



Values, trust, and cultural backlash in conservation governance: The case of wildlife management in the United States



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ABSTRACT

The global rise of populism is having a profound effect on policies across many issues. We explore the potential effects on wildlife conservation using the western United States as a case study. Global populist trends have been explained through the phenomenon of cultural backlash, wherein those left behind in the value shift beginning post-World War II started to mobilize by the end of the century to protect their core values and traditions. Our prior work suggests that wildlife values in the western United States are shifting from traditional domination to mutualism orientations. The current study looked for indications of backlash from the American hunting culture that may be associated with that shift. Data from a 19-state survey ($n = 12,673$) revealed that, in states with a higher prevalence of mutualism, residents with domination values had lower levels of trust in the state wildlife agency. Traditional residents were also less supportive of broadly-inclusive governance models, and the potential for social conflict over wildlife issues was much higher in those states. Finally, we found evidence of actions to “fight back” against change among traditional groups in the growth of ballot initiatives from 1990 to 2016 to protect hunting rights. Backlash will likely affect different countries and jurisdictions differently, contingent on the historical and cultural context. Nonetheless, it will be a global force with important implications for conservation governance, even if only to intensify conflict. Governance innovations will be necessary to help conservation institutions adapt to dramatic changes in the socio-political environment.

1. Introduction

In the past several decades, the conservation fields have documented a steady decline of biological diversity accompanied by economic, political, and administrative challenges to conservation decision-making. A growing body of literature proposes that improved governance is key to addressing these challenges and improving conservation success (Lebel et al., 2006; Armitage et al., 2012; Rothstein and Teorell, 2012). This literature commonly emphasizes the contemporary failures of expert models of decision-making and centralized hierarchical decision structures in resource management (Agrawal and Ostrom, 2001; Riley et al., 2002). Ostrom's (2015) work on common pool resources shows that multilevel, distributed decision authority is often more effective than top-down approaches at managing resources in complex social-ecological systems. This has spurred a widespread trend in prescribing more inclusive, decentralized decision-making processes (Reed, 2008; Gavin et al., 2015; Decker et al., 2016).

However, recent populist political trends, such as the Brexit vote in England, election of Donald Trump as U.S. president, and increased

representation of populist parties in European parliaments (Inglehart and Norris, 2016), suggest a strong possibility of disruption to achieving inclusiveness in governance. Inglehart and Norris (2016) contend that these events mark an era of political change embodied by “cultural backlash”, a phenomenon wherein those left behind in a shifting culture act in opposition to change for the purpose of retaining their cultural identity and values. Given the recent populist wave, we sought to explore how that cultural backlash will affect wildlife conservation, looking specifically at the western United States as a case study. As some scholars have suggested, wildlife conservation in the United States is failing at its conservation mandate as existing governance institutions grow increasingly distant from the broad spectrum of people and interests they represent (Decker et al., 2016). Yet a cultural backlash, and the clash of values at its core, will have a profound effect on the ability of those institutions to adapt and meet the inclusiveness challenge.

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1.1. Value shift and cultural backlash

Populist movements globally and in the United States specifically have taken multiple forms and not necessarily been represented by only one ideological position (Parker and Barreto, 2014; Formisano, 2015). The current movement began taking shape at the end of the 20th century, when democracies were challenged by low voter participation, declining support for incumbents, fragmentation of the party system, and emergence of single issue and radical parties (Meny and Surel, 2002; Inglehart and Norris, 2016). The populism that emerged was marked by anti-establishment feelings, distrust of elites, nationalism, xenophobia, and positive attitudes toward authoritarian leadership (Mudde, 2007). In the early 2000s, U.S. populist rhetoric shifted between topics of economic inequality and issues of cultural erosion. But when the populist Tea Party filled state legislatures in 2009, the focus shifted to cultural issues such as women's reproductive rights and immigration (Formisano, 2015; McGirr, 2015). This shift was marked by nostalgia for an earlier time, as is apparent from Donald Trump's campaign slogan "Make America Great Again".

Inglehart and Norris (2016) suggest that the current trend and global rise of populism is rooted in a phenomenon they describe as cultural backlash. The backlash reflected in U.S. politics today is a reaction to an abrupt shift in American culture that occurred more than 70 years ago, the effects of which are still unfolding. Inglehart (1997) argues that the rapid expansion of well-being following World War II had a profound effect on re-shaping social values. Adopting the notion of Maslow's need hierarchy, he suggests that the focus prior to the war was on subsistence needs and materialist values. Due to modernization (increased wealth, education, urbanization), people raised in the affluent years following the war were not confronted with these same needs and instead shifted focus to higher-order self-expressive needs, reflected in what Inglehart refers to as post-materialist values. Data from the World Values Survey illustrate how the latter influence positions on an array of contemporary issues, including concern for the environment, gender rights, and same-sex marriage (Norris and Inglehart, 2009). Post-materialists, for example, are more likely to embrace immigrants and multicultural diversity of lifestyles, and to support international cooperation, humanitarian assistance, and the efforts of multinational organizations such as the United Nations. They are also likely to have higher levels of wealth and education, and advocate for progressive social change.

New self-expressive needs and a perceived lack of representation in decision-making prompted many citizens to demand more engagement in political processes. This led not only to more inclusive forms of governance but also provided the basis for the recent rise in democracy worldwide (Inglehart and Welzel, 2005). In the United States, activism associated with this shift led to a renaissance of environmental legislation in the 1970s that provided federal regulation over environmental practices and gave citizens across the value spectrum greater access to decision processes (Andrews, 2006). This, in turn, put stress on existing political institutions to conform to public interests. Many institutions were perceived as performing poorly given their inability to adapt to changing social values, which spawned declines in trust, loss of faith in government, and a contested decision environment (Orren, 1997; Levi and Stoker, 2000; Dalton, 2005).

Amidst this change, discontent built up among those who were not swept along in the post-materialist value shift. Encouraged by the rise of neoliberal ideologies, which championed individualism, self-sufficiency, and free-market principles in lieu of centralized government power, a new wave of cultural backlash emerged (Harvey, 2005; Bonneuil, 2015). This wave included older generations, men, ethnic majorities, and the less educated (Inglehart and Norris, 2016), who felt a sense of isolation from a society that was changing in ways that threatened the traditional values and lifestyles they cherished. Opposition grew and spread through conservative national media outlets, think tanks, social organizations, and radical political party factions

(McGirr, 2015). This new-age populism, which manifested politically in the rise of the Tea Party that advocated for a highly adversarial approach during the Obama administration, burst into prominence in the 2016 U.S. presidential election and provided a new opportunity for backlash to emerge in the national consciousness and be legitimized in governance institutions.

1.2. The case of American hunting culture's backlash

It is highly likely that the North American culture of hunting has been caught up in this broader trend of populism. One reason is that populism centers on contempt for elites, advocating for the rights of everyday people (Mudde, 2007). Many of the earliest immigrants from Europe were prevented from hunting in their home countries because wildlife was property of aristocrats and royalty. In the United States, wildlife and hunting would be for the "common man" (McCorquodale, 1997) which remains a fundamental principle of wildlife governance today and gave rise to a powerful populist culture of hunting (Robbins and Luginbuhl, 2005; Organ et al., 2012).

Hunting became more than an activity, number of participants, or means of subsistence; it became part of a deeply cherished cultural identity. Hunting was interwoven into the values and practices that were considered "prototypically American" following the 19th century westward expansion. A strong independence value emerged then as an adaptation to isolation and harsh conditions on the frontier (Kitayama et al., 2010). Adoption of this value spread to eastern states, not because it was adaptive but because it was assigned novelty and prestige. This spawned a cultural prototype of the rugged frontier American who conquered the western wilderness and was independent and self-sufficient (Slotkin, 1992). Hunting became a reification and enactment of that depiction. In contemporary society, the hunting culture remains a strong source of identity for many – one that defines gender roles, binds communities, assigns social prestige, and signals social development – and is an important force directing individual attitudes, norms, and behaviors (Stedman and Heberlein, 2001).

The post-materialist cultural change of the latter half of the 20th century could be seen as threatening to the hunting culture. We theorize that this is in large part due to the rise of post-materialist values coinciding with a shift in wildlife values, from traditional domination to mutualism value orientations. These orientations contribute to oppositional positions on how wildlife should be treated. Mutualist values, for example, are associated with beliefs that human activity should be limited for the sake of wildlife protection, while domination values are tied to a belief that wildlife exists for human use. Elsewhere, we have proposed that mutualist values arose due to a modernized lifestyle wherein people were removed from direct contact with wildlife and, given the human tendency to anthropomorphize, began to view wildlife in egalitarian ways (Manfredi et al., 2009). The modernization that Inglehart contends produces post-materialist values therefore may also have given rise to these new wildlife values. While further longitudinal analysis is warranted, this contention is supported by our prior research showing a positive correlation between mutualism and post-materialist values (Manfredi et al., 2009).

We expect that this shift in wildlife values would give rise to backlash. The growing changes in the way people think about wildlife would be threatening to the hunting culture, particularly in how those changes contribute to the periodic and recurring discussion about the acceptability of hunting (Boglioli, 2009). The presence of this threat would fuel the perceived need to "fight back" against change, and to protect a cultural heritage.

1.3. The enduring values of wildlife governance institutions

While societal values have increasingly diversified, wildlife governance institutions in North America have clung tightly to the hunting culture. The origins of contemporary U.S. governance structures for

managing wildlife trace back to the 19th century, when unabated harvest, commercial hunting, and bounties caused the decline and/or extinction of many wildlife species. In response, the growing ranks of sport-hunters and special interest groups lobbied for conservation laws and, by the 1930s, all states had established agencies charged with regulating wildlife take. Many of these agencies have boards or commissions tasked with creation of wildlife-related regulations and policies in consultation with the public. State agency funding is primarily generated from hunting and fishing license fees and federal excise taxes on sporting equipment (e.g., ammunition), linking the agencies' economic capacity directly to hunters and anglers (Jacobson and Decker, 2008).

The philosophy of wildlife conservation embraced by many U.S. state wildlife agencies has been characterized as the “North American Model”, which advocates for: wildlife to be managed in trust for the public; elimination of market hunting; science as the basis for policy; a democratic approach to hunting; and allocation of wildlife resources based on law (Organ et al., 2012). Although state wildlife agencies have, in recent decades, expanded their attention to a wide array of issues such as threatened and nongame species, human-wildlife conflict, and wildlife viewing, the core of their work focuses on and reinforces traditional uses of wildlife such as hunting and fishing. This model has undoubtedly been effective in reversing the deleterious effects of overharvest, enhancing land conservation, and protecting at-risk and declining species; however, it has also been criticized for failing to address broader value-based discussions at the heart of many conflicts around wildlife (Beck, 1998; Nie, 2004; Jacobson and Decker, 2008; Decker et al., 2016; Vucetich et al., 2017). Criticism over the highly-centralized authority and exclusionary “command and control” philosophy borne from this model, as well as agencies' failure to engage non-traditional groups, has led to calls for more inclusive management practices (Holling and Meffe, 1996; Knight and Meffe, 1997). However, the ability of agencies to enact this type of institutional change will be greatly influenced by the nature of opposition from traditional stakeholders, including a potential backlash to such institutional change.

1.4. Research questions

Building on Inglehart and Norris's (2016) backlash thesis, if a backlash were indeed occurring among those with traditional wildlife values we would expect it to manifest in certain trends that could be identified around the turn of the 21st century, when the broader populist backlash began to arise. Data we collected in 2004 from a 19-state survey of wildlife values in the western United States (Manfredi et al., 2009) provided the unique opportunity to look back at whether we could detect signs of such a backlash emerging during that period. The goal of the current study was to determine if patterns existed across states that offered evidence consistent with trends we would expect if a backlash was starting to occur and assumes our explanations of value shift are reasonably accurate. It is important to note that, while our theory of shifting wildlife values builds upon Inglehart's longitudinal work, these data are nevertheless cross-sectional, meriting longer-term monitoring that was recently initiated to assess change over time (see www.wildlifevalues.org). Our current analysis was guided by the following questions, using data at both the individual and state levels:

- (1) *Can we detect evidence of a backlash in patterns of agency trust?* Given that distrust of government is a defining characteristic of the modern populist movement (Inglehart and Norris, 2016), declining agency trust could be seen as an indicator of the growing discontent among those with traditional values. We explored this by examining the relationship between wildlife value orientations and residents' trust in the state wildlife agency, expecting to find patterns consistent with 2 separate trends. First, states with higher percentages of mutualist residents would have lower levels of trust given the lack of attention that individuals with mutualist values

have historically received in agency decision-making. However, with backlash believed more likely in these states, lower levels of trust there would also stem from greater distrust among those with domination values. We reasoned that, as issues prioritized by a more mutualist constituency increasingly enter the public discourse and engage agency attention, residents with traditional values may become more suspect of the agencies.

- (2) *Can we detect evidence of a backlash in patterns of preference for ideal forms of agency governance?* It is often argued that hunters and anglers, through license fees, generate the bulk of state agency revenue and should therefore have the greatest say in decision-making. While a broadening of the constituent base could mean additional sources of financial support for wildlife conservation, a populist reaction may arise from those with traditional values feeling threatened by the prospect of sharing power in the decision arena with other groups. We explored this by examining residents' preferences for specific approaches to agency governance, defined in terms of 2 counter-balancing elements: whose interests are represented in agency decision-making; and who pays to fund wildlife conservation efforts. Greater emphasis on mutualism at the individual and state levels was expected to correspond with a stronger preference for more inclusive approaches that represent and are funded by all interests, as opposed to only hunter/angler groups. In contrast, those with domination values would have less support for such approaches based on their desire to maintain primary representation in agency decision-making.
- (3) *Can we detect evidence of a backlash in patterns of social conflict over wildlife-related issues?* As public interests in wildlife conservation diversify, the context of governance can become more polarized, making consensus building and agency change more difficult. A backlash would further intensify this situation as the hunting culture attempts to hold on to traditional values and positions that are increasingly contested in the decision-making arena. To explore this, we examined the potential for social conflict over wildlife-related issues across states. We expected the more mutualist states to have a higher conflict potential given their greater diversity in value orientations, which would contribute to increased division among segments of the public on key issues and a stronger likelihood of backlash.
- (4) *Do actual trends over time in wildlife-related policy setting offer evidence of a backlash in action?* Value conflicts over wildlife management often play out through citizen-initiated ballot measures (Jones, 1997; Minnis, 1998). This form of direct democracy is often used in situations where opportunities for citizen engagement and trust in decision-making abilities of existing institutions are low (Minnis, 1998). Throughout the 1990s, wildlife protection measures were among the most successful ballot initiatives in the United States, and were particularly prevalent in western states including Oregon, California, and Colorado (Jones, 1997). Using additional data sources, we explored trends in ballot initiatives between 1990 and 2016 across the 19 states involved in our survey to determine whether a change in the focus of these initiatives could be detected and explained by the backlash thesis. Specifically, we compared initiatives that restrict versus promote wildlife-related activities and management practices, including those centered on hunting. A backlash would be especially evident in the decline of protective measures and growth of initiatives aimed at protecting the right to hunt in state constitutions, which would serve to secure and reinforce the identity and values of the American hunting culture.

2. Material and methods

2.1. Data collection

We collected data via administration of a mail survey with appropriately tailored procedures to a sample of residents from each of 19

states in 2004. Final survey and administration procedures were approved by Colorado State University's Institutional Review Board (protocol 02-135H). We obtained resident contact information from Survey Sampling International (Shelton, Connecticut), with samples stratified by state and age to ensure adequate representation of population subgroups, and sought, through requests in our cover letters, equal representation of males and females. We received 12,673 completed surveys (over 400 per state, allowing for population estimates within 5% at the 95% confidence level) and obtained a 21% response rate overall. To test for nonresponse bias, we phoned a sample of nonrespondents in each state following data collection ($n = 7388$). We found significant differences between respondents and nonrespondents on age and participation in wildlife-related recreation but only marginal variation (partial $\eta^2 < 0.01$, the level at which the effect size is defined as small [Cohen, 1988]) in value orientations. Data were weighted to adjust for underrepresentation of younger age groups and overrepresentation of certain forms of wildlife-related recreation within each state, and for state population sizes for reporting at the regional level. For more details regarding survey administration and data weighting, see Teel and Manfredo (2009).

2.2. Measurement

We measured wildlife value orientations using multiple survey items representing basic beliefs about wildlife and wildlife management. A domination orientation was indicated by beliefs representing dimensions of hunting and wildlife use, whereas a mutualism orientation was indicated by belief dimensions of caring and social affiliation. Respondents rated their level of agreement with belief items on a scale from 1 (strongly disagree) to 7 (strongly agree) (Appendix: Table A.1). We measured trust on a scale from 1 (almost never) to 4 (almost always) with the following item: "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?" To measure preferences for agency governance approaches, we asked respondents to select from 4 alternatives indicating which "best represents your opinion of how things should be in your state". Alternatives posed possible combinations of meeting the needs of "primarily those who hunt and/or fish" versus "all members of the public" and obtaining funding from "hunting and fishing license dollars" versus "hunting and fishing license dollars and public taxes" (Appendix: Fig. A.1). To explore the potential for social conflict over wildlife-related issues, we examined the acceptability of different management responses to various human-wildlife conflict situations (16 items, rated as either unacceptable or acceptable; Appendix: Fig. A.2). We gathered data on ballot initiatives from 1990 to 2016 for the states in our sample with a formal ballot initiative process. We focused specifically on cases addressing issues related to the restriction or promotion of wildlife-related activities and management practices. We included only those initiatives that formally made the ballot and were voted on by citizens in their states.

2.3. Analyses

Data were analyzed in SPSS (Chicago, Illinois). We previously explored the internal consistency and structure of value orientation scales (Manfredo et al., 2009; Teel and Manfredo, 2009; Appendix: Table A.1) and found that our groupings of items into belief dimensions and value orientations provided a good fit for the data. To compute value orientation scores, we first assigned respondents a score for each belief dimension (e.g., wildlife use), computed as the mean of all items within that dimension. We then assigned a value orientation (e.g., domination) score by computing the mean of corresponding belief dimension scores. High scores were defined as > 4.50 (median and scale midpoint for each mean composite), whereas low was defined by scores of ≤ 4.50 . We segmented respondents into one of 4 value orientation types by comparing their scores on domination and mutualism simultaneously:

Traditionalists scored high on domination, low on mutualism; Mutualists scored high on mutualism, low on domination; Pluralists scored high on both scales; and Distanced scored low on both (Teel and Manfredo, 2009; Appendix: Fig. A.3).

For our first research question on agency trust, we conducted analyses at the individual and state levels. First, we conducted correlational (Pearson's r) analysis within states to examine the relationship between individuals' value orientation scores and their level of trust in the state wildlife agency. Next, we correlated the percent of Mutualists in each state with the percent of residents indicating they trust the agency "most of the time" or "almost always". We also explored the latter relationship by value orientation type. For our second question involving preferences for agency governance, we first performed chi-square tests to explore individual variation in preferences across value orientation types. We then conducted state-level analysis (including by value orientation type), correlating the percent of Mutualists in each state with the percent of residents indicating a preference for alternatives that represent and are funded by all interests. For our third question on conflict, we calculated a "potential for conflict index" (PCI; Manfredo et al., 2003; Vaske et al., 2010) score for each of the 16 management response items. From these results we computed an average PCI score for each state, whereby higher values would signify a greater amount of within-state response variability, or potential for conflict, among divergent segments of the public. We then conducted correlational analysis comparing the percent of Mutualists in each state with average state-level PCI scores. We used an alpha level of $P < 0.05$ to designate statistical significance for all analyses, but relied largely on effect size measures to account for a higher likelihood of finding statistical significance with large sample sizes (Cohen, 1988).

3. Results

We found a positive correlation between domination and trust ($r = 0.19$), indicating that individuals with higher domination scores were more trusting of the state wildlife agency; the correlation between mutualism and trust ($r = -0.09$), however, was minimal at the individual level. State-level analysis for this relationship revealed a strong polynomial association in line with our expectations, showing that states with higher percentages of Mutualists had lower percentages of residents expressing trust in the agency ($r = -0.61$; Fig. 1a). Comparisons by value orientation type offered further direct support for backlash given that Mutualists remained relatively consistent in their levels of trust across states while Traditionalists showed a sharp decline in the more mutualist states (Fig. 1b). While the most notable differences were between Mutualists and Traditionalists in these comparisons, those with a domination orientation (both Traditionalists and Pluralists) exhibited a similar pattern distinct from that of Mutualists and Distanced individuals (Appendix: Fig. A.4).

We found significant individual variation across value orientation types in preferences for agency governance (Fig. 2). Consistent with expectations, Mutualists (nearly 80%) were more likely to prefer approaches funded by and designed to represent all interests. In contrast, $< 60\%$ of Traditionalists preferred this type of approach. Further, state-level analysis revealed a strong positive association ($r = 0.79$) wherein states with higher percentages of Mutualists showed greater preference for more inclusive approaches (Fig. 3a). This relationship remained consistent across value orientation types, but support among Traditionalists was substantially lower (by around 20%, on average) than that of Mutualists (Fig. 3b; Appendix: Fig. A.5). Findings also supported our third research question, showing a significant state-level correlation between value orientations and the potential for social conflict over wildlife-related issues. States with greater diversity in value orientations and correspondingly higher percentages of Mutualists had higher average PCI scores, indicative of greater divergence of opinion, across management scenarios ($r = 0.64$; Fig. 4).

Results additionally offered support for our final research question

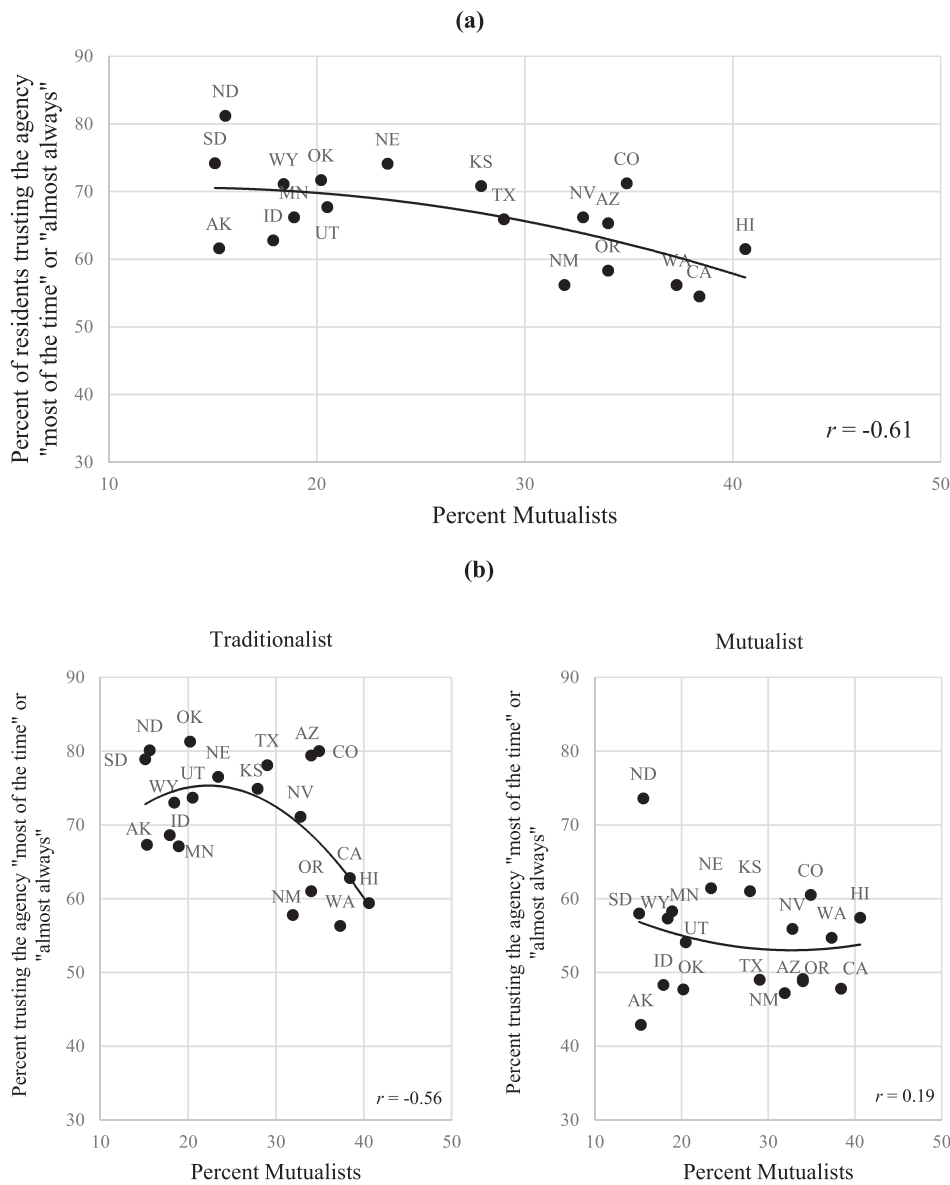


Fig. 1. (a) Percent of Mutualists in each state by percent of residents expressing trust in the state wildlife agency, from a survey of residents in the western United States ($n = 12,673$); (b) depiction of the same by wildlife value orientation type (Traditionalists and Mutualists).

involving an analysis of trends in ballot initiatives. Other sources indicate that, up through the mid-1990s, these initiatives were largely a mechanism pursued by citizens who felt their interests weren't represented by the agencies, resulting in efforts to place restrictions on hunting and fishing (Minnis, 1998; Nie, 2004). Our review supported this claim, but also concluded that the trend has reversed in recent years; hunting-related interests have become a more dominant player in using ballot initiatives, particularly seeking to amend state constitutions to protect the right to hunt, fish, and trap (Table 1). During the 1990s, 4 pro-hunting ballot initiatives were introduced and only 2 (50%) passed. In that same time period, 14 initiatives were introduced, 8 (57%) of which passed, that would provide restrictions on traditional hunting or trapping activities. By contrast, since 2000, 14 pro-hunting initiatives were introduced, many of which focused on ensuring protection of the right to hunt in state constitutions, and 10 (71%) passed. Seven initiatives aimed at restricting hunting were introduced during that timeframe, of which only 2 (29%) passed.

4. Discussion

Governance globally has entered an uncertain time of social and political change amidst the rise of a new wave of populism centered on

a return to traditional values. Specific changes that occur on any given environmental topic, in any particular country or jurisdiction will be driven by a myriad of factors. Yet it seems likely that there will be pressure on progressive environmental initiatives, and the decision environment will be fraught with increased conflict. This certainly appears to be the situation in the case of wildlife governance that we explored in the western United States. The public interests in wildlife conservation in North America have been in flux over the past 75 years, yet the structure of governance has been recalcitrant in adapting to that change. The durability of contemporary wildlife governance institutions, even in the face of societal change, can be attributed to the power of the American hunting culture. Hunting is an expression and reification of important American values, including Judeo-Christian domination and frontier independence and self-sufficiency. This culture shapes normative behaviors and ethical standards, social identities, and mental models about how the world works. The values that the hunting public and state wildlife agencies forged from this cultural tradition are mutually constructed and reinforcing.

In many ways, the emergence and politicization of post-materialist values, seen as urban and elitist, pose a challenge to traditional lifestyles. The shift toward post-materialism, we contend, is mirrored by a shift from domination to mutualism values toward wildlife. This shift

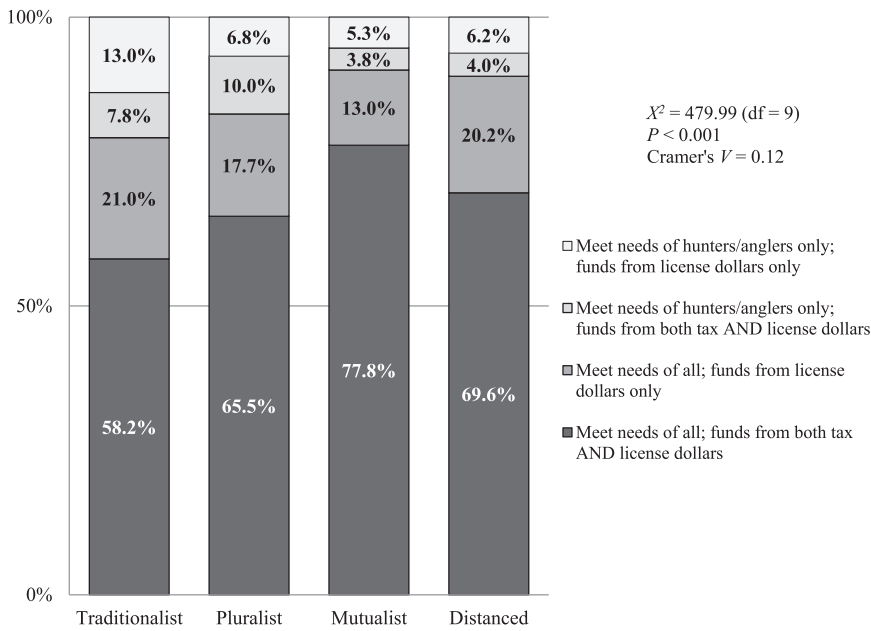


Fig. 2. Preferences for agency governance approaches by wildlife value orientation type, from a survey of residents in the western United States ($n = 12,673$).

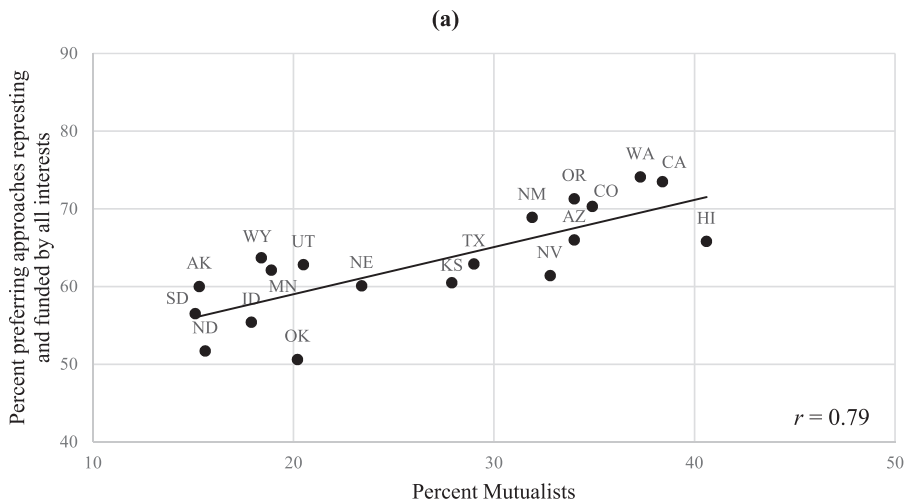
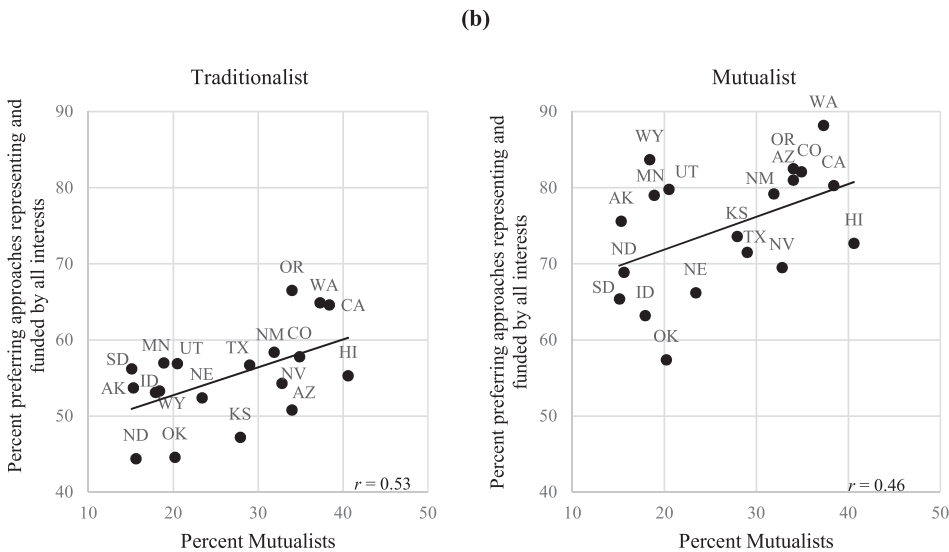


Fig. 3. (a) Percent of Mutualists in each state by percent of residents expressing preference for agency governance approaches that represent and are funded by all interests, from a survey of residents in the western United States ($n = 12,673$); (b) depiction of the same by wildlife value orientation type (Traditionalists and Mutualists).



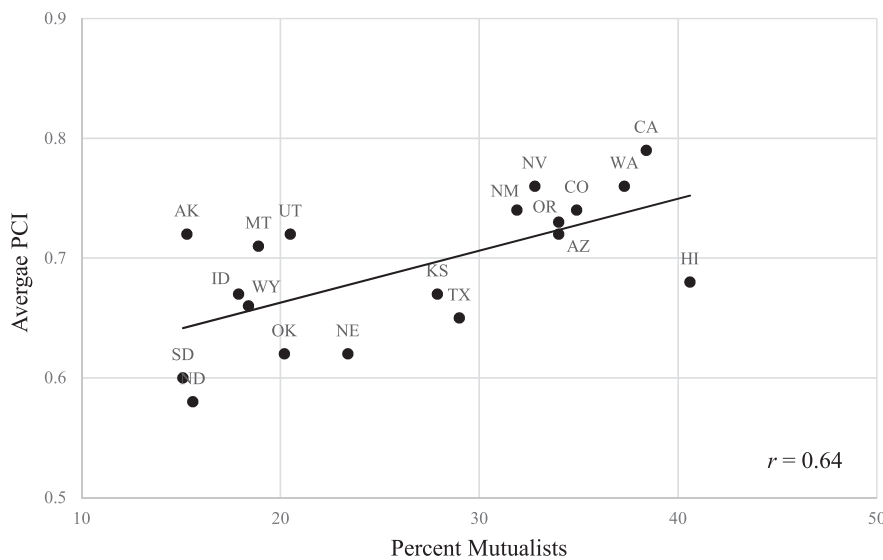


Fig. 4. Percent of Mutualists in each state by average state-level scoring on the “potential for conflict index” (PCI) for wildlife management response items, from a survey of residents in the western United States (n = 12,673). PCI scores range from 0 to 1, with higher values indicating greater within-state response variability around the mean (Manfredo et al., 2003; Vaske et al., 2010).

Table 1
Western U.S. ballot initiatives (put to vote) involving the restriction or promotion of wildlife-related activities and management practices 1990–2016.

	Pro-hunting-related initiatives	Pro-restriction initiatives
1990		California (ban on gill nets) ^a
1992		Arizona (public land trapping amendment) Colorado (black bear hunting restriction) ^a Oregon (limitations on lower columbia fish harvests)
1994		Arizona (public land trapping statute) ^a Oregon (ban on baited bear hunting and cougar hunting with dogs) ^a
1995		Washington (fishing regulations initiative)
1996	California (repeal protection of mountain lions) Oregon (repeal 1994 hunting tactic limitation)	Alaska (prohibit airborne hunting) ^a Colorado (prohibited methods of taking wildlife) ^a Idaho (restriction on bear hunting initiative) Washington (bear baiting act) ^a
1998	Minnesota (hunting and fishing heritage) ^a Utah (supermajority for hunting initiatives) ^a	Alaska (prohibition of wolf snares) California (prohibition on trapping fur-bearing mammals) ^a Washington (restrictions on commercial fishing)
1999		Oregon (prohibit certain animal traps and fur commerce) Washington (animal trapping act) ^a
2000	Alaska (land and shoot referendum) ^a Alaska (no voter initiatives about wildlife) Arizona (wildlife management proposition) North Dakota (right to hunt, trap, and fish) ^a Wisconsin (right to hunt amendment) ^a	
2003		
2004	Montana (right to wild game hunting and fishing)	Alaska (prohibition on bear baiting)
2008	Oklahoma (right to hunt and fish) ^a	Alaska (wolf and bear protection)
2010	Arizona (hunting amendment) Arkansas (hunting rights amendment) ^a Idaho (hunting and fishing amendment) ^a Nebraska (hunting and fishing amendment) ^a Wyoming (hunting rights amendment) ^a	North Dakota (captive game animal killing prohibited initiative)
2012		
2015	Texas (right to hunt, fish, and harvest) ^a	
2016	Kansas (right to hunt and fish) ^a	Montana (animal trap restrictions) Oregon (wildlife trafficking prevention) ^a

^a Initiatives that were approved with over 50% of the vote.

has created a clash of ideologies with opposing views of what is right and wrong in the treatment of wildlife and how wildlife should be managed. As new values permeate the policy arena, evidence would suggest there has been a growing cultural backlash to mutualism. That is, as those with more traditional domination values feel threatened by the change that is occurring, they have acted in opposition to protect the values they hold. Our findings indeed show indications of backlash to American hunting culture threats; in states with higher percentages of Mutualists, residents with domination values are less trusting of the state wildlife agency than domination-oriented residents in other states, and there is greater potential for social conflict over wildlife management issues. And, while there is overall support among the public for agency governance approaches that represent and are funded by all

citizens, such approaches have far less support among residents with traditional values. In addition, widespread action has been underway for the past 2 decades to protect those values, as evidenced in our findings by a growth in ballot initiatives focused on the right to hunt. These initiatives have been joined by action from agencies and non-governmental organizations in the form of a surge in hunter recruitment and retention efforts. In 2013 alone, agencies spent more than \$62 million on hunter recruitment, retention, and education programs (Council to Advance Hunting and the Shooting Sports, 2014).

Can agencies effectively embrace a broader and more progressive conservation agenda in the midst of this values clash? Studies suggest that adaptive change is possible but existing organizational inertia is difficult to overcome. In times of crisis, organizations may tend toward

a cultural lock-in whereby their “invisible architecture” constricts, decision-making authority is centralized, and receptivity to innovation is reduced (Tushman and Romanelli, 1985; Foster and Kaplan, 2009). Gunderson et al. (1995) contend that adaptive capacity is a function of: (1) the agency's ability to control its own trajectory; and (2) available networks, trust, knowledge, inventions, and skills. Even if agency leadership recognizes the need for change, they may not have adequate support internally or among traditional stakeholders to realize change in their policy making. Without this social and political capital, agencies will be largely unable to make necessary internal adjustments that allow for a broader conceptualization and application of conservation governance.

While organizational change may be difficult to achieve, the need for new governance structures in wildlife conservation is increasingly imperative. Response will demand broadening the conception of and conversations about conservation and how we achieve it; until agencies are able to do so, we agree with Decker et al.'s (2016: 294) assertion that “the current alternative is continued failure to meet trust obligations and persistent uncertainty about the future effectiveness and relevance of wildlife conservation”. We are in a period of unparalleled social-ecological change, and the factors driving this change severely threaten wildlife. Continued human population growth, global modernization, resource degradation, and the downstream effects of climate change all pose significant threats to biodiversity. The task of wildlife conservation will likely become more challenging because of changing land use patterns, changes in habitat and distribution of species, new disease outbreaks and emergent threats to human health, mass social migration, and growth in the market value of commodities such as water that provide critical ecological services. Beyond the traditional agency role of managing for hunting and fishing, these changes will give rise to a new array of concerns that will be prioritized by the public. The challenge for agencies will be bringing segmented perspectives together into an overall vision for conservation that is broadly inclusive of a full range of wildlife values.

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Appendix A. Supplementary data

More details on measurement and results of analysis procedures (Appendix A) are available online. The authors are solely responsible for the content and functionality of these materials. Queries (other than absence of the material) should be directed to the corresponding author.

References

- Agrawal, A., Ostrom, E., 2001. Collective action, property rights, and decentralization in resource use in India and Nepal. *Pol. Soc.* 29 (4), 485–514.
- Andrews, R.N., 2006. *Managing the Environment, Managing Ourselves: A History of American Environmental Policy*. Yale University Press, New Haven, Connecticut.
- Armitage, D., de Loe, R., Plummer, R., 2012. Environmental governance and its implications for conservation practice. *Conserv. Lett.* 5, 245–255.
- Beck, T.D.I., 1998. Citizen ballot initiatives: a failure of the wildlife management profession. *Hum. Dimens. Wildl.* 3, 21–28.
- Boglioli, M., 2009. *A Matter of Life and Death: Hunting in Contemporary Vermont*. University of Massachusetts Press, Boston, Massachusetts.
- Bonneuil, C., 2015. Tell me where you come from, I will tell you who you are: a genealogy of biodiversity offsetting mechanisms in historical context. *Biol. Conserv.* 192, 485–491.
- Cohen, J., 1988. *Statistical Power Analysis for the Behavioral Sciences*, 2nd edition.

- Lawrence Erlbaum Associates, Hillsdale, New Jersey.
- Council to Advance Hunting and the Shooting Sports, 2014. State wildlife agencies' resource allocation to hunting and shooting sports participant recruitment, retention, and reactivation (R3). Available from: <http://www.cahss.org/research/report-state-agency-resource-allocation-to-r3/> (accessed June 2017).
- Dalton, R.J., 2005. The social transformation of trust in government. *Int. Rev. Sociol.* 15 (1), 133–154.
- Decker, D.J., Smith, C., Forstchen, A., Hare, D., Pomeranz, E., Doyle-Capitman, C., Schuler, K., Organ, J., 2016. Governance principles for wildlife conservation in the 21st century. *Conserv. Lett.* 9 (4), 290–295.
- Formisano, R., 2015. Populist movements in U.S. history: progressive and reactionary. In: Chesterton, B.M., Norman, Y. (Eds.), *Transformations of Populism in Europe and the Americas: History and Recent Tendencies*. Bloomsbury, London, pp. 136–151.
- Foster, R.N., Kaplan, S., 2009. Survival and performance in the era of discontinuity. In: Burke, W.W., Lake, D.G., Paine, J.W. (Eds.), *Organization Change: A Comprehensive Reader*. Jossey-Bass, San Francisco, California, pp. 35–50.
- Gavin, M.C., McCarter, J., Mead, A., Berkes, F., Stepp, J.R., Peterson, D., Tang, R., 2015. Defining biocultural approaches to conservation. *Trends Ecol. Evol.* 30 (3), 140–145.
- Gunderson, L.H., Holling, C.S., Light, S.S., 1995. *Barriers and Bridges to the Renewal of Ecosystems and Institutions*. Columbia University Press, New York.
- Harvey, D., 2005. *A Brief History of Neoliberalism*. Oxford University Press, New York.
- Holling, C.S., Meffe, G.K., 1996. Command and control and the pathology of natural resource management. *Conserv. Biol.* 10 (2), 328–337.
- Inglehart, R., 1997. *Modernization and Postmodernization: Cultural, Economic, and Political Change in 43 Societies*. Princeton University Press, Princeton, New Jersey.
- Inglehart, R., Norris, P., 2016. Trump, Brexit, and the rise of populism: economic have-nots and cultural backlash. In: *Social Science Research Network HKS Working Paper No. RWP16-026*, Available from: <https://ssrn.com/abstract=2818659> (accessed December 2016).
- Inglehart, R., Welzel, C., 2005. *Modernization, Cultural Change, and Democracy: The Human Development Sequence*. Cambridge University Press, Cambridge, United Kingdom.
- Jacobson, C.A., Decker, D.J., 2008. Governance of state wildlife management: reform and revive or resist and retrench? *Soc. Nat. Resour.* 21, 441–448.
- Jones, D.M., 1997. Protecting animals at the ballot box. In: *Mainstream*. 28(1). Animal Protection Institute, pp. 24–27.
- Kitayama, S., Conway III, L.G., Pietromonaco, P.R., Park, H., Plaut, V.C., 2010. Ethos of independence across regions in the United States: the production-adoption model of cultural change. *Am. Psychol.* 65 (6), 559–574.
- Knight, R.L., Meffe, G.K., 1997. Ecosystem management: agency liberation from command and control. *Wildl. Soc. Bull.* 25 (3), 676–678.
- Lebel, L., Anderies, J.M., Campbell, B., Folke, C., Hatfield-Dodds, S., Hughes, T.P., Wilson, J., 2006. Governance and the capacity to manage resilience in regional social-ecological systems. *Ecol. Soc.* 11 (1), 19.
- Levi, M., Stoker, L., 2000. Political trust and trustworthiness. *Annu. Rev. Polit. Sci.* 3, 475–507.
- Manfredo, M., Vaske, J., Teel, T., 2003. The potential for conflict index: a graphic approach to practical significance of human dimensions research. *Hum. Dimens. Wildl.* 8 (3), 219–228.
- Manfredo, M.J., Teel, T.L., Henry, K.L., 2009. Linking society and environment: a multi-level model of shifting wildlife value orientations in the western U.S. *Soc. Sci. Q.* 90, 407–427.
- McCorquodale, S.M., 1997. Cultural contexts of recreational hunting and native subsistence and ceremonial hunting: their significance for wildlife management. *Wildl. Soc. Bull.* 25 (2), 568–573.
- McGirr, L., 2015. *Suburban Warriors: The Origins of the New American Right*. Princeton University Press, Princeton, New Jersey.
- Mény, Y., Surel, Y. (Eds.), 2002. *Democracies and the Populist Challenge*. Palgrave, New York.
- Minnis, D.L., 1998. Wildlife policy-making by the electorate: an overview of citizen-sponsored ballot measures on hunting and trapping. *Wildl. Soc. Bull.* 26 (1), 75–83.
- Mudde, C., 2007. *Populist Radical Right Parties in Europe*. Cambridge University Press, New York.
- Nie, M., 2004. State wildlife policy and management: the scope and bias of political conflict. *Public Adm. Rev.* 64 (2), 221–233.
- Norris, P., Inglehart, R., 2009. *Cosmopolitan Communications*. Cambridge University Press, New York.
- Organ, J.F., et al., 2012. The North American model of wildlife conservation. In: *The Wildlife Society Technical Review 12–04*. The Wildlife Society, Bethesda, Maryland.
- Orren, G., 1997. Fall from grace: the public's loss of faith in government. In: Nye, J., Zelikow, P., King, D. (Eds.), *Why Americans Mistrust Government*. Harvard University Press, Cambridge, Massachusetts, pp. 77–108.
- Ostrom, E., 2015. *Governing the Commons*. Cambridge University Press, Cambridge, United Kingdom.
- Parker, C.S., Barreto, M.A., 2014. *Change They Can't Believe in: The Tea Party and Reactionary Politics in America*. Princeton University Press, Princeton, New Jersey.
- Reed, M., 2008. Stakeholder participation for environmental management. *Biol. Conserv.* 141, 2417–2431.
- Riley, S.J., Decker, D.J., Carpenter, L.H., Organ, J.F., Siemer, W.F., Mattfeld, G.F., Parsons, G., 2002. The essence of wildlife management. *Wildl. Soc. Bull.* 1, 585–593.
- Robbins, P., Luginbuhl, A., 2005. The last enclosure: resisting privatization of wildlife in the western United States. *Capital. Nat. Social.* 16 (1), 45–61.
- Rothstein, B., Teorell, J., 2012. Defining and measuring quality of government. In: Holmberg, S., Rothstein, B. (Eds.), *Good Government: The Relevance of Political Science*. Edward Elgar Publishing Limited, Cheltenham, United Kingdom, pp. 6–26.
- Slotkin, R., 1992. *Gunfighter Nation: The Myth of the Frontier in Twentieth-century*

- America. University of Oklahoma Press, Norman, Oklahoma.
- Stedman, R.C., Heberlein, T.A., 2001. Hunting and rural socialization: contingent effects of the rural setting on hunting participation. *Rural. Sociol.* 66 (4), 599–617.
- Teel, T.L., Manfredi, M.J., 2009. Understanding the diversity of public interests in wildlife conservation. *Conserv. Biol.* 24, 128–139.
- Tushman, M.L., Romanelli, E., 1985. Organizational evolution: interactions between external and emergent processes and strategic choice. *Res. Organ. Behav.* 8, 171–222.
- Vaske, J.J., Beaman, J., Barreto, H., Shelby, L.B., 2010. An extension and further validation of the potential for conflict index. *Leis. Sci.* 32 (3), 240–254.
- Vucetich, J.A., Bruskotter, J.T., Nelson, M.P., Peterson, R.O., Bump, J.K., 2017. Evaluating the principles of wildlife conservation: a case study of wolf (*Canis lupus*) hunting in Michigan, United States. *J. Mammal.* 98 (1), 53–64.