

River Guardian Phil Fearnside: "Stay Focused on the Action"

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By: Sarah Bardeen



You could be forgiven for thinking Philip Fearnside's a bit of a curmudgeon.

Within minutes of starting our conversation, he's admonished me about my subpar Portuguese skills – "If you care about Brazilian dams, you need to read Portuguese." – and cited more studies and journal articles than I can keep track of.

But that's just how Fearnside rolls. A tall man with an exuberant mustache that hides much of the lower half of his face, he doesn't have time for niceties, and for good reason: He's authored over 350 publications on sustainable development. He's responsible for a more groundbreaking work around reservoir emissions than anyone else. He's also one of the world's leading experts on climate change – in 2006, he was the world's second-most cited scientist on the subject of global warming.

So it's no surprise that in our first conversation, he schools me.

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Philip Fearnside holds forth.
Rios Vivos Brasil

A Curious, Outdoorsy Kid

Fearnside wasn't always a powerhouse working on the carrying capacity of tropical ecosystems – he was, once, a kid. On that subject, however, he's characteristically terse.

"Certainly I had lots of contact with nature with my family growing up. Hikes." I press him a bit more, and he tells me he was born in Berkeley, California, and that his family moved to Massachusetts when he was 11. It was there that he forged a relationship with nature.

"When I was in high school, one of the things I did was white-water canoeing," he explains. "I was employed as a camp counselor teaching canoeing and taking people on trips. That wasn't always pristine – in fact, I was witness to the most amazing pollution."

He's not one to draw personal connections, but those early experiences – especially seeing the incredible pollution of American waterways in the 1960s – must have sparked something. By 1968, Fearnside found himself working as a naturalist at Glacier National Park, giving talks on ecology and geology.

And even at the tender age of 21, Fearnside was ahead of the curve, putting his finger on issues it would take the rest of the world decades to confront.

"I'm one of the oldest people you'll ever meet who was talking about global warming," he says. "I was a ranger in Glacier National Park in Montana. In 1968, I explained how CO₂ is increasing in the atmosphere."

He pauses, and then permits himself a moment of understatement. "It's amazing that those glaciers are now projected to be completely gone in a decade."

An Obsession with What Could Be Lost

This obsession with natural systems – and what could be lost – has dogged Fearnside since he was young. He admits it himself: "Most of what I've been doing, in terms of work, has always been on things that are being destroyed."

That might explain his interest in human carrying capacity.

The "carrying capacity" of a species refers to just how high a population can get before the environment collapses. Stay within the carrying capacity, and the species and the environment can go on sustaining each other indefinitely. Go beyond that limit, and something has to give.

Studying human carrying capacity was a logical progression from his degree in biology from Colorado College. The interest grew during the time Fearnside spent in India in the Peace Corps: He was working in Rajasthan, India's largest state, which is dominated by the vast Thar desert. It's unsurprising that issues of carrying capacity might come up in such an unforgiving environment.

After two years in India, Fearnside spoke the language and knew the issues – and he was ready to set down roots and do some serious research. His work, on fisheries management, "was my first experience with dams," he says. It wouldn't be his last, though it would still be another decade before he took up the issue of dams in earnest.

First, a war broke out.

While traveling in Latin America, he received a telegram. India had closed its doors to American researchers because the US had sided with Pakistan in the war over Bangladesh two years earlier.

"I was in Brazil when I got the telegram saying that India was out of the question, so that's where I stayed for two years, working on the human carrying capacity in the tropics instead of the desert."

It was that twist of fate that determined Fearnside's direction for the rest of his career.



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Swiftcurrent Lake and Mount Wilbur in Glacier National Park.
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Phil working on fisheries management in reservoirs in India in the 1970s.
Unknown

Dams as a Focus of Research

In Brazil, in a turn that seems to characterize his career, Fearnside again found himself at the center of things long before anyone else had caught on.

"It just so happens that I was the first person to discover the plans for Belo Monte in 1975," he says. "I got a map that showed what was to be flooded....[But] it was during the dictatorship, so no one could say or do anything."

Despite his advance knowledge of the plans for this devastating project, Fearnside didn't – and couldn't – get involved. He did advise on a master's thesis about riverside dwellers along the Xingu River, however, in the area that's now being flooded by Belo Monte. But he never focused his work on dams themselves...until Balbina.



http://www.internationalrivers.org/files/styles/600-height/public/images/blog_entry/Sarah%20Bardeen/balbina_dam-5.jpg?itok=Nz1aXLGe

The flooded land behind Brazil's Balbina Dam.

Seabirds, Wikimedia Commons

They were, of course, rotting."

The CO2 releases were evident, he says. "The methane came later."

Dams and Climate Change

Fearnside was not the first scientist to discover that dams emitted greenhouse gases; that honor belongs to a Canadian group that discovered that in 1993. Fearnside's first paper on the subject came out in 1995.

"But I was the one who drew the wrath of the hydropower industry," he says, laughing. His paper showed that Balbina Dam had higher emissions than a fossil fuel power plant.

"Now, of course," he says, "We know that the emissions are even more."

It turns out, in a counterintuitive twist that many dam builders and governments still resist, dams do emit greenhouse gases. Tropical reservoirs flood huge amounts of organic matter, which creates methane as it decays. As that water moves through spillways, that methane is released into the atmosphere.

This is no laughing matter: As a greenhouse gas, methane is 34 times more powerful than carbon dioxide over a 100-year time horizon. Even more troubling, it's as much as 86 times more powerful over the 20-year horizon. As countries attempt to keep the global temperature rise from passing 1.5-2.0 °C, how much methane we release matters immensely.

Little did he know his paper on this topic would be the opening shot in a war of words that involved the president of Eletrobras, Latin America's largest power utility company: the multi-billion dollar company which the Brazilian government has a majority stake in.

His enemy? Luis Pinguelli Rosa, the top person in Brazil promoting hydroelectric dams. "He wrote a piece attacking my papers that he submitted to *Climatic Change*, one of the most prestigious journals of the climate area.

"They asked me to review it, and of course I disagreed with everything. I said that I should be able to publish a simultaneous response."

What followed was an epic exchange of paper after paper. "He was basically accusing me of being a lobbyist for the thermal and nuclear industries, plus some amazing xenophobic statements."

Even Brazil's Ministry of Science and Technology, which was responsible for reporting Brazil's emissions to the climate convention, got involved.

"They had a meeting specifically to debunk my papers," says Fearnside. But the ministry was careless: They recorded and transcribed the entire meeting, and then put it on the official ministry website.

What they said was damning, to say the least. The tapes captured the head of the climate sector admitting they'd contacted Pinguelli to help with the section on hydroelectric dams, because they knew he'd give them a small number for reservoir emissions. They essentially admitted to gaming the system.

Nowadays, reservoir emissions are accepted as a fact. But how they're calculated continues to be a huge issue. Fearnside says the IPCC and many governments have a long way to go.

What's Next?

I ask Fearnside what challenges he sees these days, particularly in the Amazon. He answers me, typically, with a flood of troubling information.

In the first place, he describes the dam-building boom in Brazil as a crisis of astronomical proportions.



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Philip Fearnside.
Lou Gold

Balbina Dam was constructed between 1985 and 1989, just 150 kilometers from where Fearnside was living in Manaus. The dam flooded nearly 3000 square kilometers of forest, making it one of the world's ten largest man-made lakes. The incredibly costly, controversial project displaced huge numbers of indigenous people.

This marked the moment that Fearnside got into dams as a major research interest. "All of the sudden this huge environmental disaster was being prepared," he says, "so I looked into what the impacts could be."

He had been working on the contribution of deforestation to global warming for a long time, and Balbina was, among other things, killing trees and releasing greenhouse gases. "Millions of trees were killed and were left sticking out of the water in the huge shallow reservoir.

"There are calculations for hundreds of dams in Amazonia. You now have these...small hydroelectric centers. The definition [of small] used to be 10 megawatts; now it's up to 30, which means those dams can be built without an Environmental Impact Assessment. And hundreds of them are being built."

The answer, he says, is not to just fight each project on a case-by-case basis.

"You have to propose something that's more than putting the dams in other places. You need to deal with the questions around alternatives, energy conservation....Wind and solar have nowhere near the investment that dams have."

"It's a losing battle, fighting one dam after another, pointing out all the problems. It has to be countered with something else."

The regulatory environment in Brazil is also getting easier for big dams – this despite the recent disaster on the Rio Doce. The federal government is working to streamline the approval process for these big dams. Ibama wants to pass more responsibility to the states and to abbreviate the federal procedure, so that instead of three steps to license a project, there will be just one.

Given all this bad news, does he feel hopeful?

"I think it's very dangerous to think that things are preordained," says Fearnside diplomatically. "It's very easy to become fatalistic when we're talking about the Amazon. When that happens, people don't do anything. They work on something else. It's very important to stay focused on the action."

I ask him what keeps him going.

"Well, I think it's very important work, and it's very important to keep pushing on all these fronts."

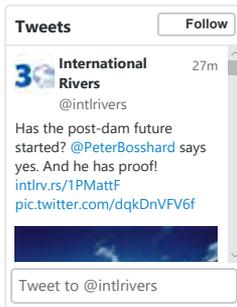
And he argues that we are needed now, more than ever. "International Rivers is spread all over the world, and all these things are going on. It's very important that there are people on the ground, finding out what's happening and distributing information."

As a scientist and a highly principled man, Phil Fearnside will always fight for the facts. That's why he's this month's River Guardian.

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Monday, February 1, 2016

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