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The Roles of Public Health, Agriculture, and Natural Resource Development in Postwar Okinawan Environmental History from 1945 Through the 1950s

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戦後沖縄復興初期（1945–1950年）における環境概念の編成

山 城 新

本稿では、第二次世界大戦後 1945 年から 1950 年間の戦後復興初期において、公衆衛生、農業、天然資源開発等をめぐる政策や活動をとおして係累化される〈環境概念〉の編成について分析し、1960 年代以降に争点化される環境問題を再考するためのアプローチを提示する。また、沖縄研究に〈環境〉をめぐる議論を導入することで、戦後沖縄の思想と運動を包括的に考察するための可能性について示唆するとともに、米国環境思想研究に欠落してきた戦争と軍隊の問題を指摘しつつ、沖縄環境思想史研究の批評的可能性についても言及したい。

Introduction

Even more than 65 years after the end of WWII, uncovered dud explosives from the Battle of Okinawa have continued threatening people's health, safety, and livelihood in Okinawa. In 2009, for example, a construction worker was severely injured when he accidentally struck a buried bomb. He was not the only one involved in this incident, however. Nearby houses were damaged and the neighborhood frightened, as were many people who watched the news showing the construction site full of debris and destruction. Such a disruptive incident as this not only brings back war experiences and memories to war survivors and postwar generations alike but also seems to undermine postwar Okinawan peace-building efforts. After all, many people are reminded again and again: "The war in Okinawa remains unsettled."

While most current Okinawan issues cannot be separated from WWII experiences and memories, a relatively few scholarly attempts have been made on the topic regarding war and the environment.¹⁾ Needless to say, war is the most destructive and devastating action

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that humans can inflict upon the environment, but I would inquire further how we can account for war experiences and memories in the context of environmental issues. This is an attempt not only to pursue the previously neglected topic of the environment but also to provide a new approach to, or interpretations of, previously addressed topics on Okinawan postwar experiences. What I hope to do in this essay is thus two-fold. I will first present and trace several environmental issues in post-WWII Okinawa, posing a question as to what characterizes Okinawan environmental problems. While doing so, I will also consider putting these issues into a new framework to look at the intersection between Okinawan military-base problems and environmental issues. This new framework involves not merely an epistemological inquiry into a context in which environmental issues come to be perceived as a problem but also an effort to reconsider the framework within American, Japanese, and Okinawan environmental history.

Historical Outline

During WWII, Okinawa experienced extensive demolition of the natural environment and immeasurable damage. Any attempt to study environmental problems, therefore, must account for how the Okinawan environment was influenced by the war. War is not a one-time event but a complicated process—from preparation for war to peace-building rehabilitation. Likewise, we can assume that physical changes to the environment must have occurred prior to the presence of the U.S. military; however, my present focus in this article will be more on providing a larger picture of what environmental issues were like right after the war.²⁾

Today's Okinawan environmental problems have become visible in the process of the vast social change that took place during the post-war period. For example, it was between the late 1960s and early 1970s that Okinawa's modern environmental movement appeared; this is generally known as the Okinawa reversion period, in which we can see how environmental affairs became intertwined with the conservation movement to protect the endangered natural environment and to preserve Okinawan identity (Fukuchi 1996, Yamashiro 2004). Focusing on the late 1940s and 1950s, therefore, will lead my discussion to an extensive analysis concerning how this period prepared the way for the environmental movements of the 1960s and the 1970s. The analysis thus involves a historical review of Okinawan social and economic changes after the war and also a conceptual inquiry regarding how we can understand the "environment" and its problems. The latter attempt in particular requires us not to narrowly consider that environmental issues always deal with pollution, destruction, conservation, or preservation.

The following are general historical divisions that I have employed in my previous discussions:

1. Prewar Period (1940s to October 1944)
2. Wartime (April 1944 to 1945)

3. Postwar Pre-Reversion Period (1945 to 1972): Emergence of Environmental Issues such as “Pollution”
4. Postwar Post-Reversion Period (1972 onward): Progress, Natural Destruction, and Okinawan Identity

I will further sub-divide the postwar pre-reversion period in Okinawa to outline some of the phases that are critical to the present discussion, out of which period 3–1 shall be my focus in the present discussion:

- 3–1. 1945 to 1950: Better Health, Better Environment: Sanitization and Control
- 3–2. 1950 to 1955: Postwar Rehabilitation: Land Issues, Military-Base Problems, and Industrialization
- 3–3. 1955 to 1972: Emergence of “Pollution”

Out of Ashes: Desolate Landscapes and Postwar Rehabilitation Activities

In the “Report on Military Government Activities for the Period from 1 April 1945 to 1 July 1946,” the state of Okinawa after the war was described as follows:

Ninety percent of the homes and buildings of the island were destroyed altogether and many of the others were badly damaged. Fields were withdrawn from cultivation and farmers, when they did return to the land, most commonly worked land which did not belong to them. At a conservative estimate, ninety percent of all household goods was destroyed. In the process of being bombed, refugeeing, and re-refugeeing, the civilians lost practically all of their belongings except those which they could carry on their heads, on the back, or in their hands, and such items frequently consisted of food and other expendables. [. . .] The disruption was island-wide and months-sustained. It was true not only of the southern third of the island, over which the battle was fought, but of the central third, through which the American forces passed in strength, and the northern third, where few military forces were deployed, but refugee civilians poured in and overwhelmed the original population. (pp. 5–6)

This is a view from the U.S. military that partially shows what the Okinawan physical environment was like. According to this description, 90% of homes, bridges, and household goods were completely destroyed, and all the people were dislocated—this is the complete destruction of the entire island. This quote also presents a birds-eye view showing the general aspect of the destruction both on the physical environment and people’s livelihood. It summarizes that the destruction of the environment was thorough, and the desolate landscape is coupled with the disruption of civilian life; the description is also characterized by its “island-wide” view, emphasizing the position that the author is able to comprehend the situation as such. Having been “bombed, shelled, strafed, and exposed to the same intense battle action as the military,” most people were at best “ill-clothed and ill fed, suffering from shock and exhaustion” (p. 9).

Of course people in Okinawa looked at the aftermath of the war differently. Tokashiki, a war survivor, explains that the “Komesu [a southern part of Okinawa] area was filled

with death and destruction; lots of bones and half-rotten bodies were left. There were some places with dense vegetation in the field, where you could find dead bodies” (Tokashiki, 42). Kinjyo, a returnee to Okinawa, recalls: “All villages, houses, greens were gone; mountains were deformed, dirt and rocks were turned over.” (Kinjyo, pp. 42–43). While he was carried with other captives on a truck, Seizen Nakasone, who led the Himeyuri student nurse corps and became a captive during the war, looked at Naha City and lamented: “An astronomical number of bombs blew Shuri Castle away and felled trees. Rocks were crushed and reduced to white powder as if the area was covered by pale, white snow” (p. 211).

Some of these qualitative differences in the perspectives represented in the scene between the military’s and Okinawan people’s descriptions of the postwar landscapes seem too obvious. The former represents a military institution whose position enables it to grasp an extensive bird’s eye view of Okinawa while emphasizing the power to embody such a view point. The latter view, though the information provided is by no means meant to be comprehensive, is fragmented and based on the feelings and experiences of the people. People were in fact forced to live in crowded and unsanitary conditions, frequently suffering from “wounds and injuries which had received no adequate medical attention and had been aggravated by exposure, filth, and secondary infection” (p. 9). Noboru Yonakuni, in his 2001 book *Sengo Okinawa no Shakai Hendo to Kindaika* [Social Transformation and Modernization in Postwar Okinawa], uses “anomie” to refer to the psychology of people who survived the widespread social crisis filled with destruction and loss. I am not sure to what extent “anomie,” which was formulated by Emile Durkheim when he observed a mismatch in labor and the market at the turn of century, is a legitimate way to describe postwar Okinawa; however, the term at least expresses the different norms represented in the landscapes both the military and Okinawans beheld. The Okinawan people had to survive in the midst of the anomie brought about by an international conflict. On the other hand, the military had to consider what was required after the war to enable civilians to survive and the rehabilitation of the island socially, economically, and politically—of course this had to be done to “prevent civilians from interfering with military operations” (p. 2). For both sides, the amount of disruption and destruction caused to the Okinawan environment was nothing but a calamitous, devastating disaster. This is how the immediate aftermath of war had started, and this is where the postwar Okinawan environment started taking shape.

Towards “Better Health” and “Better Environment”

Since 1945, there have been several organizational transitions of both military and civilian administrations. From 1945 to 1946, the United States Naval Military Government had administrative control; from 1946 to 1950, the United States Army Military Government took over; the administration changed to the United States Civil Administration of the Ryukyu Islands (USCAR) and the Government of the Ryukyu Islands between

1950 to 1972. During these years, the Okinawa Department of Health and Welfare, established in 1946, played a central role in improving the environment in terms of sanitation, social welfare, and disease control.

It should be noted that in the immediate aftermath of the war in 1945, the naval government already gave an order to start a public health program focusing on medical and sanitary treatment using not only military staff but also local Okinawan doctors and nurses. This indicates that public health was one of the fields that the military government strongly emphasized, but equally important to note is that public health was one of the examples in which we can examine the relationship between people and the environment in the process of postwar Okinawan rehabilitation.

For instance, in the “Summation of United States Army Military Government Activities in the Ryukyu Islands” (No.1 July–November 1946), a report on “Public Health and Welfare” was newly added, and diseases and sanitation control measures were described. According to this report, “malaria and trachoma continued to rise during the pas[t] four months. The November totals were 26,230 and 5,392” (p. 76). The Department of Public Health employed “2,000 persons and engages in routine inspection in all villages, programs of insect and rodent control, improvement of drainage, sewage and garbage disposal” (p. 11). The activities of the Bureau of Sanitation mentioned were “insect control,” “constructing, cleaning, and closing wells,” and “building and closing latrines.” Thus, we know that during this period, sanitation activities were initiated by the military with assistance from the locals and military personnel.

In comparison with modern environmental issues, it is interesting to note that it records that, for example, in “November 58,117 homes were sprayed with DDT and 157 wells and 2,594 latrines were constructed” (p. 76). The military was already aware of the danger of DDT and its impact on the environment as follows:

This type of large scale indiscriminate air spraying and the abandonment and subsequent re-opening of numerous rice paddies led to upset in the balance of nature. A false sense of security created in the belief that the large scale air spray program was a cure all, resulted in lax enforcement of military regulations governing personnel protection and sanitation in general. (qtd in Hosaka, p. 28)

Hosaka (1992) explains further that the air spraying of DDT was later stopped after consulting with medical entomological officers from Japan and the Philippines. *Silent Spring*, published in 1962, was said to be one of the first books that criticized the use of DDT, for it brings about birth defects in humans and harmful effects on wildlife; however, as is indicated in the above-cited military report, it was during 1946 and 1947 that the U.S. military government already warned against the air spraying of DDT.

On the other hand, the World Health Organization (WHO) recently made it clear that it “recommends DDT only for indoor residual spraying. Countries can use DDT for as long as necessary, in the quantity needed, provided that the guidelines and recommendations of WHO and the Stockholm Convention are all met, and until locally appropriate

and cost-effective alternatives are available for a sustainable transition from DDT” (p. 4). According to the WHO guidelines, the use of DDT in postwar Okinawa would still be justified, and no one would have been against it at that time because public health was the primary concern for everyone, and the risk of DDT was not yet overtly recognized. What is more important is to acknowledge that this is an example showing how environmental problems develop and are recognized on a conceptual level.

Thus, the idea of “the environment,” and what its problems consist of, requires careful consideration. As Okinawa was recovering from the damage of the war, the Department of Health and Welfare focused on sanitation, disease control, and public welfare. The primary concern was better “health,” in part in order to ensure efficient and secure use of Okinawa by the military—better health for Okinawan locals was therefore imperative to accomplish its successful occupation as well. The environment meant the social environment where humans lived; a better environment meant a better place and condition for living. For example, doing a keyword search for “environment” in the 1950s database at the National Administration and Record Archives in Maryland will enable us to find such files as “Family planning,” “Leprosy (Hansen’s Disease)” “salt and water samples,” or “pest control.” Here, Hansen’s disease was included in the category of the environment not only because it was an issue treated in the field of public health, but also because patients were at that time segregated from the general population, and they were sometimes forced to live in isolated hospitals or personal homes where they couldn’t even get proper medical treatment let alone people’s understanding of the disease and humane respect for them.³⁾

Looking at how the term “environment” is used in the administrative files further leads us to a reconsideration of who is in charge of the environment. The word in general refers to the “surrounding conditions” in which a person lives, but this already poses the question of who plays a role in “surrounding” or “conditioning” from outside the environment. If the “environment” is used in pest control, there are at least two groups involved: one is inside (locals), the other is outside (the U.S. military). If Hansen’s disease is viewed in terms of the “environment,” the issue is not only who is “in charge” of the situation but more profoundly who is “enviored” or “segregated.” In this case, Hansen’s disease patients were inside while the outsiders could be either/both the local Okinawans and/or the U.S. military. In this case, Okinawan locals were actors in what later became known as the “Hansen’s Disease Problem” (Morikawa, 2005). Environing must involve a certain power and authority to environ and at the same time to exclude; as a result, any inquiry into environmental issues cannot avoid delineating conflicting values, relationships, and positions in its process. While environmental sanitation controls are not generally problematic because of their benefits to the majority of the general public, there are some cases, such as DDT and Hansen’s Disease, in which we can see that environmental issues are by nature unstable—so changeable issues depend on a context that we need to look at in order to see how an environmental issue takes form.

Public Health and the Issue of Environing and Being Environed

Activities concerning public health were in fact wide-ranging in Okinawa and, like in the case of the treatment of Hansen's-disease patients, they were accompanied by a comparatively large amount of political power over people's livelihoods. For example, as soon as the postwar monetary system commenced in April 1946, prices and wages were set, and ration boards were established. According to the "Summation of United States Army Military Governments in the Ryukyu Islands," food was assigned "point values and people were rationed as nearly balanced diet as availability permitted" (p. 103). Because people's health was checked and controlled by "point values," differences inevitably occurred in people's conditions. In addition, with the newly introduced monetary economy, the relief system was re-adjusted and the relief was given to, instead of all Okinawans, those who were considered to be in need—those who didn't have enough financial resources. Hospitals began to require payment of medical bills by patients as early as 1949. However, as the number of people who acquired relief rapidly increased—from 64,224 in June to 97,665 in September 1946—the government (this time the Okinawa Civilian Administration) decided to increasingly limit the number of those eligible to receive it.

What this kind of public health activity means in the discussion of Okinawan environmental history is that the public health activities, which they were initiated by the military to secure its position as the occupier, in part met Okinawan people's need to live in a "better environment," which was represented by sanitation or public health. However, we must not forget that the disruption and destruction of the environment were brought about by the military. In the process through which the Okinawan people took part in the rehabilitation activities, especially in public health, we can see how their lives became controlled, valued, and systematically treated. This transition may not seem to be a "problem" by itself, but as I will argue in the following, issues pertaining to the environment will become visible in this process of changing values and different positions.

The above-mentioned historical transitions in both the military and Okinawan civilian administrative authorities are essentially attributed to two significant points in considering issues of the environment in postwar Okinawa. First, despite the fact that most people were in absolute need, the introduction of new political systems created some critical differences in terms of social welfare status in Okinawa. Built upon the hierarchical relationship between the military and the Okinawan people, the social welfare system also created hierarchical relationships among the Okinawan people. This is critical because, as *Okinawa no Shakai Fukushi 25-Nen* [25 Years of Okinawan Social Welfare] argues, the situation was different in mainland Japan, where the military government made an effort to give all civilians relief, and the 1947 Japanese Constitution Article 25 guarantees: "All people shall have the right to maintain standards of living" (p. 36). In addition to the hierarchical relationship within Okinawan, here is yet another gap between Okinawans and

Japanese at the early stages of postwar Japan.

Second, besides public health dealing with a wide range of activities from pest and rodent control to pandemic prevention, medical treatment, animal disease, latrine maintenance, nurse and other medical staff training, and relief provision, they were also in charge of providing, deciding, and supervising relief services such as L.A.R.A. (Licensed Agencies for Relief in Asia). In other words, public health enabled the local people to become an active agent in creating an environment in which they could control the haves and the have nots. This was, in fact, a colonial relationship that emerged among Okinawans and enacted by Okinawans, all of which was of course enforced by the military to efficiently maintain its presence as the occupier. In other words, social welfare had created some different kinds of, and levels of, status among the Okinawan people, the military, and the mainland Japanese. Granted that the Okinawan reversion movement pertained to a desire to equalize unbalanced political and social situations between Okinawans and mainland Japanese, then, the various differences that emerged from rehabilitation activities might have had some affinity with what has been called an “inferiority complex,” long shared among Okinawans towards Japanese, which in fact might have had some impact upon the reversion movement and anti-military movements in the late 1950s and onwards.

Public Health and Public Safety in the *Uruma Shinpo*:

I have thus far explained how political and social activities and situations might have affected some of the issues relevant to the environment. Let us now look at what kinds of problems were actually shared by people in Okinawa. In the *Uruma Shinpo* (newspaper) on December 6, 1946, the police department reported on serious incidents between the previous February 1 and November 15. According to this report, 72 people were killed by explosives, 165 were seriously injured, 31 died from poisonous alcoholic beverages, and 4 lost their eyesight. On March 21, 1947, 4 were killed and 26 students and a teacher were injured by explosives at Mawashi Elementary School. The article further refers to and warns about the increasing number of fatal accidents from explosives and poisonous alcohol. “Poisonous alcoholic beverages” or “poisonous alcohol” might refer to methanol, which was used as a cheap and illicit liquor during this period, which was a time of widespread malnutrition and scarcity. Whether the explosives were American or Japanese made, the critical point is that they actually exploded during a time of rehabilitation, when killing and destruction were the least necessary interference. The environment was then conceived of as a place that could be turned at any time into a battlefield where anybody could be hurt, seriously injured, or even killed by the remnants of the war.

During 1946, most articles were about rehabilitation activities, relief services, returnees, and public safety issues. Among the articles, police arrest-reports about theft of relief supplies and military property were often issued. In fact, in January and February 1947, one report states: “In prewar days the strength of the Okinawan police force was approx-

imately 500 men. The present strength is approximately 1,200. The increase was necessary to cope with the situation brought about by the wholesale displacement of persons, the disruption of family ties and the general chaos which came as an aftermath of the war” (p. 164). On June 27, 1947, there was an article about the civilian police becoming able to arrest any person, civilian or military, who was committing or about to commit a felony. In 1947, there were 585 accidents, with 110 people killed in explosions, 104 killed in traffic accidents, and 42 killed by illegal alcohol (*Nahashi-shi* [History of Naha City] 127). Police enforcement was partially explained by the economic situation in the late 1940s. For example, 1946s was, according to *Sengo Okinawa Keizai-shi* [The History of the Postwar Okinawan Economy], characterized by postwar inflation and a lack of goods. The economy was not yet fully established, and a black market was very active in providing people’s basic needs among Okinawans and mainland Japanese (pp. 66–71). As part of an economic policy to prevent further black market inflation, the military government was very alert to illegal exchanges among civilians; as a result, the number of incidents related to public safety was probably attributable to increasing law enforcement by the military government.

In the *Uruma Shinpo*, a local newspaper often criticized as the military’s propaganda, articles on public health appeared in the late 1940s, although not as often as the above-cited military reports did. On September 12, 1947, for example, news of malaria and Japanese encephalitis appeared, whereas, as Seiki Inafuku writes in *Okinawa Shippei-shi* [Okinawan Medical History], malaria had already been prevalent between 1945 and 1947. The fact that the use of DDT had started as early as 1946 should be restated, too. The lack of attention to public health issues didn’t mean they were neglected, however. Rather, the *Uruma Shinpo* was under the control of the military administration, so what it could report might have been limited. Alternatively, it is likely that public health issues were considered to not be a problem to be solved but rather an “improvement” or “betterment” from the postwar havoc. Nonetheless, this unbalanced *Uruma Shinpo* news coverage reveals how people lived at that time and what the environment was like. While the military government stressed public health in the early stages of the occupation, the area of public safety increasingly gained significance in the late 1940s; therefore, public safety issues became more visible in the local newspaper than public health ones. In fact, it was 1947 when Okinawan political parties began to form. This trend in part demonstrates how Okinawa’s postwar development had progressed because public safety issues in general gain prominence after preliminary social and political systems become able to function.

In this respect, Hidemi Todoriki, who made a database on postwar Okinawan public health policies out of about 7,300 itemized documents from GHQ/SCAP [General Headquarters of Supreme Commander for Allied Powers], concluded that “it is evident that the U.S. public health policies put the most emphasis on environmental hygiene, followed by nourishment, measures against infection, social welfare, veterinary science, and medical affairs. This transition shows that the nourishment and hygiene policies were first implemented and healthcare policies later in the following phases” (132). This view further

explains in detail how public health policy was planned and implemented. I would add that environmental hygiene was the most pressing because of the destruction of most infrastructure in Okinawa. In order to secure their military presence, the control and sanitization of the environment became imperative.

If the *Uruma Shinpo* articles during the late 1940s focus on public safety, articles on various forms of development and expansion become prominent in the 1950s. For example, an article on January 1, 1950, reported that the population in 1949 was 568,369; public health officers were sent to Tokyo for a public health examination. Curiously enough, on February 1, 1950, there was an article on Okinawan sightseeing locations, including castle ruins, local beaches, and WWII battlefields. According to *10 Years of Okinawan Tourism*, tourism in Okinawa started as early as 1890. Nonetheless, this article on the launch of Okinawan tourism shows that in the 1950s, Okinawa was leaning toward progress and development, using its cultural and historical heritage as a resource for its economy and taking a form recognizable as similar to today's Okinawan tourism. Compared to what it had been in the immediate aftermath of the war in 1945, the population had already doubled in the 1950s, which was due mostly to the increasing number of returnees to Okinawa in addition to the decreasing mortality rate. Having an improved public health system and its tourist economy being launched, Okinawa in the late 1940s and early 1950s seemed to be on the road to development, if not yet fully so.

With improving public health and social welfare, was the prospect of Okinawa in the late 1940s and the early 1950s bright, then? It's difficult to give a positive answer to that question. Indeed, the plight of Okinawa was reported in the 1949 *Time* article "Okinawa: Forgotten Island," which claimed/reported that the military considered Okinawa "a dumping ground for Army misfits and rejects from more comfortable posts." It went on to state: "For the past four years, poor, typhoon-swept Okinawa has dangled at what bitter Army men call 'the logistical end of the line,' and some of its commanders have been lax and inefficient. More than 15,000 U.S. troops, whose morale and discipline have probably been worse than that of any U.S. force in the world, have policed 600,000 natives who live in hopeless poverty." What is interesting about this article is the fact that it shows us the prospects for Okinawa then were far from what might be assumed from the improving public health situation and its fledgling economy. Dubbed a "dumping ground," what we can infer from this article is that, for both the military and civilians, Okinawa seemed corrupt politically, socially, and environmentally. As I have shown in the intersection between public health and environmental issues, the issues in Okinawa by the late 1940s had become more complex.

In fact, what the *Time* article reveals is another reality of Okinawa. It is important to summarize what public health contributed to environmental consciousness in the 1940s. As discussed so far, sanitization, which was conducted in the name of public health after the war, was not just an activity aimed at achieving a hygienic and clean state for everyone in society; it was a multi-layered and wide-ranging activity under which various forms of political power were brought about. Whether the establishment of a public-

health-related department by the U.S. military can be considered simply a “contribution” to a better Okinawan environment requires careful assessment. As noted earlier, there was a dramatic increase in, for example, malaria cases after the U.S. military occupied Okinawa in 1945. In this respect, in his 2007 article “Postwar Okinawa Public Health Policies by the Military” in *Hoken no Kagaku* [Health Care], Hidemi Todoriki also argues that the U.S. military public health policy deterred preventive measures taken in Yaeyama, and the delay resulted in a significant number of malaria victims there (pp. 740–741). Arnold Fish, Jr. also implies in *Military Government in the Ryukyu Islands 1945–1950* that the U.S. military’s unplanned and frequent relocations of civilians between several refugee camps could have contributed to malnutrition and the death of many people. Thus, there is a possibility that the malaria pandemic was most likely worsened, if not initiated, by the military activities on mainland Okinawa as well; however, it is also likely that without the U.S. military’s advanced preventive measures and medical facilities, malaria would have created far more victims in Okinawa.

As a public concern, environmental issues (including the danger of DDT)—which during the late 1940s were characterized as public health issues—seemed to not be so visible in local newspapers. At least, they were not as blatantly obvious as the public safety issues that came under public scrutiny second to public health issues. The environment was regarded as something to be sanitized and controlled, whether by Okinawans or the military. If sanitization was necessary, it was so in part because of the devastating situation after the war, and more importantly, because it was mandated by the military, which had power over the Okinawan people. As a result, the plight of Okinawa described in the *Time* article, combined with, for example, the malaria pandemic in the late 1940s, shows that public health activities tended to emphasize “betterment” or “improvement” of the environment in such a way that it is difficult to comprehend what people’s lives were like.

Agriculture and Resource Management in the late 1940s

In the “Report of Military Government Activities for Period from 1 April 1945 to 1 July 1945,” the status of agriculture is described as follows: “During the early stages of the military campaign considerable destruction of crops, livestock, and grain supplies occurred, but at a relatively early period Military Government control was such that crops could continue to be harvested and planted and animals corralled” (p. 17). The prospect provided here by the military is too optimistic, but what I would like to introduce is not just a criticism of the military’s policy but rather another issue related to the environment during the 1940s. The report continues that “[t]he exigencies of war required that the native population be evacuated to areas where they could not interfere with military operations” (p. 18). The military understood in their own way how “considerable destruction of crops, livestock, and grain supplies” was brought about during the war, but they coped with the situation by relocating Okinawans to the “non-military areas which have

been gradually released by deactivating units, where more and more land is being cultivated” (p. 18). Before the war, according to the military report, “of the total acreage of 307,643 on Okinawa, approximately 92,000 acres were arable.” Out of these 92,000 acres, “two-thirds was south of Route 6, which cuts the island about in half. The current problem is that between 50% and 60% of the land south of Route 6 is still reserved by the military. The goal of military government in this matter has been to secure for the civilian population the maximum amount of lands compatible with military necessity” (p. 18).

Just as public health was an imminent problem to deal with, agriculture at the early stages of the military occupation had great importance. The restoration of agriculture was necessary to support the civilian population as well as to secure the military presence, so that, as is noted in the above quote, “the maximum amount of lands” would be “compatible with military necessity.” Here again it seems that the interests of both the military and the Okinawan people coincided in the midst of postwar rehabilitation activities—civilian actions were taken with the end goal that military actions could proceed. As a result, on 28 January 1946, “in collaboration with the Education Department, an Agriculture School and Experimental Station was established in northern Okinawa at Nago on the site of a pre-war experimental station” (p. 20). Further,

The original faculty consisted of 11 teachers and enrollment totaled 80 students who had been carefully selected from all over Okinawa. [. . .] Most of the students live at the school and work in the fields and care for the livestock when they are not studying. High school courses are taught, as well as agricultural subjects. Cattle and hogs imported from the United States have been successfully bred at this school. (20)

As part of this agricultural school educational plan, an extensive survey was made of natural resources, and what the military considered successful crops for the agricultural industry included: the sericulture industry, cocaine plantations, seaweed (*Alga Gelidium*) as food and fertilizer, and soybean crops. On the other hand, the acreage allotted to sugar and sweet potatoes, both of which were major industries before the war, decreased. Instead, the military government considered that “the conversion of this land to other crops is a major step in the agricultural rehabilitation of the island” (p. 20).

Natural Resources

In fact, the *Civil Manual Handbook: Ryukyu (Loochoo) Islands OPNAV 13-31* published by the Office of the Chief of Naval Operations, Navy Department on 15 November 1944, before the Battle of Okinawa, informs us how the military proceeded in controlling Okinawa’s natural resources. The following is an evaluation of the natural resources of Okinawa:

Quantity. For years the very restricted supply of water has been a major problem in the Ryukyu Islands. Natural sources are scarce and limited for the most part to the larger islands. As a consequence, the islanders rely mainly on artificial sources, and since these too

are limited, [. . .]. A few islands generally have sufficient water for both the personal needs of the heavy population and such general needs as crop irrigation. On many islands, however, irrigation is completely out of the question and even supply of drinking water must be augmented by water imported in bottles or water boats from other islands or Japan proper. It accordingly appears that any widespread devastation of water sources resulting from military operations in the area might produce a catastrophic situation for the civilian population. (Underline Original: p. 31)

Even before the war, water issues were already understood by the military as a “major problem” in Okinawa. Restricted water supply had been—and has continued to be up until today—a major problem shared by most Okinawans. This “major” problem can be translated into an environmental problem that existed prior to the war; another interesting point is its reference to “widespread devastation of water sources” being caused by the coming war. The military already knew about the poor water conditions but also predicted a “catastrophic situation for the civilian population.” As the military understood and anticipated, water pollution would become one of the biggest environmental concerns in Okinawa after 1960; but what is implied in “any widespread devastation of water sources” is the possibility of physical destruction of water sources by the war and the increasing water scarcity and dire consequences that could follow.

Not only the quantity but the quality of water was considered problematic, as described below:

Quality. The quality of most water in the archipelago is poor. The widespread practice of using night soil for fertilizer results in the frequent contamination of water drawn from lakes, ponds, rivers, streams, and wells. Even the rainwater catchment, the principal supply of potable water, has an unusually high chloride content, owing to the influence of the surrounding ocean. The salt content of rainwater in Okinawa Jima, for example, frequently averages as much as 107 pounds per quarter acre of land surface, compared with about 39 pounds per-acre in Japan proper. As a general rule, all water in the archipelago, regardless of source, should be used only after examination and proper treatment, if necessary. (Underline Original; p. 31)

In fact, the contamination of water was one of the most serious and earliest environmental problems during the 1960s; however, it is evident that the military already identified potential water “pollution” in 1944. Just like the use of DDT during the 1940s and ’50s, presumable water pollution was a problem acknowledged by the military, and it was unlikely to be conceived of by the Okinawans as a “problem.” Combined with the earlier report on water quantity, water issues were regarded as a “problem” to be solved during the occupation, and it in part explains why public health was the issue to be taken care of right away.

Agricultural Rehabilitation

The military evaluated the natural resources in Okinawa beforehand, and as is shown in the example of the water issues, the military’s assessment was very critical. This view

is inevitably tied up with the idea and practice of “conservation.” Public discussion and understanding of “conservation” were already popular in America, and the military report has relevant information dedicated to it. The *Civil Manual Handbook* reports thusly:

Ryukyu Islands are not self-sufficient in lumber, and must import much of what they need. Consequently efforts have been made for some time to increase commercially valuable forest growth. From the annexation of the islands to Japan in 1879 down to the year 1906, cutting was reckless, particularly during the period 1899–1906, following the passage of the Land Readjustment Law of 1899. This law added extensive tracts to the area owned by the national government and caused the owners of other forest lands to cut an undue share of timber from them. In 1906 a new law authorized the resale of much of the government land to the original owners on easy terms, and about that time active government encouragement of afforestation and proper methods of cutting was instituted. Present ownership of forest land in Okinawa prefecture may be judged on the basis of the following figures, which are for the year 1930. (pp. 199–200)

The history of political activities regarding conservation is explained while the passage implies the potential environmental problem of “deforestation” since it refers to the “reckless” cutting of forest. It was not until the 1960s and 1970s that general conservation activities concerning forests and water emerged in Okinawa. The immediate aftermath of the war and during the 1950s was a time when development preceded conservation. There is also a partial report made by Jack Kern, who made a natural resource survey and wrote “Observation on Forestry Operations: Miyako, Ishigaki and Iriomote Islands” in March 1963. In it, he summarizes:

Generally, enthusiasm, planning and the actions underway are substantial. Significant progress has been made in the 10 years since the early 50s after the extremely heavy and in some cases (e.g. Miyako) almost complete cutting of the larger age classes of trees during or immediately after WWII. The Ryukyans do need encouragement and guidance to discover new and better practices in the important interrelations between people, forests, soils, water and crops. Gradually with this help they can gain professional competence and confidence which can bring immeasurable benefits to their country.”

Retrospectively, this report informs us that deforestation was improved in the 1960s due to the postwar rehabilitation activities conducted by the military and civilians. As we shall see, things were to get worse as the military government put more emphasis on human conditions rather than the natural environment.

In fact, the “Report of Military Government Activities” between April 1945 and July 1946 emphasizes that “[o]ne of the most critical needs in the rehabilitation of Okinawa is lumber” (p. 21). It further reports: “Investigations by both American and Okinawan forestry experts have confirmed the fact that there is little remaining timber of any size, that it is for the most part inaccessible and that the cost of building roads for cutting it is prohibitive. Efforts are being made to take advantage of what is available” (p. 21). The result of this line of agricultural rehabilitation activities is noted in the “Summation of United States Army Military Government Activities in the Ryukyu Island” between July and

November 1946. “Six hundred thirty-four tons of fertilizer were distributed throughout the Ryukyu by the Agricultural Association” and also “Mechanized reclamation teams cleared and plowed 3,000 acres” (p. 91). The Livestock Census report 1940–1946 also stated as follows:

	1940	1946
Cattle	2,200	112
Horses	2,550	899
Swine	108,426	1,165
Goats	106,257	1,647
Total	219,433	3,823

By August 1948, all livestock and poultry populations in Okinawa-gunto would increase as follows (p. 701):

Cattle	3,542
Horses	2,751
Swine	25,986
Goats	14,498
Rabbits	17,316
Poultry	85,320

Sericulture started with a silkworm house at Yogi Experimental Station. However, the prospect of agricultural rehabilitation was bleak since, as a military report stated, there was an “arable land shortage induced by military requirements in the southern half of the island where roughly 30,000 acres are devoted to military use” (p. 92). Evidently, military-base development prevented an agrarian economy, and in addition, postwar Okinawan agriculture was tailored in a way that the military could maintain its presence and manage its dominance over Okinawan society.

In the December report, mechanized reclamation teams “prepared another 1,000 acres for cultivation, increasing to 4,000 the number of new acres made available within the past three months under the agricultural restoration program” (p. 133). In this report, measures to make up for the lack of timber are shown in the initiation of the “Iriomote lumber and logging project” (p. 134). In 1947, heavy equipment was brought in, including “five bulldozers, two eight-cubic-yard scrapers, a roller, two one-cubic-yard shovels and five 100-gallon-a-minute pumps” to initiate a reclamation project (p. 169). This project continued, and “in March felled 333,092 board feet of timber. Swamps were being drained and filled and railroads surveyed in preparation for intensified logging at the Project” (p. 214). In Northern (Amami-shima and Tokuno-shima areas) and Southern Ryukyus (Miyako and Yaeyama areas), while lumber production decreased by 1948, the

would bring about, for example, the destruction of coral, or as the *Okinawa Times* reported on August 11, 1955, that bad smell in the reclaimed area in Tomari [northern part of Okinawa]. On August 12 of the same year, there was an article on water pollution in Naha. The dramatically increasing number of livestock is unlikely to be separate from the awareness of water pollution that had just emerged during the late 1950s. Such a rapid increase in livestock in yet developing Okinawa would have had a big environmental impact. All of these potential environmental problems were caused by the rehabilitation activities on mainland Okinawa, but these were made possible by using the natural resources available throughout the chain of the Ryukyu Islands—except for land occupied for the military bases. This kind of systematic exploitation of natural resources in the Ryukyu Island chain—perhaps reminding us of the hierarchical, pseudo-colonial structure that emerged among Okinawans or within the relationship between Okinawa and Japan in terms of social welfare—should be further scrutinized in the future. For the moment, let me give an example of how the hasty improvements in public health and the development of agriculture might have created what I call the postwar “Okinawa the vulnerable.”

A Confluence of Natural and Social Vulnerability: Typhoons, Natural Disasters, and Environmental Problems

While the environmental focus in the latter half of 1940s can be characterized as “better health and environment” and “agricultural development,” natural disasters, especially two typhoons (Libby and Gloria) that hit during 1948 and 1949 had a significant effect on Okinawan environmental issues. Seigen Miyazato in his edited book *Sengo Okinawa no Seiji to Hou: 1945–72* [Politics and Law in Postwar Okinawa] states that after “the typhoons hit in 1948 and 1949, the construction of permanent Okinawan military bases became imperative” (Miyazato, pp. 20–21). Arnold Fish, Jr. also writes that typhoons Libby (October 1948) and Della (June 1949) caused widespread damage to the U.S. military and civilians alike, and Gloria in 1949 had the most devastating impact since 1945. Buildings were vulnerable, and these natural disasters, if not the primary cause, helped force the realization that the state of the military infrastructure was such that it ought to be fortified in order to secure the U.S. military’s position at the beginning of the Cold War. For the military, the typhoons may have been a menace; but for Okinawans, they might have been more than a menace. Sumiko Kamiya, an Okinawan, said of the typhoons during her days in a refugee camp in Nodake: “We regretted that they didn’t come during the war time. *Kamikaze* (God’s Wind) came too late” (Nahashi shi, p. 29). In her view, which may have been shared by many other locals, the destructive force executed by the typhoons was not just something to be evaded but conversely to be desired in order to eliminate an adversary. *Kamikaze* was not based on traditional or religious beliefs, however. It was rather the product of the Japanese military education that had penetrated into most Japanese minds. The critical point in my discussion of the environ-

ment is that typhoons were contrastively perceived: for the military, according to the *Civil Manual Handbook: Ryukyu (Loochoo) Islands OPNAV 13-31* in 1944, their menace had already been recognized before the war, and typhoons were something to be feared and protected against; on the other hand, for the Okinawans, they were part of the natural cycle on the semi-tropical islands with both risks and benefits (such as water supply for the summer).

Accordingly, a confluence of natural and social vulnerability during the late 1940s was emphasized by the damage caused by the typhoons. The military tried to overcome them; in order to do so, the military bases were increasingly built up, also responding to the unstable political situation in the Far East in the 1950s and 1960s [Miyazato, Ota pp. 86–87]. As the environment was being sanitized and controlled, the local Okinawan people tried to use it in service of their purposes. Some regretfully directed their wishes toward typhoons as kamikaze; others utilized natural resources in the name of, for example, tourism. The *Time* article “Okinawa: Forgotten Island” also writes: “The Battle of Okinawa completely wrecked the island’s simple farming and fishing economy: in a matter of minutes, U.S. bulldozers smashed the terraced fields which Okinawans had painstakingly laid out for more than a century.” The late 1940s in Okinawa were in many ways filled with disasters, depression, and chaos, which were suddenly brought by the war, but the vulnerability of Okinawa might also have been due to hasty rehabilitation activities and development of agriculture and reclamation after the war. As I have thus far detailed, the environment in Okinawa during the late 1940s played a determining role in overcoming postwar havoc, as well as preparing for the environmental issues that appeared in coming decades. Let us examine this point by illustrating the problem that emerged at Ishikawa Beach.

Ishikawa Beach Pollution — A Place Where 1940s Environmental Problems Converged

In “Preventive Med, Vet & Sanitation Files 1960–1971,” in the “Records of the Health, Education and Welfare Department (HCRI-HEW)” Box 168, there is a report titled “Ishikawa Beach Pollution: Summary of TECH RPTS & Correspondence: August 1956 to April 1968. In it, Ishikawa Beach Pollution is explained as follows:

1. August 1956: RIMD-PM surveyed entire Okinawa shoreline, island-wide, to find suitable beaches (in addition to Ishikawa, Yaka and Okuma). Navy and Marine personnel helped. Physical features desired of perspective beach were: Accessibility, adequate parking area, ample sandy beach, absence of adjacent native streams and most probable number (MPN) of coliform bacteria present in 100 milliliters of water tested not to exceed 21.0 MPN/100 ml. Preliminary findings were that Ishikawa Beach was one of those unsuitable because of pollution by Ishikawa River—that is, adjacent stream.

2. November 1958: RIMD-PM samples taken from Ishikawa swimming area exceeded MPN 240/100 ml and January 59 samples were worse. The Surgeon then advised Special Service

Officer that beach should be closed.

3. February 1959: RIMD-PM made a sanitary survey of Ishikawa area and found affecting beach water, a ditch 200 yards north of beach limit carrying sewage from part of Ishikawa City and discharging it into ocean; the sewage from remainder of Ishikawa City—to make it worse, a sand bar at river mouth with a north-south axis tends to hold this source shoreward. Conclusion: “To make the beach safe would require an expensive system of sewage collection and treatment for Ishikawa City.” Recommendation: “Military bathing in this area be prohibited.”

This was one of the earliest environmental problems after the war. I call it a “problem” because, as is indicated in the above quote, Ishikawa Beach pollution would be discussed, addressed, and result in the construction of a new integrated sewage and sewage disposal system to be completed in 1967. None of the potential environmental issues already indicated in my discussion of the late 1940s and early 1950s had gone through a process like Ishikawa Beach did. The Ishikawa Beach pollution situation highlights how and why individual issues develop and become recognized as an environmental problem.

Indeed, the Ishikawa Beach pollution problem was invisible in Okinawa prefectural documents. The problem emerged with the military because the beach was then reserved for the military and not open for civilian use. The military’s recreational values attached to the environment, which were not shared by civilians who had difficulty surviving let alone enjoying recreational activities, conflicted with the way the civilian population used the river as a dumping place. We cannot hastily blame the farmer who dumped his night soil into the river, however. Ishikawa City was one of the fastest growing cities in postwar Okinawa, for dislocated people were forced to gather there by the military. Because of this situation, Ishikawa City played a central role in rehabilitation activities, from cultural to political to economic. The capacities of the city were exceeded so quickly that the traditional way of living couldn’t coexist with the postwar havoc. In this sense, then, Ishikawa was demolished twice in the direct aftermath of the war.

If it were not for the U.S. military’s interest in the recreational use of Ishikawa Beach, the Ishikawa Beach pollution would not have been recognized as a problem in the late 1960s. Different ways of using the environment made the Ishikawa Beach pollution visible. It was recognized as “pollution” not only because the beach was contaminated by sewage from Ishikawa City, but also because the quality of the water prevented the military from receiving the benefit of using the environment for recreation. This was a time when Okinawan infrastructure was increasingly developed, and as a result, we can see new ways that people interacted with the environment. Through the inevitable connection between the environment and the U.S. military, here we can see how Okinawan environmental problems in the post-rehabilitation period gradually took form.

As discussed thus far, when we think about modern Okinawan environmental problems, we ought to trace how the Okinawan environment was treated, changed, and conceptualized in postwar Okinawa. In this particular discussion, I focused on 1945 to 1950 in hope of illustrating the process through which contemporary environmental problems

were recognized. The war created the most devastating environmental problems through the demolition of both the physical and social environment. Postwar rehabilitation activities were thus considered environmental restoration activities from the war; however, because postwar activities included some strategic military imperatives, the rehabilitation activities themselves went on to become problems. As already pointed out, public health and agricultural development contributed to the improvement of Okinawan people's lives, yet at the same time, both proved to be latent issues that later on helped lead to, for example, the reversion movements, an inferiority complex, and/or environmental problems.

Conclusion: Toward Okinawan Environmental History vis-à-vis American Environmental History

As indicated in my discussion, post WWII Okinawa between 1945 and 1972 was under American military administration, and environmental issues in Okinawa during that era cannot be fully studied without considering American cultural and political standpoints. This also means that, without understanding trends in American culture and history, our understanding of Okinawan environmental history would remain partial; more importantly, this means that American environmental history cannot be separated from areas that are under its influence, and studying Okinawan environmental issues inevitably requires a recapitulation of American environmental history and its narrative.

It is our general understanding that environmental history as a discipline in the U.S. emerged in the 1960s and 1970s when domestic environmental issues became very popular in American society. Rachel Carson's *Silent Spring* (1962) was published and widely read, and many popular environmental movements were initiated. Donald Worster's *Nature's Economy: A History of Ecological Ideas* (1977) was the first example of its kind. Worster looked at how science in Western civilization played a critical role in forming ecological ideas and historically analyzed that Western-oriented ecological ideas can be divided into "arcadian" and "imperialist" positions. While his approach was criticized by later historians for its simplistic view toward nature and ecology, Worster's accomplishment was that his approach considered how a whole civilization or culture—not particular individuals—perceived and valued the natural environment and its organisms. In other words, Worster took human imagination and experiences more seriously into consideration than material resources when inquiring into the past.

Carolyn Merchant spoke to major trends in environmentalism from feminist and multicultural perspectives in the twentieth century. *The Death of Nature: Women, Nature, and the Scientific Revolution* (1990) argued that Western science has to be blamed for its harmful impacts on nature and women. Like Worster, Merchant problematized Western science; yet, unlike Worster, she was critical in analyzing the issues of gender and race in environmental problems. Merchant tried to reveal imposing hierarchical class and gender structures upon people and culture and further, looked for an ethical space in the inquiry

into environmental history, arguing how we could find a better place as well as how to build a just society in this world.

William Cronon's *Nature's Metropolis: Chicago and the Great West* (1992) and his edited book *Uncommon Nature: Rethinking the Human Place in Nature* (1995) are considered exemplary efforts in environmental history, focusing more on the bilateral yet polemical relationship between capitalist market growth and the natural system. He attempted to reveal how nature is socially, economically, and culturally constructed. Along with Donald Worster, Cronon assumed that humans and nature interact, influence, and shape each other through cultural and environmental systems; therefore, this position acknowledges that human/nature or culture/nature relationships cannot avoid being a polemic issue in process, not static.

Robert Gottlieb's *Forcing the Spring: The Transformation of the American Environmental Movements* (1994) extended the issue of fairness in the environment to other minorities and grass-roots environmental movements since the end of nineteenth-century America. Gottlieb contended that mainstream environmental organizations and movements failed to recognize urban environmental problems and minority issues; furthermore, he argued that traditional conservation and preservation issues had become so professionalized and bureaucratic that they were unable to tackle more individual, communal environmental risks such as toxic waste, which he suggested should be also considered "ecological" problems.

Among scholarship on environmental history, I am especially indebted to Samuel P. Hays's *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955–1985* (1989). Hays argued that American environmental values dramatically changed after WWII, examining various topics such as pollution, population, science, and politics. He considered WWII to be an event that conveniently contrasts old and new values concerning the environment. For Hays, these contrasted values had to do with a shift in the mode of production into a post-manufacturing society in which the environment was increasingly treated as a commercial good, a source of recreational activities. Here, the importance of war and the war experience on the environment were acknowledged and yet not substantially explained.

Just like Hays's lack of attention to WWII and its impact on the environment, most environmental historians haven't accounted for the relationship between war and the environment. As I have roughly shown in some of the basic trends in environmental history scholarship in late twentieth-century America, it is safe to say that the scholarship on environmental history generally follows the intellectual history of America, including race, gender, minority, and urban issues. Nonetheless, it is obvious that American environmental history hasn't paid much attention to foreign areas where America retains its political and cultural power. As a result, American environmental issues overseas don't seem to be internalized in the environmental discourse.

Studying Okinawan environmental history, therefore, enables us to not only shed light on the neglected topic of the war and the environment but to also critique the way in

which American environmental history has treated its themes and focused on domestic issues. This line of critique might remind us of Alfred W. Crosby's *Ecological Imperialism: the Biological Expansion of Europe, 900–1900* (1986), which studied the relevance between ecology and European civilization. Crosby's argument focused on the foreign species that invade and destroy original species or ecosystems; however, it didn't include imperial or colonial issues inherent in environmental ideas. On the other hand, as I emphasized throughout this paper, Okinawan environmental history requires us to reveal how environmental issues take form and change form through time and human interaction. Just as I showed that the issues of DDT or conservation in Okinawa are inseparable from the trends in American domestic environmental ideas at work then, we have to go a step further and inquire about how American foreign policy and activities at present and in the past can be the object of environmental discourse, by scrutinizing how/when environmental ideas turn into imperial desires.

I started out my discussion by introducing the 2009 incident of the uncovered dud explosives from the battle of Okinawa because I think they embody the way I think Okinawan environmental history has relevance. The incident stands out as one of the environmental risks and hazards derived from the war that still jeopardizes people's health, safety, and livelihoods; they will continue to do so for a long time. In this sense, dud explosives transcend place and time, and they embody what I have argued for in the formation of a concept of the environment in postwar Okinawa. Therefore, what is required in our discussion of Okinawan environmental history is, for example, to re-conceptualize and problematize the risks that encompass war experiences and memories, victims and enemies, the past, present, and future of their meanings. Not solely critiquing American environmental history and fetishizing Okinawan experiences with the environment, we also have to hold it up as a self-reflective critique to ponder how Okinawan environmental history is connected with and influenced by venues other than America and Japan. We can ask, for example, if there is any Okinawan environmental responsibility concerning wars that the U.S. military has been involved in. During the Vietnam War, for example, various types of bombs were dropped from airplanes based at Kadena Airbase in Okinawa. Are Okinawans ethically responsible for the resulting environmental destruction? Furthermore, detergent used in cleaning those returning airplanes from Vietnam at Kadena Airbase became an issue as one of the pollutants in nearby rivers in 1960s Okinawa. In this particular context, too, Okinawan environmental history is expected to internalize environmental issues within itself without reducing the issues to a problem between Okinawa and the U.S. military.

In January of 2008, a Northern District of California judge admitted that "the U.S. Department of Defense (DoD) had violated the National Historic Preservation Act (NHPA) Section 402 by failing to "take into account" in the planning for the construction of a U.S. military base in Henoko and Oura Bays the effects of the construction on the dugong (*Dugong dugon*), a Japanese "natural monument" (Yoshikawa 2008, Sekine 2008). The Judge "ordered the DoD to comply with NHPA Section 402 by generating and

taking information into account ‘for the purpose of avoiding or mitigating adverse effects’ on the dugongs” (Yoshikawa, 2008). Some argue that the dugong case brings out some new issues relevant to environmental law, the Japan-U.S. security relationship, and Okinawan anti-military movements (Yoshikawa 2008, Sekine 2008). This is an example through which to view how an environmental issue can transcend place and time in the future. Just as there was an interrelationship between military activities in Okinawa after WWII and the environment, as environmental awareness continues to expand and transcend, we can expect environmental critique to have an even greater impact in the future of Okinawa and its related areas.

Notes

- 1) For the discussion of the war and environment, see Hiroaki Fukuchi’s *Kichi to Kankyo-osen* (Dojidai-sha: Tokyo, 1996), Okinawa Prefecture Military Base Affairs Office, “U.S. Military Issues in Okinawa” [http://www3.pref.okinawa.jp/site/contents/attach/7005/pamphlet\(Japan\).pdf](http://www3.pref.okinawa.jp/site/contents/attach/7005/pamphlet(Japan).pdf),
- 2) For my discussions about Okinawan environmental history, see “What is Okinawan about Okinawan Environmental Problems? An Outline of the Okinawan Cross-Cultural Experiences in the 1970s.” *The Okinawan Journal of American Studies* 2 (2005): 48–52; “‘Ishikawa Beach’ and ‘Bishagawa’ Pollution in the USCAR Files—the Idea and Structure of ‘Pollution’ in the Postwar Okinawan Environmental Problems.” *Okinawa and Hawaii: Islands Contact Zones [Okinawa to Hawaii: kontakuto zoon to shitenno Toshō]*. Eds. Masahide Ishihara, Ikue Kina, Shin Yamashiro. Tokyo: Sairyusha, 2010. 219–238.
- 3) Yuki Fujime (Fujime 2010) delineates the pre- and postwar history of sexual assaults in the process of militarization in Hiroshima. The framework of my argument here is partly indebted to her book.

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