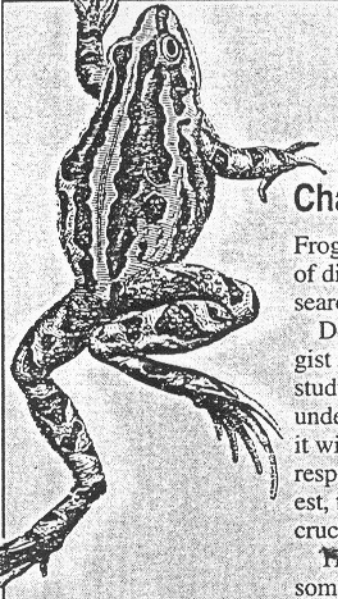

Changing tunes in the rainforest

Frogs in the Amazon rainforest are singing a chorus of distinctly unique oral histories, and Guelph researchers are listening closely.

Deep in the heart of the Amazon, Guelph zoologist Jim Bogart and PhD student Andrew Chek are studying the mating calls of frogs to gain a better understanding of evolutionary processes. They say it will help them make recommendations for more responsible management of the endangered rainforest, through the identification and preservation of crucial habitats.

Their work focuses on "speciation" — when some members of a population break off to become a separate new group. It's a normal and healthy evolutionary process, but it's being threatened in much the same way that existing species are facing extinction because of the destruction of rainforest habitats.

Tropical rainforests cover only about seven per cent of the Earth's surface, but contain 50 per cent of the world's known plant and animal species. With about 1,800 hectares of rainforest being clear-cut every hour, some scientists estimate that as many as 27,000 species extinctions occur in the Amazon each year.

In a companion project, Bogart and former graduate student Chris Zimmerman, B.Sc. '79 and M.Sc. '82, are working with the Kayapo Indians to establish a scientific research station in Kayapo territory, which covers 500,000 hectares. Zimmerman is an ecologist with Conservation International and, like Bogart, an expert in aquatic species, particularly amphibians. They are part of a group of scientists who hope to develop ways the Kayapo can profit from the rainforest without clear-cutting it.

Young visitors to Killbear Provincial Park watch as Chris Parent implants an electronic tag in the tail of a Massasauga rattlesnake. The rest of the snake is squirming safely inside a transparent plastic tube.

Photo courtesy Chris Parent

Please brake for snakes

First-time visitors to Killbear Provincial Park near Parry Sound, Ont., may be taken aback by snake-crossing signs. But after a visit to the interpretive centre and a chance meeting with Chris Parent, B.Sc. '94, most lose their fears and become protectors of the park's population of Massasauga rattlesnakes.

Parent has been working in the park for the past six summers, first as a park naturalist and now as a researcher studying the effects of human disturbance on the snake population for a master's degree at Carleton University. He catches five or six rattlesnakes every week, then weighs, measures and tags each one. Pregnant females receive an ultrasound test to determine how many young they're carrying.

Ontario's population of Massasauga rattlesnakes has dwindled due to loss of habitat and because many have been killed by humans. Although poisonous, the Massasauga is not an aggressive snake, says Parent, who uses surgically implanted radio transmitters to track the movement of snakes within the park. He's watched several hundred people walk within metres of snakes curled up at the edge of a hiking trail and never know they were there. Many of the park's more than 200,000 annual visitors would be surprised at the close encounters they have unknowingly had with rattlesnakes, he says.

Yet in his six years at the park, no one has ever been bitten by a rattlesnake. In contrast, two people have been struck by lightning.

Part of Parent's research is to determine whether snakes exposed to a lot of human traffic react differently from those living in more isolated areas. Preliminary data suggest the rattlesnakes choose to live where the habitat is best suited to their needs, regardless of the number of human neighbors.

Save the plants

David Galbraith, B.Sc. '82 and M.Sc. '86, sits at the hub of one of the largest Canadian initiatives to save plant life, particularly plants native to Canada. He is co-ordinator of the new Canadian Botanical Conservation Network, launched this spring as a joint project of the Royal Botanical Gardens in Hamilton, Ont., McMaster University, Environment Canada and several corporate sponsors.

The purpose of the network is to link botanical collections across the country and help them work together to save dwindling plant species. The goal is to get Canada's "green" house in order, says Galbraith.

Worldwide, plant species are succumbing to habitat destruction caused by development and other human endeavors. If the current rate of extinction continues, one-quarter of the world's plant species will be gone within 30 years, he says. Those could be plants offering future cures for diseases like AIDS and cancer or potential sources of food.

Based at the Royal Botanical Gardens, Galbraith is already working on the creation of a Canadian botanical conservation database for the network.