Agriculture and tropical conservation: rethinking old ideas

August 8 2006

It's a long-held view in conservation circles that rural peasant activities are at odds with efforts to preserve biodiversity in the tropics. In fact, the opposite is often true, argue University of Michigan researchers John Vandermeer and Ivette Perfecto.

Combining case studies with ecological theory, Vandermeer and Perfecto found that the peasant farming practices encouraged by grassroots movements such as Brazil's Landless Workers Movement, Mexico's Zapatistas or the international Via Campesina actually support conservation, while the practices of extremely wealthy landowners often

undermine it. The researchers will present their findings Aug. 8 in two symposia at the Ecological Society of America meeting in Memphis, Tenn.

"When you talk to peasant producers in tropical areas, they're usually surprised when they hear that conservationists think that they're the enemies of conservation," said Vandermeer, who is the Margaret Davis Collegiate Professor of Ecology and Evolutionary Biology. "They love their farms and all the plants and animals in the area, and they see that it's the big, rich landowners who come in and cut all the trees down and turn the land into cattle pastures. So the standard litany doesn't ring true to them."

Vandermeer and Perfecto reviewed studies of biodiversity in the Atlantic coast rainforest of Brazil, a region that is unusual in having areas of tremendous biological variety adjacent to highly developed, industrialized areas.

"The area has some of the highest biodiversity in the world, but it all occurs in fragments of forest," Vandermeer said. In one study the researchers examined, a Brazilian scientist documented in a single river valley 28,000 separate forest fragments, where vulnerable species such as muriqui monkeys live. Vandermeer and Perfecto combined observations such as these with current ecological theory.

"We know that a lot of organisms typically live in a fragmented state in nature, with subpopulations scattered around an area," Vandermeer said. Disease or predators may wipe out a particular subpopulation, but migrants from nearby subpopulations come in and establish a new subpopulation. "We now think that most high diversity situations operate this way, with a continual process of local extinction and re-migration. When you couple that ecological theory with the observation of highly fragmented forests in the Atlantic coast rainforest, the real question is

not how much forest is left, but what's between those patches that are left, and will it support the necessary migrations from patch to patch as local extinctions occur, which they inevitably do?"

If forest patches are separated by barren pastures or fields of single crops, such as soybeans, then monkeys, birds, and other forest animals probably won't travel through them to repopulate areas where extinction has occurred. But that's not the case if the intervening areas are traditional "agroforests"— where fruit and timber trees share space with other crops, Vandermeer said. "That's the kind of agriculture that's friendly to biodiversity, and that's the kind of agriculture that peasant farmers actually do."

Vandermeer and Perfecto, a professor of natural resources and environment, visited agroforests in the Pontal de Paranapanema region of Brazil, where landless peasants organized by Catholic priests established homesteads in the 1950s and 1960s. There, the researchers saw evidence that the farms do indeed serve as thoroughfares for migrating animals. "These farmers actually have monkeys that come through their farms," Vandermeer said.

The U-M scientists and their collaborator Jefferson Ferreira Lima of Brazil's Instituto de Pesquisas Ecologicas also spoke with members of the Landless Workers' Movement (Movimento dos Trabalhadores Rurais Sem Terra, or MST), which is a member of the international peasant organization Via Campesina. "It's a political movement, but it's very pro-conservation, and they specifically understand what they're doing by creating a new kind of agriculture based on small producers using organic or semi-organic methodologies on farms with trees," Vandermeer said.

With these groups encouraging such biodiversity-friendly practices, Vandermeer said, "I think conservationists and rural peasant movements

ought to be friends."

Source: University of Michigan