

Pilgrimage

A journey to witness climate change in the national parks

Elise Wallace



“IT’S GOOD THAT YOU’RE SEEING THIS NOW BECAUSE IT’S ABOUT TO GET catastrophic,” Sean Shaheen, a retired wildlife biologist, told me. It was afternoon and we were standing in his front yard east of Yellowstone National Park near Cody, Wyoming. Despite the stormy and warm June day, our conversation began when I asked about winter. To Shaheen, winters aren’t so bad anymore. He remembered when there was about a month of temperatures near –30 degrees Fahrenheit, but now it rarely gets below zero.

I was traveling in my converted 2007 Dodge Sprinter van to various national parks and rented a spot in Shaheen’s yard for a few nights. It was cheaper than a national park camp spot, if there were even any available. By June, Yellowstone had broken visitation records and the trend continued. Ultimately, the yearly total visitors neared 300 million people—25 percent more than the previous year.

I hesitated to ask Shaheen’s opinion about the warmer winters; the heat, and the presidential election seven months prior, strained conversations. I tried to pose the question neutrally: “What do you attribute it to?”

He eyed me carefully. We were each treading lightly.

“It’s called global climate change.”

On June 12, 2021, I began driving southwest from Acadia National Park. I was on a journey to see the western United States for the first time while pursuing research partially funded by the University of New Hampshire: to observe the effects of climate change in the national park system. I drove across the Midwest, through the Rocky Mountains in Colorado, and into the Utah desert before crossing back into southern Colorado and east to my childhood home in North Carolina. In addition to my house on wheels—a full kitchen with a stove, an extendable bed, a hideaway table and bench seats, a bookshelf, water tanks, a propane-powered shower and all of my belongings—I brought with me a collection of climate change research I had compiled during the previous winter.

The articles focused specifically on the effects of climate change in the national park system. These public lands are especially vulnerable to temperature increases and precipitation decreases. Thus the protected ecological systems are exposed to more intense impacts than the rest of the country. This is what a research article, “Disproportionate magnitude of climate

Diapensia bloom in early June in the fragile zone on the Alpine Garden Trail on New Hampshire’s Mount Washington. EMILY DAVENPORT

change in United States National Parks” (*Environmental Research Letters* 13, 2018), by University of California climate scientist Patrick Gonzalez and a team of colleagues, concluded. They attributed the imbalance to the unique geography within the national parks. “This occurs because extensive parts of the national park area are in the Arctic, at high elevations, or in the arid southwestern U.S.”

There is no question the national parks are special. With this research, the designation takes on a fresh meaning. And while the research focuses on parks, the ecological extrapolation is more dire. Many unprotected areas are impacted because they, too, are in fragile locations. Some of these areas have been close to me throughout my life: the slivers of temperate rainforest in the southern Appalachians of North Carolina are at risk, and also the alpine regions of the White Mountains of New Hampshire.

I live and teach north of New Hampshire’s Franconia Notch State Park. From my home I can climb a small hill and see Mount Washington. The high peaks of the White Mountains are a true alpine zone characterized by a lack of trees, and they are populated with plants found in other high-elevation ecosystems in the world and in the Arctic Circle. Below the alpine zone is the krummholz (a literal German translation is “crooked tree”)—small hardy conifers that grow just a few feet high as a result of abrasive winds. Below the twisted trees lies the boreal zone, which is also mostly conifers but taller, with paper birches appearing at the lowest elevations of this zone. Some naturalists distinguish between three subzones within the boreal range. A mixed northern forest is the lowest zone, where temperate hardwoods such as maple and yellow birch greet hikers at trailheads. All of these zones are affected by climate change, but the alpine zone—the zone that draws me and millions of visitors each year—is most susceptible.

The Mount Washington Observatory has been gathering climate data since 1932. Nearly a century’s worth of data is telling a clear story about climate change in the White Mountains. According to the journal *Northeastern Naturalist*, the winter seasons are warming the fastest. Overall, the average temperature on Mount Washington has risen 1.5 degrees Fahrenheit, and 2.1 degrees in Pinkham Notch, which has seen a decrease in snowfall by 68 inches since 1935. The treeline has been rising throughout the White Mountains, which means the alpine zone is disappearing. Birds and mammals are changing their typical ranges in order to find food, escape predators that are new in their territory, or seek cooler temperatures.

The White Mountain National Forest was created in 1918 as a result of public outcry; intense logging had ruined the mountain range. Unimpacted vistas were lost, and watersheds were polluted. Waterways were disrupted, which impacted mill towns at lower elevations. While the creation of the national forest did not eliminate all logging in the forest, the timber industry is no longer the most significant threat to these mountains. The climate crisis supersedes even the intense clearcutting of the nineteenth century because it is infinitely more complex. The sources and causes are global, varied, and ubiquitous. The timber industry was a single opponent defeated with an act of conservation that grew from 7,000 acres to now more than 800,000. Climate change, on the other hand, is a monster with a thousand regenerative heads.

It is a daunting task to consider where to begin protection efforts. I'm not quite sure what actions will have the largest impact or if any combination will alter the trajectory of climatologists' projections. While scientists, researchers, activists, and fundraisers are making valuable efforts, the crisis feels overwhelming. At the same time that I feel helpless, I can't help but respond to the desperation I feel. I must protect the mountains that bring a sublime joy to my life. While hiking, I often recite lines from William Wordsworth's poem "Lines Composed a Few Miles Above Tintern Abbey"—an expression of his longing when he was away from the hills of northern England:

To them I may have owed another gift,
of aspect more sublime; that blessed mood
in which the burden of the mystery
in which the heavy and the weary weight
of all this unintelligible world
is lightened.

Yet the gift I now receive from the northern forests is both enlightened joy and burdensome grief. This is a heavy feeling to know how severely threatened the natural world is as a result of our lifestyle, choices, and behaviors. I feel the weight each time I go into the mountains—whether shrouded in wildfire smoke, or resplendent with the fiery colors of autumn.

I first hiked the White Mountains on my way north to Katahdin in Maine when I was thru-hiking the Appalachian Trail. At that time I was most familiar with the southern Appalachian Mountains of North Carolina, which is home to the tallest mountain east of the Mississippi River (Mount Mitchell), and while it shares the same mountain range with the White Mountain



Elise Wallace COURTESY OF THE AUTHOR

National Forest, the weather, flora, fauna, geology, and of course latitude differ enough that I found myself speechless at the treeless granite summits decorated with delicate grasses, sedges, and flowers. When I descended from the Presidential Range during an August sunset, I fell in love with the spruce and birch trees, the clear, cold streams, and verdant mosses. This is a tortuous love.

To engage with nature now is to feel both rapture and despair. For me, grief has become interwoven with each outdoor experience. The climate crisis is a prolific collection of changes, extinctions, pollutions, adaptations, and invasions. It is impossible to plan a trip to national parks out West or in my regional backyard in the White Mountains without sensing, and at times observing, these negative effects. I have begun to see the impacts of climate change everywhere.

My students could not ski during the first week of winter sports because the local mountain opened two weeks later than last season. The announcement cited lack of snowfall and warmer weather. A 2018 study by Hubbard Brook Experimental Forest scientist Geoff Wilson, hydrologist Mark Green, and Loon Mountain Resort snow manager Ken Mack found that for ski resorts in the White Mountains there are less ideal snow-making conditions early in the season when most people are on holiday vacation. While the length of time snow is on the ground and maximum snowpack depth in the White Mountains has decreased, the number of skiing visitors has remained about the same since the 1980s. There are fewer operational ski areas now and for those that remain their reliance on snowmaking has increased. It's worth noting that snowmaking requires large volumes of water—a potential point of tension and environmental concern in itself.

I see mountain biking trails in North Conway that were built specifically to serve as fire breaks—strips of trees that are cut down and brush that is removed to possibly (hopefully) prevent a fire from spreading. Record-breaking

temperatures, such as June 2021 which was the hottest on record for that month in New Hampshire, paired with longer droughts increases the chances of a wildfire. The rising number of visitors to national forests and state parks means more campfires. Humans are the number one cause of wildfires in this country.

I wonder if I am cultivating a mindset that holds the potential to paralyze me with despair. Am I dishonoring the many diverse efforts that are being made to mitigate the effects of climate change? At times it feels disloyal to voice my hopelessness; each environmental essay I read ends with a positive call to action, a statement of hope, but more often than not I do not feel encouraged by the upturn. The doomsday approach is not a productive way of inspiring change, but ignoring my eco-anxiety is not acknowledging the connections between the changing ecosystems and my own experience of them. Eco-anxiety is the dread felt about current and future anthropogenic harm to the environment. The term was coined by environmental philosopher Glenn Albrecht. According to the American Psychological Association, it is experienced by over 50 percent of American adults, and the percentage is higher among people aged 18 to 25. The climate crisis is not only altering ecosystems, it is affecting us mentally and emotionally.

We have a need for wildness, and we find this within nature. But, pretending that we are escaping into a wild and resilient natural world is no longer a safe way to move through these spaces. The very wilderness I seek to bring me peace and joy are also a source of angst. The places that give us solace have fallen victim to the systems we have built, the very systems from which we desire to escape for an hour, a weekend, or a few weeks. The forests where we escape are abundant; they continue to give us gifts. I do not believe that joy and peace are limited resources; even amidst ecological catastrophe there is beauty, new life and growth. We must not take this for granted. We must acknowledge that when we are walking through the woods and up a mountain we are bearing witness to a fragile, changing, and disappearing world. We as a species have altered this world. We must use our energy to heal our beloved natural places and realize that not only is the planet changing irrevocably, so too are we. That is what we must consider when we set off into the woods to build relationships, to reach a summit, and make our way through a new wilderness.

“It’s DIFFICULT SOMETIMES TO MANAGE THAT FEELING, HELPLESSNESS. I OFTEN wonder if there is anything that I can do,” I confide to Sean.

“There are things that can be done on a really big scale. We’ve got to mobilize like we did after World War II.” Sean was born in 1944. “What you are saddled with—it’s not going to be pretty.”

He isn’t pessimistic though. Nature will survive this, according to Sean, but we won’t. “It doesn’t really bother me,” he says. “It’s just that we won’t be here anymore.”

His nonchalance brought tears to the corners of my eyes. Looking at the big picture, in some ways I agree. Nature will survive. There have been countless environmental warnings, and we’ve yet to respond on a large enough scale to remedy this crisis. And so, I do not hold much hope for my species. But the thought of accepting such a future is heartbreaking because there is so much opportunity for us to live in harmony with our environment. If Sean’s prediction comes true, that will be a future where we could have done so much but did not. My lack of hope leaves me feeling helpless. I wonder what I could be doing.

MY TRIP WAS NOT A TOUR. IT WAS A PILGRIMAGE. A PILGRIMAGE IS A JOURNEY, often to an unknown place, where a person goes in search of new meaning about their self, and life. Like the pilgrims on the Camino de Santiago to see the shrines to the apostle Saint James, or the Hajj, the pilgrimage to Mecca made by Muslims, I was journeying to see ancient bristlecone pines, mythologically large sequoias, and deserts where Earth’s history is laid bare in colorful geologic strata. The *New York Times* is calling it “last chance” tourism. See these parks, and natural monuments, while you still can.

That my trip was a pilgrimage became clear during my drive into Yellowstone National Park. It was a cloudy morning until I neared the east entrance of the park when the sun began to emerge and light up the Absaroka Range. I drove the winding road that parallels the North Fork of the Shoshone River. It was a beautiful day, but all I could see were dead trees. The bark beetle responsible for the gray, bone-dry, needleless white bark pines is a native species, but warmer average temperatures—especially warmer winters—have supported larger populations. Between 1997 and 2017, the beetle infested more than 7,900 square miles of forest in Wyoming, about 20 percent of total forested land in the state. The imbalance and destruction of the beetle overwhelmed me and I cried the distance to the entrance station.

Shortly after entering the park, I stopped at Lake Yellowstone. The glacial lake sits at 7,732 feet above sea level and the water is never warm. On the sunny mid-July day I decided to take a plunge. I thought perhaps the cold

water would shake me out of an emotional rut. Afterward, I wrapped myself in a gray wool blanket and made hot black tea in the van. That was the first time I opened the folder of research articles stored on my computer and read this, published in 2017 by U.S. Department of Agriculture ecologist Jessica Halofsky: “Federal agencies are now transitioning from the planning phase of climate change adaptation to implementation, which will ensure that ecosystem services will continue to be provided from federal lands in a changing climate.”*

The National Forest Service and the National Park Service were no longer in preparation mode. They were taking action: not action to prevent but *to manage and adapt*. There was such a finality. The word “implementation” cemented what would be. The agencies in charge of protecting public lands were past the point of hoping that dramatic environmental change wouldn’t happen; they were starting to actively usher our lands into a new, dangerous climate.

Who is there to guide us into wilderness spaces riddled with the effects of climate change, and then accompany us on an emotional journey that considers both elation and despair? Our choices have not only resulted in a change of the environment, but also a change in our identity. We are both the devil and the savior. Each day the alpine zone loses a few centimeters, a species is added to the endangered list, and another moved to the list of extinctions. I am a pilgrim bearing witness. I make each step, each paddle stroke, each hold in the rock a ritual. My ritual is to leave a minimal impact on the land and accept the emotional impact of my awareness that things are not well. In the rapture of nature’s beauty and the despair for her wounds, I visit these changing places because I am changing, too.

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*Jessica Halofsky, “Understanding and Managing the Effects of Climate Change on Ecosystem Services in the Rocky Mountains,” *Mountain Research and Development* 37, number 3, 2017.