Deforestation remedies can have unintended consequences, researchers say

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When it comes to fixing deforestation and forest degradation, good intentions can lead to bad outcomes.

That's the take-away from a new study by two University of Florida researchers who say efforts to restore damaged and destroyed tropical forests can go awry if the people making the plans of action don't choose wisely.

"We need to be careful about what is it we're losing and gaining," UF biology professor Francis E. "Jack" Putz said. Putz worked with UF biology professor Claudia Romero on the paper, which will appear in the July issue of *Biotropica*.

Deforestation continues at a rapid pace in much of South America, Southeast Asia and the Congo Basin. Similarly, escaped agricultural fires and uncontrolled logging harm huge areas of tropical forest around the world. That destruction is linked to loss of habitat for wildlife, soil erosion and even accelerated climate change. Estimates of how much land is deforested run as high as 18 million acres a year – an area nearly as large as South Carolina – and a similarly large area is degraded.

The people deciding what to do in those areas range from villagers to large landowners to global stakeholders. Options include letting the forests recover naturally, assisting natural regeneration, or planting new trees so as to make the areas more wildlife-friendly and biodiversity-rich – but each comes at a cost, Putz said.

So, when developing forest access and use policies, people need to consider several factors, including short- and long-term financial profits, biodiversity and local needs for timber and non-timber forest products such as medicinal plants. The authors say it's possible to minimize environmental impacts if decision-makers pay attention to ecosystem structure, composition and dynamics. They shouldn't base everything on a single statistic, such as the total land area occupied by forest, especially if the state of that forest is not specified.

The authors point out that even when there's technically no net deforestation, tropical forests can still suffer. For example, if degraded natural forests are replaced by plantations of invasive exotic trees or low water-use efficiency trees, biodiversity will diminish, wildlife could suffer and soil erosion could render streams unusable by local villagers.

"When you save a forest from deforestation, it's great, but you might not have gotten the full package of what you wanted," he said.

The discussion, Putz said, needs to center on the definition of "forest." The Food and Agricultural Organization of the United Nations describes it as an area of more than 0.5 hectares, or a little more than an acre, with trees taller than about 16 feet and more than 10 percent canopy cover. Using that definition could obscure great losses of forest values, he said.

In general, the benefits of a forest are jeopardized when land-use decisions are based on that overly loose classification, according to the paper.

Under that designation, for example, tree plantations qualify as forests. Although plantations can supply services to society such as slope stabilization, firewood and carbon, they can also result in avoidable losses of biodiversity. They have less value in some ways, Putz said, and more value in others.

But once people differentiate among types of forests, alternatives to environmentally destructive management will become real options. Then, decision-makers can fully examine the local, regional and global benefits of natural forests versus their economic priorities.

"We need to demand clarity about what's meant by 'forest' and what the full range of costs are of different interventions," Putz said. "Then we need to figure out the mechanism to get decision-makers to employ the interventions that are least damaging to naturalness but that still satisfy their other desires."

Provided by University of Florida

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