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Views of Private-Land Stewardship among Latinos on the Texas–Tamaulipas Border

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Successful conservation efforts require understanding predictors of private-land stewardship (PLS), its definitions, and what people feel they owe stewardship responsibility to. Various strands of research have touched on the concept, but there is little research focusing on how it is communicated and enacted among the lay public, especially among Latinos. We used a case study in the Lower Rio Grande Valley of Texas to address this gap by identifying and assessing Latino views of PLS. Our results indicate positive relationships between self-identification as a land steward, male gender, and agricultural-land ownership. Respondents associated PLS with property maintenance (60%), natural-resource conservation (14%), and addressing pollution problems (21%). They viewed PLS as a responsibility owed to family rather than to a larger community.

Keywords: Conservation; Gender; Hispanic; Lower Rio Grande Valley; Mexico; Property Rights; Trans-boundary

Introduction

Scholars from a variety of disciplines are discovering private-land stewardship (PLS) plays a significant role in conservation. Efforts to protect biodiversity in the USA rely heavily on it because private lands make up 66% of the USA and provide habitat for more than 75% of the nation's endangered species (Shogren, 1998). PLS also influences quality and access to freshwater resources (Wagner, Kaiser, Kreuter, & Wilkins, 2007), security of future food supplies, and agricultural-worker health (Carson, 1962). The pivotal role of PLS in environmental conservation also is increasing on global scales

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with privatization of water, forests, agricultural land, and fisheries in South America, Africa, and Asia (Davis, 2006; Klopp, 2000; Lamprey & Reid, 2004; Lesorogol, 2005; Liverman & Vilas, 2006; Thongmanivong & Fujita, 2006).

Emerging ecosystem service markets may entice private landowners to protect natural resources in some situations, but social contexts where publics benefit from conservation on private land but cannot or will not pay for those services are likely to persist in the foreseeable future (Chan et al., 2007). Accordingly, many global conservation efforts must rely on private landowners to voluntarily promote sustainable land-use practices. Such voluntary protection is often labeled stewardship (Worrell & Appleby, 2000). Worrell and Appleby (2000, p. 263) define stewardship as "the responsible use (including conservation) of natural resources in a way that takes full and balanced account of the interests of society, future generations, and other species, as well as of private needs, and accepts significant answerability to society." Their definition informs the definition of PLS we use as a foundation for this paper: a personal responsibility to consider the interests of others (both human and extra-human) when managing one's private property.

Recent empirical research suggests PLS is an important factor dictating whether landowners would adopt sustainable land-use practices without formal compensation (Kreuter, Nair, Jackson-Smith, Conner, & Johnston, 2006). The Landcare movement in Australia suggests PLS can drive conservation efforts at the national level in addition to the individual level (Curtis & De Lacy, 1998). Given the potentially global-scale impacts of PLS, scant research has addressed PLS views among the lay public (Davies & Hodge, 2007). Davies and Hodge (2007) found five landowner perspectives on stewardship in the UK: ecosystem focused, managerial and technological centered, goods maximizing, community tradition protecting, and lifestyle focused. Only respondents holding ecosystem- or lifestyle-focused perspectives felt PLS implied a responsibility to society.

Although we have very little information about public perceptions of PLS in general, we have virtually none about perceptions of PLS among the Latino public. This poses a significant challenge for conservation in the USA, where Latinos represent the largest ethnic minority in the country. Further, growing Latino populations are rapidly changing conservation in many areas of North America (Lopez et al., 2005). The rapidly growing Latino population in North America is composed of unique and diverse cultures not necessarily steeped in mainstream US conceptions of PLS or conservation. For example in Mexico, communal-property ownership (e.g., *comunidades* and *ejidos*) is the second largest form of land tenure (Valdez, Guzman-Aranda, Abarca, Tarango-Arambula, & Sanchez, 2006). Accordingly, views of PLS among immigrants from Mexico may reflect norms of shared-property ownership not traditionally held in the USA.

We used a case study in the Lower Rio Grande Valley (LRGV) of Texas to identify and assess views of PLS among Latinos. Specifically we identify behaviors respondents associate with PLS, identify to whom or what respondents believe they owe PLS responsibility, and test four interrelated hypotheses: (1) property owners with agricultural property are more likely to self-identify as land stewards

than non-property owners or those owning only residential property; (2) males are more likely to self-identify as land stewards than females; (3) more educated and urban residents are more likely than their less educated and rural counterparts to view PLS as natural-resource conservation; and (4) more educated and urban residents are more likely than their less educated and rural counterparts to view PLS as a public responsibility.

Study Area

The US–Mexico border spans almost 3,200 km. It has been identified as a trans-boundary region with strong conservation and peace-building potential (Ali, 2007). Our study focused on residents between McAllen (Hidalgo County) and Brownsville (Cameron County), TX. We chose to work on the border, because it gave us access to a rapidly growing population that has been largely ignored by conservation researchers. We do not attempt to generalize the insights gained to the entire Latino population in North America, but we do suggest they may be useful to those who seek to encourage conservation outside borderland contexts.

This is an especially appropriate region for exploring the meaning of PLS for Latinos because a Latino population has lived here since before the USA existed (Pierce, 1917). The social history of this region provides broad inference for US–Mexico borderlands because the twin cities bounding the study area (McAllen/Reynosa and Brownsville/Matamoros) represent agricultural and port-influenced cultures, respectively, with western counterparts in the agricultural Mexicali/Calexico and port-influenced San Diego/Tijuana twin cities (Kearney & Knopp, 1995).

Educational deficits and deep poverty of rural Latino communities throughout the LRGV stem from historical dispossession of Latino lands and the resulting destruction of agrarian communities (Pulido, 1996). Following the signing of the Treaty of Guadalupe Hidalgo (1848), Mexicans living on lands that were originally part of northern Mexico were generally dispossessed of their property (Montejano, 1987). Between 1848 and 1900 sheriff's sales, auctions where Latino owned lands were sold to the highest bidder at unreasonably low prices, moved more than 80% of the land in Hidalgo and Cameron Counties, TX from the hands of Latinos to the hands of non-Latino Whites. When this study was conducted these two counties were among the poorest in the state and nation (US Bureau of the Census, 2001).

Ironically, recent land ownership gains for Latinos in this region worsened the economic plight of local communities. In the 1950s, landowners and land speculator intermediaries started converting marginal agricultural land (e.g., poor soil, within floodplains) into *colonias* ("a residential area along the Texas–Mexico border that may lack some of the most basic living necessities, such as potable water and sewer systems, electricity, paved roads, and safe and sanitary housing"; Texas Secretary of State, 2009, p. 1; Ward, 1999). Cheap *colonia* housing and flexible lending practices lured exurban migrants (mostly from Mexico and other US states) to the area (US Bureau of the Census, 2001). *Colonias* stymied education efforts by creating health problems for children, preventing studying after dark (due to the lack of electricity),

and creating transportation problems (bus divers refused to enter some *colonias* after rain for fear of being stuck in the muddy streets; Peterson, 1997).

The region also is experiencing patterns of land fragmentation (Jahrsdoerfer & Leslie, 1988) seen in other parts of the world where home numbers are increasing; with larger numbers of households owning smaller plots of land (Liu, Daily, Ehrlich, & Luck, 2003). Continued fragmentation of the land into multiple, privately owned plots makes understanding how individual property owners conceptualize PLS increasingly crucial for conservation planning (Peterson & Liu, 2008). The towns and *colonias* along this portion of the US–Mexico border intermix with an emergent wildlife corridor built around the Santa Ana and LRGV National Wildlife Refuge complex (116 tracts and 35,972 ha in 2007; Mitch Sternberg, Wildlife Biologist, LRGV National Wildlife Refuge, personal communication, July 19, 2008). Pressure from haphazard development and agriculture combined with high concentrations of endangered species have repeatedly put the refuge complex on the top 10 list of most threatened wildlife refuges in the USA (Defenders of Wildlife, 2004; Schlyer, 2007).

Critical Perspective

Our goal in this study was to identify environmental conservation opportunities by improving understanding of how Latinos relate to PLS. Because improved understanding of this relationship required us to uncover the meaning of community experiences, emotions, and thought processes, we framed the study in a critical humanistic tradition, with attention to conditions of everyday life (de Certeau, 1984). At the same time, we are cognizant of natural-resource managers' need to present verifiable empirical evidence to support policy decisions. While emphasis on local context and dynamics enriches analysis and provides deeper insight into cultural meanings, the particularistic focus, informal methods, and non-random samples limit generalizability (Denzin & Lincoln, 2005). For these reasons, we incorporated complementary aspects of critical, qualitative, and quantitative approaches for this study; and we collected quantitative data to test the hypotheses. Although we recognize the long-running debate regarding the ontological and epistemological gulf between humanistic and quantitative research approaches, the mixed-method approach utilized in this study has been well established for more than a decade (Tashakkori & Teddlie, 1998).

Peterson and Horton (1995) discovered that PLS was basic to self-identity of Texas ranchers when they offered the landowners an opportunity to describe their role as ranchers. The concept of PLS was not targeted by Peterson and Horton, but emerged from informant-directed interviews that encouraged landowners to guide the conversations as they chose. Because our goal was to build on the discovery that PLS was central to landowners, we constructed a protocol that allowed respondents to define what PLS was to them, and also provided sufficient structure to ensure that they would engage with the concept.

Historical and contemporary patterns in land use inform our hypotheses regarding PLS. Ranchers and farmers who settled the Rio Grande Valley brought an agrarian

lifestyle, and the sense of place engendered by an agrarian tradition may support a feeling of responsibility for the land (Peña, 1998; Thompson, 2003). In its traditional form, agrarianism posits that cultivation of the soil imbues humans with virtues that enable them to function as productive and stabilizing citizens in a democracy. Although it has typically been associated with patriarchy and religious conservatism, neo-agrarians such as Wendell Barry (1977) and Gene Logsdon (2007) have attempted to redirect agrarian thought toward the benefits of direct connection between humans and nature. Adopting a neo-agrarian perspective, we hypothesized respondents owning agricultural properties would be more likely to see themselves as stewards than non-property owners or those owning residential property (Hypothesis 1).

Despite attempts to rehabilitate neo-agrarianism, it retains a perspective toward nature that tends to marginalize women's voices (Warren, 2000). Throughout the history of western societies, a suite of intertwined binary oppositions has been used to justify the management and development of nature by gendering it as feminine; at the same time the oppression of women has been justified by characterizing females as closely tied to nature. On this view, both woman and nature are defined as unruly *other* against the orderly self of civilized man (Merchant, 1989). Because stewards are those who engage in "responsible" and "balanced" use of nature, we hypothesized males would be more likely to self-identify as land stewards than females (Hypothesis 2).

Although we did not pre-define PLS for respondents, we expected the aforementioned definition of PLS based on natural-resource conservation to emerge. We expected more educated and urban respondents to be more likely than less educated and rural counterparts to view PLS as natural-resource conservation (Hypothesis 3). This hypothesis stems from a body of research suggesting people with higher education levels and from more urban areas tend to support tenets of the environmental movement (Jones & Dunlap, 1992; Mertig, Dunlap, & Morrison, 2002).

Finally we hypothesized education level and urban background would predict viewing PLS as a public responsibility (Hypothesis 4). We expected education level to correlate positively with PLS entailing public responsibility, in line with academic definitions of stewardship that include allusions to public responsibility (Worrell & Appleby, 2000). We expected respondents from urban areas to be more likely to identify a public responsibility component of PLS because high population densities create a need to curtail many land uses (e.g. burning trash, animal husbandry) to maintain basic public goods (e.g. clean air and water).

Survey Implementation

We surveyed residents along 83 km of the Texas–Tamaulipas border in Cameron and Hidalgo counties, the most southeastern US counties on the border between the USA and Mexico. Our sampling strategy entailed administering a questionnaire to the person who answered the door of every fifth dwelling along this portion of the US–Mexico border (June–August 2005). This sampling strategy was necessary to avoid bias associated with ignoring households that were off the grid. This approach gains utility

when multiple households exist on one property owned by a family patriarch or matriarch, and utilities are shared by multiple households (Nyhus, Sumianto, & Tilson, 2003). We bounded the study area using US Route 281 (the south most transportation corridor along the US border between Hidalgo and Brownsville). We sampled all homes that fronted on the highway, *colonias* connected to the highway, and *colonias* between the highway and the Mexican border. We skipped abandoned homes and a trailer park that provided second homes for residents who lived in the region only during the winter. When no adults were at home we returned daily until the interview was completed.

We promoted design validity using a pre-test ($n = 36$), advisers from the study area, and clarification questions integrated within interviews. We used a convenience sample of study area residents for the pre-test. Advisors from the LRGV provided feedback regarding face validity of measures in the questionnaire and interpretations of survey results. There is minimal evidence for interviewer effects on response quality or quantity with Latino populations, but some gender effects have been identified (Webster, 1996). We facilitated evaluation of gender-related interviewer effects by employing one male and one female interviewer, and did not detect differences in interview duration, response rate, or item omission.

Variable Measurement

We designed English and Spanish versions of the questionnaire using a forward (English to Spanish) and backward (Spanish to English) translation process to improve comparability between English and Spanish surveys (Marín & Marín, 1991). To learn whether respondents self-identified as stewards, we asked them: "do you consider yourself someone who takes care of the land?" We did not use the word "stewardship" in either version of the questionnaire because it has no direct translation in Spanish, and using the word in the English version may have led to different connotations in Spanish and English versions. We assessed behaviors associated with stewardship by asking the open-ended question: "What does being a caretaker of the land mean to you?" Finally we identified the appropriate beneficiary of their stewardship responsibility by asking: "To whom or what do you owe this responsibility (please check all that apply)?" Answer options were: (1) the land; (2) family; (3) god; 4) the public; and (5) other.

We used two questions to create an ordinal variable representing the size of community from which respondents had come (rural, town, and urban levels [coded 1–3]). We asked respondents "Have you lived all your life here?" and if they answered "yes" we coded them as a rural level (1) because no communities in the study area exceed populations of 1,500 persons. If respondents answered "no," we asked them "Where did you move from?" We determined the population of their origin city at the date they emigrated using census data. Those from communities with populations $<$5,000 were coded as rural level (1), because their origin community was similar in size to communities in our study area. We divided the remaining respondents with those moving from areas of 5,000–100,000 people coded as town level (2) and those moving from areas with $>$100,000 residents coded as urban level (3).

We used another ordinal variable to represent land ownership (coded 1–4). Respondents who owned no real estate were coded 1 and those owning residential size parcels ($\leq$0.40 ha [1 acre]) were coded 2. We used the acreage of parcels that were farmed to divide the remaining respondents. All landowners with properties larger than 26.30 ha (65 acres) farmed their property, so we coded them as 4 and coded respondents owning $>$0.40 ha and $\leq$26.30 ha as 3.

We also collected data for education level (1 = less than high school to 7 = graduate or professional degree), previous year's income (1, $<$14,999 to 7, $\geq$100,000), age, ethnicity, and gender. The questionnaire asked respondents "What is your race or ethnicity?" Options were Latino or Hispanic, White, Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, and other. More than 80% of Latinos in the LRGV are of Mexican origin (US Bureau of the Census, 2001).

Analysis

We used SPSS (Release 15.0.0, SPSS, Chicago, IL) to calculate descriptive and inferential statistics ($\alpha = 0.05$). We calculated univariate statistics for Latinos and non-Latino Whites, but limited multivariate statistics to Latinos due to small sample size for non-Latino Whites ($n = 25$). We made group-wise comparisons using independent samples *t*-tests, Mann–Whitney *U* tests, or chi-square tests of independence as appropriate. We used logistic regression models to estimate the effects of respondent's socio-demographic attributes on dependent variables: self-identification as a land steward, believing natural-resource conservation, property maintenance, or controlling pollution-constituted stewardship, and viewing the public as an appropriate beneficiary of stewardship responsibility (Cohen & Cohen, 1983). We calculated odds ratios, which represent effects of one unit change of the independent variable, and standardized odds ratios, which represent effects of one standard deviation change of the independent variable. Standardized odds ratios facilitate comparison of effect size between different independent variables (Long & Freese, 2006). We analyzed data from open-ended questions using the five steps of thematic analysis suggested by Peterson et al. (1994), and honed the precision of recorded explanations with repeated movement between data collection and analysis (Lincoln & Guba, 1985). We identify quotations by respondent (i.e. R4 = respondent number 4).

Results

We interviewed 402 respondents, with a final compliance rate of 93% (sampling error 5%). The sample approximated data for census tracts that overlapped with our study area for gender (survey: 58% and census: 52%) and ethnicity (survey: 94% Latino and census: 94% Latino; US Bureau of the Census, 2001). Latinos had lower education levels (= 2.36, SD = 1.67) than non-Latino Whites (= 3.92, SD = 2.10; $Z = 3.90$, $p < 0.001$). Latinos also had lower incomes (= 2.22, SD = 1.47) than non-Latino Whites (= 4.04, SD = 2.17; $Z = 4.38$, $p < 0.001$). Nearly half (44%) of Latino

respondents had annual family incomes below $15,000, and most had either not completed high school (42%) or completed their education at the high-school level (31%; includes graduate educational development test). Half (50%) of the Latino respondents were native to the rural study area. Most of the Latinos who had moved to the study area ($n = 185$) were from urban (61%) or town (27%) areas.

Most Latinos (84%) and non-Latino Whites (92%) considered themselves "someone who takes care of the land." Logistic regression results supported Hypotheses 1 and 2 with both land ownership type and gender predicting self-identification as land stewards (Table 1). Each unit increase from not owning property, to owning residential, rural, and agricultural property increased the odds of respondents self-identifying as land stewards by 1.65 times (Table 1). Being female decreased the odds of respondents considering themselves to be land stewards by a factor of 0.34. Females were three times as likely to deny being land stewards as males (female: 21% and male: 7%).

When owners of agricultural property talked about their PLS activities, they did not always relate to production. For example, one respondent told us he kept a section of his land available for wildlife to hide in during the seasonal burning of sugar-cane fields. He told us indignantly, "I would like you to come here when they burn and see. I seen burned;—they come burned out of the fields. Sometimes they are burning when they come out and you see them burned lying by the edge. Sometimes they run out and run right back in." Providing shelter for wildlife was not something he did to increase the productivity of his land; it was simply his way of using his property as a means to care for nature.

Analysis of responses to the open-ended question asking what PLS meant to respondents revealed three categories in addition to natural-resource conservation (14%, e.g. protecting wildlife, water, soil, the earth): property maintenance (60%, e.g. mowing, clipping, picking up litter, watering plants), controlling pollution (21%, e.g. avoiding dumping oil, industrial chemicals, or using too much pesticide or herbicide), and responsible farming (3%, e.g. maintain crops, water crops, prevent crop diseases). Only 3% of respondents stated they did not know what PLS was. The behaviors identified, however, differed for Latinos and non-Latino Whites ($\chi^2 = 6.76$, $df = 2$, $p = 0.03$). Non-Latino Whites (35%) were more likely than Latinos (13%) to view PLS as nature conservation. Latinos were more likely to express a property-maintenance definition (65%) than non-Latino Whites (47%). The pollution-control definition was expressed at relatively equal rates (Latino: 23% and non-Latino White: 18%).

Results did not support Hypothesis 3, since only income predicted viewing PLS as nature conservation (Table 1). A one standard deviation increase in income level increased the odds of viewing PLS as nature conservation by 1.48 times (Table 1). Relatively few respondents from lower-income levels (2–22%) viewed PLS as nature conservation compared to 56% of respondents from the highest-income category ($>$ $100,000 annual family income). A one standard deviation increase in education level and urban background increased the odds of viewing PLS as not polluting by 1.38 and 1.42 times, respectively, while being female decreased the odds of viewing

Table 1 Logistic regression of self-identification as a land steward and four definitions of stewardship on land-ownership type, gender, age, education, income, and urban background.

	Coefficients (odds ratios) [standardized odds ratios]				
Independent variables	Self-identification as a land steward[a]	Stewardship owed to public[a]	Stewardship is conservation[a]	Stewardship is property maintenance[a]	Stewardship is not polluting[a]
Land-ownership type[b]	0.50* (1.649) [1.404]	−0.263 (0.769) [0.836]	0.171 (1.186) [1.123]	−0.117 (0.890) [0.924]	−0.310 (0.733) [0.810]
Gender[c]	−1.079** (0.339) [0.586]	0.309 (1.362) [1.165]	−0.053 (0.948) [0.974]	0.397 (1.487) [1.217]	−0.633* (0.515) [0.720]
Age	−0.01 (0.99) [0.847]	−0.002 (0.998) [0.967]	0.019 (1.019) [1.370]	−0.015* (0.985) [0.778]	0.003 (1.003) [1.051]
Education[d]	0.078 (1.081) [1.145]	0.063 (1.065) [1.115]	−0.208 (0.812) [0.697]	−0.103 (0.902) [0.836]	0.186* (1.204) [1.381]
Income[e]	0.077 (1.080) [1.123]	−0.117 (0.890) [0.838]	0.258* (1.294) [1.477]	−0.08 (0.923) [0.886]	−0.098 (0.907) [0.862]
Urban background[f]	0.336 (1.399) [1.335]	0.399** (1.399) [1.335]	0.231 (1.260) [1.219]	−0.383* (0.682) [0.720]	0.411* (1.508) [1.423]

[a]Yes = 1 and no = 0.
[b]Ranges from no property (1) to agricultural size (>65 acres) property (4).
[c]Female coded as 2 and male coded as 1.
[d]Education ranged from 1 (less than high school) to 7 (graduate or professional degree).
[e]Income ranged from 1 (<15,000) to 9 (≥200,000).
[f]Ranges from rural (1) to urban (3).
*$p < 0.05$; **$p < 0.01$.

PLS as not polluting by a factor of 0.52 (Table 1). A one standard deviation increase in age and urban background decreased the odds of viewing PLS as property maintenance by 0.78 and 0.72 times, respectively (Table 1).

Male respondents generally discussed pollution in relation to their jobs or proper disposal of automobile oil. They told stories regarding pollution problems at work, related primarily to agricultural chemicals and waste disposal. A crop duster who had recently crashed said:

> Well, the other crop dusters would be mad for me telling you this and wouldn't want to go on record, but the applicators and people living by the fields definitely have higher exposure to chemicals so the potential is there for harm. But there would have to be an occurrence for a problem. It's like having a loaded gun in the house. We still use methyl-parathion which is quite deadly. It has the potential of causing death. Usually I get a little too much, but not this year. If this engine went out on me in the north end of that field instead of the south end I'd have landed in that *Colonia* with a load of poison when I crashed. (R155)

An agricultural worker said: "my dad farmed, and I farm. . .I'm torn because the chemicals are stronger than they used to be" (R122). Neither of these respondents proposed to quit working with these chemicals, but both seemed cognizant of their danger.

Sometimes the stories gave respondents an opportunity to speak out against abuses. A factory worker who described being coerced in dumping industrial wastes, told us:

> The Coast Guard caught [his employer] and gave them a $100,000 fine and they tried to blame me. They ordered me to throw it in the water. I was working in one of those big tanks; I don't know if you have seen those tanks but they have a big door on the bottom. They told me to open that man hole, and they paid me so I did it, and all the oil drained into the water. They tried to say I didn't know what I was doing and I messed up, but I said I'd tell them the truth so they were like "no, no, no, we'll pay." (R171)

Others simply reported the polluting activities they had been expected to engage in. One factory worker told us the company where he worked "dumped crap in the toilets and it killed all the fish and birds in that pond. We used to fish there but now there's nothing there" (R137). One respondent made his account of improperly disposing of industrial waste more humorous by describing how "a chemical for corn tortillas [peeled] the paint off my friend's car" (R157). Still others shared stories with more tragic endings. One respondent told us about a friend who worked in a maquiladora in Matamoros:

> He dipped electrical boards into some kind of resin you know, and. . .his hands got mutilated so he couldn't work. He lost much of his vision from that chemical . . . They gave him gloves but it ran in still. . .It was an American company, and they give him a little money, because he can't work anymore, but they don't have to give you much in Mexico. He did not think factories should be allowed to manage their own wastes, "because they just do what they want and you can see it in Mexico."

Among all potential categories, pollution was the only topic to generate detailed stories among respondents who described it as relevant to PLS. The link between employment

with polluting companies and viewing PLS as not polluting led us to test for a relationship between viewing PLS as not polluting and self-identification as a land steward. No relationship was found ($r = 0.04$, $p = 0.49$).

Respondents said their responsibility to act as stewards was owed to family members (60%), the public (40%), god (19%), and the land itself (18%). The open ended "other" option for PLS responsibility only elicited one category, "myself" (5%). Respondents designating "other," typically answered, "it's to myself, I don't owe anyone anything" (R19), and "it's to myself more than anybody" (R309). Two respondents felt PLS responsibility to property owners they worked for (R251 and R242). The logistic regression model predicting responsibility to the public was the only source of stewardship-responsibility model with a significant independent variable, and lent partial support to Hypothesis 4. Urban background, but not education level predicted viewing PLS responsibility as owed to the public (Table 1). Each unit increase from rural to town and urban backgrounds increased the odds of viewing PLS as a responsibility owed the public by 1.40 times.

Discussion

Our results support the hypothesized positive relationships between self-identification as a land steward, agricultural-land ownership, and male gender (Hypotheses 1 and 2). The relationship between land ownership and self-identification as a land steward may have multiple explanations. Stewardship views may relate to the hypothesized effect of an agrarian tradition, because the respondents with agricultural lands were the most likely to self-identify as land stewards. Agriculturalists articulated the stewardship myth similarly to ranchers interviewed by Peterson and Horton (1995). In both cases, PLS was grounded in local knowledge. Respondents explained their stewardship by describing both daily work routines and behaviors prompted by extreme events that strengthened interdependence between themselves and their land. The non-linear relationship between self-identification as a land stewards and property size further suggests the importance of their embodied experience. Respondents with mid-sized properties (> 0.40 and ≤ 26.30 ha) were the least likely to consider themselves land stewards. Those owning smaller properties could physically maintain the land (e.g. remove trash dumps, mow grass, trim trees), and those owning agricultural properties made a living by maintaining the land (e.g. plowing, burning, etc.). Many landowners with mid-sized properties did not have the resources to remove trash dumps or manicure vegetation. They answered the question "do you consider yourself someone who takes care of the land," while looking at piles of old tires and rusted appliances overgrown with brush. The negative responses from owners of mid-sized properties should remind us that, although Burke (1966) defines humans as always striving for perfection, people sometimes give up in despair. Conservationists might profit by more detailed analysis of how owners of agricultural properties talk themselves into consubstantiation with the land, and then exploring possible analogs for those who do not use their land for agricultural production.

The relationship between PLS and gender may relate to the hypothesized domination view of nature, which suggests that males hold greater responsibility for managing and controlling it (Schutten, 2008). In fact, the unconscious choice to describe nature as a resource indicates how deeply the domination view is embedded in our society. And, for those who have the means (usually limited to males in our sample) to exert control over nature, failure to do so may constitute a serious social and political transgression. Most of the activities our respondents described as PLS required the steward to manage, or exert power over, nature.

Respondents associated property maintenance, natural-resource conservation, and addressing pollution problems with PLS. Ethnicity appeared to influence which behaviors were associated with PLS. Latinos were more likely than non-Latino Whites to view PLS as property maintenance, and non-Latino Whites were more likely than Latinos to view PLS as natural-resource conservation. Although we did not find support for Hypothesis 3, higher-income levels predicted viewing PLS as natural-resource conservation. This may lend support to the proposed underlying causal mechanism wherein membership in post-material society allows people with higher incomes to view PLS in less anthropocentric ways. Our findings regarding management of pollution as a definition of PLS did not reflect previous environmental justice literature, which suggests that females are more likely than males to be involved in addressing local pollution problems (Sandler & Pezzullo, 2007). In this study, males were more likely to describe PLS as limiting pollution than females. This finding can be explained by the specific instances of pollution exposure our respondents identified. Environmental justice research documenting female engagement with pollution problems often focuses on pollution of lands where families live or workplaces where multiple family members labor (Agyeman, Bullard, & Evans, 2003; Sandler & Pezzullo, 2007). Most of our respondents described environmental pollution in jobs dominated by male workers, and often in remote locations. For example, they focused on pollution associated with use of pesticides and herbicides and dumping oil and other industrial wastes in tractor, barge, and electronics factories.

Stories told by our respondents suggest the relationship between stewardship and environmental justice may offer important opportunities, for both the environmental movement and the environmental justice movement. Our test for a relationship between viewing PLS as not polluting and self-identification as a steward showed no statistically significant relationship. This may indicate that, although respondents saw pollution as violation of stewardship, they blamed their employers and not themselves. Their stories support this assertion; informants portrayed themselves as being displeased with their employers polluting activities, and described themselves as unwilling accomplices or as whistleblowers. Once our respondents started talking about labor contexts, they quickly expanded the notion of stewardship from private ownership to public responsibility. Although they sometimes reported being afraid to act, they also described situations when they had chosen to act. Their actions usually included reporting corporate acts that threatened the public good, rather than reporting corporate acts that directly threatened the informant. If our

respondents believed their actions could make a difference, many of them were willing to engage.

Since only urban background predicted viewing PLS as a responsibility to the public (Hypothesis 4), reverse migration from urban to rural areas (Johnson & Fuguitt, 2000) may provide conservation opportunities by introducing rural populations to increased consideration of public welfare in land-use decisions. Our findings suggest that within US–Mexico borderlands PLS implies a perspective consistent with human domination over nature, and one that appeals to males and landowners who actively manipulate the land through agriculture. Although this is not necessarily problematic in itself, it suggests that PLS has limitations as a means of encouraging public involvement in conservation. Within these contexts, conservation efforts framing PLS as a duty to family members will likely resonate more than others. Future studies of PLS should address how this study's findings apply for Latinos in non-border contexts. Further, the prevalence of stewardship in natural-resource conservation perspectives among non-Latino White agricultural landowners, suggests further PLS research with that demographic group may provide key insights regarding how stewardship can be utilized to promote conservation on private lands.

As we develop strategies for incorporating PLS into environmental conservation, we should take care to avoid attenuating our awareness that, although nature is more than a rhetorical text, human actions and political institutions associated with it function rhetorically. Further, although property is certainly material, its significance to conservation relies largely on the concept of private ownership. This is not to say that private ownership is without material consequences. In fact, it has direct material consequences that connect directly to environmental justice. One practical way that communication research can influence the material relationships between humans and nature, as well as among humans, is to critically examine how those relations are instantiated through language. One of the most valuable opportunities afforded by understanding how Latinos in the LRGV conceptualize PLS is that it suggests additional possibilities for identifying mutual needs of human society and the natural environment. Careful attention to interlinking symbolic and material dimensions of PLS in these descriptions may enable more creative ways of sorting through our relationship with the biosphere. As biological beings, we require a specific set of conditions to sustain life. Yet, as symbol using creatures, we are not satisfied to stop there. Stewardship offers one way of relating to nature beyond humans, and understanding how Latinos in the LRGV communicate and enact PLS offers a previously understudied approach to PLS.

Finally, although we agree that PLS is crucial to conservation, our findings suggest the importance of examining the political entailments that come with it. Stewardship of any kind brings with it some variation of the domination metaphor that positions humans (especially males) in power over all else. Even the most gentle steward is apart from, rather than part of, that for which s/he holds stewardship responsibility. This means innovative possibilities for understanding the relationship between humans and extra-humans are severely limited. Haraway (1991, p. 3) suggests

reimaging this relationship as "a social engagement with a being who is neither 'it', 'you', 'thou', 'he', 'she', nor 'they' in relation to 'us.'" It seems that, in order to sufficiently expand our options for recognizing and respecting our mutuality, both across different human communities and between humans and extra-humans, we may need to construct a new terministic screen. As with any change, it will require us to consider incongruous perspectives as we struggle to integrate ourselves with the earth rather than maintaining the arbitrarily tidy separation between human and extra-human.

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