Letters

Latin America: Call for Conservation

I am pleased that Fletcher (Letters, 1 Sept.) supported my major contention (Letters, 14 July) that some Amazonian species are seriously endangered. However, his reassuring picture of the rain forest skims over the complex problems of the region.

Many Amazonian forest species are shy, nocturnal or crepuscular, and do not have high population densities. However, if they are present, these animals leave evidence of their activities—trails, marks and feces, nests or burrows, and signs of feeding—all of which were scarce or absent in the regions I examined. But the primates which I specifically sought are not nocturnal, save the genus *Aotes*, and most species move about in small groups or large troops. In my earlier letter I noted *several* complementary forces which make life impossible for the many species which once existed in these areas.

Fletcher's wide travels are enviable, but I doubt that an accurate appraisal of the forests can be made from the air. All that looks green and leafy is not virgin rain forest. Lumbering continues inland as far as the bulldozers are able to penetrate. This harvest is never a "one here and another there process," though a particular tree may be all the lumbermen seek. When a tree is cut, considerable destruction occurs in the area and along access routes. Oil interests have also begun their own peculiar disruption of the forest and pollution of streams. While climax species quickly replace one or two fallen trees, larger gaps require the forest to begin anew a process which may require 500 to 1000 years to complete.

The area under cultivation by a single slash-and-burn farmer will be small, seldom amounting to more than 10 acres at any one time; but each of his fields is large enough to require the long reforestation cycle. This land can be farmed for 3 years at most and then is not reusable for 15 to 20 years or even longer. The riverfront land is soon farmed out, and the farmers slowly cut back into the forest up to 3 to 5 miles. In many places this leaves only the same distance to the next navigable waterway, often unnoticed from the air. Given this base, hunters and trappers can and do move inland miles farther. This process continues from the banks of the Amazon itself to its headwaters in many areas. Where modern farming methods are practiced, the forest disappears not even to be replaced by second growth.

While many Latin American countries are beginning conservation programs, they are also anxious to continue economic development. Peru declared its first national forest last year and is installing a sawmill to experiment with the most efficient means of utilizing the lumber. An ambitious road-building program links Lima to Pucallpa and will push northwest to Quito, Ecuador, and southeast into Bolivia and Brazil. A major extension will connect this jungle highway to Iquitos. Portions already completed show convincingly that wherever this road goes, farmers and lumbermen will line it and again begin to work into the forests.

Wherever dots mark Amazonian villages on the National Geographic map, four or five hamlets intervene; and wherever a red line indicates a road, it is a fair assumption that human hands work a far-reaching modification of the adjacent environment for varying distances into the ever decreasing "el centro." Despite Fletcher's comforting conclusion, "It will be a long, long time before man destroys the Amazon rain forest," complacency must not prevent meaningful conservation until a crisis precipitates action, which often comes too late.

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Heltne's earlier letter, "Animals from the Amazon Basin," was an excellent exposition of an alarming situation. Those very problems—the conservation of the species and ecosystems of the Amazon Basin—will be discussed at a symposium, planned for January 1969 at Leticia, Colombia, under the auspices of the Association of Tropical Biology. Substantial support has already been promised by the governments of Colombia and Peru.

Tropical environments are among the most complex as well as the least understood of the world's biotic areas, and biologists are increasingly aware of the need to coordinate existing knowledge and provide new information about tropical ecosystems so that these natural areas may be preserved.

The ATB held its first symposium on the Amazon Basin in Belém, Brazil, in 1966 and is planning further symposia on tropical areas in Hawaii, Colombia, Argentina, tropical Asia, and Africa. The association invites the membership of individuals and institutions who are interested in supporting its professional goals.

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Ohio's Brain Drain

Jerison's treatment (Letters, 1 Sept.) of National Science Foundation money distribution is a refreshingly welcome change from the "woe-is-me" persecution complex frequently exhibited by midwestern officialdom when discussing the dispensation of federal funds. I hope the solution that he offers will lead men like Millett (Letters, 19 May) to a first rational step in effecting it. As one who was raised and educated in Indiana and Ohio, who was awarded an NSF fellowship in Ohio (most of which was spent outside the region), who received a Ph.D. in Ohio, and who taught for 6 years in Ohio, I make the following suggestion to Millett: contact the academic expatriates, those who constitute Ohio's "brain drain," the Ph.D.'s whom Ohio has supplied for the rest of the nation. Ask them why they left, how they might have been kept, and what circumstances might bring them back. Millett and his associates on the Board of Regents may not be pleased with their findings,