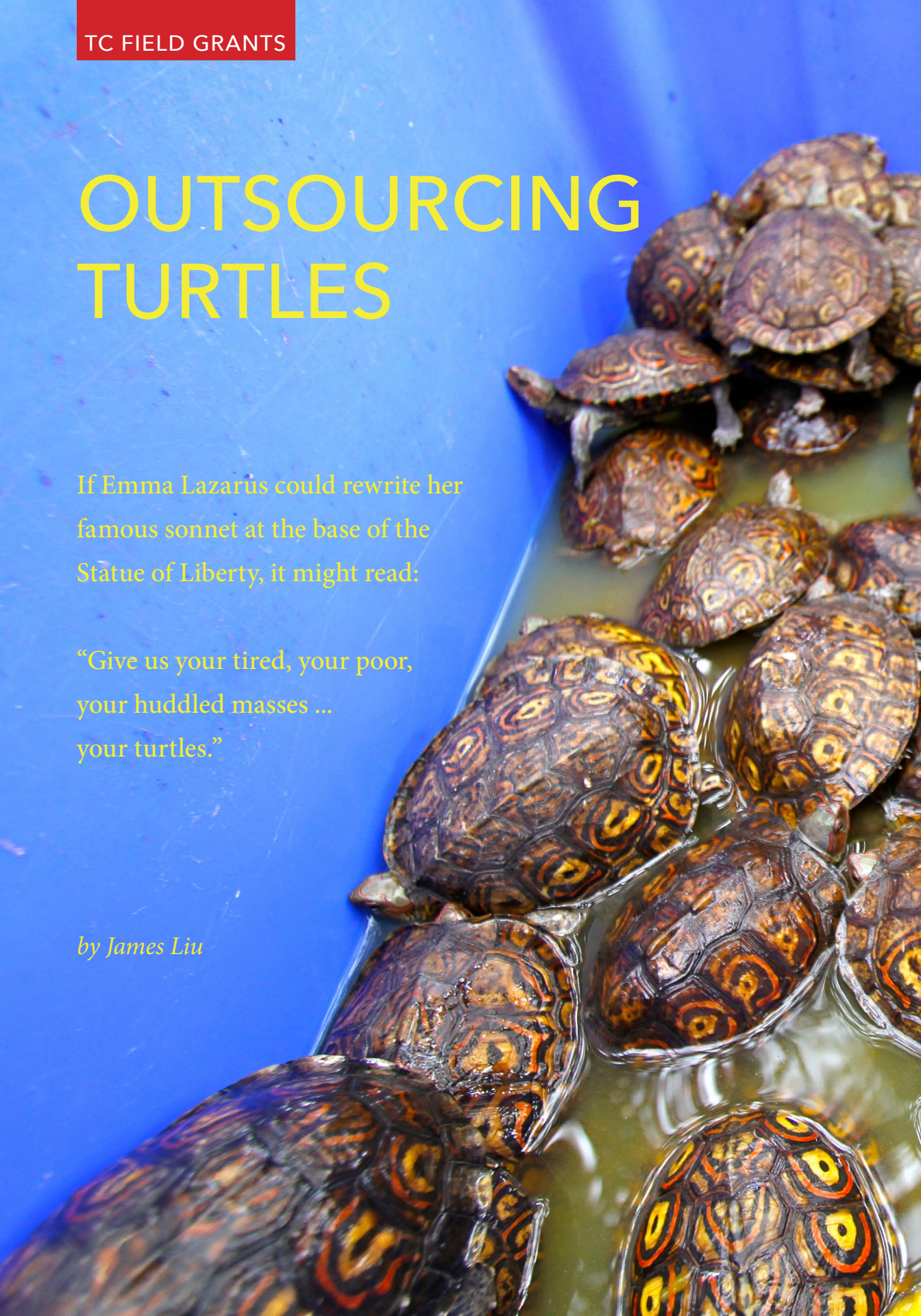


OUTSOURCING TURTLES

If Emma Lazarus could rewrite her famous sonnet at the base of the Statue of Liberty, it might read:

“Give us your tired, your poor,
your huddled masses ...
your turtles.”

by James Liu





It only seems fitting to modify Lazarus' original statement to the truth — that the United States has become one of the world's largest importers of turtles and tortoises. The U.S. comes in second only to the great medicine cabinet/kitchen table of China.

Twenty-first century governmental restrictions have limited a once booming domestic turtle trade, in the form of collection laws and laws on habitat and species protection. Gone are the days of being able to walk into a local pet store and purchase an Eastern Box Turtle (*Terrapene carolina*) for 10 dollars. Now, business is primarily conducted online or at big-box pet store chains like Petco and PetSmart, where the buffet of chelonians consists almost entirely of Russian Tortoises (*Testudo horsfieldii*), Sulcata Tortoises (*Geochelone sulcata*), and the ubiquitous Red-eared Slider (*Trachemys scripta elegans*).

Although State and Federal officials in the U.S. may attempt to close down the trade for declining species, when it comes to the turtle trade, where one door closes, another opens. The once abundant Eastern Box Turtle is now difficult to find wandering in the fields of the eastern United States. Its populations have declined by more than 30 percent, and most states have banned its sale in response. The price of pet Eastern Box Turtles has now skyrocketed for the turtles coming from the one remaining state that allows its trade (looking at you South Carolina).

Nevertheless, the Jackson Pollock-inspired yellow splash on the carapace of an Eastern Box Turtle may have found a suitable replacement in the Painted Wood Turtle (*Rhinoclemmys pulcherrima manni*).



Hatchling Painted Wood Turtle
(*Rhinoclemmys pulcherrima manni*)

Also known as the Central American Wood Turtle or Ornate Wood Turtle, almost all of these colorful critters found in the United States have been plucked right out of the semi-tropical dry forests of Nicaragua where there is a robust export trade. After years of fierce combat and political upheaval, the irony is hard to overlook, as the United States has become Nicaragua's greatest wildlife trade partner.

The Nicaraguans sure caught on fast after the 1990 elections, ousting the Socialist regime. While the country is better known for its exports in coffee, it has made a name for itself in the animal trade, selling reptile dealers around the world these ruby-red, chevron-emblazoned turtles.

The species is a Central American endemic, restricted to the dry forests and seasonal woodlands along the Pacific slope. Now found in the aquariums of pet stores and hobbyists alike, this turtle boasts all the coveted turtle features — bright reds and yellows on its shell and neck, an inquisitive expression, and exotic enough to not be found in the collection of just any casual turtle enthusiast.

"They're just cheaper than Box Turtles," according to one importer who wishes to remain anonymous. "They make a good display animal in a pet store and are easy to keep, but if Box Turtles were available to retailers, we probably wouldn't be bringing in as many (Painted Wood Turtles)."

It was as if pet stores across America, realizing the economics of their native Box Turtles were no longer profitable, replaced their aquarium duties with a species from a developing country, where the native species had not yet been exploited enough to increase the market price or trigger government regulation.

This is reptile outsourcing at its best.

As a veterinary student, I traveled to Nicaragua as a part of the University of California Davis School of Veterinary Medicine. Nicaragua was the chosen destination because it lays claim to the dubious distinction of having the second poorest population in the Western Hemisphere.

2013 represented my second time to Nicaragua. By this trip, nothing could distract me from my objectives, not even the gastrointestinal impact of continual, generous helpings of black coffee and *cuajada* — a Nicaraguan delicacy that is essentially a white cheese bathed in salt, left in the tropical sun uncovered, and swarmed over by flies for days. Luckily, a plate of tortillas, avocado, and a cold *Toña* (Nicaraguan beer) can cover a multitude of culinary sins.



JAMES LIU

In 2012, I was able to find two Painted Wood Turtles during my travels. Despite my current status as a veterinary student, I am still a herpetologist at heart, and I shared the photos I took with colleagues at the Turtle Conservancy. They previously expressed interest in working with terrestrial turtles in Nicaragua, so it seemed logical to show them that I am awesome at finding turtles and that if I can find some without even trying, there was project potential.

I was fortunate enough to be put in contact with Drs. Sarah Otterstrom and Kim Williams-Guillén of the NGO Paso Pacifico, a leader in sea turtle and semi-tropical dry forest conservation in Nicaragua. Add on the fact that they are headquartered in California and it's clear why there was a pre-existing interest in partnering with the Turtle Conservancy. Both organizations have been eager to identify the impact to Painted Wood Turtle population as a result of the expanding pet trade and the extraction of wild populations.

While the Wood Turtle is still apparently abundant, there is good reason for the Turtle Conservancy and Paso Pacifico to work together for this species. The conservation world often finds itself scrambling to save a species teetering on the brink of extinction. Fighting for something that is about to be lost forever is noble, but it is expensive and risky, and really, wouldn't it be better if we conservationists could be more proactive and "keep com-

... the team waded through the jungle waist-deep in primates, amphibians, snakes, and sloths low enough to grab with a running start.

mon species common"? Working to maintain abundant populations allows conservationists to take the bull by the horns (or turtle by the shell) and address the threats well before the loss of turtles has a cascading effect across the entire forest ecosystem.

Field surveys started in June 2013 when I found myself knee-deep in a cool stream in central Nicaragua. Although the primary goal of this trip was largely veterinary, I met with the staff from Paso Pacifico and a group of herpetologists to search for turtles. Sure enough, 30 minutes into our first hike, the intense red and yellow of a hatchling's carapace emerged while sweeping through the leaf litter on a steep trail. Most likely, the young turtle emerged from hiding a week or two prior, taking cues from the rains earlier that month. And with more rain came more turtles. (High fives were equally plentiful.)

Nicaragua had been thirsty for rain by the time we touched down, and the sudden downpours announcing the beginning of the wet season made it easy to find wildlife. All said and done, within



JAMES LIU



MAXIMILIAN MAURER

This hatchling Painted Wood Turtle was uncovered in the middle of a hiking trail under a dense layer of leaves after several people had walked unknowingly past it.

The range shown here represents the entire range of the *Rhinoclemmys pulcherrima* complex, made up of four subspecies: *R. p. manni*, *R. p. incisa*, *R. p. pulcherrima*, and *R. p. rogerbarbouri*.

a couple days, the team waded through the jungle waist-deep in primates, amphibians, snakes, and sloths low enough to grab with a running start.

More importantly, we discovered two adult female Painted Wood Turtles and a hatchling in 24 hours. This elation narrowly trumped getting put in my place by a female herpetologist from Honduras traveling with the team in search of endangered frogs. After jumping out of a moving truck to corner a coral snake, I was taken aback as the Honduran herper nonchalantly picked up the neurotoxic serpent with her bare hands. It was at this time my classmate leaned into my ear and muttered, "She must have health insurance."

Though our efforts clearly represent the smallest of sample sizes, the objective to get a broader sense of localities, species and subspecies present, and an-

ecdotal abundance of Wood Turtles seemed achievable. Next were to find leads on where local people collect turtles for the pet trade and to get in touch with the exporters who ship them out of the country.

Do you know that feeling where you have your entire arm sucked into the fat folds of a large, sweaty woman on an old diesel school bus for eight hours? Well I do, and I highly recommend it if you ever get the chance.

Old American school buses epitomize the preferred mode of transportation for the student-traveler on a budget in Nicaragua. They are filled with people, and the diesel fumes and body odor make up for what they lack in air-conditioning. You often find yourself sharing coveted personal space with plumes of black smoke or, if you're lucky, a cardboard box full of chickens.

One day, a day that seemed determined to do its best impression of a Finnish sauna, I found myself on one of these buses in Managua. (Author's note: Managua is Nicaragua's capital and home to the only Egyptian-themed casino hotel in the country. Seedy would be an understatement for the attached casino, but the flat-screen TVs and one-dollar Nica Libres make for a nice change of pace.)

The front of the bus was painted with the destination Ostional, a small oceanfront village in southern Nicaragua and home to some of the country's few remaining *arribada* beaches for the Vulnerable Olive Ridley Sea Turtle (*Lepidochelys olivacea*). Paso Pacifico focuses much of its conservation work here as well, protecting the nesting turtles, jaguars, and parrots through education programs for optimistic youth and through incentive programs that reward would-be poachers for sparing hatchlings and big cats.

Another common occurrence on these buses is for patrons to blast music from their phones to drown out the engine noise and clamor of the other riders. Mexican love songs usually dominate the airwaves, but on the third leg of our trip, a 20-something guy was sleeping against the window in the seat next to me blasting an American club (and South Beach) favorite: *Give me Everything*, by Pitbull. So when he opened his eyes to hit "repeat" for the fourth or fifth time, I decided to take it upon myself and uncover

the origin of his Top 40 hip-hop love. His name was Julio, he was an econ major at the university in Managua, and, like most young adults, he was trying to find work at the same time so he could afford college. After bouncing around a few restaurant jobs, he decided to defer on classes and return to Ostional to be with his family and save up some money.

I introduced myself and my classmate and explained we were looking for sea turtles and *tortugas del monte* (turtles of the mountain, the colloquial name for Painted Wood Turtles). Julio quickly shifted gears and sat up. It was obvious we were no longer comparing our college experiences, but something much more personal.

"¿Con Paso Pacifico?" he said, eyebrows raised over his exhausted eyes.

"Si," I replied. "Les conoces?" (Yes. Do you know them?)

"Mi hermana trabaja por ellos!" (my sister works for them!) he exclaimed, smiling for what I can only assume was the first time that week. (Side note: One cool thing about Paso Pacifico is that as an NGO, it is "embedded," employing dozens of local men and women as part of its conservation enterprise.)

After he turned off his music, we put our asses through the final leg of the meat tenderizer, affectionately known as "the rickety old school bus with no suspension driving over an unpaved mountain road." Eventually we stopped in a small town square,



Expansion of roadways and infrastructure is an inevitable threat to Nicaraguan wildlife. This turtle was found on the edge of the road trying to reach Lake Managua from a nearby hillside.

JAMES LIU



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Painted Wood Turtles spend the long dry season in Nicaragua buried deep in leaf litter to avoid predation and drying out. They only emerge once the rains bring streams and other temporary sources of water. A holding pond for adult turtles at a Nicaraguan reptile “zoocriadero.” These animals are overcrowded and eventually piled into boxes destined for wholesalers in the US, Europe, and Asia.

and Julio jumped up, grabbed his backpack and our heaviest piece of luggage. Sure enough, he walked us to our hostel at the end of the road, which overlooked a small fishing community and beach. This town is where we would spend the next days looking for nesting sea turtles, running into anteaters, entertaining the locals with our California accents, and camping on the beach.

Wandering aimlessly through the high tide mark in the sand, I saw Julio again, this time with a friend. They ran frantically with five-gallon buckets back-and-forth, from a thatched-roof hut to the ocean. I waved and asked him what was going on. He elaborated about how he was trying to fill an aquarium for a German guy. This I had to see, so I offered to help carry a couple of buckets to the hut.

Expecting to see a home aquarium displaying some pet lionfish, I was floored when I saw rows of large acrylic holding tanks with plastic water bottles floating in them. Upon closer inspection, the bottles were nothing more than repurposed holding cells for a plethora of small reef fish.

I inquired where these fish were from and their eventual destination. Their response was frank and curt: “From the bay right here” and “They go from here to Managua to the airport.”

Turtles are *always* a part of my cerebral consciousness, so I asked if they ever catch turtles for the German mystery man to send to Managua. They said

they didn’t know but maybe their boss did, pointing to a larger, shirtless man smoking under a mangrove tree. I walked over, introduced myself, and asked again, politely.

“Turtles? No, we don’t sell turtles, there aren’t any out here,” he mumbled through his pursed lips, clutching his cigarette. “But in Managua there are hundreds being shipped out. I’ve seen them when I drop off the fish.”

Bingo!

A couple of texts and phone calls later, the boss proffered directions to the best chance we had at unearthing the turtle pipeline in Nicaragua. He told me to look for a restaurant three kilometers out of Granada as I jotted down a name on a piece of trash: Familia Lopez.

Luck produced my first lead and my fortune wasn’t done yet. A few days later, an iguana biologist working with Paso Pacifico was headed back to Managua from our field expedition in Rivas. He said that he would be able to drop Laura and me off in Granada to meet some classmates, and we would have to miss out on the bus experience for the leg back.

En route, I brought up our vague description of the Lopez family reptile business to see if they knew a good way to get better directions than “three kilometers out of town.” The iguana man turned down the radio, paused, and smiled. “I haven’t seen Fernando in years,” he said. Small country.

Through the few clues I assembled and some roadside detective work interrogating locals, we eventually tracked down the restaurant. “Go all the way down the dirt road,” I directed, repeating instructions as dogs barked alongside our SUV. Sure enough, the road ended at a dry ravine, and switching into 4-wheel drive, we climbed to a hand-painted sign that, translated from Spanish, said, “Reptile Breeding Farm.”

Greeted by a whole pack of Rottweilers, I gingerly opened the rear door of the car.

“Don’t worry, they’re friendly!” exclaimed an older man, with a voice and stature twice the size of your average Nicaraguan. His smile was also larger than life.

I climbed out and was immediately greeted with a firm handshake and approval to take as many pictures as I’d like. Fernando and the iguana biologist embraced and talked about how long it had been since they last met. Fernando motioned with his hands to follow him, and as we stepped through dogs and chickens, we gazed over rows of outdoor pens and greenhouses.

Spiny-tailed iguanas, swifts, boas, and basilisks could be identified by painted signs of their Nicaraguan names. I snapped voucher photos and discovered he indeed bred the vast majority of these animals at his compound. At one point, a cluster of baby boas, still wrapped in amnion, fell from a palm-frond roof onto the ground next to us. Fernando’s son separated them and put them in the hatchling pantry — essentially a green cupboard with shelves full of about 100 hissing baby boas.

I told Fernando I wanted to see the turtles, and he took us to the far end of the yard. Corrugated steel pens with dirt floors and a concrete pond were dotted with shrubs and palm trees. Inside it looked like a rock yard, with piles of river stones under each tree. But instead of rocks, they were turtles.

Striped, blue eyes poked out of the murky pond as I walked by. A sandy area held up a wooden sign: “nesting area.” I picked up a few of the turtles and saw that besides overcrowding, they seemed generally alert and healthy, but caked in mud, stressed, and desperately seeking a place to hide. I also suspect Fernando’s workers picked off the ticks that commonly feed between the scutes of wild turtles.

Under an artificial canopy, a row of blue and white bins made up the nursery, protected from ants seeking eggs and hatchlings by a concrete four-inch wide moat. The miniature moat doubled as a home for tree frog tadpoles and the single largest collection of mosquito larvae I have ever seen. My exposed skin started to itch.

I was still dubious about their claims that the turtles they sell are all farm-raised, but they definitely do hatch some of their stock. A piping hatchling in one of the egg boxes was evidence enough. While their incubation technique was not well controlled or recorded, the young turtles looked robust in spite of their lackluster accommodations.

“All the ones under four inches have to go to other countries,” Fernando explained. “The U.S. is the only country with size limits, so we have to raise some of them up for a year or two.” Sixty percent of Fernando’s exports go to the U.S.; his other big markets are Holland and Japan.

I learned that later, Kaitlyn Foley, who was visiting from the Turtle Conservancy, and Paso Pacifico’s Country Director, Liza González, decided to retrace my footsteps and revisit Fernando’s farm. At that time, Fernando reported that all of his exports were the product of his 400 breeding adults (200 males and 200 females). After viewing a shipment of turtles being packed and prepared, coupled with the fact that most of the Painted Wood Turtles observed in trade are larger, it just didn’t add up. It is hard to imagine that *all* of the exports were captive-bred, especially considering the time and money investment to raise a turtle to the sizes we’re seeing on the other end of the trade chain. So now the next question: Where do these turtles come from in the wild?

Currently, little is known about the existing populations of Wood Turtles in Nicaragua, so it’s hard to gauge exactly how extraction from the wild affects populations. However, we can’t write off the fact that we may be looking at a recipe for disaster, especially if we consider the increased demand from the pet trade and the likelihood that the quality of the habitat is decreasing due to loss, and pollution of water sources.

Just like the country of Nicaragua, the nation’s largest reptile exporter lives in anonymity just outside of American view. Hidden and off the beaten path, the Lopez family struggles to make an honest living through any means necessary. They succeed like many other industries built off the country’s rich natural resources. It is hard to denounce anything anyone does when poverty is so widespread, from selling parrots on street corners to eating native flora and fauna.

In a roundabout way, Ronald Reagan should be happy. The United States finally has brought Nicaragua to embrace capitalism. He just never thought to use turtles. 🐢

The Turtle Conservancy and Paso Pacifico Investigate the Trade in Central American Wood Turtles from Nicaragua

by Sarah Otterstrom and Kaitlyn-Elizabeth Foley

Large volumes of wild caught Painted Wood Turtles (*Rhinoclemmys pulcherrima manni*) are imported by Strictly Reptiles in Hollywood, Florida.



MAXIMILIAN MAURER



MAXIMILIAN MAURER

Painted Wood Turtles (*Rhinoclemmys pulcherrima*) range from Mexico to Costa Rica and live in dry tropical forest. They are active during the rainy season and sometimes can be found relatively easily and are collected in moderate numbers. This robust trade, combined with the fact that there is no CITES office in Central America, is perhaps why this species has not yet been identified as needing CITES and IUCN protection. However, there are many reasons to be concerned for its future. Less than two percent of its original habitat remains intact and protected. At the same time, a large and growing trade is currently operating unchecked, and its impact on wild populations is unknown. To learn more about

the trade and conservation of this species, our organizations, Paso Pacifico and the Turtle Conservancy, teamed up on a fact-finding mission to Nicaragua, where the trade is likely the most active. The following are some of our results.

According to data obtained from the USFWS Division of Law Enforcement's Law Enforcement Management Information System, the U.S. imported 707 shipments that were made up of 43,884 individual *Rhinoclemmys* turtles from 1999 to 2011. These include the Black River Turtle (*Rhinoclemmys funerea*) and Spot-legged Turtle (*Rhinoclemmys punctularia*), but over half of these were the Painted Wood Turtle. Even more concerning is that nearly 62 percent of the turtles imported reportedly came from the wild.

Nicaragua historically has had a high volume of wildlife exports. In a six-year period ending in 2004, more than 694,000 individual reptiles were exported. Though dealers dubiously claim nearly 85 percent of these exports were from captive breeding, the scale of this trade is alarming.

There are presently two authorized exporters of *Rhinoclemmys* in Nicaragua. Their permits and annual export quotas are granted by the Ministry of the Environment based on the quantity of breeding females. One of the exporters re-

ports having 200 breeding females, and another 100 breeding females beginning two years ago. Both exporters claim that they sell only specimens bred in captivity, as required by Nicaraguan law. The primary exporter with 200 breeding females has been able to export a total of 11,933 *Rhinoclemmys* in the past five years. With clutch sizes of between three and five hatchlings, one is left to wonder how 200 turtles can be so productive.

The primary countries where the two companies are exporting specimens are the United States, Canada, Japan, China, Belgium, and Holland. Animals imported to the U.S. generally go to large distributors including Strictly Reptiles, Two Amigos Imports, and California Zoological Supply. While the international trade is significant, at the very least it is documented by the Nicaraguan authorities, perhaps enforced by the fact that the U.S. (mainly Miami) is the port of entry for most specimens traded to Europe and the United States.

Unfortunately though, our study on trade uncovered a robust and undocumented domestic trade. We visited five large pet stores in the capital city of Managua that had Painted Wood Turtles on display. These stores report selling between 200 and 500 individuals during the rainy season months when hatchlings can be found in the forest. All pet store owners claimed to have received their turtles from authorized breeders, but they were unable to name the breeders when asked. One store claimed to be importing its turtles from California!

The Nicaraguan CITES authority regulates international trade, but there is no government oversight of the domestic trade. Where are these *mascotas* (pets) going in Nicaragua and who is caring for them? Stores were not selling food or husbandry materials to help customers adequately care for their turtles. If we assume an average of 330 turtles per store, then more than 1,650 turtles are being extracted from the wild per year. This is a significant drain on the total population. But this number does not include local trade of this *mascota* that is likely much higher. The bulk of Nicaragua's pets are sold at stoplights and along highways. From parrots to monkeys to puppy dogs, there is a large trade of animals taking place on the streets, and it is easy to imagine that wild-caught Painted Wood Turtles are but one more animal available on this active black market. 🐢



MAURICE FODRIGUES



MAXIMILIAN MAURER

Amazingly more forms of Meso-american wood turtles are showing up in global wildlife markets.

(top) Here are two rarely seen Mexican Spotted Wood Turtles (*Rhinoclemmys rubida*) for sale at the Chatuchak Animal Market in Bangkok, Thailand.

(bottom) A juvenile Painted Wood Turtle (*Rhinoclemmys pulcherrima manni*) being offered for sale in a Jakarta animal market.