

Chapter 2

SLOW VULNERABILITY IN OKINAWA



Introduction

Vulnerability is often understood as a condition of defenselessness to the surrounding environment. To be vulnerable is to be susceptible to physical or emotional harm. Human beings may find themselves vulnerable in the context of violent warfare, in the presence of provoked venomous snakes, and in the throes of global economic instability. Yet there is no satisfactory verb to describe the act of being made vulnerable. “Vulnerability” is rather conceived of as a state or a quality, comparable to a noun such as “powerlessness” or an adjective akin to “defenseless.” In Japanese, a person can be easy to wound (傷つけられやすい) and a group of people can be characterized as socially vulnerable (社会的弱者). However, both the English and Japanese languages could be vitalized by a verb that describes more fully the process of being made vulnerable or “vulnerabilized.” In this chapter, I argue that social, political, and environmental vulnerability in Okinawa is not static; rather, vulnerability is a processual phenomenon that must be situated historically to be properly understood. This chapter reconsiders the relationship between violence and vulnerability by attending to the problem of time. Temporality is crucial to understanding the long-term effects of colonization and war, the experiences of those who are vulnerabilized, and the expression of this vulnerability in Okinawa today.

Animals, Violence, and Vulnerability

Forests full of Itajii (*Castanopsis sieboldii*), numerous valleys and flowing rivers, and the sea surrounded by Inoo (lagoon)... Stretching from north to south and with only a short distance from the mountain recesses to the sea, Yamaru consists of diverse environments that change in a variety of ways. The creatures

of Yambaru use various environments in intelligent ways and live closely linked together. The nature of Yambaru supports human beings too, who are also closely connected to other creatures and the natural environments.

—Exhibit caption on “The Nature and Creatures of Yambaru”
Ufugi Nature Museum, Kunigami

Vulnerability in Okinawa is expressed through animals. Since it was first formally described by scientists in 1981, the Okinawa rail (in the Okinawan language, *Yanbaru/Yambaru kuina*), has become the cultural, touristic, and conservationist mascot of northern Okinawa’s Yambaru region. The Okinawa rail is a rare flightless bird endemic¹ to the main island, an area famous for its natural beauty and rare semitropical forests. The rail’s inability to defend itself against both “natural” predators such as the venomous *habu* (pit viper), and “unnatural” predators, primarily the mongoose (an invasive species), make the bird particularly powerful as a symbol of Okinawa’s environmental vulnerability. More recently, human automobile drivers have also killed the nocturnal bird known for crossing rural roads at dawn.

I first learned about the rail, the habu, and the mongoose while hiking on group forest treks in the northern Yambaru Area of Okinawa Island. Our guides’ lively moralized stories about these three animals’ relationships to the landscape, to humans, and to each other are what first led me to think about nonhuman animals as agents of environmental change in Okinawa. The nature of the human-animal “close connections” alluded to in the epigraph can be more fully understood by combining two histories that are often told separately: (1) the mongoose’s environmental colonization of Yambaru, and (2) Japan’s political and economic colonization of Okinawa.

In this chapter, I argue that the sensationalized “violence” enacted between a pit viper and a mongoose in a contemporary, touristic context reflects a much larger history of economic violence. This violence began when Japan’s development of an expansive sugar industry on Okinawa Island during the late nineteenth century thrust Okinawa into a volatile global economic system. Sugar quickly became a quintessential vulnerabilizing cash crop that intensified the links between humans and animals during this period—both intimately, to each other, and to the larger economic and environmental imperatives that prompted new forms of interspecies contact on the island.

The environmental vulnerability produced by the “sugaring” of Okinawa exploded into an acute crisis during the 1945 Battle of Okinawa, which destroyed much of the southern and central part of Okinawa. Compared with the overwhelming environmental devastation wrought by World War II, sugar’s relatively protracted agricultural “assault” on the Okinawan landscape may appear insignificant. Even so, Okinawa’s current economic structure

and environmental challenges cannot be adequately understood without attending to historical processes large and small, and to violent forces fast and slow. Stories of the *habu*, the mongoose, and the Okinawa rail can be told in many ways; in this version, I emphasize time as the narrative vector that connects Okinawa's nineteenth-century political economy with today's tourism imperative. Through the creation of a multispecies narrative history we can begin to understand the legacy of colonization and war on Okinawa's "untouched" northern landscape, and how this history continues to shape the "conditions of possibility" (Foucault 2002) for contemporary island tourism.

Animal Actors

Mr. Uchihara, a cheerful man in his mid-sixties, jumped on stage wearing amber-colored glasses, a tropical Okinawan *kariyushi* shirt, and a headband reminiscent of an Okinawan *eisaa* drummer.² Welcoming about a dozen visitors to the habu-mongoose show at the Izumi tourist rest stop in Nago (see Figure 2.1), he encouraged us to take pictures before things had even started.



FIGURE 2.1 • Advertisement for Habu-Mongoose Show, Nago

“Did you know that a pit viper can survive without food for six months?!” Uchihara asked, warming up the audience by sharing some bits of trivia about the snake we were there to see. A few months earlier, I had seen an entirely computer-simulated habu-mongoose show at a nearby cultural theme park. After hearing that these shows were no longer “real,” I was unsure what to expect.

Suddenly he surprised us all by whipping the lid off a large plastic garbage can tucked in a corner of the room to produce a real live yellow- and white-spotted snake. Of the four poisonous snake species on Okinawa Island, he assured us, this was not one. He enticed a few nervous children to go up on stage and try on the harmless “boa” for size. “Click! Click! Click!” went their parents’ mobile devices. “Remember to use your flash!” he repeated, clearly concerned with the quality of our photos. I did not desire this particular memory, not even for fieldwork. Was it too late for me to flee on the grounds of animal cruelty? As though reading my mind, Uchihara singled me out as the only non-Japanese tourist present, and stated that my foreignness made it doubly important for me to enjoy the experience. He brought the snake closer, suggesting that I hand my camcorder to my neighbor for a photo opportunity. I shuddered, and was immediately embarrassed by my reflexive recoil. I very tentatively grazed the snake’s skin with my fingertips, then placed the luckless creature back in its garbage can.

“And now, for the real thing!” Uchihara shouted merrily as he used a shiny metal hook to scoop out a habu from an adjacent can. He squeezed the base of the snake’s head, forcing its jaws open to reveal a sharp pair of fangs. He swung the snake around effortlessly, manipulating its poses like a master puppeteer. There were a few squeaks and tremors from the audience, but most people appeared to trust him to keep us alive through the end of the show. Pointing to the snake’s brown-grey triangular head, Uchihara taught us that head shape is the easiest way to determine whether a species is poisonous, and commanded, “Repeat after me: I will not touch this outside.”

After a few more minutes of showing the habu, Uchihara returned the snake to its plastic lair and pulled down a giant projector screen. He stood before us and began recounting the history of the live habu-mongoose show we were *not* about to see: “It’s funny, isn’t it? It’s okay for dogs to fight dogs, and for bulls to fight bulls. And people fight people, right? But to pit one animal against a different species is illegal. This is a very unusual law. They say Japan is the only place in the world with a law like this.” I was surprised by his disapproval of what seemed to me like a fairly reasonable (if imperfect) moral delineation, but as he continued I began to understand his logic: “It’s okay for a human to kill a mongoose, and it’s okay for a human to kill

a habu.³ These animals are exterminated! But it's not okay for us to let them kill each other. The fine for doing this is ¥1,000,000 [\$12,000]!”

Anticipating a tinge of disappointment from those of us who had hoped to see a live show, he reassured us that we were still in for a rare treat, because this “precious” film could only be seen at his habu house. The film was about four minutes long, and this version was indeed on the “real” end of the violence spectrum. After opening with an aerial view of Yambaru’s lush green forests full of chirping birds and leaping frogs, we were plunged into the midst of a battle: an angry-looking snake stared us down, accompanied by an ominous surging soundtrack reminiscent of the film *Jaws*. Then a vicious-looking mongoose appeared, swaying to the mesmerizing beat of Indian *tabla* drums that invoke its geographic homeland. The mongoose panted and hissed and the habu darted wildly around it, both angling to strike. For a while things looked promising for the snake, but the mongoose was victorious.

The lights came back on, and set before us was the real live champion. “Meet Michiko!” Uchihara cried. Michiko was a twelve-year-old fighting mongoose that Uchihara described dotingly as “undefeated” despite her smaller stature. He kneeled down and cooed to her, “Oh, Michiko...,” making everyone laugh. Her medium brown fur was surprisingly fluffy, and she yawned and stretched as she cleaned herself within the confines of her small metal cage. As with the habu, nobody was allowed to touch Michiko. Her eyes danced curiously around the room while Uchihara spoke. After we met Michiko, the show quickly devolved into a sales pitch for habu-derived male potency pills and other snake by-products.

At the close of the show I approached Uchihara and Michiko to introduce myself. The stench of urine emanating from the newspaper that lined her cage was overwhelming, and made it difficult for me to imagine her as anything much scarier than a guinea pig. Up close she was even cuter, though her rhythmic shimmying turned into a nervous circular pace as I approached. I asked Uchihara a few more questions about his views on habu-mongoose fights, and he explained that he and his colleagues had been running these shows for over thirty years: “This is our *work*,” he reiterated. Shortly thereafter he tried to recruit me to talk to the prefectural government on his behalf, saying, “You’re a student! Maybe they’ll listen to you.” I politely excused myself to purchase some snake oil.

Staged performances such as the habu-mongoose show described here are naturalized and sensationalized in Okinawa for a variety of profit-driven and political purposes. These animals are framed as natural enemies by the tourism industry, through local conservation initiatives, on postcards and in cages; their actual recorded histories belie a much more complicated biological and political relationship.

Animal Actors *in situ*: “And now, for the real thing!”

Okinawa Rail

The Okinawa rail has not always been endangered, and it has not always been restricted to the forests of northern Okinawa. As a sixty-year-old Yambaru retiree put it: “That bird was so common it hardly had a name. We used to eat it.”⁴ First formally described by Japanese ornithologists in 1981, the rail has many official monikers: Okinawa rail (English), *Gallirallus okinawae* (Linnaean), Yambaru kuina ヤンバルクイナ (Okinawan), and 山原水鶏 (Japanese).⁵

The rail’s population was estimated at around 1,800 in 1986, but by 2004 this number had dropped to somewhere between 700 and 1,000. The bird’s transformation from an unremarkable forest dweller to an endangered species and national treasure began when two Japanese researchers from the Yamashita Institute of Ornithology published an article based on a dead specimen they discovered in the northern village of Kunigami. Until World War II, the bird could be found in many parts of Okinawa Island, but much of its forest habitat was destroyed during the Battle of Okinawa and, to a much greater extent, through postwar urban reconstruction. Jun Ui, a leader in Japanese environmental studies, estimates that 90 percent of Okinawa’s “pristine nature” has been lost since the 1972 Reversion (McCormack 1999: 270). Both these events were catastrophic for the bird, driving it farther and farther north until, according to an administrator I met from the Ministry of Environment, it could no longer accurately be called the “Okinawa” rail. Thus, it came to be known by its current northern habitat as the national protected species: *Yambaru kuina*.

The kuina can run fast, jump high, and flutter, but it cannot fly. It roosts in trees, especially *Itajii* (evergreen chinquapin), and forages for small frogs, snails, and lizards on the forest floor. Its eggs commonly fall prey to forest crows and the habu. The pint-sized bird which weighs around 430 grams and has a wingspan of about fifty centimeters, is also eaten by mongooses, abandoned stray dogs, and feral cats.

Habu

Habu is the Japanese term for a variety of native venomous pit vipers found in Okinawa. Adult Okinawa habu (*Trimeresurus flavoviridis*) and Hime habu (*Ovophis okinavensis*), the two species most commonly found on Okinawa’s main island, are between 120 and 150 centimeters long. Like the kuina, the

habu is nocturnal, but its habitat is much more diverse: it can live in forests and fields, on mountains, and near small bodies of water. One may even encounter a habu seeking shelter (or rodents) in old sheds and around family tombs. The habu often resides somewhere between open palm forest and cultivated farming areas, increasing its likelihood of contact with humans.

Mongoose

The small Indian mongoose (*Herpestes javanicus*) was introduced to Okinawa Island in 1910 as a “biological pesticide,” a chemical-free alternative to controlling the habu and the black rat (*Rattus rattus*), both of which are detrimental to sugarcane farming. The mongoose prefers drier forest and scrublands, but it can tolerate areas with fairly dense human populations and is notorious for raiding chicken and egg farms. It is an opportunistic feeder that ranges from 50 to 65 centimeters in length. Mongooses subsist on insects but also eat amphibians, reptiles, birds, and bird eggs.

The Japanese term for “invasive species,” *gairaishu* (literally “species that comes from the outside”), can also be translated as “introduced,” “non-native,” “foreign,” or “alien” species. English-language literature on the mongoose (cf. Yamada and Sugimura 2004) commonly refers to the animal as “invasive,” owing to the degree of harm it is perceived to cause in its new environment. The politics of naming, labeling, and categorizing animal species according to their geographic origin greatly influences discourses of natural heritage, biodiversity, and vulnerability in Okinawa. Moralized discourses of the villainous mongoose, the pathetic kuina, and the dangerous habu are brought to life for Okinawan and tourist consumption and contrived through performances such as habu-mongoose shows. The commoditized versions of their “cultural biographies” (Kopytoff 1986) and interrelationships—as natural or unnatural, right or wrong, funny or tragic, fair or unfair—are couched in an environmental politics that elides much deeper historical connections.

During fifteen months of fieldwork in Okinawa, I saw plenty of kuinas: stuffed, drawn, carved, sculpted, and sold. Only once did I manage to see a live kuina as it paced frantically behind the glass walls of a cage at NeoPark Okinawa, an animal park in Nago City. One of my ecotour guides pointed out its loud, distinctive morning call while we were hiking, but the Ufugi Nature Museum’s taxidermic version, complete with recorded vocals, brought me as close as I could get to the bird without receiving special permission to visit a kuina rehabilitation center. When I asked one of the museum’s employees why it was so difficult to find a live kuina, she asked me in return why I expected it to be easy: “They are, after all, still *wild*.”

Type-casting

Aside from when the kuina becomes front-page news following a gruesome roadkill incident, or darts successfully across the road in a streak of good timing, most people in Okinawa experience the rare bird as caricature (see Figures 2.2a–2.2d).



FIGURE 2.2a • *Giant Yambaru Kuina, Churaumi Aquarium, Motobu*



FIGURE 2.2b • *Kuina in Training, Tourism Welcome Center, Kunigami*



FIGURE 2.2c • *Cuddly Kuina Mascot at Waterfowl Festival, Naha*



FIGURE 2.2d • *Crying Kuina, Kunigami*

Whether it is wallowing in a pool of its own tears, nurturing its young in the form of a gigantic Chia Pet, pumping iron for self-protection, or bumbling around as a playful children's mascot, in Okinawa the kuina has become an icon of all things endangered. The Ministry of Environment and nonprofit organizations such as the Kunigami Tourism Association regularly invoke the kuina in the promotion of conservationist agendas. Its "cuteness" has also made it extremely marketable on t-shirts, postcards, posters, and as stuffed animals sold at tourist hubs across Okinawa.

Habu are not considered endangered, and most farmers attempt to kill them on sight because of the health hazard they pose. Today, habu bites are not usually fatal if medical care is sought immediately, but they occasionally cause paralysis. (Bodily risks are compounded if one is unfortunate enough to be bitten multiple times.) According to Uchihara, the master of ceremonies at the habu-mongoose show I attended, until an effective serum became available in 1963, 75 percent of people bitten died within twenty hours (96% if bitten a second time, 99% if bitten a third time). Colorful habu warning signs are frequently posted near forested hiking trails, on university and lower school campuses, and around popular tourist attractions.

Habu warnings are much more likely to be encountered than the snake itself. Most Okinawans I spoke with have happened upon a live habu once or twice, and I was often told to avoid parks after dark to prevent contact with habu. I once saw a dead habu sprawled on the side of the steep winding road that leads to Kunigami's Yonabaru Forest, but most encounters I had with live habu were through glass. The first time I saw a habu, it was preserved in a jar of clear alcohol and for sale on International Street (*Kokusaidōri*), Naha's main tourist strip.

Habu are hunted primarily for extermination purposes and to produce *habu-shu*, a snake-infused version of the popular Okinawan distilled rice liquor *awamori*. Hunters can be paid more than ¥5,000 (\$40) per snake. *Habu-shu* is considered a gourmet souvenir and sells for anywhere from ¥10,000 to ¥80,000 yen (\$85 to \$700), depending on the size of the snake and the quality of the alcohol.

Unlike the kuina and the habu, the diurnal mongoose can be seen crossing the road by people living in Yambaru. Outside a museum or theme park, I saw a mongoose only once and nearly mistook it for a small feral cat when it darted in front of me near my apartment in Nago. Like the kuina and the habu, the mongoose is most commonly witnessed in the abstract (see Figures 2.3a and 2.3b).

The mongoose was imported to combat pests on sugarcane plantations in southern Okinawa, but it was unexpectedly prolific; by the 1990s it had spread throughout the central part of the island and was encroaching on the north. Okinawa Prefecture and the national Ministry of Environment



FIGURE 2.3a • “Mongoose Northward Prevention Fence,” Yonabaru Forest, Kunigami



FIGURE 2.3b • Ministry of Environment “Mongoose Busters” Extermination Program Logo⁶

have jointly sponsored the “Yambaru Mongoose Busters,” a volunteer-driven program based in the north that aims to eradicate the mongoose from the prefecture. Imagery generated in connection with these efforts reifies the interspecies morality play described in popular accounts. The Mongoose Busters logo (Figure 2.3b) presents the mongoose and the kuina together in a stark, abstracted manner that emphasizes the “*batsu*” (incorrect) nature of their unnatural relationship. (The red *x* in Figure 2.3b is a symbol commonly used to flag mistakes and errors; here *x* marks this particular animal dynamic as wrong.) The mongoose is the banned aggressor, depicted in black, while the kuina is the innocent victim in white.

Paired images of the mongoose and the habu imply a similar kind of power imbalance, but they are completely different in tone. The habu-mongoose show sign in Figure 2.1 celebrates the violence of the foreign mongoose against another of Okinawa’s native species and exploits it for profit at ¥300 (\$2.50) per ticket.

Legendary Propaganda

A legend is a story coming down from the past, one popularly regarded as true, but not historically verifiable (see Figure 2.4). Kay Milton (2002: 150) discusses myth in the “popular sense that it is false,” and in the anthropological sense: “that it is believed in and dogmatically asserted because it protects particular interests and ideologies.” Legends can also be thought of as myths of recent origin. In this sense, the habu-mongoose fight is doubly legendary: a recent myth, whose persistence maintains certain Okinawan ideologies of indigenosity and invasion.

In addition to the moral and narrative dimensions already described, popular perceptions of species vulnerability in Okinawa are shaped by the kinds of images provided this chapter. The kuina falls prey to both the habu and the mongoose, yet the relationship between the habu and the kuina is considered natural because these two animals are both Okinawan. As an invasive species, on the other hand, the mongoose is subject to much greater scrutiny and more aggressive extermination tactics because it does not “belong.”

The habu-mongoose dynamic in Okinawa can also be regarded as “unnatural” because of the animals’ opposing activity cycles. Without human intervention, they would only rarely encounter one another in the wild and should therefore be considered “legendary” rather than “natural” enemies. Furthermore, though it possesses immunity to viper venom, the small Indian mongoose has to be trained to eat snake meat through regular pre-fight exposure to its smell and taste. Nor is the fight evenly matched—the mon-



FIGURE 2.4 • *Tourist Habu-Mongoose T-Shirt: “A Battle of Legend”*

goose wins more than 90 percent of the time, sustaining little more than a temporary limp if bitten.

Habu-mongoose interaction has been symbolically naturalized by spectacles that pit one animal against the other in a death match. These shows were held live until 2000, when they were outlawed as Okinawa fell under intense

international scrutiny while hosting the G8 summit. The subsequent shift in narrative is reflected in an English-language handout I was given explaining a “swimming competition” I watched between a sea snake and a mongoose at the theme park Okinawa World: “Now, the death match is replaced by a friendly swimming competition, promoting love and peace.” According to Uchihara, as of 2011 the bloody live version can only be found on Amami Ōshima, a small Ryukyu island north of Okinawa that belongs to Kyushu Prefecture.

Theodore C. Bestor (1989: 2) distinguishes between tradition understood as historical continuity and tradition understood as *traditionalism*, which he defines as “the manipulation, invention, and recombination of cultural patterns, symbols, and motifs so as to legitimate contemporary social realities by imbuing them with a patina of venerable historicity.” The manipulation and antagonizing “recombination” of the habu and mongoose can be imagined as a traditionalistic performance: these animals are cultural symbols for “native” and “invader” in a contemporary Okinawan social reality shaped by powerful discourses of vulnerability, heritage loss, invasion, and endangerment.

By way of critiquing Eric Hobsbawm’s “invention of tradition” hypothesis (Hobsbawm and Ranger 1983), Marilyn Ivy (1995: 21) resists analytical binaries such as invention/authenticity, fiction/reality, and discourse/history. Ivy settles instead on the term “phantasmatic” to characterize the late twentieth-century reinscription of Japan’s cultural and historical erasures in response to popular anxieties over the loss of national identity. For Ivy, the phantasm is “an epistemological object whose presence or absence cannot be definitively located” (1995: 22). The historical origins of the phantasmatic event can never be sufficiently pinpointed; rather, the origin of an event “emerges as such only through its displacement” (22). In the habu-mongoose fight, the animals and the show event itself are “displaced” in what Ivy calls the “second event”—as opposed to the first fight, which took place somewhere between the Okinawan imaginary and South Asia. The habu and the mongoose represent the “nature that culture uses to make second nature” (Taussig 1993, quoted in Ivy 1995: 21), through the production of a second event. Digitally simulated and (re)produced clips of staged habu-mongoose fights might then be regarded as a “third event”—the mimesis of a mimesis.

Today, habu-mongoose shows in Okinawa are comprised of filmed reproductions and computer simulations replete with dim lights and dramatic soundtracks. The virtual simulation of an always already simulated fight perpetuates the legend in a manner that further collapses the distinction between reality and representation, real and imaginary (Baudrillard 1994: 3). To be sure, the actual habu-mongoose fight is only “really real” (Geertz 1973: 443) to the animals. When placed in a ring together, the two will fight, and at least one (usually the snake) will die. Their antagonistic relation-

ship can also be described as “hyperreal,”⁷ Jean Baudrillard’s (1994: 1) term for the “generation by models of a real without origin or reality.”

And yet, as Clifford Geertz observes in a study of the Balinese cockfight, these matches invoke important cultural themes that also pervade contemporary life in Okinawa, including death, loss, and vulnerability. The habu-mongoose fight presents one view of the “essential nature” of these dominant discourses, “rendering ordinary, everyday experience comprehensible by presenting it in terms of acts and objects” (1973: 443). Here the metaphorical finds dramatic, violent expression in the bodies of two animal actors—“actors” who can be viewed jointly as dramatic performers, and as nonhuman agents of social change (cf. Latour 2004). What caused this fight? Is there a really real story? The history that follows reveals the material origins of this mythical pairing.

Setting The Scene

One version of the story begins like this:

In 1910, a leading Japanese biologist could not ignore the fact that hundreds of Okinawans died every year from venomous snakebites. He decided to apply the natural enemy theory, and released 17 mongooses in Okinawa, where they are not an indigenous species. In 1981, a new species of bird called the Okinawa rail was discovered in the Yambaru, the northern forest area of the island. Almost at the same time, researchers for the first time realized that the original population of 17 mongooses had increased to about 30,000, thus placing the Okinawa rail and other indigenous species on the verge of extinction. Today, the foreign predators are conquering the Yambaru, the safest haven of the Okinawa rail.

—Yas Mamemachi (Detour Japan n.d.)

“The Mongoose Conquers Indigenous Species in Okinawa”

Detour Japan website editor Yas Mamemachi begins his posting in an online series on “The Fear of Foreign Species” by summarizing the history of the specific interspecies relationship that troubles many Okinawan and mainland Japanese conservationists today.⁸ Literature from biology, history, and anthropology shine light on social, political, and environmental vulnerabilities. Newly shuffled sources narrate a re-contextualized story of the factors that have gradually led to the kuina’s demise, and offer alternative plotlines often drowned out by presentist cries of “Save the kuina! Kill the mongoose!”

While many foreign species are introduced accidentally, the mongoose’s forced “invasion” of Okinawa Island was deliberate and well documented.⁹ Describing the seventeen mongoose pioneers, wildlife biologists Fumio Yamada and Ken Sugimura (citing Kishida 1931) write that “six males, six

females and five individuals of unknown sexes were trapped in what is now Bangladesh and taken to Okinawa Island by Dr. S. Watase” (Yamada and Sugimura 2004: 118). These individuals reached sexual maturity at around four months and expanded their range rapidly (by approximately one kilometer per year) from their original site of release in Naha.

The kuina has been designated one of Japan’s Natural Monuments,¹⁰ but the mongoose is not without its titles. In 2000 the International Union for Conservation of Nature identified it as one of the “World’s 100 Worst Invasive Alien Species” (IUCN 2000; Yamada and Sugimura 2004: 118). The mongoose has earned this title in part because there is no clear evidence that it actually preys on the snakes it was introduced to combat (Yamada and Sugimura 2004: 120). Furthermore, in addition to eating (and thus in a sense creating) Japan’s “exotic species,” it causes even more damage to taro, sweet potato, melon, and sugarcane—the very crops that it was brought in to protect.

The predator mongoose is easy to hate but hard to kill. In addition to relying on volunteer efforts, the Ministry of Environment incentivized trappers with a bounty of \$45 (up from \$20 in 2000) per mongoose killed in 2003. Despite the combined efforts of Okinawa Prefecture and the national Ministry of Environment, only 1,290 mongooses were captured between 2000 and 2003 (Yamada and Sugimura 2004: 122). As I observed when hiking on ecotours, current methods of trapping over large areas are cumbersome and frequently capture the wrong animal.

Most mongoose narratives emphasize 1910 as the moment of rupture in Okinawa’s environmental history, eliding important connections between the mongoose “invasion” and Japan’s earlier colonization of the archipelago. The wildlife biology articles I consulted for information about the mongoose in Okinawa (e.g., Gosling 1989; Kishida 1931; Simberloff 2001; Yamada and Sugimura 2004) mention the nineteenth-century development of plantation agriculture, and historians explain the problem of snakes that drove the animal’s introduction to the island.

Follow the Snakes

The bite of a habu should be lanced, and a tourniquet applied above the wound as soon as possible after the snake has struck. The blood should then be drained from the area of the bite and the wound washed with potassium permanganate or treated with sulphur and heat. After bandaging, the patient should be immobilized and kept warm. The serum must be administered to snake-bite victims as soon as possible.

—Gladys Zabilka, *Customs and Culture of Okinawa*

The Japanese government wanted to tackle the problem of snakebites in Okinawa by non-mammalian means, as well. In 1905, Charles Leavenworth, a visiting history professor from Shanghai's Imperial Nanyang College, published a pamphlet describing a visit to the "Loochoo [Ryukyu] Islands."¹¹ In a section entitled "The Snakes," Leavenworth (1905: 44) writes, "A number of persons are bitten every year, and of these some die and others are injured for the rest of their lives, as a result of the poison." Leavenworth recounts his tour of a government-established snake laboratory where "the poison has been carefully investigated and a *Serum Antivenomicum*, prepared by the Japanese Government Serum Institute of Tokyo, is provided there for dealing with the snake-bites" (44).

Leavenworth's colorful description frames the habu in a familiar way: "seven hundred hissing monsters were there in wire cages ... An actor might have practiced there, as Demosthenes did before the sea waves, for a chorus of hisses could be heard on all sides" (44–45). These caged snakes were no more a threat to him than the pickled ones I encountered on Naha's touristy International Street in 2011: "As one passed along the rows, hideous snakes would rise and dart at one, until striking against the metal barrier, they would fall back in harmless inaction" (45). A bounty was offered for snakes at this time, too, but for a purpose predating the habu liquor market.¹² Fifty *sen*¹³ (former Japanese currency also used in Okinawa) was paid for a live habu "specimen," five for a dead one. Leavenworth alludes to the abundance of snakes on the main island, adding that "this ... was not an offer for an unlimited supply, but only for those which were needed for scientific work, for at that rate to all comers the treasury of the institution might be exhausted much sooner than the snakes." The historian concludes poetically: "It is an ill-wind, however, which blows no good and the writer was informed ... that the snakes do one useful service by eating the rats, which otherwise might do great injury to the stalks of the sugar cane" (45).

The "Spirit" of Okinawan Sugar

In early March 2011, a Nago Museum researcher, Mr. Yamato, invited me to join him at a museum-sponsored community volunteer sugarcane harvesting and pressing event. At this early juncture in my research, the *kurozatō* (black sugar) that is today ubiquitous on the dining tables of Okinawan homes, and at every tourist venue, meant little more to me than a breath mint. While driving along Okinawa's many winding country roads I had learned to recognize sugarcane fields, some of which bumped right up against major traffic arteries on the drive south to meet my scuba diving club at Odo Beach in Itoman City (see Figure 0.1). I had eaten molasses-flavored black sugar

chunks at all kinds of social gatherings, but I had no idea how it was made. Yamato convinced me to participate by insisting, “By doing this you will understand the Okinawan spirit.”

He picked me up near my apartment in Nago and drove me and his nephew Fumitaka, who was visiting from Tokyo for spring break, to a small sugarcane farm in the neighboring town of Motobu. The basic history he provided as we drove began with sugarcane being grown as a cash crop in the late nineteenth century, by the direct order of the Japanese Meiji colonial government. Then he quickly fast-forwarded to the 1960s, explaining to my surprise that the prevalence of sugarcane in Okinawa today is a direct result of the Cuban Missile Crisis, during which the skyrocketing international price of sugar prompted many more Okinawan farmers to convert their rice fields into sugarcane fields.

We parked next to the field and I borrowed some rubber boots and gloves from the trunk of his car. Two other volunteers were present—a married couple who also worked for the museum. The couple explained that they participated in these monthly museum-sponsored outings as a form of continuing education to keep them informed about things they identified as “traditionally” Okinawan.

Mr. Arasato, a tan farmer in his late sixties, introduced himself as the owner of the field and handed each of us a rusty machete. We walked single-file toward row upon row of unruly green and brown sugarcane stalks that shot out in all directions. Arasato demonstrated how to hack into the base of the stalk incisively, without injuring oneself. He paid particular attention to me as we practiced. Fumitaka and I were new to sugarcane harvesting but the others dug into their work with vigorous confidence. Arasato also showed us how to recognize and avoid rotting and mouse-ravaged stalks, which were no good for juicing and had to be tossed into a separate junk pile (see Figure 2.5).

The gnarled cane stalks grew close together, flailing wildly, and I had no idea where to begin chopping. I tentatively picked through a few stalks, looking around every couple of minutes to see if the others had some sort of divide-and-conquer strategy for cutting. I wanted to do it right, to be efficient with each strike. After watching me toil for about ten minutes, Arasato came to correct my grip on the machete. He offered some encouragement: “See, it’s easy!” Indeed, the task was not very complicated. Forsaking perfection, I slowly relaxed into the work and began cutting rhythmically. The sound of hacking permeated the field. “This *is* fun!” I thought as I started to sweat and grew more aggressive toward the cane with each blow.

Just as I was about to carve into some “really real” fieldwork, Arasato was back. He invited me to gather up the severed stalks and carry them to his pickup truck. He made a passing comment about leaving the chopping to the men, “This work is hard . . . ,” which I resented for a moment until



FIGURE 2.5 • *Okinawan Agrotourists Harvest Sugarcane, Itoman*

I looked around and realized how much more the others had harvested. I reluctantly relinquished my machete and instead began dragging the long, crooked cane stalks to the truck.

We had only worked for about twenty-five minutes when Arasato began gnawing on a piece of sugarcane rather loudly. He invited us to copy him as he peeled back the tough green skin with his front teeth. “It’s more fun to eat than to harvest, isn’t it? Kids today don’t know how to handle raw sugarcane,” he lamented. He bit further into the pulpy, fibrous, cream-colored meat of the stalk, and juice ran down his chin. I removed my gloves and attempted to peel back a small chunk of the stalk with my bare fingers. When this did not work, I decided to follow suit and bit straight into the thing. The sweet cane juice was refreshing and delicious.

We got back to work, and in less than an hour we had amassed enough sugarcane to fill the bed of Arasato’s truck. We drove a couple of miles back to his house, where he revealed his rugged, rusty sugarcane-pressing machine. The diesel-powered machine choked and sputtered as we began feeding the long stalks through its grinding metal teeth. As the crushed cane emerged on the other side, its murky juice squirted into a pail underneath. I lined up the straightest stalks for insertion, saving the twisted ones for someone more experienced. Arasato warned me to protect my fingers by gently guiding the cane through unforced. We had to stop production numerous times when

the stalks jammed in the jaws of the machine, but this was easily fixed by a little reverse heave-ho. My eyes traced the only visible power cord to a small generator that appeared to be connected to the truck's engine. Curious, I asked whether this was the “old-fashioned” way of pressing cane juice (see Figure 2.6); Arasato smiled and retorted that the truly old-fashioned method involved a cow pushing a cart in a circle.



FIGURE 2.6 • Agrotourists Operate Sugarcane Press, Itoman

After we had filled two large jugs with the dark amber-colored liquid, Arasato led us into his shed, where he had stoked a small fire. We sat on tree stumps encircling the fire pit while he served us hot black tea from a thermos. One of the other volunteers had washed some fresh potatoes and put them in a vat to boil. We munched on the hot potatoes sprinkled with Okinawan salt and chatted about the freezing weather, which was roughly 10° Celsius that day (50° Fahrenheit).

During a lull in conversation, I asked Arasato what he thought about the future of farm tourism on the island. He told me about his plan to begin hosting student groups over the next three years, predicting that a mixture of traditional farming and agrotourism (known in other parts of Japan since the 1970s and 1980s by the village revitalization catchphrase “*Nōgyō to Kankō*” or “Agriculture and Tourism” [Moon 1997: 221]) would be the most viable option in the future. I handed him my business card and invited him to email me with any upcoming farming volunteer opportunities. “Yes, my daughter has been meaning to set up my computer . . .” he replied. I apologized, embarrassed, and pointed to my phone number instead. He sent me home with a recycled PET bottle full of the raw juice and reminded me to boil it first before drinking.

Becoming “Sugar Islands”

To understand the Japanese government’s increased attention to snakebites in the early twentieth century (and hence the introduction of the mongoose as one possible solution to the problem), we must turn the clock back even further. Okinawa’s history of agricultural development in the context of colonization is crucial to understanding the changes that led farmers to spend substantially more time working in rapidly expanding, rodent-ridden cane fields and being bitten by habu.

Sugarcane (*satōkibi*) was never grown on a large scale for local consumption. The traditional Okinawan diet is based on sweet potatoes (rather than rice), which were first introduced from China’s Fukien Province around 1605 (Kerr 1958: 560). Sugarcane was cultivated in Okinawa long before more advanced production technology was introduced in 1623, but it was typically consumed raw or ground and boiled into a syrupy sweet liquid.

The Japanese government formally annexed the Ryukyu Islands in 1872, but Okinawa Prefecture was not established until 1879. What was Okinawa like before it became a formal colony of Japan? One traveler’s romantic mid nineteenth-century account reads as follows:

The prospect, as ships near the land in approaching the harbor of Napha [Naha], is beautiful. From the beach to the summit of the long and gently ascending

slope, nearly the whole surface seems to be in the highest state of cultivation. The different shades of green presented by the different winter crops; the uniform, terraced hills; the groves to relieve the uniformity of cultivated fields, and on the distant and even line of the summit of the ridge, the peculiar pines, with their limbless trunks and flat, broad, spreading tops, under which the deep-blue sky is seen, all conspire to form a most rich and highly cultivated rural landscape. (Gast 1945: 19)

This excerpt comes from agriculturalist James Morrow's "Report Made to Commodore Perry on the Agriculture of Lew Chew" (7 February 1854) for the 1853 United States Japan Expedition.¹⁴ Morrow's rendering of mid-nineteenth-century Okinawa suggests an agricultural abundance: "Every foot of ground appears to be carefully cultivated, unless from situation or barrenness cultivation would be unprofitable" (19). In addition to sugar, his report describes beans, rice, and patches of red and white sweet potatoes that "meet the eye in every direction" (20).

Historian George Kerr's (1958: 402) depiction of Okinawa in the 1880s paints a much less paradisiacal portrait of the island: "Okinawa had no potential wealth to exploit, and Tokyo did not have surplus wealth to invest in a profitless regional economy."¹⁵ Japan's policies toward Okinawa differed from those regarding Hokkaido (another recently annexed island in the northernmost part of Japan), where abundant forests, fisheries, and mines drew greater administrative and financial investment. Kerr describes Okinawa as "of secondary importance, merely an economically unrewarding territorial link between Japan proper and the new 'treasure island' [Taiwan]" (423), which Japan acquired following the Sino-Japanese War in 1895. Lacking any "material assets of value" (402), late nineteenth-century Okinawa was viewed by Tokyo as an underutilized landscape in need of development.

Neither Morrow's nor Kerr's representation of Okinawa is sufficiently complex, but together they offer opposing perspectives that shed light on Okinawa's transition from a semi-independent Ryukyu Kingdom to a "profitless" colony of Japan in the decades following Perry's 1854 visit. Once a part of the Japanese Empire, Okinawa came to be viewed as lacking in comparison to a much larger colonial sphere that grew to include Taiwan (1895), Korea (1910), Manchuria (1931), and beyond.

In Okinawa, sugar was deemed the most profitable product for mainland Japanese brokers and shippers. Between 1890 and 1910 the Ministry of Agriculture organized administrative agencies such as the Okinawa Prefectural Sugar Improvement Bureau to transform the modes of production and monitor the quality of the product (Kerr 1958: 431). This attracted further investment from capitalists in Osaka and Tokyo, as well as government support for experimental farms designed to increase Okinawa's competitiveness in a growing global market.

By 1915, all the assets of the Sugar Improvement Bureau were controlled by the Okinawa Sugar Company, followed by the even larger and more powerful Taiwan Sugar Corporation, whose principal shareholders included Japan's imperial household and the Mitsui and Mitsubishi corporations (432). Thusly, Kerr writes, "control of Okinawa's basic agricultural industry passed entirely out of Okinawan hands." As the bulk of profits derived from Okinawan sugarcane boomeranged back to the mainland, a high percentage of Okinawa's farming population "became entirely dependent upon the metropolitan markets, which left them extremely vulnerable to price fluctuations caused by conditions in Formosa [Taiwan] or in Japan proper" (431). The rapid expansion of the Okinawan sugar industry produced an insidious form of economic vulnerability.

Historian Wendy Matsumura (2007: 39) describes this shift through biography, drawing on the firsthand observations of Noboru Jahana, a bureaucrat who, as one of the first Okinawan students sent to be educated in Tokyo, became an intellectual export. When Jahana returned to Okinawa in 1891:

He observed that the poor peasantry, who depended on sweet potato for their food source, was being pushed to the brink of starvation because they had no energy or land left over to grow their food supply after converting most of their lands into sugar cane fields. As a response to the twofold problem of decreased self-sufficiency and increased indebtedness that emerged from the conversion of lands to sugar cane fields, [he] proposed encouraging higher yield planting and manufacture methods rather than increasing the total area over which cane is cultivated. (Matsumura 2007: 154)

Instead of expansion of the acreage devoted to cane cultivation, Jahana encouraged the production of new technologies that would increase overall yield through improved planting and manufacture methods. Jahana recognized what Matsumura describes as the peasantry's "vulnerability to starvation" (154), and advocated for more balanced crop production.

Okinawa's economic vulnerability was both created and maintained through Japan's colonial influence. Writing in 1933, economic geographer Yukuo Uyehara characterizes Okinawa's sugarcane production as inferior to that in places such as Cuba and Hawaii, where the plantation system of agriculture was better established. In the early 1930s, Okinawa had only five of the smoky sugar refineries described by Jahana in the previous excerpt. Uyehara describes the "very primitive" modes of labor in Okinawan "home factories" (1933: 403), some of which I witnessed during my time as an agrotourist:

These fields are operated by the families in a way similar to that of the rice fields of the mainland. The men cut the cane and carry it back to the homes on horseback, by hand, or on wagons. On the farmsteads are compressing machines into

which two or three women, sitting on either side of each machine, feed the cane. Compressed juice is then boiled in big pots to black sugar, which is the last stage of nearly all Okinawa sugar. (Uyehara 1933: 400)

This passage from Uyehara's account of the Ryukyus was written to emphasize that "urgent attention" (403) was needed to improve refining methods in order to raise the income of farmers.

With the influx of Japanese manufactured goods and the rising urban standard of living, the island's traditional system of bartering for items such as foodstuffs for handicrafts began to give way to a currency-based economy (Kerr 1958: 404). Okinawans were compelled to engage in sugar production because they now had to produce foodstuffs and textiles for themselves and "enough in addition to pay for the new things which they now believed to be necessities." Perhaps most vulnerabilizing, villagers struggled to maintain the self-sufficient communal landholding arrangements that had supported farming for centuries.

Another form of instability derived from changing consumer tastes. The national demand for sugar shifted from brown to white, and by the 1920s, large capital-backed sugar factories linked to refineries on the mainland had become "major intrusions to the existing landscape of Okinawa" (Matsumura 2007: 154). Matsumura depicts these factories, "whose black smoke filled the island's skies," as "unnerving contrasts to the 3,000 or so small brown sugar manufacture huts littered throughout Okinawa's countryside" (301). The growth of these kinds of commercial-scale refineries further reduced farmers' home cultivation of sweet potatoes in favor of the more profitable work of supplying sugarcane to factories. The state's sugar-centered policies, particularly during the early Taisho period (1912–1926), precluded the kind of balanced economy that Jahana envisioned.

By the outbreak of World War I, Okinawa had become a "monocultural producer of a global commodity" (304) and was intricately connected to Imperial Japan and the larger world economy.¹⁶ The limited global supply of sugar ensuing from the destruction of Europe's beet-sugar factories during the war precipitated the "'golden years of Okinawa's brown sugar industry' [between 1918 and 1919]" (304), but the 1920 Tokyo Stock Market collapse devastated what was by then Okinawa's primary export commodity just as suddenly. In 1926, sugar was valued at 22% or ¥11,000,000 (approximately \$130,000) of the value of all island products and constituted 59% of total exports (Uyehara 1933: 400).

The transformation of sugar from an exotic foreign luxury into a basic necessity of daily life was part of a much larger global trend that began in Europe and the Americas in the mid-seventeenth century. Sidney Mintz's (1985: 197) trailblazing analysis of the relationship between the commod-

ification of sugar and the history of capitalism and industry in Europe and the Americas traces a growing consumer dependence on “sweetness” during this period: “From 1880 until the onset of World War I—the period when sugar production was technically modernized—the production of centrifugal (‘modern’) sugar rose to more than sixteen million tons.” Between 1900 and 1970, global sugar production increased somewhere between 500 and 800 percent (197).

Celia Lowe (2006: 21) identifies the “archaeological shift in the milieu of reason” that occurred when, at the turn of the nineteenth century, European colonial projects shifted from primarily “extractive trade practices” such as the sugar trade, toward a larger project of governing, educating, and “advancing” colonial populations. In Okinawa, the extraction of sugar grew into a kind of “civilizing mission” with the Imperial Japanese (and later U.S.) government’s investment in pest control. The deep connections between science, public health, and animal control continue to intersect in the bodies of hunted habu, but today are more visible in the form of the “Mongoose Busters.”

Matsumura (2007: 309) details the history of sugar production and economic crisis in Okinawa in terms of a “broader crises of politics and existence” that occurred with the islands’ transformation from a semiautonomous kingdom into a prefecture of Japan. Through the development of the sugar industry on the islands, political colonization became economic colonization (Kerr 1958: 432); moreover, I argue that this agricultural shift produced a form of environmental colonization. The Japanese state’s sugar-producing imperative permanently altered the landscape of Okinawa Island. From 1880 to 1920, the area planted with sugarcane in Okinawa increased more than tenfold. By the early 1930s, 70 percent of Okinawan farmers were invested in this cash crop (Uyehara 1933: 400), provoking a crisis of existence not only for both humans and nonhumans. With the help of the rat-eating and (occasionally) snake-riding mongoose, sugarcane fields came to dominate the landscape, and this opportunistic “invader” came to dominate the “indigenous” *kuina* and its shrinking habitat.

Multi-species and Multidisciplinary Histories

Scholars have increasingly recognized the need for more integrative research that explicitly connects social and natural histories. In many respects, the structure of Clarence Glacken’s 1955 study of human geography in three Okinawan villages resembles that of a classic anthropological village study. Glacken’s chapters, all written in the simple present tense, fall under static headings such as “The Family System,” “Community Life,” “Agriculture,”

and “Religion.” In a very brief final chapter on “Environmental and Social Change,” however, Glacken calls for precisely the kind of historiography I have attempted here: “If these two histories ... here artificially divided—could be written as one, if changes in the physical environment at certain periods could be correlated with known historical events, much would be learned ... of the relation of a culture to its environment” (1955: 295). Glacken concludes that “the history of the Okinawan people, like the conjectural [early] history of their land use, demonstrates the importance of culture contact, as a consequence of warlike migrations and invasions or of peacetime trade and travel, in forming the culture as it appears today” (298).

The anthropocentric notion of “culture contact” (Shostak and Nisa 1981: 346) is enriched by a simultaneous discussion of interspecies physical contact, such as biting, hoeing, chopping, fluttering, clawing, pickling, and pouncing. Igor Kopytoff (1986: 67) argues that “biographies of things can make salient what might otherwise remain obscure ... in situations of culture contact, they can show what anthropologists have so often stressed: that what is significant about the adoption of alien objects—as of alien ideas—is not the fact that they are adopted, but the way they are culturally redefined and put to use.” The objectified, alien mongoose scratches its biography onto the landscape while pressing northward.

Mary Louise Pratt (1991: 34) complicates the notion of “culture contact,” instead offering “contact zone” as a “term to refer to social spaces where cultures meet, clash, and grapple with each other, often in contexts of highly asymmetrical relations of power, such as colonialism, slavery, or their aftermaths as they are lived out in many parts of the world today” (see also Pratt 1992). Laura Ogden (2011: 76) expands the “contact zone” into a “space of knowing,” “where bodies, geographies, biota, and mythologies engage in overlapping mobilities.”

Stefan Helmreich applies Jean and John Comaroff’s concept of “alienature” (2001) to invasive species, which Helmreich (2009: 17) regards as “emissaries of ... a biotic world of illegitimate, inundating flows called forth by the shifting and contradictory dynamics of globalizing social forces” such as the sugar trade. The “alien” mongoose was adopted and commoditized by Japanese agriculturalists, and put to use in Okinawa for a specific purpose that quickly went awry. The mongoose’s deviation from its intended use has redefined its material and cultural significance from “pesticide” to “predator.”

Biologists such as Yamada and Sugimura (2004) document the species vulnerability that resulted from the 1910 introduction of the small Indian mongoose in Okinawa. Historians such as Kerr (1958) and Matsumura (2007) delineate the human experience of economic vulnerability during the same time period, but little work has been done to explicitly link the

parallel stories of this protracted yet profound transformation of Okinawa's physical environment.

Temporalizing Vulnerability

For those familiar with the trajectory of the World War II Pacific Theater, "Okinawa" evokes the superlatives of *fast* violence: the Battle of Okinawa¹⁷ (fought early April to mid-June, 1945) is often called the "Typhoon of Steel" (*tetsu no bōfū*) in reference to the U.S. assault on the island. This phrase vividly characterizes the kind of high-speed destruction witnessed by civilians and soldiers through a battle often remembered as the bloodiest in the Pacific. Somewhere between one-fourth and one-third of the Okinawan population—at least 100,000 civilians—were killed, as were roughly 60,000 Japanese and 14,000 U.S. soldiers (Allen 2002: 33). This fast-paced devastation also set a slower problem in motion: the postwar U.S. military colonization of the main island, by which U.S. bases displaced thousands of Okinawans and came to occupy more than 20 percent of the land on Okinawa (Gillem 2007). Over time, this loss has "compound[ed] the onslaught" (Asato 2003: 229) of the original battle.

The "mongoose invasion" of Okinawa and the U.S. Marine Corps invasion both followed a northward route¹⁸ that pushed through Japanese defensive lines. I juxtapose these two historical events not to imply that they are somehow morally equivalent, or similar in terms of the scale of devastation, but rather to illustrate some of the striking narrative and geographical patterns that emerge when equal attention is given to otherwise incomparable events. It took eighty years for the mongoose to travel from southern Okinawa to the north, and for an original population of seventeen animals to expand to roughly 30,000 today. This slow movement with its slow consequences, including the "long dying" (Nixon 2011: 3) of the *kuina*, represents what environmental activist and literary critic Rob Nixon calls "slow violence" for its subtle perniciousness.

This contrasts sharply with the "spectacular time" of the 82-day Battle of Okinawa in the spring of 1945. Okinawans died at the hands of both militaries, but the Japanese military is notorious in Okinawa for its compulsory, enforced civilian group suicides and policy of non-surrender despite a losing battle. This extreme physical violence is linked to the economic violence of the previous century: in both cases, Okinawan land was viewed by the Japanese state as exploitable, whether for planting sugarcane or as a proxy battleground.

Gladys Zabilka (1959: 19), writing on the Ryukyu Islands under U.S. occupation, characterizes the U.S. military's efforts after the Battle of Okinawa

as a “mop-up campaign” that began on 23 June 1945: “Cave positions were systematically sealed up by flame throwers and demolitions, with hundreds of Japanese entombed within. *Extensive patrolling ferreted out individual Japanese soldiers hiding out in the cane fields and rice paddies.* By the end of the month the mop-up had yielded an estimated total of 8,975 Japanese soldiers killed, 2,902 military prisoners taken, and 906 labor troops rounded up” (1959: 20, my emphasis). The United States’ Ryukyus campaign officially ended on 2 July 1945.

Sugar, war, and furry carnivores come together in brief narrative moments such as M. D. Morris’s discussion of the uses of prewar Okinawan sugarcane, all of which was sent to “Japan, the Hungry Ermine”¹⁹ (1968: 144): “Japan used the cane to produce commercial alcohol for torpedoes and engines—war production” (56). Even farms with some access to new technologies were set back tremendously by the battle. Ross Gast (1945: 14) describes the majority of Okinawans as “ill-treated and under-paid sugar cane laborers” in the period leading up to and throughout the war. By the 1950s, not much had improved: Clarence Glacken (1955: 150) finds that “the old Okinawan method of crushing the cane is used in the northern village[s] because machinery destroyed in the war has not been replaced.” The lack of parity between southern and northern Okinawa was determined more by Japan’s postwar investment strategy than by which region was most devastated during the battle, and is still evidenced by the advent of nostalgic agrotourism in the north.

Mapping Tourism

Amid the rubble generated by “two competing cultures” (Zabilka 1959: 3)—Japan and the United States—M. D. Morris (1968: 2) describes Okinawa’s postwar landscape as “mountains of systematically stacked steel chemical drums and wood shipping crates range over square miles of depot areas fenced in by mesh and barbed wire. Acres of new vehicles sticky with cosmoline stand ready to be put into motion in convoy caravans.” As early as 1955, the Japanese defensive lines from World War II were beginning to translate into what I call the ecological “beauty lines” that would ultimately determine the kinds of regional tourism practiced in postwar Okinawa:

The recent war was a powerful agent in changing the physical environment of Okinawa. In the south the destruction affected the grasses, shrubs, and the trees, adding to the contrast, which already existed before the war, between the scenery of the south and of the north. The physical beauty of the mountains, the wooded hills sloping to the sea, the pleasant commingling of neatly hoed fields, trees, and

wild-growing shrubs belong to Okinawa north of the Ishikawa-Nakadomari line. (Glacken 1955: 298)

Roughly 60 percent of Okinawa Prefecture was forested before the war, including standing trees and cut areas (Uyehara 1933: 402). Today just 40 percent of the main island of Okinawa is forested, primarily in the north (Yamada and Sugimura 2004: 118). During the battle, 94% of all buildings on Okinawa were also destroyed (Zabilka 1959: 19). Massive postwar reconstruction made southern Okinawa a locus of stone war memorials and marble monuments such as the Peace Memorial, while in the north anything still green and “natural” also became a potential touristic resource.

This ecological, political, and aesthetic borderline has been reinforced by more recent (and largely unsuccessful) attempts to quarantine the mongoose in the south by setting traps and building a fence along what has become known as the Shioya-Taira line. The artificial border formed by the Shioya-Taira (nicknamed the “S-T line”) runs between the two towns located on opposite coasts just north of Nago City. The growth of ecotourism in the north has produced a small-scale economy through which tourists and locals are introduced to each of the species discussed in this chapter. Yambaru ecotourism is itself a creative enterprise built along these beauty lines.

A Kunigami Tourism Association (KUTA) ecotourism promotional booklet²⁰ I received in 2009 cites one of the few positive environmental effects of the U.S. military presence in Okinawa: The U.S. Marine Corps Jungle Warfare Training Center (JWTC, also known as Camp Gonsalves and the Northern Training Area) had kept ordinary citizens and non-military researchers out of large sections of the forest since its creation in 1958. This restriction left many abundant areas undeveloped and contributed to the relatively late scientific discovery, and ensuing protection, of the kuina. While most people were kept out of the Northern Training Area, some animals still managed to infiltrate the military’s built environment: M.D. Morris (1968: 4) writes that “nature ... is in conflict with progress. The habu, the Ryukyus’ resident reptile, perhaps a direct descendant of the one that allegedly disrupted the bliss of Eden, at night often climbs the [U.S. military’s] high-tension towers and while slithering across the cables, short-circuits a whole community’s electric power.”²¹

Continuing the Japanese government’s early twentieth-century attempts to conquer the habu, USCAR (United States Civil Administration of the Ryukyu Islands) built a serum-manufacturing habu station on Amami Ōshima in the early postwar period. In 1951, the station was supplied with 977 habu, many of which came from a special farm in Nago that paid a bounty of ¥100 (then worth about \$.80) for each snake captured (Zabilka 1959: 25). The snakes were “milked” for venom, which was then dehydrated,

shipped to Japan for processing, and returned to the Ryukyus as bottled serum (26).

The JWTC, first established as an early Vietnam War counter-guerilla school, was originally roughly eighty square kilometers in area (see Figure 1.1). About half of this land has gradually been returned to the Japanese government since 1996, through a U.S.-Japanese Special Action Committee on Okinawa (SACO) agreement intended to reduce the military burden and release the use of reservoirs that control the flow of drinking water to the south (MOFA 1996). The control and creation of water (through desalination) is affected significantly by these kinds of agreements, which in turn make water use a top priority in debates over tourism and sustainable development in Okinawa. The national protected forests that surround tourist-oriented environmental education centers such as the Forest School (学びの森) and forest therapy programs (both discussed in subsequent chapters) were also returned to the Japanese government beginning in 1996. Following more than twenty years of negotiations, in late 2016 U.S. Secretary of Defense Ashton Carter announced that an additional 9,800 acres (roughly forty square kilometers) of Northern Training Area land would be returned to the Japanese government by year's end. While Japan has, in turn, agreed to build helicopter landing zones and access roads for continued use as U.S. military training grounds, this agreement marks the greatest land return since Okinawa's 1972 reversion (Browne 2016 n.d.).

Conclusion

Natural disasters do not exist.
—Ilan Kelman, “Natural Disasters Do Not Exist”

Contemporary touristic narratives of environmental vulnerability between the habu, the mongoose, and the Yambaru kuina have slowly shed the historical context needed to understand broader political and environmental discourse in Okinawa. Stories center on the current state of these three animals, both naturalizing and occluding the human interventions that first brought them together. Problems of scale and temporality, of past, present, and future, shape our interpretations of violence. The relatively unspectacular time of the late nineteenth- and early twentieth-century sugaring of Okinawa amounts to a form of environmental colonization that began in southern cane fields but has migrated to northern forests over the course of the last century.

Following Edward Said, Nixon writes that “struggles over geography are never reducible to armed struggle but have a profound symbolic and narra-

tive component as well” (Said 2001, quoted in Nixon 2011: 7). Okinawa’s slow vulnerabilities are exacerbated by its unstable relationship with the Imperial Japanese state and the U.S. military; and through shifting interspecies dynamics over time. As central actors in this complicated story, the habu, kuina, and mongoose—along with associated discourses of threat, victimhood, cuteness, and nuisance—have been the focus of both science and fable.

The legacy of the Japanese colonial project in Okinawa leading up to World War II and throughout the postwar U.S. military occupation of the islands lives on in the forest as much as it does in memorials, museums, and local memory. The infamous story of ravaging mongoose versus innocent kuina (a battle triangulated by the scary habu) is retold and re-created through touristic avenues. Yet this story is truncated, because it elides the larger political picture that unleashed the lesser-known *animal* invasion of Okinawa.

Economic and environmental vulnerability in Okinawa cannot be understood without careful attention to historical detail. In this chapter, I have responded to Amelia Moore’s (2010: 119) critique of the “vulnerability paradigm” that pervades much of the social science literature on small islands. The environmental history provided in this chapter resists the notion that small islands have inherently, naturally, structurally, and systemically vulnerable societies, economies, and environments (Moore 2010: 122; cf. Kelman 2010, 2015). As the Nature Museum epigraph toward the beginning of this chapter suggests, Yambaru’s “diverse environments” do “change in a variety of ways,” none of which can be adequately understood without analyzing how Okinawa’s vulnerabilization by external forces throughout the nineteenth- and twentieth-centuries. Colonization and conflict, both fast and slow, have shaped the archipelago’s political economy and have influenced the conditions of possibility for natural heritage conservation, as well as the problems of environmental vulnerability and tourism dependency today.

Notes

1. In the context of animal species identification, endemic means “restricted to a locality or region.” “Endemic” is similar to “indigenous” or “native,” but the latter two terms imply that a given species also originated in the place where it is currently found. The *habu* (pit viper), for example, is considered “native” to Okinawa but can also be found in Taiwan.
2. In Okinawan, *kariyushi* means “gift of happiness” or “harmonious with nature.” “Kariyushi Wear” refers to the button-down floral-pattern Hawaiian-style shirts frequently worn by Okinawan men. *Eisaa* is a dance performed for ancestral spirits during Obon, the festival of the dead (Nelson 2008: 20, 191).
3. Not only is it okay—Okinawa Prefecture offers a bounty for both animals.

4. It is more likely that the rail had multiple names (one possibility is *Agachi Kimura*) that varied along with the dialects of the Okinawan language spoken on different parts of the main island. Nobody eats the rail today. I asked a friend about the name of the “Restaurant Kuina” at a tourist rest stop in Kunigami: “Don’t you get it?” he laughed. “It’s a pun: “*Resutoran Kuina!* (literally “Restaurant don’t eat [the kuina]).”
5. Japanese scientific nomenclature always uses the phonetic *katakana* syllabary to describe plant and animal species. This is also the syllabary used to demarcate foreign loanwords, including words from the Okinawan language.
6. Courtesy of Michael Lynch.
7. This term is also developed by Umberto Eco (1986), whose concept of “hyper reality” is located specifically within the framework of travel. For Eco, the technologically produced replica is so perfect that it replaces and displaces the original, and displaces the value of its irreplaceable and authentic uniqueness such that copies live on with a life of their own.
8. Detour Japan is a self-published website that focuses on “selected local issues that can be shared globally” (n.d.) I cite Mamemachi’s summary of the history of the mongoose not as a source of historical information (though shared details are correct), but because his explanation reflects key elements of the dominant narrative I encountered in Okinawa.
9. Examples of unintentional but consequential alien species introductions include the Africanized honeybee in Brazil and Asian carp in the United States.
10. 天然記念物 (*Tennen kinen butsu*), a national designation that translates directly as “Natural Commemorative Thing,” encompasses unusual or endangered animals, plants, topographical features, etc. Other Natural Monuments endemic to Okinawa include the Pryor’s Woodpecker, the Ryukyu Long-Tailed Giant Rat, and the Jambar Long-Armed Scarab Beetle.
11. See Chapter 1 for an explanation of alternate historical names for “Ryukyu.”
12. In an amusing, if racist, account of his visit, Leavenworth’s Okinawan boy servant foretells the habu’s eventual touristic transformation from a scientific specimen in a wire cage to a drinkable commodity in a jar: “After we had looked at the squirming, writhing mass for some little time and were turning away with loathing, the writer’s ‘boy,’ who had been observing the reptiles, and wondering why so much trouble should be taken by the management for the comfort of the beasts, queried: “They wantchee eat these?” (Leavenworth 1905: 45).
13. 100 sen = ¥1.
14. Ross Gast, author of the 1945 wartime informational pamphlet from which Morrow’s account is excerpted, labels Perry’s expedition as the United States’ “First ‘Invasion’ of Japan” (Gast 1945: cover page). At the time of its publication, this sensationalized characterization of Perry’s visit would have connected the United States’ impending invasion of Okinawa to a much longer history of U.S.-Ryukyu contact that was less well known to Gast’s widespread American and military readership. The timeliness of the pamphlet is palpable: a last-minute insert reads: “As this booklet is being made ready for the press, Tokyo reports the invasion of the Kerama Islands off the coast of Okinawa. This move has not been confirmed by American authorities, although Admiral Chester Nimitz tells of heavy bombardment of Okinawa by a United States fleet” (1945: 16).
15. Kerr’s *Okinawa: The History of an Island People* (1958) is still regarded as the most comprehensive English-language text on the history of Okinawa (Nelson 2008: 222). For more recent contributions, see Molasky (1999) and Hook and Siddle (2003).

16. For a comprehensive history and political economy of sugar cultivation in Okinawa, see also Matsumura (2015).
17. The Battle of Okinawa is called “*Okinawa-sen*” in Japanese and “*Uchinaa ikusa*” in Okinawan.
18. I have simplified these routes for the purpose of comparison. The mongoose and the U.S. Army Corps pushed south as well, and some U.S. forces changed directions over the course of the battle.
19. This is the title of a chapter in Morris’s book *Okinawa: A Tiger by the Tail* (1968). Writing during the late U.S. occupation, Morris characterized Okinawa as a “tiger by the tail” for every foreign invested government, wherein each state strives to “maintain a firm grasp on a vital situation from which it would truly rather be free” (8). Other chapters written about Okinawans are “The Gentle People” and “China, the Befuddled Dragon.”
20. This booklet was still being drafted by KUTA during my fieldwork, and the final published version does not include any information about the U.S. military. Rather, it emphasizes the presence of poisonous snakes and the forest’s inaccessibility to “ordinary people,” due to its unusually dense growth and humid subtropical climate, as the primary factors in the survival of Yambaru’s “precious creatures.” The 2008 document draws on information from an Okinawa Prefectural textbook called “The Untouched Forest” (「手つかずの森」: 沖縄県).
21. For a parallel tale of snakes’ “power” to alter human and nonhuman uses of the landscape, see the Epilogue of Laura Ogden’s *Swamplife: People, Gators, and Mangroves Entangled in the Everglades* (2011).