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PLEASE SCROLL DOWN FOR ARTICLE
Payment for Environmental Services and Unequal Resource Control in Pimampiro, Ecuador

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Payments for environmental services (PES) schemes are widely promoted to secure ecosystem services through incentives to the owners of land from which they are derived. Furthermore, they are increasingly proposed to foster conservation and poverty alleviation in the global South. In this article, we analyze the social relations that have shaped the design, implementation, and outcomes of a PES scheme in Pimampiro, Ecuador. While previous studies describe this case as successful, we show that the PES scheme reinforces existing social differences, erodes community organization, undermines traditional farming practices, and perpetuates inequalities in resource access in the “working” landscape inhabited by the upstream peasant community paid for watershed management. We argue that PES schemes are thus not neutral initiatives imposed upon blank canvases, but intersect with existing development trajectories and power relations. We conclude that analyses of PES need to look beyond conservation to critically examine local resource management and distribution.

Keywords agrarian livelihoods, Andes, Ecuador, inequality, payments for environmental services, peasant communities, watershed, working landscapes

Environmental services (or ecosystem services) can be defined as the benefits that people obtain from ecosystems. The Millennium Ecosystem Assessment (2005) estimated that many of the world’s ecosystems are undergoing degradation, and

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recommended greater use of economic instruments and market-based approaches to effectively manage and conserve environmental services.

In this way, payments for environmental services (PES) are deemed to be able to curb environmental service degradation by creating a market for conservation that internalizes environmental costs and benefits in production and consumption decisions (e.g., Bishop 2010). Some scholars and institutions have proposed PES as a “win–win” mechanism for fostering ecosystem conservation and, if designed appropriately, for pursuing poverty alleviation in developing countries (e.g., Duncan 2006; Pagiola et al. 2005; Wunder 2008). This is based on the assumption that low-income groups are often stewards of environmental services that are in demand by other users (such as fresh water for urban utilities), but are under increasing pressure to degrade their territories in order to maintain their livelihoods (e.g., Pagiola et al. 2005). It is argued that PES could address these situations by augmenting or replacing existing incomes (e.g., Wunder 2005).

The implications of PES for poor groups in developing countries are being subjected to increased academic and policy scrutiny (e.g., Grieg-Gran et al. 2005; Landell-Mills and Porras 2002; Lee and Mahanty 2007). Several previous studies focus on the practical functioning and economic effectiveness of such schemes, their institutional arrangements, and their potential benefits for poor communities across various natural resources, rural landscapes, and geographical contexts (Porras et al. 2008; Rosa et al. 2003; Wunder 2008; Zilberman et al. 2008). Moreover, increasing attention is being paid to the political dimensions of PES schemes, with a view to producing less superficial and more critical assessments of how they work in practice (e.g., Büscher 2012; Kosoy and Corbera 2010; McAfee 2012; McAfee and Shapiro 2010; Milne and Adams 2012). For example, Engel et al. (2008, 688) note that PES “are not created in a vacuum but subject to the push and pull of many interest groups,” while Milne and Adams (2012) identify three problematic assumptions of PES schemes that are inherently political: portraying “communities” as homogeneous entities, simplifying traditional resource practices and rights, and presuming free choice among local people.

The aim of this article is to contribute to the critical analysis of PES schemes by exploring how vested interests have shaped the design, implementation, and outcomes of a scheme for conserving watershed services in Pimampiro, Ecuador. We examine the effectiveness and consequences of this scheme for the peasant community Nueva América, which is paid for managing its land to secure the environmental service. In doing so, we examine relations between external actors and members of the peasant community, and those among peasant landowners in Nueva América, in order to assess how the implementation of the PES scheme intersects with the historical context and modifies social relations and ecosystem management. Our aims are thus (1) to elucidate the vested interests and discursive framings that are at play in producing and sustaining the PES scheme; (2) to analyze the effects of PES on social relations and organization, and resource access; and (3) to provide critical insights into PES as a tool for watershed management.

Following this introduction, the second section discusses the concept of PES, locating it in a theoretical framework based on political ecology in order to explore the power relations embedded in natural resource management and development interventions. The third section describes the Pimampiro region and the PES scheme, and presents the methods employed in the empirical research. The fourth section presents and discusses the multiple ways in which the PES scheme in Pimampiro
is shaped by vested interests, and how it has changed social relations and access to resources in Nueva América. In the fifth section we conclude by reflecting on the implications of PES as a strategy for livelihood enhancement and watershed management in developing countries.

**Payments for Environmental Services: Concept, Rationale, and Power Relations**

The concept of PES posits that landowners are stewards of environmental services, for which beneficiaries may be willing to pay for their continued provision. PES is a market-oriented approach to environmental management and conservation that attaches an economic value to the provision of environmental services, which is compensated through voluntary payments, in cash or in kind (e.g., Duncan 2006; Wunder 2005). Proponents of PES argue that these schemes will foster resource conservation as long as environmental service users are prepared to pay adequate compensation to secure services, and environmental service providers are incentivized to continue generating these services in return for compensation, rather than pursuing other income-generating activities that might degrade them (e.g., FAO 2011; Pagiola et al. 2005). In this way, PES schemes seek to create mechanisms to enable bargaining and transactions between environmental service users and providers that are in both parties’ interests: in other words, internalizing what would otherwise be an externality (Pagiola 2008; Wunder et al. 2008).

The concept of PES has attracted much attention for its potential application in addressing the pressing issues of ecosystem conservation and poverty alleviation in developing countries (e.g., Duncan 2006; FAO 2011; UNEP/IUCN 2007). Much of this attention is based on the premise that poor, and mostly rural, groups often inhabit crucial ecosystems, and that payments (especially in cash) for safeguarding ecosystems and environmental services can form important sources of income that may improve their livelihood strategies (FAO 2007; Grieg-Gran et al. 2005).

Several analyses have examined the social and development implications of PES projects (Butcher 2012; Landell-Mills and Porras 2002; Lee and Mahanty 2007; McAfee and Shapiro 2010; Milne and Adams 2012; Muradian et al. 2010; Porras et al. 2008; Rosa et al. 2003; Zilberman et al. 2008). Some authors have stressed the need to ensure that any benefits from PES are equitably distributed among low-income groups (Rosa et al. 2003), that compensation replaces or improves income earned from previous land uses (Farley et al. 2011), and that institutional arrangements are put in place to ensure these benefits accrue in practice (Grieg-Gran et al. 2005; Vatn 2010). These concerns around equity have led to a consideration of the broader benefits of PES schemes beyond monetary payments, to security of land tenure (although this sometimes is a prerequisite for participation), improved internal organization, enhancement of social capital, and more effective natural resource management (Lee and Mahanty 2007; Muradian et al. 2010; Rosa et al. 2003; Wunder 2008).

Nevertheless, much literature has treated PES as a technical-economic intervention whose effectiveness depends on the adequacy of project design, nature of implementation, institutional capacity building, and economic calculation and planning. What is missing from many of these analyses are the ways in which social relations and dynamics between stakeholders—and especially between poor rural communities providing environmental services and the downstream users or third
parties using them—shape the design, implementation, and outcomes of such projects.

These aspects are starting to be addressed by critical scholars, in particular political ecologists (e.g., McAfee 2012; McAfee and Shapiro 2010; Milne and Adams 2012). One of the key tenets of political ecology is that a failure to consider the power relations embedded in processes of environmental change leads to superficial—that is, decontextualized, dehistoricized, and depoliticized—assessments that seek to explain outcomes as the result of policy design and implementation, rather than as a reflection of unequal control and decision making (e.g., Robbins 2004). A key advance made by political ecology has thus been to reposition natural resources management as an inherently political endeavor, as opposed to a set of neutral, pragmatic and technical-economic approaches to improving resource management, which better explains why poor groups are frequently disadvantaged by policy processes (e.g., Blaikie et al. 1987). While early actor-oriented approaches sought to uncover the vested interests of the different stakeholders involved, through both material actions and discursive framings, and over wider spatial and temporal scales (e.g., Bryant and Bailey 1997), more recent scholarship has turned to the role of power relations in shaping economic development and environmental change, with greater emphasis on how power produces, and is embedded in, new socioecological arrangements (e.g., Robbins 2004).

These insights have been brought to bear on several aspects of PES. Some authors have drawn on debates around the neoliberalization of nature and environmental governance to explain how PES commodify natural resources for capital accumulation and lead to uneven social outcomes (e.g., Büscher 2012, McAfee 2012). McAfee and Shapiro (2010) explain how PES schemes are supported by apolitical framings of natural resource management and environmental science, which neglect or disregard context-specific complexities, unruly actors, unequal distribution of economic and political power, and existing property rights regimes. In their empirical study of PES schemes in Cambodia, Milne and Adams (2012) question the assumptions that community participation is necessarily voluntary or reflects community choice. They found that nongovernmental organization (NGO) facilitators imposed “Western” notions of free choice and representation onto communities that were structured by quite different customary institutions and social organization, and thereby overlooked issues of persuasion and coercion in “agreements” obtained from community members. They also observed that environmental service buyers and implementers tended to define the nature they wanted to conserve as something that is untouched by human hands. Such an understanding neglects the idea that ecosystems constitute working landscapes (Rosa et al. 2003), “ecosocial systems” (McAfee and Shapiro 2010), or cultural landscapes, in which environmental services are co-produced by biophysical and social processes (Budds and Zwarteveen 2012). Regarding ecosystems as natural environments is problematic for environmental service providers because it potentially disregards the ways in which rural communities, including peasants, may enhance natural resource stocks and conserve ecosystems (Budds and Zwarteveen 2012; Van der Ploeg 2008).

In this article, we seek to build on this literature by exploring the social dynamics and implications of PES through a case study of a watershed services scheme in Pimampiro, Ecuador. In addition to relations between different actors—especially (upstream) providers of ES and (downstream) payers for ES—in the watershed, we place particular emphasis on examining the effects of the scheme on relations
among actors within the community that provides the ES. Adopting a political ecology approach, we start from the premise that, similar to other market-oriented natural resource management regimes, PES are promoted by particular social groups in certain ways, in order to align with specific interests and objectives. In this way, rather than approaching the PES scheme as a neutral policy initiative aimed at improving watershed management, protecting the water source of the drinking-water utility, and increasing the incomes of upstream peasant landowners, we ask why and how the scheme was introduced, how it intersects with the local context, social relations, and existing practices, and, who is favored and disadvantaged by its operation. In this way, we interrogate the assumption that PES schemes can simply be imposed on existing communities for significant benefits without changing their internal and external social relations and their resource management practices.

Payments for Watershed Environmental Services in Pimampiro, Ecuador

Since around 2000, PES have become an increasingly popular policy strategy for pursuing conservation and development objectives in Latin America, especially in Andean countries (UNEP/IUCN 2007). PES constitute a reaction to the legalistic and often top-down command-and-control instruments that are commonly applied to natural resources management by government authorities and development agencies in Latin America. Moreover, they are often combined with the imperative of alleviating poverty (Southgate and Wunder 2009). Most PES projects in the region originated as small-scale projects supported by NGOs, local government, and international funding agencies, and most are for water- and carbon-related environmental services (Stanton et al. 2010).

The Pimampiro PES scheme focuses on watershed environmental services originating in the highland territory of Nueva América, an Andean peasant community located in the parish of Mariano Acosta within the municipality of Pimampiro. The municipality of Pimampiro covers an area of 443 km², ranging from an altitude of 1400 to 4000 m above sea level. The parish of Mariano Acosta covers an area of 134 km² in the upper part of the municipality, at an altitude of between 2080 and 4000 m above sea level. Sixty percent of Mariano Acosta’s people identify themselves as indigenous (mainly Kichwa Karanki), and 40% as mestizo (mixed Hispanic-indigenous) (GMP 2010). As a result of historical struggles over land in the region, most Kichwa Karanki people live in the highlands, mestizos are concentrated in the middle and lower altitudes of the municipality, while black communities are located in the lower Andean valleys of the Chota river (Preston 1990). Agriculture is the main economic activity of the rural and urban population of Mariano Acosta (GMP 2010). Within Mariano Acosta, the community of Nueva América is located in the highest parts, at an altitude of between 2900 and 3600 m above sea level in the Palaurco river catchment (Figure 1) (Echavarría et al. 2004). Nueva América also forms part of the buffer zone of the Cayambe–Coca ecological reserve (Echavarría et al. 2004).

Research Methods

The empirical research presented in this article was carried out in Pimampiro municipality and the Nueva América peasant community from March to September 2010. Literature and archival reviews were conducted throughout 2009. During fieldwork,
the aim of the study was presented to participants as an investigation into the functioning of the PES scheme and its implications for watershed conservation and peasant livelihoods in the Nueva América community.

The fieldwork entailed in-depth qualitative research that sought to document and analyze the experiences and perspectives of the peasant farmers living in the community where the PES scheme had been implemented. Semistructured interviews formed the principal research method, and were used to collect information and opinions around the Nueva América community, the negotiation and implementation process of the PES scheme, participation and nonparticipation in the scheme, and stances toward conservation and its implications. Eleven semistructured interviews were conducted with institutions that have a stake in the use of watershed environmental services (Pimampiro water utility, municipal irrigation board, organizations

Figure 1. Watersheds of the Pimampiro region. Source: Adapted from Avellaneda and Villafuerte (2008).
implementing the PES scheme, municipal environmental unit), and 15 were conducted with peasant landholders who did and did not participate in the PES scheme (10 and 5 interviews, respectively). This sample comprises all the farmers contacted for interview during fieldwork; it is representative, as it captures the opinions of more than half the members of Nueva América (of both genders, and with various land size allocations, income-generating activities, perspectives vis-à-vis the PES scheme, and either resident or nonresident in the community). Interviews in Nueva América were carried out individually, and in situ (in homes or on farms).

In addition to interviews, one focus group was carried out with peasant landholders to discuss the PES scheme and to try to unravel the social dynamics around it. This was done after a community meeting at which most of the community members were present. During this focus group, opinions about the PES scheme and the development of projects within the community were discussed.

Observational techniques were also used in order to gain insights into relations among Nueva América families, and between them and other stakeholders, in order to understand how issues around the PES scheme and conservation were presented and contested. These included attendance at local meetings and assemblies, as well as taking part in day-to-day activities such as farming, collective labor (mingas), and community celebrations.

The qualitative data methods were complemented by the collection of secondary data from public institutes (e.g., census records, water rights registrations), universities (e.g., geographical information), farmers’ federations (e.g., historical records), local government offices (e.g., PES participants, land use patterns in Nueva América), and NGOs that had worked on the Pimampiro case (e.g., research reports on Nueva América and Mariano Acosta).

Following initial data analysis, preliminary results were presented and discussed at three meetings. The first was held with members of the Nueva América community, representatives from the Indigenous and Peasant Union of Mariano Acosta, and the Imbabura Indigenous Federation. The second and third were held with the Corporación para el Desarrollo de los Recursos Naturales [Ecuadorian Corporation for Development and Natural Resources] (Cederena) and the Municipality of Pimampiro, respectively. These meetings served to validate some of the findings, and to identify discrepancies, tensions, and gaps.

The Nueva América Community

The community of Nueva América¹ acquired land as the result of a long historical struggle. The first part of this struggle was against the owner of the Santa Rosa estate (hacienda), who controlled most of the land, including the highlands, in Pimampiro at the turn of the 20th century. Landless farm laborers (huasipungueros²) from neighboring estates moved to what is now Mariano Acosta, where they resisted expulsion in order to get legal rights over communal land in 1922. Up to this point, Nueva América was not yet inhabited. The second part of the struggle started in 1957, when a group of indigenous people from various parishes moved to Nueva América in search of land. Initially expelled by the people from the Guanupamba community, in 1984 27 families managed to obtain official control of what is now territory of the Nueva América community (Dauriac 2005; Dulong 2005). This territory was granted as communal land, but internally each family took a plot of land, which it managed and worked individually in addition to working the communal
land through collective labor (*minga*). Unequal participation in *mingas* led to resentment among some families and resulted in the subdivision of the communal land into individual plots in 1997. The size of the additional subdivided plots was determined by the amount of work that each family had contributed to the *mingas* and what each one could afford.

Resentment later resurfaced when a group of families with forested land wanted to obtain a loan in the name of the community to clear areas of forest for conversion to pasture. They were opposed by other families, many of whom had already cleared their land and thus did not support a loan being taken out by the community as a whole (Dulong 2005). Although the loan application did not ultimately proceed, the division among the two groups festered and then flared up during further disagreements over the implementation of several environmental projects.

At present, the formal institutional arrangement of the Nueva América community is based on the Communes Law and the Cooperatives Law. The former legally recognizes rural settlements and communities, while the latter enables them to acquire land for agriculture, and restricts its use or transfer beyond the community. The community is officially organized as an Association, headed by a general assembly (*Cabildo*) and governed by a set of rules, which, inter alia, prescribe the stewardship and preservation of the landscape, biodiversity, and natural resources of the community.

The community currently comprises 27 peasant landholders with private land titles and different sizes of landholding. The community currently owns 638 ha of land: 167 ha comprise high Andean grassland (*páramo*), and 390 ha are covered by forest, both of which are located in higher altitude and remote areas, while in the lower altitude areas 75 ha are dedicated to agriculture and livestock, and 6 ha are considered degraded (Yaguache and Carrión 2004). The agricultural land is mainly used as pasture, and to produce potatoes, beans, and other local Andean vegetables.

### The PES Scheme for Watershed Services in Pimampiro

The PES scheme was motivated by an interest in improving water supply to the town of Pimampiro following a long drought in 1999. It was implemented between 2000 and 2001, and is one of the earliest known PES initiatives in South America. The aim of the scheme is to protect the water source of Pimampiro’s Municipal Water and Sewerage Company by conserving the Nueva América forest in the headwaters of the watershed, where a new canalization project had been recently constructed. The canalization greatly increased water supply to Pimampiro and facilitated the introduction of PES (Porras et al. 2008; Yaguache 2004). Wunder and Albán (2008) state that this PES scheme was designed with the aim of improving only the environmental services that were in demand, and not with the intention of enhancing regional development or reducing poverty.

Twenty out of 27 households from Nueva América, owning a total of 488 ha of land, participate in the PES scheme. They are paid in cash to secure the regulation of the quantity and quality of water (Yaguache 2004), in exchange for maintaining existing vegetation cover (forest, *páramo*), for not felling trees, and for allowing natural regeneration (Quintero et al. 2009). The payments are funded by fees collected from the utility’s 1,350 customers, who pay a 20% surcharge on their monthly water bill. The fees go into a water fund managed by the municipality, which
transfers the payments to the participants of the PES scheme (Echavarría et al. 2004, 23). The rates paid are US$6 per hectare per year for “disturbed forest or páramo”; US$8 per hectare per year for “mature secondary forest”; and US$12 per hectare per year for “primary forest or undisturbed páramo” (Wunder and Albán 2008). Former agricultural land can also be included in the scheme, but only if agroforestry, partial pasture reforestation, or land conservation measures are implemented (Yaguache and Carrión 2004). The potential income that landowners can earn thus depends on the area of land that they own and the type of land cover present.

The PES scheme formed part of a wider environmental management plan in Nueva América (Yaguache 2004), which was developed successively by two NGOs, the Desarrollo Forestal Comunitario [Communal Forest Development] (DFC) and the Cederena, between 1994 and 1997, funded by the Inter-American Foundation and the Food and Agriculture Organization (Echavarría et al. 2004). The management plan aimed to develop alternatives to agriculture on the community’s forest and páramo land, comprising restoration of cleared forest and degraded land, agroforestry systems to produce fruit and firewood, commercialization of forest medicinal plants and orchids, agricultural microcredit, and ecotourism using a mountain hut and trails (Dulong 2005).

In order to create the PES, two contracts were signed. The first was a contract between the municipality and the Nueva América Association, setting out the terms and conditions of the scheme. The second was a contract between the municipality and each participating family, stipulating payment amounts, the frequency of the payments, and the responsibilities of environmental service providers. Whether they agreed to participate in the PES or not, it is important to note that all members of the Nueva América community are subject to the provisions of Ecuador’s Forestry Law (Law 74, 1981), which prohibits the conversion of watershed vegetation (forest, bushes, páramo) into farmland and the extraction of timber for commercial purposes. Under this law, farmers wanting to clear vegetation on their land (possible up to a maximum of 20%) have to apply for a permit from the Ministry of the Environment, which is an expensive and protracted process. Therefore, the PES scheme operates in addition to the provisions of the Forestry Law, yet with the key distinction that its regulations were seldom enforced prior to the introduction of the PES scheme (Wunder and Alban 2008, 690), but significantly applied and sanctioned thereafter. As we further explain in the following, farmers’ decisions to participate in the PES scheme were influenced by several factors that go beyond free choice, including increased state command-and-control practices to sustain its conservation objectives such as the greater enforcement of the Forestry Law.

Social Relations and Vested Interests Shaping the Design, Implementation, and Outcomes of the PES Scheme

Negotiation and Design

In theory, participation in the PES scheme was voluntary. Yet 11 of 15 interviewees (6 participants and 5 nonparticipants) indicated that the municipality sought to coerce peasant landholders into joining the scheme. For example:

The people from the municipality told us during negotiations over the project that the environmental service was a voluntary thing, yet they
reminded us that if we did not join, the municipality could enforce control and punishments under the Forestry Law or make a decree that declares our land a municipal reserve, and also that they will hire more forest rangers to monitor us. (Nueva América peasant landholder, personal communication, May 2010)

The authority of the municipality to declare certain areas as important for conservation, thereby restricting agriculture in these zones, thus played a role in pressurizing some peasant landholders into agreeing to participate in the PES scheme.

The subdivision of communal land in 1997 had led to different land sizes among Nueva América community members. This resulted in one family group (nine members, a third of the community population) owning approximately 50% of the land. Both the size of this landholding and the fact that most of it comprised forest land in the upper part of Nueva América implied that the potential advantages of PES for this group were significant, as the payments were higher for forested land, and the owners were hardly using the land anyway. The interests of these family members played an important role in the process of negotiation over the PES scheme. In order to pass the scheme, and under the Communes Law, the municipality required agreement from half plus one of the community members. The family that owned half of the land thus sought to secure the necessary level of agreement from at least a quarter of the other landholders. Dauriac (2005) explains that this was mainly achieved by the president of the association at the time of the negotiation, who was a member of this influential family. He purposefully failed to properly debrief the other members about the terms of the scheme so that they were not fully aware of what they were committing themselves to. This was mentioned by two community members in our interviews:

At the time of the introduction of the PES initiative, people in the Association had a very different understanding of what it actually meant, and this was because of an intentional lack of communication between the former president and the members of the association. (Nueva América peasant landholder, personal communication, May 2010)

During the preparation of the project, the president manipulated information and procedures to favor PES introduction in Nueva América. (Nueva América peasant landholder, personal communication, June 2010)

Our research thus suggests that the introduction of the Pimampiro PES scheme was the outcome of coercion by the municipality, as well as persuasion and manipulation on the part of the largest family, who had the most to gain from the scheme.

**Implementation and Outcomes**

In terms of income, the amounts that different participants receive for providing the environmental service vary greatly. While the average payment to landholders is US$252 per year (Wunder and Albán 2008), these range from just US$15 to US$841 per year. Echavarría et al. (2004) acknowledge that the sums paid to the PES participants in Nueva América are the result of political negotiation
rather than hydrological or valuation analysis. Indeed, one of the key questions during the design of the scheme was how much each landowner should be paid per hectare (Yaguache 2004). While the opportunity cost of livestock production was calculated at US$42 per hectare per year (Yaguache 2004), due to pressure from the municipality and Cederena, the payment for conservation was set at a maximum of just US$12 per hectare per year, and only for the highest category (“primary forest or undisturbed páramo”). As one community member comments:

> The environmental services are not very attractive to the community, because you get so little if you have small plots, and the municipality takes control over your land. (Nueva América peasant landholder, personal communication, June 2010)

While almost all participants in the scheme indicated that payments were too low, support for the scheme was strongly related to the participants’ land size and the type of land cover and use, which in turn determined both the level of payments and the degree of control exerted by the municipality.

As mentioned earlier, the group of nine landholders (comprising Nueva América’s largest and most influential family) that is most in favor of PES owns large areas of land that are mostly covered by primary forest and páramo, thus attracting the highest payment rates under the scheme. Due to their elevation, remoteness, steep gradient, and the provisions of the Forestry Law, they are not used intensively. One member of this group indicated that “PES represents for us a considerable income, something is also better than nothing” (Nueva América peasant landholder, personal communication, May 2010).

Based on four interviews with this family, we established that almost all of these landowners have income sources outside the PES scheme area (such as in construction), implying that they receive payments for not doing anything significantly different from what they did before the scheme was introduced.

A second group of around 11 community members own medium-sized landholdings that comprise a mix of forest and cleared land. Based on four interviews, we found that they were opposed to the PES scheme on the basis that the income from working their land (e.g., growing beans) would be much greater than the payments that they would receive for conservation under the PES scheme. Nevertheless, they agreed to participate in the scheme because they did not want to receive fines for working their land. This is because it has become very difficult to continue farming land that is not included in the PES scheme in the same way as before the implementation of the scheme. The reason for this is that areas of land left fallow—which had hitherto been part of a traditional land rotation cycle within each farmer’s landholding—are classified by the municipality as land undergoing regeneration, and, as such, as land that can potentially enter conservation, as if it were originally “undisturbed.” Importantly, because of this reclassification, this land then becomes subject to the Forestry Law and PES clearance restrictions. This means that cutting weeds and bushes that have grown during the fallow period now required permission from the municipality, as it was deemed to be land being “put back” into agricultural production, as if it were not already part of the production cycle. If permission is not sought or granted, fines are applied. Importantly, this practice has serious potential to lead to land degradation, as peasant landholders
are now deterred from leaving land fallow as they have traditionally done. As one such landholder stated:

We now try to maintain land cleared in order to avoid problems with the municipality, normally by putting cattle there or clearing more often. (Nueva América peasant landholder, personal communication, May 2010)

In a third group, seven peasant landholders own smaller plots of land that were mostly already cleared and used for agriculture before the introduction of the scheme. They do not participate in PES. Nevertheless, based on five interviews, we found that these landholders are significantly and adversely affected by the PES scheme, in particular from the restrictions on using fallow land outlined already. While Wunder and Albán (2008) assert that the implementation of the PES scheme has not resulted in farmers moving to (and degrading) areas outside the scheme’s boundaries, we found that smallholders have both engaged in continuous production in order not to leave their land fallow, and increasingly left their land in Nueva América to farm outside the conservation area, often on a sharecropping basis. For example:

Working the land in Nueva América is forbidden, so we have to work as sharecroppers more and more. (Nueva América peasant landholder, personal communication, May 2010)¹⁰

While it might be argued that the shift of land degradation from inside to outside the conservation area is desirable, it is not just the ecosystem and its environmental services that are at stake, but the livelihoods, traditions, and cohesion of the community. Smallholders are abandoning land in Nueva América to sharecrop elsewhere not only due to the land use situation, but also because of the loss of collective labor (minga) that out-migration has produced. This collective labor used to underpin the viability of peasant farming within the community. In our interviews, the families practicing agriculture on cleared land expressed resentment that the municipality is increasingly dictating and controlling land management, in the interests of conservation and with little regard for their livelihoods, traditional practices, or identities (see also Büscher 2012). As one farmer stated: “We are peasants and we don’t want to live from the rents of conservation” (Nueva América peasant landholder, personal communication, October 2010).

In terms of the scheme’s effects on social relations within the Nueva América community, we found the association to be internally divided, both before and under the PES scheme. This concurs with field observations by Echavarría et al. (2004) and Grieg-Gran et al. (2005), who explain that community organization had deteriorated since the introduction of the PES scheme. Indeed, during our fieldwork, the Ministry of Agriculture carried out a workshop to strengthen what it regarded as an “institutionally debilitated peasant association” (Ministry of Agriculture representative, personal communication, March 2010). While we cannot go so far as to say that the PES scheme is the sole or primary cause of the deterioration in the community’s social capital (as prior to PES there were already conflicts that had weakened the community’s cohesion), it is also evident that it has not enhanced community organization either but has exacerbated existing tensions.

In addition to land, water is also a contested resource under the PES scheme. In Pimampiro, irrigation has been an exclusive privilege of large estates since the 19th
century. These estates are now mainly dedicated to commercial agriculture (Preston 1990). Through the Pimampiro irrigation board, of which they are members, they control access to water. Peasant landholders in Nueva Américal have been unable to obtain water rights, since these are already fully allocated to estates and other users downstream. Since the implementation of the PES scheme, community members have increased their demands for water rights on the basis that they are now helping to secure the flow of water in the upper basin, but to date their claims have been unsuccessful. Moreover, rather than enabling a more equitable distribution of water rights,\textsuperscript{11} the PES scheme has instead institutionalized existing inequalities in access to water: The municipality uses the discourse of fostering conservation in the upper basin as a means to maintain the existing water rights of downstream commercial farmers, while curtailing productive activities and water use among smallholders in the upper basin. In this way, we contend that the PES scheme reinforces unequal resource allocations and social power structures. As one community member put it:

Instead of receiving so little money we would be more than happy if we could use the water we save, instead of Pimampiro taking it all, so we could have at least two crops a year. After all, the water comes from our territory. (Nueva Américal peasant landholder, personal communication, August, 2010)

If PES initiatives have the effect of limiting communities’ access to natural resources, or rendering these insecure or susceptible to dispossession, we argue that this has the potential to further destabilize already precarious resource bases—in terms of both natural resources and environmental services—and further contribute to socioeconomic marginalization (see also Rosa et al. 2003).

Conclusion

In this article, we have demonstrated the importance of scrutinizing social relations, differences, and dynamics in order to understand the evolution and outcomes of a PES project. A fundamental problem with simply internalizing externalities is that it does not sufficiently consider the importance of existing contexts and institutions, or how PES schemes are shaped by divergent interests and discourses around conservation. We thus argue that PES schemes are not neutral initiatives based on economic logic and rational-technical intervention, but are configured by vested interests, with the potential to exacerbate social differences within communities, reproduce inequalities in access to resources and environmental services, and undermine existing livelihoods and practices.

While we acknowledge that the Pimampiro case is based on a community where not all members have joined the scheme, we show how nonparticipants are also adversely affected by its implementation, and thus consider that it deserves important attention and critical consideration. A further key reason for this is because this PES experience—one of the first in South America—has received much policy and scholarly attention, most of which has been very positive, and has contributed to its portrayal as a frame of reference for PES (FAO 2011; Wunder and Alban 2008). In this article we have challenged this perspective, especially by considering the effects of the scheme in wider terms than just the income that participants receive.
Our study shows that it is not just the social power relations between different actors within a PES scheme—especially ES providers and payers—that are important, but also those among communities, which are often regarded as homogeneous. Here, we concur with Milne and Adams (2012) that PES projects are thoroughly political and require examination as politicized phenomena. However, we would contend that such politicization does not just stem from the assumptions of “external” actors implementing them, but also from within the communities themselves. In Pimampiro, these differences are apparent in both the implementation and the outcomes of the PES scheme. Peasant farmers with larger landholdings favored and promoted participation in the scheme, but the outcomes have been divergent for different farmers: While owners of large areas of forest have received payments for doing nothing new, those with cleared agricultural land have faced increasing restrictions, even if they did not join the scheme. These changing dynamics within the community, resulting from the different sizes of landholding and the valuation of land cover under the PES scheme, as well as the more vigorous enforcement of the Forestry Law, have coincided with the domination of decision making in Nueva América by those who earn more from PES than by the community’s traditional livelihoods.

Our study also demonstrates the potential of PES schemes to reinforce unequal resource allocation. In Nueva América, this occurred both through the very different outcomes for larger and smaller landholders, and through the community’s inability to access new water rights despite their role in conserving water flows. Such inequalities highlight the importance of considering the historical trajectories of existing livelihood practices, social relations, and resource allocation among communities incorporated into PES schemes. Indeed, our analysis also shows how the Pimampiro PES scheme reinforced command-and-control Forestry Law rules while generating new land-use restrictions and changing the economic value of the land for both production and conservation. This especially affected local peasant farmers with smaller areas of cleared land used for agriculture, whose livelihoods were subjugated to the interests of downstream users in instigating watershed management practices that would secure water provision. These restrictions placed on fallow land not only pressured farmers to continuously cultivate (and potentially degrade) their land, but also reduced the pool of reciprocal labor as peasant smallholders increasingly sought sharecropping opportunities outside the conservation area. In Pimampiro, this arose because PES designers and implementers defined and ratified what was important for conservation (i.e., forest, páramo) and what was not (i.e., working landscapes), as defined by the Forestry Law. This meant that “undisturbed” land cover became envisaged as the functional component of the watershed that was important for the provision of environmental services, while disregarding peasant practices that also conserved land, such as leaving land fallow during the rotation cycle of production.

While many assessments of PES schemes center on the outcomes for conservation (such as Wunder and Albán’s [2008] emphasis on containing deforestation, rather than securing peasant livelihoods), we thus argue that it is paramount to consider the effects on local working landscapes and on resource control and distribution, especially where PES are (if only partially) promoted on the basis of their potential to reduce poverty. Analyses thus need to consider existing natural resource allocations and land management practices and how these will be reshaped by PES schemes. In this respect, our case study supports the conclusion that PES, because they reinforce existing property rights and social structures, cannot redress unequal
natural resource distribution. On the contrary, as we have shown, PES have the potential to contribute to parallel forms of social and ecological degradation as the main conservation objective is pursued. At present, many such schemes simply treat communities as blank canvases ripe for the introduction of new property rights and market mechanisms to supposedly improve land management and livelihoods, without considering existing historical contexts, social relations, forms of organization, or land management practices.

Notes
1. The official title of the community is Nueva América Association for Agriculture and Livestock.
2. Huasipungers provided labor in return for the right to cultivate a share of the owner’s land.
3. The Cabildo comprises five members: president, vice-president, treasurer, trustee, and secretary.
4. There are 9 large landholders (>20 ha), 11 medium landholders (10–20 ha), and 7 small landholders (<10 ha).
5. For timber, light cutting for domestic uses is permitted.
6. At the time of writing (2012), only the PES scheme, the agroforestry scheme, and the mountain hut were in operation. Their management was dominated by the community’s most influential family.
7. All translations from Spanish are by the authors.
8. Wealth is extremely relative in the Ecuadorian context: These large property owners are still peasant farmers, yet proportionally much better off than their neighbors.
9. In this case, land use restrictions do not emanate solely from PES but also from the Forestry Law. However, as we explained in this article, the PES scheme has been accompanied by the increased enforcement of the Forestry Law.
10. The sharecropping arrangement consists of land provided by one party, inputs provided by the other party, joint labor, and equal division of the produce.
11. There is also significant inequality between water rights holders belonging to the irrigation board: 5.1% of families (large producers) control 42% of the water rights (of which estates control 25%), while 95% (medium and small producers) possess 58% (with smallholders having just 0.14%) (Avellaneda and Villafuerte 2008).

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