, and the "Improvement" of the World* (New Haven, CT: Yale University Press, 2000); Nancy Leys Stepan, *Picturing Tropical Nature* (Ithaca, NY: Cornell University Press, 2001).
9. For more park details, see United Nations Environment Programme and World Conservation Monitoring Centre, "World Heritage Sites: Huascarán National Park," http://whc.unesco.org/en/list/333 (accessed August 3, 2015).
10. Mark Carey, "Mountaineers and Engineers: An Environmental History of International Sport, Science, and Landscape Consumption in Twentieth-Century Peru," *Hispanic American Historical Review* 92, no. 1 (2012): 107–41; Thierry Lefebvre, "L'invention occidentale de la haute montagne andine," *Mappemonde* 79, no. 3 (2005), available at http://mappemonde.mgm.fr/num7/articles/art05307.html (accessed January 21, 2009); César Morales Arnao, *Andinismo en la Cordillera Blanca* (Callao, Peru: Imprenta Colegio Militar Leoncio Prado, Le Perla, 1968); Erwin Grötzbach, "Tourism in the Cordillera Blanca Region, Peru," *Revista Geográfica (Instituto Panamericano de Geografia e Historia, OEA)* 133 (2003).
11. For example, Carlos Ponce del Prado, *Resumen de los parques nacionales y reservas equivalentes del Perú* (Lima: Dirección General Forestal de Caza y Tierras, Ministerio de Agricultura, 1971). For the emphasis on forests, see assorted documents in Record Group 79 (National Park Service), Entry 11: Administrative Files, 1949–71, Box 2170, Folder: "[Foreign Parks] Land Planning Division, Peru, 1940," Location: RG 79/570/81/10/3, US National Archives (NARA), College Park, Maryland.
12. Belén Delgado, "Excursion al cambio climático" (latam.msn.com: MSN Perú, 2010); Simeon Tegel, "La desglaciación de la cordillera andina," *El País*, September 29, 2011, http://sociedad.elpais.com/sociedad/2011/09/29/actualidad/1317247202_850215.html (accessed August 3, 2015); Rick Vecchio, "Global Warming Impact: Peru's Pastoruri Glacier Recedes into Two Patches of Ice," *Peruvian Times*, December 20, 2007, http://www.peruviantimes.com/20/global-warming-impact-perus-pastoruri-glacier-recedes-into-two-patches-of-ice/70 (accessed August 14, 2011); Norberto Ovando, "Impacts of Climate Change on Protected Areas and Glaciers: Focus Latin America," August 21, 2008 (accessed August 3, 2015); "El Parque Nacional Huascarán está en peligro: urge salvarlo," *La República*, November 21, 2004, http://archivo.larepublica.pe/21-11-2004/el-parque-nacional-huascaran-esta-en-peligro-urge-salvarlo (accessed August 3, 2015).
13. For example, Leslie Josephs, "Peru's Mountain Glaciers Are Melting Away," MSNBC, February 16, 2007, http://www.msnbc.msn.com/id/17113441/ns/us_news-environment/t/perus-mountain-glaciers-are-melting-away/ (accessed August 14, 2011).
14. Simeon Tegel, "The Changing Face of Andean Glaciers," *The Independent—Blogs*, September 2, 2011, http://blogs.independent.co.uk/2011/09/02/the-changing-face-of-andean-glaciers/ (accessed February 2, 2012).
15. "Goodbye Huascarán," July 10, 2006, http://enperublog.com/2006/07/10/goodbye-huascaran/ (accessed February 2, 2012). Also see "Andean Glaciers 'Could Disappear': World Bank," PhysOrg (February 18, 2009), http://www.physorg.com/news154187547.html (accessed August 15, 2011).
16. For the most recent scholarship, see Georg Kaser and Henry Osmaston, *Tropical Glaciers* (New York: Cambridge University Press, 2002); Adina E. Racoviteanu et al., "Decadal Changes in Glacier Parameters in the Cordillera Blanca, Peru, Derived from Remote Sensing," *Journal of Glaciology* 54, no. 186 (2008): 499–510; Mathias Vuille et al., "Climate Change and Tropical Andean Glaciers: Past, Present and Future," *Earth-Science Reviews* 89, no. 3–4 (2008): 79–96; Mathias Vuille, Georg Kaser, and Irmgard Juen, "Glacier Mass Balance Variability in the Cordillera Blanca, Peru and Its Relationship with Climate and the Large-Scale Circulation," *Global and Planetary Change* 62, no. 1–2 (2008): 14–28.
17. Aura Sabadus, "Call to Save Wonders of the World That Face Climate Catastrophe," *Scotsman (Edinburough)*, July 10, 2006, http://news.scotsman.com/everest/Call-to-save-wonders-of.2790961.jp (accessed February 2, 2012). Also see Ovando, "Impacts of Climate Change.
18. Nicole E. Heller and Erika S. Zavaleta, "Biodiversity Management in the Face of Climate Change: A Review of 22 Years of Recommendations," *Biological Conservation* 142, no. 1 (2009): 18; Lee Hannah et al., "Protected Area Needs in a Changing Climate," *Frontiers in Ecology and the Environment* 5, no. 3 (2007): 131–38; Craig Moritz et al., "Impact of a Century of Climate Change on Small-Mammal Communities in Yosemite National Park, USA," *Science* 322, no. 5899 (2008): 261–64.
19. Alcides Ames, "A Documentation of Glacier Tongue Variations and Lake Development in the Cordillera Blanca, Peru," *Zeitschrift für Gletscherkunde und Glazialgeologie* 34, no. 1 (1998): 1–36; Mark Carey, *In the Shadow of Melting Glaciers*; Marco Zapata Luyo, "La dinámica glaciar en lagunas de la Cordillera Blanca," *Acta Montana* (Czech Republic) 19, no. 123 (2002): 37–60.
20. Augustin Colette et al., *Case Studies in Climate Change and World Heritage* (Paris: UNESCO World Heritage Centre, 2007).
21. Sabadus, "Call to Save Wonders of the World."
22. Jeffrey Bury et al., "Glacier Recession and Human Vulnerability in the Yanamarey Watershed of the Cordillera Blanca, Peru," *Climatic Change* 105, no. 1–2 (2011): 179–206; Bryan G. Mark et al., "Climate Change and Tropical Andean Glacier Recession: Evaluating Hydrologic Changes and Livelihood Vulnerability in the Cordillera Blanca, Peru," *Annals of the Association of American Geographers* 100, no. 4 (2010): 794–805; INEI, *The 2007 National Census: XI of Population and VI of Houses* (Lima: Institute of National Statistics and Information, 2007).
23. Sabadus, "Call to Save Wonders of the World"; also see Gregory J. Rummo, "Climate Change in the Peruvian Andes," *New Jersey News*, December 8, 2010, http://www.newjerseynewsroom.com/international/climate-change-in-the-peruvian-andes (accessed August 14, 2011); George E. Ericksen, George Plafker, and Jaime Fernández Concha, "Preliminary Report on the Geological Events Associated with the May 31, 1970, Peru Earthquake," *United States Geological Survey Circular* 639 (1970): 1–25; S. G. Evans et al., "A Re-Examination of the Mechanism and Human Impact of Catastrophic Mass Flos Originating on Nevado Huascarán, Cordillera Blanca, Peru in 1962 and 1970," *Engineering Geology* 108, no. 102 (2009): 96–118.
24. "'La ruta del cambio climático,' un proyecto que busca recuperar el turismo en Pastoruri," *El Comercio*, July 5, 2010, http://elcomercio.pe/planeta/505913/noticia-ruta-cambio-climatico-proyecto-que-busca-recuperar-turismo-pastoruri (accessed February 17, 2012); Vanessa Roma Espinoza, "Soldados de hielo: encargados de cuidar el Parque Nacional Huascarán," *El Comercio*, August 1, 2011, http://elcomercio.pe/planeta/958366/noticia-soldados-hielo-encargados-proteger-parque-nacional-huascaran (accessed February 17, 2012); Martin Riepl, "El guardián del hielo," *Etiqueta Negra*, February 1, 2012, http://etiquetanegra.com.pe/articulos/el-guardian-del-hielo (accessed August 3, 2015).
25. "Current Threats to Traditional Medicine in the Andes (and Elsewhere)," *Exploring Traditional Andean Medicine in Peru*, http://traditionalmedicineinperuandes.weebly.com/current-threats.html (accessed February 3, 2012).
26. John Vidal, "Cities in Peril as Andean Glaciers Melt," *The Guardian*, August 28, 2006, http://www.theguardian.com/environment/2006/aug/29/glaciers.climatechange (accessed February 3, 2012).
27. Dava Castillo, "Glaciers Are Melting: Causes, Consequences and Innovation," *Climate Himalaya*, June 10, 2011, http://chimalaya.org/2011/06/10/glaciers-are-melting-causes-consequences-and-innovation (accessed August 3, 2015).
28. Richard Black et al., "The Effect of Environmental Change on Human Migration," *Global Environmental Change* 21, Supplement 1 (2011): 3–11.
29. For example, Vecchio, "Global Warming Impact"; Josephs, "Peru's Mountain Glaciers Are Melting Away"; "El Parque Nacional Huascarán está en peligro."
30. Rummo, "Climate Change in the Peruvian Andes."
31. Heather Somerville, "Glacier Melt in Peru Becomes More than a Climate Issue," *Washington Post*, January 16, 2011, http://www.washingtonpost.com/wp-dyn/content/article/2011/01/16/AR2011011604900.html (accessed July 27, 2011).
32. Jorge Zavaleta, "Cordillera Blanca: Negro futuro," *La Primera*, September 17, 2008, http://www.diariolaprimeraperu.com/online/informe-especial/cordillera-blanca-negro-futuro_23668.html (accessed August 3, 2015). Also see Vidal, "Cities in Peril as Andean Glaciers Melt"; Josephs, "Peru's Mountain Glaciers Are Melting Away"; Somerville, "Glacier Melt in Peru."
33. Irmgard Juen, Georg Kaser, and Christian Georges, "Modelling Observed and Future Runoff from a Glacierized Tropical Catchment (Cordillera Blanca, Perú)," *Global and Planetary Change* 59, no. 1–4 (2007): 37–48; Walter Vergara et al., *Assessment of the Impacts of Climate Change on Mountain Hydrology: Development of a Methodology through a Case Study in Peru* (Washington, DC:

The World Bank, 2010); Pierre Chevallier et al., "Climate Change Threats to Environment in the Tropical Andes: Glaciers and Water Resources," *Regional Environmental Change* 11, no. Supplement 1 (2011): S179–S187.

34. Michel Baraer et al., "Glacier Recession and Water Resources in Peru's Cordillera Blanca," *Journal of Glaciology* 58, no. 207 (2012): 134–50.
35. M. Baraer et al., "Characterizing Contributions of Glacier Melt and Groundwater during the Dry Season in a Poorly Gauged Catchment of the Cordillera Blanca (Peru)," *Advances in Geosciences* 22 (2009): 41–49.
36. Jeffrey Bury et al., "New Geographies of Water and Climate Change in Peru: Coupled Natural and Social Transformations in the Rio Santa Watershed," *Annals of the Association of American Geographers* 103 (2013): 363–74; Mark Carey et al., "Toward Hydro-Social Modeling: Merging Human Variables and the Social Sciences with Climate-Glacier Runoff Models (Santa River, Peru)," *Journal of Hydrology* 518, Part A (2013): 60–70.
37. Mike Hulme, "Reducing the Future to Climate: A Story of Climate Determinism and Reductionism," *Osiris* 26 (2011): 245.
38. Sarah Alyssa, "Peru's Vanishing Glaciers," Student News Action Network, April 8, 2011, http://newsaction.tigweb.org/article/peru-s-vanishing-glaciers (accessed August 15, 2011). Also see Somerville, "Glacier Melt in Peru."
39. Carey, *In the Shadow of Melting Glaciers*.
40. The full text of Gore's speech is at http://clinton3.nara.gov/WH/EOP/OVP/speeches/glacier.html (accessed January 27, 2012). Gore reiterates, refines, and broadens these comments in his film, *An Inconvenient Truth* (2006).
41. U.S. National Park Service Organic Act (16 U.S.C. 12 3, and 4), August 25, 1916, http://www.nps.gov/parkhistory/online_books/anps/anps_1i.htm (accessed August 3, 2015).
42. Robert H. Keller and Michael F. Turek, *American Indians and National Parks* (Tucson: University of Arizona Press, 1998); Mark David Spence, *Dispossessing the Wilderness: Indian Removal and the Making of the National Parks* (New York: Oxford University Press, 2000).
43. Lindsay Godfree, "Climate Change in Glacier National Park Threatens to Melt Glaciers, Harm Tourism in Near Future," *Cross Country Travel Examiner*, April 23, 2010, http://www.examiner.com/cross-country-travel-in-national/climate-change-glacier-national-park-threatens-to-melt-glaciers-harm-tourism-near-future (accessed February 15, 2012).
44. Gregory T. Pederson et al., "Decadal-Scale Climate Drivers for Glacial Dynamics in Glacier National Park, Montana, USA," *Geophysical Research Letters* 31, no. 12 (2004): L12203; Joel Harper, Joel Brown, and Neil Humphrey, "Cirque Glacier Sensitivity to 21st Century Warming: Sperry Glacier, Rocky Mountains, USA," *Global and Planetary Change* 74, no. 2 (2010): 8; Joseph M. Shea, Shawn J. Marshall, and Joanne M. Livingston, "Glacier Distributions and Climate in the Canadian Rockies," *Arctic, Antarctic, and Alpine Research* 36, no. 2 (2004): 7; Myrna H. P. Hall and Daniel B. Fagre, "Modeled Climate-Induced Glacier Change in Glacier National Park, 1850–2100," *BioScience* 53, no. 2 (2003): 9.
45. Bjorn Carey, "Glaciers Disappear in Before and After Photos," *LiveScience*, March 24, 2006, http://www.livescience.com/674-glaciers-disappear-photos.html. For other examples of articles that stress glaciers as scenery, see Chris Peterson, "Global Warming Rally in Glacier," *Hungry Horse News*, April 11, 2007, http://www.flatheadnewsgroup.com/hungryhorsenews/news/global-warming-rally-in-glacier/article_cd5ae19f-ed25-5b6c-a4cb-09775bd0f7c4.html (accessed August 3, 2015); Dan Shapley, "Endangered Vacations," *Daily Green*, 2009, http://preview.www.thedailygreen.com/environmental-news/latest/endangered-vacations-video (accessed August 3, 2015); Kate Sheppard, "What Global Warming Could Do to National Parks," *Grist*, July 17, 2007, http://grist.org/article/it-aint-natural1 (accessed August 3, 2015); Daniel B. Wood, "How Climate Change May Be Threatening National Parks," *Christian Science Monitor*, April 9, 2009, http://www.csmonitor.com/Environment/Global-Warming/2009/ 0409/how-climate-change-may-be-threatening-national-parks (accessed August 3, 2015).
46. Theodore Catton, *Inhabited Wilderness: Indians, Eskimos, and National Parks in Alaska* (Albuquerque: University of New Mexico Press, 1997).
47. Marius R. Campbell, *Origin of the Scenic Features of the Glacier National Park* (Washington, DC: Department of the Interior/Government Printing Office, 1914), 3.
48. Robert Sterling Yard, *Glimpses of Our National Parks* (Washington, DC: Government Printing Office, 1920), 40 (emphasis added).
49. Mathilde Edith Holtz and Katharine Isabel Bemis, *Glacier National Park: Its Trails and Treasures* (New York: George H. Doran, 1917); Mitchell Mannering, "The New Glacier National Park," *National Magazine* 37 (1913): 69–76; George Ruhle, *Guide to Glacier National Park*, rev. ed. (Minneapolis: John W. Forney, 1963).
50. Yard, *Glimpses of Our National Parks*, 42.
51. Ruhle, *Guide to Glacier National Park*, 156. Also see David Rockwell, *Glacier National Park: A Natural History Guide:* (Boston: Houghton Mifflin, 1995), vii–viii; Holtz and Bemis, *Glacier National Park*; Nancy Trejos, "Glacier National Park on Ice," *Washington Post*, August 5, 2011.
52. Mary Bruno, "Our Parks in Peril," *Grist*, October 2, 2009; Leslie Burliant, "America's National Parks: Canaries in the Climate Change Coal Mine," *InsideClimate News*, August 7, 2009, http://solveclimatenews.com/news/20090807/americas-national-parks-canaries-climate-change-coal-mine (accessed August 3, 2015); Jessie Lussier, "Climate Change vs. National Parks," Backpacker.com, 2009 (no longer available).
53. Wood, "How Climate Change May Be Threatening National Parks."
54. Burliant, "America's National Parks."
55. Shapley, "Endangered Vacations." Also see Daniel Terdiman, "Climate Change Taking a Toll on Glacier National Park" CNET, July 16, 2009, http://www.cnet.com/news/climate-change-taking-toll-on-glacier-national-park/ (accessed August 3, 2015); "Climate Change: Making the Nation's Bears Hungry?" National Public Radio, July 16, 2011, http://www.npr.org/2011/04/16/135468901/climate-change-making-the-nations-bears-hungry (accessed August 3, 2015); Mark Wenzler, "Helping America's National Parks Survive Climate Change," *Grist*, May 8, 2009, http://grist.org/ article/2009-05-08-national-parks-climate-change/ (accessed August 3, 2015); "Warmer Climate Could Spark More Severe Yellowstone Fires," Livescience.com, July 25, 2011, http://www.livescience.com/15219-yellowstone-wildfires-increased-climate-change.html (accessed August 3, 2015).
56. Moritz et al., "Impact of a Century of Climate Change"; Anthony L. Westerling et al., "Continued Warming Could Transform Greater Yellowstone Fire Regimes by Mid-21st Century," *Proceedings of the National Academy of Sciences* 108, no. 32 (2011): 13165–70.
57. See, for example, P. C. D. Milly et al., "Stationarity Is Dead: Whither Water Management?" *Science* 319, no. 5863 (2008): 573–74.
58. See, for example, Cronon, "Trouble with Wilderness."
59. Associated Press, "Endangered Status for Glacier Park?" NBC News, February 16, 2006, http://www.nbcnews.com/id/11389665/ns/us_news-environment/t/endangered-status-glacier-national-park/#.Vb_m67VK8sI (accessed August 3, 2015). Also see Stephen P. Nash, "Twilight of the Glaciers," *New York Times* (July 29, 2011), http://travel.nytimes.com/2011/07/31/travel/glacier-national-park-montana-fading-glaciers.html?pagewanted=all (accessed February 12, 2012).
60. Terdiman, "Climate Change Taking a Toll on Glacier National Park."
61. Joseph Romm, "Glacier National Park to Go Glacier-Free a Decade Early," March 3, 2009, http://grist.org/article/welcome-to-_____-national-park/ (accessed August 3, 2015).
62. Scientists have examined some of these issues: Daniel B. Fagre et al., "Watershed Responses to Climate Change at Glacier National Park," *JAWRA Journal of the American Water Resources Association* 33, no. 4 (1997): 755–65; Frederick I. Klasner and Daniel B. Fagre, "A Half Century of Change in Alpine Treeline Patterns at Glacier National Park, Montana, USA," *Arctic, Antarctic, and Alpine Research* 34, no. 1 (2002): 7; Gregory T. Pederson et al., "Long-Duration Drought Variability and Impacts on Ecosystem Services: A Case Study from Glacier National Park, Montana," *Earth Interactions* 10, no. 4 (2006): 28.
63. U.S. Geological Survey, Northern Rocky Mountain Science Center, "Glacier Monitoring Studies: Monitoring and Assessing Glacier Changes and Their Associated Hydrologic and Ecologic Effects in Glacier National Park," http://www.nrmsc.usgs.gov/research/glaciers.htm (accessed February 12, 2012).
64. Terdiman, "Climate Change Taking a Toll on Glacier National Park."
65. Stan Stevens, "The Legacy of Yellowstone," in *Conservation through Cultural Survival: Indigenous Peoples and Protected Areas*, ed. Stan Stevens (Washington, DC: Island Press, 1997), 13–32.
66. Stephan Amend and Thora Amend, eds., *National Parks without People? The South American Experience* (Quito, Ecuador: IUCN/Parques Nacionales y Conservación Ambiental, 1995); Emily Wakild, *Revolutionary Parks: Conservation, Social Justice, and Mexico's National Parks, 1910–1940* (Tucson: University of Arizona Press, 2011).