



Fact Sheet: Satellite-Based Alerts Reduce Deforestation on Indigenous Peoples' Lands

Summary

A landmark study shows that equipping indigenous peoples in the Peruvian Amazon with satellite data and smartphone GPS technology can dramatically reduce unauthorized deforestation.

The new findings demonstrate the efficacy of technologically-equipped forest scouts (formally referred to as “community monitors”) to rapidly respond to deforestation alerts and take action. This research shows strong correlation between a community’s access to satellite deforestation data with that community’s ability to protect their forests.

Background

Mounting evidence indicates that recognizing indigenous peoples’ rights to their lands is the most effective way to protect them.

One-third of the Amazon rainforest falls within about 3,344 formally acknowledged indigenous peoples’ territories. The study was designed to determine if satellite-based deforestation alerts could arm forest scouts with timely information to reduce the occurrence of deforestation.

National governments and non-governmental organizations have for decades invested heavily in satellite-based forest monitoring, but empowering communities to monitor their own territory is a departure from the orthodox reliance on law enforcement. Localized forest scouts can be readily deployed, move quickly across known territory, and have a personal stake in forest protection outcomes.

Methodology

Researchers from New York University and Johns Hopkins University spearheaded the study to test the effectiveness of the community-based forest protection methodology, which was co-created in 2016 by Rainforest Foundation US (RFUS) and the Indigenous People's Organization of the Eastern Amazon (ORPIO). The model was first piloted in the indigenous Shipibo communities of Patria Nueva and Nueva Saposoa in the Peruvian Amazon.

Establishing forest monitoring in the remote Amazon requires investment. Satellite data must be gathered at internet-enabled hubs, uploaded onto thumb drives, and hand-carried to forest scouts. For the scouts to effectively use the data, they received technological training.

That meant learning to translate satellite photos and information from Peru’s government-sponsored online forest-monitoring platform, Geobosques, to locate deforestation. As alerts came in, they would conduct foot patrols and use smartphone mapping applications to verify reports on the ground. The photos were supplied by Peru SAT-1, a satellite launched in 2016 that flies over Peru 14 times daily.

Working with ORPIO and RFUS, the research team identified 122 communities to take part in the study. After assessing each for “perceived interest, implementation logistics and safety concerns” researchers engaged 76 communities. Of those, 39 were randomly chosen for the monitoring program, with 37 serving as a control group. Three of the 39 chosen communities later opted out.

Each of the 36 communities engaging the active forest monitoring methodology (treatment group) selected three forest scouts who were paid \$8 (USD) per monthly patrol.

All information gathered was also sent back to be analyzed in the city of Iquitos, from which all of the communities were within a week’s travel. When scouts confirmed tree-clearing they informed community leaders, who convened community-wide assemblies to collectively determine how to intervene. There were no incentives beyond the monthly patrol payments.

The territories were usually large (mean size: 16,243 acres/6,393 hectares), and each village usually small (mean population: 486). For analytic purposes, communities were stratified into two groups when the study began: those with higher deforestation rates, and those with lower.

Key Findings

- In 2018, treatment communities saw 52% less deforestation than the control group; in 2019, there was 21% less deforestation than in the control communities.
- Communities welcomed having designated scouts take the lead in forest protection efforts, which codified forest management responsibilities and reduced decision-making delays.
- Participating communities built the technical and organizational capacity needed to improve forest governance. By contrast, control communities experienced “little consensus on where authority rests.”
- On average, reports of deforestation in participating communities doubled once the study began to two per month. “Increased detection is consistent with monitors learning about where deforestation is most likely to occur,” increasing the efficiency of their efforts, researchers concluded.