



Market mechanism or subsidy in disguise? Governing payment for environmental services in Costa Rica

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ABSTRACT

Costa Rica's national payment for environmental services (PES) program has inspired a large body of research, most of which seeks to assess its impacts on deforestation and/or poverty. The specific forms of governance shaping the program, by contrast, have received much less attention. While the program, like PES in general, is commonly considered a paradigmatically neoliberal "market-based" conservation mechanism, its actual operation to date has deviated substantially from this description. Despite program planners' express intent to establish self-regulating markets for the direct transfer of payments from consumers of ecosystem services to their producers, such markets have yet to become widespread, and the program remains supported primarily by strong state intervention in various forms. Thus, while the program's ostensive success in combating deforestation has been widely praised, we suggest that its relative inability to establish a free-standing market to accomplish this aim may be equally instructive. For instance, the ambitious Reduced Emissions from Deforestation and Degradation (REDD) mechanism envisioned to mitigate climate change on a global scale takes PES as one of its main sources of inspiration, a perspective that may be complicated by acknowledgment of such gaps between "vision" and "execution" in neoliberal conservation governance.

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1. Introduction

Payment for environmental services (PES) has become an increasingly popular mechanism for financing conservation of natural resources in recent years (see e.g., Pagiola et al., 2002a; Wunder, 2007; Farley and Costanza, 2010), consonant with the rise of the concept of nature as a "service provider" in general (Sullivan, 2009). Despite significant variation in structure and function, PES schemes are generally designed to incentivize resource preservation by compensating owners of land that is seen to provide valued ecosystem services (e.g., clean air, water, etc.) for these services and thereby covering the opportunity costs of alternative resource use (Wunder, 2007; Pagiola, 2008; Farley and Costanza, 2010). Over the past two decades, this approach has spawned a growing variety of programs at different scales in locations around the world (Blackman and Woodward, 2010; Farley and Costanza, 2010). It has also inspired a rapidly-growing academic literature analyzing the strategy from myriad angles, as discussed further below.

As implied above, PES is commonly described as a "market-based mechanism," intended to ascribe monetary value to *in situ*

natural resources based on the assumption that deforestation is largely due to "market failure," creating "perverse incentives" for forest clearing (e.g., Pagiola et al., 2002a; Wunder, 2007). As World Bank economist Stefano Pagiola and coauthors describe in the introduction to their influential collection of PES case studies aptly titled *Selling Forest Environmental Services: Market-Based Mechanisms for Conservation and Development*:

The basic purpose of the market-based mechanisms examined in this book is to remedy market failure. By selling the services provided by forests, either individually or in bundles, these mechanisms aim to generate revenue that can then be used either: (i) to increase the private benefits of conservation to individual forest managers, and so to change their incentives; or (ii) to generate resources that can be used to finance conservation efforts by public or private conservation groups. (2002, p. 4)

As a result, PES has been described as an aspect of an increasing trend towards neoliberalization within environmental governance globally, promoting such paradigmatic neoliberal strategies as deregulation, decentralization, devolution of governance to non-state actors, and the creation of economic markets for trade in "natural capital" (see McAfee and Shapiro, 2010; Büscher, forthcoming). Yet is this actually the case? To what extent do PES programs actually function as neoliberal market mechanisms in practice? Growing evidence suggests, in fact, that some PES

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programs, while ostensibly market-based, actually deviate substantially from core neoliberal principles in their implementation. McAfee and Shapiro (2010), for instance, observe that Mexico's national PES program has from its inception included substantial government regulation and intervention inconsistent with the market-based logic that undergirds the program. Recognition of such dynamics has led prolific PES analyst Sven Wunder of the Center for International Forestry Research to pronounce many actually existing programs merely "PES-like" (2007, p. 50). Farley and Costanza (2010) reinforce this conclusion and go further to contend that PES need not be market-based at all to function effectively, as discussed further below.

In this article, we contribute to this exploration of divergence between the common framing of PES as a paradigmatic market-based strategy and the reality of its practice by presenting a detailed analysis of the specific governance strategy informing Costa Rica's well-known national PES program. Titled *Pago por Servicios Ambientales* (PSA), Costa Rica's longstanding program is commonly heralded as an exemplar of best practices, having "pioneered the nation-wide PES scheme in the developing world" (Daniels et al., 2010, p. 2116; see also e.g., Pagiola, 2008; Blackman and Woodward, 2010). As a result it has been the focus of substantial research (e.g., Pagiola, 2002, 2008; Rojas and Aylward, 2003; Ortiz, 2004; Zbinden and Lee, 2005; Sierra and Russman, 2006; Sánchez-Azofeifa et al., 2007; Borges-Méndez, 2008; Arriagada et al., 2008, 2009; Robalino et al., 2008; Blackman and Woodward, 2010; Daniels et al., 2010). Most of this research has assessed the program's success in combating deforestation and/or alleviating poverty, the program's main purposes. Far less attention has been devoted thus far to describing the specific forms of environmental governance informing the program. As with PES in general, PSA is commonly described as a quintessential market-based mechanism (e.g., Heindrichs, 1997; Pagiola, 2002, 2008; Sierra and Russman, 2006). Yet as we will show, in actual practice the program's governance structure deviates from central neoliberal principles in significant ways – calling into question the market model on which it and other PES mechanisms are based.

This study thus seeks to contribute to an understanding of PES governance, both in general and specifically with respect to Costa Rica's influential program. As we discuss further in the conclusion, the study also has important implications for understanding new initiatives envisioned to build upon the PES model, particularly the Reduced Emissions from Deforestation and Degradation (REDD) mechanism developed in recent UNFCCC negotiations as a global system of service payments for carbon sequestration, which will likely have significant impacts on conservation policy throughout the world in the very near future (see e.g., Angelsen, 2009). In the process, the study contributes to the rapidly growing body of literature analyzing neoliberal conservation (discussed below) by exploring the relationship between theory and practice in the implementation of neoliberal conservation mechanisms, a topic underemphasized in the literature thus far (Carrier and West, 2009).

We begin by providing an overview of the growing literature addressing PES and situating our study within this. We then briefly survey research concerning neoliberal environmental governance in order to clarify how we define "neoliberalism" in our analysis. Subsequently, we describe the development and structure of Costa Rica's PSA program. We outline the market model envisioned to govern the program and analyze the divergence between this and the program's actual practice thus far. We conclude by exploring the implications of our analysis for future research concerning both the PSA program specifically and PES in general.

This analysis is primarily based on a review and synthesis of the wealth of quality previous research that has investigated diverse aspects of the PSA program over the past decade. We supplement

this when necessary with the results of several short periods of field research conducted over the past 3 years as part of a larger project exploring evolving environmental governance strategies throughout the country (see e.g., Fletcher, 2010a). This fieldwork has entailed interviews and participant observation with select PSA administrators and recipients in the Sarapiquí region in the northeast of the country and the Osa Peninsula in the southwest. Our analysis is thus largely qualitative, a meta-analysis of the current literature intended to explore the PSA program's overall *gestalt* rather than undertake quantitative assessment of specific dimensions, as most of the previous research upon which we rely has done.

2. Selling environmental services

As noted above, rapid growth in the popularity of PES has inspired a sizable literature analyzing the strategy. From an early focus on assessing the efficacy of specific policies or programs (see e.g., Pagiola et al., 2002b), this research has more recently sought to extrapolate from particular cases to typologize different PES strategies in addition to discussing lessons learned and prospects for the approach as a whole. Thus, in a widely cited analysis Wunder defines PES as: "(a) a voluntary transaction where (b) a well-defined environmental service (or a land use likely to secure that service) (c) is being 'bought' by a (minimum one) service buyer (d) from a (minimum one) service provider (e) if and only if the service provider secures service provision (conditionality)" (2005, cited in Farley and Costanza, 2010, p. 2063).

This definition clearly frames PES as a market-based mechanism. Wunder's definition is contested, however, leading to growing debate concerning whether PES is or should be grounded in market transactions. Much of this debate is contained in three recent special sections of the journal *Ecological Economics* devoted to PES research (see Engel et al., 2008; Muradian et al., 2010; Farley and Costanza, 2010). Characterizing this debate in their introduction to the third of these sections, Farley and Costanza (2010) identify two dominant positions. The first, exemplified in the 2008 special section and based in *environmental economics*, endorses Wunder's articulation of PES as a fundamentally market-based approach (see Engel et al., 2008). This perspective distinguishes between "user-financed" and "government-financed" programs yet views both as "market-based mechanisms" contrasted with "command-and-control regulation" (Engel et al., 2008, p. 669). In addition, it asserts that movement towards increasing marketization will enhance PES efficiency and effectiveness.

By contrast, the latter two special sections, in Farley and Costanza's characterization, exemplify a very different approach, based in *ecological economics*, which "focuses on the multiple goals of ecological sustainability, just distribution and economic efficiency and favors a variety of payment mechanisms to achieve these goals, both market and non-market" (2010, p. 2060; Muradian et al., 2010). For instance, the authors maintain,

Generating adequate resources or ensuring a just distribution of payments may require non-voluntary approaches such as taxes or mandatory service charges, which is frequently the case in real life PES schemes. Whether payments should be voluntary or coerced through taxation should in fact be determined by the physical characteristics of the resource. (Farley and Costanza, 2010, p. 2063)

Likewise, Farley and Costanza (2010, p. 2060) assert that ecosystem service payments "do not require commodification" since payments may encompass not only services directly useful to humans but those intrinsic to effective ecosystem function as well. Finally, the authors contend that PES need not promote privatization

since payments may be made for collective rather than merely individual ownership, thereby promoting “systems that can *prop-ertize* ecosystems and their services without privatizing them” (Farley and Costanza, 2010, p. 2061, emphasis in original).

We will have much more to say about this position and the debate surrounding it below. Suffice it to point out here that despite their differences, both positions are primarily concerned with how to best implement PES. Only recently has analysis taken a more critical perspective. Hence, for example, Kosoy and Corbera (2010) describe PES as a form of commodity fetishism, Sullivan (2009) decries the “cultural poverty” of treating nonhuman nature as service provider, McAfee and Shapiro (2010) highlight a failure to adequately appreciate the influence of local politics in PES policies, and Büscher (forthcoming) identifies a paradox in PES’s implicit claim “that capitalist markets are the answer to their own ecological contradictions.” Our study contributes to this critical analysis by addressing the gap between rhetoric and practice in PES implementation, a theme only tangentially treated in the literature thus far (e.g., Wunder, 2007; McAfee and Shapiro, 2010; Büscher, forthcoming).

While Costa Rica’s PSA program has been a particular focus of research for some time now, until recently – in line with PES analysis in general – much of this literature described the program’s implementation through case studies of particular areas or aspects, for instance, in the Sarapiquí region (Borges-Méndez, 2008) and Osa Peninsula (Ortiz, 2004); in terms of hydrological payments (Blackman and Woodward, 2010); and in the program’s contribution to poverty reduction (Zbinden and Lee, 2005). Recently, greater effort has sought to empirically assess the program’s overall efficacy at both regional (e.g., Sierra and Russman, 2006; Morse et al., 2009) and national (Sánchez-Azofeifa et al., 2007; Pfaff et al., 2008) levels. In addition, Pagiola (2008) and Daniels and colleagues (2010) attempt more ambitious meta-analyses of the program’s success as a whole. We build on all of this research to develop our subsequent discussion. Ours is the first analysis to specifically investigate the particular governance structure employed to manage the program.

3. Neoliberal conservation

While many proponents explicitly characterize PES as a market-based mechanism, the mechanism’s description as a form of neoliberal conservation comes principally from recent critical commentaries (McAfee and Shapiro, 2010; Büscher, forthcoming). This perspective is grounded in a growing body of research analyzing increased neoliberalization within environmental governance in general in recent years, as defined by the paradigmatic neoliberal principles outlined above (see e.g., Heynen et al., 2007; Igoe and Brockington, 2007; Castree, 2008, 2010; Bakker, 2009). This analysis has particular implications for understanding policy and practice in biodiversity conservation. While conservation organizations commonly frame themselves as fighting to defend natural spaces against industrial capitalist development, researchers point out that many forms of conservation can be viewed as elements, in part, of capital accumulation in their own right, seeking to commodify natural resources for economic return (e.g., Sullivan, 2006, 2009; Igoe and Brockington, 2007; Garland, 2008; Brockington et al., 2008; Büscher, 2010; Brockington and Duffy, 2010). In this respect, a wide variety of prevalent conservation strategies, including ecotourism, bioprospecting, and PES, are increasingly described as aspects of neoliberalization in environmental policy. The key difference between neoliberal *conservation* in particular and neoliberal environmentalism in general is that while most other forms of natural resource management are designed primarily to promote sustainable resource *use*, conserva-

tion, on the contrary, promotes resources’ *non-use*, and thus employs particular strategies to harness these resources’ value *in situ* (Igoe and Brockington, 2007; Büscher et al., forthcoming).

Thus far, the majority of the neoliberal conservation literature has focused on policy makers’ explicit vision of how they intend their interventions to play out. Carrier and West (2009) recently point out, however, that policies developed by environmental organizations often fail to achieve intended effects, and thus call for more research concerning such potential gaps between “vision” and “execution” within environmental governance (see also Büscher and Dressler, 2007). Our study addresses this call in its analysis of the correspondence between policy and practice in the governance of Costa Rica’s PSA program.

In addition, the study contributes to an emerging effort to move beyond merely describing how neoliberalism is expressed through given conservation policies to document how such neoliberal tendencies are morphed and hybridized in syncretism with alternate conservation strategies and local sociocultural formations (see Dressler and Roth, 2010; Büscher and Dressler, forthcoming). This focus builds upon earlier analyses of “actually existing neoliberalisms” (e.g., Brenner and Theodore, 2002). In this respect, we will show, the particular character of the PSA program reflects overarching dynamics within Costa Rican society as well as the country’s idiosyncratic approach to conservation over the past several decades.

The bulk of the current neoliberal conservation literature has also been devoted primarily to empirical description of particular conservation policies and programs. Recently, several studies have sought to go beyond this empirical focus to analyze the overarching implications of the neoliberal trend (e.g., Igoe, 2010; Igoe et al., 2010; Fletcher, 2010b; Büscher et al., forthcoming). In this respect, Fletcher (2010b) has described neoliberal conservation as the expression of a particular Foucauldian “governmentality” (Foucault, 1991)—or “environmentality” when applied or environmental governance (Agrawal, 2005)—in its emphasis on influencing actors’ behavior through the creation of incentive structures to encourage *in situ* resource preservation. This distinctive neoliberal governmentality contrasts with three different approaches that Foucault (2008) outlines: a “sovereign” version that imposes formal rules and regulations; a “disciplinary” form that promotes compliance through diffusion of ethical norms and values; and, finally, what Foucault (2008, p. 311) calls governmentality “according to truth,” which maintains that prescriptions are in keeping with the inherent nature of things as revealed in religious texts or the natural order, for instance (for details see Fletcher, 2010b). (Of course, Foucault recognizes that different governmentalities need not exist in isolation but may overlap, alternately competing or acting in concert.) Hence, Foucault (2008, pp. 260, 271) describes neoliberalism as a particular “environmental type of intervention instead of the internal subjugation of individuals,” a “governmentality which will act on the environment and systematically modify its variables.”

Building upon this model, our perspective views neoliberalization in conservation policy not merely as an economic program but as a “whole way of thinking and being,” a “general style of thought, analysis and imagination” (Foucault, 2008, p. 218)—that is, an overarching approach to governing human behavior in general. In this sense, neoliberalism is envisioned to operate not only within economics markets but throughout society, promoting market principles as the model for human relations in general (Lemke, 2001; Fletcher, 2010b). This vision, in turn, is predicated on a particular conception of human beings as essentially self-interested rational actors who function as “entrepreneurs of themselves,” to paraphrase Foucault, and who can therefore be manipulated by changing the cost-benefit ratio of alternative courses of action

via increasing or diminishing incentives (Lemke, 2001; Foucault, 2008; Fletcher, 2010b).

Neoliberalism, in this formulation, is quite different than the era of classical liberal capitalism that preceded it and which it is commonly assumed to merely replicate. Whereas in the liberal era the economy was envisioned as a (somewhat) autonomous realm relatively free from state control, in neoliberalism the economy is seen not merely to act according to its own unique dynamics but to provide the model for governance in general, such that the state itself should become more and more market-like over time (Foucault, 2008; Fletcher, 2010b). Likewise, while both liberalism and neoliberalism envision the human being as a *homo economicus*, how this is understood differs dramatically between the two perspectives. As Fletcher describes,

Whereas a liberal *homo economicus* was seen to express its self-interest through exchange and consumption for maximum personal utility, the neoliberal rational actor manifests its own self-interest through enterprise and competition for maximum profit. Thus, while the liberal rational actor's self-interest naturally converged with others' to produce socially-desirable ends, the competitive neoliberal *homo economicus*, left to its own devices, will undermine social goals, and thus governmental policy must correct for this reality by encouraging, through the creation of appropriate incentive structures, the direction of individual self-interest towards socially-productive ends. (2010b, p. 174).

In order to identify neoliberalization within conservation policy, from this perspective, one would be less concerned with the presence or absence of actual markets for commodifying natural resources than with whether a given policy demonstrates an overarching emphasis on motivating behavioral change through incentives, monetary or otherwise (as opposed, e.g., to formal regulations, ethical injunctions, or assertions concerning the essential nature of things). This particular understanding of neoliberalism has implications for our subsequent analysis, as explained further below.

4. A neoliberal vision

Costa Rica's PSA program was officially established on a nationwide basis in 1997 by a renovated forestry law (Ley Forestal No. 7575) enacted the previous year to replace preexisting legislation dating from 1969. The program recognizes four distinct environmental services that preserved forests are seen to provide: (1) carbon sequestration; (2) clean water; (3) biodiversity conservation; and (4) scenic beauty. The program functions by providing direct payments to the owners of forest parcels for the services their land provides. Payments are intended to cover the opportunity costs of refraining from timber extraction or other alternate land uses. Amounts depend on the specific aspect of the program (conservation, reforestation, agroforestry, etc.) in which a given parcel is enrolled. Compensation for each strategy, as measured in 2007, ranges from approximately US\$210/hectare paid over 5 years for preservation to \$327/hectare paid in decreasing installments over several years for forestry, yielding average annual returns of between \$22 and \$42 per hectare per year before maintenance costs (Sánchez-Azofeifa et al., 2007; Daniels et al., 2010).

Under the 1996 forestry law, PSA administration was assigned to the Fondo Nacional de Financiamiento Forestal (National Fund for Forestry Financing, or FONAFIFO), a government agency that had existed since 1990 to manage aspects of the preexisting forest policy providing subsidies for reforestation efforts. From its inception, the program has been explicitly promoted as a neoliberal,

market-based mechanism by many supporters. Indeed, both the program and law that founded it were instituted as part of the conditionality attendant to one of several structural adjustment programs demanded of Costa Rica by the World Bank and IMF, and to which receipt of the nation's third major World Bank loan was attached (Daniels et al., 2010). As a result of this structural adjustment the nation's governance, in general, has been progressively neoliberalized over the last several decades (Edelman, 1999).

This process is reflected in natural resource management policy throughout the country, which has experienced a similar evolution in many aspects. Decreased funding for park management as a component of structural adjustment also led to a "governance gap" of sorts filled by NGOs, both domestic and international, to which direct funding from transnational finance institutions was increasingly channeled (Evans, 1999). This has allowed these organizations to implement independent conservation policies increasingly espousing a variety of market-based strategies, including several well-known debt-for-nature swaps negotiated with the Costa Rican state. Ecotourism has also been widely promoted as an explicit means to harness the economic value of natural resources in support of conservation (Honey, 2008).

The implementation of the PSA program in 1997, then, can be seen as part and parcel of this growing neoliberalization both within environmental governance policy specifically and throughout Costa Rican society. Indeed, the program was championed by international advisors from the World Bank, USAID, and other agencies as an explicit move towards a more market-based approach to environmental policy (Brockett and Gottfried, 2002). PSA design exemplifies this trend in a number of essential ways, as a comprehensive assessment of the program, performed by the German Agency for Technical Cooperation (Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH) on behalf of the Costa Rican government soon after its introduction, clearly illustrates (Heindricks, 1997). Admittedly, this document offers an extreme neoliberal vision version not necessarily shared by all program planners, as we discuss further below. It does, however, represent a sort of ideal model for program implementation promoted by prominent members of the international community influencing PSA design.

According to the GTZ report, the PSA program was explicitly intended to replace the preexisting system of subsidies for forest conservation, in accordance with the conditionality attached to the World Bank loan mentioned above, which called for the abolition of an extensive system of state subsidies in many sectors (Edelman, 1999). In forest management, the 1996 law thus proclaimed that "the current promotional (subsidy-based) system must be replaced by new, creative mechanisms to revive the forestry sector" (quoted in Heindricks, 1997, p. 28). These forest subsidies, established by the 1969 forestry law but not implemented until 1979, took a number of forms, the most common being a reduction in net worth taxation for reforestation efforts (Heindricks, 1997; Brockett and Gottfried, 2002).

In place of such subsidies, PSA sought to promote direct transfers from consumers to producers of environmental services, based on the market-oriented "user pays" principle endorsed at the 1992 Rio Summit. In so doing, the program sought to explicitly "attach noticeably greater monetary value to these environmental services, which have hitherto been largely ignored" (Heindricks, 1997, p. 33) and to make "payments for services at market rates" instead of providing price supports via subsidies (Heindricks, 1997, p. 23). In short, Heindricks (1997, p. 23) describes, the PSA program was designed to encourage Costa Rican forest policy to move "away from deficit-plagued, subsidized operations that are only able to survive with the aid of state 'alms' and toward a form of profitable, competitive land use based on sound business principles."

The PSA program was also explicitly designed to shift the locus of resource control and financing from the state towards non-state actors—particularly the “private forestry sector”—in order to “put into practice ideas such as administrative decentralization” and “mixed public and private financing” (Heindrichs, 1997, p. 11, xi). The structure of FONAFIFO itself reflects this neoliberal emphasis. In a self-conscious strategy to achieve “maximum decentralization” (Heindrichs, 1997, p. 43), FONAFIFO receives its finances directly from the payments it brokers and is largely autonomous in its design and administration of PSA funds. In addition, the organization was established as a “parastatal” institution, partly under the auspices of the Ministry of Environment, Energy, and Telecommunications (MINAET) but with two of its five managing directors drawn from the private sector (Heindrichs, 1997). Finally, the organization is funded through internalizing 5% of the funds it generates for service payment to provide managers with “a vital interest in identifying and developing new sources of funding” (Heindrichs, 1997, p. 43).

The PSA program has proven quite popular over its lifetime, such that by 2008 a total of 668,369 Ha had been officially enrolled, the majority (89%) under existing forest protection (Daniels et al., 2010, p. 2118). Moreover, the program continues to receive five times the area in applications that it is able to fund (Sierra and Russman, 2006). Hence, officials hope to double the current area included within the program in the near future (R. Borel, personal communication).

5. PSA in practice

The PSA program’s actual execution thus far has deviated substantially from the ideal vision outlined above. Neoliberal policies in general, of course, have been implemented quite differently and to varying degrees within different societies (e.g., Brenner and Theodore, 2002; Harvey, 2005; Foucault, 2008; Dressler and Roth, 2010; Büscher and Dressler, forthcoming), and Costa Rica in particular has long avoided elements of the extreme restructuring advocated by the IMF and World Bank, retaining many of the strong welfare state institutions previously pervasive throughout the country (Edelman, 1999). For instance, the state maintains a virtual monopoly on such basic services as electricity production, telecommunications, and insurance provision, as well as a strong system of tariffs on foreign imports (all of this is slated to change in the near future, however, as Costa Rica progressively implements the recently-ratified Central American Free Trade Agreement).

Similarly, the PSA program today displays numerous dynamics inconsistent with the ideal neoliberal model outlined in the GTZ report. As with Costa Rica’s lukewarm neoliberalization in general, this situation results in part from the particular micropolitics attending the program’s formulation. As Brockett and Gottfried (2002, p. 21) describe, PSA’s actual design was the outcome of a compromise between two competing factions within the Costa Rican government, broadly glossed as a “market-oriented coalition” and a more state-centered “interventionist reform coalition.” Thus, the authors characterize PSA as a “hybrid forestry regime” combining “market-oriented and interventionist approaches” (2002, pp. 21, 7). In addition, as several administrators emphasized to us in interviews, many PSA personnel care little about the particular philosophy informing the program, seeking merely to find the most cost-effective solutions to combat deforestation and poverty by whatever means available, whether market-based or otherwise, in the midst of myriad competing and contentious demands on land use both domestic and international.

Even assessed in terms of a hybrid model of market/state governance, however, there are important questions concerning the ex-

tent to which PSA is in fact grounded in market mechanisms. While the program, as noted above, is in general explicitly framed not as a subsidy but rather as providing payment for services rendered, in reality the self-sustaining market that the initiative was expected to stimulate has largely failed to materialize. As Sierra and Russman (2006, p. 133) describe, “PES programs are expected to be an intermediary stage in the formation of true markets for environmental services.” In other words, government supports contrary to free market principles are intended to be temporary measures to be replaced over time by self-regulating markets in which the government merely facilitates voluntary exchanges between producers and consumers of ecosystem services.

In order to provide initial support, the 1996 forestry law established a 15% consumer fossil fuel tax, one third of which was intended to go to FONAFIFO to finance service payments (Rojas and Aylward, 2003). In reality, however, these funds were rarely delivered by the Ministry of Finance, which collected the tax (Sánchez-Azofeifa et al., 2007). Hence, in 2001 a new law amended this arrangement to provide 3.5% of the fuel tax directly to FONAFIFO. Revenue generated by this tax was intended to be quickly superseded by the development of an international carbon market allowing FONAFIFO to finance its payments through the sale of emissions reduction credits. Yet thus far “no significant market for carbon abatement has emerged. The only sale has been to Norway, which consisted of \$2 million in 1997 for 200 million tons of carbon sequestration” (Sánchez-Azofeifa et al., 2007, p. 1167).

In addition, PSA was envisioned to stimulate an internal market for “user financing,” that is, direct voluntary (i.e., not tax-based) payments by domestic consumers of ecosystem services to their landowning producers (Sánchez-Azofeifa et al., 2007; Blackman and Woodward, 2010). One of the main components of this was to be the sale of watershed protection to private hydroelectricity producers. While the vast majority of hydroelectricity generation, upon which Costa Rica relies for nearly 80% of its power, is controlled by the national government (Fletcher, 2010a), a small portion (24 small run-of-the-river plants) is privately owned (Blackman and Woodward, 2010). Of these, five plants had collectively contributed just under \$1 million to FONAFIFO for watershed services as of 2009 (Blackman and Woodward, 2010), and in total, “direct user financing from all sources has funded less than 3% of the area enrolled in the PSA program” (Blackman and Woodward, 2010, p. 1627).

Hence, revenue from the fossil fuel tax (supplemented since 2006 by a 25% share of the national water-use tariff imposed on consumers of the public water supply) remains one of the primary sources of PSA revenue, comprising approximately 40% of total funding (Sánchez-Azofeifa et al., 2007; Blackman and Woodward, 2010). While this tax has long been construed as an expression of the user pays principle, since it targets one of the main user groups—automobile drivers generating greenhouse gas emissions—of carbon sequestration services (Heindrichs, 1997), it still contradicts to a degree orthodox neoliberal policy in that it functions through direct state intervention in the market to reallocate resources according to a predetermined plan rather than allowing market players to determine appropriate resource distribution—precisely the sort of intervention the PSA program was ostensibly designed to replace. In addition, the tax fails to charge users of the other ecosystem services encompassed by the program, calling into question its conformance to the user pays principle (this omission has been rectified to some degree by the new water tariff, and FONAFIFO has also recently sought to address scenic beauty services by signing an agreement with Costa Rica’s Ecotourism Chamber of Commerce to promote “Climate Conscious Travel” whereby domestic tourism operators will pay to offset their clients’ emissions).

In addition to the fuel and water taxes, an even greater share (45%) of total PSA financing is provided by international financial institutions (IFIs), including both loans and grants from the World Bank (to be repaid through fuel tax revenue) and grants from the Global Environmental Facility (GEF) (Blackman and Woodward, 2010). These funds were initially provided, in direct recognition of the program's failure to develop self-sustaining sources of financing via carbon markets, to support current service payments as well as capacity building within FONAFIFO itself (Sánchez-Azofeifa et al., 2007). Another 10% is financed by a donation from the German International Development Bank (Kreditanstalt für Wiederaufbau) to support reforestation in the north of the country (Blackman and Woodward, 2010). While these sources of funding are intended to provide temporary support to the current payment system while simultaneously encouraging the future development of self-regulating markets (the World Bank/GEF assistance, for instance, comes under a so-called "Ecomercados" (Ecomarkets) program), in the present they perpetuate the program's current state-dominated structure in that they are collected and redistributed by the very government organs the PSA market was intended to circumvent.

In short, while PSA's state-centered structure is intended to eventually give way to a self-regulated economic market, in the interim it functions "through the creation of quasimarkets... based on subsidies provided by conservation agencies, multilateral organizations and governments" (Sierra and Russman, 2006, p. 133).

Moreover, it is unclear to what extent PSA, irrespective of its mode of governance, is actually responsible for the reduction in reforestation rates commonly attributed to it. While through the mid-1990s Costa Rica claimed one of the highest deforestation rates in the world (Borges-Méndez, 2008, p. 367–368), by 1997—the year the PSA program went into effect—the national deforestation rate had dropped to 0.03%/year, according to Sánchez-Azofeifa and colleagues' (2007, p. 1170) estimations from satellite imagery, and remained there through 2000 at least. Yet the causes of this dramatic drop in deforestation may have little to do with the PSA program per se. Sánchez-Azofeifa et al. argue that this reduction is largely the result of

previous forest conservation policies in Costa Rica, including a 199[6] legal restriction on forest clearing... All of the prior policies, including the creation of national parks and biological reserves and the 199[6] law, have very effectively lowered deforestation... The success of these previous programs subsequently left the PSA program with little forest clearing to prevent. (2007, p. 1172)

In support of this assertion, the authors observe that deforestation rates had already fallen dramatically before PSA was even introduced. In addition, while several studies have found substantially higher rates of forest cover on the land owned by PSA participants versus that of non-participants (see Pagiola, 2008), others have found no statistically greater quantity of forest cover on land covered by PSA and thus also question the program's impact on deforestation (e.g., Sierra and Russman, 2006; Arriagada et al., 2008; Robalino et al., 2008). This may be true, in part, because shifting market forces and government regulations in line with Costa Rica's overarching neoliberalization since the 1980s were already spurring the widespread abandonment of agricultural land prior to PSA implementation (Edelman, 1999; Sierra and Russman, 2006). Assessing all of this research in a recent review, Daniels and colleagues (2010, p. 2124) echo Sánchez-Azofeifa and coauthors (while noting important limitations in existing data), concluding, "At the national level, PES had virtually no additional impact on lowering deforestation because forest would have been conserved on PES sites even without payments."

The other drivers of deforestation reduction that Sánchez-Azofeifa and coauthors consider more significant than PSA are all state-centered, command-and-control approaches. The same 1996 law that established PSA also enacted a legal prohibition on land use change (including felling individual trees) without express government permission. This restriction on private landowners' free use of their land is of course contrary to neoliberal orthodoxy, and has long been controversial due precisely to the constraints it imposes on individual property rights, a principle central to Costa Rican political and economic policy (Evans, 1999). The 1996 law can therefore be seen as something of a paradox, promoting neoliberalization and state intervention simultaneously (Brockett and Gottfried, 2002). Thus, Pagiola acknowledges, "In a sense, the PSA program was a *quid pro quo* for legal restrictions on clearing" rather than an incentive for forest preservation, for "[w]ithout the PSA carrot, opposition to the legal restrictions might have been much higher" (2008, p. 9).

In addition, as Sánchez-Azofeifa et al. (2007) note, concurrent with declining deforestation rates was an aggressive effort by the central government to create an extensive system of protected areas, such that today approximately one quarter of the country's total area is encompassed by the system (Evans, 1999). Indeed, this effort was undertaken explicitly in response to rampant deforestation, which park authorities feared would completely denude the country if not countered through direct government intervention to enforce strict protected areas (Evans, 1999). In contrast to other protected areas which commonly emphasize income generation via tourism as a source of conservation (Brockington et al., 2008), Costa Rica's national park system was created first and foremost for biodiversity preservation (Evans, 1999), as former park service director Alvaro Ugalde reemphasized in a recent interview with us (5/5/2010), and even today tourism is actively cultivated in only a few of the country's numerous parks.

Further, during this same period of steep deforestation decline Costa Rica had become a popular destination for wealthy foreigners to purchase forested land for conservation, resulting in the development of an extensive network of private reserves throughout the country (Langholz, 2003; Kull et al., 2007; Horton, 2009). Although rigorous documentation is scarce, Langholz (2003) estimates that such reserves currently number more than one thousand, and in the Osa Peninsula (a biodiversity hotspot in the southwest of the country), at least, they are often quite large, averaging 440 Ha (Horton, 2009). While such reserves are usually acquired with private funds, and some are explicitly intended to generate profit through tourism revenue, many are purchased simply to protect them from forest clearing (Langholz 1996, 2003). As one particularly well-known eco-resort in the Osa Peninsula (see Almeyda et al., 2010) describes its mission:

The most important goal of the Lapa Rios project is to ensure the preservation of the primary forest reserve in perpetuity. This goal was the motivation to create Lapa Rios and it remains the principal goal... With this as the "ends" goal, the "means" to achieving it is running a high quality profitable ecolodge operation. (http://www.laparios.com/the_lapa_rios_story.html; accessed 6/24/2010)

In addition, as this statement implies, there are important questions concerning landowners' motivations for participating in PSA. As noted above, the express intent of the program, consistent with neoliberal governance in general, is to encourage conservation by offering incentives sufficient to cover the opportunity costs of alternate land use and thereby value forest preservation over clearing. Yet it is questionable to what extent this is in fact occurring. Several studies demonstrate that PSA tends to go to wealthier landowners, in part because FONAFIFO finds it more efficient given limited staffing to work with fewer large parcels than numerous small

ones (Zbinden and Lee, 2005; Sánchez-Azofeifa et al., 2007). This potential capture of PSA revenue by the already wealthy is an important dynamic given the program's intention to function as a poverty alleviation mechanism (albeit as a secondary concern), demanding systematic investigation beyond the scope of this analysis.

Added to this is the fact that compensation offered by PSA is often not enough to cover the full opportunity costs of alternative land use, producing a bias towards both landowners who do not depend on payments for their livelihood and the protection of less-productive land (Zbinden and Lee, 2005; Arriagada et al., 2009). Cattle ranching, for instance, may yield as much as \$125/ha, nearly triple the maximum gross offered by PSA (Sánchez-Azofeifa et al., 2007, p. 1167). Hence, one recent study found that forest parcels receiving PSA “were generally located on marginal land where there was no active agriculture and where opportunity costs were low” (Cole, 2010, p. 214). In other words, PSA may incentivize forest preservation only in areas where other uses are already largely untenable. As Arriagada and colleagues (2009, p. 356) describe their findings, “For the case of people that decide to participate, a lack of profitable land use alternatives was one of the most significant factors.” Hence, the authors conclude that “it may be the case that much of the forestlands enrolled in PES are unsuitable for alternative uses and thus would not have been deforested in the absence of the program” (Arriagada et al., 2009, pp. 356, 362).

This question of motivation is compounded by the observation that a substantial portion of the private forest in Costa Rica is owned by expatriate conservationists, many of whom are either independently wealthy or retired and are thus not dependent on their land for income generation (Langholz et al., 2000b). In addition, as noted above, research suggests that many private reserve owners are “motivated more by conservation goals than by personal or economic objectives” (Langholz, 1996, p. 271; see also Langholz et al., 2000a, 2000b; Bien, 2002). For many of these owners, PSA payments may have little to do with their motivation to conserve. This, indeed, was expressed to us by several informants, one of whom stated, “We have a conservationist mentality and would most likely be conserving these forests regardless.”

6. Vision and execution

In sum, the actual implementation of PSA thus far has deviated substantially from the market-oriented model promoted by many advocates both domestic and international, signaling, as asserted at the outset, a significant gap between vision and execution in the program's administration in at least four essential aspects: (1) financing; (2) governance; (3) motivation; and (4) outcomes. Thus, while the program is often framed as a quintessential market mechanism, we contend that it could equally be described as a subsidy in disguise, a means of supporting forest conservation through funds generated primarily via government borrowing and redistribution of tax revenue to forest owners as a form of compensation, less for the opportunity costs of alternate land use voluntarily foregone than for the state-mandated prohibition on their right to clear their land. While the program claims to rely substantially on free market mechanisms, then, in reality its administration employs mechanisms strikingly similar to the welfare state institutions neoliberalization has ostensibly sought to dismantle and replace with self-regulating markets.

This dynamic appears less intentional than forced on the program by its inability to achieve intended aims. First, the program's failure to tap and/or create significant markets for trade in environmental services, either domestic or international, has forced its continued reliance on the domestic fuel tax that was initially in-

tended merely to jumpstart the program. Yet even this has been insufficient to fund either the program's current scope or its intended expansion, and thus administrators have had to appeal to international lenders to compensate for their funding shortfall. This is hardly a long-term solution, however, as in the case of the World Bank loans at least, repayments must come from the very tax revenue insufficient to fund the program in the first place, and thus these loans also provide merely a temporary fix aimed, as with the fuel tax, to support the creation of free-standing markets. Such markets remain largely unrealized, however, and thus the government has been increasingly compelled to turn to domestic sources of revenue generated not through markets but through further taxation, as exemplified by the recent implementation of the water-use tariff for PSA funding mentioned above.

Notwithstanding this reality, program administrators continue to pursue the elusive markets envisioned since the program's inception – under pressure, as in Mexico's PES program (McAfee and Shapiro, 2010), by international advisors from the World Bank and elsewhere to become increasingly neoliberal (Brockett and Gottfried, 2002). For instance, Costa Rican negotiators attended the December 2009 UNFCCC negotiations in Copenhagen with the explicit intention to locate trading partners to bankroll a dramatic expansion of PSA to encompass the many eager applicants the program currently lacks resources to include (R. Borel, personal communication). As with many other less-developed societies, this aim was stymied, however, by the meetings' failure to produce a binding agreement to succeed the Kyoto Protocol. Moreover, Costa Rica's ability to attract international funds for emissions offsets is hampered by its small size and total forest relative to the more attention-grabbing nations such as like Indonesia and Brazil, as well as the fact that Costa Rica has already achieved such substantial forest protection. This latter impediment, ironically, will likely be increased by the growing interest in a global REDD mechanism described at the outset, since this mechanism is designed primarily to encourage reduction in deforestation rates, effectively excluding countries like Costa Rica which has already reduced deforestation to a minimum. Hence, Costa Rica advocates the amended REDD+ mechanism, adopted in the 2010 UNFCCC Cancun Agreement, which does include provisions for financing both current conservation and reforestation efforts as well. This advocacy resulted in the nation's selection by the World Bank's Forest Carbon Partnership Facility to develop a “REDD+ Readiness Strategy,” directed by FONAFIFO and funded by a \$3.4 million grant, to implement the rigorous measuring, reporting, and verification (MRV) procedures requisite to full REDD+ participation. While this endeavor is made possible through redistributive financing, its aim, once again, is to stimulate a self-sustaining carbon market in conjunction with an expanded REDD initiative.

In the domestic realm, FONAFIFO continues to actively solicit new participants in PSA's currently marginal user financed component (Blackman and Woodward, 2010). Administrators recently announced two novel sources of domestic fundraising as well (Soto, 2010). The first entails an arrangement with Costa Rica's national bank (Banco Nacional) whereby customers can select an optional “eco” debit card that designates a portion of one's transaction fees for contribution to PSA. In the second, automobile owners may choose to offset their total emissions (rather than the portion covered by the current fuel tax) by voluntarily selecting a more costly “ecological” version of their annual registration fee (Marchamo Ecológico). The funds generated by both of these mechanisms will then be matched by GEF grants, doubling PSA's total benefit, under a new “Ecomercados II” program (again encouraged by the World Bank).

Whether such measures will succeed in establishing the voluntary markets elusive thus far remains to be seen. To date, however, it is clear that PSA has been facing a contradiction of sorts between

ends and means. In order to try to make the program function in its capacity as a neoliberal institution providing incentives to motivate behavior change in support of conservation, the government has been forced to intervene in ways contrary to the neoliberal principles underlying this very aim.

This is certainly not to imply that *all* government intervention is inherently anti-neoliberal, as both critics and proponents commonly claim. As Foucault (2008) convincingly demonstrates, foundational neoliberal economists including Friedman and Hayek in fact saw extensive government regulation as essential to a functional free market, for this market, in their view, was not a natural entity with independent existence but an artificial construct requiring active development and maintenance through continual government oversight. Thus, Foucault (2008, p. 132) claims, “Neoliberalism should not be identified with *laissez-faire*, but rather with permanent vigilance, activity and intervention.” This intervention, however, is intended primarily for the “conditions” surrounding the market rather than the market itself—emphasizing what Foucault calls “organizing” as opposed to “regulatory” actions, the latter involving direct intervention in market processes (largely limited, in neoliberalism, to price stabilization through manipulating the discount rate) while the former are directed primarily at external factors influencing market function such as the legal and education systems. It is an intervention, in other words, to “make the market possible” (Foucault, 2008, p. 146).

Even given this more nuanced understanding of the role of the neoliberal state, it is clear that many of the forms of government intervention involved in PSA thus far are contrary to neoliberal principles, for they are the regulatory rather than organizing actions that, in Foucault’s (2008) analysis, neoliberalism seeks to minimize. Despite such violation of specific neoliberal dictates, on the other hand, the program remains faithful to a neoliberal approach to governance in general in its continued emphasis on motivating proper stakeholder behavior through providing external incentives—even if, as we have shown, this effort has itself often failed to perform as intended.

In our analysis, then, we echo Ong’s (2008, p. 120) injunction that “we should be wary of claiming a direct cause and effect between the desire for capital and/or capital accumulation and space making. Rather, a constellation of interacting elements co-produces new spaces”. Far from exemplifying what Ong (2006, 2008) calls an “exception to neoliberalism” (a privileged space in which political forces claim the right to violate free market principles), however, we contend that PSA’s particular configuration represents, on the contrary, an attempt to implement a neoliberalization—albeit a partial one—that has in fact been stymied not only by the micropolitical exigencies of Costa Rican society but by limitations intrinsic to the very market model the program endeavors to implement as well.

This apparent disjuncture between means and ends in PSA practice has intriguing implications for understanding PES governance in general. As noted earlier, in their recent review of PES research and practice globally, Farley and Costanza (2010) contend that analyses labeling PES a market-based strategy are misguided, for, the authors assert, commodification of natural capital and dependence on market mechanisms are not intrinsic to successful PES function. Notwithstanding their advocacy of certain mechanisms ostensibly beyond the scope of neoliberal markets, however, Farley and Costanza ultimately hold to a paradigmatically neoliberal approach to influencing human behavior in their endorsement of Muradian and coauthors’ (2010, p. 1205) description of “PES as a transfer of resources between social actors, which aims to create incentives to align individual and/or collective land use decisions with the social interest in the management of natural resources.” In this definition, we can clearly observe the essence of the neoliberal “environmentality” outlined at the outset. Hence, despite their

questioning of many of the specific markets mechanisms commonly prescribed for PES, the authors’ overall approach to PES governance remains squarely within a neoliberal paradigm that seeks to make the market the model for human relations in general, advocating motivation through incentives not only within private, self-regulating, commodity markets but in those government-directed, collectivized, and valuing non-economic services as well.

As previously noted, at the heart of this neoliberal aim to motivate through external incentives lies the common conception of human beings as rational actors who function as “entrepreneurs of themselves” bent on maximizing their material utility relative to others and who can thus be influenced by manipulating the cost-benefit ratio of alternative courses of action. This perspective can be clearly observed within the PES vision specifically, which, McAfee and Shapiro (2010, p. 595) contend, “constructs human behavior as determined by individual, material self-interest.” The World Bank, for instance, has explicitly stated, “Market-driven PES programs are more likely to be sustainable because they depend on the self interest of the affected parties rather than on taxes, tariffs, philanthropy, or the whims of donors” (quoted in McAfee and Shapiro 2010, p. 593).

In Farley and Costanza’s vision, then, non-market mechanisms appear to be advocated in the service of a neoliberal project writ large. And despite the important differences the authors identify between their position and the environmental economics approach they critique, both seem to share this overarching aim, as when Engle and colleagues describe PES in similar fashion as a “mechanism to translate external, non-market values of the environment into real financial incentives for local actors to provide such services” (2008, p. 664). As we have seen with the PSA program, however, the extent to which PES conforms to even this incentive-based aspect of a neoliberal governance model remains questionable.

7. Conclusion

Hence, we conclude, even when it fails to conform to a conventional model of neoliberal conservation by embracing non-market mechanisms, PES remains an essentially neoliberal vision in a larger sense, for even proponents like Farley and Costanza (2010) who assert that the strategy need not be market-based continue to endorse a neoliberal environmentality in their advocacy of an incentive-centered approach to program governance. This emphasis on motivation through incentives, we have shown, has been central to PSA design as well despite its inclusion of many extra-market mechanisms. Yet, the program’s actual function deviates substantially not only from a free market model but from this incentive-based approach as well, being strongly grounded in the conventional command-and-control state regulation characterizing the approach to governance Foucault’s labels “sovereign” and specifically distinguishes from a neoliberal governmentality.

We want to emphasize that our aim in this analysis is to fault neither the PSA program per se nor the hardworking administrators and field agents who run it. Rather, we seek to problematize the overarching neoliberal vision that serves as the program’s erstwhile foundation. Our analysis, we propose, has several important implications for future research concerning PES and related mechanisms. First, it suggests that more investigation should be devoted to assessing whether discrepancies between vision and execution similar to that which we have highlighted in Costa Rica’s PSA occur in other PES programs as well. For example, McAfee and Shapiro observe that Mexico’s national PES system, which has also been widely praised as a triumph of market-based conservation (Blackman and Woodward, 2010), depends substantially “on public subsidies and taxes, bilateral and multilateral grants and loans, and private donations” (2010, p. 586). If analogous forms of direct

state regulation despite efforts to establish self-regulating markets are found to be prevalent within PES programs in general, this could have important implications for the efficacy of the neoliberal conservation paradigm as a whole. In particular, this could significantly problematize the future of emerging REDD initiatives, which “will undoubtedly include using PES as a mechanism to address deforestation” (Daniels et al., 2010, p. 2124). At present, REDD, which following its recent endorsement in Cancun is envisioned to quickly grow into at least a US \$30 billion global market (Angelsen, 2009), is predominantly envisioned as a market mechanism intended to build upon and dramatically expand the current international carbon market, itself ostensible founded on strong free market principles (Bumpus and Liverman, 2008; Lohmann, 2009). If the PES programs on which REDD initiatives will likely be modeled characteristically deviate from these principles, this market reliance may have to be rethought and far more emphasis placed on either state regulation or innovative new forms of governance if the initiative is to have a reasonable chance of success on the global scale at which it is envisioned. This dynamic calls for further investigation as well.

The study also raises an important question concerning investigations of neoliberalization in general. To what extent, it asks, can “actual existing” institutions deviate from a free market ideal before they can longer properly be labeled “neoliberal” at all? Identification of hybridity and syncretism in neoliberalization, in other words, may obscure the ways in which ostensibly neoliberal structures are actually supported by decidedly non-neoliberal practices calling into question the increasingly conventional wisdom asserting neoliberalism’s flexibility and adaptability to specific contexts. Such structures may, in fact, not be amenable to characterization as “neoliberal” at all in any meaningful sense. This question, we suggest, constitutes another vital focus of future investigation.

One final intriguing question concerns why Costa Rica in particular has, despite diligent efforts and a remarkable track record of environmental protection in general, found it so difficult to harness the market mechanisms envisioned for PSA—in particular, by finding international trading partners for its environmental services, while the global carbon market as a whole has been expanding exponentially (Fletcher, forthcoming). Space constraints allow us merely to speculate here, but possible explanations include the fact that the nation’s remaining forests were already so well protected by the national park system at the program’s outset—thus raising the question of “additionality” in PES payments (Bumpus and Liverman, 2008)—and that, as a middle-income country, opportunity costs for forest conservation in Costa Rica were too high to compete with cheaper options elsewhere. Testing these possibilities and others will be important both for improving PSA’s performance in the future and for designing new initiatives that take PSA as a model.

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