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Tropical forests, such as this swath of Amazon rainforest, near Manaus, Brazil, store vast quantities of carbon

Indigenous people could be key to storing carbon in tropical forests, new report concludes

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More than one-fifth of the carbon stored in the world's tropical forests lies in territories belonging to or claimed by indigenous groups, [concludes an analysis](#) released this week at the climate talks in Paris. The result highlights the importance of enlisting indigenous landowners in efforts to curb climate change, say the report's authors, who include both scientists and indigenous leaders.

Researchers have long known that tropical forests sequester, or store, vast amounts of carbon; recent estimates have put the total at between 225 and 250 billion tons. Tropical trees also absorb between 2 and 3 billion tons of carbon per year, offsetting about one-quarter of the world's carbon dioxide emissions (although current deforestation releases nearly as much). With those numbers in mind, climate negotiators over the past decade have proposed schemes that would fight climate change by paying tropical nations to preserve standing forests or plant new ones.

But exactly who owns and lives in the forests that might be involved in such schemes hasn't been clear. Although satellites can help researchers map where forests are storing carbon, "what those maps don't show is where the indigenous people are exactly," says Cándido Mezúa, a spokesperson for the Nicaragua-based Mesoamerican Alliance of People and Forests and co-author of the report.

To fill in the maps, in 2009 representatives of the Lima-based Coordinator of Indigenous Organizations of the Amazon River Basin, or COICA, asked researchers at the Woods Hole Research Center in Falmouth, Massachusetts, and the Environmental Defense Fund (EDF) to help them estimate the carbon in the indigenous forests of the Amazon region. Other groups, including Mezúa's, joined the effort more recently.

The result is the first estimate of how much forest carbon in the world's four major tropical forest basins is on indigenous-owned or claimed land. It's also the first to include as co-authors indigenous leaders from all four regions, says co-author Chris Meyer of EDF's Washington, D.C. office. "You don't normally see that type of collaboration."

The research team combined a satellite-based map of forest carbon from 2007 and 2008 with maps of indigenous territories compiled by organizations in Amazonia, Mesoamerica, Indonesia, and the Democratic Republic of the Congo (DRC). They found that forests in the four regions for which territory data were available account for 20.1% of carbon stored in all tropical forests. (Although the analysis has not been peer reviewed, it builds on a methodology and includes results from [a peer-reviewed 2014 study](#) of forest carbon in indigenous territories in the Amazon.)

The 20.1% figure is "conservative," authors say, because territory data are currently lacking for many tropical regions. In addition, 9.1% of the indigenous territories included in the analysis currently lack official recognition from national governments.

Policy implications

The authors argue that for tropical forests to remain an important carbon sink, indigenous groups will need greater control over their forests. They call on tropical nations to enact stronger land titling laws, enforce policies guaranteeing "free, prior, and informed consent" before outside groups undertake activities in indigenous-owned forests, and end persecution of anti-deforestation activists. They also recommend a

greater role for indigenous communities in climate negotiations, and for those communities to have direct access to financing for carbon stored in forests.

Such policies would decrease the likelihood that standing forests will be cleared for uses like cattle ranching and oil palm plantations, Mezúa says. “We are the best guardians of the forest.”

“There really is something special about indigenous people’s management of forests,” agrees Jonah Busch, an economist at the Center for Global Development in Washington, D.C., who was not involved in the analysis. In [a 2014 meta-analysis of more than 100 peer-reviewed studies](#), he and a colleague found that indigenous-managed forests are significantly less likely than the average tropical forest to be deforested. Busch notes, however, that few studies have directly investigated the effect of land title and tenure policies on carbon storage.

Such knowledge gaps have led some to question whether data support indigenous communities’ claims to be better forest carbon stewards than outsiders, and whether paying indigenous groups to preserve forests would in fact help curb emissions.

One confounding factor, cautions geographer Margaret Skutsch of the National Autonomous University of Mexico, Morelia, is that many remaining indigenous territories are in remote, humid tropical forests with low population densities, meaning that lack of development pressure, rather than effective management, may explain why such forests have remained standing.

Skutsch adds that “while it is clear that the communities themselves need to be part of the overall plan” for battling climate change, she “cannot quite see the rationale for direct payments” to indigenous groups for forest conservation. That’s because many problems, such as policies that encourage deforestation for commercial agriculture, are beyond local communities’ control. Skutsch agrees that helping indigenous groups secure clear land titles is important, however, because stronger deeds “would make it more difficult for external companies to encroach [on] their land.”

The new study wasn’t designed to settle such debates, but to better inform them, says Wayne Walker, a scientist at Woods Hole Research Center and the study’s lead author. “We’re providing indigenous leaders and their organizations with hard data with which they can make their own case for the role that they have to play on climate change,” he says.

Some indigenous groups are hoping the report will help raise their profile in Paris and future negotiations. “It’s important ... to put these data in writing and connect them with scientific documents, because sometimes ... [decision makers] don’t understand indigenous people when we just speak,” says Juan Carlos Jintiach, an advisor and spokesperson for COICA and a report co-author. “Sometimes it’s important to develop scientific data so governments can recognize ... how we live and what we can contribute.”

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