How much deforestation do protected areas avoid in tropical Andean landscapes?

Cuenca, P., Arriagada, R., & Echeverría, C. (2016). How much deforestation do protected areas avoid in tropical Andean landscapes?. Environmental Science & Policy, 56, 56-66. <10.1016/j.envsci.2015.10.014> Accessed 23 Dec 2020.

Abstract

For many decades, protected areas (PAs) have been considered by decision makers and conservation practitioners as one of the most common policies to promote biodiversity conservation. Diverse studies have assessed the impact of conservation policies at global and regional levels by comparing deforestation rates between PAs and unprotected areas. Most of these studies are based on conventional methods and could overestimate the avoided deforestation of PAs by omitting from their analyses the lack of randomness in the allocation of forest protection. We demonstrate that estimates of effectiveness can be substantially improved by controlling for biases along dimensions that are observable and testing the sensitivity of estimates of potential hidden biases. We used matching methods to evaluate the impact on deforestation of Ecuador's tropical Andean forest protected-area system between 1990 and 2008. We found that protection reduced deforestation in approximately 6% of the protected forests. These would have been deforested had they not been protected. Conventional approaches to estimate conservation impact, which fail to control for observable covariates correlated with both protection and deforestation, substantially overestimate avoided deforestation. Our conclusions are robust to potential hidden bias, as well as to changes in modeling assumptions. In addition, it is assumed that this research will help decision-making in the framework of international climate change mitigation policies, such as REDD+..

Keywords

Protected areas, Avoided deforestation, Matching, Conservation policy, Tropical Andean forest, REDD.