



09 MAR 2015: INTERVIEW

What Lies Behind the Recent Surge of Amazon Deforestation

After declining by more than 70 percent in recent years, deforestation in the Amazon is soaring. In an interview with Yale Environment 360, scientist Philip Fearnside explains what's driving the clearing of the Amazon and what needs to be done to once again bring deforestation under control.

BY RICHARD SCHIFFMAN

Ecologist Philip Fearnside has lived and worked in the Brazilian Amazon for 30 years and is one of the foremost authorities on deforestation in the world's largest tropical forest. A professor at the National Institute for Research in the Amazon, Fearnside has focused his work on how to sustainably develop the Amazon in the face of enormous pressures to cut and clear the forest.

Fearnside is now watching with alarm as, after a decade of declining deforestation rates, the pace of cutting and forest clearing in the Amazon is on the rise again. In an interview with *Yale Environment 360*, Fearnside



Philip Fearnside

explains the factors behind the resurgence in deforestation, including a slowly improving global economy, rising commodity prices, and recently enacted Brazilian laws and policies that are encouraging the development of the Amazon. Fearnside warns that this great tropical forest will sustain even graver losses if Brazil's newly re-elected President Dilma Rousseff — who is backed by large landowners and agribusiness interests — doesn't change course.

Yale Environment 360: Deforestation is now rising dramatically in the Brazilian Amazon. When did this begin?

Philip Fearnside: Deforestation went up a bit — they call it the hiccup — in 2013, but now in just the past six months there has been an explosion. Deforestation, as measured from images taken by Brazil's DETER satellite system, far more than doubled from September 2014 through January 2015 over what it had been during those same months a year earlier.

The government hid these figures before the recent election. The August and September data would normally have been released in October [before the October 26th presidential election]. But they sat on the data, and it was not disclosed until the end of November. It's a scandal.

e360: This comes as a surprise to many observers who thought that Brazil had the deforestation problem under control. Rates of deforestation actually declined from 2004 until 2012. How do you account for these earlier declines?

Fearnside: The exchange rate with the Brazilian *real* hit a peak in 2002. From almost 4 *reals* to the dollar, it went all the way down to 1 ½, which means if you are exporting things like soybeans or beef, all your expenses are in *reals* and you get paid in dollars, and they are worth half as much in Brazil, so it's not nearly as profitable. At the same time, you had international commodity prices going down. The soybean peak was in 2003, it crashed in 2007, and beef prices were in a similar downward trajectory. Those two factors — the exchange rate and commodity prices — together explain basically all of

the decrease in deforestation until 2008.

The expectation is if you clear illegally, there will be another amnesty that will forgive your crimes.'

e360: What happened after 2008?

Fearnside: From 2008 to 2012, commodity prices recovered. The exchange rate didn't recover until the end of that period. But what changed in 2008 was a Central Bank resolution that ties financing for agriculture and ranching — to buy tractors and fertilizers and such — to having a clean record with the environment department, IBAMA. If you have cut the forest illegally and have an unpaid fine, you don't get financing. This blocking of credit is something with real teeth in it, and there are no appeals. It had a big effect, especially on the large landowners. So commodity prices recovered and yet deforestation still stayed low.

e360: So now deforestation rates are rising sharply. How do you explain this dramatic change?

Fearnside: One factor is the new Forest Code, which became law in 2012. It weakens critical environmental protections and also offers an amnesty for all those who violated environmental laws before 2008. So if you cleared illegally, you got away with it. And the expectation is that if you clear illegally now, sooner or later there will be another amnesty that will forgive your past crimes. On the other hand, if you actually obeyed the law, you lost money. So the incentives are very perverse.

Another thing is that the prices for soy and beef are now high, and the exchange rate has been going up in the past few months, making it more profitable. These are the big factors that are leading to more deforestation.

e360: How does commercial logging factor into the deforestation problem?

Fearnside: Timber extraction doesn't come up in the numbers as deforestation. It's not like clear-cutting in the northwestern U.S., where you cut all the trees and there is basically just bare ground left where there was forest. Here you just take out the most valuable timber and most of the trees are left standing. So the satellite will show it as forest. Nevertheless, it is very important for deforestation, because logging is one of the big sources of money that pays for the people who deforest. You're selling timber and using the income to clear forest for cattle pasture or plantations. To get the timber out, you also need to build temporary roads that facilitate the entry of people who clear the forest for farms. There are various ways that logging speeds up deforestation.

e360: How much illegal logging is going on?

Fearnside: A lot of the logging is illegal, there's no question. But even if you follow all the regulations to the letter and log legally, it's not sustainable, because of all sorts of loopholes that have been put into the regulations. Some companies are granted concessions on federal or state land. To qualify, loggers have to come up with a forest management plan. With forest management, the idea is that you divide up the forest into parcels and you take the big trees out of one parcel one year and out of another in another year. After thirty years you come back to the first parcel and the trees will have grown back and you take out the big ones — so that's the idea, you just keep on going round and round and this will be sustainable.

People driving around with a bulldozer in the forest wind up killing many other trees.'

So theoretically, you are going to sit there for 30 years doing nothing, with no income before you harvest it again. But nobody is going to do that. Nothing obliges people to do this forever. So you say you've changed your mind, you've decided to clear it for pasture. Other people just sell the land off. Is it likely that the new owner is going to sit there for 30 years waiting for the new forest to grow back? It's just not going to happen. You have these loopholes that have been inserted in the law, so that all of the logging that is happening — on paper it is all sustainable, but in practice it really

isn't.

e360: What impact has this kind of logging had on the forest?

Fearnside: For one thing, selective logging makes the forest much more vulnerable to forest fires, because there are all of those dead treetops drying out in the forest. People driving around with a bulldozer in the forest wind up killing many other trees. You've opened up the canopy, so you have more sunlight coming in, more wind coming in to the forest and drying things out. It makes it much more likely to catch fire, and sets a degradation cycle into motion that ends up destroying the forest after a while.

e360: Isn't global warming also contributing to the fire problem? Is fire something new in Amazonia?

Fearnside: Over the centuries, there have been occasional forest fires. Studies looking at charcoal in the soil have shown that there have been four mega forest fires in the past 2000 years, so it is more or less one every 500 years. But now fires are happening far more often, generally during big El Niño years. El Niño leads to drying, especially in the northern part of the Amazon. It happened in 1982, 1997, and 2006. We had destructive forest fires in the northern part of the Amazon.

Now we have another phenomenon that has increased even more quickly than El Niño — though El Niño has increased a lot — called the Atlantic Dipole. El Niño is caused by warming of the surface waters in the Pacific Ocean. The Atlantic Dipole is a warm patch of water in the tropical part of the North Atlantic. It results in drought and forest fires in the southwestern part of the Amazon, in Acre state and neighboring areas.

This happened in 2005, and then five years later again in 2010. You have water warming in this part of the Atlantic that has traditionally been [cooled] by a lot of dust in the air, much of it coming from the deserts in Africa and industrial pollution in Europe. The dust has functioned as a kind of shield — some of the radiation from the sun hits these dust particles instead of hitting the water. With global warming, you have more rain globally and that is cleaning the air of the dust, so more of the sun's energy is actually reaching the water and warming it up in that part of the Atlantic, and it leads to droughts in the western Amazon.

If you keep clearing the Amazon, you'll end up with there being a permanent drought.'

e360: The Amazon forest is said to create its own climate. Transpiration from the trees creates clouds, which in turn produce rain. What impact does cutting the forest have on rainfall?

Fearnside: You know, there is a big drought now in Sao Paulo. It's not something that you can conclusively pin on deforestation. But a lot of the water in Sao Paulo comes from the Amazon. It's water that has been recycled through the trees, so if you cut [the forest] down and turn it into a cattle pasture, that water isn't going to go to Sao Paulo anymore, it is going to flow straight into the Amazon River, [then] into the Atlantic. If you keep clearing the Amazon, you'll end up with there being a permanent drought, not just a one-year thing. You're not going to have that transport of water vapor to Sao Paulo. It will have a big impact all the way down to Argentina. Argentina is very worried about deforestation in the Amazon. There are also connections to North America and other parts of the world as well, so deforestation would have some effect on rainfall in North America in important agricultural areas in the Midwest, for example.

e360: Recently re-elected Brazilian President Dilma Rousseff has pledged to push rural development. What impact might this agenda have on the Amazon forest?

Fearnside: You have the so-called PAC, the five-year plan for the acceleration of growth. Dilma is known as the mother of the PAC. It consists of a list of projects, building roads and dams and so on, projects that will lead to more deforestation.

The most dramatic case is the proposed BR 319 Highway, which would link Manaus in the center of the Amazon with the arc of deforestation in the south, where 80 percent of the deforestation has occurred, along the southern and eastern edges of the forest. If the actors in the arc of deforestation — companies, individuals — move out of that region into the rest of the forest, it changes everything. It isn't just that one road; a series of side roads that are planned will open up that big block of intact forest in the western Amazon. Once you build a road like that a lot of what happens is no longer under the government's control — people moving into the forest and so on. The government may go after them, but it usually ends up legalizing what has happened.

e360: So what needs to be done to bring deforestation under control?

Fearnside: Some effective measures include taxing land speculation, stopping subsidies and fiscal incentives for development that leads to deforestation, greatly reducing road building, and ending the practice of allowing pasture as an "improvement" for establishing land tenure. The government also needs to have much tighter controls on major development projects. And an important part of any solution is to pay rural populations a stipend for preserving forests and the ecosystem services they provide, like watershed functions and storing carbon. If the

government doesn't start enacting some of these measures soon, the forests of Amazonia will be lost.

e360: Are you pessimistic?

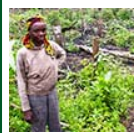
Fearnside: It's very important not to get fatalistic about this. There is a tremendous tendency with the Amazon to say the problems are so great, the forest is going to be cut down no matter what

you do, so you might as well worry about something else. That's a self-fulfilling prophecy if you believe it. The opposite is also true: If you say deforestation is down, nobody does anything either. So it's very important that you keep focused on the problem.

There are lots of groups working in Brazil putting pressure on the government to change course. Brazil is a very diverse place, including the Brazilian government. Even though most of what is going on is pushing for more deforestation, you have 39 different ministries and thousands of people in the government, and that includes many people who are very concerned about these things. So it's important not to become fatalistic.

ALSO FROM YALE e360

[Will Increased Food Production Devour Tropical Forest Lands?](#)



As global population soars, efforts to boost food production will inevitably be focused on the world's tropical regions. Can this agricultural transformation be

achieved without destroying the remaining forests of Africa, South America, and Asia?

[READ MORE](#)

POSTED ON 09 MAR 2015 IN [BUSINESS & INNOVATION](#) [CLIMATE ENERGY FORESTS POLICY & POLITICS](#) [POLICY & POLITICS](#) [POLLUTION & HEALTH](#) [ASIA CENTRAL & SOUTH AMERICA](#)

COMMENTS

What do you think drives increasing demand for commodities, energy, water...? What is causing increased throughput and waste production? It is the increase in humans and the increase in our technologies for conversion of nature. We quadrupled in one century. Why do many articles such as this avoid mention of this fact?

Posted by Steven B Kurtz on 09 Mar 2015

POST A COMMENT

Comments are moderated and will be reviewed before they are posted to ensure they are on topic, relevant, and not abusive. They may be edited for length and clarity. By filling out this form, you give Yale Environment 360 permission to publish this comment.