

## Why Exchange Values are Not Environmental Values: Explaining the Problem with Neoliberal Conservation

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### Abstract

In recent years, scholars have critiqued neoliberal conservation, asserting that neoliberal conservation policies tend to have ineffective outcomes and reinforce existing power relations. I build on this research by using a combination of quantitative and qualitative data from research in the Bellbird Biological Corridor, Costa Rica. I demonstrate that only a small subset of values for sustainable land uses align with monetary exchange values for ecosystem services, and I suggest that this may result in neoliberal conservation policy in the region having a perverse impact on long-term sustainability. Mixed methods data show that across the study area landowners engage differently with neoliberal conservation mechanisms, and market fluency is one of the factors shaping this interaction. Results further show how policy that emphasises an exchange value view of environmental benefits reflects an over-simplification of values that can undermine ecological sustainability by promoting short-term values of “competitive land uses.” This research highlights that integrating ecosystem services into marketable goods renders neoliberal conservation policies inadequate, and subject to volatile market fluctuations. I suggest that conservation policy should reinforce multifaceted social values toward sustainable landscapes, rather than promote economic incentives that reduce environmental benefits to exchange value.

**Keywords:** Conservation policy, Costa Rica, market-based mechanisms, mixed-methods, nature tourism, neoliberal conservation, payments for environmental services

Look, *niña* — I’m going to make this simple for you,” he tells me. It occurs to me that I am now a *niña* and not to be flattered by it, since we are probably the same age and he is no longer laughing. There is a slight edge to his voice. I note that the tone has changed from his lighthearted jokes about me not heeding his warning over the phone that “the road down to his farm is rough,” as I arrived wondering aloud how I was going to get my truck back up the cliff face I had just driven down. He looks at the papers he has just shuffled through, questions from a carefully designed economic stated choice experiment.

“I will choose to ‘maintain my current land use’ for all of these options. I don’t have any interest in a programme like this,” he pauses, and I can see that he wants to be stern, but not to offend. “Now,” he continues, “let’s have food and we can continue to talk about anything else you wish to discuss.”

### INTRODUCTION

This interview occurred during field research in the northern section of the Bellbird Biological Corridor in Costa Rica (*Corredor Biológico Pájaro Campana*: CBPC). In the last few decades, farmers in this area have been experiencing a shift in the landscape; farmland has been returning to forest and agriculture has been giving way to tourism. Throughout the last half century, key individuals in the national government have promoted policies to protect primary forests and instigate the recovery of secondary forests (Evans 1999). Simultaneously, neoliberal structural reforms have removed subsidies for agricultural production (Edelman 1999) and nature tourism

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	DOI: 10.4103/cs.cs_17_68

has become the economic mainstay of the country (Brockett and Gottfried 2002). The resulting farm abandonment has led to a pattern of forest regrowth that has won the country international acclaim as a conservation success story, despite the extent to which forest regrowth is concomitant with the potentially *unsustainable* social-ecological changes that have accompanied globalization (Kull et al. 2007, Allen and Padgett Vásquez 2017). In this respect, the policies undertaken to continue Costa Rican conservation efforts are part of a broad trend in the coupling of market-expansion with “green” policy initiatives that have together been critically termed *neoliberal conservation* (Grandia 2007, Büscher et al. 2012).

In this paper, I present results of 23 months of field research carried out between June 2011 and July 2015 investigating the ways in which farmers in the CBPC value conservation forest uses, and how neoliberal conservation policies engage with those values. I define values as the “the importance of actions” (Graeber 2001: 49), that are embedded in, and reproduced through social exchange (Munn 1986), thereby allowing this research to explore the tension between the monetary exchange values required for operationalising neoliberal conservation policy and the broader set of potentially incommensurable values that characterise human-nature relationships (Martinez-Alier 1999). I begin by framing this research within the literature on neoliberal conservation, defining neoliberal conservation and summarising the relevance of anthropological theory on values to the topic. I then describe the research and use the results to demonstrate how contemporary neoliberal conservation policies engage with, reward, and thereby reinforce a particular value system of monetary exchange values. Finally, I suggest that by targeting exchange values, neoliberal conservation may be undermining alternative, ethics-based approaches to conservation. Through the use of mixed methods, this research seeks to provide a different lens on the rich body of literature surrounding neoliberal conservation, thereby potentially translating some of the insights from this mostly qualitative research to quantitative-minded policy makers and conservation practitioners (Charnley and Durham 2010).

## Background

### *From Market-based to Neoliberal Conservation*

The term neoliberal conservation is rooted in market-based policy mechanisms that aim to promote conservation by incorporating the natural environment into market transactions. Such policies have come to dominate environmental policy in the last 30 years (Freeman and Kolstad 2007). The rise of market-based conservation mechanisms can be understood as a response to a growing recognition that local communities experience disproportionate negative impacts associated with the earlier strategy of protected area establishment, including physical displacement and increased poverty (Brandon and Wells 1992, Brockington 2002, Phillips 2003). Early alternatives to protected area conservation, those of integrated conservation and development programs (ICDPs)

and community-based conservation approaches, were quickly critiqued as failures, as they operated on a false assumption of local peoples as inherent stewards of nature (Redford and Sanderson 2000). Market-based conservation mechanisms, therefore, reflect an attempt to capitalise on the economic value of natural resources, thereby allowing local communities to reap economic benefits from conservation while having the market do the work of incentivising and monitoring individual behavior (Adams and Hutton 2007).

Market-based conservation mechanisms use market signals to influence conservation behavior by either altering prices or creating markets for environmental goods (Pirard 2012). These mechanisms attempt to reduce complex ecological systems to tradeable commodities, and in doing so, ensure their long-term conservation (Boyd and Banzhaf 2007) and potentially alleviate rural poverty in the Global South (Pascual et al. 2014). Popular examples include: payments for environmental services (PES) meant to trade environmental benefits on an open market (Wunder 2005), wetland mitigation banking that allows for the removal of a wetland in one location in exchange for rebuilding a wetland elsewhere (Robertson 2004), and emissions cap-and-trade systems that allow individuals, companies, and even countries, to exchange pollution permits (Field and Field 2002).

These mechanisms have their theoretical grounding in environmental economics, which asserts that environmental degradation in a market economy is due to market failure. From this perspective, environmental costs are externalities, or external to market-based decision making, and therefore the market fails to efficiently regulate environmental resources (Hanley et al. 1997). To correct market failure, according to this theory, externalities must be incorporated into market decisions so that polluters bear the cost of ecosystem degradation, while environmental stewards receive monetary compensation for safeguarding these ecosystem benefits (Pattanayak et al. 2010). Under this paradigm, the environment produces “ecosystem services,” or services such as water filtration and carbon sequestration that benefit humanity (Daily et al. 1997). The accurate monetary valuation and incorporation of these services into markets through price-signals or assigned property rights is presumed to result in environmental protection precisely because individual profit-maximizing behavior will produce an optimal social outcome (de Groot et al. 2002, Farber et al. 2002).

The term “neoliberal conservation” is rooted in critical literature that examines the irony of market-based conservation policy, through which the solutions to environmental ailments caused by capitalism are found within the tenets of capitalism itself (McAfee 1999, Arsel and Büscher 2012). Within this literature, scholars use the term *neoliberal conservation*, to refer to the ideology in which nature is purportedly saved “in and through the expansion of capitalism” (Büscher et al. 2012, 4). Such literature has pointed to the political convenience and public deception of an ideology asserting that further growth in a capitalist system, a system demonstrably detrimental to the preservation of natural resources, can protect those resources

as long as they are accounted for by markets (Büscher 2012, Büscher et al. 2012, Fletcher 2012).

Though a thorough review of this literature is outside the scope of this paper, a few key insights developed within neoliberal conservation literature are central to the argument presented here. Firstly, the faith in neoliberal conservation as an approach to solving environmental degradation is rooted in a neoliberal environmentality that understands human actors to be motivated primarily by monetary incentives, and markets to be the ideal solution to governing human behavior (Fletcher 2010). Secondly, large conservation organizations have bought into this ideology under the apparent hope that markets will open up new conservation frontiers (Chapin 2004, Igoe and Brockington 2007). And thirdly, neoliberal conservation functions as a system of dispossession, which reorganizes human-environment relationships along “cost-effective” lines, forcing people to increasingly commodify the environment so that they are able to participate in the global capitalist economy (Büscher and Dressler 2012). Finally, this process of dispossession “may actually threaten the environment more than it preserves it” (Kelly 2011, 694).

In the next section, I will review an alternative perspective on human value systems that is in juxtaposition to the narrative furthered by neoclassical economics, and embraced by neoliberal conservation approaches, of humans as utility-maximizing individuals. I will then draw on data from field research to show how these competing perspectives of human values play out as local actors engage with (or disengage from) neoliberal conservation policy in Costa Rica.

### ***Rational actors and embedded value systems***

Critics of neoliberal conservation draw support from research that reveals capitalism to be a historically contingent process, and not a natural reflection of human values (Büscher et al. 2012). Neoclassical economic theory, which forms the foundation of the neoliberal ideology, holds that humans are rational economic actors that seek to maximize individual well-being, a “fact” reflected in market exchanges and monetary exchange values (Gowdy et al. 2009, Gómez-Baggethun et al. 2010). In contrast, Max Weber observed that, “For though the development of economic rationalism is partly dependent on rational technique and law, it is at the same time determined by the ability and disposition of men to adopt certain types of practical rational conduct” (Weber 1976, 26). The argument follows that capitalism functions by training individuals in market mentality (Dalton 1961) This observation, that there is nothing innate about rational economic behaviour, has been echoed throughout anthropological and institutional economics research (Polanyi 1957, Sen 1977, Ostrom 1998). The argument is essential to a critique of neoliberal conservation because it contests the logic that places market-like structures as an inevitable solution to resource allocation problems (Hardin 1968).

Anthropology has produced extensive research demonstrating that values are embedded in social systems

(Polanyi 1957, 1977, Munn 1986). Hence, human values are shaped within society and are as diverse as social systems themselves (Malinowski 1961, Sahlins 1972, Mauss 1990). Scholars have further demonstrated that neoliberal conservation programmes fail to engage with the full complexity of human-environment relationships (West 2005, Sullivan 2006). The argument follows that neoliberal conservation runs the risk of reinforcing environmental market mentality, thus encouraging individuals and communities to replace the multifaceted values that for millennia have formed with diverse social-ecological systems (Vivanco 2001, West and Carrier 2004). The argument underlying this critique is that human diversity, including diversity of human-environment relationships, operates in tandem with biological diversity (Redford and Brosius 2006).

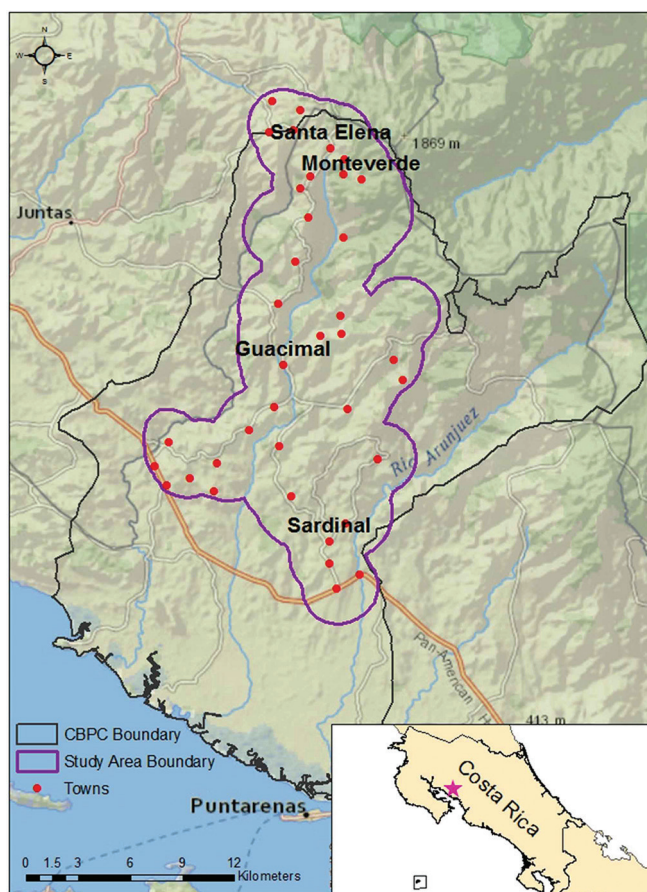
Scholars have built on this understanding to argue that the problem of environmental degradation is not that the exchange value of the environment is external to market decisions, which are in turn a natural progression of human economic expression. Rather, the problem is the very expansion of market mentality, promoted by neoliberal structures, into all aspects of life (Fletcher 2010, McAfee and Shapiro 2010). Conservation science frequently argues that capitalist growth requires an ever increasing amount of material inputs from the natural environment that results in continual environmental destruction (Turner 2008, Krausmann et al. 2009, Schaffartzik et al. 2014, Steffen et al. 2015). If capitalist growth is the ultimate culprit of environmental degradation, and neoliberal conservation is facilitating the expansion of the global capitalist system by reinforcing market mentality, then it can be argued that neoliberal conservation is doomed to worsen environmental degradation.

This paper contributes to this literature by using a mixed-methods approach to demonstrate that profit-maximising behaviour is an element of culture that is both learned and reinforced through engagement with markets. Furthermore, through assessing the value systems targeted by neoliberal conservation mechanisms, I argue that such approaches are inadequate to address the failings of conservation, and may inadvertently worsen environmental problems.

### **The Bellbird Biological Corridor (CBPC)**

The socioeconomically variable region of the CBPC provides an ideal setting for evaluating how individuals engage with neoliberal conservation mechanisms. The CBPC is a 667 sq. km mixed-use region that forms part of a national biological corridor network. This network is designed to direct conservation efforts, such as payments for environmental services (PES), across mixed-use landscapes under the expressed purpose of increasing ecosystem service production and providing continuity of habitat (SINAC 2009). I conducted research in a sub-region of the CBPC that stretches between two market poles with a wide swath of rural area in between (Figure 1). Monteverde, at the northern pole of the study area, is one of Costa Rica’s most popular tourism destinations, and





**Figure 1**

*Map of the study area within the CBPC.*

*Inset shows the location of the CBPC within Costa Rica. The map base layer is from National Geographic World Map. Content may not reflect National Geographic's current map policy.*

*Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp*

home to the Monteverde Cloud Forest Preserve, a 10,500 ha private cloud forest preserve established in 1972. It is also home to a Quaker community that established a homestead there in 1951, which began the early connections between this remote mountain town and the international science community—a connection that has slowly evolved into the nature tourism industry of today (Burlingame 2000). Sardinal, at the southern extreme of the study area, is a short drive from the Pan American highway (connecting the region to several larger economic hubs) and home to a Cargill chicken hatchery. The area in-between consists of small farms (average under 50 ha) dedicated to cattle ranching, dairy production, and coffee plantations. The distance between Monteverde and Sardinal is approximately 35 km, but travel time on the poorly maintained gravel road is roughly 1 hour.

Over the last 30 years, residents of the region have experienced many changes, including the boom of the nature tourism industry in Monteverde, agricultural abandonment, the promotion of PES on farm land, and the sales of two national businesses (Pipasa and the Monteverde Cheese Factory) to international companies (Cargill and Sigma respectively).

The Costa Rican economy throughout most of the nineteenth and twentieth centuries rested on coffee, banana, pineapple, beef, and subsistence farming (Brockett and Gottfried 2002, Booth et al. 2010). However, the Latin American debt crisis of the 1980s resulted in the International Monetary Fund (IMF) mandating reforms that removed protectionist measures, consequently decreasing the viability of small-scale agriculture, as it was unable to compete with cheaper products arriving via international markets (Edelman 1999). Meanwhile, international biologists had become increasingly active in the establishment of Costa Rica's elaborate network of public and private reserves (Evans 1999). Banking on the competitive edge of Costa Rica as a nature tourism destination, Costa Rican policies supported the expansion of the tourism industry in the 1980s and 1990s, marketing the nation as a conservation-minded tropical paradise (Campbell 2002). At present, Costa Rica provides a testing ground for Payments for Environmental Services (PES), carbon neutral certifications, nature tourism, and other neoliberal conservation measures.

PES — a program that uses economic incentives to attempt to alter conservation behaviour, — is a particular focus of this paper. Though the implementation of PES in Costa Rica varies from the neoliberal ideal (a topic that has been subject to much research and debate) the original design is neoliberal in that it intends to influence human behaviour primarily through economic incentives (Fletcher and Breitling 2012). PES began in 1997 and, coinciding with the newly cultivated green image of Costa Rica, offers monetary compensation to landowners in exchange for ecosystem services provisioning (Pagiola 2008). Costa Rican law allows for 4 different categories of ecosystem services that are eligible for payment: water protection, carbon sequestration, scenic beauty, and biodiversity (Chomitz et al. 1999). The payments are financed by a combination of a fuel tax, taxes on public utilities, carbon certificates, and donations made to the state, which are then channeled through FONAFIFO (the *Fondo Nacional de Financiamiento Forestal*), the government institution charged with administering public funds for forestry projects. Program implementation is overseen by independently contracted forestry regents (*regentes forestales*) who have an intermediary role between the ecosystem service providers and FONAFIFO (Pagiola 2008). These ecosystem services are not purchased directly, but rather through the proxy of forest cover. Landowners are paid either per hectare of forest cover, or per tree reforested; the payment amount depends on the branch of the program that the landowner is entering. At the start of data collection, PES contracts were for 10 year periods and funds were dispersed in US dollars. Available funds at that time were allotted for (per ha per year): reforestation (USD 196-294), natural regeneration (USD 41), forest protection (USD 64-75), water protection (USD 80), managed forest plantations (USD 50), and agroforestry (USD 1.30-1.95 per tree) (Decreto 2013).

## METHODOLOGY

In this research, I sought to understand how neoliberal conservation engages with multifaceted values for land uses

held by farmers in the CBPC. I carried out fieldwork between June 2011 and July 2015, where I combined an economic stated choice experiment with semi-structured interviews and participant observation on farms and in community activities. The purpose of incorporating mixed methods was to compare a common mechanism utilised to understand “environmental values” from an environmental economics perspective (the stated choice experiment) with methodology commonly undertaken by anthropologists and other social scientists to understand values *in situ*. I drew a random sample of 100 farmers for inclusion in the interview and stated choice experiment, from a sampling frame of 210 farms that were larger than 1 ha, and had a response rate of 87%. Interviews and surveys were conducted in Spanish, the respondents’ native language, and in most cases, interviews took place on the respondents’ farms.



Stated choice experiments are used in environmental economics to estimate preferences and the associated exchange values for ecosystem services with the end goal of using these exchange values to inform policy (Champ et al. 2003). In a stated choice experiment, the respondent answers a series of questions, choosing between alternatives of a hypothetical scenario. Each question then changes the alternatives slightly, with each alternative typically having an associated cost or payment. I designed a d-efficient choice experiment using NGENE 1.1.1 where each respondent answered 12 choice questions, and alternatives offered respondents payments for placing part of their land into a programme that limited land uses in exchange for ecosystem services payments (Figure 2). This design mimicked the national PES programme, but questions offered higher payments to compete with alternative land uses. One of the alternatives in each question was the “status quo” option. This provided the opportunity for the respondent to “opt out” of the alternatives presented, effectively asserting a preference for the current conditions.

In my results, there was an extreme reaction to the choice experiment, termed a “protest response,” that is relevant to the idea of market integration, and this is the focus of the subsequent analysis. A protest response occurred when the respondent repeatedly chose the status quo in objection to something larger about the choice experiment as a whole, as opposed to the particular alternatives offered. Protest responses have been theorised from within environmental economics to

reflect a resistance to how the hypothetical programme would be financed, a protest against government intervention, or a lack of comprehension among choice respondents about the required task (Adamowicz et al. 1998). I make the argument that the protest responses observed in this experiment are indicative of a rejection of a particular framing of land uses and environmental values in cost-effective terms. In the case of my choice experiment, a protest response occurred when the respondent chose the status quo for all 12 choice questions. I tagged protest responses with a binomial variable (34.5% of respondents), and analysed the likelihood of exhibiting a protest response with a binomial logistic regression in STATA 11. The purpose of this analysis was to assess whether I could identify particular characteristics of “protest respondents” in comparison to the rest of the population. I tried numerous models and chose the best-fit model that had a pseudo R<sup>2</sup> of 0.27 and a prediction success rate of 77%. The resulting model demonstrated that protest respondents had a statistically significant subset of demographic characteristics. I then used the qualitative data to explain the patterns observed in the model as well as to explain some of the general responses across the study population – responses that show up in modeling typically as statistical “noise” or unexplained variance.

Cultural anthropologists frequently assert that statistical analyses provide a limited perspective on human behaviour and interactions (Chibnik 2011). Hence, I designed qualitative data analysis, to attempt to uncover the complexity of human-environment relationships without limiting analysis to a particular hypothesis. I transcribed all audio-recorded interviews into MAXQDA 11 and analysed them for themes. Themes are elements of culture that both reinforce and describe behaviour and relationships (Opler 1945). A total of 71 interviews were audio recorded; responses from an additional 8 allowed for limited text analysis from field notes. I used grounded theory to identify themes, using repetition, word frequency, and key words in context (Ryan and Bernard 2003). Of particular relevance are the themes that describe land uses, land values, conservation experiences, and reactions to the choice experiment methodology. In most cases, I used themes and key quotes to explain trends and document observations. I also used themes to create a concept map to explain how different ideas were referenced in relation to each other. Finally, I transformed the themes for “business language” and “cost-effective conservation” into binomial variables and used in them in statistical analyses.

I complemented this formal text analysis with 23 months of immersion in the study area. During this time, I participated in farm production activities and attended local agricultural meetings. I also attended formal events organised by several local conservation organisations, including the Monteverde Conservation League, the Monteverde Institute, and Bellbird Biological Corridor participating institutions. Furthermore, I organised meetings to discuss research results with participants and conservation practitioners, as well as foster dialogue about those results to deepen the insight and meaning abstracted from social processes.

	Alternative A	Alternative B	Alternative C
Percentage of Farm	75%	75%	I prefer to maintain my current land use
Permitted Uses	Organic Agriculture	Agroforestry	
Environmental Benefit	 Water Quality	 Forest Cover	
Compensation ha/year	\$300	\$175	

**Figure 2**

**Sample choice experiment question.**

*Respondents stated their preferred alternative for placing part of their land into a hypothetical sustainable management program*

## WHY ENVIRONMENTAL VALUES ARE NOT EXCHANGE VALUES

### Embedded Values and Exchange Values in the CBPC

The choice experiment results, in reference to protest responses, suggest that market integration of individual farmers facilitated the ability to translate conservation values to exchange values. The choice experiment elicited values for land uses and ecosystem services using a rational economic perspective that was not ubiquitous across the study area. Here, I contrast a typical response of an individual who embraced the choice experiment with one who exhibited the protest response. One individual responded as follows:

This alternative is interesting...about 25% of my land, maybe a little less... [pauses]--I mean, it would be neat to get money for protecting the environment. Well, I am already doing that and no one is paying me anything.

Note how the respondent carefully considered his options and seemed to choose from the choice experiment alternatives according to the idea of increasing his well being. This contrasted with a protest respondent:

Look, you probably noticed that I don't really want anything to do with [PES] because I feel like — the right way to get us to have forest on our property isn't by paying us for the forest, it is by making us aware that forest is necessary – that forest is something we need, that we need to educate ourselves to care for the forest not because it benefits the government, but because it benefits us and those that come after us.

In the second response, the rational economic approach to the choice experiment was less clear. The respondent was not weighing the alternatives, but rather rejected the choice experiment all together because the idea of paying for forest cover did not fit in his worldview. In doing so, he exhibited what Amartya Sen described as “commitment,” which runs counter to rational economic choice, a case where, “you think [something] is wrong and you are ready to do something to stop it” (Sen 1977, 326). In the second response, the farmer expressed a duty to reject the choice experiment, independent

of whether he would personally gain by participating in a PES programme.

The statistical analysis of these protest responses revealed that respondents with a minimal high school education, who lived in a market centre, were younger, and worked off their farms to receive income, generally preferred the choice experiment alternatives (Table 1). Those who had less education, lived in more rural areas, were older, and who relied on farm production for income tended to exhibit the protest response. I argue that each of these factors was directly related to market integration, and reducing conservation land uses to a monetary exchange value was more difficult for those with less experience working daily in markets.

I begin with the role of formal education in acculturating farmers to market mentality. Formally educated individuals had an easier time conceptualising their land uses in the cost-efficient terms demanded by the choice experiment. Early in my field research, I attended a meeting organised by the Costa Rican Ministry of Agriculture. I spoke with an agronomist who gave a presentation on “improved grasses” for pastures, and he explained that the local agriculturalists “don't know anything” about how to run a farm. “They do things,” he explained with condescension, “because their grandfathers did them.” During the meeting another agronomist spoke, opening his talk with, “how many of you know how much it costs to produce a kilo of milk? I'll give a fish dinner to anyone that can tell me how much it costs them to produce a kilo of milk.” The room was quiet. The attitude of these agronomists was clear — these farmers might have known how to grow food, but they did not know about cost-efficient production. Here we see the business of food production as abstracted from the social relations of food production. It is inferior to grow food in a particular way because of social custom. Rather, food production should be scientifically grounded and defensible, thus conforming to what James Scott (1998) critiques as high modernist agriculture: “Unable to effectively represent the profusion and complexity of real farms and real fields, high-modernist agriculture has often succeeded in radically simplifying those farms and fields so they can be more directly apprehended, controlled, and managed” (262). Formal education plays a key role in the simplification process of agriculture, and consequently, in conceptualising land uses.

**Table 1**  
*Parameter estimates for binomial logit on protest responses*

Variable	Description	Coefficient	Standard error	P
High School (HS)	Binomial 0=no HS 1=HS completed	-2.343	1.098	0.033
Region	Binomial 0=lives in rural area 1=lives in Monteverde or Sardinal	-1.646	0.758	0.030
Age	Continuous Age of respondent	0.047	0.027	0.082
Off farm	Binomial 0=income generated off farm 1=income from farm products	-1.108	0.545	0.042
Intercept		-1.760	1.480	0.234



Widespread formal education that teaches individuals to make efficient, rational economic decisions, is fairly new to this area. Though elementary schools (through 6<sup>th</sup> grade) have existed for longer, the only high school in the region, the Colegio Técnico Profesional de Santa Elena, was founded in 1977. Prior to that, children had to travel off the mountain to attend secondary school. Furthermore, formal education was not seen as something of particular relevance to farm life. This trend was reflected in my sample — only 27.6% of respondents had a high school education. Many participants discussed how education is a double-edged sword — it changes the values of youth so that they do not value farm labour anymore. One older participant told me that his children have “followed in his footsteps” and continued to work on the farm, but his grandchildren chose to study. He said, “I don’t know what they are going to do. There are so many students, and not enough work. So I suppose it is good to study, I more or less agree with that, but they should go back to work on the farm.” Another farmer lamented that education is taking everyone away from production. “The day will come when there is money but nothing to eat.” He said that farming is not a valued vocation in society. “Nowadays they say that if someone doesn’t study they are dumb—that farmers are ignorant.” Those who have been formally educated are aware of this change in societal values. After presenting the results of this research to agriculturalists in the community of Monteverde, we had a discussion about what kinds of values promote conservation. One younger listener spoke up, “I would like to learn from [the older generation] about this because I come from the university system, where everything is about production. There needs to be a balance in other areas.” This statement implies that the speaker is cognizant of the fact that the value of production does not encompass all the values associated with farming in the community.

The logistic regression reveals that older research participants tended to protest the choice experiment (Table 1). Older farmers had seen dramatic changes in their lifetimes — from no electricity or running water on their farms, to cars, roads, and the introduction of a cash economy. At one point, I interviewed a father and son together. We talked about the transition the father experienced from working in an agricultural economy to working in a tourism economy. Amid the son’s enthusiasm for the tourism business, the father described, “It has been a hard change, going from my work to this. It took a lot out of me...because I didn’t have any experience working in this. It was like learning how to work all over again. I would get in a tractor, work under a cliff, like it was nothing, like it was a car—happy. But not now, now it’s different. It is a big change for me.” There is an irony to this statement — in addition to farm work, this speaker helped to create some of the early infrastructure in the region by leveling roads and laying gravel. These roads brought an influx of tourism and exposed local peoples to different value systems. Beginning as science tourists (Laarman and Perdue 1989), these tourists typically were formally educated and carried ideas about land values and conservation distinct from the rural farm values previously

prevalent across the region. These larger social, infrastructure, and cultural changes are likely reflected in the significance of “age” as a variable in the protest response regression.

The region variable shows that those who protest the choice experiment tended to live in rural areas, supporting the idea that protest responses reflect a difference in market integration across the population (Table 1). The two market centres identified and coded in this variable were Monteverde and Sardinal (see Figure 1). These areas are approximately 35 km apart, and the rest of the study area is located between these poles. As explained previously, Monteverde is the base of the tourism industry in the region, and Sardinal is near the Pan American highway with easy access to several other economic hubs. Respondents living in these market centers showed up as being statistically more likely to engage with the choice experiment.

The qualitative data supports the conclusion that those living and working in the market centers were more accustomed to market transactions; just as formal education introduced individuals to ideas of efficiency, so too did neoliberal market exposure. For example living in Monteverde took people out of an agricultural economy and into the tourism one. One farmer described tourism as having created stress. He said, “[Farmers] ask themselves, ‘Am I being left behind?’ Maybe one farmer will say, ‘no, I’m happy with what I’m doing.’ But when he goes out to buy something, he is going into an economy that isn’t agricultural, so everything is more expensive.” This person described that a farmer living in a modern market economy had to change his mentality because global competition rendered subsistence farming and small-scale production economically untenable.

This introduction into the neoliberal economy has occurred in a number of ways. Though farmers in this region have long had the ability to sell produce, their farms prior to the 1970s and 1980s were largely self-sufficient. Farmers described that they operated on a system of *trueque*, or barter, where they would produce most of what they needed on their land, and bring excess goods off the mountain to makeshift trading posts. In these locations, they would barter for necessary items such as salt and fabric. Further, those who did engage in for-sale crop production had a guaranteed market provided by the *Consejo Nacional de Producción*, a government entity that purchased agricultural products and resold them to the public at a subsidised price (Venutolo 2005). Once this safeguard was removed, as part of neoliberal structural reforms in the 1980s, farmers had an increasingly difficult time competing in international markets. Simultaneously, tourism created a new market for land that was non-existent before. Through tourism, land became a commodity that could be bought and sold without regard to the capacity of the land to sustain a family or a community. With the growth in tourism came an influx of foreign capital that altered cost of living in the region (Allen 2015). Furthermore, banks began to release funds for tourism business and infrastructure, and many farmers recounted how they entered into debt by mortgaging their farms to be able to participate in the tourism economy. Hence,

markets are nothing new, but the way in which neoliberal markets have infiltrated these “market centres” is entirely new. To the more rural population in the centre of the study area, markets have entered more slowly. Many still produce most of their food for consumption on the farm and express a more intimate relationship with the land that comes from managing it for food production. In some cases, it is physically difficult to reach the closest markets from these farms, and in a way, those still living on these farms represent “hold outs” of an earlier era.

The use of language during interviews further supports the claim that a subset of the population had a market mentality that facilitated engagement with the choice experiment. I coded interviews for specific uses of business terminology, identifying terms such as “business,” “marketing,” “commercial,” “sales,” and “earning.” I then explored the statistical relationship between business terminology and choice experiment responses (Table 2). I used a Chi<sup>2</sup> test of categorical variables and found a significant relationship between the use of business terminology during an interview, as signified by a binomial variable, and protest responses. Those who did not protest the choice experiment were significantly more likely to use business language, live in a market centre, and describe the alternatives chosen in the choice experiment as “cost-effective,” suggesting that the ability to “speak business” translates to thinking about ecosystem services as business. This is a necessary skill for rational economic actors to receive monetary benefits in a market-based conservation setting and, simultaneously, it was a necessary skill for making an economically rational choice in the stated choice experiment.

I have claimed that not everyone in the study area conceptualised conservation land uses in the market terms demanded by the choice experiment, which begs the question—what are the other ways that people value forests in the region? Of the people interviewed, 74.7% reported that part of their farm was dedicated to forest cover. I asked these individuals to explain why they allowed forest cover on their farms, and then coded responses into categories (Figure 3). It is important to explain here that the national Forestry law of 1996 prohibits deforestation. Nonetheless, farmers described in detail that there are ample ways to evade the law, and deforestation was seen by many to be a problem in the region. “Accidental” burning was one oft-cited mechanism of deforestation. The other more common method was to use *aserraderos portátiles* or portable sawmills to remove and process trees on farms, away from government oversight. A full-grown tree at the time of data collection reportedly was

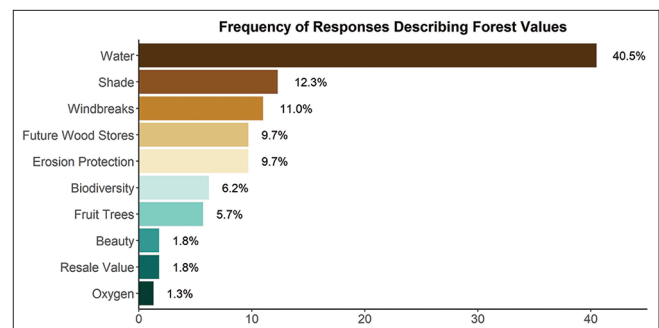
worth up to USD 2000 on the market. Hence, despite the law, farmers were intentional about how they managed the forest on their farms. The most common reason for allowing forest cover was that farmers associated forest with water protection (Figure 3). This association appeared to be deeply rooted—many people described their forests as intentionally maintained by their ancestors to protect water sources. This coincides with the findings of other researchers who have noted that Costa Ricans consider forest cover to be beneficial for maintaining water (Schelhas and Pfeffer 2005, Vivanco 2006). Since farmers depended directly on water for survival, they saw the forest cover as benefiting them through water conservation. One informant stated, “I think water is a factor that is super important in agricultural production. If there isn’t water you can’t produce anything. So water conservation is essential. All farmers have to think about it.” Farmers had other reasons for maintaining forest cover, including: erosion protection, shade for homes and cattle, windbreaks, and future sources of wood (Figure 3). These multiple values are not easily distilled to an exchange value; it was a challenge for many of the respondents when answering the choice experiment, and it can be an equally challenging task for ecologists charged with reducing complex ecosystems to measureable ecosystem services (Robertson 2004).

Some scholars have suggested that exchange values are an inadequate distilment of complex conservation values because of the problem of incommensurability (Kosoy and Corbera 2010). Martinez-Alier (1998) defines incommensurability as “the absence of a common unit of measurement across plural values, [which] entails the rejection not just of monetary reductionism but also any physical reductionism” (280). Applied here, forests have plural values that are not always reducible to an exchange value so that farmers can put a price on them. For example, if the forest provides watershed protection, shade, and erosion protection for me, but also provides watershed protection for my neighbour, how do I compare the value offered to me with the value offered to my neighbour? How do I compare the value of following in the footsteps of my grandfather with the value of maintaining biodiversity? Neoclassical economists claim that these incommensurable values are reducible under the concept of

**Table 2**  
**Business language.**

*The tendency to use business terminology was significantly related to participation in the choice experiment (no protest response), living in a market centre, and describing alternatives of the choice experiment as “cost effective.” The table shows the P of a  $\chi^2$  analysis*

	No Protest Response	Living in Market Centre	CE as “cost effective”
Business Language	0.027**	0.080*	0.019**



**Figure 3**  
**Categories of forest values as described by respondents.**  
*There were 227 total coded segments, and percentages reflect portion of total coded segments*



utility (Champ et al. 2003) – I will do whichever brings me greatest utility and money is an exchange metric that reflects this utility. But if, as the data suggest, thinking in terms of cost-effectiveness is learned through market integration, then one must equally learn to think of a forest as reducible to money, and then make decisions based on this money. How well does this bode for conservation?

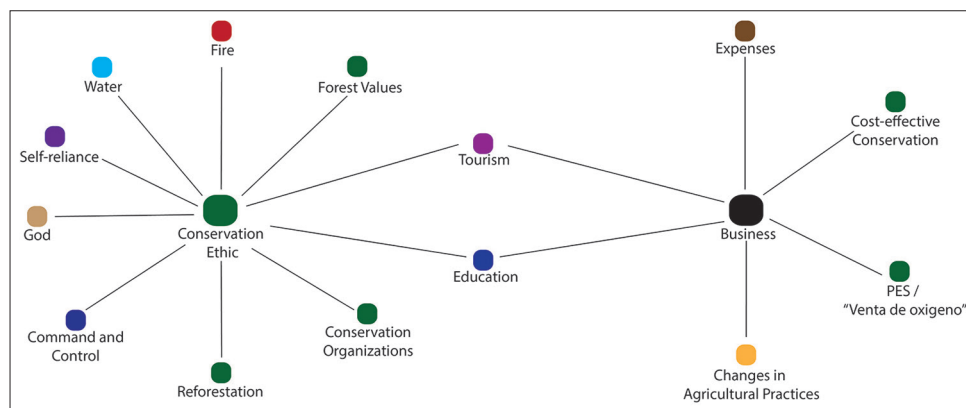
This is a difficult question to answer, but one way of approaching it is by looking at the complexity of environmental values, and how they are reduced by the monetary valuation of the environment. Landowners frequently said that *concientización*, or awareness, drives conservation, contrasting this term with the idea of payment. I built a co-occurrence model in MAXQDA 11 between two codes from the qualitative analysis: “conservation ethic” and “business.” The conservation ethic code was characterised by references to awareness and the importance of awareness to conservation, while the business code was the same code analysed in Table 2. This model depicts the overlaps between the conservation ethic code, the business code, and all other codes used in the data set, when there were a minimum of 2 overlaps between codes (Figure 4). The model demonstrates visually how conservation ethic was more complex than business. Conservation ethic was associated with watershed protection, regulated fire use, multiple forest values, conservation organisations, reforestation, government prescriptive policies, God, and self-reliance. In contrast, business was essentially associated with money: expenses, cost-effective conservation uses, selling oxygen (*venta de oxígeno*) under PES, and changes in agricultural practices under market pressures. Education was shared between these two codes — education can lead to environmental awareness, at the same time that it leads to market mentality.

Market-based conservation mechanisms by their very definition align conservation with business. Typically, when I asked respondents about their opinions of payments for environmental services (PES) they would say that they had never heard of it. When I instead used the term *venta de oxígeno*, or “the selling of oxygen” (a term I learned from the farmers themselves) most people quickly recognised the

programme. Hence, PES is aligned with business in peoples’ minds. The same is true of tourism. One informant explained that tourism taught residents of Monteverde to earn money with forests: “Sometimes I explain to tourists that when our grandparents arrived here, it never occurred to them that you could earn money from the forest. So they just cleared the forest, burned it, and thought ‘let’s see how we can survive.’” Another farmer said when talking about the changes experienced in the Monteverde region, “I feel like there is more awareness now, like people value more what they have around them. You know, like when there are tourism opportunities or students visit us, and they are attracted to Monteverde because it is famous for being a healthy, peaceful home full of biodiversity.” This quote suggests that tourism can have positive impacts on conservation ethic. Scholars have explored this sense of “green identity” in Costa Rica, where Costa Ricans assume the role of land stewards for the foreigners who come to purchase the right to experience biodiversity, suggesting that the sense of stewardship is only superficial (Schelhas and Pfeffer 2005). If this is true, then forest conservation remains dependent on the continued demand for nature tourism in the region.

### Prospects for Neoliberal Conservation?

The above argument is two-fold: (1) the infiltration of markets into previously unchartered segments of Costa Rican society have changed the way people relate to the land in measurable ways, and (2) neoliberal conservation engages with and reinforces market mentality as it applies specifically to land uses. The question remains: does this matter? Even if utility-maximisation is not an *innate* construct, does it not make sense for conservation to hitch its fate to the neoliberal paradigm and attempt to influence the values that are becoming more predominant? In the following section, I align a few examples from field research with the vast body of literature on neoliberal conservation to argue that by promoting policies that emphasise the exchange value of land uses, conservation is contributing to the work of training people to rethink their relationships to the land in solely cost-effective terms. This is problematic for many reasons, but from the perspective of the efficacy



**Figure 4**  
*Co-occurrence model for conservation ethic and business.*  
*All connections demonstrate at least two overlaps between codes*

of conservation policy, it is a problem because conservation cannot compete with markets on a long-term time scale.

Anthropologists have documented cases where markets have shifted the ways in which people traditionally have extracted resources from the local environment. Godoy et al. (2005) reviewed anthropological literature on the impacts of market integration on natural resource uses among indigenous people, and found that the literature tends to demonstrate that increased market integration results in increased natural resource degradation. Bernard Nietschmann (1972) provided an example of this phenomenon as he documented the induction of the Miskito indigenous people in Eastern Nicaragua into a market economy. He noted that increased integration into a market economy caused hunters to redirect attention to hunting a few species that were in high demand. As a result, they rapidly drove the most profitable species to endangered status while abandoning the diverse livelihood activities that had previously sustained them. Though the context of these studies is not immediately comparable to the current case study of Costa Rica, the phenomenon observed represents a larger facet of capitalism. It is a guiding principal of neoclassical economics and the free-market ideology that underlies neoliberalism that focusing on *comparative advantage*, as defined as the activity that allows a region a competitive edge in a free-market economy, will increase efficiency and total production through trade (Mill 1884). Neoliberal reforms promote this societal transformation so that local economies begin to focus on what they do best. As a business executive working in Costa Rica's capital city of San José expressed to me in relation to the research presented here, "If Costa Rican farmers can't compete with international markets for their products, let them leave their farms and do something else."

Market integration, and in particular *neoliberal market integration*, forces people to engage with short-term economic goals, capitalizing on local comparative advantage (which may fluctuate on a short time scale) without provisions for long-term ecological needs. James Acheson (2000) demonstrated that, "One of the problems with capitalism is that it makes it necessary for owners and managers to orient themselves toward short-term profits," an attitude that led to degradation of forest plantations in Maine (165). The very concept of *comparative advantage* promoted by neoliberalism is dangerous to conservation, as it requires that people continually reorganize their relationship to the natural environment according to the changing demands of the market. The time scale of market exchange is immediate, yet ecosystem function and ecological integrity relies on complexity that develops slowly.

The conflict between short-term exchange values and long-term sustainability emerged in my research as well. I referenced this concept in a focus group with Monteverde farmers. The group engaged with the idea, one person stating, "The challenge is to balance this short-term thinking—the economic reality that we live in today, that each of us has to pay [debts] at the end of each month – balance that short-term thinking with the hope that one day our children will have a

better future." This comment flowed from the conversation because the group passionately engaged with the idea that values had changed, and not always for the better, during development in Monteverde. A powerful take-home point from this conversation was that the predominance of exchange values as demanded by a market economy, particularly one in which most of the population has entered into debt in order to participate, had eroded the value systems of "community," "self-reliance," "agricultural production", and "conservation ethic," that were seen as critical to well-being.

In what ways do "short-term" market values run counter to the "long-term" scale of sustainability? Biodiversity is produced over millennia. Ecosystems, though resilient through disturbances, fall into irretrievable states if subject to sustained or extreme damaging events (Holling 1973). But markets are constantly fluctuating, sometimes on the scale of days. If conservation is dependent upon market payments for its sustenance, as neoliberal conservation is training people that it should be, then what happens when the money runs out?

There are two examples from this research that suggest that tying conservation to markets is problematic for precisely this reason. The first is the example of Monteverde. Prior to 2008, business was booming in Monteverde tourism. The town was flooded with tourists pouring off the buses every day. It seemed like the money would never end. So people took out loans from the bank and populated the mountainside with hotels, restaurants, private reserves and adventure tours, frequently abandoning the farming that had previously sustained them. Then the market crashed. One farmer described to me how he lost investments, how he nearly lost his family, how the same happened to others. Further, the saturation of the industry, combined with the "bust" of the tourism cycle, had depleted social capital in the region. People working in tourism in Monteverde frequently referred to it as a cutthroat industry, and described that infrastructure and environmental regulations were continually avoided to reduce operating costs. This observation has been echoed in other studies (Vivanco 2006). Though nature tourism has likely contributed to forest retention in the region, it is not clear that it has contributed broadly to social-ecological well-being.

The second example shows what can happen to a farm under PES protection when the contract runs out. This is the case of 300 ha of a much larger farm in the study area that was under PES contract until 2009. After 2009, a section of the farm was carved out and sold to people who were not interested in PES. The new owners tried to harvest the trees, but were thwarted by deforestation laws. Instead, they set fire to the secondary growth forest and burned it to the ground, subsequently planting it with teak (*Tectona grandis*), presumably to harvest for future wood production (Figure 5). As mentioned earlier, this is a common strategy used to thwart deforestation laws; though the government can attempt to prohibit wood extraction, it is nearly impossible to identify who started a forest fire. One of the neighbours of this newly deforested farm described, "The government thinks that it is doing good, but what about the people who work in [PES]? They are cutting down the forests. They are taking the money and destroying the forests. So I don't



**Figure 5**

**Landscape of recently deforested and burned farm that had been under prior PES contract**

understand why they are spending the money.” Note that this farmer conflates the people who work in PES with his neighbour who accepted PES money and the new owner who proceeded to burn down the forest at the end of the contract. While the particularities of this story are not clear, it provides interesting evidence that if the value of the forest is only monetary, it becomes easy to destroy that forest once the payments run out. What is notable here is that this example is *not* a case of market failure. The forests were incorporated into markets but could not compete with other potential land uses. Though neoliberal conservation may not be *causing* the result demonstrated above, it is doing nothing to stop it, and perhaps encouraging it through emphasizing a cost-effective approach to land uses.

A wealth of literature reveals that neoliberal conservation does little to limit environmental destruction, and some studies theorise that it may increase environmental degradation. There is a near consensus among PES literature that the program in Costa Rica suffers from a lack of additionality, where funds are being directed to conserve forest parcels that likely would have been conserved in their absence (Sánchez-Azofeifa et al. 2007, Morse et al. 2009, Robalino and Pfaff 2013, Arriagada et al. 2015). Nature tourism in Costa Rica has been documented as potentially increasing forest cover, but contributing to other forms of social-ecological degradation such as polluting and depleting local water supplies and increasing local drug dependence and crime rates (Vivanco 2006, Allen and Padgett Vásquez 2017). Further, the economic gains from tourism frequently accumulate in the hands of the national and international elite as opposed to the local community (Campbell 2002). These trends are similar to the observed impacts of nature tourism in other regions that have been documented to be environmentally and socially detrimental (Mowforth and Munt 1998, Carrier and Macleod 2005, Stronza and Durham 2008).

Neoliberal conservation is theorised to reorient human-environment relationships along cost-effective, capitalist lines, and evidence suggests that this is detrimental for long-term social-ecological integrity. Following Kelly

(2011), neoliberal conservation practice can be seen as a type of “primitive accumulation,” that “situates these processes in the ongoing and unfinished project of capitalism” (695). Neoliberal conservation projects allow capitalism to subsume ever greater territory, bringing relationships into the market sphere that facilitate market expansion (Igoe et al. 2010, Büscher et al. 2012). West and Carrier (2004) trace how in Jamaica and Papua New Guinea nature tourism represents an expansion of capitalist markets into previously uncharted territory, and reshapes how both local peoples and tourists experience and value nature. They summarise the influence of nature tourism as creating a “common pressure...toward subordinating concern for environmental conservation and respect for local communities...to concern for attracting ecotourists and their money” (West and Carrier 2004, 491). McAfee and Shapiro (2010) illustrate that PES in Mexico faces substantial barriers in implementation because of rural landholders’ resistance to reducing conservation to fungible units of value. Fletcher and Breitling (2012) have outlined similar challenges in Costa Rica, where they describe that the PES program in practice is not truly neoliberal, precisely because of prevalent political and social barriers to operationalising ecosystem service markets. However, policy makers and economists continually push that the solution to PES program inefficiencies is to make them *more* like markets, rather than allow programs to conform to local realities (Engel et al. 2008, Wunder et al. 2008, Wünscher et al. 2008, Wunder 2015). The present research points to the idea that it may be possible to accomplish this feat; if values are malleable, then it is possible to train ecosystem service producers and users to reduce complex human-environment relationships to exchange values. The current evidence suggests that this would be a grave error as the predominance of exchange values serves to facilitate market expansion, which constantly requires new resources for economic growth.

## CONCLUSION

Research with rural farmers in the CBPC of Costa Rica indicates that popular neoliberal conservation measures engage primarily with market mentality, and potentially undermine complex value systems. I suggest that these mechanisms influence landowner values by encouraging landowners to translate complex conservation values to monetary exchange values so that they can effectively participate in conservation markets. I argue that this trend is not good for long-term conservation, as simplistic monetary exchange values can undermine the social complexity necessary for sustainability.

The economic stated choice experiment demonstrated that some individuals are unable and/or unwilling to reduce conservation land uses to exchange values under the terms demanded by the experiment. Statistical analysis of both interview responses and respondent characteristics revealed that interest in neoliberal conservation was facilitated by market mentality, and that there was likely a reciprocal, reinforcing relationship between market exposure and market mentality. Ethnographic evidence helped to explain



results and provided a broader context for the possible failings of neoliberal conservation. The message for policy makers is cautionary in that neoliberal conservation likely will not work to support long-term conservation, and through supporting the further expansion of capitalism, it may actually undermine it.

The question still lingers — what could conservation do differently? I have heard this question brought up repeatedly by conservation practitioners — do they not need to work with the system? This paper has implicitly argued that values are malleable. Though value systems are deeply embedded in society and not easily prone to change, fundamental restructuring of society can have lasting impacts on values (Manfredo et al. 2016). Hence, as neoliberal conservation encourages an exchange value view of conservation practices, it may slowly strengthen these values while discrediting others. Yet other conservation values exist. The challenge for conservation initiatives is to strengthen the long-term values that run counter to “most profitable use”—the values that say, as several informants told me, “I leave the forest standing because it would be a shame to cut it down.” Conservation once operated in the realm of awareness and education, but the movement, led by large non-governmental organisations and international lending institutions, seems to have abandoned these aspects in favour of efficiency and production. This shift in conservation focus is not likely to result in increased biodiversity protection and improved ecosystem health on a global scale, despite the intentions of conservationists, because the global economy ultimately depends on free ecosystem services for profit generation (Dempsey 2016). In other words, localised cases of increased conservation in one ecosystem service will be offset by greater losses concomitant with the expansion of capitalism and its incessant dependence on economic growth. While the path to lasting “value change” necessary for conservation may seem slow in the face of looming environmental threats, the current study suggests that neoliberal conservation is reducing conservation work from a potentially balancing counter-force, to just another facet of the global economy.

### ACKNOWLEDGEMENTS

Field research was funded by the National Science Foundation (BCS-1357296), the Wenner-Gren Foundation (Gr. 8810), and The University of Georgia Dean’s Award. Additional funding in support of analysis was from the National Science Foundation award to the Coweeta LTER Research Program (DEB-0823293). Any opinions, findings, conclusions, or recommendations expressed in the material are those of the author and do not necessarily reflect the views of the funding agencies. I also wish to thank Ted Gragson, Julie Velasquez Runk, Nate Nibbelink, Pete Brosius, Rebecca Moore, and two anonymous reviewers whose comments greatly improved the quality of this manuscript.

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Received: May 2017; Accepted: February 2018

