America's Wildlife Values

The Social Context of Wildlife Management in the U.S.

AMERICA'S WILDLIFE VALUES

WAFWA
Western Association of Fish & Wildlife Agencies

Colorado State University

The Ohio State University

Responsive Management

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WAFWA Western Association of Fish & Wildlife Agencies
Delivering conservation through information exchange and working partnerships

ASSOCIATION of FISH & WILDLIFE AGENCIES

WILDLIFE & SPORT FISH RESTORATION

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Executive Summary

The purpose of the *America's Wildlife Values Project* was to assess the social context of wildlife management in the U.S. to understand the growing conflict around wildlife management. It is the first study of its kind to describe how U.S. residents within and across all 50 states think about wildlife, and how changing perspectives shape the wildlife profession. Findings from this project build on three sources of data: 2004 data on public values from the 19-state *Wildlife Values in the West* study (n = 12,673); 2018 data on public values from all 50 U.S. states (n = 43,949); and 2018 data on fish and wildlife agency culture from 28 states (n = 9,770). A summary of select findings is below.

Understanding Change in Wildlife Value Orientations

- Across the U.S., Traditionalists make up 28% of the population, Mutualists make up 35% of the population, Pluralists make up 21% of the population, and Distanced individuals make up 15% of the population.
- From 2004 to 2018, western U.S. states on average had a 5.7% decrease in Traditionalists and a 4.7% increase in Mutualists. Both raw and proportional rates of change vary considerably by state.
- We propose that the rise in mutualism is driven by modernization. In support of that, we find mutualism is strongly related to modernization indicators, including urbanization, education, and income at the state level.
- Data illustrate that those with mutualist values are more likely to exhibit anthropomorphic tendencies toward wildlife, which we propose is stimulated by processes of modernization.
- Wildlife value orientations differ by racial/ethnic groups, with Whites having a higher proportion of Traditionalists, Hispanics/Latinos and Asians having higher proportions of Mutualists, and Native Americans having a higher proportion of Pluralists.

Impacts of Values on Wildlife Management Issues

- States with a higher percentage of Mutualists are more likely to agree that we should strive for environmental protection over economic growth and that the earth is getting warmer because of human activities.
- Residents in these states are less likely to agree that private property rights are more important than protecting declining or endangered species or that wildlife involved in conflicts with humans should be lethally removed.

Participation in Wildlife-Related Recreation

- The percentages of people expressing interest in future hunting (16%) and fishing (32%) are lower than rates of past participation, while wildlife viewing has higher future interest (52%) compared to past participation.
- Engagement in hunting and fishing is higher for Traditionalists and Pluralists compared to Mutualists and Distanced individuals, with rates varying considerably by state.

Public Trust in State Fish and Wildlife Agencies

- Members of the public are much more trusting of their state fish and wildlife agencies (60%) than their state (36%) or federal (25%) governments.
- States with a higher percentage of Mutualists have lower rates of trust in these agencies. This difference across states is in large part driven by those with more traditional values, indicating a "cultural backlash" to perceived change.
- Similar patterns exist for whether residents agree that they share similar values to their agency, with Traditionalists driving lower levels of agreement found in more mutualist states.

Agency Culture and Governance

- Across state fish and wildlife agencies, employees have strong agreement in their institution's unifying principles; being experts and protectors of natural resources, being compassionate toward wildlife and advancing stewardship.
- There is evidence of strong normative pressure to be a model employee and uphold the values of the agency.
- Agencies differ in which management models they prioritize, with some agencies focusing on an expert model and others focusing on a clientele model. These different models relate to employee perceptions of agency adaptability and accountability.
- Agencies with higher levels of mutualism among their employees are more likely to perceive the agency as prioritizing an expert model.
- The value composition of a state's public seems to have little impact on the value composition of the agencies that are likely changing at a slower pace. While 34% of the public in participating states are Mutualists, only 8% of agency employees are.

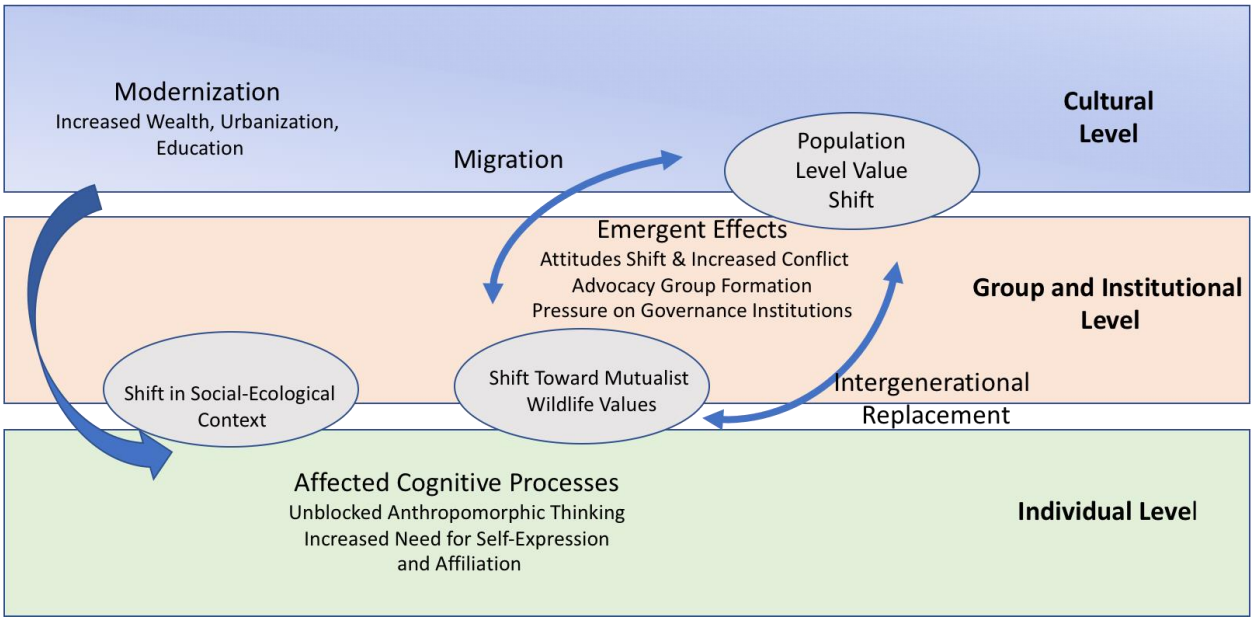
Study Purpose and Background

Conflict is increasingly common in contemporary fish and wildlife management. The source of conflict is typically not a matter of biology; rather, it involves a clash of goals among stakeholders. To many in the wildlife profession, conflict among stakeholders appears to be intensifying over time.

The purpose of the *America's Wildlife Values Project* was to assess the social context of wildlife management in the U.S. in an attempt to understand this conflict. It is the first-ever study that describes how U.S. residents across all states, and within each state separately, think about wildlife. The project provides insight into the mix of values that publics have toward wildlife, how this mix of values contributes to conflict over policy issues, and how changing societal conditions are affecting wildlife management across the country. The study also assesses the culture of state fish and wildlife agencies and, when combined with the public assessment, allows us to explore the dynamics between agency culture and public values.

The impetus for this project was provided in the 2004 project *Wildlife Values in the West* (Teel, Dayer, Manfredo, & Bright, 2005). That project asserted that longitudinal multi-state studies provide unique insights not afforded by single state, one-time human dimensions studies commonly conducted by fish and wildlife agencies. First, the use of multiple states allows us to explore explanations about broad societal forces that affect the composition of public values. We do this by examining concepts that explain the variance in values among states. Second, the longitudinal nature of these studies allows us to see the social context as dynamic and changing over time. Our model proposes that changes at the broad societal level affect changes at the individual level that, in turn, feed back into organizational and group-level processes. Third, we begin to explore the effects of shifting public values on the adaptive responses of agencies that manage fish and wildlife at the state level. This can be described as a multi-level, dynamic view of wildlife values in the United States (Figure 1; Manfredo et al., 2017).

Figure 1: Multi-level model of the effect of modernization on wildlife management



Study Data

Data for this study were collected from samples of the public in each state as well as from employees in a number of state fish and wildlife agencies. A brief description of each effort is provided here.

Public Survey. Information about the public was collected using a self-report survey. The survey instrument can be found in Appendix A. Many states also opted for additions to the survey to address important state-specific management issues, the results for which are available through state-specific reports released separately from this project. The primary mode of data collection for the study was guided by two separate pretests. The first pretest used a "push-to-web approach" with a nationwide sample. The second pretest compared telephone, conventional mail, and e-mail panel methods. For final data collection, a mail survey was chosen. Surveys were administered by Responsive Management over the time period between 2016 and 2018. The mail survey response was far less than projected and, consequently, sampling was supplemented using e-mail panels administered through Qualtrics in the Spring of 2018. E-mail panels showed similar results to the mail survey in the pretest (Don Carlos et al., In Process). Upon completion of the first e-mail panel in the full study, analysis showed significant underrepresentation of certain racial and ethnic categories. As a result, one final email panel round of data collection was conducted with an effort to boost response in underrepresented categories. For final analysis, mail and e-mail panel data were merged at the state level and then weighted to better reflect the state's population. Each state was weighted separately with variables including age categories, gender, race/ethnicity categories, and participation in hunting and fishing. If a state had opted for a stratified geographic sample, state population estimates were also weighted to reflect the population proportions in each stratum (e.g., county, region). A description of the sample sizes by state is presented in Table 1. A detailed description of the methodology used in the study is available in Don Carlos et al. (In Process).

Agency Survey. A self-report survey delivered to employees within participating agencies was used to collect data to describe agency culture and values. The survey can be found in Appendix B. Invitations were sent to all 50 state fish and wildlife agencies asking them to participate in the survey. Participating agencies provided e-mail addresses for all permanent, full-time employees and agreed to have their Director send an email in advance of the survey encouraging participation. While some participating agencies have broader mandates resulting in multiple natural resource-related units (e.g., parks, forestry, fisheries, wildlife), findings presented here are limited to employees in fish, wildlife, and related divisions. The survey was administered through Qualtrics. Twenty-eight states had completed data collection prior to this report. Participating states and response rates are provided in Table 2.

Why Wildlife Values?

Social values are a key concept to measure because they are the broad cognitive foundation upon which people's prioritizations are built. They are defined as fundamental, stable human goal structures (Schwartz, 2006) that shape how we orient ourselves to the world around us. More specifically, research has identified wildlife values as a useful construct that has been reliably measured in the U.S. and a number of other western countries (e.g., see Manfredo, Teel, & Henry, 2009; Teel et al., 2010). Wildlife values have been shown to effectively predict a person's positions across a wide range of issues, and value differences among people are the foundation for conflict over these issues in fish and wildlife management (Teel & Manfredo, 2009; Manfredo, Teel, & Dietsch, 2016).

Table 1: Sample sizes and mail response rates by state for the public survey

State	Total Sample Size	Mail Response Rate	State	Total Sample Size	Mail Response Rate
Alabama	501	5.2%	**Montana**	536	15.5%
Alaska	937	11.1%	**Nebraska**	2028	13.7%
Arizona	590	7.2%	**Nevada**	1133	9.3%
Arkansas	504	6.5%	**New Hampshire**	575	9.5%
California	4292	9.7%	**New Jersey**	532	5.6%
Colorado	653	13.6%	**New Mexico**	1967	11.8%
Connecticut	550	7.2%	**New York**	643	6.4%
Delaware	532	7.4%	**North Carolina**	4108	7.7%
Florida	626	5.8%	**North Dakota**	520	10.8%
Georgia	495	4.1%	**Ohio**	506	6.1%
Hawaii	671	10.0%	**Oklahoma**	546	7.0%
Idaho	519	11.7%	**Oregon**	605	12.4%
Illinois	575	7.2%	**Pennsylvania**	1045	15.8%
Indiana	540	7.3%	**Rhode Island**	509	6.9%
Iowa	611	10.5%	**South Carolina**	548	6.5%
Kansas	560	8.8%	**South Dakota**	706	20.8%
Kentucky	511	6.7%	**Tennessee**	543	6.7%
Louisiana	529	5.6%	**Texas**	599	4.5%
Maine	620	11.1%	**Utah**	556	9.3%
Maryland	564	6.7%	**Vermont**	678	13.4%
Massachusetts	543	6.9%	**Virginia**	578	7.5%
Michigan	553	7.6%	**Washington**	2755	15.4%
Minnesota	2523	15.0%	**West Virginia**	510	7.5%
Mississippi	539	6.2%	**Wisconsin**	658	11.5%
Missouri	535	7.3%	**Wyoming**	492	12.0%

For a more detailed breakdown of response rates, including information concerning different data collection methods, see Don Carlos et al. (In Process).

Table 2: Sample sizes and response rates by state for the agency culture survey

State	Sample Size	Response Rate	State	Sample Size	Response Rate
Alaska	488	44%	**North Dakota**	138	78%
Connecticut	64	77%	**Ohio**	260	68%
Georgia	206	55%	**Oklahoma**	288	82%
Indiana	151	86%	**Oregon**	533	64%
Iowa	246	87%	**Rhode Island**	13	48%
Kansas	297	74%	**South Dakota**	288	66%
Maryland	66	84%	**Tennessee**	313	41%
Massachusetts	120	69%	**Texas**	1735	60%
Michigan	113	67%	**Utah**	328	77%
Missouri	988	72%	**Vermont**	122	86%
Montana	465	70%	**Virginia**	332	69%
Nevada	178	72%	**Washington**	930	59%
New York	271	65%	**West Virginia**	176	65%
North Carolina	389	63%	**Wyoming**	272	72%

While people's attitudes toward issues may change over a relatively short time period, values are formed at an early age and change minimally over one's life. In fact, social values persist across generations and are regarded as a key part of the transmission of culture. Values shape our lives profoundly and are intertwined in all that is around us. They are integrated in our verbal and nonverbal symbols, communication patterns, daily routines, material culture, and social institutions (Manfredo et al., 2017). The stability of values was illustrated in the 2004 *Wildlife Values in the West* study which revealed, among other things, that current wildlife value orientations could be traced to similar cultural orientations in U.S. residents' countries of ancestral origin (Manfredo, Teel, & Dietsch, 2016).

What Values Were Measured?

Over a series of past research efforts, two key dimensions and the survey items for measuring them have been identified as highly effective for describing people's values toward wildlife in western societies (Fulton, Manfredo, & Lipscomb, 1996; Manfredo, Teel, & Henry, 2009; Teel & Manfredo, 2009). While not comprehensive of all the ways people think about wildlife, these dimensions have been shown to be central in orienting people's wildlife-related attitudes and behaviors in industrialized countries like the U.S. The two dimensions are *domination* and *mutualism*. Domination is a value orientation that embraces the notion that wildlife is subordinate and should be used in ways that benefit humans. Using animals in research and hunting are two ways that these benefits could accrue. As another illustration, individuals with a domination orientation would endorse killing wildlife if it posed a threat to their lives or property. Those with a strong domination orientation respond positively to a vision where there are abundant populations of wildlife for hunting and fishing. Mutualism is a value orientation that embraces wildlife as part of a person's extended social network. Those with strong mutualist tendencies see animals as family or companions, deserving of caring and rights like humans. They respond positively to a vision of humans and wildlife living side by side without fear.

It is worth emphasizing, however, that the difference between these value orientations is not just a difference between those who hunt and those who do not hunt; in reality, there is much more nuance to how these orientations are exhibited by different groups of people. There are, in fact, some hunters who hold a strong mutualism orientation. Further, findings from the *Wildlife Values in the West* study revealed how these orientations can explain variation in public response to a diverse array of wildlife-related issues and management activities. For example, mutualism correlated positively with support for management actions that emphasize environmental education and restricting humans to protect wildlife, while domination was associated with greater support for lethal management techniques. Mutualism also correlated positively with concerns about habitat protection and declines in wildlife populations, while domination was associated with concerns regarding a healthy economy, public access, and private property rights (Manfredo, Teel, & Dietsch, 2016).

Wildlife Value Orientation Types

There are gradations of strength with which a value orientation is held by a person, reflected in a range of scoring from very low to very high on domination and mutualism measurement scales. To facilitate description of people and account for this diversity in scoring, we developed a four-group typology that classifies people in the following way (for more detail on measurement and classification procedures, see Teel and Manfredo [2009]):

- **Traditionalists (or Utilitarians)** – Score high (above the midpoint) on the domination scale and low (at or below) the midpoint on the mutualism scale; i.e., they are the most extreme in beliefs that wildlife should be used and managed for the benefit of people.
- **Mutualists** – Score high on the mutualism scale and low on the domination scale; i.e., they are the most extreme in seeing wildlife as part of their extended social network.
- **Pluralists** – Score high on both mutualism and domination scales; i.e., different situations or contexts result in this group emphasizing one orientation over the other.
- **Distanced** – Score low on both mutualism and domination scales; i.e., they exhibit low levels of thought about and interest in wildlife.

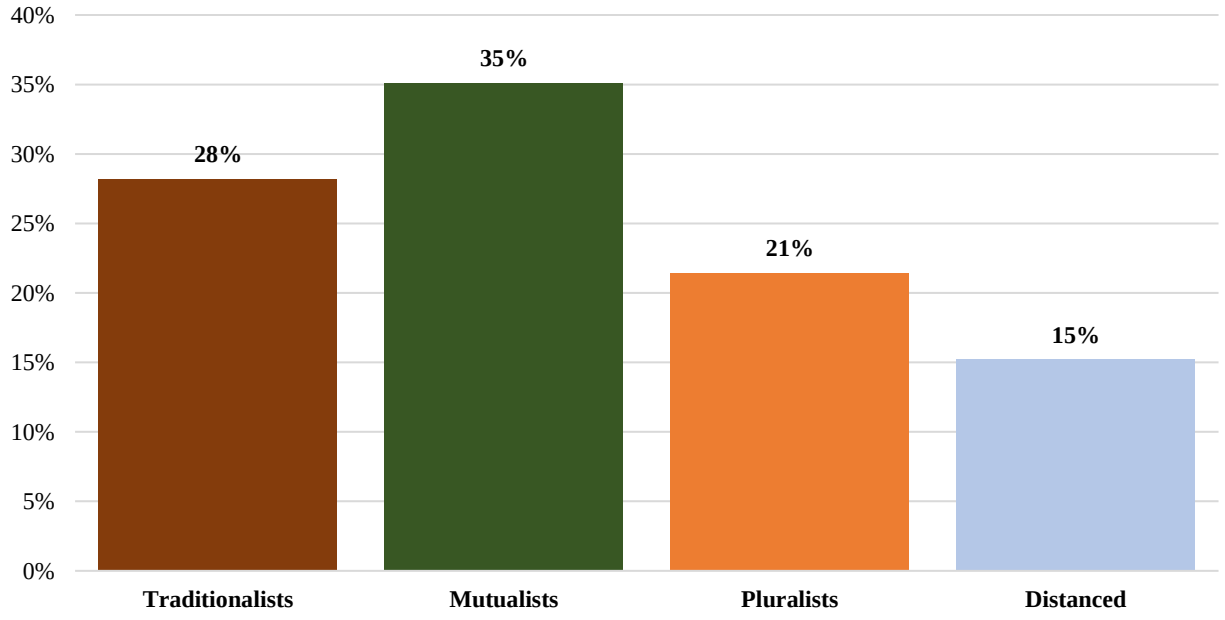
It is worth keeping in mind that while these basic groupings are useful for understanding public values toward wildlife and how differences in those values can contribute to diverging positions on wildlife-related issues, they do not account for finer degrees of variation in domination and mutualism orientations. For the sake of parsimonious description, set aside and we apply the above typology throughout this report to highlight the major trends in our findings.

Study Results

Wildlife Value Orientation Types

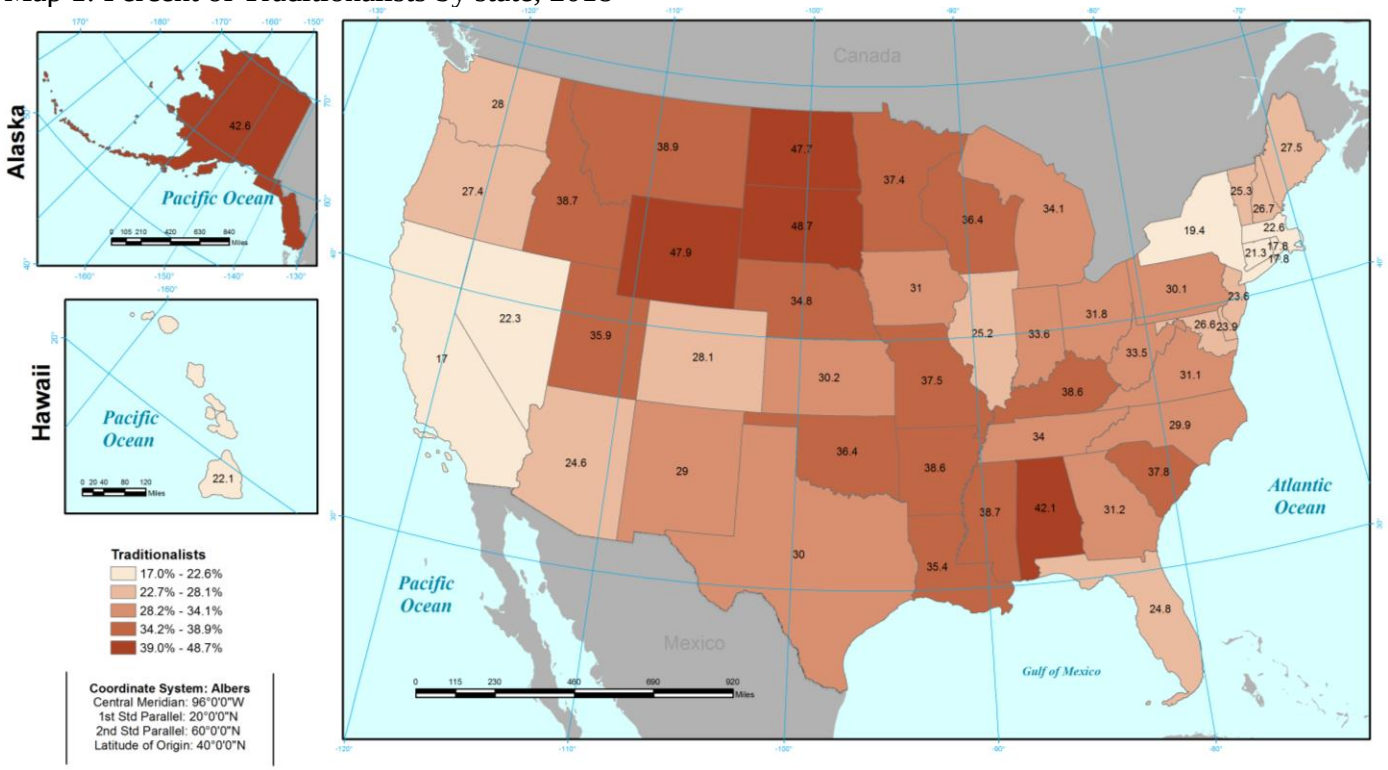
Figure 2 shows the proportion of each value type in the United States. The largest group is Mutualists, followed by Traditionalists. Pluralists are about one fifth of the U.S. population, while Distanced are the lowest at 15%. States differ a great deal in the proportion of each value type (Maps 1-4). We examine those differences more closely in the following sections and describe what these differences mean in the context of fish and wildlife management.

Figure 2: Wildlife value orientation types across the United States

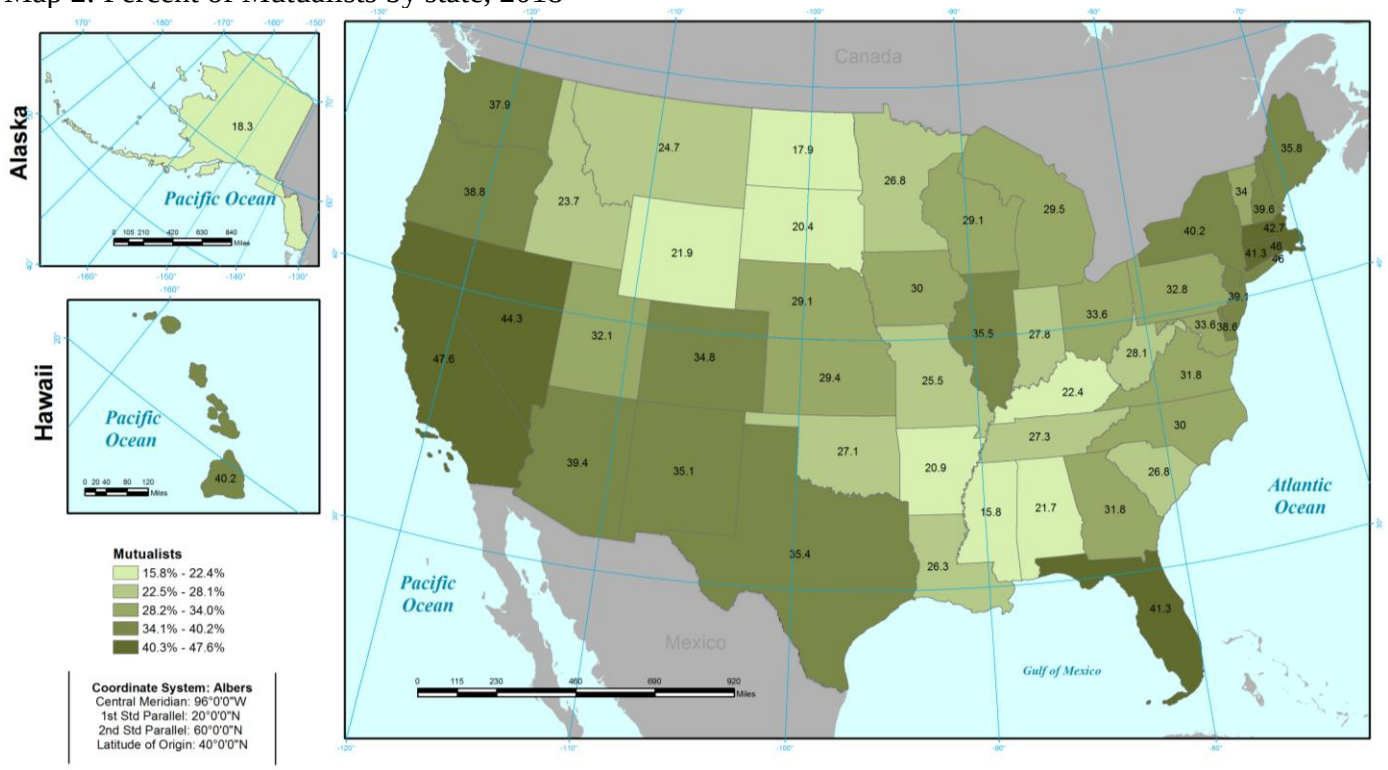


For more information on methods for creating this typology, see Teel and Manfredo (2009).

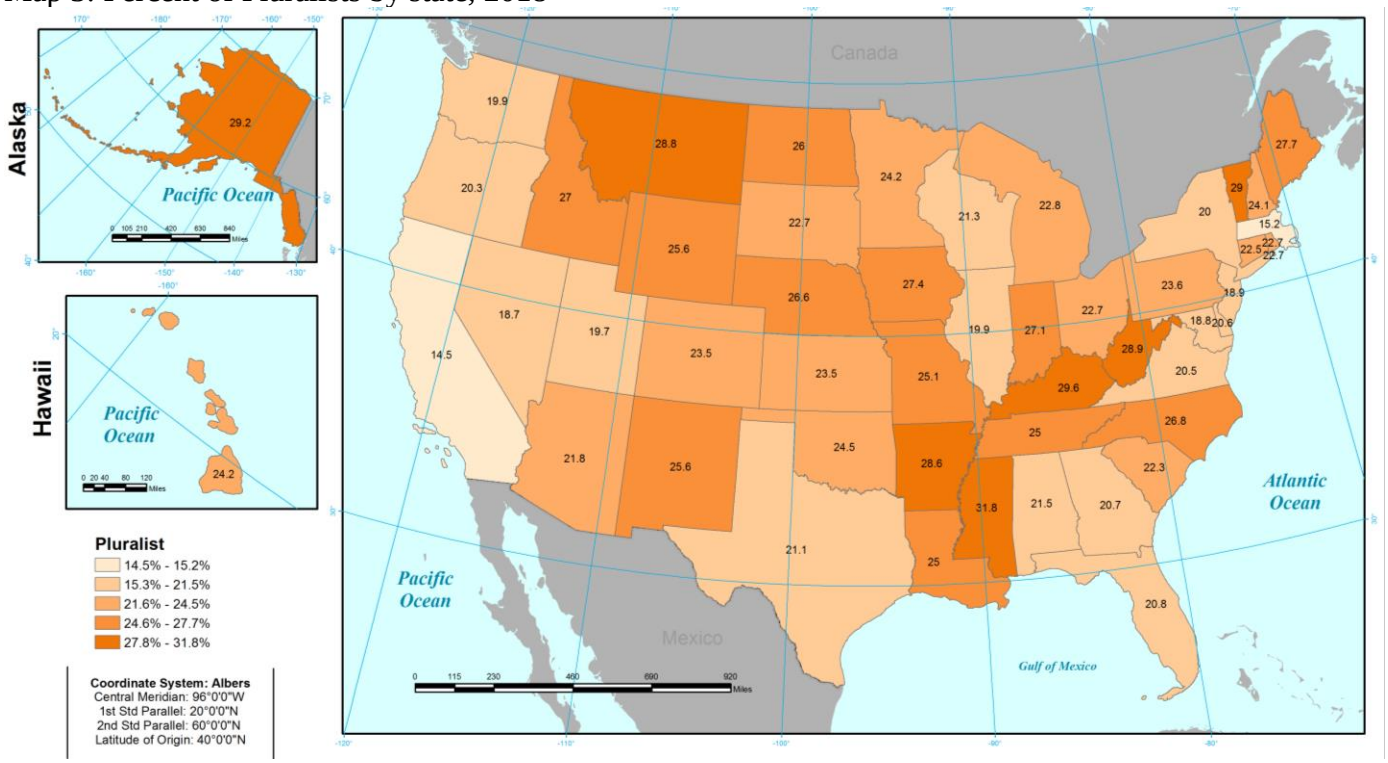
Map 1: Percent of Traditionalists by state, 2018



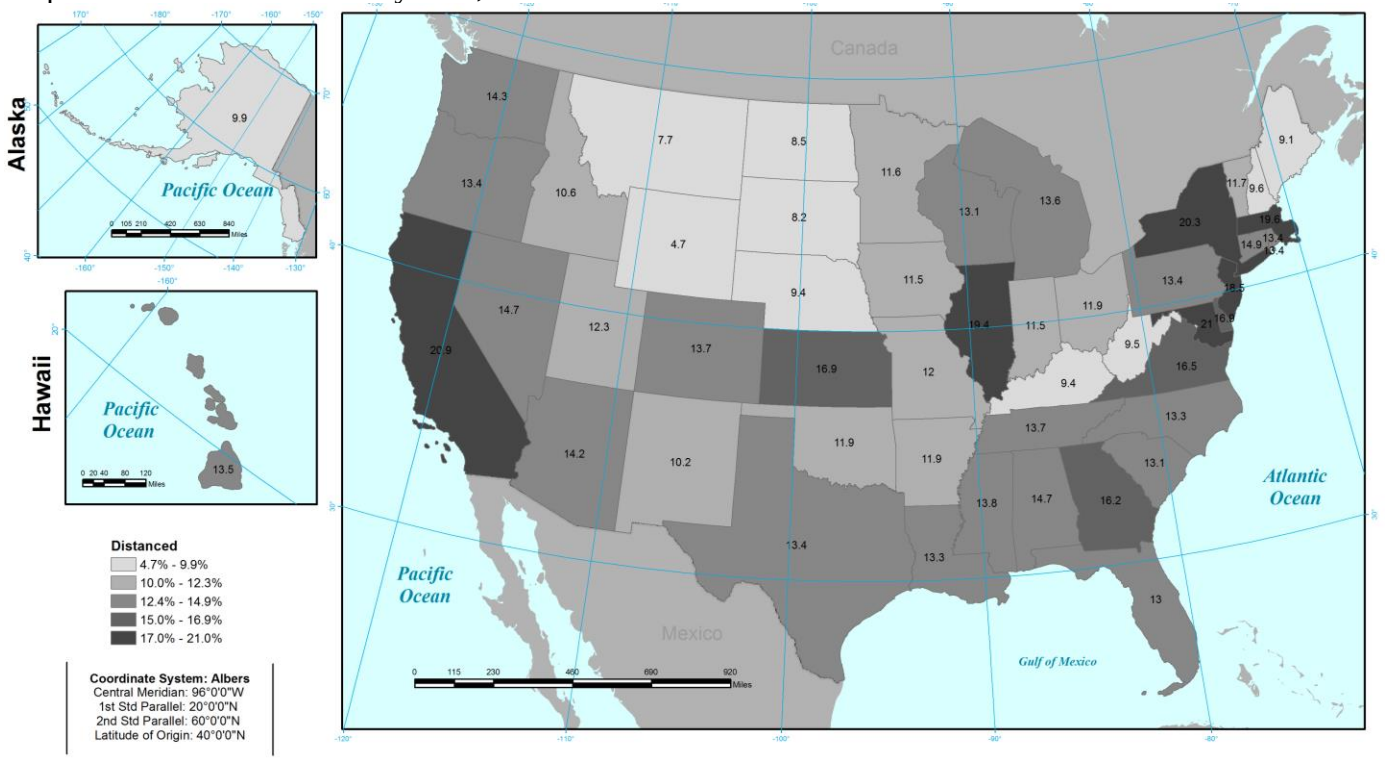
Map 2: Percent of Mutualists by state, 2018



Map 3: Percent of Pluralists by state, 2018



Map 4: Percent of Distanced by state, 2018



Detecting Value Shift

While values are generally stable, they serve an adaptive function and can change in response to abrupt alterations in the social-ecological environment. Findings show that the dramatic and rapid advancements of the mid-20th century provided the impetus for global value shift (Inglehart, 2018). This has been described as a shift from survival values to individualism, autonomy, and self-expressive values. The shift was caused by growing economic stability in society which insulated many people from concern around fulfilling basic human needs for subsistence. Among other things, the growth in self-expression led to an increase in public demand for participatory and inclusive forms of governance. This is also associated with an increase in perceived and actual conflict across many different social issues.

The processes of modernization that affected global value shift are likewise affecting wildlife values, public expectations of fish and wildlife agencies, and wildlife policy (Bruskotter et al., 2017). Cross-sectional analysis of data from the 2004 *Wildlife Values in the West* study suggested that, indeed, modernization has affected values toward wildlife (Manfredo, Teel, & Henry, 2009). Results showed that modernization variables, specifically education, income, and urbanization, were strongly associated with the composition of wildlife value orientations in a state. Higher income, urbanization, and education at the state level were associated with a higher prevalence of mutualism orientations among state residents.

Similar to the 2004 analysis, we provide results from cross-sectional analysis in the next six figures that tested whether the factors of modernization are associated with the wildlife value composition in a state. In these figures, we examine the effect of education, income, and urbanization on the percent of Mutualists and the percent of Traditionalists in a state. Our findings support the modernization explanation showing that 1) states with higher proportions of people with a Bachelor's degree have higher proportions of Mutualists and lower proportions of Traditionalists (Figures 3 & 4); 2) states with higher proportions of people above the national income mode have higher proportions of Mutualists and lower proportions of Traditionalists (Figures 5 & 6); and 3) states with higher proportions of people reporting they lived in mid or large-sized cities have higher proportions of Mutualists and lower proportions of Traditionalists (Figures 7 & 8). It is important to note that for urbanization, we partitioned out the eight coastal states of the Northeast for a separate analysis. We did this because it was apparent that the interpretation of our survey item used to measure urbanization was different for these states where the population density is higher than in the rest of the U.S. In all of these analyses, the relationships could be described as moderately strong.

As the reader looks at these results, it is important to emphasize that we are examining *state-level shift*. The factors affecting value shift at the state level cannot be applied to individuals. The values of individuals are formed early in life and are shaped heavily by the social context, as explained above. We are not proposing that people move to an urban area, attain a higher educational degree, or gain a higher income and then change their values. But the lives of their offspring will be affected by being brought up in a cultural context that reinforces mutualist values. Hence, the primary forces affecting change in values at the state level are population migration and generational replacement.

Figure 3: Percent Mutualists in state by percent with a bachelor's degree or higher

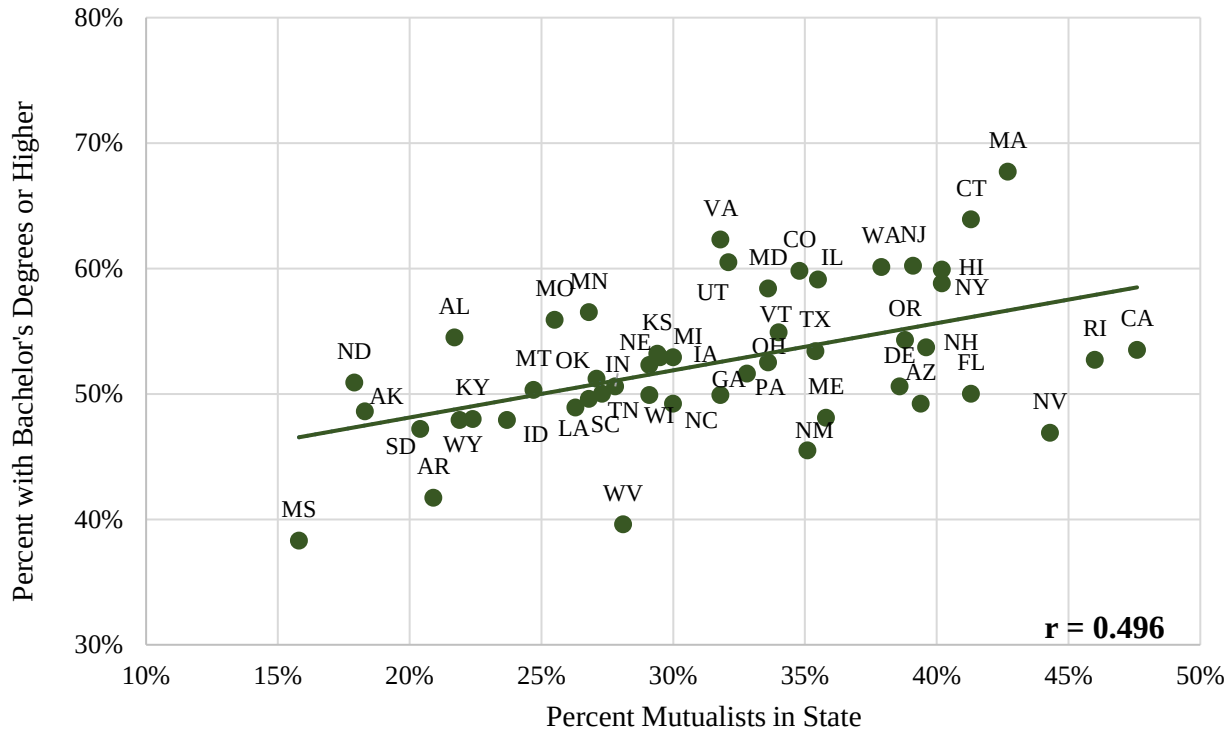


Figure 4: Percent Traditionalists in state by percent with a bachelor's degree or higher

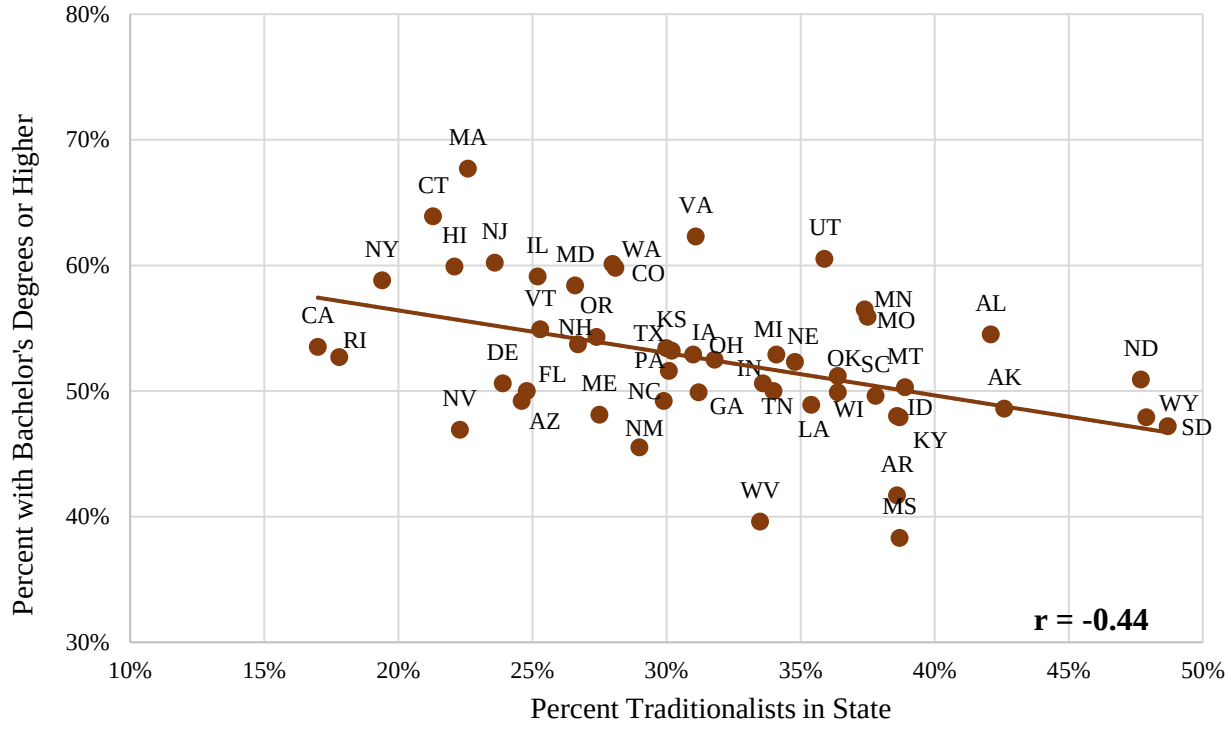
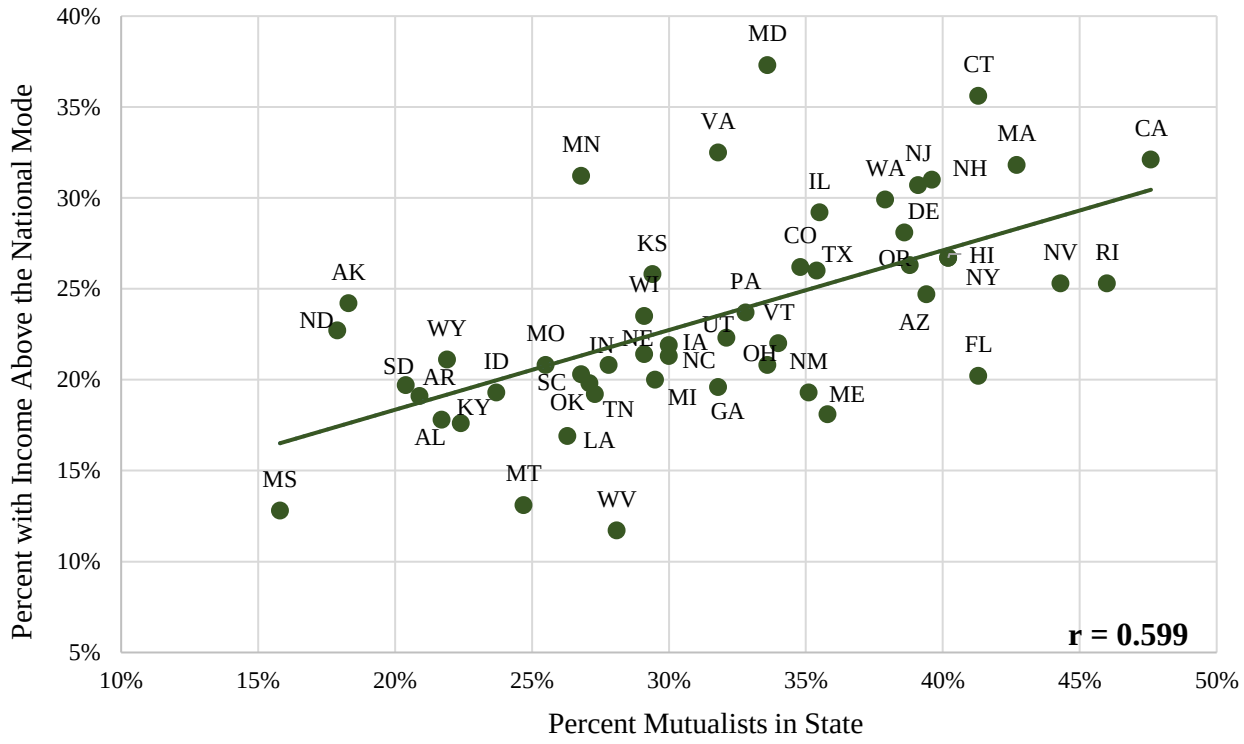
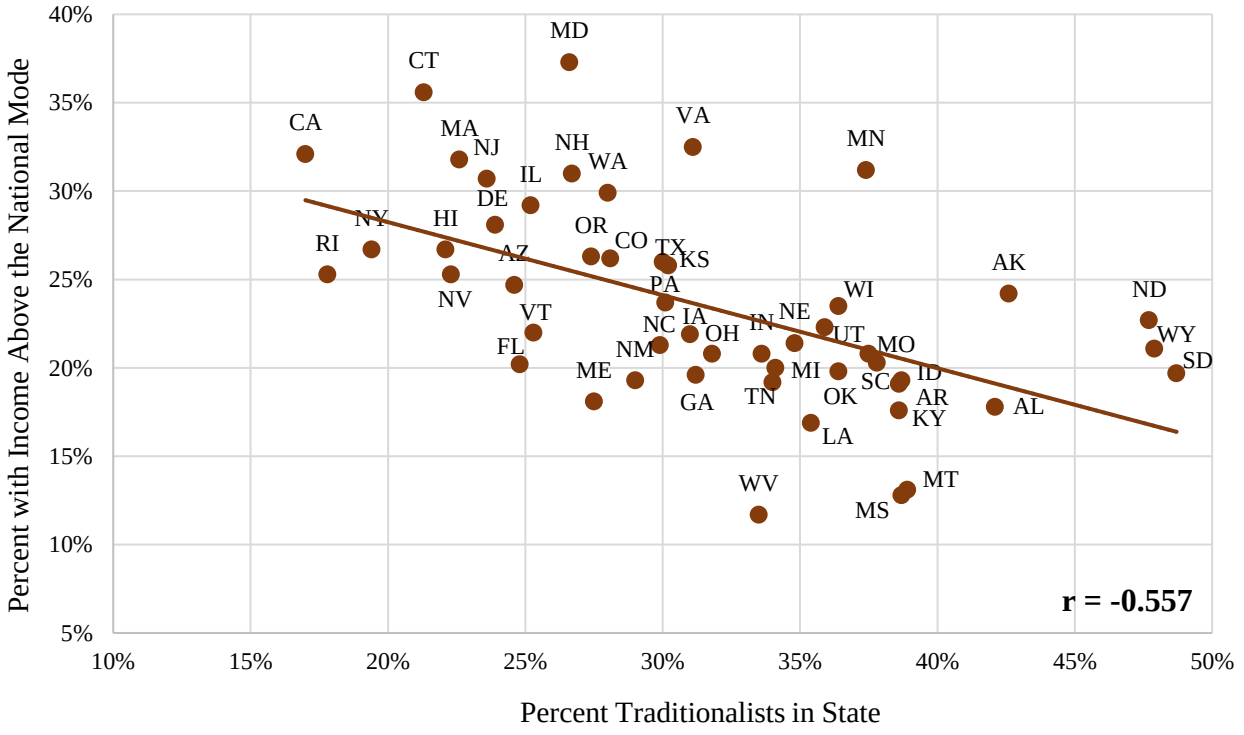


Figure 5: Percent Mutualists in state by percent with income above the national mode



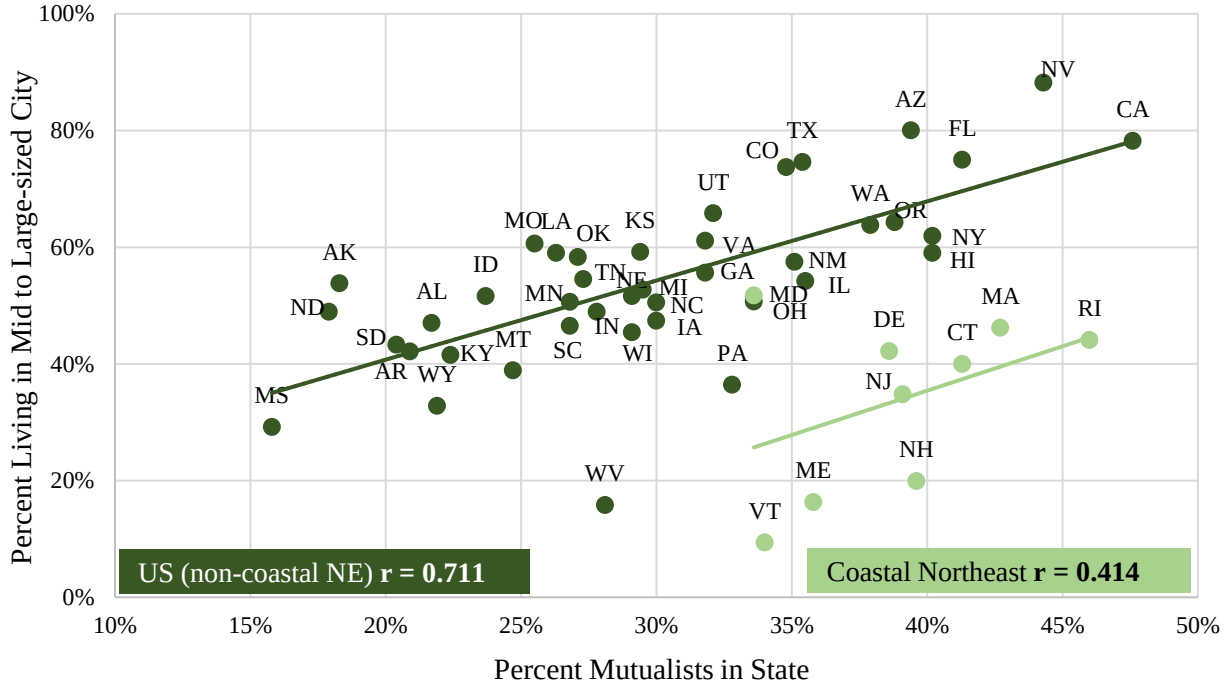
National mode = $50,000 to less than $100,000

Figure 6: Percent Traditionalists in state by percent with income above the national mode



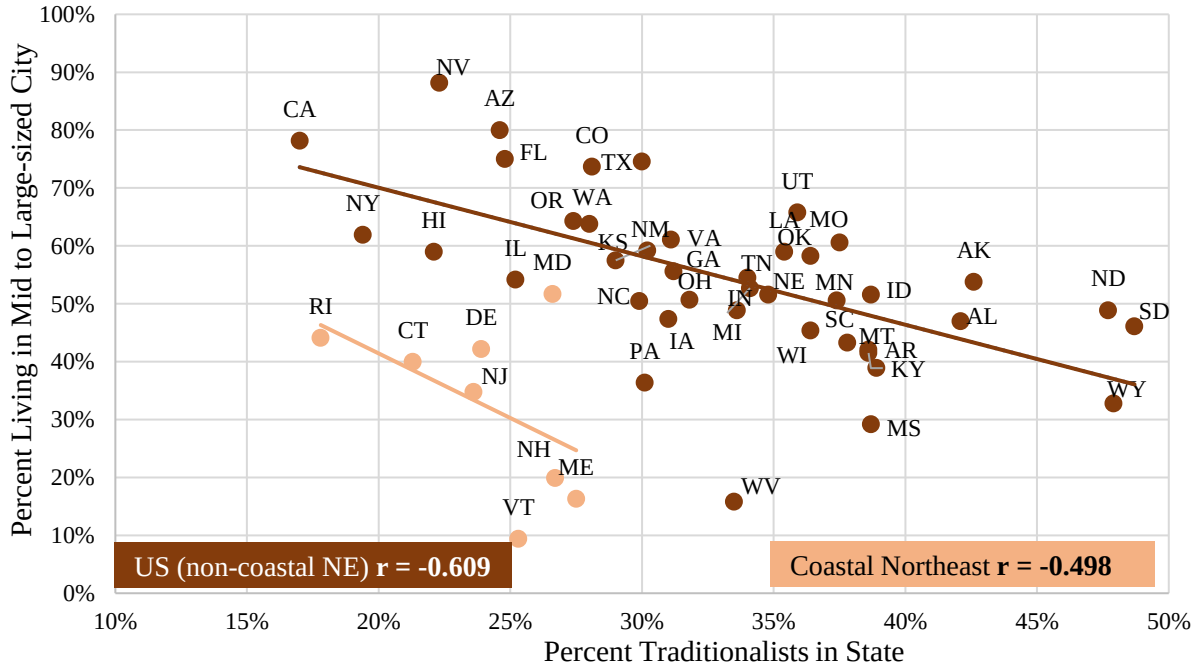
National mode = $50,000 to less than $100,000

Figure 7: Percent Mutualists in state by percent residing in a mid to large-sized city



Mid to large-sized city = city with 50,000 or more inhabitants
**Note: Because of the limited geography of the Coastal Northeast, survey questions about residence size have a different y-intercept. As such, two regression lines have been provided, both illustrating a similar relationship.

Figure 8: Percent Traditionalists in state by percent residing in a mid to large-sized city



Mid to large-sized city = city with 50,000 or more inhabitants
**Note: Because of the limited geography of the Coastal Northeast, survey questions about residence size have a different y-intercept. As such, two regression lines have been provided, both illustrating a similar relationship.

Trends in State-Level Value Shift in the Western U.S.

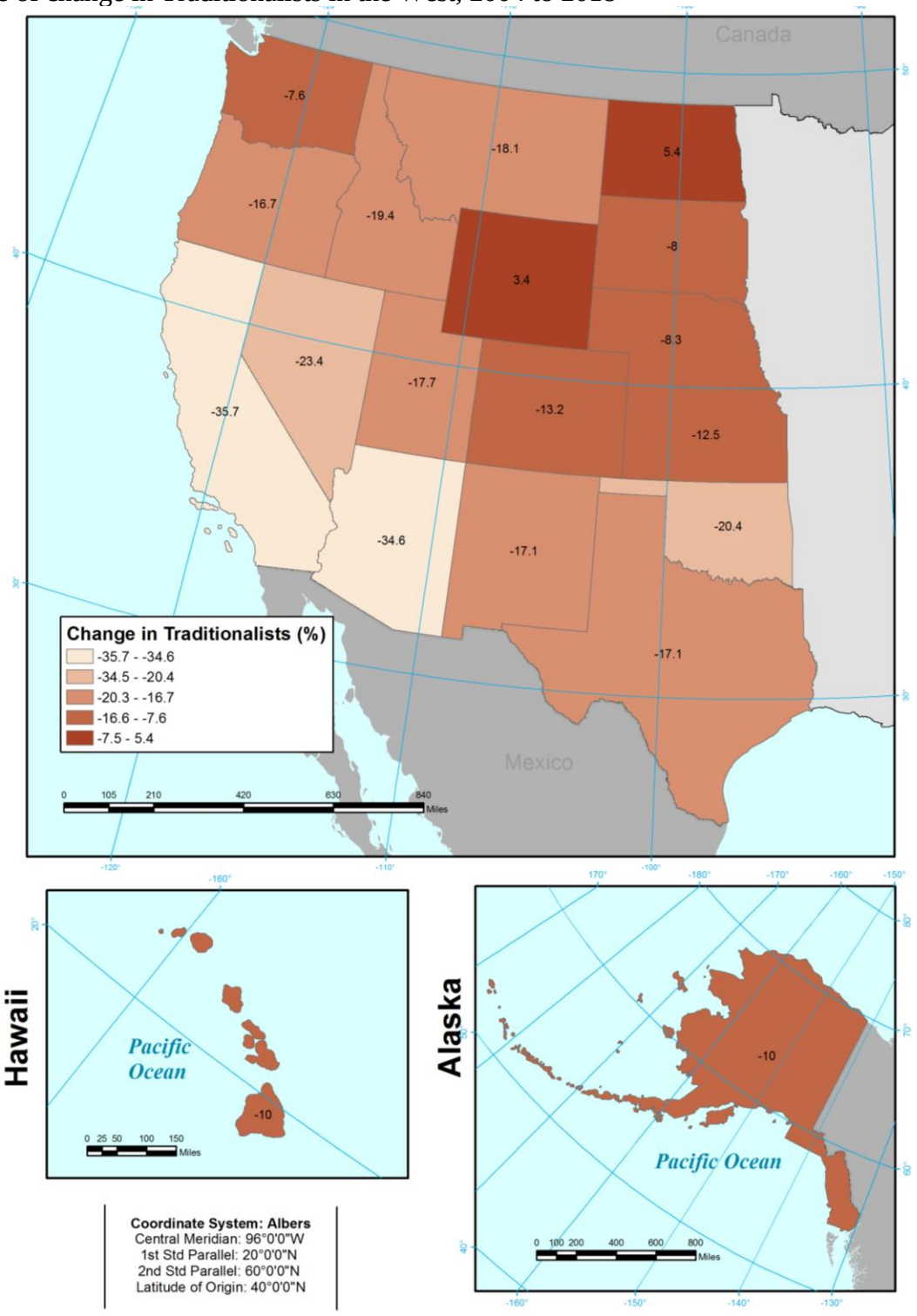
Results from the 2004 *Wildlife Values in the West* (WVW) study offered data on the baseline of wildlife values in the 19 states of the Western Association of Wildlife Agencies. We compared those data to data from the current *America's Wildlife Values* (AWV) study that allowed us to look at trends in value shift over a 12-14 year period. It should be noted that the difference in sampling methodologies between WVW and AWV required that we take caution in making estimates of shift. Accordingly, we computed three separate estimates using data on wildlife value types from AWV that can be compared to the 2004 data. First, we used weighted mail survey data. This is a comparison made with the same data collection method used in WVW. While the method was the same, the response rate in AWV is half of what is was in WVW, and some states had relatively low response rates. Second, we compared WVW to AWV e-mail panel data, excluding the targeted minority samples. Finally, we compared WVW to the final value type estimates from AWV (combined, weighted mail and email panel data). Overall, these various comparisons have different specific estimates but show a similar pattern. The estimate we provide here for AWV is an average of the weighted mail and e-mail panel estimates. Over all 19 states, the average per state change was a 5.7% drop for Traditionalists and a 4.7% increase for Mutualists, while Pluralists and Distanced remained relatively stable. Results varied considerably by state, as illustrated in Maps 5-12 which provide detailed information on both raw percent change (also reported in Tables 3-6) and percent change proportional to 2004 data (i.e., rate of change). For example, in California, a 10% decline in raw percentages of Traditionalists (from 28% to 18%) would be a 35.7% decline when accounting for the percent of Traditionalists in 2004.

Value Shift Affects Attitudes toward Wildlife Management Issues

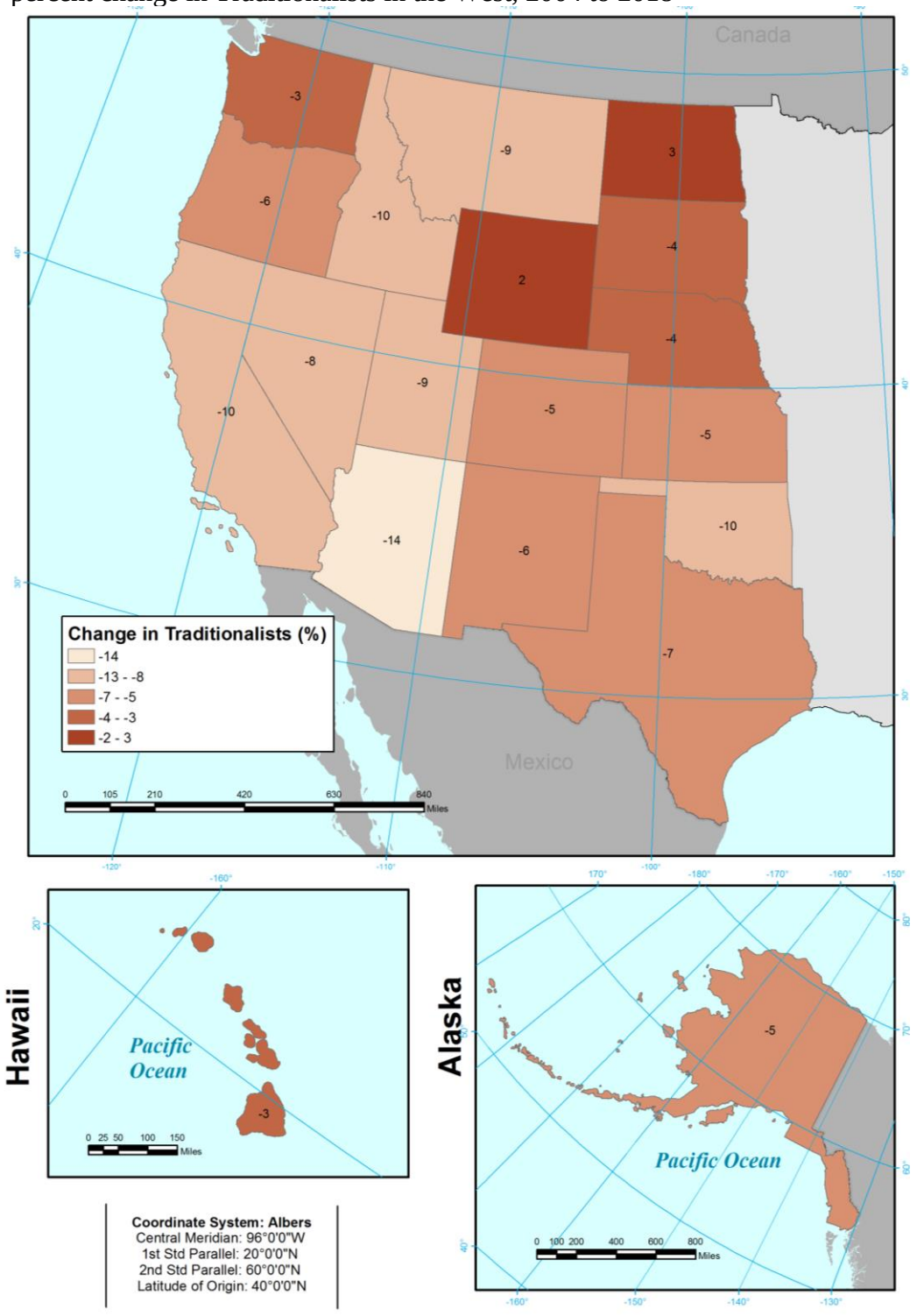
Value shift is a concern for wildlife professionals because it causes an increase in conflict over wildlife management issues. To illustrate that phenomenon, we included questions on the survey about several high-profile environmental issues and about the use of lethal control, a highly controversial topic, in situations involving predators. Figure 9 shows the difference among value types on four environmental issues we examined. The difference between Mutualists and Traditionalists on three of these items is striking. A large majority of Mutualists favor environmental protection over economic growth and believe in climate change as a result of human activity, while less than half of Traditionalists do. By contrast, almost 20% of Traditionalists agree that private property rights are more important than protecting declining or endangered species. Only 9% of Mutualists agree with that statement.

State-level analysis shows how the mix of value types in a state affects the state's social context on contemporary issues. Maps 13-16 show the state-level responses to the four environmental issues we explored, and Figures 10-17 display these results in relation to the states' value type composition. As the proportion of Mutualists in a state increases (and the proportion of Traditionalists decreases), belief in climate change increases, and there is greater support for environmental protection over economic growth. As the proportion of Traditionalists increases in a state (and the proportion of Mutualists decreases), there is a stronger belief that private property rights are a greater priority than protecting declining or endangered species. Wildlife value composition in a state, however, appeared to have no impact on whether or not there was support for more local governance control over fish and wildlife management.

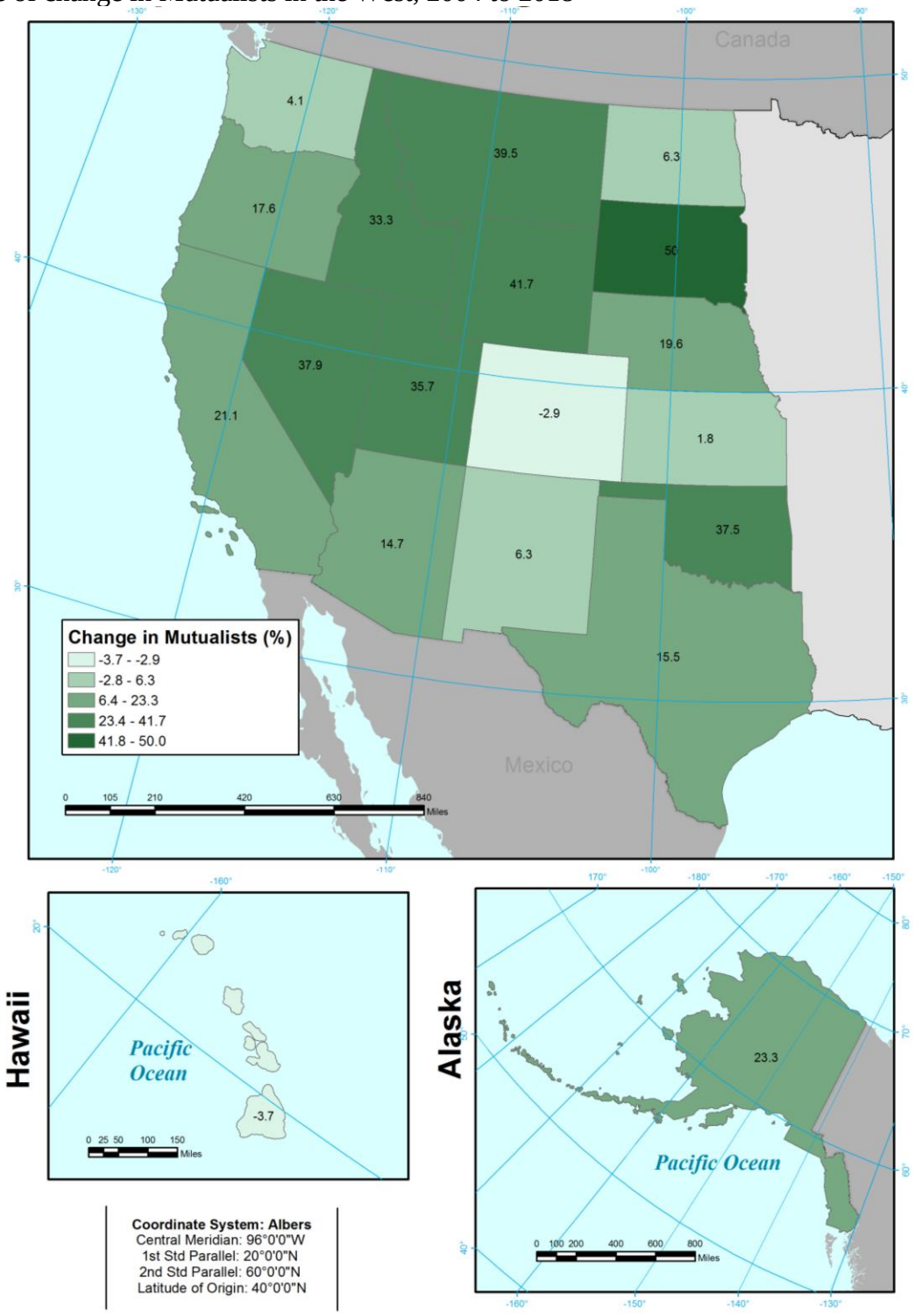
Map 5: Rate of change in Traditionalists in the West, 2004 to 2018



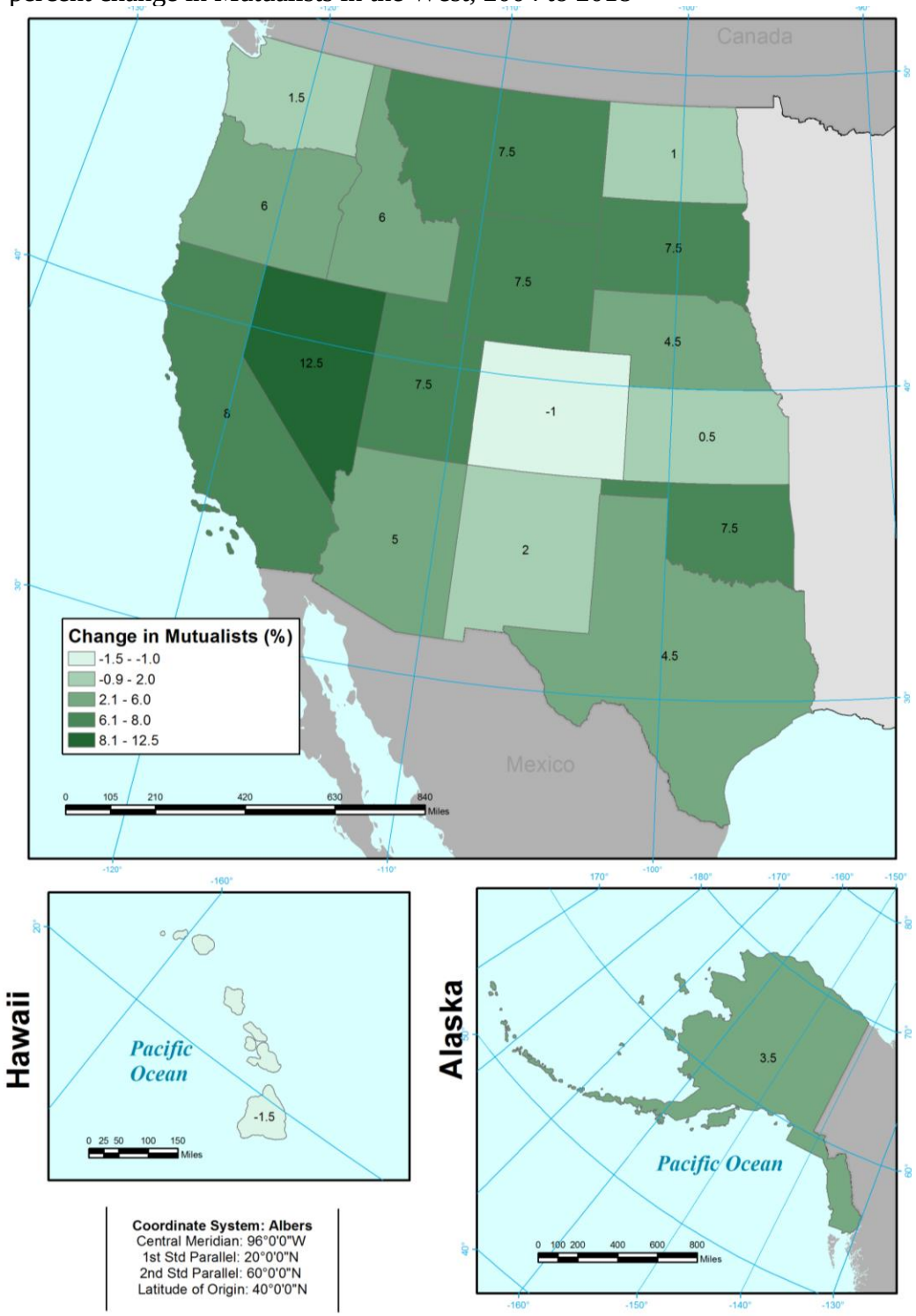
Map 6: Raw percent change in Traditionalists in the West, 2004 to 2018



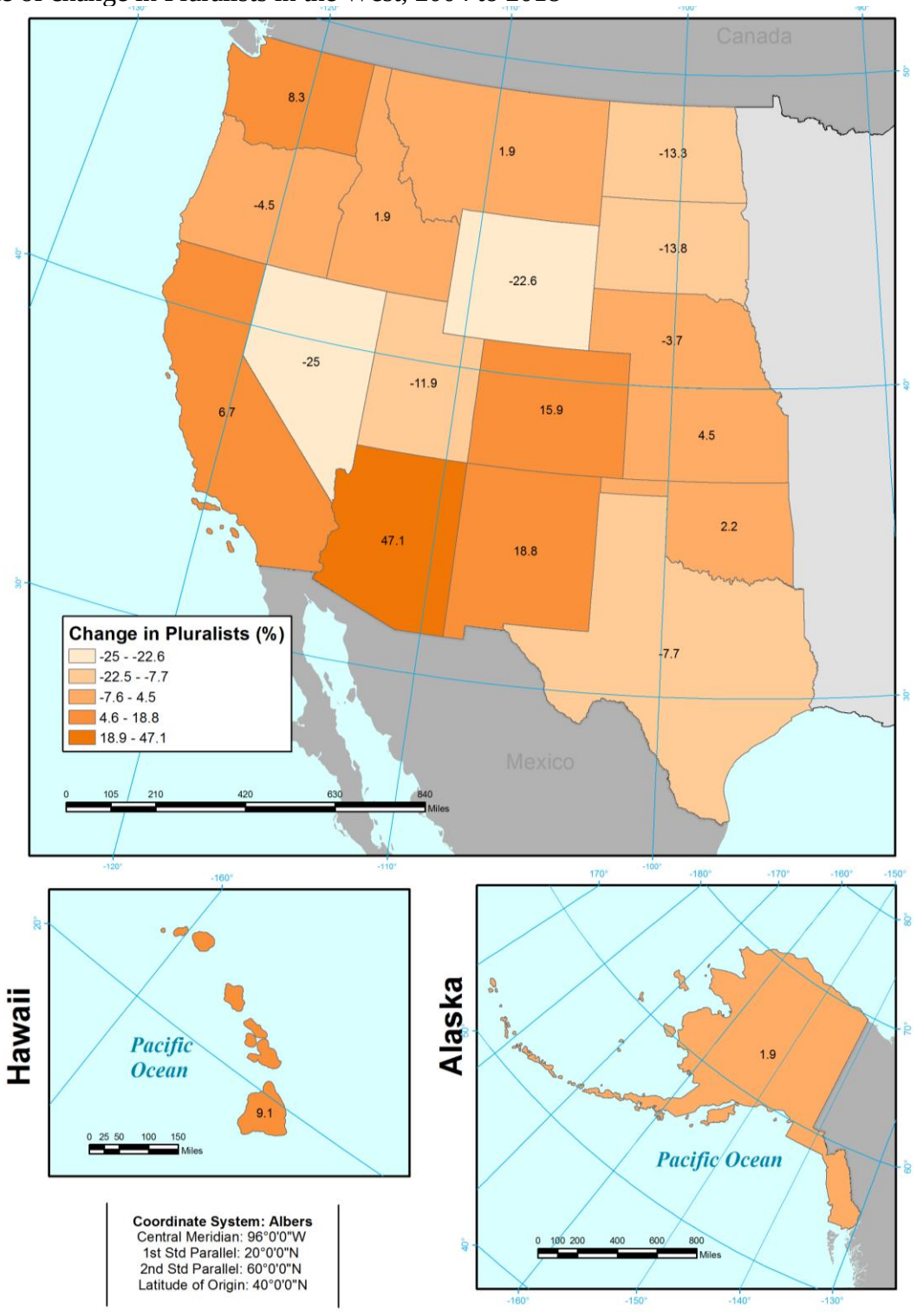
Map 7: Rate of change in Mutualists in the West, 2004 to 2018



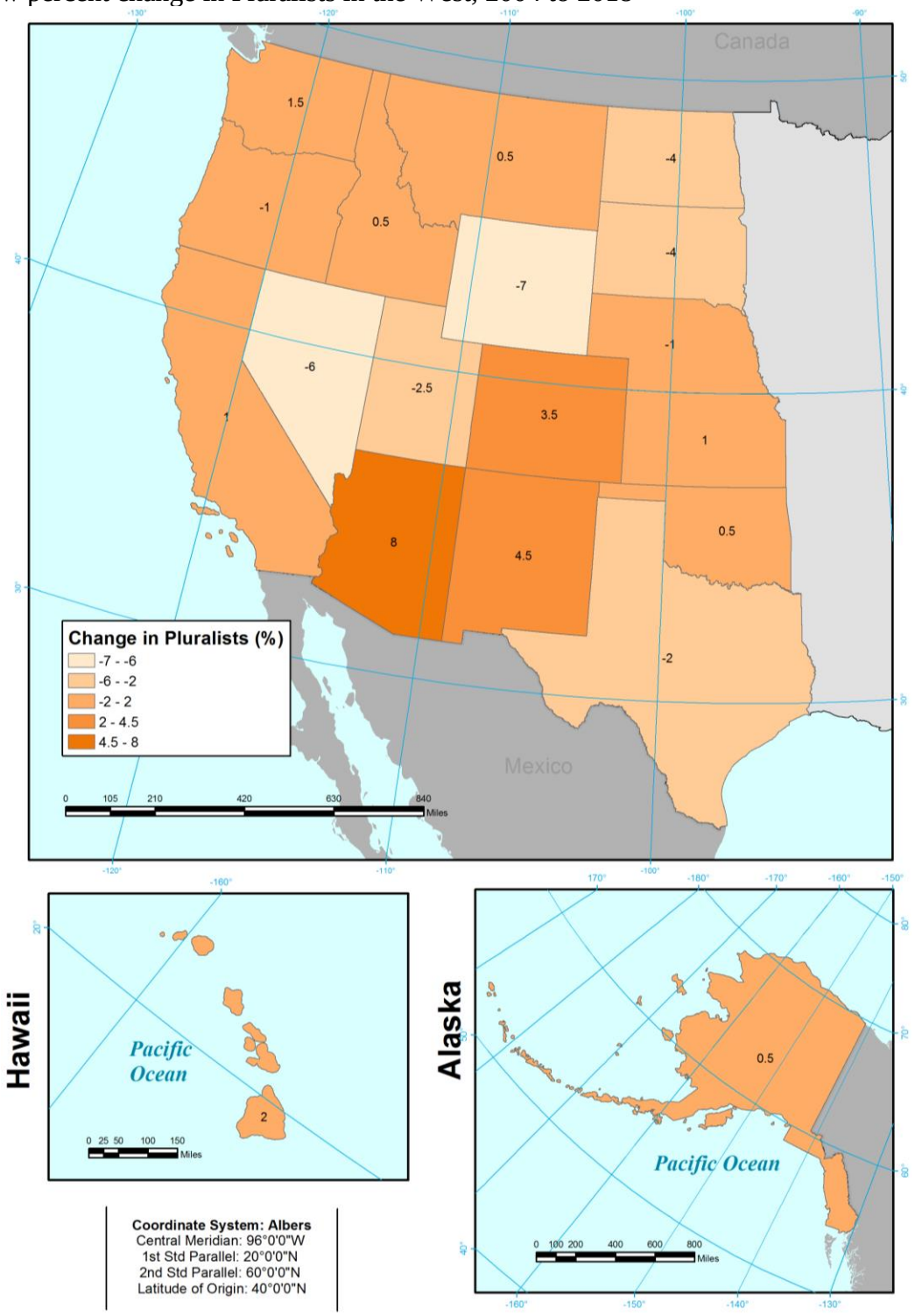
Map 8: Raw percent change in Mutualists in the West, 2004 to 2018



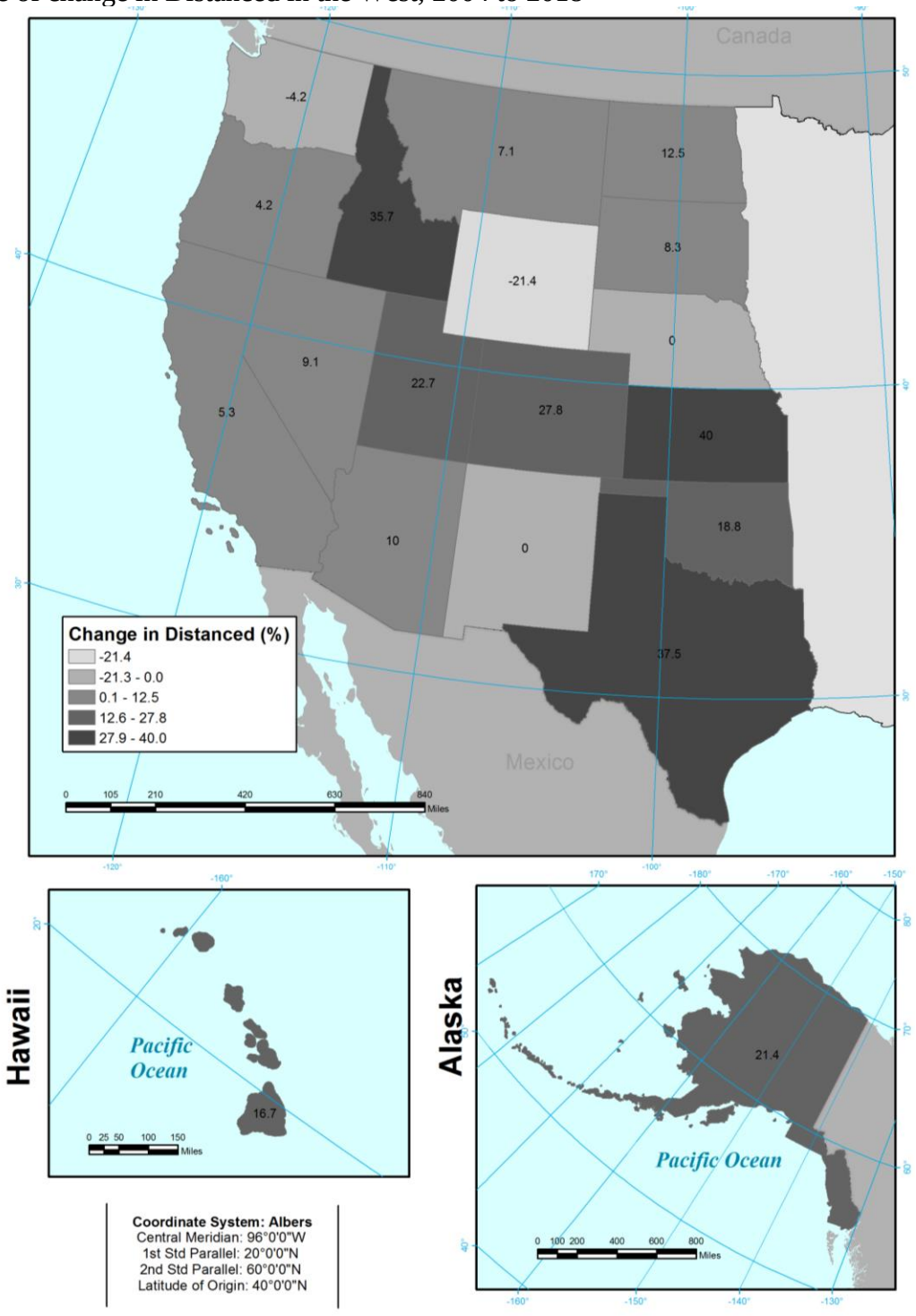
Map 9: Rate of change in Pluralists in the West, 2004 to 2018



Map 10: Raw percent change in Pluralists in the West, 2004 to 2018



Map 11: Rate of change in Distanced in the West, 2004 to 2018



Map 12: Raw percent change in Distanced in the West, 2004 to 2018

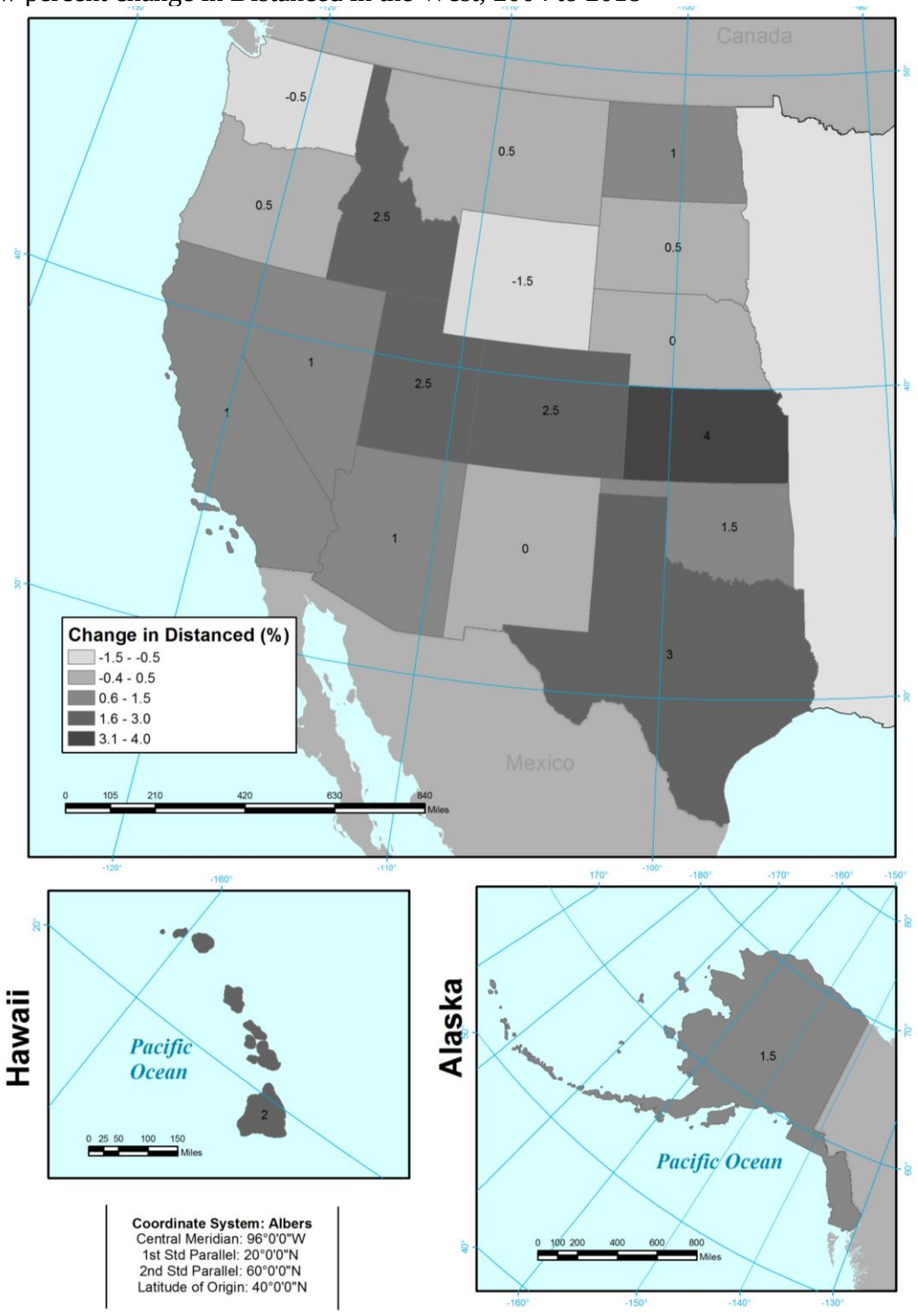


Table 3: Raw percent change in Traditionalists in the West, 2004 to 2018

State	Percent Traditionalists 2004	Percent Traditionalists 2018	Percent Change, 2004 to 2018
Alaska	50%	45%	-5%
Arizona	39%	25.5%	-13.5%
California	28%	18%	-10%
Colorado	34%	29.5%	-4.5%
Hawaii	25%	22.5%	-2.5%
Idaho	49%	39.5%	-9.5%
Kansas	40%	35%	-5%
Montana	47%	38.5%	-8.5%
Nebraska	42%	38.5%	-3.5%
Nevada	32%	24.5%	-7.5%
New Mexico	35%	29%	-6%
North Dakota	46%	48.5%	2.5%
Oklahoma	49%	39%	-10%
Oregon	33%	27.5%	-5.5%
South Dakota	50%	46%	-4%
Texas	38%	31.5%	-6.5%
Utah	48%	39.5%	-8.5%
Washington	33%	30.5%	-2.5%
Wyoming	44%	45.5%	1.5%

Table 4: Raw percent change in Mutualists in the West, 2004 to 2018

State	Percent Mutualists 2004	Percent Mutualists 2018	Percent Change, 2004 to 2018
Alaska	15%	18.5%	3.5%
Arizona	34%	39%	5%
California	38%	46%	8%
Colorado	35%	34%	-1%
Hawaii	41%	39.5%	-1.5%
Idaho	18%	24%	6%
Kansas	28%	28.5%	0.5%
Montana	19%	26.5%	7.5%
Nebraska	23%	27.5%	4.5%
Nevada	33%	45.5%	12.5%
New Mexico	32%	34%	2%
North Dakota	16%	17%	1%
Oklahoma	20%	27.5%	7.5%
Oregon	34%	40%	6%
South Dakota	15%	22.5%	7.5%
Texas	29%	33.5%	4.5%
Utah	21%	28.5%	7.5%
Washington	37%	38.5%	1.5%
Wyoming	18%	25.5%	7.5%

Table 5: Raw percent change in Pluralists in the West, 2004 to 2018

State	Percent Pluralists 2004	Percent Pluralists 2018	Percent Change, 2004 to 2018
Alaska	27%	27.5%	0.5%
Arizona	17%	25%	8%
California	15%	16%	1%
Colorado	22%	25.5%	3.5%
Hawaii	22%	24%	2%
Idaho	26%	26.5%	0.5%
Kansas	22%	23%	1%
Montana	27%	27.5%	0.5%
Nebraska	27%	26%	-1%
Nevada	24%	18%	-6%
New Mexico	24%	28.5%	4.5%
North Dakota	30%	26%	-4%
Oklahoma	23%	23.5%	0.5%
Oregon	22%	21%	-1%
South Dakota	29%	25%	-4%
Texas	26%	24%	-2%
Utah	21%	18.5%	-2.5%
Washington	18%	19.5%	1.5%
Wyoming	31%	24%	-7%

Table 6: Raw percent change in Distanced in the West, 2004 to 2018

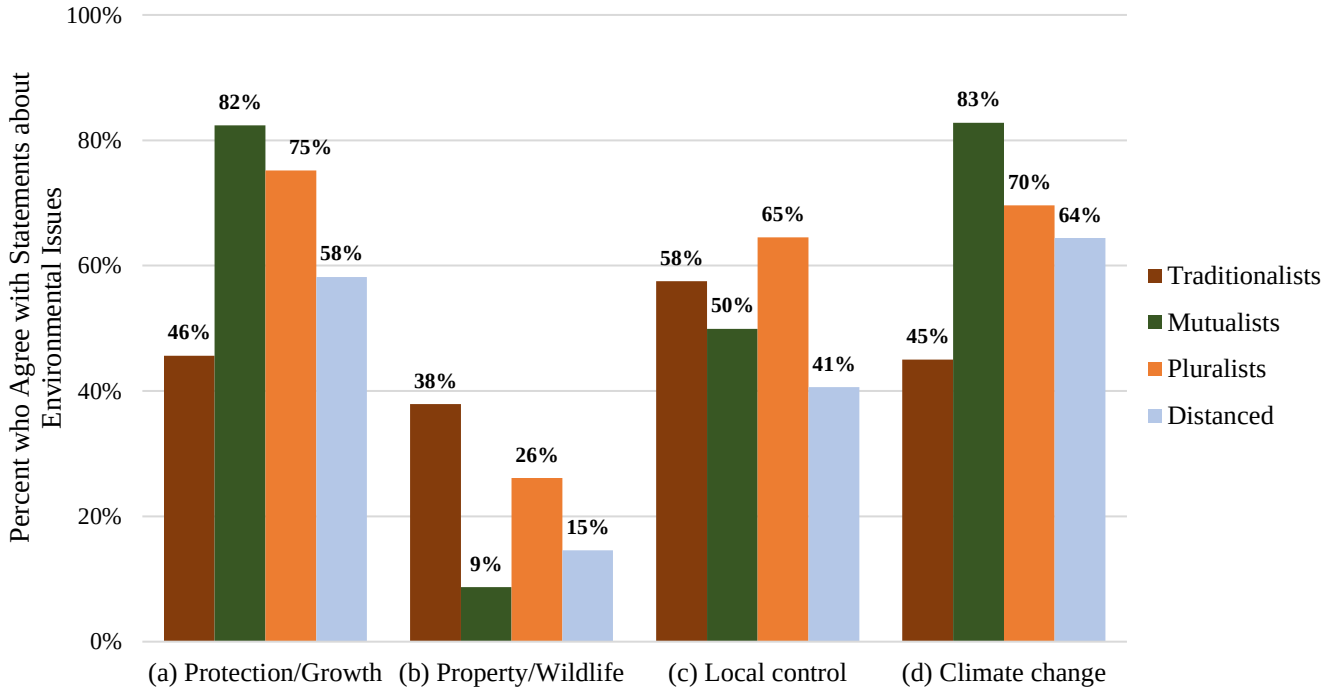
State	Percent Distanced 2004	Percent Distanced 2018	Percent Change, 2004 to 2018
Alaska	7%	8.5%	1.5%
Arizona	10%	11%	1%
California	19%	20%	1%
Colorado	9%	11.5%	2.5%
Hawaii	12%	14%	2%
Idaho	7%	9.5%	2.5%
Kansas	10%	14%	4%
Montana	7%	7.5%	0.5%
Nebraska	8%	8%	0%
Nevada	11%	12%	1%
New Mexico	9%	9%	0%
North Dakota	8%	9%	1%
Oklahoma	8%	9.5%	1.5%
Oregon	12%	12.5%	0.5%
South Dakota	6%	6.5%	0.5%
Texas	8%	11%	3%
Utah	11%	13.5%	2.5%
Washington	12%	11.5%	-0.5%
Wyoming	7%	5.5%	-1.5%

We included three items that dealt with lethal control of predators including wolves killing livestock, coyotes killing pets, and bears attacking humans. Overall, high percentages of Mutualists opposed lethal control in all of these cases (Figure 18). Lethal control had far more support from Traditionalists, although as a group they were divided on the issue depending on the situation posed. The percentages of Pluralists supporting lethal control were similar but a bit lower than those of Traditionalists. The percentages of Distanced individuals supporting lethal control were in between those of Mutualists and Traditionalists, at about one quarter to a third of that group.

Maps 17-19 show variation in response to support for lethal control across states. The composition of value types in a state had a very strong effect on support for lethal control in the state (Figures 19-24). As the proportion of Mutualists in a state increases (and the proportion of Traditionalists decreases), so does opposition to lethal control of predators for the situations we described. The contrast among states on the situations involving wolves killing livestock and coyotes killing pets is abrupt as is indicated in the steep slope of the regression lines.

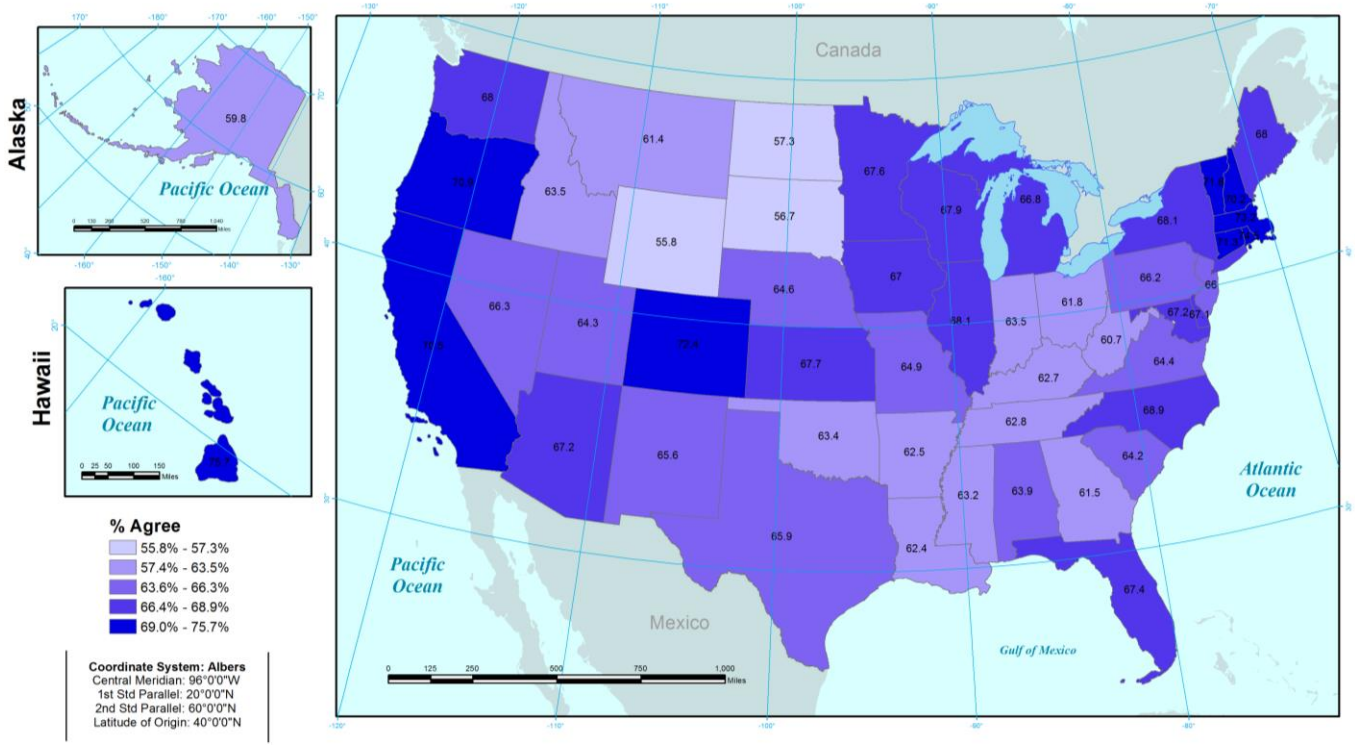
Taken in combination, these findings illustrate the importance of the value composition within a state, as it affects support for wildlife management practice and policy. Clearly, there is considerable variability state-to-state in the social context of wildlife management, which can be explained by cross-state variation in the mix of wildlife values.

Figure 9: Agreement with environmental issue statements by wildlife value orientation type

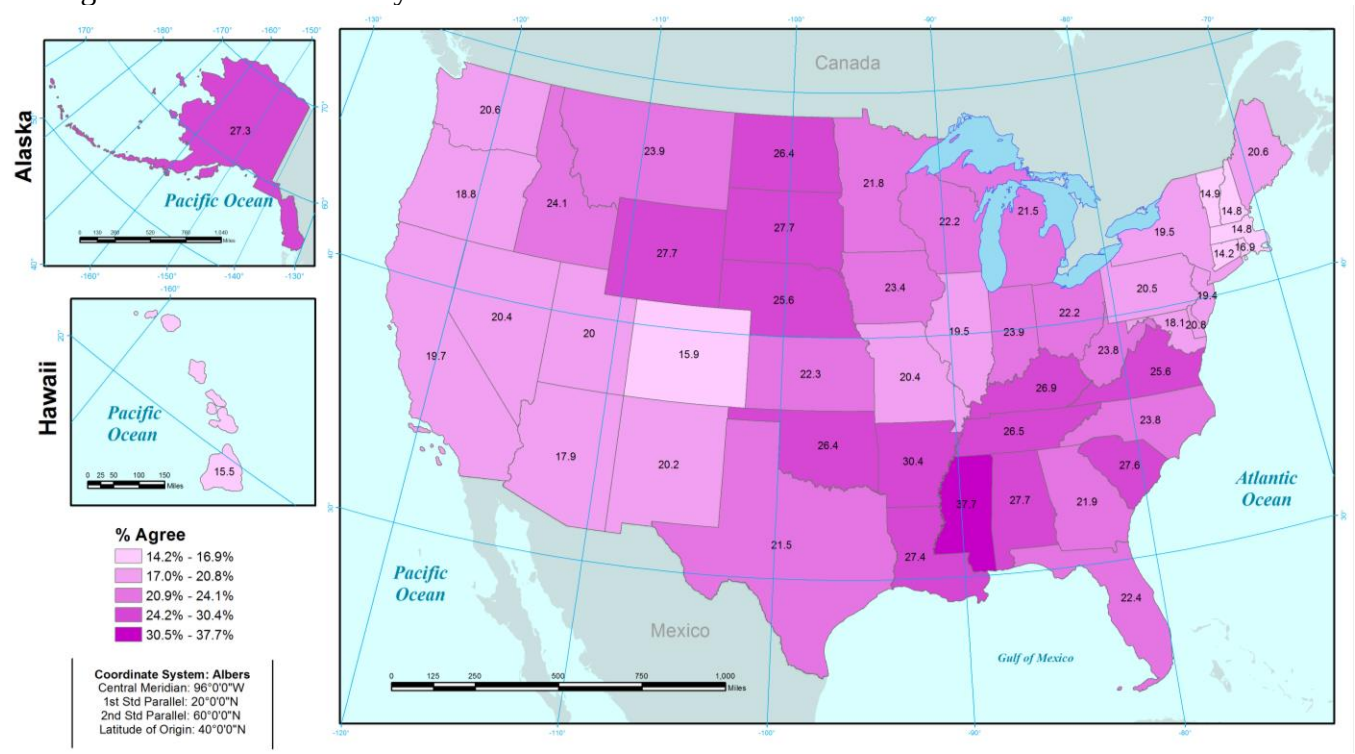


Agreement = "slightly" or "strongly" agree. Full statement texts:
a. *Protection/growth: We should strive for a society that emphasizes environmental protection over economic growth.*
b. Property/wildlife: Private property rights are more important than protecting declining or endangered fish and wildlife.
c. Local control: Local communities should have more control over the management of fish and wildlife.
d. Climate change: The earth is getting warmer mostly because of human activity such as burning fossil fuels.

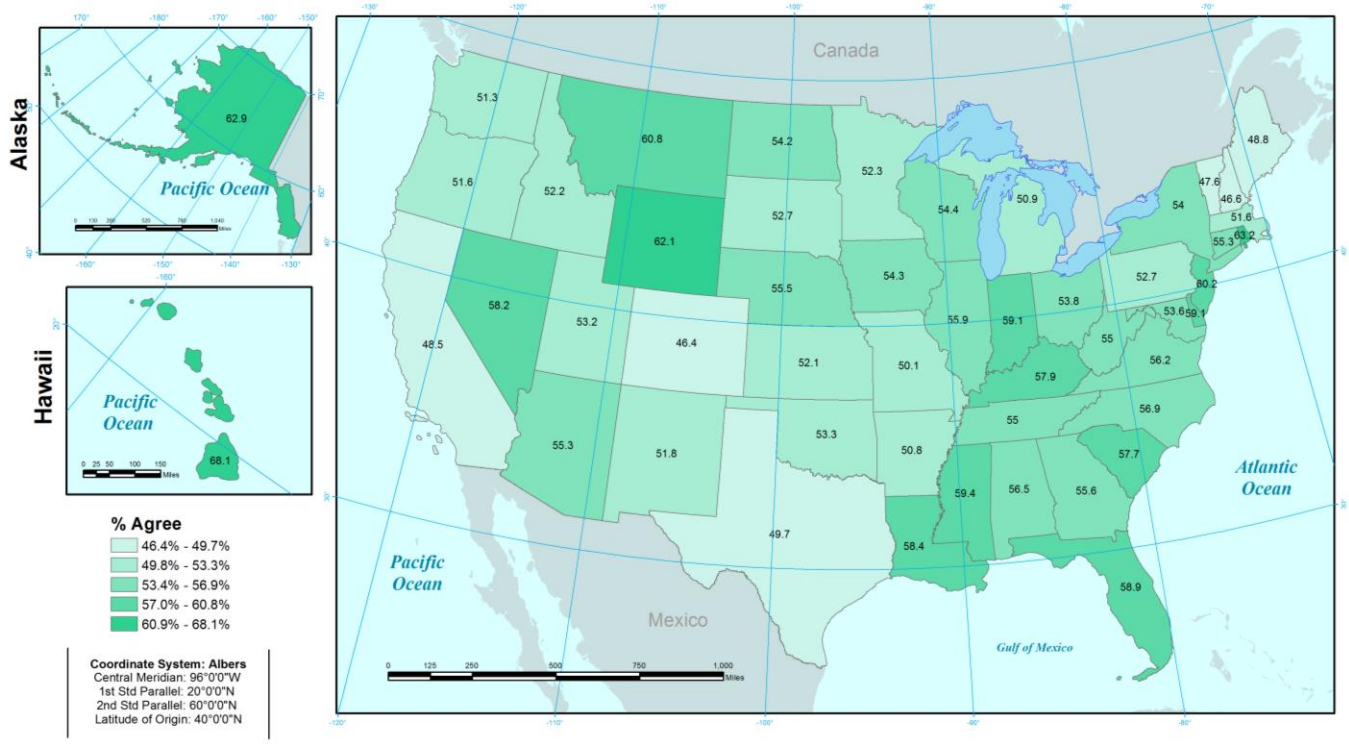
Map 13: Percent who agree that we should strive for environmental protection over economic growth by state



Map 14: Percent who agree that private property rights are more important than protecting declining or endangered fish and wildlife by state



Map 15: Percent who agree that local communities should have more control over the management of fish and wildlife by state



Map 16: Percent who agree that the earth is getting warmer mostly because of human activities like burning fossil fuels by state

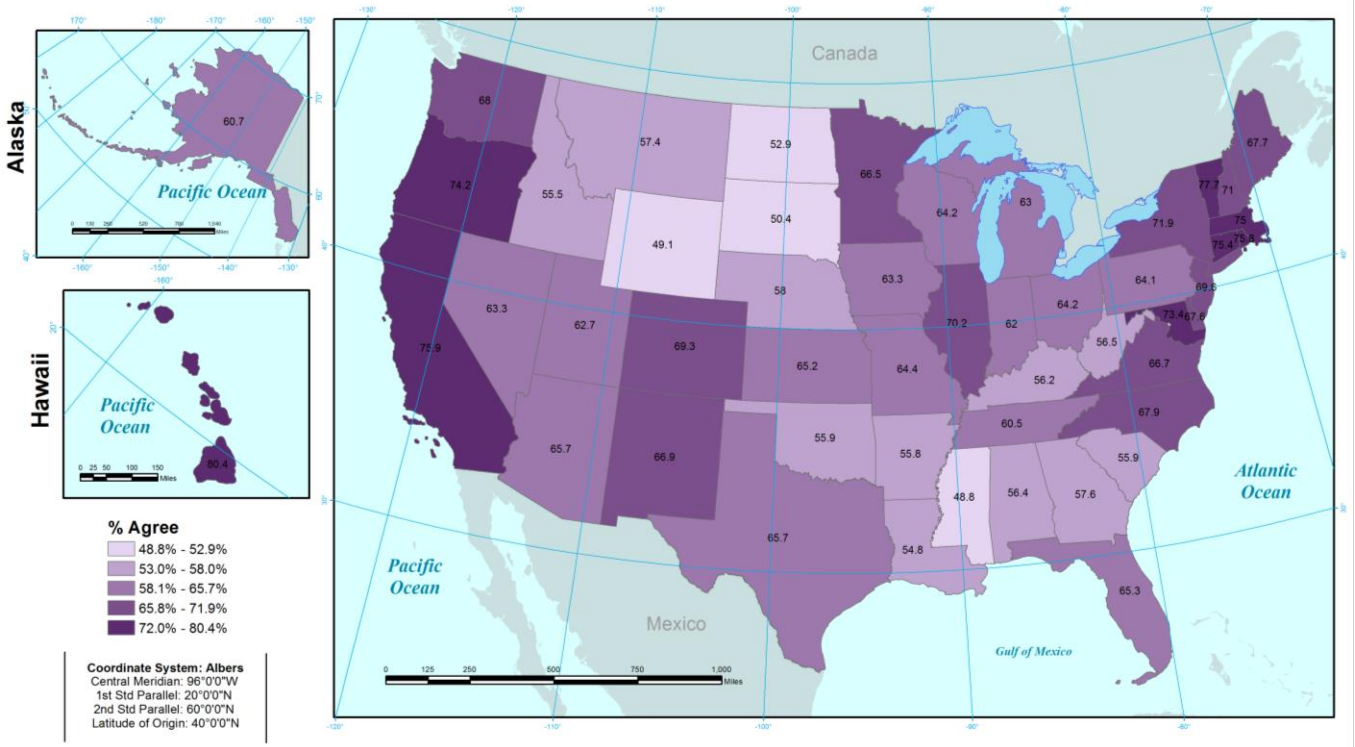
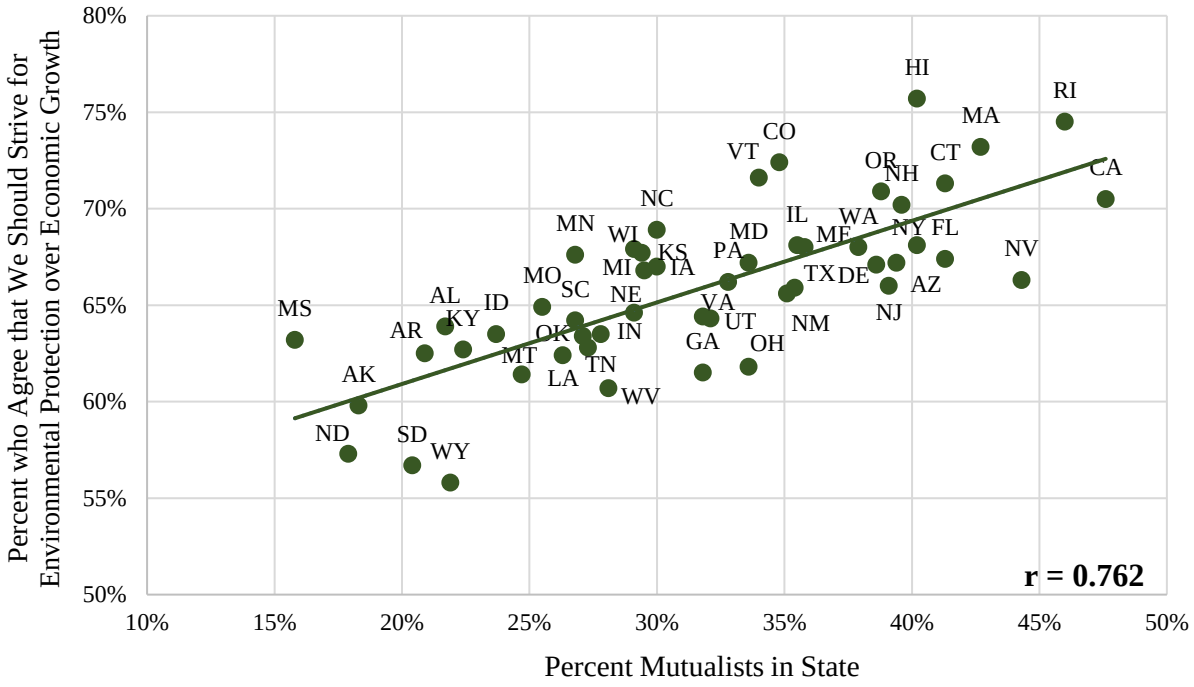
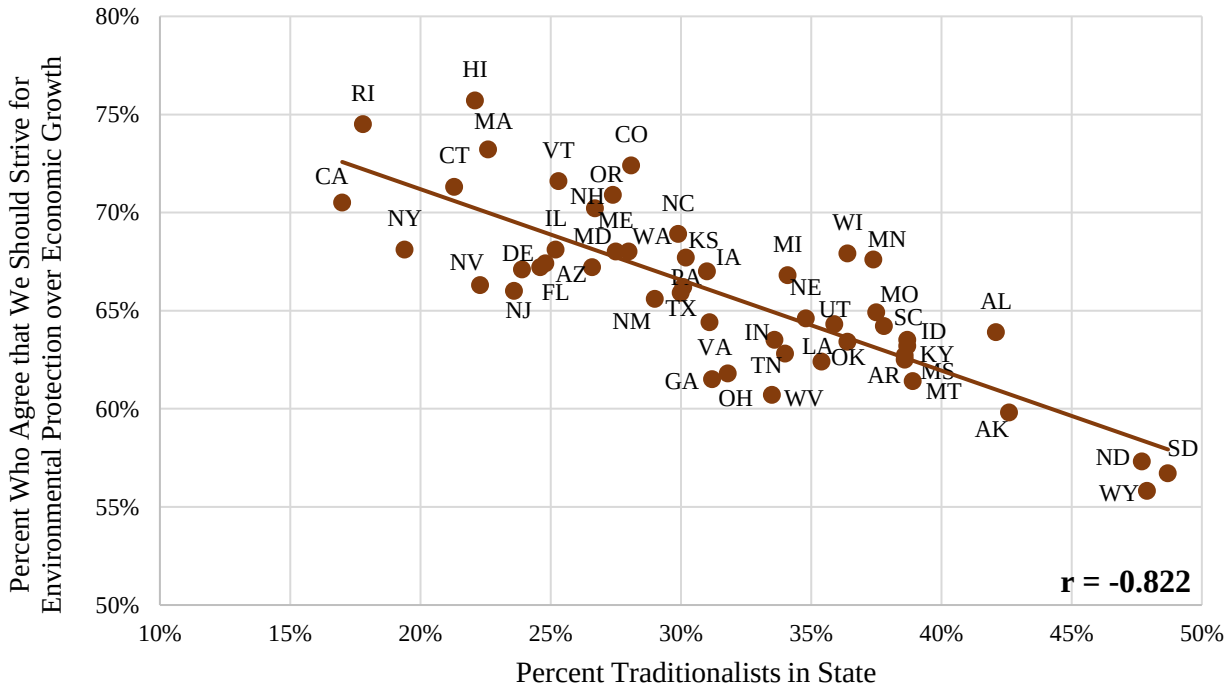


Figure 10: Percent Mutualists in state by percent who agree that we should strive for environmental protection over economic growth



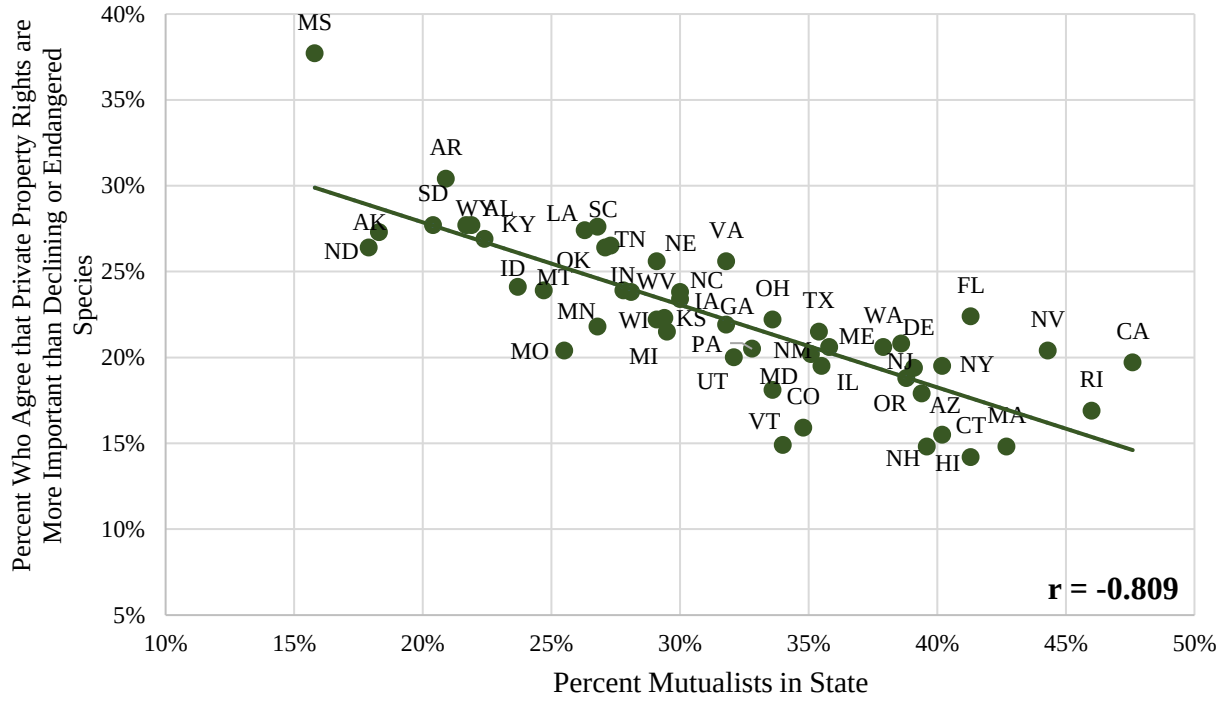
Agreement = “slightly” or “strongly” agree

Figure 11: Percent Traditionalists in state by percent who agree that we should strive for environmental protection over economic growth



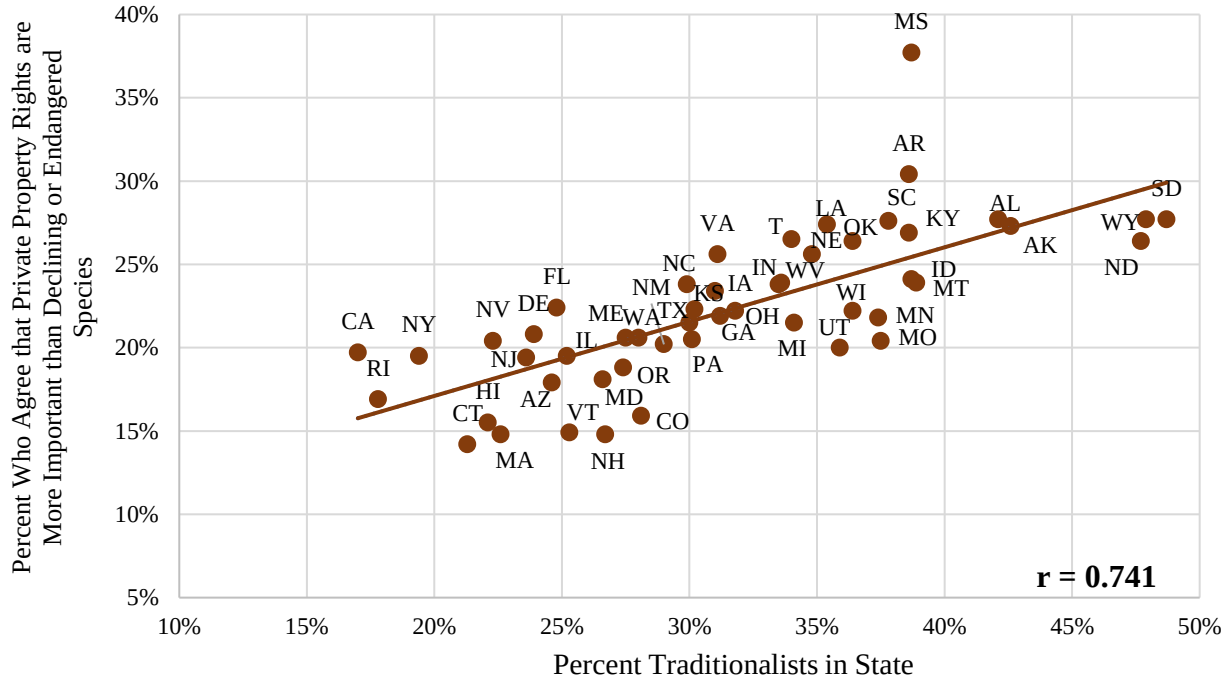
Agreement = “slightly” or “strongly” agree

Figure 12: Percent Mutualists in state by percent who agree that private property rights are more important than protecting declining or endangered species



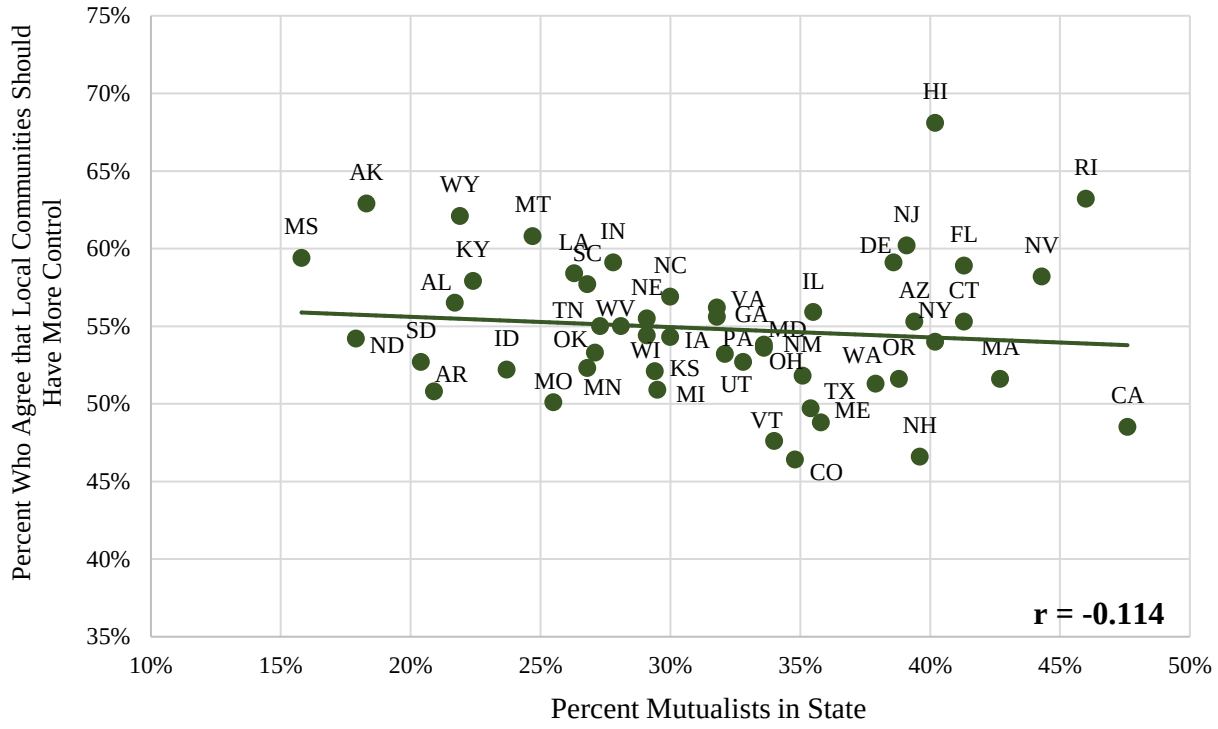
Agreement = "slightly" or "strongly" agree

Figure 13: Percent Traditionalists in state by percent who agree that private property rights are more important than protecting declining or endangered species



Agreement = "slightly" or "strongly" agree

Figure 14: Percent Mutualists in state by percent who agree that local communities should have more control over the management of fish and wildlife

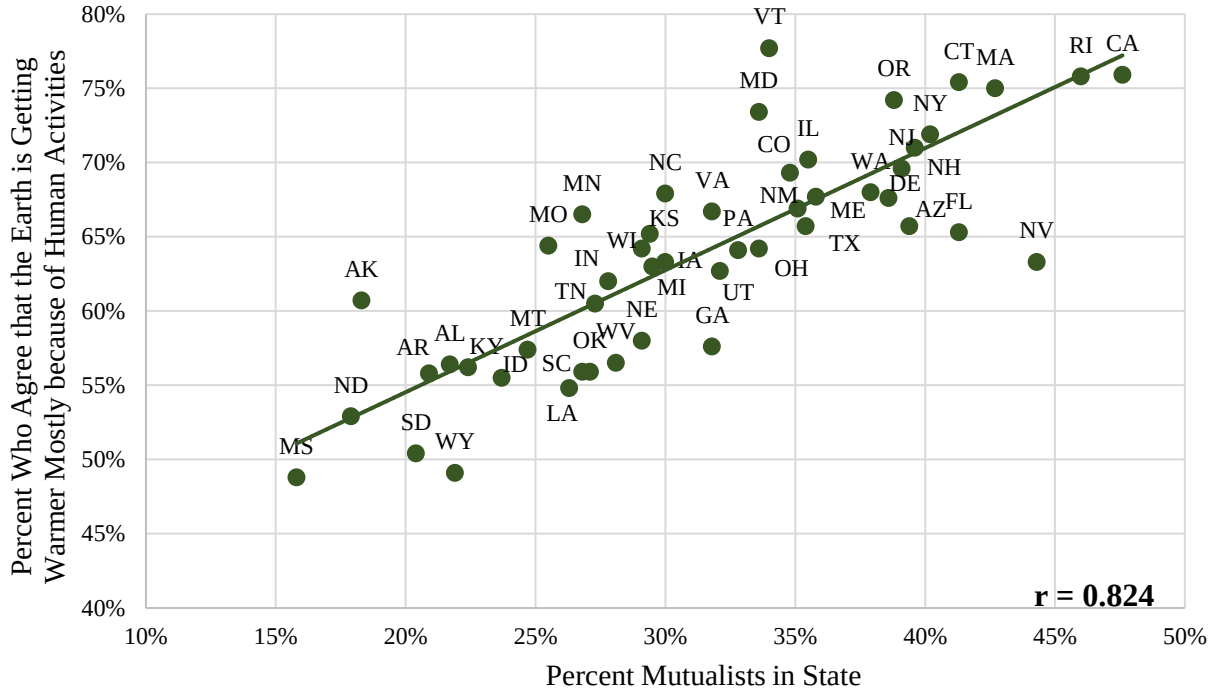


Agreement = “slightly” or “strongly” agree

Figure 15: Percent Traditionalists in state by percent who agree that local communities should have more control over the management of fish and wildlife

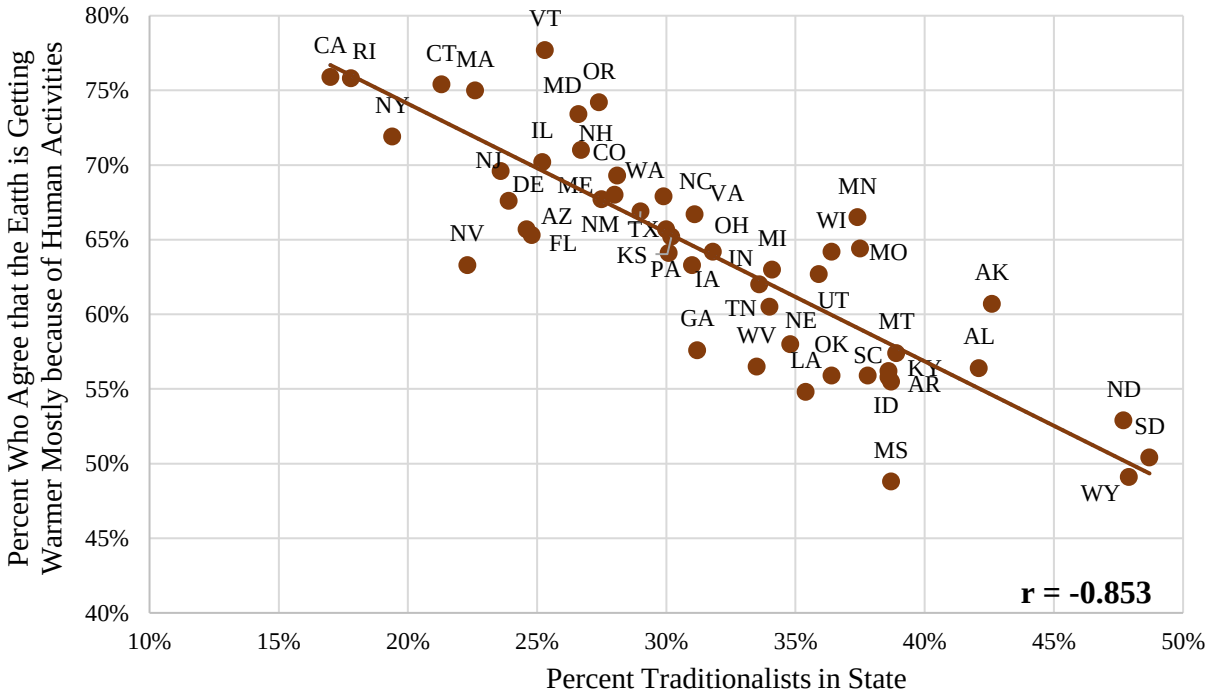
Agreement = “slightly” or “strongly” agree

Figure 16: Percent Mutualists in state by percent who agree that the earth is getting warmer mostly because of human activities



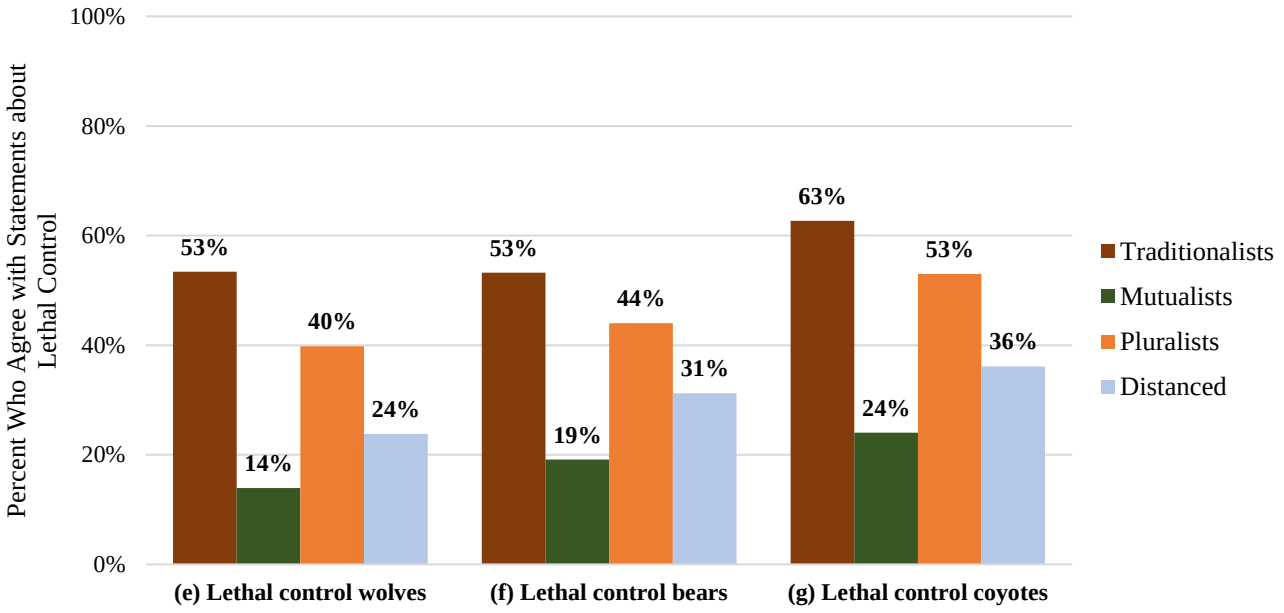
Agreement = “slightly” or “strongly” agree

Figure 17: Percent Traditionalists in state by percent who agree that the earth is getting warmer mostly because of human activities



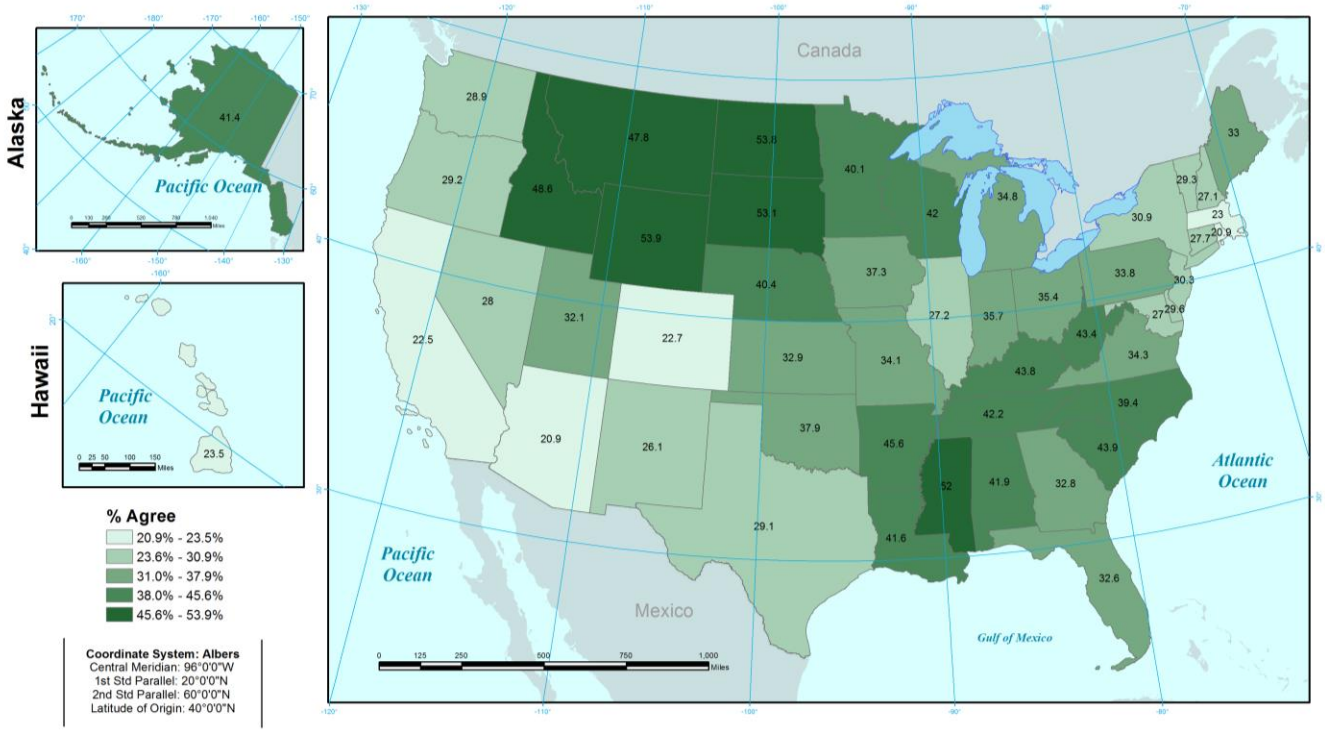
Agreement = “slightly” or “strongly” agree

Figure 18: Agreement with lethal control statements by wildlife value orientation type

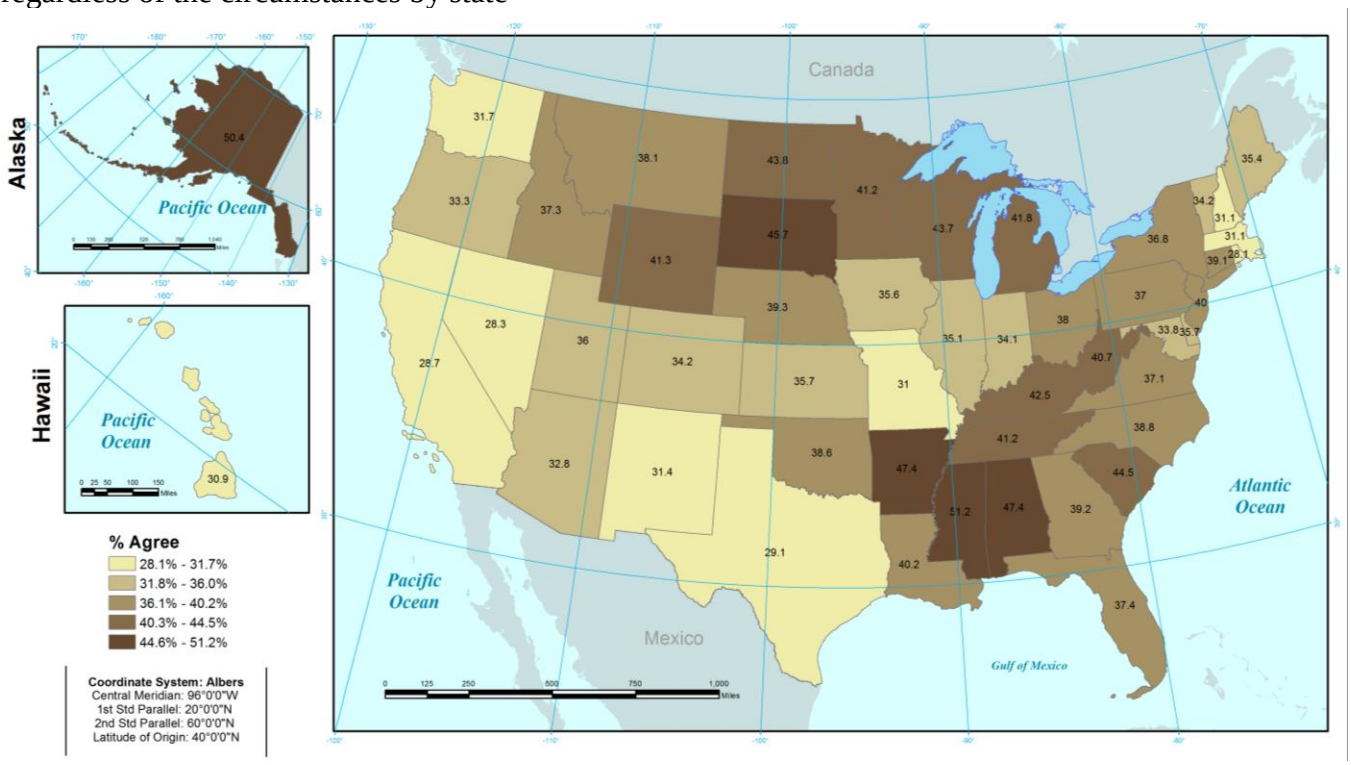


Agreement = "slightly" or "strongly" agree. Full statement texts:
e. Lethal control wolves: Wolves that kill livestock should be lethally removed.
f. Lethal control bears: If a black bear attacks a person, that bear should be lethally removed regardless of the circumstances.
g. Lethal control coyotes: Coyotes that kill pets in residential areas should be lethally removed.

Map 17: Percent who agree that wolves that kill livestock should be lethally removed by state



Map 18: Percent who agree that if a black bear attacks a person, that bear should be lethally removed regardless of the circumstances by state



Map 19: Percent who agree that coyotes that kill pets in residential areas should be lethally removed

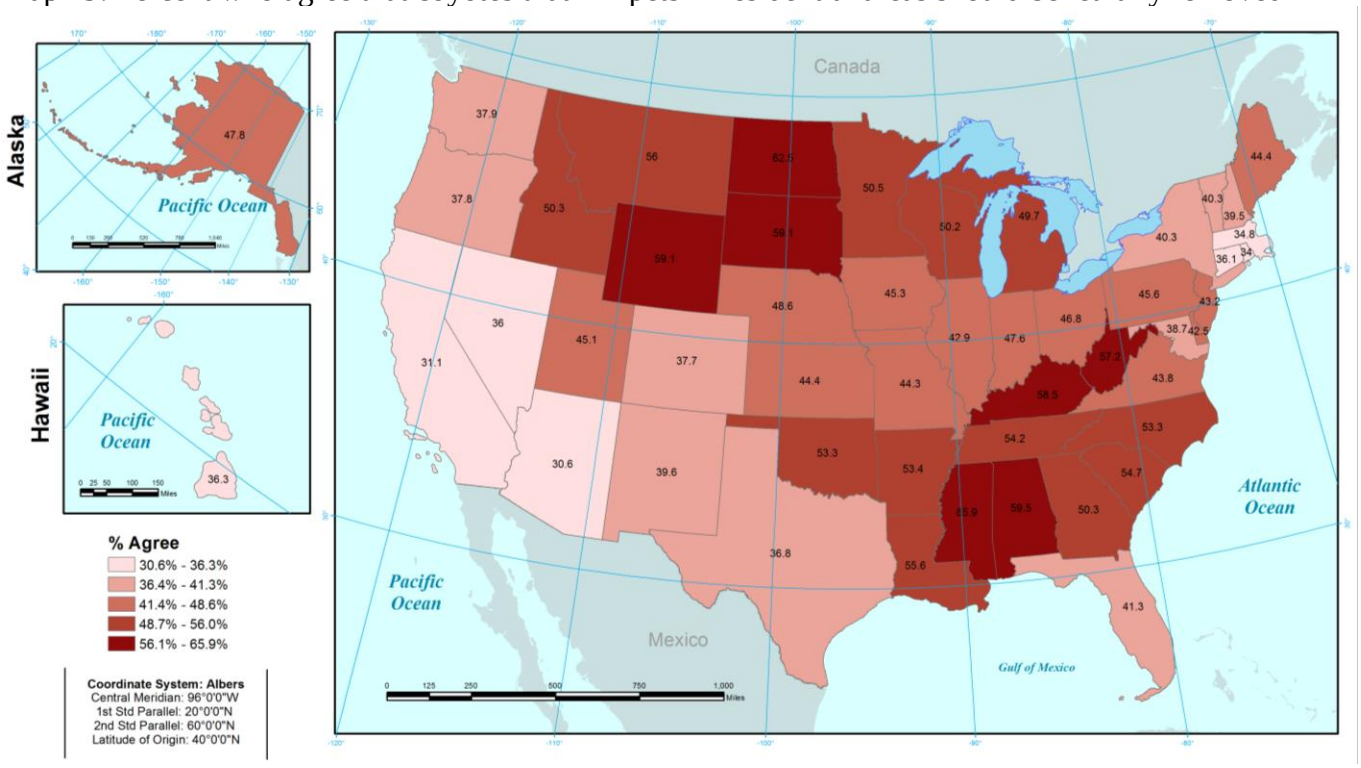
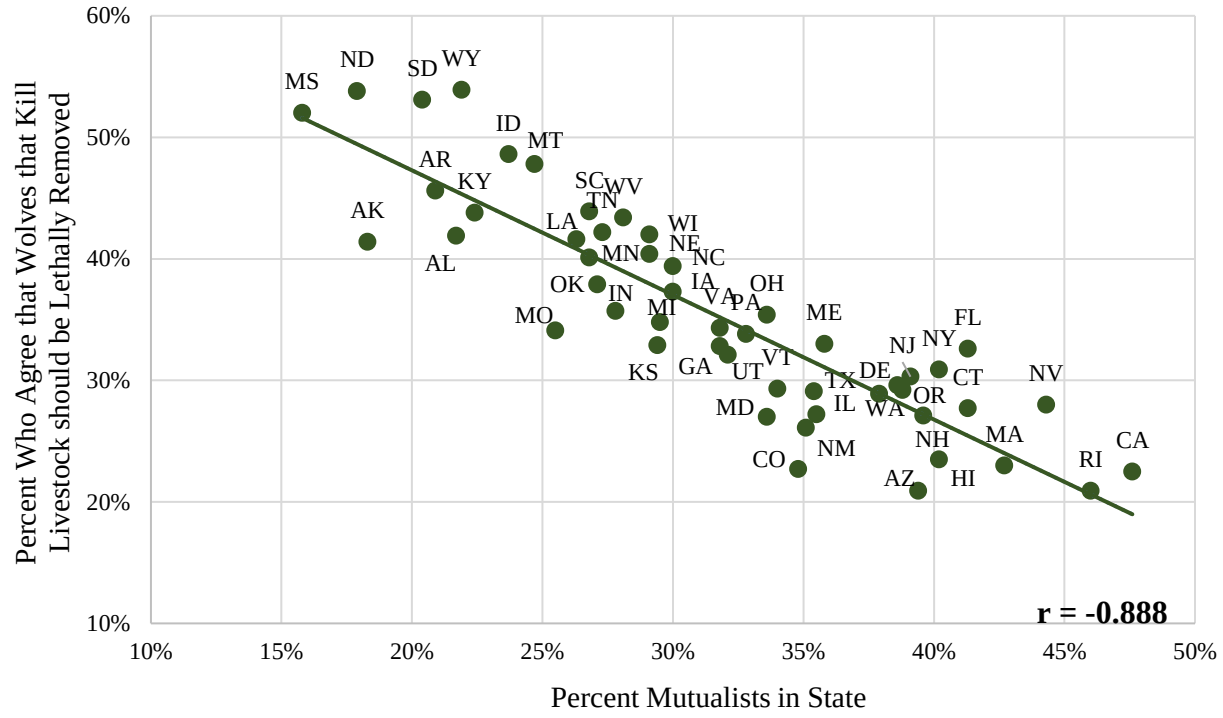


Figure 19: Percent Mutualists in state by percent who agree that wolves that kill livestock should be lethally removed

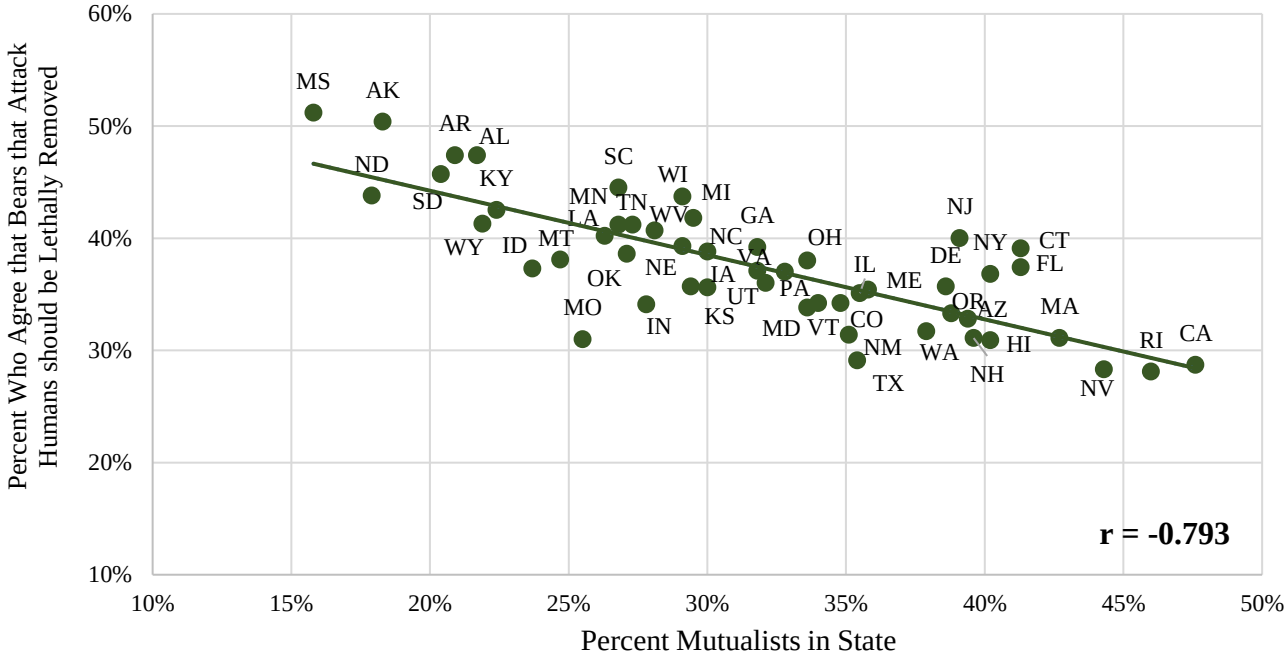


Agreement = “slightly” or “strongly” agree

Figure 20: Percent Traditionalists in state by percent who agree that wolves that kill livestock should be lethally removed

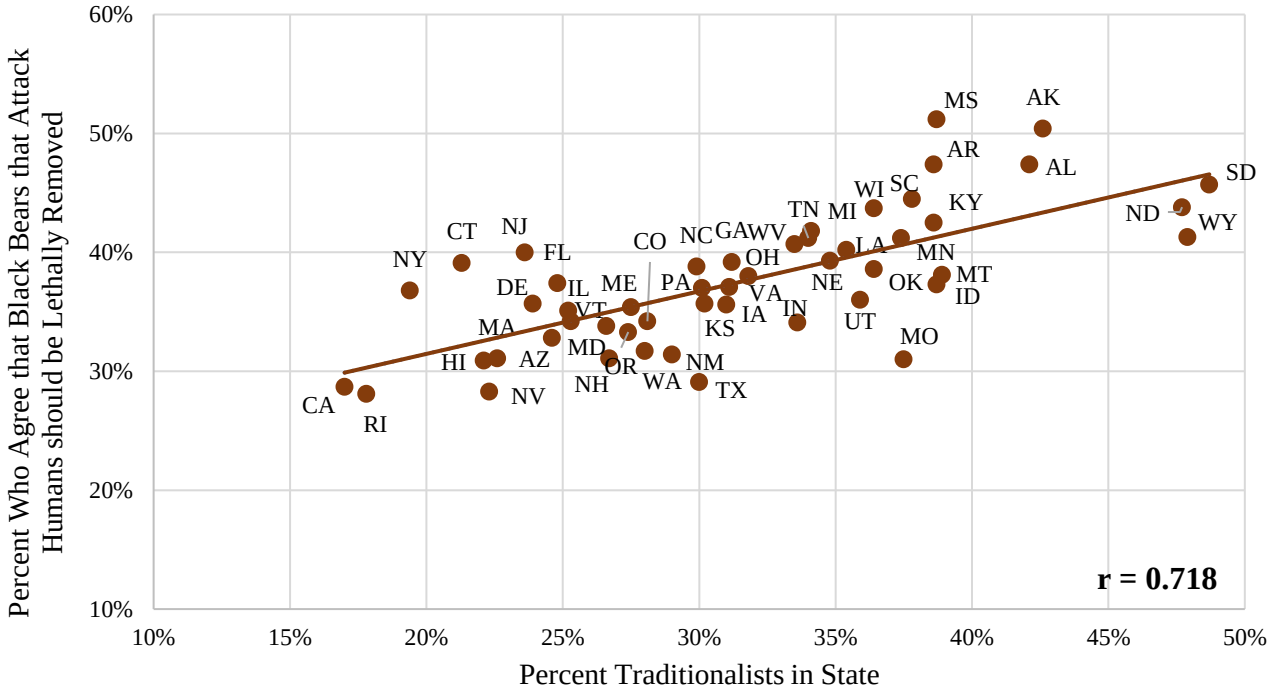
Agreement = “slightly” or “strongly” agree

Figure 21: Percent Mutualists in state by percent who agree that if a black bear attacks a person, that bear should be lethally removed regardless of the circumstances



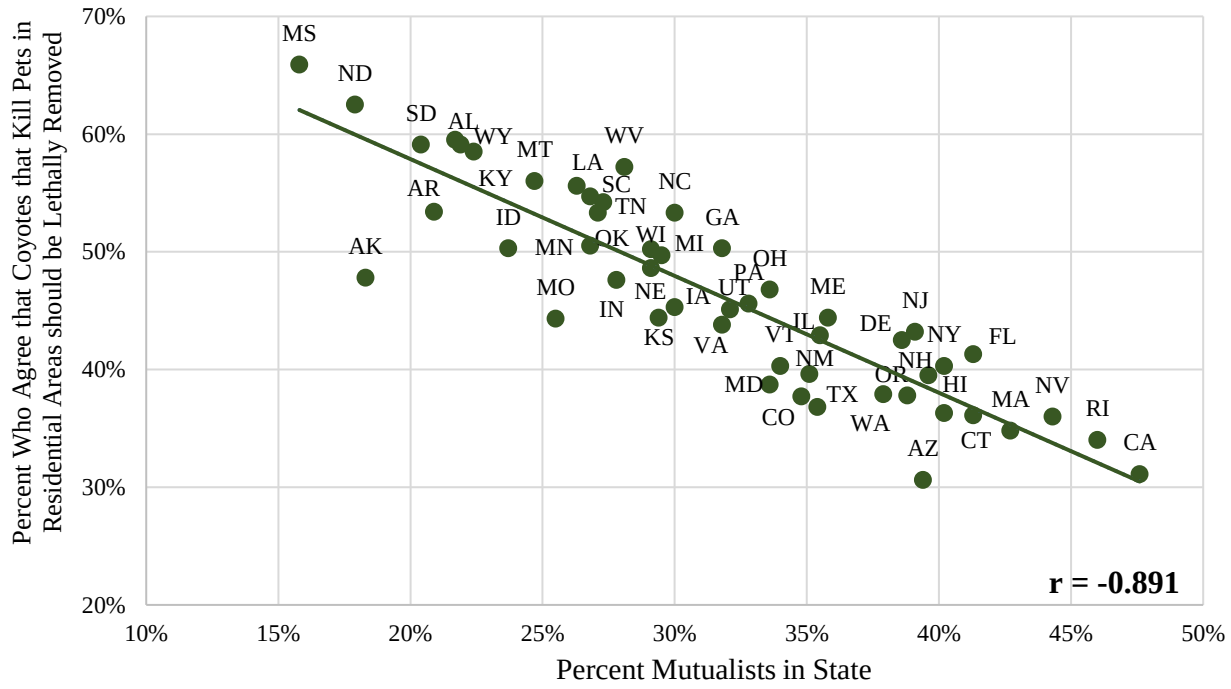
Agreement = “slightly” or “strongly” agree

Figure 22: Percent Traditionalists in state by percent who agree that if a black bear attacks a person, that bear should be lethally removed regardless of the circumstances



Agreement = “slightly” or “strongly” agree

Figure 23: Percent Mutualists in state by percent who agree that coyotes that kill pets should be lethally removed



Agreement = "slightly" or "strongly" agree

Figure 24: Percent Traditionalists in state by percent who agree that coyotes that kill pets should be lethally removed

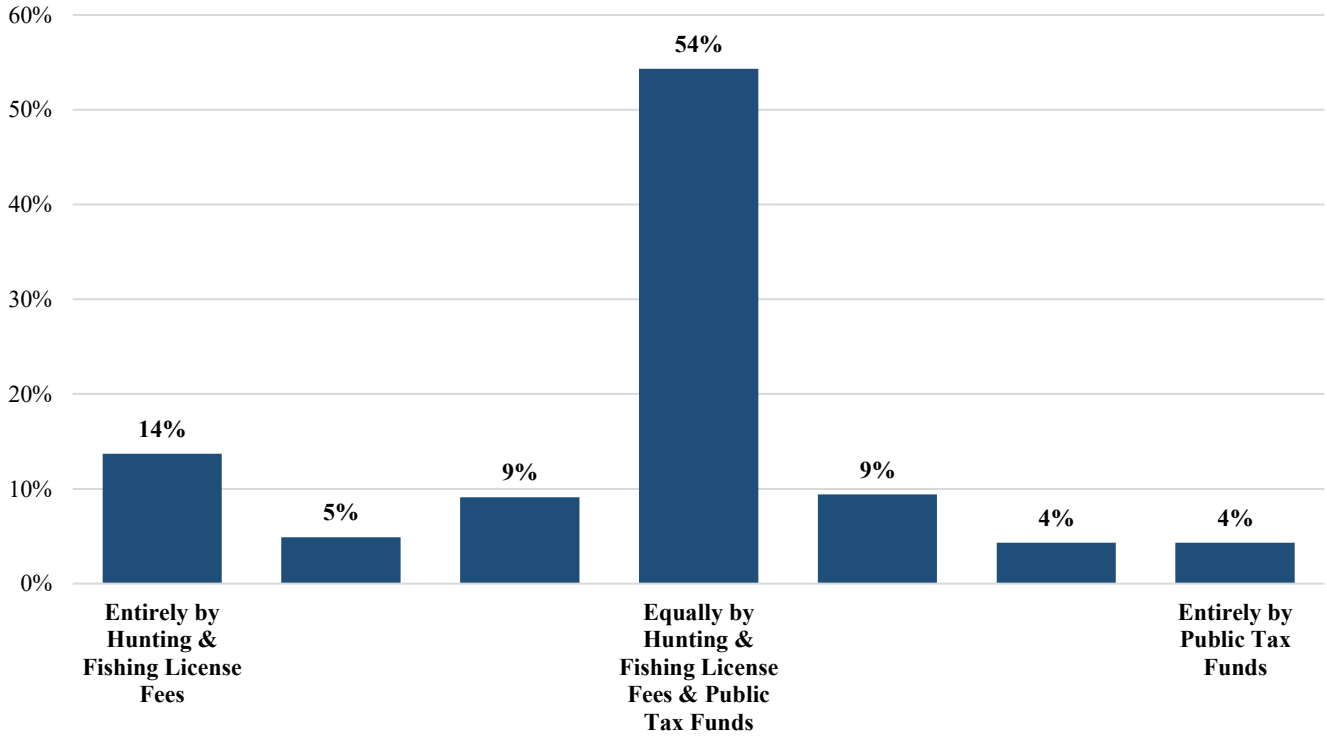
Agreement = "slightly" or "strongly" agree

Value Shift and Funding for Fish and Wildlife Management

With declining revenue associated with a reduction in hunting and fishing license sales, fish and wildlife agencies are faced with the challenge of how to fund the future of wildlife management. Some states already have programs that return special taxes, while others are examining the feasibility of different types of funding approaches. The importance of this dilemma was recently emphasized through reports by The Association of Fish and Wildlife Agencies' Blue Ribbon Panel (Blue Ribbon Panel, 2018).

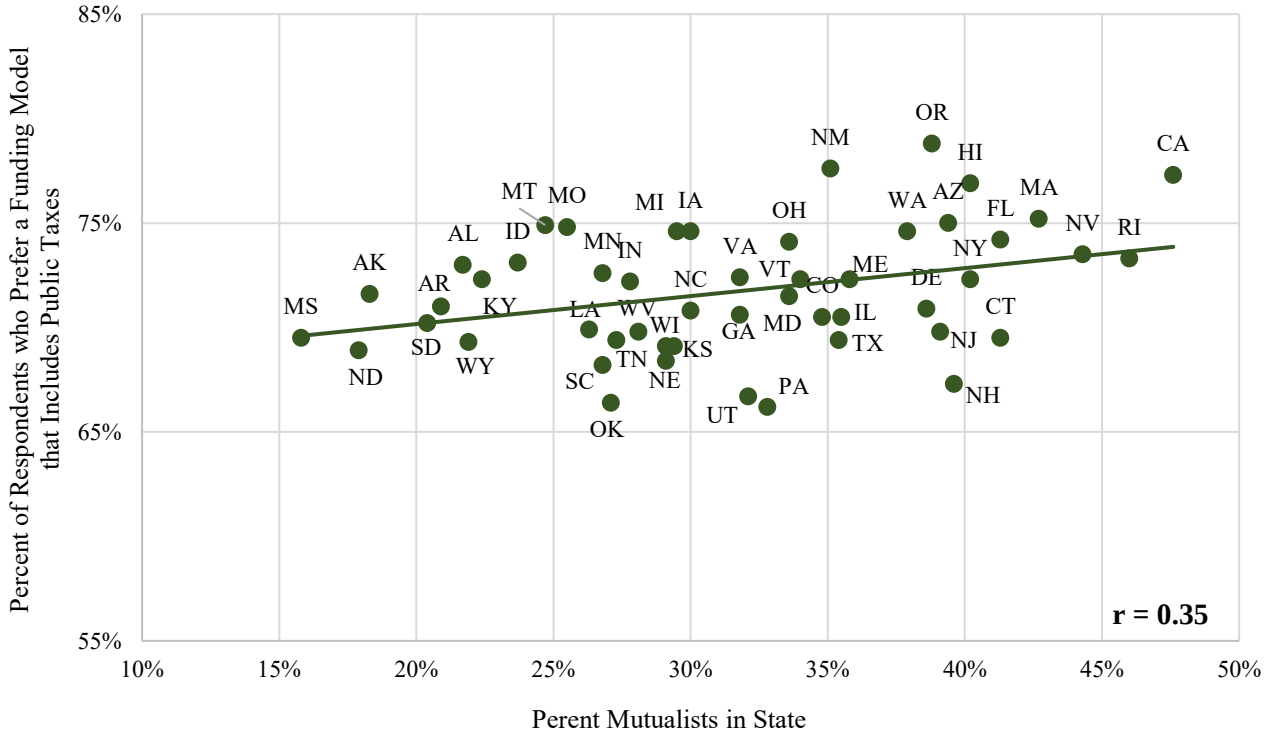
Similar to a question we asked in the 2004 *Wildlife Values in the West* study, we asked subjects to indicate, on a range of alternatives, whether fish and wildlife management should be primarily funded by hunting and fishing licenses or by public taxes. As we found in 2004, the preferred alternative, by far, is an equal split of public taxes and license fees (Figure 25). That proposal was slightly more favored in states with a higher percentage of Mutualists (Figure 26, Map 20). Also, the percent of people supporting funding alternatives that had more tax contributions than license fees increased as the percentage of Mutualists in the state increased (Figure 27, Map 21).

Figure 25: National Preferences for Fish and Wildlife Agency Funding



Statement text: *How should your fish and wildlife agency be funded in the future?*

Figure 26: Percent Mutualists in state by percent who prefer a funding model that <u>includes</u> public taxes



Includes respondents who selected 4-7 on the funding scale in Figure 25

Map 20: Percent who prefer a funding model that <u>includes</u> public taxes by state

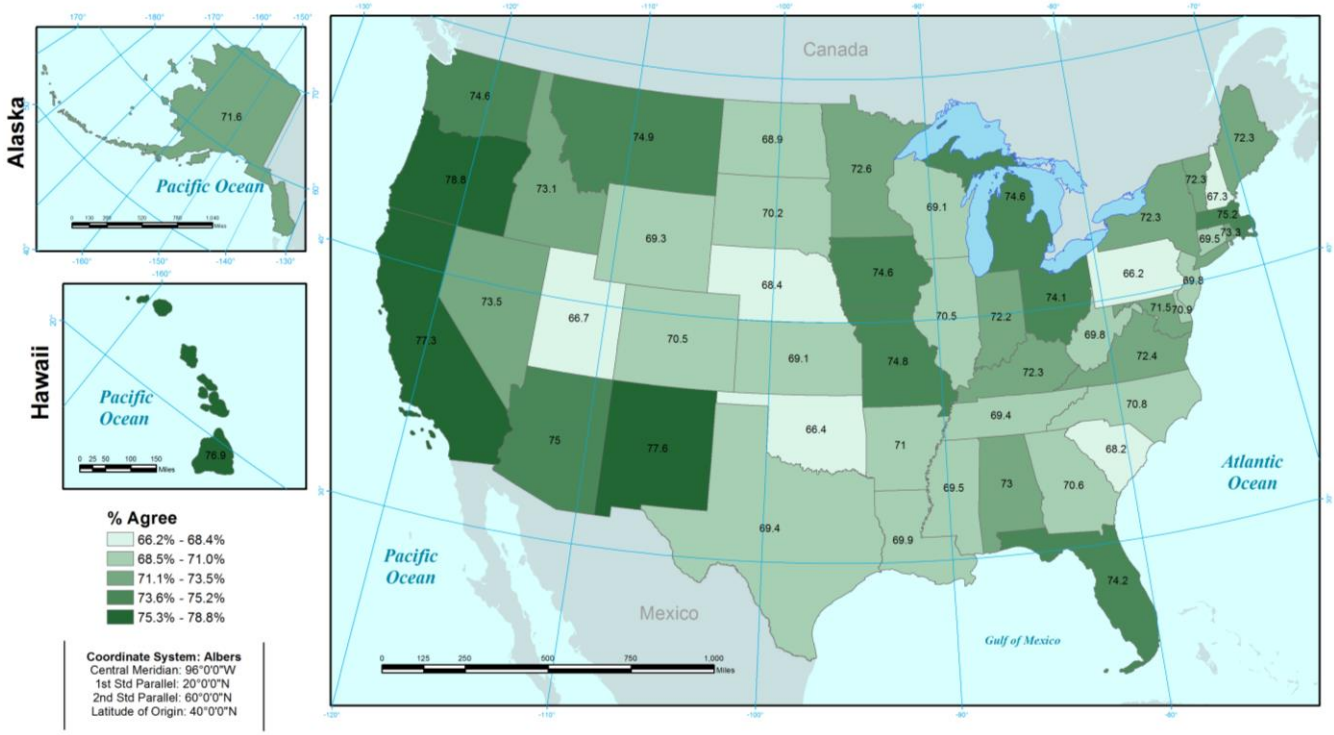
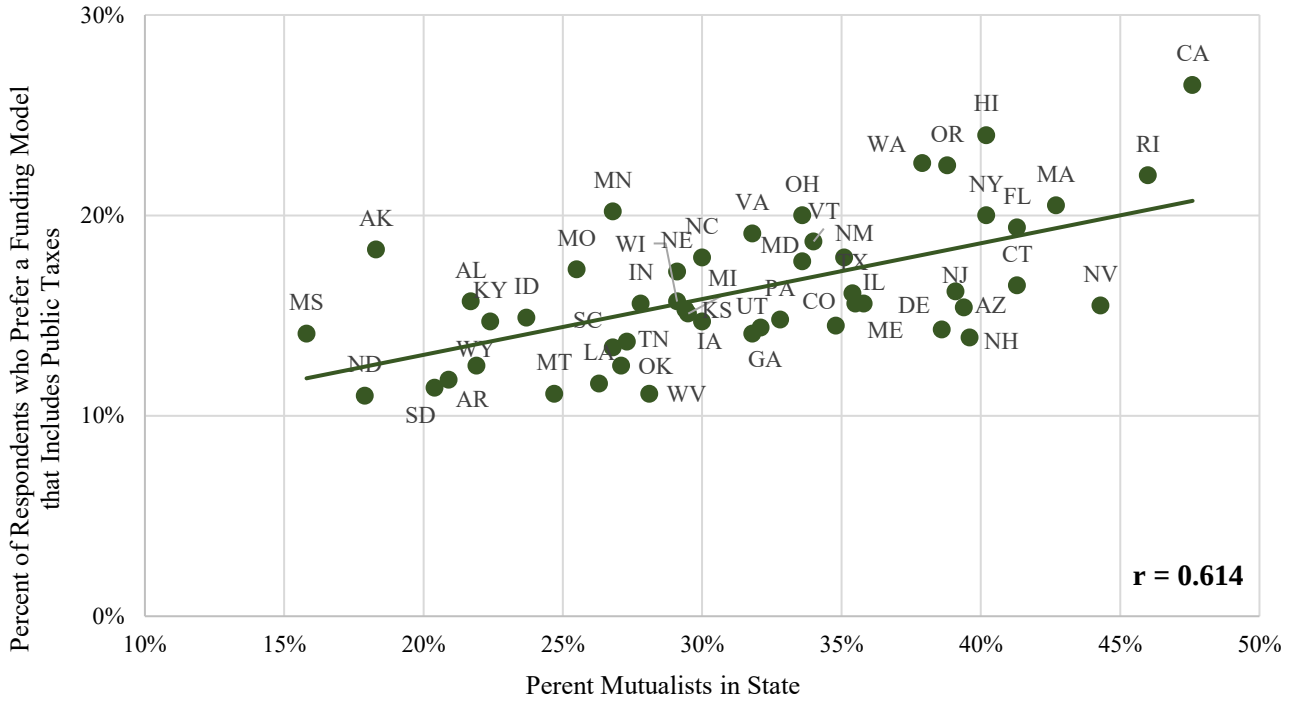
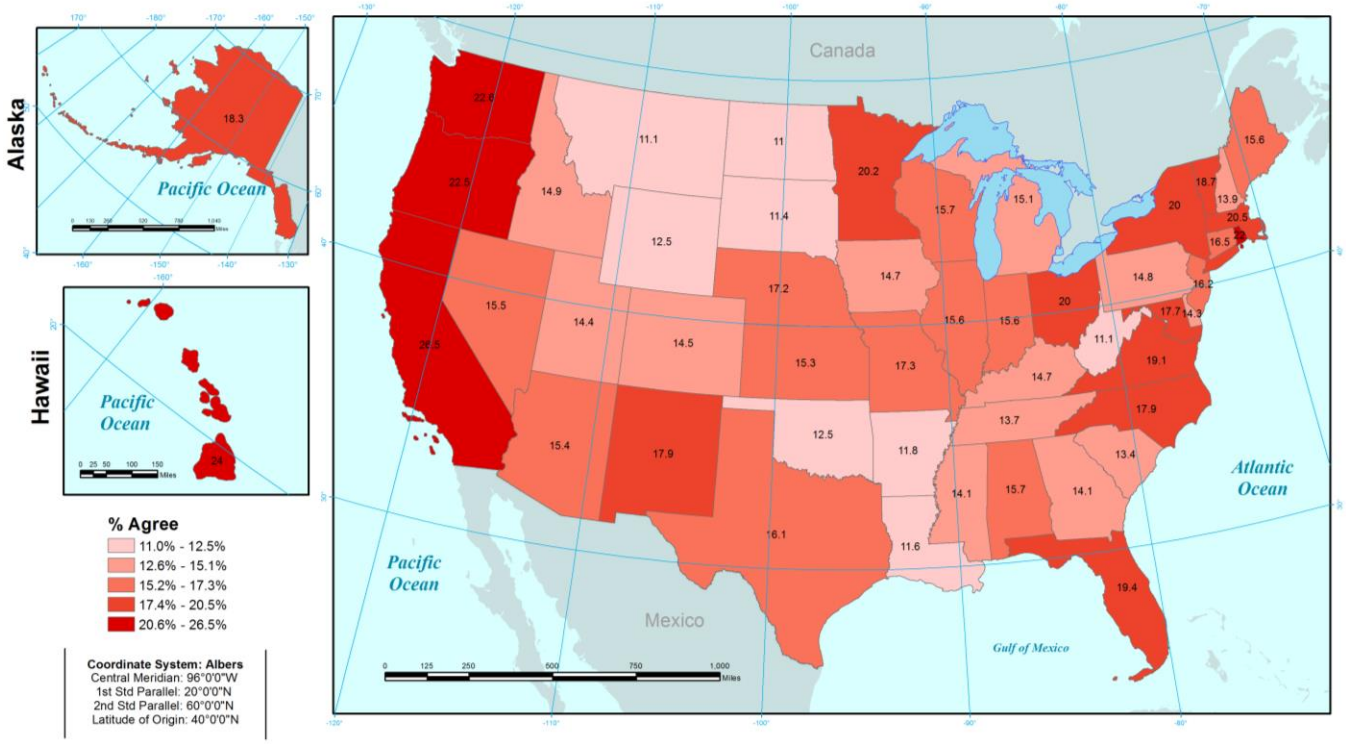


Figure 27: Percent Mutualists in state by percent who prefer a funding model that prioritizes public taxes



Includes respondents who selected 5-7 on the funding scale in Figure 25

Map 21: Percent who prefer a funding model that prioritizes public taxes by state

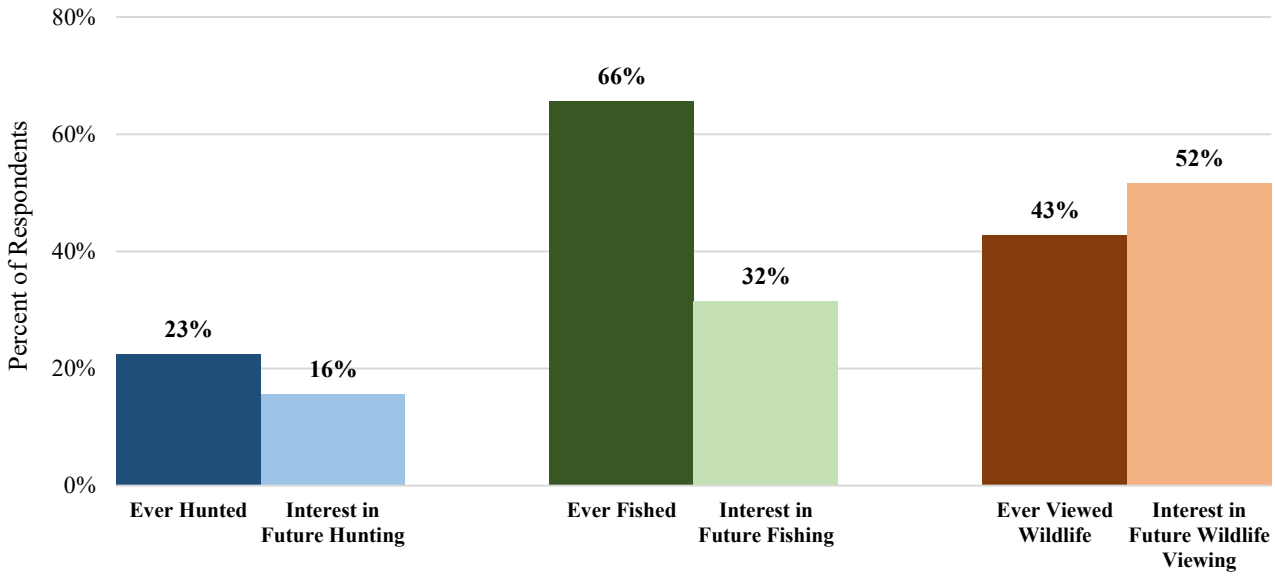


Value Shift and Participation in Wildlife-Related Recreation

Facilitating and managing participation in wildlife-related recreation is a central function of fish and wildlife agencies. In this section, we explore questions about past participation in wildlife-related recreation and future interest in participation[1]. We also examine rates of active participation, represented by the percent of people who have ever participated in the activity (past participation) who also report participating in the past 12 months. Past participation is reasonably high in hunting (23%), fishing (66%), and wildlife viewing (43%) (Figure 28). Interest in future hunting (16%) and fishing (32%) is lower than past participation but still higher than current participation rates based on the *National Survey on Fishing, Hunting, and Wildlife-Associated Recreation (U.S. Department of the Interior et al., 2016)*. Only wildlife viewing has past participation rates lower (43%) than future interest (52%). Not surprisingly, past participation and future interest in hunting and fishing are much higher for Traditionalists and Pluralists when compared to Mutualists and Distanced individuals (Figures 29-31). Mutualists and Pluralists have the highest levels of interest in future participation in wildlife viewing.

Persuasion research suggests that good targets for changing or promoting a particular behavior are people who have exhibited that behavior in the past (e.g., Eagly & Chaiken, 1993). Accordingly, Maps 22-24 show percent of active participation in hunting, fishing, and wildlife viewing by state. For fishing and hunting, there is a strong relationship between active participation and a state's value composition (Figures 32-37). For example, as the percent of Mutualists reaches 40-45% in a state, the proportion of past hunters who hunted in the past year is less than 5%. Of course, the cause of this is not merely the presence of Mutualists; rather, the percent of Mutualists in a state is merely an indicator of a cultural situation that is much different from that of states more heavily dominated by Traditionalists.

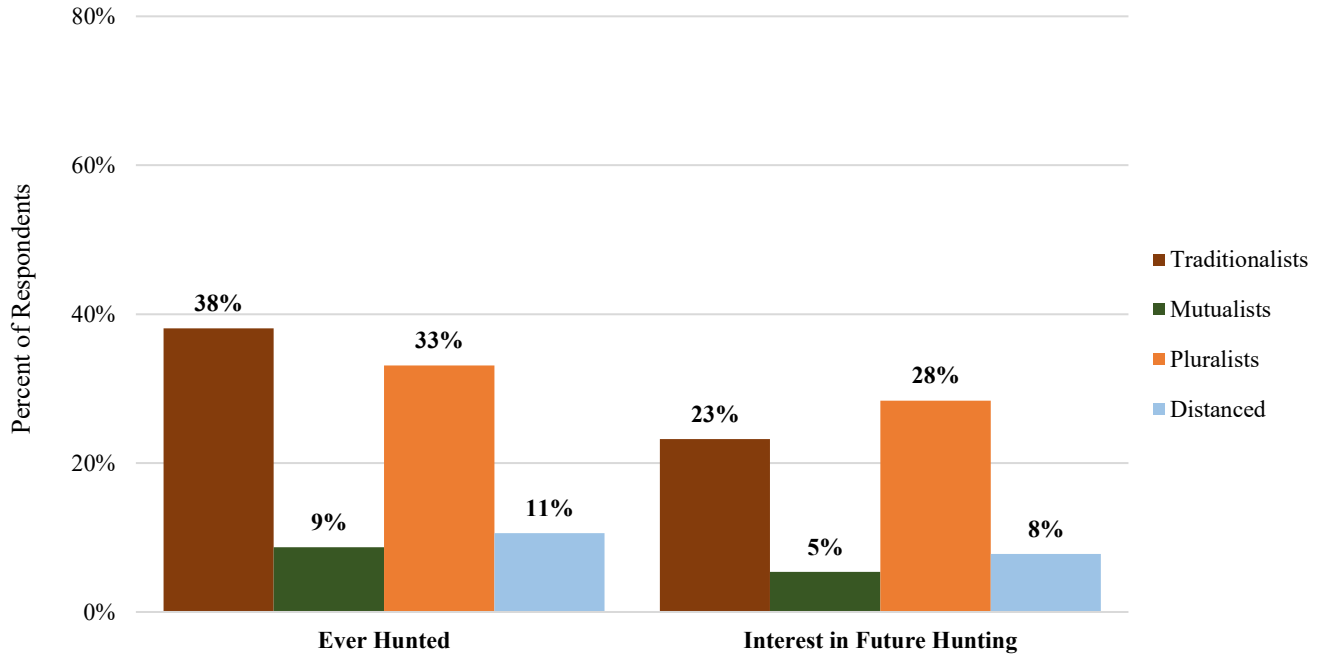
Figure 28: Past participation and future interest in wildlife-related recreation



Past participation = "yes" response.
Interest in future participation = "moderately" or "strongly" interested.

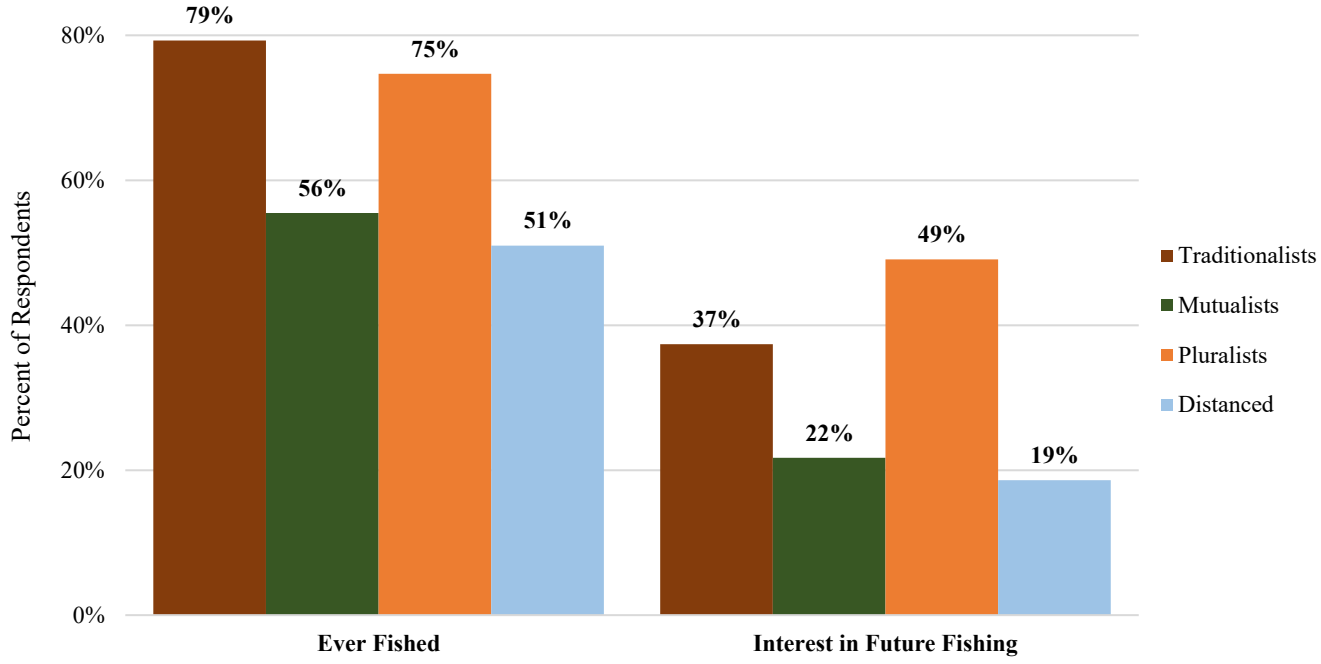
[1] Findings related to wildlife-related recreation in the past 12 months have been excluded from the analysis because these variables were used for weighting. For more information on data weighting procedures, see Don Carlos et al. (In Process).

Figure 29: Past participation and future interest in hunting by wildlife value orientation type



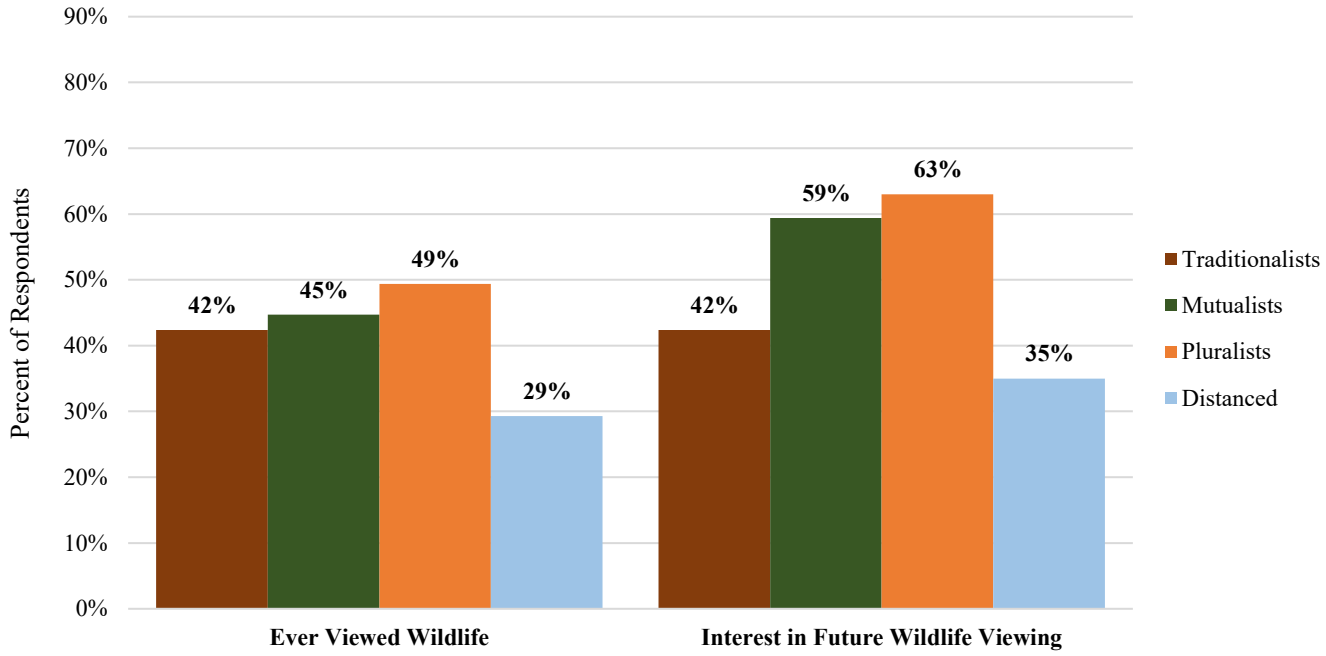
Past participation = "yes" response.
Interest in future participation = "moderately" or "strongly" interested.

Figure 30: Past participation and future interest in fishing by wildlife value orientation type



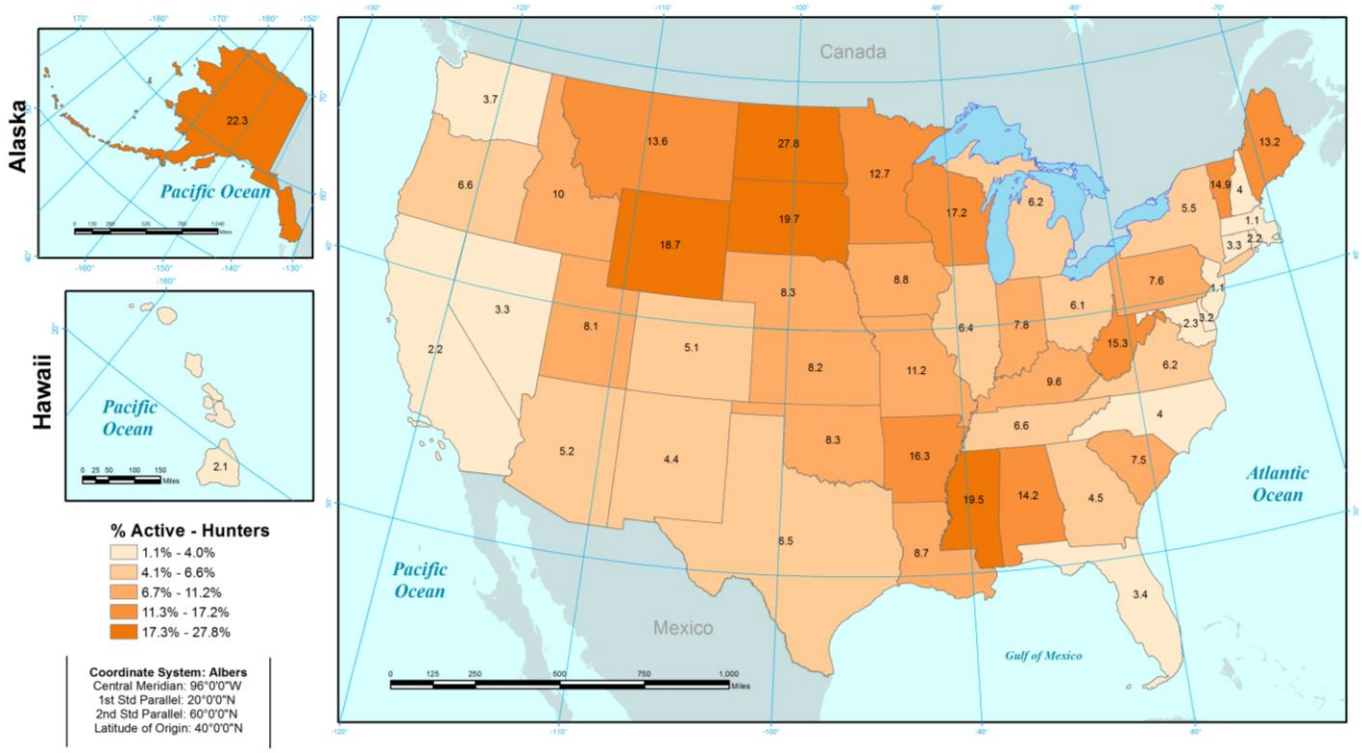
Past participation = "yes" response.
Interest in future participation = "moderately" or "strongly" interested.

Figure 31: Past participation and future interest wildlife viewing by wildlife value orientation type

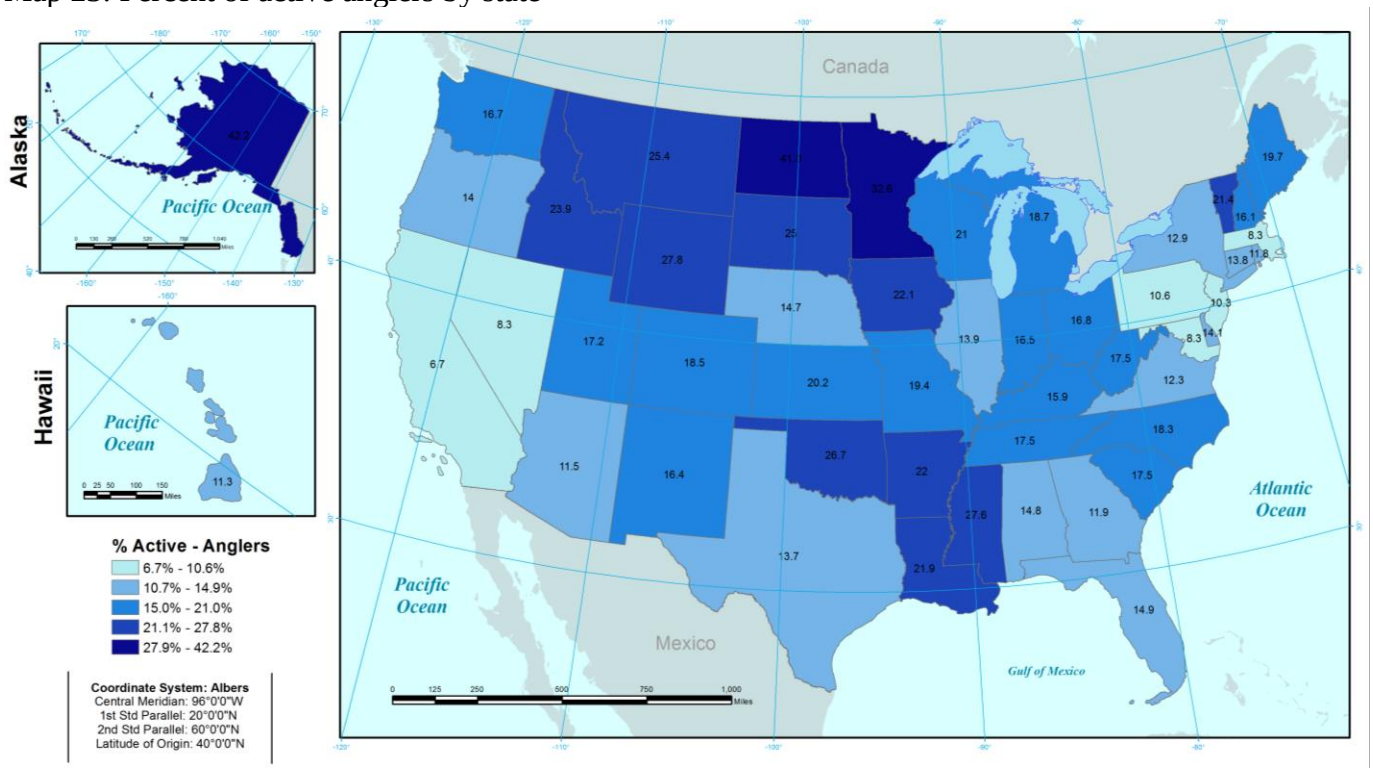


Past participation = "yes" response.
Interest in future participation = "moderately" or "strongly" interested.

Map 22: Percent of active hunters by state



Map 23: Percent of active anglers by state



Map 24: Percent of active wildlife viewers by state

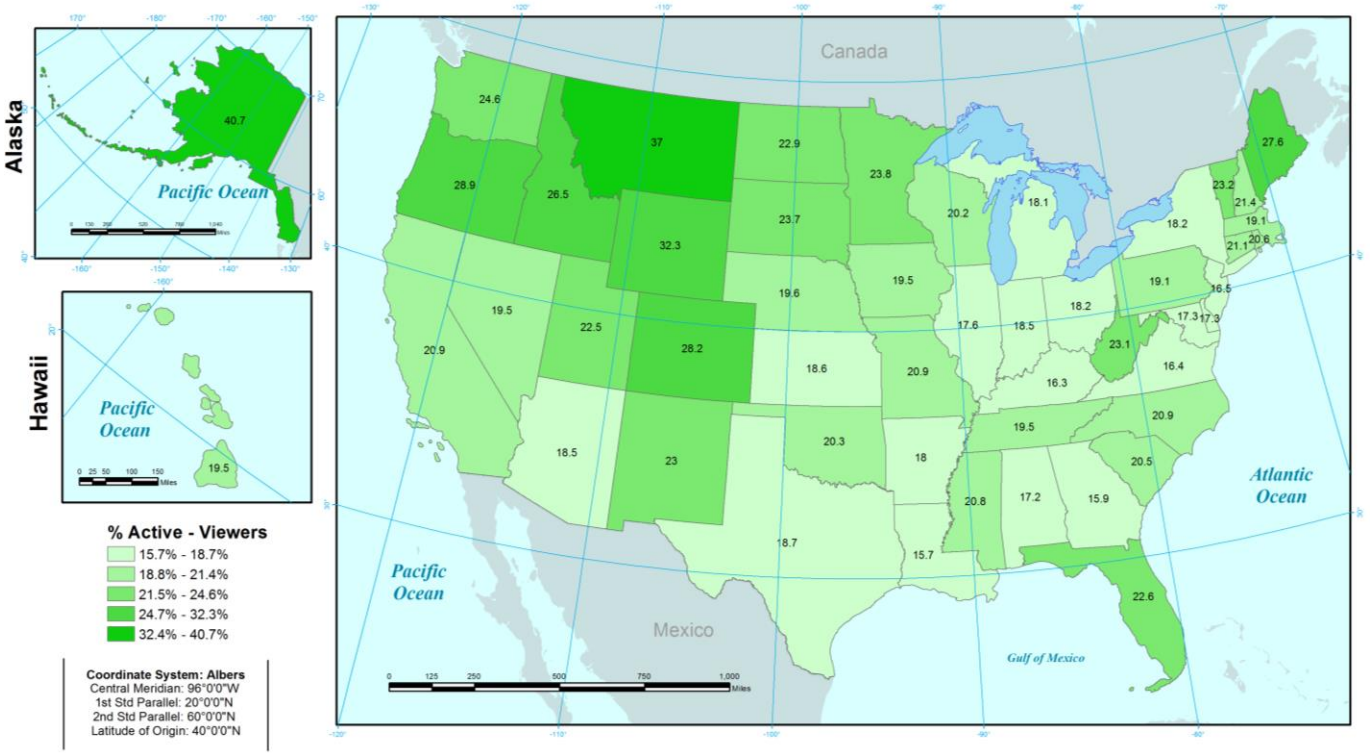
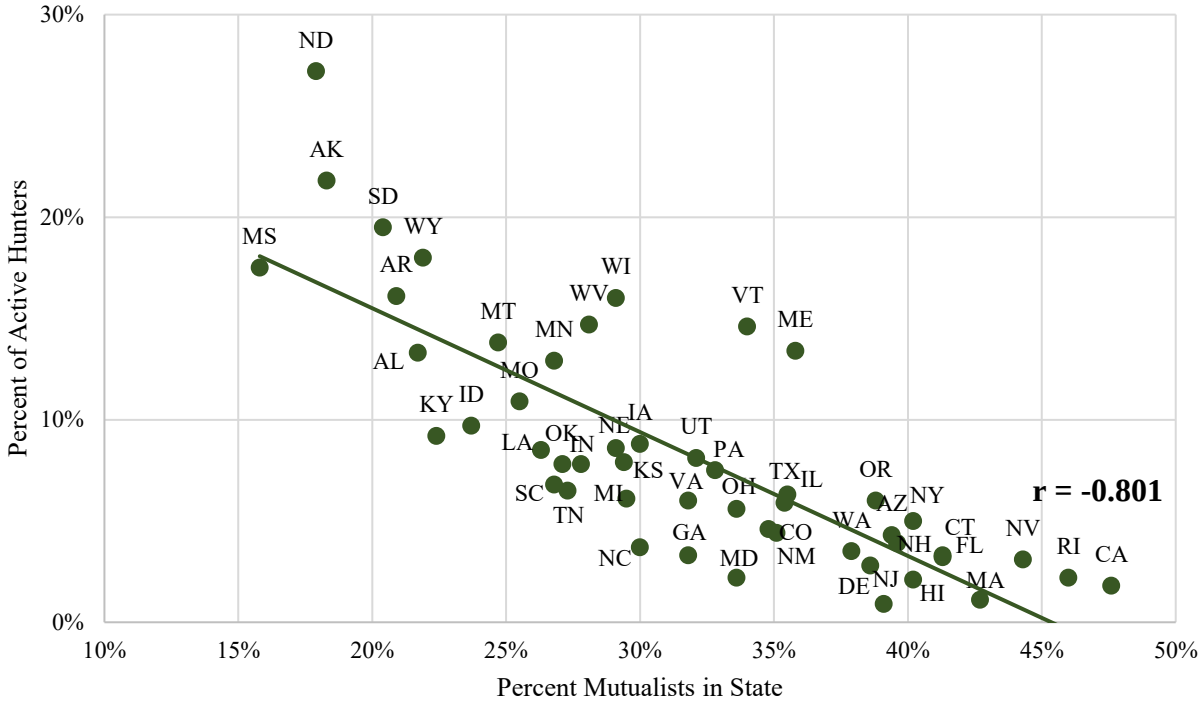


Figure 32: Percent Mutualists in state by percent of active hunters

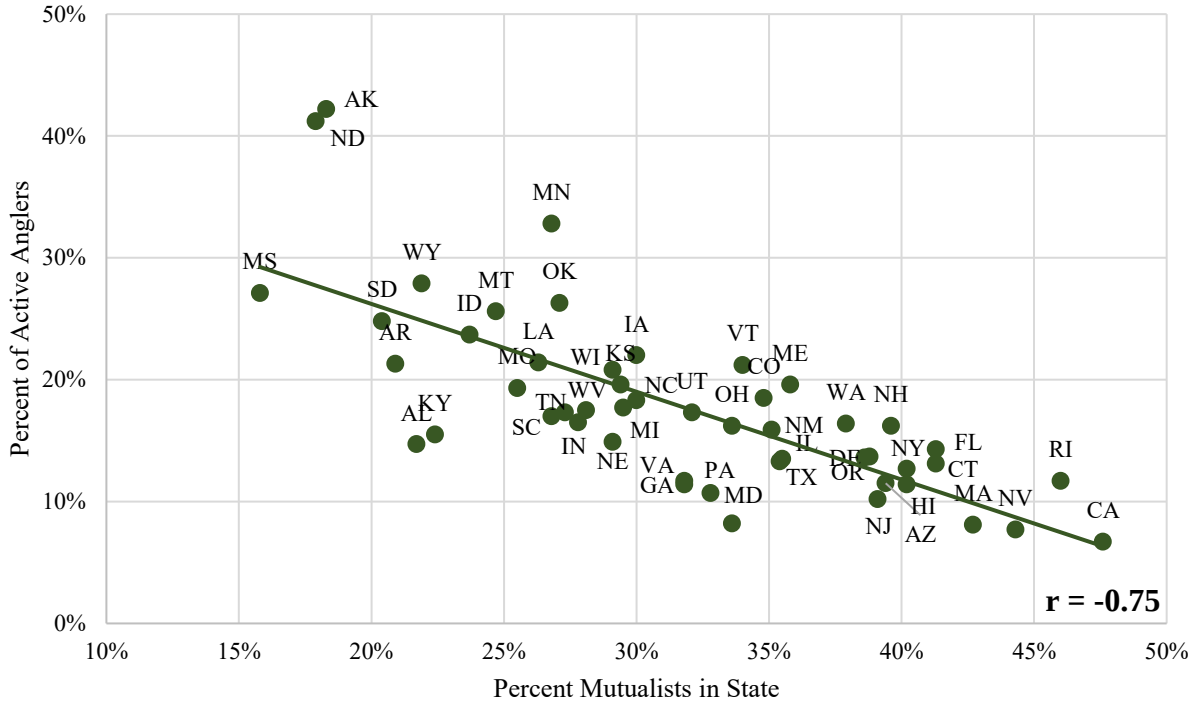


Active hunters = respondents who had hunted in the past and hunted in the past 12 months.

Figure 33: Percent Traditionalists in state by percent of active hunters

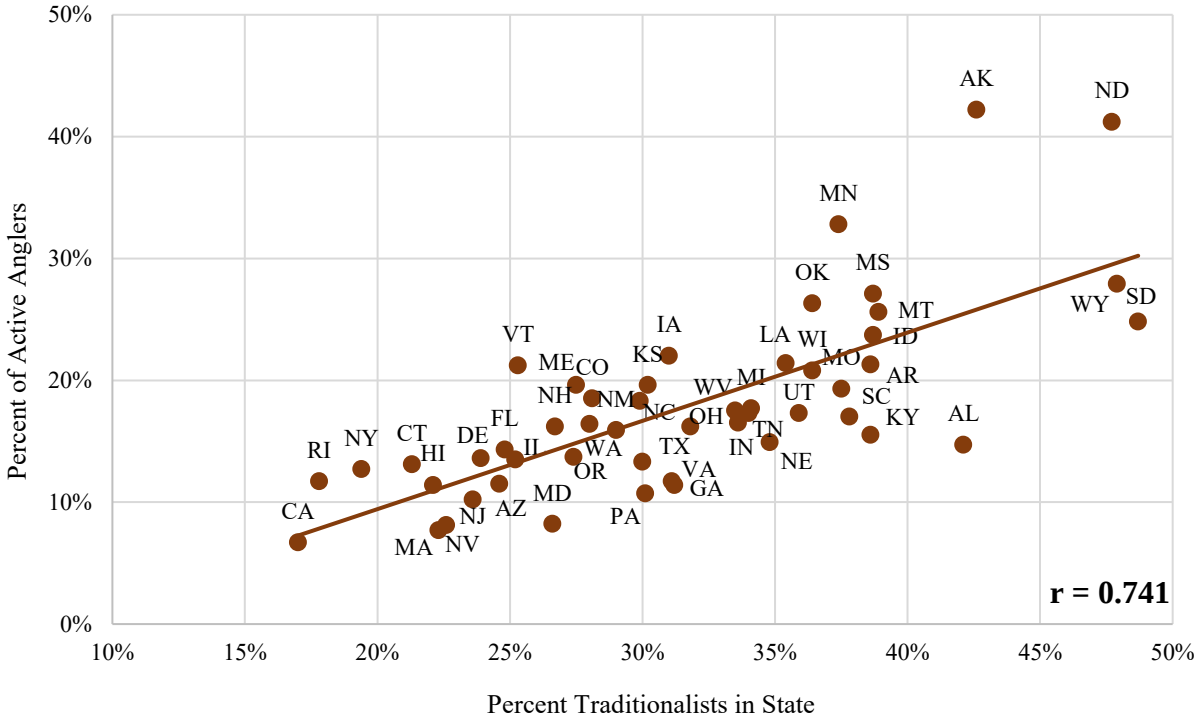
Active hunters = respondents who had hunted in the past and hunted in the past 12 months.

Figure 34: Percent Mutualists in state by percent of active anglers



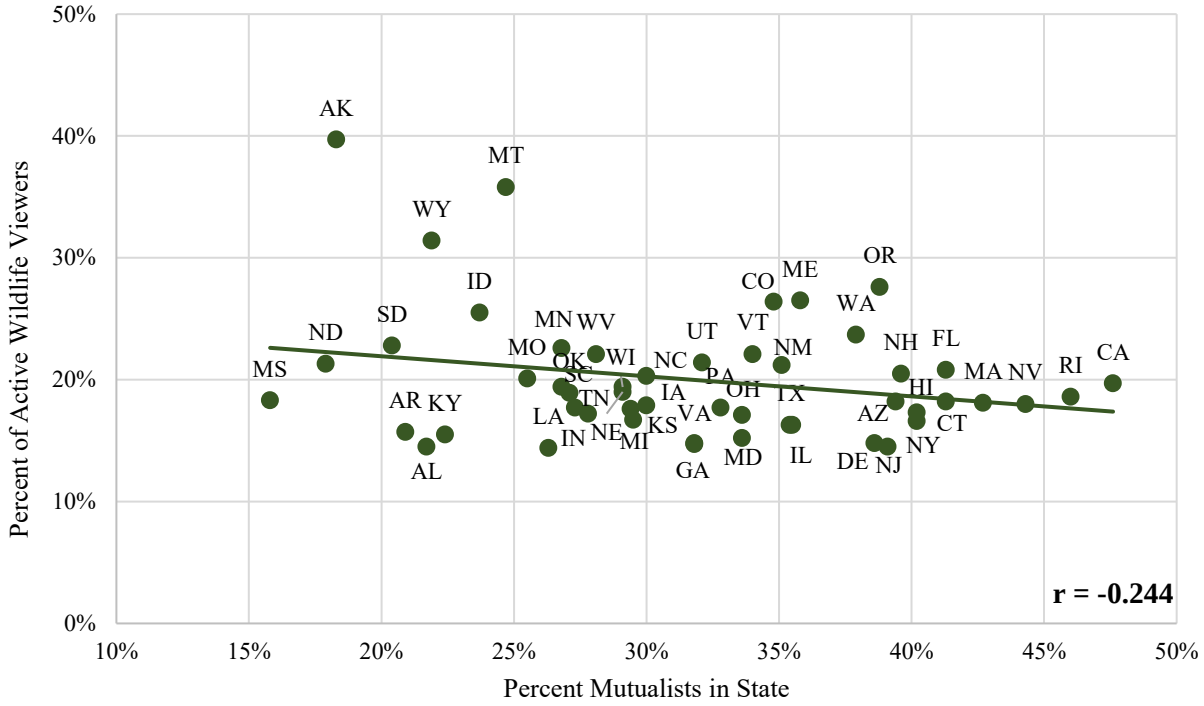
Active anglers = respondents who had fished in the past and fished in the past 12 months.

Figure 35: Percent Traditionalists in state by percent of active anglers



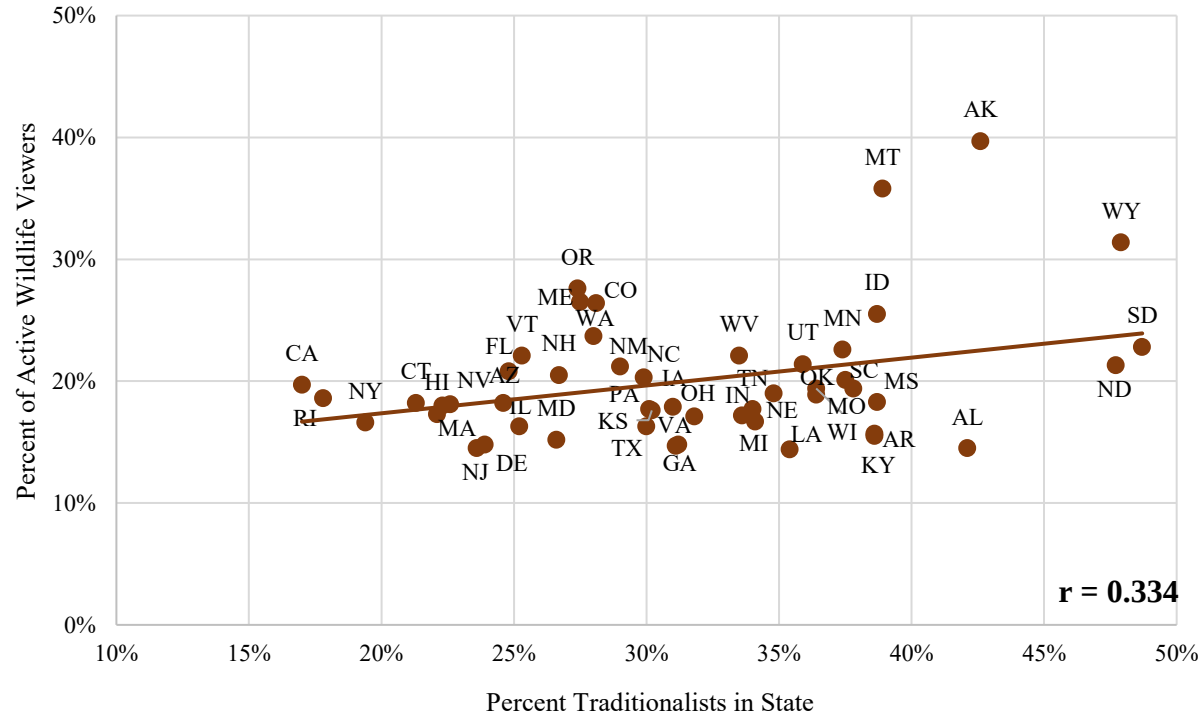
Active anglers = respondents who had fished in the past and fished in the past 12 months.

Figure 36: Percent Mutualists in state by percent of active wildlife viewers



Active wildlife viewers = respondents who had made wildlife-viewing trips in the past and in the past 12 months.

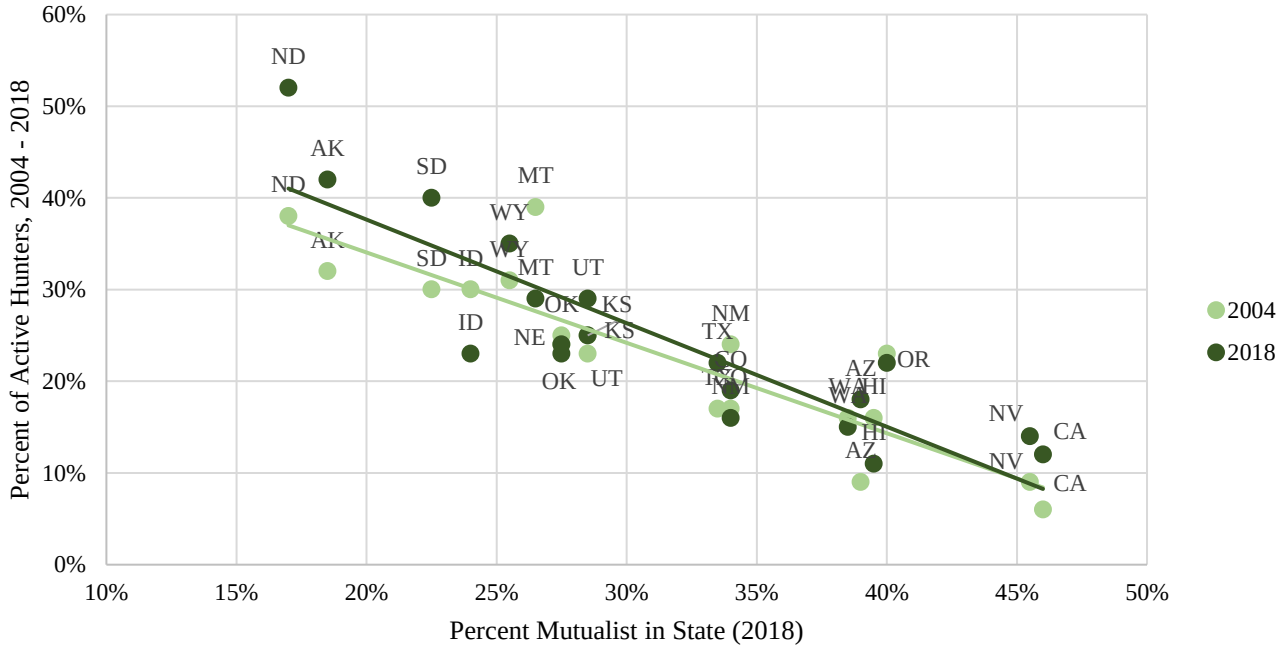
Figure 37: Percent Traditionalists in state by percent of active wildlife viewers



Active wildlife viewers = respondents who had made wildlife-viewing trips in the past and in the past 12 months.

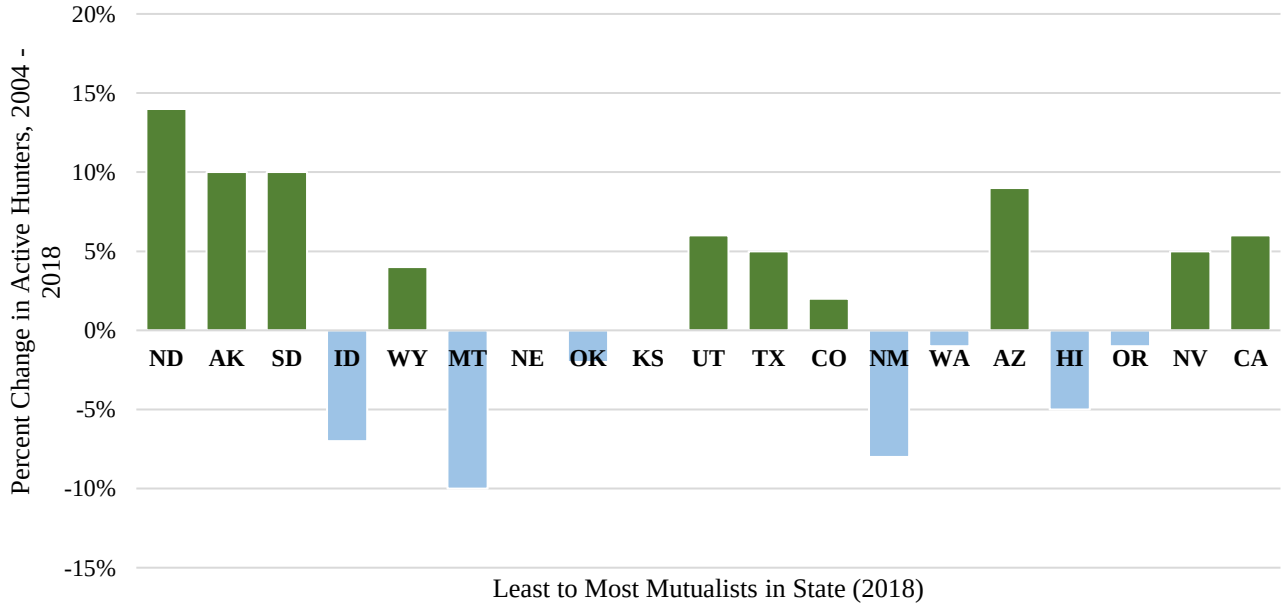
Figures 38 and 39 show the comparison in active hunting by percent Mutualists in a state between 2004 and 2018 for the states of the Western Association of Fish and Wildlife Agencies. Overall, the trend is very similar as it was in 2004, although the percent change varies somewhat by state.

Figure 38: Percent Mutualists in state by percent of active hunters in the West, 2004 to 2018



Active hunters = respondents who had hunted in the past and hunted in the past 12 months. 2018 data based on the average of the weighted mail and email panel data for the 19 western states.

Figure 39: Raw percent change in active hunters in the West, 2004 to 2018



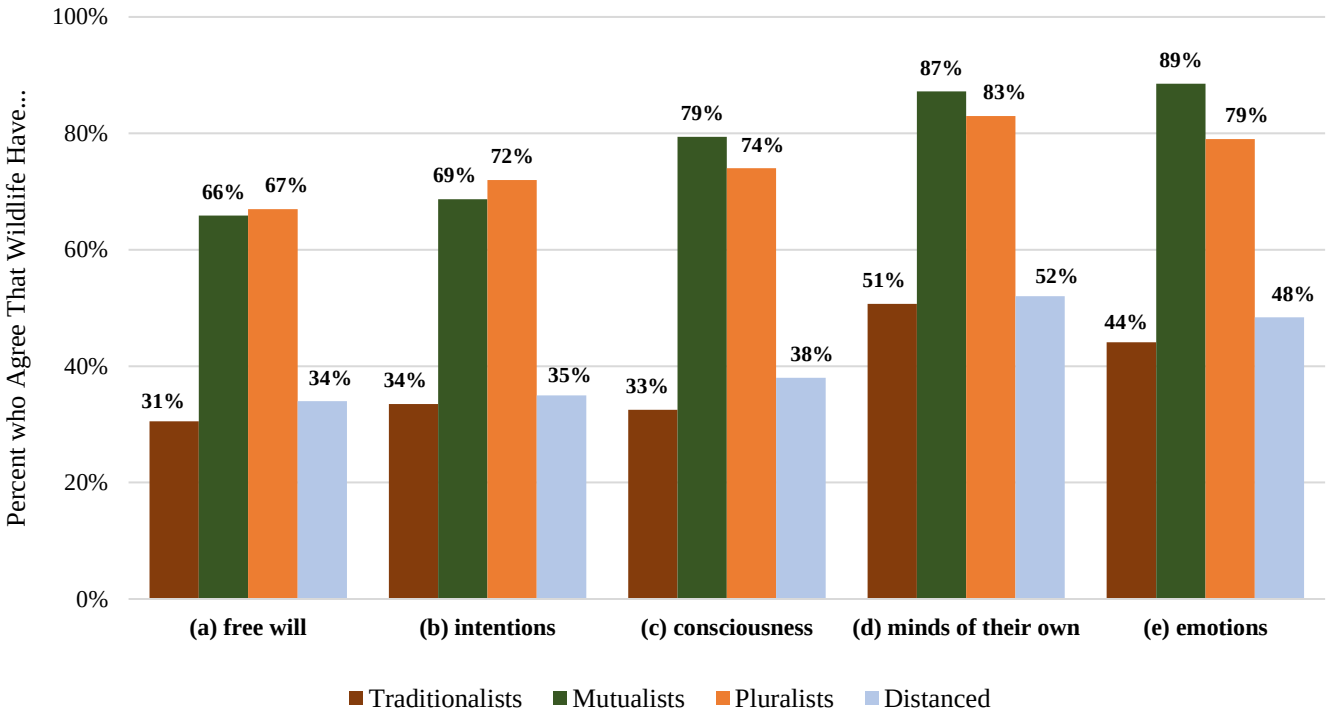
Active hunters = respondents who had hunted in the past and hunted in the past 12 months. 2018 data based on the average of the weighted mail and email panel data for the 19 western states.

An Important Link in Examining Value Shift: Increased Tendency to Anthropomorphize

Anthropomorphism is the human tendency to assign human characteristics, motives, behaviors, and abilities to non-human entities. This is quite common in reference to animals. Humans often refer to animals in anthropomorphic terms suggesting, for example, that animals are returning emotion or trying to outsmart them. Theory suggests that the tendency to anthropomorphize is a universal characteristic acquired because it gave humans an evolutionary advantage with regard to safety and pursuit of food by allowing us to predict animal behaviors (Mithen, 1996). Theory also suggests, that while the tendency to anthropomorphize is a universal human trait, cultural learning can suppress or shape this tendency (Urquiza-Haas & Kotrschal, In Review). Here we provide evidence to test the explanation that anthropomorphism is an essential ingredient in the transition to mutualist values in post-modernized societies (see Figure 1). With a domination orientation, anthropomorphic tendencies are shaped in ways that conform to a utilitarian view of wildlife. As modernization increases, and people have limited direct exposure to animals, it "unblocks" more basic anthropomorphic tendencies that then facilitates the shift toward mutualism (Manfredo, Urquiza-Haas, Don Carlos, & Bruskotter, In Process).

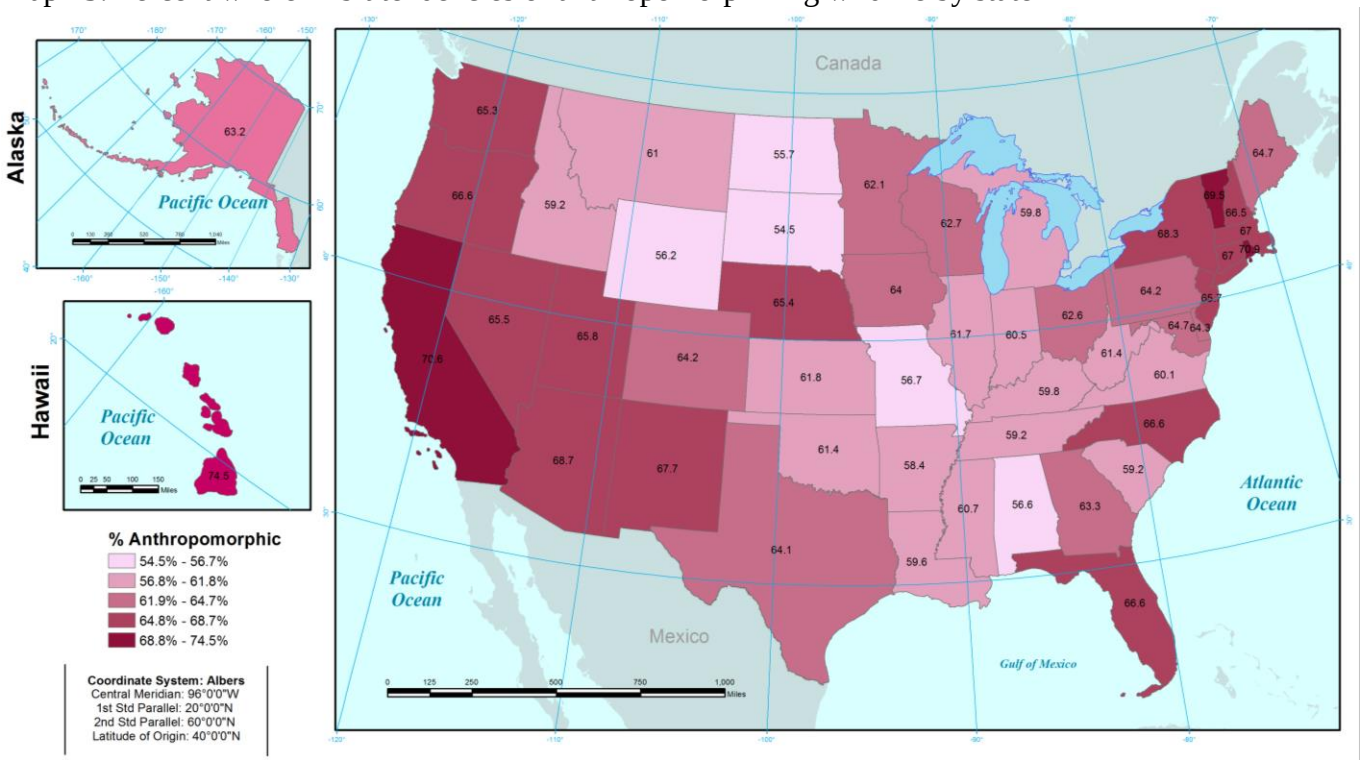
In the present study we used survey items developed by Waytz, Cacioppo, and Epley (2010) to measure the extent of anthropomorphic tendencies among individuals. We examined whether or not the tendency to anthropomorphize was associated with the rise in mutualism, and, as illustrated below, found strong evidence at both the individual level and across states that this is indeed the case. Across our national sample, 64.5% of respondents exhibited anthropomorphic tendencies. Figure 40 illustrates that, at the individual level, Mutualists show stronger anthropomorphic tendencies toward wildlife, followed closely by Pluralists. Traditionalists and Distanced individuals, however, are much less likely to anthropomorphize wildlife. These patterns are also clear across states, as seen in Map 25 and Figures 41 and 42. In states with a higher percentage of Mutualists, residents are more likely to exhibit anthropomorphic tendencies, while the opposite is true in states with a higher percentage of Traditionalists.

Figure 40: Agreement with anthropomorphism statements by wildlife value orientation type



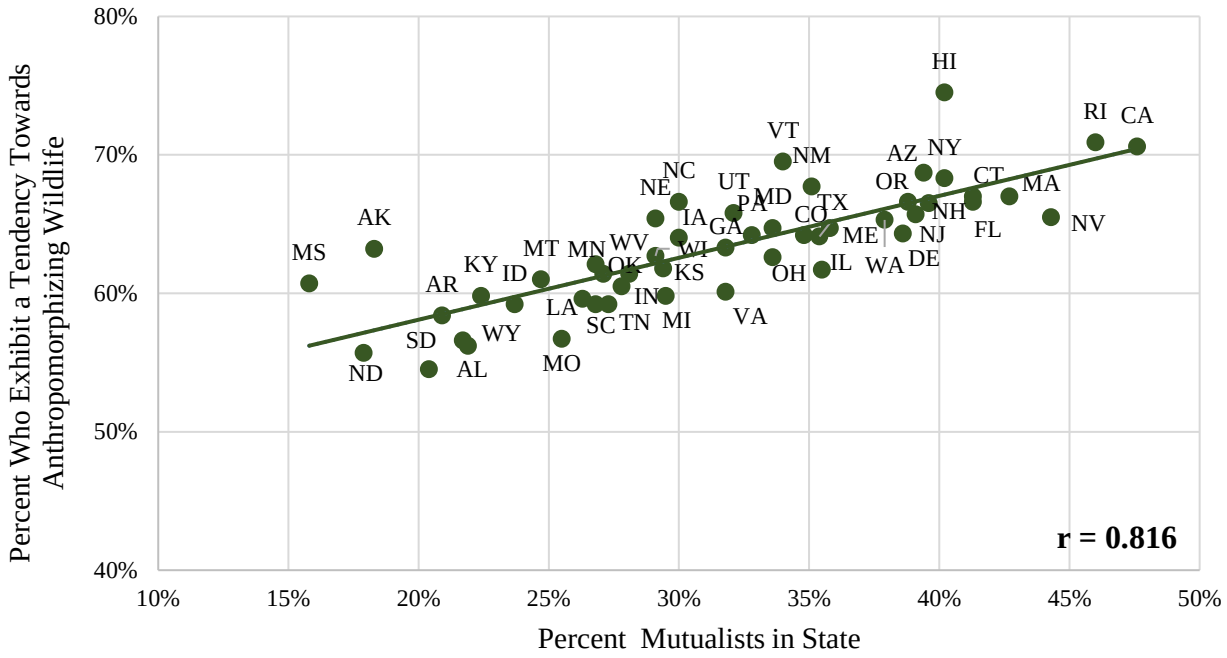
Agree= "slightly", "moderately", or "strongly" agree

Map 25: Percent who exhibit tendencies of anthropomorphizing wildlife by state



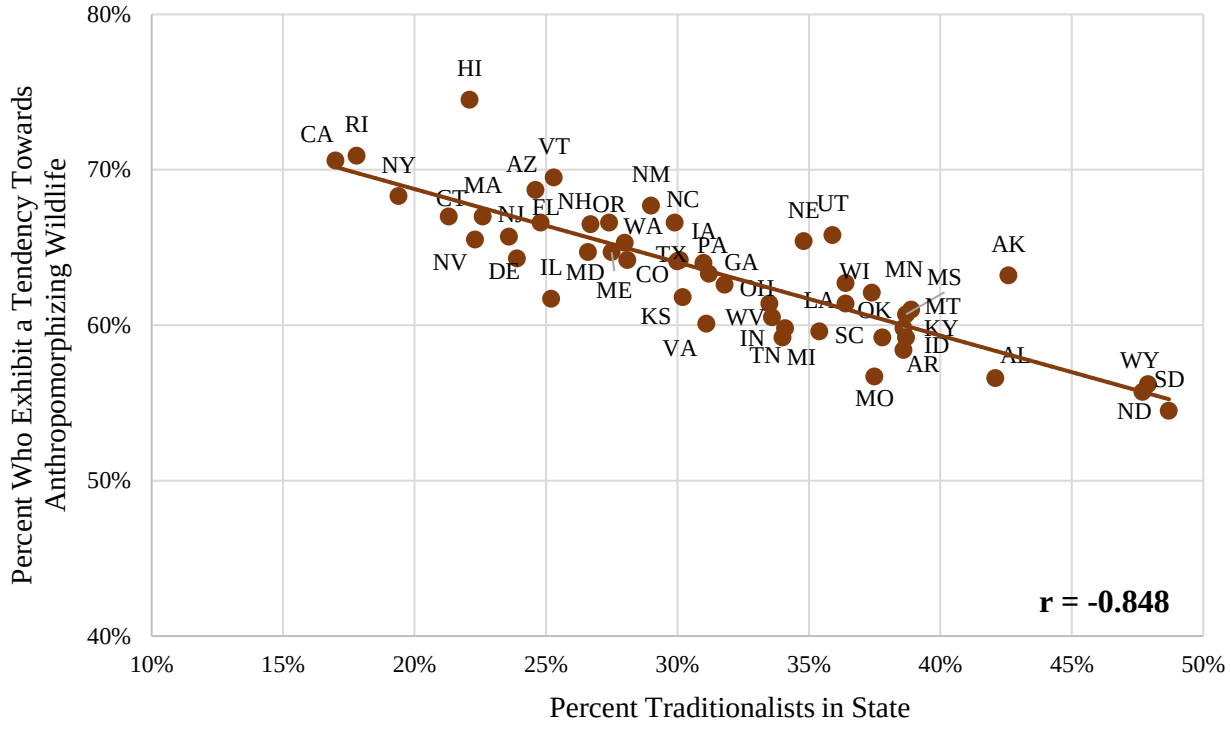
Anthropomorphism index = average of all items in Figure 40. Chart includes those who scored above the scale midpoint (4.50).

Figure 41: Percent Mutualists in state by percent who exhibit tendencies of anthropomorphizing wildlife



Anthropomorphism index = average of all items in Figure 40. Chart includes those who scored above the scale midpoint (4.50).

Figure 42: Percent Traditionalists in state by percent who anthropomorphize wildlife



Anthropomorphism index = average of all items in Figure 40. Chart includes those who scored above the scale midpoint (4.50).

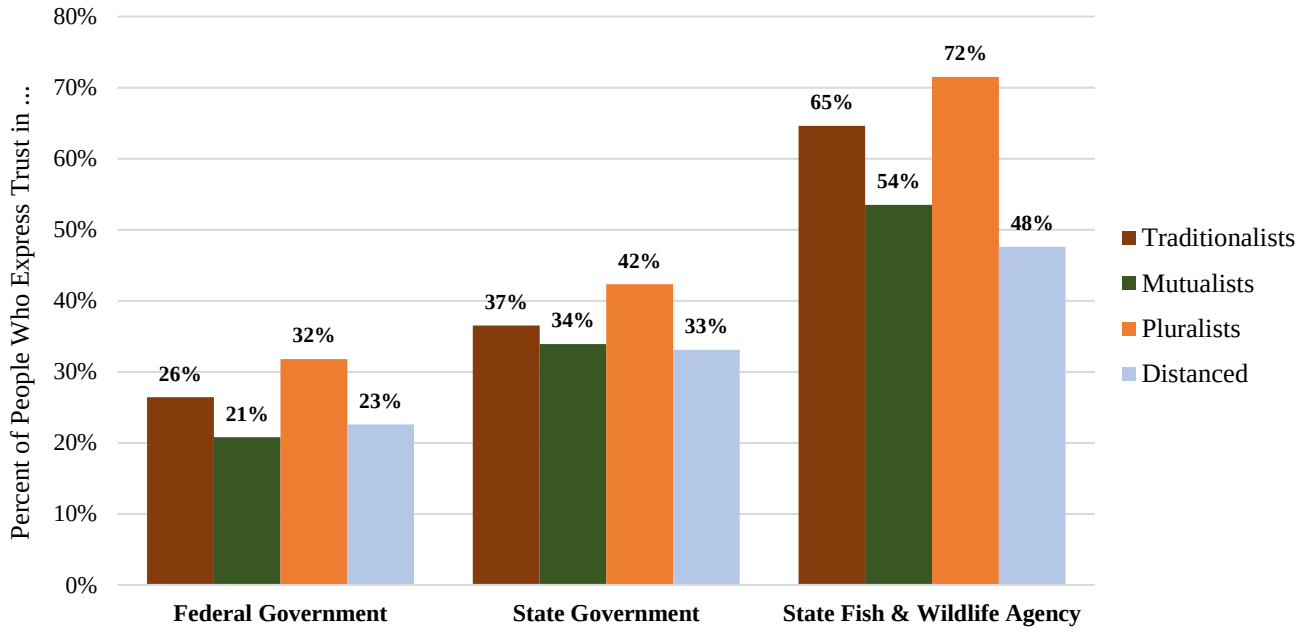
Value Shift in a Tug of War: Declines in Public Trust

Social change is rarely linear, and this appears to hold true for the current process of value shift. Recent findings from political science, psychology, and other disciplines illustrate resistance to the value shift of the 20th century from those who hold traditional values. These segments of the public often feel left behind by change and, as a result, have become increasingly vocal, discontent, and active in their defense of traditional values and lifestyles. This has in large part provided the foundation for the current trend toward global populism (Inglehart & Norris, 2016). This phenomenon, described as "cultural backlash", was examined in the context of fish and wildlife management using data from the 2004 *Wildlife Values in the West* study (Manfredo, Teel, Sullivan, & Dietsch, 2017). Findings suggest that those with traditional wildlife values have been "fighting back" against the rise of mutualist wildlife values and the institutions they viewed as supporting such a transition. While states with higher percentages of Mutualists had lower levels of trust in their state fish and wildlife agency, data indicated that this pattern was due in part to the response among residents with traditional values in those states. These results illustrate the challenge that managers will face amid a shift in values: Mutualists, who perceive themselves has holding different values than wildlife management institutions have lower overall levels of trust in the agencies tasked with management. However, as agencies attempt to be more inclusive and attentive to the diversity of wildlife values, they may also see declines in trust among their traditional constituents.

Findings in the current study also support this explanation. Figure 43 shows that across all value types, state fish and wildlife agencies have high levels of trust from the public. This is particularly the case when compared to trust in the federal government and state government. Across our national sample, we found that 25.1% of respondents expressed trust in their federal government, 36.3% expressed trust in their state government, and 59.6% expressed trust in their state fish and wildlife agency. Figures 44 and 45 show that trust in the agency varies across states (also see Map 26), and the composition of value types in the state plays an important role in explaining that. First, Figure 44 shows that the greater the percentage of Mutualists in a state, the lower the overall level of trust in the agency. Second, Figure 45 shows that Mutualists' levels of trust in the agency do not change as the overall proportion of Mutualists in a state increases (bottom line, in green). However, in line with our earlier findings from the 2004 data, trust in the agency does decline for Traditionalists as the percent of Mutualists in a state increases (top line, in brown). Table 7 provides more detail on differences between Mutualists and Traditionalists within each state.

Comparisons of trust measures from 2004 and 2018 for the western states involved in the *Wildlife Values in the West* study are shown in Figures 46-48. Findings indicate that, while trust in federal and state government has declined significantly in this time period, trust in state fish and wildlife agencies has, overall, remained constant. Differences in trust between the two study years vary by state, with trust in agencies declining at a slightly sharper rate with increased proportions of Mutualists in 2018 than in 2004 (Figure 47). The cause of differences over time, documented in greater detail in Tables 8-10, is hard to interpret on a state-by-state basis. The differences could be attributable to short-term effects such as contemporary issues in the news at the time of measurement or longer-term trends such as value shift and backlash. Certainly though, the basic trend that we observed in 2004, that increased mutualism in a state is tied to lower trust, holds in 2018.

Figure 43: Public trust in governing institutions across the U.S. by wildlife value orientation type



Trust = "most of the time" or "almost always". Full statement texts: *Overall, to what extent do you trust…*
...your federal government to do what is right for your country?
...your state government to do what is right for your state?
...your state fish and wildlife agency to do what is right for fish and wildlife management in your state?

Map 26: Percent who express trust in their state fish and wildlife agency by state

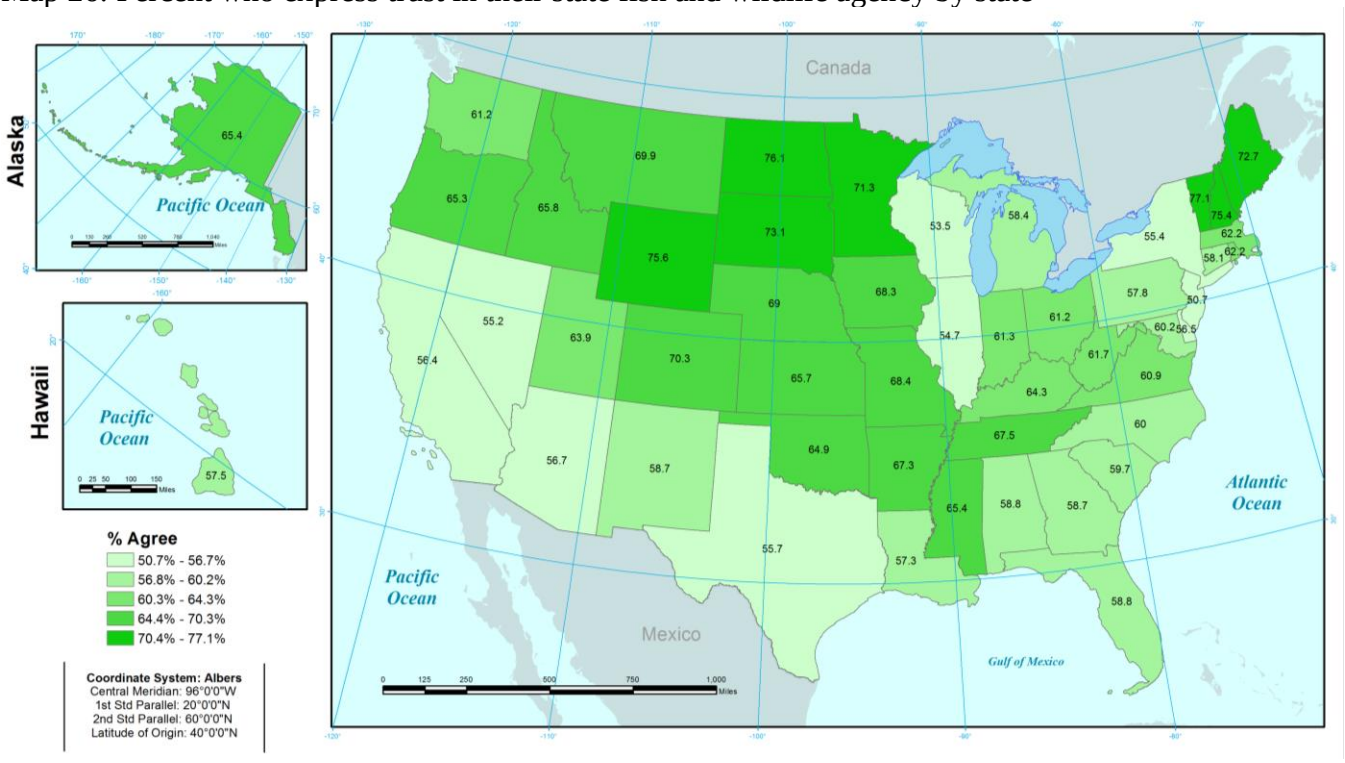
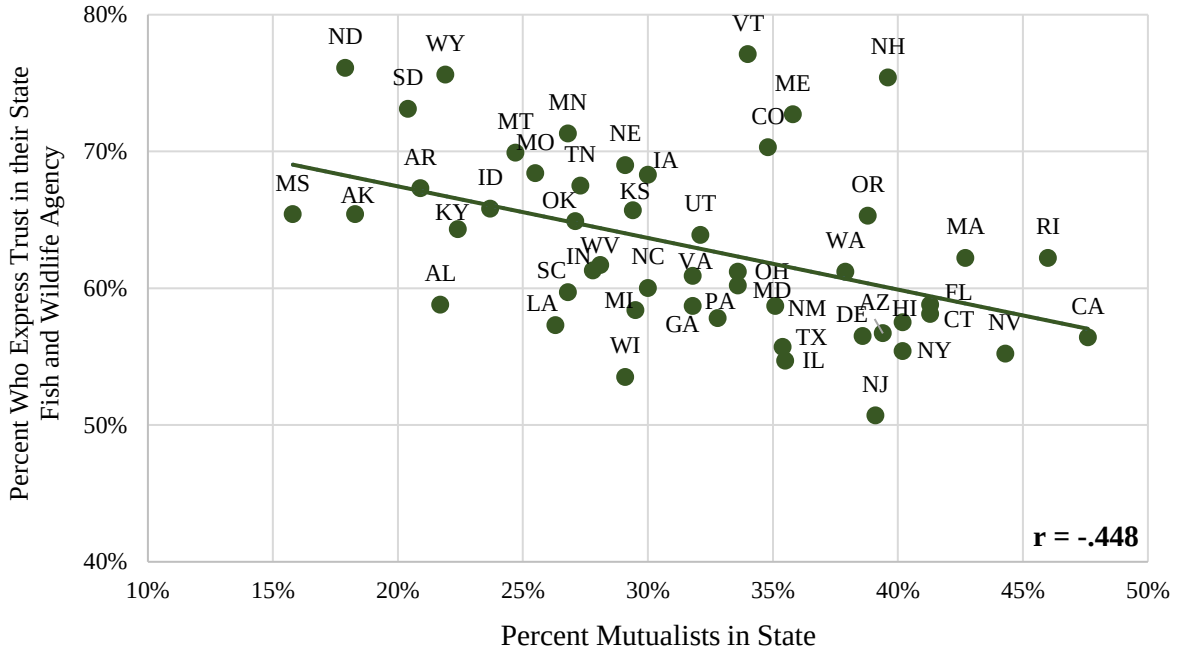
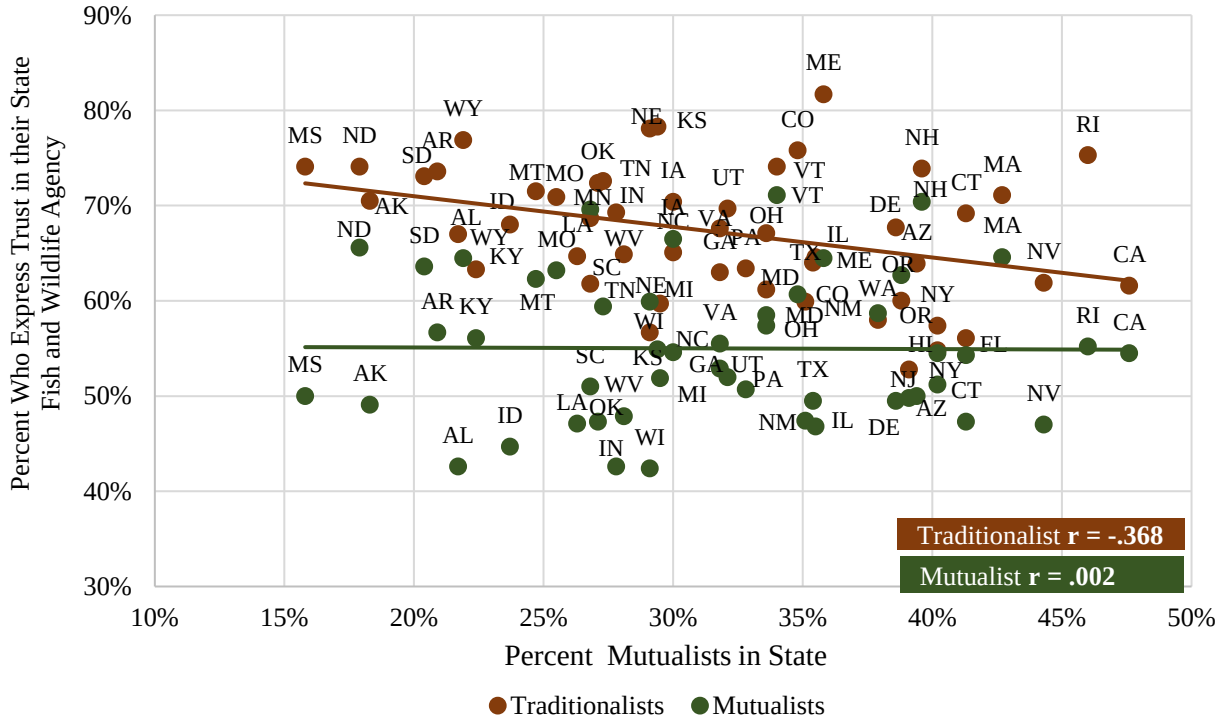


Figure 44: Percent Mutualists in state by percent who express trust in their state fish and wildlife agency



Trust = "most of the time" or "almost always". Full statement text: *Overall, to what extent do you trust your state fish and wildlife agency to do what is right for fish and wildlife management in your state?*

Figure 45: Percent Mutualists in state by percent who express trust in their state fish and wildlife agency, for Traditionalists and Mutualists



Trust = "most of the time" or "almost always". Full statement text: *Overall, to what extent do you trust your state fish and wildlife agency to do what is right for fish and wildlife management in your state?*

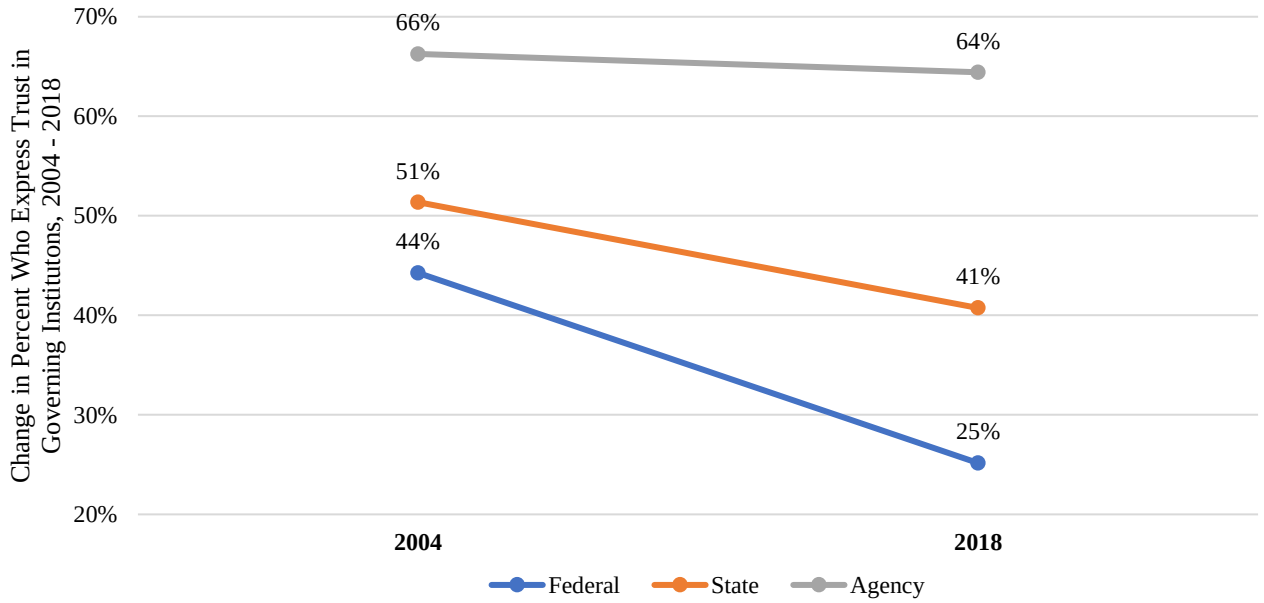
Table 7: Differences in public trust toward state fish and wildlife agencies between Traditionalists and Mutualists

State	Trust Among Traditionalists	Trust Among Mutualists	Difference
Alabama	67.0%	42.6%	24.4%
Alaska	70.5%	49.1%	21.4%
Arizona	63.9%	50.0%	13.9%
Arkansas	73.6%	56.7%	16.9%
California	61.6%	54.5%	7.1%
Colorado	75.8%	60.7%	15.1%
Connecticut	69.2%	47.3%	21.9%
Delaware	67.7%	49.5%	18.2%
Florida	56.1%	54.3%	1.8%
Georgia	63.0%	52.9%	10.1%
Hawaii	54.8%	54.5%	0.3%
Idaho	68.0%	44.7%	23.3%
Illinois	64.6%	46.8%	17.8%
Indiana	69.3%	42.6%	26.7%
Iowa	70.4%	66.5%	3.9%
Kansas	78.3%	54.9%	23.4%
Kentucky	63.3%	56.1%	7.2%
Louisiana	64.7%	47.1%	17.6%
Maine	81.7%	64.5%	17.2%
Maryland	61.2%	58.5%	2.7%
Massachusetts	71.1%	64.6%	6.5%
Michigan	59.7%	51.9%	7.8%
Minnesota	68.7%	69.6%	-0.9%
Mississippi	74.1%	50.0%	24.1%
Missouri	70.9%	63.2%	7.7%
Montana	71.5%	62.3%	9.2%
Nebraska	78.1%	59.9%	18.2%
Nevada	61.9%	47.0%	14.9%
New Hampshire	73.9%	70.4%	3.5%
New Jersey	52.8%	49.8%	3.0%
New Mexico	59.9%	47.4%	12.5%
New York	57.4%	51.2%	6.2%
North Carolina	65.1%	54.6%	10.5%
North Dakota	74.1%	65.6%	8.5%
Ohio	67.1%	57.4%	9.7%
Oklahoma	72.4%	47.3%	25.1%
Oregon	60.0%	62.7%	-2.7%
Pennsylvania	63.4%	50.7%	12.7%
Rhode Island	75.3%	55.2%	20.1%
South Carolina	61.8%	51.0%	10.8%
South Dakota	73.1%	63.6%	9.5%

State	Trust Among Traditionalists	Trust Among Mutualists	Difference
Tennessee	72.6%	59.4%	13.2%
Texas	64.0%	49.5%	14.5%
Utah	69.7%	52.0%	17.7%
Vermont	74.1%	71.1%	3.0%
Virginia	67.6%	55.5%	12.1%
Washington	58.0%	58.7%	-0.7%
West Virginia	64.9%	47.9%	17.0%
Wisconsin	56.7%	42.4%	14.3%
Wyoming	76.9%	64.5%	12.4%

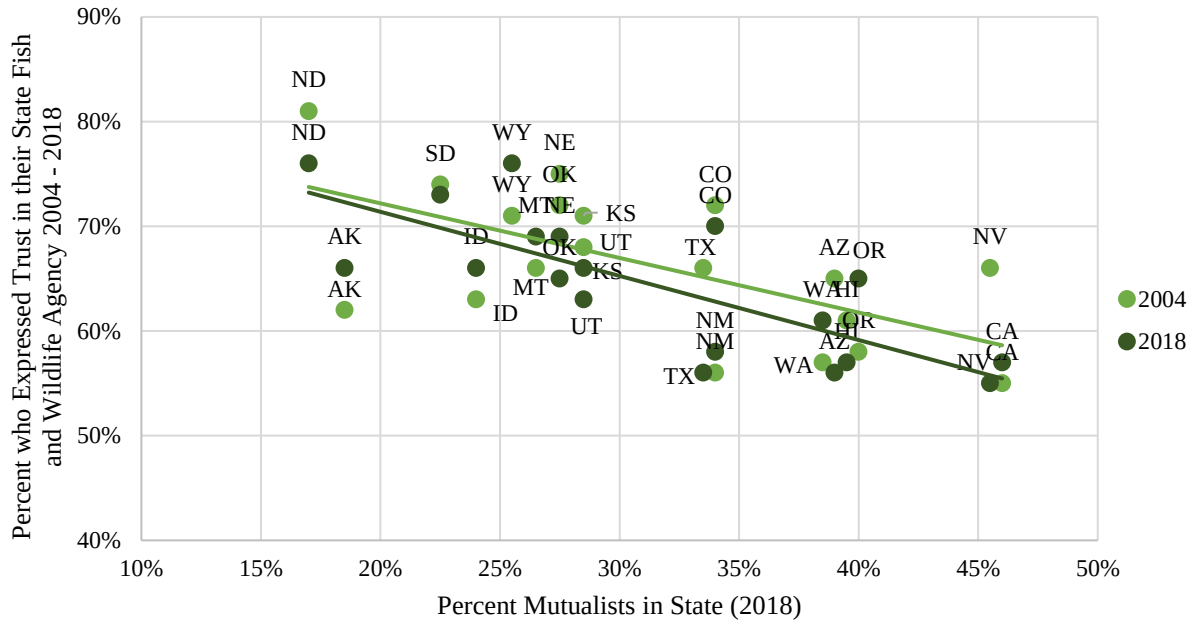
Trust = "most of the time" or "almost always". Full statement text: *Overall, to what extent do you trust your state fish and wildlife agency to do what is right for fish and wildlife management in your state?*

Figure 46: Average percent change in public trust for the federal government, state government, and state fish and wildlife agencies in the western states, 2004 to 2018



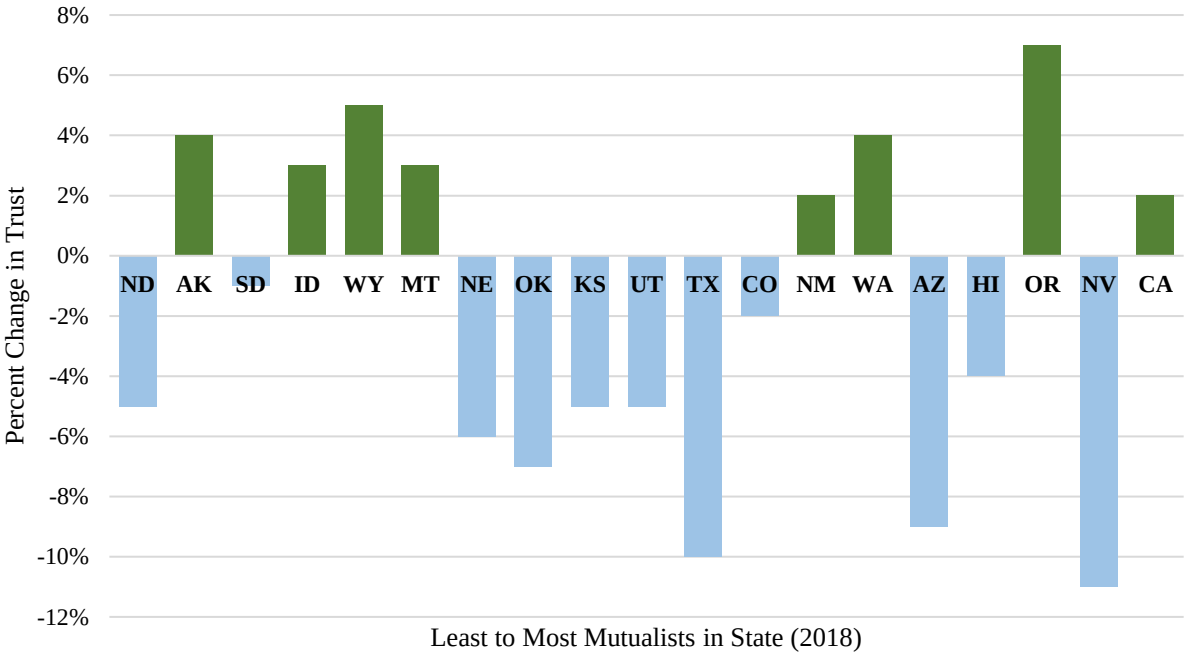
Trust = "most of the time" or "almost always", based on data provided in Tables 8-10. 2018 data based on the average of the weighted mail and email panel data for the 19 western states. Full statement texts: *Overall, to what extent do you trust…*
…your federal government to do what is right for your country?
…your state government to do what is right for your state?
…your state fish and wildlife agency to do what is right for fish and wildlife management in your state?

Figure 47: Percent Mutualists in state by percent who expressed trust in their state fish and wildlife agency, 2004 to 2018



Trust = "most of the time" or "almost always". 2018 data based on the average of the weighted mail and email panel data for the 19 western states. Full statement text: *Overall, to what extent do you trust your state fish and wildlife agency to do what is right for fish and wildlife management in your state?*

Figure 48: Percent change in public trust in state fish and wildlife agencies, 2004 to 2018



Trust = "most of the time" or "almost always". 2018 data based on the average of the weighted mail and email panel data for the 19 western states. Full Statement text: *Overall, to what extent do you trust your state fish and wildlife agency to do what is right for fish and wildlife management in your state?*

Table 8: Change in public trust in the federal government by state, 2004 to 2018

State	Federal Trust 2004	Federal Trust 2018	Percent Change in Trust, 2004 to 2018
Alaska	41%	29%	-12%
Arizona	46%	26%	-20%
California	37%	25%	-12%
Colorado	39%	23%	-16%
Hawaii	47%	30%	-17%
Idaho	45%	27%	-18%
Kansas	48%	26%	-22%
Montana	41%	22%	-19%
Nebraska	50%	28%	-22%
Nevada	45%	23%	-22%
New Mexico	41%	23%	-18%
North Dakota	52%	30%	-22%
Oklahoma	51%	27%	-24%
Oregon	30%	20%	-10%
South Dakota	49%	22%	-27%
Texas	48%	27%	-21%
Utah	53%	25%	-28%
Washington	33%	20%	-13%
Wyoming	45%	25%	-20%

Trust = "most of the time" or "almost always". 2018 data based on the average of the weighted mail and email panel data.
Full statement text: *Overall, to what extent do you trust your federal government to do what is right for your country?*

Table 9: Change in public trust in state governments by state, 2004 to 2018

State	State Trust 2004	State Trust 2018	Percent Change in Trust, 2004 to 2018
Alaska	43%	40%	-3%
Arizona	47%	31%	-16%
California	38%	45%	+7%
Colorado	49%	48%	-1%
Hawaii	43%	39%	-4%
Idaho	58%	39%	-19%
Kansas	52%	31%	-21%
Montana	46%	43%	-3%
Nebraska	60%	46%	-14%
Nevada	52%	34%	-18%
New Mexico	37%	27%	-10%
North Dakota	69%	55%	-14%
Oklahoma	51%	24%	-27%
Oregon	44%	45%	+1%
South Dakota	70%	50%	-20%
Texas	48%	37%	-11%
Utah	63%	41%	-22%
Washington	43%	44%	+1%
Wyoming	63%	55%	-8%

Trust = "most of the time" or "almost always". 2018 data based on the average of the weighted mail and email panel data.
Full statement text: *Overall, to what extent do you trust your state government to do what is right for your state?*

Table 10: Change in public trust in state fish and wildlife agencies by state, 2004 to 2018

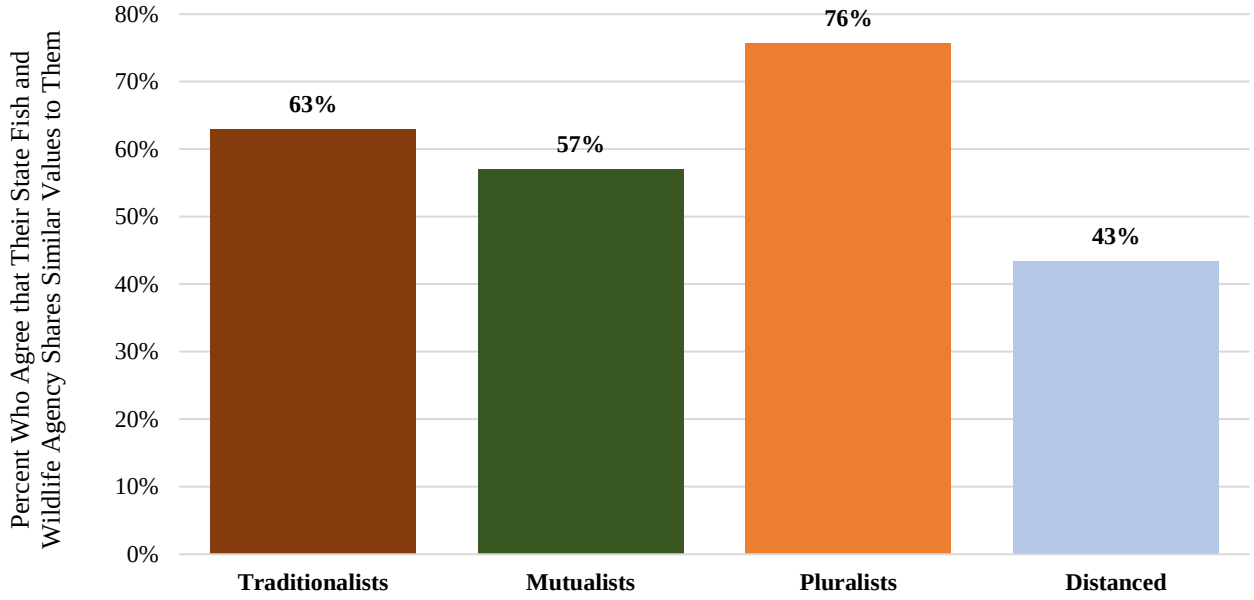
State	Agency Trust 2004	Agency Trust 2018	Percent Change in Trust, 2004 to 2018
Alaska	62%	66%	+4%
Arizona	65%	56%	-9%
California	55%	57%	+2%
Colorado	72%	70%	-2%
Hawaii	61%	57%	-4%
Idaho	63%	66%	+3%
Kansas	71%	66%	-5%
Montana	66%	69%	+3%
Nebraska	75%	69%	-6%
Nevada	66%	55%	-11%
New Mexico	56%	58%	+2%
North Dakota	81%	76%	-5%
Oklahoma	72%	65%	-7%
Oregon	58%	65%	+7%
South Dakota	74%	73%	-1%
Texas	66%	56%	-10%
Utah	68%	63%	-5%
Washington	57%	61%	+4%
Wyoming	71%	76%	+5%

Trust = "most of the time" or "almost always". 2018 data based on the average of the weighted mail and email panel data.
Full statement text: *Overall, to what extent do you trust your state fish and wildlife agency to do what is right for fish and wildlife management in your state?*

Perceived Value Similarity as a Driver of Public Trust

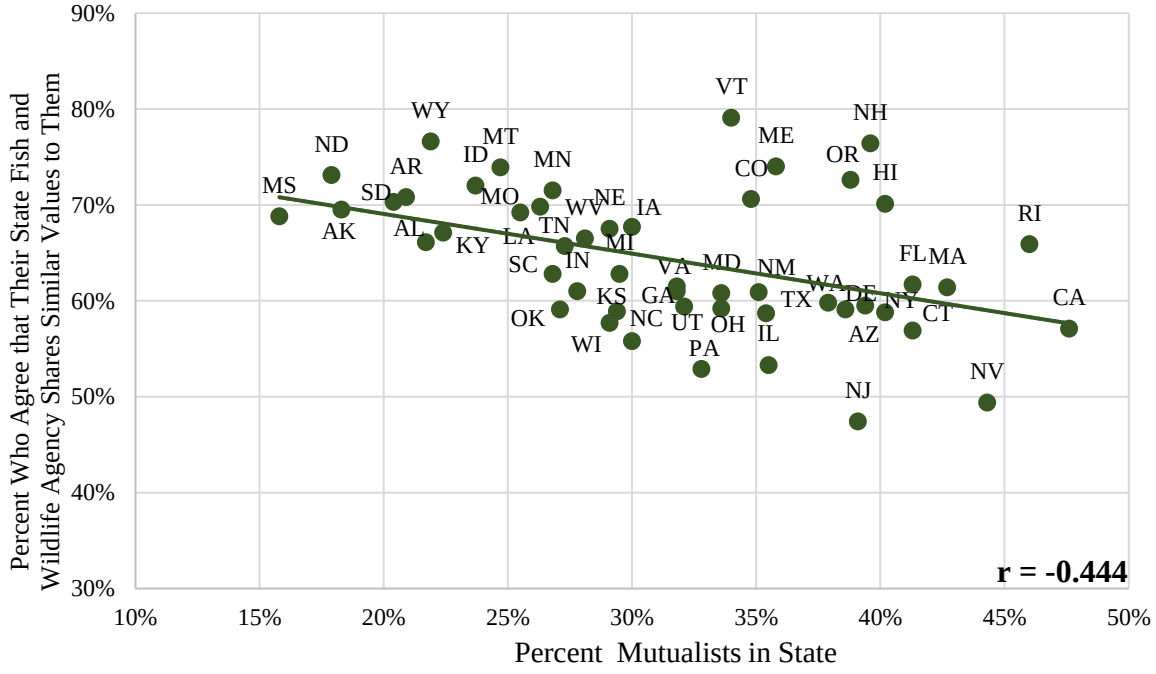
Research into political trust in recent decades has highlighted that, in some instances, public trust may be linked to a perception of shared values between the public and the agencies in question (Stern & Coleman, 2015). As such, we tested to see whether respondents across the 50 states expressed agreement with the statement "with regard to the management of fish and wildlife, I feel that my state fish and wildlife agency shares similar values to me." Findings are presented in Figures 49-51. Across our national sample, 60.5% of respondents agreed with this item. By looking across states, results indicate that patterns appear similar to those found in public trust. Specifically, in more mutualist states, perceptions of shared values decline. However, such declines appear to primarily represent a decline among Traditionalists, which may further illustrate the concept of cultural backlash.

Figure 49: Percent who agree that their state fish and wildlife agency shares similar values to them by wildlife value orientation type



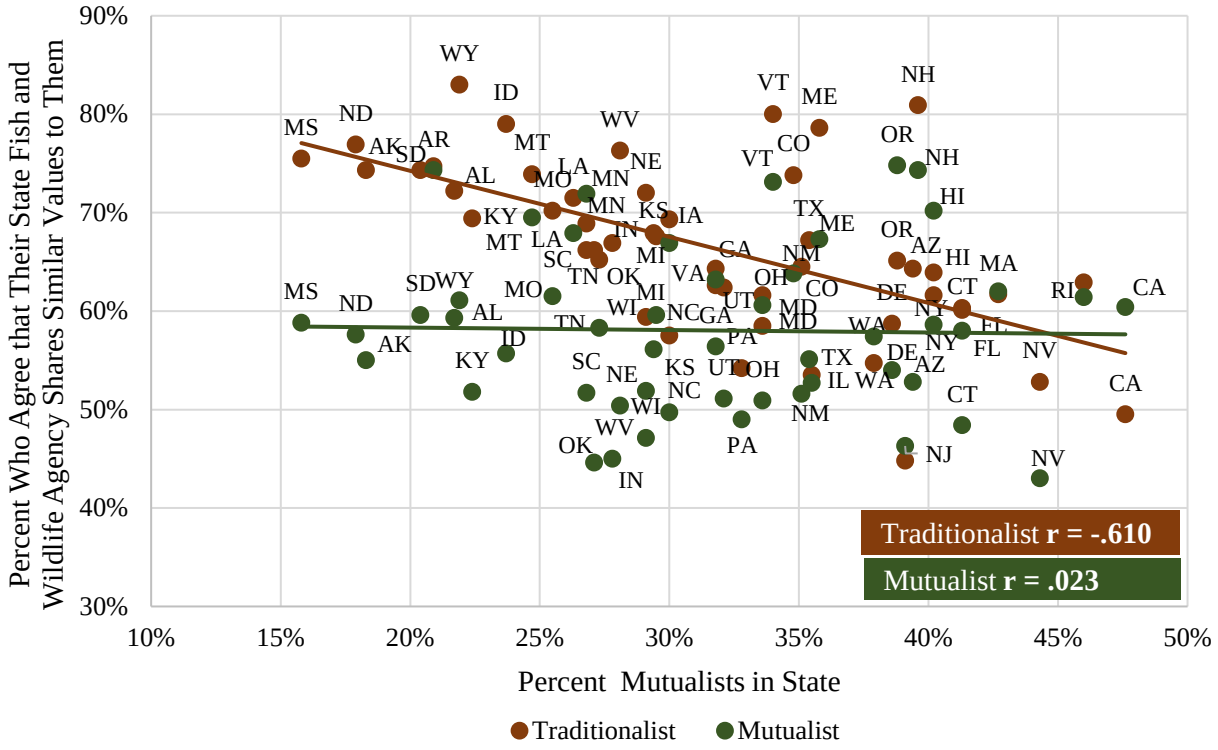
Agreement = "slightly" or "strongly" agree. Full statement text: *With respect to the management of fish and wildlife, I feel that my state fish and wildlife agency shares similar values to me.*

Figure 50: Percent Mutualists in state by percent who agree that their state fish and wildlife agency shares similar values to them



Agreement = "slightly" or "strongly" agree. Full statement text: *With respect to the management of fish and wildlife, I feel that my state fish and wildlife agency shares similar values to me.*

Figure 51: Percent Mutualists in state by percent who agree that their state fish and wildlife agency shares similar values to them, for Traditionalists and Mutualists



Agreement = "slightly" or "strongly" agree. Full statement text: *With respect to the management of fish and wildlife, I feel that my state fish and wildlife agency shares similar values to me.*

Agency Culture in the Context of Value Shift

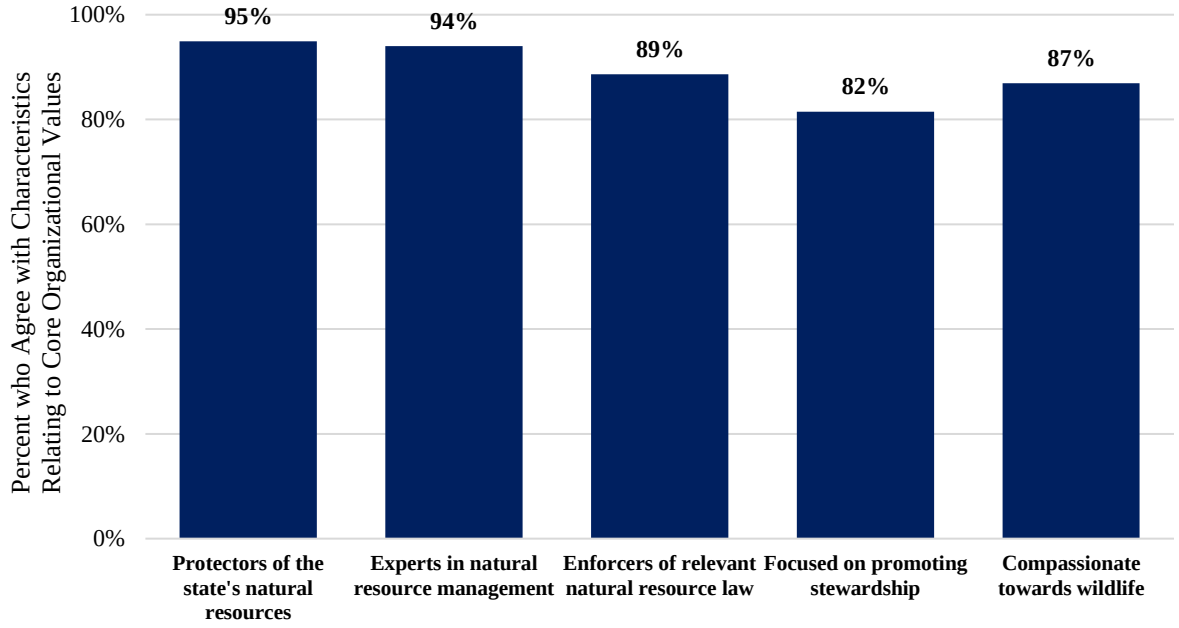
The primary purpose of the agency culture survey was to capture characteristics of each state fish and wildlife agency including its unifying purpose, governance characteristics such as adaptability and accountability, its normative power to achieve conformity, its normative decision approach, and the wildlife values profile of the agency. In this section, we first look at the unifying characteristics of the agency as well as management models that highlight the differences among agencies. We then examine how changing public values may be affecting agency characteristics.

Exploring the Unifying Mission of State Fish and Wildlife Agencies

Our study found that, across states, employees of state fish and wildlife agencies share a unified vision for their agency's mission that centers around protecting natural resources, serving as management experts and enforcers of natural resource law, promoting stewardship, and showing compassion toward wildlife (Figure 52). High percentages of employees agree that these are characteristics of their agency. These characteristics appear to serve as the foundation of fish and wildlife agency culture across states and illustrate the strength of organizational culture as superseding individual differences among agency employees. There is also strong normative pressure as evidenced by high percentages of people wanting to be seen as model employees and committing to upholding the agency's values (Figure 53). Such a unified culture of fish and wildlife agencies has many benefits for

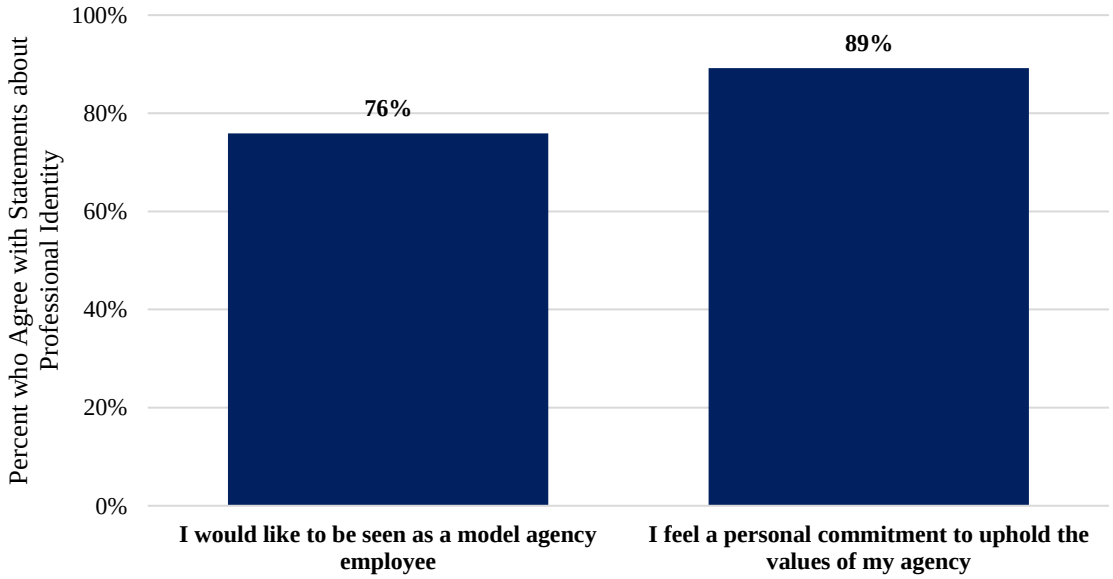
management, including ensuring that employees are working toward the same goals and providing stability to organizations that manage natural resources in a context of rapid ecological change.

Figure 52: Percent of agency personnel who agree with statements about agency characteristics related to core organizational values



Agreement = "somewhat" or "very characteristic of my agency".

Figure 53: Percent of agency personnel who agree with statements indicating normative conformity



Agreement = "slightly" or "strongly" agree.

Exploring Differences in Fish and Wildlife Governance Styles

While our findings illustrate a strong unifying mission behind fish and wildlife management across agencies, agencies do differ across states in some important ways. Items on the survey were used to create a scale that captures the different management focuses of agencies. This scale classifies agencies along a continuum, where at one end the majority of employees view their agency as placing priority on a clientele model of management (Figure 54). This model centers around attending to stakeholders and providing recreational opportunities. At the other end of the scale, the majority of employees view the agency as prioritizing an expert model of management that focuses on sound science and meeting the needs of fish and wildlife. As shown in Figure 55, there are considerable differences across states on this continuum. The reader should note that our classification is based on the percentage of employees within an agency who see the agency as having characteristics of one type or another. There are no cases where 100% of employees classify a state as one type or another, underscoring the fact that there is variability in how the agency culture is regarded by its employees.

Beyond classification of management styles, we were interested in knowing how the value composition of the agency may influence perceptions of these different approaches to management. Figure 56 illustrates that the average score on the mutualism scale (from 1 – not at all mutualist to 7 – very mutualist) within an agency relates to the percent of agency employees who view their agency as prioritizing an expert model, as well as to employee perceptions of adaptability and accountability. Findings indicate that, while no agency has an average score that falls on the positive side of the mutualism scale (i.e., above the 4.5 scale midpoint; see Teel and Manfredo [2009]), agencies with higher mutualism scores have more employees who view their agency as prioritizing an expert model.

Figure 54: Ideal type models of wildlife management

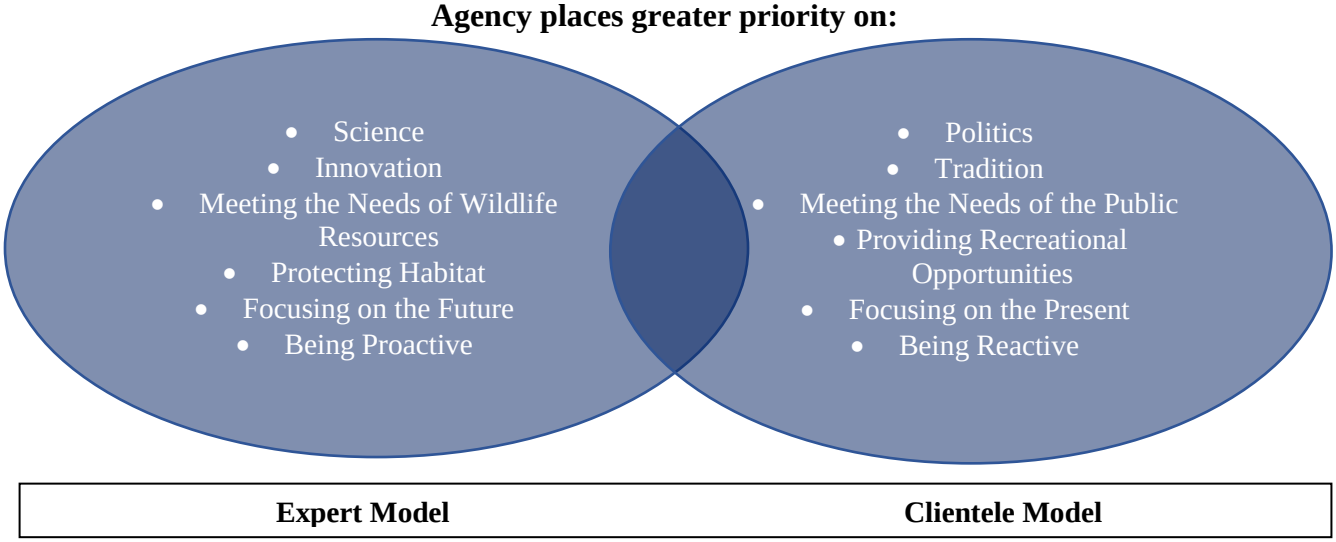


Figure 55: Percent of agency personnel by state who view the agency as prioritizing an expert model of management or a clientele model of management

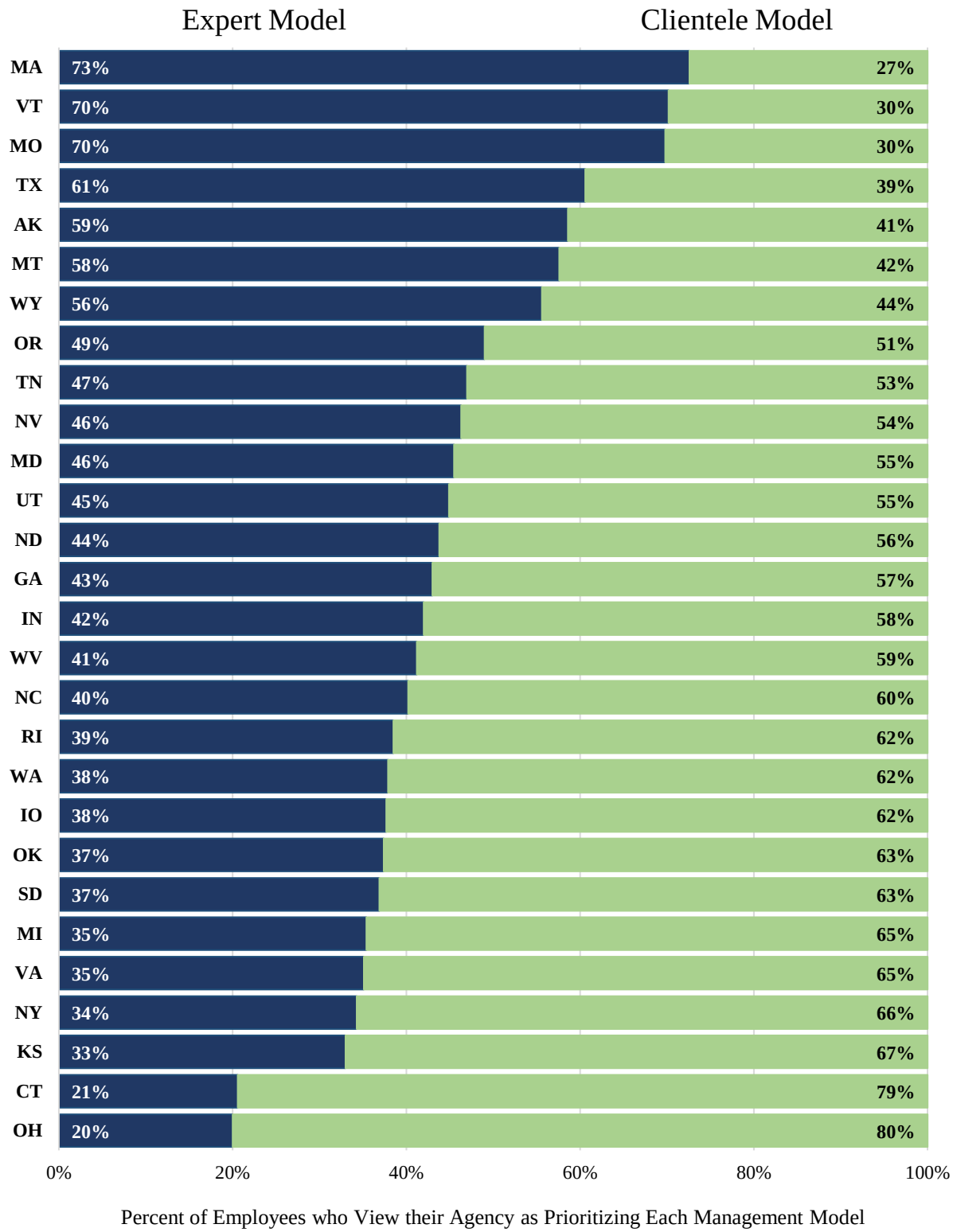


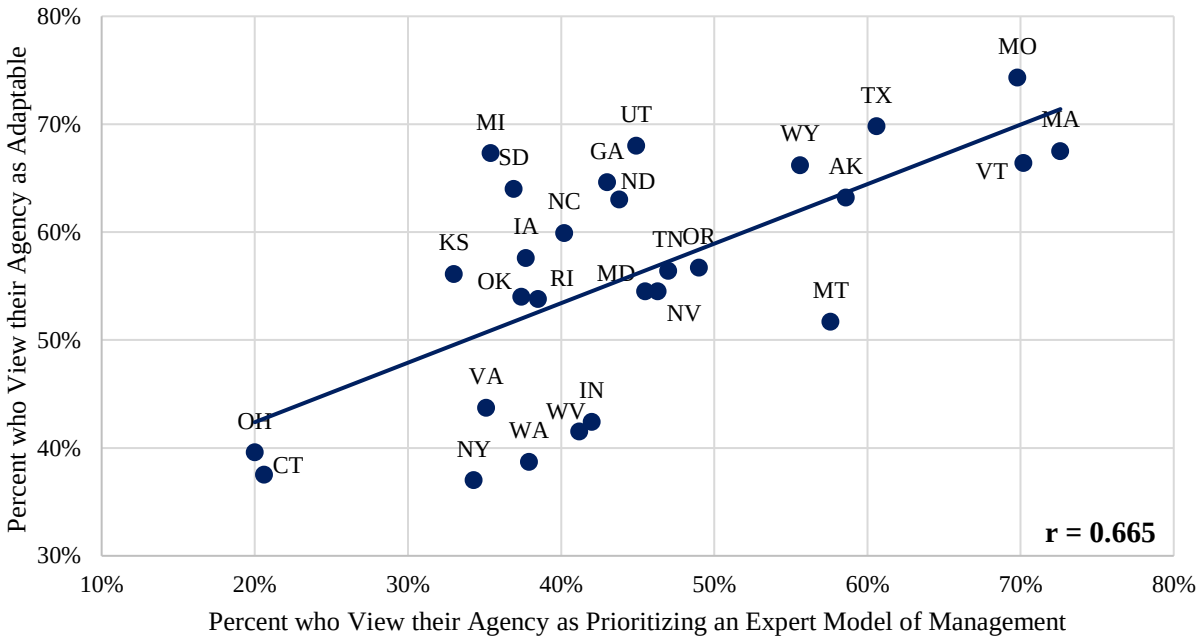
Figure 56: Average agency score on mutualism by the percent of agency personnel who view the agency as prioritizing an expert model

Average agency score on mutualism is the average across all employees' scores on the mutualism scale within a given agency. Individual employee scores on this scale are computed as the mean of responses to all survey items measuring the mutualism value orientation; items are measured on a response scale from 1 = "strongly disagree" to 7 = "strongly agree". A score above 4.5 on the mutualism scale, as indicated on the chart above, would classify an individual as having mutualist values (either as a Mutualist or Pluralist).

Adaptability, Accountability, and Public Engagement

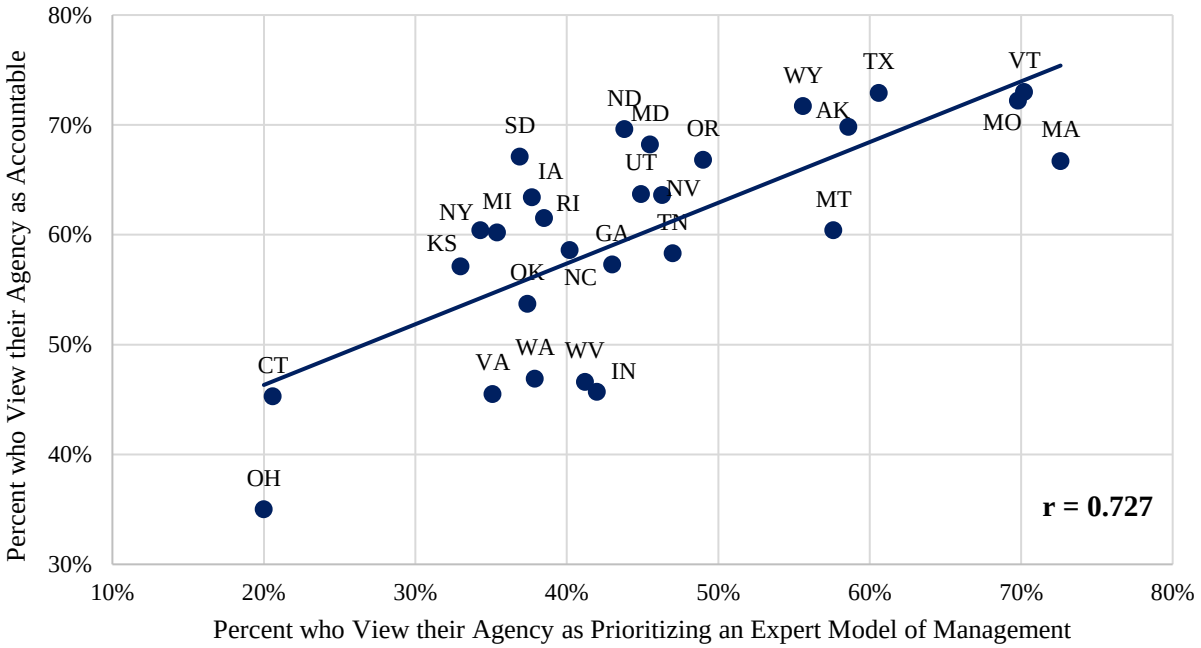
We also looked at how the different models of management defined in the previous section (expert v. clientele) affect employee perceptions of an agency's adaptability and accountability, as well as their perceptions of engagement with publics (Figures 57-60). The items included in the accountability and adaptability scales can be seen in Table 8, which outlines the factor loadings and construct reliabilities for each scale. As illustrated, employees seeing their agency as prioritizing an expert model are more likely to see their agency as accountable and adaptable. Agencies leaning more toward the clientele model have higher percentages of employees who see a need to increase engagement with both the general public and paying stakeholders. Our findings further illustrate that where employees view their agency along this spectrum shapes their perceptions of the agency as being adaptive in the face of change and accountable and transparent to the public (items adapted from Decker et al., 2016).

Figure 57: Percent of agency personnel who view their agency as prioritizing an expert model by percent who view their agency as adaptable



Adaptability Index = average of items provided in Table 8. Chart includes those who scored above the scale midpoint (3.50).

Figure 58: Percent of agency personnel who view the agency as prioritizing an expert model by percent who view their agency as accountable



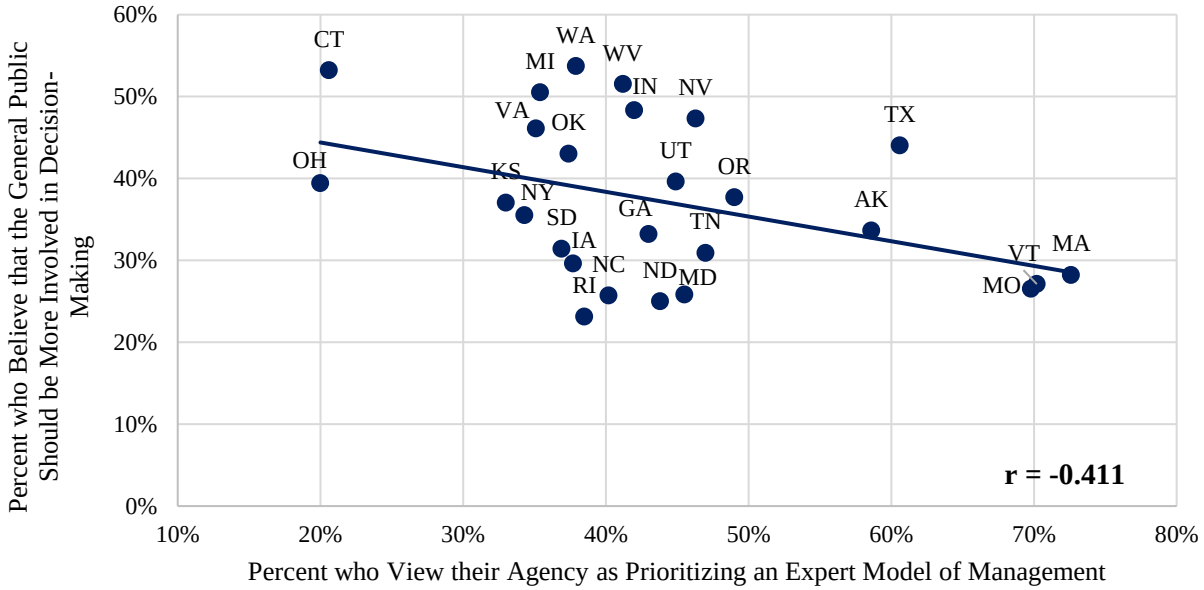
Accountability Index = average of items provided in Table 8. Chart includes those who scored above the scale midpoint (3.50).

Table 11: Factor loadings and item descriptions for adaptability and accountability indexes

Concepts and Items [a]	Factor Loadings [b]	Cronbach's Alpha
Adaptability		**.903**
Adaptable in the face of change	*.83*	
Innovative in its approach to management	*.79*	
Willing to take risks	*.72*	
Forward-looking	*.85*	
Takes advantage of new opportunities	*.77*	
Accountability		**.925**
Accountable for its actions	*.80*	
Transparent and open	*.80*	
Tolerant of different view points	*.82*	
Equitable in its approach to management	*.84*	
Focused on fair process	*.83*	
Stands for integrity	*.76*	

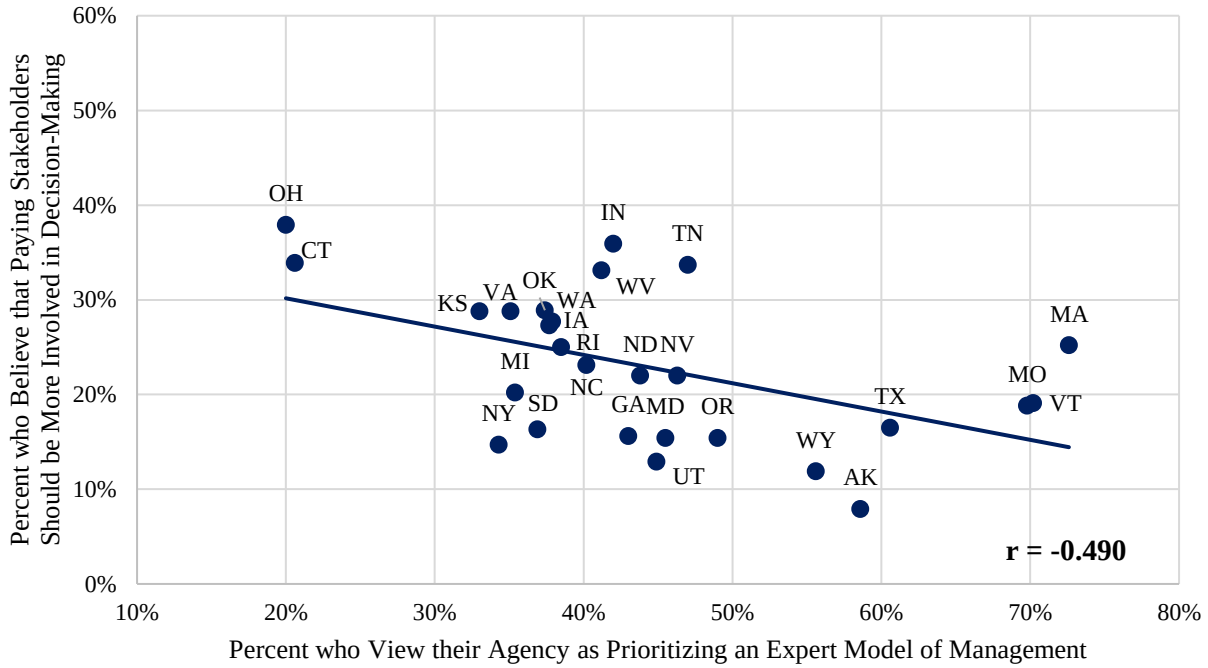
[a] Question text: *Below is a list of phrases that may or may not describe your agency. We want to know how well <u>you</u> think each of these phrases characterizes your agency. Please indicate the extent to which you believe each phrase is uncharacteristic or characteristic of your agency by selecting one response for each.*
Item response scale range: 1 (very uncharacteristic of my agency) to 5 (very characteristic of my agency).
[b] Standardized factor loadings from Confirmatory Factor Analysis (CFA). All loadings significant at $p < .05$.

Figure 59: Percent of agency personnel who view the agency as prioritizing an expert model by percent who believe that the general public should be more involved in decision-making than they are currently



Public decision-making scale = Score on the item *At what level do you believe your agency <u>should</u> include the general public in decision-making?* – Score on the item *At what level do you believe your agency <u>currently</u> includes the general public in decision-making?* Chart includes those who scored above 0, indicating a preference for more involvement. Full question provided in Appendix B.

Figure 60: Percent of agency personnel who view the agency as prioritizing an expert model by percent who believe that paying stakeholders should be more involved in decision-making than they are currently



Paying stakeholder decision-making scale = Score on the item *At what level do you believe your agency <u>should</u> include the paying stakeholders in decision-making?* – Score on the item *At what level do you believe your agency <u>currently</u> includes the paying stakeholders in decision-making?* Chart includes those who scored above 0, indicating a preference for more involvement. Full question provided in Appendix B.

Does the Value Profile of the Public Affect the Character of the Agency?

One of the primary relationships we examined when exploring this question is how the composition of wildlife values in the agency compares with that of the public. Figure 60 illustrates that, while mutualist values have become more prominent among members of the public, agencies are still comprised primarily of individuals with domination values; 87% are either Traditionalists or Pluralists. Likewise, Figure 61 shows that, as states become more mutualist, the values gap between the public and the agency (on mutualism) widens. These findings suggest that the composition of the agency does not appear to readily reflect the changing values of the public.

While the profiles of agency values across states do not change with changing value compositions among the public, nor is there an association between management models (expert or clientele) and the mix of public values in a state, there are associations to be noted. Figure 62 shows that, as the percent of Mutualists in a state rises from 20% to 30%, there is a sharp increase in agreement among agency employees that views of the public are changing. From 30% to 45% Mutualists, the percent of employees seeing the public as changing levels off. This may indicate that in some instances agencies in newly shifting states are undergoing periods of adjustment that are unique compared to states that have more stable value make-ups. Other analysis shows that, as the percent of Mutualists in a state increases, lower percentages of employees see the agency as prioritizing game over endangered species (Figure 63) and being proactive over reactive (Figure 64). In addition, lower percentages in these states feel that it is important to fit into the culture of the agency and that being part of the agency is central to their identity (Figures 65 and 66).

Figure 61: Comparison of wildlife value orientation types across state fish and wildlife agencies and the public

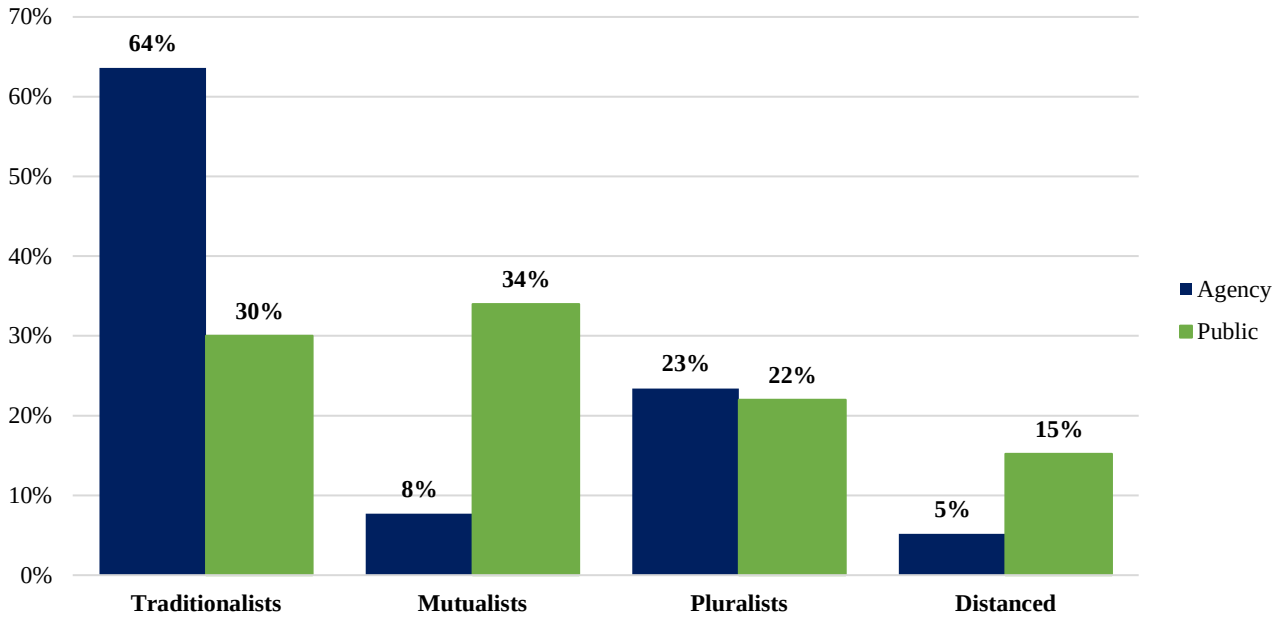
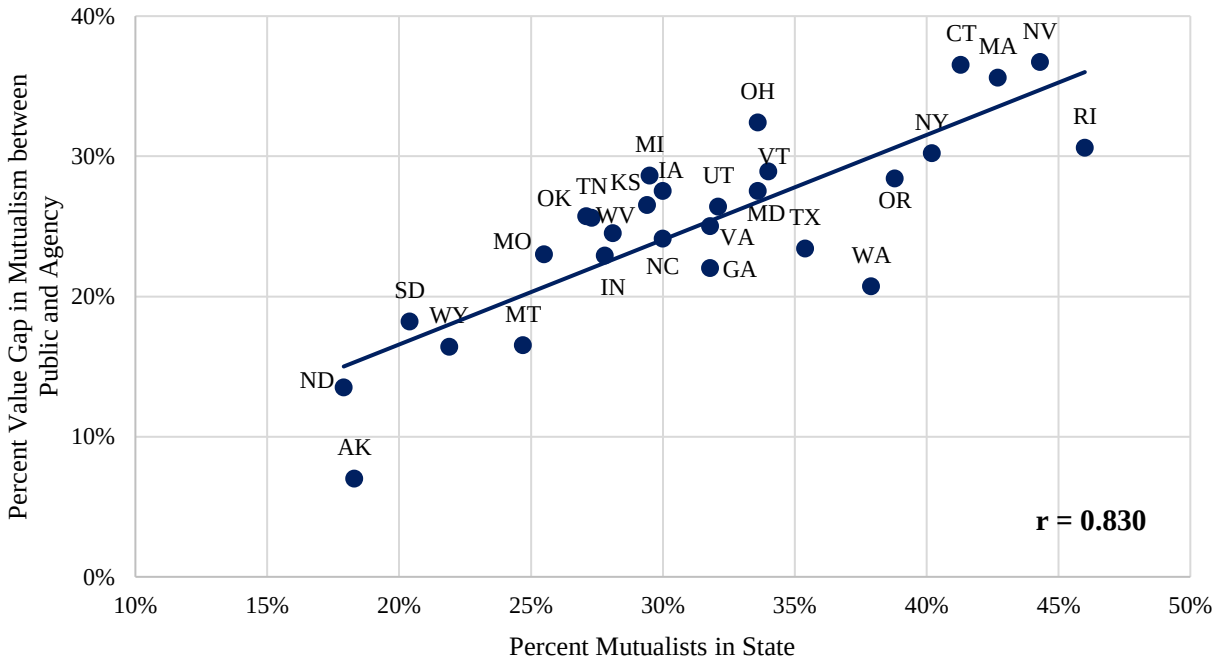
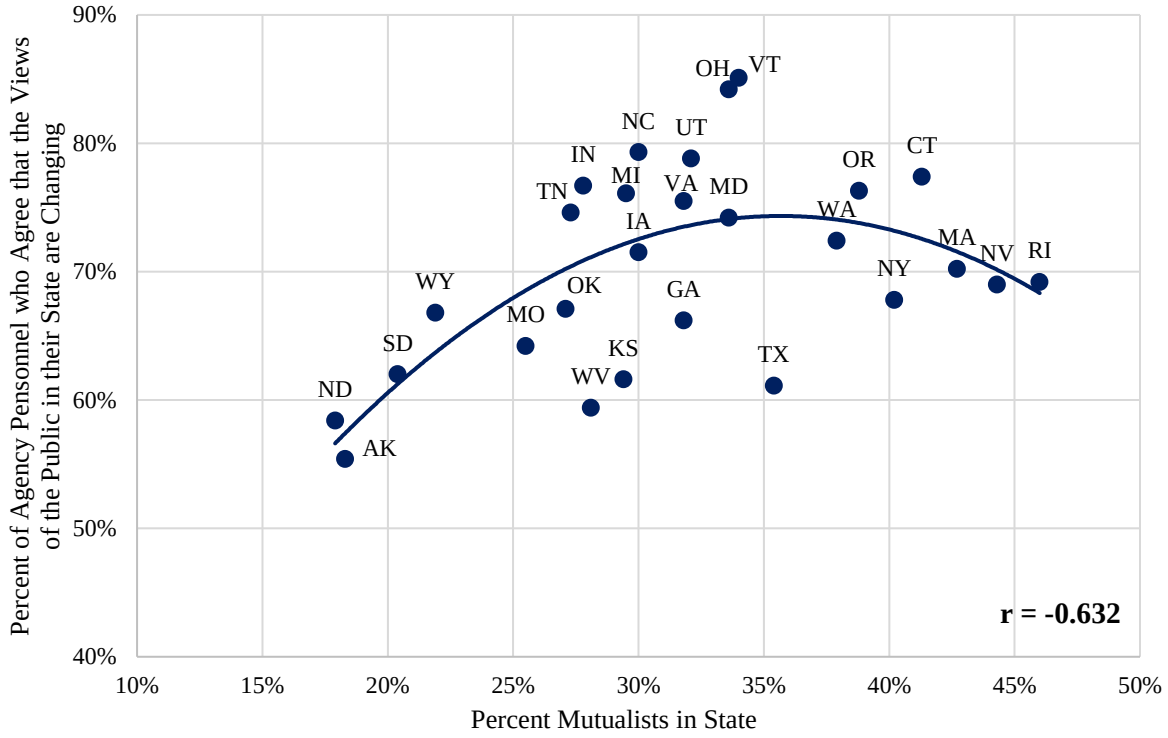


Figure 62: Percent Mutualists in state by the percent value gap between Mutualists in agency and public



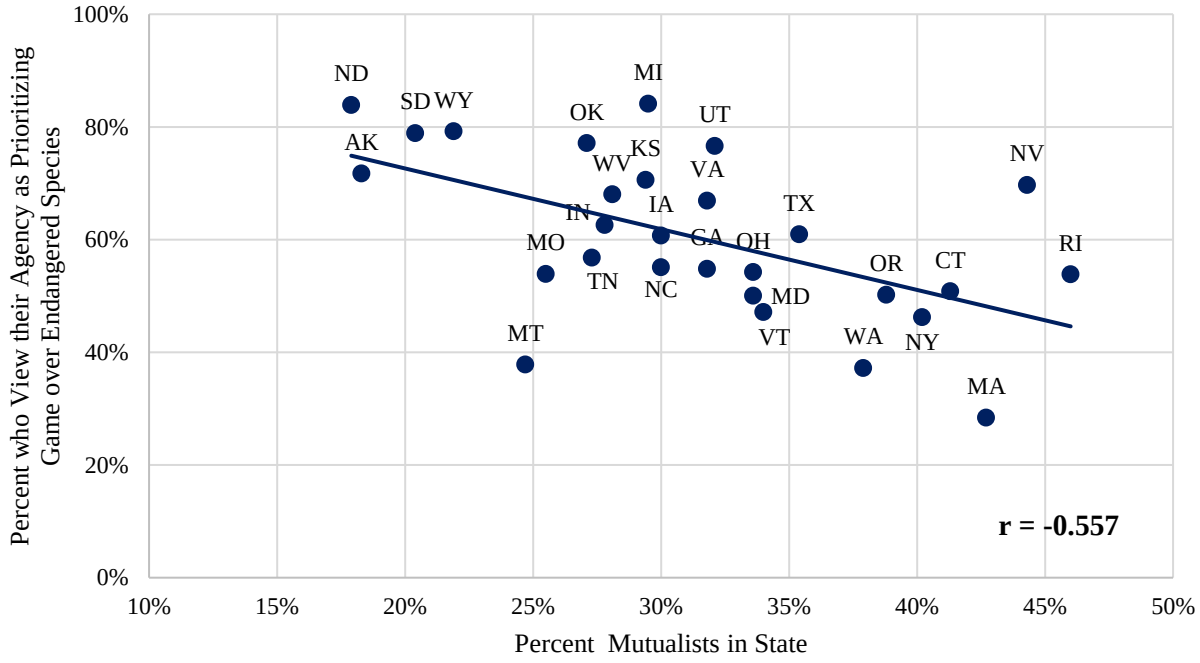
Value gap calculated as the percent Mutualists in the public in the state – the percent Mutualists in the agency.

Figure 63: Percent Mutualists in state by percent of agency personnel who agree that the views of the public in their state are changing



Agreement = “slightly” or “strongly” agree. Note: This question was not asked in Montana.

Figure 64: Percent Mutualists in state by percent of agency personnel who view their agency as prioritizing game species over endangered species

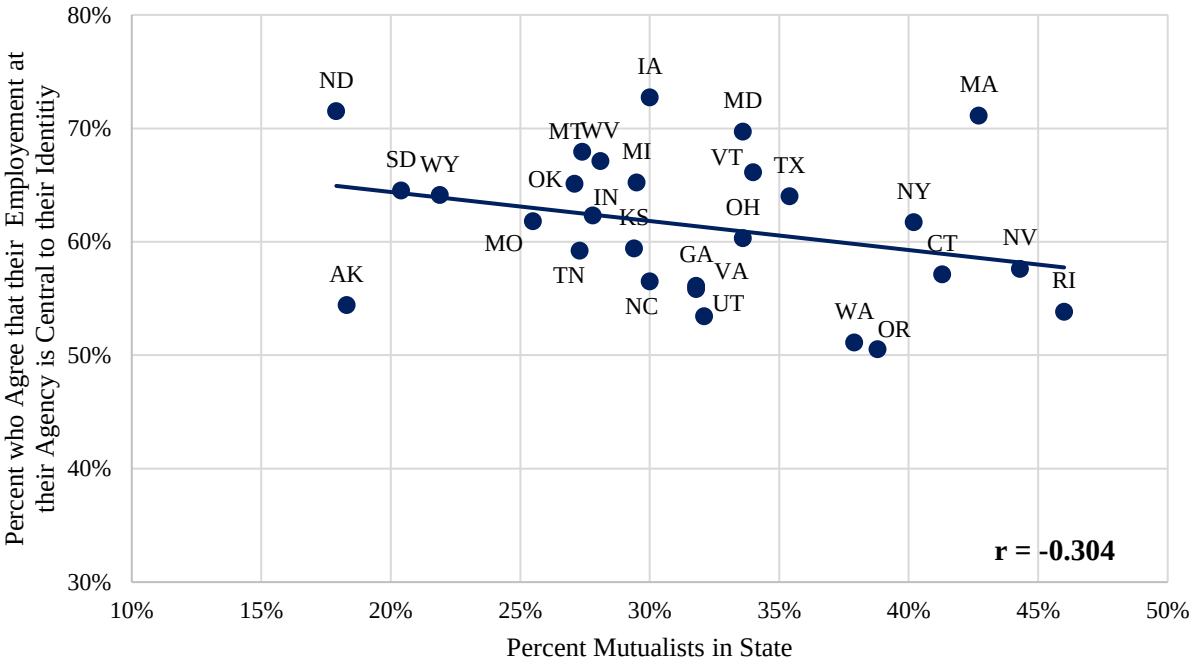


Full item text available in Appendix B.

Figure 65: Percent Mutualists in state by percent of agency personnel who view the agency as prioritizing being proactive over being reactive

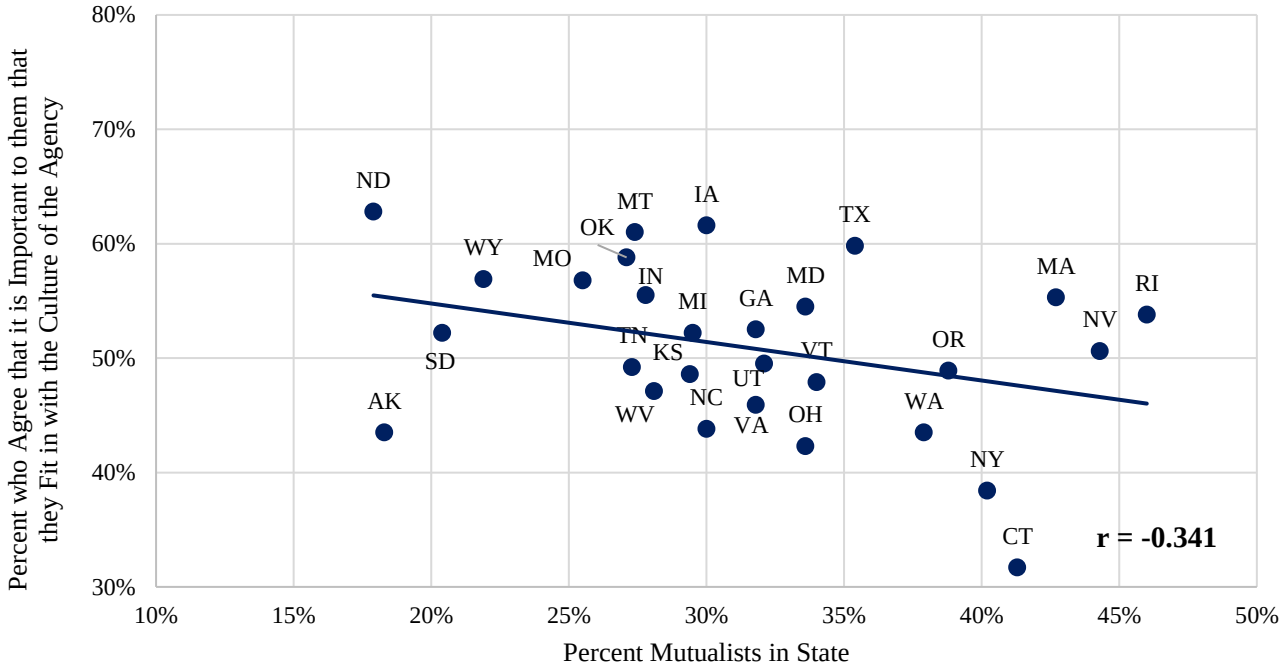
Full item text available in Appendix B.

Figure 66: Percent Mutualists in state by percent of agency personnel who agree that their employment is central to their identity



Agreement = "slightly" or "strongly" agree. Full statement text: *My employment at this agency is central to how I identify myself as a person.*

Figure 67: Percent Mutualists in state by percent of agency personnel who agree that it is important that they fit in with the culture of their agency



Agreement = "slightly" or "strongly" agree. Full statement text: *It is important to me that I fit in with the culture of my agency.*

Exploring Diverse Audiences

As values shift and the population of America changes, fish and wildlife agencies will be challenged to adapt. As noted by Organ et al. (2012, p. 28) in their treatise on the North American Model (NAM), "Governance models that are not in concert with contemporary societal needs or address only limited special interests risk having the wildlife management enterprise lose relevance to society." Decker et al. (2016, p. 292) likewise introduced principles of governance in the context of NAM that propose that good wildlife governance models will "seek and incorporate multiple and diverse perspectives". U.S. Census Bureau (2018) estimates show that, by 2045, what are now minority populations will in aggregate outnumber white, non-Hispanic populations in the United States. Our study shows that this will be important for wildlife managers, as these minority groups hold differing values towards wildlife, as illustrated in this section. While diversity continues to grow across the U.S., the wildlife profession continues to be dominated by white (91% in our agency survey) males (72% in our agency survey). The key to engaging more diverse audiences begins with understanding and honoring diverse ideals of human-wildlife relationships (Peterson & Nelson, 2017). In that vein, our study sought to compare the wildlife values and wildlife-related recreation behaviors of minority and non-minority groups.

Figure 67 shows the difference in value types across racial and ethnic groups. Most notable is the finding that Whites had a higher proportion of Traditionalists than all other groups, nearly twice that of Hispanics and Asians. Also, Whites had much lower percentages of people classified as Distanced, which were noticeably higher among African Americans, Asians, and Native Americans. Hispanics and Asians had the largest proportions of Mutualists, while Native Americans had the largest proportion of Pluralists. Clearly, value types vary by racial/ethnic category.

There were also differences in past participation and future interest in wildlife-related recreation (Figures 68 and 69). Whites and Native Americans had higher percentages who had hunted and fished in the past and who were interested in continuing to do so in the future, while Whites, Native Americans, and Hispanics appeared to participate more in wildlife viewing and had more interest in doing so in the future than Blacks and Asians. Finally, Figure 70 shows that minority groups are significantly underrepresented in the ranks of state fish and wildlife agencies. This is an issue that is apparent across many conservation agencies as well as the academic programs that provide the education for future conservation professionals.

Figure 68: Wildlife value orientation types by race

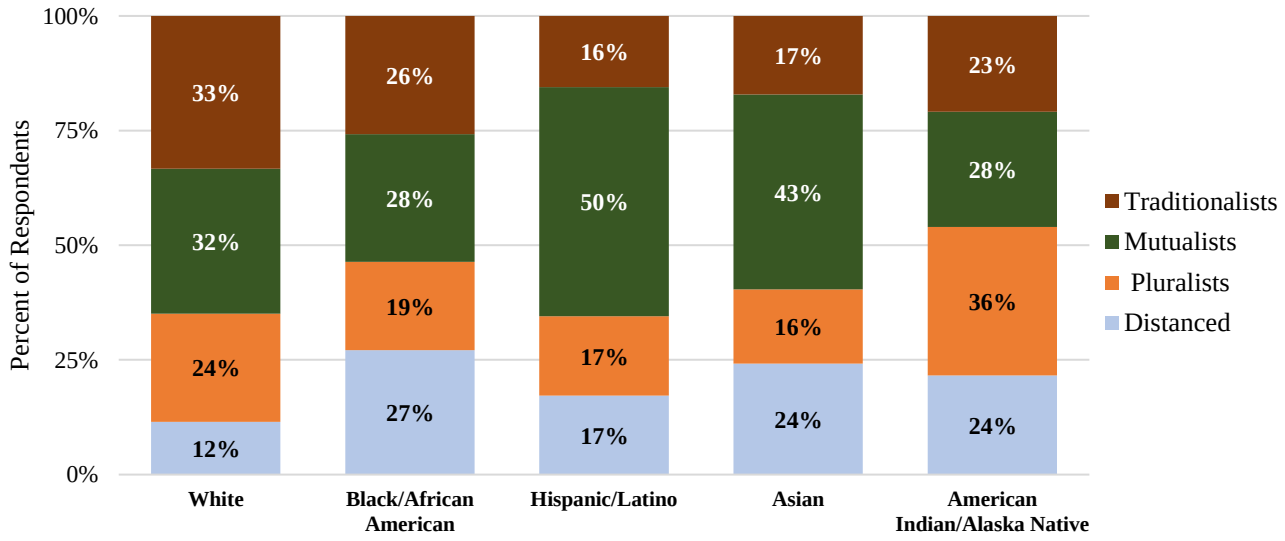


Figure 69: Percent of each racial/ethnic category that has participated in wildlife-related recreation in the past

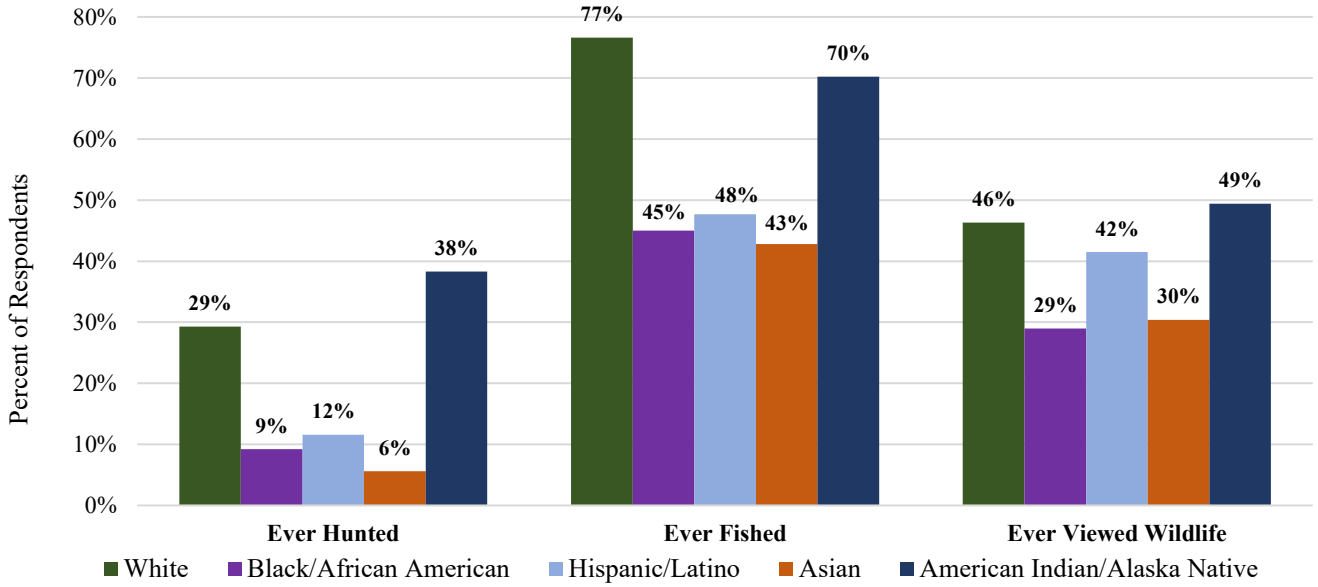
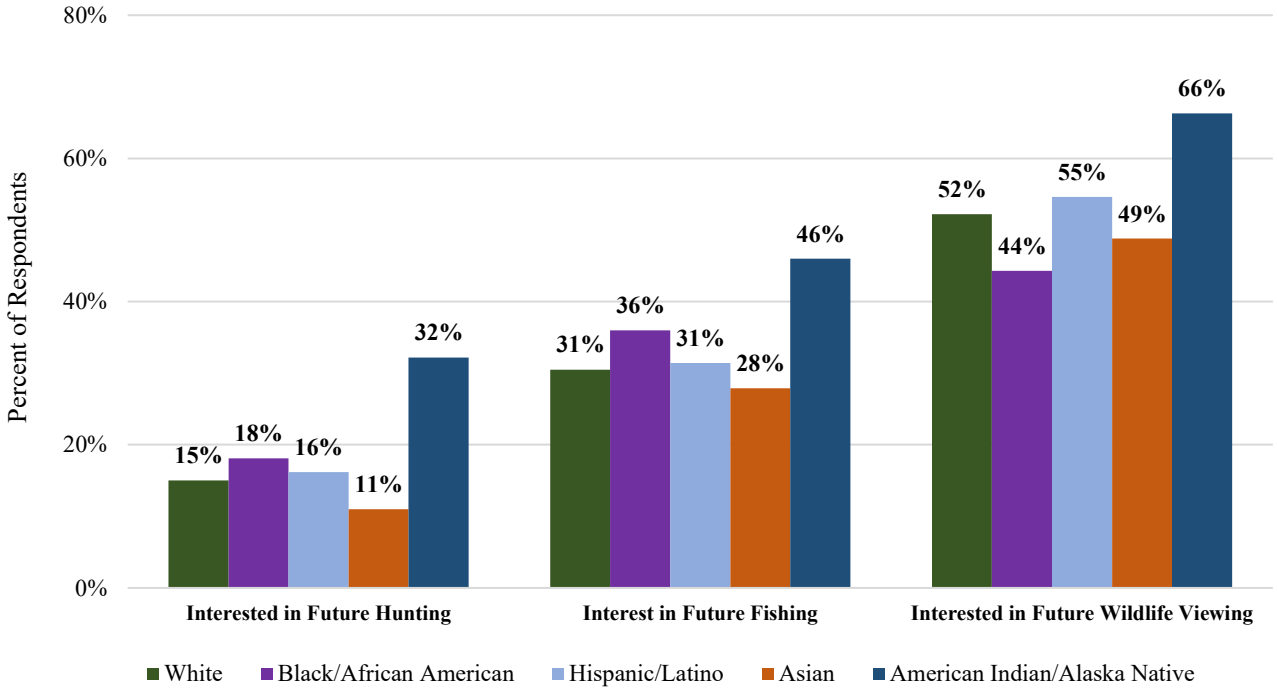
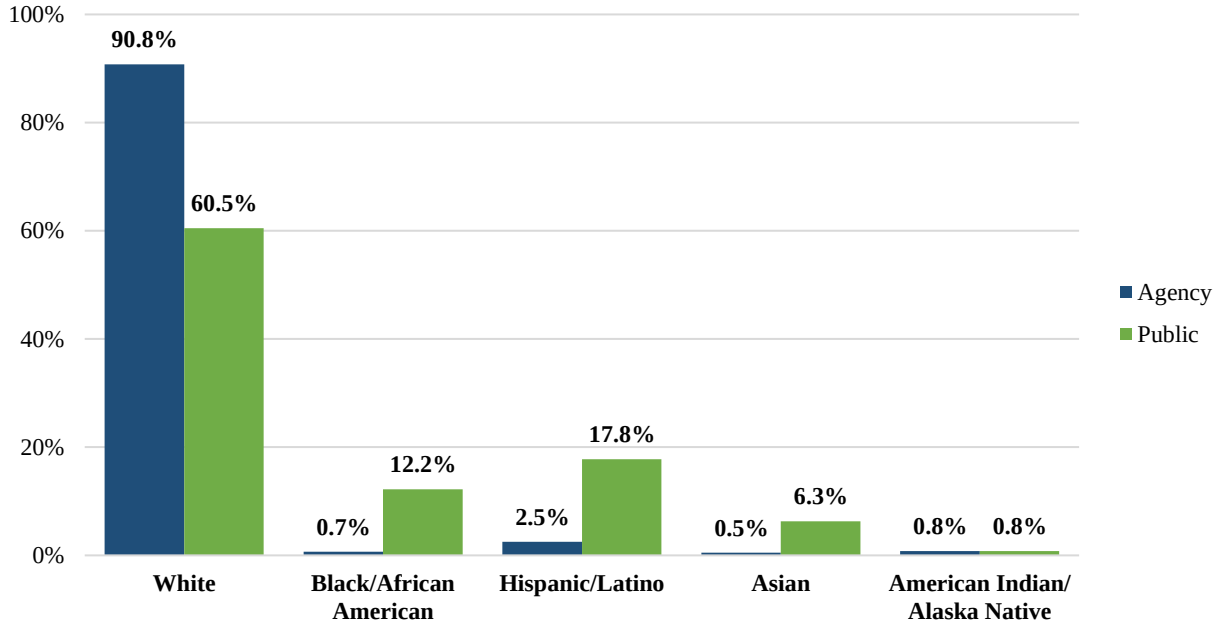


Figure 70: Percent of each racial/ethnic group that is interested in future participation in wildlife-related recreation



Interest in future participation = "moderately" or "strongly" interested.

Figure 71: Comparison of race/ethnicity between state fish and wildlife agencies and the public



Note: response categories do not add to 100% as respondents could select additional race/ethnicity categories that were excluded from analysis due to small sample size.

Conclusion

A considerable emphasis of fish and wildlife management today is on short-term tasks, needs, and issues. For example, the harvest regulatory cycle, which draws considerable attention, and consumes significant effort, places emphasis on year-to-year fluctuations. This is expedient given the demands of traditional stakeholders and the political nature of many decisions. However, it is forces of change that occur over extended time cycles that are far more influential in meeting long-term conservation goals. At the same time, these trends are the hardest to understand, predict, and affect. Trends such as declines in hunter numbers, habitat loss and modification, invasive species, and expanding drought are powerful examples of persistent transformative forces.

To a large extent, since its introduction in the 1970s, the contributions of human dimensions inquiry have focused on the short-term issues of fish and wildlife agencies. The many studies that have been conducted are typically delimited geographically and temporally, offering only glimpses of long-term trends. Yet it is social change that will give direction to the future of wildlife management. The purpose of the *America's Wildlife Values* project is to gain understanding of a long-term societal trend that is having, and will continue to have, significant influence on the wildlife profession in the U.S.: shifting social values toward wildlife.

Our study finds supports for a wildlife value shift explanation and suggests that this shift may continue into the future. It is important to realize that value shift is intergenerational or, at a state level, due also largely to human migration. The speed and direction of change will not be smooth and linear but will be variable and path dependent. Yet it would appear that change is indeed occurring, and it is fueled by modernization. We openly admit that predictions based on mere extrapolation of trends can be chancy. For example, if we extrapolated trends from 1955to 1975 from the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, we would have guessed that hunter numbers would have more than doubled by 2018. Instead, the number of hunters is roughly the same, but with a decline from 10% to 4% in participation when population is considered. The strength of our prediction rests not merely with the data we provide, but with the explanation we offer for why the trend is happening. We propose that wildlife value shift is nested within a broader shift in overall life values that has occurred due to modernization. Longitudinal data from other sources (e.g., Inglehart & Welzel, 2005; Schwartz, 2006) suggest that life value shift has been happening globally. The shift in wildlife values is an ancillary, random effect from the broader value shift process. Life value shift has unblocked anthropomorphic tendencies and elevated social affiliation needs, while circumstances of modern life have removed people from day-to day contact with animals. Mutualist wildlife values have emerged and spread through this process.

There are certainly limits to these predictions, which assume continuity in the effect of modernization. But values are typically quite stable, and forces that would alter the current trajectory would need to be as transformative as the abrupt change brought about by modernization.

Recommendations

Data from this study may be useful at a number of levels for state fish and wildlife agencies. At the broadest level, data will be useful in informing long-term planning. Our findings might be particularly relevant in considering ways to engage a broader array of stakeholders, sustaining an effective agency culture, meeting diverse values with new funding, developing management strategies that fit with cultural values, bringing the value contrast into consensus-building in dealing with human-wildlife conflict, etc. The data may also be useful in framing more

geographically and time-specific initiatives in areas such as communication, outreach, and regulatory decision-making.

Our findings do not dictate any specific type of managerial response. But they do inform attempts to identify problems, evaluate solutions, select strategies, and evaluate success. In that regard, the best use of our findings may be to inform understanding and stimulate the innovation of agency leadership and employees. It may be useful to open a dialogue to have teams of employees address the following types of questions (given the information presented in this report and other information available):

- How can we envision the situation in the state in 20-30 years given current trends?
- What effect will these changes have on the agency?
- How can we retain our traditional emphasis while embracing new stakeholders?
- What challenges or issues exist today that we need to address in achieving our job more effectively?

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Appendix A:
Public Survey for the *America's Wildlife Values* Project

Management of Fish and Wildlife in the United States

This survey is for all citizens of your state. Even if you know little about fish and wildlife, your opinions are needed!

If preferred, this survey may be completed online at warnercnr.colostate.edu/fish-wildlifesurveys

Access Code: 00000.

In this survey, when we refer to "fish and wildlife", we do not mean animals kept as pets or those raised for other domestic purposes (e.g., farm animals). Please keep this in mind when responding.

Q1. Below is a series of statements about fish and wildlife and the environment. There are no right or wrong answers. Please indicate the extent to which you disagree or agree by *selecting one answer for each statement*.

	Strongly Disagree	Slightly Disagree	Neither	Slightly Agree	Strongly Agree
With respect to the management of fish and wildlife, I feel that my state fish and wildlife agency shares similar values to me.	○	○	○	○	○
Wolves that kill livestock should be lethally removed.	○	○	○	○	○
We should strive for a society that emphasizes environmental protection over economic growth.	○	○	○	○	○
If a black bear attacks a person, that bear should be lethally removed regardless of the circumstances.	○	○	○	○	○
Private property rights are more important than protecting declining or endangered fish and wildlife.	○	○	○	○	○
Local communities should have more control over the management of fish and wildlife.	○	○	○	○	○
The earth is getting warmer mostly because of human activity such as burning fossil fuels.	○	○	○	○	○
Coyotes that kill pets in residential areas should be lethally removed.	○	○	○	○	○

Q2. The following statements refer to your state as a whole. Please indicate the extent to which you disagree or agree by *selecting one answer for each statement.*

	Strongly Disagree	Slightly Disagree	Neither	Slightly Agree	Strongly Agree
In this state, if someone acts in an inappropriate way, others will strongly disapprove.	○	○	○	○	○
In this state, there are clear expectations for how people should act in most situations.	○	○	○	○	○
People agree upon what behaviors are appropriate or inappropriate in most situations in this state.	○	○	○	○	○

Q3. People sometimes talk about what the aims of this country should be for the next ten years. Below are some of the goals that different people would give top priority. Which two of these would you, yourself, consider most important? *Please check TWO boxes*.

Maintaining order in the nation.	☐
Giving people more say in important government decisions.	☐
Fighting rising prices.	☐
Protecting freedom of speech.	☐

Q4. Below are statements that represent a variety of ways people feel about fish and wildlife. Please indicate the extent to which you disagree or agree by *selecting one answer for each statement.*

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Humans should manage fish and wildlife populations so that humans benefit.	○	○	○	○	○	○	○
Animals should have rights similar to the rights of humans.	○	○	○	○	○	○	○
We should strive for a world where there's an abundance of fish and wildlife for hunting and fishing.	○	○	○	○	○	○	○
I view all living things as part of one big family.	○	○	○	○	○	○	○
Hunting does not respect the lives of animals.	○	○	○	○	○	○	○
I feel a strong emotional bond with animals.	○	○	○	○	○	○	○
The needs of humans should take priority over fish and wildlife protection.	○	○	○	○	○	○	○
I care about animals as much as I do other people.	○	○	○	○	○	○	○
Fish and wildlife are on earth primarily for people to use.	○	○	○	○	○	○	○
I take great comfort in the relationships I have with animals.	○	○	○	○	○	○	○
I believe that wildlife have intentions.	○	○	○	○	○	○	○
It is acceptable for people to kill wildlife if they think it poses a threat to their property.	○	○	○	○	○	○	○
We should strive for a world where humans and fish and wildlife can live side by side without fear.	○	○	○	○	○	○	○
It is acceptable for people to kill wildlife if they think it poses a threat to their life.	○	○	○	○	○	○	○
I value the sense of companionship I receive from animals.	○	○	○	○	○	○	○
People who want to hunt should be provided the opportunity to do so.	○	○	○	○	○	○	○
Wildlife are like my family and I want to protect them.	○	○	○	○	○	○	○
I believe that wildlife have minds of their own.	○	○	○	○	○	○	○
It is acceptable for people to use fish and wildlife in research even if it may harm or kill some animals.	○	○	○	○	○	○	○
It would be more rewarding for me to help animals rather than people.	○	○	○	○	○	○	○
Hunting is cruel and inhumane to the animals.	○	○	○	○	○	○	○
I believe that wildlife appear to experience emotions.	○	○	○	○	○	○	○

Q5a. How do you think your state fish and wildlife agency is currently funded?
Select one point on the scale below to indicate your response.

Entirely by Hunting & Fishing License Fees			*Equally by Hunting & Fishing License Fees & Public Tax Funds*			*Entirely by Public Tax Funds*
○	○	○	○	○	○	○

Q5b. How should your state fish and wildlife agency be funded in the future?
Select one point on the scale below to indicate your response.

Entirely by Hunting & Fishing License Fees			*Equally by Hunting & Fishing License Fees & Public Tax Funds*			*Entirely by Public Tax Funds*
○	○	○	○	○	○	○

Q6. Please respond to the following questions about the extent to which you trust certain forms of government. *Select one answer for each question.*

Overall, to what extent do you trust...	Almost Never	Only Some of the Time	Most of the Time	Almost Always
… your federal government to do what is right for your country?	○	○	○	○
… your state government to do what is right for your state?	○	○	○	○
… your state fish and wildlife agency to do what is right for fish and wildlife management in your state?	○	○	○	○

Q7. We would like to learn about your fish- and wildlife-related recreation activities. *Please select one option for each question below.*

	Yes	No
Have you ever participated in recreational (non-commercial) fishing?	○	○
Did you participate in recreational (non-commercial) fishing in the past 12 months?	○	○
Have you ever participated in recreational (non-commercial) hunting?	○	○
Did you participate in recreational (non-commercial) hunting in the past 12 months?	○	○
Have you ever taken any recreational trips for which fish or wildlife viewing was the primary purpose of the trip?	○	○
Did you take any recreational trips in the past 12 months for which fish or wildlife viewing was the primary purpose of the trip?	○	○

Q8. Please respond to the following three questions about your interest in participating in fish- and wildlife-related recreation in the future. *Select one answer for each question.*

	Not at all Interested	Slightly Interested	Moderately Interested	Strongly Interested
How interested are you in taking recreational fishing trips in the future?	○	○	○	○
How interested are you in taking recreational hunting trips in the future?	○	○	○	○
How interested are you in taking recreational trips in the future for which fish or wildlife viewing is the primary purpose of the trip?	○	○	○	○

The following background information will be used to help make general conclusions about the residents of this state. Your responses will remain completely confidential.

Q1. Are you…? ○ Male ○ Female

Q2. What year were you born? _____

Q3. How many people under 18 years of age are currently living in your household? _____

Q4. Do you have any pets in your household? *(Select all that apply.)*

☐ Dog ☐ Cat ☐ Other type of pet(s) ☐ No pets

Q5. Recently, there has been increased attention to the idea that hunting can provide a good way for people to obtain antibiotic-free, organic meat from a local source. We'd like to know if this idea is at all related to your current views about hunting and participation in the activity. *Please select one option for each statement below.*

	Yes	No
I have recently become more supportive of hunting than I was in the past because of this idea.	○	○
I have recently started hunting because of this idea.	○	○
I do not hunt now but am interested in hunting in the future because of this idea.	○	○

Q6. What is your annual household income before taxes? *(Select one.)*

○ Less than $10,000
○ $10,000 to less than $25,000
○ $25,000 to less than $50,000
○ $50,000 to less than $100,000
○ $100,000 to less than $250,000
○ $250,000 or more

Q8. Are you…? *(Select one or more categories.)*

☐ White
☐ Black or African American
☐ Hispanic or Latino
☐ American Indian or Alaska Native
☐ Asian
☐ Native Hawaiian or Other Pacific Islander
☐ Other *(please specify)*:_____

Q7. What is the highest level of education you have completed? (*Select one.*)

○ Less than high school
○ High school diploma or equivalent (e.g., GED)
○ 2-year associate's degree or trade school
○ 4-year college degree
○ Advanced degree beyond 4-year college degree

Q9. How would you describe your current residence or community? (*Select one.*)

○ Large city with 250,000 or more people
○ City with 100,000 to 249,999 people
○ City with 50,000 to 99,999 people
○ Small city with 25,000 to 49,999 people
○ Town with 10,000 to 24,999 people
○ Town with 5,000 to 9,999 people
○ Small town or village with less than 5,000 people
○ A farm or rural area

Decision makers are often interested in gathering input from the public on a variety of fish and wildlife issues. **If you are interested in providing input through secure online communication,** *please provide your email below* (or write it on a sheet of paper and return with the survey). By doing so, you consent to participate and may or may not be contacted for future follow-up studies.

Please write in your 5-digit zip code below.

Thank you for participating in this study.
Your input is very important.

Appendix B:
Agency Culture Survey for the *America's Wildlife Values* Project

In this survey, we are interested in your perceptions of your fish and wildlife agency in its entirety. Please keep that in mind when responding.

1. **Below is a list of phrases that may or may not describe your agency. We want to know how well you think each of these phrases characterizes your agency. Please indicate the extent to which you believe each phrase is uncharacteristic or characteristic of your agency by selecting one response for each.**

	Very uncharacteristic of my agency	Somewhat uncharacteristic of my agency	Neither	Somewhat characteristic of my agency	Very characteristic of my agency
Experts in natural resource management	○	○	○	○	○
Enforcers of relevant natural resource law	○	○	○	○	○
Innovative in its approach to management	○	○	○	○	○
Adaptable in the face of change	○	○	○	○	○
Focused on promoting stewardship	○	○	○	○	○
Compassionate towards fish and wildlife	○	○	○	○	○
Willing to take risks	○	○	○	○	○
Forward-looking	○	○	○	○	○
Accountable for its actions	○	○	○	○	○
Transparent and open	○	○	○	○	○
Tolerant of different viewpoints	○	○	○	○	○
Equitable in its approach to management	○	○	○	○	○
Focused on fair process	○	○	○	○	○
Stands for integrity	○	○	○	○	○
Takes advantage of new opportunities	○	○	○	○	○
Protectors of the state's natural resources	○	○	○	○	○

2. **We recognize that the list of phrases above may not have represented all your views about the characteristics of your agency. Please use the box below to provide us with any additional words or phrases that you believe are "very characteristic" of your agency.**

3. **Managers are often forced to choose between competing demands for fish and wildlife management. We are interested in knowing, in general, how you view the priorities of your agency. Assuming a hypothetical situation in which only one management option was possible, we want to know how you believe your agency would prioritize different goals and objectives. Please respond to the following series of questions by picking one of the two response options for each comparison.**

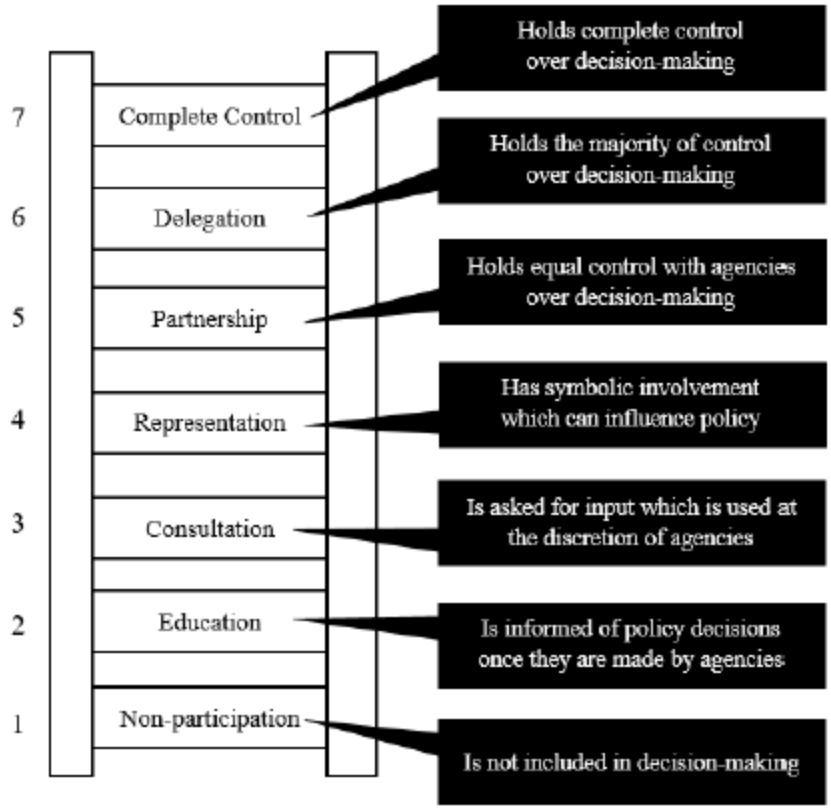
If forced to choose, my agency would place greater priority on….

Protecting wildlife habitat	○	○	Providing recreational opportunities
Meeting the needs of resources we manage	○	○	Meeting the needs of the public
Protecting endangered species	○	○	Protecting game species
Long-term planning	○	○	Day-to-day management
Efficiency	○	○	Legitimacy
Carnivores	○	○	Ungulates
Hunter recruitment and retention	○	○	Reaching a diversity of interests
Process	○	○	Outcome
Doing what is best	○	○	Doing what is fair
Tradition	○	○	Innovation
The present	○	○	The future
Science	○	○	Politics
Remaining true to our roots	○	○	Adapting to changing social conditions
Educating the public on what is right	○	○	Listening to public concern
Traditional stakeholders	○	○	All members of the public
Being Proactive	○	○	Being Reactive

4. **We want to know about the ways in which you personally identify with your agency. Please indicate the extent to which you disagree or agree with the following statements by selecting one response for each.**

	Strongly Disagree	Slightly Disagree	Neither	Slightly Agree	Strongly Agree
I usually agree with how my agency prioritizes goals and objectives.	○	○	○	○	○
With regard to the management of fish and wildlife, I believe my agency shares similar values to me.	○	○	○	○	○
I believe my agency should focus more on adapting to change.	○	○	○	○	○
In this agency, if someone acts in an inappropriate way, others will strongly disapprove.	○	○	○	○	○
I believe my agency should focus more on being transparent and accountable to the general public.	○	○	○	○	○
My employment at this agency is central to how I identify myself as a person.	○	○	○	○	○
It is important to me that I fit in with the culture of my agency.	○	○	○	○	○
I would like to be seen as a model agency employee.	○	○	○	○	○
In this agency, there are clear expectations for how people should act in most situations.	○	○	○	○	○
I feel a personal commitment to uphold the values of my agency.	○	○	○	○	○
My agency provides adequate opportunities for employees to play a role in decision-making.	○	○	○	○	○
People agree upon what behaviors are appropriate or inappropriate in most situations in this agency.	○	○	○	○	○
The views of the public in my state are changing with regard to wildlife management.	○	○	○	○	○

Public participation in decision-making has been conceptualized by researchers as a "ladder" with the bottom rungs representing minimal public involvement and the upper rungs representing significant opportunities for the public to shape decision-making, as described below.



5. **Please indicate your answer to each of the following questions using the numbers listed next to each "rung" on the ladder above.**

At what level do you believe your agency <u>currently</u> includes **the general public** in decision-making?	
At what level do you believe your agency <u>currently</u> includes **paying stakeholders** in decision-making?	
At what level do you believe your agency <u>should</u> include **the general public** in decision-making?	
At what level do you believe your agency <u>should</u> include **paying stakeholders** in decision-making?	

6. **Below are statements that represent a variety of ways people feel about fish and wildlife. Please indicate the extent to which you disagree or agree by *selecting one answer for each statement.***

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Humans should manage fish and wildlife populations so that humans benefit.	o	o	o	o	o	o	o
Animals should have rights similar to the rights of humans.	o	o	o	o	o	o	o
We should strive for a world where there's an abundance of fish and wildlife for hunting and fishing.	o	o	o	o	o	o	o
I view all living things as part of one big family.	o	o	o	o	o	o	o
I believe that wildlife have free-will.	o	o	o	o	o	o	o
Hunting does not respect the lives of animals.	o	o	o	o	o	o	o
I feel a strong emotional bond with animals.	o	o	o	o	o	o	o
I believe that wildlife have consciousness.	o	o	o	o	o	o	o
The needs of humans should take priority over fish and wildlife protection.	o	o	o	o	o	o	o
I care about animals as much as I do other people.	o	o	o	o	o	o	o
Fish and wildlife are on earth primarily for people to use.	o	o	o	o	o	o	o
I take great comfort in the relationships I have with animals.	o	o	o	o	o	o	o
I believe that wildlife have intentions.	o	o	o	o	o	o	o
It is acceptable for people to kill wildlife if they think it poses a threat to their property.	o	o	o	o	o	o	o
We should strive for a world where humans and fish and wildlife can live side by side without fear.	o	o	o	o	o	o	o
It is acceptable for people to kill wildlife if they think it poses a threat to their life.	o	o	o	o	o	o	o
I value the sense of companionship I receive from animals.	o	o	o	o	o	o	o
People who want to hunt should be provided the opportunity to do so.	o	o	o	o	o	o	o
Wildlife are like my family and I want to protect them.	o	o	o	o	o	o	o
I believe that wildlife have minds of their own.	o	o	o	o	o	o	o
It is acceptable for people to use fish and wildlife in research even if it may harm or kill some animals.	o	o	o	o	o	o	o
It would be more rewarding for me to help animals rather than people.	o	o	o	o	o	o	o
Hunting is cruel and inhumane to the animals.	o	o	o	o	o	o	o
I believe that wildlife appear to experience emotions.	o	o	o	o	o	o	o

7. **Research suggests that while some people in the conservation profession feel optimistic about the future of biodiversity, others may feel pessimistic. How would you describe your own views on the future of global biodiversity?**

Very Pessimistic	Moderately Pessimistic	Slightly Pessimistic	Neither	Slightly Optimistic	Moderately Optimistic	Very Optimistic
O	O	O	O	O	O	O

The following background information will be used to help make general conclusions about employees across state fish and wildlife agencies in the United States. Your responses will remain completely confidential.

1. **We would like to learn about your non-work-related fish and wildlife activities. Please *select one* option for each question below.**

	Yes	No
Have you ever participated in recreational fishing?	O	O
Did you participate in recreational fishing in the past 12 months?	O	O
Have you ever participated in recreational hunting?	O	O
Did you participate in recreational hunting in the past 12 months?	O	O
Have you ever taken a recreational trip for which fish or wildlife viewing was the primary purpose of the trip?	O	O
Did you take any recreational trips in the past 12 months for which fish or wildlife viewing was the primary purpose of the trip?	O	O

2. **Do you work in a regional/field office or in your agency's headquarters? (*Select one*).**

   ○ Regional Office ○ Headquarters

3. **How would you identify the division in which you work? (*Select one*).**

   ○ Fisheries
   ○ Wildlife
   ○ Parks/Lands
   ○ Communication/Outreach/Education
   ○ **Enforcement**
   ○ Administration/Support
   ○ Human Dimensions/Responsive Management Unit
   ○ Policy/Planning
   ○ Other: _____

4. **How many years have you worked for your agency in total? _____** *(years of service)*

5. **How many years have you worked in your current position? _____** *(years of service)*

6. **Do you identify as….? (*Select one*).**

   ○ Male
   ○ Female
   ○ Prefer to self-describe as _____
   ○ Prefer not to answer

7. **What year were you born? _____**

8. **What is the highest level of education you have completed? (*Select one*).**

   ○ Less than high school
   ○ High school diploma or equivalent (e.g., GED)
   ○ 2-year associate's degree or trade school
   ○ 4-year college degree
   ○ Advanced degree beyond 4-year college degree

9. **Are you…?** *(Select one or more categories.)*

   ☐ White
   ☐ Black or African American
   ☐ Hispanic or Latino
   ☐ American Indian or Alaska Native
   ☐ Asian
   ☐ Native Hawaiian or Other Pacific Islander
   ☐ Other *(please specify)*:_____

10. **While many people in the United States would view themselves as "Americans", we are interested in finding out more about how you would define your ethnic background. What is the primary ethnic origin with which you identify (e.g., Italian, Jamaican, Norwegian, Dominican, Korean, Mexican, Taiwanese, Ukrainian, and so on)? (Please write your ethnic origin.) _____**

11. **If your ancestors immigrated to the United States, about how many generations ago did they come here?** *(Select one.)*

    ○ I came here from another country
    ○ My parents came here from another country
    ○ My grandparents came here from another country
    ○ My great-grandparents came here from another country
    ○ My ancestors came here more than 3 generations ago
    ○ I'm not sure how long ago my ancestors came here