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Roads are ruining the rainforests

- › 30 August 2009 by [William Laurance](#)
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"THE best thing you could do for the Amazon is to bomb all the roads." That might sound like an eco-terrorist's threat, but they're actually the words of Eneas Salati, one of Brazil's most respected scientists. Thomas Lovejoy, a leading American biologist, is equally emphatic: "Roads are the seeds of tropical forest destruction."

They are quite right. Roads are rainforest killers. Without rampant road expansion, tropical forests around the world would not be vanishing at a rate of 50 football fields a minute, an assault that imperils myriad species and spews billions of tonnes of greenhouse gases into the atmosphere each year. We will never devise effective strategies to slow rainforest destruction unless we confront this reality.

In our increasingly globalised world, roads are running riot. Brazil has just punched a 1200-kilometre highway (the BR-163) into the heart of the Amazon and is in the process of building another 900-kilometre road (the BR-319) through largely pristine forest. Three new highways are slicing across the Andes, from the Amazon to the Pacific. Road networks in Sumatra are opening up some of the island's last forests to loggers and hunters. A study published in *Science* found that 52,000 kilometres of logging roads had appeared in the Congo basin between 1976 and 2003 (vol 316, p 1451).

As my colleagues and I reveal in a forthcoming article in *Trends in Ecology and Evolution*, these are just a small sample of the many new road projects slicing through tropical frontiers.

Why are roads so bad for rainforests? Tropical forests have a uniquely complex structure and humid, dark microclimate that sustain a huge number of endemic species. Many of these avoid altered habitats near roads and cannot traverse even narrow road clearings. Others run the risk of being hit by vehicles or killed by people hunting near roads. This can result in diminished or fragmented wildlife populations, and can lead to local extinctions.

In remote frontier areas, where law enforcement is often weak, new roads can open a Pandora's box of other problems, such as illegal logging, colonisation and land speculation. In Brazilian Amazonia, 95 per cent of deforestation and fires occur within 50 kilometres of roads. In Suriname, most illegal gold mines are located near roads. In tropical Africa, hunting is significantly more intensive near roads.

Environmental disasters often begin as a narrow slice into the forest. Rainforests are found mostly in developing nations where there are strong

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Roads are the "seeds of tropical forest destruction" (Image: Steve Fricker)

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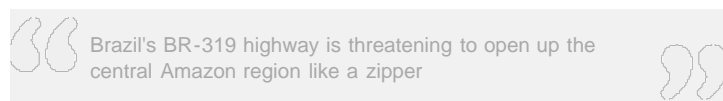
economic incentives to provide access to logging, oil and mineral operations and agribusiness. Once the way is open, waves of legal and illegal road expansion follow. For instance, the Belém-Brasília highway, completed in the 1970s, has developed into a 400-kilometre-wide swathe of forest destruction across the eastern Amazon.

Beyond the forest itself, frontier roads imperil many indigenous peoples, especially those trying to live with limited contact with outsiders. As I write, indigenous groups in the Peruvian Amazon are stridently protesting the proliferation of new oil, gas and logging roads into their traditional territories. The roads bring loggers, gold miners and ranchers who often subjugate the indigenous people. Even worse, the invaders can bring in deadly new diseases.

Throughout the tropics, infections such as malaria, dengue fever, enteric pathogens and HIV have all been shown to rise sharply after new roads are built. Some indigenous groups, such as the Surui tribe of Brazilian Amazonia, have been driven to the edge of extinction by roads and the invading loggers, colonists and diseases they bring.

What can we do to slow the onslaught? First, we must vastly improve environmental impact assessments for planned roads. In many developing nations, EIAs focus solely on the roads themselves, completely ignoring the knock-on effects. In Brazil, for instance, EIAs for Amazonian highways focus only on a narrow swathe along the route, often recommending only paltry mitigation measures, such as helping animals to relocate before building begins. EIAs for certain mines, hydroelectric dams and other large developments focus only on the project itself while ignoring the impact of the roads it will invariably spawn. New roads will continue to drive rainforest destruction so long as the EIA process is so fundamentally flawed.

The second thing we have to do is fight to keep the most destructive roads from being built - the ones that penetrate pristine frontier areas. There is no shortage of battles to wage. A proposed highway between Colombia and Panama, for example, would expose one of the world's most biologically important areas, the Chocó-Darién wilderness, to rampant destruction. Likewise, Brazil's BR-319 highway is threatening to open up the central Amazon like a zipper.



Finally, we need to pressure those promoting these frontier roads. These include timber corporations like [Asia Pulp & Paper](#) and [Rimbunan Hijau](#), international lenders such as the Asian, African and Inter-American Development Banks, and massive infrastructure schemes such as Brazil's [Programme to Accelerate Growth](#). In their scramble for tropical timber, minerals, oil and agricultural products, China and its corporations have become perhaps the biggest drivers of destructive road expansion.

Restricting frontier roads is by far the most realistic and cost-effective approach to conserving rainforests and their amazing biodiversity and climate-stabilising capacity. As Pandora quickly learned, it is far harder to thrust the evils of the world back into the box than to simply keep it closed in the first place.

William Laurance is a research professor at James Cook University in Cairns, Australia, and the Smithsonian Tropical Research Institute in Panama

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In Agreement

Thu Aug 27 10:31:34 BST 2009 by [Pragmatist](#)

If you are highlighting the challenges that communications brings to the feet of humankind then I am in agreement.

Infrastructure and rapid physical communications are in-congruent with the needs of sustainability, climate and diversity.

On the other hand such physical communications do assist with economic development which provides incomes for many people to participate in both the subsistence economy, to put TV dinners in the sitting rooms of suburbia, and the wider economy to supply those sitting rooms with TVs.

Likewise the rapid transfer of information and money as oceans of zeros and ones brings challenges as demonstrated in economic events and the inability of economists to answer a question regarding causality and absence of foresight posed by Her Majesty, The Queen.

That uncertainty upon climate change, sustainability, economic volatility, and perhaps even rising instance of certain chronic diseases are rising concerns of the 21st century is no coincidence.

Each is an instance of deferred accountability or delayed and unintended consequence arising from humankind's lack of awareness of the constraining factors of Earthly habitation. We disrupt natural and economic hyper-cycles at our peril. Now if we could learn to balance the energy accounts

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In Agreement

Sun Aug 30 13:21:47 BST 2009 by **sciencebod**
<http://www.colinb-sciencebuzz.blogspot.com>

Would it by any chance be the same Pragmatist as the one who posts to a Telegraph blog site? ;-)

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Stopping Roads

Sat Aug 29 07:05:43 BST 2009 by **Paul**

So - how do we act to accomplish the 3 tactics of your suggested strategy? Brazil, Bolivia and other countries resent, indeed prohibit, outside influence. The U.S. government has a lackluster record of action in this area since it can focus only on destructive initiatives like the ineffective war on cocaine and enrage nationalist sympathies. So in fact are there any NGO's or any government entities seriously addressing this?

Not to be a pessimist, but look at the U.S. National Forests where there are something like 370,000 miles of roads, enough to go to the moon and halfway back. Conservationists have preserved precious few square miles in a roadless state, and the fate of much that is roadless is still in the hands of bureaucrats and timber/oil/mining interests. Clearly some different paradigms need to be applied, but what are they?

Perhaps Eneas Salati has got it right.

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Global Trade Of 'free' Resource

Sun Aug 30 10:47:28 BST 2009 by **Vin**

The rest of the world seems to want to claim for an essential global resource without paying for it: they seem to expect Brazil and other similar countries not to develop in the same way they are doing themselves.

If they really care about the rainforest and ecology etc, why don't the other countries pay the stewards for its upkeep and so offset the need to compromise the rainforest, ecology etc, instead of squeezing out more resources themselves via their ruthless banking systems while presumptively preaching holier-than-thou conservation?

These countries like Brazil are forced to do the only thing to pursue their own intrests, and the only way the rest of the world, ruthless corporations, banks etc will pay up for the 'free' global resource they conveniently leave off their exploitative balance sheets and then brazenly claiming for it is by blackmail that threatens the survival of the ecology.

Its the only language they understand since its the tactic they often use themselves.

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Global Trade Of 'free' Resource

Sun Aug 30 13:12:52 BST 2009 by **sciencebod**

<http://www.colinb-sciencebuzz.blogspot.com>

I agree entirely Vin re the need for stewardship of sensitive eco-resources, and, as you suggest, the entire world (or the richer members thereof) should compensate the host nation to avoid charges of hypocrisy. There are precedents, whether parochial ones - like the National Trust allowing (ex)owners to live in their stately homes while taking over the cost of repairs etc, to the EU's subsidising of "set-aside", albeit much-abused.

I personally would be willing to "sponsor" a few acres of Amazonian rainforest - especially if some enterprising local would install a webcam to let me see what was happening - and also hopefully not-happening- on my otherwise pristine patch.

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Global Trade Of 'free' Resource

Sun Aug 30 15:37:37 BST 2009 by **Vin**

yes good idea. Also what do you think about a carbon-footprint or some kind of similar green tax which could raise some funds at least for the effort?

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Global Trade Of 'free' Resource

Sun Aug 30 15:56:59 BST 2009 by **sciencebod**

<http://www.colinb-sciencebuzz.blogspot.com>

Personally, I'm against carbon-footprint taxes on principle, Vin, for the simple reason that they turn ordinary folk against science and scientists. It's the control-freak politicians who see AGW as a smart way of raising extra tax revenues to fund their pet projects (client states etc), who do everything in the power (bribery, blackmail) to encourage a so-called consensus among scientists.

I'd prefer to see our leaders saying "Look, we have a problem, and we need your help to solve it ...". A carrot instead of a stick.

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Global Trade Of 'free' Resource

Sun Aug 30 22:12:56 BST 2009 by **Steve**

And what gives Brazil et. al. the right to make decisions about resources essential for the survival of mankind? Why do they get to hold hostage the entire globe?

"My" sins - past and present - do not justify "yours". You can complain about banks and corporations, but the methods you propose are their own. Such methods may be necessary, but don't preach about your superior world view - because it's the same as everybody else's. The simple answer to development is, *don't develop THERE*.

Humans are squatters everywhere. The fact that the residents of these countries happen to squat on globally vital resources doesn't

mean they have the right to do anything they want with it at the cost of the rest of the globe. Again... the sins of one people do not justify the sins of another.

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Global Trade Of 'free' Resource

Mon Aug 31 00:51:20 BST 2009 by **Craig**

Well unless you are planning to go to war, the simple answer is because it's *their country* and they get to make decisions about what happens within their borders.

The holier than thou goes both ways, we have no right to tell them how to manage their lands when we clearly do a poor job of managing ours.

Perhaps the answer is - reclaim lands in the rest of the world... force people to move back to the city and bomb all the rural roads (and let Brazil, or wherever, do what it wants)

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Global Trade Of 'free' Resource

Mon Aug 31 14:53:45 BST 2009 by **Steve**

In short, property over life.

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