

Saving the Amazon

A few civil servants and an old satellite have given Brazil a (small) success story

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Sept. 2 issue — The people of the Amazon basin live by a cruel calendar. Each year starting in January, farmers, ranchers and loggers topple a swath of forest the size of Hawaii. In July, when the rains stop, they set the remaining debris on fire. But this July morning, deep in the frontier state of Mato Grosso, the sky is as blue as a robin's egg, the chain saws are silent and not a bulldozer is in sight. Beneath the wings of a twin-engine Cessna, the steamy wilderness scrolls by as boundless and unblemished as Brazil itself must have looked when the Portuguese arrived half a millennium ago.

AFTER YEARS OF NOTHING but dire news about the destruction of Amazonia, the world's greatest tropical rain forest, it seems at last that something is being done to reverse the trend. Don't get too excited—the Amazon is hardly out of danger. Slashing and burning are habits as old as Brazil. Last August, wildfires had bucket brigades hustling over an area the size of Europe, including some stretches of Mato Grosso. But illegal burnings don't occur nearly as often as they did a few years ago. The reason: a few honest civil servants, using an existing technology (satellite imaging) and some straightforward gumshoe work, have begun to accomplish what countless United Nations meetings have failed to do: come up with an enforcement method that works.

There's no doubt that the pressure of bad publicity had something to do with Brazil's latest success story. During the 1980s, lumbermen, herders and small farmers swept into the rain forest with chain saws and bulldozers in perhaps the greatest frontier push of the 20th century. The tide began to turn in 1988 when a rancher murdered Chico Mendes, a rubber tapper and defender of the rain forest, turning him into an ecomartyr. The Earth Summit in Rio de Janeiro in 1992 sent Brazilian authorities scrambling to clear the country's name.

No one expected change to come from Mato Grosso. With its year-round growing season and pockets of rich red soils, this sprawling 90,000-square-kilometer territory had become the front line of Brazil's agricultural expansion, sown thick with soybeans, cotton and other crops. No wonder Mato Grosso alone once accounted for half the forest cutting in all of Amazonia. In the Amazon, where soils are notoriously weak (life-giving nutrients come from trees and plants, not from underground) farmers and herders had to cut and burn ever deeper into the forest just to get by. Yet even by Amazonian standards, the pillage was getting out of hand. "It was chaos," says Paulo Leite, head of forestry resources for Mato Grosso's environmental authority, FEMA.

For years, officials seemed unable or unwilling to do anything about the plunder. The low-tech federal environmental authority would deploy task forces to the backlands hoping to catch delinquent ranchers and farmers in the act. But figuring out where the forest was being cut, and by how much, was guesswork, which made it all too easy for corrupt inspectors to turn the other cheek for a price. The turning point came without fancy legislation, meetings or miracles—only some old technology. Images from Landsat, the U.S. remote-sensing satellite, had been available for years, but few officials

knew how to use them. One day in 1999, some officials decided to superimpose the satellite images on a statewide property grid. The combination produced a powerful tool for curbing deforestation. At the click of a mouse, inspectors could tell not only how much forest had been cut and burned, but who did the felling and where. Field teams struck out in pickup trucks, brandishing handheld Global Positioning Systems and printouts of satellite maps—the smoking guns of the digital age. Fines were mailed to the violators, along with numbered bank receipts, a virtually fraudproof system. So far this year, Mato Grosso has collected about \$24 million for illegal deforestation and—burning. Vigorous prosecution and stiff fines discourage welters.

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Policing the rain forest by satellite sounds expensive, but it's not. Mato Grosso's entire forest-defense program, paid for by the World Bank, the G7 nations and Brasilia, runs to about \$1 million a year. Leite reckons that Brazil could monitor the entire Amazon every year for just \$3 million, a fraction of the potential take in fines. Philip Fearnside, a respected tropical-forest ecologist, estimates that Mato Grosso has saved about 319,000 hectares of forest per year since 2000. Despite the recent fires, burnings are down from a decade ago while deforestation in Mato Grosso has plunged 32 percent from 1998 to 2001, when it was rising everywhere else in Amazonia.

Brazil is now preparing to export the program throughout the Amazon, and is even talking it up abroad. "We have people calling all the time," says Leite. Next stop is Johannesburg, where the program will be featured at the 10th anniversary of the Earth Summit. Ironically, this time the Amazon may offer one bit of heartening news in an otherwise calamitous decade.

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