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Range Wars

Ryan H. Edgington

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The Environmental Contest for White Sands Missile Range

Ryan H. Edgington

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For Angelica

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Range Wars

Introduction

In March 2008 the U.S. Fish and Wildlife Service named the massive White Sands Missile Range in south-central New Mexico the recipient of the 2007 Military Conservation Partner Award. Director H. Dale Hall explained: "As the Fish and Wildlife Service's former Regional Director in the Southwest, I learned first hand the depth and breadth of the installation's commitment to native species. Their dedicated people have always been willing to work with partners, and their ability to deliver conservation on the ground and their enthusiasm in sharing what they have learned with others has truly benefited the wildlife resources they manage." The now more than sixty-year-old missile range does deserve recognition. It played a critical role in the protection of the endangered northern aplomado falcon. It manages about 95 percent of the White Sands pupfish in rivers and streams across the region. White Sands has also worked with bat conservationists in the protection of the species on regional military reserves and remains a key partner in protecting the endangered desert bighorn sheep.[1]

By 1980 White Sands had conducted more than sixty thousand weapons tests. Wildlife conservationists have found a most unexpected value in a place the average environmentalist might deem a military wasteland. Some even consider the military reservation a de facto wildlife preserve. In 2006 Corry Westbrook, legislative representative for the National Wildlife Federation, argued that while seemingly unusual places for

wildlife regeneration, weapons testing facilities, military bases, and research laboratories, including White Sands Missile Range, Los Alamos National Laboratories, and Kirtland Air Force Base in Albuquerque, have acted to protect and conserve both endangered and abundant wildlife species in New Mexico. As Westbrook believes, "they've actually done a really good job, some of the stuff they've done is pretty amazing."[2]

By removing domestic livestock, eliminating the barbed wire fences that demarcated private property prior to World War II, and keeping poachers away from wild game, White Sands has transformed a rural landscape once dominated by small ranches and an extensive cattle business into an unexpected haven for wildlife. However, neither the Department of Defense nor the Department of Energy (and its predecessor the Atomic Energy Commission) entered into protecting wild game of their own accord. Environmentalists and the Fish and Wildlife Service have used the National Environmental Policy Act (1969) and the Endangered Species Act (1973) to compel the military to play a greater role in conserving the lands that it occupies.

The recent use of militarized landscapes for wildlife protection is not just a story about New Mexico. Military installations across the United States have recently played a role in the protection and revival of many species, including the red wolf, loggerhead sea turtles, and the desert tortoise (all endangered). In the West, China Lake Naval Weapons Center, Edwards Air Force Base, and the now-defunct Rocky Mountain Arsenal, among others, are either directly involved in the protection of wildlife or have new lives as wildlife preserves in the post–Cold War West.[3]

The history of global military sites as conservation landscapes is a burgeoning subfield of geography and environmental history. Yet most scholars have told a story of negative environmental and cultural change as result of militarization during and after World War II. That trend is understandable. Scholars have deemed the militarized American West the "Ugly West" and the story of a "tainted desert." For Mike Davis, it is in part the story of a "dead west." Often measured by nuclear landscapes, and especially the Nevada Test Site, military-scientific sites are reduced to irredeemable wastelands cratered by weapons testing, a historical

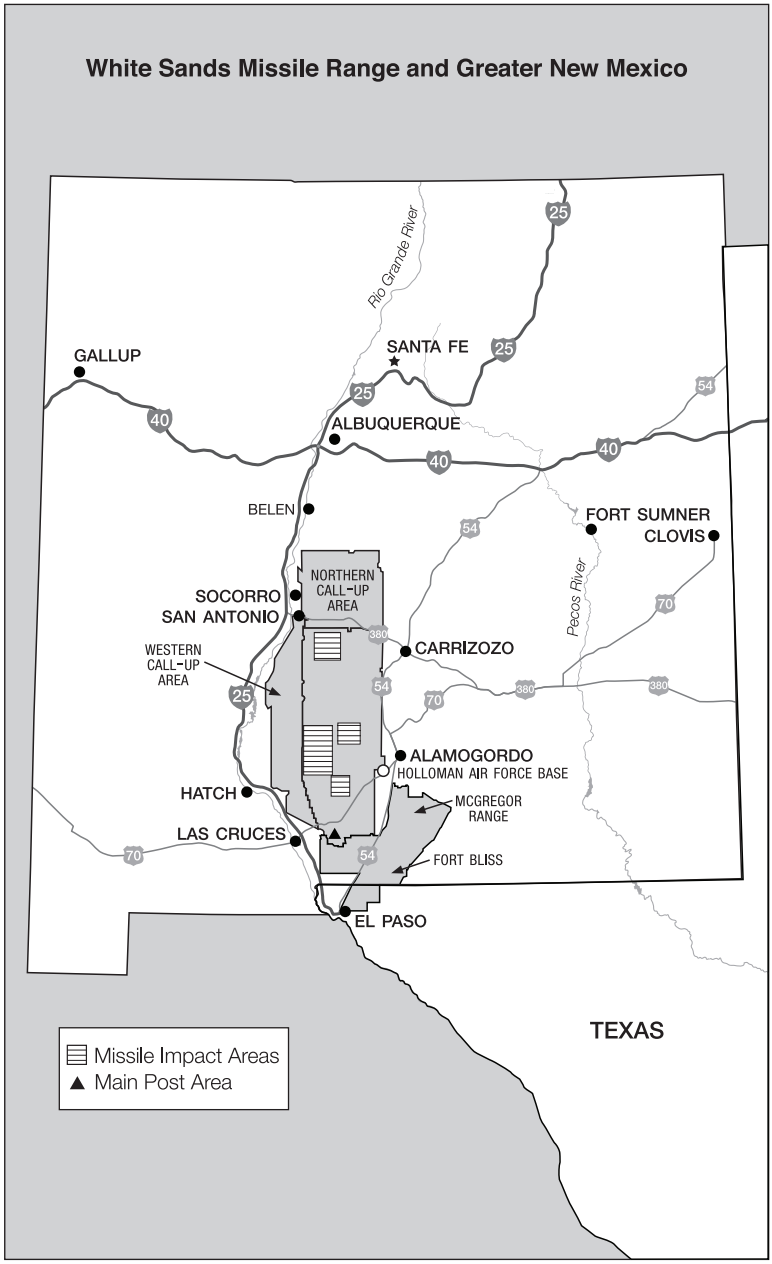
trend that shapes public understandings of militarized landscapes. The specter of the bomb has masked a more complicated environmental history of the militarization. In limiting analysis of places like White Sands Missile Range to merely ruined places, scholars have largely ignored the more complex and entangled environmental histories of the national security state not only in the West but also across the rest of North America.[4]

This is the history of how White Sands Missile Range came into being, how weapons testing altered the region's environment, how the human community challenged its existence, and how and why it became a site of wildlife experimentation and regeneration even as it continued to conduct missile testing on an almost daily basis.

It is important first to define militarized landscapes. I follow the historian Edmund Russell's suggestion that they run on a continuum. He argues:

> Rather than using "military" and "civilian" as terms that cleave the world in two, we should think of them as terms anchoring endpoints of a continuum. On the highly civilianized end are places people have sculpted as part of a conscious rejection of war, such as a Quaker meeting house. On the highly militarized end are places dominated by armed forces to the exclusion of civilians, such as a high-security missile silo. In between lie landscapes that, to varying degrees, are both militarized and civilianized. Essential to understanding these is historical memory, since the balance between militarization and civilianization has fluctuated over time.[5]

This means that militarized landscapes are not only fixed war zones and battlefields. They can also be small or large sites of weapons testing, refugee zones, prisoner of war camps, missile silos, and even scientific laboratories. Militarized landscapes are fluid rather than fixed in place. They have histories before they were militarized and long after the war has ended. Those same militarized landscapes can appear briefly or exist for long periods of time. They are often well-known heritage sites documented by historians but can also be places with hidden histories.



MAP 1. White Sands Missile Range and Greater New Mexico. Author's collection.

The environmental histories of militarized landscapes rarely follow a similar or expected trajectory.

While perhaps best known as the home to the Trinity Site, White Sands Missile Range is a Department of Defense facility that acts as a "large-scale" site of weapons experimentation. It is utilized by the U.S. Army, Navy, Air Force, National Aeronautics and Space Administration, and other private entities that contract with the Department of Defense and other agencies. After 1945 the missile range tested both missiles and space technology. Under the auspices of the U.S. Army Test and Evaluation Command, weapons tested include surface-to-air, surface-to-surface, air-to-air, and air-to-surface weaponry. Other programs included gun system analysis, laser programs, and atmospheric studies. At the Lyndon B. Johnson Space Center White Sands Test Facility, NASA tests a number of space-related technologies. As one observer has suggested, White Sands Missile Range is one of the largest "black spaces" on the map. It is a massive militarized landscape with deep ties to military preparedness, but many do not know the missile range exists, and even fewer understand its mission.[6]

The Main Post at the southern end of the missile range acts as central headquarters. The area includes launch complexes, administrative offices, personnel housing, industrial buildings, and basic human services. The South Range Launch Complex provides for ground-to-air and ground-to-ground missile tests. Located south of Highway 70 (which cuts southwest to southeast across the southern end of the range), the South Range Land Use Area includes Condron Airfield, used for a number of launch tests, the Nuclear Effects Laboratory, which offers a mock nuclear environment, and areas that house ordnance and missile engines. Within the Land Use Area north of U.S. Highway 70 there exist a series of ordnance disposal sites and the Small Missile Range, which acts as support for missile tests. The Central Range and Northern Range Land Use Centers (which house the Stallion Range Center) offer further support for missile tests. Missiles do not simply impact anywhere on the range. Large areas of White Sands act as buffer zones. Several impact areas, including the Yonder, Oscura, and Red Rio, are reserved

for missile tests. While many begin on the range, other launches have happened from the Green River Missile Complex in Utah or from Fort Wingate, New Mexico. The missile range also has a Large Blast Thermal Simulator and climate chambers to mimic different environmental conditions. White Sands has a "landlocked" naval vessel. The navy likes the site because testing missiles at sea causes obvious issues with the recovery of data.[7]

The missile range inhabits an arid region of New Mexico known for its searing summer heat, bitter winter nights, and lack of annual precipitation. It occupies the aptly dubbed Jornada del Muerto (Walk of the Dead), a stretch of unforgiving desert that Spanish explorers and settlers traveling between Mexico City and northern New Mexico came to know all too well. Established as White Sands Proving Ground at the end of World War II, the missile range is 3,200 square miles in size and measures larger than Rhode Island and Delaware combined. With two call-up areas to the north and west (civilian areas that the missile range can evacuate for certain tests), it is near the size of Connecticut. Jim Eckles, former public affairs officer for White Sands, suggested one need only imagine evacuating Connecticut's more than 3.5 million residents to understand just how big the missile range actually is. White Sands is the largest contiguous overland military facility in the Western Hemisphere (Woomera Test Range in South Australia is the largest in the Western world). Most impacts happen on the basin floor, where missiles are easier to retrieve. In some of the higher elevations of White Sands, deer, mountain lions, and other wildlife may go months, if not years, without feeling a human presence. The missile range is not the only military facility in the region. Holloman Air Force Base (HAFB) lies at its northeastern boundary just north of the gypsum dunes on White Sands National Monument, and Fort Bliss abuts its southern edge. Collectively the region inhabits most of south-central New Mexico and the lands north of El Paso, Texas.[8]

A place largely overlooked in Cold War historiography, White Sands was the site of the first nuclear explosion, an origin of ecosystem science, the birthplace of the American space program, and the primary

site for testing U.S. missile capabilities. The history of White Sands reveals that Cold War–era militarized landscapes were not contained places, but instead sites of cultural and environmental contestation. This is in part a history of the troubling impact of weapons testing on a western landscape. However, in placing White Sands at the methodological crossroads between environmental history, the history of the American West and U.S.-Mexico borderlands, and the history of science and technology, I reconsider the history of the Cold War and militarized West by suggesting that we cannot narrow militarized landscapes to sites only destroyed by weapons testing.

The environmental history of the missile range exemplifies the uneasy relationship between westerners and the national security state after World War II. Local communities, state and federal agencies, and politicians transformed the meaning of and uses for a desert landscape militarized after World War II. In the process they challenged the authority of the national security state to dictate the environmental value of White Sands without dispute. Collectively they remade the missile range into a place of competing environmental narratives etched not only from the far-reaching intellectual, economic, and environmental changes wrought by the Cold War, but also from regional history and traditions. They found their own needs and desires in White Sands. In turn the national security officials charged with overseeing the missile range were forced to amend the range's primary mission as a weapons testing facility as they wrestled with the political and environmental transformation of the region after World War II. White Sands was a hybrid landscape.

White Sands was not unique. From the Hanford plutonium production facility in Washington to the Rocky Mountain Arsenal near Denver, the militarization of rural western communities opened once private landscapes to a new public discourse on nature, culture, and the federal presence in the region. This was a revolutionary transformation in land-use in the North American West—a revolution shaped by the defense industry. In clearing south-central New Mexico of its ubiquitous cattle herds and creating a vast open space, the Cold War military-scientific

apparatus allowed local, regional, and national communities to know nature in ways that transcended weapons testing. While historians of the post–World War II era have located the military-industrial apparatus and new consumer economy in the urban and suburban landscapes of the West, places like White Sands were not simply hinterlands in the battle global against communism. Military bases, testing facilities, and private military contractors dotted the rural and urban West, creating a new social landscape and federally mandated economy.[9]

Like the national park system (which was also large federal landscapes, withdrawn from local control and from the path of economic development, and managed by a government bureaucracy), the formation of militarized landscapes created conflicts in many rural places. Reflecting the historical tension between local uses of western environments and federal natural resource management in the region, the postwar experience in south-central New Mexico reveals how a diverse group of actors refused to acquiesce to state-based ideas of unmitigated national security and environmental containment during the Cold War.[10]

It was not only wildlife conservationists and environmentalists who created new-fangled land-use ideals for White Sands. Ranchers tied the missile range to their vanishing rural lifestyle. Nuclear scientists used it as a place to nurture the theories of ecosystem ecology. State game and fish personnel, the National Park Service, and state and federal political figures recognized the environments on the missile range as vital to outdoors tourism specifically and the state economy generally. The missile range was ultimately forced to negotiate its primary mission as a weapons-testing facility with the political transformation of the postwar West.

To fully understand what effect postwar militarization had on the region, historians must redefine the boundaries that separated military sites from the surrounding cultural and environmental landscape. Only by crossing those boundaries can historians of the post–World War II West know the cultural and environmental history of a complex national security state that emerged in the West. The War Department and later the Department of Defense administered White Sands under the

auspices of the army, but the military did not go unchallenged. Instead, negotiation, resistance, and ultimately the human imagination marked the history of a militarized landscape.

The War Department and then the Department of Defense sought to inscribe security and containment upon the desert landscape. But, as with all militarized landscapes, those plans rarely worked out in the ways that the state desired. New Mexicans exploited for their own purposes and profit a large federal landscape ostensibly legible and secured. However, rather than a site of fixity, the missile range was reinvented in ways that challenged the singular mission of weapons testing. The missile range's history is hardly as rigid as its boundaries might suggest. As the anthropologist Edward Casey suggests, "places not only *are*, they *happen*." Just as missiles would have an effect on places beyond White Sands, so too would local, regional, and national communities leave their mark on the missile range.[11]

Coupled with the growth of mass consumerism, a monolithic Cold War culture defined by fallout shelters, doomsday movies, and nuclear anxieties shaped an American discourse on global communism, the military-industrial state, and Cold War citizenship in the postwar years. Historians have often looked to Berlin, Germany, Cuba, the Korean Peninsula, the Ia Drang Valley in Vietnam, the halls of the Pentagon, suburbia, and college campuses as places to study that dissonant encounter with national-security states. Beginning during World War II it was the West that became bastion of the American military-scientific mechanism. From the mid-1950s through the early 1980s, the Pacific and Mountain West procured the greatest amount of federal defense dollars. Between 1945 and 1960, $150 billion in military federal expenditures spread across the region. While not the only pull to the West, that money continued the significant regional demographic change that began during World War II. California alone held 40 percent of aerospace monies, and one in ten Californians relied on the federal government for a salary. Between 1950 and 1970 the population of Nevada jumped from nearly 160,000 to more than 488,000, an increase of more than 200 percent. During

those years California's population grew from about 10.5 million to almost 20 million, an expansion by 88 percent. By 1970 New Mexico had become a major center for weapons research and development, and its population had grown from about 600,000 to more than one million over the prior twenty years. The state was home to Los Alamos National Laboratories (LANL), Sandia National Laboratories (SNL), Kirtland Air Force Base (KAFB), Cannon Air Force Base (CAFB), as well as Holloman, Fort Bliss, and White Sands.[12]

As the historian Patricia Nelson Limerick explains, "certainly, no location on the planet is remote enough to escape the troubling issues of nuclear power. But the American West has been particularly close to the power of the atom, in ways that followed directly the established themes of Western history." Landscapes once seen as isolated wastelands became optimum sites for scientific inquiry into the greatest of new weapons technologies. The West was home to some of the most important research and development laboratories, nuclear testing sites, and waste disposal facilities in the United States. They include the Nevada Test Site and the Yucca Mountain nuclear waste site in Nevada, the Hanford plutonium production site in Washington, and LANL, SNL, the Trinity Site, and the Waste Isolation Pilot Plant in New Mexico (WIPP). Colorado, Nevada, and New Mexico also saw operations as part of the "peaceful" deployment of nuclear weapons under Project Plowshare (namely for natural gas exploration). Utah, Colorado, and New Mexico (including areas on the Navajo Nation) were also locations of a uranium mining industry that scarred the landscape and created community health problems.[13]

To ignore the central importance of nuclear weapons in the postwar West is foolhardy at best. Scholars cannot lose sight of the troubling environmental legacy that surrounds nuclear weapons testing. But we must avoid what the historian Richard White has called the "just so story" in environmental history. Scholars must not assume that militarization (a complex and ultimately incongruent process) inherently leads only to environmental ruin. We will continue to study the Atomic West. However, from Edwards Air Force Base in California to the

Dugway Proving Ground in Utah the analysis of nonnuclear militarized landscapes demonstrates that the region's relationship to military power remains more complex than we can explain just through nuclear testing. While never wholly separate from the Atomic West, army bases and air force and navy staging facilities offer fertile ground for complicating the culture of military power in the postwar West. Moreover, such an approach requires examining the dealings of not only the Department of Defense and Atomic Energy Commission but also private defense contractors including Lockheed Martin, Boeing, Honeywell, and Halliburton (all of whom have played a role in the national defense industry in the region). Perhaps most importantly, a better picture of the Cold War West emerges from an exploration of how everyday citizens from the surrounding social and cultural landscape reacted to the immense presence of the military in the region after World War II.

Ultimately this book is about New Mexico, known by its motto as the "Land of Enchantment." Tourist literature and popular media have characterized the state as a landscape of Indian arts and culture, high desert vistas, Spanish heritage, and outdoors recreation. None of this is wholly false, but it is not a complete picture either. Popular readings of the state cast it as not very urban, although by 1970 two-thirds of the state's population lived in cities. New Mexico thus is a seemingly agrarian place, but not of industrial farms. This despite recent complaints about pollution generated from the thirty thousand cows on eleven farms in a region known as "dairy row" between Las Cruces and El Paso. Mountains abound, but the eastern plains are rarely mentioned. New Mexico is where hippies go to die. Mabel Dodge Luhan, Georgia O'Keeffe, and Dennis Hopper perfect the image of New Mexico as artist and bohemian paradise.[14]

But pull back the utopian curtains, and reality hits you in the face. Scholars, writers, and activists, including Rudolfo Anaya, John Nichols, William DeBuys, V. B. Price, Jake Kosek, and Joseph Masco, have pointed out that under the land of enchantment lay property dispossession, cultural exploitation, and environmental destruction. The history of White Sands Missile Range offers a unique landscape to explore the

ways in which militarization made New Mexico a place of, to use the words of DeBuys, "enchantment and exploitation."[15]

The following pages use the history of one militarized landscape to uncover how everyday peoples comprehended and confronted the creation of a new kind of state-controlled natural environment. In 1960 the urban planner Kevin Lynch postulated that humans create an "environmental image" by identifying a place and making sense of its spatial relationship to surrounding landscapes. They then attach meaning to those places, a process that is critical in how cities are both understood and experienced. Lynch explains that the environmental image "is a product of both immediate sensation and of the memory of past experience, and it is used to interpret information to guide action. The need to recognize and pattern our surroundings is so crucial, and has such long roots in the past, that this image has wide practical and emotional importance to the individual." I use a similar theoretical approach in rural south-central New Mexico. No singular environmental ideal dominated the White Sands region, and not all interpretations were concerned specifically with nature. Yet large militarized landscapes (a geographical concept generally unique to the post-1940 era) challenged how everyday peoples understood their relationships with the nonhuman natural world.[16]

I have used the idea of contestation to define the history of the White Sands region. However, I do not merely mean protest of the military's presence in New Mexico. Instead, each chapter investigates competing perceptions of the missile range as local, regional, and national landscape and how those views challenged the basic understanding of White Sands as a closed military site. Several themes run throughout the history of the military-scientific apparatus in south-central New Mexico. The first was the myth of the rural West as the rightful domain of ranchers and farmers. Indeed local landowners, whose brethren had occupied the area since the mid-nineteenth century, cast White Sands as part of a rooted regional livestock economy even as the Department of War and Department of Defense confiscated their lands. Ranchers

rarely recognized that a lack of environmental stewardship in the region during the prior hundred years played a role in the environmental collapse of the desert grasslands by the 1930s. Nor did they recognize that the military had a presence in the region since the Mexican-American war. Militarization of south-central New Mexico during and after World War II would in part develop out of both trends.

A second theme is the place of science in shaping the militarized landscape. Nuclear science, aerospace technology, and missile experimentation were central to the missile range's existence and held a critical place in rationalizing the construction of the testing facility. Science and military power went hand in hand. At the same time, wildlife management officials from within the New Mexico state government and scientists tied to broader environmental movements created unexpected ideas about the value of the secured desert environment as site of animal experimentation. By the 1980s White Sands would become the domain of exotic game and a potential site for protecting endangered wolf species. As a result White Sands became a most unexpected partner in both environmental tourism and wildlife protection.

The political turn of the 1960s acts as a third crucial theme. Environmentalists wielded power over military sites in the wake of the environmental legislation of the late 1960s and early 1970s. The legal and direct action tactics of the era inspired local communities (although with very different political motivations) to challenge the right of the Department of Defense to occupy south-central New Mexico. This was especially true for ranchers whose argument for fundamental property rights reflected that of the Sagebrush Rebellion and Wise Use movement of the Reagan era. They were bound to the missile range through prolonged property lease and grazing permit suspension agreements signed during and just after World War II. Dispossessed of their property, ranchers believed that they were the rightful owners of lands used to create the missile range.

The final theme is the unexpected nature of militarization. The following pages offer a new way of thinking about state power, local environmental knowledge, and access to landscapes deemed off limits

to the very citizens they are supposed to benefit. The story of environmental declension as a result of weapons testing weaves its way through the sixty-year history of White Sands. Missiles cratered the desert landscape, White Sands tested depleted uranium, and rockets and missiles often missed their target on the missile range. As they helped to recover rocket debris and radioactive materials strewn across the U.S.-Mexico borderlands, both rural westerners and Mexicans became de facto citizens of the American Cold War national security state despite living hundreds of miles away from White Sands.

Yet missiles did not merely explode. A myriad of factions remade White Sands to fit their political ideologies, economic needs, and environmental ethics. For environmental historians the environmental history of a militarized Cold War New Mexico offers a persuasive case for knowing nature in unexpected places and in unexpected ways. It encourages us to avoid the "just so story" in doing environmental history. For historians of the American West and U.S.-Mexico borderlands it encourages thinking about the region's Cold War environmental history as not only atomic but also as an entangled web of military sites that tied the rural to the urban, the desert to the Pacific Ocean, terra firma to outer space, and the nuclear to the nonnuclear. More generally, peoples did not simply acquiesce to the Cold War cult of secrecy and security. In fact they transformed it. They were not always successful in shaping their vision for lands held by the national security state. But when they were, the political and environmental consequences were profound for everyone invested in the missile range. The contestation of White Sands emerged from a cacophony of individual, organizational, and political voices seeking to fulfill the desires they found in a massive militarized desert landscape. From those desires emerge a more complex environmental history of the Cold War American West.[17]