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Who Moved My Trees?

Winrock International

Improving Lives and Livelihoods Worldwide



Peruvian engineer Lenin Ventura shows the plane to children from the Paititi native community during a break between flights. Inset: The observation camera.

**“[People]
want to
know
what is
happening
in their
forest.”**

**-Aaron
Dushku**

It's hard to tell whether or not efforts to stop illegal logging in the Amazon are successful. With over a hundred billion trees, how do you know if a few are missing? Winrock's new aerial system of digital forest monitoring makes finding the answer no longer difficult or expensive.

In Bolivia and Peru, where Amazon forest timber resources are a significant part of the GDP, the goals of forest conservation and local economies often collide. While it can be useful to hire on-the-ground observers to report illegal logging, they are relatively expensive and can be intimidated and/or bribed. As a result, citizens and government officials in both countries were eager to try this inexpensive technology that promised to objectively and transparently monitor the forest.

“The trees that loggers harvest illegally are usually mahogany and Spanish ce-

dar,” said Aaron Dushku, a Winrock program officer who worked on the project. “Both of these are endangered species protected by the CITES treaty, and mahogany is facing extinction. What's worse is that the loggers take the oldest and biggest trees, which play an important role in the forest ecosystem and cannot easily be replaced. Plus, there is concern that loggers disturb non-contacted indigenous people. Our technology would assure everyone that the logging companies follow their management plans and log where they're supposed to.”

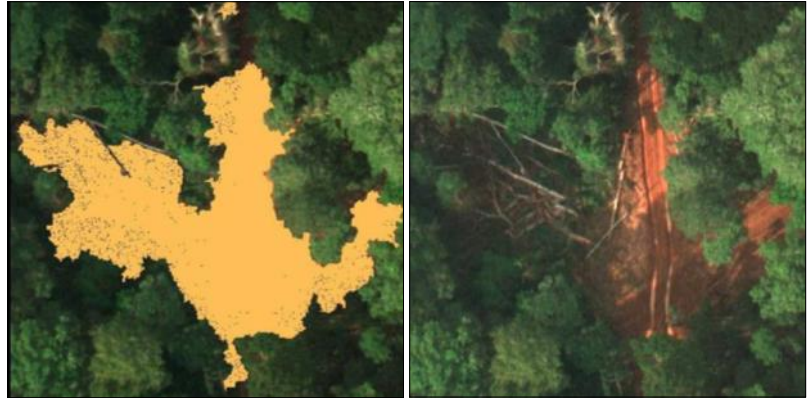
Winrock worked with forestry agencies in Bolivia and Peru to demonstrate the new system. Local foresters were able to take pictures from 2,000 feet in the air which, when analyzed with Winrock's digital imaging software, located individual missing trees and automatically estimated the volume and value of the pilfered timber. In Cerro Pelao, Bolivia, the team found that, on average, each hectare they observed was missing 20 old-growth trees worth a total of US \$2,052. The cost of this analysis was just 26 cents per hectare.

When the new system was used to monitor timber concessions (government-owned areas where some sustainable logging is permitted), foresters had expected to find that some concessionaires had taken more trees than they were allotted. In Peru, however, they were surprised to find the opposite: some concessionaires had logged only a tiny fraction of their legal limit. When it was observed that these same concessionaires had sold large quantities of timber in the past year, claiming it was from their legal tracts, forest officials began to suspect the concessionaires of selectively re-

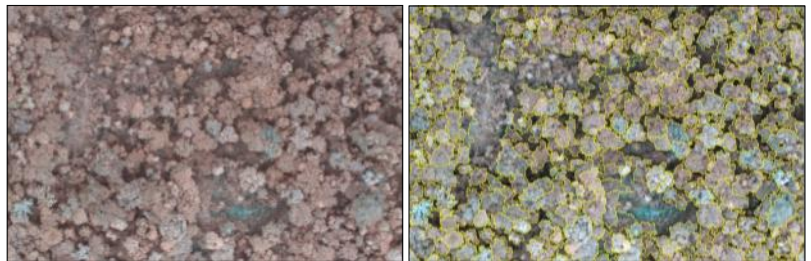
moving larger, more valuable trees from adjacent protected areas.

“We’d like to see this be a long-term project to install a system like this over a wide area. With this new level of control, those who don’t catch on early that they need to follow the rules are going to get caught and fined, and their logs are going to be seized. Sales of seized logs should bring in enough money to pay for the system, and maybe more, so the balance could go to local governments for community services,” said Dushku.

This successful pilot project showed that the new aerial digital system can be an invaluable forest monitoring tool at a time when illegal logging is at the forefront of national attention in many Latin American countries. A broad range of stakeholders, including local and national government agencies, conservation groups, timber companies, and donors, have publicly endorsed the application of the technology and recommended that governments use the new system to monitor protected areas and legal timber concessions. “The NGOs and others are very excited about what it could do to decentralize decision making,” Dushku



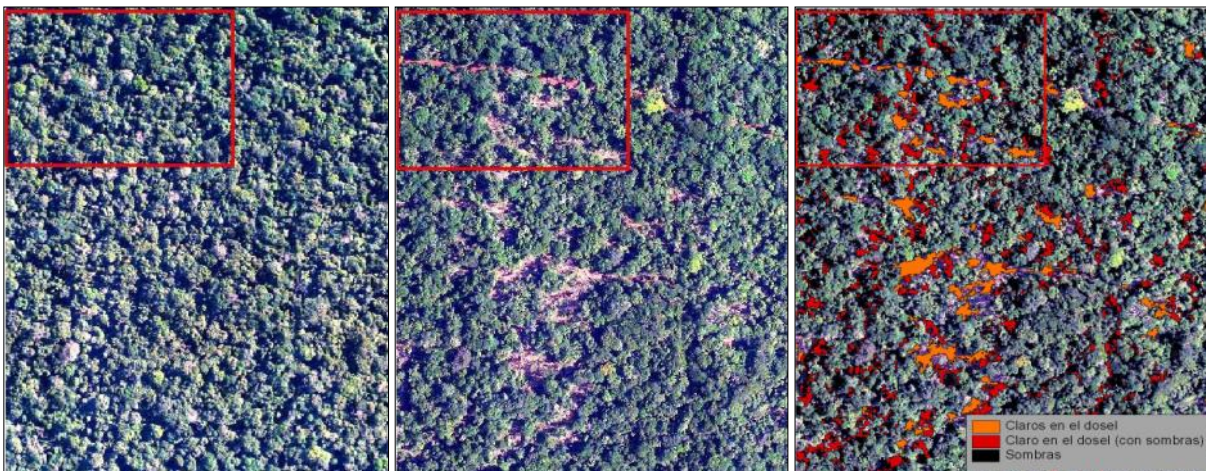
The space left between a few logged trees, as seen by Winrock’s software.



Trees in Paititi before and after crown mapping. Once the crowns are mapped, individual calculations of volume and value can be made for each tree.

concluded. “They want to know what is happening in their forest.”

This project was made possible with support from [The Blue Moon Fund](#).



Cerro Pelao, Bolivia, before logging, after logging, and with Winrock’s analysis of the missing trees.

Winrock International is a nonprofit organization that works with people in the United States and around the world to empower the disadvantaged, increase economic opportunity, and sustain natural resources.