ABSTRACT

SERENARI, CHRISTOPHER. Conservation and Development in Chilean Patagonia: Assessing Value Orientations, Cultural Truths, and Rural Change in the Context of Public and Private Protected Areas. (Under the direction of M. Nils Peterson).

This dissertation explores the nexus of protected area (PA) conservation and development in southern Chile. In a three-manuscript format and employing an array of methodological approaches (e.g., principal component analysis, ethnography, personal interviews, surveys, thematic analysis, and cultural consensus analysis), I explored the relevance of value orientations (VOs), utility of cultural consensus analysis, and impacts of private development-based conservation on human wellbeing (HWB). The aim is to show how protected area conservation-development agendas can more fully articulate with peoples' culturally specific worldviews in Latin America.

Chapter 2: Debates about PA wildlife conservation often occur because stakeholders hold divergent VOs. This exploratory study examined differences in the socio-demographic characteristics and policy preferences of Strong Protection and Mixed Protection-Use VO groups in Tamango National Reserve (TNR), Chile. TNR visitors (N = 97) were interviewed during the Chilean summer of 2012. I grouped respondents into Strong Protection (63%) and Mixed Protection-Use (37%) VO subgroups using K-means cluster analysis. Respondents in the mixed groups included residents and non-residents, were more likely to be male, and were less supportive of several huemul (*hippocamelus bisulcus*) conservation policies than respondents in the Strong group. These findings can help the TNR administration devise appropriate responses to tourism, husbandry, and hydroelectric energy production in the region grounded in local perspectives and context.

Chapter 3: Large-scale privately owned protected areas (PPAs) in the biodiversity-rich Los Ríos region in southern Chile have generated controversy over their effects on the development pathways open to local residents. This study employed cultural consensus analysis (CCA) and compared PPA conservation officer (CO) and community members' cultural models of private development-based conservation. A cultural consensus survey was administered between May and August 2013 near the Valdivian Coastal Reserve (RCV) and Huilo Huilo Reserve (HH). Analysis confirms a monolithic CO culture exists for COs and that differences between COs in RCV and HH community members exist. Gaps in communication, inequitable decision making, differences about livelihood impacts and trajectories, and PPA purpose may explain variability in responses, while variability in response between and within communities appear historically contingent. We conclude CCA can help PPA administrations improve their community interactions and refine or replace underperforming authoritative conservation and development models to better achieve conservation and development goals.

Chapter 4: As part of the so-called global green-grab movement, PPAs are expanding rapidly in less industrialized nations, transforming geographic borders, influencing politics and economies, and creating socio-political tensions within neighboring communities. This work explored how PPAs impact human wellbeing (HWB) using three case studies in Los Ríos, Chile where three large-scale PPAs were engaging in-situ forest protection. Results from semi-structured interviews suggest residents perceived PPA ownership type affected security and empowerment, while degree of interaction impacted opportunities. These results help establish large-scale private conservation as a social and political process by adhering to principles of "good" governance and chronicling how the green-grabs impact HWB.

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Conservation and Development in Chilean Patagonia: Assessing Value Orientations, Cultural Truths, and Rural Change in the Context of Public and Private Protected Areas

by
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DEDICATION

To my wife and daughter, whose sacrifice, love, and support during this project I can never begin to repay. To the dreamers, who long for a more sustainable, just, and equitable world.

BIOGRAPHY

Christopher Serenari grew up in Chardon, Ohio. He departed Ohio in 2001 to pursue a career in environmental health. Crediting an article he read about the creation of protected areas in Africa as the catalyst for his epiphany, Christopher left his career in 2008 to pursue graduate studies exploring human-environment interactions. During the summer of 2009 Christopher completed a study abroad course and Master’s data collection effort in the Himalayan Mountains of Garhwal, Uttarakhand, India. This experience transformed Christopher’s worldview. It also provided the foundation for his research program that explores how political, economic and social factors influence environmental change at the local level and vice versa. Christopher has since conducted research in rural South Africa and, more recently, collected data for his doctorate in the rural areas of Los Ríos, Chile in northern Patagonia, trying to provide rural peoples with a louder voice through his work, while also growing personally and professionally.

Inspired by Latin American social movements and geographer Neil Smith, Christopher pursued a doctorate because he too believes the battle for ideas is too great to leave to someone else. Now, more than ever, Christopher thinks Earth and its inhabitants need new ideas about how humans can live more sustainability and in harmony with the ecological environment and each other. Even after nearly six years of graduate school, Christopher is as motivated as ever to contribute to this cause and create social change.

Upon completion of his Ph.D., Christopher will enjoy his new role as a father of *two* children; spend way more time with his beautiful and selfless wife; get back to climbing and paddling; and embark on a career pursuing his research program.

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CHAPTER 1: CONSERVATION AND DEVELOPMENT IN PATAGONIA

Background

Protected areas are the most popular apparatus for the long-term management of species, ecosystems, and cultural resources. Over the last thirty years, terrestrial protected areas have expanded to cover nearly 15% of Earth's surface, with tallies exceeding 150,000, not including the rapidly growing number of private protected areas. There is little disagreement that understanding how park-people relations and those forces influencing these relations is of critical importance for achieving sustainable social and biodiversity conservation outcomes. This is almost certainly due to the fact those living near protected areas are often amongst the most marginalized groups in society and generally depend on natural resources targeted for protection for their survival.

The conservation-development nexus is a one particular debate within the broader parks-people domain of research. Communities living near protected areas, are confronting new forms of capital's expansion via sustainable development, as well as a new political economy of land and livelihoods, underscored by a novel appropriation of nature driven by so-called green market economics and Nature-is-broken discourses. Social and ecological costs associated with capitalist conservation-development are well documented and are argued to overshadow the benefits. Yet, forms of underperforming and contradictory conservation-development schemes are materializing in new ways, such as private development-based conservation, and in new geographies, balancing deeply rooted neoliberal policies with ecological protection in southern Latin America, respectively.

Studies, led by political ecologists, have been exemplary at problematizing the conservation-development nexus, while environmental justice-based studies take the next step, examining opportunities and alternatives for action. Combined, they create a lens with which to move beyond critique and into manifesting real sustainable outcomes.

Drawing from these empirical domains, this doctoral research is situated in the literature critiquing well-intentioned contemporary biodiversity conservation and human development, and lays a foundation for unraveling how the aforementioned agendas play out in southern Chile. Because I embarked upon three separate studies, I employed an array of methodological approaches (e.g., principal component analysis, ethnography, personal interviews, surveys, thematic analysis, and cultural consensus analysis) to break new ground in protected area research and explore tools and opportunities for public and private biodiversity conservation and development agendas to more fully articulate with peoples' culturally specific worldviews in Latin America.

The following paragraphs summarize the background and arguments of each chapter. The ensuring chapters entail three separate manuscripts, as well as a conclusion integrating findings from each paper on why an authoritative approach to conservation-development in southern Chile might not be sustainable.

Chapter 2

This study assessed Tamango National Reserve (TNR, Lago Cochrane National Reserve) visitor preferences for endangered huemul (*Hippocamelus bisulcus*) conservation and reserve development in Chilean Patagonia. This research argues value orientations (VOs) may inform endangered wildlife conservation policy in Latin American protected areas.

This exploratory study focused on wildlife and natural resource related VOs within the context of PA visitor management planning happening at TNR. I used a survey to measure visitor VOs and evaluate how TNR wildlife conservation policy preferences related to those orientations. During the study, CONAF was developing process and content for visitor management planning in the midst of shifting political, social, and economic climates. Steadily rising visitation counts coupled with government priorities for development within and outside PAs are important considerations for the Chilean National Forest Corporation (CONAF). The case study involved diverse stakeholders and interests in a setting that encapslated the pressures related to changing land use and evolving rural livelihood and community development strategies.

Chapter 3

Using cultural consensus analysis, this second study examined the fit of a presumed dominant conservation officer ideology about private development-based conservation in the context of large-scale privately owned protected areas (PPAs [A large-scale PPA is defined in this study as 1) ≥ 500 hectares, 2) attempting to protect biodiversity, and 3) attempting to create development pathways for local communities]). This study argued PPA actors could better understand cultural differences by using cultural consensus analysis as proposed in this study.

PPAs protect parts of the threatened Valdivian Forest in Los Ríos, Chile. However, they have generated conflict with local residents. Despite claims of fruitful partnerships between residents and PPA administration, it was not well documented why partnership or conflict existed. Since scholars claimed cultural differences, particularly the misfit of a dominant conservation-development ideology, have been a prime source of natural resource-based conflict, I hypothesized one way to assess agreement and divisions between local residents and PPA administration was to measure intercultural differences using cultural consensus analysis.

Chapter 4

In this study, I argued global biodiversity conservation and sustainable development agendas in Latin America could more fully articulate with rural peoples' culturally specific worldviews by examining the impacts of PPA governance (ownership type) on human wellbeing (HWB), as defined by local peoples. This study positioned private development-based conservation into the larger debate on social impacts attributed to the global system of protected areas.

Within a global green-grab movement, PPAs are expanding rapidly in less industrialized nations, transforming geographic borders, influencing politics and economies, and creating socio-political tensions within neighboring communities. Employing semi-structured interviews and a literature review, this study explored how PPAs impact HWB by comparing three IUCN PPA governance types in Los Ríos: non-profit organization, individual, and corporate. Each governance type introduced initiatives intended to enhance HWB and assuage conflict; yet, the impact of these initiatives on local residents were largely unexplored. To address this need I asked: How do residents perceive impacts on HWB under different large-scale PPAs governance regimes in Los Ríos, Chile?

CHAPTER 2: EVALUATING RELATIONSHIPS BETWEEN VALUE ORIENTATIONS AND WILDLIFE CONSERVATION POLICY PREFERENCES IN CHILEAN PATAGONIA

Abstract

Debates about protected area (PA) wildlife conservation often occur because stakeholders hold divergent value orientations (VOs). This exploratory study examined differences in the socio-demographic characteristics and policy preferences of Strong Protection and Mixed Protection VO groups in Tamango National Reserve (TNR), Chile. Visitor surveys (N = 97) with TNR visitors were completed during the Chilean summer of 2012. We grouped respondents into Strong Protection (63%) and Mixed Protection (37%) subgroups using K-means cluster analysis. Members of mixed groups were more likely to be residents, less formally educated, less likely to pay the entry fee, and less supportive of huemul (*hippocamelus bisulcus*) conservation policies than members of the Strong Protection group. Since most respondents had Strong Protection VOs, policies that protect TNR wildlife would likely be supported by TNR visitors, whereas development with deleterious effects on wildlife would only be supported by a minority of visitors.

Keywords: Chile; conservation; huemul; policy; value orientation; wildlife

Introduction

Wildlife conservation is a critical factor in visitor expectations and experiences and an important protected area (PA) management concern (Manfredo, 2008). Increasing use and development pressures inside and adjacent to PAs, coupled with the free ranging nature of PA wildlife, make successful long-term wildlife conservation difficult (Higginbottom, 2004). Scholars posit land use and shifting social, political, and economic climates will likely place increased pressure on PA wildlife (DeFries, Hansen, Turner, Reid, & Lui, 2007).

Debates about how wildlife should be managed in the context of PAs often occur because stakeholders hold divergent values that are classified along a protection-use continuum (Peterson, Peterson, Peterson, Lopez, & Silvy, 2002). Thus, a global understanding of value orientations (VOs) and their relationship to policy preferences and demographics is emerging (Manfredo, Teel, & Henry, 2009; Teel Manfredo, & Stinchfield, 2007). However, this body of knowledge has limited evaluation in Latin America.

Recent studies suggest VOs are valuable for PA managers because they influence policy preferences for wildlife management (Teel & Manfredo, 2010; Vaske & Donnelly, 1999; Vaske, Donelly, Williams & Jonker, 2001; Layden, Manfredo, & Tucker, 2003). VOs are “an expression of basic values and are revealed through the pattern and direction of basic beliefs held by an individual” (Manfredo, Vaske, & Teel, 2003, 289). These basic beliefs are situated around a specific domain, such as wildlife and therefore provide “more concrete views…on wildlife management” than values or beliefs (Buius, 2009, 420). A Use VO reflects a belief that wildlife should be managed for human benefit, while a Protection VO reflects closer and more equitable relations between humans and wildlife (Vaske, Jacobs, & Sijtsma, 2011). Evaluations of stakeholder VOs could instruct managers who must navigate the complexities of PA wildlife management in the developing American West (Manfredo, Teel, & Henry, 2009). Additionally, a VO evaluation in England revealed PA visitor leanings on proposed landscape changes caused by mobile telecommunications development (Park, Jorgensen, Selman, & Swanwick, 2008).

Socio-demographic variables that have been found to influence VOs include income, age, gender, education, and place of residency (Schwartz, 2007; Vaske, Jacobs, & Sijtsma, 2011; Hunter & Brehm, 2004). Prior VO studies centering on the wildlife domain suggested young, highly educated, urban dwelling females tend to be Protection orientated, while older, less formally educated males are commonly more Use oriented (Steger & Witt, 1989; Teel & Manfredo, 2010).

VOs may influence payment of PA entry fees. Public PA fees in less-industrialized countries can help recover management costs, reduce overcrowding, and support relative equity among visitors (Shultz, Pinazzo, & Cifuentes, 1998). In fact, the IUCN noted fees are the second most important revenue generation scheme behind administrating agency funding;[1] Yet, fees are not always paid. Previous research suggests linkages between VOs and visitor payment of PA fees. Kyle, Graefe, and Absher (2002) concluded acceptable price is closely linked to individual values, while Trainor and Norgaard (1999) highlighted the importance of spiritual and intrinsic values of wilderness visitors.

[1] Source: http://data.iucn.org/dbtw-wpd/html/BP8-sustainabletourism/section14f58.html

VO research is needed in Latin America for three reasons. First, scholars have yet to fully explore the relative value of wildlife in non-U.S. cultures, particularly in the context of PA management. Several studies explored VOs in settings outside of the United States, highlighting how VOs vary between societies and cultures (Herrmann, Schüttler, Benavides, Gálvez, Söhn, & Palomo, 2013; Radder & Bech-Larsen, 2008; Jacobs, 2007; Kaczensky, 2007; Raadik & Cottrell, 2007; Tanakanjana & Saranet, 2007; Zinn & Shenn, 2007). Thus, it is important to identify VO differences among cultures and sub-cultures in Latin America to assist with global and regional theory development. Second, increased understanding of VOs and the role of local stakeholder VOs in the formulation of wildlife conservation policy in Latin America may assist the development of regional management tools and practices that more effectively address local challenges (Vaske & Donnelly, 1999). Finally, PA administrators in less industrialized countries are increasingly challenged by land use changes within and adjacent to PA administrative borders (e.g., China [Wang et al., 2011]; Costa Rica [Hearne & Salinas, 2002]; India [Bosak, 2008]). Though PAs are a lynchpin in efforts to sustain ecological processes (DeFries et al., 2007), their policies must often contend with VOs underpinning competing and conflicting livelihoods and broader development strategies. Understanding these competing and conflicting VOs can help PAs overcome challenges to wildlife conservation.

The exploratory study presented in this paper focused on wildlife and natural resource related VOs within the context of PA visitor management planning in the Tamango National Reserve (TNR), also known as Lago Cochrane National Reserve, in Chilean Patagonia.

Specifically, we used a survey to measure visitor VOs and evaluate how TNR wildlife conservation policy preferences related to those orientations. During the study the Chilean National Forest Corporation (CONAF) was developing visitor management strategies. The case study involved diverse stakeholders and interests, and a setting that encapsulated the pressures related to changing land use and evolving livelihood and community development strategies.

Methods

Study Area

The National System of Protected Areas of the State (SNASPE) covers about 14.5 million hectares, or 19% of Chilean territory, and is managed by CONAF (Gobierno de Chile, 2011). The administrative region of Aysén, Region XI, is home to five national parks, eleven national reserves and two monuments and covers over 4 million hectares (IUCN-classified) (Gobierno de Chile, 2011), not including privately owned or public marine PAs. In 2013, CONAF reported a total of 25,069 visitors to regional PAs during the peak summer season months of January and February, representing a 70% increase over the same time period in 2012, totaling 14,608 visitors (http://www.conaf.cl/). Visitors are drawn to Aysén for its natural landscapes including the dramatic and wild peaks of the southern Andes, local culture, and variety of outdoor activities (Gale, Bosak, & Caplins, 2013).

TNR is located approximately nine kilometers outside the largest town in Aysén, Cochrane (2,996 inhabitants; 47 and 47 45' N latitude and 71 50' and 73 45' west longitude).

The reserve encompasses 6,925 hectares and is situated between three mountains: Tamango (1,722m), Tamanguito (1,485m) and Hungarian (1,214m). The Cochrane River and lake form natural borders to the southeast. TNR provides important protection and habitat for the endangered huemul (*hippocamelus bisulcus*), or South American deer. TNR also harbors a number of other native, threatened, and endangered species including the guanaco (*Lama guanicoe*), puma (*Puma concolor*), and Andean condor (*Vultur gryphus*). Historically, annual visitation to TNR averaged 1,160 visitors (CONAF, 2010). However, in keeping with broader regional visitation trends over the last several years, visitation is rising (CONAF, 2010).

Protection and conservation of the remaining huemul population is the top management priority for CONAF. The huemul is an IUCN Red List endangered species and Chile's national symbol, protected by Chilean law. It is also TNR's most popular visitor attraction, as the relatively high concentration of huemules provides good opportunities for observation and photography of this normally elusive species. The huemul once populated most of Chile and Argentina. Human pressures reduced its habitat to only a few remote areas of Chile, and Patagonia, in particular. Current threats to the remaining huemul population include habitat conversion (Flueck & Smith-Flueck, 2006; Frid, 2001; Povilitis, 1998), overhunting and poaching (Frid, 2001; Povilitis, 1998), competition with domestic livestock for food, infection by exotic diseases (Povilitis, 1998; Simonetti, 1995), and the introduction of exotic species (Flueck, Smith-Flueck, & Naumann, 2003).

Increased visitation and use of TNR and new development proposals for the area, such as the proposed HidroAysén hydroelectric dams along the Baker River and increased tourism, are expected to place additional pressures on the huemul. Visitation to PAs and changes in human land use practices can encroach on wildlife habitat and alter wildlife breeding success, survival, and abundance (Becker, Moi, Maguire, Atkinson, & Gates, 2012). Steadily rising visitation counts, government priorities for tourism development within PAs, and the potential influx of new residents to the commune of Cochrane if dam construction ensues are all important considerations for CONAF. The task for CONAF is to address these and other threats to their guiding conservation related objectives while also effectively representing the views of the array of stakeholders that influence TNR's operations and policies.

Research Design and Sampling

Prior VO research focused on wildlife, coral reefs, and forest resources guided our study design (e.g., Fulton, Manfredo, & Lipscomb, 1996; Needham, 2010; Vaske & Donnelly, 1999; Vaske et al., 2001). We measured Protection and Use with a composite scale to assess individual VOs toward TNR wildlife. Four constructs designed to measure Protection orientations and four constructs that measure Use orientations comprised the scale.

To ensure comparability and validity, we measured VOs using the same scale other VO scholars employed (Fulton, Manfredo, & Lipscomb, 1996; Needham, 2010; Vaske & Donnelly, 1999), except we inserted "species" and "reserve" (Use scale #4) as our context. Users indicated their level of agreement with the following Protection constructs: (1) *The species in reserve should be protected for their own sake rather than to meet the needs of* *humans*; (2) *The species in reserve should have rights similar to the rights of humans*; (3) *The species in the reserve have value whether humans are present or not*; and (4) *Visitor use of the reserve should not be allowed if it threatens species that live there*. The four constructs measuring Use were: (1) *The primary value of the species in the reserve is to provide for humans*; (2) *The needs of humans are more important than the species in the reserve*; (3) *Visitor use of the reserve is more important than protecting the species that live there*; and (4) *Humans should manage the reserve so humans benefit*. Following similar VO studies conducted outside of the U.S., we used a 5-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree" to simplify the rating process (Hermann, Voß, & Menzel, 2013).

We used the same 5-point Likert scale to collect data on wildlife conservation policy preferences. Respondents rated their level of agreement with policies concerning current and future wildlife conservation and land use in and adjacent to TNR, especially policies linked to huemul conservation. We also collected data on frequency of visitation, payment of entry fee, gender, education, and residency using fixed and open-ended response options. Questionnaire creation included two independent forward and backward translations from English to Spanish (then Spanish to English) by bilingual members of the research team, which we compared to improve validity (Marín & Marín, 1991).

Administration of face-to-face surveys to TNR visitors occurred between the summer months of December 2012 and February 2013 in the reserve and in Cochrane's urban center. We administered surveys in English or Spanish, depending on the preference of the subject.

Before administering surveys to the public, we conducted pilot tests of the survey with two CONAF staff at TNR to improve accuracy and clarity. To reduce bias, selection of participants followed systematic random sampling procedures based on estimated annual reserve visitation numbers and Cochrane's population (Vaske, 2008). In TNR and Cochrane proper sampling took place on random days throughout the week. In TNR, the research team approached every other visitor as they passed by the reserve's administration office. We asked subjects to complete the survey before leaving the reserve. In Cochrane's urban center, we approached every 10th person and screened them for past visitation to TNR. We gathered a total of 97 questionnaires. Our margin of sampling error was calculated at 9.5%. We estimated non-response at 5%. Respondents took as little as 10 minutes and as long as 45 minutes to complete the questionnaire.

Data Analysis

Analysis took place in four phases: evaluation of construct reliability, VO identification, socio-demographic comparison of VO groups, and examination of the effect of VOs on wildlife conservation policy preferences. We used Excel and SPSS with AMOS version 20 to conduct reliability analysis. We translated completed surveys from Spanish to English, entered data into an Excel database, and cleaned the data. We recoded constructs to ensure Use orientations reflected lower scores and Protection orientations reflected high scores. We employed Cronbach's alpha reliability coefficients to measure reliability of the eight constructs. Total-construct alpha coefficients greater than or equal to .65 and single-construct correlations greater than or equal to .40 indicated there was little variance between constructs. We calculated Cronbach's alpha reliability coefficient values of .65 for Use orientation and .58 for the Protection orientation (Table 1). Several constructs did not meet the criterion of construct total correlations being greater than or equal to .40 (Nunnally & Bernstein, 1994; Vaske, 2008), however, 1) it is common that scales with less than ten constructs have lower reliability coefficient values (Pallant, 2007) and 2) deletion of these constructs from the overall eight-construct scale did not significantly improve reliability, and therefore they remained in the model for instructive purposes. Reliability of the final eight-construct composite scale was acceptable with a score of .67.

To supplement Cronbach's alpha reliability analysis and assess dimensionality among the eight value constructs, we conducted principal component analysis (PCA) employing oblique rotation. We used PCA to more carefully evaluate construct validity through an analysis of departure from unidimensionality and the ability of like constructs to measure a psychological variable uniformly (Hattie, 1985; Cortina, 1993). Because rotation is required for PCA in SPSS, we chose oblique rotation because it performs the same function as Varimax rotation, but more accurate solutions may be rendered from oblique rotations (Brown, 2009). Orthogonal and oblique rotations produce nearly identical results when factors are not correlated (Brown, 2009). Additionally, we chose to use PCA rather than confirmatory factor analysis (CFA) because the assumption of normality was violated in our data and the method is more amenable to non-normal data (Costello & Osborne, 2005). Factor loadings for constructs should be greater than or equal to .40 to be retained in an orientation or index (Vaske, 2008), although .30 regularly serves as a baseline for contribution. PCA results showed a moderate to strong degree of construct validity for the VO measures (Table 2). Factor loadings met the criterion of being greater than or equal to .40 (Hair & Black, 2000) and they ranged from .62 to .80 for the Use scale and .44 to .81 for the Protection scale.

To run robust tests on the model, we accounted for skewed data distribution by employing CFA with a generalized least-squares (GLS) estimator to assess model robustness (Muthén & Kaplan, 1985). Chi-square divided by the degrees of freedom value (CMIN/DF, 1.22 [< 2.00]); Global-Fit-Index (GFI, .94, [≥ .90]); Robust Corrected Comparative Fit Index (CFI, .89 (≥ .90); *p* of Close Fit (PCLOSE = .48 [> .05]); and Root Mean Square Error of Approximation (RMSEA, .05 [≤ .06-.07]) estimated model fit.[2] All indices indicated a robust model accept CFI (likely due to small sample size). The model was deemed adequate, though not ideal, to proceed with the analysis.

Because we had background knowledge on how to cluster our sample, we used partitional cluster analysis. We performed K-means cluster analysis on the value constructs to group respondents based on their VOs. Drawing from Needham (2010), who also used a protection-use continuum, we labeled groups as Strong Protection (cluster 1, n = 61, highest mean scores for Protection scale, lowest for Use scale) and Mixed Protection-Use (cluster 2, n = 36, lowest mean scores for Protection scale, highest for Use scale, group mean and median were close to the scale midpoint). Our analysis, validated with TwoStep exploratory

[2] Values in brackets denote ideal values per Hooper, Coughlan, and Mullen (2008) accept a strict CMIN/DF value of 2.00, obtained from Byrne (1989, 55).

cluster analysis, showed a two-group solution provided the best fit for categorizing respondents based on their responses to the VO constructs.

We performed t-tests to characterize differences between VO groups in terms of responses to the value constructs used to create the clusters. We conducted Chi-square tests to assess whether there are socio-demographic differences between groups and t-test to assess whether the two groups have different motivations to visit TNR, specifically whether wildlife was a more important for one group. An alpha level of .05 was used for all tests.

Results

Sample

In total, our sample (N = 97) comprised approximately 8% of annual visitation for TNR. First-time visitors to TNR comprised most of our sample (64.3%). Most subjects were males (60%) followed by females (40%). The age range of most respondents was 18-29 (48%), followed by 30-50 (29.6%), 51-65 (7.1%), and over 65 (2%). The sample was largely Chilean (81.6%) with a university (55.1%), high school (18.4%), or postgraduate (10.2%) education. More respondents resided outside of Cochrane (65.3%) than within the commune (33.7%). Most respondents paid the fee to enter TNR (72.2%).

Comparison of Value Orientations

To better understand the composition of TNR visitors we compared the VO groups (Table 3). The Strong Protection group (n = 61) was largely comprised of young, formally educated, non-resident males who were nearly four times as likely to have paid the entry fee and highly motivated to see wildlife (Table 4). The Mixed Protection-Use group (n = 36) was likewise young and educated, but had a proportionately higher percentage of males and more likely to be residents compared to the Strong Protection group (Table 4). Non-residents were more likely to hold Strong Protection VOs than residents and less likely to pay the entry fee, and the strong Protection group had more formal education than the Mixed Protection-Use group (Table 5). Both groups identified wildlife as an important motivation for visiting TNR, though wildlife was more important for those in the Strong Protection group (Table 5).

Policy Preferences

Both Strong and Mixed Protection-Use groups favored policies that benefited the huemul and other wildlife, but respondents in the Strong Protection groups indicated stronger support than the Mixed Protection group (Figure 1). For example, the Mixed Protection-Use group was largely opposed to corridor creation (#2) and restrictions on infrastructure development in the reserve (#5), and supported these policies less than the Strong Protection group.

Discussion and Implications

This study situates Latin America within the broader literature on cross-cultural VOs and helps Latin American scholars and practitioners employ VOs to 1) gain the broader context of wildlife conservation conflict by understanding broader linkages between VOs and socio-demographic variables, 2) assess to what degree they are meeting the needs of their visitors, and 3) foresee and reconcile debates on how wildlife and other PA resources should be managed in the wake of increased development (Layden, Manfredo, & Tucker, 2003).

This explorative study suggests relationships between socio-demographic variables and VOs among TNR visitors in Chile reflect those seen in other parts of the globe. Relationships between education levels and VOs may be explained by a global cultural shift from Materialism to Post-materialism where Post-materialists tend to have more formal education (Manfredo, Teel, & Bright, 2003). A Post-materialist shift has been chronicled for over several decades in 65 societies, encompassing more than 75% of the world's population (Inglehart, 1997; Inglehart & Baker, 2000). Though we did not specifically measure this shift, drawing from the predictions of Manfredo, Teel, and Bright (2003), we posit Strong Protection VOs in the case of TNR may represent such a shift in Chile and originate from greater knowledge of environmental degradation in Chile (Taylor, 1998) and its relationship to human survival and quality of life (Manfredo, Teel, & Bright, 2003).

Differences between residents with Mixed Protection-Use VOs and non-residents with Strong VOs may reflect differences in livelihoods. Residents are more likely to have rural livelihoods based on both use and protection of the ecological landscape. Resident responses to VO constructs neither emphasized traditional land use (e.g., animal husbandry, forestry, agriculture, and fisheries [Gobierno de Chile, 2011]) or species protection. This may point to shifting attitudes about land use with the addition of nature tourism to regional livelihood portfolios (a strategy outlined in the government's *Plan Aysén: 2010-2014* [Gobierno de Chile, 2011]). Cross-cultural environmental VO studies have yet to provide sufficient consideration for location of residence (e.g., urban versus rural) in subject responses. Our findings may be influenced by location of residence in Chile and national rural tourism development policy. Further research should examine the linkage between Chilean attitudes, VOs, residency, and policy.

Our results suggest the projected shift toward protectionist VOs bodes well for funding PAs, because visitors with Strong Protection VOs were most likely to pay entry fees. TNR entry fees are important to CONAF because spending for Chilean PA management is limited (Lara & Urrutia, 2010). However, there is a general lack of understanding among officials of how best to craft and implement fee systems as guesswork and judgments about fairness tend to dominate fee system creation (Dharmaratne, Yee Sang, & Walling, 2000). At the time of our study, Chileans paid CLP $1500 to enter TNR, and non-Chileans paid CLP $3000. Our findings suggest such a similar split fee schedule focusing on resident and non-resident status in addition to Chilean citizenship may provide another way to increase revenue without creating perceptions of injustice.

Though VOs tend to be stable over time (Needham, 2010), changing population levels, demographics, and natural resource values can alter the broader VO landscape (Vaske et al., 2001), which may influence the trajectory of PA development in Latin America. TNR is unique because it represents a case where the VO landscape may change rapidly, rather than gradually, due to an influx of new Cochrane residents and TNR visitors over a short period of time. Our results suggest CONAF should be committed to understanding how broader socio-political forces, such as nature tourism and energy development, affect the socio-demographic makeup of their visitors because they could influence the need for visitor education efforts, affect the visitor experience, and impact revenue generation. PA managers operating under these circumstances can prepare by supporting and building a body of longitudinal VO research specifically directed towards addressing development affecting wildlife management policy and implementation.

Identification of visitor VOs can help CONAF and other PA administrators in Latin America anticipate conflicts over proposed PA development and thus design alternatives that best meet visitor needs. This study supports the idea that TNR visitors holding diverse VOs will likely react differently depending on which wildlife conservation policies are implemented and the broader goals behind those policies. Employing the logic of prior VO-PA studies (Layden, Manfredo, & Tucker, 2003; Needham, 2010), visitors holding Strong Protection VOs would likely prefer assertive conservation policies that favor wildlife (e.g., expanding huemul range through public-private arrangements or keeping TNR primitive and closed during the huemul breeding season) over development for visitor consumption (e.g., lodging, cell towers). Similarly, visitors with Mixed Protection-Use VOs may oppose TNR conservation policies (e.g., keeping TNR in a primitive state) that limit some uses of the park or impact local livelihoods based on wildlife tourism or animal husbandry.

There is a need to address the interactions between PA wildlife conservation, land use change, and human wellbeing to achieve the broader common interest. PA managers in Latin America can employ VO assessments (e.g., surveys) to determine whether their conservation goals involving adjacent lands or regional approaches, such as efforts to connect fragmented huemul habitat, complement or contradict local residents' aspirations. Assessing both visitor and resident VOs could be a useful tool in support of larger conservation efforts that embrace broader stakeholder dialogue, such as the Huemul Protection Program in Aysén. PA managers can leverage Strong Protection VOs in negotiations to 1) avoid urban expansion or development on PA borders, 2) pursue increased community involvement to better support wildlife proliferation and human wellbeing, and 3) promote formulation of viable alternatives (Teel et al., 2010).

Table 1. Reliability Analysis of protection and use value orientations towards TNR development

Value Orientations	Construct Total Correlation	Alpha if deleted	Cronbach's alpha
Protection Orientation			.654
The species in reserve should be protected for their own sake rather than to meet the needs of humans.	.243	.687	
The species in reserve should have rights similar to the rights of humans.	.472	.611	
The species in the reserve have value whether humans are present or not.	.571	.612	
Visitor use of the reserve should not be allowed if it threatens species that live there.	.243	.669	
Use Orientation			.581
The primary value of the species in the reserve is to provide for humans.	.427	.628	
The needs of humans are more important than the species in the reserve.	.404	.635	
Visitor use of the reserve is more important than protecting the species that live there.	.510	.614	
Humans should manage the reserve so humans benefit.	.245	.674	
Overall Value Orientation Index			.672

Table 2. Principal Component Analysis of Value Orientations

Value Orientation	**Factor 1**	**Factor 2**
Protection		
1. The species in reserve should be protected for their own sake rather than to meet the needs of humans		.441
2. The species in reserve should have rights similar to the rights of humans		.668
3. The species in the reserve have value whether humans are present or not		.666
4. Visitor use of the reserve should not be allowed if it threatens species that live there		.812
Use		
1. The primary value of the species in the reserve is to provide for humans	.675	
2. The needs of humans are more important than the species in the reserve	.800	
3, Visitor use of the reserve is more important than protecting the species that live there	.745	
4. Humans should manage the reserve so humans benefit	.622	
Percent Variation Explained	33.73%	16.85%

Table 3. Scoring of wildlife value-orientation groups on belief dimension and value-orientation scales

	Strong Protection (*n* = 61)		**Mixed Protection-Use (*n* = 36)**			
Value Orientation	Mean (SE)	Median	Mean (SE)	Median	t(*df*)	Sig.
Protection	4.41 (.07)	4.50	3.30 (.14)	3.12	7.11*(53.5)*	.000
Use	1.31 (.05)	1.25	2.57 (.13)	2.50	-8.49*(45.5)*	.000

Note: Levene Test of Homogeneity of Variances was significant at the .05 level, unequal variances assumed.

Table 4. Socio-demographic makeup of each value-orientation group

Variable *(n)*	Strong (*n*, %)	Mixed (*n*, %)
Residency		
Non-Resident	(*47*, 77.0)	(17, 47.2)
Resident	(*14*, 23.0)	(19, 52.8)
Fees Paid		
No	(*11*, 22.0)	(*12*, 44.4)
Yes	(*39*, 78.0)	(*15*, 55.6)
Gender		
Male	(*30*, 56.6)	(*19*, 67.9)
Female	(*23*, 43.4)	(*9*, 32.1)
Age		
<18	-	-
18-29	(*31*, 56.4)	(*16*, 53.3)
30-50	(*18*, 32.7)	(*11*, 36.7)
51-65	(*5,* 9.1)	(*2*, 6.7)
>65	(*1*, 1.8)	(*1*, 3.3)
Education		
Primary	(*1*, 1.7)	(*2*, 5.9)
Technical	(*1*, 1.7)	(*6*, 17.6)
High School	(*11*, 19.0)	(*7*, 20.6)
University	(*37*, 63.8)	(*17*, 50.0)
Postgraduate	(*8*, 13.8)	(*2*, 5.9)
Importance of wildlife in motivation to visit TNR		
Not at all important	--	(*1*, 3.1)
Not very important	(*1*, 1.7)	--
Not sure	(*2*, 3.4)	(*2*, 6.3)
Somewhat important	(*13*, 22.0)	(*13*, 40.6)
Very important	(*43*, 72.9)	(*16*, 50.0)

Table 5. Comparison of value orientation groups by socio-demographic characteristics

Variable *(n)*	**Strong (%)**	**Mixed (%)**	**χ^2 or t*(df)***	**Sig.**
Residency			8.98*(1)*	.0029
Non-Resident *(64)*	73.4	26.6		
Resident *(33)*	42.4	57.6		
Fees Paid			4.22 *(1)*	.038
No *(23)*	47.8	52.2		
Yes (*54)*	72.2	27.8		
Gender			.97 *(1)*	.32
Male *(49)*	61.2	38.8		
Female *(32)*	71.9	28.1		
Age			.45*(3)*	.93
<18	-	-		
18-29 *(47)*	66.0	34.0		
30-50 *(29)*	62.1	37.9		
51-65 *(7)*	71.4	28.6		
>65 *(2)*	50.0	50.0		
Education			10.24(4)	.037
Primary *(3)*	33.3	66.7		
Technical *(7)*	14.3	85.7		
High School *(18)*	61.1	38.9		
University *(54)*	68.5	31.5		
Postgraduate *(10)*	80.0	20.0		
Importance of wildlife in motivation to visit TNR ($\bar{x}$[*n,* SD])ⱶ	4.66(*59*, .63)	4.34(*32*, .87)	2.00*(89)*	.048

NOTE: Percentages given represent only those subjects within Strong and Mixed groups combined.
ⱶ Respondents were asked to *Please indicate how important each of the following reasons was for your decision to come to the Tamango National Reserve*. Scale: 1 = not at all important; 2 = not very important; 3 = not sure; 4 = somewhat important; 5 = very important.

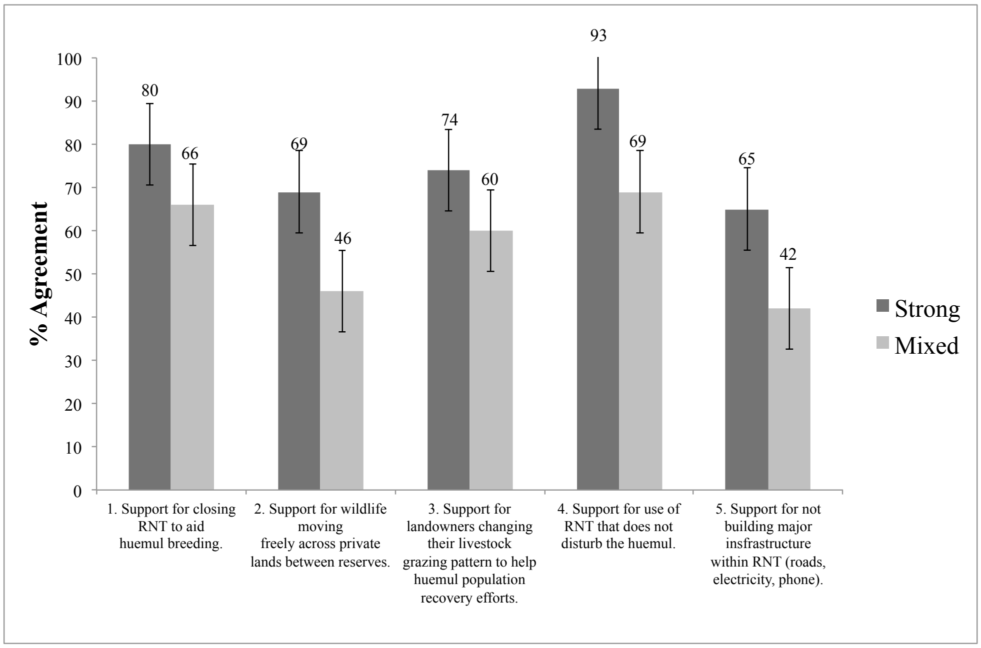

Figure 1. Percent of respondents in each VO group (strong and mixed) who support policies that impact wildlife conservation in TNR. Error bars represent an estimated margin of sampling error of 9.5%.

CHAPTER 3: USING CONSENSUS ANALYSIS TO ASSESS CULTURAL TRUTHS ABOUT PRIVATE DEVELOPMENT-BASED CONSERVATION IN PATAGONIA

Abstract

Large-scale private protected areas (PPAs) in the biodiversity-rich Los Ríos region in southern Chile have generated controversy by altering development pathways open to local residents. This study examined how well the existing conservation officer (CO) ideological paradigm fit with local residents' cultural models. A cultural consensus survey was developed and administered between May and August 2013 near the Valdivian Coastal Reserve (RCV) and Huilo Huilo Reserve (HH). Analysis of agreement with 23 propositions that reflected the dominant paradigm confirms 1) a monolithic CO culture exists and 2) RCV communities were more aligned with this culture than HH communities. Differences between COs and communities may be explained by gaps in communication, inequitable decision making, diverging perceptions of livelihood impacts and trajectories, and PPA purpose, while variability in response between and within communities appear historically contingent. Performing cultural consensus analysis can aid PPA administrations improve their community interactions and confront cultural differences historically attributed to development-based conservation.

Keywords: Chile; cultural consensus; development; mental model; private protected area

Introduction

Private-development based conservation is an innovation within a global private protected area (PPA) movement. In cooperation with local and global actors, some well-intentioned large-scale[3] PPAs owners use economic rationale solutions to craft "sustainable" alternatives to prevent environmental degradation and material poverty (Bishop & Pagiola, 2012). Efforts to achieve "sustainable" and "win-win" outcomes for both PPAs and impacted local residents appear analogous to integrated conservation and development projects (ICDPs) that began in the 1980s for similar purposes (Wells & McShane, 2004).

The Worldwide Fund for Nature (WWF) conceived ICDPs in the 1980s to allay conflict associated non-participatory conservation enclosure policies (Neumann, 1997; Hughes & Flintan, 2001). ICDP logic entails replacing a fines and penalties approach with the dissemination of funds to support "eco-friendly" commercial ventures (Ferraro & Simpson, 2005). In a protected area context, these ventures include designated resource extraction activities and ecotourism (Ferraro & Simpson, 2005); they are underscored by the assignment of a commercial value (market and non-market) to people, flora, fauna, and places so local resource users do not degrade the ecological environment (West, Igoe, & Brockington, 2007). Reviews of ICDPs are mixed at best (Brechin, Wilshusen, Fortwanger, & West, 2002; Hughes & Flintan, 2001). Chief criticisms of the ICDP model are that they offer temporary solutions and that most of their benefits are realized at the global rather than

[3] A large-scale PPA is defined in this study as 1) ≥ 500 hectares, 2) attempting to protect biodiversity, and 3) attempting to create development pathways for local communities. "Large-scale" was derived from German, Schoneveld, and Mwangi (2011) who described agrarian land grabs in Africa in these terms. The remaining criteria were based on the smallest PPA in Chile known to be intentionally engaging local communities (Oncol Park). It is expected that operationalization of this term will be modified over time.

the local level (Brown, 2003). Some perceive ICDPs as overly ambitious and based on naïve assumptions about social, political, and cultural dynamics at the local level (Wells & McShane, 2004).

Despite these criticisms, the PPA movement in Chile adopted key attributes of ICDPs within the last decade. The ICDP logic described by Hughes and Flintan (2001) reflects PPA strategies where:

- Biodiversity conservation is a primary goal;
- There is a recognized need to address the social and economic needs of communities whose traditional livelihood practices are believed to threaten PA biodiversity;
- Improved relationships between PA managers and their neighbors are critical to achievement of conservation goals;
- Control or ownership of PA resources will remain with PA agents;
- Funding is received from external sources to achieve conservation and/or development goals; and
- Market-based livelihoods will help to achieve sustainable conservation and/or development goals.

PPA administrators chose to externalize[4] goods and services to nearby communities and work closely with nearby communities to improve sustainability of traditional livelihoods, generate employment opportunities, and support economic and social development projects. Despite claims of fruitful partnerships, it is not well documented how stakeholders perceive private development-based conservation in the context of PPAs.

PPA administrators who find the support of local residents important to biodiversity conservation need to find an appropriate balance between protected area goals and the achievement of resident needs and aspirations to minimize conflicts (McShane et al., 2011). Because PPAs in Chile are being created where cultures of traditional forest users are

[4] I refer to externalization in an economic sense.

colliding with contemporary land tenure mechanisms (e.g., access restriction) and land use projects, the crux of conflict may be attributed to some semblance of "ontological struggles," where a "single notion of the world, the human, civilization, the future, or even the natural" dominates all others, leaving little room for alternative realities (Escobar, 2011, 138). Acknowledging and engaging with alternative worldviews could lessen conflict and create a path toward sustainable solutions under various PPA regimes. We hypothesize one way to assess the divide between worldviews is to examine intercultural differences among stakeholders falling within a larger development-based conservation culture that ICDP projects signify.

There have been few scholarly attempts to measure intercultural difference within development-based projects in Chile or elsewhere because research has instead focused on measuring outcomes (McShane & Newby, 2004). Since the deployment of an ICDP approach by large-scale PPA administrators in Chile is a comparatively new phenomenon, there is a particular need to characterize variation in the private development-based conservation domain across stakeholder groups and help facilitate an understanding of common and contrasting worldviews.

This research drew from cultural consensus theory (Romney, Weller, & Batchelder, 1986) to compare the knowledge, values, and beliefs of PPA conservation officers (COs) to those of local residents. Since cultural differences were identified as a prime source of natural resource-based conflict (Escobar, 2006), I conducted this analysis to uncover "culturally defined truths" (Paolisso, 2007, 130). In this exploratory study, we posit an analysis of this type will yield differences and agreement between governing private development-based conservation actors and the local residents with which they seek to engage in ideology-driven initiatives, such as biodiversity conservation and human development.

The intent of this article then is to understand how a globally influential development-based conservation paradigm applies in the context of large-scale PPAs in Chile. We examine cultural differences among key stakeholders associated with large-scale private biodiversity conservation and the creation of development pathways for residents impacted by PPAs. Owners and administrators of prominent large-scale PPAs in Chile have declared community development a primary objective of their operations. Various scales of government in Chile facilitate this objective with tax breaks and competitive grants for community development initiatives, while international organizations, such as the United Nations Development Program, provide additional support. In the Los Ríos region, these actors claim to simultaneously enhance local social and economic development of the rural communities that border their reserves and achieve biodiversity conservation within native forests.

Cultural Difference

Historically, the ICDP model has not adequately accounted for intercultural differences. The relative lack of attention to cultural difference can be a source of conflict and resistance from local residents for two reasons. First, market-based incentives, such as payment to local residents for goods to be sold by the PA, direct PA employment, and development of PA-based ecotourism businesses typically limit possibilities for locals to seek their own path to achieve nature conservation and human wellbeing outside of global economic markets. This has led to claims that ICDPs endorse social engineering practices (West & Brockington, 2006). In many rural communities near PPAs livelihoods, encompassing both material and symbolic aspects (Bebbington, 1999), are not entirely reliant on global markets. Cultural, economic, and ecological change wrought by forcing local economies and cultures into the dominant economic ideology and discourse sometimes stimulates local resistance, particularly when the changes interfere with non-market means of survival (Escobar, 1996; Armesto, Smith-Ramirez, and Rozzi (2001). Intercultural differences may be most glaring between dominant conservation and development actors and indigenous groups. The use of both conservation enclosures and ICDP models to achieve *in situ* biodiversity conservation in and around indigenous spaces has resulted in heated conflict and critical debate about the efficacy of these models (Coria & Calfacura, 2012).

Cultural Consensus Theory

Cognitive models can help us understand cultural differences (Mathevet, Entiene, Lynam & Calvet, 2011). Romney, Weller, and Batchelder (1986) developed a model to assess cultural consensus based on the notion that culture is an amalgamation of information cognitively processed, stored, and retrieved that can be measured to ascertain cultural competency and correctness, and hence, truth. Measurement entails the creation of a survey that reveals patterns of agreement that allows the analyst "to make inferences about their differential competence in knowledge of the shared information pool constituting culture" (316). An analysis of "coherently defined subject matter" or "knowledge domains" is important with this method (Mathevet et al., 2011, 43).

Cultural consensus analysis (CCA) is commonly used to better understand and compare scientific or authoritative ecological knowledge with local ethnological knowledge (e.g, Paolisso, 2007; Rocha, 2005). For example, a researcher might ask individuals to list the types of changes in a local forest that occurred over the last ten years. The more agreement there is among respondents, the higher the scholar's confidence that there will be consistency among the larger population of interest and that a culturally defined truth is revealed. The assumption is that "the correspondence between the answers of any two informants is a function of the extent to that each is correlated with truth" (Romney, Batchelder, & Weller, 1987, 165).

Cultural consensus has also been used to examine natural resource conflict at different scales. Johnson and Griffith (2010) used the cultural consensus approach at the state level to discover how ideologies about natural cycles, tourist development, and pollution underscored North Carolina coastal resource conflicts. The approach was also used as a tool to find common ground between resource users and natural resource scientists and managers. Simeone et al. (2010) noted different perspectives on how to achieve long-term sustainability among indigenous fishers and Copper River scientists and managers. They used the project and subsequent technical report to assess and compare stakeholder perspectives, establish common ground, and discover a pathway to equality and pluralism. Gatewood and Cameron

(2009) used cultural consensus to identify resident perception of tourism development benefits and impacts in Turks and Caicos Islands. Research has yet to use cultural consensus as a tool to assess cultural differences in the context of PPA conservation and development. Linking Johnson and Griffith's (2010) broad scale approach to CCA and the broader literature characterizing development-based conservation as a hegemonic process, we presumed there was a dominant regional cultural model among COs in Los Ríos. We then used cultural consensus to examine the extent to which local residents embraced or contested this model.

Cultural consensus is open to several data gathering procedures (Rocha, 2005). Commonly, semi-structured interviews are linked with ethnography to inform a pile-sorting activity or true-false/agree-disagree survey that collects the quantitative data needed for statistical analysis. Factor analysis is then employed to test three underlying assumptions of the formal model: a common truth exists; informant answers are independently given; each informant has a fixed cultural competence over all questions of the same level of difficulty (e.g., soccer experts do a better job on soccer-specific questions) (Romney, Wells, & Batchelder, 1986). Factor analysis is then be used to compare and contrast groups of interest (e.g., household perceptions compared to those of natural resource managers).

Study Area

Forest exploitation in Los Ríos. The relatively recent regulation of human interactions with Los Ríos forests by bureaucratic and conservation actors is important to the study of cognitive models in this context. A large portion of Chile's economic expansion since the early 1970s is attributed to the exploitation of timber. Decree-Law 701 (i.e., 1974 Forest Law) enacted under Augusto Pinochet's reign was cited as a boon to the Chilean economy. Timber companies were greatly incentivized to purchase large tracts of public and private native forest and convert it to production forests (Klubock, 2006). The biologically rich native Valdivian forest, a largest remaining portion of which is in the region of Los Ríos, suffered pronounced ecological degradation as native forests were burned and replaced with fast growing exotic timber plantations or were clear-cut for wood chip exports (Silva, 1997).

However, this epoch also brought severe disturbance for rural peoples (Alex & Clapp, 1998). Social impacts were extensive and intense. Many rural peoples were expelled from native forests that were purchased by timber companies. For those that remained, the rampant ecological devastation caused to forests uprooted traditional subsistence economies (Armesto, Smith-Ramírez, & Rozzi, 2001; Klubock, 2006). Entire communities became highly dependent on exploitive short-term seasonal timber employment (Klubock, 2006). When the timber industry declined, many peasants were left landless and without sufficient options for income or land for subsistence (Armesto, Smith-Ramírez, & Rozzi, 2001). Emigration to urban areas and a decline in quality of life ensued (Armesto, Smith-Ramírez, & Rozzi, 2001). Others continued to engage the State and forestry companies in battles over land rights (Meza, 2009). Efforts to address the issues of forest degradation, poverty, and emigration in these areas have been included in Chile's post-dictatorship sustainable development path.

Sustainable development in Los Ríos. The maturing Chilean democracy of the early 1990s coincided with increased global attention to the concept of sustainable development. Sustainable development in Chile is an attempt to simultaneously achieve sustainable use of natural resources and meet economic and social priorities within a pro-market climate. Being a largely deregulated state, attempts by environmentalists and critics of neoliberal market ideology to influence sustainable development in Chile have mainly fallen short politically (Carruthers, 2001). However, growing concerns over the environment and social equity yielded new initiatives that departed from the unbridled timber operations in other parts of the Chile. In 2002, for example, CERTFOR, the Chilean forestry certification program that is affiliated with the Programme for the Endorsement of Forestry Certification (PEFC), was created in an attempt to create global demand for sound environmental, economic, social, and institutional timber company practices (Barton & Román, 2012). The resultant conversion of remaining native forests, formerly owned by now defunct timber companies, into large privately owned PAs and prime tourism attractions are changing the fabric of forest communities again. Three large-scale PPAs were formed in the region between 1989 and 2004: Oncol Park (OP) owned by timber and pulp company Arauco Corp, Valdivian Coastal Reserve (RCV) owned by The Nature Conservancy (TNC), and Huilo Huilo Reserve (HH) owned by Chilean tycoon Victor Petermann.

Some PPA communities benefited economically from PPAs employing sustainable development principles and the progression from a timber to tourism economy. One example is the conversion of Neltume, the largest commune near the 100,000ha HH from a timber shantytown to a rising tourist destination. Because of HH's tourism, Neltume is experiencing an uptick in new construction and economic growth since 2002. Yet, benefits from PPAs do not extend to all communities or residents impacted by them. Consequently, these communities in Los Ríos, particularly indigenous ones, continue to seek out ways to transcend a substandard quality of life and reduce uncertainty, risk, and emigration due to lack of income opportunities. Many peasants continue to engage in traditional, but greatly diminished, land use practices as they seek ways to fit into market economy that, in "a highly unequal Chilean society" (Meza, 2009, 152), has thus far failed to provide for them. Some have only found temporary or poorly paid wage employment with PPAs.

The creation of PPAs adds complexity to rural dynamics in Los Ríos because there is a history of using nature conservation as a political tool to gain territorial control in Chile (Meza, 2009). Rural residents already struggle against uneven development or policies that promote other types of rural change, such as major infrastructure development like roads and hydroelectric dams. Many, chiefly indigenous, in our study areas continue to fight economic and political marginalization, and to reclaim lands lost during colonization and military rule.

Methods

Study Design

Because a key aim of this study was to test and expand the capabilities of CCA, we used the method to rapidly and accurately create a culturally correct questionnaire based on the ideology of COs located in Los Ríos. We then compared the fit of CO cultural truths about large-scale PPA conservation and development with those of local stakeholders (community residents, educators, and those working on the behalf of communities) that may not have the broader view of the CO paradigm. A major advantage of a one-sided assessment of dominant ideological fit is that it is a novel use of CCA that may help mitigate natural resource conflict; but, non-traditional and one-sided development of culturally correct questionnaire limits our ability to make inferences about consensus beyond the scope of our study because resident perspectives were not included in questionnaire development.

To fully explore the presence of a cultural truth, our research study had two phases. The first phase comprised designing a cultural correct questionnaire based on interviews with COs and informed by the development-based conservation literature review to establish statements about conservation and development that reflected the CO paradigm. Interviews with a diverse range of PPA stakeholders, including regulatory and academic authorities, tour guides, restaurant and shop owners, cabin and *quincho* (covered area for dining, lounging, socializing) owners, current and former employees, local decision makers, life-long residents, and local residents conversant about PPA activities, provided context for the propositions. The second phase involved administering the questionnaire among key informants in communities impacted by RCV and HH.

Questionnaire Design

Data produced from the first twenty-two key informant interviews with individuals conversant about PPAs informed a culturally appropriate questionnaire (Paolisso, 2007) covering land use and ecological protection; reasons for creation; PPA-community relations; economic expectations; tourism development; conflict; community benefits and change; and

PPA role in the achievement of wellbeing. Informants during this phase included community leaders, Los Ríos-based COs, academics, and government officials. We first approached key informants between mid-May and late June 2013 and asked them to participate in a semi-structured interview. Transcriptions of these interviews revealed commonly mentioned statements about PPAs. Twenty-five propositions were then written from the perspectives of COs, who tended to reflect prevailing global thinking about development-based conservation, and worded in *agree/disagree* format. We used a binary response option because it is shown to perform best when compared with paired-comparison and triadic-comparison questionnaires (Reyes-García et al., 2004). Wording adjustments were made by research team members with experience conducting interviews in rural Los Ríos to enhance clarity of the questionnaire prior to its deployment.

Sampling

The research design employed purposive sampling throughout in order to identify respondents that were knowledgeable or conversant about the PPA in question. We sampled in those communities confirmed by key informants as most impacted by RCV (Huape, Chaihuín, Cadillal, Huiro)[5] and HH (Neltume and Puerto Fuy). From three PPAs, we surveyed COs who held various positions within PPA administration.

Survey Administration

We asked subjects in person to complete the cultural consensus questionnaire,

[5] It is beyond the scope of this paper to situate the indigenous people in our study within the overall numbers of Chilean indigenous.

achieving a sample of fifty-two (44 Community, 7 COs).[6] We sent questionnaires via email to two COs. Participants were briefed that there were no right or wrong answers and told that individual and confidential opinions were being sought. We encouraged respondents to consider the statement in general and to answer quickly; however, they were also encouraged to offer any supplemental thoughts that were also recorded on the survey sheet.

Analysis

Survey data were entered into an Excel database by interview ID number and merged with demographic information from the semi-structured interviews. Two propositions were deleted from our analysis due to contextual irrelevance at one site. We employed UCINET 6.0 (Harvard, MA) to conduct CCA. UCINET uses principal component analysis to produce eigenvalues and calculate the dimensionality of the solution.

According to Romney, Batchedler, and Weller (1987), if the ratio of the first to second eigenvalue is equal to or less than 3.0, and a negative or low (< .5) competency score is calculated within a group, then we conclude consensus does not exist and more than one culture exists and weak cultural competence. In this study, a sample eigenvalue of great than 3.00 would mean would mean the presence of a monolithic private development-based conservation culture; a sample competency score greater than or equal to .5 would equate to a shared beliefs within a group about that culture.

UCINET also produces an answer key that indicated cultural correct/true answers.

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[6] From our analysis we eliminated PPA Expert questionnaires (n = 5) and Lago Neltume respondents (2 interviews, 1 questionnaire). We were not able to complete questions for key informants due to refusal (n = 6). Some interviews took place with more than one person present. The interview counts as a single interview, but more than one questionnaire may have been completed (n = 4).

We performed CCA on the sample, COs, and RCV and HH communities individually to examine between-group differences. CCA of CO responses served as a reliability check of our dominant ideology assumption.

Additionally, for those propositions that had disagreements for at least one group, we plotted percent agreement with those propositions. We analyzed and coded our interview data in QSR International's NVivo v.10 qualitative data analysis software (Burlington, MA) and used thematic content analysis to derive our codes (Anderson, 2007). We used IBM SPSS, v. 21.0 (Armonk, NY) to calculate frequency distributions, univariate analysis, and Spearman correlations to compare intercorrelations among answer keys, and average competence scores between groups using t-tests and one-way ANOVAs. All statistical tests were two-tailed with an alpha level set at .05.

Results

Sample Characteristics

Participants from the HH area were mainly Chilean (n = 21, 91%), male (n = 16, 70%), between 35 and 45 years of age (n = 8, 35%), achieved beyond post-primary education (n = 12, 52%), and a mean monthly income was at least CLP $250mil ($n$ = 18, 78%). RCV communities were mainly indigenous (n = 12, 57%), male (n = 14, 64%), over 46 years of age (n = 14, 64%), had a primary education (n = 11, 55%), and had a mean reported monthly income of less than CLP $250mil ($n$ = 18, 90%).

Cultural Consensus

Verification of Assumption. Analysis indicated cultural consensus existed among COs across 23 propositions, confirming our underlying assumption that a dominant ideology or culture exists. An eigenratio greater than 3.00 (eigenratio = 4.04) and high competency score (.67) suggests a cultural truth and strong degree of shared cultural understanding, respectively (Table 5).

Communities. Disaggregation of community groups allowed us to determine which communities CO truths fit with best. Results indicated weak consensus for RCV (eigenratio = 2.37) and HH (eigenratio = 1.90) communities, indicating a poor fit with the dominant ideology of COs. Low competency scores for RCV (.56) and HH (.48) suggest divergent beliefs within communities (Table 5).

Comparison of intercorrelations among answer keys illustrates RCV communities had a stronger association with the CO answer key, while HH communities had weaker relationships with CO and RCV answer keys (Table 6). Between-group comparisons of average cultural competence scores using one-way ANOVA and of answer keys using independent sample t-tests did not show statistical differences between the COs and the RCV group, or COs and the HH group (the least correlated group), respectively.

The presence of low eigenratios and competency scores indicate a degree of disagreement between and variability within groups. One quote from a former corporate logger and RCV ranger expressed divisions within communities that may hinder consensus:

> …when the Reserve arrived, the town was divided, some said it was good, others that it was bad because they were used to (working for) timber companies…they supported road improvements, so a lot of people were working, and the reserve didn't present itself…there wasn't a lot of future in the job sector, not a lot to work with...So there were people who agreed and others who didn't.

The same sentiment of differences among locals was found among the HH communities. One member of Neltume stated, "I think they agree with what the park does. It's just that now a lot of people are out of jobs. So people are divided." A Puerto Fuy resident echoed views on the presence of community divisions noting, "…the community here is not very unified, that's the reality. There's an enormous lack of unity."

Fourteen culturally true statements are observed for the sample (Table 7). Examining communities individually, at least one disagreed with COs on nine propositions, with the HH group being the group to disagree with COs most often (Figure 2). On seven occasions (#1, #3, #5, #6, #8, #13, #15) the HH group disagreed with COs, while RCV communities disagreed four times (#4, #8, #13, #16) with COs on a proposition. Only twice (#8, #13) did RCV and HH communities disagree with COs on a proposition at the same time. Responses given by locals and COs that represent their discordant answers to these select propositions include the following:

1. *The reserve does a good job of protecting forests from harm*.

HH Locals (False):

- "They say they 'preserve the end of the world', but they don't."
- "My wife said, '…why are they still cutting down the forest? That should've stopped a while ago.' When (the reserve) started it should've stopped, and they haven't."
- "They toss away trees that are 25m tall! *Tepas*, *laurels*, *mañíos*, they cut them entirely! That is not management of the forest. (Victor Petermann) takes wood like

crazy; we counted six full trucks in one day filled with *raulí* trees. It's not ours, that's true, but he is supposed to take care of it, protect it…"

HH COs (True):

- "…the Reserve has (implemented forest) management plans, there are parts where a little extraction is done, but only in a few places."

3. *Because of the reserve, communities near the reserve have changed their behavior to better conserve nature*.

HH Locals (False):

- "…there's still a consciousness rooted in the timber business."
- "…there´s the fact that people don´t like excessive exploitation of the land, but they also need to work. So sometimes the first is overlooked in favor of the latter."

HH COs (True):

- "Before…people crossed (the River Fuy) with machetes, chainsaws, axes, and became frenzied with getting as much wood as possible. Nowadays, no one does that. People have changed their mindset; they now see (the forest) as valuable asset, more than just a source for fuel…"

4. *Traditional livelihoods (livestock raising, timber extraction) have caused significant local environmental degradation*.

RCV Locals (False):

- "I think that people always took wood from the forest, but they never took more than what they needed, they never sold it. It was a sustainable way of extraction."
- "(Livestock) do no harm to trees."

COs (True):

- "…there are resources that are being regulated, like the presence of cattle, well, that started being identified like a menace to the area…"
- "We work with the cooperative, and they work with a traditional harvest mode, with oxen and people, and we are also analyzing that because…we have to harvest 3600 ha, and we can't harvest all of it. Imagine the impact on the soil, on everything."

- “We think, as a principle, that if a family used to raise animals within the park or chopped firewood…and today we employ them, this means a positive impact on the forest…”

5. *The reserve was created to protect forests from degradation/* 6. *The reserve was created to make money from tourism.*

HH Locals (False/True):

- “They say they ‘preserve the end of the world’ but they don’t.”
- “I really think it’s for tourism, for only (Victor Petermann) to earn money.”
- “(The reserve is for) a market purpose over a conservation purpose.”

HH COs (True/False):

- “Most people thought that Huilo Huilo is a tourism company, but HH is not a tourism enterprise, it is a territorial sustainable development enterprise, where the possibilities for this land are kept in sight, and trying to get the people closer to the forest.”
- “The mission of the Foundation is to contribute to the conservation and preservation of the temperate rainforest and its resources, while at the same time educating communities on the true value of their surroundings.”

8. *The reserve keeps communities well informed of reserve operations.*

RCV Locals (False):

- “…no one informs us of anything...”
- “(TNC) should be more communicative.”

HH Locals (False):

- “I’ve never seen (Huilo Huilo staff) in a meeting with the community, or asking them, like, ‘We have this project, what do you think?’…things like that, no.”
- “…it’s as if (Victor Petermann) were the grand lord here and he said. ‘I’ll build wherever I want and people just have to accept it.’”

COs (True):

- “...we create a good relationship with them by being good neighbors. We keep our doors open to then, we listen to them…we always have to be ready to hear all their complaints, needs, and questions they might have.”

- “We work hand by hand with the neighbors committee and many of the collectives here.”

13. *The reserve should not generate revenue for community development.*
RCV Locals (True):

- “The communities near the park are used to do things on their own, they won’t request anything from the reserve.”
- “No, there’s no way (TNC) would give money.”
- “I think that (TNC) should help with the ideas that the people have.”

HH Locals (True):

- “I wouldn´t ask (Huilo Huilo) for their help, it would make me feel corrupted.”
- “(Victor Petermann) had a meeting and told everyone he would give them paint for free so they would paint their houses in the way he wanted, but the people said, ‘No.’”
- “(Huilo Huilo staff) do not believe in handouts or helping out just because.”

COs (False):

- “We (Huilo Huilo) give 90% of the jobs in the area.”
- “We (Huilo Huilo) built the fire station of Puerto Fuy, we work with the fire station of Neltume, we built the radio station, we give financial help to a local folk band, give direct advice on how to tend to different parks in the town. We also built a bike road, and many other things like that.”

15. *Tourism-based livelihoods should replace traditional livelihood options (farming, timber industry work, livestock raising) as the main source of household income.*

RCV Locals (False):

- “(TNC) insisted, for instance, in projects that not only, that you can live not only from the sea, or with the hills, there are a million things that one can do, and starting from projects you can develop (on your own).”
- “This community is doing better economically than other places. We have many different ways to make a living, with the mussels, the wood, the tourism, fishing, etc.”

HH Locals (True):

- “…wood is scarce now, and in the end this will be about tourism.”

- “If it wasn´t for the reserve, we wouldn´t have the money needed to better our quality of life.”
- “I switched to tourism because there was no other option. It is our future.”

COs (False):

- “Those three pillars (of sustainable development) were implemented (by Huilo Huilo), were adapted to the local reality, committing to conservation and the local communities…with tourism being the main economic activity. That doesn’t mean that we couldn’t have other activities, but tourism was the main one.”
- “I think that it is fundamental that protected areas and other foundations, like in this case TNC, and the State, provide funding to capacitate (local people so they can) create infrastructure so that they can effectively incorporate other activities besides the traditional ones to create income.”

16. *Households should compete for tourism revenue opportunities*.

RCV Locals (True):

- “…I’m a little unpleased because they help associations, but not individual people…so it would be good (for me) to have things to attract (tourists).”

HH Locals (False):

- “…if (residents) can't get the means to prepare to work with tourism, what is it good for?”

COs (False):

- “We have supported the creation of a local agricultural and forestry cooperative so they can work in the restoration project using some areas, and obtaining an income that wasn’t in their old scheme...”
- “Well these funds have been open mainly for organizations (cooperatives), however this latest fund for neighboring communities has also opened for particular members, the difference is that the organizations can access higher amounts than a particular member.”

Several themes emerged from these quotes. Locals perceived HH ownership as corrupting, contributing to forest degradation, self-aggrandizing, and secretive. Locals perceived RCV owners as forthcoming, accommodating, accomplishing forest protection, and vigorously promoting community organization, local traditions, empowerment, and collective action.

Discussion and Implications

Cultural Consensus and Difference

Our analysis suggests local residents do not share the dominant cultural model with COs. Unexpectedly, however, RCV communities (mainly indigenous) agreed more often with COs on the 23 propositions than HH communities (mainly Chileans), and offered more positive perceptions of their respective PPA. Gaps in communication, equitable decision making, livelihood impacts and trajectories, and PPA purpose tended to underscore differences between COs and communities responses. These results may originate from varying degrees of PPA administration expertise and flexibility working with communities (Hackel, 1993), and therefore, an improved ability to understand and effectively interact with other cultures. Unlike the other PPAs in our study, TNC seems to have benefited from their partnership with WWF, an organization that adopted a policy of recognizing community rights and needs, particularly indigenous ones, in 1996. There is a need, however, to better understand the drivers of our findings. Future research should more deeply explore the theoretical and practical divides between cultural models identified within the private development-based conservation context.

Differences between RCV and HH community responses may be explained by historical over-dependence on one industry and the lived indigenous experience. At the time of our study, more formally educated and higher income earning HH communities were transitioning from extreme dependence on unsustainable timber extraction into a condition of extreme dependence on a privately established nature tourism industry. In Neltume and Puerto Fuy, intense timber extraction was, and now nature tourism is, essentially the only option for most to subsist, prolonging a cycle economic dependence and social domination (Mowforth & Munt, 2009). On the other hand, from RCV community sentiments we detect an autonomous disposition and subsistence livelihood diversification strategy that dates back to pre-colonization, and likely a product of centuries of territorial, social and political conflict, impoverished conditions (including low income and minimal formal education), detachment from external markets, and use of the land and sea to support material and symbolic aspects of life (Ponce & Frêne, 2007; Meza, 2009). Tourism, like bygone employment with corporate logging, is just one activity within diverse livelihood portfolios, rendering TNC's efforts to support local residents helpful, but not mandatory for local subsistence.

Though local dynamics are indubitably complex, variability in responses within communities may be attributed to 1) differences between local expectations of PPA-people relations grounded in competing collective and individual visions of rural development and individual worldviews (Pratt, 2012) and 2) aggregation of communities with different local realities for analysis. Yet, our results suggest TNC helped bridge within-community divisions by pooling resources through the encouragement and development of community cooperatives and refining, rather than completely replacing, traditional livelihood practices using more sustainable techniques. The elimination of traditional timber livelihoods in HH communities, a scarcity of capital to fully engage tourism on one's own terms, coupled with divided loyalty to a powerful and allegedly polarizing PPA owner may exacerbate the within-community divisions we uncovered.

Implications

This research has two important implications for scholars, practitioners, and decision makers operating within private development-based conservation. For scholars in this arena, we note the finding that RCV community cultural truths matched with those of COs better than the Chilean HH communities was surprising. Prior research on this topic tends to stress cultural differences between peasant perspectives, particularly indigenous, and conservation and development actors (Meza, 2009; Coria & Calfacura, 2012; Colchester, 1994; Peters, 1998). With much attention given to fostering local participation in development-based conservation projects, future scholarly inquiries should identify under what conditions and contexts local perspectives agree and diverge with PPA COs.

This information can be used to develop targeted interventions aimed at improving private development-based conservation. PPA administration can begin to rapidly assess their cultural model and strategies "in the field" by comparing their beliefs with those of local residents to create more just and legitimate private development-based conservation efforts. PPA administration is free to use any development-based conservation strategies they feel will work best. Though some PPAs are working with global and national actors with interests in rural development, PPA administration is not entirely constrained by these partnerships. This means they are free to discover and should put into practice more equitable and effective models, such as a so-called "trade-offs approach," where each party acknowledges they will gain and lose things in negotiations, but pays more attention to scale, complexity, pluralism, and context than traditional ICDPs (McShane et al., 2011).

Limitations

Several limitations to this study should be mentioned. First, the creation of our cultural consensus questionnaire was an exploratory endeavor. Commonly, scholars use this tool to elicit beliefs specific to a community, rendering cultural correctness arguably easier to accomplish and with better precision. We used this tool to examine a dominant ideology at the regional level and from the dominant actor perspective. Therefore, some respondents had difficulty answering because propositions in our questionnaire applied uniquely between sites. Further, we would like to see higher eigenvalues and competency scores. Working directly with COs to more fully capture their paradigm would have aided our approach. Second, Neltume and Puerto Fuy were in the midst of a scandal involving Victor Petermann and an illegal hydro project. Consequently, he laid off several hundred employees prior to our arrival. This event may have influenced responses in these communities. Finally, coastal Mapuche in Los Ríos surveyed indicated they live their lives differently than their "brothers" elsewhere, particularly those further north. Thus, integrating the findings from this study with indigenous elsewhere in Chile, consequently homogenizing them, is not recommended.

Table 6. Cultural consensus analysis for dichotomous data

Measure	*COs (n = 7)*	*HH Communities (n = 23)*	*RCV Communities (n = 22)*	*Sample (n = 52)*
Eigenratio	4.04	1.90	2.37	2.85
Mean Competence *(SD)*	.67*(.22)*	.48*(.34)*	.56*(.18)*	.52*(.26)*

Note: Eigenvalue ratios less than 3.0 indicate a poor fit to the consensus model.
Note: Cultural competence (0.5)—the proportion of questions answered correctly.
Note: Sample size and corresponding mean competence for each group approaches or exceeds 95% confidence that the model will detect a single response pattern (Weller, 2007).

Table 7. Intercorrelations among group answer keys

Group	*COs*	*RCV*	*HH*
COs	1.00		
RCV	.62	1.00	
HH	.35	.35	1.00

Table 8. Large-scale PPA propositions and their culturally correct answers

Propositions	Culturally Correct Answers: Sample (n=52)	COs (n=7)	Huilo Huilo (n=23)	RCV (n=22)
1. The reserve does a good job of protecting forests from harm.	T	T	**F**	T
2. The reserve should be accessible for limited harvesting activities by community members.	T	T	T	T
3. Because of the reserve, communities near the reserve have changed their behavior to better conserve nature.	T	T	**F**	T
4. Traditional livelihoods (livestock raising, timber extraction) have caused significant local environmental degradation.	T	T	T	**F**
5. The reserve was created to protect forests from degradation.	T	T	**F**	T
6. The reserve was created to make money from tourism.	F	F	**T**	F
7. The reserve completing its objectives depends on having good relations with the neighboring communities.	T	T	T	T
8. The reserve keeps communities well informed of reserve operations.	F	**T**	F	F
9. The reserve should provide free environmental education programs for local schools.	T	T	T	T
10. The reserve should influence community development.	T	T	T	T
11. Communities should have less influence over reserve management decisions.	F	F	F	F
12. Partnerships with reserves will help communities influence government affairs.	T	T	T	T
13. The reserve should not generate revenue for community development.	**F**	**F**	T	T
14. The reserve is not responsible for creating local jobs.	F	F	F	F
15. Tourism-based livelihoods should replace traditional livelihood options (farming, timber industry work, livestock raising) as the main source of household income.	F	F	**T**	F
16. Households should compete for tourism revenue opportunities.	F	F	F	**T**
17. Reserve-based tourism is the best way to ensure the wellbeing for most community members.	F	F	F	F
20. Managers cannot make all locals happy with reserve management decisions.	T	T	T	T
21. To have a prosperous tourism economy historical community relations with nature must change.	T	T	T	T
22. Communities that want to engage in tourism will benefit the most from the reserve.	T	T	T	T
23. Communities working with the reserve to apply for community project funds benefit the most from the reserve.	T	T	T	T
24. The reserve should work with external organizations to help improve the wellbeing of communities.	T	T	T	T
25. The reserve is doing enough to provide the basis for people's livelihoods and the goods and services necessary for achievement of human wellbeing.	F	F	F	F

Note: Propositions #18 and #19 have been deleted from this analysis.

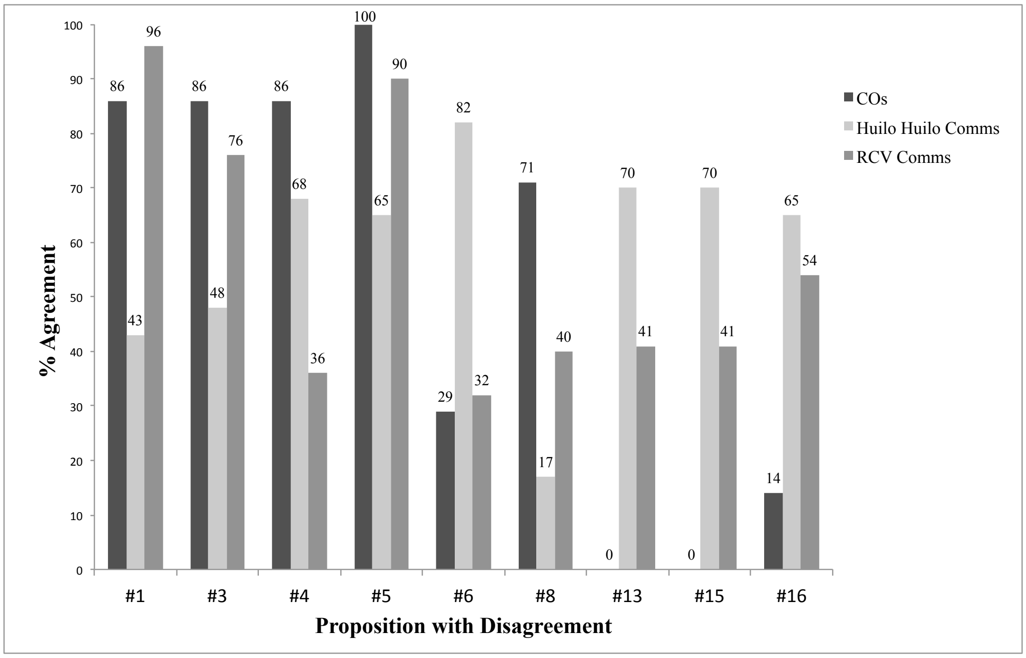

Figure 2. Percent agreement with propositions that have disagreement by at least one group.

CHAPTER 4: EVALUATING THE IMPACTS OF PRIVATE PROTECTED AREA GOVERNANCE, CONSERVATION, AND DEVELOPMENT ON HUMAN WELLBEING: THREE CASES FROM LOS RÍOS, CHILE

Abstract

Within the global green-grab movement, private protected areas (PPAs) are expanding rapidly in less industrialized nations, transforming geographic borders, influencing politics and economies, and creating socio-political tensions within neighboring communities. We explored how PPAs impact human wellbeing (HWB) using three case studies in Los Ríos, Chile where three large-scale PPAs were engaging in-situ forest protection. Results suggest residents perceived PPA ownership type affected security and empowerment, while degree of interaction impacted opportunities. These results provide a baseline for establishing large-scale private conservation as a social and political process by adhering to principles of "good" governance and chronicling how the green-grab movement affects HWB.

Keywords: Chile; development; governance; green grab; private protected area

Introduction

There is agreement among scholars and practitioners that the practice of protecting natural areas through land purchases by wealthy actors, also known to critics of neoliberal capitalism as "green-grabbing," has grown rapidly in recent decades, fundamentally altering access to arable land, water, and biodiversity in many parts of the world, including African, Asian, and Latin American settings (Fairhead, Leach, & Scoones, 2012). Due to the difficulty of obtaining global land purchase statistics, growth has been framed in terms of hundreds of millions of dollars invested, double digit percentage of Earth's surface protected, and millions of hectares involved in deals (e.g., Corson & McDonald, 2012; German, Schoneveld, & Mwangi, 2011). Latin America, in particular, is attractive to private conservationists who engage in a form of green-grab to protect biodiversity in its natural state without human interference (hereafter referred to as *in situ* conservation) (Pauchard & Villarroel, 2002; Wakild, 2009) and statistics are more tangible some countries.

These conservation enclosures taking form as private protected areas (PPAs) are gaining global notoriety as most countries in the Western hemisphere have them (Mitchell 2005), but are also found in countries in the Eastern hemisphere, including India and Africa. The 2003 International Union for Conservation of Nature (IUCN) World Parks Congress defined PPAs as "a land parcel of any size that is 1) predominantly managed for biodiversity conservation; 2) protected with or without formal government recognition; and 3) is owned or otherwise secured by individuals, communities, corporations or non-governmental organisations." IUCN is paying closer attention to PPAs because they believe governance is the critical link between biodiversity conservation and social outcomes.

Chile is an epicenter for large-scale PPAs[7] (Borras, Jr. et al., 2012) for *in-situ* conservation, despite a tax structure that does not encourage them. In 1996, Centro de Investigación y Planificación del Medio Ambiente (CIPMA), a Chilean independent research institution, completed the first national tally of PPAs and counted 39 PPAs of 40 hectares or more with a surface area of almost 400,000 million hectares (Sepúlveda, Villaroel, Moreira, & García, 1998). As of 2009, over 500 PPAs spanning nearly 1.7 million hectares existed, accounting for about 11% of Chile's National System of Natural Protected Areas (Oyarzún, 2009). The Chilean government produced an official cadastre in 2013. Large PPAs in Chile and elsewhere also gained the attention of influential external interests such as the United Nations Development Program (UNDP) and International Union for Conservation of Nature (IUCN).

Many large-scale PPA administrations introduced initiatives intended to enhance human wellbeing (HWB). Mainly, administrations encouraged nearby communities to participate in entrepreneurial endeavors, wage employment, and the provision of services and goods to their operations and tourists in order to address material poverty (Bishop & Pagiola, 2012). Some administrations also attempted to protect or modernize disappearing cultural traditions, such as indigenous cuisine or crafts.

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[7] A large-scale PPA is defined in this study as 1) ≥ 500 hectares, 2) attempting to protect biodiversity, and 3) attempting to create development pathways for local communities. "Large-scale" was derived from German, Schoneveld, and Mwangi (2011) who described agrarian land grabs in Africa in these terms. The remaining criteria were based on the smallest PPA in Chile known to be intentionally engaging local communities (Oncol Park). It is expected that operationalization of this term will be modified over time.

Despite the increase of PPAs and their integration into global PA networks and markets, there is evidence that some large-scale PPAs have been met with some degree of resistance in Chile (Holmes, 2013b; Meza, 2009; Wakild, 2009). Emerging socio-political tensions concerned equity, livelihood disruption, elitism, rising land costs, and land rights (Elisa Corcuera, personal communication, 1/31/2013; Holmes, 2013b; Wakild, 2009). Empirical documentation at the local level is required, however. Consequently, an examination of large-scale PPAs impacts on local residents would entail exploring not only the alleviation of material poverty, but also "real and important social impacts" that "extend beyond economic and livelihood issues into matters of culture, identity and community" (Holmes & Brockington, 2009, 3).

Purpose and Justification

Because PPAs, particularly large ones, are rapidly filling rural areas of the less industrialized world (Mitchell, 2005), transforming geographic borders, influencing politics and economies, and altering the realities of rural peoples without much, if any, regulation, there is still a critical need to comprehend how and why they impact the wellbeing of those people living near and (sometimes) within their borders (Langholz & Lassoie, 2001). To address this need, this research engaged the global proliferation of large-scale PPAs for *in situ* conservation to provide a starting point for international critique and contemplating how to evaluate them. We position this work within the literature critiquing so-called "green grabs" and focus on the social justice concerns associated with protected areas. In this study we ask: 1) Why do governing PPA actors engage locals in Los Ríos, Chile? and 2) How do residents perceive impacts on HWB under different large-scale PPAs governance regimes in Los Ríos, Chile?

Methods

Defining the Socio-Political Context

Because little is known about large-scale PPA formation, their networks, origins of private development-based conservation, or purpose within national biodiversity conservation goals, we first unpacked their socio-political context. In accordance with anthropological study on PAs, we drew from informant interviews and a literature search to better understand the historically contingent and shifting cultures (Igoe, 2004) embedded within large-scale PPAs in Los Ríos.

Defining Human Wellbeing

Attending to the words of Majid Rahnema (1992), who argued planners, politicians, and economists do not consider the needs of local people in poverty alleviation, we defined HWB by recording and analyzing informant responses to the question: *Que es para usted una buena calidad de vida*? (For you, what is a good quality of life?) Contextualizing HWB in this way helped us understand the private development-based conservation phenomenon from the perspective of people living in near PPAs. Thematic analysis of informant responses mirrored the World Bank's dimensions of wellbeing (opportunities [the ability to do something desired], security [free from want and fear], empowerment [ability to impact outcomes, increase capacity, or obtain power and authority]). Definitions of wellbeing (above) were identified within semi-structured interviews. We used a forward and backward translation process to design English and Spanish versions of the questionnaire to ensure clarity and validity (Marín & Marín, 1991). To safeguard against gender-based response bias, we used one male and one female interviewer and did not uncover gender-related interviewer effects on response rate, item omission, or interview duration (Peterson, Lopez, Metig, & Lui, 2011).

PPA Selection

We used a comparative case study design to investigate large-scale PPAs engaging in *in-situ* conservation and assess impacts to HWB under different PPA governance regimes. We selected the following PPA regimes because they represent three of IUCN's types of governing entities in charge of PPAs: Non-Governmental Organization (Valdivian Coastal Reserve; RCV), Corporate (Oncol Park; OP), and Individual (Huilo Huilo Reserve; HH). We targeted Los Ríos because the region harbors PPAs of each type.

Community Selection

We used a diverse-case strategy (George & Bennett, 2005) to investigate the variance of resident perceptions as a function of the degree of the interaction of PPAs with local communities. We chose four communities for RCV and OP sites, two with the highest degree of interaction with each PPA and two with the lowest. We determined degree of interaction based on preliminary interviews with PPA officials and local leaders. We paired similar communities using the high/low criteria to ensure a sample size that approached saturation and increased variation (Gerring, 2004). HH was an exception because only two communities were considered relevant.

Participant Selection

We employed key informant and snowball sampling (Patton, 2005) to obtain perspectives within PPA networks. We interviewed government bureaucrats, academics, an executive within a PPA network, PPA officials, community decision makers, and residents engaged in tourism development (tour guides, restaurant and shop owners, cabin/*quincho* owners, current and former PPA employees and contractors). We continued interviewing until responses became redundant and theoretical saturation was reached.

Analysis

We completed a total of 79 semi-structured interviews. Our sample was mainly male (65%), achieved primary education (40%), fell between 46 and 55 years of age, and a 50-50 split between Chileans and indigenous peoples.

We employed QSR International's NVivo v.10 qualitative data analysis software (Burlington, MA). Continual movement between text and theme allowed us to find critical thematic moments and relationships to build a "thematic map" and also evaluate our precision (Guba & Lincoln, 1985, Petty, Thompson, & Stew, 2012). Though not a linear or sequential process, the repeated interface encouraged our reflection on our own involvement in the study, also referred to as reflexivity (Petty, Thompson, & Stew, 2012, Guba & Lincoln, 1985).

Los Ríos and the Valdivian Temperate Rainforest

All three PPAs studied are located in Los Ríos, Chile (Figure 3, Figure 4). Los Ríos is

840km south of Santiago and officially formed in 2007 after dividing the region of Los Lagos. It has an area of 18,429.5km² and as of 2010, an estimated population of 356,396 (http://www.turismolosrios.cl). The region comprises a northern portion of the Valdivian Rainforest Ecoregion (from 37° S to 42° S), a rare, ancient, and threatened temperate rainforest. The forest's condition began to decline in the 16th century due to Spanish-indigenous conflict, colonization, subsistence livelihoods, and commercial exploitation (Wilson et al., 2005, Alex & Clapp, 1998). The forest is considered a biodiversity hotspot of global importance, harbors one of the highest rates of endemic species in the world, and was targeted for protection by the Worldwide Fund for Nature (WWF) and the World Bank (Núñez, Nahuelhual, & Oyarzún, 2006; Dinerstein et al., 1995).

Results

Motivations to Engage Locals: A Macro Perspective

The Chilean government recognized PPAs are important to natural resource conservation in Article 35 in the National Environmental Law, but does not yet regulate them. Existing large-scale PPAs, however, serve as a bridge between global and national sustainable development and biodiversity conservation policies and rural peoples, primarily through nature tourism development. The regional government of Los Ríos crafted the Regional Tourism Policy, which facilitates sustainable development through public and private large-scale PAs using tourism to strengthen rural communities. According to SIRAP (Sistema Regional de Áreas Protegidas), "Local development and conservation go hand in hand in the region of Los Ríos."

This regional policy promotes social participation and community development in the context of biodiversity conservation under the assumption that “sooner or later (residents) would impact the protected area.” A SIRAP official elaborated on his depiction,

> PPAs realized they couldn’t be like a bubble, people (would) keep stealing wood or introducing their animals, introducing dogs that kill the fauna…therefore a work strategy was implemented in order to work with the people…to create productive sustainable activities like ecotourism and gastronomic services around the protected area. That way the protected areas turn into a way of development for the communities and not a threat and at the same time the biodiversity of the protected areas gets better care and are better protected.

Consequently, partnerships were forged between large-scale PPAs and regional and national actors such as the Association of Conservation Initiatives on Private and Indigenous Lands (ASI Conserva), Chilean universities, government agencies, as well as glocal[8] conservation and development actors influencing the lives of rural peoples living near PPAs. In the cases of OP and RCV, funds were developed to help rural people make the transition from timber to tourism and teach them other livelihood strategies, such as beekeeping and craft making (e.g., The Fund for Neighboring Communities of Protected Areas, funded by The Regional Government of Los Ríos and administered by the Chilean National Forestry Corporation [CONAF]). External partners for various funds include the WWF Chile, the towns of Corral, La Unión, and Valdivia, Global Environmental Facility-Regional System of Protected Areas (GEF-SIRAP) program, and Alerce Coastal National Park (Delgado, 2005). In another example, the UNDP partnered with TNC to establish a US$300,000 fund to forge development pathways for neighboring communities.

[8] Oxford Dictionary: Reflecting or characterized by both local and global considerations.

Engaging Locals: A PPA Perspective

HH is 165km east of the city of Valdivia, and located on the northern part of the Patagonia Ecoregion in the Andes Mountains. It is a globally recognized tourist destination, resides inside a UNESCO Biosphere Reserve, and harbors the 64-hectare Huemul (*Hippocamelus bisulcus*) Conservation Centre (Vidal et al., 2011). Chilean billionaire Victor Petermann, his partner Fernando Boher, and ex-wife Ivonne Reifschneider began HH in 1999 after Petermann acquired two *fundos* (estates) covering 104,000 hectares.

HH's operations are based on the three pillars of sustainable development: environmental commitment, social commitment, and sustainable economic activity. The Huilo Huilo Foundation (HHF), a family-run non-profit organization, attends to the first and second tenets by promoting biodiversity conservation; providing support and training for new tourism-based livelihoods; pursuing community activities and projects; and developing a societal ecological conscience. The third tenet is handled by Petermann's tourism and construction business ventures. Unlike RCV and OP, HH used private funds to carry out its mission. In 2004, HH hosted 5,068 visitors, over 33,000 in 2011, and between 50,000 and 60,000 in 2013.

Neltume (pop. 3,495) and Puerto Fuy (pop. 391) populations are growing.[9,10] These settlements were characterized as timber towns with residents working for low wages and lacking job security (Klubock, 2004), and with a long history of social unrest. Residents of

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[9] Official 2002 census data is reported for urban and rural residents.
[10] The Huilo Huilo Foundation reported 2002 combined populations totals for Neltume and Puerto Fuy at 3,495 and 3,855 in 2012, an increase of 10.3%. The source of their data was unidentified.

Neltume earned an average of CLP$150,000 per month, while most in Puerto Fuy earn under CLP$100,000 per month (Endesa, 2013). However, the sale of forestland to Petermann and Bomasa, S.A in 1997 generated a windfall of financial capital for some residents (Henderson, 2012). According to a HH official, community interactions take place under the philosophy that "…now you have to work with the local communities, for better or for worse. They are there, they are your workers and supporters. They benefit from the park directly or indirectly. You must include them."

The Nature Conservancy (TNC) and WWF partnered to create RCV, part of a low altitude coastal mountain range bisecting 59,691 hectares of the Valdivia province. The Chilean government deemed RCV an underrepresented ecosystem in the National System of Protected Wild Areas of the State and also a priority area for biodiversity conservation by the National Strategy Biodiversity (Delgado, 2005). In 2012, TNC donated approximately 9,300 hectares to the Chilean government to form Alerce Coastal National Park, reducing RCV to 50,251 hectares. RCV tourism is growing. TNC reported a 30% increase in tourism between 2006 and 2009. It was estimated Chaihuín, RCV's gateway community, served 5,000 tourists in 2012 and over 7,000 in 2013.

TNC's 2005 management plan reported RCV is linked to 15 local communities, but TNC staff reported the following four communities were impacted most by the PPA. The closest are Huiro (circa 1970-73, pop. 109) and Chaihuín (circa 1940, pop. 240), followed by Cadillal (circa 1998, pop. 40) 5km up and across the Chaihuín River, and Huape (circa 1900, pop. 233) at approximately 10km away (Delgado, 2005).[11] These communities are largely comprised of indigenous peoples who have been at the bottom of the social hierarchy for hundreds of years (Meza, 2009). They also employ livelihood diversification strategies, but, depending on the community, historically rely on fishing, small agriculture, or animal husbandry as the primary livelihood activity. Average monthly household income is reported less than CLP$50,000 for Huiro and upwards of CLP$100,000 for Chaihuín, Cadillal, and Huape (Delgado, 2005). TNC identified major infrastructure development, particularly the coastal highway project, as a high-level threat to the reserve, while traditional local livelihood strategies, such as animal husbandry and timber extraction, were identified as medium-level threats (Delgado, 2005). TNC has a community ranger who liaises between TNC and residents to enacts TNC's "Community Plan" that operates under the assumption provided by TNC Official #2:

> …if the people feel that they are part of a project that uses an important land of which they are neighbors, if you have good relationships and understanding, knowing what the area is for and the benefits they might obtain from this area, they become good neighbors and allies of the project.

The official added, "…we create a good relationship with them by being good neighbors. We keep our doors open to then, we listen to them" and that TNC was working with WWF to develop social impact indicators.

OP is located 29km northwest of Valdivia and 5km from the Pacific Ocean in the coastal mountains. It protects 754 hectares of the Valdivian Forest on the western flank of Cerro Oncol, reaching a height of 715m above sea level. In 1985, Forestal Valdivia, a

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[11] All populations are approximates based on best available data.

subsidiary of Celco-Arauco, bought Fundo San Ramón and then, according to SIRAP, declared part of the land protected to comply with international standards, making OP one of the first large-scale PPAs in Chile. Tourism visitation increased from less than 200 in 1990 to approximately 1,200 in 1990-1991 (Corcuera, Sepúlveda & Geisse, 2012), approached 2,400 in 2003, and was near 14,000 in 2007.

OP is nearest to the communities Curiñanco, Bonifacio, Las Minas, Los Pellines, Tambillo Quitaqui, Pilolcura, Llenehue, and Punacapa. In an analysis of communities pertinent to our study, Pilolcura (pop. 39), Bonifacio (pop. 167), Las Minas (pop. 37), and Los Pellines (pop. 244), Ponce (2007) reported most of the working population were indigenous Mapuche, males between 35 to 64 years of age, and self-employed (farmers and skilled workers of agricultural farm, forestry and fishing with a target market). Bonifacio and Los Pellines are furthest away of the four, Las Minas is on the route to the main gate, and Pilolcura is several kilometers away, but has an ocean beach. The average monthly income in this is area was CLP$47,000.

It was not until 2011 that park officials began engaging neighboring communities. OP hired a facilitator and contact person to help residents apply for aforementioned funds. OP administration operate under a less refined PPA-Community strategy they call the “Territorial Involvement/Community Management Program” which was in a “winning the trust of the communities” stage at the time of our study. OP Official #1 explained the PPA-community philosophy, “It is important the communities that live in the same biological corridor of the park…are also maintained. They are also impacting the park.”

Impacts on Human Wellbeing

Resident classifications of HWB highlighted opportunities, various forms of security, and mechanisms of empowerment as primary ways PPAs influence their wellbeing. The results underlined PPA governance type had slight influence on the range of opportunities and a stronger influence on security and empowerment (Table 9). Contrarily, degree of community interaction played a bigger role in opportunities for residents, but was weekly linked to security and empowerment (Table 9).

Opportunities

Residents claimed PPAs could impact HWB by providing opportunities to earn income, be closer to the forest, and access improved community services and activities. Opportunities at both the individual and community levels varied more so upon degree of community interaction with PPAs than PPA governance type.

Economic opportunities. Residents stated they initially expected PPAs to create jobs and that was the primary, and often only, way PPAs would complement their wellbeing. Informants identified a timber employment culture responsible for this expectation. A former timber truck driver near HH explained, “It's just culture; there's a generation used to receiving everything. (Employers) used to give you electricity, water, and your salary. So, having to make your own money is more difficult…” An expectation of jobs was also due in part to a belief that entities capable of buying large tracts of land should create jobs. Near OP, a Bonifacio community leader asserted,

> I would have thought the millionaires, the owners, would have come, because they have to be rich, and millionaires, to have (a large PPA), and they would have come to ask if we needed jobs, and we could have said, "Yes, our communities could benefit from Oncol Park."; but, no.

A community elder in Chaihuín expected a greater influx of money from a wealthy organization like TNC:

> We know that (TNC) is part of the 12 countries that are the richest, so we thought they would help people with some projects, give them money to build cabins, to fix the cabins they already had, to focus things towards tourism. But, it didn't happen, nothing happened.

To a former logger from Pilolcura it was imperative that OP created jobs stating, "Big enterprises have to give jobs to the people." Wage employment is an important HH strategy. HH Official #1 added, "We give 90% of the jobs in the area" and "informally, 95% of the staff is local." OP administration used local employment to counter disturbances by traditional livelihoods:

> We have always given priority to hiring people from (communities) around the park…We think…that if a family used to raise animals within the park or chopped firewood for Forestal Valdivia – and today we employ them. This means a positive impact on the forest because we create a direct economic income for the head of the family…the (forest) core is not being affected…anymore.

Residents also praised PPAs for providing new options for income where there would otherwise be few. Near RCV, residents credit TNC for helping diversify livelihood strategies. A former corporate logger in Huape told us, "(TNC) insisted…in projects…that enable you to live not only from the sea, or from the hills; there are a million thing that one can do, starting from projects you can develop yourself." A Chaihuín guide confirmed,

> Here you don't see poverty, well, at least critical poverty. Here the main income is from the mussels, then tourism in the summer. This community is doing better economically than other places. We have many different ways to make a living, with the mussels, the wood, the tourism, fishing, etc.

HH Official #2 explained tourism's arrival helped residents who knew only to cut timber to develop new and employable skillsets: "In the past, all the people that lived here worked in timber exploitation operations. They didn't know anything else. There weren't any carpenters, stonemasons, nothing. So, these projects helped them discover talents."

Yet, residents who wanted to engage in entrepreneurial tourism ventures believed they needed more financial and intellectual capital to prosper. A Huape cabaña owner near RCV said, "You have to save the money…first." To obtain seed money, a Huape leader observed that some residents sold their lands remarking, "…to have more money and make their cabins…they sell two pieces of land, and they build a cabin..." Residents near HH needed more intellectual and financial capital saying, "They could prepare people, train them so they can improve their services and…local tourism..." and "It's important that people have…money to invest, having more resources so that they can work with tourism. It's just very few people that can." A Neltume entrepreneur asked, "…if they can't get the means to prepare, to work with tourism, what is it good for?"

Residents across all three sites perceived stratification of new economic opportunities as a reason some residents had a difficult time amassing capital. Neltume entrepreneur #11 questioned why some people received opportunities from HH to develop their tourism business(es), but not others: "So why that many opportunities to those that already have them?…so few chances to the smaller ones." Some residents professed communities that "don't have resources" (e.g., a beach or cabins), such as Bonifacio or Las Minas, have fewer opportunities to attract tourists. Near RCV, some residents contended communities and businesses were slighted by administration. When asked if there were people that TNC helped and people they do not a Huiro *quincho* owner directly answered, “Right.” A local tourism officer said, “I think it’s very directed, (TNC officials) have a group of favorite names to call.” TNC Official #3 offered a different perspective saying residents that adapted to changes brought by PPAs are “the ones that get economic benefits…It’s obvious. But, not the rest.” RCV Official #4 confirmed disengaging with Huape saying, “…strategically it hasn’t been given priority because it’s a little bit farther away, and also the people aren’t that easy to work with.”

Renewed human-nature relations. Residents perceived native forest protection under PPAs a chance to renew relations with the forest that were severed by decades of intensive forest exploitation. For some, the protection and restoration of native forest meant conceiving nature in new ways and becoming aware of “conservation problems.” Several informants near HH and RCV communities declared sentiments such as, “People…now…favor conservation, and have much more information at their disposal than they did only a few years ago...People have changed the way they conceive their surroundings, the way they see nature.” For residents at all three sites, the forest was something to cut and sell or burn without thinking about the ecological and human repercussions, and others gained “more respect towards nature.” A long-term resident of RCV community Chaihuín, a rental cabin owner, reflected on this shift:

> (Historically), people who lived here didn’t care about nature. We used to get a stick and then we made fire with it. Sometimes, we didn’t use wood properly since the remains were not burned. Nowadays, we regret that because we didn’t take advantage of the benefits we had. In those times wood was abundant. Now it is not, we have to buy it and it is expensive.

Both HH and RCV officials attribute these changes to a "soft hand" and patient approach where they "didn't threaten them with calling the police or anything, it was a very slow process of talking to them and convincing them." RCV Official #2 believed, "…for…touristic development to be really successful, we have to change the ways the people relate to the environment."

Enriched youth. Our informants at all three sites described novel opportunities that PPAs in Los Ríos provided historically underprivileged local youth. OP staff attended "Kids Day" at a Los Pellines school and "provided hot dogs," and youth took field trips and learned about forest ecology, biology, conservation, recycling, composting, and tourism from PPA staff and affiliates. Additionally, Neltume and Puerto Fuy residents reported the HHF provided lessons in the fine arts, and gave educational scholarships.

Adults interviewed claimed youth "take much more advantage of the environment" than older generations did and, in some cases, now can avoid emigration to the cities. For instance, young adults near OP and HH accepted employment in positions such as outdoor recreation staff and tourism internships. A former HH employee explained that HH influenced youth to value the forest in a sustainable manner,

> Especially for the younger kids, it has meant a lot. They now have courses in school where they are taught what a huemul is…what a reserve is, what is the meaning of nature. (This) translates into a long-term advantage for them because when they grow up they will know the value of their land and the opportunities tourism has to offer.

Community improvements. Residents linked PPAs to community improvement projects at all three sites. For instance, residents collaborated with OP to fix a school roof in Los Pellines and make road improvements, while RCV communities gained trash removal, a paved road, and bus service. Informants mentioned HH and RCV gave water rights to communities, ensuring a source of clean and reliable water. Informants believed HH helped turn the gateway community Neltume from a logging “shantytown” into an attractive mountain town. An executive within a PPA network echoed other informants on this matter stating, “I was in Neltume 10 years ago, so I can tell you there was nothing there, just shacks.” Puerto Fuy and Neltume were furnished with wood sculptures, playgrounds, home for the aged, cultural centers and community activities. HH Official #1 added,

> We built the fire station of Puerto Fuy, we work with the fire station of Neltume, we built the radio station, we give financial help to a local folk band, give direct advice on how to tend to different parks in the town. We also built a bike road, and many other things like that.

Security

Residents described three primary ways PPAs impacted human security in Los Ríos: reliable income, changed access to forest resources, and dispossession. PPA governance was influential throughout all themes, while level of community interaction (linked with opportunity prevalence) influenced financial security. We observed a continuum of security comprised of OP (minimally impacted security) at one end, RCV (moderately impacted security) in the center, and HH (highly impacted) security on the other end.

Financial security. PPAs addressed rural economic decline at all three sites by driving a shift from timber-based livelihoods to nature-based tourism. HH communities were banking on a bright economic future due to HH’s year round tourism. A former HH employee described how the transition already financially benefited residents: “A few years ago, our only work source was the timber industry, and nowadays there´s this whole tourism industry going on, which offers much more job opportunities for everyone, not only for the men. Now everyone can work." Several informants agreed, but this fact comes with a caveat. Informants disclosed details on the seasonality of these positions telling us, "Only few people work the whole year, most of them just work for the season; (HH) works with contractors" and "We have even three times the amount of people during summer." Residents consistently indicated HH is the main income generator in the area noting, "I switched to tourism because there was no other option, it was our future" and "…we can look at it as a monopoly. Here, who doesn't work for Mr. Peterman is independent or has to work elsewhere, outside of Neltume or Puerto Fuy." The future was uncertain, however, as residents held their collective breathes over a rumor that Petermann was considering abandoning his HH project. A Puerto Fuy leader commented on the precariousness of so many relying on one man who owns most of the land and provides most of the jobs, "I think…if (families) do not have the ability to expand, or if…forestry and (tourism) construction stops, people are going to be forced to sell (their homes)."

For RCV residents, improved social organization helped boost financial security. This is evidenced by claims from residents such as: "We knew that Chaihuín was doing well with the cooperative…we inquired…the reserve said, 'Yes…we can form the cooperative here. Lets form a group of…10-12 people and let's talk about it.'" Residents near RCV recognized TNC for helping them get organized, pool and distribute resources, give residents a better chance to keep, rather than sell, their lands, and win project funds with bigger sums of money. TNC Official #4 explained, "…funds were opened mainly for organizations, however this latest fund for neighboring communities also opened for (individuals), the difference is that the organizations can access higher amounts than (individuals)," but, "organizations…above a certain (yearly) income level are excluded from participating."

Where residents were not organized, they became disenchanted with the competitive funds scheme for bolstering financial security. Some OP residents reported losing interest because grant proposals failed and PPAs received public relations support even when communities did not reap benefits. A lifelong Bonifacio community member expressed his frustration,

> …they call all the communities to the contest, so with that (OP/Arauco) say that they are working with all the communities…they make you apply for a project and they never say that they have enough money for (all of the) projects...or this is going to be the amount. And the people already lost interest…In fact, they have come offering projects and nobody (applied)...because they are going to lose...it's the biggest lie because (OP/Arauco are) like deceiving the poor man, they deceive, they deceive, hope, hope, hope, they give and then, when everything is set, they tell you, 'Your project didn't come out because it lacked this.'…Never. I mean, almost never anybody wins, at least no one here.

However, OP Official #2 insisted OP is winning residents over one funded project at a time:

> I helped (Pilolcura) to create a project, they conceived the idea, but I drafted it and uploaded it…and we won a grant for the project. And so they keep involving me…and that has led to a very close relationship with the people of Pilolcura, because they see you working in a good way, independent of a corporation, or some organism from the government…people see this as an opportunity and they realize, that in this logic of local economic development, or sustainable development, it's not fiction or a declaration of good intentions…

Another perceived emerging threat to security was that pursuing individualist doctrines, rather than collective action, lead to equity and integrity concerns. This was primarily the case near HH. A Neltume leader said HH contractors have "great houses and cars" (some have "three cars"), but pay their workers poorly, concluding, "…that's how Neltume is, the strong ones step on the weak ones." Accordingly, HH residents suggested the existence of a possible poverty trap as this inequity obligated most of the labor force into low wage employment with HH. This finding is echoed by a Puerto Fuy neighborhood delegate who contended HH did not make much difference in residents' economic mobility: "…there's people that are in the same situation, they can't progress any further. Because of the…work issue – jobs that are very bad and poorly paid. So people don't have a chance to improve."

Some community members considered security offered by PPAs owned by businessmen or corporations as a bribe. For example, OP communities were fighting the construction of a pulp mill effluent duct proposed by Arauco, a company with a history of environmental pollution. Informants linked OP was linked to the pipe project and financial support from OP was seen as a "political maneuver," A Pilolcura woman elaborated on this tension:

> …we are people that won't sell for a couple of pesos…first we need to know why are they offering us funds because it could be that they are offering this money so they can approve the pipe. That is what we most fear with this relationship between us and the park.

OP Official #2 explained residents in these communities "didn't understand that private wildlife protected areas could be targets of public funds." Yet, lack of trust was also found among HH residents who thought engaging HH was akin to being "bought." One Neltume leader said, "I haven't given them a chance to buy me" while a community figurehead remarked, "I wouldn´t ask them for their help, it would make me feel corrupted."

Access to forest resources. Informants acknowledged PPA creation restricted their freedom to extract resources from the forest, particularly where PPAs lands used to be unsanctioned commons. Near RCV, a Chaihuín elder reflected, “Back then, if somebody needed wood to make a house, they just went there and got it.” Although TNC donated wood to schools, medical centers, and other social institutions, they did not sell the timber to locals and posted a letter threatening penal retaliation for stealing wood (Figure 5). Now, residents must purchase wood from elsewhere. A Huape leader expressed his dismay with TNC:

> …they should give more work so that when there's bad weather (they) offer a solution to not using native wood...but nothing, they just prohibited (wood extraction). They didn't give anything back – something for us to survive off of while the weather, that can get really rough, hits us.

Near HH, “the heating issue,” prompted the Puerto Fuy neighborhood delegate to wonder, “Why can’t I get firewood (from the forest) if I don’t have money to buy it?” OP communities have parcels of family-owned land and did not express much dependency on timber residing on OP lands. Some informants near OP also disclosed they occasionally received wood from OP officials for personal construction projects.

Residents near HH also recounted that game hunting, fishing the Río Fuy, and gathering wild edibles are no longer viable livelihood strategies. Some OP residents interviewed said they formerly harvested palmitas (*Gleichenia quadripartida*) and sold them, while TNC allowed collection of ferns, fruits, and mushrooms within its borders with their permission and guidance.

Changed access to grazing areas across all three sites created perceived threats to human security and resulted in conflict between communities and PPA administration. Once, the lands where RCV is located were “full of animals,” but are now “close(d)…with fences” to keep livestock out, thought they still wander in. Informants said Huiro and Cadillal families were most impacted because they lost their winter grazing lands. A woman working with TNC on the Cadillal project declared, "…the reserve cornered us, and isolated us." Informants detailed plans to work with CONAF and Instituto de Desarrollo Agropecuario (INDAP; Chile's Department of Agriculture) to remedy these conflicts. Informants interviewed about both conflicts stated compromise was difficult, however. A Huiro union leader suspected farmers will "have to sell (cattle) to survive." Some residents responded by decreasing herd size. Ten kilometers away, a Huape leader said his community was eliminating cows:

> Everybody who has sheep has (enough) land. The problem is the (cows). Well, mostly it's the people of Huiro who have (cows). Here, there are people (with cows), but they are mostly eliminating all the (cows), because they have already been fined...

TNC Official #4 responded with a different outlook on the conflict,

> …it's a behavioral change that they have to assume…it's…hard for them, especially the elders. They find it hard to understand why they have to change their ways…because they have always lived here and have always had their cattle free, so (it's like), "Why do these gringos arrive now and tell us to take our cattle out, and want us to change our way of life?"

HH and OP residents experienced change in forest access for livestock when PPAs began, but were less impacted than RCV communities.

Dispossession. Informants stated privatization impacted a number of families near PPAs by removing them from their homesteads and blocking use of recreational lands. A long-time Puerto Fuy resident remarked that the business arm of the HH project, run by Petermann, is "the most serious conflict (because) he is shrinking the communities, he is taking over everything." Another Puerto Fuy resident explained that after Petermann purchased the *fundos* her husband's family, who were living for generations on the property without deeds, "…weren't given a thing, not even (an option) to build somewhere else, nothing…they were kicked out, or their houses were torn down...They preferred to leave peacefully, losing their things..." Informants revealed dozens of families were landless near HH, priced out of the local housing market[12] and looking to resolve the issue collectively; options were living with family, building on family-owned land, emigration, or squatting. Respondents also expressed concern about the difficulty of establishing a tourism business because there was no place to put one.

Residents disclosed dispossession also included depriving residents of easy or free access to places they used for recreation pre-PPAs, such as HH's waterfalls, beaches in Puerto Fuy and RCV, as well as HH and RCV forests. HH Official #1 addressed restrictions to the waterfalls: "Our reason we charge is that…the falls are public, but they're on private land…Also, we built the access road. We invested in security and made a lot of improvements." HH Official #2 addressed other access issues stating that residents can enter the reserve for free, but "a lot of (residents) never picked up their credentials."

Empowerment

Residents perceived PPAs aided or impeded their ability to impact outcomes, increase capacity, or obtain power and authority. Residents described PPAs were involved in education and training, altering gender roles, uneven decision making, and fostering

[12] It was reported by HH Official #1 at the time of our study that 400 parcels were available and priced between CLP$10 and 15 million/ha.

community divisions. Empowerment was mainly a function of PPA type and administration ideology, strategy, and goals.

Education and training. PPAs provided environmental education and capacitation programs that empowered some residents to better adapt to the changes PPAs brought to their communities. RCV and HH environmental education occurred in schools and in workshop settings. According to HH Official #2, “The mission of the Foundation is to contribute to the conservation and preservation of the temperate rainforest and its resources, while at the same time educating communities on the true value of their surroundings.” TNC Official #1 provided a similar logic: “…the idea was always to conserve…with the communities (in mind)…conserve with local development, environmental education in schools, work with the communities, because you have to provide new possibilities so they can develop in a sustainable way.” Informants revealed environmental education courses offered by PPAs included lessons in forest ecology and biology and sustainable behavior, and highlighted human-caused degradation of the Valdivian Forest.

Across Los Ríos, residents observed PPAs direct environmental education at community youth. A tour operator whose wife was a teacher in Neltume explained the main objective was to diffuse environmental education throughout the household rather than engage adults directly stating,

> The Foundation teaches the young boys how to take care of nature, to appreciate it, and how to raise awareness inside their own families, because it´s one thing to start that process in a young mind and another completely different to do it in an adult. Through those courses, the Foundation seeks to influence entire households through the younger kids, who have shown to be more permeable to that kind of knowledge.

TNC Official #2 articulated a parallel strategy:

> …the environmental education program has its focus on affecting children because what these kids learn is taken to their homes…effectively, these kids become transmitters of information and also become critics of the negative actions of their parents…this (knowledge)…is radiated to the complete community.

According to some residents, these strategies were effective at the household and community levels. A RCV ranger and Huiro resident responded "yes" when asked if the TNC's program changed his child's approach to nature and conservation saying, **"**Kids pick that up much quicker than we do, on the subjects of taking care of nature, the trash, having more consciousness on what it mean to protect the environment." A Neltume tourism entrepreneur described how youth now react to people, especially parents, who perform behaviors they see as harmful to the environment responding, "…Now if a parent throws a paper to the ground, they're all over them."

Through these educational efforts, adults also came to realize they were threats to the forest. A former logger who participated in PPA environmental education confessed he unknowingly harmed nature and then changed his ways telling us,

> I used to go to the hills with a machete…just cutting branches, any branch, but it turns out that I didn't realize I was hurting a tree that afterwards would give us air. But now the reserve has educated us so much, that instead of hacking the tree we take care of it. We take care of nature now.

A Chaihuín artisan commented TNC's efforts helped him recognize the impact of historical community practices, "We here, because of ignorance, we planted here eucalyptus, and now vegetables don't grow like they used to." OP Official #2 found their environmental education programming, usually taking place inside the park, was not as successful with adults because they 1) do not enter OP and 2) "feel that Oncol Park is for more wealthy people and that they do not have a place (there)."

Capacitation programs offered by all PPAs concentrated on skill building within a market-based economy. Informants revealed PPAs offered courses in entrepreneurship and business finance, leadership, sustainable harvesting techniques, apiculture, guiding, as well as culinary and artisan interests. Informants expressed that these empowerment opportunities enhanced pride, self-worth, and self-confidence. As tourism projects progressed and even garnered visits from regional and national authorities, informants noted accounts of personal transformation among residents in this regard. A former Huape logger explained how TNC projects and programs emboldened his fellow community members and this equates to feeling capable of achieving more,

> ...it makes you grow as a person also…before we were more brute in our ways, now we have more empowerment. We are not running away anymore. When someone asks something, we preferred avoiding them so they wouldn't start (speaking to us)…now we direct them to the Reserve…Confidence? I don't know, because of the projects that we are doing…you don't have the same vocabulary that one used to. Now, as a person, you (desire) to be something more.

Altering gender roles. Informants stated women gained knowledge and skills from PPAs that allowed them to work for the first time, changing local culture. Women chose to step out of the shadow of their male partners, "cutting the paradigm of the macho market," several informants said. This was true of RCV women, less visible among OP women, and especially true near HH because the HHF is devoted to women's empowerment. A Puerto Fuy woman near HH spoke about the cultural change women were "motivated" to make declaring, "Now we women aren't so submissive or anything. We go out to work and ready (to work)." In fact, women comprised most of the HH hotel staff. HH Official #2 noted, "…there are even months where women make three times more money than their husbands." Women in HH and RCV communities ran tourism businesses and organizations, or earned income on the side making handmade goods. This motivated women in other communities and rendered a male resident to perceive women better at entrepreneurship than men because women were not entrenched in the aforementioned timber culture.

Women's empowerment ruptured traditional household dynamics, however. A Neltume woman explained she accepted employment as a maid for HH because her husband's low HH construction wages were not enough to support their family. She divorced because she decided to keep working, telling us, "I think we (women) all have the same problem…men can't stand it, that there's no schedule...they're too macho…and want women to be around for them." The damage to traditional male-female relations is likely a major reason some women turned down opportunities offered by the HHF. The working mother concept also impacted children as informants mentioned, "…children are the ones who benefit the least because their mothers are now busier and don´t have as much time for them."

Unilateral decision making. An element of disempowerment brough forth by informants across all three cases was excluding community members in PPA decision making. TNC Official #3 stated residents "don't participate in the decisions that we make." Similarly, a Puerto Fuy resident stated, "I've never seen (HH administration) in a meeting with the community, or asking them, 'We have this project, what do you think?'" Several residents echoed sentiments that they are have no power when it comes to PPAs: "…they have the power; they get along with the police, so there's nothing we can do." Empowerment in the form of acts of resistance to unilateral decision occurred as well. Informants detailed how communities near RCV and OP wrote denunciation and rejection letters and cut roads in response to PPA administration acts that threatened their wellbeing.

Community divisions. Informants across all sites acknowledged tensions surrounding PPA-community relations, which undermined empowerment. A Neltume informant mentioned some perceived those working in tourism and conservation, rather than timber, as "traitors." RCV and OP also created similar divisions. An OP community leader discussed her disappointment over a letter drafted by another community leader and sent to CONAF and indigenous watchdog *Observatorio Ciudadano* on everyone's behalf without all leaders having read it. The letter writer (who we keep anonymous) disagreed with the positive trajectory of PPA-community relations:

> ...everybody was happy because they were going to do their projects…and then when this was discovered…(the community leader) wrote (a) letter…where they informed (CONAF) that no community wanted to work on projects…sponsored by Oncol Park…he said it was for our benefit so we wouldn't have problems later and whoever wanted to apply for a project could do it…Everybody else continued waiting for their projects…Then…we heard all the projects had been allocated to Chaihuín!…we should have been informed, and here all the people were left disappointed…

Some PPA officials described these types of conflicts as political and that they did not get involved in them. TNC Official #2 informed us, "we're apolitical" explaining, "…we don't get into political, religion, or ethnic matters."

Discussion and Implications

This study provides a more nuanced understanding of the reasons PPA administrations engage locals and the potential implications of their impetuses. Analogous to broader parks and people research, governing PPA actors interviewed revealed improving local resident HWB, using econometric reasoning and incentives, was a means to conservation ends. Locals were fundamentally perceived as a threat to biodiversity conservation and social engineering in the form of advocacy and livelihood change at the local level bulwarked PPAs from this threat. Our results provide evidence of attempts by governing PPA actors to indoctrinate locals into a moral culture suited dependent on use (protection, tourism) of the PPA in question. Scholars, such as Peterson et al. (2002), demonstrated establishing a governing moral culture can regulate human-environment interactions by serving as a guide for environmental decision making; yet, when confronted with an opposing moral culture (commonly disregarded by conservation and development actors) conflict and impasse can occur, hampering conservation efforts.

Informant experiences signified the opportunities PPAs provided to improve residents' HWB coincided with broader sustainable development policy by: 1) re-directing labor and capital away from unsustainable traditional livelihood activities that degrade forest ecosystems; 2) encouraging commercial activities that develops nature tourism; and 3) providing broader opportunities to construct pathways out of poverty through indirect, rather than direct, economic incentives (Albers & Ferraro, 2006) and 4) constructing new conceptions of nature. Some residents were enthusiastic about opportunities that accomplished these broader objectives because many reaped related economic and psychological benefits. However, others indicated they begrudged these changes, suggesting there are issues employing economic reasoning to create opportunities within private development-based conservation. Discontent may be explained in that pro-market values, such as individualism and competition, tend to materialize unequal distributional impacts in practice (Horton, 2009).

Perceived difference between PPA impacts on human security may be attributed to PPA ability to address the pitfalls of shifting to a tourism economy while also conserving biodiversity. Literature shows PA regimes that 1) respect and work within existing local institutions, needs, and desires (Brechin, Wilshusen, Fortwangler, & West, 2002), 2) encourage collective action (Mbaiwa & Stronza, 2010), and 3) are able to simultaneously build trust and 'sensitize' institutions and communities (Wells & McShane, 2004, 518) are in good position to produce socially just, ecologically sound, and pragmatic outcomes (Brechin et al., 2002). Our results suggest TNC was more progressive in this regard. We posit this placed TNC in a better position than HH and OP administration to address threats to locals' short-term security.

Nonetheless, we note informant accounts of dispossession, inequity, tourism dependence, troubles adapting to restricted forest access, and community divisions raise questions about residents' long-term security. Critics, for example, regarded community tourism development projects as frequently underperforming, unsustainable, and without accountability (Dixey, 2010). Additionally, when PAs contribute to decreased security, subsistence communities near PAs can react negatively and sometimes violently (Neumann, 1998; Western, 1994). These scholarly insights leave us to wonder how communities will reconcile threats to security due to large-scale PPA creation and governance in the future. Will residents work alongside administration to create paths to long-term security? Are subsistence communities better off on their own? In what ways will administration address residents' security concerns, especially should market strategies to improve HWB fail? We believe answers to these questions will require in-depth longitudinal study, but are critically important for the wellbeing of rural peoples impacted by large-scale PPAs.

Local empowerment in Los Ríos manifested itself as authoritarian, strategic, and focused economic empowerment. Resident perspectives suggest empowerment opportunities provided altered how individuals conceive and value nature, others, production, and larger global forces (e.g., the market) in order to increase income opportunities. Other forms of empowerment are not well suited to a private property scenario. Informants revealed PPA administrations withdrew from empowering residents in a political sense, such as involving them in decision making or engaging in cultural politics. Regardless of land tenure, by implication, locals are isolated from means of power (Holmes, 2013a) and their values and beliefs could hardly comprise the foundation of PPA conservation/development policy. This contradicts current trend in local empowerment in the PA context, despite the fact that strategic approaches to local empowerment and exclusionary decision making is not new in the context of PAs (Chapin, 2004; Renfrew, 2011; Wells & McShane, 2004). The danger here is that private development-based conservation in Los Ríos could become a 'flashpoint' if ‘the broadly supported goals of social justice and biodiversity conservation’ are ever ‘at odds’ (Langholz & Krug, 2004, 9), which they have been historically. Presently, large-scale PPAs are flying under the radar in this regard.

Therefore, this study provides a baseline for PPA actors to establish large-scale private conservation as a social and political process by at least adhering to principles of “good” governance to reduce the likelihood of just such a scenario. Good PA governance, originally prescribed by the IUCN (Borrini-Feyerabend et al., 2013)[13] and expanded by Lockwood (2010),[14] may be diffused across different types of PPA ownership regimes to encourage better PPA-community relations, enhance HWB, and deliver a more just system of PAs in general (Lockwood, 2010; Taylor & Paavola, 2010). In Los Ríos, informants disclosed PPAs by and large need local residents more than local residents need PPAs because PPAs need wage labor, public relations and political purposes, and to uphold “the principle of local support” proposed by Brockington (2004). However, future research should investigate whether good governance, if tailored and executed for the specific context it is deployed, will help PPAs enhance HWB.

Scaling up our results, evidence of the impacts of PPAs on HWB helps us better understand the potential implications of green-grabs. First, preliminary results in Los Ríos reflect a non-state territorialization[15] (Deleuze & Guattari, 1972) of land-based capital (Peluso & Lund, 2011) and align our work with prior research articulating that expanding

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[13] IUCN’s principles: Legitimacy and Voice; Direction; Performance; Accountability: Fairness and Rights.

[14] Lockwood’s (2010) principles: Legitimacy; Transparency; Accountability; Inclusiveness; Fairness; Connectivity; and Resilience.

[15] “a mechanism with many possible means for control of people and resources by controlling territory or land” (Peluso & Lund 2011, 673).

PAs is a form of territorialization (Corson 2011). This process is poised to present locals living near PPAs with new pressures from unfamiliar authoritarian enclaves that seek to alter local worldviews, recommoditize and privatize nature, and place rural peoples' faith in novel market-based relations despite new boundaries around the capital necessary for subsistence and new rules that control everyday actions (Gardner, 2012; Peluso & Lund, 2011). Unfortunately, attempts to institutionalize this process can lead to diverse forms of inequity and disregard for local impacts (Peluso & Lund, 2011). Second, our results also provide insights on the part social imaginaries play in the terrorialization process. Informant responses revealed social imaginaries are at work in Los Ríos by actively modifying local individual and common practices and implanting a so-called modern moral order of human-environment interactions (Taylor, 2004). The resultant shifting of collective and individual subjectivities has implications for rural heritage, identities, social relations, and culture, and provides a glimpse at the consequences of modernity projects such as sustainable development in this context. Lastly, this study 1) makes known the local effects of green grabs, particularly PPAs, which help us confront their core dynamics, 2) carves out a space for counterhegemonic alternatives for those who are likely to unevenly bear the brunt of green grabs, and 3) helps devise new questions that further probe the social and ecological implications of this controversial phenomenon.

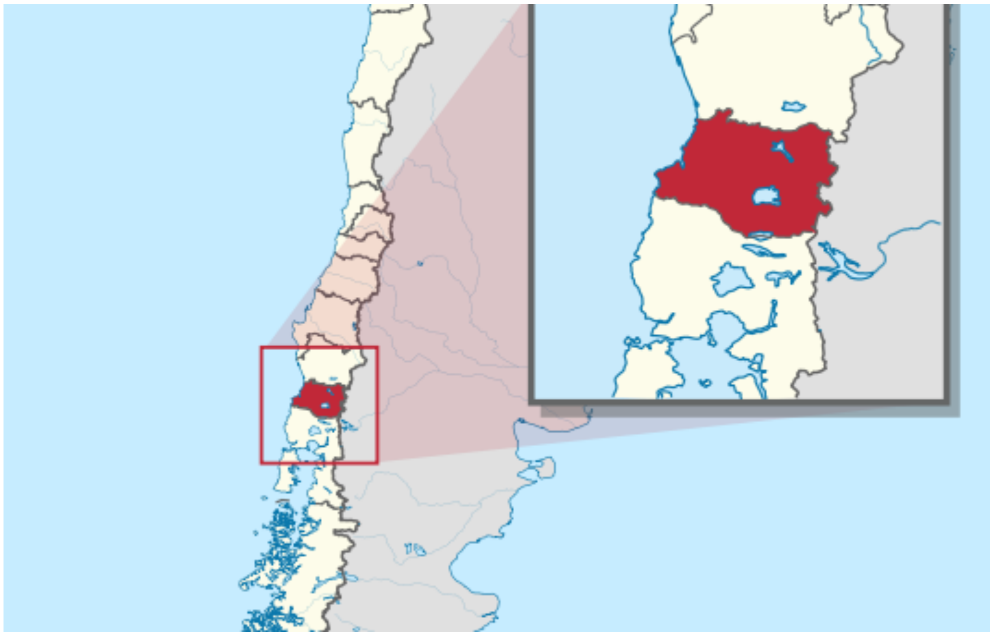


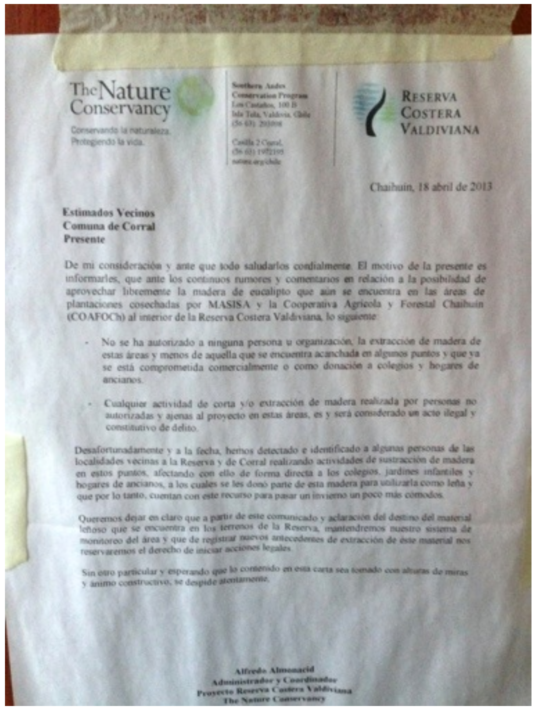
Figure 3. Map of Los Ríos, Chile. ((Photo retrieved without copyright restrictions from: http://en.wikipedia.org/wiki/Los_R%C3%ADos_Region)

Figure 4. Map showing the three case study sites in Los Ríos. (Photo retrieved without copyright restrictions from: http://www.wikilosrios.cl)

Table 9. Comparison of Themes Identified within Informant Comments

HWB Dimension	INFLUENCED RESULTS: Type of PPA Governance	Degree Community Interaction
Opportunities		
Economic Prospects	√	√
Expectation of employment	–	–
New income options	√	√
More capital needed	√	√
Stratification of opportunities	–	√
Renewed Human-Nature Relations	–	–
Conceiving nature in new ways	–	√
New human-nature interactions	√	√
PPA strategy	–	√
Enriched Youth	–	√
In-school	–	–
Take advantage of environment	–	√
Community Improvements	√	√
Security		
Financial	√	√
Livelihood shift	√	√
Social organization	√	√
Non-organization - Disenchantment	√	√
Individualism - Poverty trap	√	–
Equity and integrity	√	–
Access to forest resources	√	–
Wood	√	–
Wild game and edibles	√	√
Grazing	√	√
Dispossession	√	–
Landlessness	√	–
Recreation areas	√	–
Empowerment		
Education and Training	–	√
PPA Mission	√	–
Environmental education - youth	–	√
Environmental education - adults	√	–
Market-based capacity training	√	–
Altering Gender Roles	√	–
Women working	√	–

Table 9. Continued		
Household rift	√	–
Unilateral Decision Making	–	–
Community Divisions	–	–



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Southern Andes
Conservation Program

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Reserva Costera Valdiviana

Chaihuín, 18 abril de 2013

Estimados Vecinos
Comuna de Corral
Presente

De mi consideración y ante que todo saludarlos cordialmente. El motivo de la presente es informarles, que ante los continuos rumores y comentarios en relación a la posibilidad de aprovechar libremente la madera de eucalipto que aún se encuentra en las áreas de plantaciones cosechadas por MASISA y la Cooperativa Agrícola y Forestal Chaihuín (COAFOCh) al interior de la Reserva Costera Valdiviana, lo siguiente:

- No se ha autorizado a ninguna persona u organización, la extracción de madera de estas áreas y menos de aquella que se encuentra acanchada en algunos puntos y que ya se está comprometida comercialmente o como donación a colegios y hogares de ancianos.

- Cualquier actividad de corta y/o extracción de madera realizada por personas no autorizadas y ajenas al proyecto en estas áreas, es y será considerado un acto ilegal y constitutivo de delito.

Desafortunadamente y a la fecha, hemos detectado e identificado a algunas personas de las localidades vecinas a la Reserva y de Corral realizando actividades de sustracción de madera en estos puntos, afectando con ello de forma directa a los colegios, jardines infantiles y hogares de ancianos, a los cuales se les donó parte de esta madera para utilizarla como leña y que por lo tanto, cuentan con este recurso para pasar un invierno un poco más cómodos.

Queremos dejar en claro que a partir de este comunicado y aclaración del destino del material leñoso que se encuentra en los terrenos de la Reserva, mantendremos nuestro sistema de monitoreo del área y que de registrar nuevos antecedentes de extracción de este material nos reservaremos el derecho de iniciar acciones legales.

Sin otro particular y esperando que lo contenido en esta carta sea tomado con alturas de miras y ánimo constructivo, se despide atentamente,

Alfredo Almonacid
Administrador y Coordinador
Proyecto Reserva Costera Valdiviana
The Nature Conservancy

Figure 5. TNC letter regarding wood stealing

CHAPTER 5: FINAL CONCLUSIONS

Broadly, my original aim at the onset of this dissertation was to penetrate deeper to the heart of human-nature relationships at the local level in order to go beyond critique of protected area-development schemes to forge new paths towards sustainable outcomes in Latin America. Alas, I found critique was inherent to this research, which still renders this work a noteworthy contribution to the broader debates about parks and people by 1) achieving a deeper understanding of local realities in the context of protected areas and 2) exploring methodological approaches that advocate negotiable conservation-development outcomes and best articulate local perspectives. The issues, conceptual domains, and methodological tools superimposed with critique should deliver innovative ways to bridge parks and people schisms. By implication, they should help discover opportunities for improved governance of public and private protected areas in this under-chronicled part of the world, while probing a space for local voices within historically authoritarian conservation and development strategies and tactics.

This study contributed to this effort by attending to the following objectives:

1. Investigating the application of value orientations to inform protected area practitioners managing endangered species and facing internal and external development pressures;

2. Exploring the fit of prevailing conservation-development ideology reflecting strict nature protection and rural poverty alleviation in forest-dependent communities; and

3. Examining the social impacts of private conservation on local wellbeing.

I must first concede the unification of protected area conservation and sustainable development in southern Chile is fraught with complexity and challenges. Scholars from numerous disciplines, chiefly anthropology and human geography, have robustly demonstrated similar results. A global sustainable development agenda is based on the premise that environmental conservation, economic development, and social development are interwoven. However, these ideals originate from the "world's minority" (mainly elites in the so-called global North) speaking on behalf of the "world's majority" (those living in the so-called global South) and typically have little regard for local realities and histories. This study suggests that park-people relations in southern Chile are historically and politically contingent and reaction to conservation-development projects under the umbrella of sustainable development is in part due to socio-demographics, cultural truths, and power dynamics, while protected area administration readiness to confront conservation-development is also a mediating factor. Therefore, this dissertation principally established that an authoritative approach towards protected area conservation-development under sustainable development, public or private, might not be the best approach to achieve sustainable outcomes in Chile.

This argument is first based the notion that the areas of study in this dissertation were centers of subaltern struggles and social unrest at some point in recent history: socio-political conflict between coastal indigenous and the state ongoing since the 1600s; Neltume and Puerto Fuy for three decades in the mid-20th century, and protests in Aysén in 2012. In these places, grassroots struggles attempted to (re)construct equitable institutions and capture the balance of power. To ignore or discount these histories to further conservation-development projects is to disregard the foundations upon which local people make and reproduce themselves, networks, culture, and relations with nature, thus, potentially reinforcing indignities and dehumanization rural peoples seek to overcome.

The central argument is also based on results that feature local response to the coupling of sustainable development and protected areas could descend from both socio-demographic, cognitive-cultural factors, and organizational (conservation) readiness. This coupling plunges local people and land managers headlong into unorthodox and challenging situations that, according to this research, seem ripe for natural resource-based conflict more so than partnership and solidarity. For instance, land managers in Chile become social engineers to achieve biodiversity, while rural peoples, as recipients of sustainable development, are thrust into a new moral order in order to remake and regulate human-environment interactions. Protected area administration capacity, flexibility, and experience level (e.g., respect for local institutions, worldviews), which varies between public and private, large and small, seems critical for each party to negotiate these changes, and weather dissent and difference. However, many questions remain about the sustainability of these arrangements as this dissertation illustrates, ecological and social stationarity, in which this coupling is grounded, is dead.

Finally, this argument is based on the conclusion that sustainable development in this study, observed as a technology of power, merges fortress conservation, modernization of rural people, and capitalist values with some success for locals and threatened species; but I argue, in the end, pays insufficient attention to scale, complexity, pluralism, and context on the ground. In turn, it closes avenues to sustainability existing beyond its ideal (Escobar

2011) and, borrowing from Esteva (1998), runs the risk of creating intolerable cultural deserts and prisons "of the individual modern self" for peoples with other ways of being and valuing nature (54). At it's best, this work notes that efforts to alter unsustainable environmental behavior and values can be had through the aforementioned triplex accompanying realized stakeholder dialogue. At it's worst, this dissertation chronicled likely short and long-term threats human security, diminished empowerment, stratification of opportunities and benefits, and unwavering worldviews, and leads to much bigger questions about the sustainability of conservation-development projects and park-people relations in Chile and beyond.

Taking these conclusions into account, and with the given that sustainable development and protected areas are not going anywhere any time soon, it appears conservation-development actors will need to work much harder to assess, compare, and consider "stakeholder" perspectives and establish common ground/relinquish power and ideas to discover pathways toward equality and pluralism and further global biodiversity conservation efforts. This dissertation provided a few targeted methodological and conceptual tools for relatively rapid analysis of cultural difference and conservation and development dissent and laying groundwork for dialogue. The hope is that these chapters may lead to better articulation of local perspectives and enhanced learning, sharing, and relations between locals and protected area and development actors for the benefit of forest biodiversity and humanity in Chile, Latin America, and elsewhere.

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APPENDICES

Appendix A. Relevant Sections from TNR Visitor Questionnaire

Values					
4. There are many species living in Tamango National Reserve. Please indicate how strongly you disagree or agree with the following statements about species in the reserve. Circle only **one** number for *each* statement.					
	Strongly Disagree				Strongly Agree
a. The primary value of the species in the reserve is to provide for humans.	1	2	3	4	5
b. The needs of humans are more important than the species in the reserve.	1	2	3	4	5
c. The species in reserve should be protected for their own sake rather than to meet the needs of humans.	1	2	3	4	5
d. Visitor use of the reserve is more important than protecting the species that live there.	1	2	3	4	5
e. The species in reserve should have rights similar to the rights of humans.	1	2	3	4	5
f. The species in the reserve have value whether humans are present or not.	1	2	3	4	5
g. Visitor use of the reserve should not be allowed if it threatens species that live there.	1	2	3	4	5
h. Humans should manage the reserve so humans benefit.	1	2	3	4	5

Resource Management Policy Preferences					
5. There are many policies that influence Tomango National Reserve. Please indicate how strongly you disagree or agree with the following statements about policies for managing Tomango National Reserve. Circle only **one** number for *each* statement.					
	Strongly Disagree				Strongly Agree
Wildlife					
Reserve management should be focused on providing huemul habitat.	1	2	3	4	5
Landowners near the reserve should be compensated for loss of livestock due to predators like the puma.	1	2	3	4	5
Parts of the reserve should be closed to allow huemul to breed undisturbed.	1	2	3	4	5
Landowners near the reserve should not be compensated for creating huemul habitat.	1	2	3	4	5
Wildlife should be able to move across private lands between reserves.	1	2	3	4	5
Livestock should be removed from the reserve.	1	2	3	4	5
Landowners near the reserve should change their livestock grazing patterns to benefit humeul recovery.	1	2	3	4	5

Visitor Use					
There should be places in the reserve where humans are not allowed to go.	1	2	3	4	5
The reserve should be day use only.	1	2	3	4	5
Loud music should not be permitted in the reserve.	1	2	3	4	5
Visitors should be able hike anywhere in the reserve.	1	2	3	4	5
Campfires should not be allowed in the reserve.	1	2	3	4	5
Activities in the reserve should not disturb the huemul	1	2	3	4	5
Enforcement					
Those who litter in the reserve should be penalized.	1	2	3	4	5
Rangers should be able to penalize visitors that break reserve rules.	1	2	3	4	5
Owners of dogs that are caught chasing huemul in the reserve should be penalized.	1	2	3	4	5
Resource Use and Development					
Mining should be allowed in the reserve.	1	2	3	4	5
Dams should not be constructed in the reserve.	1	2	3	4	5
Timber extraction should not be allowed in the reserve.	1	2	3	4	5
Infrastructure development (e.g., roads, communication, electricity, etc.) in the reserve should be permitted.	1	2	3	4	5
The reserve should be expanded through land donations from the private sector.	1	2	3	4	5

Appendix B. Cultural Consensus Questionnaire

LAND USE AND ECOLOGICAL PROTECTION	
1. The reserve <u>does a good job</u> of protecting forests from harm.	Agree-Disagree
2. The reserve <u>should be accessible</u> for limited harvesting activities by community members.	Agree-Disagree
3. Because of the reserve, communities near the reserve <u>have changed</u> their behavior to better conserve nature.	Agree-Disagree
4. Traditional livelihoods (livestock raising, timber extraction) <u>have caused</u> significant local environmental degradation.	Agree-Disagree
RESERVE FORMATION	
5. The reserve was created <u>to protect forests</u> from degradation.	Agree-Disagree
6. The reserve was created <u>to make money</u> from tourism.	Agree-Disagree
RESERVE-COMMUNITY RELATIONS	
7. The reserve completing its objectives <u>depends on</u> having good relations with the neighboring communities.	Agree-Disagree
8. The reserve keeps communities <u>well informed</u> of reserve operations.	Agree-Disagree
9. The reserve <u>should provide</u> free environmental education programs for local schools.	Agree-Disagree
10. The reserve <u>should influence</u> community development.	Agree-Disagree
11. Communities should <u>have less</u> influence over reserve management decisions.	Agree-Disagree
12. Partnerships with reserves <u>will help</u> communities influence government affairs.	Agree-Disagree

ECONOMIC EXECTATIONS	
1. The reserve should not generate revenue for community development.	Agree-Disagree
2. The reserve is not responsible for creating local jobs.	Agree-Disagree
TOURISM	
3. Tourism-based livelihoods should replace traditional livelihood options (farming, timber industry work, livestock raising) as the main source of household income.	Agree-Disagree
4. Households should compete for tourism revenue opportunities.	Agree-Disagree
5. Reserve-based tourism is the best way to ensure the wellbeing for most community members.	Agree-Disagree
CONCERNS	
6. The land where the reserve is located should not be returned to indigenous peoples.	Agree-Disagree
7. If the reserve supports large infrastructure development (e.g., roads, dams, waste pipelines) local communities will be upset.	Agree-Disagree
8. Managers cannot make all locals happy with reserve management decisions.	Agree-Disagree
IMPACTS	
9. To have a prosperous tourism economy historical community relations with nature must change.	Agree-Disagree
10. Communities that want to engage in tourism will benefit the most from the reserve.	Agree-Disagree
11. Communities working with the reserve to apply for community project funds benefit the most from the reserve.	Agree-Disagree

ACHIEVEMENT OF "WELLBEING"	
1. The reserve should work with external organizations to help improve the wellbeing of communities.	Agree-Disagree
2. The reserve is doing enough to provide the basis for people's livelihoods and the goods and services necessary for achievement of human wellbeing.	Agree-Disagree

Appendix C. Non-Household Interview Protocol

Non-Household Survey **Administered by: _______________**
ID:______________ **Date: ______________**

I. Questions for PPA Management/Decision Makers:

1. Please tell us how the protected area got started.

2. Why do you think the protected area was established? What (mechanisms, policies, institutions, or processes) were in place to help the park be created?

3. Do you permit community members to come in to the park and access resources? Has this always been permitted?

4. Please tell us which communities the protected area has impacted.

5. Has park/reserve management found it important to involve local communities in protected area projects/endeavors? **Probe**. Which ones? Why? How are they engaging communities? How is success measured? How is it achieved? (1b)

6. In general, how has the protected area been received by local communities (if several communities ensure each is discussed as necessary)? Why do think this? (1a)

7. How has the protected area impacted the lives of households within those communities?
Probe. Temporal change (day, month, year). **Probe**. Economic. **Probe**. Socio-cultural (relations with nature, class, gender, ethnicity, religion cultural identity, etc.), **Probe**. Ecological (land use [agriculture, grazing, etc.]). What was the reason for (insert each outcome)? How have communities adapted to changes? **Probe.** Are there differences between communities? (1a)

8. Who do you think benefits the most from the protected area (people, communities, etc.)? Who does not? Why? (1b)

9. Have there been points of contention/causes for conflict since the creation of the protected area? **Probe**. How has conflict been addressed? **Probe**. What forms of promotion or resistance have taken place? Why? Where? Who in the community has been active in pursuing a community-park partnership? Why? Who has not? Why? (1b)

10. How well do you think the protected area complements community beliefs on how to conserve nature and improve human wellbeing? (3)

11. Do you think the protected area model differs from the state sponsored model (e.g., national park)? How? (3)

Is there anything else you would like to discuss?

II. Respondent Information:

12. Sex (circle): Male Female

13. Age (circle): 18-25 26-35 36-45 46-55 Over 55

14. Organization: ___________________

15. Title: ______________________

Appendix D. Household Interview Protocol

Household Survey ID:______________ **Administered by: _______________**
Date: ______________

I. History of the Park: We first want to ask you a couple questions about the park's history.

1. Why do you think the PPA was established?

2. What were your expectations for when the park was created? Have your expectations have been met? What do you expect from the park now on?

3. What does the land where the park is located mean to you? To the community?

4. Do you have a need to enter the park to harvest resources? If yes, which resources and why?

II. Household Impacts/Response: Now we would like to ask you several questions specifically about your household and its relationship with the park (not the aquatic stuff). We will ask about the community's relations in a separate set of questions.

5. Has the PPA impacted/influenced you personally? Your household? How? **Probe**. Temporal change (day, month, year). **Probe**. Economic. **Probe**. Socio-cultural (relations with nature, class, gender, ethnicity, religion cultural identity, etc.), **Probe**. Ecological (land use [agriculture, grazing]). What was the reason for (insert each outcome)? How has your household responded to these changes? **Probe.** Have impacts differed between your household and other households in the community? (2b)

6. Have there been points of contention/causes for conflict between your household and the park management since the creation of the protected area? Why? **Probe**. How has management addressed any conflict with you?

7. If you had any good or bad feelings about the park, how have you shown how you feel? Why? Where? (2b)

III. Community Impacts/Response: Now we would like to ask you a few similar questions about community relations with the park.

8. Please tell us which communities the protected area has impacted.

9. Has the protected area impacted/influenced your community? How? **Probe**. Temporal change (day, month, year). **Probe**. Economic. **Probe**. Socio-cultural (relations with

nature, class, gender, ethnicity, religion, cultural identity, etc.), **Probe**. Ecological (land use [agriculture, grazing]). What was the reason for (insert each outcome)? (2a)

10. Have there been points of contention/causes for conflict between your community and park management since the park has been created? Why? **Probe**. How has conflict been addressed? **Probe**.

11. If community members have good or bad feelings about the park, how have you shown how they feel? Why? Where? (2b)

IV. Benefits. Thank you for perspectives thus far.

12. Who do you think benefits the most from the park (communities, specific people, other)? Who benefits the least? Why? (1b)

13. What is the role of park (eco)tourism in this community?

V. Park Outreach: We have only a few questions left.

14. Has park/reserve management found it important to involve your community in protected area initiatives/projects? **Probe**. If so, which ones? Why/not? How are they engaging your community? How is successful partnership/outreach measured by the park? What kind of relationship do you think your community should have with the park? (3/2a)

15. Have you or members of your household been contacted personally by the park? Participated? Why have you chosen to/not participate?

VI. Fit with Beliefs: These are our last questions and they are meant to understand whether humans and biodiversity conservation can co-exist, if at all.

16. What is for you "human wellbeing"?

17. How do you think (the protected area) complements your vision of how to achieve human wellbeing? (3)

VII. Respondent Information

18. Sex (circle): Male Female

19. Age (circle): 18-25 26-35 36-45 46-55 Over 55
20. How many people are in your household? Adults______________ Children ____________

21. In what ways does your household earn income? ____________

22. How would you identify yourself (circle)? Mapuche Chilean Huilliche Other (specify): __________

23. Please tell us how long you have lived in the community? ____________

24. Highest Level of Education Completed (circle):
No Formal Education Pre-Basic Basic Primary Beyond Basic Primary

25. Average Monthly Income (circle):
< 50 mil peso 51-149 mil peso 150-249 mil peso >250 mil peso

Is there anything else you would like to discuss about the park?

Thank you very much for your time. Your perspectives are critical to achieving human wellbeing and biodiversity conservation in this context and around the world.