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### Impacts of Religion on Environmental Worldviews: The Teton Valley Case

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## Impacts of Religion on Environmental Worldviews: The Teton Valley Case

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*Environmental worldviews are rooted in culture, and religion defines many cultures. While several studies have addressed the relationship between religion and environmental worldviews, few studies controlled for nonreligious regional culture and political affiliation. We addressed this gap with a case study in the Teton Valley of Idaho and Wyoming, USA. After controlling for demographic factors, environmental worldviews significantly related to being Mormon (member of the Church of Jesus Christ of Latter Day Saints), being Christian, not being affiliated with organized religion, political affiliation, and regional culture ( $n = 401$ ,  $F = 22.71$ ,  $R^2 = .41$ ). Environmental worldviews, however, were not related to religiosity. Those not affiliated with organized religion were most environmentally oriented, Mormon respondents were the least environmentally oriented, and Roman Catholics and other Christians fell in the middle. Longer term residents scored significantly lower than newcomers, and Republicans scored significantly lower than Independents, who scored significantly lower than Democrats.*

**Keywords** Catholic, Christian, environmentalism, LDS, Mormon, NEP, politics, religion, worldview

Worldviews, the set of narrative symbols humans use to explain the nature of reality (Greeley 1993), shape human interactions with the environment. Conserving the environment requires understanding the processes leading to environmental worldviews. Worldviews emerge from a cultural milieu including religion, politics, science, place-based values, education, and ethnicity (Brehm and Eisenhauer 2006; Curry 2000; Gellner 1992; Greeley 1993). Social researchers have examined the

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relationships between cultural variables and environmental worldviews for decades (Jones and Dunlap 1992; Mohai 1992; Van Liere and Dunlap 1980). Correlations were generally weak ( $<.2$ ), but younger adults, more educated, politically liberal, Democrat, and urban people held consistently more environmentally oriented worldviews than their counterparts (Jones and Dunlap 1992). Little consensus on the relationship between religion and environmental views has emerged, but research consistently demonstrates that those outside organized religion have more environmentally oriented worldviews than biblical literalists and end-of-times thinkers (Eckberg and Blocker 1996; Greeley 1993; Guth et al. 1995; Hand and Van Liere 1984; Schultz et al. 2000). Kanagy and Nelsen (1995) did not find religiosity of Judeo-Christian traditions related to environmental views after controlling for demographic factors.

Recent research builds on these findings by suggesting important interactions among environmental worldviews, political views, religion, and regional culture (Brehm and Eisenhauer 2006; Weakliem and Biggert 1999). Global, national, and regional trends in religion and politics make understanding the aforementioned interactions critical for natural resource conservation. In the United States, the red state versus blue state division, the influence of the religious right after the election of President George W. Bush, and the World Trade Center attacks in 2001 all highlight the central role of interactions among religion, regional culture, and political ideology in defining worldviews. Further, global trends point to growing numbers of converts to Western religions and deepening religiosity in the future (Kosmin and Mayer 2001; National Intelligence Council 2004), and the more fundamentalist religions (e.g., Evangelical Christians, Mormons, Pentecostals, and Muslims: Smith 1990) are growing the most rapidly (Kosmin and Mayer 2001).

Despite the recognized influence of religion, political ideology, and regional culture on environmental worldviews (Brehm and Eisenhauer 2006; Weakliem and Biggert 1999), few studies account for potentially confounding influences of those factors (Eckberg and Blocker 1996; Wolkomir et al. 1997). Case studies within areas with strong regional and political identities can facilitate the needed controls (Brehm and Eisenhauer 2006). The Intermountain West (United States) provides a good context for exploring the relationship between religion and environmental views because religious, regional, and political identities are being challenged by influxes of immigrants from other areas (Brehm and Eisenhauer 2006). Further, Mormons (members of the Church of Jesus Christ of Latter Day Saints [LDS]) in the Mormon Culture Region—rural areas of the Intermountain West centering on Utah—demonstrate strong cultural solidarity grounded in religion (Goodsell 2000).

A previous study in the Mormon Culture Region found Mormons held less environmentally oriented views than other local residents (Brehm and Eisenhauer 2006), and larger scale studies support those findings (Guth et al. 1995; Hand and Van Liere 1984). Hunter and Toney (2005), however, found Mormons in the Mormon Culture Region held more environmentally oriented views than the general American population. Neither of the studies occurring within the Mormon Culture Region controlled for political affiliation, interdenominational differences, or religiosity (e.g., commitment to a religion expressed through behaviors). Since U.S. adults self-identifying as Mormon were 55% Republican and 14% Democrat in 2001 (tying for the largest Republican bias of any formal denomination: Kosmin and Mayer 2001), Republican ideology could be conflated with Mormon culture. Further, since people outside organized religion typically demonstrate the most environmentally

oriented views (Hand and Van Liere 1984), differences between Mormons and non-Mormons in previous research could reflect differences between Mormons and those not affiliated with an organized religion. This possibility does not invalidate previous claims that Mormon culture was less environmentally oriented than non-Mormon culture (Brehm and Eisenhauer 2006; Guth et al. 1995; Hand and Van Liere 1984), but does suggest Mormon culture may share environmental worldviews with other religious cultures in the Mormon Culture region. Finally, religion can reflect self-identification with a culture and participation in the culture (Cohen et al. 2003). Considering religiosity at the same time as religion will provide insight into how participation in versus affiliation with a religion influences environmental views.

Strong inferences about the relationship between religion and environmental views in the Intermountain West require consideration of denominational differences, regional culture, religiosity, and political affiliation simultaneously. We use a case study in the Teton Valley of Idaho and Wyoming, USA, to fill this need. Specifically, we ascertain the relationship between environmental worldviews, measured with the New Ecological Paradigm (NEP) scale (Dunlap et al. 2000), and religion while controlling for religiosity, political affiliation, regional culture, and several demographic factors.

## Background

The Teton Valley includes Teton County, Idaho, and the portion of Teton County, Wyoming, west of the Teton Mountain Range. Teton County was the fastest growing county in Idaho—the fourth fastest growing state—during the 1990s (U.S. Bureau of the Census 1991, 2001). In the 1990s, the human population of the Teton Valley grew from 3,439 to 5,999 (74% increase), and the number of households grew from 1,123 to 2,078 (85% increase). This pattern is consistent with the global phenomenon of household numbers growing faster than population size (Liu et al. 2003). Population reached approximately 7,200 in 2004 when this study was conducted. Newcomers were more secular, less likely to be Mormon, younger, less likely to have moved from a nearby locations (i.e., from Idaho, Montana, Utah, or Wyoming), and more likely to be college graduates than longer term residents (Peterson et al. 2006).

The aforementioned demographic differences between newcomers and longer term residents in the Teton Valley (Peterson et al. 2006) suggest regional culture differences between longer term residents and newcomers may influence environmental worldviews in this area. One study in the same study area (Smith and Krannich 2000) found minimal environmental view divisions between newcomers and longer term residents, and most studies conducted in this region during the last decade found similar results (Brehm and Eisenhauer 2006; Smith and Krannich 2000). Earlier studies in the area, however, found significant environmental view differences between longer term residents and newcomers (Cockerham and Blevins 1977; Graber 1974). Smith and Krannich (2000) provide a detailed review of the potential “culture clash” related to divisions between environmental views of newcomers and longer term residents in the Intermountain West.

The Teton Valley was settled by Mormon pioneers in the late 1800s, and is within the Mormon Culture Region (Hunter and Toney 2005; Smith and Krannich 2000). While Mormonism is the largest U.S.-born denomination, its cultural and political power is limited primarily to the Intermountain West (Hunter and Toney

2005; Kosmin and Mayer 2001). The Mormon Culture Region tends to support environmentally abusive political leaders (Brehm and Eisenhauer 2006; Foltz 2000), but Mormon leaders and scholars in the Intermountain West have written pro-environmental literature (Handley 2001; Handley et al. 2006; Williams et al. 1998). This literature generally cites the central role of stewardship for the use and care of the nonhuman environment in Mormon scriptures and teachings. The tendency for Mormons to exhibit less environmentally oriented worldviews in survey research may reflect a strong dominion over nature doctrine developed in part through interaction with Utah's harsh desert landscapes (Brehm and Eisenhauer 2006; Hand and Van Liere 1984). Mormon pronatalist views and doctrine also may lead to less environmentally oriented views. The Mormon Church's stance on human population growth is positive, and does not view overpopulation as a social or biological problem (Brehm and Eisenhauer 2006; Faust 1995; Foltz 2000).

A recent immigration boom in the Teton Valley led to significant growth of non-Mormon religious groups including Roman Catholics, those not affiliated with organized religion, and most Protestant Christian denominations (Smith and Krannich 2000). Within the grouping of Christian religions, Catholics demonstrate among the most environmentally oriented worldviews (Greeley 1993; Hand and Van Liere 1984). This may relate to Catholics possessing a gracious image of God (Greeley 1993) and being less likely to utilize a dominion over nature perspective (Hand and Van Liere 1984). Because the NEP specifically addresses human population issues, the pronatalist stance of the Catholic Church may depress Catholic scores. This assumption, however, may be faulty since some studies suggest that the constraints of modern society "won out over the pressures of religious commitment" in regard to procreation issues for U.S. Catholics (Blake 1984, 330; Mosher and Hendershot 1984). While this study does not address specific Protestant denominations, White's (1967) assertion that Judeo-Christian faith promoted a dominion over nature perspective would suggest broadly labeled Christians would score lower on the NEP than respondents not affiliated with organized religions. A multinational study provides some support for this claim (Schultz et al. 2000).

## Methods

We assessed the relationship between religion and environmental worldviews with personal interviews because they promised high response rates (Dillman 2000) and insight regarding the cultural dynamics of informants. We conducted a pretest of the questionnaire with residents of Lansing, MI ( $n = 18$ ), and Victor, ID (within the study area;  $n = 23$ ), to clarify terminology and improve instrument validity. We purchased a representative sample ( $n = 550$ ) of public telephone listings and local addresses of Teton Valley residents from Survey Sampling, Incorporated, and conducted the survey of Teton Valley residents during July–August 2004. We attempted to visit each respondent during four time intervals, morning and evening on a weekday and on a weekend day, before telephone contact. We made initial contact via telephone when personal visits failed or if we could not locate a physical address. Four interviewers conducted all interviews. Interviewers were instructed to answer all questionnaire related queries by explaining the questionnaire format, reading directly from the questionnaire, or stating "whatever it means to you" (Groves 1989, 451).

We used the NEP scale to measure environmental worldviews (Dunlap et al. 2000). The NEP scale attempts to contrast ecological (i.e., humans and nature share a fate) and human exemptionalist (i.e., humans are exempt from environmental constraints) environmental worldviews (Catton and Dunlap 1978). Specific items (see Table 3) measure endorsement of limits to growth, anti-anthropocentrism, belief in future ecocrisis, belief in a fragile balanced nature, and rejection of human exemptionalism (Dunlap et al. 2000). While the NEP does not measure scientific knowledge (e.g., a perfect score requires believing in the “balance of nature”), it does tap the “folk ecology” or lay persons’ view of human and nature relationships (Johnson et al. 2004, 159). Those embracing the folk ecology of the modern environmental movement consistently score higher than other groups (Dunlap and Michelson 2002; Dunlap and Van Liere 1978; Dunlap et al. 2000; Mertig et al. 2002).

We dummy coded religion as binary variables from responses to the following open-ended question: “To what religious denomination do you belong?” To minimize sample size problems, we limited inferences to those not affiliated with organized religion, Mormon, Catholic, and other Christian categories. Due to extremely small sample size we excluded respondents with New Age ( $n = 5$ ), Buddhist ( $n = 3$ ), or Native American ( $n = 1$ ) religious views. The other Christian category in our study obviously included diverse religious denominations, but was necessitated by sample size. This limits the ability to draw inferences about denominations within the group, but keeping the category provides context for the remaining groups. Because we wanted to capture commitment to a religion expressed through actual behavior with the religiosity variable, we used the two questions from the five-item Duke Religion Index that measured extrinsic (i.e., behavior related) religiosity (Koenig et al. 1997): (1) “How often do you attend church, synagogue, or other religious meetings” and (2) “How often do you spend time in private religious activities, such as prayer, meditation or Bible [changed to scripture] study?”

We coded regional culture (longer term resident versus newcomer) as a binary variable from response to the following question: (1) Have you lived all your life in Teton County (if respondents answered “no” we asked: “how many years have you lived in Teton Valley?”). Those living in Teton Valley prior to 1992 were coded as longer term residents; otherwise we coded them as newcomers. Previous studies comparing longer term residents and newcomers in the Intermountain West defined the local group using either a residency requirement based on theoretical time required to integrate into a new culture (Fortmann and Kusel 1990; Graber 1974), or the year a major in-migration began (Smith and Krannich 2000). A major in-migration event began in Teton County, Idaho, in the early 1990s, so we chose the latter approach. We used least-squares nonlinear piecewise regression of annual population data (U.S. decennial census and annual estimates) to quantitatively estimate the threshold related to the immigration boom (Seber and Wild 1989). The regression model based on a pivot point between 1991 and 1992 accounted for 99.5% of observed variance in population change. We used standard survey design for collecting demographic variables (Dillman 2000). Education was coded as a seven-category variable from the closed-ended question: What was the last level of school you completed? Options ranged from “high school” to “graduate or professional degree.” Political affiliation was coded as a three-category variable: Republican, Independent, and Democrat.

## Data Analysis

Several studies question the internal consistency and dimensionality of the NEP (see Dunlap et al. 2000). Further, religion, regional culture, and political affiliation could all potentially influence the internal consistency and dimensionality of the NEP. Specifically, the individualistic wording in the NEP (e.g., rights language) may be less resonant for more communitarian groups (e.g., Mormons, Catholics) and may influence perception of environmentally related questions (Cronon 1983; Curry 2000; Goodsell 2000). We address this possibility by conducting principal components analysis (PCA) with varimax rotation and calculating Cronbach's alpha for NEP questions for the entire sample and each subgroup (i.e., religion, regional culture, political affiliation). We retained all factors with eigenvalues  $> 1$  for analysis. Although the Duke Religion Index is consistently one-dimensional and has high internal consistency (Koenig et al. 1997; Storch et al. 2004), we calculated Cronbach's alpha for the two items we used. Our two-item scale had high internal consistency (Cronbach's alpha = .78).

We used either *t*-tests or one-way analysis of variance (ANOVA) to determine whether differences in NEP occurred by categories (.05 level of significance). If ANOVA was significant, we used Duncan's range test to evaluate differences among means (.05 level of significance). To account for potential sociodemographic variation across religious, regional, and political cultural groups we used multiple regressions of responses to the NEP scale and its components. We incorporated age, education, gender, and income as control variables in each equation.

## Results

Of the 484 usable addresses, we conducted interviews at 416 households (compliance rate = 95%; sampling error  $\pm 4.8\%$ ). Data from 66 contacts were not usable (e.g., bad information, deceased, or moved), we were unable to contact respondents at 48 households, and 20 households refused to provide an interview. Our sample matched census data (U.S. Bureau of the Census 2000) for sex (46% female [47%]) and ethnicity (90% Anglo [91%] and 6% Hispanic [7%]). Median annual family income was \$35,000–\$49,999. Almost 40% of respondents had at least a 4-year college degree, and 5% had less than high school graduation. Mean respondent age was 46 years.

The largest religious group was Mormon (42.5%), followed by those not affiliated with organized religion (27.3%), other Christian (16.6%), and Catholic (11.3%). Religiosity depended on religious affiliation ( $F = 53.63$ ,  $p < .001$ ), with Mormon respondents exhibiting the highest religiosity ( $\bar{X} = 9.04$ ,  $SE = 0.20$ ), Catholics ( $\bar{X} = 6.64$ ,  $SE = 0.33$ ) and other Christians ( $\bar{X} = 7.29$ ,  $SE = 0.38$ ) sharing an intermediate level, and those not affiliated with organized religion reporting the lowest level ( $\bar{X} = 4.02$ ,  $SE = 0.34$ ,  $p < .001$  for all groups). Only half of those not affiliated with organized religion, however, responded to the religiosity questions. The sample was 47.2% longer term residents ( $n = 194$ ) and 52.8% newcomers ( $n = 217$ ). Independents (40.8%:  $n = 144$ ) were the largest political group, followed by Republicans (34.3%:  $n = 121$ ), and Democrats (24.9%:  $n = 88$ ).

NEP scores ranged from 23 to 75, with a mean of 51.74. Cronbach's alpha for the NEP scale items was .87, reflecting a high degree of internal consistency. Alpha remained high for religion (for Mormon = .76, for those not affiliated with organized religion = .88, for other Christian = .84, for Catholic = .72), regional culture

(for longer term resident = .84, for newcomer = .86), and for political affiliation (for Republican = .80, for Independent = .84, for Democrat = .84). As was the case for Dunlap et al. (2000), principal components analysis revealed multidimensionality in the NEP scale (Table 1). Accordingly, we conducted analysis on specific NEP questions to identify potential anomalies. Despite multidimensionality, the scale's authors, Dunlap et al. (2000), suggest using the NEP as a single measure when internal consistency is high; hence we still use the NEP scale as a single measure to represent environmental worldviews.

Those not affiliated with organized religion were most environmentally oriented and embraced the NEP, while Mormon respondents were the least environmentally oriented, falling closest to a human exemptionalism view (Table 2). The other-Christian and Catholic groups fell in the middle. The same general pattern existed for each item within the NEP except 9 and 12. All religious groups believed strongly that "humans are subject to laws of nature" (item 9). Differences among Mormon ( $\bar{X} = 4.39$ ,  $SE = 0.06$ ), other Christian ( $\bar{X} = 4.41$ ,  $SE = 0.10$ ), and non-organized-religion ( $\bar{X} = 4.64$ ,  $SE = 0.08$ ) groups were insignificant. The lowest score for this item (Catholic;  $\bar{X} = 4.30$ ,  $SE = 0.12$ ) was still high. Item 12, "humans were meant to rule over the rest of nature," clearly separated each religious group. Mormons exhibited the most dominionistic view (i.e., scored lowest:  $\bar{X} = 2.49$ ,  $SE = 0.108$ ), followed by other Christians ( $\bar{X} = 3.15$ ,  $SE = 0.172$ ), Catholics ( $\bar{X} = 3.69$ ,  $SE = 0.209$ ), and non-organized-religion respondents ( $\bar{X} = 4.36$ ,  $SE = 0.134$ ).

**Table 1.** Principal components analysis with varimax rotation factor loadings of the NEP scale for the total sample, each religion, each regional culture, and each political affiliation

Parameter	Factor 1		Factor 2		Factor 3		Factor 4		Factor 5		Total %S <sup>2</sup>
	EV	%S <sup>2</sup>	EV	%S <sup>2</sup>	EV	%S <sup>2</sup>	EV	%S <sup>2</sup>	EV	%S <sup>2</sup>	
Total	5.46	27.90	1.70	18.47	1.07	8.52					54.89
Religion											
Mormon	3.83	23.56	2.04	12.61	1.48	9.51	1.19	9.12	1.02	9.01	63.81
Catholic	3.74	18.28	2.87	16.30	1.87	15.64	1.32	15.06			65.27
Other Christian	4.90	22.55	1.87	13.38	1.23	12.93	1.11	11.95			60.80
Non-religion	5.77	20.18	1.36	17.93	1.23	17.62					55.73
Regional culture											
Longer term resident	5.38	25.16	1.84	18.53	1.12	11.94					55.63
Newcomer	4.78	24.47	1.72	13.26	1.18	12.91	1.11	8.02			58.65
Political affiliation											
Republican	4.18	22.75	1.89	14.85	1.46	12.13	1.30	9.02			58.74
Independent	4.74	22.84	2.30	20.63	1.10	9.23	1.05	8.58			61.29
Democrat	4.99	19.92	1.44	18.49	1.29	9.80	1.12	9.21	1.01	8.14	65.57

*Note.* Eigenvalues (EV) and percent variance explained by each principal component (%S<sup>2</sup>) are reported.



Using the estimated year of immigration boom provided a regional culture variable (i.e., local status) capable of significantly explaining variance in NEP ( $r = -.35$ ,  $p < .05$ ). Longer term residents scored significantly lower on the NEP scale than newcomers (Table 2). Longer term residents also scored lower than newcomers on each item within the NEP except item 9. The lack of difference for item 9 reflects the fact that all respondents believed strongly that "humans are subject to laws of nature." Democrats scored highest on the NEP, followed by Independents and Republicans, respectively (Table 2). The same general pattern existed for each item within the NEP, but differences between Republicans and Independents were not significant for items 2, 4, 8, 9, and 14 (see Table 3), and differences between Independents and Democrats were insignificant for item 13.

After controlling for demographic factors (age, education, gender, and income), NEP remained significantly related to being Mormon, not being affiliated with organized religion, being other Christian, political affiliation, and regional culture (Table 3:  $n = 401$ ,  $F = 22.71$ ,  $R^2 = .41$ ). When the NEP was disaggregated into individual items, several differences from the general NEP pattern emerged. Questioning the exclusivity of human rights was significantly related to being Catholic and increasing Catholic religiosity (Table 3). Believing plants and animals had the same rights as humans to exist and believing human knowledge will allow us to control nature were also related to being Catholic (Table 3). Believing human overpopulation was a problem was negatively related to Mormon and other-Christian religiosity (Table 3). Believing humans were subject to the laws of nature, believing the balance of nature was strong enough to cope with impacts of industrial nations, and believing humans should rule over nature were positively related to Mormon religiosity (Table 3). Other-Christian religiosity was negatively related to believing human interference in nature causes disastrous consequences, positively related to believing plants and animals have as much right as humans to exist, and positively related to believing humans were meant to rule over nature (Table 3). Believing

**Table 2.** Differences in New Ecological Paradigm (NEP) based on religion, regional culture, and political affiliation of Teton Valley respondents

Groups	<i>n</i>	Mean (SE)	Duncan's test
NEP and religion <sup>a</sup>			
Mormon	152	44.14 (0.78)	A
Other Christian	59	51.67 (1.25)	B
Catholic	40	53.28 (1.52)	B
Nonreligious	97	60.65 (0.98)	C
NEP and regional culture <sup>a</sup>			
Longer term resident	194	47.38 (0.78)	A
Newcomer	217	55.60 (0.74)	B
NEP and political affiliation <sup>a</sup>			
Republican	121	45.03 (0.89)	A
Independent	144	52.00 (0.85)	B
Democrat	88	61.06 (1.03)	C

*Note.* Upper case letters in the table's right-hand column reflect significantly different groups.

<sup>a</sup>Duncan's range test significance:  $p < .001$ .

**Table 3.** OLS analysis of New Ecological Paradigm (NEP) regressed on religion (Roman Catholic [RC], the Church of Jesus Christ of Latter Day Saints [LDS], not affiliated with organized religion [NAO], and other Christian [OC]), religiosity (RCR, LDSR, OCR), regional culture (local), and select control variables

Dependent variables <sup>a</sup>	Independent variables											R <sup>2</sup>		
	RC	RCR	LDS	LDSR	NAO	OC	OCR	Age	Edu	Income	Polit <sup>b</sup>		Local <sup>c</sup>	Sex <sup>d</sup>
NEP	-0.06	0.06	-0.32*	-0.07	0.12*	-0.12*	-0.07	0.07	0.06	-0.03	0.29*	-0.16*	-0.03	0.41*
1. We are approaching the limit of the number of people the earth can support	-0.09	0.05	-0.37*	-0.17*	0.04	-0.16*	-0.13*	-0.02	0.02	-0.10*	0.23*	-0.05	0.05	0.34*
2. Humans have the right to modify the natural environment to suit their needs	-0.14*	0.09	-0.19*	-0.05	0.03	-0.11	-0.07	0.12	0.03	0.07	0.14*	-0.15*	-0.14*	0.15*
3. When humans interfere with nature it often produces disastrous consequences	0.02	0.07	-0.24*	-0.04	0.04	-0.12*	-0.01	0.09	0.02	-0.11*	0.14*	-0.07	0.03	0.15*
4. Human ingenuity will insure that we do NOT make the earth unlivable	-0.06	-0.02	-0.11	-0.02	0.02	-0.07	0.03	0.03	0.09	0.05	0.12*	-0.11	0.02	0.09*
5. Humans are severely abusing the environment	0.02	0.04	-0.17*	-0.03	0.11	-0.05	-0.04	0.10	-0.09	-0.04	0.29*	-0.14*	-0.04	0.24*

6. The earth has plenty of natural resources if we can just learn how to develop them	0.05	-0.06	-0.11	-0.07	0.13*	0.09	-0.10*	0.03	0.18*	0.03	0.18*	0.01	-0.01	0.19*
7. Plants and animals have as much rights as humans to exist	0.16*	0.10*	-0.20*	-0.02	-0.02	0.12*	-0.03	-0.13*	-0.15*	0.17*	-0.26*	-0.12*	0.26*	
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations	-0.02	0.09	-0.10	-0.10*	0.11	-0.06	0.01	0.10	0.05	0.01	0.11*	-0.10	-0.02	0.12*
9. Despite our special abilities, humans are still subject to the laws of nature	-0.08	0.04	-0.02	0.12*	-0.01	-0.08	-0.05	0.16*	0.09	-0.08	0.15*	-0.12	0.04	0.09*
10. The so called "ecological crisis" facing humankind has been greatly exaggerated	-0.01	0.06	-0.13	-0.05	0.11	-0.01	-0.04	0.03	0.11*	0.01	0.26*	-0.18*	-0.06	0.28*
11. The earth is like a spaceship with very limited room and resources	0.07	0.02	-0.34*	-0.08	0.13*	-0.07	-0.05	0.04	0.06	0.01	0.17*	0.06	0.08	0.26*
12. Humans were meant to rule over the rest of nature	-0.05	0.03	-0.32*	-0.09*	0.09	-0.17*	-0.07	0.05	0.07	-0.01	0.16*	-0.17*	-0.07	0.29*

(Continued)

Table 3. Continued

Dependent variables <sup>a</sup>	Independent variables											R <sup>2</sup>		
	RC	RCR	LDS	LDSR	NAO	OC	OCR	Age	Edu	Income	Polit <sup>b</sup>		Local <sup>c</sup>	Sex <sup>d</sup>
13. The balance of nature is very delicate and easily upset	0.07	0.07	-0.11	0.05	0.09	0.02	-0.07	0.11	-0.01	0.05	0.17*	-0.05	0.09	0.12*
14. Humans will eventually learn enough about how nature works to be able to control it	-0.12*	0.07	-0.12	0.07	0.13	0.01	0.05	-0.11	0.11*	0.07	0.07	0.08	-0.03	0.12*
15. If things continue on their present course, we will soon experience a major ecological catastrophe	0.01	-0.04	0.21*	-0.04	0.07	-0.11	-0.05	0.04	-0.05	-0.09	0.21*	-0.14	-0.01	0.21*

Note. Asterisk indicates significant,  $p < .05$ .

<sup>a</sup>Coded so more environmentally oriented answers are have highest values (e.g., strong disagreement with even numbered questions = 5).

<sup>b</sup>Republican = 1, Independent = 2, Democrat = 3.

<sup>c</sup>Newcomer = 0, longer term resident = 1.

<sup>d</sup>Female = 0, Male = 1.

\* $p < 0.05$ .

humans were subject to laws of nature was positively related to age (Table 3). Education was positively related to recognizing limited resources, not believing plants and animals have as much right to exist as humans, believing an ecological crisis is happening, and believing humans cannot control nature (Table 3). Income was negatively related to believing plants and animals have the same right to exist as people, and human interference causes disastrous consequences (Table 3). Gender emerged relating to rights, with females being more supportive of plants and animals having the same right to exist as humans and less supportive of humans having a right to modify the environment to suit their needs (Table 3).

## Discussion

Our results reflect the most common finding of studies addressing environmental worldviews in the Mormon culture region: Mormons demonstrate less environmentally oriented worldviews than other groups (Brehm and Eisenhauer 2006; Guth et al. 1995; Hand and Van Liere 1984). Consideration of interdenominational differences, religiosity, political affiliation, and regional culture helped contextualize this finding. Other-Christian and Catholic groups created an environmental worldview middle ground between the least environmentally oriented Mormons and most environmentally oriented respondents who were not affiliated with organized religion. While identification with a religion shaped environmental worldviews, participation in religion did not. This suggests the historical legacy inherited by religious adherents (Brehm and Eisenhauer 2006; Hughes 1996) influences their environmental worldviews more than participation in religious practices and doctrinal knowledge. The less environmentally oriented worldviews of longer term residents may relate to the ecological history they shared, at least in part, with Mormons in the Intermountain West.

Because those not affiliated with organized religion in the United States grew in numbers faster than any religion in the last decade (Kosmin and Mayer 2001), research with this group is essential for understanding the context for future natural resource management, particularly in the Intermountain West. Studies using a modified religiosity index that allows those not affiliated with organized religion to express their spirituality or religious commitment could contribute significantly to our understanding of the environmental worldview and religiosity relationship.

Being Catholic and increasing Catholic religiosity and being other-Christian were positively related to believing plants and animals had the same right to exist as people, while not being affiliated with organized religion was not related to belief in nonhuman rights. The positive relationship between Catholicism and belief in rights for animals and plants may relate to the cultural legacy of St. Francis of Assisi (Hughes 1996). St. Francis used familial terms referring to nonhuman creatures, and emphasized the presence of God in the diversity of plants and animals. The relationship between Mormonism and not believing plants and animals have the same right to exist as humans, however, remains puzzling since official Mormon doctrine states all living organisms have spirits, moral intelligence, and are subject to redemption (Handley 2001). This issue could be clarified by future studies assessing the percent of Mormons aware of the doctrine, and if they associate it with a God-given right for nonhumans to exist. Regardless of the findings, the incongruence between doctrine and perceptions of nonhuman rights should provide fertile ground for improving Mormon environmental views.

Not surprisingly, pronatalist groups (Mormons, other Christians, and Republicans) believed human overpopulation was not a problem. Increasing religiosity for Mormons and other Christians also related to not considering human over-population a problem. The pronatalist stance of the Catholic Church, however did not relate to Catholic scores. This lends support to previous studies suggesting modern social pressures are paramount to pressures of religious commitment in regard to procreation issues for U.S. Catholics (Blake 1984, 330; Mosher and Hendershot 1984).

Regional culture was a significant predictor of environmental worldviews, and longer term residents scored significantly lower than newcomers on the NEP scale. This finding does not conflict with recent research suggesting nonsignificant differences between longer term residents and newcomers on environmental issues related to human health, open space, and rural character (Brehm and Eisenhauer 2006; Smith and Krannich 2000). Our results, however, suggest shared value for these environmental amenities does not translate into a shared environmental worldview. Despite the universally high belief in nature's laws found in this study, the concept should not be mistaken for a cross-cutting issue. The concept has different meanings from religious, political, and scientific perspectives. Our results support previous research suggesting political affiliation strongly influences environmental worldviews (Greeley 1993; Shaiko 1987), so political affiliation probably played a critical but unrecognized role in previous studies of religion and environmental views within the Intermountain West (Brehm and Eisenhauer 2006; Hunter and Toney 2005).

### Management Implications

Within the Intermountain West, natural resource managers and community officials should still consider environmental worldview differences rooted in religion, regional culture, and political ideology important issues. Ignoring potential conflicts arising from such deep seated differences in environmental worldviews will lead to conflict escalation (Peterson et al. 2002). While education efforts may change opinions on some issues, our results suggest education is less important than deep seated cultural values associated with religious identification. Natural resource managers should work to disengage management objectives from polarizing religious norms by emphasizing cross-cutting issues (e.g., human health, open space: Brehm and Eisenhauer 2006; Smith and Krannich 2000). For example, natural resource managers should frame conservation initiatives in terms of human resource use, rather than human overpopulation, when possible (this study; Peterson et al. 2007). Of course even the most strategic management will not prevent conflict on some environmental issues, so natural resource managers should be prepared to manage and work through conflict when necessary (Daniels and Walker 2001; Lee 1993). When religion or morality plays a central role in conflict, managers must start by helping disputants build shared rhetorical systems, traditions, stories, and symbols (Peterson et al. 2002; Rubin et al. 1994).

### References

- Blake, J. 1984. Catholicism and fertility—On attitudes of young Americans. *Population Dev. Rev.* 10:329–340.
- Brehm, J. M. and B. W. Eisenhauer. 2006. Environmental concern in the Mormon culture region. *Society Nat. Resources* 19:393–410.

- Catton, W. R. and R. E. Dunlap. 1978. Paradigms, theories, and primacy of HEP–NEP distinction. *Am. Sociol.* 13:256–259.
- Cockerham, W. C. and A. L. J. Blevins. 1977. Attitudes toward land-use planning and controlled growth in Jackson Hole. *J. Commun. Dev. Society* 8:62–73.
- Cohen, A. B., J. I. Siegel, and P. Rozin. 2003. Faith versus practice: Different bases for religiosity judgments by Jews and Protestants. *Eur. J. Social Psychol.* 33:287–295.
- Cronon, W. 1983. *Changes in the land: Indians, colonists, and the ecology of New England*. New York: Hill and Wang.
- Curry, J. M. 2000. Community worldview and rural systems: A study of five communities in Iowa. *Ann. Assoc. Am. Geogr.* 90:693–712.
- Daniels, S. E. and G. B. Walker 2001. *Working through environmental conflict: The collaborative learning approach*. Westport, CT: Praeger.
- Dillman, D. A. 2000. *Mail and Internet surveys: The tailored design method*. New York: Wiley.
- Dunlap, R. E. and W. Michelson, ed. 2002. *Handbook of environmental sociology*. Westport, CT: Greenwood.
- Dunlap, R. E. and K. D. Van Liere. 1978. The “New Environmental Paradigm”: A proposed measuring instrument and preliminary results. *J. Environ. Educ.* 9:10–19.
- Dunlap, R. E., K. D. Van Liere, A. G. Mertig, and R. E. Jones. 2000. Measuring endorsement of the new ecological paradigm: A revised NEP scale. *J. Social Issues* 56:425–442.
- Eckberg, D. L. and T. J. Blocker. 1996. Christianity, environmentalism, and the theoretical problem of fundamentalism. *J. Sci. Study Religion* 35:343–355.
- Faust, J. E. 1995. Serving the Lord and resisting the devil. *Ensign* 25:2–7.
- Foltz, R. C. 2000. Mormon values and the Utah environment. *Worldviews Environ. Culture Religion* 4:1–19.
- Fortmann, L. and J. Kusel. 1990. New voices, old beliefs—Forest environmentalism among new and long-standing rural residents. *Rural Sociol.* 55:214–232.
- Gellner, E. 1992. *Postmodernism, reason, and religion*. London: Routledge.
- Goodsell, T. 2000. Maintaining solidarity: A look back at the Mormon village. *Rural Sociol.* 65:357–375.
- Graber, E. E. 1974. Newcomers and oldtimers—Growth and change in a mountain town. *Rural Sociol.* 39:504–513.
- Greeley, A. 1993. Religion and attitudes toward the environment. *J. Sci. Study Religion* 32: 19–28.
- Groves, R. M. 1989. *Survey errors and survey costs*. New York: Wiley.
- Guth, J. L., J. C. Green, L. A. Kellstedt, and C. E. Smidt. 1995. Faith and the environment—Religious beliefs and attitudes on environmental-policy. *Am. J. Polit. Sci.* 39:364–382.
- Hand, C. M. and K. D. Van Liere. 1984. Religion, mastery-over-nature, and environmental concern. *Social Forces* 63:555–570.
- Handley, G. B. 2001. The environmental ethics of Mormon belief. *BYU Stud.* 40:187–211.
- Handley, G. B., T. B. Ball, and S. L. Peck, ed. 2006. *Stewardship and the creation: LDS perspectives on the environment*. Provo, UT: Religious Studies Center, Brigham Young University.
- Hughes, J. D. 1996. Francis of Assisi and the diversity of creation. *Environ. Ethics* 18: 311–320.
- Hunter, L. M. and M. B. Toney. 2005. Religion and attitudes toward the environment: A comparison of Mormons and the general US population. *Social Sci. J.* 42:25–38.
- Johnson, C. Y., J. M. Bowker, and H. K. Cordell. 2004. Ethnic variation in environmental belief and behavior: An examination of the new ecological paradigm in a social psychological context. *Environ. Behav.* 36:157–186.
- Jones, R. E. and R. E. Dunlap. 1992. The social bases of environmental concern—Have they changed over time. *Rural Sociol.* 57:28–47.
- Kanagy, C. L. and H. M. Nelsen. 1995. Religion and environmental concern—Challenging the dominant assumptions. *Rev. Religious Res.* 37:33–45.

- Koenig, H., G. R. Parkerson, and K. G. Meador. 1997. Religion index for psychiatric research. *Am. J. Psychiatry* 154:885–886.
- Kosmin, B. A. and E. Mayer. 2001. *American religious identification survey*. [http://www.gc.cuny.edu/faculty/research\\_briefs/aris/aris\\_index.htm](http://www.gc.cuny.edu/faculty/research_briefs/aris/aris_index.htm). Accessed 20 January 20, 2006.
- Lee, K. N. 1993. *Compass and gyroscope. Integrating science and politics for the environment*. Washington, DC: Island Press.
- Liu, J. G., G. C. Daily, P. R. Ehrlich, and G. W. Luck. 2003. Effects of household dynamics on resource consumption and biodiversity. *Nature* 421:530–533.
- Mertig, A. G., R. E. Dunlap, and D. E. Morrison. 2002. The environmental movement in the United States. In *Handbook of environmental sociology*, eds. R. E. Dunlap and W. Michelson, 448–481. Westport, CT: Greenwood.
- Mohai, P. 1992. Men, women, and the environment—An examination of the gender-gap in environmental concern and activism. *Society Nat. Resources* 5:1–19.
- Mosher, W. D. and G. E. Hendershot. 1984. Religion and fertility—A replication. *Demography* 21:185–191.
- National Intelligence Council. 2004. *Mapping the global future: Report of the National Intelligence Council's 2020 Project*. Washington, DC: National Intelligence Council.
- Peterson, M. N., A. G. Mertig, and J. G. Liu. 2006. Effects of zoonotic disease attributes on public attitudes towards wildlife management. *J. Wildl. Manage.* 70:1746–1753.
- Peterson, M. N., M. J. Peterson, T. R. Peterson, and J. G. Liu. 2007. A household perspective for biodiversity conservation. *J. Wildl. Manage.* 71:1243–1248.
- Peterson, M. N., T. R. Peterson, M. J. Peterson, R. R. Lopez, and N. J. Silvy. 2002. Cultural conflict and the endangered Florida Key deer. *J. Wildl. Manage.* 66:947–968.
- Rubin, J. Z., D. G. Pruitt, and S. H. Kim. 1994. *Social conflict: Escalation, stalemate and settlement*, 2nd ed. New York: McGraw-Hill.
- Schultz, P. W., L. Zelezny, and N. J. Dalrymple. 2000. A multinational perspective on the relationship between Judeo-Christian religious beliefs and attitudes of environmental concern. *Environ. Behav.* 32:576–591.
- Seber, G. A. F. and C. J. Wild. 1989. *Nonlinear regression*. New York: John Wiley and Sons.
- Shaiko, R. G. 1987. Religion, politics, and environmental concern—A powerful mix of passions. *Social Sci. Q.* 68:243–262.
- Smith, T. W. 1990. Classifying protestant denominations. *Rev. Religious Res.* 31:225–245.
- Smith, M. D. and R. S. Krannich. 2000. “Culture clash” revisited: Newcomer and longer-term residents’ attitudes towards land use, development, and environmental issues in rural communities in the Rocky Mountain west. *Rural Sociol.* 65:396–421.
- Storch, E. A., J. W. Roberti, A. D. Heidgerken, J. B. Storch, A. B. Lewin, E. M. Killiany, A. L. Baumeister, E. A. Bravata, and G. R. Geffken. 2004. The Duke Religion Index: A psychometric investigation. *Pastoral Psychol.* 53:175–181.
- U.S. Bureau of the Census. 1991. *Census of population and housing, 1990: Summary tape file 1*. Washington, DC: Prepared by the Bureau of the Census.
- U.S. Bureau of the Census. 2001. *Census of population and housing, 2000: Summary tape file 1*. Washington, DC: Prepared by the Bureau of the Census.
- Van Liere, K. D. and R. E. Dunlap. 1980. The social bases of environmental concern—A review of hypotheses, explanations and empirical-evidence. *Public Opin. Q.* 44:181–197.
- Weakliem, D. L. and R. Biggart. 1999. Region and political opinion in the contemporary United States. *Social Forces* 77:863–886.
- White, L. 1967. Historical roots of our ecologic crisis. *Science* 155:1203–1207.
- Williams, T. T., W. B. Smart, and G. M. Smith 1998. *New genesis: A Mormon reader on land and community*. Salt Lake City, UT: Gibbs Smith.
- Wolkomir, M., M. Futreal, E. Woodrum, and T. Hoban. 1997. Substantive religious belief and environmentalism. *Social Sci. Q.* 78:96–108.