Fantastic voyage

From Ecuador's Andean cloud forests to the Galápagos Islands, an eco-voyage reveals how locals and tourists can work with nature—to the benefit of all. BY SERENA RENNER

PHOTOGRAPH: GALEN ROWELL/MOUNTAIN LIGHT/ALAMY

VISITOR RATES TO THE "ENCHANTED" GALÁPAGOS ISLANDS HAVE MORE THAN TRIPLED OVER THE PAST 20 YEARS, UP TO ALMOST 200,000 IN 2012.

WE AWOKE TO A CACOPHONY of birdsong—chattering, wing-batting birds, heralding the sun's ascension over Santa Lucía Cloud Forest. The layer of haze that had cloaked *el bosque nublado* (the cloud forest) the evening before was sliding behind the hilltops, leaving only wisps of orange sherbet clouds and endless primeval forest to admire through the glass wall of our wooden cabana.

I step out onto the balcony, stilted over the treetops, to take in the mountainous landscape, coated in a thick carpet of deep green trees. The air is crisp, and any remaining moisture from last night is draining from mossy branches onto our tin roof. The birds start up again: A whistling quetzal, cackling flycatchers and a honking toucan-barbet harmonize with buzzing insects and water droplets. I hear voices, too, carrying from the main lodge. Breakfast is served.

"When you're in the business of conservation, and you watch other people who are interested in plants and insects, slowly you realize that everything plays a role in the ecosystem"

EDUARDO TAPIA, ECOTOURISM PROJECT SANTA LUCÍA

SERENA RENNER TRAVELED TO ECUADOR AND THE GALÁPAGOS ISLANDS WITH HER BOYFRIEND, KEVIN SCHNEPEL.

The 1,850 acres (750 hectares) surrounding the Santa Lucía lodge and cabins—roughly 50 miles (80 kilometers) outside Quito, Ecuador—hasn't always been this alive. Like much of the country, the area has fallen victim to logging, hunting and farming. In 1976, 20 *campesino* families bought the plot for an agricultural cooperative that raised cattle and grew blackberry and *naranjilla* (tree tomato) crops. Then in 1988, 35,000 acres (14,000 hectares), including Santa Lucía, were declared protected as part of the Maquipucuna Biological Reserve. The measure threatened the livelihoods of the landowners, but it brought about the kind of future they desired.

"The alternative was ecotourism," Eduardo Tapia, the father of one of the 12 families still involved in the project, told us as we hiked the trail to the lodge. "It allows us to live, but also to conserve."

Ecotourism has become one of the fastest-growing sectors of the tourism industry. Defined by the International Ecotourism Society in the 1990s as "responsible travel to natural areas that conserves the environment and improves the well-being of local people," ecotourism took off as a result of increased environmental awareness and a widening interest in nature and wilderness travel. But the trend highlights the clash between conservation and tourism. Some fear it may do more harm than good in places teetering on the edge of ecological balance.

ECOTOURISM IS PROVIDING FUNDS TO PROTECT THE JUNGLES, FORESTS AND ISLANDS OF ECUADOR, THAT ARE HOME TO SOME OF THE MOST UNIQUE SPECIES ON THE PLANET. SHOWN HERE ARE THE ANDES.

PHOTOGRAPHS: SERENA RENNER

PHOTOGRAPH: NOAH STRYCKER

In Ecuador—one of the most biodiverse countries in the world, yet one rife with economic challenges—the road to ecotourism is well traveled. From Santa Lucía to Darwin's famed Galápagos Islands, tourism is helping locals earn a living wage while providing funds to protect the jungles, forests and islands that are home to some of the most unique species on the planet.

But visitors, whose rates have more than tripled in the Galapágos over 20 years, bring the same set of issues—trash, pollution, traffic, noise and the introduction of alien species—wherever they go, whether it's Santa Lucía or San Francisco.

Santa Lucía was the first stop on a 10-day tour of Ecuador. Next up was a cloud-forest lodge near the renowned bird-watching town of Mindo, followed by a drive on the new "eco route" to Quito. In two days, we would embark on a cruise through the Galápagos, which remains one of the best-preserved examples of how biological forces shape life on Earth. My boyfriend and I were invited to the "Enchanted Islands" on a press trip with Ecoventura, an Ecuadoran-owned company considered by many to be the environmental trendsetter among island outfitters.

The trip taught me that travel, when done sensitively, can have benefits that far outweigh the costs. The visitor and the visited—and even the environment—are all better off.

DAY 2

Down from the lodge, Tapia leads us to a makeshift greenhouse where tree saplings sprout from tiny pots. With support from Rainforest Concern U.K., Santa Lucía has planted more than 6,000 native hardwoods since 2001, revitalizing 50 acres (20 hectares) of depreciated land between areas of primary forest.

Descending into the valley, it's tough to discern new forest from old. Everywhere I look, giant *cedro* trees, oversize ferns and fanning palms are layered with lichen and moss. Orchids, bromeliads and mushrooms spike symbiotically off the bark, while vines coil up and around their trunks. More than 400 bird species, from tanagers and hummingbirds to the rare plate-billed mountain toucan and notorious cock of the rock, live in the canopy. Mammals like pumas and the endangered Andean spectacled bear have also returned to their native home.

I notice a green ribbon strung around a tree, and Tapia explains that scientists from EarthWatch use it to measure trunk growth and carbon capture. He hopes the research will lead to the introduction of carbon-trading money from the state, which he says would help local families. "Us poor people aren't educated," he says earnestly. "This is just what the scientists tell us."

Here in rural Ecuador, where subsistence

THE CERRO AZUL VOLCANO, ON THE SOUTHWESTERN PART OF ISABELA ISLAND IN THE GALÁPAGOS ISLANDS. WHILE MUCH HAS CHANGED SINCE CHARLES DARWIN VISITED THESE ISLANDS, 97 PERCENT OF THE GALÁPAGOS HAS REMAINED RELATIVELY INTACT AS A RESULT OF PROTECTIVE MEASURES INTRODUCED IN 1959.

PHOTOGRAPH: ANDONI CANELA/GETTY

is a higher priority than environmental concern, conservation often comes after economics. The members of Santa Lucía now make at least $292 a month—the Ecuadoran minimum wage, which is good by local standards—but they're still discovering the ecological significance of the forest, thanks in part to visiting researchers and volunteers. "When you're in the business of conservation and you watch other people who are interested in plants and insects, slowly you realize that everything plays a role in the ecosystem," Tapia says.

When we return from our hike, volunteers from the U.S., England and Germany are helping construct a new kitchen and laboratory from trees that have blown down. Even though we didn't have time to join the effort, it's nice to see that our money is reinvested in improving this beautiful place, which already serves as a model for ecotourism in the area and beyond. Locals have adapted to difficult circumstances and evolved into environmental stewards.

After our lunch of chicken soup, beef, rice and vegetables—ingredients produced on-site or purchased from neighboring towns—we hike down the mountain and set off for our second stop: Allpalluta Lodge, near the small town of Mindo, which is undergoing a reforestation project of its own. We will explore the "eco-route" that is bringing new life to the lush area between Mindo and Ecuador's capital.

DAY 3

I get slightly uneasy every time Roberto Nicolalde honks his horn. Yes, the dirt road we're driving on is curvy, but El Paseo de Quinde (the Trail of Hummingbirds) is a newly designated eco-route, and I worry the noise might frighten the 500-some bird species that flit around these parts. The road, which winds through towering trees and around cliff-hanging turns in the Mindo Cloud Forest region, used to be the main route from Quito to the coast. That was until a faster highway was completed in 1996, virtually shutting down commerce in the area and forcing many people out.

But this wasn't all bad news, Nicolalde's wife, Grecia Flores, told us as we sipped mulled wine in the homey dining room of their Allpalluta Lodge the night before. "In 15 years, the native flora and fauna returned. Toucan and deer came back. So did the Andean spectacled bear."

PHOTOGRAPH: SERENA RENNER

Nicolalde and Flores opened Allpalluta in 2005, two years after they helped create the eco-route. The couple noticed that many visitors, mostly from the U.S. and Europe, continued coming to the area to see birds. "The International Audubon Society has ranked the region as the world's premier birdwatching destination for the past five years," Grecia says, "but the neighboring towns of San Tadeo, Tandayapa and Nono rarely benefited from this status." With help from the Ministry of Tourism, the Dutch import company CBI, the Belgian Development Agency and USAID, eco-route organizers trained 30 people in guiding, held courses in hotel service and built the infrastructure for this new nature destination.

Nicolalde and Flores say they've already seen a change in the local mindset. People no longer throw trash in the streets. Small businesses are sprouting, and natives are returning to their hometowns. The couple has learned tips from visitors, too, like separating recyclables, buying local and reducing electricity and water consumption. "Every day, I learn something new from our guests," Flores says. "And this, we pass on to our employees and the people in the communities."

Nicolalde slows the truck to point out the entrance to the Bellavista reserve. An Englishman named Robert Parsons and his Colombian wife, Gloria, protected 135 acres (55 hectares) of forest in 1991, several years before Santa Lucía got started. The reserve has grown to cover 1,700 acres (700 hectares), and judging by the number of cars in the parking lot, the lodge seems to be the most popular of the four eco-accommodations along the route.

Further along, Nicolalde points out places where local guides can take visitors to see waterfalls or the pre-dawn mating ritual of the cock of the rock. The vibrant red-black-and-white males of this cotinga species perform elaborate courtship dances—they squawk, jump, snap their bills and flap their wings to attract a female's attention.

We round a bend into the tiny town of Tandayapa, where two boys are playing soccer in the street, and a few restaurants with colorful façades are closed on this quiet Saturday afternoon. The road then makes a gradual climb until we can see the largest town, Nono, from above. It's a patchwork of pine trees, houses and businesses, which Nicolalde says have seen the greatest progress since the eco-route began.

Outside Nono, the dirt road becomes pavement and cars start zipping by, making me realize I haven't seen one in a while. Flores mentions that big companies bring tourists here by the busload and capture most of the market. This is the mass tourism the eco-route is up against. I cringe at the thought of Nicolalde's honks multiplied by several buses, not to mention the emissions this traffic would bring. Then I consider that the forest could probably swallow the air pollution in a single carbon-loving gulp. The eco-route needs more traffic to be successful, but organizers want to keep it manageable. "If it's run responsibly, it can function harmoniously, without causing environmental havoc," Nicolalde says. In Flores' words: "This project is for intelligent tourists, who are talking the same language about conservation. It's a very particular kind of tourism, and as a result, it's going to cost a little more."

> "Every day, I learn something new [about conservation] from our guests. And this, we pass on to our employees and the people in the communities"
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> **GRECIA FLORES, LODGE OWNER, ECUADOR**

Experiencing a place of such pristine yet delicate beauty makes me more aware of how my actions might affect such an

EDUARDO TAPIA USED TO WORK ON THE LAND FOR AN AGRICULTURAL COOPERATIVE IN SANTA LUCÍA, BUT WHEN THE AREA WAS DECLARED PROTECTED, HE SWITCHED TO ECOTOURISM.

environment. I've learned not to flush paper down the toilet in Ecuador because it might clog the pipes or end up in the water supply. At Santa Lucía, I am more conscious about taking quick showers, knowing that diesel gas is being burned down the hill to send me heated water.

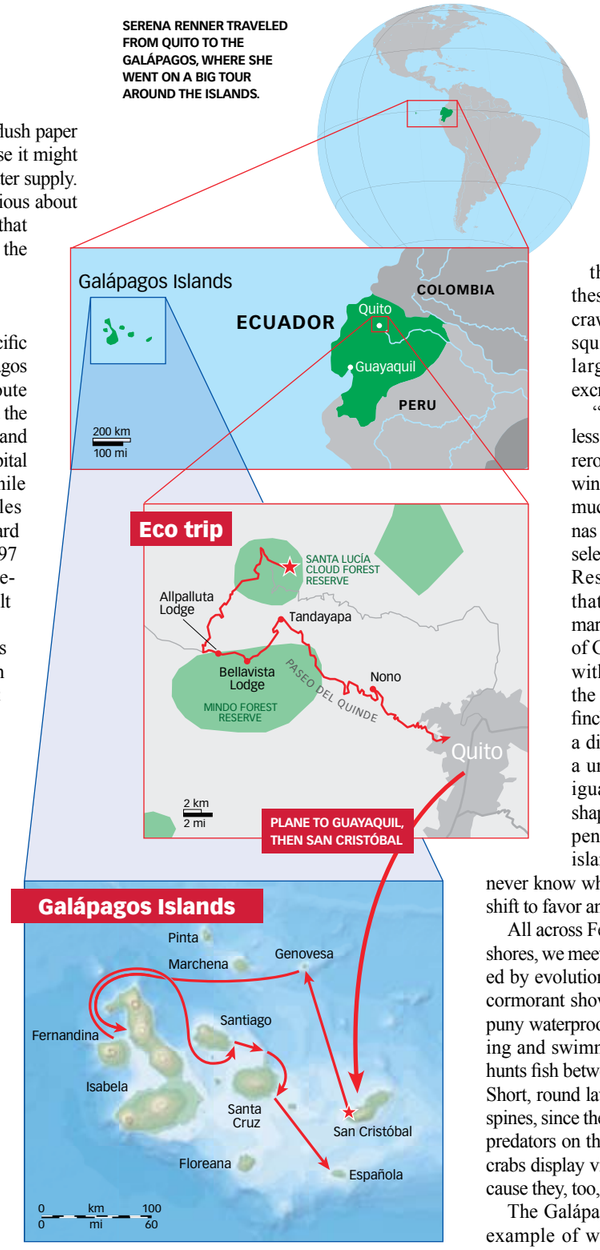
DAY 6

Seven hundred miles across the Pacific from the cloud forests, the Galápagos feels like the desert. The eco-route ended near Quito, where we spent the night before flying to Guayaquil and then San Cristóbal Island, the capital of this volcanic archipelago. While much has changed since Charles Darwin visited these islands aboard the HMS *Beagle* 176 years ago, 97 percent of the Galápagos has remained relatively intact as a result of protection in 1959.

Still, the number of visitors has more than tripled in 20 years, from roughly 40,000 in 1990 to about 140,000 in 2010. The population of locals has also jumped to meet the demands of tourism, and problems, such as introduced plants and animals and overuse of trails, led to the Galápagos being placed on the endangered list in 2007. As a result, the Galápagos National Park continues to tighten regulations on when and where tour boats can anchor. Starting in January of 2012, nearly 90 cruise ships have to spread out their impact by hitting visitation sites every 15 days, rather than every seven as the old rule declared.

But landing on the pristine island of Fernandina the second day of the cruise, all these problems become an afterthought. As the president of Ecoventura, Santiago Dunn, aptly said before my departure, "Once you're in the wild, you're going to feel like it's the 1800s again."

As soon as the other passengers and I step off the *panga* (dinghy) onto the cement platform shaded by red mangrove trees, we stumble upon a pile of Godzilla-like marine iguanas warming their charcoal-colored, sandpaper-skinned bodies in the sun. Although these "imps of darkness," as Darwin called them, have evolved from the Galápagos land iguana into seven subspecies of marine reptile, which swims and feeds on algae, these animals spend most of their lives on land.



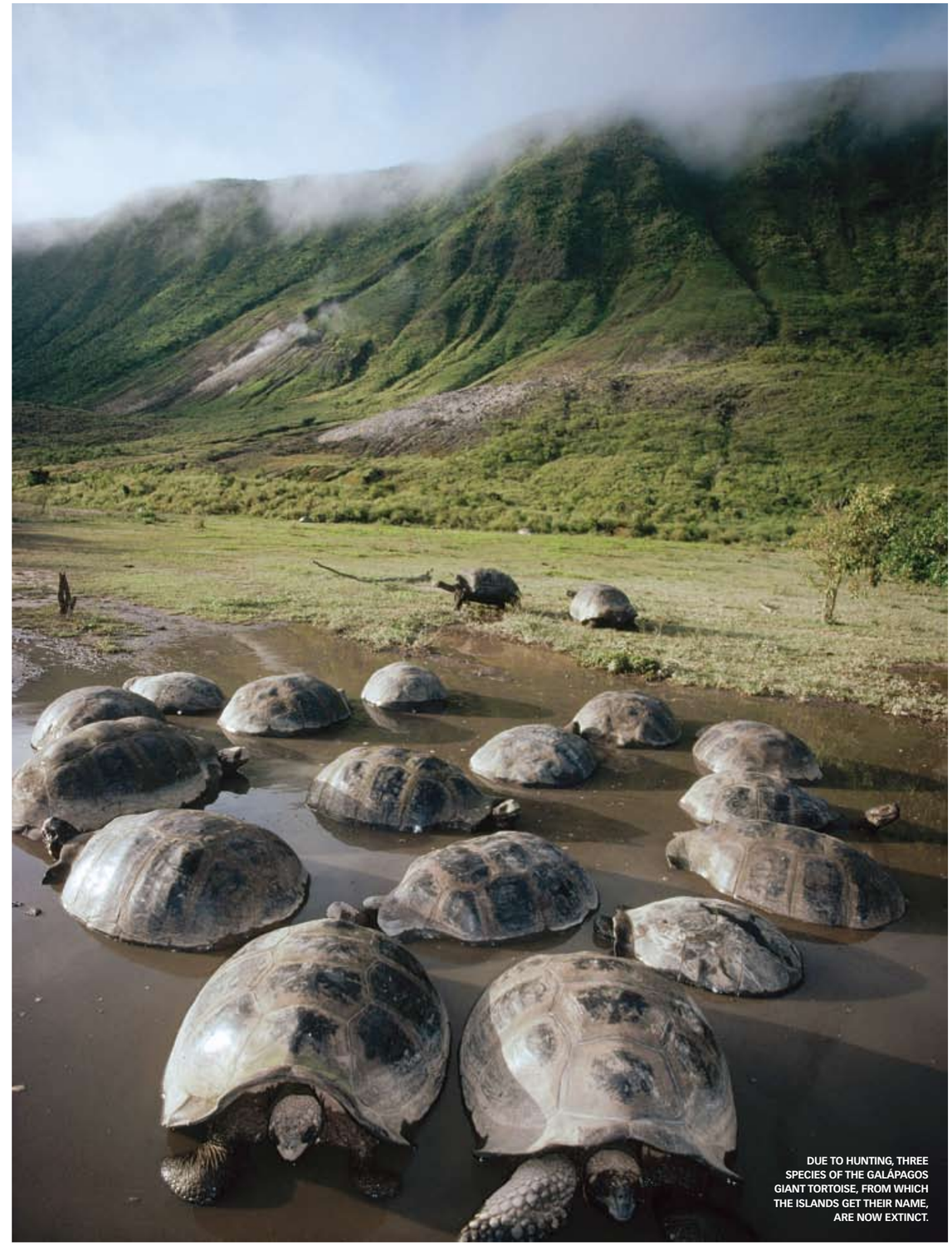
SERENA RENNER TRAVELED FROM QUITO TO THE GALÁPAGOS, WHERE SHE WENT ON A BIG TOUR AROUND THE ISLANDS.

"Which size iguana do you think copes better in El Niño years?" our naturalist, Cecibel "Ceci" Guerrero, asks the group as we watch these fascinating creatures crawl all over one another, squirting saline from their large, oblong nostrils to excrete salt.

"The smaller you are, the less energy you need," Guerrero answers. The rains and winds of El Niño wiped out much of the algae the iguanas eat, resulting in nature's selection for smaller bodies. Researchers have shown that the bone structure of marine iguanas on the island of Genovesa shrinks to cope with food shortages. Like the 13 species of Darwin's finches—each equipped with a different beak that fulfills a unique purpose—marine iguanas come in different shapes, sizes and colors depending on which isolated island they call home. You never know when the conditions might shift to favor an alternate variety.

All across Fernandina's lava-covered shores, we meet other rare species molded by evolutionary time. The flightless cormorant shows off its long neck and puny waterproof wings, perfect for diving and swimming—not flying—as it hunts fish between underwater crevices. Short, round lava cacti have grown soft spines, since they don't have any natural predators on the island. Sally Lightfoot crabs display vibrant reds and blues because they, too, are invincible here.

The Galápagos is not only a living example of why animals evolved in certain ways, it's a constant source of new findings. Scientists just discovered the "pink iguana," which they believe might be the missing link between the land and marine versions of the animal. And with the increasing number of humans who factor into the island ecology, new adaptations are made every day. »



DUE TO HUNTING, THREE SPECIES OF THE GALÁPAGOS GIANT TORTOISE, FROM WHICH THE ISLANDS GET THEIR NAME, ARE NOW EXTINCT.

PHOTOGRAPH: TUI DE ROY/MINDEN PICTURES/NATIONAL GEOGRAPHIC STOCK

ON THE GALÁPAGOS ISLANDS, MARINE IGUANAS HAVE EVOLVED INTO SEVEN SUBSPECIES, WITH DIFFERENT SHAPES, SIZES AND COLORS DEPENDING ON WHICH ISOLATED ISLAND THEY CALL HOME.

PHOTOGRAPH: FRANS LANTING/NATIONAL GEOGRAPHIC STOCK

I've read about the Galápagos in books, but its lessons really sink in when I see them in action. I know humans have left an ugly stain that locals and visitors are still trying to clean up. And I know getting people like me out here is still causing problems that entrance fees are only just beginning to address. But now that I'm here, with nothing more than a camera and notepad in hand, I'm inspired to help. People have to get here to feel this way.

That afternoon, we hike to an overlook above Tagus Cove on the largest island, Isabela. The trail begins at a rocky outcrop engraved with the names of whalers, buccaneers and explorers who've come before. The oldest year we can find is a sizable "1836"—declaring someone's arrival just one year after Darwin's.

The sandy trail reveals a dry landscape, with just a few species of trees and flowering shrubs. Guerrero stops at a small white glob clinging to the branch of a *Scalesia* tree like a piece of chewed gum. She says it's the cotton cushion scale parasite, which probably arrived on the islands accidentally via a plant brought by humans. Accidental or not, the parasite spread like wildfire and started destroying the white and black mangrove trees to the point that the national park had to intervene. Luckily, the park found a ladybug from Australia that feeds exclusively on this parasite. After being deemed safe, the ladybugs were released about 10 years ago, and they've been helping the mangroves make a comeback.

This is one of many eradication programs in place to fight alien species. The park recently completed an $8 million program targeting goats on Isabela; goats reproduce quickly and tear up native plants that both shelter and feed endemic species. The project was so large scale that it required helicopters to shoot the goats. Goats are now under control on Isabela, and the effort is acclaimed as one of the most successful goat eradication programs anywhere. The current generation must solve the problems caused by previous generations. Because locals and foreigners are working together, many species have come back from the brink.

The trail ends at a lookout where we can see all five of Isabela's volcanoes. One direction reveals a bright blue saltwater lagoon separated from the ocean by a thin slice of land, while the other side looks out over a sea of volcanic rock that stretches to the ocean. Guerrero points out a small cluster of mangrove trees on the protected coast across the lava. She says introduced rats have been killing off mangrove finches there, and they are down to 190 individuals.

> "One new animal can wipe out an entire species. That's how fragile this place is"
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> **CECIBEL "CECI" GUERRERO, NATURALIST**

PHOTOGRAPH: SERENA RENNER

Rats are one of the greatest challenges, because they feed on the eggs of iguanas and giant tortoises; they also eat the babies of these animals as well as bird chicks and plant seedlings. Island Conservation helped remove rats on the small islands of Rábida and Bartolomé last January, and the nonprofit has more plans in the works.

A portion of the $100 national park entrance fee goes toward such projects. But while tourism is helping with recovery, new plants and animals keep arriving by air and sea without enforcement in place. "We blame the whalers and the pirates," Guerrero says, "but this should not be happening now that we're more conscious about the islands. One new animal can wipe out an entire species. That's how fragile this place is."

Back aboard Ecoventura's yacht, *Eric*, we're seated for dinner with captain Pablo Jaramillo, who's lived on San Cristóbal, one of the four inhabited islands in the Galápagos, since 1982. As we enjoy locally caught white sea bass, Pablo tells us that he used to be involved in commercial farming but now only produces a couple of non-aggressive crops like oranges, bananas, pineapple and sugarcane, while he works to restore the native vegetation of his property. He's switched away from pesticides and relies solely on hand techniques and a micro-organism that's helping regenerate the soil. "It takes longer, but it's nearly permanent and clean," he says. "What we require now is help."

We talk about tourism and how the islands have changed over the years. He mentions the money that comes in from visitors, which also provides jobs for native people. I ask Pablo his thoughts on island hopping, which Guerrero told me has become a popular alternative to cruising, mostly for young people. Instead of paying high rates for cruises, some travelers stay in hotels and hire boats for day trips to various sites. Pablo says this kind of tourism needs to be controlled, but it's important because it grants access to young people, who he says are more conscious and optimistic.

"There can't be too many people, but it also shouldn't be restricted so dramatically because then only a privileged few will be able to see this environment," he says. "If young people can access this, they will be the best ambassadors for Galápagos."

The topic of young people comes up at Allpalluta, too. Flores and Nicolalde talk about how conservation is becoming part of the school curriculum, helping reshape the opinions and values of both children and adults. In some ways, the Galápagos has an advantage because electricity and waste-management systems are still being developed. The more that young people are inspired to help, the greater the chances that

ALL ACROSS THE LAVA-COVERED SHORES OF THE ISLAND FERNANDINA LIVE RARE SPECIES MOLDED BY EVOLUTIONARY TIME, LIKE THE FLIGHTLESS CORMORANT, WHICH HUNTS FISH BETWEEN UNDERWATER CREVICES.

sustainability will be built into future plans from the start.

DAY 8

Today, we meet the Galápagos giant tortoise, from which the islands get their name. The word *galápagos* means "saddle," and that's what the tortoise shell looks like, though it's been morphed into different shapes depending on the vegetation of each island.

When I walk up to one of these giants on a farm-turned-reserve in the forested Santa Cruz highlands, it tucks its head into its shell and lets out a deep Darth Vader–like exhale. It's unusual to see Galápagos animals show fear, but in the case of the tortoise, which has been hunted since the 1800s for its meat and fat, the fear seems warranted. Whalers and fur traders would stock the halls of their ships with tortoises turned upside down, since they could stay alive for several months, providing a fresh source of meat for the crew. Later, tortoises were hunted for oil to light streetlamps in Quito and Guayaquil.

While the Galápagos giant tortoise originally evolved into 14 different species numbering in the hundreds of thousands, three species are now extinct due to hunting and predation by introduced species. Other populations have gotten so close to extinction that they've been plucked from their native habitats to breed in captivity at the Charles Darwin Research Center on Santa Cruz, which also receives funding as a result of the national park fee. One such example occurred on Española, where only 15 tortoises remained by the 1970s, after sailors hunted them clean and goats stripped the island of plants. After a successful captive breeding and repatriation program, the tortoise population on Española has grown to more than 1,500. "It's a gradual process, but we know it's efficient," Guerrero says. "It's going to take several more generations of humans to reverse the damage."

DAY 10

We've sailed from Santa Cruz to Española and finally back to San Cristóbal for our final afternoon in the Galápagos. In about five hours, we'll be in Quito again. I think about our previous day on Española. There, sea lion mothers nurse their pups and play with marine iguanas, while finches, mockingbirds, frigate birds, hawks, Nazca boobies, blue-footed boobies and waved albatross—some of them native to Española—all nest and mate and live together amid golden bluffs and ocean-splashed cliffs. It's hard to fathom that natural selection can create such a diverse and fascinating place, but it gave me the sense that we're all connected.

Walking back to the bus, we pass a wall mural that reads "*Biodiversidad somos todos*" ("We are all biodiversity"). It depicts a mosaic of a family of three with small pictures of the plants and animals that make up island life. I think back to the captain's reforestation project on this very island and our conversation around the dinner table. Like the families of Santa Lucía and the couple that started the eco-route, Jaramillo is trying to make peace with his natural environment—to live but also to conserve.

And we as tourists can help make that happen—by sharing ideas and resources when we travel and taking the message of conservation back home. ■

SERENA RENNER *evolved to appreciate Western plumbing and the vast array of birdcalls.*

PHOTOGRAPH: NIGEL PAVITT/JWL/AURORA PHOTOS