Objectives
The Editors
Past Issues
Feedback
LinksBrazil
Contact Us

Search InfoBrazil.com

GO

InfoBrazil Interactive

Which of the two main PSDB (social-democratic) party candidates has a better shot against President Lula in Brazil's presidential election set for October?

- São Paulo state governor Geraldo Alckmin
- São Paulo city mayor and former federal health minister José Serra

vote

Results

Enter your email to register for the Editor's Lookahead.

OK

InfoBrazil Content Partners

YaleGlobal Online

ICONE Institute for International Trade Negotiations

December Interview

Preserving The Amazon Rainforest... Step One: Defeat Fatalism.

InfoBrazil interviews Dr. Philip Fearnside December, 2003

Dr. Philip M. Fearnside, an ecologist, is a Research Professor in the Department of Ecology at INPA – the National Institute for Research in the Amazon, based in Manaus, a city in the heart of the Brazilian Amazon region. Before joining INPA in 1978, he lived for two years in a village on Brazil's Transamazon Highway conducting research for his Ph.D. dissertation on human carrying capacity. He maintains interests in various other parts of the world, especially Indonesia, China and India, where two years in a village on the edge of the Thar Desert gave him a long-term interest in climate change. In the Amazon, he has studied the impacts and prospects of different modes of development, including agriculture, ranching, silviculture, extractivism, forest management and hydroelectric dams. He has a special interest in the process and impacts of deforestation, and since 1983 has devoted a substantial amount of his time to improving estimates of greenhouse gas emissions from Amazonia. His research indicates that Amazonian deforestation makes a significant contribution to the atmosphere's load of greenhouse gases, while his studies of deforestation's causes identify the policy changes most likely to be effective in reducing these impacts. Since 1992 he has been promoting environmental services as a new development paradigm for Amazonia. He has authored over 300 scientific publications, including four books, and serves on the editorial boards of six journals. Among numerous accolades and honours he has received are Brazil's National Ecology Prize and the United Nation's Global 500 award. He was elected to Brazil's National Academy of Sciences and has been identified by Brazil's CNPq – the National Council on Scientific and Technological Research, as Amazonia's most highly cited scientist. He served eight years in the International Advisory Group (IAG) of the Pilot Program to Conserve the Brazilian Rainforest (PP-G7). Since the inception of the Intergovernmental Panel on Climate Change (IPCC) he has participated in numerous IPCC reports. Likewise, he has long contributed to groups debating climate issues in government, UN, NGO and academic contexts. He first began speaking publicly on global warming in 1968 as a ranger naturalist in the U.S. National Park Service. He holds a BA in Biology from Colorado College (1969), an MS in Zoology (1973) and a Ph.D. in Biological Sciences (1978), both from the University of Michigan.

At any given time, a search using "Amazon Rainforest" as keywords will provide numerous insights, snapshots, descriptions and opinions – moments in time in the running history of the mighty forest, as it appears to head relentlessly toward a future that makes most observers cringe in despair. Destruction, oblivion, perhaps inevitability, are words that certainly come to mind.

But reaching a premature conclusion that the end of the rainforest is inescapable is the biggest mistake anyone could make, according to one of the most quoted, recognized and knowledgeable specialists in matters involving Amazonia. It's what Dr. Philip Fearnside describes as uncalled for "fatalism", and it is to be avoided because as he puts it, "what happens

BRAZIL NEWS

27/01 | **Yahoo News Latin America** - Activists Hold Separate Forum in Venezuela

27/01 | **Washington Post** - Advice From Death Row

27/01 | **CNN World** - Cunard caves in over cruise mutiny

27/01 | **Bloomberg.Com Home** - Procter & Gamble 2nd-Qtr Profit Rises After Gillette Purchase

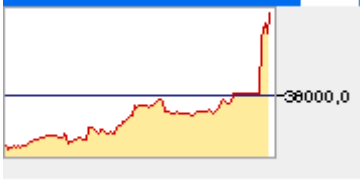
27/01 | **Usa Today Home** - Rocking the boat works

News powered by PLUGAR

More News

MARKETS

Bovespa Index



38737,9 27/01/06 ult: 38737,9

Financial data provided by FINANsite

to the forest is very much a matter of human decisions".

According to this American ecologist who has studied the Amazon for nearly three decades as a staff member at INPA – The National Institute for Amazon Research based in Manaus – it is just plain wrong to assume, as so many often do, that no matter what anyone does the Amazon as we know it will surely be wiped out. And he's well aware of the facts and figures that lead people to believe the end is somehow near.

The fact is that the vast Amazon Rainforest, which covers an area larger than all of Europe and produces one-fifth of the world's oxygen, is shrinking at an accelerated rate. An estimated 25-thousand square kilometers disappeared in 2002, or an area about the size of Belgium. And there's every indication that at least that much will be lost again – if not more – when final numbers are tallied up at the end of 2003.

Indeed, hearing that destruction of the Amazon can still be reversed may sound rather utopian to the average onlooker who reads what he comes up with after that simple search we mentioned above. The threats to the Amazon rainforest are numerous, serious, and they appear to be mounting – expanding not just because of human greed and a severely inept and insufficient Brazilian government presence, but also because of new climate challenges and global market demands. Technology is also a factor, as it permits greater "efficiency" in the clearing process.

Delving into the Amazon jungle as a topic these days will yield everything from age-old slash-and-burn land clearing for subsistence farming purposes and illegal logging, to huge high-tech soybean plantations advancing on virgin forest. Rules and restrictions are generally thrown out the window, and there are never enough inspectors to enforce them in the first place. And when there are, corruption takes over and the free for all continues.

In the past, gold prospectors were blamed for polluting jungle rivers with the mercury they use to separate gold pellets from silt, but now we find – and Dr. Fearnside explains this in detail – that building dams can be an even more dangerous ingredient in the Amazon's mercury problem. That bit of information only adds to existing concerns, because Brazil's current federal administration is bound and determined to pursue increased development in the Amazon region. Its plans include several major projects in the rainforest, including, yes, new dams and highways soon to be paved.

Still, Prof. Fearnside believes the Amazon is not doomed. We caught up with him in Manaus, and he agreed to try and put today's threatened Amazon Rainforest into perspective for InfoBrazil.com's global audience. Questions were prepared by InfoBrazil editor and founder Adhemar Altieri, and answered by e-mail. We thank Prof. Fearnside for taking the time to examine so many different, but intertwined Amazon-related topics and perspectives.

InfoBrazil: *Watching the Amazon Rainforest from a distance, and attempting to determine its fate and status based on what is written about it, is no easy task – information is often conflicting, varying from the edge of disaster to more positive outlooks. Based on your extensive work in the region, spanning close to three decades, what is your assessment of the rainforest today?*

Dr. Philip Fearnside: Grave threats exist and must be faced. These include deforestation by a variety of actors – logging, forest fires and, in the not-too-far future, potential for substantial forest mortality from climate change. Although there are also positive developments in legislation and environmental institutions, these advances are invariably slower than the escalation of threats. The important thing is to avoid fatalism. Many people react to Amazonian problems by throwing in the towel. They presume that the Amazon forest will be destroyed no matter what they do so they may as well worry about something else. But what happens to the forest is very much a matter of human decisions, including both those affecting the direct destruction with chainsaws and the indirect threats such as climate change. Fatalism is the most dangerous enemy of the forest.

IB: *The media in Brazil and around the world have given great exposure to the annual "queimadas" – fires set by farmers to clear land in the Amazon region. Satellite images provide a graphic illustration of the rainforest being destroyed, and year after year the problem only seems to get worse. What prevents authorities from putting a stop to this, or at least imposing stricter controls?*

Dr. Fearnside: Controlling deforestation is possible if authorities put a priority on doing so. However, implementing effective controls has a high cost to government officials in terms of money and especially in terms of votes. At the same time there are no short-term rewards to decision makers for successfully controlling deforestation. Conflicts of interests are also common, with politicians and their families often being major landowners in Amazonia. An important demonstration of the capacity of government decisions to reduce deforestation was provided by a licensing and control program in the state of Mato Grosso from 1999 to 2001; clearing trends both at the state and at the county level indicate that the program was having a significant effect. However, in 2003 Brazil's largest soybean entrepreneur became the new state governor, and the program has been effectively shelved. Nevertheless, the simple demonstration of government capacity to control clearing is very important, as a basic lack of confidence in the ability of government to achieve results in practice is at the root of the low priority deforestation control has received, including the reluctance to even have an option created to receive compensation for reducing deforestation (for example under the Kyoto Protocol).

IB: *You've spoken in the past about the possible negative effects of Global Warming and the El Niño phenomenon on the Amazon. Are these negative effects visible today, and what could be done to prevent them?*

Dr. Fearnside: The effects of El Niño are obvious, both in the form of tree mortality and in widespread surface fires in standing forest, for example during the 1997-1998 event. Although El Niño is a natural phenomenon that existed before significant human impacts on the atmosphere, the frequency of El Niños has increased significantly since 1976 according to IPCC – the Intergovernmental Panel on Climate Change. Agreement on the causes of this increase has not yet been reached – at least formally under the aegis of the IPCC, but a number of studies have indicated that it is a result of warming of the oceans caused by global warming. Assuming this is true, we can expect the frequency and severity of these events to increase in the future. The impact of El Niño on the

forest depends not only on the El Niño itself, which causes drought conditions in Amazonia, but also on the human impacts that increase the likelihood that the forest will catch fire. Dead trees caused by logging damage, by the effects of edge formation around clearings, and by the effects of past surface fires make the forest much more flammable when an El Niño strikes. The continual increase in the number and geographical spread of people lighting fires also increases the likelihood of fires during these years. Widespread surface fires represent a significant force in destroying Amazonian forests that didn't exist just a few decades ago when I began work in the region.

IB: *And the effects of Global Warming…*

Dr. Fearnside: The effects of global warming are more subtle so far than El Niño's, because temperatures have only begun to rise. However, the projected increases over the coming decades could result in major dieback in Brazil's Amazonian forests. Simulations by the Hadley Centre of the U.K. Meteorological Office indicate global warming alone causing much of the forest to begin dying back by the year 2080, assuming that global emissions continue to increase without mitigation. This catastrophe could be averted if agreement is reached to stabilize atmospheric carbon-dioxide levels at 550 parts per million by volume (ppmv) or less. The Climate Convention calls for stabilizing the atmospheric concentrations of greenhouse gases at levels that avoid "dangerous interference with the climate system", but agreement has yet to be negotiated on what is defined as "dangerous". This is expected to be negotiated in 2005. From an Amazonian perspective, anything over 550 ppmv is definitely "dangerous."

IB: *A few years ago, a major concern in the Amazon was the threat to rivers, caused by gold prospectors using mercury to separate gold pellets from silt. It seems that mercury is now off the agenda, and everyone has moved on to other things. How bad a problem is mercury pollution these days? Are its effects more visible now than before?*

Dr. Fearnside: Mercury is still a problem, but not in the same way as when it was in the news. The price of gold is low compared to the late 1980s, so the gold-rush fever has slackened. There is still a sizeable contingent of gold miners, however, and they all use mercury.

It is now realized that much of the mercury in Amazonian fish and in the humans who eat them comes from the ancient soils in the region rather than from gold mining. The limiting step is conversion of elemental mercury into the poisonous methyl form. This occurs in black-water rivers due to characteristics of their water chemistry. Perhaps more importantly, it occurs at the bottom of hydroelectric reservoirs. The water at the bottom of these reservoirs is devoid of oxygen, and soft, green vegetation that decomposes there – from weeds that grow in the draw down zones of the reservoirs – is converted to methane rather than carbon dioxide. The reaction for methylation of mercury is very similar, and takes place under the same anoxic conditions. The slow deposition of mercury from volcanic eruptions and other natural sources over millions of years has built up enough mercury in the ancient soils of Amazonia to provide plenty of raw material for this reaction. The concentration of mercury in the hair of fishermen around the Tucuruí reservoir exceeds even that of goldminers in the Tapajós River, and the level in the main commercial fish

species in the region, the Tucunaré, is triple the level considered safe for human consumption by the World Health Organization.

Mercury poisoning is as problem that is easy for people to downplay because it takes so long to develop. Mercury accumulates slowly in the human body throughout life; it can cause Minamata disease when it reaches a critical level, and it can cause deformities in an unborn fetus at much lower concentrations. In the case of the famous mercury tragedy in Minamata, Japan that gave the name to Minamata disease, the first case of the disease was only observed 24 years after a factory began dumping mercury into the Minamata Bay. In Amazonia people are eating fish and not feeling any ill effects, but this does not mean that mercury is not building up in their bodies. Considering Brazil's ambitious plans for hydroelectric dam construction in Amazonia, mercury is a time bomb for the future.

IB: *What is the biggest threat to the Amazon today, and where does it come from exactly? Is deforestation to create pastures and farmland a consequence of poverty, or are there bigger players and broader objectives at work?*

Dr. Fearnside: Deforestation is the sum of many threats. Big players account for most of the area cleared each year—a very important fact in that it makes a substantial reduction in deforestation possible without either causing suffering among those who clear for subsistence or requiring the heavy government expenditures that would be necessary to provide alternative livelihoods for a large number of small farmers. In addition to deforestation being divided between large and small actors, it is also divided into two distinct processes: the eating-away at remaining forest in the "arc of deforestation" where already-deforested area is concentrated along the eastern and southern edges of the forest, and the establishment of new 'hot spots' of deforestation in places where the forest is still intact. A key factor in the proliferation of new deforestation foci is the building of infrastructure, such as the highway paving projects that are prominent in the Brazilian government's 2004-2007 Pluriannual Plan. The explosion of deforestation in 2002 in Novo Progresso, on the BR-163 (Santarém-Cuiabá) Highway in the state of Pará, is a painful example. Migration of sawmills and land buyers to Novo Progresso is occurring in anticipation of the highway being paved under the Pluriannual Plan.

IB: *How much of a problem is Brazil's Landless Peasants Movement, the MST, which went quiet during last year's election campaign but has again stepped up its activities – which include often violent and destructive land invasions to pressure the government for land reform. Many in the movement see the rainforest as "fair game"…*

Dr. Fearnside: The MST and other landless peasant movements provide plenty to worry about. In practice, when landless peasants get land, they clear forest to plant - not degraded pasture, even if they have degraded pastures in their plots. The government cannot allow decisions on what land to settle to be made, in practice, by invading groups of organized peasants. In addition to a hard line on unauthorized invasions of forest, the government must also address the social inequalities that drive landless migrants to leave other parts of Brazil for Amazonian frontiers. While landless peasants and small farmers have a real impact on the forest,

and it is politically tempting to blame them for the environmental impact of deforestation in general, it should not be forgotten that most of the clearing each year is done by medium and large operators.

IB: *Are you a believer in the possibility of sustainable development in the Amazon? Some would even question the feasibility of the expression itself…*

Dr. Fearnside: Everyone is in favor of "sustainable development", even including the most rapacious destroyers of Amazonia. The key question is not whether you believe in "sustainable development," but rather what you think "sustainable development" is. "Development for whom?" is always the first question to be answered. For me, an activity for the benefit of somewhere else, say, hydroelectric dams to provide cheap aluminum to Japan with minimal employment generation in Brazil, is not "development." Of course, converting the Amazon forest to large ranches for a miniscule elite of Brazilian investors is also not "development." I believe the current rural population of Amazonia could be supported "sustainably" at a reasonable standard of living. While renewable natural resources can play a role in sustaining this population, the most important option is tapping the value of the environmental services of standing forest. It is an important caveat that Amazonia cannot be expected to solve the economic problems of other parts of Brazil, pay the country's foreign debt, and so forth.

IB: *You wrote a book in the 1980s about the "human carrying capacity" of the Amazon Rainforest, or the extent to which the region can support human settlement. The current federal government in Brazil apparently believes in accelerating development and introducing a much larger population into the Amazon region. Is this a viable proposition?*

Dr. Fearnside: No. They should read the book! (Human Carrying Capacity of the Brazilian Rainforest, Columbia University Press, 1986).

IB: *To what extent is it possible to look to the Amazon to try and solve Brazil's social problems? Is this a reasonable proposition, or would it simply accelerate the demise of the rainforest?*

Dr. Fearnside: Basically, it would simply accelerate the demise of the rainforest.

IB: *What consequences might we expect from the flurry of new development being encouraged by the Brazilian government? More than 80 infrastructure projects for the region are being pushed forward, including new hydroelectric dams, gas pipelines… even the paving of the Transamazon highway is being contemplated…*

Dr. Fearnside: The flurry of new projects, announced under the 2004-2007 Pluriannual Plan (successor to the previous administration's "Avança Brasil" plan) would have severe consequences for the forest. Many of the projects would open up new areas to entry of migrants, sawmills and ranchers. The BR-319 (Porto Velho-Manaus) Highway would open the floodgates to migration from Rondônia into the central Amazon, and north to Roraima. The Urucú-Porto Velho gas pipeline would also provide a potential migration route for

population from Rondônia, a state that is infamous for its rampant deforestation and large contingents of migrants and small farmers in search of land. The BR-163 (Santarém-Cuiabá) Highway would accelerate logging and deforestation for ranching and soybeans, and threatens to rupture a barrier of reserves, allowing clearing to expand eastward into the "Terra do Meio" (Middle Earth) area. The Belo Monte Dam, which is at the top of the list for hydroelectric development, would almost certainly lead to construction of others of the six dams planned in the Xingu/Iriri River basin. While Belo Monte itself has a small reservoir, this very fact makes the upstream dams more attractive in order to store water for the 11,000 megawatt installed capacity at Belo Monte. The next dam on the list is the Altamira (formerly Babaquara) Dam, which would flood 6000 square kilometers - twice the area of the notorious Balbina Dam - all of which is indigenous land and tropical forest. Paving the Transamazon Highway has more social justification than other projects in the Pluriannual Plan. This area already has an established population of farmers, rather than opening up a new area of forest.

IB: *Just last month, activists from the environmental group Greenpeace were surrounded and threatened by workers, who complain that illegal logging is being exposed. News reports said landowners who control radio stations in the region encouraged the workers to protest. To what extent is the Amazon "problem" higher up the ladder, and not just a matter of subsistence for the displaced and dispossessed?*

Dr. Fearnside: "Large fish" are definitely involved. Workers are easily convinced that environmentalists threaten their jobs. However, the idea that predatory logging maintains employment is illusory. The sawmills invariably close and move elsewhere when the profitable trees are gone. It would be better to face this now while there is still a forest, and work on developing alternative livelihoods now.

IB: *There is an attempt under way by a Japanese company to register the name of a plant found in the Amazon, in order to make commercial use of its active ingredient. This is being fought by the Brazilian government. Is there any significant work being done in Brazil not just to prevent this from happening, but also to catalog medicinal and other capabilities of Amazon plant life and profit from it?*

Dr. Fearnside: Some work is being done, including at INPA, but this is minimal compared to the scale of the challenge. The CBA – Center for Biotechnology of Amazonia, in Manaus, is still basically just an empty building. There is some bioprospecting work under way as a part of the FAPESP Biota Program, but this is restricted to Atlantic Forest and cerrado in the state of São Paulo, not Amazonia. There is also some work in Rio de Janeiro by the disciples of Otto Gottlieb. An organized effort in Amazonia, such as the planned PROBEM program, has yet to take shape.

IB: *Occasionally there are media reports of people caught attempting to smuggle animals from the Amazon to various parts of the world – some are sold as pets, others are taken for research. Again, is this not an area that Brazil itself could exploit in orderly fashion, instead of allowing the current "free for all" situation that sees literally thousands of animals smuggled out of the rainforest every year?*

Dr. Fearnside: Restraints are needed. There also have to be

provisions to assure that the effort to stop bio-pirates does not cripple research. Unfortunately, this kind of provision has yet to be made a priority.

IB: *What role do you see for other countries, considering that whenever anything of greater substance is said about the Amazon elsewhere in the world – particularly in the United States – many voices in Brazil rise up as if an invasion is about to take place?*

Dr. Fearnside: People in other countries commenting about Amazonia need to be aware of the view from Brazil and not say stupid things that could be misinterpreted. At the same time, they should not hold back when there are things that need to be said. Both inside and outside of Brazil, people concerned about Amazonia should give support, not just criticism.

IB: *Is there anything that concerned citizens around the world could do, or ought to be doing in your view, to help ensure the Amazon is there in years to come?*

Dr. Fearnside: People can help in many ways. Some dedicate their entire careers to Amazonia, while others contribute indirectly, for example by giving money to environmental NGOs active in the region. Consumer behavior, for example in purchasing only certified wood products, also has an influence. It is also important for citizens to become informed and participate in efforts to influence their own government's actions in Amazonia. Individuals and NGOs can also influence how multinational corporations and multilateral development banks operate in the region.

Another important area is in people working to improve the domestic environmental records of their own countries. The United States is particularly important in this regard, and should set an example. The refusal by the U.S. to ratify the Kyoto Protocol represents a slap in the face to the entire World. In addition to the importance of U.S. participation to any global climate mitigation effort, because of the place of the U.S. as the World's largest single emitter of greenhouse gases, the U.S. refusal to ratify the Protocol greatly detracts from the influence of both the U.S. government and U.S. citizens in general in trying to reduce emissions elsewhere, including in Amazonia. The U.S. also needs to face the need to halt logging of "old growth" forests in the Pacific Northwest, not only to save the remaining vestiges of those forests but also because the U.S. can hardly expect to have much influence in convincing other countries to maintain virgin forests while continuing to destroy its own. Even though "the pot can't call the kettle black" represents a logical fallacy (argumentum ad hominem), in practice the environmental record of the United States significantly reduces its influence in the World.

IB: *If you had it to decide, what would be the most urgent and vital measures that should be enacted immediately by Brazil to ensure that there is an Amazon rainforest to speak of in the future?*

Dr. Fearnside: I would divide the measures into five:

1) Rethink infrastructure projects such as the BR-319 Highway, the Urucú-Porto Velho gas pipeline, the BR-163

Highway and the Belo Monte Dam.

2) Enforce environmental legislation, including implantation of a geo-referenced registration of properties and a satellite-based monitoring system. This must include full information gathering, data management and inspection capabilities at the federal level for the whole Amazon region, in addition to any state-level efforts.

3) Create and strengthen protected areas and reserves, including negotiations with indigenous peoples to assure maintenance of intact natural forest in exchange for alternative sources of support.

4) Remove forces underlying deforestation, including various remaining forms of subsidies, migration from other parts of Brazil (especially Maranhão state) driven by extreme concentration of land holdings, supply much of the wood demand in São Paulo and other cities from plantation-grown sawn wood, and repress illegal sources of money – drugs, corruption and tax evasion – that is laundered through Amazonian ranches.

5) Create institutional structure to compensate environmental services such as biodiversity maintenance, water cycling and carbon storage. Internationally, Brazil should work to get carbon credit for avoided deforestation under the Kyoto Protocol.

IB: *What is your impression of the tougher protection enacted last month by Brazil's Congress for the Atlantic Forest (Mata Atlântica), after an eleven-year battle in the legislature? Anything about that move that might prove useful for the Amazon?*

Dr. Fearnside: This was good news. One may hope that it is a sign of increased influence of the Environment Ministry. Most news in the preceding weeks had been bad, with the Environment Ministry ceding ground in a series of struggles with other ministries.

Related sites:

INPA – National Institute for Research in the Amazon
(Portuguese only)
http://www.inpa.gov.br

IPCC – the Intergovernmental Panel on Climate Change
http://www.ipcc.ch

Hadley Centre of the U.K. Meteorological Office
http://www.met-office.gov.uk/research/hadleycentre

MST – Landless Peasants Movement
http://www.mst.org.br

Greenpeace Brazil
(Portuguese only)
http://www.greenpeace.org.br

CBA – Center for Biotechnology of Amazonia
(Portuguese only)
http://www.suframa.gov.br/cba.cfm

FAPESP Biota Program
http://www.biota.org.br

More about Professor Otto Richard Gottlieb
http://www.arkat-usa.org/ark/journal/2004/Gottlieb/OG-486T/OG-486T.pdf

Brazilian Environment Ministry
(Portuguese only)
http://www.mma.gov.br