Technocracy in a time of changing values: Wildlife conservation and the “relevancy” of governance reform

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Abstract
Calls for organizational change have pervaded wildlife conservation in recent decades, driven by a shift in values that is reshaping the social landscape of wildlife management. As this process unfolds, wildlife agencies in North America seek new ways to remain relevant, focusing primarily on how they might expand support for their ongoing work. Less attention, however, has been given to expanding opportunities for a value-diverse public to directly shape what that work might entail. As citizen ballot initiatives, lawsuits, and other forms of political intervention continue to complicate wildlife management, we ask whether agencies—who have historically shied away from value-based conflict in pursuit of apolitical scientific management—can remain relevant without fundamental changes to their governance structures. Using data from a 2018 survey of wildlife values among the American public (n = 24,393) and state wildlife agency employees (n = 10,191), we explore the extent to which public values are mirrored within wildlife agencies and examine the implications of a “values gap” on the long-term sustainability of technocratic wildlife management. Findings suggest that as the public’s perspectives on wildlife conservation change, governance reform may become a growing area of focus in the years ahead.

Keywords
conservation, culture, governance, history, North America, participation, social change, trust, values, wildlife management

1 | INTRODUCTION
We in the fish and wildlife profession must ask ourselves, “Are we still relevant to the people we serve?” If the answer to that question is “no” or “maybe,” then we may need to seriously evaluate what we are doing, how we are doing it, and for whom we are doing it.

Ed Carter, former President of the Association of Fish & Wildlife Agencies, 2019

In 2019, the Association of Fish and Wildlife Agencies (AFWA) published the Fish and Wildlife Relevancy Roadmap, reflecting years of discussion among practitioners, experts, and scholars on the changing social context of wildlife conservation in North America. The
document, crafted to help agencies adapt to these changes, acknowledged that declining participation in hunting and other forms of wildlife recreation were borne of a shift in values away from domination and toward mutualism, and that such shifts had important implications for wildlife agencies who rely on hunters and anglers for political and financial backing (Jacobson & Decker, 2008; Williams, 2010). Concerned with a shrinking base of support, the Roadmap sought to generate pathways through which state and provincial agencies could highlight the importance of their work to new segments of the public, many of whom were perceived to be less aware of or engaged in their state’s conservation efforts (AFWA & WMI, 2019). By helping “more people connect with nature” (AFWA & WMI, 2019, p. 118), the Roadmap attempted to expand the “umbrella of support” (AFWA, 2020) around wildlife agencies and help ensure agency relevance long into the future.

Discussions of organizational change, like those embodied in the Roadmap, are not new to conservation. In fact, organizational change has represented a defining discourse of North American wildlife management for decades. While one string has focused overwhelmingly on the relationship of the public to the resource (e.g., Kellert & Brown, 1985), another has focused on the relationship of the public to the agency. This latter discourse has engaged with questions of wildlife governance—the processes through which we negotiate the rules that govern our world (Box, 1998; Steinberg, 2015). From Beck’s (1998) critique of citizen ballot initiatives as a “failure of the wildlife management profession” to Decker et al.’s (2016) construction of new principles for wildlife governance, these calls have articulated that expanding definitions of wildlife recreation must, at a minimum, be coupled with increased public presence in wildlife decision-making (Jacobson, Organ, Decker, Batcheller, & Carpenter, 2010).

In the web of organizational change, these strings are intertwined but also conceptually distinct (see, e.g., Figure 1 in Berl et al., this issue). Offering recreational opportunities to new constituencies may be vitally important for drawing in support, but overwhelmingly preserves authority over wildlife decision-making in the hands of government experts (Bocking, 2006; Spicer, 2010). Governance reform movements, in contrast, propose fundamental shifts to that authority, opening decision-making opportunities to members of the public and offering more ways for citizens to influence the process, goals, and orientations of wildlife conservation (Armitage, De Loë, & Plummer, 2012; Dryzek, 2013).

As wildlife agencies today come to reflect on their role in guiding conservation forward into a new social landscape, we ask: can agencies maintain relevance in a changing society without significant changes to their governance structures? To address this question we examine how technocracy—or decision-making by those with technical skills training and scientific expertise (Meynaud, 1968; Putnam, 1977)—came to be the primary mode of governance in North American wildlife conservation, linking the science of wildlife management to utilitarian principles of sustainable use. We then detail the shift in social values that occurred in North America in the post-war era, asking whether the context of value pluralism that resulted is reflected in state agencies, or whether the insular nature of technocracy prevented such a shift from occurring. We address this question with data from a 2018 study of wildlife values in America, and further examine the implications of our findings for the long-term viability of current governance structures. We conclude by discussing the implications of our findings for North American wildlife management in a time of profound social and political change.

### 1.1 Wildlife management in the technocratic age

In his 1887 treatise *The Study of Administration*, President Woodrow Wilson advocated for a rational, scientific approach to the administration of public policy that sat “outside of the proper sphere of politics” (p. 210) (Wilson, 1887). At the heart of his essay was the idea that amid increasingly complex problems emerging in the wake of industrialization, science and technology could offer solutions that politics had been powerless to solve. Proponents of such “administrative rationalism” (Bocking, 2006; Dryzek, 2013) undoubtedly predated Wilson; such a philosophy can be traced back to the early 19th-century work of Henri de Saint-Simon and his enlightenment successors before him, who argued for a world governed by reason and rationality (Baber & Bartlett, 2001; Latour, 2004; Putnam, 1977; Spicer, 2010). Wilson’s proposal, however, had a profound influence on the governing institutions of the U.S., giving rise to a new technocratic era in American public administration. This shift, more than just catalyzing a new era of efficiency, represented a “slipping sideways of power” (Meynaud, 1968, p. 30), reallocating authority away from publicly-elected officials and toward appointed bureaucrats afforded the social privileges of advanced education (Bell, 1973). Public agencies staffed with scientific, economic, and technical experts became newly empowered to shape public policy, drawing on scientific evidence and professional experience to inform their work and
delegating politics—the process of negotiating “who gets what, when, and how”—to arenas outside of the administrative sphere (Lasswell, 2018; Spicer, 2010).

Emerging at the height of the technocratic era, wildlife agencies in North America embraced expert models of conservation, positioning the prolific loss of wild species as a technical problem to be solved with the application of scientific principles (Bocking, 2006). Agencies drew young professionals—many of whom had themselves grown up hunting and fishing—from universities that trained in the wildlife sciences, leaning heavily on biological principles of sustainable yield (Callicott, 1990; Meine & Knight, 1999; Organ et al., 2012). As these individuals took up posts across the U.S., they brought with them a dedication to science-based problem-solving, rooted in the belief that through effective management, wildlife resources could be sustainably harvested long into the future. Mirroring Wilson’s original vision for an apolitical administrative sphere, North American wildlife conservation became seen as a project “better left to the knowledgeable wise men [of science]” (Handler, 1980).

In 1946, however, the passage of the Administrative Procedure Act (5 USC 79-404, 60 Stat. 237) required public agencies—including those managing wildlife—to open their decision-making processes to public comment and oversight, complicating the narrative of a purely science-based decision-making process (Administrative Procedure Act, 1946). Perceived by many as a politicization of scientific management, these public engagement processes came to be a central point of contention among agency experts, many of whom felt that the process was neither helpful nor appropriate (Nie, 2004; Spicer, 2010). As public oversight grew throughout the 20th century, political scientists acknowledged the emergence of a “technocratic mentality” within government agencies. This mentality held experts as the primary population capable of making rational decisions on behalf of the public, and led many to lament the public’s increasing role in policy formation (Crick, 2005; Putnam, 1977; Spicer, 2010). Agencies conceived of themselves as not needing to engage with the public to know how to serve them so long as the public—conceptualized by administrators to operate as a single unit with a single “public interest” (Dryzek, 2013)—shared in their vision for wildlife conservation. While for many years this may have been true (at least among those with political power), the post-war era brought about a significant shift in social values, and with it, a new array of visions for wildlife conservation (Manfredo et al., 2020; Teel & Manfredo, 2009).

1.2 Social change, static governance

While utilitarian perspectives on wildlife dominated during the formative 19th and 20th century of agency development, social change following the conclusion of World War II led to a rapid transformation of the American landscape, driven by urbanization, increased access to higher education, and increased wealth. As these changes took hold, social values too began to shift. Materialist values focused on wealth and personal security began to subside amid relative economic and political security, while post-materialist values related to social affiliation and political engagement grew, driving more people into the public sphere (Inglehart, 2018). Simultaneously, values toward wildlife shifted. Where domination values had once been commonplace, the latter half of the 20th century began to see a notable increase in mutualism values that position wildlife as an extension of human social networks rather than a resource to be consumed (Teel & Manfredo, 2009).

These shifts, however, were not evenly distributed across the U.S. landscape, nor did they lead to a total replacement of values. Instead, today we see a social landscape defined by value pluralism, where diverse values come into conflict in ways that do “not permit easy reconciliation or solution” (Spicer, 2010, p. 18; Teel & Manfredo, 2009; Inglehart, 2018). Ill-equipped with the expertise and structures to address this conflict, wildlife agencies also faced a compounding challenge: as values grew more diverse and more people engaged in environmental management, the public came to see agencies as advancing a particular vision of conservation (Doremus, 2005; Wagner, 1995). As a result, citizens appeared “increasingly unwilling to accept uncritically the judgements of experts” (Bocking, 2006, p. 4). Despite Wilson’s vision for an apolitical administrative sector, politics and values once again have come front and center into debates around the future of wildlife conservation. How do wildlife agencies with strong technocratic governance institutions navigate such a deeply political social landscape?

1.3 Study objectives

Today, citizen ballot initiatives, lawsuits, protests, and other forms of political intervention highlight the
numerous pathways through which public interest and citizen groups seek to influence which visions for wildlife conservation will come to define the 21st century. While Wilson’s vision for an apolitical administrative sector was well-received a century ago, today we ask: can wildlife agencies remain relevant to a changing social context without significant adjustments to their governance models? To answer this question, we reflect on the role of values in shaping visions for wildlife conservation, how the values of those in wildlife agencies reflect a pluralistic social context, and what that implies for the sustainability of technocratic governance.

First, we examine the extent to which the values of those working within wildlife agencies mirror the values of the public with regard to wildlife. Public experts have long drawn sharp distinctions between facts and values in their work, but scholars propose that personal ideologies still influence the goals and daily practices of those working in their field (Cramer, Kennedy, Krannich, & Quigley, 1993; Riccucci & Saidel, 1997; Spicer, 2010). While values in society have shifted dramatically in recent decades, however, conservation is deeply rooted in utilitarian ideologies that position wildlife as a resource for human use. Given that these values are central to informing the work of wildlife conservation, and given the role of technocracy in reaffirming those values, we anticipate that a “values gap” will exist between wildlife agency employees and members of the public, with agency employees maintaining strong domination values.

Next, we assess implications of a values gap, should one exist, on the potential sustainability of technocratic governance in a value pluralistic context. We do so first by assessing public trust in agencies. If high levels of public trust exist across value types, then we may be able to assume that differences in values between agencies and the public are less important than perceptions that the agency is doing what is right for wildlife. However, if we are to find that trust differs significantly between value types, or that trust declines in states with a significant values gap, then we may assume that this gap could lead to a legitimacy problem for wildlife agencies as values shift (Hetherington, 1998). Flipping our perspective, we also examine how a values gap may influence agency support for public engagement. As values grow more diverse in society, many governance scholars suggest that meaningful opportunities for working through value-based disagreements are necessary to ensure the legitimacy of government agencies (Bryson, Crosby, & Bloomberg, 2014; Dryzek, 2013; Fischer, 2009; Spicer, 2010). We anticipate, however, that strong dedication to expert decision-making may limit support for public participation, especially in states with a significant values gap. We test these predictions below and discuss the implications of our findings.

2 METHODS

2.1 Data collection

Data for this research comes from the “America’s Wildlife Values” study, conducted in 2017–2018. This project measured public values toward wildlife in all 50 states (hereafter referred to as the public survey) and characteristics of agency culture and governance within state wildlife agencies (hereafter, the agency survey) (for more detailed information see Manfredo et al., 2018). For the agency survey, all 50 state wildlife agencies were invited to participate, with 30 states willing and able to do so. Results include here (28 states, n = 10,191; 68% response rate) represent a range of state agencies from across the U.S., with variability in staff size and organizational structure. To allow for a more direct comparison between the public and agencies, only those public responses from the 28 states where agencies were surveyed are included in our analysis (n = 24,393).

2.2 Measurement and analysis

We first examined whether values of wildlife agency employees reflected the values of the public. We assessed wildlife values through a previously validated 19-item scale measuring two value dimensions, domination (assessed as beliefs about hunting and wildlife use) and mutualism (assessed as beliefs about caring and social affiliation) (Manfredo et al., 2020; Teel & Manfredo, 2009). Respondents rated their level of agreement with the items on a scale from 1 (strongly disagree) to 7 (strongly agree). We assigned value scores by computing the mean of all items within each value dimension. We segmented respondents based on their mean scores on both scales; and Distanced scored low on both (Teel & Manfredo, 2009). To determine whether values were significantly different between agencies and the public in aggregate, we conducted chi-squared analysis. We then conducted correlation analysis (Pearson’s r) at the state level to examine the relationship between the percent of Mutualists in a state and the percent of Mutualists in the
Public trust was measured in the public survey through a single 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?” Responses were rated on a 1 (almost never) to 4 (almost always) scale. For our analysis, responses of 3 (most of the time) and 4 (almost always) were recoded into a single “agree” category to represent trust and aggregated to the state level as a percent for comparison to the values gap. We then conducted correlation analysis (Pearson’s r) to examine the state-level association between the values gap on mutualism (calculated as the percent of Mutualists in a state minus the percent of Mutualists in an agency) and public trust in the state wildlife agency. We further ran these correlations separately for Traditionalists and Mutualists to assess whether differences might exist by value type.

Finally, support for public engagement were measured by adapting Arnstein’s (1969) ladder of participation into a 7-point scale ([1] non-participation; [2] education; [3] consultation; [4] representation; [5] partnership; [6] delegation; [7] complete control), asking agency employees to indicate at what level their agency currently includes and would ideally include a) paying stakeholders (hunters and anglers) and b) members of the general public in decision-making. We first compared current and ideal levels of participation to determine whether agency employees’ preferences for public participation match current perceived models. Then we segmented responses to the “ideal participation” item based on Arnstein’s pre-established classifications to capture low levels of participation (non-participation and tokenism; 1–4) and high levels of citizen participation (citizen control; 5–7). Finally, we conducted correlation analysis (Pearson’s r) to examine the state-level association between the values gap and support among agency employees for a high level of citizen participation. Throughout these analyses, we used an alpha level of p < .05 to designate statistical significance and computed effect size measures to take into account a higher likelihood of finding statistical significance with large sample sizes (Cohen, 1988).

3 RESULTS

3.1 Wildlife values

As anticipated, we found that agency employees hold strong domination values, with 65% classified as Traditionalists and 23% classified as Pluralists. These value compositions differed significantly from those of the public in aggregate ($\chi^2 [3] = 34.49, p < .001; \text{Cramer’s } V = 0.42$), which were instead more value diverse with a greater representation of Mutualists (Figure 1a). At the state level, we found a moderate positive correlation ($r = .35$) between agency and public values such that, as the percent of Mutualists in the public increased, so did the percent of Mutualists in the agency (Figure 1b). While this finding suggests some change within agencies as values shift in the public, the range of Mutualists in agencies was tightly constrained compared with the public.

![Figure 1](image-url)
3.2 | Public trust

We found relatively high levels of public trust across our sample, with 60.9% of the public expressing trust in their state wildlife agencies. By comparison, only 37.7% of this same sample expressed trust in state government, and only 25.0% expressed trust in the federal government. However, for wildlife agencies, results at the state level show some important caveats. First, we found a moderate negative correlation ($r = -0.49$) between the values gap and public trust, indicating that agencies with few Mutualists in highly Mutualist states receive lower levels of trust overall than those whose values are more closely aligned (Figure 2a). Further, we found that trust declined among both Traditionalists and Mutualists as this gap grew, and that declines in trust were stronger for Traditionalists ($r = -0.25$) compared to Mutualists ($r = -0.14$; Figure 2b). While these findings may at first seem counterintuitive, they appear to suggest the presence of a “backlash” among traditional constituents, first documented in wildlife conservation by Manfredo, Teel, Sullivan, and Dietsch (2017).

3.3 | Public engagement

Finally, our data indicate that agency employees perceived a slight inequity in current opportunities for public engagement, describing more opportunities for paying stakeholders (hunters and anglers) to be involved in decision-making than for members of the general public (Figure 3a). When asked to describe their ideal scenario, agency employees described a more balanced situation, with both members of the general public and paying stakeholders “represented” in decision-making in similar proportions (Figure 3b), a degree of influence that Arnstein (1969) would refer to as “tokenism.”

Next, we looked at whether the values gap may influence support for public participation in wildlife decision-making. We did not find a strong relationship between the values gap and employees’ willingness to engage paying stakeholders in decision-making ($r = .09$). With regard to members of the general public; however, employees were significantly less likely to support high levels of participation in states with a larger values gap ($r = -0.45$; Figure 4). These findings appear to suggest that support for public engagement may be at least partially dependent upon shared values. Paying stakeholders who share a common vision with agencies on the future of conservation may be invited to provide input at critical junctures, but support for broad-based participation may be limited by perceptions of the potential for value-based conflict.

4 | DISCUSSION

As values toward wildlife shift and calls for organizational change grow, U.S., state wildlife agencies are grappling with how to remain relevant to a changing society. But as values increasingly come into conflict, can
agencies meaningfully adapt without adjustments to their technocratic governance structures? Our findings here suggest that this is unlikely. Currently, values of the public are diverse and look significantly different from those of agency employees, suggesting continued pressure from the public as they seek to inform the direction of wildlife management in the future (see, for example, Colorado’s successful effort to reintroduce wolves by citizen ballot initiative in 2020; Sullivan, 2021). Moreover, this values gap may pose significant problems for the longevity of expert-led wildlife management. While public trust in agencies is high relative to other indicators of trust in government, our findings suggest that a widening gap in values may have important implications for trust, first among those with non-aligned values who view the agency as not serving their interests (Beck, 1998; Nie, 2004), and then among Traditionalist who view the agency as capitulating to the whims of alternative constituencies (Manfredo et al., 2017). In such a tumultuous political landscape, assuming that agencies can maintain authority on the premise that the public trusts experts to do what is best for conservation appears increasingly untenable. Finally, employee support for public engagement in its current form also does not appear to be an alternative route toward relevancy, particularly in states where agency values may not mirror those of the public. While employees remain generally unconcerned with the engagement of traditional constituents, concern about bringing other members of the public into decision-making appears prominent, especially in states with a significant values gap where public perspectives may challenge visions held by agencies. These findings give credence to ideas of a technocratic mentality in wildlife conservation, especially when coupled with open-ended comments resulting from our survey, a large number of which articulated that wildlife conservation...
had grown “too political,” and that “decision-making needs to come back to the agency and to the experts.”

But while agencies often espouse the scientific nature of their work, politics permeate conservation and management in many ways. In positioning hunters and anglers as the primary beneficiaries of conservation, or in choosing not to do so, state agencies make political calculations. By making science-based recommendations to cap the number of hunting licenses, stop the hunt of certain species, or remove hunting bag limits, wildlife agencies lean into their values in determining “who gets what, when, and how” (Lasswell, 2018). Asserting that these decisions, central to the work of wildlife agencies, are based on scientific variables alone does not make them non-political, but simply buries values “beneath a veil of the legitimacy of science” (Decker, Shanks, Nielsen, & Parsons, 1991, p. 525). This matters, in part because wildlife conservation is not just a technical problem. It is instead a problem borne of the interactions between social and ecological systems, and with deeply political implications for living beings, both human and non-human. Who gets to make those decisions is critically important to shaping who gets to benefit from them.

Importantly, while our data did suggest support for a more equitable vision for public engagement in wildlife management, that vision still maintained experts as the primary arbiters of conservation decisions on the foundation of technical scientific data. This same framing also informs conventional discussions of agency relevancy. As the number of hunters declines, agencies invest heavily in efforts to recruit and retain new conservationists—both hunters and otherwise—who can support their ongoing work. But bringing those with non-traditional values or marginalized identities into conservation, without creating space for them to influence conservation policy and practice, could subject agencies to a persistent and lingering political challenge by the same constituents they hope to recruit. If true, then governance is not tangential to relevancy but at the very heart of it.

To clarify, the problem confronting agencies today is not simply that they have the “wrong” technocrats in their ranks. While indeed the addition of social scientists into conservation has been a valuable endeavor (Manfredo, Salerno, Sullivan, & Berger, 2019), these new expert perspectives alone cannot solve the challenge associated with shifting values. The problem, rather, comes from asking those with technical skills to do non-technical work; assigning scientific experts the task of making decisions about political problems. Likewise, the question is not whether we need science, for undoubtedly we do. Instead of doubting that science has a place in conservation, we encourage agency personnel to more deeply examine how we define science and its role in conservation, and whether it necessarily precludes politics from coming to bear on decision-making (Bocking, 2006). Building from scholarship in the field of science studies (Fischer, 1993; Habermas, 1991; Jasanoff, 2017; Latour, 2004; Sagoff, 2007), we propose that the future of wildlife conservation rests in part on agencies’ ability to dis-embed how we can do wildlife management from how we should do it, learning to embrace some balance of science in the former and democracy in the latter.

Striking this balance will undoubtedly require leveraging opportunities that create space for agencies to engage in this work. Organizational change, in this sense, must first be about undoing. In Missouri, for example, expanding funding through state taxes has allowed the agency to grow its focus on non-game species, creating space for a diverse array of public interests to shape conservation (Parker-Pauley et al., this issue). Agencies must also look to their training programs internally and in higher education to acknowledge that utilitarian ideals are embedded not just in agency practices but also in wildlife science itself. Diversifying educational paradigms, especially through training that advances a consciousness of public service and democratic processes, is vital (McIvor, 2020; Teel et al., this issue). Additionally, the work of organizational change must be about rebuilding if governance challenges are to be addressed. Agencies may, for example, choose to shrug old models of public hearings that encourage division and grandstanding (Nie, 2004), replacing them instead with more deliberative forms of community engagement. More than just a tokenistic gesture, such change could serve to meaningfully incorporate the perspectives of interested citizens in ways that benefit agencies and the public by cultivating new ideas, working through value disagreements, and enhancing social capital within and beyond agencies (Baber & Bartlett, 2001; Putnam, 2020; Sagoff, 2007; Walker & Daniels, 2001). While democratic deliberation has been a growing area of research and practice in environmental management in recent years, it has been starkly underutilized in conservation, especially in addressing state and local challenges.

In contrast, agencies may retrench around their technocratic principles, relying on science and expertise alone to try to solve ballooning environmental challenges. As stated by Doremus (2005, p. 305) “It may be that in the past, this approach produced more positive conservation results with less political hassle than would have followed from frank confessions of the limits of scientific information. If ever they existed, however, those days are gone.” As climate change, habitat degradation, and global biodiversity crises intensify, resources become
increasingly scarce, and therefore increasingly political. As such, the social, economic, and ecological challenges facing wildlife managers in the years ahead are unlikely to wane. In the new and highly value-diverse social context of conservation, management guided by science is necessary but not sufficient for addressing these wicked challenges. By conceptualizing relevancy as a governance issue, it is our hope that agencies may become more aware of the political nature of the scientific choices they are already making and begin to imagine new ways of bridging expertise with the shifting interests of a changing public.

ACKNOWLEDGMENTS

The authors would like to thanks the Western and Midwest Associations of Fish and Wildlife Agencies for their sponsorship of this research, which was funded by state agency contributions and a grant awarded through the 2015 Multi-state Conservation Grants Program (#F15AP00726). Thanks also to A. Don Carlos, R. Gruby, D. McIvor, and two anonymous reviewers for their contributions to and reflections on this work.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

All authors contributed to the design of the research study and editing of the article. Leeann M. Sullivan led data analysis and interpretation of results, as well as the original drafting of the article.

ETHICS STATEMENT

The work presented here represents the original research of the authors. Survey instruments and administration procedures for this study were approved by Colorado State University’s Institutional Review Board (Protocol 02-147H) to ensure protection of human subjects.

DATA AVAILABILITY STATEMENT

Data may be made available upon reasonable request to the corresponding author.

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ENDNOTE

1 Montana and Rhode Island were also surveyed but were excluded from these analyses because they were missing question sets (Montana) or because their small staff size made direct comparison difficult (Rhode Island).

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How to cite this article: Sullivan, L. M., Manfredo, M. J., & Teel, T. L. (2022). Technocracy in a time of changing values: Wildlife conservation and the “relevancy” of governance reform. Conservation Science and Practice, 4(2), e545. https://doi.org/10.1111/csp2.545