As part of an effort to reawaken an awareness of pre-European culture, a Guamanian youth troupe recreates an ancient Chamorro dance.

TRAVELOGUE

Guam and the Commonwealth of the Northern Mariana Islands: Pieces of America in the far Pacific

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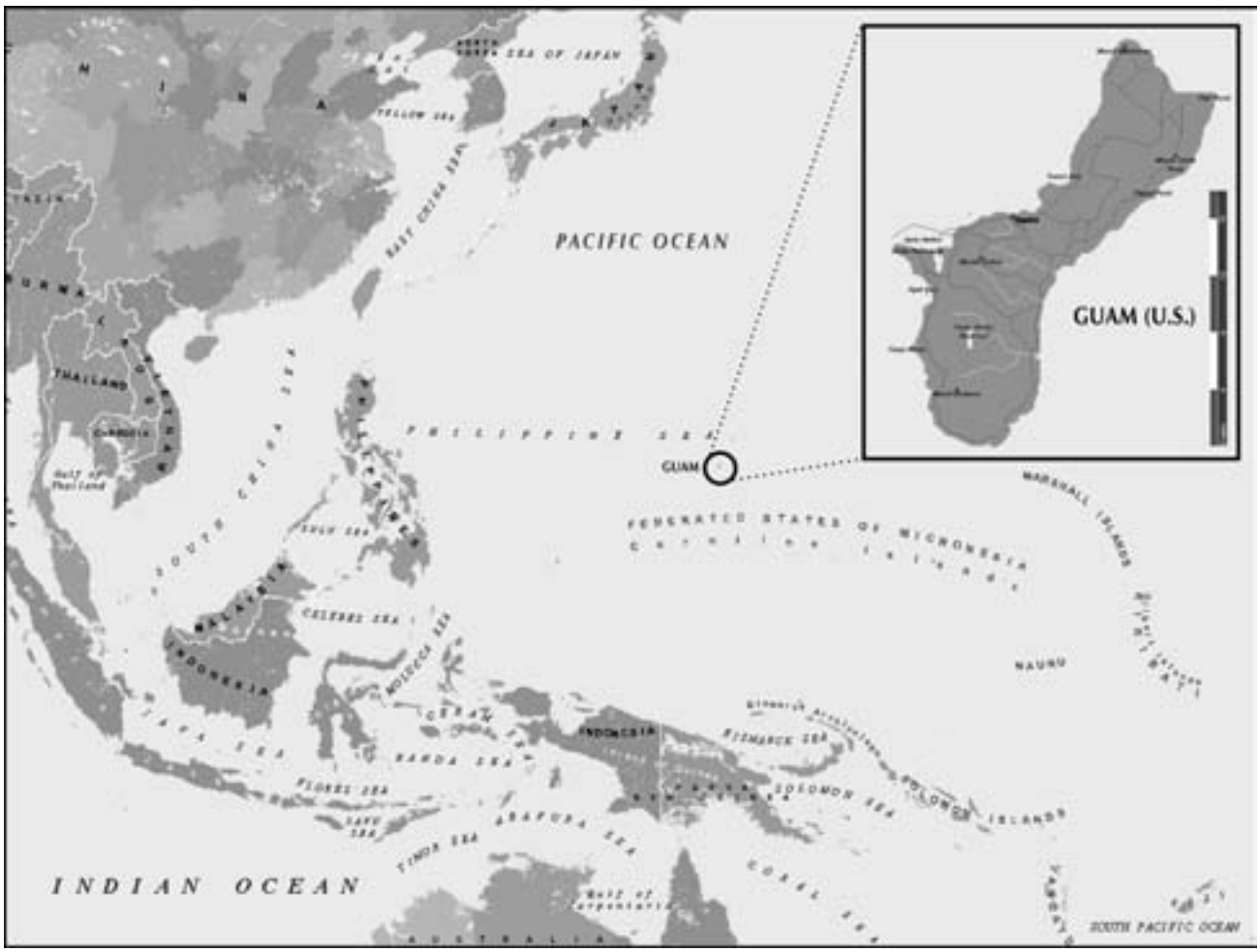
Photographs by the author except where noted.

In the spring of 1521, Ferdinand Magellan and his crew became the first Europeans to see the Pacific islands we now know as the Marianas. Magellan named Guam, Saipan, Tinian, Rota, and a number of uninhabited islands the Islas de las Velas Latinas (= Islands of the Lateen Sails). His crew coined the name still sometimes used today, Islas de los Ladrones (= Islands of the Thieves). At that time, the island's inhabitants, the Chamorros, had been there for several thousand years and had developed a distinct culture and language. Concepts of personal property among the locals apparently differed greatly from those of the Europeans, leading to the unflattering name used by the seamen. When Spain formally claimed the islands in 1667, an estimated 40,000–60,000 Chamorros lived there. Unappreciative of the efforts to make them into good Catholic subjects of Spain, the



JOHN BINNS

A simplified map of the western Pacific showing some important nations for orientation. Guam and the Northern Mariana Islands are in the center, surrounded by lots of water.

locals resisted. Showing the Christian charity typical of the period, the Spaniards proceeded to exterminate nearly all of them. Today's Chamorros are typically Catholic and carry last names such as Cruz and Santos. Guam is now a U.S. Territory, and the other islands form the Commonwealth of the Northern Mariana Islands (CNMI), also a US protectorate.

Arriving in Guam's airport, one is welcomed by a sight not very different from many places in the U.S. or Europe. The island's center is highly urbanized, and contains most of the local population (about 100,000) and the major concentration of tourists (some 1 million each year). However, the heat and humidity of the Tropics (Guam is at latitude 13) immediately tell you this is just an illusion, and, like Toto and Dorothy, you quickly realize that you are no longer in Kansas.

Not all of the island is as dramatically affected by humans as the center. The southern part remains especially beautiful, with many picturesque coves. Although little remains of the pre-European Chamorro culture, a few archeological sites exist. Attempts are ongoing to encourage the use of the Chamorro language among the youth, many of whom are more comfortable in English, and to revive some of the cultural practices that were likely carried out by ancient Chamorros. Much more common today are signs of the Catholicism, a backbone of modern culture on Guam.

I first arrived on Guam in late 1995 as part of a team studying the devastating effects of the Brown Treesnake (*Boiga irregu-*

Latte stones, such as this one located in Inarajan, testify to the presence of the pre-European Chamorro culture. Archeologists believe series of these stones served as the foundations of raised houses that were safe from occasional flooding.

A structure just outside Guam's international airport welcomes visitors and locals. The capital and largest city, Hagatña (formerly known as Agaña), is in the background.

This cove near Inarajan is one of many beautiful spots in the south of Guam.

Bellin's 1752 map of the Mariana Islands (http://www.carto.com/maps/02118761.jpg). Guam is shown in an inset on the bottom left.

laris) on the ecology of the islands. Almost immediately, I went to assist with a project on Saipan and discovered that the disparaging name dating back to Magellan's crew still held some truth. While we were conducting research in the forest at night, someone broke into both of our vehicles, the contents of the trunks were stolen, all eight tires were slashed, and large rocks were used to smash the windshields. Luckily, this did not set the tone for the rest of my time in the region, which was much happier.

Typhoons, the Pacific equivalent of North Atlantic hurricanes, rarely get press exposure in the U.S. Strong typhoons can leave behind extensive damage to human structures, snapping thick concrete poles like matchsticks. The result can be weeks or months of recovery time, during which much of the island may lack power or water. Such powerful winds are a common feature in the Marianas, and an important organizing feature affecting the local ecology. Although I was off-island for Typhoon Paka, I returned soon thereafter. I also got to experience several other typhoons, including Keith earlier in 1997. Storm preparations are a lot like getting ready for an impending war. One collects food and water, makes sure plenty of batteries are available, covers all the windows with heavy metal shutters, and waits. As the storm approaches, power is cut off to preserve the infrastructure. Your house now lacks both air conditioning and air flow. You are in a dark, hot, humid space. Your battery-powered radio gives occasional updates on the progress of the storm: how close, how fierce. You wait. When the storm hits you can hear it through the concrete walls: torrential rains, buffeting winds, and flying debris all hit your "shell" with a passion. You wait some more. Eventually, it recedes and you step outside to see how much damage has been done and to begin the process of picking up the pieces and starting life again.

Super-typhoon Paka swept ashore in December 1997 with measured winds of up to 380 km per hour (240 mph). The damage was extensive. Here, a grove of coconuts that lost their tops in the storm. Few trees hit this badly recovered.

This small sign is all that marks the place where Little Boy was attached to the *Enola Gay* before its fateful flight to Hiroshima, Japan (http://tourtinian.homestead.com/files/bpit.jpg).

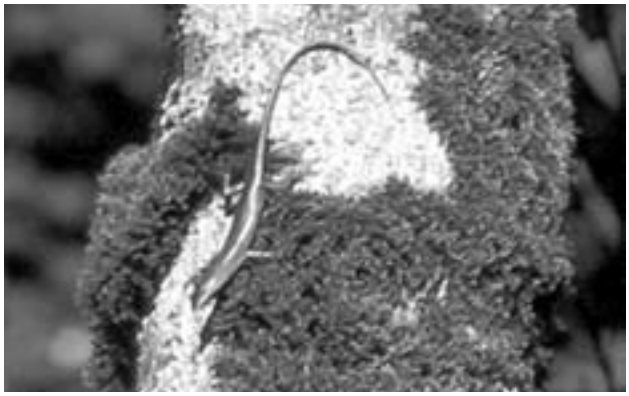
American troops on the beach near Camel Rock. The reoccupation of Guam occurred in 1944 and was very costly. This is a Park Service placard on Guam.

Japanese tourists visit an old gun emplacement their countrymen placed on Rota during WW II.

Pandanus, a native plant common in the Pacific, often serves as a daytime hiding place for Brown Treesnakes.

For many years, the Marianas were a sleepy backwater. The U.S. became the landlord after the Spanish-American War of 1898, but not much changed. Things became a lot less pleasant when the Japanese took the islands at the beginning of World War II. The fighting that followed when the U.S. took the islands back near the end of the war in the Pacific was fierce, as the Japanese were heavily fortified. One can still see some of the gun emplacements. Some 80% of the structures on Guam were destroyed in the shelling that preceded the ground offensive. The Japanese had built large bases, especially airfields, on all the major islands in the chain. All of them were taken back by the U.S. military and served in the war, but the one on Tinian had an especially important role to play. The *Enola Gay*, an American B-29 bomber, left from there on 6 August 1945, carrying "Little Boy," a U-235 bomb, to Hiroshima, Japan. Some 100,000 people died when the bomb exploded at 08:16:02, and a similar num-

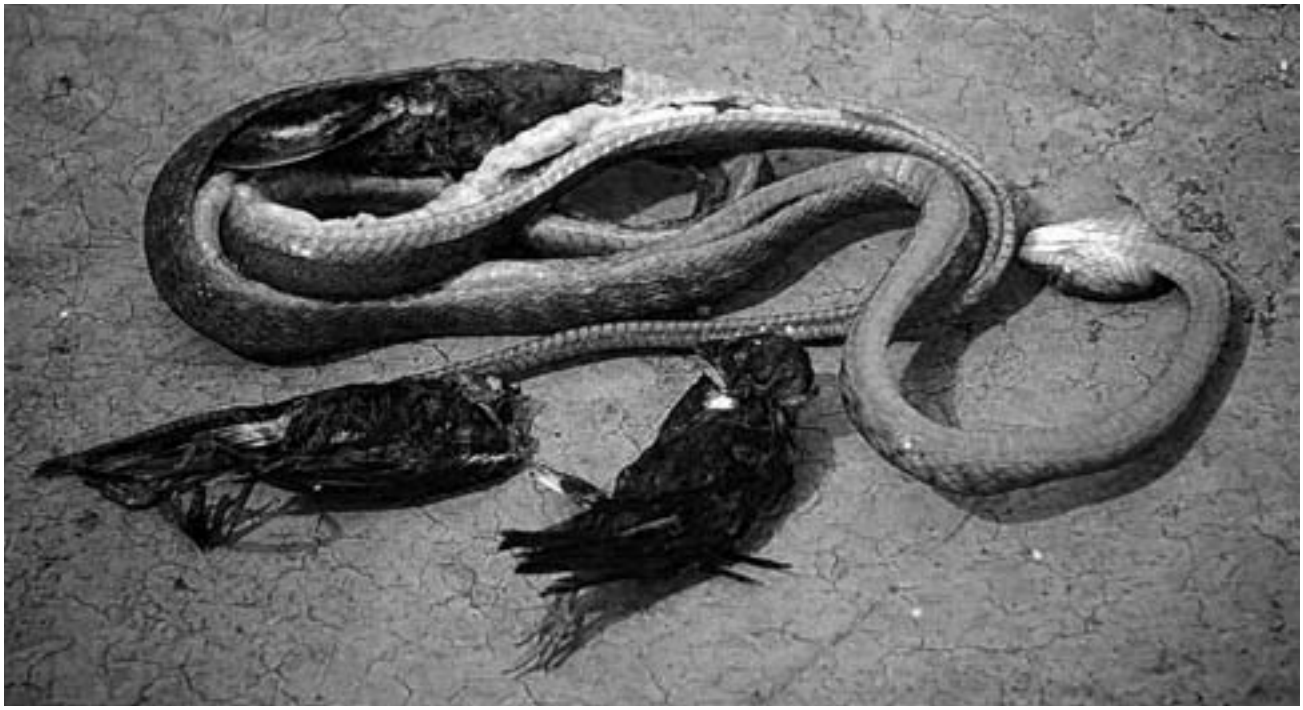
The Brown Treesnake (*Boiga irregularis*) is a nocturnal tree-dweller with a broad diet. These invasive snakes have had a profound ecological and economic impact on Guam.



The Green Tree Skink (*Lamprolepis smaragdina*) rarely visits the ground and can be green, bronze, or gray. It often perches head-down on trunks of trees.

A mating aggregation of introduced Cane Toads (*Bufo marinus*) takes advantage of a puddle created by the explosive rains of the wet season. Tadpoles develop quickly and can take advantage of even small bodies of water. No native amphibians occur on Guam.

Mangrove Monitors (*Varanus indicus*) climb well and are often encountered on trees.



A medium-sized Brown Treesnake and its prey: Three introduced Tree Sparrows (*Passer montanus*) it had eaten before being captured. These snakes are extremely efficient predators.

The endemic Guam Rail (*Gallirallus owstoni*) used to be common on the island. It is now extinct in the wild, but breeds well in captivity.

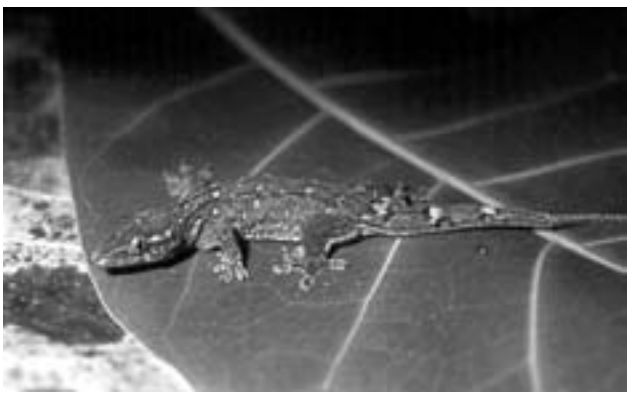
ber were seriously injured. Today, only a small and badly-kept marker stands at this historic location.

The snake that I came to study on Guam was accidentally introduced in the aftermath of WW II, when Guam became a major hub for U.S. military activity in the Pacific. Other invasive reptiles and amphibians occur in the Marianas. Among others, these include the Mangrove Monitor (*Varanus indicus*), the Green Tree Skink (*Lamprolepis smaragdina*), which has been widely introduced but never established on Guam, probably because of snake predation, and the Cane Toad (*Bufo marinus*), which has caused so much trouble in Australia. However, none are as damaging as the Brown Treesnake. By 1980, the snake was found island-wide, had caused the elimination of most of Guam's native forest birds, and had decimated other birds, lizards, and mammals. Today, only three species of forest birds remain on Guam, and nine are gone. Of the remaining species, one, the Aga Crow (*Corvus kubaryi*), is down to five individuals; a single cave houses about two hundred Vanikoro Swiftlets (*Aerodramus vanikorensis*); and only a few hundred Micronesian Starlings (*Aplonis opaca*) remain. We have even found evidence that the ecological damage has trickled down to impact plant communities, many components of which have lost their pollinators and seed-dispersers. The snake is also responsible for frequent and costly power outages and social change, including infant envenomation and loss of culturally important species. Species such as the Guam Rail (*Gallirallus owstoni*, known locally as the "Ko'ko," extinct in the wild) and Marianna Fruitbat (*Pteropus tokudae*, the "Fanihi," down to about 150 individ-

Small-scale test arenas, such as this concrete model built at the Guam NWR, were the final testing stage for all of the snake barriers we developed.

The Guam National Wildlife Refuge at Rititidian Point protects many habitats in the hope that native species can someday be restored to help create a functional ecosystem.

The Rock Gecko (*Nactus pelagicus*), an all-female ground-dwelling species, is now rarely encountered on Guam. Their decline is almost assuredly attributable to the Brown Treesnake.



The largest gecko in the Marianas, this Island Gecko (*Gehyra oceanica*) is rarely seen on Guam, but remains locally abundant elsewhere in the Marianas. This animal was encountered on Saipan.

A 1.5 m (4 ft) Brown Treesnake hiding in the wheelwell of an airplane about to depart Guam. The snake was located by the pilot during a preflight check and was removed by the author.

uals) had high social importance in the life-style of the Chamorros. Unfortunately, the Brown Treesnake is also an accomplished disperser. Stowing away on ships and airplanes, snakes have already reached other Micronesian islands, Hawaii, Texas, and even Spain. Recognizing the potential impact and danger to other locations, Congress in 1990 made the Brown Treesnake the only terrestrial organism controlled under the Non-indigenous Aquatic Nuisance Prevention and Control Act.

I was based at the Guam National Wildlife Refuge, located at Ritidian Point in the northern end of Guam. This is the only area on the island designated and consistently managed for conservation. Part of my job was to develop barriers that could be used to block the dispersal of snakes from Guam. This is the kind of work that is not very exciting to a herpetologist: more technology development than chasing animals. Worse, the technology/biology part is by far the easier element in this equation. We developed three types of barriers that showed great efficacy in various kinds of testing. Several of these are currently in use on Guam and elsewhere, helping protect some of the native species such as the Rock Gecko (*Nactus pelagicus*) and the Island Gecko (*Gehyra oceanica*). Perhaps most gratifying, use of barriers made possible the release of captive Guam Rails into a protected native forest area, where they bred for the first time in two decades. Still, policy adoption has lagged behind the availability of the tools, and many places remain less protected than they could be because the funds to build barriers have yet to be allocated.

The future of the Marianas is uncertain. Much of the CNMI economy has rested on the ability of sweatshops to cheaply produce garments with a "Made in USA" label. Traveling around the CNMI, one can see high walls crowned with barbed wire where workers from other countries labor, often in abject conditions. The garment industry has effectively convinced members of Congress, using the usual free trips, to continue supporting the practice, but this will surely not continue forever. Tourism is a strong basis of the economy, and one that is again lucrative now that Asian economies have recovered from their slump of a few years ago. However, the biggest unknown is the U.S. military, which controls much of Guam's area and is a major source of income for both it and the CNMI. The "Voice of America" reported in August 2006 that the military plans to enhance its presence on Guam. The *Pacific Daily News*, Guam's newspaper, reported that thousands of soldiers currently based on Okinawa soon will be moving to Guam. Some talk has stationed the U.S.S. *Carl Vinson*, a nuclear-powered aircraft carrier, on Guam. Such actions are expected to pump billions of dollars into the local economy, but must come at the cost of native habitats. Moreover, North Korea is repeatedly mentioned in such stories, and I cannot help but wonder what such talk does for the tourist industry. Finally, will the increased traffic associated with this economic expansion result in greater opportunities for Brown Treesnakes to leave Guam, or bring additional species to the region? Only time will tell.