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The Problem of Financing Protected Areas in the Andes-Amazon Region

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Abstract

The factor that most limits the conservation of protected areas in Latin America, and the one on which protected areas managers have made least progress overcoming in the last five years, is financing. We show this using data collected from conservation organizations working in 78 protected areas in countries that encompass the Andes-Amazon region (Brazil, Venezuela, Colombia, Ecuador, Peru, and Bolivia). This finding is important because it suggests that little or no progress is being made at a practical level with the implementation of innovative financing mechanisms (e.g., payment for ecosystem services) for protected areas in this large sample. We provide insight into the reasons using case studies from Peru. The relevance of this paper for the conference, "Economics and Conservation in the Tropics: A Strategic Dialogue," is that there is misplaced faith in innovative economic solutions, such as payments for ecosystem services, to finance conservation in Latin America and likely throughout the tropics.

Introduction

Balmford et al. (2003) present a summary of the funding shortfall for protected areas worldwide. They show that in Latin America, like much of the developing world, protected areas are able to cover less than 10 percent of their budgetary needs. While the conservation community is concerned about the funding gap, greater emphasis is currently placed on creating protected areas in an effort to capture remaining opportunities before they are gone. An undercurrent of this prioritization, however, is an attitude that legal designation of protected areas alone may be adequate to conserve these areas, and that management and self-financing activities can and will develop as necessity requires. Bruner et al. (2001) show that protected areas in the tropics, as currently managed, succeed in conserving forest cover better than in their surrounding areas, but they also show that these protected areas are being depleted of wildlife

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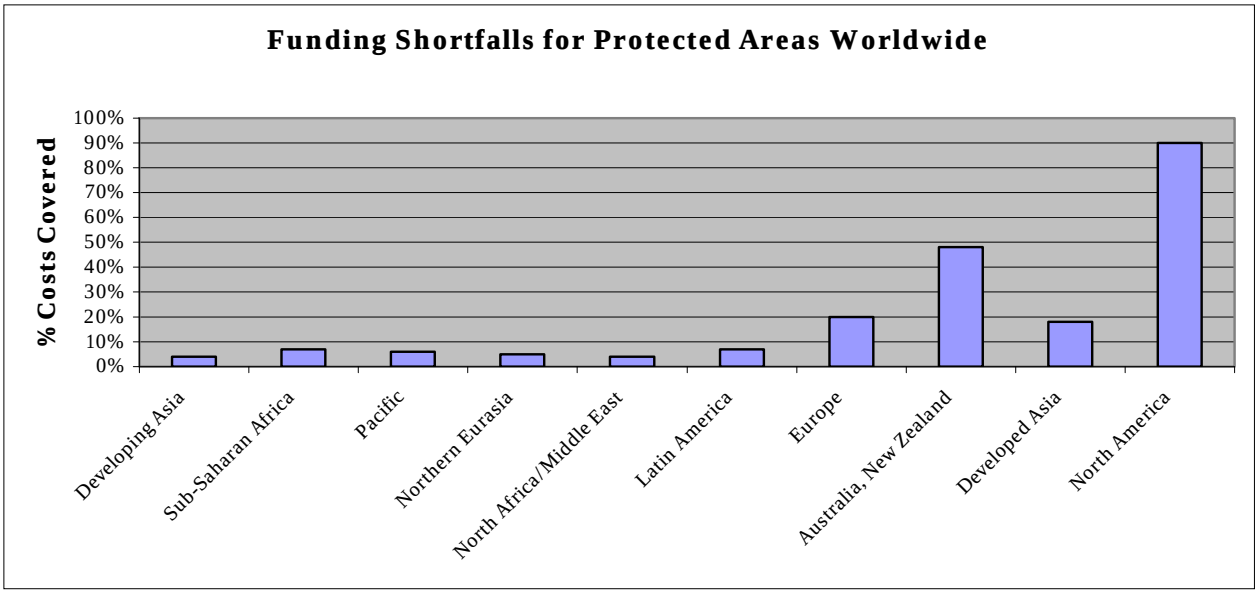
and timber, as well as being vulnerable to fire. Depending on the standard of success that is chosen, it could be argued that, if protected areas are the core of our biodiversity conservation strategy, they are not being managed well enough. As the number of protected areas increases, the cumulative financial liability grows. Estimates of the financial needs for protected areas in developing countries in 2004 was US$ 1.7 billion per year to cover existing operations and $4 billion to cover a projected expansion of areas (Bruner et al. 2004).

IUCN recently published a guide for addressing the problem of protected-area financing (Emerton et al. 2006) and has stressed the need for governments and donor agencies to fulfill their commitments to funding biodiversity conservation. In addition, they provide encouragement to protected area managers to develop innovative mechanisms to capture revenues from ecosystem services, eco-tourism, and other goods and services that can be derived from protected areas. The emphasis on self-financing conservation is captured more broadly in the resurgence of interest among the environmental community in harnessing ecosystem services (e.g., the Katoomba Group).



Source: A. Balmford, J.J. Gaston, S. Blyth, A. Simon, and V. Kapos, "Global Variation in Terrestrial Conservation Costs, Conservation Benefits, and Unmet Conservation Needs," *PNAS* 100, no. 3 (February 4, 2003.): 1046–50.

This paper shows that long-tem financing of protected areas is the most significant problem facing protected areas managers in the Andes-Amazon region, and the one on which the least progress has been made in recent years. Our observations from the field suggest that

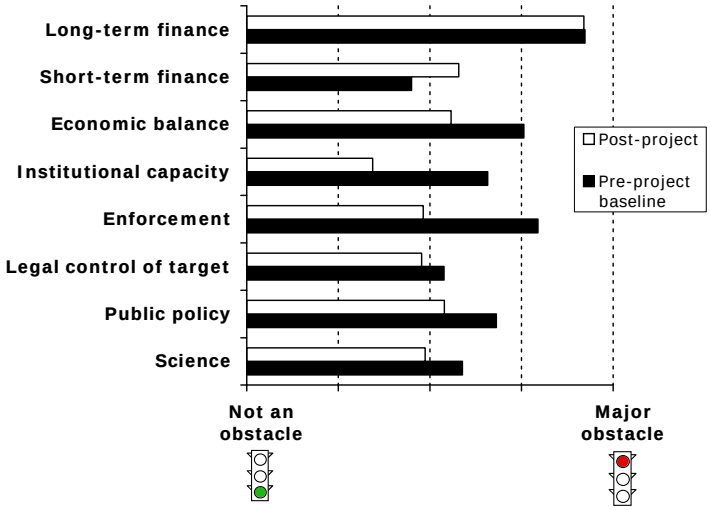
alternative financing mechanisms for protected areas may be practically difficult to implement and that too much faith is being placed on payment for ecosystem services, eco-tourism, and other self-financing mechanisms.

Methods

Given the short format of this paper, a detailed methodology is not included. The data presented here draws from several studies conducted by the author.

The first is an external evaluation of the performance of philanthropic grants to protected areas in the Andes-Amazon region by the Gordon and Betty Moore Foundation over the period 2001–2006. The survey covered 78 protected areas where conservation organizations ranked the degree to which various factors limit their ability to conserve the site.

The second is a series of financing strategies for four protected areas in Peru (Pacaya Samiria National Reserve, Yanachaga-Chemillen National Park, Yanesha Communal Reserve, San Matias-San Carlos Protection Forest) that we developed in collaboration with Peru's Instituto Nacional de Recursos Naturales (Akella and Hardner 2007a, 2007b). Each study included a financial gap analysis and analyses of potential mechanisms for revenue generation.



Results

Results of the evaluation survey show that the largest challenge faced by protected areas today is financing. Over the period 2001–2005, protected areas were able to make substantial progress in overcoming the challenges they faced, with the exception of securing needed funding. Short-term funding actually became a greater concern over time, as protected areas came to realize the true cost of putting management in place. The lack of long-term funding ranked as the most significant barrier in the pre-project baseline and did not improve over the five-year evaluation period.

It is important to note that the limiting factors are not entirely independent of one another, especially financing, since it impacts the ability of a protected area to address at least several of the other limiting factors (e.g., enforcement, institutional capacity, science, and possibly others). If the financing of protected areas improved, it would likely result in greater advances in overcoming other limiting factors as well.

To illustrate the issues faced by protected areas searching for financing options, we present the results of financial analyses we performed for four protected areas in Peru. We believe these areas are representative of the protected areas found elsewhere in the Andes-Amazon region in terms of their categories (National Park, National Reserve, Protection Forest, and Communal Reserve), size (300,000–2 million hectares), proximity to human populations (semi-remote but with rural settlements in or near them and with good access from urban centers), biodiversity (tropical montane and lowland Amazon forest), and other natural amenities. While these protected areas are among Peru's national treasures, they have not received the international notoriety of tourist sites, such as Macchu Piccu, and may never, given the absence of such unique features as a major archeological site within them. For this reason, they join the ranks of hundreds of other lesser-known areas like them in the Andes-Amazon region.

In each case, the protected areas face serious financial shortfalls:

- The complex of protected areas in Oxapampa composed of Yanachaga–Chemillen National Park, Yanesha Communal Reserve, and San Matias–San Carlos Protection Forest together face an annual shortfall of between US$ 511,000–$1,000,000, and are able to cover only 9–15 percent of their costs. (The range depicts "basic" and "optimal" management.)
- Pacaya Samiria National Reserve suffers an annual funding shortfall of between $734,000 and $1,480,000 and is able to cover only 19–39 percent of its costs.

We analyzed a range of possible revenue generation mechanisms to cover the annual budgetary shortfall. In no case did we find a mechanism capable of making a significant contribution.

Scientific research. Yanachaga–Chemillen National Park and Pacaya Samiria National Reserve are areas of interest for biological research. We evaluated the success of established research stations in similar protected area contexts in Peru and Costa Rica and found that only in

rare cases do research stations generate surplus revenue that can be used for protected area management.

Water supply. In the case of Pacaya Samiria, which is situated between two major tributaries of the Amazon, it does not provide "clean" water to any population centers. The complex of areas in Oxapampa do indeed supply water to a nearby urban population, but the water utility has no political scope for raising user rates to pay a fee for water provision to the protected areas, and commercial users (aquaculture and hydro-electric facilities) could generate only a very modest contribution (e.g., tens of thousands of dollars at a maximum).

Tourism. In Yanachaga–Chemillen National Park, in order to cover the cost of a simple entry-fee system, more than 100 times the current number of visitors would be required or dramatic increases in entry fees (which would discourage visitation). Pacaya Samiria National Reserve has had strong visitation, but the area suffers from strong nearby competition with better access, and the region as a whole has suffered from a shift in Amazon tourism to southeastern Peru. Tourism entry fees generated US$ 30,000 in 2005. Yanachaga–Chemillen attracts too few visitors to justify tourism concessions at present. In Pacaya Samiria, the sole commercial concessionaire has rejected a concession in favor of staying in the exterior of the protected area, and community-based tourism operations generate too little revenue to justify a concession fee.

Resource extraction. In the Oxapampa complex, commercial resource extraction from the protected areas is prohibited by the protected areas law. Pacaya Samiria, however, allows for a number of products to be harvested, ranging from ornamental and consumable fish to the aguaje fruit (*Mauritia flexuosa*). The protected area supports a population of 44,000 people living within its boundaries. The potential to charge a fee, however, for the collection of resources in Pacaya Samiria is limited by the need to protect the fragile economic viability of those living within the area.

Bio-prospecting. We examined past and existing bio-prospecting efforts in the neo-tropics and found that they are generally supported by grants (rather than direct investments) from large pharmaceutical companies, and few or none have yielded a payout in terms of royalties or other types of payments based on successful products. Most importantly, no companies have expressed interest in bio-prospecting in the protected areas we studied.

Carbon sequestration. This option was eliminated on the basis that creditable carbon offsets through conservation of existing forest are not allowed under the Kyoto Protocol. Voluntary carbon offsets are possible, but demand is limited. (A small-scale project in Pacaya Samiria has been investigated since the time of our analyses.)

Another issue is that, in Peru, revenues captured by protected areas go to a central fund to support the entire protected-areas system. The result is that: 1) the impact of successful revenue-generating mechanisms in individual protected areas are diluted by the overwhelming needs of the larger protected areas system, which includes a number of protected areas with little or no opportunity for revenue generation; and, 2) protected areas managers have little incentive to invest in revenue generating activities since their protected areas will not benefit directly from them.

Conclusion

The reality of this situation points to important issues that are of direct relevance to the conference, "Economics and Conservation in the Tropics: A Strategic Dialogue." Putting this problem into an economic context, one can question why an important social good is not being paid for. Unfortunately, quantitative benefit-cost analysis tends not to generate robust assessments of the social value of these areas due to shortage of data and analytic tools, so we are often unable to say decisively whether a market failure is occurring and, if so, to what extent. However, it is *our* assumption that conservation of these areas is important and will protect and generate notable social benefits into the future. But, by forcing the issue of economic valuation, and, in practical application, the capture of payment for ecosystem services to finance these areas, we may face the uncomfortable practical economic reality, at least in the near term, that markets may *not* support the provision of this social good in many of the remote, lesser developed areas of the tropics where protected areas are found in Latin America. This will be due to a variety of reasons, as illustrated in the case of Peru's protected areas, such as lack of demand or ability to pay for ecosystem services, high transaction costs, etc. An associated risk is the potential for required benefit-cost analysis by governments to justify spending, as occurred with environmental regulations in the United States during the Reagan administration.

The conclusion we draw is that absent benefit-cost analysis, policy makers and donors need to decide that conservation is important and should expand their commitment to funding protection with host government budget allocations, international aid, and philanthropic grants. Is it reasonable to assume that this can be done? If other researchers' estimates are correct about the annual global funding shortfall, it seems reasonable to expect that host governments and international donors could shoulder this burden for the world's most bio-diverse protected areas as long as conservation is a made a priority. For example, in recent weeks, as a requirement of the Free Trade Agreement between the United States and Peru, the Peruvian government's budget for protected areas has increased fivefold.

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