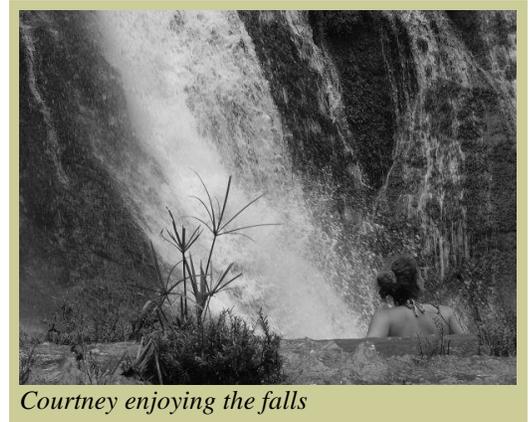


# Rancho Mastatal Updates

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## October/November 2008

*Our stateside trip has been going wonderfully. We've seen tons of friends and family members and Solé's been doing great adapting to her new, colder surroundings. The results of the November 4 elections has certainly helped to buoy our spirits as those of billions around the world. We recently returned from an uplifting trip to MA and VT where we met up with over a dozen Ranch friends including GEOFF and DESA, NANCY and HANK, SPARKY, TYLER, BUCK (of the Canadian variety), HEATHER, ARI and JENNA, LILY, GLEN and JESS, AARON (of the Westgate variety) A SMITH, RACHEL JACKSON, and LORI DUCHARME. I'm sure that I missed somebody out there and for that my sincerest apologies. The event, as it has been for us the past two years, was a blast and tremendously inspirational. The annual conference was held in various historic buildings in New Bedford, MA for the first time. New Bedford's an old whaling town with a ton of character and proved to be a great venue change. We enjoyed getting to know the city as we traversed downtown running from workshop to workshop. Our hats go off to Desa and Glen and the whole Marion Institute team for putting together an incredible event. We would encourage all of you Northeasterners to attend this life-changing conference in the coming years. You can learn more about this occasion at <http://www.connectingforchange.org/>. After the awesome weekend in MA, we continued on to Worcester, VT where we met up with SKIP and LIZABETH to spend the Halloween weekend on their beautiful property outside of Montpelier. We enjoyed walks in the woods, a huge bonfire, and Skip and Elizabeth's annual Halloween shenanigans. We're expecting to hook up with much of the crew again before our return to Costa Rica on December 7. Time continues to fly on by as the first snows of the year blanket the Northeast. We hope that this has found all of you out there happy and well. Pull up a nice hot cup of tea and enjoy this edition of the RM newsletter.*



Courtney enjoying the falls

This month's update includes:

**[RM Program News:](#)** RM Norte

**[Building Report:](#)** A New Nation

**[Conservation Update:](#)** Energy

**[Community Facts/Stories:](#)** Can't See the Forest for the Tree

**[Volunteer/Guest Gossip:](#)** In One End and Out the Burner

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**[Fútbol Follies:](#)** Nothing Much to Report

**[Inspirational Impressions:](#)** O B A M A

**RM Program News: RM Norte**

Every time that we come back to visit the Northeast in the fall we get inspired by what all of our friends and family are doing stateside to further their interests and work in social and environmental justice, organic farming and sustainable living. As a result, we've started to throw around some ideas about how to unveil an entity similar to Rancho Mastatal but up here in this part of the world. It's by all means in the dream stage, but with the recent election and the world's increasing interest in doing what's right for our species and the planet, we think that the time is ripe to get something started in our native country. We've been scheming with some of our closest friends about ideas on how to pull this off and what shape an endeavor like this might take. Let us know if you have any ideas. In the meantime, we'll keep you posted if we make any sort of progress.

### **Building Report: A New Nation**

Our report this month is not about building chicken coups, cabins, or composting toilets, but rather about rebuilding a nation ravaged by destructive policy and unchecked greed for decades. The election of Barack Obama has given millions of people across this country and hundreds of millions across the world hope for a new type of human society; one based on love, compassion and hope and not on war, greed and hatred. The work ahead is enormous and to many may seem insurmountable. There's nary a minute to enjoy the recent change in power as war torn countries, a warming planet and billions in poverty await our immediate actions. A reevaluation of everyone's priorities is necessary to help solve the immense problems of our times. And never has there been a better time to build as people reassess our place in this world and pick up the pieces of their changed lives in the wake of the economic and environmental crisis in which we find ourselves. Now is the time to come together to work with family, neighbors and community members to re-visualize our role on this planet and to start making substantive improvements that will leave our world a better place for those yet to come.

## Conservation Update: Energy

It's pretty amazing what a difference a few years can make. Jimmy Carter's policies in the late-1970s made solar power and energy conservation household ideas. Three decades ago he said, "I want to have an unpleasant talk with the American people about a problem unprecedented in our history. With the exception of preventing war, this is the greatest challenge our country will face during our lifetimes. The energy crisis has not yet overwhelmed us, but it will if we do not act quickly". His prophetic and honest words would inadvertently help elect Ronald Reagan in 1980 who upon entering office immediately overturned Carter's hard-won progressive energy policies and dismantled the solar hot water heater that Carter had installed on top the White House. And here we are almost three decades later, still with a defective energy policy that rewards large fossil fuel companies, starting to talk seriously once again about renewable energy and conservation. In the thirty years that have elapsed since the days of Carter, global warming has moved to the forefront of the environment, politics and social policy. With

a prudent, conscientious, and concerted effort these past few years, perhaps with money only half as much as the recent bailout to salvage Wall Street's criminals, we could be living on a much less dangerous planet. Now energy issues have moved to the vanguard of everyone's lives. Presidential candidates treat the topic as sacred. Citizens around the world need to know how we will continue to power our lives in a way that is sustainable. People are starting to seriously shop for small, efficient vehicles that do less damage to both their budget and to the environment. Perhaps the ideas set forth by Carter years ago have come of age. And what better time than with the arrival of a new administration. Now it's our responsibility as citizens of the world to pressure the Obama administration to implement an energy policy that will make a definitive positive change in the lives of everyone around the globe. Push our leaders to make smart and ethical energy choices and remind them again that there's nothing clean about "clean coal" and nothing safe about nuclear.



*Photos from an SEI class in January 2006. Testing the solar panels before they go on the roof*

*photo by Ana Unruh Cohen*

## Community Facts/Stories: Can't See the Forest for the Tree

Researchers argue that it's time to see beyond the "myth of the pristine forest"—to gain a truer understanding of humankind's interactions with the natural landscape.

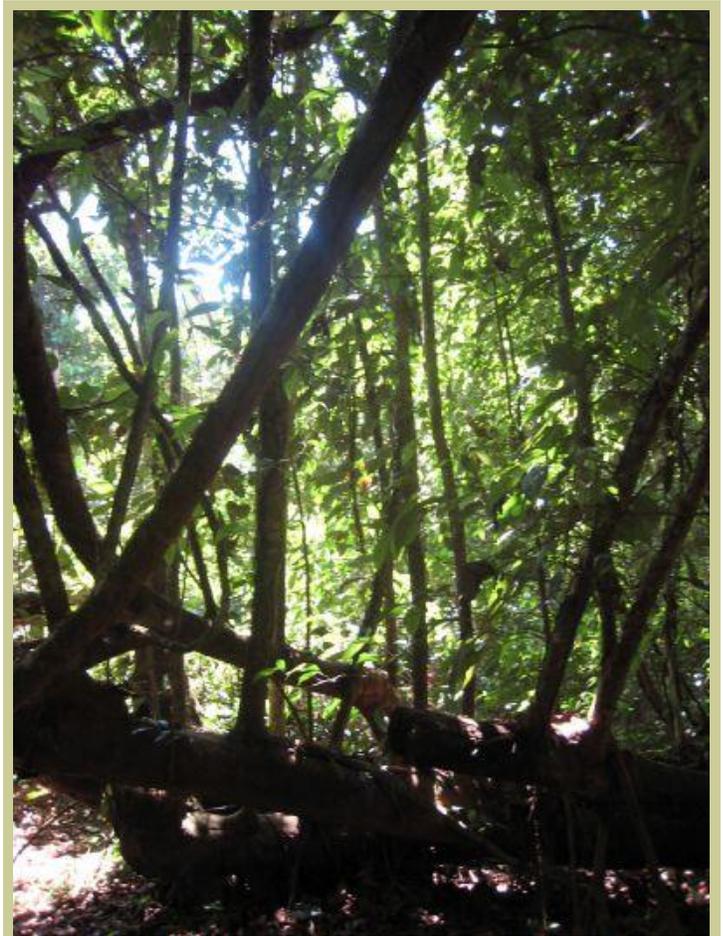
When Susanna Hecht went to El Salvador in 1999 to help the government with long-range environmental planning, officials at the Ministry of Environment and Natural Resources told her there were no forests left in the country. To Hecht, AB'72, a professor of urban planning at UCLA and an expert on tropical development, the claim came as no surprise. El Salvador was notorious for population growth and ecological degradation. The most crowded country in Latin America, during the 1960s and '70s it had suffered severe deforestation with the expansion of livestock and sugar-cane farming. In 1999, the same year Hecht arrived, the tropical ecologist John Terborgh declared that in El Salvador, "nature has been extinguished."

But as she drove around the country, Hecht noticed plenty of trees. Some were remnants of old forests, but she also saw hedgerows, backyard orchards, coffee groves, trees growing along rivers and streams, cashew and palm plantations, saplings sprouting in abandoned fields, and heavily wooded grassland. Almost every village abounded with trees—"like a big jungle forest," she said. Rather than no trees, she saw them everywhere. Nature was far from extinguished; it was thriving.

Hecht called these woodlands El Salvador's "secret forests." In a country only recently deforested, trees were coming back. And El Salvador was not alone. For many reasons, trees were resurgent throughout Latin America, including Honduras, Puerto Rico, Ecuador, and in parts of the Amazon. But because scientists and policy-makers were preoccupied with tropical deforestation, Hecht said, they had been slow to take notice.

In another sense, she said, they didn't see El Salvador's forests because of an old bias toward so-called "pristine" forests—primitive and untouched—and against "anthropogenic" forests, those created by humans or shaped by human activities like burning, grazing, farming, and logging. It was these anthropogenic landscapes, which Hecht called "peasant" or "working" forests, that were reclaiming El Salvador. They were a secret in plain view. But whether you saw them depended on how you counted.

Photo



*Rainforest trees*

*photo by Amanda Caudill*

“A great deal of it looked like forest,” Hecht recalled. “If you start saying anthropogenic forests are OK, the place goes from having no forest to tons of forest.”

Many experts believe it’s time to take a closer look, and not just in El Salvador. Despite assumptions that globalization is destroying forests, these researchers argue that in many parts of the world globalization and the policies that go along with it are in fact helping to create them. Migration from rural areas to cities or other countries, new markets for forest commodities, and even war are helping in some places to bring trees back. In other places the demand for diverse and far-flung products like rubber, tea, and açai fruit, for example, is transforming existing forests and the lives that depend on them, often in unexpected ways. Perhaps most surprisingly, archaeologists and ecologists have discovered growing evidence that many forests once considered pristine, including much of the Amazon, have long been marked by human activity.

Resurgent forests, changing forests, forests bearing the marks of ancient inhabitants: findings like these have made researchers reexamine how human activity has shaped forests in the past and is shaping them today. They have also forced researchers to revisit ideas that have long colored Western thinking, casting fresh doubt on what researchers call the “myth of the pristine” and suggesting that untouched forests may be more an invention of the Western mind than something found in the real world. Research also has challenged the assumption that human activity destroys biodiversity; in some circumstances, researchers say, it can increase biodiversity. Thus, rethinking forests carries powerful implications for conservation policy—it may require, for example, a greater appreciation for working forests. And rethinking forests leads to fundamental questions about the vexed relationship between nature and culture.

“Do human activities improve nature or diminish it?” asked Roderick Neumann, a geographer at Florida International University. “What is the relative weight of natural and social forces in shaping the patterns of flora and fauna that we observe?” Such questions, said Neumann, remain unresolved.

Neumann and Hecht were among a group of geographers, anthropologists, ecologists, and others who gathered at the University this May for a conference titled “The Social Life of Forests.” The conference, the first organized by Chicago’s Program on the Global Environment, drew attention to examples of forest resurgence around the world and raised questions about what these examples, and others from far deeper in the past, reveal about how forests change. A more basic conference goal was simply to insert forests back into history and assert that they have social lives after all—that almost all have been affected in some way by human deeds and imaginations. “Forests,” Hecht argued, “are as much historical and social entities as they are biotic ones.”

Hecht traces some of the confusion over El Salvador’s secret forests back to Thomas Malthus, the English political economist who in 1798 predicted that population growth would eventually outstrip the earth’s productive capacity, resulting in environmental destruction and starvation. His thinking helped inspire Darwin; it also lurks behind the idea that humans and human thriving are inevitably harmful to nature.

El Salvador once seemed a good example of such logic. Observers referred to the country as a

“Malthusian nightmare.” This simplistic thinking, Hecht said, ignored key social and political factors, including the land conflicts that in 1980 led to civil war. When the war ended in 1991, El Salvador’s peasantry quickly began to defy Malthus.

The war broke up large holdings, reduced forest clearing, and prompted many Salvadorians to flee the country. This out-migration was decisive. While it didn’t lower rural populations significantly, it did create an important source of new income for Salvadorian families in the form of remittances, or money sent home by emigrants working abroad. At the same time, free-trade policies championed in Washington cut global prices for agricultural commodities. Peasants found it cheaper to buy grain than grow it. So they used their land for other purposes than annual cropping, allowing the forest to grow back.

Examples of reforestation go well beyond Latin America. Researchers studying the African Sahel, the band of semi-arid tropical savanna just south of the Sahara Desert, say that over the past two decades peasant farmers in Niger have brought about a greening of their country. Like a number of nations, Niger’s central government shifted authority over natural resources to local communities, giving farmers rights to their own trees. The newly empowered peasants resolved to “fight the Sahara”—the dust and sandstorms that sweep off the desert. They did so by carefully tending and protecting trees that sprang up naturally—by 2007 more than 7.4 million acres had been newly tree-covered.

Many consequences followed, said Chris Reij of the Center for International Cooperation at VU University Amsterdam. More trees made farming systems more productive. Families had more to eat. Women spent less time gathering firewood. The trees reduced the amount of windblown sand and dust and helped the land retain water, increasing resistance to drought. And with more fodder available from more trees, farmers and herders had less reason to quarrel.

Niger’s example, Reij argued, has far-reaching implications. It suggests that forestry agencies in other countries could promote reforestation by giving local communities control. “The foresters have the idea that they have to protect trees from farmers,” he said. “Our own view is that forests have to be protected from foresters.”

And yet the greening of the Sahel has attracted little notice, Reij said. He and other critics of contemporary conservation efforts say that conservation groups and many scientists have neglected forested landscapes where people live and work because they are more interested in large parks and preserves. Kathleen Morrison, an anthropologist who directs the University’s Center for International Studies and was a conference organizer, studies dry forests in southern India. She said that such forests, with drought seasons that last several months, once covered more than half the world’s tropics and subtropics but receive far less study than tropical rainforests, “perhaps in part because of their entanglements with human histories.” Her own research attempts to reconstruct that entanglement over many millennia, as forests in southern India waxed and waned in response to the rise and fall of cities and the country’s shifting culinary habits.

Trees are thriving in the Nigerian Sahel because of changing government policy and the decisions of small communities. In other places, like El Salvador, global economic forces are also shaping

local forests. Over the past decade a growing U.S. enthusiasm for the health benefits of açai fruit in juices and smoothies has inspired residents of the lower Amazon to plant more açai palms. The appeal of “green” products with a distinctive cultural heritage is helping Chinese minorities once considered backward for clinging to their tradition of growing tea plants under the forest canopy. Today Peet’s Coffee and Tea markets such tea as “Ancient Trees Organic Pu-erh” and sells it for \$5 an ounce, explaining that it has been picked by local inhabitants “for many generations” from “semi-wild tea plants, many of them centuries old and as tall as trees.”

Not all of these changes are, of course, for the good. Across the mountains of Laos, Thailand, and China, state policy and a growing demand for rubber are turning a mixed landscape of tropical forest, rice paddies, and swidden agriculture into what Jefferson Fox of the East-West Center described as “an unbroken carpet” of rubber-tree plantations.

Still, “working” landscapes have become major areas of reforestation the world over, Hecht said. Often dismissed as pyromaniacs and forest clearers, peasants are now seen as creators. Understanding the social dynamics that initiate and sustain the new landscapes is critical for conservation: “Looking at these social relations gives us much more of an idea of how we can support processes that produce forest and diminish processes that don’t.”

photo

To understand how Westerners think about forests, and especially how they misunderstand them, many researchers look to the Amazon. For several decades now, archaeologists, anthropologists, geographers, and others have been rewriting its forests’ history. Or rather, they’ve been showing that Amazonian forests have histories to begin with. Scholars say the myth of the pristine has proven particularly tenacious there. The Amazon of the Western imagination, they say, is a place hardly touched by history or humanity. For colonists and entrepreneurs of various centuries it was both useful and profitable to see the forests as wilderness and to overlook the people who lived or had lived in them. The idea of pure and untrammelled nature has also served a more spiritual purpose, preserving the image of an unfallen world, untainted by war, industrialism, and other afflictions of civilization. To some an empty land ripe for exploitation, to others a lost Eden, the Amazon has seemed a forest out of time, inhabited, if at all, by Stone Age tribes living in harmony with nature, greeting helicopters with volleys of poison-tipped arrows.

Michael Heckenberger understands the myth’s attraction. An anthropologist from the University of Florida, he has studied indigenous people who live in the forests of the upper Xingu River, in southern Brazil. Here, in what was once among the least accessible regions of the Amazon, a large reserve has been set aside for the use of native tribes. In recent years, mile-wide soybean fields have been encroaching upon the forest. Entering the reserve from the kingdom of soybeans could not be more startling.

“It’s like driving through the gates of Jurassic Park,” Heckenberger said. “You feel like you’re going back into time into some primordial landscape.” A 2007 National Geographic article, “Last of the Amazon,” records a similar reaction. Recounting a trip to the upper Xingu, writer Scott Wallace describes his visit to “the very core of an ancient primeval forest” and “the green cathedral that towered above us.”

Heckenberger and others call such impressions misleading. The forests are not nearly as ancient or primeval as they seem. In fact, before Europeans arrived at the New World's doorstep, bringing disease and destruction, the Amazon was well settled: "There ain't no part of it," he said with folksy emphasis, "that wasn't touched by human hands in one form or another."

Heckenberger began studying the people of the upper Xingu almost two decades ago. He first visited the region in 1993, when he spent a year living in a Kuikuro village. (He was eventually adopted into the tribe.) As an anthropologist he wanted to experience life in a non-Western culture. He also wanted to investigate the extent of the demographic collapse that struck the Amazon after 1492. Historical records and archaeological evidence had demonstrated massive depopulation along the river's major tributaries. He hoped to determine if the same thing had happened in more remote parts of the basin.

What he found in the forest were the remains of a much larger and more complex society than he had expected. With the help of the Kuikuro people, a remnant of those pre-Columbians, he has mapped the outlines of a "hyper-self-organized society" that inhabited the upper Xingu as far back as 800 ad. These tribes lived mainly by fishing and growing manioc, a staple in the tropics whose starchy root is boiled, fried, and pounded into the flour known as tapioca. They built walled settlements, fish weirs, canals, bridges, raised causeways, and an elaborate system of paths across the landscape. Heckenberger and his colleagues have found 19 different settlements, organized in two clusters, in a region the size of Belgium. These settlements, he argues, were not isolated communities but rather components of regional polities that rivaled the cities of ancient Greece in extent, population, and political and social organization. And their inhabitants carefully engineered and tended the countryside around them, creating a mosaic of fields, trees, and waterways. Although smallpox and other diseases probably decimated the population in the years after European contact, their ancestors still used some of the ancient earthworks. "Not only is no part of this forest natural," Heckenberger said, "but no part of this forest is not planned, either."

Researchers studying other parts of the Amazon have reached similar conclusions. Far to the northwest, on a flat plain beneath the Andes, Clark Erickson and colleagues have documented even more extensive land use. In northeastern Bolivia they have mapped ancient, abandoned, raised fields and other earthworks on the savanna that covers much of the Department of the Beni. They have found an estimated 1,000 settlement mounds, along with causeways, canals, forest islands, fish weirs, reservoirs, and ditches—a whole regional hydrologic system, Erickson said. They also have found mounds up to 80 kilometers away, "in what everyone assumed was pristine forest that has never been touched."

Erickson, an anthropologist at the University of Pennsylvania, said the ancient inhabitants of the Beni, as in much of the Amazon, were canoe-faring people who could travel and transport goods over long distances using canals and rivers as their highways. They built the earthworks as far back as 3,000 years ago, using them on and off until just before Columbus's arrival.

Such findings have transformed how scholars read the history of the Amazon. In the middle of the last century, Erickson said, they saw the past as "relatively flat and shallow," with little cultural

variation. That view began to change in the 1970s. Archaeologists confirmed the reports of early European travelers that large populations once lived in the Amazonian bottomland and along its tributaries. The discovery of “dark earths”—plots of highly fertile soil—attested not only to long periods of intensive cultivation in the region but also to the skill and ingenuity with which early inhabitants improved the soil.

Archaeological and historical evidence now show that the humans who shaped the land were not the “one-size fits all Amazonian Indian” of the popular imagination, Heckenberger said. “There were indeed small-scale groups, probably very similar to some of the ones we know today. There were also some very large groups that covered very large regions and that were integrated across large regions. Combined, you had a network of societies across the Amazon.”

Old notions about tropical forests die hard, however—and not just in the popular mind. Even today, researchers complain, academic specialization hinders a truer understanding of the relationship between forests and people, as ecologists, archaeologists, and other experts often communicate poorly across disciplinary boundaries. Robin Chazdon, a University of Connecticut ecologist who studies how humans influenced “successional pathways” in Costa Rica’s lowland forests, admitted that it has taken time for her discipline to accept the view that human societies have had a large role in shaping forests. “There is slowly a revolution happening in the conservation world,” she said. But while many ecologists and conservationists are now “very cognizant of large-scale human impacts in tropical forests,” when she cites such effects in her papers, “I get reviews back saying [not all forests] have been occupied by humans. I dance around that. So there is resistance to the idea.”

One way to see the contradictions that still cloud Western thinking about forests, Roderick Neumann suggested, is to contrast conservation philosophy and practice in Europe and Africa. Neumann began his career studying protected areas in Tanzania. Both Selous Game Preserve (opened in 1905) and Arusha National Park (opened in 1960), he argued, are typical examples of “fortress conservation” in Africa. In each case, preserving nature has meant excluding humans. Under the influence of 19th- and early 20th-century German forestry, he said, colonial and postcolonial authorities drove the local people, the Meru, out of Arusha National Park, arguing that they were “mismanaging the forest and were ignorant of its conservation value.” Acting by the same principles, Tanzanian authorities later made Selous Game Reserve the second-largest protected area in Africa, home to elephants, lions, and black rhinoceroses, by expelling 40,000 people.

“Typically these evictions are based on neo-Malthusian concerns of overpopulation and claims of irrational and sustainable resource use,” Neumann said. “And these ideas continue in conservation initiatives today.”

The European Union turns the logic of African fortress conservation on its head, he said. Rather than preserving biodiversity by forcing people out of protected areas, its policies work to keep rural people in place. The EU pays farmers, herders, and others to carry on their traditional uses of the land. Officials justify these policies by contending that human activity has increased biodiversity in Europe rather than diminished it, while scientists discuss “coevolution” between nature and culture, suggesting that it has gone on for many millennia. According to both policy and science, nature and

culture are too closely intermingled to be separated.

“I’ve found no such discussion for Africa among foresters and conservationists,” Neumann said. “The continent is the source of all human evolution. Would not the same process of coevolution hold in Africa as well? And if not, why not?”

Writing the social life of forests yields stories of enormous complexity, even paradox. The farther back you look in time, Kathleen Morrison said, the harder it becomes to separate people and forests. “When you take a longer-term view of things, what we think of as nature and culture is blurred. The problem always gets blurry when you add history.” Likewise, the whole question of what a forest is becomes difficult to answer, as it was with El Salvador’s secret forests. Language itself begins to slip: “What you mean by forest is not a fixed, unambiguous category.”

These issues also raise difficult but practical and urgent questions about conservation policy. Many researchers at the conference took pains to emphasize that recognizing humans’ long and widespread influence on forests does not justify the ecosystems’ wholesale destruction. Rather, Michael Heckenberger said, the pre-Columbian inhabitants of Brazil’s upper Xingu created diverse landscapes that could offer clues for sustainable development in today’s Amazon.

“They were not the ancestors of chain saw-wielding clear cutters. There is nothing more foreign in the mind of the indigenous people that I work with than barren landscapes. Their grandfather was a jaguar.”

Peter Crane, a former director of England’s Royal Botanic Gardens, Kew, and now a professor of geophysical sciences at Chicago, suggested that people should think of themselves as the gardeners of forests, mimicking the processes of nature. Other participants saw evidence of extraordinary “ecological resilience” in the many accounts of reforestation. One of the most exciting implications of this research, argued Morrison, is the discovery that “the dominant story that humans are always bad for forests isn’t always true.”

“Forests are coming back,” she said. “The question is why and how. If we can understand the processes of forestation and deforestation, we’re in much better shape. ... If the story hasn’t always been a story of degradation, then there’s hope for the future. It’s better to face up to the complexities and move ahead in an informed way. It doesn’t mean that anything goes. But the idea that humans are always destructive is not very valuable.”

It turns out that forests are not just nature, but culture too. As an indigenous friend once told Susanna Hecht, “A forest is one big thing. It has plants and it has animals—and it has people.”

By Richard Mertens

## Volunteer/Guest Gossip: In One End and Out the Burner

This article appeared in Slate Magazine and was written by Rose George

Of all the peoples of the world, the Chinese are probably the most at home with their excrement. They know its value. For 4,000 years they have used raw human feces to fertilize fields. China's use of "night soil," as the Chinese rightly call a manure that is collected after dark, is probably the reason that its soils are still healthy after four millennia of intensive agriculture, while other great civilizations—the Maya, for one—floundered when their soils turned to dust.



*Another unbelievable denizen of the Costa Rican rainforest - a giant grasshopper*

Sanitation professionals sometimes divide the world into fecal-phobic and fecal-philiac cultures. India is the former (though only when the dung is not from cows); China is definitely and blithely the latter. Nor is the place of excrement confined to the fields. It has featured prominently in Chinese public life and literature for at least a thousand years.

In the Communist era, excrement took on political importance, because Party policy decided excrement was essential for the Great Agricultural Leap Forward. Andrew Morris, a historian at California Polytechnic, relates the story of night-soil carrier Shi Chuanxiang, who in 1959 was a star speaker at the Communist Party's National Conference of Heroes. Shi Chuanxiang worked for the exploitative gangs who controlled Beijing's night-soil collection. Customers showed their appreciation for his work by calling him "Mr. Shitman" or "Stinky Shit Egg."

These days, this national interest takes the form of serious investment into an unusual alternative fuel. Along with all the other stunning statistics China can provide, it can also claim to be the world leader in making energy from human excrement.

Biogas, as this energy is known, can be produced from the fermentation of any organic material, from wood to vegetables to human excreta. In an oxygen-free digester, which acts somewhat like a human stomach, micro-organisms break down the material into sugar and acids, which then become gas. Mostly methane, with carbon dioxide and a little hydrogen sulfide, biogas can be used as fuel for cooking hobs, lights, and, sometimes, showers. It can also be converted into electricity. The slurry that remains from the digestion process is good fertilizer and considerably safer than raw excrement.

At last count, if official figures are reliable, 15.4 million rural households in China are connecting their toilets to a biogas digester, switching on their stoves a few hours later and cooking with the proceeds. India has installed several million digesters, though they run on cow dung, and there are only so many cows. China has a billion humans, and that means a billion suppliers of a cheap and

inexhaustible supply of clean energy.

Perched on a bed in her office in Xi'an, Wang Ming Ying explains why she was convinced enough by biogas to change her life. A tiny woman fizzing with energy, she now runs the Shaanxi Mothers environmental association. For her, it began with the trees. As an official in a government propaganda office, she was sent to the UN women's conference in Beijing in 1995, and it changed her life. "I saw," she tells me, "how the poverty of women is directly related to the deterioration of the environment." Poor rural women try to clear more land for crops by cutting down forests. This brought on soil erosion, so more forest was cleared for new crop land. It was a vicious cycle that no one knew how to escape.

Wang Ming Ying set off to northern Shaanxi province "to see what was going on." She found hillsides empty of trees and farmers devoid of hope. "I thought that if a woman has education or not, we can do environmental protection together." She decided to form an organisation of women. Mothers, actually. "Mothers are key: they can influence the family."

The group's name was surprisingly controversial. "The government didn't like the word 'volunteers.' " Voluntary activity was a problematic concept in China then. Public service was always imposed from above. The state controlled everything, and that included excreting habits and public hygiene. Throughout the 1950s, for example, the Chinese government tried several times to eradicate a plague of schistosomiasis, an infection of a parasitic worm found in dirty rice-paddy water. (It's also known as bilharzia or, in Chinese, "blood-sucking worm disease.") Shepherd boys, according to a report, "were mobilized to pick up stray excreta."

But Wang Ming Ying persisted and, after a few years of environmental work—there was a lot of litter-collection—Shaanxi Mothers were shown a video of biogas technology. They liked it, and decided to try it out with two test families in northern Shaanxi. The families lived in a village that had a fate typical of the area. Thirty years earlier, its population had consisted of four families, and the village was surrounded by trees. By the time Shaanxi Mothers arrived, there were thirty-four families and the forest was almost gone.

Biogas was an ideal solution. Two families were chosen to try out the digesters. The technique was simple enough: add pig excrement and human waste to the digester, occasionally stir it, and tap off the energy. But when the Mothers arrived for a follow-up survey, neither digester was being used. Eventually, Wang Ming Ying discovered that one of the families' toddler sons, Peng, had died by drowning in the pit. The Shaanxi Mothers learned a lesson: you can't install technology (the hardware) without ensuring the human element (the software) is also operational. Follow-up is essential. They began talking to their biogas users, a lot. It worked.

Ten years on, Shaanxi Mothers have installed 1,294 digesters in 26 villages. They have won prizes and got funding, though never enough. The money goes to subsidizing a third of the cost of a digester, with the householder and the government making up the rest. Wang Ming Ying estimates that for every new biogas digester installed, 1.2 tons of firewood—three trees—will be spared. She tells me to go and see for myself.

The journey to Da Li is long. It goes along roads that are so new they're not on the map and roads so bad they are flattened rocks with aspirations to being a thoroughfare. After several hours of bone-rattling driving, we arrive in northwest Shaanxi Province. There are boxes of apples everywhere, being loaded onto trucks, stacked on street corners. This is apple country. What the buyers of apples probably don't know is that this is apples-fertilized-with-human-excreta country.

Wang Ming Ying is a hero here, and all due courtesy is being extended. A blackboard bears the phrase "We wholeheartedly welcome the advice and arrival of our superior leaders," and bowls of apples and grapes have been thoughtfully set out on the table. They have been fertilized with biogas slurry, the village leader tells me with pride. Look, he says, how juicy the apples are. They are better now that we use biogas. The skin is thinner and the juice is sweeter. Even rice is better. Rice cooked with biogas is chewier and less likely to stick.

One of my hosts says there have been three main changes. "Human and national excreta is now turned into treasure. Households are much cleaner. Neighbors have a better relationship." Also, farmers' incomes have increased. Annually, they save 1,400 yuan (\$200) on fertilizer, fuel, and the medicines they would otherwise have to buy for the constant diarrhea and stomach illnesses caused by filthy latrines. Also, farmers save two canisters of cooking gas per year, worth 120 yuan (\$20). Using biogas for lighting saves another 40 yuan (\$5) on energy bills. All in all, she says, the village has increased its income by 300,000 yuan (\$43,000) a year. "The village," she concludes firmly, "is happier and wealthier."

Before biogas, most villagers had used a hole in the backyard as a latrine. In Da Li, as in countless other villages, things began to change when the city came back to the country. Youngsters who had gone to the city got used to different standards. "They were coming home and complaining about the mao kun," says Zhou. "They didn't want to use it anymore." They demanded better facilities for their visits home, making fertile ground for the Shaanxi Mothers to make their biogas case. The women of Da Li proved to be powerful allies. The reason why becomes obvious when Zhou leads me to his house and into the kitchen, past the cartful of apples in the driveway. Here, his wife gives me a demonstration of how she used to live and breathe. She kneels in front of her cast-iron oven, pretending to feed it with kindling and rice stalks, and mimes how she used to cough and how her eyes would water. The ovens are still used to bake bread, but otherwise the two-ring biogas burner is enough for three meals a day in summer and two in winter.

Biogas is not perfect. As the tragedy of Peng showed, digesters can fail because of mechanics and human error. Also, there is little agreement on how safe the slurry actually is. Opinions vary as to whether a four-week digestion process, for example, kills all pathogens. *Ascaris* eggs, which grow into long and revolting worms, are exceptionally hardy. (They are also still unvanquished, though humanity has been dealing with them forever: *ascaris* have been detected in fossilized Peruvian dung dating from 2277 B.C.) Swedish academic Mathias Gustavsson, a fan of biogas—he refers to it as a "solution in search of its problem"—writes that "there is no such thing as a total removal of all parasites due to an anaerobic process."

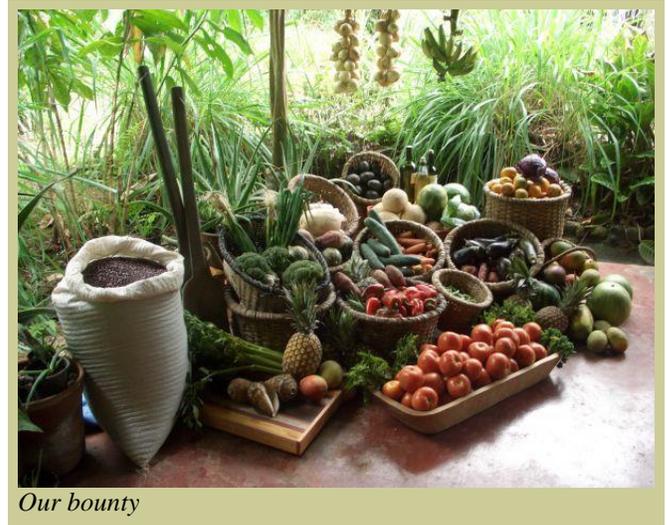
But a biogas digester has to be better than a bucket. And it has enormous potential: In the French city of Lille, ten city buses now run on biogas taken from the city's sewage works, and city officials

claim the biogas buses are carbon neutral and less polluting (biogas gives off fewer particles).

In Da Li, they're not bothered about buses. In a courtyard behind a carved wooden door, a woman sits weaving as if she's been doing it for centuries. In fact, she only got the loom a year ago. A gas made from something we all flush away without thought has given her cheaper bills, a cleaner environment, and something she's never had before, called free time.

### **Comida Corner: Sweet Potato Purée with Streusel Topping**

This is going to be one of the veggie dishes at the O'Hara/Nunes Thanksgiving feast that I think even the pickiest of veggie eaters will enjoy (Keith!!). I hope that you are all with friends and family enjoying this holiday. This recipe comes from my favorite "when stateside" website when without my trusted cookbooks, <http://www.epicurious.com>. It always produces winners and I suggest that you check it out if you are looking for some incredible dish ideas.



#### **Ingredients:**

5 pounds orange-fleshed sweet potatoes, such as Louisiana, jewel, or garnet yams  
3/4 cup all-purpose flour  
3/4 cup plus 1/3 cup (packed) light brown sugar  
14 tablespoons (1 3/4 sticks) unsalted butter, softened

Position rack in center of oven and preheat to 400°F. Butter 9- by 13-inch baking dish or 2-quart casserole. Line rimmed baking sheet with aluminum foil.

Pierce each potato with fork and transfer to baking sheet. Bake until tender, about 50 minutes. Cool until easy to handle.

Meanwhile, make streusel: In medium bowl, combine flour, 3/4 cup brown sugar, and 1 stick butter. Rub mixture between fingertips until blended and crumbly. Set aside.

Halve potatoes lengthwise and scoop out flesh into large bowl. Add remaining 1/3 cup brown sugar and 3/4 stick butter and mash with potato masher or, for a smoother purée, handheld electric mixer. Spread mixture in prepared dish and cool completely. (Streusel and purée can be made up to 2 days ahead and refrigerated, separately, covered.)

Sprinkle streusel over potatoes. Bake until golden brown, about 40 minutes. Let stand 5 minutes before serving. (Completed dish can be prepared up to 1 day ahead and refrigerated, covered. Remove from refrigerator 1 hour before reheating and let come to room temperature. Bake, loosely covered with foil, until heated through, about 25 minutes.)

Variation: I plan on adding chopped pecans to the streusel for a nice crunch!

Happy Thanksgiving y'all!



*Guarumal Soccer*

### **F?tbol Follies: Nothing Much to Report**

Since we're here in the United States, there's not much to report in the world of the Professional Rural Fútbol League of Costa Rica. In international news Major League Soccer here in the United States will soon have a new champion with the New York Red Bulls and the Columbus Crew soon meeting in this year's final, the first appearance in an MLS finale for both teams. KAREN's Liverpool and NIC's Arsenal teams find themselves towards the top of the English Premiership with both squads also doing well in what could possibly be the most exciting football tournament in the world, the UEFA

Champions League. We'll be back with more local soccer news in the coming months.

### **Inspirational Impressions: O B A M A**

“We've been warned against offering the people of this nation false hope. But in the unlikely story that is America, there has never been anything false about hope”.

--- Barack Obama – President-elect

Abrazos,

The Ranch Crew