

Abstract

Keywords

1. Introduction

2. Background

3. Methods

3.1. Targeting PES for biodiversity conservation



3.2. Data

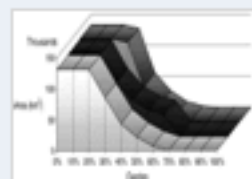
3.2.1. Ecosystem services

3.2.2. Probability of deforestation

3.2.3. Opportunity costs

4. Results

4.1. National targeting



Payments for Ecosystem Services (PES) are generating a lot of attention among conservationists because they have the potential to create new funding opportunities for biodiversity protection and other ecosystem services that contribute to human well-being. A number of recent publications have suggested ways to target and implement PES projects in order to maximize their cost-effectiveness and efficiency, and the Heredia Declaration (this issue) sets forth a list of agreed-upon principles concerning the use of PES schemes. One of those principles concerns the “bundling” of joint products of intact ecosystems in PES schemes in order to maximize the benefits to society. There have been several recent studies focusing on the degree of overlap between biodiversity and other ecosystem services and therefore the opportunities and constraints to bundling these services. Building on this idea, the bulk of this paper focuses on developing a method for selecting sites for PES where the main interest is to bundle biodiversity with other ecosystem services. We focus our analysis on Madagascar, a country with globally important biodiversity that is also beginning to explore the utility of PES as a conservation mechanism. Specifically, we assess the opportunities for bundling biodiversity conservation with carbon and water services at the national scale and identify where using PES to protect these areas of multiple benefits would be most cost-effective and efficient. This analysis identifies almost 30,000 km² — out of 134,301 km² — of natural habitat that could potentially meet biodiversity conservation goals and protect additional ecosystem services through a PES scheme. One of the places identified by our methodology corresponds to an ongoing conservation project that has already begun using payments from carbon emission reductions to protect standing forests and restore important biodiversity corridors — the Ankeniheny-Mantadia-Zahamena Biodiversity Conservation and Restoration Project. This project site was selected for its high biodiversity and carbon values, lending credibility to our spatial targeting methodology and providing a case study to draw insights on how multiple-benefit PES schemes can be implemented in biodiversity “hotspots”. In the discussion section of this paper we draw on experiences from this project to consider how many of the principles outlined in the Heredia Declaration affect implementation of PES schemes in Madagascar, providing lessons for similar countries experimenting with PES for biodiversity conservation.

Keywords

Biodiversity; Bundling; Carbon; Madagascar; Payments for ecosystem services; Water quality

Bibliographic information

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