

THE COST OF KEEPING FOREST IN THE NORTHWESTERN BOLIVIAN AMAZON

There are plenty of good arguments to keep rainforests standing based on their various economic benefits. But the beneficiaries are often nowhere near the forest. As such, one of the most promising tactics is to channel all conservation interest into real financial incentives for those who actually control the fate of the forest, landowners themselves. How much landowners need to be paid depends on how much profit they can make clearing and farming areas that today are under forest cover. This profit is the “opportunity cost” of conservation, a term that simply refers to the cost of forgoing an opportunity. In this case, that opportunity is the conversion of a plot of rainforest to agricultural land.

Knowing the opportunity cost of avoided deforestation in specific places is fundamental to conservation strategy in general, and particularly useful for setting up a payment scheme. It requires that data be collected from landowners directly and then carefully extrapolated across the landscape. Conservation Strategy Fund (CSF) performed these analyses in a study of the Northwestern Bolivian Amazon. The research involved gathering economic data in areas where road access has stimulated settlement near Madidi National Park, the Pilon Lajas Indigenous Territory, and the Biosphere Reserve in Northwest Bolivia.



Without intervention, the current rate of deforestation would result in a cleared area of 229,560 hectares over a thirty-year period. Conserving fifty percent of this land, a total of 114,730 hectares, would cost at least \$US 143 million in present value terms, not including administrative and monitoring costs, which would add an estimated twenty percent in expenses. This cost of \$US 1,245 per hectare approximates the minimum amount that landowners would rationally accept if they were presented with the option to conserve in return for financial compensation. Complicating this calculation is the fact that landowners vary the crops they plant, requiring that we estimate alternative land use profits from a typical sequence of post-deforestation crops, rather than from just one. This approach has been used by the Center for International Forestry Research (CIFOR) in other tropical forest settings.

One of the sources of forest conservation financing in other countries is compensation for carbon storage. While presently this practice is not available in Bolivia, it is still useful to know whether forests in this region would present a cost-effective option for carbon buyers. To this end, we ranked specific alternative land use types by the amount of profit foregone for each

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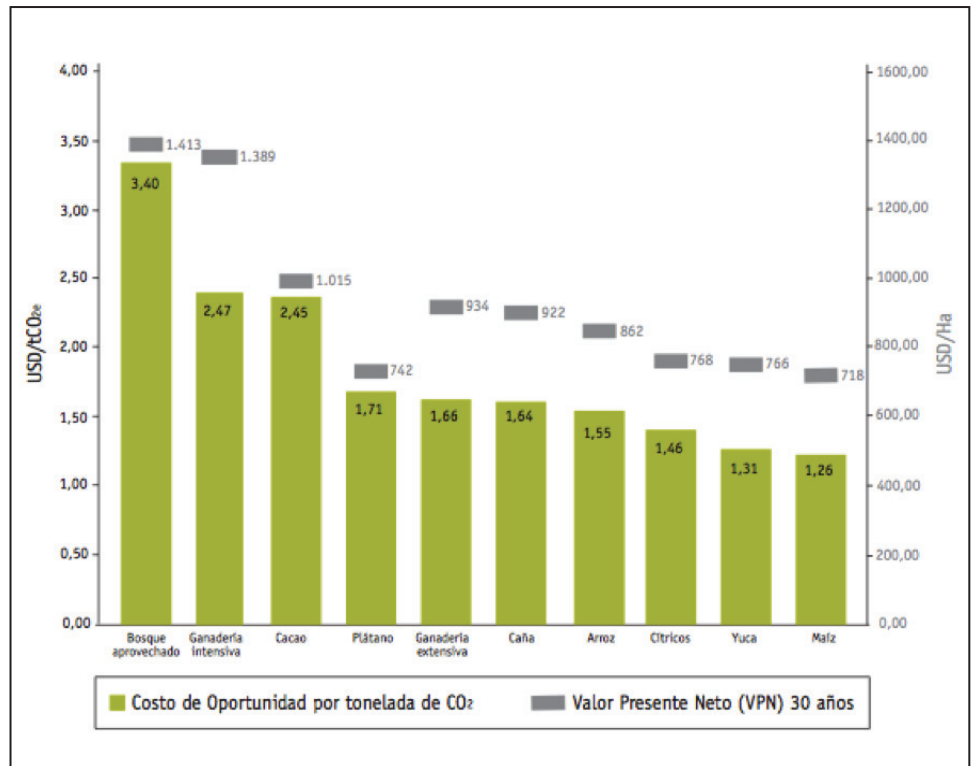


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ton of carbon emissions that could be avoided by not planting. The results showed which deforestation-inducing forms of exploitation would cost the least to prevent, in terms of the amount landowners would need to be compensated per ton of carbon emissions avoided.

Foregoing selective logging would cost \$US 3.40 per tCO₂e, the highest value of the ten alternative uses examined. The cost is high due to the practice's elevated profitability as well as the fact that a post-logging forest retains much of its original carbon. In other words, avoiding this activity costs a lot in terms of lost profits and prevents far less emissions than does avoiding most forms of agriculture. Corn cultivation, on the other hand, corresponds to the lowest avoidance cost, valued at \$US 1.26 per tCO₂e. These figures are less than prevailing prices in today's carbon markets, suggesting that forests in northwest Bolivia would be competitive for carbon financing. Whether or not carbon financing is an option, this way of expressing the data represents a potentially useful tool for policymakers attempting to balance growth goals with deforestation-based environmental concerns. Our study shows, for instance, that logging, cultivation of cacao, and intensive ranching are all considerably more profitable forms of agriculture than annual crops, relative to the environmental stress they cause.

Knowing the opportunity cost of conservation should be as routine for environmentalists as knowing construction costs is for a builder. But it's also not the whole story. People's land use decisions are influenced by profits, but not ruled by them. Other factors, such as



food security and tradition, also play a role in landowners' willingness to accept a conservation payment. In fact, in our study, respondents also had the chance to say how much they would require to be paid to not deforest. The \$US 2.82 per tCO₂e average response, which is higher than the opportunity cost of avoided deforestation, may be more strategic bidding than real bottom line, but it does suggest that buyers of forest ecosystem services must learn more about their sellers than profits alone can tell.

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- NOTES:
1. Conservation Strategy Fund
 2. Conservation International

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