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## Costa Rica's Northern Wetlands Vanishing

by LADB Staff

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[The following article by Steven J. Barry is reprinted with permission of the weekly newspaper The Tico Times in San Jose, Costa Rica. It first appeared in the Feb. 21-27 edition of the newspaper.]

A series of possibly illegal drainage canals and fires in the Northern Zone are causing widespread deforestation and the destruction of what had been one of Costa Rica's most fertile wetlands. Swaths of what were previously huge tropical humid forests are now yellowing pasturelands throughout the Rio Frio river basin, surrounding the Cano Negro Wildlife Refuge, near the Nicaraguan border. Experts say as much as 60% of the area's wetlands has been lost in the last 30 years. Seen from the air, dried, felled trees that were once part of a delicate floating ecosystem are now peppered across the landscape, and only patches of the original forest remain. Migratory birds depending on the wetlands for survival now crowd around remaining lagoons, which are coffee-colored.

A lone environmental agency with only eight members, called the Association for the Protection, Conservation and Health of Cano Negro de Los Chiles (ASOPROCOSARENA), led the beginning of a fight to save the area and has now been joined by a team of scientists from the Universidad de Costa Rica (UCR). Experts, members of ASOPROCOSARENA, and area residents said private landowners with ambitions of raising crops or cattle on their land are digging the canals and building dikes to divert water from the naturally saturated lands to the Rio Frio, which runs from south to north and continues across the Nicaraguan border, and other natural drainage points.

Ironically, residents said, the canals have caused the land to get so dry in the summer that in some cases crops fail and cattle have to be led long distances to be watered. Although there has been no official count of the canals, members of ASOPROCOSARENA say there are between 80 and 100, and at least one is located inside the Cano Negro Wildlife Refuge. The river basin formerly retained a substantial amount of water during the dry season, but since the construction of the canals the land has become arid, and forest fires have spread unabated as a consequence in some places.

Wildfires spread in unnatural fashion, say scientists. Fires used to pass from tree to tree above the earth, but were limited by the saturated ground. Now that the earth is dry, however, the fires are subterranean, passing through the roots of felled trees and creating a sort of natural oven that has to be dug up to be put out, UCR scientists explained. The open canals increase soil erosion, which has caused massive amounts of sediment to accumulate in bodies of water in the area, according to a study led by Francisco Solano, a geologist with the UCR.

Area residents said there is so much sediment in the Rio Frio, for example, that parts of it are no longer navigable even by kayak. Solano's study supports their assertion. "The alterations of the hydrological cycle [in the wetlands] have been manifested in the loss of navigability of rivers, the alterations more and more accentuated by the inundations during the rainy season, and the

prolongation and greater levels of water loss during the dry season," states one of the study's conclusion statements.

Area residents said the sediment has had a visible impact on aquatic wildlife in the area. "We've been here five years, and we've seen unimaginable damage," said Ingrid Ritchie, a local landowner. "We used to go counting caimans and turtles you could count turtles," Ritchie said, pointing repeatedly as though she were counting the animals. Juan Sanchez, director of wetland areas for the Environment and Energy Ministry (MINAE), said that he had seen photos of the canals and that they most likely are illegal. "We are certainly talking about a loss of wetlands that is extremely important," Sanchez said.

Sanchez referred to Article 45 of the Organic Environmental Law, which specifically prohibits the alteration of areas designated wetlands by the construction of dikes and drainage canals, even if those wetlands are on private property. He said a number of measures are necessary before any kind of construction on a wetland is allowed, the first of which is an environmental impact study. But that process is lengthy, he said, and many people don't bother to go through it. He also said MINAE officials have scant resources to enforce regulations. Even if they did have such resources, their hands would be somewhat tied.

In the Organic Environmental Law there are prohibitions against construction in wetlands, but no punishments outlined for those who violate the law", Sanchez said, "At any rate, if there were sanctions, what?" Sanchez said punishments probably would not prevent people from continuing to dig the canals, and likened the situation to a man killing his wife even though she had a restraining order against him. "He might get 20 years in prison, but she's still dead, right?" Sanchez also said that, for the prohibitions to be valid, the areas must be officially designated wetlands to be protected under the law and he's not sure much of the Rio Frio river basin still qualifies, since they have been modified for so long. "We're talking about 20, 30 years ago...it's a bit irreversible," Sanchez said.

Lighthawk, a nonprofit environmental-aviation organization whose volunteer pilots provide flights for reporters, filmmakers, scientists, and government officials to help them document land-use crimes and environmental conditions, has helped with the case. During a Lighthawk flight over the river basin last week, Andrea Corte, an area business owner and member of ASOPROCOSARENA, showed The Tico Times a rowboat behind a home in the middle of a field. He said there is still enough water in some areas that residents need it to get around. "There is no way you cannot tell me that's a wetland," Corte said.

Last October, Corte sent a personal letter to President Abel Pacheco and included aerial footage of the destruction. The following day, the president sent a letter to Carlos Rodriguez, environment and energy minister, saying he would be "very grateful" if Rodriguez could look into the matter and bring a response to Corte. Rodriguez handed the case over to the country's Environmental Tribunal, where it is under review. "We don't need a plan of conservation," Corte said. "We need a recovery program. There's nothing to conserve."

The study led by Solano reached a similar conclusion. Solano said recovery of the area is possible but not in a strictly biological sense. In fact, he said, total biological recovery of the river basin

would probably never happen. He said social recovery is just as necessary to teach the agricultural community there now a permanent fixture how to live among the wetlands in a sustainable manner. Solano said basic social necessities in the area, such as streets, are poorly planned and have amplified the damage. He also said designating the area one massive refuge would not accomplish much. Both Sanchez and Solano said the country has an obligation to protect its wetlands, and they pointed to an international wetland convention called the Ramsar Treaty, which came into effect in Costa Rica in 1992.

The Ramsar Bureau, an intergovernmental agency responsible for administering the treaty, maintains a list of wetlands of international importance. The wetlands around Cano Negro top those that made the list from Costa Rica. Other Costa Rican wetlands on the list include Cuenca Embalse Arenal, Gandoca-Manzanillo Wildlife Refuge, Humedal Caribe Noreste, Isla del Coco, Laguna Respringue, Potrero Grande, Palo Verde and Tamarindo mangrove areas, Terraba-Sierpe, and Turberas de Talamanca.

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