

Newsletter

ENVIRONMENTAL EFFECTS OF WAR IN NICARAGUA

Dr. Nat Wheelwright, Bowdoin College, U.S.A., has recently returned from a year's stay in Central America as a Fulbright Scholar. During that time, he was able to visit Nicaragua during the post-election period, to evaluate the effects of the recent conflict and to assess the potential of restoring the environmental sciences. We have asked Dr. Wheelwright to provide his personal view of the current situation and of future needs.

One of the characteristics of guerrilla conflicts such as the one that recently ended in Nicaragua is that the direct environmental impact is relatively subtle. From what I have seen and been told, Nicaragua's flora and fauna were little affected by the conflict. Although soldiers on both sides of the conflict, armed, hungry and bored, shot numerous animals, mostly monkeys and parrots, they probably reduced animal populations by only a little, especially in comparison with the devastation wrought by Hurricane Joan in 1988, which flattened more than a million acres of lowland rainforest on the Caribbean coast.

The most serious environmental problems for Nicaragua were indirect, arising from the country's shattered economy and international isolation. Between 1980 and 1987, Nicaragua's military expenditures more than doubled while export earnings dropped 40%. The annual inflation rate reached 35,000% in 1988. Exacerbated by the U.S. trade embargo, the crippled wartime economy could provide little for luxuries like biological conservation. Protecting endangered species was seen as frivolous or even inhumane when the Nicaraguan citizenry perceived itself to be threatened with extinction.

The war also exacerbated the severe shortage of trained scientific personnel. To support an army of 70,000, the government imposed compulsory military service. Many young professionals left the country to avoid the draft. Others numbered among the 30,000 left dead by the war. The outlook for the future is further clouded by the effect the war has had on the country's ability to train new professionals. The School of Ecology at Central American University, considered to be Nicaragua's best university, suffers from a severe shortage of faculty and teaching materials.

Nicaragua (continued on page 3)

Nicaragua (continued from page 1)

Emigration, the draft, war casualties, and academic careers interrupted or redirected because of the economic situation have shrunk the size of the student body and skewed its sex ratio. This year, only 14 students (13 of them female) will graduate with degrees in ecology and natural resource management.

Besides the scarcity of funds, Nicaraguan scientists and environmentalists are isolated from foreign professional colleagues. University and government agency budgets do not permit subscriptions to professional journals or memberships in professional organizations. For example, the membership directory of the Ecological Society of America does not list a single address in Nicaragua. Notification of professional symposia or calls for grant proposals often don't arrive until after application deadlines have passed. Communication out of the country has also been affected: political activists such as former IRENA Director Lorenzo Cardenal were denied visas to speak in the U.S. about the environmental impact of the war in Nicaragua. Nicaraguan publications that could serve to inform international colleagues about conservation issues have been suspended because of the bleak economic situation. Many U.S. conservation foundations have shied away from supporting ecological research there. In the words of one California-based foundation, "Given the instability of the country, we do not fund research in Nicaragua."

Nicaragua's National Park Service offers a case history of the indirect but damaging impact of the Contra war. Before the Sandinistas took power in 1979, there were only two national parks in the entire country, Saslaya National Park (established in 1971) and Masaya Volcano National Park (proposed in May, 1979, two months before the downfall of Somoza). Both were "paper parks," with no protective legislation, management, or research program. Following the 1979 revolution, the Sandinista government created the Institute of Natural Resources (IRENA) and, within it, the National Parks Service, and took steps to develop an integrated system of parks and reserves. Forestry concessions held by transnational companies were quickly canceled, and a program to conserve soil and water by planting windbreaks and reforesting areas unsuitable for agriculture was initiated. In 1983 the National Parks Service established a third national park (Zapatera Archipelago) and a new wildlife reserve. Had these recommendations been carried out, more than 10 million acres of Nicaraguan forest—28% of the country's area—would have been legally protected.

Instead, just 0.1% of Nicaragua is currently protected. The country's severe economic situation forced huge budget cuts within the National Parks Service. The entire present staff totals five technical personnel and three forest guards, down from 77 in 1980. The staff gets no reimbursement for travel, *per diem*, or supplies. There is no

money for trail maintenance, interpretive centers, or research in the parks. In fact, the Parks Service's budget includes only funds for salaries, which are bare-boned. Professional biologists earn \$60/month, about what they would make selling vegetables in the market.

The economic situation forced administrative restructuring and changes in conservation philosophy that weakened conservation efforts further. IRENA and the National Parks Service lost their autonomy and became absorbed by the Ministry of Agricultural Development. The design of natural protected areas was subordinated to "socioeconomic development" and to increasing local productivity.

Nicaragua has lost ground in the last 10 years despite its initial, ambitious agenda. Saslaya National Park was abandoned in 1983 after counter-revolutionaries captured several park guards, killed others, stole park vehicles, and made it unsafe to enter the area, let alone manage it or undertake critically needed biological inventories. Today only a single national park—Masaya Volcano—exists in all of Nicaragua. Perhaps most alarming for those concerned for tropical forests, there are no national parks or reserves in Nicaragua's Atlantic lowlands, a vast area of tremendous biological diversity and the largest neotropical rainforest outside of the Amazon Basin.

Ironically, despite the enormous damage of the Contra War, it slowed deforestation of Nicaragua's lowland rainforests and bought time for their protection. Sparsely settled even before the war, rural areas of the Atlantic coast region were evacuated as settlers fled their small farms to avoid conscription or the war's violence. Many cleared areas and roads have reverted to forest. In the face of economic uncertainty and military risk, international pressures to harvest tropical woods or convert the forest to cattle pastures or oil palm plantations abated. As a result, the pace of deforestation declined from its 1980 rate of 250,000 acres per year. Once the Contras are disarmed and the new government searches for resources to rebuild the national economy, Nicaragua's tropical rainforests, unshielded by legislative protection, will rapidly be opened up for exploitation.

With governmental conservation agencies greatly weakened, who is left in Nicaragua to protect its natural areas? Fortunately, there are several non-government environmental organizations in the country, underfunded but still alive, including the Association of Biologists and Ecologists of Nicaragua (ABEN), the Nicaraguan Environmental Movement (MAN), and the Nicaraguan Association of Tropical Ecology (ANET). Throughout the Contra war, the Nicaraguan conservation movement received crucial support from international agencies such as the World Wildlife Fund, the International Union for the Conservation of Nature, the Soviet Institute for

News (from page 2)

Individuals seeking to use its services must go through a local institution that agrees to follow SIES regulations. Only printed materials, microfilms, and audio tapes may be sent. To initiate shipment, institutions must send a letter to SIES in advance of the shipment of publications to be forwarded abroad. The letter must contain the following information: the type of publications being sent; the number of bulk packages in the shipment to SIES; and the number of individual packages or envelopes to be forwarded abroad. The sending institution must pay all postage or shipping charges for shipment of materials to the SIES. (The SIES maintains no internal mailing lists of needy institutions, nor does it procure or stock publications to supply to institutions on demand. Institutions interested in this type of service are encouraged to contact the International Library Exchange Center, Box 26, Park College, 8700 Riverpark Drive, Kansas City, MO 64152-3795, or the Universal Serials and Books Exchange, 3335 V St., N.E., Washington, DC 20018). Smithsonian International Exchange Service, Smithsonian Institution Libraries, 1111 North Capitol Street N.E., Washington, DC 20560, (202) 357-1964 or 357-2073.

the Conservation of Nature and Natural Spaces, and the governments of Norway and Sweden.

Nicaragua President Violeta Chamorro is faced with the challenge of rebuilding governmental environmental agencies, educational institutions, and a conservation movement exhausted by the war. Three major projects should be given special attention. In the north Atlantic region of Nicaragua is an extensive undeveloped area known as Bosawás, 2,750,000 acres of lowland wet forest and pine savannahs and Nicaragua's last remaining population of resplendent quetzals, a bird of great cultural and ecological importance in Central America and a potential magnet for ecotourism. "Héroes y Mártires de Veracruz" is an on-going project of soil conservation, environmental education, reforestation, and wildlife protection, covering 500,000 acres of tropical dry forest and agricultural land on the heavily populated and largely deforested Pacific coast. Nicaragua's most ambitious project, first proposed in 1987, is the International Reserve for Peace along the Costa Rican border. Five million acres of one of the world's most diverse tropical rainforests would be preserved and co-administered with Costa Rica.

By providing immediate technical, material and financial assistance, the international community can help Nicaragua rebuild its conservation movement, develop sustainable use and equitable distribution of its natural resources, and protect its rich natural heritage. Given its role in supporting the Contras, the U.S. has a special obligation to mitigate the environmental impact of the Contra war in Nicaragua.—Nathaniel T. Wheelwright, Department of Biology, Bowdoin College, Brunswick, ME 04011, U.S.A.