

# Understanding the Multidimensionality of Property Rights Orientations: Evidence from Utah and Texas Ranchers

DOUGLAS JACKSON-SMITH

Department of Sociology, Social Work, and Anthropology,  
Utah State University, Logan, Utah, USA

URS KREUTER

Department of Rangeland Ecology and Management, Texas A&M  
University, College Station, Texas, USA

RICHARD S. KRANNICH

Department of Sociology, Social Work, and Anthropology,  
Utah State University, Logan, Utah, USA

*In the United States, the nature and limits of private property rights have been central themes in natural resource debates over issues such as rural land use control, public and private rangeland management, and endangered species preservation. In most of these debates, private property owners are characterized as favoring strong protection of private property rights and resisting efforts to condition their rights against the interests of society. Surprisingly, there has been very little systematic empirical study about how landowners actually view their private property rights. This article uses a sample of Utah and Texas rangeland owners to explore the complexity and socioeconomic correlates of property rights orientations. We find that landowners' views of their property rights can be described with four distinct dimensions. Moreover, property rights orientations are related to differences in landowners' demographic characteristics, ties to land and community, and place of residence.*

**Keywords** attitudes, landowner, property rights, rangeland

The existence of private property has long been linked to key social, economic, and political institutions in Western industrialized nations (Macpherson 1978). Adam Smith's invisible hand of free-market capitalism presupposes an economy characterized by innumerable owners of private property, while Jefferson argued that a system

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Address correspondence to Douglas Jackson-Smith, Department of Sociology, Social Work, and Anthropology, Utah State University, Logan, UT 84322-0730. USA. E-mail: douglasj@hass.usu.edu

of widely dispersed land ownership was critical to a healthy democratic political culture. Locke and Bentham viewed private property as a natural right, and saw the accumulation of property and wealth as emblematic of a higher social and moral purpose. More recently, the purported triumph of Western capitalism over Soviet-style communism has been viewed as evidence of both the necessity and superiority of secure private property regimes.

In the last few decades the topic of private property rights has divided political discussions about a range of public policies in the United States (Brick and Cawley 1996). For example, the emergent environmental movement in the 1960s and 1970s led to the creation of government regulatory agencies created to protect public health and environmental quality. In the agricultural sector, environmental problems associated with agricultural use and livestock manure management on private lands have been the focus of much regulatory attention (Heimlich 2003; U.S. EPA 2000). The extension of habitat protection efforts under the federal Endangered Species Act has led to considerable controversy among private landowning constituencies throughout the country (Shogren 1999). In areas with extensive public lands, federal land management agencies have expanded their missions to balance traditional natural resource extraction goals with broader ecosystem and recreation management objectives (Davis 2001). In both cases, ranchers and farmers have become more vocal about the perceived negative impacts of environmental regulations on the viability of their operations. In many instances, increasingly restrictive land use rules are being viewed as an attack on the rights of private property owners to do as they chose with their land (Greve 1994).

More recently, the tension between public policies and rural property owners has escalated over the issues of land use change and growth management. Relatively high rates of urban-to-rural migration in the 1990s (McGranahan 1999) coincided with an extended period of depressed economic conditions for traditional livestock ranching and farming activities (Cromartie and Wardwell 1999). This combination has resulted in the conversion of many rural landscapes into nonagricultural housing and recreational properties, which has, in turn, generated considerable public debate (Daniels and Bowers 1997). In the American West, the subdivision of working ranches has been linked to low livestock prices, declining rangeland productivity, regulations restricting the use of riparian areas, and reduced access to grazing on public lands (Knight et al. 2002). In response to public concern, local government regulation of rural land use and development has become more common (Curless 2003). However, restrictions on land development are frequently met with intense political opposition from landowners who resent having their "development" options limited and worry about reductions in the market value of their property.

Given recent discussions of private property rights in the political and academic arenas, it is surprising that the property rights orientations of rural landowners have seldom been the focus of systematic empirical inquiry. In general, public discourse treats private property rights as a unidimensional concept that is either strengthened or weakened by public policies (Greve 1994; Harnett-White 1994). Additionally, most assume that virtually all private property owners—particularly landowners in the Western states—have similar perspectives regarding the importance of private property; that is, they favor strong protection of private property rights. In part this assumption is based on documentation of a uniquely "Western environmental ethic" among rural Western landowners that promotes individualism and local control over

natural resources (Feldman 1993). Yet it is unclear how representative the views of the most visible and politically active property rights advocates are of actual landowner communities.

In the United States, rangelands cover over 400 million ha, mostly in the Western half of the country. Rangelands provide many ecosystem services including forage and habitat for an estimated 100 million domesticated and wild herbivores (Evans 1990), much of the nation's water, recreational amenities, habitat for endangered species, wilderness areas, and carbon sinks. Yet, many private and public rangelands are being degraded. To account for this decline, some have pointed to grazing practices that result in soil erosion, damage to riparian areas, surface and ground water contamination, wildlife habitat degradation, and long-term ecological changes in plant and animal communities (Fleischner 1994; Donahue 1999). Others have underscored the difficulties in evaluating long-term trends on Western rangelands (National Academy of Sciences 1994) and noted that subdivisions and recreational land development can have more deleterious impacts on rangelands than traditional grazing activities (Knight et al. 2002).

Whether used for traditional grazing purposes or new residential development, the long-term future of rangelands in the United States will largely depend on land management and development decisions made by private landowners. To a considerable extent, these decisions (and the public policies that influence them) will reflect attempts to balance individual property rights against broader public interests in an ecologically sustainable, economically vibrant, and aesthetically pleasing rural landscape.

This article uses a 2002 survey of landowners in Utah and Texas to identify the property rights orientations (PROs) of owners of private rangeland. Responses to a series of attitudinal questions are used to explore the structure and diversity of PROs among these landowners. We then examine the characteristics of individuals who express stronger or weaker support for different dimensions of landowner property rights orientations. Since much of the public debate over private property and public regulations has consisted of polemical arguments and stereotypes of landowner views, the results provide a more nuanced and empirically grounded understanding of landowner perspectives.

## Literature Review and Rationale

### *Property Rights in Theory and Practice*

Traditionally, property rights have been defined as including a bundle of rights to acquire, possess, use, manage, and dispose of property (Honoré 1961). Property rights span a wide spectrum of exclusivity, from open access to private property. In general, private property systems allow the unrestricted exercise of various uses of property by the owner, provided that such uses do not harm others' rights (Greve 1994). While such systems are often thought to define the relationship between an individual and his or her personal property, the essence of a social system of property rights lies in rules governing what *other people* can or cannot do with respect to an individual's property (i.e., whether they can trespass on it, make a claim to income or benefits derived from the use of the property, regulate the use of the property, or take it away). Moreover, property rights are only meaningful insofar as property

owners can enlist social institutions to protect their claims and prevent the violation of their rights by others.

Because of the inherently social nature of individual property rights, scholars, courts, and policy analysts refer to a need to balance them against the corollary rights, responsibilities, and duties of other property owners and the interests of the community or society as a whole (Bromley 1991). In the United States, legal title to property does not grant the owner absolute power over the property, nor does it insulate landowners from societal interests, because such title is subject to public rights exercised by the government, including police power, eminent domain, taxation, and escheat.

In his seminal paper "Toward a Theory of Property Rights," Harold Demsetz (1967, 354) hypothesized that "property rights arise when it becomes economic for those affected by externalities (external benefits and costs associated with the use of resources) to internalize benefits and costs." At the societal level, dominant economic, political, and cultural interests shape the evolution of a property rights regime over time. For example, changes in human demographics, such as urbanization and associated shifts in dominant social values and political influences, can directly affect the public demand for rural goods and services (Buttel 1992), and noncommodity users can redefine land use activities that should be allowed on both public and private rangelands (Krueger 1994).

Even when formally defined by law, local systems of property rights may be influenced by location-specific traditions and values (Fortmann 1996). In particular, growth in public support for environmental programs (Elliot et al. 1997), more restrictive environmental legislation and regulations (Greve 1994), and greater public involvement in resource management decision-making processes (Endter-Wada et al. 1998; Moote and McClaran 1997) are increasingly affecting the ways that public and private rangelands are managed in the western United States. Similarly, as pressure grows to subdivide private rangelands for primary and secondary home construction, there are increasing calls to enact laws to limit where, how, and when this type of development can occur (Ringholz 1996).

Greater environmental regulation and growth controls on private lands are justified by the argument that everything landowners do potentially affects everyone else, because all elements of the rural landscape and economy are interconnected (Daniels and Bowers 1997). Advocates of new environmental and land use regulations argue that in the absence of such rules, individual property owners have little incentive to consider the impacts of their actions on neighbors, communities, or the environment. Under this model, environmental degradation results from the failure of markets or communities to impose penalties on property owners who abuse their land, and regulations are necessary to protect the interests of neighboring property owners and society.

Conversely, the growth of government regulation and oversight on both private and public lands has led to serious criticism from private property advocates in the United States (Pralle and McCann 2000). Many rural landowners view restrictions on land use as an assault on their private rights because regulatory takings associated with such policies may diminish landowners' use rights and the value of their property (Cawley 1993; Greve 1994). Even when regulations only affect the use of public lands, private users (like ranchers who have relied on public land grazing allotments for generations) often perceive these rules as a diminution of their de facto private interests in those public lands. Claiming that local, state, and federal

government actions constitute an unfair (even unconstitutional) taking of private property, the property rights movement advocates either the repeal of government rules and regulations, or full compensation for landowners affected by these policies (Jacobs 1998).

### *Understanding the Property Rights Orientations of Landowners*

Despite considerable sophistication in the theoretical property rights literature, there is little systematic empirical research about the complexity and dimensionality of actual landowner views toward property rights. As a result, the public policy debates over local land use controls and potential environmental regulation of rangeland management are often characterized by simplistic assumptions about the property rights orientations of landowners (mainly that they all will be opposed to restrictions on private land use).

Given the preceding discussion of the nature and importance of property rights, the property rights orientations of private landowners appear to be potentially multi-dimensional. These dimensions include (a) protection of *individual rights* (what can be done with private property), (b) recognition of *social responsibilities* associated with private property ownership (what formal or informal limits can be placed on the use of private property), and (c) appreciation for the fact that some landowners feel *stewardship obligations* (managing private property to protect long-term environmental sustainability). In addition, some scholars have argued that *perceived threats* to the security or stability of individual property rights can influence landowner behavior (Bliss et al. 1998).

As already noted, public discussions of property rights have generally treated the belief systems of landowners as if they were unidimensional, with most of them focusing only on the protection of individual rights. In some cases, the discussion implies a single continuum of beliefs with strong private property protections at one pole and strong support for public regulation at the other. Most of those who support public regulation of land management are also assumed to have strong stewardship orientations, while those who support private property are assumed to have the strongest perceptions of threats to their private property. This study presents an empirical analysis of the property rights orientations of landowners. The analysis allows us to confirm the existence of these multiple dimensions of property rights orientations, and to examine whether or not they are systematically interrelated with one another.

We expect there to be significant variability in the attitudes of landowners depending on their demographic, social, and economic attributes, as well as the aggregate characteristics of the community and landscape where they live (Krannich and Smith 1998; McLeod et al. 1999). Initially we hypothesize that several key demographic attributes may be correlated with property rights orientations. For example, previous research has shown that younger, higher income, and more highly educated people tend to be most supportive of environmental protection programs (Jones and Dunlap 1992; Salka 2001). We expect a similar relationship between these landowner attributes and support for the idea that private property rights need to be conditioned by the needs of society. Conversely, older landowners (over 50 years) who lived as adults through an era of increasing governmental involvement in private land decisions (1970–present) might be more passionate about the sanctity of their individual property rights, and less supportive of the idea that these rights

should be conditioned by the needs of society or that local, state, or federal governments have the “right” to regulate the use of private lands for the good of society.

Social and economic ties to land and the local area are likely to be even more important than individual demographic characteristics (Inman et al. 2002). Specifically, residents who rely on rangeland as a productive resource to provide a stream of current income for their families will likely have a different view of property rights than landowners who own rural land mainly as a place to live or recreate or as an investment (Inman and McLeod 2002). Recent in-migrants, nonresident landowners, and people without ranching or farming backgrounds may depend less on their land as a productive asset, and thus pay more attention to the collective impacts of individual property owner decisions on the social, aesthetic, and environmental quality of their community. In addition, long-time residents are likely to have deeper social ties to their local community than newcomers or people without ranching backgrounds, suggesting they may be more responsive to social responsibilities associated with property ownership.

Finally, local land tenure arrangements and the pace of population growth in rural communities may shape the property rights perceptions of local residents. Due to the conditions under which Texas joined the union, it contains very little federal land, while 64% of Utah consists of public land. Given differences in land tenure systems, the role of government in managing public lands, and the historical dependence of many ranchers in Utah on public land for forage, it is expected that rangeland owners in Utah may be more adamant about protecting their private land uses. This is because the regulation of land management on public lands might sensitize local residents who depend on them to the unique character of private land ownership and the potential for government intrusion into their private property rights (Krannich and Smith 1998). Also, a checkerboard of public and private landownership can lead to higher levels of trespass and heightened ambiguity about property rights. Meanwhile, landowners in areas experiencing rapid population growth and economic change are likely to experience greater conflicts with nonagricultural neighbors, increased opportunities to reap financial benefits from residential or recreational development, and increased efforts on the part of local communities to regulate local development and land use options (Smith and Krannich 2000). These experiences might lead landowners to abandon traditional rural land uses, withdraw from their communities, and seek opportunities to develop their properties (Zollinger and Krannich 2002).

## Methods

Agricultural census data were used to identify Texas and Utah counties that had significant rangelands and a large livestock industry. Population census statistics were then used to stratify these counties based on their population growth rates between 1990 and 2000. In each state, one high-growth county and one low-growth county were selected for the study. In Utah, we selected Summit and Uintah counties (where 1990–2000 population growth rates were 91.6 and 13.6%, respectively); in Texas, we selected Llano and Sutton counties (46.5 and – 1.4%). Landowner address lists for each selected county were obtained from the local county assessor’s office. A sampling frame was then constructed that included all landowners who owned at least 100 acres of agricultural land in 2001. Two hundred and fifty landowners in each

county (a total of 1000 landowners) were randomly selected to receive the survey questionnaire.

Texas and Utah are well suited for this study for several reasons. Both states are dominated by rangelands that are best suited for extensive livestock, wildlife, or recreational production systems. In this regard they represent the large majority of states in the western and southwestern United States. However, while rangelands in Texas are almost exclusively privately owned, nearly two-thirds of Utah consists of public rangelands. This allows comparison of the effects of rural landowner perceptions under two distinctly different property rights regimes. Another important reason for locating the study in Texas and Utah is that they have been experiencing population growth rates well in excess of the national average, especially in peri-urban and rural areas (Population Reference Bureau 1999).

A mail survey was conducted between January and March 2002 using a modified version of Dillman's (2000) four-step mail-survey method (involving two actual survey mailings). Respondents were instructed to fill out the survey only if they were "the owner, operator, or manager of an operating ranch or farm that includes at least 100 acres of private lands." Completed and usable surveys were returned by 313 landowners. Four hundred and seventeen landowners included in the original survey sample were excluded from the analysis because they indicated they were not currently operating (or affiliated with) a working ranch or farm. Thus, over 40% of owners of  $\geq 100$  acres of agricultural property in these counties are apparently not engaged in any commercial ranching or farming activities, or do not have a significant wildlife or recreational business, and they owned their property for reasons other than producing income, even though for tax purposes their land was classified as agricultural.

After removing the disqualified ranches and farms from the original sample frame, we calculated an overall response rate of 53.7% (roughly 64% in Texas and 45% in Utah). Given the high disqualification rate among respondents, we attempted to contact 80 randomly selected nonrespondents by telephone (20 in each study county). Successful contact was made with 64 persons, 39 of whom agreed to answer questions. Their answers suggested that over half (21 of 39) were not qualified since they did not actively participate in ranching or farming. Among those who were qualified, the size of landholdings, ranch/farm background, and levels of involvement in livestock and crop production were similar to respondents.

## Results

### *Profile of Respondents*

The respondents reflect a varied group of private rangeland owners. While the average age of responding landowners was 59 years, roughly 20% were under 50 and another 20% were over 70. Over two-thirds grew up on a ranch or farm, and a majority owned their property for more than one generation, with just 13% reporting acquisition of their land in the last 10 years. About half of respondents reported having at least a 4-year college degree, though almost a third reported having no formal education beyond their high school diploma. Sixty percent were living on their property, 55% had off-ranch/farm jobs, and almost half received less than 10% of their household income from ranch/farm activities.

The size of landholdings and enterprise types among respondents were quite diverse. The average landowner reported owning almost 3300 acres, with a median of just under 900 acres, indicating a positively skewed property size distribution. Roughly a quarter of the respondents owned less than 400 acres. Over 80% of respondents reported income from the sale of livestock, and less than 30% reported income from the sale of crops, while roughly half reported income from wildlife and recreation activities. Only 30% of respondents showed a profit from their ranch and farm operations in 2001. Nevertheless, 53% expected to continue operating indefinitely (mainly relying on off-ranch/farm income), and less than 20% felt they would be out of business within 3 years.

The surveys provide evidence of several striking differences between the landowning populations in the Texas and Utah counties included in the study. Texas respondents had higher levels of formal education, were more likely to be absentee landowners, and were much more likely to report income from wildlife and recreation activities. Meanwhile, Utah respondents more frequently raised and marketed crops, and 30% of Utah respondents utilized public lands grazing leases (compared to none in the Texas sample). Respondents in both states reported similar levels of off-ranch/farm employment and low levels of household dependence on farm income, but the Texas landowners were notably wealthier. As a result, even though Texas landowners were less likely to report profits in 2001, they expected less frequently to go out of business and were more likely to continue ranching/farming indefinitely.

### ***Property Rights Orientations in General***

The first step in our analysis was to examine the structure of property rights orientations among landowners in the four counties studied. The responses to 14 attitudinal questions are summarized in Table 1. These questions were designed to capture the amount and direction of landowners' agreement regarding the nature of individual property rights, social responsibilities, and the balance between the two. Responses were measured on a seven-point scale, where  $-3$  represents strong disagreement and  $+3$  represents strong agreement.

The results suggest that there is nearly universal agreement among landowners that individual property rights convey the ability to regulate access to land, to transfer ownership of land, and to exclusively use the natural resources found on the land. Roughly two-thirds of the respondents also agreed with statements indicating that their individual private property rights (and civil liberties) were increasingly threatened by restrictions imposed from society.

There was a much greater diversity of opinion regarding the extent to which individual property rights need to be balanced against the interests of neighbors, local communities, and society at large. Just over half of the landowners strongly believed their rights are "absolute" and should not be constrained by what other people prefer. Meanwhile, two-thirds of the respondents strongly disagreed with the statement that their landowner rights place "no obligations" on them.

A set of questions related to balancing rights and responsibilities suggests that landowners may be more sensitive to the impacts of their actions on neighboring property owners than they are to the interests of a broader community or society as a whole. Almost 80% of respondents agreed they should not be allowed to infringe upon their neighbors' rights, compared to 61% who felt that their actions



**Table 1.** Distribution of responses to property rights orientation questions

Statement (responses given on 7-point scale ranging from -3 to +3)	Percent of respondents			Mean
	Strong disagreement (-3 or -2)	Neutral or ambivalent (-1, 0, 1)	Strong agreement (2 or 3)	
<b>Rights</b>				
My landowner rights include the <i>right to exclude others</i> from access to my land (EXCLUDE)	2.3	3.9	93.8	2.73
My landowner rights include the <i>right to transfer ownership</i> of my land to others without restriction (TRANSFER)	3.0	5.2	91.8	2.63
My landowner rights allow me the <i>exclusive use</i> of the natural resources provided by the land (EXCLUSIVE USE)	3.0	11.5	85.5	2.45
My landowner rights include the <i>absolute right</i> to do whatever I want with my land without regard for what others prefer (ABSOLUTE RIGHTS)	12.6	33.4	54.0	1.25
Restrictions on my rights as a landowner are a <i>threat to</i> <i>my civil liberty</i> (CIVIL LIBERTY)	12.3	20.0	67.7	1.66
My rights as a landowner have become <i>increasingly restricted</i> over time (RESTRICTED)	7.0	30.8	62.2	1.66
<b>Responsibilities</b>				
My landowner rights obligate me to be a <i>good steward of</i> <i>my land</i> and to maintain it in good condition for future generations. (STEWARD)	1.9	6.2	91.9	2.62
My landowner rights should obligate me to <i>leave the land</i> <i>in better shape</i> than when I acquired it (IMPROVE LAND)	4.6	18.9	76.5	2.13
My landowner rights must be sensitive to <i>values and interests</i> <i>of society at large</i> (SENSITIVE TO SOCIETY)	26.3	35.3	38.3	0.36

(Continued)

**Table 1.** Continued

Statement (responses given on 7-point scale ranging from -3 to +3)	Percent of respondents			Mean
	Strong disagreement (-3 or -2)	Neutral or ambivalent (-1, 0, 1)	Strong agreement (2 or 3)	
My landowner rights should obligate me to <i>take into account the values and interests of society at large</i> (OBLIGATED TO SOCIETY)	28.4	45.9	25.7	-0.03
My landowner rights place <i>no obligations</i> on me (NO OBLIGATIONS)	66.1	26.9	7.0	-1.64
Natural resources on my land <i>belong to society</i> , which allows the public to restrict land uses that cause resource damage (SOCIAL NR)	74.2	20.5	5.3	-1.99
Balance rights and responsibilities				
My landowner rights allow me to do anything with my land so long as my actions <i>do not infringe upon neighbors' rights</i> (NEIGHBORS)	4.0	16.2	79.9	2.28
My landowner rights allow me to anything with my land so long as my actions <i>do not conflict with the interests and values of the local community</i> (COMMUNITY)	13.6	25.2	61.3	1.46

should not conflict with the interests and values of the local community, while less than 40% felt that landowners should be sensitive to the interests of society at large.

Interestingly, most respondents expressed strong pro-land stewardship orientations. Over 90% of respondents strongly agreed that landownership obligates them to be good land stewards, and over 75% felt obligated to leave the land in better shape than when they acquired it. There was great resistance, however, to the idea that society has a direct interest in (or should have control over) natural resources located on private lands, even if the use of private property causes damage to these resources.

### ***Dimensionality of Property Rights Orientations***

To examine whether variation in private property rights orientations are distributed along a unidimensional PRO scale, we conducted a principal-components factor analysis with varimax rotation for 12 of the attitudinal items listed in Table 1.

The two questions involving the “balance” between private property rights and social obligations were not used since they combined more than one concept in a single statement (“I can do anything I want” and “do not infringe on neighbors/community”). The results of this factor analysis are reported in Table 2. The unrotated first factor loadings provide some support for a single PRO measurement scale with “absolute individual property rights” at one end, and “balancing individual rights against the values and interests of society” at the other. However, several items did not load heavily on this single factor, and the rotated factor loadings indicated the existence of four distinct dimensions to the property rights orientations of our respondents.

These dimensions reflect (1) a pro-individual private property rights orientation; (2) a belief that individuals’ rights are conditioned by community values and society; (3) adherence to an ethic of land stewardship; and (4) a perception that an individual’s private property rights are increasingly being threatened. The first two factors are roughly equivalent to the polar ends of a tension between individual rights and social responsibilities that permeates much of the published literature on property rights in the United States. However, the third dimension—land stewardship—appears to be distinct from the issue of social responsibility. It suggests that personal obligations to nature (or the land) may represent a different type of perceived “limitation” to the unconstrained exercise of individual property rights. A fourth dimension captures concerns about potential erosion of individual rights and civil liberties, as well as a question reflecting sensitivity about potential trespass onto private lands.

Based on the factor analysis results and analysis of interitem correlations, we constructed a set of five additive property rights orientation scales (see Table 3). The first scale includes the most heavily loading questions on the unrotated first factor, and can be interpreted as an omnibus PRO attitude scale. Items that loaded negatively were reverse coded before creating the scale. The resulting scale appears to be reasonably internally coherent with a standard item alpha of .70 and a mean item-total correlation of .41.

Next, four additive subscales were constructed using variables that have theoretical coherence and also loaded heavily on factors described in Table 2. The first subscale (Individual Rights) included two variables that represent aspects of typical individual landowner rights in the United States (exclusive use, the right to transfer), as well as responses to an item suggesting that individual rights are “absolute.” The second subscale (Social Responsibility) included the three “social obligation” questions. The third subscale (Stewardship) was constructed by adding together the two key stewardship questions. (A third variable, “no obligations,” loaded strongly negative on this factor, but was not included in the additive scale because it did not make theoretical sense to do so and inclusion of this variable reduced the reliability of the scale.) The fourth subscale (Rights Erosion) included three variables that loaded on the fourth rotated factor (civil liberties are threatened, rights are increasingly restricted, and belief in the right to exclude others).

The first three subscales all had strong reliability statistics (with standard item alpha scores between .67 and .71, mean item-total correlations between .48 and .55, and mean interitem correlations between .40 and .55). Therefore, compared to the omnibus scale, these three subscales appear to provide a somewhat more internally coherent set of attitudinal indices. The fourth subscale (Rights Erosion) produced notably lower reliability statistics. Given the importance of perceived threats to private property rights in the theoretical literature, we were surprised by the lack of coherence

**Table 2.** Results of factor analysis of property rights orientation questions

Unrotated component matrix	Rotated factor loadings (if absolute value greater than 0.25)				
	Unrotated first factor loadings	Social responsibility	Pro-rights	Stewardship	Rights erosion
Absolute rights	0.644		0.725		
Exclusive use	0.553		0.742		
Civil liberty	0.523		0.423		0.475
Transfer	0.465		0.632		
No obligations	0.372		0.364	-0.565	
Exclude	0.315				0.737
Restricted	0.286			0.835	0.765
Steward	-0.309			0.789	
Improve land	-0.397				
Social NR	-0.486	0.662			
Obligated to society	-0.637	0.830			
Sensitive to society	-0.650	0.761			
Initial (unrotated) eigenvalues	2.85				
Initial variance explained (%)	23.73				
Rotated eigenvalues		1.92	1.90	1.78	1.48
Rotated variance explained (%)		15.84	15.97	14.86	12.35

*Note.* Extraction method: principal component analysis. Rotation method: Varimax with Kaiser normalization—rotation converged in six iterations.

**Table 3.** Additive scale reliability analysis

Variables	Omnibus PRO scale	Individual rights	Social responsibility	Stewardship	Rights erosion
Variables included					
Absolute rights	+	+			
Exclusive use	+	+			
Civil liberty	+				+
Transfer	+	+			
No obligations					
Exclude					+
Restricted					+
Steward				+	
Improve land				+	
Social NR	-		+		
Obligated to society	-		+		
Sensitive to society	-		+		
Reliability statistics					
Alpha	.695	.635	.689	.674	.485
Standard item alpha	.703	.668	.687	.707	.536
Mean item-total correlation	.412	.475	.512	.547	.334
Mean inter-item correlation	.252	.401	.422	.547	.278
Descriptive statistics					
Number of items	7	3	3	2	3
Mean	9.77	6.31	-1.63	4.75	6.08
SD	7.33	3.42	4.67	2.28	3.36
Minimum	-12	-9	-9	-6	-9
Maximum	21	9	9	6	9

to this subscale. However, the small number of question items and possible ambiguity in question wording may explain the lack of strong correlations among these items.

The complex relationships between the omnibus PRO scale and the subscales are demonstrated by examining interscale correlations. Because they contain most of the same items, it is not surprising that the omnibus PRO scale is positively related to the individual property rights (IPR) subscale ( $r = .74, p = .000$ ), and negatively related to the social responsibility (SR) subscale ( $r = -.83, p = .000$ ). However, the IPR and SR subscales are only modestly correlated with one another ( $r = -.33, p = .003$ ), suggesting that views on the two dimensions are not diametrically opposed. Meanwhile, stewardship orientations are not as highly correlated with the social responsibility (SR) scale scores as most observers seem to expect ( $r = .24, p = .000$ ), and they have no statistically meaningful association with views on the sanctity of individual property rights (IPR subscale;  $r = -.07, p = .206$ ). Finally, the rights erosion (RE) scale was positively correlated to the omnibus PRO scale ( $r = .48, p = .000$ ) and the IPR subscale ( $r = .373; p = .000$ ), but weakly

negatively related to the SR subscale ( $r = -.20$ ;  $p = .001$ ) and statistically unrelated to the STW subscale.

### *Socioeconomic Correlates of PROs*

The final step in our analysis was to look for associations between the various PRO scale scores and the characteristics of respondents and their operations. The goal here is to ascertain if there are distinctive subgroups of rangeland owners who are more or less likely to adhere to various property rights orientation dimensions. The results suggest that some socioeconomic characteristics are related to the individual rights dimensions, and others are related to the social responsibility or stewardship dimensions.

Initially, we examined the bivariate relationships between demographic characteristics of respondents and scores on the omnibus PRO scale and separate subscales (Table 4). Overall, age, education, and income are more related to concerns about the sanctity of individual property rights than to indicators of social responsibility or stewardship. However, the directions of the associations differ from the hypothetical relationships discussed above. For example, middle-aged (ages 40–59 years) respondents appear to be the most concerned about a perceived erosion of individual property rights (with both very young and older landowners expressing lower levels of concern). Similarly, persons with intermediate levels of formal education are more likely to express the strongest support for unconstrained individual property rights (with lower and higher levels associated with lower scores on the PRO and IR measures). Support for individual property rights is generally highest in the middle-income categories, although the most affluent respondents had the highest mean score on the IPR subscale.

Although individual demographic characteristics appear to influence views on individual property rights, the results in Table 5 suggest that social and economic ties to land and rural communities are better predictors of scores on the social responsibility subscale. Interestingly, people with the closest ties to the area (as indicated by having farm background, longer periods of ownership, and those who live on their rangeland parcel) are least likely to agree with statements suggesting that landowner rights obligate them to be sensitive to the values and interests of society. Conversely, those who have owned their land for 3–10 years, and those who have off-ranch/farm jobs are more likely to adopt a social responsibility perspective. In one interesting anomaly, the ten respondents that have owned their land for less than 3 years had the lowest mean scores on the social responsibility subscale. Finally, households with higher levels of dependence on ranch or farm income are more likely to support individual private property rights and express higher levels of concern about the erosion of these rights.

Table 6 disaggregates the mean PRO scale and subscale scores by enterprise characteristic and place-based attributes. Based on the values of the PRO scale scores, it appears that respondents with larger, more commercially oriented ranching operations have stronger orientations toward individual private property rights (and tend to be less supportive of countervailing social responsibilities). For example, the size of the ranching operation (measured in terms of landholding) appears to be positively related to concerns about the erosion of private property rights. Livestock operators are much more emphatic in their support for individual private property rights than those who reported crop income. Those who ran a profitable operation

**Table 4.** Mean PRO scale scores, by demographic characteristics of respondents

	<i>n</i>	Single PRO scale	PRO subscales			
			Individual rights	Social responsibility	Stewardship	Rights erosion
Age group (years)						
Under 40	12	6.75	4.75	-1.00	4.25	<b>4.75</b>
40 to 49	56	10.38	6.27	-1.87	4.54	<b>6.86</b>
50 to 59	93	10.36	6.71	-1.76	4.70	<b>6.65</b>
60 to 69	73	9.69	6.24	-1.94	5.00	<b>5.90</b>
70 and over	71	9.05 (.474)	6.17 (.431)	-0.98 (.765)	4.85 (.717)	<b>5.13</b> (.013)
Highest education level completed						
Less than high school diploma	13	<b>7.45</b>	<b>6.58</b>	0.45	4.85	6.25
High school diploma	80	<b>10.42</b>	<b>6.47</b>	-2.07	4.73	5.51
Trade school	20	<b>10.68</b>	<b>6.75</b>	-1.74	5.00	6.95
2-Year college degree	40	<b>12.08</b>	<b>7.16</b>	-2.51	4.84	7.11
4-Year college degree	81	<b>10.48</b>	<b>6.54</b>	-2.15	4.67	6.14
Graduate degree	69	<b>6.83</b> (.006)	<b>5.07</b> (.036)	-0.33 (.078)	4.58 (.982)	5.65 (.159)
Total household income						
Under \$25,000	19	8.27	<b>4.33</b>	-0.53	4.44	5.59
\$25,000 to \$50,000	82	10.49	<b>6.87</b>	-2.09	4.87	5.82
\$50,001-\$75,000	59	10.71	<b>6.95</b>	-1.95	5.24	6.47
\$75,001-\$100,000	54	10.06	<b>6.34</b>	-2.10	4.62	6.42
\$100,001-\$500,000	69	8.71	<b>5.76</b>	-1.14	4.35	5.88
More than \$500,000	12	9.00 (.581)	<b>7.08</b> (.023)	0.08 (.441)	4.92 (.365)	6.83 (.721)

*Note.* Numbers in parentheses reflect significance of ANOVA *F*-test. Mean values in bold reflect statistically significant intergroup differences.

in 2001 were less likely to be willing to condition their private property rights against the interests of society.

The results presented in the lower part of Table 6 suggest that Texas respondents were significantly more supportive of statements characterizing the rights of individual property owners than those from the Utah sample. This contradicts our hypothesis that

**Table 5.** Mean PRO scale scores, by social and economic ties to land and community

	<i>n</i>	Single PRO scale	PRO subscales			
			Individual rights	Social responsibility	Stewardship	Rights erosion
Grew up on a ranch/farm						
Yes	227	<b>10.31</b>	6.34	-2.02	4.85	6.27
No	80	<b>8.32</b> <b>(.042)</b>	6.21 <b>(.765)</b>	-0.65 <b>(.027)</b>	4.42 <b>(.155)</b>	5.55 <b>(.102)</b>
Years owned this property?						
<3 years	10	11.60	5.90	-3.80	4.10	6.40
3 to 10 years	30	7.93	6.79	<b>0.89</b>	4.93	6.21
11 to 25 years	35	8.97	6.09	-1.67	4.68	5.56
>25 years	45	10.45	6.49	-1.82	4.05	5.50
More than one generation	186	9.94 <b>(.528)</b>	6.24 <b>(.906)</b>	-1.85 <b>(.029)</b>	4.93 <b>(.178)</b>	6.25 <b>(.623)</b>
Currently lives on the property?						
No	130	<b>8.46</b>	6.11	-0.70	4.79	5.82
Yes	178	<b>10.55</b> <b>(.018)</b>	6.42 <b>(.438)</b>	-2.23 <b>(.006)</b>	4.72 <b>(.797)</b>	6.22 <b>(.312)</b>



Works at off-ranch/off-farm job?								
No	140	13.06	6.60	-2.24	4.81	5.90		
Yes	168	11.24 (.073)	6.03 (.160)	-1.17 (.052)	4.77 (.859)	6.16 (.504)		
Household dependence on ranch/farm income								
<10% of household income	143	9.18	5.78	-1.63	4.61	5.50		
11 to 50% of household income	106	9.96	6.62	-1.43	4.85	6.74		
More than half of household income	56	10.75 (.404)	6.91 (.060)	-1.94 (.808)	5.09 (.355)	6.35 (.016)		

*Note.* Numbers in parentheses reflect significance of ANOVA *F*-test. Numbers in bold reflect statistically significant intergroup differences.

**Table 6.** Mean PRO scale scores, by enterprise characteristics and place-based attributes

	<i>n</i>	Single PRO scale	PRO subscales			
			Individual rights	Social responsibility	Stewardship	Rights erosion
Enterprise characteristics						
Size of landholding						
Under 400 acres	82	8.70	5.75	-1.45	4.58	<b>5.08</b>
400 to 999 acres	80	9.64	6.70	-1.13	4.49	<b>6.05</b>
1000 to 2499 acres	62	10.85	6.30	-2.32	4.97	<b>6.84</b>
2500 acres and over	76	10.32 (.353)	6.63 (.299)	-1.88 (.485)	4.95 (.486)	<b>6.48</b> <b>(.012)</b>
Size of livestock inventory						
Hobby (1 to 24 AUs)	35	9.71	6.65	-1.24	4.83	5.97
Small (25 to 99 AUs)	90	9.60	6.72	-1.21	4.94	6.09
Medium (100 to 299 AUs)	75	10.22	5.91	-2.15	4.80	6.27
Large (300 or more AUs)	43	11.30 (.624)	7.13 (.218)	-2.17 (.506)	5.31 (.633)	7.26 (.268)
Reported livestock income						
Yes	248	<b>10.21</b>	<b>6.51</b>	-1.76	4.83	<b>6.32</b>
No	50	<b>7.10</b> <b>(.007)</b>	<b>5.12</b> <b>(.009)</b>	-0.68 (.134)	4.38 (.204)	<b>5.14</b> <b>(0.022)</b>

Reported crop income								
Yes	86	<b>8.28</b>	5.90	-0.79	4.74	6.10		
No	212	<b>10.22</b> (.044)	6.42 (.244)	-1.88 (.073)	4.76 (.942)	6.12 (.962)		
Shown a profit in 2001								
Yes	92	<b>11.43</b>	6.65	-2.66	4.70	6.58		
No, or Not sure	213	<b>9.12</b> (.017)	6.17 (.281)	-1.28 (.023)	4.82 (.688)	5.83 (.088)		
Place attributes								
State								
Texas	177	10.34	<b>6.69</b>	-1.73	4.86	6.30		
Utah	136	9.02 (.128)	<b>5.82</b> (.030)	-1.51 (.698)	4.61 (.329)	5.81 (.210)		
County population growth rate								
High	130	10.01	6.46	-1.75	4.55	6.50		
Low	183	9.59 (.635)	6.20 (.512)	-1.55 (.718)	4.90 (.186)	5.79 (.075)		

*Note.* Numbers in parentheses reflect significance of ANOVA *F*-test. Numbers in bold reflect statistically significant intergroup differences.

landowners in states with a mix of public and private lands would be more sensitive to the sanctity of individual private property than those from predominantly private lands states. Finally, there were no statistically significant differences in property rights orientations depending on the level of population growth of each study county.

## Discussion and Conclusions

Public debates over the use of private rangelands in the United States have been characterized as highly polarized and intractable. For the most part, the private landowners whose voices have been loudest have been outspoken in defense of their individual private property rights and opposed to local, state, or federal policies that might restrict their freedom to manage or develop their lands in the manner they choose.

The results of our study suggest that rangeland owners in the four Utah and Texas counties studied have more diverse perspectives than these public policy debates might suggest. Moreover, results suggest that views on property rights reflect distinct and independent attitudinal dimensions that go well beyond the conventional one-dimensional approach to this issue. While we found overwhelming agreement that private property ownership conveys certain fundamental rights (e.g., to regulate access, transfer property to others, and benefit from the use of natural resources associated with the land), we also found large majorities who recognized a set of corollary responsibilities to neighbors, their community, and society in general. A surprisingly high proportion of landowners appear ready to balance their own individual freedoms against the impacts of their actions on the greater good of society.

Most property owners also expressed strong agreement that they had obligations to be good environmental stewards of their land. Interestingly, stewardship orientations were not related to variation in the sensitivity of landowners to the broader social responsibility scale. This suggests that they support environmental stewardship more because of their individual moral values than because of a belief that proper land management would be beneficial to society as a whole. In fact, there was great resistance to the idea that society has a direct interest in natural resources located on private lands, even if the use of that land causes damage to these resources.

Aside from demonstrating the multidimensionality of property rights orientations, the results of our study suggest this diversity is related to respondent socio-economic characteristics. Middle-aged persons with moderate levels of education and income were generally the most likely to express strong support for individual private property rights. Meanwhile, persons who have weaker ties to ranching or the local community, those with smaller ranch or farm operations, and those who are more dependent on ranch/farm income appear to be more accepting of the idea that ownership of private rangelands obligates them to consider the impacts of their actions on society as a whole. Respondents from Utah (a state with significant public lands) were somewhat less strident on individual private property concerns, contradicting our hypotheses. Meanwhile, there were no systematic differences in PROs related to the amount of population growth in respondent counties. Surprisingly, none of the sociodemographic variables explained variation in attitudes toward stewardship and protecting environmental sustainability.

Better information about the diverse structure of actual property rights views among land managers may improve chances for successful policy development and implementation aimed at enhancing sustainable land management practices on both public and private lands. It is helpful, for example, for natural resource management agency staff to recognize that not all owners of Western rangelands are hostile to the notion that their individual property rights obligate them to take into account the interests of neighbors, their community, and society at large. The identification of four distinct dimensions in landowner property rights orientations suggests that policy formulation aimed at influencing such orientations also needs to be multifaceted. Strategies aimed at encouraging environmentally sound land management practices may use different approaches to landowners with stronger stewardship or social responsibility values (perhaps utilizing an educational message that celebrates and reinforces these values and encourage voluntary self-regulation) than for those landowners whose private property rights orientations are defined mainly through individualistic values (in which case "incentive-based" programs may be easiest way to change landowner behaviors). Highlighting the community-level impacts of individual decisions may also be essential to lay the groundwork for effective regulatory policies.

An understanding of the socioeconomic correlates of property rights orientations can help scholars link recent demographic and economic changes in the West to potential changes in landowner attitudes and possible land management behaviors. Initially, the immigration of nontraditional landowners with higher levels of education and income, and the increasing parcelization of rangelands into smaller and less commercially oriented operations may be associated with a greater receptivity to policies that ask landowners to consider the impacts of their actions on the rest of society. At the same time, the very fragmentation of the landscape associated with these trends raises new resource management challenges. Often new landowners have little knowledge about the impacts of their land management practices, are isolated from traditional landowner-agency networks, and have work schedules that make them less available for conventional landowner meetings and workshops. The challenge for local and federal government agencies is to find appropriate forums and media through which this new group of landowners can be effectively and efficiently contacted.

There is a growing concern about the long-term ecological sustainability of current rangeland management and land subdivision practices in the United States. Some have argued that ecosystem degradation is aggravated by ineffective property rights arrangements (Hardin 1968; Harnett-White 1994; Ostrom, 1990). On the one hand, the perceived insecurity of private property rights has been linked to ecosystem degeneration (Bliss et al. 1998). On the other hand, effective communal or public property systems have been shown to protect natural resources when local community members can find common values, recognize collective interests, and develop mutually acceptable restrictions on access and use of the resource (Burger et al. 2001). Our findings support the belief that, regardless of the formal property rights arrangements, good resource stewardship will depend on how well social institutions harness self-interest through individual incentives, by rewarding the efficient use of time- and place-specific information (Anderson and Leal 1991; Wiebe et al. 1999), and capitalize on beliefs that link individual actions to community-wide impacts.

Although our original study was limited to operators of working ranches and farms in the study counties, high rates of nonagricultural landownership in these

communities suggest it would be productive to study the views of these “passive” landowners also. Over 40% of the owners of large parcels of agricultural land in the pilot study areas were not actively managing ranching or farming operations. Since these people control an increasingly large fraction of the private rangelands in the West, future work should compare this group with more traditional rural landowners. Also, it will be important to demonstrate the empirical utility of property rights orientations for explaining variation in land management behaviors and attitudes toward specific public policies related to management of private and public rangelands.

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