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Gordon Sato wants to transform Eritrea's coastline into a mangrove park, with hundreds of miles of trees.
(Globe Staff
Photo / Suzanne Kreiter)

Desert Saint

When Gordon Sato was sent to an internment camp for Japanese-Americans as a teenager during World War II, he learned to cultivate vegetables in the dry California dirt. Today, the 76-year-old Sato is using that experience to help the people in a drought-racked, war-ravaged nation grow food in their own desert.

By Pagan Kennedy | November 14, 2004

TWO YEARS AGO, GORDON SATO was planting trees in the sandy muck along the coast of Eritrea, a drought-racked, tin-shackled wasteland in eastern Africa, when the reporters began calling. They wanted to know what he thought about the fall of Martha Stewart. Back in the 1980s, Sato had co-invented a drug that helps slow the spread of colon cancer, and now Stewart stood accused of illegally dumping her shares of a company called ImClone Systems that owned the rights to Sato's drug. When the cell biologist heard the news, he barely looked up from his digging. "I had no interest in it," he says.

Gordon Sato has one all-consuming interest, and that's finding new ways to grow food in the desert. He believes he's on the verge of doing just that. By his count, he and his

team of workers have planted almost a million mangrove trees in Eritrea, where up until recently not much of anything green could survive. In a pilot program, Sato has shown that the leaves and seeds of the mangrove trees can feed goats and thus provide local villagers with lifesaving meat and milk. He says his work will not be finished until he has transformed the Red Sea coastline of Eritrea into a mangrove park, with hundreds of miles of trees. And then, maybe, he'll move on to other countries. This is an especially ambitious plan given that Sato is now 76 years old.

I am curious about this man who presumes to transform the coastline of an entire nation. What keeps him flying around the world, pushing his solution to world hunger, when so many other men his age are content to hit a few golf balls? And so I arrange to meet him in Wenham, of all places. This is where Sato lives with his wife in between his trips to Hargigo, the Eritrean village that has become his base of operations, and to spots around the world where he meets with people who might possibly donate a few hundred thousand dollars to his project. In a few days, for instance, Sato will fly to Dubai. Did I mention that he's 76?

SATO TAKES A LONG TIME to come to his door. He is deeply tanned and wears rumpled work pants, so when I catch my first glimpse of him through the glass, he strikes me as vigorous. But once inside, I notice the frailty of those sun-beaten arms, the way his clothes hang loose. When he speaks, he pauses, as if marshaling himself for the effort of breath and words. It's nearly impossible to imagine him bumping along in a Land Rover toward a village with no running water. Yet that's where he's most happy.

In his stocking feet, he leads me through a somnolent living room that is bathed in soft-green light from the trees outside. Plump chairs are gathered around a TV tray, which is set up for Sato's next smoke, all of it laid out just so: the pipe, the matches, the can of Prince Albert. Once we're in the office, the phone rings. He takes the call. He has to. He's a full-time fund-raiser now. "This is the job I hate," he says. "But I have to think about a long-term plan, how to have the project go on after I'm dead."

Much of the initial funding for the mangrove project has come out of Sato's own bank account. Still, he has proved himself to be a whiz at raising money. He started his project in 1986 with half a million dollars donated by a Japanese businessman; in 2002, he won a prestigious \$100,000 Rolex Award for Enterprise for the mangrove project. Sato does not bother with the time-honored tools of fund-raisers - tact and flattery. "He tends to blurt out what he thinks, often in salty language. But he's feisty, and he's smart," says Bruce Ames, professor of the graduate school at the University of California, Berkeley, who has known Sato since they were grad students at Caltech. "I think he's a real hero," says Ames.

Sato has already proved himself right once before, as co-inventor of an important cancer drug, Erbitux. Now he's got another big idea, a plan to turn badlands into wetlands. The secret turns out to be three holes. You take a fist-sized bag of fertilizer and punch a nail through the plastic three times, then bury the bag near the roots of a mangrove seedling that you have just planted in barren soil. Over the next three years,

the fertilizer will leak out slowly, supplying the tree with an IV drip of nutrients. If you punch two holes, the tree ends up stunted from lack of fertilizer; with four holes, the tree suffers from too much. Sato discovered this method in the 1990s, working with Eritrean agriculturalists; he also discovered that goats could live on the mangrove cuttings, though farmers will have to add a cheap supplement in order to fill out the limited diet. "None of this has ever been done before," Sato says.

According to Richard Wright, professor emeritus of environmental science at Gordon College in Wenham, Sato's project could help to showcase the value of mangrove swamps, which are being felled in alarming numbers around the world. "Mangroves provide microhabitats for many species, and that contributes to biodiversity and enhances the stability of the coast," Wright says. In other words, mangrove trees both hold back the waves and act as nurseries for fish. The roots provide a home for small fish, as well as crabs and prawns. Sato's project, he adds, "might help people in other regions who have mangroves and have never thought of using them to feed animals."

About seven years ago, Sato began training a team of Eritrean women to plant row after row of the trees along their native coastline. They've already covered about 3 miles, with some of the mangroves now towering over the heads of the workers.

OF COURSE, IT'S ONE thing to figure out how to fertilize trees, quite another to keep any kind of program going in Eritrea, a country studded with land mines, traumatized by a 30-year struggle for independence, and in danger of going to war, once again, with Ethiopia. And then there are the camels. "They're our enemy," Sato says, showing me a photo of a mangrove tree that has been picked clean. The nomadic people who roam Eritrea let their camels feast on the trees, requiring Sato's team to build fences. "We may be changing the culture of the country, because we're fencing off mangroves," Sato acknowledges. "The nomads were previously free to go anywhere."

And last year, he found out that he had another group of foes, potentially far more damaging than even the camels: coral-reef advocates. The New Scientist ran an article in May 2003 quoting Mark Spalding and unnamed marine biologists who worried that the fertilizer runoff from Sato's trees all those nutrients leaching out of all those little plastic bags could damage the coral reefs off the coast of Eritrea.

"Environmentalists are sanctimonious hypocrites," Sato says when I bring up the accusations. He pulls at his hair, which is salted black, unkempt, and thick, so that it stands up in a ruff, the way an angry cat's will. Now that he's worked up, his exhaustion drops off him. He's leaning forward in his chair, spewing out the reasons why Spalding cannot be trusted, reasons so ad hominem as to be utterly unprintable. Furthermore, Sato asserts that the accusations don't hold up, because the runoff from the bags of fertilizer is negligible. "We're not harming the coral reef," he says.

And now I understand what keeps Sato going, keeps him flying around the globe and sends his mangroves marching along the coast. Yes, he's concerned about the Eritrean people. Yes, he's eager to find a direct and simple way to feed the hungry. But what

really seems to motivate him is outrage. And in Sato's case, that outrage is more than justified. You only have to see the sign that he's erected in Eritrea to understand why. It proclaims the name that he has given to his mangrove project: Manzanar. Sato has taken that awful name, that word with the razor-wire of a Z at its center, and made it his own.

IN 1942, THE UNITED STATES opened its first internment camp for Americans of Japanese descent in Owens Valley, California. The camp, called Manzanar War Relocation Center, sat on a patch of desert. Photographs show tractors plowing through soil so dry that great puffs of dust hang in the air. The people suffered from spoiled food, crowded quarters, and bad sanitation. In the 1973 book *Farewell to Manzanar*, Jeanne Wakatsuki Houston writes: "I was sick continually, with stomach cramps and diarrhea. At first it was from the shots they gave us for typhoid, in very heavy doses and in assembly-line fashion: Swab, jab, swab, *Move along now*, swab, jab, swab. . . . Later it was the food that made us sick, young and old alike."

In 1942, Gordon Sato, then a teenager, and his family were deemed "enemy aliens" and sent to live behind the barbed wire at Manzanar. There, he cultivated a small vegetable garden in the dry, dry dirt. That's about all he wants to say about Manzanar. When I ask him to tell me more, he shakes his head and leans back in his chair, into silence.

The boy who tried to grow food in the dust of the California desert would go on to a meteoric career in cell biology. From the 1970s through the early 1980s, Sato worked as a professor at the University of California, San Diego; in 1983, he was named director of the W. Alton Jones Cell Science Center in Lake Placid, New York; he published more than 150 articles and was inducted into the National Academy of Sciences. It was in the early 1980s, at UC-San Diego, that Sato made a key discovery about cancer. He and a colleague, Dr. John Mendelsohn, found a way to deprive some cancer cells of a protein that they use in order to grow. It was this insight that led to the development of Erbitux.

And then, in the late 1980s, he retired from cell biology and devoted himself to answering the question that he says has haunted him ever since Manzanar: How do you make food grow where there's no water? Or perhaps the real questions are: How do you give people who are stuck in some of the worst places of the world a way to support themselves? How do you help a people who have been stripped of their dignity get it back again? Sato believes that enabling Eritreans to grow and harvest their own food, freeing them from handouts, is part of the answer.

In the 1980s, Sato began scouting around for a beleaguered population who lived near a coast and could benefit from an unorthodox agricultural program. He approached Chilean and Chinese groups but didn't click with them: "They just saw me as money." Then he called an Eritrean professor in Washington, D.C., who expressed interest in his ideas - the professor told Sato to meet him in a particular room at a university institute. Eritrea was at war, and its leaders were deeply suspicious of spies. When Sato arrived at the appointed meeting room, he found it empty. "A phone rang, and I picked it up,

and they told me where to go." He ended up gaining the trust of the Eritrean People's Liberation Front, one of the guerrilla groups then battling the Ethiopians.

From there, Sato flew to Sudan, where he waited in a hotel with some fish in the bathtub. At the time, Sato believed that fish farming was the best way to help the poor feed themselves, but he later discarded the idea as too labor-intensive. A group of Eritrean fighters transported Sato and his fish across the border as a driver listened to a shortwave radio every hour or so in order to dodge enemy troops. Two days after Sato left the hotel in Sudan, he says it was blown up.

"But why Eritrea?" I ask yet again. "Why risk your life, when there were so many other places you could have gone?"

Sato shrugs. "I liked the Eritrean people. And I didn't feel it was dangerous at the time." Sato has found a place that resonates with his own memories, a land of drought and displaced people, of blank sand that hides a terrible past. The village, Hargigo, that is now the center of the Manzanar Project was once known as a stronghold of resistance against the Ethiopians, says Sato. In the 1970s, he says, Ethiopian troops tore through Hargigo and killed or chased out everyone. The place turned into a ghost town. Slowly the survivors and others crept back to resettle the place. Now several thousand people subsist in Hargigo around a murky watering hole that sometimes turns dry. In this village, Sato plans to create a massive memorial to the lost Hargigo. He wants to plant about 2,000 mangrove trees, each bearing a metal plaque etched with the name of someone who was killed by the Ethiopians. But he has run into difficulty: The village was so ravaged by the war that in many cases even the names of the dead have been lost. This is one of the places on earth so brutal that people do not just get massacred but also erased.

In the middle of this wasteland, Sato is attempting to build an anti-Manzanar, a place that is the opposite of an internment camp. It "might not have been as bad as Auschwitz," he says, "but it was bad. I am trying to make Manzanar into something good."

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