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New highways drive accelerating deforestation in Amazonia

In today's issue of *Science* (21 May 2004), a team of U.S. and Brazilian scientists show that the rate of forest destruction has accelerated significantly in Brazilian Amazonia since 1990. The team asserts, moreover, that Amazonian deforestation will likely continue to increase unless the Brazilian government alters its aggressive plans for highway and infrastructure expansion.

"The recent deforestation numbers are just plain scary," said William Laurance of the Smithsonian Tropical Research Institute in Panama, the study's lead author. "During the last two years nearly 12 million acres of rainforest have been destroyed--that's equivalent to about 11 football fields a minute."

Deforestation has risen most sharply in the southern and eastern parts of the Amazon, where rainforests are more seasonal and thus more easily burned. "Since 2002, forest loss has shot up by nearly 50% in the states of Pará, Rondônia, Mato Grosso, and Acre," said co-author Ana Albernaz of the Goeldi Museum in Belém, Brazil. "Plant and wildlife species indigenous to these areas are being severely threatened."

The rising deforestation is directly linked to Brazilian development policies, says the team. In 2000, Brazil announced the largest infrastructure-expansion plan in the history of the Amazon. The plan, formerly called 'Avança Brasil' (Advance Brazil), could ultimately involve over US\$40 billion in investments in new highways, roads, power lines, gas lines, hydroelectric reservoirs, railroads, and river-channelization projects.

These huge projects will criss-cross the basin, say the team members, providing greatly increased access for loggers and colonists to pristine tracts of forest. "In the past, such projects have led to striking increases in illegal deforestation, logging, mining, and hunting activities," said Heraldo Vasconcelos of the Federal University of Uberlândia in Brazil, another co-author of the study.

The key drivers of increasing Amazon-forest loss, say the authors, are rising deforestation and land speculation along new highways and planned highway routes, and the dramatic growth of Amazonian cattle ranching and industrial soybean farming. "Soybean farms cause some forest clearing directly," said co-author Philip Fearnside of Brazil's National Institute for Amazonian Research in Manaus. "But they have a much greater impact on deforestation by consuming cleared land, savanna, and transitional forests, thereby pushing ranchers and slash-and-burn farmers ever deeper into the forest frontier. Soybean farming also provides a key economic and political impetus for new highways and infrastructure projects, which accelerate deforestation by other actors."

Anticipating public alarm about the worsening deforestation trends, the Brazilian government recently announced new measures designed to slow Amazon forest loss. These measures include increased satellite monitoring of deforestation, and the involvement of additional government ministries--not just the Ministry of Environment--in efforts to reduce illegal deforestation and forest burning. "If implemented effectively, the government plans, along with the establishment of new protected areas in Amapa, Amazonas, and Acre, would be a move in the right direction," said co-author Leandro Ferreira of the Goeldi Museum in Brazil. But the new measures do not go nearly far enough, say the team members, because they fail to address one of the most critical root causes of Amazonian deforestation: the alarming proliferation of new highways and infrastructure projects that penetrate deep into the heart of the Amazon rainforest. According to team-leader William Laurance, "If Brazil doesn't curtail the expansion of new highways and transportation projects, the net result will not only be further increases in Amazon forest destruction, but fragmentation of the surviving forests on an unprecedented spatial scale."