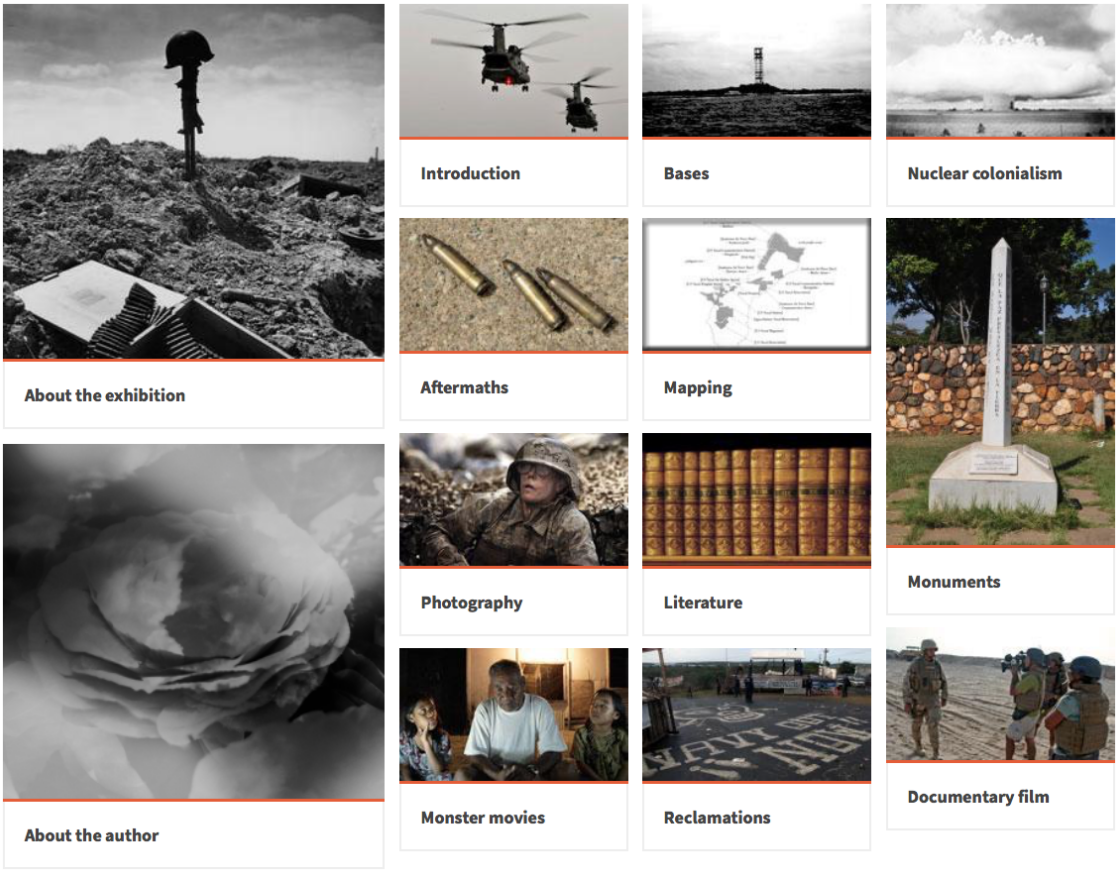
Representing Environmental Risk in the Landscapes of US Militarization

Hsuan Hsu

This virtual exhibition curated by literary scholar Hsuan Hsu examines the environmental impact of US military activities worldwide and how activists have used art and other forms of representational media to convey the harmful effects of militarization on the local population and landscape.



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About the exhibition

This exhibit considers how different forms of representation have been used to influence public perceptions of environmental harm associated with US military bases and activities worldwide. Instead of attempting a comprehensive survey of all the images, monuments, and narratives that have been devoted to these environmental impacts, I have focused on significant modes of representation including maps, films, literature, photographs, and monuments. Wherever possible, I selected visual examples that exemplify how a particular medium can help us perceive and frame environmental risks. I attempted to include images showing both how the US Department of Defense downplays environmental impacts and how activists and artists have mobilized representational practices to convey the scale and lived experience of environmental harm wrought by militarization. I have included both international and domestic examples to convey the geographical scope of US militarization. While many artists generously granted permission to reproduce their works online, at times the exhibit's selections have been limited to images available in the public domain.

Acknowledgments

Thanks to Rusty Bartels for research assistance, to Kareem Shihab for producing custom maps for this project, and to the UC Davis Mellon Research Initiative in Environments and Societies for providing frequent opportunities to think collectively about many of the issues covered here. For permission to reproduce their artwork, I am grateful to Greg Girard, J. P. Candelier, John Gianvito, Jack Niedenthal, elin o'Hara slavick, Craig Santos Perez, Lee Craker, and Richard Misrach.

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Introduction

The US's militarized landscapes—which include offshore bases, testing and training facilities, former war zones, and waste disposal sites—have exposed communities worldwide to a range of health risks. With bases scattered throughout the world, the US exposes vulnerable populations to environmental ills ranging from noise pollution and toxic dumping to radioactive exposure, sexual violence, and accidental civilian deaths. Because these consequences are dispersed across great distances and generally concentrated in foreign and less powerful places, many Americans are unaware that the US Department of Defense is one of the world's largest polluters. This online exhibition focuses on artworks and other representational media that attempt to educate audiences about these issues by depicting places and populations subject to environmental harm spread by US military activities. By considering responses to militarization in locations such as Puerto Rico, Guantánamo Bay, Guam, Hawai'i, the Marshall Islands, South Korea, Iraq, and the US Southwest, this exhibit draws comparisons and connections between disparate geographical locations and cultural contexts. Across the globe, military tests and bases confront vulnerable groups with common problems: how to generate evidence for the risks they live with, how to represent risks in terms that translate beyond local contexts, and how to forge alliances with other groups in order to resist the larger systemic forces that underlie militarization.

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Chapter: Introduction
Source URL: http://www.environmentandsociety.org/node/6059
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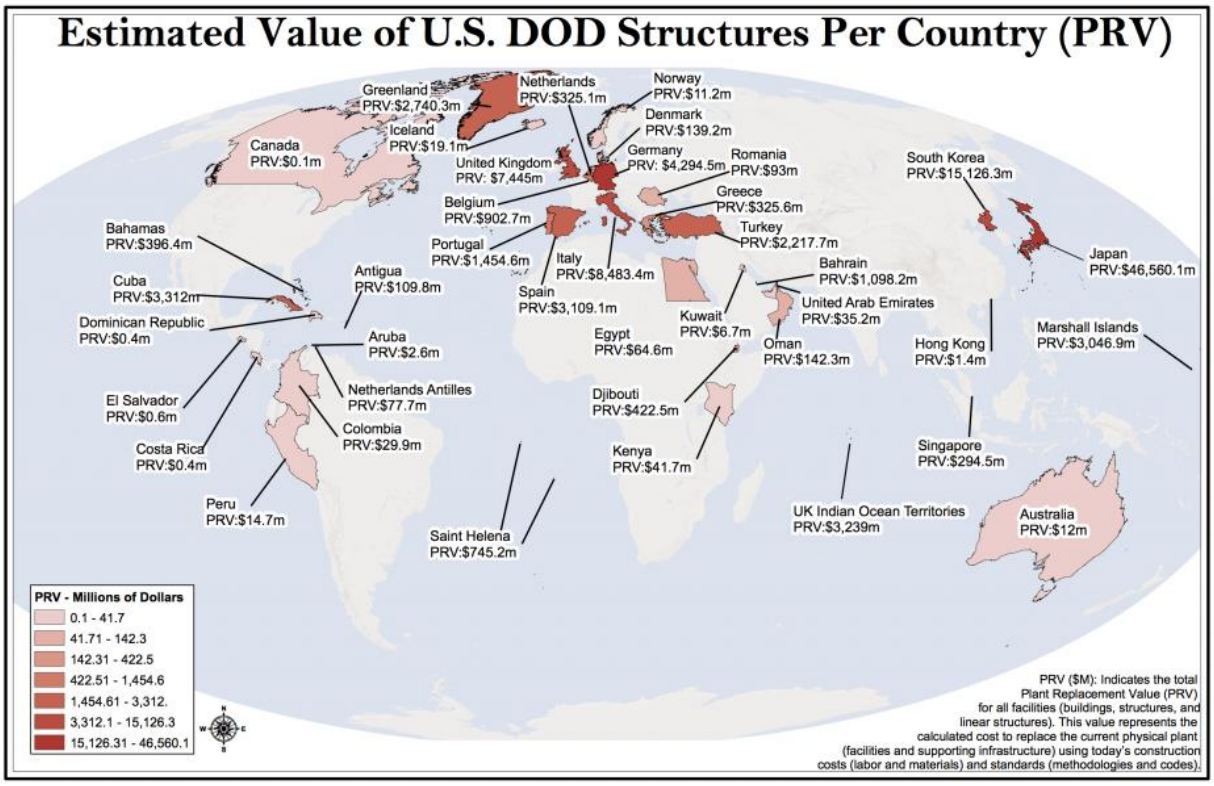

Map showing the estimated value of US Department of Defense structures per country (Plant Replacement Value), 2013
Created by Kareem Shihab (2013)

Risk and the landscapes of US militarization begins with historical overviews of militarized locations such as bases, testing and training sites, and former war zones stretching across the globe. These locations graphically demonstrate war's environmental entanglements, particularly in recent decades as military targeting has shifted from enemy bodies to infrastructure and environment (Mbembe 2003; Sloterdijk 2009). In addition to detailing the scope of militarization and some of the health effects suffered in the presence and aftermath of bases, military exercises, and war, this exhibit outlines responses by local anti-militarization movements. These movements are notably diverse, bringing together first-time protestors, experienced organizers, activists representing a range of interests, and people from different social classes, ethnic groups, and geographical locations (Hardt 2012). Some anti-militarization struggles have even "generated new practices of democratic political organizing, linked to other local social movements" (Hardt 2012, 826). At the same time, local movements have built coalitions across regional and national boundaries, laying the groundwork for demilitarization and environmental justice on a global scale.

After documenting the environmental harm wrought by US bases, this exhibit goes on to consider how specific forms of representation have been used to legitimize or resist militarization and its attendant risks. Activists have drawn on the distinctive qualities of media such as maps, documentary film and video, monuments, popular

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Chapter: Introduction
Source URL: http://www.environmentandsociety.org/node/6059
PDF created on: 22 February 2021 12:16:01

films, novels, photographs, and site-specific performances to convey the social, psychological, and biological effects of living in militarized places. In addition to providing an overview of how environmental and anti-militarization movements have deployed different art forms and media, the second half of this exhibit aims to better understand what specific cultural forms can contribute to the projects of representing and redressing environmental risks.

These forms of cultural resistance, often produced outside the US, are of critical importance in the context of the "military normal" that deploys censorship, news media, the entertainment industry, recruiting advertisements, and consumer goods to celebrate US militarization while obscuring the forms of violence that it propagates at home and abroad (Lutz 2009). Although most of the damage caused by the US Department of Defense is borne by poor and nonwhite subjects located beyond the nation's boundaries, inhabitants of the US and the Global North are also at risk. Radiation poisoning in the US Southwest, veterans affected by depleted uranium and Agent Orange, and the ongoing epidemic of civilian gun-related violence attest to the domestic costs of militarization. As the world's largest oil consumer (360,000 barrels per day in 2010), the Department of Defense is also responsible for a considerable share of global greenhouse emissions, as well as the oil dependence that has partially motivated recent wars in Iraq and Afghanistan (Karbuz 2011). Although the landscapes of US militarization distribute damage, risks, and security unevenly, we all inhabit them to some extent. I hope that the works presented in this exhibit will advance our understanding of the environmental impacts of militarized spaces, and suggest new ways to reclaim them.

Bibliography:

Hardt, Michael. "Note from the Editor, Struggles against US Military Bases." *South Atlantic Quarterly* 111, no. 4 (2012): 826.

Lutz, Catherine. "The Military Normal: Feeling at Home with Counterinsurgency in the United States." In *The Counter-counterinsurgency Manual: Or, Notes on Demilitarizing American Society*, edited by the Network of Concerned Anthropologists, 23–38. Chicago: Prickly Paradigm Press, 2009.

Mbembe, Achille. "Necropolitics." *Public Culture* 15, no. 1 (2003): 11–40.

Karbuz, Sohbet. 2011. "How much Energy Does the U.S. Military Consume." *The Daily Energy Report*, 3 January 2011.

Sloterdijk, Peter. *Terror from the Air*. Translated by Amy Patton and Steve Corcoran. Los Angeles: Semiotext(e), 2009.

Hsu, Hsuan. "Representing environmental risk in the landscapes of US militarization." Environment & Society Portal, *Virtual Exhibitions* 2014, no. 1. Rachel Carson Center for Environment and Society. doi.org/10.5282/rcc/6058.
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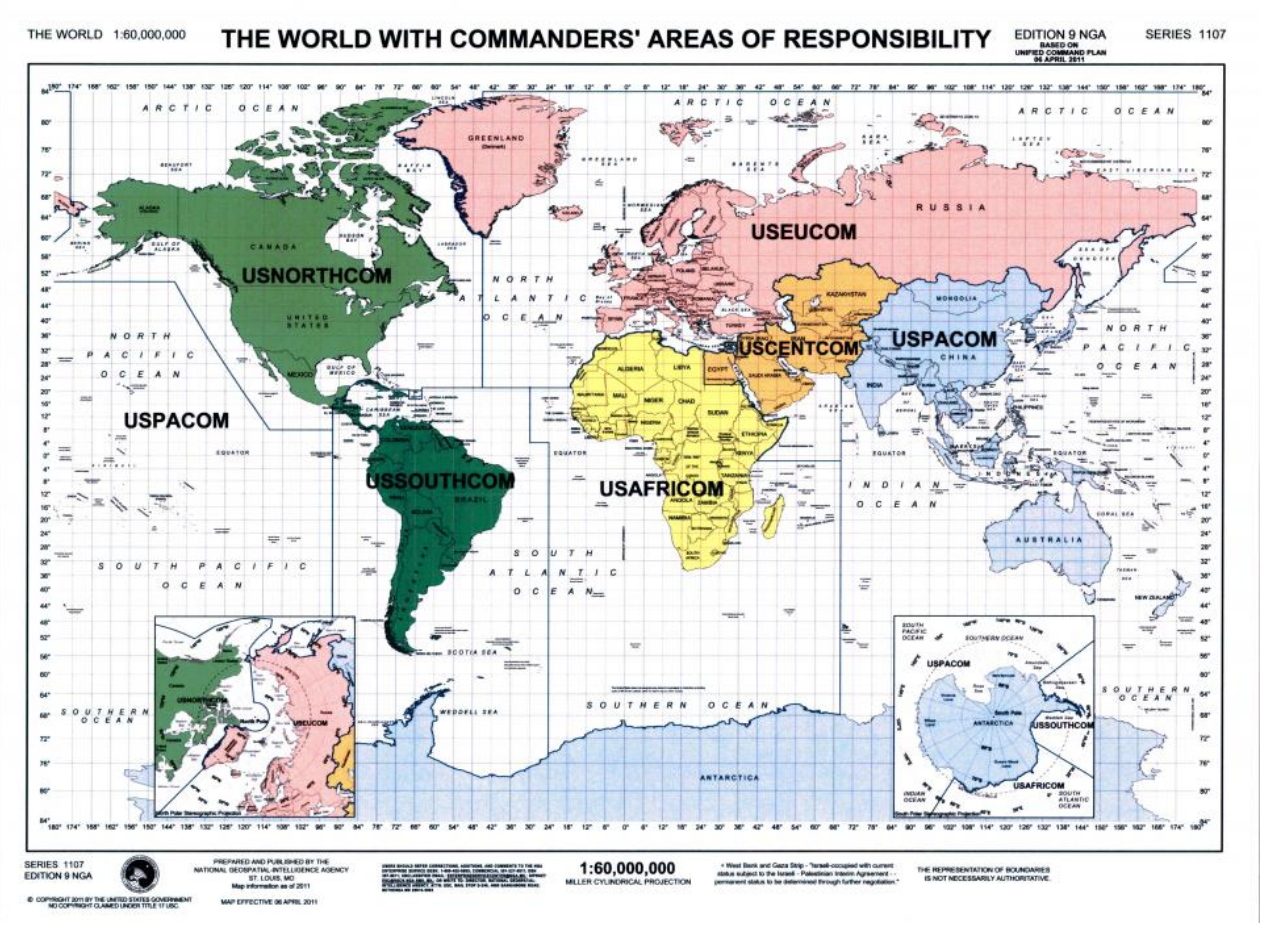
Bases



Unified Command Plan—world map showing US combatant command areas of responsibility

Source: Washington, DC: US Government—National Geospatial-Intelligence Agency, 2011

The twentieth century witnessed the construction of a vast network of US bases, which project military power across the entire globe. Since the US acquired its first set of foreign military bases (frequently used as heavily polluting coaling stations) following the War of 1898, new bases have been built or acquired with each war, and new weapons have resulted in the opening of diverse testing and disposal areas. From 1898 to the Cold War and the contemporary "war on terror," US military bases have spread to 63 countries and to every continent except Antarctica. According to the US Department of Defense's 2012 Base Structure Report, the US operates 760 bases outside of the nation's boundaries: 666 foreign bases and 94 in unincorporated territories. With its domestic and worldwide holdings of 2,202,735 hectares as of 2007, the Pentagon is one of the world's largest landowners (Dufour 2007). Bases located outside the US include 114,571 buildings and other physical structures. As growing antibase movements have demonstrated, these bases impose catastrophic environmental

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Chapter: Bases
Source URL: http://www.environmentandsociety.org/node/6060
PDF created on: 22 February 2021 12:16:02

and cultural costs on local communities. For example, the negative impacts of bases in South Korea include "environmental damages, including contamination of water, soil, and air by hazardous wastes and spills; deafening noise and debilitating vibration from repeated military exercises; spatial constraints on planning and development of a host community; GI crimes against local residents; and camptown prostitution" (Moon 2012, 865).

US military bases on the Japanese island of Okinawa

Created by Misakubo, 2010.
View source .

One of the most heavily militarized sites—the Japanese island of Okinawa—exemplifies how US bases transform not only spaces, but also local economies and lives. Connected by the island's roads and highways, US bases, firing ranges, training areas, and military resorts occupy 18 percent of the land on Okinawa's main island—"perhaps as much as 25 percent in the most densely populated areas...." (Nelson 2012, 828). The effects of this buildup are profound. Drawing on his years of field research in Okinawa, the anthropologist Christopher Nelson (2012, 828) writes that "this massive complex of bases...intrudes on the most public and the most intimate moments of everyday life, shaping the memories, thoughts, dreams, and actions of those who dwell there."

Okinawans have long protested US military presence, particularly after three marines raped a 12-year-old Okinawan girl in 1995. In response to an international coalition of protestors, the US and Japan have made plans

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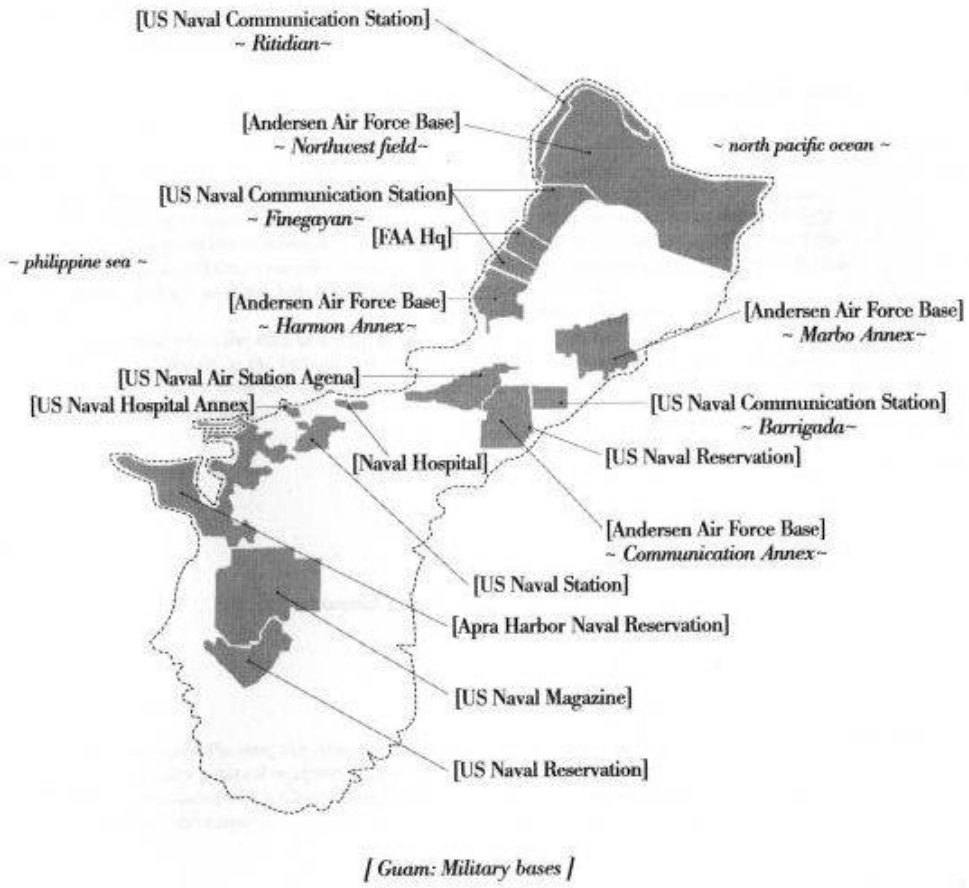
Chapter: Bases
Source URL: http://www.environmentandsociety.org/node/6060
PDF created on: 22 February 2021 12:16:02

to move the Futenma airbase; however, this would only move the military buildup from Futenma to other populated areas such as Guam and the Okinawan village of Henoko. Although protestors managed to delay the construction of an airbase at Henoko by conducting an extended sit-in and by citing its effects on the marine ecosystem and endangered sea mammals (the dugong), in April 2013 Japan's prime minister Abe Shinzo and the US ambassador to Japan jointly announced plans to construct a new US base at Henoko by 2022.



Sumet (Ben) Viwatmanitsakul [Guam: Military bases]

Created by Craig Santos Perez, *from unincorporated territory [hacha]* 85.
Reproduced with permission.

Plans to transfer around 5,000 marines from Okinawa to Guam just shift the problem somewhere else—in this case to an island already overwhelmed by US military presence. Bases and other military sites account for one third of Guam's territory, and the island's disenfranchised status as an "unincorporated territory" of the US

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Chapter: Bases
Source URL: http://www.environmentandsociety.org/node/6060
PDF created on: 22 February 2021 12:16:02

makes it difficult for its indigenous Chamorro inhabitants to resist further military buildup. In addition to the manifold environmental impacts of colonialism and military bases, Chamorros are faced with few economic alternatives besides working for the military bases and tourist resorts that occupy and poison their island. The Department of Defense calculates that new military buildup will bring 41,194 new residents to Guam by 2016—an immense figure considering that the 2010 census counted 159,358 residents in Guam. The militarization of Guam's landscape, economy, and culture has already made many Chamorros dependent on the US military, which is by far the island's largest employer; Chamorros rank first by both geographic region and ethnicity in US military recruitment rates (Hsu 2009, 286). The disproportionate number of deaths suffered by soldiers from Micronesia (including Guam) in the Iraq War "are jarring considering that the population of this region of the world is less than six hundred thousand and that close to half of those who have served and died from Micronesia are not U.S. citizens and would not even be considered 'semi-Americans'" (Bevacqua 2010, 50).

Camp Justice, Diego Garcia

Photo taken by US federal government employee John Dendy.

The island of Diego Garcia, located in the Indian Ocean, provides a dramatic example of the violent displacements that frequently clear the ground for US military activities. The island—which the US has leased from Great Britain since 1966—has been used to stage military operations in the Middle East and allegedly houses both nuclear weapons and a "black site" for detained prisoners. To make space for "one of the most important bases in the world," the US and Great Britain displaced approximately 2,000 Chagossian islanders from Diego Garcia to Mauritius and the Seychelles (Vine 2012, 847). Recently, as the Chagossians fought in European courts for the right to resettle in their homeland, a Wikileaks cable revealed that US and British officials colluded to prevent their return to the archipelago by establishing "the world's largest marine protected

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Chapter: Bases
Source URL: http://www.environmentandsociety.org/node/6060
PDF created on: 22 February 2021 12:16:02

area (MPA) in the Chagos Archipelago. The MPA banned commercial fishing and limited other human activity, endangering the viability of any resettlement efforts" (Vine 2012, 854). The MPA cynically appeals to the notion of environmental "protection" to deny Chagossians' right to return to their homeland and to consolidate a network of military bases that devastates natural and social environments worldwide.

A global network of antibase and anti-militarization activists has long struggled to diminish or abolish the US's foreign bases. Its successes include the 1991 agreement to remove all permanent US bases in the Philippines and the closure of an ordnance training base in Vieques, Puerto Rico, following the accidental bombing of a civilian custodian. In addition to local base closures, antibase movements have created and strengthened coalitions that cut across geographical and social boundaries: for example, Al Sharpton and Rev. Jesse Jackson participated in Vieques protests, a group of Japanese and American activists filed suit against the Department of Defense in the US District Court of Northern California to protect Okinawa's coast from base expansion, and organizations such as the Campaign for the Accountability of American Bases (www.caab.org.uk), the international No Bases Network, and the People's Task Force for Bases Cleanup attempt to organize local antibase and base cleanup struggles on a global scale.

Bibliography

Bevacqua, Michael Lujan. "The Exceptional Life and Death of a Chamorro Soldier: Tracing the Militarization of Desire in Guam, USA." In *Militarized Currents: Toward a Decolonized Future in Asia and the Pacific*, edited by Setsu Shigematsu and Keith L. Camacho, 33–62. Minneapolis: University of Minnesota Press, 2010.

Department of Defense. *Base Structure Report, Fiscal Year 2012 Baseline*. Washington, DC, Office of the Deputy Under Secretary of Defense, 2012.

Dufour, Jules. "The Worldwide Network of US Military Bases ." *Global Research,* 2007.

Inoue, Masamichi. *Okinawa and the U.S. Military: Identity Making in the Age of Globalization*. New York: Columbia University Press, 2007.

Kelman, Brett. "Report: Guam Buildup to Happen More Slowly ." *Navy Times*, August 5, 2010.

Moon, Seungsook. "Protesting the Expansion of US Military Bases in Pyeongtaek: A Local Movement in South Korea." *South Atlantic Quarterly* 111, no. 4, (2012): 865–76.

Nelson, Christopher. "Occupation without End: Opposition to the US Military in Okinawa." *South Atlantic Quarterly* 111, no. 4 (2012): 827–38.

Vine, David. *Island of Shame: The Secret History of the U.S. Military Base on Diego Garcia*. Princeton: Princeton University Press, 2011.

Hsu, Hsuan. "Representing environmental risk in the landscapes of US militarization." Environment & Society Portal, *Virtual Exhibitions* 2014, no. 1. Rachel Carson Center for Environment and Society. doi.org/10.5282/rcc/6058.

Chapter: Bases

Source URL: http://www.environmentandsociety.org/node/6060

PDF created on: 22 February 2021 12:16:02

Vine, David. “What If You Can’t Protest the Base? The Chagossian Exile, the Struggle for Democracy, and the Military Base on Diego Garcia.” *South Atlantic Quarterly* 111, no. 4 (2012): 847–56.

Websites linked in this text:

- http://www.youtube.com/watch?v=C77trntVY1Y
- http://www.biologicaldiversity.org/species/mammals/Okinawa_dugong/
- http://www.guardian.co.uk/world/us-embassy-cables-documents/207149
- http://www.globalresearch.ca/the-worldwide-network-of-us-military-bases/5564
- http://http://www.navytimes.com/news/2010/08/gns_marine_guam_buildup_080410

Websites linked in image captions:

- http://www.defense.gov/news/UCP_2011_Map4.pdf
- https://commons.wikimedia.org/wiki/File:US_military_bases_in_Okinawa.svg

Nuclear colonialism

In addition to occupying vital spaces, the Department of Defense requires continuous training exercises, weapons tests, and equipment production to ensure its capacity to wage war. These activities—which underlie and renew US military power—often occur far from official war zones, subjecting civilians at home and abroad to war-making technologies. Perhaps the most egregious environmental atrocities are committed in the course of testing, producing, and disposing of nuclear weapons. Atomic weapons testing in the Marshall Islands, the US Southwest, and elsewhere had caused—and continues to cause—a range of illnesses, congenital disorders, and forced migrations.

Mushroom cloud produced by the "Baker" nuclear test at the Bikini Atoll.

Public domain as work of the US Navy. Digital image available from National Archives; ARC Identifier 520714.

Moving Day, Bikini to Rongerik. The population of Bikini Atoll was moved to Rongerik on 7 March 1946. Photograph from Joint Task Force One, Operation Crossroads, the Official Pictorial Record (New York: W. H. Wise & Co), p. 21.

Public domain as a work of US federal government. Photograph from Joint Task Force One, Operation Crossroads, the Official Pictorial Record (New York: W. H. Wise & Co), p. 21. *Moving Day, Bikini to Rongerik. The population of Bikini Atoll was moved to Rongerik.*

The impact of US nuclear testing had been particularly heavy on two regions: the Pacific Island region of Oceania, and communities located near uranium mines and test sites in the US Southwest. "Under colonialism," writes one environmental historian, "the Pacific Island region has been used as the First World's nuclear weapons laboratory and intercontinental ballistic missile testing range for over fifty years. Nuclear activity—consisting of

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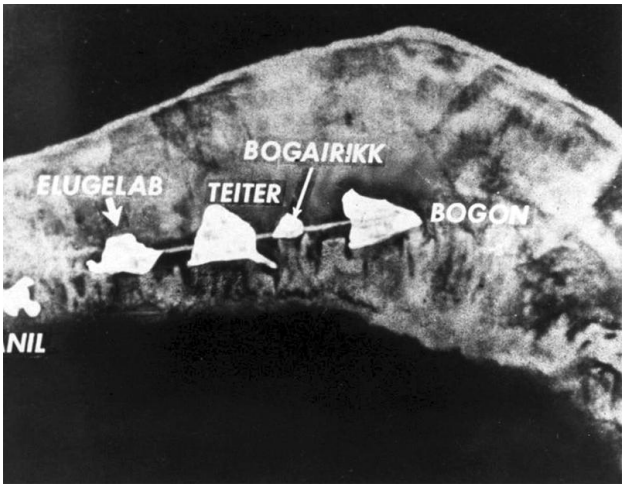
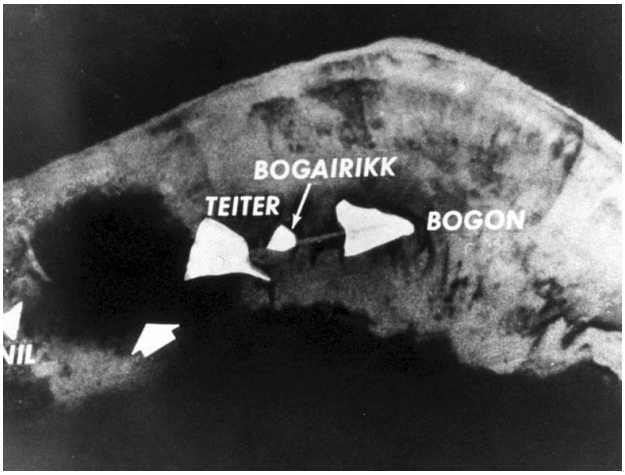
Chapter: Nuclear colonialism
Source URL: http://www.environmentandsociety.org/node/6061
PDF created on: 22 February 2021 12:16:03

hundreds of nuclear detonations—has occurred almost continuously from 1946 to 1996, and intercontinental missile testing continues today.... As a result of the testing, six islands were vaporized and fourteen others were left uninhabitable" (Kuletz 2002, 127–28). In addition to testing weapons, the US is also accused of deliberately exposing island environments and populations to radiation in order to obtain scientific knowledge in a medical experiment code-named Project 4.1 (Kuletz, 2002, 129). More broadly, scientific observations of irradiated life forms on the Bikini and Enewetok Atolls played a pivotal role in the development of the science of ecology by enabling researchers to observe changes in controlled and relatively isolated island environments (Deloughrey 2013).



The Island of Elugelab in the Enewetak Atoll, Marshall Islands *before* the US Ivy Mike hydrogen bomb test (1952).

This image is in the public domain as a work of the US federal government.



A crater is all that remains *after* the detonation of the US Ivy Mike hydrogen bomb test.

This image is in the public domain as a work of the US federal government.

Along with the Pacific Proving Grounds, the US Southwest had also been transformed into a vast nuclear laboratory and dump. Following the discovery of rich uranium deposits in Monument Valley, the Grants mineral belt, and other parts of the Southwest, the Department of Defense initiated mining, research, testing, and disposal operations throughout the region. As a result, uranium miners and millers—as well as "downwinders" who live near such operations—had developed high rates of radiation-related illnesses. Many of these activities occured on or near Native American traditional lands; as Western Shoshone Chief Raymond Yowell explains, "the radiation has caused Shoshone, Ute, Navajo, Hopi, Paiute, Havasupai, Hualapai and other downwind communities to suffer from cancer, thyroid diseases and birth defects. We are now the most bombed nation in the world" (quoted in Kuletz 2001, 237). Native Americans in the Pacific Northwest had also been

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Chapter: Nuclear colonialism
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PDF created on: 22 February 2021 12:16:03

disproportionately affected by irradiated air, water, and soil resulting from the Hanford nuclear weapons production site in Washington state.

The poet Simon Ortiz, a native of Acoma Pueblo, worked in uranium mills and mines after graduating from high school. In "Our Homeland, a National Sacrifice Area," Ortiz blends poetry and memoir to convey the effects of uranium mining on the Native Americans who worked in and lived near the mines. The poem that frames his meditations describes a feeling of illness that overtakes the poet returning home to this irradiated terrain: "I was sick / feeling a sense of 'otherness.' / How can I describe it? / An electric current / coursing in ghost waves through me?" (1992, 337). In contrast to familiar representations of Native Americans as "others" (popularized, for example, in the John Ford westerns filmed in Monument Valley), Ortiz describes a haunting feeling of otherness in the landscape transformed by the nuclear escalation of the Cold War.

Photograph showing uranium mill tailings pile in Shiprock, New Mexico.

Public domain as work of US Special Weapons Agency.

Reactor at the Hanford site along the Columbia River in Washington.

Public domain as work of US Department of Energy (1960).

By disproportionately targeting indigenous peoples and other vulnerable populations within and beyond the US, nuclear colonialism has forged international and transracial solidarities. Women, who are disproportionately affected by radiation and many other pollutants, have played a prominent role in many anti-nuclear protests. Referencing her family's high rates of breast cancer and her participation in civil disobedience at the prohibited Trinity site in New Mexico, Terry Tempest Williams claims affiliation with "women from all over the world" and with "Shoshone grandmothers," imagining an international, transracial coalition of women united in resistance to US militarization (1992, 287). Commenting on the presence of the Nuclear-Free and Independent

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Chapter: Nuclear colonialism
Source URL: http://www.environmentandsociety.org/node/6061
PDF created on: 22 February 2021 12:16:03

Pacific Movement at an anti-nuclear event organized by Native Americans in the Southwest, Kuletz writes:

> As they had done with Kazakhs, who had been the victims of the Soviet Union's testing program, as well as other indigenous nuclear subjects, the Western Shoshone had invited a large contingent of Pacific Islanders (composed of people from different island nations) to join them in protest over nuclear colonialism, and to support indigenous sovereignty movements globally. (The Western Shoshone's traditional homelands have been used for over nine hundred nuclear detonations.).... I was aware of a larger field of inquiry and, indeed, a larger field of transregional identity—one linked to the international network of indigenous rights and sovereignty.
> —Kuletz 2002, 132

While such affiliations are complex and uneven (Williams and her Mormon family are, after all, settler colonists and not Shoshone), they nevertheless build the groundwork for demilitarization and environmental justice activism on a scale that transcends the NIMBY ("not-in-my-backyard") attitudes that frequently circumscribe environmental action.

Nuclear testing and development is only the most spectacular example of the illness, discomfort, and risks that are unevenly distributed by US military exercises and equipment production. For example, colonized communities have struggled to end live fire training in locations such as Guam, Hawai'i, and Vieques. If we consider oil as military equipment and note that the Department of Defense is the world's largest oil consumer , then global climate change, hurricanes, oil-related wars, and oil spills such as the Deepwater Horizon catastrophe may all be counted among the everyday hazards that have been essential to the US's capacity for conducting foreign wars.

Bibliography:

DeLoughrey, Elizabeth. "The Myth of Isolates: Ecosystem Ecologies in the Nuclear Pacific." *Cultural Geographies* 20 (2013): 167–84.

Kuletz, Valerie. *The Tainted Desert: Environmental Ruin in the American West*. New York: Routledge, 1998.

———. "Invisible Spaces, Violent Places: Cold War Nuclear and Militarized Landscapes." In *Violent Environments*, edited by Nancy Peluso and Michael Watts, 237–60. Ithaca: Cornell University Press, 2001.

———. "The Movement for Environmental Justice in the Pacific Islands." In *The Environmental Justice Reader: Politics, Poetics, & Pedagogy*, edited by Joni Adamson, Mei Mei Evans, and Rachel Stein, 125–42. Tucson: University of Arizona Press, 2002.

Ortiz, Simon. "Our Homeland, a National Sacrifice Area." In *Woven Stone*, 337–63. Tucson: University of

Hsu, Hsuan. "Representing environmental risk in the landscapes of US militarization." Environment & Society Portal, *Virtual Exhibitions* 2014, no. 1. Rachel Carson Center for Environment and Society. doi.org/10.5282/rcc/6058.
Chapter: Nuclear colonialism
Source URL: http://www.environmentandsociety.org/node/6061
PDF created on: 22 February 2021 12:16:03

Arizona Press, 1992.

Solnit, Rebecca. *Savage Dreams: A Journey into the Landscape Wars of the American West*. Berkeley: University of California Press, 2000.

Williams, Terry Tempest. *Refuge: An Unnatural History of Family and Place.* New York: Vintage, 1992.

Websites linked in this text:

- http://www.resilience.org/stories/2006-02-26/us-military-oil-consumption

Hsu, Hsuan. "Representing environmental risk in the landscapes of US militarization." Environment & Society Portal, *Virtual Exhibitions* 2014, no. 1. Rachel Carson Center for Environment and Society. doi.org/10.5282/rcc/6058.

Aftermaths

Dome on Runit Island, Enewetak Atoll, Marshall Islands, covering a crater created by a US nuclear weapons test in 1977. The crater and dome now contain 84,000 cubic meters of radioactive soil from other islands in the Enewetak Atoll. Unknown photographer.

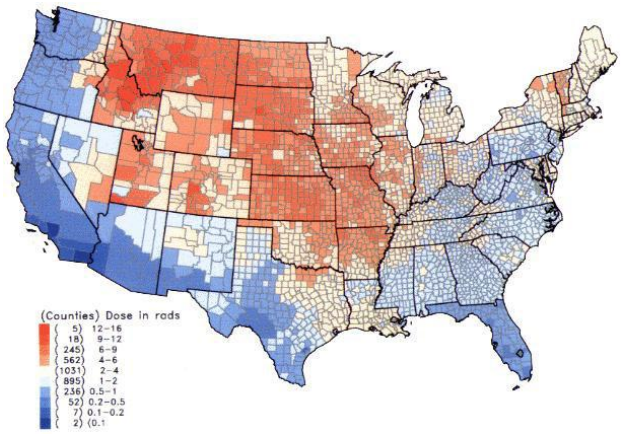
Public Domain. Courtesy of US Defense Special Weapons Agency.

One difficulty faced by environmental justice activists is that the mass media tend to focus on spectacular, catastrophic events rather than on the quiet, unspectacular, and frequently indefinite nature of environmental health risks that unfold gradually over the course of years or generations (Nixon 2011). Media coverage of war, for example, highlights battlefield casualties but rarely details the casualties incurred in the environmental aftermath of such conflicts: as Rob Nixon explains, "each war generates a distinctive, historically specific chemical, radiological, epidemiological, and environmental legacy" (2011, 209). By pioneering the use of new and ethically questionable war technologies such as atomic bombs, Agent Orange, and depleted uranium

Hsu, Hsuan. "Representing environmental risk in the landscapes of US militarization." Environment & Society Portal, *Virtual Exhibitions* 2014, no. 1. Rachel Carson Center for Environment and Society. doi.org/10.5282/rcc/6058.
Chapter: Aftermaths
Source URL: http://www.environmentandsociety.org/node/6239
PDF created on: 22 February 2021 12:16:03

weapons, the US has produced lethal landscapes and premature deaths that have been quickly forgotten by the American public, if they are even noticed at all.

Because military scientists and health authorities obscured the dangers of radiation exposure, many "downwinders" gathered outdoors to observe early nuclear test explosions. Only years later did communities of downwinders develop symptoms that could be linked to nuclear tests. While initial handbills announcing the tests insisted that any danger would be contained within the boundaries of the test site, a 2006 National Cancer Institute map shows how experiments conducted at the Nevada Test Site unevenly distributed radioiodine (iodine-131), a substance linked to elevated thyroid cancer risk, across the nation. Test explosions are not isolated events contained to the boundaries of the test site; they are ongoing experiments whose fallout, waste products, and associated risks will affect human and nonhuman species far beyond designated testing locations for generations to come.



Map of per capita thyroid doses of radioactive iodine fallout from all from all atmospheric nuclear tests conducted at the Nevada Test Site.

This map is in the public domain as a work of the National Cancer Institute, 1997.
Source:
http://ieer.org/resource/press-releases/advocates-welcome-nas-study-on-n...

Leaking Agent Orange Barrels at Johnston Atoll, c. 1973.

Public Domain. Courtesy of US federal government.

Ironically, nuclear colonialism also has a way of returning to bombed populations in the form of radioactive waste. Illnesses associated with radiation exposure, the displacement of many Marshallese to make space for nuclear tests, and the destruction of their environmental resources has left many Pacific Islanders with few

Hsu, Hsuan. "Representing environmental risk in the landscapes of US militarization." Environment & Society Portal, *Virtual Exhibitions* 2014, no. 1. Rachel Carson Center for Environment and Society. doi.org/10.5282/rcc/6058.
Chapter: Aftermaths
Source URL: http://www.environmentandsociety.org/node/6239
PDF created on: 22 February 2021 12:16:03

economic alternatives to accepting nuclear and toxic waste from developed nations (Kuletz 1998, 126–27). Within the US, nuclear waste disposal has been sited near vulnerable populations in states already affected by nuclear facilities: South Carolina, Washington, and Nevada. Decades after its last reactor was shut down in 1987, the Hanford Site in the state of Washington (which produced plutonium for the atomic bomb dropped on Nagasaki) continues to endanger those living nearby, leaking radioactive waste into groundwater and generating flammable gases that could cause toxic explosions. If implemented, plans to site a permanent high-level nuclear waste dump at Yucca Mountain in Nevada would have further barred Native Americans from important trails, encampments, and sacred sites in the vicinity of the Nevada Test Site (Kuletz 1998, 121–290). After decades of struggle with environmentalists, Native Americans, and anti-nuclear activists, the Obama administration abandoned plans for the site in 2010.

Poster by Pham Văn Luận.

The use of Agent Orange and other chemical weapons in Vietnam, Laos, and Cambodia during the Vietnam War have also given rise to a long, indefinite, and widely neglected aftermath. As part of Operation Ranch Hand, the US sprayed nearly 20 million gallons of chemical herbicides and defoliants in these countries. Though its effects are not yet fully understood, US veterans exposed to dioxins have unusual rates of cancers, children with congenital disorders, and "neurological, endocrinal, and psychological disorders" (Waugh and Lien 2010, 120). While the US has not conducted a study on Vietnamese victims of Agent Orange, the Vietnamese Ministry of

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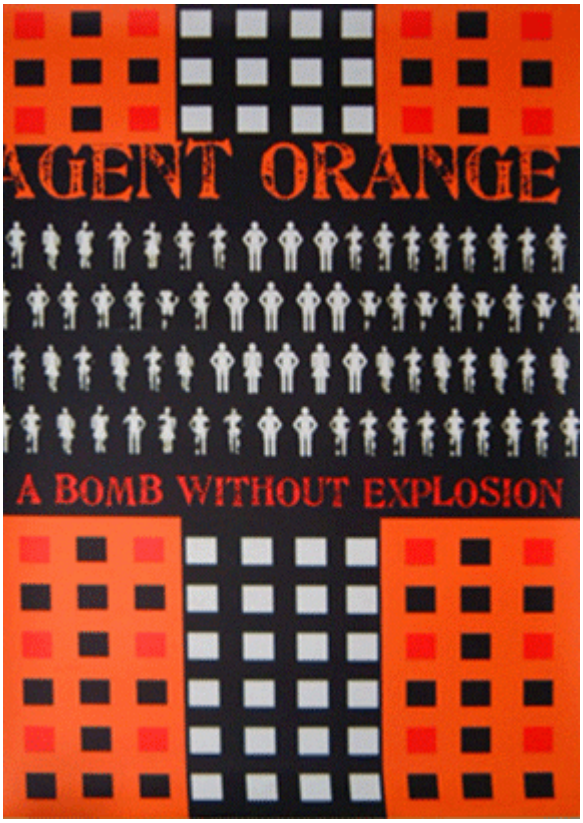
Chapter: Aftermaths
Source URL: http://www.environmentandsociety.org/node/6239
PDF created on: 22 February 2021 12:16:03

Foreign Affairs estimates that about 4.8 million Vietnamese were exposed to Agent Orange, and that this led to approximately 400,000 killed or dead and at least 500,000 children born with congenital disorders (York and Mick 2008). In addition to poisoning soil, water, and the food chain for generations, chemical defoliants and herbicides devastated animal and plant species throughout the Vietnamese countryside. While the US media seldom discusses the ongoing effects of Agent Orange in Vietnam, Vietnamese authors and artists continue to produce work that bear witness to the slow violence inflicted by US chemical weapons: Calling Agent Orange "a bomb without explosion," Đỗ Đình Tân's poster displays a number of bodies in various states of dissolution. In their edited collection *Family of Fallen Leaves: Stories of Agent Orange by Vietnamese Writers* , Charles Waugh and Huy Lien present stories of villages and families devastated by dioxin-based herbicides during and long after the Vietnam War.



Poster by Đỗ Đình Tân.

Like Agent Orange, depleted uranium weapons used by the US during the Gulf Wars and the war in Afghanistan have affected both civilians and combatants on both sides. In addition to providing a very dense incendiary metal useful for penetrating surfaces, depleted uranium weapons enable the US to dispose of a radioactive waste product of nuclear reactors and weapons manufacturing. Studies have linked depleted uranium to higher risks of cancer and children with congenital disorders, and exposure has also been cited as a possible cause of medically

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Chapter: Aftermaths
Source URL: http://www.environmentandsociety.org/node/6239
PDF created on: 22 February 2021 12:16:03

unexplained illnesses (popularly called Gulf War Syndrome) among over one-third of the veterans who served in the 1991 Gulf War. Commenting on the environmental violence associated with supposedly "precise" weapons built with depleted uranium, Nixon (2011, 210) writes: "Such technologies, when they compromise the environment, morph into long-term killers, creating landscapes that inflict lingering, off-camera casualties. Time itself becomes the ultimate cover-up, a dependable ally in camouflaging 'smart' warfare's sprawling toll." The current "war on terror," like the Vietnam War and the nuclear research that proliferated during the Cold War, targets not only present enemy combatants but also future generations of human and nonhuman life forms.

Bibliography

Kuletz, Valerie. *The Tainted Desert: Environmental Ruin in the American West.* New York: Routledge, 1998.

Nixon, Rob. *Slow Violence and the Environmentalism of the Poor.* Cambridge: Harvard University Press, 2011.

York, Geoffrey, and Hayley Mick. "'Last ghost' of the Vietnam War ." *The Globe and Mail*, July 12, 2008.

Waugh, Charles, and Huy Lien, eds. *Family of Fallen Leaves: Stories of Agent Orange by Vietnamese Writers.* Athens, GA: University of Georgia Press, 2010.

Websites linked in this text:

- http://www.ugapress.org/index.php/books/family_fallen_leaves/
- http://www.theglobeandmail.com/incoming/last-ghost-of-the-vietnam-war/article1057457/?page=all

Websites linked in image captions:

- http://ieer.org/resource/press-releases/advocates-welcome-nas-study-on-nuclear-testing-health-effects/

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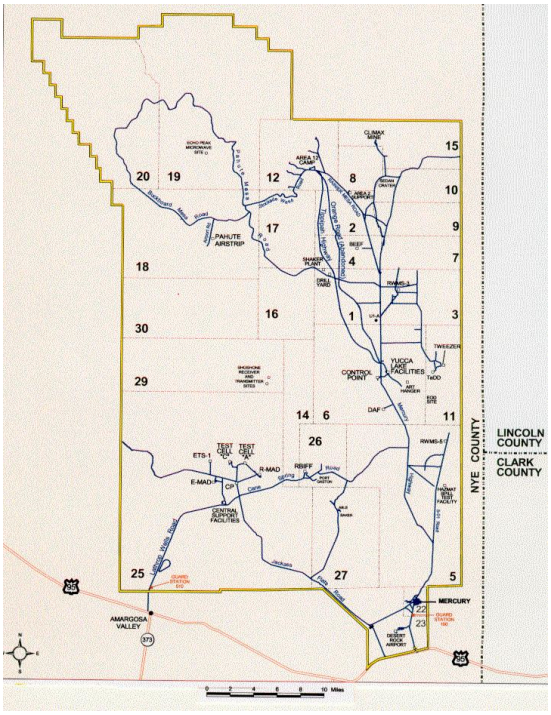
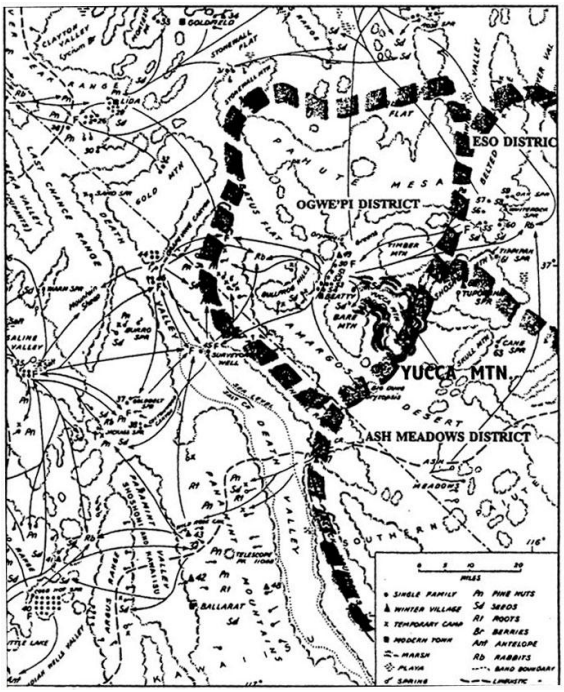
Mapping

Consider these two maps of the lands occupied by the federal Nevada Test Site:



US government map of the Nevada Test Site.

Nevada Test Site Guide, DOE/NV-715. This map is in the public domain as a work of the federal government of the United States. View source .



Native American use patterns in the Nevada Test Site and Yucca Mountain area.

Kuletz, Valerie, *The Tainted Desert: Environmental Ruin in the American West*. New York: Routledge, 1998, 126. Republished with permission of Taylor and Francis Group LLC Books; permission conveyed through Copyright Clearance Center, Inc.

The federal government map labels only county lines, military facilities, transportation infrastructure, and the abstract grid of numbered "areas" that organizes the terrain. Land features and Native American names are present, but only when they designate roads and sites: "Pahute Mesa Road," "Shoshone Receiver and Transmitter Sites," "Lathrop Wells Road," "Yucca Lake Facilities." This map presents the Nevada Test Site as an isolated laboratory, erasing the landscape, its prior occupants, and any downwinders who live close enough to be affected by the military tests conducted here. The two "guard stations" labeled in red and a solid yellow line suggest that the site and its activities are hermetically sealed off from the rest of the region. The bareness of this map depicts the area as an uninhabited desert ripe for military use as a nuclear "sacrifice zone": as Terry Tempest Williams writes, "A blank spot on the map translates into empty space, space devoid of people, a wasteland perfect for nerve gas, weteye bombs, and toxic waste" (Refuge, 241).

The second map, by contrast, exhibits the Nevada Test Site in the broader context of Native American

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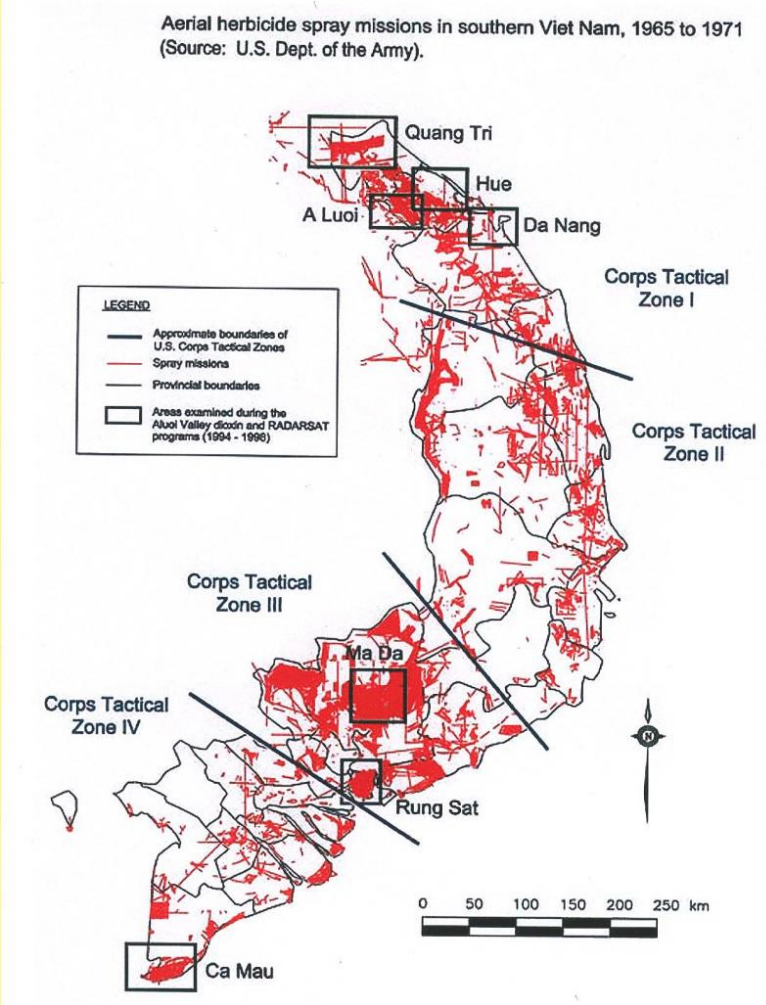
Chapter: Mapping
Source URL: http://www.environmentandsociety.org/node/6240
PDF created on: 22 February 2021 12:16:06

settlements and land use. In addition to indicating detailed terrain features such as playas, springs, and marshes, the map identifies Native American settlements (camps, towns, single family residences, and winter villages) and important resources such as pine nuts, roots, and rabbits. Instead of mapping county lines and test area boundaries, this map exhibits indigenous districts, band boundaries, and linguistic boundaries. Instead of featuring modern roads, it uses arrows to indicate patterns of movement and land use. The land around Yucca Mountain and the Test Site appears here not as a desert wasteland but as an abundant landscape inhabited by dynamic groups. The boundary between Nevada and California cuts across the center of this map. But the meadows, mountains, and pathways depicted here flow right across that boundary, reminding us how federal and state boundaries can obscure or obstruct preexisting modes of living. Whereas "Euroamerican space [is] organized according to a series of highly rationalized, straight, gridlike boundaries imposed from above," writes one of this map's creators, "The ancient Indian pathways that converge at Yucca Mountain and that organize the space of this region by way of Indian occupation and movement lie beneath the surface of other constructions of space" (Kuletz, Tainted 127, 126). Among other things, Native American space here is organized according to spiritual mountains, rock paintings, and other sacred sites (127).

Because they are commonly perceived as objective representations of space and data, maps exert considerable power in framing perceptions of places, their history, and their inhabitants. Through the selection of parameters, scale, place names, framing, and decorative features, maps convey specific political interests: as Dennis Wood and John Fels write in *The Power of Maps*, "interests are embodied in the map as presences and absences" (1992, 1). Mapping has been instrumental in legitimizing US imperialism, waging war, and identifying strategic locations for foreign bases. However, maps also play an important role in visually rendering both the scope and the distribution patterns of environmental impacts: as Kuletz explains in a book filled with detailed maps that she helped produce, mapping can perform "the political practice of *seeing* purposefully unmarked and secret landscapes; it makes visible those who have been obscured and silenced within those landscapes" (1998, 7). By exposing the sites, scale, and environmental effects of US military testing and training, maps can draw connections between local struggles for demilitarization and provide the groundwork for coalitions between diverse colonized and racialized groups.

Hsu, Hsuan. "Representing environmental risk in the landscapes of US militarization." Environment & Society Portal, *Virtual Exhibitions* 2014, no. 1. Rachel Carson Center for Environment and Society. doi.org/10.5282/rcc/6058.
Chapter: Mapping
Source URL: http://www.environmentandsociety.org/node/6240
PDF created on: 22 February 2021 12:16:06



Locations of aerial herbicide spray missions by the US army in Southern Vietnam between 1965 and 1971.

US Department of the Army. View source .

Although they underpin the Department of Defense's map of global military command areas, US bases seldom appear on maps, and many people do not know where key strategic sites such as Diego Garcia, Guam, Vieques, and the Marshall Islands are located—just as, until 2001, the history and location of Guantánamo Bay had largely been forgotten. Because conventional maps privilege national boundaries and larger land masses, islands tend to pass unnoticed; as the Chamorro poet Craig Santos Perez puts it: "On some maps, Guam doesn't exist; I point to an empty space in the Pacific and say, 'I'm from here.' On some maps, Guam is a small, unnamed Island; I say, 'I'm from this unnamed place'" (2008, 7). Their relative invisibility on conventional maps reinforces claims that these places and their inhabitants are too small to matter in the grand scheme of global geopolitics: for example, "when asked about the nuclear testing program in the Marshall Islands, former US Secretary of State Henry Kissinger is reputed to have stated: 'There's only 90,000 people out there. Who gives a damn?'" (Kuletz 2002,

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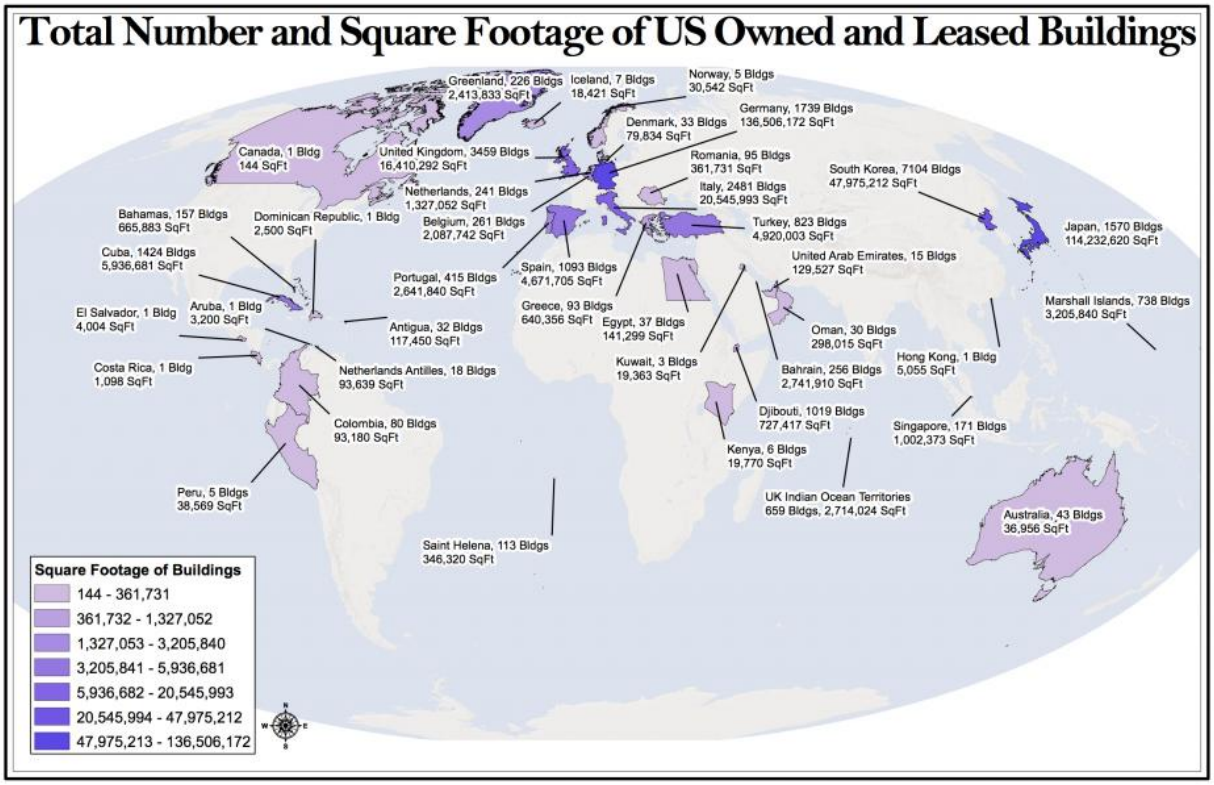
Chapter: Mapping
Source URL: http://www.environmentandsociety.org/node/6240
PDF created on: 22 February 2021 12:16:06

126).

If maps have been used to obscure the landscapes of militarization, they also have the capacity to convey critical information about the history and environmental consequences of militarization. Although it was produced long after the Vietnam War, the US army's map of aerial herbicide spray missions in Southern Vietnam makes visible the scale of ecocide committed in the name of saving the inhabitants of the region.

Earlier pages in this exhibit have included maps that similarly illustrate the scope of radioactive fallout in the Marshall Islands and the extent of military facilities on Guam. On a larger scale, the following map shows the size of all the foreign bases acknowledged by the Department of Defense:



Kareem Shihab, Map showing the total number and square footage of US-owned and leased buildings, 2013.

Map of all buildings acknowledged by the US Department of Defense. Reproduced with permission.

In 2010, the Japanese artist Isao Hashimoto created a time-lapse map showing each of the 2,053 nuclear explosions between 1945-1998 worldwide (*A Time-Lapse Map of Every Nuclear Explosion Since 1945*). After a slow (but historically devastating) beginning during World War II, the explosions increased in frequency during the Cold War years until a peak of nearly 140 nuclear tests in 1962:

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Chapter: Mapping
Source URL: http://www.environmentandsociety.org/node/6240
PDF created on: 22 February 2021 12:16:06

The original virstual exhibition features an embedded external video of a time-lapse map of every nuclear explosion since 1945 - by Isao Hashimoto. You can link to the video here: https://youtu.be/LLCF7vPanrY

Whereas Hashimoto's map presents a precise plotting of nuclear buildup across time, the artist elin o'Hara slavick combines mapmaking with drawing and watercolor to chart the locations and effects of US bombings. The mixed media works collected in her book *Bomb After Bomb: A Violent Cartography* use abstract colors and patterns to evoke violent acts and aftermath of bombing. The piece *World Map, Protesting Cartography: Places the United States Has Bombed, 1854–Ongoing* makes visible the shocking range of US bombing locations, marking each site with a bright, ironic flag and employing bright red splotches evocative of explosions or bloodstains. As slavick explains,

> each [drawing] begins with ink or watercolor dropped onto wet paper like bloodstains on damp clothing. When it dries this becomes the foundation upon which to tell a violent story. I use this ground of abstract swirling or bleeding to depict the manner in which bombs do not stay within their intended borders. Depleted uranium and chemical agents contaminate the soil, traveling in water and currents of air for decades. Mines and unexploded bombs lay in wait for unsuspecting victims who were not even alive during the war (2007, 97).

Other drawings, depicting bombings in sites as widespread as a pharmaceutical plant in Sudan, the Middle East, Central America, Peru, Philadelphia, Alaska, and Utah, invoke the cellular scale at which bombs exert long term effects by heightening risks of cancer and congenital disorders: "The cellular references that appear in many of the drawings—replicated stains in the background, connected tissue in the foreground, concentric targets like microscopic views of damaged cells—conjure up the buried dead and deadly diseases as a result of warfare" (slavick 2007, 102). slavick's reimagined aerial photographs and maps overlay eye-catching colors and beautiful abstract imagery with violent events in an effort to attract and implicate viewers entangled with US military power. If she describes her artworks as presenting "a violent cartography," it is only because mapmaking has long been part of violent colonial and neocolonial projects: the abstract lines and grids on conventional maps hide the wars, bombings, dislocations, surveillance, and military practices that create and maintain geopolitical boundaries.

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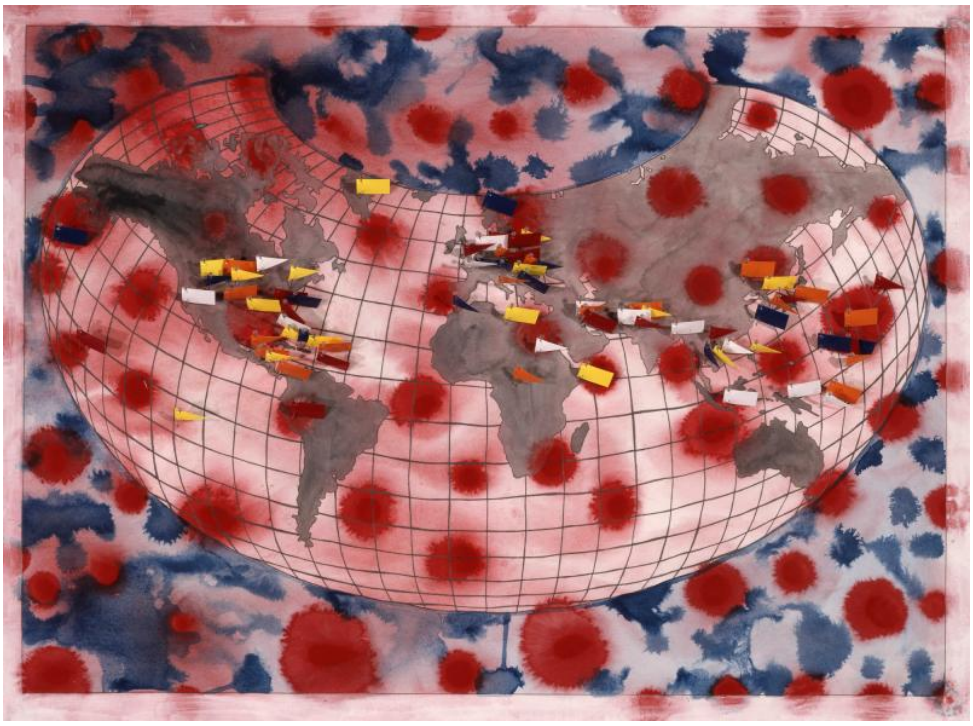
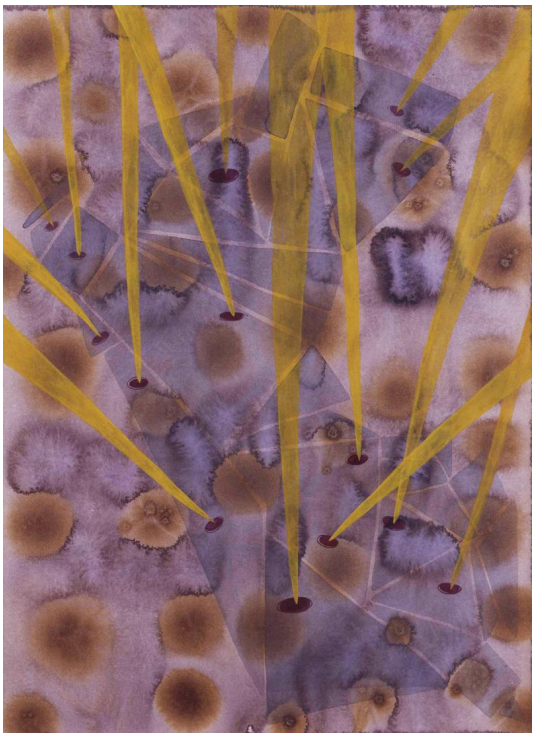
PDF created on: 22 February 2021 12:16:06



elin o'Hara slavick, *World Map, Places the United States has Bombed, 1854–Ongoing* from the series *Bomb after Bomb: A Violent Cartography*. Flag pins mark bomb sites for which there are corresponding drawings. (above)



elin o'Hara slavick, from the series *Bomb after Bomb: A Violent Cartography*. Peru, 1960–1965. For Hugo Blanco. (left)

elin o'Hara slavick provides the following caption:
"CIA official Victor Marchetti said that Green Berets participated in what was the CIA's single large-scale Latin American intervention of the post-Bay of Pigs era....The American objective in Peru—to crush a movement aimed at genuine land reform and social and political changes—was identical to its objectives in Vietnam. The methods employed were similar: burning down peasants' huts and villages to punish support for the guerillas, defoliating the countryside to eliminate guerrilla sanctuaries, saturation bombing with napalm and high explosives, even throwing prisoners out of helicopters" (Blum 1995, 174).

Bibliography

Blum, William. *Killing Hope: U.S. Military and CIA Interventions since World War II*. Monroe: Common Courage Press, 1995.

Kuletz, Valerie. *The Tainted Desert: Environmental Ruin in the American West*. New York: Routledge, 1998.

———. "The Movement for Environmental Justice in the Pacific Islands." In *The Environmental Justice Reader: Politics, Poetics, & Pedagogy*, edited by Joni Adamson, Mei Mei Evans, and Rachel Stein, 125–42. Tucson: University of Arizona Press, 2002.

Hsu, Hsuan. "Representing environmental risk in the landscapes of US militarization." Environment & Society Portal, *Virtual Exhibitions* 2014, no. 1. Rachel Carson Center for Environment and Society. doi.org/10.5282/rcc/6058.
Chapter: Mapping
Source URL: http://www.environmentandsociety.org/node/6240
PDF created on: 22 February 2021 12:16:06

Perez, Craig Santos. *from unincorporated territory* [hacha]. Kane'ohe, HI: Tinfish, 2008.

slavick, elin o'Hara. *Bomb after Bomb: A Violent Cartography*. Milan: Charta, 2007.

Williams, Terry Tempest. *Refuge: An Unnatural History of Family and Place*. New York: Vintage, 1992.

Wood, Dennis, and John Fels. *The Power of Maps*. New York: Guilford, 1992.

Websites linked in this text:

- https://youtu.be/LLCF7vPanrY

Websites linked in image captions:

- http://commons.wikimedia.org/wiki/File:NTS_Map_-_facilities.png
- http://commons.wikimedia.org/wiki/File:Aerial-herbicide-spray-missions-in-Southern-Vietnam--1965-1971.jpg

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Chapter: Mapping
Source URL: http://www.environmentandsociety.org/node/6240
PDF created on: 22 February 2021 12:16:06

Monuments

Monuments configure the way we interpret spaces by literally inscribing official military histories onto the landscape. They tell us which historical events (and which versions of those events) should count, whose deaths we should mourn, and what we should remember about a place. Thus, they indirectly tell us whose deaths don't count and which histories of place should be forgotten or repressed. Because they cue observers to either celebrate or forget imperial violence, monuments have been pivotal sites for demilitarization struggles. Because they often frame battles and wars as historical events, monuments also obscure the ongoing environmental effects of war, which include toxic battlefields, weapons disposal sites, and pollution associated with military bases.

War in the Pacific National Historical Park

Photo by the US Department of the Interior, Office of Insular Affairs.
View source.

Although it remains an unincorporated territory of the US, Guam's government and landscape celebrate a colonial situation that has decimated indigenous Chamorro culture, language, and economic options. In the decades after the US acquired Guam in 1898, the US imposed a militarized, colonial spatial order on the island. After acquiring native lands from over one thousand families through appropriation, purchase, and extortion, the naval administration replaced old settlements with new villages "laid out in grids with street names often commemorating the military" (Herman 2008, 640). New buildings and infrastructure appeared with colonial and military names: "schools named for Presidents Washington, Truman, Johnson and Kennedy" and the Glass Breakwater, "named after Henry Glass, who seized the island in 1898" (Herman 2008, 640). Although US naval authorities once prohibited the Chamorro language on school grounds and burned Chamorro-English dictionaries, the island's government continues to celebrate 21 July 1944—the day it was retaken from Japan by the US—as "Liberation Day." Although Iraq war soldiers from Guam and other Pacific islands have "the highest per capita killed-in-action rate of the United States" (Bevacqua 2010, 50), the island is filled with monuments

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Chapter: Monuments
Source URL: http://www.environmentandsociety.org/node/6241
PDF created on: 22 February 2021 12:16:06

that commemorate American military heroism as a liberating force: the War in the Pacific National Historical Park, the Asan Wall Memorial, and even a memorial to War Dogs (Herman 2008, 650). Instead of noting the environmental problems associated with US bases or Guam's long history of colonization by Spain, Japan, and the US, the website for the War in the Pacific Park offers only a catalogue of war artifacts and landscape descriptions that read like a tourist brochure: "At War in the Pacific National Historical Park, the former battlefields, gun emplacements, trenches, and historic structures all serve as silent reminders of the bloody World War II battles that raged across the Pacific. The park is known for its historic resources, but the verdant jungles, sandy beaches, turquoise waters, and stunning coral reefs also beckon visitors and residents to enjoy Guam." This idyllic description masks Guam's brutal geographic conditions: because military bases, dump sites, and training grounds occupy two thirds of the island, Chamorros with few economic alternatives enlist in a military that disproportionately assigns them to the most dangerous posts. (For a more detailed discussion of the environmental harm associated with US colonization in Guam, see my discussion of Craig Santos Perez's poetry.)

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Chapter: Monuments
Source URL: http://www.environmentandsociety.org/node/6241
PDF created on: 22 February 2021 12:16:06

Trinity Site monument

Photograph by Robert Skyhawk.
View source.

In 1965, officials at the White Sands Missile Range erected a black lava rock obelisk to memorialize the site of the Trinity test. A plaque proclaims: "Where the World's First Nuclear Device Was Exploded on July 16, 1945." A second plaque added by the National Park Service in 1975 reads, "This site possesses national significance in commemorating the history of the U.S.A." But, as Leslie Marmon Silko's novel *Ceremony* reminds us, the site's significance extends far beyond the nation's boundaries. The novel's protagonist, a Native American WWII veteran suffering from PTSD, eventually finds himself confronting the violent legacies of war at a uranium mine near the Trinity Site. Here, Tayo perceives a connection between Japanese and Native Americans caught up in a common pattern of nuclear destruction:

> There was no end to it; it knew no boundaries; and he had arrived at the point of convergence where the fate of all living things, and even the earth, had been laid.... From that time on, human beings were one clan again, united by the fate the destroyers planned for all of them, for all living

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Chapter: Monuments
Source URL: http://www.environmentandsociety.org/node/6241
PDF created on: 22 February 2021 12:16:06

> things; united by a circle of death that devoured people in cities twelve thousand miles away, victims who had never known these mesas, who had never seen the delicate colors of the rocks which boiled up their slaughter (246).

Providing another alternative perspective on the Trinity Site, James George's novel *Ocean Roads* juxtaposes the life of an atomic scientist who witnessed the Trinity Test with the ordeals of younger people—including his own son—suffering from the effects of radiation poisoning.

Like these narrative engagements with the Trinity Site, the designation of Bikini Atoll as a UNESCO World Heritage Site in 2010 critiques the development of nuclear weapons. As UNESCO's description of Bikini Atoll notes, "The many military remains bear witness to the beginnings of the Cold War, the race to develop weapons of mass destruction and a geopolitical balance based on terror. The violence exerted on the natural, geophysical and living elements by nuclear weapons illustrates the relationship which can develop between man and the environment. This is reflected in the ecosystems and the terrestrial, marine and underwater landscapes of Bikini Atoll." Although Bikini Atoll is a World Heritage Site too poisoned to be safely visited, the irradiation of the island has nevertheless helped fuel a growing international anti-nuclear movement.

Peace pole erected in memory of the victims of the US embassy bombings in Nairobi and Dar es Salaam on August 7, 1998

Photograph by Dennis Munene, 2012.

Demilitarization activists have publicized the experiences of militarization's victims by appropriating existing monuments. In November 2000, supporters of the movement to close the naval base in Vieques, Puerto Rico, hung the flags of Vieques and Puerto Rico along with a banner reading "Free Vieques" from the Statue of Liberty (eleven protestors were arrested at the action). By contrasting a colonial possession's struggle to end dangerous bombing exercises with a monument to US independence, the activists highlighted not only the contradiction between freedom and empire but also the intimacy between US models of "freedom" and the nation's constant readiness to engage in aggressive foreign wars.

Informal monuments provide another riposte to official monuments that glorify war and erase its harmful effects on civilians and the environment. Masahisa Goi, the Japanese spiritual leader and founder of the World Peace Prayer Society, introduced the tradition of the Peace Pole in 1976 in response to the violence of World War II

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Chapter: Monuments
Source URL: http://www.environmentandsociety.org/node/6241
PDF created on: 22 February 2021 12:16:06

and the devastation of atomic bombs. Peace Poles, as the society's website explains, are simple obelisks whose four sides are inscribed with the prayer "May Peace Prevail on Earth" in different languages; they are either handmade or ordered from the international Peace Pole Project. To date, over 100,000 Peace Poles have been planted in at least 190 countries. Regarding the peace prayer itself, Goi, stated that "if you fling all of your thoughts into these simple words, and, from this prayer keep living your lives anew, before you know it your individualistic or cliquish feelings will diminish, and you will feel yourselves wishing for the happiness of mankind, with a feeling of humanitarian love welling up from within." The utopian sensibilities that inform the peace pole provide a humanitarian and cosmopolitan alternative to the "cliquish" nationalism that underlies most war memorials.

Bibliography:

Bevacqua, Michael Lujan. "The Exceptional Life and Death of a Chamorro Soldier: Tracing the Militarization of Desire in Guam, USA." In *Militarized Currents: Toward a Decolonized Future in Asia and the Pacific*, edited by Setsu Shigematsu and Keith L. Camacho, 33–62. Minneapolis: University of Minnesota Press, 2010.

George, James. *Ocean Roads*. Wellington: Huia Publishers, 2006.

Herman, R. D. K. "Inscribing Empire: Guam and the War in the Pacific National Historical Park." *Political Geography* 27, no. 6 (2008): 630–51.

Loewen, James W. *Lies Across America: What Our Historic Sites Get Wrong*. New York: Simon and Schuster, 2007.

Silko, Leslie Marmon. *Ceremony*. New York: Viking, 1977.

Websites linked in this text:

- http://www.nps.gov/wapa/index.htm
- http://www.environmentandsociety.org/exhibitions/risk-and-militarization/literature
- http://whc.unesco.org/en/list/1339

Websites linked in image captions:

- https://commons.wikimedia.org/wiki/File:War_in_the_Pacific_National_Historical_Park.jpg
- http://commons.wikimedia.org/wiki/File:TRINITY.jpg

Hsu, Hsuan. "Representing environmental risk in the landscapes of US militarization." Environment & Society Portal, *Virtual Exhibitions* 2014, no. 1. Rachel Carson Center for Environment and Society. doi.org/10.5282/rcc/6058.
Chapter: Monuments
Source URL: http://www.environmentandsociety.org/node/6241
PDF created on: 22 February 2021 12:16:06

Photography

While photography has historically played a pivotal role in turning public opinion against war, colonialism, and environmental devastation, it has seldom been used to document the environmental harm wrought by the very presence of US bases. This is not only because the effects of environmental risk are frequently invisible, but also because photographing or otherwise visually representing US bases in the absence of censorship is prohibited by law (18 USC 795). Because military and naval authorities censor "any photograph, sketch, picture, drawing, map, or graphical representation of...vital military and naval installations or equipment," photographs can only indirectly represent how these militarized spaces affect environment and health.

Greg Girard, *Camp Foster (US Marine Corps) Commisary, Okinawa, Japan*, 2008.

In 2008, Canadian photographer Greg Girard received permission to photograph over twenty US bases in South Korea, Japan, and Guam. While it hardly depicts military equipment at all, the resulting project—"*Half the*

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Chapter: Photography
Source URL: http://www.environmentandsociety.org/node/6242
PDF created on: 22 February 2021 12:16:20

Surface of the World"—sheds light on the environmental incongruities of bases in the US Pacific Command ("PACOM")—an area delineated by the Pentagon that covers approximately half the planet. Thirty years after he visited US bases in Japan in the 1970s, Girard "was struck by how little life had changed on the bases..." (Girard 2011). Girard's photographs depict suburban sprawl, immaculate roads, grocery stores filled with packaged foods, shopping centers filled with sofas and appliances, and other indications that life on offshore bases is not so different from life in a 1950s US suburb. Even without depicting military exercises or weapons, Girard provides a stark picture of the environmental carelessness with which the Department of Defense exports and sustains modes of suburbanization and consumption incongruous with local living arrangements in places like Guam, South Korea, and Japan. While processed foods, suburban housing patterns, and car culture are criticized in the US by environmentalists, planners, and public health advocates, offshore bases continue expending public funds to export and propagate such patterns of consumption. Indeed, recent efforts to privatize the US military have led to a dramatic increase in obesity among US soldiers stationed in Iraq as the sustenance of soldiers is contracted to fast food corporations (Ventura 2012). Researchers' objections to a proposed base in Vicenza, Italy, help contextualize the public cost of US bases: "Some studies have shown that the base, designed to house 2,500 soldiers, will consume an amount of water equivalent to the need of 30,000 residents, as much natural gas as used by 5,500 Vicentines, and electric power equal to the consumption of 26,000 inhabitants" (Palma 2012, 840). Girard's photographs quietly register the sprawl, consumption, and waste that sustain these bases from which the US projects power across "half the surface of the world," exposing a geographically and socially remote landscape taken for granted by most US residents: "I consider this something that's basically hidden in plain sight" (Greg Girard, quoted in Macdonald 2012).

Greg Girard, *Camp Foster Marine Corps Family Housing, Okinawa, Japan*, 2008.

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Greg Girard, *Camp Rodriguez Tank Training Range, Korea*, 2008.

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Chapter: Photography
Source URL: http://www.environmentandsociety.org/node/6242
PDF created on: 22 February 2021 12:16:20

Whereas photographs such as *Camp Foster Marine Corps Family Housing, Okinawa, Japan*, 2008 convey a sense of monotonous, standardized homes superimposed upon the Okinawan landscape, *Camp Rodriguez Tank Training Range, Korea*, 2008 presents a different context of repetitive development. Here, the Korean countryside is fenced off and razed to make room for tanks, not homes. In addition to the uninhabited and monotonous appearance of these training grounds, several craters and a small fire in the distance bear witness to a violent transformation of nature: training troops to devastate enemy landscapes requires the continuous devastation of friendly terrains. When juxtaposed with Girard's photographs of family housing, shopping areas, parked cars, movie theaters, and manicured lawns, his images of tanks, bombers, and training exercises remind us of the violent enterprises that support suburban US practices of "peaceful," middle-class consumption. *Picnic on Flight Line, Misawa Air Base, Japan*, 2008 condenses these incongruities into a single image, contrasting the idyllic associations of an outdoor picnic with fighter jets pointed at the picnickers. Along with the bleak, militarized landscape, the umbrellas suggest that this is not an ideal place to sit down for a meal. And all of this raises the question: What is the relationship between machines of mass destruction and community rituals of socialization and nourishment? Are these people sitting before these fighter planes by choice or by coercion—and is there anywhere else for them to go?

Greg Girard, *Picnic on Flight Line, Misawa Air Base, Japan*, 2008.

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Chapter: Photography
Source URL: http://www.environmentandsociety.org/node/6242
PDF created on: 22 February 2021 12:16:20

Another set of Girard's photographs draws attention to the effects of US bases on neighboring communities. Photographs of Japanese cabaret workers in Iwakuni and a mixed-race paper boy at Yokata Air Base remind us that everyday life on foreign bases—like that of US suburbs—depends on a ready supply of racialized labor. Others depict low-flying military aircraft, which spread both air and noise pollution through neighboring communities. Girard's photographs of densely packed businesses and homes located near bases provide a point of contrast to the wide streets and sprawling buildings of military residences. There are also signs of past and present tension: one image of local residences features a placard reading "OFF LIMITS to USFJ [US Forces Japan] Personnel by Order of COMFLEACTS [Commander, Fleet Activities]"; another photograph, entitled *Protest House, Naha, Okinawa*, 2012, depicts a home with a bright sign on which a military aircraft is rejected by a red "X."

"*Half the Surface of the World*" uses carefully composed photographs—and the tensions produced by juxtaposing different photographs—to present chilling connections between military violence, suburban domestic spaces, racialized labor, mass consumption, and the physical and social environment propagated by US foreign bases. The bleak landscapes and interiors depicted in this series expose the environmental depredations wrought not by war but by housing, training, and maintaining military personnel. Living in unsustainable automobile-oriented housing developments, fed on processed foods, and entertained by wide-screen televisions on offer at commissaries and exchanges, military personnel reproduce a culture of consumption premised on endless accumulation and, it seems, interminable war.

Bibliography:

Arden, Roy. "Greg." Foreword for Greg Girard, *Half the Surface of the World* . Exhibit catalogue, Clark & Faria Gallery. Toronto, 2009.

Girard, Greg. "Greg Girard: Half the Surface of the World ." *Leap: The International Art Magazine of Contemporary China*. June 10, 2011.

Macdonald, Kerri. "Uncovering a Home Away from Home. " *New York Times*, January 25, 2012.

Palma, Marco. "No Dal Molin: The Antibase Movement in Vicenza." *South Atlantic Quarterly* 111, no. 4 (2012): 839–46.

Ventura, Patricia. "Fast Food Nation-Building: Neoliberal War, Necropolitics, and Lateral Agency in Iraq." Conference paper presented at American Studies Association. San Juan, Puerto Rico. November 2012.

Websites linked in this text:

- http://www.royarden.com/media/ardentexts/arden_greg.pdf
- http://leapleapleap.com/2011/06/greg-girard/
- http://lens.blogs.nytimes.com/2012/01/25/home-away-from-home/

Hsu, Hsuan. "Representing environmental risk in the landscapes of US militarization." Environment & Society Portal, *Virtual Exhibitions* 2014, no. 1. Rachel Carson Center for Environment and Society. doi.org/10.5282/rcc/6058.

Documentary film

Whereas popular news media tend to neglect environmental harm because it is dispersed, difficult to prove, and unspectacular, documentary filmmakers have produced important works bearing witness to the health effects of militarized landscapes. Whereas critical maps and photographs like Girard's document the geographical and architectural features of US bases, film and video are especially effective in tracking how environmental factors persist and mutate across long time spans as vulnerable communities continue to inhabit damaged terrains.

Jeff Spitz and Bennie Klain's *The Return of Navajo Boy* (2000) directly addresses how popular media neglect the real historical experiences of Native Americans by documenting the experiences of a Navajo family who played Native American characters in many Hollywood westerns. The film's main subject, Elsie Mae Cly Begay, attributes the numerous cases of cancer in her family to contamination from uranium mines on the reservation. When Elsie's mother died from lung cancer, the destitute family gave up her infant son John Wayne Cly to be cared for by Christian missionaries. In addition to documenting uranium-related illnesses suffered by miners and Navajo neighbors, the film shows how these health problems led to a family separation. The story of the Cly family contrasts conventional Hollywood representations of Native Americans (often featuring Cly family members and other Navajo in the Monument Valley) with the media's neglect of struggles over land rights, unsafe labor conditions in uranium mines, and the long-term effects of uranium mining on nearby inhabitants. Since the film's release, the Navajo nation has prohibited uranium mining on its reservation, and the Indian Health Service has begun using this film to educate the public about this historic episode of environmental racism.

Documentary films about Agent Orange have played an important role in expanding Americans' awareness of a war's effects beyond the battlefield spectacles popularized by war movies. Officially designed to deny food and cover to Vietnamese combatants, the US strategy of ecocide devastated Vietnam's countryside, poisoned local food and water sources, and exposed both US soldiers and the Vietnamese to a range of illnesses and birth abnormalities. While early coverage of Agent Orange—such as Jacki Ochs' award-winning *Vietnam: The Secret Agent* (1983)—focused on struggles for compensation by US veterans exposed to dioxins, more recent documentaries such as the Vietnamese filmmaker Vu Le My's *Where War Has Passed* (1998) and Masako Sakata's *Agent Orange: A Personal Requiem* (2007) highlight the experiences of Vietnamese families raising children with congenital disorders. Whereas Vu uses close-ups to detail how dioxins have affected over twenty children's bodies, Sakata's film focuses more on childrens' daily lives and conditions of caretaking (see Reagan 2011, 58). Motivated by her own husband's death from liver cancer (which she believes is linked to his exposure to dioxins while serving in the US army), Sakata draws connections between the families of US veterans and Vietnamese coping with the war's environmental effects long after its official end.

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Chapter: Documentary film
Source URL: http://www.environmentandsociety.org/node/6243
PDF created on: 22 February 2021 12:16:21

Still from *Vapor Trail (Clark).*

Gianvito's *Vapor Trail (Clark)* (2010) and *Vapor Trail (Subic)* (forthcoming) had their beginnings in a trip he took to Manila to conduct research for a narrative film: as he explains, "What I experienced in those very first days propelled the jettisoning of that fictional project and led to a four year undertaking to bring attention to the on-going plight of the thousands of people living within the vicinity of the still toxic environs of the former U.S. military bases in the Philippines—the Clark Air Base and Subic Naval Base" (Gianvito 2010). *Vapor Trail (Clark)* draws on archival documents, interviews, historical images, and extensive landscape footage to present the complex history of environmental poisoning suffered by Filipinos settled on or near the abandoned Clark Air Force Base. The film focuses on environmental justice activists struggling for the US to make reparations and clean up the base, which the US evacuated when the nearby volcano Mt. Pinatubo erupted in 1991. The Clark base was used as a temporary evacuation center for thousands of Filipinos displaced by the eruption, and contaminated water there led to many cases of illness, miscarriages, and congenital disorders. Instead of focusing on the bodies of disabled victims, Gianvito situates interviews with activists from the People's Task Force for Bases Clean-up within the long history of US imperialism and military presence in the Philippines. Perhaps the film's most striking scenes are those depicting children working and playing on the beautiful, contaminated land, along with a long sequence featuring the gravestones of children whose lives spanned just a few years, weeks, or hours.

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Chapter: Documentary film
Source URL: http://www.environmentandsociety.org/node/6243
PDF created on: 22 February 2021 12:16:21

Still from *Vapor Trail (Clark)*.

These films use documentary techniques to provide deep social and historical contexts for the stories of those groups most directly affected by military pollution. By contrasting polluted bodies with beautiful landscapes, they stress the unnatural effects of nuclear and chemical contamination. At the same time, they use archival footage and historical documents to connect contemporary instances of pollution to past acts of imperial conquest and economic exploitation. Documentaries are a crucial tool for reflecting on the memories and struggles of vulnerable subjects frequently unrecorded or forgotten by mainstream media.

Bibliography:

Gianvito, John. "Director's Statement." Press kit for *Vapor Trail (Clark)*, 2010.

Reagan, Leslie J. "Representations and Reproductive Hazards of Agent Orange" *The Journal of Law, Medicine & Ethics* 39, no. 1 (2011): 54–61.

Websites linked in this text:

- http://www.environmentandsociety.org/exhibitions/risk-and-militarization/photography
- http://www.youtube.com/watch?v=mzQnraY85fw

Hsu, Hsuan. "Representing environmental risk in the landscapes of US militarization." Environment & Society Portal, *Virtual Exhibitions* 2014, no. 1. Rachel Carson Center for Environment and Society. doi.org/10.5282/rcc/6058.
Chapter: Documentary film
Source URL: http://www.environmentandsociety.org/node/6243
PDF created on: 22 February 2021 12:16:21

Monster movies

While Hollywood movies have long been fascinated with US wars as well as the technology, iconography, and spectacles of warmaking, filmmakers from more marginal locations have attempted to dramatize the environmental risks of US militarization. If environmental harm tends to take effect gradually and in hardly-visible forms, fiction films can condense dispersed experiences of risk and environmental anxiety into dramatic plots. Popular movies that object to US militarization—such as Ishiro Honda's *Godzilla [Gojira]* (1954) and Bong Joon-ho's *The Host [Gwoemul]* (2006)—resort to supernatural and fantastic elements in efforts to express spectacular and monstrous risks perceived by local communities. By imagining monsters that originate from US military activity, these movies turn the genre of the monster movie against US warmaking. A recent Marshallese film, Jack Niedenthal and Suzanne Chutaro's *The Sound of Crickets at Night [Ainikien Jidjid ilo Bon]* (2012), also incorporates supernatural elements—in this case to imagine what healing might look like for a family displaced and devastated by nuclear colonialism.

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Chapter: Monster movies
Source URL: http://www.environmentandsociety.org/node/6244
PDF created on: 22 February 2021 12:16:22

1954 poster for Gojira.

This image is in the public domain.

Beginning in the 1950s, radioactive and chemical pollution risks gave rise to an entire genre of movies featuring monsters created or awakened by humans' meddling with the environment. Although it was preceded by the American films *The Beast from 20,000 Fathoms* (1953), in which Arctic nuclear tests awaken a dinosaur, and *Them!* (1954), in which nuclear tests produce giant ants that attack the desert Southwest, *Godzilla* has become the definitive radioactive monster movie. While the film includes scenes of urban devastation reminiscent of the bombings of Hiroshima and Nagasaki, its most immediate context was the atomic testing conducted by the US in the Pacific Proving Grounds beginning in 1946. As the paleontologist Dr. Yamane explains in the film, Godzilla is an amphibious creature from prehistoric times that "probably survived by eating sea organisms, occupying a specific niche. However, recent experimental nuclear detonations may have drastically altered its natural habitat. I would even speculate that an atomic explosion may have removed it from its surroundings." Not only is the monster's invasion of Tokyo precipitated by nuclear testing, but the radiation it has absorbed

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Chapter: Monster movies
Source URL: http://www.environmentandsociety.org/node/6244
PDF created on: 22 February 2021 12:16:22

gives Godzilla the ability to incinerate objects with its breath. A cautionary tale about the atomic age, *Godzilla* uses a fantastical monster to embody the unknown and unimaginable risks that might be exacerbated by military research in the nuclear Pacific.

The Host—the highest grossing South Korean film following its release in 2006—uses monster movie conventions to critique the environmental risks of US military bases. Referencing an actual 2000 incident in which US military mortician Albert McFarland ordered a soldier to dump formaldehyde into the Han River, *The Host* depicts a mutant creature emerging from the river and wreaking havoc on Seoul's populace. Since the monster is also believed to be a disease carrier, the Korean government and international health organizations coordinate a militarized response designed to quarantine the population until they can kill the monster and decontaminate the area by releasing an American biological weapon called "Agent Yellow." At times taking a surprisingly sympathetic view of the hungry mutated creature (*Gwoemul* is the Korean word for "creature," not "monster" or "host"), Bong's film seems to suggest that the real monster is the US military and a militarized international approach to biosecurity that uses force to quarantine, surveil, research, subdue, and further poison populations perceived to be contaminated. In addition to known problems associated with US bases such as camp-town prostitution, noise, fatal accidents, and pollution, *The Host* uses a science fiction monster to dramatize the unforeseen but pervasive dangers of militarized bases and security measures.

Still from *The Sound of Crickets at Night.* Niedenthal, Jack and Suzanne Chutaro. Marshall Islands: Microwave Films, 2012. 80 min.

Still from *The Sound of Crickets at Night.* Niedenthal, Jack and Suzanne Chutaro. Marshall Islands: Microwave Films, 2012. 80 min.

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Although *The Sound of Crickets at Night* does not feature monsters, its plot features a Marshallese deity invoked to help a young girl named Kali cope with her displaced and broken family. Kali's health begins to deteriorate when her parents separate and leave her with her grandfather Jebuki, whose health and finances are precarious. Since Jebuki was one of the refugees resettled to Rongerik from Bikini Atoll, Kali's illness and depression echo

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Chapter: Monster movies
Source URL: http://www.environmentandsociety.org/node/6244
PDF created on: 22 February 2021 12:16:22

the condition of nuclear refugees who were exposed to radioactive fallout even after being evacuated. After Jebuki summons the ancient spirit Worejabato to save his granddaughter, a mysterious American appears and reassures him and Kali about the future. Although the prospect of a Marshallese deity taking the form of a mysterious American (whom Kali playfully names "George Bush") seems ironic, the film's turn to Marshallese religion provides Kali with a measure of solace and companionship. *The Sound of Crickets* presents tradition, community, and the local landscape as sources of individual and cultural strength in the wake of nuclear colonialism and family separation.

Bibliography:

Hsu, Hsuan L. 2009. "The Dangers of Biosecurity ," *Jump Cut: A Review of Contemporary Media* 51.

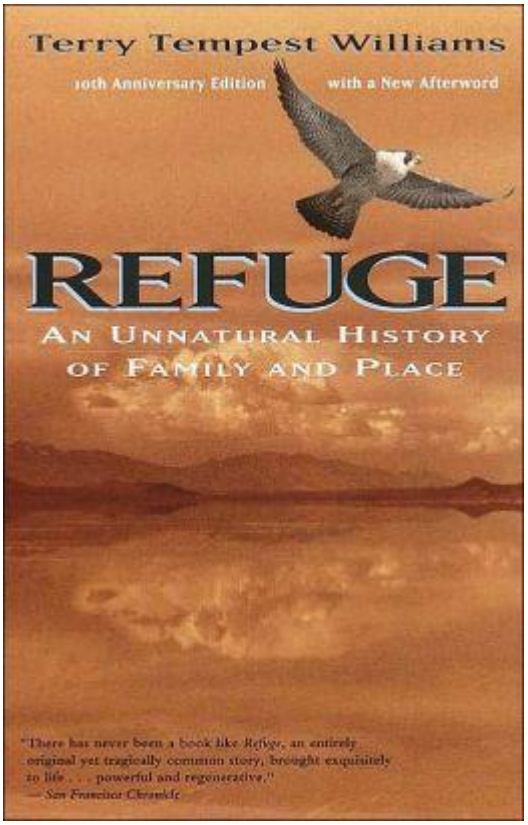
Websites linked in this text:

- http://www.ejumpcut.org/archive/jc51.2009/index.html

Hsu, Hsuan. "Representing environmental risk in the landscapes of US militarization." Environment & Society Portal, *Virtual Exhibitions* 2014, no. 1. Rachel Carson Center for Environment and Society. doi.org/10.5282/rcc/6058.

Literature

Militarized landscapes are a prominent theme in the increasing numbers of literary works that explore environmental justice themes. An important departure from the focus on "nature" and conservation that preoccupied many earlier environmental writers, environmental justice literature highlights the uneven distribution of risk factors spread by modern modes of production, transportation, waste disposal, and warfare. Recent novels, poems, memoirs, and performances highlight the environmental and social costs of militarization, and frequently draw comparisons between different groups and sites affected by US bases, expanding the groundwork for coalitions that cross spatial, temporal, and cultural boundaries.



Cover of Terry Tempest Williams, *Refuge* (New York: Pantheon, 1991).

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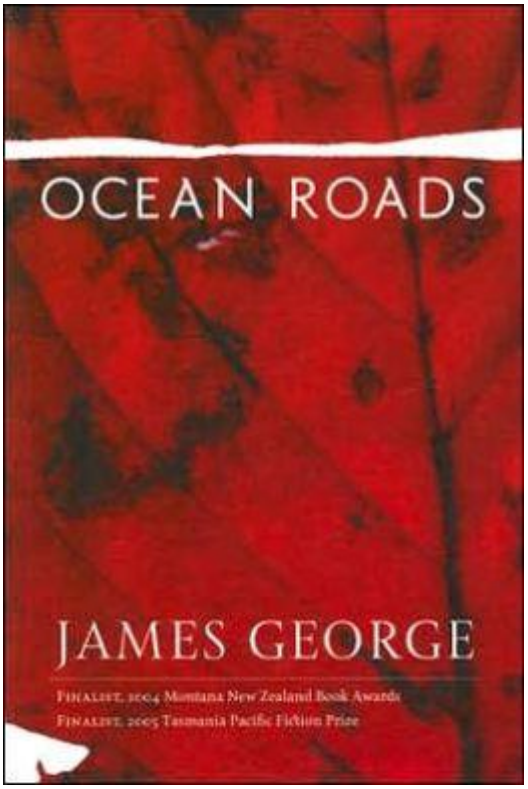
Recent authors have adapted genres such as memoir, journalism, Gothic fiction, nature writing, and the noir thriller to expose how militarized landscapes such as Japanese-American internment camps, weapon test sites, and nuclear dumping grounds have laid waste to the US Southwest and the communities who live there (Beck 2009). Authors such as Leslie Marmon Silko, Terry Tempest Williams, Simon Ortiz, and James George dramatize the social consequences of nuclear testing in that region by describing experiences of war, cancer, and

Hsu, Hsuan. "Representing environmental risk in the landscapes of US militarization." Environment & Society Portal, *Virtual Exhibitions* 2014, no. 1. Rachel Carson Center for Environment and Society. doi.org/10.5282/rcc/6058.
Chapter: Literature
Source URL: http://www.environmentandsociety.org/node/6287
PDF created on: 22 February 2021 12:16:35

displacement. Williams's memoir interweaves an account of her mother's struggle with terminal cancer with a naturalist's meditations on birdwatching in the environs of the Great Salt Lake. Only towards the end of the book does she provide the "unnatural" explanation for the numerous cases of cancer among her family and neighbors: they lived downwind from above-ground atomic tests conducted in the Nevada desert between 1951 and 1962.



Cover image for James George, *Ocean Roads* (Wellington: Huia, 2006).

In *Ocean Roads* (2006), George tracks an international cast of characters—a nuclear scientist, his cancer-afflicted son, a traumatized survivor of a napalm attack in Vietnam, an itinerant war photographer, and a scarred Japanese woman born on the day the US bombed Nagasaki—affected by the Trinity test and other instances of biological warfare. Japanese novelist Oda Makoto's *H: A Hiroshima Novel* (1981) similarly connects the suffering of Hiroshima survivors with the fates of Hopi characters in the US Southwest such as Ron, who is affected by radiation poisoning after accidentally witnessing the Trinity test.

Although they are not as spectacular as nuclear explosions, non-nuclear training exercises also cause a range of problems throughout the US's imperial territories. Connecting military testing in O'ahu with instances of nuclear contamination in the Marshall Islands, Chernobyl, and Three-Mile Island, Kiana Davenport's *House of Many Gods* (2006) imagines a transnational environmentalist alliance between Hawaiian demilitarization

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Chapter: Literature
Source URL: http://www.environmentandsociety.org/node/6287
PDF created on: 22 February 2021 12:16:35

activists and a documentary filmmaker from Russia suffering from radiation poisoning. The novel's plot focuses on activist protests concerning Oahu's *Makua Valley*, where thousands of farmers were evicted to make room for US war maneuvers and live fire training. In addition to damaging the land and air, causing noise pollution, and introducing accident risks, US military activities are linked to toxic waste disposal on sacred lands: "That's where they openly burn spent ammunition. Spent rockets. Even Chinook choppers carrying nuclear-weapons parts that exploded up there on take-off. Pilots, their clothes, everything. All carefully incinerated, so there's no proof.... And toxic poison is released in the smoke of those fires. We inhale it, ingest it. It's in our fields, our food..." (Davenport 2006, 118). Although live ammunition exercises at Makua Valley were discontinued in 2004, the army continues to "use the military reservations in different ways" and will "decide whether to resume live-fire training once [environmental impact] studies are complete ."

Makua Valley military testing area, Oahu, Hawai'i.

Photo by Meutia Chaerani - Indradi Soemardjan.
View source .

In *Melal: A Novel of the Pacific* (2002), longtime Kwajalein resident Robert Barclay dramatizes the geographical inequities of the relationship between two islands in the Marshall Islands group: Kwajalein and Ebeye. Whereas Kwajalein—a command base for US nuclear trials and the Nike-Zeus anti-ballistic missile testing program—provides comfortable housing, affordable food, and healthy infrastructure for a population primarily consisting of US military personnel, Ebeye is densely populated by refugees relocated from several nearby islands (including Kwajalein) to make space for nuclear and anti-ballistic missile tests. In addition to describing the pollution, filth, poor sewage, unsafe fisheries, overcrowding, suicides, and radiation-induced cancer and miscarriages suffered by Ebeye's inhabitants, *Melal* details the poisoned, devastated spaces encountered by two Marshallese children who resolve to camp out on their ancestral island of Tar-Woj in spite of US missile tests. The novel's title—a Marshallese word meaning "playground of demons"—could refer to either the children's ancestral island or the island to which their family has been resettled.

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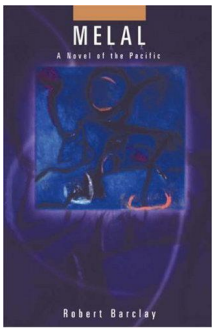

Robert Barclay, *Melal: A novel of the Pacific* (Honolulu: University of Hawai'i Press, 2002).

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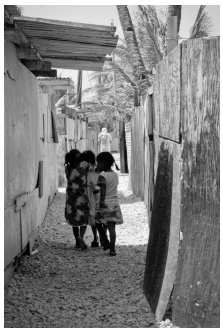
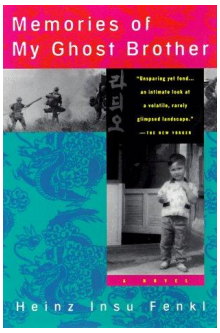


Ebeye, Republic of the Marshall Islands. Photo by Lee Craker, 2012.



Cover of Heinz Insu Fenkl, *Memories of My Ghost Brother* (NYC: Dutton, 1997).

View source .

Even in the absence of training drills and weapons testing, US bases cause a range of problems for neighboring communities. In *Memories of My Ghost Brother* (1997), Heinz Insu Fenkl details his experiences growing up on and near a US army base in South Korea. In addition to documenting black market operations, suicides, sex work, racism, domestic violence, and other tense relations between Koreans and GIs, Fenkl (1997, 249) describes an impoverished and noxious environment: "narrow alleys running with sewage and piss and wafting with a stench so awful that it gagged you." In the environs of the ASCOM base, Korean and mixed-race children play on slippery elevated train tracks, near the sewer canal, among dust, feces, and live ammunition: "I remembered hunting for artillery brass one afternoon near a place the GIs called Mickey Mouse Village, finding wads of C4 plastic explosive, manual fuses, unexploded shells. Earlier that week some boy had dug out a shell and dropped it on a stone, and he had blown himself to pieces, scattering fragments of himself so far they could not gather him together again to hide under a straw mat" (Fenkl 1997, 248).

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Chapter: Literature
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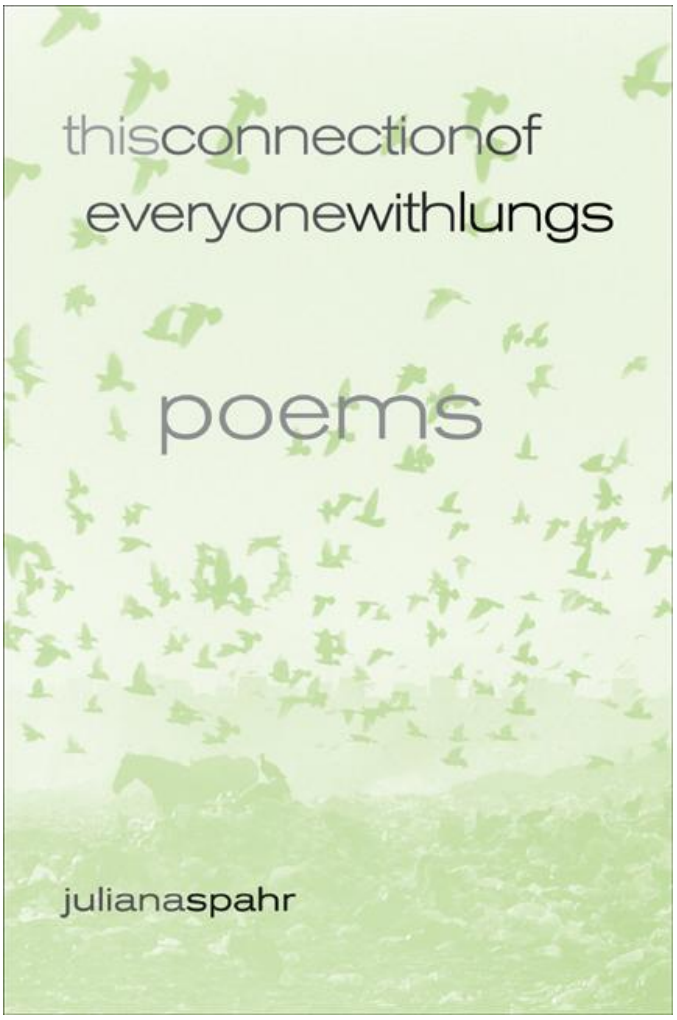
PDF created on: 22 February 2021 12:16:35



Cover of Spahr, Juliana, *thisconnectionof everyonewithlungs.*

While these memoirs and novels dramatize how military activities affect family life and character development, poetry can provide more abstract reflections on the connections between militarization, culture, and language. Juliana Spahr's *thisconnectionofeveryonewithlungs* (2005, 10) considers interconnectedness between bodies, things, and molecules ("everyone mixing / inside of everyone with nitrogen and oxygen and water vapor and...titanium and nickel and minute silicon particles from pulverized / glass and concrete") in the global contexts of the US invasions of Afghanistan and Iraq. Located in Hawai'i—on an island where "thirty Navy and Coast Guard warships," "eighteen nuclear submarines," "five destroyers," and "two frigates" are docked, Spahr's speaker contemplates how everyday experiences of landscape, language, and love are intermixed with military force: "the beach on which we reclined is occupied by the US military so every word we said was shaped by other

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Chapter: Literature
Source URL: http://www.environmentandsociety.org/node/6287
PDF created on: 22 February 2021 12:16:35

words, every moment of beauty occupied" (2005, 67). The poet's idyllic thoughts of island birds become entangled with the American ships and airplanes deployed from Hawai'i, which would materially contribute to the "shock and awe" campaign waged against combatants and civilians alike on the other side of the planet.

Cover image for Craig Perez, *from unincorporated territory [saina]*.

Craig Santos Perez's multivolume poem *from unincorporated territory* (2008, 2010) meditates on the geographical and social consequences of Guam's colonial status as both an "unincorporated territory" subject to US rule and a key site for the projection of US military power across the Pacific. Incorporating numerous maps that illustrate Guam's strategic location and the locations of its bases, Perez's volumes consider the legacies of Spanish, Japanese, and US colonialism alongside the ongoing environmental harm wrought by US militarization. Perez uses the invasive brown tree snake—first brought to Guam by US military cargo ships—as a symbol of invasion and environmental harm: "About 100 times a year, a brown tree snake will scale a power line or transformer, electrocuting itself and causing a power outage that may span the entire island. At present, Guam has lost all its breeding populations of seabirds, 10 of 13 endemic species of forest birds, 2 of 3 native mammals, and 6 of 10 native species of lizards. Also, there have been over a 100 [sic] of infant deaths reported in the last 50 years" (2008, 93). While describing efforts to repair Chamorro language and cultural practices in the wake of colonial devastation, from unincorporated territory [saina] provides an excerpt on the environmental impacts of US bases from Perez's own testimony before the UN Special Political and Decolonization Committee. To emphasize Guam's lack of official status in the UN and its erasure in national discourse, Perez reproduces his testimony under erasure:

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Chapter: Literature
Source URL: http://www.environmentandsociety.org/node/6287
PDF created on: 22 February 2021 12:16:35

> ~~this hyper militarization...will severely devastate...our environmental, social, physical and cultural health. since world war two, military dumping and nuclear testing has contaminated the pacific with pcb's and radiation. in addition, pcb's and other military toxic waste have choked the breath out of the largest barrier reef system of guam, poisoning fish and fishing grounds. as recently as july of this year, the uss houston, a u.s. navy nuclear submarine home ported on guam, leaked trace amounts of radioactivity into our waters~~ (2010, 45, 60).

Bibliography:

Barclay, Robert. *Melal: A Novel of the Pacific.* Honolulu: University of Hawai'i Press, 2002.

Beck, John. *Dirty Wars: Landscape, Power, and Waste in Western American Literature*. Lincoln: University of Nebraska Press, 2009.

Davenport, Kiana. *House of Many Gods*. New York: Ballantine Books, 2006.

Fenkl, Heinz Insu. *Memories of My Ghost Brother.* New York: Dutton, 1997.

George, James. *Ocean Roads*. Honolulu: University of Hawaii Press, 2006.

Oda Makoto. *H: A Hiroshima Novel*. Translated by D. Hugh Whittaker. Tokyo: Kodansha International, 1995.

Perez, Craig Santos. *from unincorporated territory [hacha]*. Kane'ohe, HI: Tinfish, 2008.

———. *from unincorporated territory [saina]*. Richmond, CA: Omnidawn Publishing, 2010.

Spahr, Juliana. *thisconnectionofeveryonewithlungs.* Berkeley: University of California Press, 2005.

Williams, Terry Tempest. *Refuge*. New York: Pantheon, 1991.

Websites linked in this text:

- http://www.armytimes.com/article/20120622/NEWS/206220317/Judge-wants-updated-Makua-Valley-studies
- http://craigsantosperez.wordpress.com

Websites linked in image captions:

- http://books.google.com/books/about/Refuge.html?id=MDL9o-ZpCR0C
- http://commons.wikimedia.org/wiki/File:Makua-valley.jpg
- http://books.google.com/books/about/Meḷaḷ.html?id=w6f7XX0WtREC
- http://books.google.de/books?id=qaVMPgAACAAJ&dq=Memories+of+my+ghost+brother&hl=de&sa=X&ei=6wx6U-KKBuTqywOj0IKoCA&ved=0CEYQ6AEwAA

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Reclamations

Whereas images and stories represent the social and environmental harm produced by landscapes of militarization, public demonstrations, occupations, and site-specific artworks attempt to reclaim and demilitarize US bases themselves. These unauthorized performances challenge discourses of national and international security by asserting the people's right to occupy and dispose of their territory, and by envisioning alternative futures for militarized spaces. While the actual reclamation of militarized space is an arduous process involving international negotiations and years of environmental mitigation, unauthorized appropriations of these spaces symbolically assert local authority over the extraterritorial power of the US, which frequently endangers local populations in the name of global peacekeeping.

Richard Misrach, *Princesses Against Plutonium, Nuclear Test Site, Nevada.* Chromogenetic Print, 1988.

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Chapter: Reclamations
Source URL: http://www.environmentandsociety.org/node/6245
PDF created on: 22 February 2021 12:16:36

At the Nevada Test Site, where nuclear weapons were regularly detonated between 1951 and 1992, protestors representing a range of interests (including Western Shoshone, nuclear bomb survivors from Japan, peace activists, anarchists, and environmentalists) engaged in decades of civil disobedience actions culminating in the Comprehensive Test Ban Treaty signed in 1992. Putting their bodies at risk (not only of police violence and arrest but also of radiation exposure), protestors transformed the Test Site into a space for building community and solidarity between diverse activists, and for demonstrating the power of nonviolent protest against military violence. Protestors in other locations have taken up this strategy of illegal occupation: in the 1980s, the Marshallese performed "sail-ins" to reoccupy lands from which they had been evacuated by the US military (Kuletz 2002, 138); for the past sixteen years, activists have maintained a tent encampment to protest US base expansion in Henoko, Okinawa; and in light of the accidental death of civilian David Sanes from an errant bomb in Vieques, activists set up peace encampments until they were removed by the federal marshal and the FBI in May 2000.

US Military disassembling the staging area at Camp Garcia in Vieques after a one-year occupation by protestors

PH2 J. B. Keefer, USN (4 May 2000)

Untitled wall art by Rafael Trelles. Photograph by JP Candelier.

Reproduced with permission.

In addition to the crucial work of contesting military claims to space, illegal trespassing and peace encampments create politically charged spaces for cultural projects and performance art. The Princesses Against Plutonium, a group of activists who trespassed the Nevada Test Site dressed in body suits and death masks and handed out fliers warning workers to evacuate the contaminated area, used costume and staging to dramatize the invisible and frequently indeterminate risks associated with radiation exposure. Although the nine women were arrested after the April 1988 action, they "inspired hundreds of 'copycat' invasions and arrests, which jammed the courts and ultimately resulted in the charges against the Princesses being dismissed" (Misrach, 15). At the Okinawa

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Chapter: Reclamations
Source URL: http://www.environmentandsociety.org/node/6245
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encampment, performers draw on “elements of Japanese popular theater, comedic storytelling, and musical genres ranging from the traditional to rock and 1960s-style folk” in efforts to build community and cooperation among an eclectic group of protestors (Nelson 2012, 831).

Wall art by Rafael Trelles

Photograph by JP Candelier.
Reproduced with permission.

Wall art at the abandoned US Navy base at Vieques celebrates the victory of peace protestors and the closing of the base. These works depict resurgent nature—flowers, fish, and butterflies—bursting from broken military equipment. Because the artist, Rafael Trelles, created these images by washing away portions of the wall around stencils of his images, his artwork literally diminishes the walls of the naval base. Even while Vieques residents suffer from extraordinary rates of cancer, cirrhosis of the liver, kidney failure, hypertension, diabetes, birth abnormalities, stillbirths, and miscarriages, artwork like this raises important questions about how to repair the

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Chapter: Reclamations
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landscape in the wake of military activity: fish and plants growing out of defunct tanks may be beautiful, but they are probably contaminated. Even as struggles for environmental cleanup and reparation continue, public works of art, performance, and reoccupation begin to envision alternative uses and futures for militarized landscapes and the global communities affected by them.

Bibliography:

Jaccard, Helen, and David Swanson. "Vieques 10 Years After the Bombing Stopped ." RootsAction, April 17, 2013.

Kuletz, Valerie."The Movement for Environmental Justice in the Pacific Islands." In The Environmental Justice Reader: Politics, Poetics, & Pedagogy, edited by Joni Adamson, Mei Mei Evans, and Rachel Stein, 125–42. Tucson: University of Arizona Press, 2002.

Nelson, Christopher. "Occupation without End: Opposition to the US Military in Okinawa." South Atlantic Quarterly 111 no. 4 (2012): 827–38.

Misrach, Richard. Commentary on Princesses Against Plutonium, Nuclear Test Site, Nevada , 1988.

Solnit, Rebecca. "Dust, or Erasing the Future: The Nevada Test Site." In New West Reader: Essays on an Ever-Evolving Frontier, edited by Philip Connors, 175–206. New York: Nation Books, 2005.

Websites linked in this text:

- http://rootsaction.org/news-a-views/624-vieques-10-years-after-the-bombing-stopped
- http://www.artnet.com/usernet/awc/awc_workdetail.asp?aid=424216474&gid=424216474&cid=157764&wid=424341470&page=10

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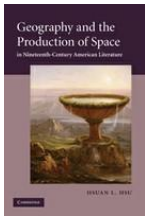

Websites linked in this text:

- http://english.ucdavis.edu/people/directory/hlhsu

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Introduction

Nuclear colonialism

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Aftermaths

Mapping

Sumet (Ben) Viwatmanitsakul [Guam: Military bases] (Craig Santos Perez, *from unincorporated territory [hacha]* 85). Full image reproduced with permission in chapter "Bases".

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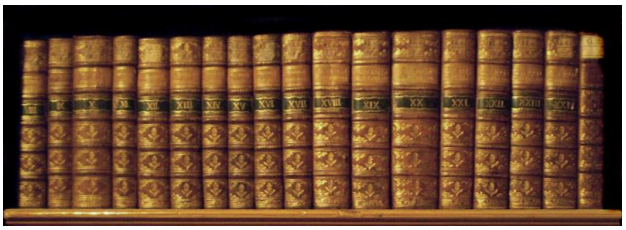

Literature

Documentary film

U.S. Navy photo by Mass Communication Specialist 2nd Class Michael Lindsey.

Monster movies

Still from *The Sound of Crickets at Night.* Niedenthal, Jack and Suzanne Chutaro. Marshall Islands: Microwave Films, 2012. 80 min. Reproduced with permission.

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Monuments

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Reclamations

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Bases

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- http://commons.wikimedia.org/wiki/File:Peace_pole.JPG

Hsu, Hsuan. "Representing environmental risk in the landscapes of US militarization." Environment & Society Portal, *Virtual Exhibitions* 2014, no. 1. Rachel Carson Center for Environment and Society. doi.org/10.5282/rcc/6058.
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