

TRACI BRYNNE VOYLES

LEGACIES OF URANIUM  
MINING IN NAVAJO COUNTRY

WASTELANDING

## PREFACE

# In Search of Treasure

In early August of 1864, a contingent of thirty-six U.S. soldiers, led by an army captain named John Thompson, left Fort Defiance in the northeastern corner of Arizona Territory and trudged north under the hot sun through the sprawling homeland of the Navajos. Diné Bikéyah, as Navajos call their land, spreads over mountain ranges, arid plateaus, and desert lands across what is now the Four Corners region of the United States where New Mexico, Arizona, Utah, and Colorado meet. Captain Thompson and his men were not the only military personnel traipsing through Navajo country—not by a long shot. He and his men were merely a small part of a much larger U.S. military campaign commanded by one General James Carleton, a ramrod straight military man who loved the “frontier” and despised the Navajos, and carried out by the famous scout-turned-army colonel Christopher “Kit” Carson. The larger U.S. campaign had one goal: to rout the Navajos from their homeland and march them some 300 miles southeast to Fort Sumner, which was, for all intents and purposes, a military concentration camp. The Diné, as Navajos call themselves, were known throughout the Southwest for their long and storied history of resistance to colonial invaders, a reputation (and reality) that the U.S. colonizers found none too pleasing.<sup>1</sup> Additionally, settlers in New Mexico and Colorado were keen to discover whether Diné Bikéyah was as rich in mineral resources as it was rumored to be; the age-old colonial apologia for conquest, it seems, was just as alive in 1864 as it had been in 1492, when Columbus wrote back from the New World to Spain that he had discovered a land with a marvelous abundance of minerals, metals, and mines.

Captain Thompson had, by that August of 1864, already proven himself up to the task of forcibly removing the Diné from their homeland. The previous March, he had rounded up 2,400 Diné on behalf of Colonel

Carson, and led them in a forced march to Fort Sumner, a journey dubbed "the Long Walk" by Navajos. In those early weeks of August, however, Thompson's mission was of a different sort. He and his thirty-six men headed straight from Fort Defiance to the deep gorge at the heart of Diné Bikéyah—Tséyi' or Canyon de Chelly,<sup>2</sup> the now-famous canyon lined with swaying cottonwoods and pockmarked with ancient Pueblo ruins.<sup>3</sup> As Thompson and his men marched through the canyon, digging here and there for the pools of fresh water running just below the surface of the sandy canyon floor, they engaged in a fierce, and roundly victorious, battle against an unlikely enemy: the peach orchards that had been cultivated over hundreds of years by Diné families. In the course of his march, Thompson and his soldiers felled a remarkable 4,150 fruit-bearing peach trees and, for good measure, "effectually destroyed" at least eleven acres of corn and beans. Oddly, these binges of violence against Navajo peaches, corn, and beans came *after* the majority of Diné in the area had already surrendered to the army, following an aggressive and violent campaign for their removal from the canyon.<sup>4</sup> In fact, an expedition six months earlier, led by Captain Asa Carey, had declined to destroy the Canyon's peach orchards precisely because most of the Diné in this area had already surrendered—to put it simply, there was no point in ruining the food supplies of people who were no longer there. Yet the army's desire to make war against the peach trees endured even after Thompson's campaign. Not long after Thompson returned to Fort Defiance, leaving a trail of rotting peaches in his wake, a third group of soldiers was sent into Canyon de Chelly under the leadership of Captain John Butler, slashing another 1,000 trees to the apparent satisfaction of his superiors.

We can ask, of course, just what it was about these peach trees, corn stalks, and bean plants that invited such unnecessary violence, such "systematic eradication" of fruits, grains, and legumes.<sup>5</sup> Historian Peter Iversen muses, "perhaps the army simply wanted to remove evidence that contradicted the image of Navajos as full-time nomadic wanderers," which had provided the (quite effective) rationale for their removal in the first place.<sup>6</sup> Perhaps, too, the orchards and fields evidenced a Diné proficiency at agriculture in the high arid climes of the New Mexico territory that surprised Americans who expected Navajo country to be useless for agricultural purposes, a sprawling wasteland described in 1868 by William Tecumseh Sherman, the general of Union Army fame, as "utterly unfit for white civilization."<sup>7</sup> It is not implausible to venture a guess that these binges of violence against peach trees occurred as proxy to settler and soldier frustrations about the newly conquered Southwest and the challenges it presented to American notions of what good agricultural land should look like. Indeed,

ideas about landscape and people, throughout this notorious removal campaign, served as the primary and most powerful impetus for colonial violence against people and peaches alike. Notions that the Colorado Plateau was uninhabited wasteland unfit for farming draw us quite a clear map of how we get from Thompson and his vexed tree felling to more contemporary cases of the interplay between nature, people, colonization, and power.

In this book, I explore the ways in which resources come to enact, enable, and sometimes embody colonial relationships between the U.S. settler colonial state and Native nations, focusing on the ways in which discourses about lands and the peoples who inhabit them shape how colonial violence occurs. In Captain Thompson's expedition, peach trees played a significant role in how the U.S. military sought to subdue the Navajo landscape, which military personnel and white settlers often took to be desert, deserted, and agriculturally barren (but potentially rich in minable resources). The primary focus of this book, uranium mining on Navajo land, takes us a century past Captain Thompson's expedition, but the themes crystallized in his assault on peach trees, corn stalks, and bean plants remain ever present. The power exerted over environmental resources, and the ways in which those in power construct knowledge about landscapes, are a central part of how what we now call social injustices are produced. In this work, I bring together environmental history and environmental justice studies to build what Sylvia Hood Washington calls an *environmental justice history* of uranium mining: a history undertaken with an eye toward building environmentally and socially just futures.<sup>8</sup> This does not mean only giving a more detailed historiography of how uranium mining, and indeed the relationship between the United States and the Diné and their land, developed over time. It also means to situate environmental injustice in larger historical context and to think historically about the role of this story—and how it is told—in shaping how we understand the relationships between coloniality, nature, and, ultimately, decolonization.

Diné Bikéyah is mapped by the Diné as being situated within four sacred mountains: Tsisnaajinii (Blanca Peak) to the east, Tsoodzil (Mount Taylor) to the south, Dook'o'oolíid (San Francisco Peak) to the west, and Dibe' Ntsaa (Mount Hesperus) to the north.<sup>9</sup> Ranging from the solidified lava flows of Yé'iitsoh Bidił (El Mapaís National Monument) to the forested Ch'óóshgai (Chuska) mountain range, to the stark red rock formations of Tsé bii'nidzsigai (Monument Valley), this landscape contains a remarkable diversity of ecosystems as well as plant and animal life. Currently, the Navajo Nation encompasses more than 25,000 square miles of land, on which more than 170,000 Diné live, while an additional 130,000 Diné live in other parts of the United States.<sup>10</sup> The Diné emerged into this land, the



fifth world, from worlds below, bringing with them the *dzilleezh*, or mountain soil, that would make up the four sacred mountains.<sup>11</sup> In their long tenure within these four mountains, the Diné maintained agricultural and sheepherding practices that sustained their large population, migrating seasonally through Diné Bikéyah in a way that maintained spiritual and environmental *hózhó*, or “balance, beauty, harmony, health.”<sup>12</sup> In a very strong sense, the Diné are a land-based nation: their culture, history, geography, religion, and economy are derived from a particular landscape (Diné Bikéyah) and set of natural resources. These connections to landscape are both deeply rooted and evolving.<sup>13</sup> The peach orchards of Canyon de Chelly, laid to waste by Thompson and his contemporaries, exemplified the Navajo proficiency in using pastoralism to maximize the environmental resources of their land: while only roughly 300 denizens of the canyon country lived in the canyon year-round, each fall Navajos would travel from all over Diné Bikéyah to attend the peach harvest,

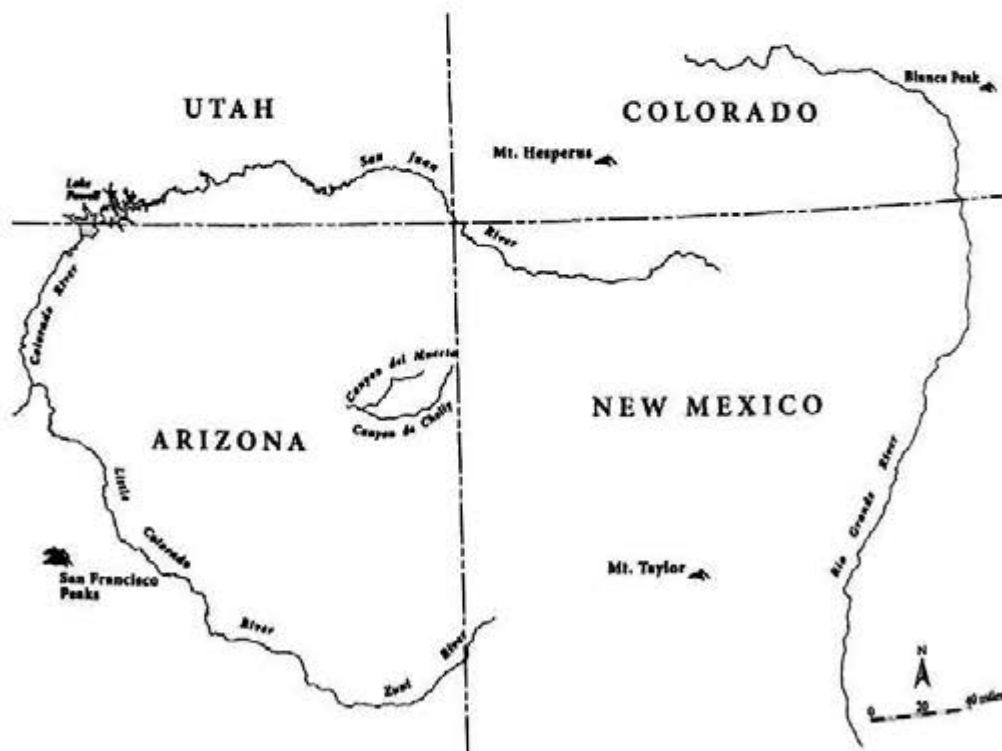


FIGURE 1. Diné Bikéyah comprises the land within the four sacred mountains, as well as what are sometimes called the four sacred rivers (the Rio Grande River to the east, the Zuni River to the south, the Little Colorado and the Colorado Rivers to the west, and the San Juan River to the north). Marsha Weisiger, *Dreaming of Sheep in Navajo Country* (Seattle: University of Washington Press, 2011), 62.

distributing the fruit—a food source and a commodity—among a wide swath of the Diné population.<sup>14</sup>

The relationship of the United States to Diné Bikéyah has most consistently been organized around resources: the desire for them, the management of them, the perceived dearth of them in this high, arid landscape. Indeed, from the onset of formal U.S. relations with this land, when U.S. troops invaded in 1846 to seize the northern third of Mexico's territory, the Diné were seen primarily as a problem in direct relationship to resources. Navajos were perceived as ruthless and violent raiders, who made their living by stealing livestock and crops from nearby Pueblo and Nuevo-mexicano settlements. The subtext, frequently, was that Diné land was not of high enough quality to support the Diné people. They had to steal to survive, and they were happy, it would seem from U.S. accounts, to do so. The complex relationship of Diné to their resources and land base, cultivated over centuries of experience, was rarely if ever in evidence in hegemonic historical narratives.<sup>15</sup>

The history of changing constructions of Diné land and resources is embedded in the very etymology of the name "Navajo." Spanish explorers and settlers were the first to call the Diné "Navajos"—although the Diné have adopted the name and often use it interchangeably with "Diné," "Navajo" has no origin in the Diné language. Most scholars attribute the adoption and use of "Navajo" by the Spanish to Franciscan friar Alonzo Benavides's 1630 reference to the Diné as the "Apaches de Navahu" in his *Memorial to the King of Spain*.<sup>16</sup> Benavides and his fellow Spaniards borrowed "Navahu" from the nearby Tewa-speaking Pueblo tribes, for whom the word meant "large area of cultivated fields," a reference to Diné reliance on and talent for agriculture as well as sheepherding. In the twentieth century, however, scholars began to question the veracity of this etymology for "Navajo," some arguing that "a more likely claim" for the name's origin "is made for a Spanish derivation," from the Spanish "nava, meaning flat piece of land, plus the suffix ajo," lending the name a "depreciative" air in which "Navajo would mean a large, more or less worthless field."<sup>17</sup> A handful of years later, Clyde Kluckhohn and Dorothea Leighton concurred, making reference in their influential 1947 monograph *The Navaho*, to "some support for deriving 'Navajo' directly from the Spanish in the sense of . . . a large, more or less worthless, flat piece of land."<sup>18</sup>

The social construction of the high, arid landscapes of the Southwest as "more or less worthless" has been a fundamental component of colonization of the Diné, as well as other southwestern and Great Basin tribes.<sup>19</sup> In fact, the inhabitation of dry, arid landscapes by Native nations was used as evidence of their low status on the Western hierarchy of civilization,

following a kind of environmental determinism that posited that "barren" landscapes supported villainous and savage peoples. In his 1849 reconnaissance survey of Navajo country, for example, Lieutenant James Simpson wondered whether his contemporaries were correct in assigning the blame for "the curse of barrenness" of land to "the wickedness of the people who inhabit it."<sup>20</sup> Classic Western histories resurrect the image of the Navajos as "wicked" people on a "barren" land; as Diné historian Jennifer Nez Denetdale points out, Navajos have consistently been portrayed as a vicious people who relied almost exclusively on raids of nearby Spanish villages for sustenance.<sup>21</sup> Historians and archeologists have roundly debunked this mythology surrounding the Navajo practice of raiding and its presumptions about the poverty of Diné land leading to a need to steal to survive. As ethno-archeologist Klara Kelley notes, Navajo raids on Mexican settlements were almost always undertaken as retribution for the lively trade that existed in northern New Mexico for Navajo slaves, supported by the Spanish and then Mexican colonial governments and continuing into the period of U.S. colonization after 1848.<sup>22</sup> Cebolleta, the oldest settled land grant community in the borderlands of Diné Bikéyah, had particularly well-known Sunday slave markets, specializing in the sale of Diné women.<sup>23</sup> Kit Carson himself had three Navajo children in his household, two of whom had been purchased from slave parties.<sup>24</sup>

The power of thinking about Navajos as violence-prone nomads and of their land as barren desert country was in evidence not four years after Thompson's march into Canyon de Chelly, when the horrendous conditions at Fort Sumner compelled U.S. military leadership to admit that the camp was a failed experiment in Indian policy. Between their removal in 1863 and the closure of Fort Sumner in 1868, the interned Navajo population went from 12,000 to 9,000 people; the 3,000 who died in the camp perished largely from starvation, malnutrition, untreated infections, and interpersonal violence. The surviving Diné were to return to Diné Bikéyah, and General Sherman, who made the final decision to permit the Diné to return to their homeland, did so believing that he was sending them to what he considered, as one historian put it, a "waterless worthless waste"—certainly not the kind of land, we would imagine, that would support fine orchards of thousands of fruit trees and scores of acres of beans and corn.<sup>25</sup> In fact, upon returning to Diné Bikéyah, the Navajos of Canyon de Chelly masterfully regrew their orchards and, by the 1880s, were harvesting peaches once more.

Before allowing the Diné to return to their homeland General Sherman made an ominous prediction. The Navajo claims to their homeland, he believed, would, "sooner or later, be interfered with by people from Colorado

and New Mexico in search of treasure."<sup>26</sup> Sherman was eventually proven partly correct and partly mistaken. Over the course of the next century and a half, prospectors and mining companies made repeated incursions into Diné life, interfering, to be sure, with Navajo connections to their homeland. A rapid succession of energy resources, ranging from oil to hydro-power and from coal to uranium, and other in-demand metals, such as vanadium, shaped the twentieth-century relationship between the United States and the Navajo Nation. In the 1920s, the discovery of oil on Diné Bikéyah led to the formation of the first federally recognized Navajo governing body, which was needed to approve oil leases.<sup>27</sup> In the 1930s, Navajo sheepherding was seen as a potential barrier for successful completion of the Hoover Dam, which would go on to provide hydroelectric power to the cities of California and the Southwest. Thus ensued a mass roundup and slaughter of Diné sheep, goats, horses, and cows. Intensive coal mining on and around Navajo country began in the 1960s and continues to be a hotly contested industry with high stakes for Navajo people in terms of both economic development and environmental health. Hundreds of billions of dollars in coal profits have gone to coal companies, rather than to the tribe or families forced off their lands by coal companies. Coal mines and power plants have produced catastrophic environmental problems, and wrangling over coal mining rights has resulted in major struggles over land and environmental quality.<sup>28</sup>

Uranium mining, the subject of this book, has likewise had a massive impact on the Diné and their land. Within the four sacred mountains, the radioactive ore was mined between 1942 and the mid-1980s, first for the secret Manhattan Project and then for the Atomic Energy Program. Currently, renewed interest in nuclear energy has kickstarted what is being called the "new uranium boom." Uranium companies have increased pressure to open new mines and reopen old mines in environmentally sensitive and tribally sacred areas, from the Grand Canyon to Tsoodzil (Mount Taylor), the sacred Diné mountain of the south. In the course of nearly five decades of uranium mining and milling in and near the Navajo Nation, over 2,500 mines employed more than 3,000 Diné. As they provided the labor that in turn provided more than half of the country's domestic uranium reserves, Navajo miners and millers were often relegated to the lowest paid, least protected positions.<sup>29</sup> Increasing evidence, already well known in the early 1940s, of uranium's toxic effects on miners' lungs was actively kept from the miners and their families.<sup>30</sup> The largest spill of radioactive waste in the United States took place on July 16, 1979, when 93 million gallons of radioactive waste was released from a mill site into the Río Puerco. All the while, the primary incentive for the Navajo Tribal Council to



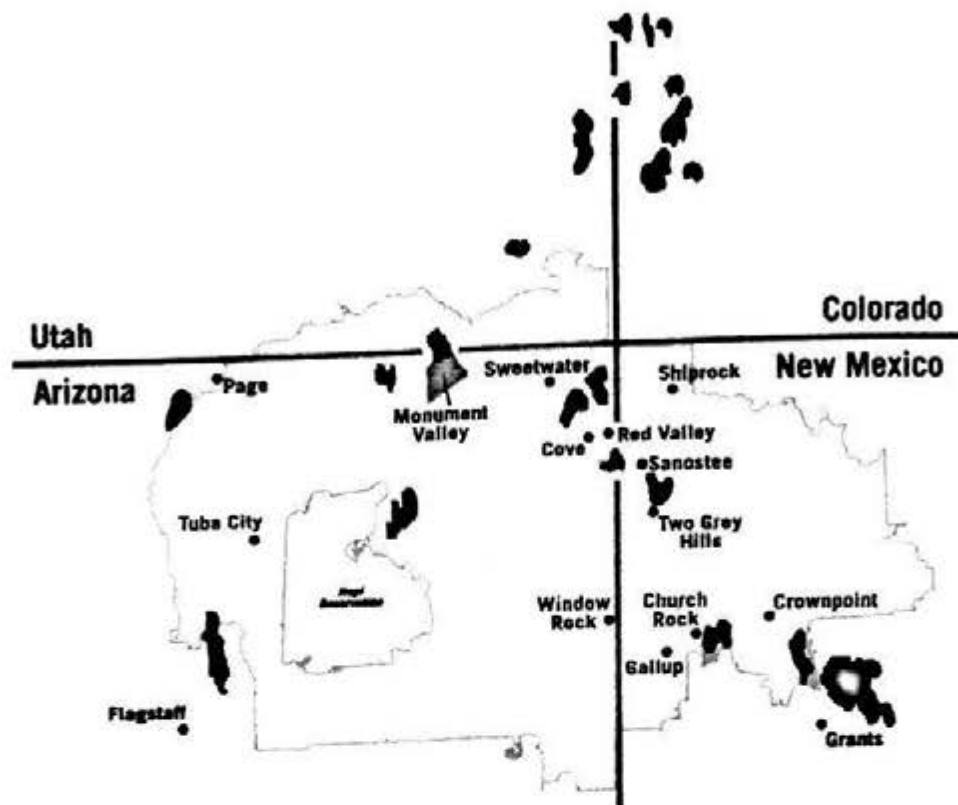


FIGURE 2. Areas of major uranium activity on and near the Navajo Nation from 1942 to 1985 are shown here in black. Doug Brugge, Timothy Benally, and Esther Yazzie-Lewis, *The Navajo People and Uranium Mining* (Albuquerque: University of New Mexico Press, 2007), 28.

permit uranium mining on their land, economic development, was never realized in large part because royalties for uranium ore obtained from tribal lands were kept artificially low.<sup>31</sup> The devastating environmental and human health conditions that ensued from these decades of uranium mining have been at the center of struggles over resource extraction and environmental injustice in Diné Bikéyah.

Despite these repeated incursions into Navajo land and life for the purposes of resource extraction, these incessant interferences “by people in search of treasure,” the Diné have consistently contested and resisted colonial imposition and environmental violence. Diné environmentalist and environmental justice organizations have worked on a wide range of issues and had considerable success. In 1979, Navajos together with a coalition with other New Mexico indigenous activists, as well as white and Chicana/o activists, organized a three-day occupation of Tsoodzil (Mount Taylor) to protect the mountain from renewed uranium mining. In 1988,

Diné activists successfully blocked the siting of a toxic waste incinerator in Dilkon, Arizona, forming Diné Citizens Against Ruining Our Environment (Diné CARE), an organization that has been internationally recognized for its rigorous work on behalf of grassroots environmental justice.<sup>32</sup> In 1990, with considerable participation from Diné CARE, Navajos hosted a national meeting of indigenous activists that went on to become the Indigenous Environmental Network (IEN), an organization with powerful influence in environmental justice struggles worldwide. Several long-standing groups, such as the Eastern Navajo Diné Against Uranium Mining (ENDAUM), the Dooda (No) Desert Rock Committee, and the Multicultural Alliance for a Safe Environment (MASE), have made considerable progress in preventing new environmental incursions by mining industries on and near Diné land. The work of organizations like these, and the legacy of Diné environmental activism, lends support to a Navajo Nation Council moratorium on uranium mining that was put in place in 2005. By working with and leading local and transnational environmental justice and indigenous sovereignty movements, these organizations chart the ways in which the local and global are intimately intertwined in struggles over the environment, indigenous nations, and natural resources. This work contradicts long-standing notions that the colonial desire for Navajo resources would *ever* go uncontested by a people who draw on centuries of labor to maintain their connections to their land.

## INTRODUCTION

# Sacrificial Land

The Colorado Plateau was one of the last areas in the United States to be developed economically. Before the 1880s it was virtually empty except for Indians.

—ROBERT DURRENBERGER, *ANNALS OF THE ASSOCIATION OF AMERICAN GEOGRAPHERS*, 1972

### **Empty Except for Indians: Wastelands, Race, and Space**

Long before uranium was commonly known for its associations with both nuclear power and nuclear bombs, and long before atomic power took hold of the American public imagination as a fearsome signifier of new human relationships to technology, to the environment, and to each other, uranium was mostly considered waste. Miners came across it when they blasted apart carnotite, a composite rock that can often be recognized by characteristic streaks of red, black, and bright yellow, to get at the real prize: vanadium, which was used to strengthen steel alloys in a range of products, from automobile parts to gun barrels.<sup>1</sup> Vanadium alloys were integral to the design of the Ford Model T, Henry Ford claiming to have discovered vanadium's uses while sifting through the innards of a wrecked French race-car.<sup>2</sup> The peak of vanadium's marketability came during World War II, when the federal government formed the Metals Reserve Company to encourage metal mining for war armaments. Vanadium, it turned out, was a highly sought-after ingredient of President Roosevelt's arsenal of democracy. In the vanadium mines scattered throughout Arizona, New Mexico, Utah, and Colorado, carnotite rock was blasted apart, the vanadium recovered, and the rest of the rock—uranium included—thrown into piles of waste

materials (more commonly called *tailings*). Sometimes the uranium from these mines was salvaged for use in glazes for dishes and glassware, which were manufactured and sold everywhere from Woolworth's to Tiffany's.<sup>3</sup> Uranium oxide glazes were responsible for the orange-red color of the popular Fiesta ware dishes. Uranium, like vanadium, could have been used to strengthen steel alloys but was much too costly. Manufacturers were hard pressed to find a use for uranium that was "of a sufficiently distinctive character to make it a commercial product."<sup>4</sup> In 1917, when the global market for radium hit its pre-World War II peak and uranium's radioactivity was discovered, a white trader to the Navajo Nation named John Wetherill hauled some uranium-bearing carnotite ore to Flagstaff, Arizona, to be sent to France for Marie Curie's radiological experiments.<sup>5</sup> By 1920, an Arizonan named John Wade was operating a company called Carrizo Uranium Company, which had forty claims in the eastern Carrizo Mountains, mining both vanadium and uranium.<sup>6</sup>

Mostly, though, the uranium was tossed.

That changed forever on October 9, 1941, when President Roosevelt held a secret meeting to deputize the Army Corps of Engineers to take on an atomic program. What came to be known as the Manhattan Project was charged with the development of an atomic bomb, using an element radioactive enough to render it "unsteady as a reeling drunk": uranium.<sup>7</sup> The Manhattan Project sought domestic supplies of uranium from the only source of which it was aware, the vanadium mines in and around the Navajo reservation. With that, uranium went from being a waste by-product of vanadium to the most sought-after ore of the twentieth century.

By 1945, when newspaper headlines blared declarations that unmasked the secret Manhattan Project, like that of the *Santa Fe New Mexican*—"Los Alamos Secret Disclosed by Truman: Atomic Bombs Dropped on Japan"—the government had acquired roughly 10,000 tons of fissionable uranium.<sup>8</sup> Most of that tonnage, however, had been shipped in from foreign sources, a process that was both expensive and fraught with potential security risks.<sup>9</sup> Only 15 percent of the ore had come from the continental United States, much of it secreted from the vanadium mines on and near the Navajo reservation and pulled from vanadium tailings piles.<sup>10</sup> Between 1943 and 1945, an estimated 44,000 pounds of uranium were secretly recovered from Vanadium Corporation of America (VCA) East Reservation Lease area—the site of John Wade's Carrizo Uranium Company claims in the Carrizo Mountains.<sup>11</sup> Monument Valley mines, also run by VCA, provided an additional 489 tons of ore.<sup>12</sup> Despite these sources, and despite stepping up its exploratory drilling on the Colorado Plateau to a rate of 200,000 feet per year, the AEC "continue[d] to receive most of its uranium from the



Belgian Congo and Canada.”<sup>13</sup> “Our own country,” the commission conceded in 1949, “has produced little uranium.”<sup>14</sup>

Half a century later, Diné land hosts upward of 2,000 now-abandoned uranium mines, mills, and tailings piles, in which over 3,000 Navajo miners wrenched and blasted raw uranium ore from the ground and then processed it into yellowcake. Abandoned mines sit open, poorly covered, or insufficiently marked.<sup>15</sup> Radioactive tailings piles litter the Navajo landscape, leaching radon gas into the air and water and scattering radioactive debris throughout the ecosystem.<sup>16</sup> In addition to being radioactive, these piles are littered with other toxic contaminants, including arsenic, vanadium, and manganese. The combined environmental contamination of mines, mills, and tailings piles has caused dramatic problems for the water quality of a landscape where water is already in short supply. Expensive water pipelines have yet to be built to serve the estimated 30 percent of Diné people who live near and use unregulated water sources, many of which are contaminated with uranium or arsenic.<sup>17</sup> Homes have been built out of debris from mines, including chunks of rock blasted into neatly squared-off blocks, often at the encouragement of mine operators. These “hot homes” were occupied by multiple generations of families before someone thought to test them for radiation.<sup>18</sup> The U.S. Environmental Protection Agency (EPA) has identified nearly 800 structures and residential areas contaminated with uranium; fewer than forty of the structures had been demolished as of 2014, and only seventeen of those demolished had been rebuilt.<sup>19</sup> Whereas most of the mines were closed by the mid-1980s, when uranium was no longer profitable, a rise in uranium prices has led to a new uranium boom since 2005. The Navajo Nation, still grappling with environmental and human health disasters from its first three decades of experience with the uranium industry, responded by passing the Diné Natural Resources Protection Act (DNRPA) in 2005, which placed a moratorium on new mines in Navajo country. Companies seeking permits to mine in the uranium-rich eastern borderlands of the reservation have denied that the land in question can be considered “Indian Country” despite being overwhelmingly populated by Navajos and being formally represented in the Navajo Nation government.<sup>20</sup>

Although there was ample evidence by the 1950s of the deadly nature of uranium mining, particularly because of the risk of lung cancer, miners were not informed of these health risks, nor were they provided adequate protection from them. High death rates among miners in the uranium-rich Erz Mountains on the border of Germany and the Czech Republic were reported as early as the mid-1500s. As the U.S. Public Health Service itself reported in 1952, “it has been known for centuries that the [Erz] miners

die in the prime of life with symptoms of damaged lungs.<sup>21</sup> From the late nineteenth century on, uranium was identified as the primary culprit in these high death rates, and by the 1930s Erz miners experienced a mortality rate of up to 70 percent, largely due to lung cancer.<sup>22</sup> Further suggesting the deadly nature of radiation exposure, Marie Curie herself died of radium poisoning in 1934.<sup>23</sup> By 1952, radon, a radioactive gas released in the uranium mining process, had been singled out as the primary culprit in these elevated lung cancer rates among miners, although other health problems, including silicosis, tuberculosis, pneumonia, and emphysema, also contributed to high death rates for miners.<sup>24</sup> These discoveries, however, did not lead to changes in mine safety for workers or for the people living near uranium districts.

Rates of lung cancer and respiratory disease have skyrocketed for the Diné, a population described as recently as the 1950s by public health experts as being "immune" to lung cancer.<sup>25</sup> By the mid-1980s, researchers found astronomical rates of cancer deaths among former uranium miners. Miners contracted lung cancer at rates 56 times higher than the national average, and had an average life expectancy of only 46 years.<sup>26</sup> Rates for stomach cancer were 82 times the national average. Miners were more than 200 times more likely to get liver cancer, almost 50 times more likely to get prostate cancer, and over 60 percent more likely to have cancers of the bladder or pancreas.<sup>27</sup> Nor were cancers the only health problems among former miners and their families: researchers also found increased incidents of tuberculosis, fibrosis, silicosis, and birth defects, all linked to exposure to uranium from mines and mills. Radiation-related diseases are now endemic to many parts of the Navajo Nation, claiming the health and lives of former miners to be sure but also those of Navajos who would never see the inside of a mine. Diné children have a rate of testicular and ovarian cancer fifteen times the national average, and a fatal neurological disease called Navajo neuropathy has been closely linked to ingesting uranium-contaminated water during pregnancy.<sup>28</sup> Studies have also found that uranium has genotoxic and mutagenic effects; that is, uranium poisoning can change the genetic material of a chronically exposed population, even further expanding uranium's influence on future populations in ways that are yet unknown.<sup>29</sup> While studies have long suggested a relationship between congenital defects and uranium exposure, a Navajo Birth Cohort Study seeks to measure outcomes for 1,500 Diné newborns in highly contaminated parts of the Navajo Nation.<sup>30</sup>

When uranium remains encased in carnotite rock and in underground ore bodies, it poses little threat to human health or to the environment. Clearly, once released its impacts have been catastrophic. Moreover, one

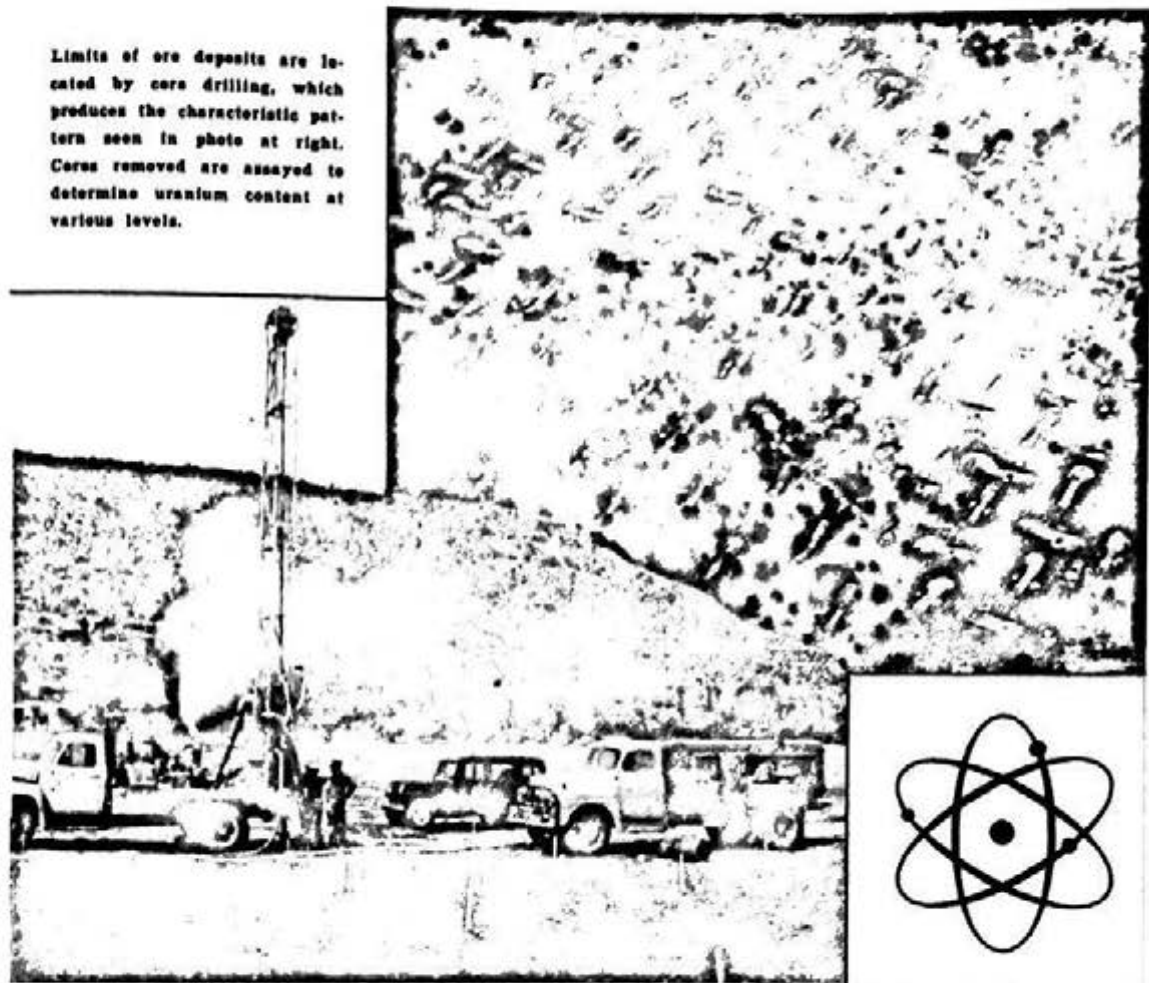


FIGURE 3. The aerial photograph at the top right shows the patterns created on the landscape as core drilling holes pockmark potential mine sites. The ore samples removed from these holes were then tested to determine their uranium content. The image at the bottom left shows a core drilling crew hard at work. Albuquerque National Bank, *Albuquerque Progress*, 22, no. 5 (May 1955). Courtesy of The Albuquerque Museum Photoarchives—Albuquerque Progress Collection.

of the most problematic components of the struggle for justice over nuclearism has been that, except in extreme circumstances, the ill effects of radiation exposure take ten, fifteen, sometimes twenty years, and sometimes multiple generations, to manifest. This makes uranium mining in Diné Bikéyah a kind of “slow violence” or “delayed destruction” that emerges over time.<sup>31</sup> In uranium country, which, like so many mining industries, is governed by the rule (or lack of rules) of boom and bust, this has meant that by the time many miners got sick, the companies that employed them were long gone. Now, the responsibility for cleaning up mine and mill sites

has been taken on by the Navajo Nation itself. Of the six regions of the Navajo Nation that host the highest concentration of abandoned uranium mines, the Navajo and federal EPAs have prioritized the most heavily contaminated: the eastern borderlands, near the communities of Church Rock and Crownpoint, New Mexico; the area surrounding Cameron, Arizona, in the southwestern corner of the Navajo Nation; Monument Valley in the north; and the area surrounding Cove, Arizona, where mines are scattered across the Chuska Mountains and Red Valley. Now, three decades after the uranium market hit a precipitous decline in the Southwest and the last mines operating on the Navajo Nation were shuttered, life-saving cleanup of abandoned mine sites is only recently underway.<sup>32</sup> Before cleanup was even considered by federal agencies, Navajo families and the Navajo Nation spent decades seeking recognition of the very real connections between uranium mining and the environmental health impacts with which they lived.<sup>33</sup>

The state of environmental and human health problems in the Navajo Nation as a result of the uranium industry, and the fact that uranium was so disproportionately mined on and near Native land, makes this a clear-cut case of environmental racism, which occurs whenever communities of color are disproportionately exposed to or deliberately targeted for environmental harm.<sup>34</sup> Examples of environmental racism are diverse and varied: to name just a few, there are the petrochemical processing facilities that share fence lines with historically African American communities in Louisiana; the overwhelming tendency of toxic waste facilities to be located in and near African American, Latino, Asian American, and Native communities; and the "food deserts" in inner cities, where fresh produce cannot be found for miles.<sup>35</sup> The basic premise behind environmental justice as a social movement and as a field of academic inquiry is that our growing environmental problems—polluted air, water, soil, changing climate, accelerating industrialism, and so on—are disproportionately born by racially and economically marginalized communities both in the United States and globally and moreover that these marginalized communities are often targeted for environmental degradation.<sup>36</sup>

Feminist scholars hasten to add that even within these marginalized communities, environmental problems tend to be borne differently by women than men.<sup>37</sup> Women occupy the socially constructed role of caretakers; women are most likely to live in poverty, to experience hunger, and to bear the financial and care responsibilities for children and elderly or sick family members. Women are also often most likely to be in close contact with environmental resources: they haul water, grow and cook food, and wash clothes. By virtue of this close contact, women can be seen as "the first environment," not as essentialized Mother Earth but rather as occupants of





the west. The Chuskas here are a rich palette of mauve and burgundy, sage and peridot green. The air is thick with the piney smell of evergreens, and the air is sharp and cool even in the summer months. The Chuskas are the heart of Diné forest resources, and Narbona Pass puts these resources on full display.<sup>43</sup> The rich woodlands of the pass speak neither to the long-standing image of Diné Bikéyah as austere desert country nor to the underlying conditions of drought, water shortage, and tree death (from foresting, global climate change, and invasive species) with which the Diné have been contending.<sup>44</sup> The realities of environmental conditions, and the complex relationships of the Diné to their environment, are made invisible in settler discourses that construct this land as unqualified desert country or claim that it is “empty except for Indians.”

In this book, I argue that the history of the uranium industry on and near Diné Bikéyah demonstrates how landscapes of extraction are, to borrow from geographer Gillian Rose, forms of representation as well as empirical objects.<sup>45</sup> Notions of Navajo country as “uninhabited” wasteland create a representational criterion by which ideas about the land have been formed. When prospectors, mining companies, and the Atomic Energy Commission (AEC) identified the Four Corners area as what one newspaper called “the scenic topsoil of America’s vast energy storehouse,”<sup>46</sup> extractive industrialism was naturalized as indigenous to the landscape itself, and indigenous inhabitants of the land were placed under erasure to be “always disappearing” in the face of settler colonialism’s advance.<sup>47</sup> The land, occupied and claimed by tribes, with its own unique sets of ecological conditions and realities, ceased to be an empirical object—the material conditions of Narbona Pass, with its shimmering greens and crisp air, is forgotten in favor of an interpellation of Navajo country writ large as wasteland. This book is a history of contested representations of landscapes, representations that produce starkly urgent material conditions with high stakes for humans, animals, air, water, and earth. Following Valerie Kuletz, who argues that deserts are targeted for environmentally destructive industries because they are understood as worthless in a Euro-American worldview, I explore the mapping of Navajo land and, by extension, other kinds of lands rendered pollutable through discourses of race, gender, class, and/or sexual difference as “wasteland.” The wasteland discourse, as Kuletz framed it, is a current in the American environmental imagination that sees deserts as threatening, marginal, and—revealing the distinctly gendered framework of this marginalization—“barren” places predisposed to what she calls deterritorialization.<sup>48</sup>

Environmental sociologists have outlined the ways in which environmental problems in the context of contemporary industrialism (the post-World

War II period of “late modernity”) are imbricated in a treadmill of production, in which extraction of raw materials and dumping of material waste are expanding with markets, often exponentially.<sup>49</sup> The treadmill requires “wastelands” from which resources are increasingly extracted and where (often toxic) waste is increasingly dumped. Patterns of environmental racism tell us that race has become a primary way by which those landscapes of extraction and pollution are marked as racialized spaces excluded from or ignored by the regulatory protection of the state.<sup>50</sup> Because environmental inequality is an inherent feature of the way in which industrialism operates contemporarily—raw materials for products, after all, must come from somewhere, and toxic waste must go somewhere—the wasteland is the “other” through which the treadmill of production is constituted. In this way, just as civilization has been constituted on and through savagery, environmental privilege is made out of the discursive process of rendering a space marginal, worthless, and pollutable.<sup>51</sup> This produces a strong relationality between environmental injustice and environmental privilege as mutually constituted phenomena. For the energy industry in the United States, which has been disproportionately reliant on indigenous resources,<sup>52</sup> the extraction of energy’s raw materials (uranium, coal, oil, natural gas, water, and, increasingly, wind and sunshine) has devastated Native lands while Native people often benefit the least in terms of economic development and cheap energy—a phenomenon that can be shorthanded as energy injustice.<sup>53</sup> Here, the treadmill of production can quite clearly be seen as being built on and through the degradation of Native land and life; as one Diné resident of Black Mesa noted, “Somewhere far away from us, people have no understanding that their demand for cheap electricity, air conditioning and lights twenty-four hours a day have contributed to the imbalance of this very delicate place.”<sup>54</sup> To put it another way: if, as historian Ned Blackhawk has argued, the indigenous body in pain is the ultimate symbol of colonial progress and modernity, indigenous land laid waste is its territorial corollary.<sup>55</sup>

I call this process *wastelanding*.

Wastelanding, I argue, has been a key and underexplored component of environmental racism. The “wasteland” is a racial and a spatial signifier that renders an environment and the bodies that inhabit it pollutable.<sup>56</sup> The problem of land laid waste is complicated by the fact that environmental degradation is not only relegated to lands that Americans find aesthetically distasteful; quite to the contrary, while we find radioactive tailings piles in the desert, we also find leaking barrels of Agent Orange on Bahamian beaches, dioxin-releasing copper mines near the shores of the Great Lakes, and strip mines in the rainforests of South America.<sup>57</sup> Thus, it is not only a



matter of a Euro-American distaste for dusty arid locales that renders deserts “wastelands” but rather a condition in which even the most marvelously abundant of jungle-scapes can come to be seen as just so much waste of space. This book, therefore, argues that colonial epistemologies do not just look on deserts as wastelands but that wastelands of many kinds are constituted through racial and spatial politics that render certain bodies and landscapes pollutable. Wastelanding builds on Kuletz’s “wasteland discourse” to explore how this convergence of discourse and space has been deployed in multiple contexts, including nondesert landscapes, and how environmental racism can be theorized at multiple scales.

Wastelanding takes two primary forms: the assumption that nonwhite lands are valueless, or valuable only for what can be mined from beneath them, and the subsequent devastation of those very environs by polluting industries. Hydroelectric dams in James Bay, Canada, for instance, would, according to the National Audubon Society, “make James Bay and some of Hudson’s [*sic*] Bay uninhabitable for much of the wildlife dependent on it.”<sup>58</sup> This very pollution results in the common designation of wastelanded spaces, including those of the uranium industry on Diné land, as “sacrifice” zones. As sacrificial lands, these landscapes of extraction allow industrial modernity to continue to grow and make profits. In scholarly parlance, these two forms of wastelanding can be termed *social construction* and *reification*: first, a culturally agreed-upon logic that derives from taken-for-granted categories of difference, which we then understand as natural and common sense, and second, the process of materializing, of making real, or of acting on those constructions.<sup>59</sup> Wastelanding reifies—it makes real, material, lived—what might otherwise be only discursive. Like race, which is a social construction made material by the embodied consequences of racism (threats and acts of violence, foreshortened life expectancy, incarceration, under and uncompensated labor, inequalities in wealth accrual, and so on), ideas about the value of environments are manifested by the material consequences of environmental destruction (or, in the inverse, by environmental protection<sup>60</sup>). Patterns of environmental racism make clear the connections between race and wastelanding. Race and space are connected through a social construction of difference that becomes spatialized through segregation and unequal distribution of resources. As Allan Pred puts it, through racism, “The socially barred become locationally removed from opportunity-yielding social, economic, and political networks.” By a “feat of ontological magic,” the “idea-logics of cultural racism are—abracadabra, hocus-pocus, simsalabim—concretized.”<sup>61</sup> Wastelanding is a primary one of these “feat[s] of ontological magic,” wherein racialized lands are made to seem uninhabited or unimportantly inhabited, represented as



worthless, and then—"abracadabra, hocus-pocus"—systematically stripped of their material and ideological worth.

Nuclearism makes a fitting site to study wastelanding because it is so clearly a multiscalar problem. Radiation is spatially multiscalar, with impacts that can be measured at the bodily, the ecosystemic, or the planetary level; it holds potential to change our very cells or affect the ways in which organs change over time. Its effects can be traced from the subatomic to the ecosystemic and everything in between (from cells and organs to sheep and corn). It can be as unimaginably small as the split nucleus or as nightmarishly large as the mushroom cloud. Likewise, nuclearism is temporally multiscalar: its impacts range from the moment an explosion initiates a nuclear chain reaction, to the tedious process of a miner chipping away at an ore body, to the limits of the human temporal imagination (uranium 238, for example, uranium's most common isotope and the one that is used to produce plutonium, has a half-life of 4.46 billion years). Nuclearism's deadliness can manifest in the immediacy and violence of acute radiation exposure or, more commonly, in the slow growth of tumors in lungs and genetic mutations passed down through generations. And because its effects are not always felt immediately, because the causal relationship of radiation to health outcome is a moving and precarious target, and because it is impossible to see, feel, or taste your exposure to radiation, nuclearism triggers human anxiety to an almost incomparable extent. Nuclearism's affective multiscalarity has produced gut-wrenching fear in communities downwind of nuclear test shots, defiant rage in environmental activists, and apocalyptic bravado in the culprits behind the Cold War's mad doctrine of mutually assured destruction. These multiscalar natures of nuclearism—environmental, spatial, temporal, and affective—make it a particularly apt site for exploring wastelanding as a racial and spatial process of signification that makes extreme environmental degradation possible.

Wastelanding, too, is multiscalar: in uranium country, destroying the environment through uranium mining does not just mean destroying the nonhuman world and ecosystems. It means to wasteland, to render pollutable, the lungs, the cells, and the respiratory tracts of everyone involved in the nuclear cycle. It also means to wasteland Navajo worldviews, epistemology, history, and cultural and religious practices. In order for uranium mining to occur on the level it did (and still does), indigenous ways of knowing landscapes and their worth must be themselves rendered pollutable, marginal, unimportant.<sup>62</sup> To borrow from poet Adrienne Rich, in wastelanding—rendering an environment pollutable in ways that are both ideational and material—"The words are purposes. / The words are maps."<sup>63</sup>

### **The Words Are Purposes: The Wasteland as Floating Signifier**

On July 4, 2008, I pulled into the town of Kayenta, Arizona, in the northwestern corner of the Navajo Nation, on an empty gas tank. I was less than thirty miles away from where I had stopped on the side of the road to gape open-mouthed at the 200-yard section of the Black Mesa coal conveyor belt visible from Highway 160—a highway, not incidentally, built to usher uranium ore out of Tsé bii'nidziszgai (Monument Valley) and usher tourists in. The coal conveyor stretched forbiddingly across the highway, angling up to a leering tower on the east side of 160. To the west, it cut into the face of Black Mesa, stretching to the mesa's horizon in the oddly linear negative space of cleared trees. Four miles to the west, at the intersections of Indian Route 41, Peabody Coal Company Access Road, and Haulage Road (more inscriptions of resource extraction on the built environment of Navajo country), were the headquarters of the coal mining operation, which I could not see but knew was there from the crinkled topographic map spread out on my passenger seat. Making a sudden turn up a dirt road that sent my dog lurching onto the floorboards in the back of my Jeep, I wasted most of the quarter tank of gas I had left seeking a better angle from which to view this coal mining monolith.

Thirty miles later, I coasted into Kayenta on fumes to fill up my tank at the dusty gas station that presides over the town's single major intersection. Filling a tank with gas, during this particular summer, was an even more politically charged activity than usual, especially in the Navajo Nation, where people regularly drive large pickups long distances over hard roads to fill water tanks, get groceries, visit family, or attend to livestock located in remote parts of the country. During the summer months of 2008, the price for a tank of gas shot up to almost \$5 a gallon; oil companies raked in record profits, and a barrel of oil cost an unprecedented \$145 dollars. Global political-economic forces of resource extraction and transnational corporate capitalism occupied an elephantine presence in every gas station in the continental United States, and this particular 7-Eleven was no exception. That summer the *Navajo Times* was full of articles and editorials that had a central, driving focus: the incapacitating effects of gas prices on the Diné.

This part of Diné Bikéyah is not just home to coal mines but is also a major access point to the western reservation's uranium mine sites, which were abandoned after the climax of the uranium boom and left unreclaimed, with the radioactive guts of the mines exposed nakedly to the surrounding air, earth, water, animals, and human population. The mines in nearby Monument Valley were among the first to be exploited in the early years of the

Manhattan Project, and they left behind some of the most dangerous environmental legacies in the form of uncovered mine shafts, polluted water, and hot homes. During the early uranium booms, Diné workers arrived at these mine sites from across Diné Bikéyah, taking advantage of any opportunity for wage work during decades (the 1940s and the 1950s) when poverty gripped the reservation more than it had since the years after their removal to Bosque Redondo. Navajos tended to prefer jobs in the mines to other options—railroad work or venturing to California as farm laborers—because the mining jobs were close to home. Over the course of the 1940s, 1950s, and 1960s, uranium mining and milling in the western reaches of the reservation dramatically changed the geography of Monument Valley and the area surrounding Kayenta: new roadways were mapped and paved and new bridges built to sustain the traffic of heavy uranium haulers. Entire mesas in Monument Valley were blasted out of existence, and mills operated twenty-four hours a day to transform ore rock into yellowcake.

Not three hours north of Monument Valley, where I gazed at the familiar mesas and buttes with a sense that I had been there before—a symptom of my “imagined intimacy” with this postcard-ready landscape<sup>64</sup>—I arrived in a very different kind of southwestern desert town: Moab, Utah. Here, the gas was just as expensive, but the sheen of a thriving, well-developed tourist destination in the height of the summer season posed a stark contrast to Kayenta, despite the fact that both towns sit in equally striking landscapes, and each has intimate history with the uranium industry. In Moab during the uranium boom years, some of the largest and most famous uranium strikes made this town among the most famous of the Colorado Plateau’s “yellowcake towns.”<sup>65</sup> In total, three-quarters of all uranium miners during the booms of the 1950s to 1960s were non-Native and worked in mines in yellowcake towns like Moab: Grand Junction and Uravan, Colorado; Marysvale and Monticello, Utah; and so on.<sup>66</sup> Now, the legacy of uranium is remembered quite differently in these non-Native yellowcake towns than in Kayenta, a difference illustrated perhaps nowhere so clearly as in downtown Moab, where the Uranium Bike Shop hosts racks of high-end mountain bikes and a three-foot-tall graffiti-style mural of its name. Farther along Moab’s Main Street, an antique-looking sign on an office building reads matter-of-factly “Uranium Offices, 11 N. Main,” named thus during the height of the uranium frenzy and left unchanged, presumably, out of nostalgia for those boomtown days.

These two experiences of two very different towns, so closely juxtaposed, would eventually come to frame my own personal take on mine country, how uranium was inscribed on landscapes differently, and how the



FIGURE 4. The Uranium Bike Shop sits near downtown Moab, Utah, illustrating one of the many ways in which the legacy of uranium mining is inscribed on the built environments and political economies of former uranium boomtowns. In this image, the shop's name is painted in a three-foot-tall faux graffiti tag over the display windows. Photo by the author.

radioactive ore came, over time, to acquire very curious meanings. In Kayenta, and in the Navajo Nation in general, uranium is one of a litany of metals and minerals that have been extracted from the land to a devastating extent, leaving behind scarred earth and ongoing environmental health disasters. In Moab and former uranium boomtowns like it, such as Grand Junction, Colorado, mining has assumed an oddly nostalgic affect, a history that lends local flavor to ski areas, camping hot spots, and mountain biking destinations. In and around the Navajo Nation, mining is a very contemporary site of struggle over land, jobs, and sovereignty; in other parts of mine country, it is a colorful narrative of national history, its museums offering tourists an alternative activity on rainy days.

The contrast between Kayenta and Moab suggests that deserts have shifting meanings. These towns, less than 200 miles apart, have radically different histories with energy-extractive industrialism. This difference is, to a large extent, the very unnatural evolution of starkly different political-economic



histories of mining in different places. These different evolutions of pollution and geography in turn suggest that that wastelanding—a racial and spatial signifier that renders landscapes pollutable—is only *incidentally* about deserts. The wasteland, I argue, is a floating signifier in the Western environmental imagination: it does not always have a specific somatic or material referent, but rather it flexibly (floatingly) marks different objects, landscapes, and bodies. Deserts, thus, are not the reason for wastelanding. They are, rather, its frequent but not exclusive target. Just as race is a discursive technology with often deadly material effects, so too is wastelanding the process by which pollutability is materialized.

My explorations of the wasteland are thus very much about race, not only because environmental racism and wastelanding are conceptual intimates, but also because race is a discourse that is only incidentally a referent to different human body types. Just so, wastelanding is a discourse that is only incidentally a referent to different kinds of landscapes (including deserts). Race is quite deeply involved in wastelanding the environments that are deemed resource-rich for settler industrialism, just as certain human bodies are deemed productive reserves of labor (itself a resource) for settler industrialism and rendered exploitable via race. One might go so far as to say that racialized bodies are in many ways themselves wastelanded. Race intersects with the environmental imagination, even as it intersects with gender and sexuality, to produce wastelands: places that are marked, physically and ideologically, for exploitation, resource extraction, and national sacrifice. Just as race is embodied, often violently, despite being in essence strictly a discourse (as I tell my students, race is a *discourse* powerful enough to make *genocide* possible), “wastelanding” is a discourse-made-material through the degradations of targeted environments and their human and nonhuman denizens. It is through this process that even verdant landscapes—or nonlush places that are nonetheless aesthetically pleasing or otherwise fitting for American environmentalist affect—can be rendered pollutable, and desertscape embraced as protectable. The referent of wastelanding is inconsistent; the outcome is not.

As scholars of ethnic and women’s studies have long pointed out, we can recognize categories of human difference as being socially constructed by the ways in which their meanings change over time, space, and culture. Race, for example, can be recognized as a social construct rather than an expression of essential, or inherent, human difference by the ways in which racial categories are constantly in flux: what it means to be white has changed dramatically over the course of just the twentieth century, often in response to negotiations between legal and cultural constructions of whiteness;<sup>67</sup> for

Mexicans in the Southwest in the aftermath of the Treaty of Guadalupe Hidalgo, legal race status was tied to citizenship and differed from cultural or "common sense" race status;<sup>68</sup> for African Americans in the Jim Crow South, race status could change by the simple act of crossing state borders; and so on. As these examples attest, race is not a reflection of essential or innate difference but a malleable structure of feeling and exclusion that organizes populations' life experiences and outcomes and access to resources. Feminist scholars have likewise demonstrated how gender and sex are social constructions, on the basis of their malleability over time, space, and culture.<sup>69</sup> The argument here is that social constructions are not always, or even *initially*, about bodies themselves. Race, gender, and sexuality are structures of exploitation that are only most spectacularly about organizing social resources according to types of human bodies. They are an intersecting web that renders exploitable, negligible, and marginal a range of symbolic, psychical, and physical entities—in other words, a multiscalar range of materialities and symbols.<sup>70</sup> This is how scholars of race come to talk about the myriad things, bodies, ideas, and feelings that can become, as we say, *racialized*: they take on or seem to inhere raciality precisely because race is a discourse made material rather than a materiality made discursive. Bodies can be racialized; so too can voices, ideas, clothes, places, costs of labor, gestures, words, foods, jobs, sexualities, and so on.

If we extend this analysis of the relationship between social construction and materiality to spaces, we can see how wastelanding is not so much about the inherent value of wastelanded places as it is about the *meaning*—social, cultural, ecological, or juridical—that we make out of them. Consider the inner-city "ghetto" that becomes gentrified by upper-middle-class white settlement: the meaning of the space shifts through discursive and material meaning-making practices, as well as racialized and classed repertoires of dispossession and displacement. In that shift in meaning, the "ghetto" moves from being *pollutable* to being *protectable*—from urban wasteland to "Back Yard" (as in, Not in My Back Yard). There is nothing essential or inherent to the urban space itself that invites disdain; the material conditions of the place derive from the hegemonic meaning that is ascribed to it.

Just so, there is nothing about the desert itself that invites disdain, even white Western disdain with its clear cultural preferences for lush and verdant landscapes.<sup>71</sup> This is precisely because that preference is culturally and historically constituted and contingent on the particularities (and peculiarities) of how the white Western environmental imagination has evolved in the "New World." Environmental historians have pointed out how wilderness

areas, lush forests included, have in the past been understood as distinctly evil locales precisely because they were seemingly uncultivated—"wild"—the same quality that now marks out "wilderness" areas for environmental protection.<sup>72</sup> Those lush, verdant landscapes have likewise been themselves seen as "Desarts [*sic*]," in the sense of being uncultivated and vacant to the eye of a European settler.<sup>73</sup>

Deserts as we now understand them have been differentially interpellated as sacred or profane, as *constitutive* of the white masculine settler subject or as his demise. Particularly in the saga of nineteenth-century Western exploration, deserts constituted the geographic barrier to the mythical land of California; no matter what route overland travelers chose to get to California's storied gold mines, beautiful coasts, and rich agricultural lands, they had to first pass through deserts that threatened, and often took, their lives. Thus, deserts came to be imagined as an environmental specter threatening the white masculine settler and the larger project of settlement itself. When John C. Frémont, the Great Pathfinder, looked upon the deserts of the West, he saw them as "'forbidding,' 'inhospitable,' 'desolate,' 'bleak,' 'sterile,' 'dreary,' 'savage,' 'barren,' 'dismal,' 'repulsive,' and 'revolting.'" <sup>74</sup> Environmental determinism coupled with biological theories of race meant that the desert tribes were particularly reviled by settlers, their desert lands seemingly evidence of a distinctly savage nature. Deserts as "environments of scarcity" led explorers and settlers to develop a view of desert tribes, in Frémont's words, as "the nearest approach to the mere animal creation."<sup>75</sup> Ironically, the fact that desert tribes survived—in fact flourished—in "environments of scarcity" in which white settlers so struggled could have been evidence, by the same racist (il)logic, of the tribes' superiority rather than inferiority, an excellent example of the ways in which, when it comes to social constructions, "logic is in the eyes of the logician."<sup>76</sup>

As the desert came to be incorporated in the American environmental imagination, however, it came to acquire a range of cultural meanings, not all of them negative. When John Muir visited Arizona in 1905 and beheld what is now, thanks in large part to his advocacy, the Petrified Forest National Park, he included this desert-scape as part of the sacred "wilderness" that helped to constitute the Progressive-era American preservationist (what we now call environmentalist) movement. This category of protected wilderness had, until that point, largely revolved around mountainous, or at least *green*, landscapes that more closely fit American aesthetics of the wild places of the Western continent. With that, the American environmental imagination began to see deserts as protectable wilderness, too, a trend that grew as arid canyon country, particularly the Grand Canyon, became a centerpiece of environmental tourism and wilderness conservation legislation.



The Canyon, in particular, went in a very short space of time from "an 'unprofitable locale' to the 'sublimest thing on earth.'" <sup>77</sup>

The image of deserts changed most dramatically, perhaps, during the mid-twentieth century, as cultural representations of the "frontier" and "winning the west" centered on narratives that, quite often, took place in desert locales, thanks in large part to the rise of the Hollywood western.<sup>78</sup> Picture a pair of Old West gunslingers headed into a saloon, and your imagination will more than likely call up a dusty town scene in the middle of desert country, a place surrounded by sagebrush, piñon pines, and craggy mountain passes—a place, in short, "no more specific than 'the Southwest.'" <sup>79</sup> If these narratives are part of what "America" now means, then we can rightly say that the settler state has grounded itself in the desert Southwest, making the desert central to how we understand our history and ourselves. During the uranium booms, in which uranium was closely conflated with nothing less than the very survival of the nation-state, the nation was, materially and ideologically, remaking itself through the resources of desert country.

In Monument Valley, just outside of Kayenta, the valorization and degradation of the desert occurred simultaneously in the 1940s and 1950s; even as film crews shot the westerns that would underscore white Americans' collective "imagined intimacy" with this part of Navajo country as the symbolic setting for their imagined community, uranium companies were busily blasting its famous red mesas into nonexistence for the uranium encased inside. This simultaneity of valorization and degradation is perhaps symbolized nowhere so well as in the story of Monument Valley's Cly family, told in the 2000 documentary film *The Return of Navajo Boy*. The Cly family was first captured on film in the 1950s by director Robert J. Kennedy, who depicted them herding sheep, weaving Navajo rugs, and cooking meals outside of their hogan. Kennedy's work, however, made no reference to the enormous changes under way for Monument Valley Diné in the 1950s, Clys included, coming from both the film and the uranium industries. Over the course of subsequent decades, the Cly family came to embody those changes: the family's matriarch, Happy Cly, once described as "the most-photographed woman in America" for the widely circulated postcards bearing her image,<sup>80</sup> died of lung disease in 1960, which her family attributed to nearby uranium mines.<sup>81</sup> Upon her death, her youngest grandchild was adopted away from his family in what the Clys thought would be temporary missionary foster care. The child was never returned, and his connection to his family serves as the primary emotional draw of the film. (His eventual return to them as an adult, moreover, gives the film its name.)

That youngest son bears an uncanny name: John Wayne Cly, a name given him by John Wayne himself while the actor was in the valley on one



of his several film shoots. John Wayne Cly grew up on and near the reservation, working, among other wage work, in uranium mines, before finally finding his family again in Monument Valley—a family much changed by the environmental health problems attendant with unregulated uranium mining.<sup>82</sup> The Clyes were thus multiply marked by settler colonialism: they witnessed the death of family members from radiation-related diseases, were archived in photography and film as archetypal western “Indians,” and lost a child—named after an American icon in an iconic American landscape—to the assimilative practice of adopting out Native children to white families. *The Return of Navajo Boy*, therefore, tells a story of the multiscalar implications of the uranium industry within a larger context of settler colonialism, reflecting the powerfully complex interweavings of the colonial, familial, bodily, and ecosystemic causes and consequences of resource extraction for nuclearism in desert country.

Deserts, clearly, are more complex than mere wastelands: they are home to both John Wayne *and* John Wayne Cly, home to Kayenta’s unregulated mine sites and Moab’s Uranium Bike Shop. Wastelands, in turn, are floating signifiers deeply joined to race, class, gender, sexuality, and coloniality in their demarcation of spaces as pollutable.

### **The Words Are Maps: Colonial Cartographies, Borderlands, and the Production of Justice**

In 1955, in the midst of a booming uranium rush in the northeastern part of the state, the New Mexico State Mapping Agency released its annual report. The cover bore an image of a plane hauling away a mountain and leaving behind a smooth, flat topographic map—in effect doing away with nature in favor of charts. The image serves as a powerful representation of the false universalism of modern colonial episteme, what Donna Haraway calls the “god trick of seeing everything from nowhere,” and a reminder that maps are a powerful means by which states exert control over peripheral spaces, particularly those that are rich in resources.<sup>83</sup> In the mid-1950s, when the image was produced, mapping the uncharted domain of the state was a project of critical importance to the state as a whole; mapping projects, after all, were kindled by the desire to locate potentially minable ore deposits, and uranium occupied no small part of that imperative. By 1955, uranium was widely considered the state’s golden ticket into the modern industrial age.

Cartographic practice in the mid-twentieth century was, of course, not a “view from nowhere”; it was a view from deeply embodied—and very specific—perspectives on space. In exploring the evolution of these wasteland discourses in the twentieth century, and how they connect to the



environmental degradations of the uranium industry, my central questions revolve around the subjectivity of dominant cartographic discourses and the construction of Diné Bikéyah as peripheral, distant, marginal, desert, or deserted: “empty except for Indians.” Geography and notions about space have, of course, long been matters “of considerable imperial significance.”<sup>84</sup> Colonized terrain has been representationally contained and restrained in maps, just as the practice of surveying and cartography, the productive labor of mapping, represents a *repertoire* of colonial action—a practice of power relations.<sup>85</sup> Central to the work of understanding settler colonialism, then, is the project of explicating the ways in which the production of knowledge about space is historical, social, and deeply laden with power.<sup>86</sup> Suffice to say: as Ann Laura Stoler calls historians to turn from “archive-as-source to archive-as-subject,” so must those of us who are geographically inclined begin to read cartographic discourses as revelations of colonial ontology and technology, as *subjects* of our research and theory, rather than as objective representations of the natural, social, or political world.<sup>87</sup>

In the Southwest, cartographic discourses and articulations of territoriality are deeply complex. This region is in multiple senses spatially and ideologically liminal—in other words, it is a borderland. The history of uranium mining aptly illustrates this liminality: uranium country is simultaneously Navajo country, which, more often than not, is also claimed by Pueblo nations, by Nuevomexicano land grant communities, and by multiple state and federal agencies. Uranium mining, moreover, has existed at multiple kinds of ideological or affective borders. As such, each chapter of the book addresses spatiality and borderlands in a different way. In chapter 1, I explore how the pre-uranium mining history of federal relations to the Diné constituted a kind of economic borderland: during the period of livestock reduction in the 1930s, in which Diné herds were “reduced” (a euphemism, often, for slaughter) by tens of thousands, Navajo poverty was treated as a result of what was deemed irrational land use. The Navajos came to be seen as occupying the space between rational conservation practice and abject poverty during a time when both conservation and poverty were crucial concerns for Americans in general. During this period, the Navajo herd owner as a “social problem” constituted a grim counterpoint to the trope of the “ecological Indian,” and Diné poverty was seen as the direct result of the tribe’s failure to understand its land base and resources.


Chapter 2 explores the early years of the uranium boom, looking to the ways in which uranium in the Southwest seemed to constitute a *temporal* borderland between the anachronistic past and the technological (nuclear) future. As *Time* magazine so artfully put it in 1952, “For years, the parched, mountainous wastelands of the Colorado Plateau were known for their scattering of dinosaur bones and the ruined homes of prehistoric cliff-dwelling

Indians. But now the area is known for something far more important: uranium.”<sup>88</sup> Crediting uranium with creating what the magazine called “the wasteland’s glorious new reputation,” this kind of rhetoric created a tension between the anachronistic space of “dinosaur bones” and “pre-historic cliff-dwelling Indians” and the “far more important” technological futurity promised by uranium.<sup>89</sup> Similarly, chapter 3 explores how the Diné and other southwestern tribes were placed, often through little or no action of their own, in a position of manning this temporal borderland between past and future—ushering in the uranium booms of the future and then quietly disappearing into the past. This chapter also traces the transmogrification of Diné country from “waterless, worthless waste” to spectacular tourist attraction and star of the Hollywood western, making it a kind of *affective* borderland between cowboy and Indian (self and other) in the U.S. popular imagination.

In chapter 4, I examine the ways in which the spatiality of risk in Diné Bikéyah shattered the imagined division between public and private in the uranium wage economy. Despite the fact that uranium companies and other industrialists touted the importance of wage work in assimilating Navajo workers (in large part because wage work was predicated on normative gender roles and binary gender spheres—men laborers in the uranium mines bringing wages home to wives and children), the impacts of uranium in the 1960s and 1970s increasingly obviated such a division between public and private spaces. The risks of radiation crossed the borders between industrial and domestic spheres, violating that public/private “fiction of gender.”<sup>90</sup> By the late 1960s, when more than 200 Diné miners and millers had died of radiation-related diseases, women and children were also beginning to experience the adverse health effects of the industry; their appeals to industry and government for compensation, moreover, were largely denied or ignored because radiation risk was officially understood to end at the borders of the work site.<sup>91</sup> Thus women’s activism for environmental justice has revolved in large part around counter-mapping, or using maps “to delineate and formalize claims to . . . territories and resources,” in two senses: counter-mapping their claims to land taken over by the uranium industry, and counter-mapping the transboundary nature of radiation’s risk.<sup>92</sup>

In chapters 5 and 6, I follow the general geographic trend that the uranium industry took beginning in the late 1960s: off of the reservation proper to the eastern reaches of Diné Bikéyah near Tsoodzil (Mount Taylor). Uranium activity in other parts of Diné Bikéyah slowly ground to a halt in the latter half of this decade; all mines in Monument Valley were closed by 1968. The East Reservation Lease mines in the Carrizo Mountains were closed by 1967. The Kerr McGee Shiprock mill shut down in 1968,





leaving behind a fearsome amount of radioactive tailings directly adjacent to the reservation's largest population center. The land of northwestern New Mexico, just to the east of the Navajo Nation border, was easily the largest producer of uranium in the United States. Despite being outside of the official boundaries of Navajo Nation, it is quite clearly Navajo country, home to multiple Navajo communities and central to Diné world-views and history. Adding to its analytic and material complexity, this area is also claimed by multiple Pueblos, Nuevomexicano land grant communities, ranchers, and federal and state land management agencies.

In moving from west to east, the uranium industry, and by extension the narrative trajectory of this book, goes against the way that Navajos most often articulate geographical knowledge. Although each of the four cardinal directions are crucial to Diné geography (as represented by the four sacred mountains), "east is the direction Navajos emphasize."<sup>93</sup> Hogans, six- or eight-sided Navajo homes, have one eastern-facing door; and more often than not, Diné creation stories often begin in the east.<sup>94</sup> When Navajos list the four sacred mountains, they generally begin in the east with Tsisnaajinii (Blanca Peak) and then move south, west, and end in the north. The uranium industry, perhaps fittingly given its deeply destructive relationship to the Diné, goes against this geographical grain, moving from the early mines in Monument Valley, to the Carrizo Mountains near the Arizona–New Mexico state line, to Shiprock, to the eastern reaches of Diné Bikéyah in the area surrounding Tsoodzil. Just as east to west is important, so too is below to above. While Diné geographies are generally oriented east, then south, then west and north, they also emphasize emerging into this world from worlds below. Here, too, the uranium industry has inverted Diné geographies: uranium deposits were, more often than not, discovered via aerial surveys of the land, and cartographic practice in the twentieth century in general relied heavily on views of the land from above, as did the New Mexico State Mapping Agency in its 1955 cover. This book is thus, in large part, a project of mapping out these conflicting perspectives on landscapes as they emerge in the history of uranium mining, all the while keeping a close eye on what is at stake when toxins meet tissues.

Mines that remain to be sufficiently cleaned up are called, poetically enough, "legacy mines." On the Navajo Nation, this designation gestures to the larger colonial imaginary in which the history of uranium mining is entrenched. The "legacy" of these mines comes to be tangled up with pollution, environmental decline, and the material and ideological deprivations of race as it is constructed and practiced under conditions of ongoing settler colonialism. The "legacy" of mining in Navajo country and elsewhere might indeed stand in for what race scholars have called the



“sedimentation” of racism over time, which occurs when inequalities and privileges alike accrue over time in ways that compound, rather than alleviate, the effects of racism in social structures.<sup>95</sup> It is an appropriately material metaphor. As legacies and sedimentations do, mining has come to shape the *affect* of power relations between colonizer and colonized; it has shaped the experiences, bodily health, and life expectancy of the Diné long after the problem should have been rectified; and it has altered the very landscape, real and ideological, of Diné Bikéyah. The wasteland, desert or otherwise, becomes a place where pollution and environmental degradation collect, settle, and form sediment that makes a lasting impact on human and nonhuman bodies. Likewise, wasteland discourses collect and sediment to give shape to power relations between peoples and geographies, creating a highly spatialized set of power relations that invoke place as well as race.<sup>96</sup>

This book contends that settler colonialism is so deeply about resources that environmental injustices, whether on Native lands or lands of other others, must always be viewed through the lens of settler colonialism. While the connections between the two forms of power are various, the body is a good place to start—just as race and racial power are organized at the level of the body, so too are the functions of environmental violence.<sup>97</sup> Theorizing environmental justice at the level of settler colonialism, slavery, for example, can be seen as the degradation of the racialized environment of the body, the radical devaluation of the resource of black labor for colonial economies, and directly tied to contemporary manifestations of the ways in which blackness is racialized (for example, the structural and cultural ghettoization of urban communities, subjection of the black body to environmental violence and sanctioned state violence, as well as the more commonly cited cases of environmental racism, such as the disproportionate siting of toxic waste dumps or petrochemical plants in black communities). All of these manifestations derive from the bodily or material effects of racialization and speak to the ways in which “race” can be seen as an arbiter of resources, if resources are defined as ranging from access to clean air, water, and food to clean jobs, state services, community self-determination, or even what sociologist Avery Gordon calls complex personhood.<sup>98</sup> In the context of extreme and ongoing environmental violence, decolonization cannot be imagined outside of environmental justice, and vice versa. They are twinned projects. I argue in this book that, although uranium mining provides a powerful, and pulsing, explication of the twinned interests of environmental justice and decolonization, it is but one piece of a much larger system of power relations.

This is not such a radical leap. The study of environmental injustice is the study of race, resources, and power and their intersections with gender



and sexuality. Although the context for many studies of environmental justice cases is temporally and geographically local out of necessity, as these struggles are born of life-and-death urgency in local communities, most derive from a larger context of colonial power relations. While the degradation of the natural world has been a constitutive component of modern capitalist economies, race has been a central technology by which that degradation has occurred.<sup>99</sup> By the same token, race is and has often been performed through environmental degradation. The raciality of Natives in the “New World,” for example, was marked precisely through the desire for resources and through the mythic degradation of the imagined Native body (“animallike,” hyper- or asexualized, unclean, monstrous, “red”).<sup>100</sup> What followed was actual degradation of real Native bodies: rape, mutilation (often sexualized), mass slaughter, military aggression, and so on. Native encounters with settler colonialism are so deeply entangled with environment and resources that even the phrase “environmental racism” can seem to lose all meaning in a tribal context, quite simply because “racism” has *always* meant environmental violence for Native peoples. The desire for indigenous resources is the primary way in which colonialism marks the indigeneity, whether the desired resources are the land of the North American continent, or uranium, oil, and natural gas, or more intangible resources like Native spiritual and cultural practices (here, think of “resources” as dream catchers, Blessing Way ceremonies, hippie beads, hipster headdresses, and the myriad other ways in which non-Natives have sought to constitute whiteness through “playing Indian”<sup>101</sup>). In Patrick Wolfe’s estimation, “Whatever settlers may say—and they generally have a lot to say—the primary motive for [genocide] is not race (or religion, ethnicity, grade of civilization, etc.) but access to territory.” “Territoriality,” he concludes, “is settler colonialism’s specific, irreducible element.”<sup>102</sup> As settler colonialism has progressed in the twentieth and twenty-first centuries, Wolfe’s use of “territory” might helpfully be substituted with “resources,” of which territory is one of many.

Wastelanding is thus a fully colonial project of rendering resources extractable and lands and bodies pollutable, rather than merely a problem of distribution of environmental “bads.” Thanks in no small part to mainstream narratives that posit environmental justice cases as problems of unjust distribution that are best solved through the legal system, environmental justice activists and scholars have had to grapple with a purely juridical model of justice: the notion that, like lawyers in a grand class action lawsuit, scholars and activists offering overwhelming *evidence* of damage and disproportion will lead to the redress of environmental injustice.<sup>103</sup> This juridical model derives from the deeply liberal notion that justice is the

natural condition of modern political systems and that offering evidence of *injustice* will produce the requisite distributional changes. Andrea Smith calls this kind of reasoning “the liberal myth that the United States was founded on democratic principles . . . rather than a state built on the pillars of capitalism, colonialism, and white supremacy.”<sup>104</sup> This liberal myth denies the reality that, as David Pellow puts it,

The production of social inequalities by race, class, gender, and nation is not an aberration or the result of market failures. Rather, it is evidence of the normal, routine functioning of capitalist economies. Modern market economies are *supposed* to produce social inequalities and environmental inequalities.<sup>105</sup>

Environmental justice activists, moreover, are presumed to be concerned merely with the presence of toxins rather than with the larger structures of power that produced these toxins and funneled them into wastelanded communities in the first place. Quite to the contrary, these activists are most often “*not simply* challenging the distribution of toxins within communities of color” but “also challenging the justice of oppressive . . . institutions *themselves*.”<sup>106</sup> In the context of uranium mining, the disproportionate distribution of the uranium industry on Native land can be seen as a deadly component of the larger structures that organize Native relationships to the settler colonial state: heteronormativity, patriarchy, sexual violence, racism, land dispossession, and resource exploitation. Doing environmental justice work in this way calls into question not only the unjust distribution of environmental harm but also the capacity of the settler colonial state—“a state built on the pillars of capitalism, colonialism, and white supremacy”—to create and distribute more acceptable kinds of rights.<sup>107</sup>

The distributive model of justice operates from the kind of “theory of change” that imagines an impossible future: one *with* the environmental contamination built into the modern risk society distributed along “just” lines (to each according to their consumption).<sup>108</sup> This world is impossible because modern forms of capitalism, industrialism, and environmental contamination cannot exist without technologies of racial and colonial domination. Put simply, the treadmill of production relies on artificially cheapened resources and labor—artificially cheapened through the discourses of race, class, gender, and coloniality.<sup>109</sup> Thus, the distribution of toxins is merely the *signifier* of the foundational, enabling modalities of modernity: “capitalism, colonialism, and white supremacy.”<sup>110</sup> To ask for “just” distribution of industrial pollution, waste sites, mines, unsustainable and toxic labor, and so on, is not to ask for redistribution but rather to ask for modernity to throw up its hands and dismantle itself.<sup>111</sup> This kind of



rearticulation of the distributive model has been shorthanded by environmental justice activists as a move from the politics of NIMBY (Not In My Back Yard) to the politics of NOPE (Not On Planet Earth);<sup>112</sup> Winona LaDuke perhaps said it best: “we don’t want a bigger piece of the pie. We want a different pie.”

Approaching environmental justice at the level of settler colonialism rather than distribution changes the nature of what we mean by *justice* and *injustice*. If the injustice in question is primarily articulated as being about problems of distribution, “justice” is limited to the fictive notion that redistribution of environmental harm solves the problem of environmental racism. Quite to the contrary, a state that has structurally excluded populations of color, the queer, immigrants, and others is not compatible with meting out justice for those communities, precisely because it is constituted on and through their exclusion.<sup>113</sup> These others, as Charles Mills puts it, “mark the limits of the sovereign’s full responsibilities”; in other words, they come to inhabit the sovereign’s borderlands.<sup>114</sup> By extension, industrialized capitalism cannot function without designating landscapes pollutable. The exclusion of wastelanded geographies from state protection and the structural reliance on the treadmill of production combine to make the settler state a likewise unfavorable source of justice for nonhuman nature.

Environmental justice holds potential for helping us rethink and remap these questions of justice and injustice outside of the frame of rights discourse because of the transformative ways in which it theorizes *environment* as wherever humans “live, work, play, and pray” and *environmentalism* as a political practice deeply invested in class, race, and gender justice. This kind of analysis moves environmental justice studies, particularly studies of environmental injustice on Native land, to a more complex understanding of nature and justice in the past, present, and future of settler colonialism. It is precisely this more complex understanding of nature and justice that this book seeks to engage. In looking closely at the representations of the territory on which settler colonialism is grounded, we find more often than not, wastelanding at work. Through wastelanding, the logic of settler colonialism denies that its “wastelands” could be sacred, could be claimed, could have a history, or could be thought of as home. Instead, to wasteland a space is to defend the notion that the land is, always has been, and always will be “empty except for Indians”: to mark it and make it, ultimately, sacrificial land.