



# Stakeholder Support for Wildlife Conservation Funding Policies

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State wildlife management agencies in the United States have depended on a “user-pay” funding model for conservation efforts that relies on revenue from hunting license sales and a federal excise tax on firearms, ammunition, and archery equipment. Declines in hunting participation, however, jeopardize sustainability of the current funding model. Ensuring support among stakeholders for wildlife management and conservation may require expanding sources of funding and incorporating the perspectives and values of a diversifying constituency into decision making processes. We used a web-based survey of wildlife-associated recreationists in Michigan, USA to evaluate support for a range of conservation funding policies. Respondents self-identified primarily as hunters ( $n = 2,558$ ) or wildlife watchers ( $n = 942$ ). We used binary logistic regression to evaluate support for four conservation funding policy options: state sales tax, lottery proceeds, extractive industry revenue, and a user-based tax on outdoor gear (i.e., “backpack tax”). Determinants of support varied by type of policy and stakeholder characteristics. We found no statistically significant differences between hunters and wildlife watchers in their support for conservation funding policies when accounting for other variables such as wildlife value orientations, engagement in stewardship behaviors, age, and gender. The industry-based policy achieved the greatest level of approval, while the backpack tax had the lowest. Respondents were mixed in their support of the sales tax and lottery proceeds options. Cluster analysis revealed three homogenous groups related to conservation funding policies: “strong support,” “mixed/opposed,” and “anti-backpack tax.” Clusters differed in their support for conservation funding policies and on psychological and demographic variables. The “strong support” and “anti-backpack tax” groups differed in their levels of stewardship engagement, knowledge of conservation funding mechanisms, and support for the backpack tax option. The “mixed-opposed” group tended to be older, less educated, and less likely to be a member of a conservation organization. Results suggest support for conservation funding differs by policy type and social and psychological characteristics of stakeholders. Based on differences in policy support revealed in this study, we suggest a multi-tiered approach to funding conservation and building on support among wildlife stakeholders to mitigate the looming funding crisis for state wildlife agencies.

**Keywords:** human dimensions, hunting, Michigan, wildlife management, wildlife watching

## INTRODUCTION

Contemporary threats to biodiversity include global impacts stemming from climate change, population growth, land use changes, development, and geopolitical conflict, leading to significant risks for wildlife species and habitats [Leemans and de Groot, 2003; Male and Bean, 2005; Intergovernmental Panel on Climate Change (IPCC), 2019]. In North America, public support and participation in wildlife management has emerged as a critical component to successful conservation, as well as a challenge for the wildlife profession (Decker et al., in press). Hunters have played an integral role in achieving conservation successes by direct participation in wildlife management through game harvest and indirectly through monetary contributions to state fish and game programs (Heffelfinger et al., 2013). Monetary contributions from hunters primarily are generated through state hunting license sales and a federal excise tax on hunting equipment, ammunition, and archery equipment (Williams, 2010; Duda et al., 2021). Hunting participation has declined in many states, however, with repercussions for wildlife management and conservation efforts (Winkler and Warnke, 2013; Echols et al., 2019).

Generational transitions, urbanization, and shifting societal values have led to expectations for wildlife management that are not always compatible with consumptive uses such as hunting (Manfredo et al., 2018). Non-hunting forms of outdoor recreation have increased in popularity, with wildlife watching<sup>1</sup> among the fastest-growing activities [Cordell, 2012; United States Fish and Wildlife Service (USFWS), 2018]. Other nature-based activities have gained participants as well, such as hiking, camping, mountain biking, and kayaking, leading to an evolving mix of recreational practices and demographically diverse sets of users (Cordell, 2012). Practitioners such as trust managers in state wildlife agencies face an unfamiliar demographic landscape as users of public lands become more ethnically diverse, urbanized, and protectionist in their orientations toward wildlife and interactions with nature than previous consumptive interests (Teel and Manfredo, 2010).

The historical conservation funding paradigm in the U.S. presents potential barriers to effective conservation actions across broader segments of wildlife interests when institutional structures remain responsive to a narrow set of values toward wildlife reflected by consumptive activities (i.e., hunting, trapping) (Manfredo et al., 2019). Interest and appreciation for nature, wildlife, and outdoor recreation remains high (Kellert et al., 2017), yet the economic and social effects of historical funding models narrows the scope of available options for funding conservation. Jacobson et al. (2010) proposed that successfully adapting the wildlife conservation institution at the scale needed to maintain relevancy in contemporary society requires broad-based funding from public sources of taxation rather than expanding the current “user-pay” model. Doing so

would enable more democratic forms of governance of wildlife resources and better alignment with the tenets of the public trust doctrine, which establishes that wildlife are public property and ought to be managed for public benefit (Horner, 2000). Others (e.g., Peterson, 1998; Regan, 2010) argue for expanded user-based taxes and fees on outdoor equipment used by a diversity of wildlife-associated recreationists. However, public support differs between the two approaches, and in both cases institutional change often happens slowly as state agencies and policymakers face significant social and political barriers to adaptation (Jacobson et al., 2007).

The reliance on participation in hunting to support the current funding model hinders the ability of the wildlife conservation institution to be inclusive and responsive to changing public needs, interests, and values (Decker et al., 2016). Questions are emerging regarding the sustainability of this approach and its effectiveness in accomplishing conservation goals and upholding the public trust doctrine in governance of wildlife resources. Understanding the perspectives of wildlife-associated recreationists and their preferences for conservation funding policies is an urgent priority Association of Fish and Wildlife Agencies (AFWA), 2019. Given that the wildlife conservation endeavor relies on support for specific management actions, and support for conservation more broadly, this study provides information that might help policymakers and administrators understand the determinants of support for various conservation funding strategies among wildlife-associated stakeholders.

More specifically, a better understanding of determinants of stakeholder support for alternative conservation funding mechanisms may: (1) enable policymakers to more effectively overcome political barriers to new conservation approaches, (2) help trustees and administrators frame policies according to the heterogeneity of wildlife stakeholders and predict how messages will resonate with different segments of the public, and (3) help agencies and organizations strategically develop an inclusive coalition of support for conservation that builds on shared values and expectations across broad segments of society, leading to a greater chance of successful conservation outcomes for wildlife and ecosystems.

We surveyed Michigan hunters and wildlife watchers to assess the relative influence of various social-psychological, behavioral, and demographic variables on the likelihood of supporting four proposed conservation funding policies: (1) Dedicate a portion of state sales tax to conservation, (2) dedicate a portion of state lottery proceeds to conservation, (3) allocate revenue from companies that profit from natural resource extraction (oil, gas, timber, etc.) to conservation, and, (4) institute a “backpack tax” on outdoor gear (e.g., hiking gear, tents, binoculars, etc.) and use the proceeds to fund conservation. The objectives of this study were to investigate determinants of support for wildlife conservation policies among key wildlife-associated stakeholders: hunters and wildlife watchers, identify patterns of variables that predict support, segment respondents into meaningful typologies that are of interest to policy and decision makers, and test the hypothesis that several cognitive, normative, and

<sup>1</sup>Wildlife watching is defined as “closely observing, feeding, and photographing wildlife around the home or on trips away from home, visiting public parks around the home because of wildlife, and maintaining plantings and natural areas around the home for the benefit of wildlife” (Cordell 2012, p. 21).

place-based factors are associated with support for conservation funding policies.

## BACKGROUND

### Funding for Wildlife Conservation

Inadequate funding and lack of local acceptance and support are among the primary reasons why conservation efforts fail (Muhumuza and Balkwill, 2013). The “user-pay” model underpinning the North American system of conservation and the resulting institutional structures that emerged in the early 20th century were an opportune solution to integrate stakeholder participation and funding for wildlife management. Market hunting, resource exploitation, and habitat loss led to population declines of many wildlife species in the 19th century, and early conservationists viewed regulated hunting and population management as a way to democratize wildlife protection (Organ et al., 2012). Hunters and sportspeople were recruited as integral participants in this system of habitat management and regulated harvest, becoming the primary source of financial support and active management assistance to state wildlife agencies (Prukop and Regan, 2005). The Federal Aid in Wildlife Restoration Act (better known as the “Pittman-Robertson Act,” after the law’s Congressional sponsors) was passed in 1937 and levied an 11% excise tax on firearms and ammunition (and later amended to include archery equipment) with proceeds distributed to state fish and game management agencies (Williams, 2010). Combined with state hunting license sales, these became the primary mechanisms for generating the states’ funds for habitat management and acquisition (Organ et al., 2012).

This paradigm of wildlife conservation and management in North America, led by experts trained in biological sciences and aided by hunters, was successful in achieving several wildlife restoration objectives. Many species that were perilously close to extinction were recovered through habitat management and regulated hunting, including white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), Rocky Mountain elk (*Cervus elaphus nelsoni*), and American beaver (*Castor canadensis*), among others (Organ et al., 2012; Heffelfinger et al., 2013). Some scholars, however, point to continued declines in biodiversity, habitat loss, and political barriers to maintaining support for wildlife management and conservation as evidence of needed reforms to address modern challenges (Feldpausch-Parker et al., 2017). Moreover, the historical reliance on hunters privileges certain subsets of wildlife-associated interests, which runs counter to the stated ideals of the public trust doctrine in managing resources for public benefit (Jacobson et al., 2010; Feldpausch-Parker et al., 2017).

Excise taxes derived from the Pittman-Robertson Act, state license sales, and general appropriations and other contributions provide between 60 and 90 percent of most state fish and wildlife agency budgets (Organ et al., 2012). However, state led conservation programs tend to focus primarily on game species while non-game conservation programs are often underfunded (Anderson and Loomis, 2006; Dalrymple et al., 2012). Several attempts have been made in the past at state and federal levels to diversify the portfolio of conservation funding sources

and broaden user-based taxes and fees to include non-game species and incorporate other wildlife-associated recreationists (e.g., the “Teaming with Wildlife” initiative would have codified an excise tax on general outdoor gear). Many of these efforts have faced opposition from the outdoor industry and special interest groups (Secunda, 1998; Outdoor Industry Association, 2017). Additionally, reallocation of state sales taxes, lottery proceeds, and alcohol taxes, state wildlife grants, various Farm Bill programs, and various federal programs (e.g., Land and Water Conservation Fund) have thus far have not achieved the level of financial support needed to sustain wildlife conservation efforts (Mangun and Shaw, 1984; Franklin and Reis, 1996; Anderson and Loomis, 2006; Echols et al., 2019; Duda et al., 2021).

Future conservation successes may depend on expansion of sources for social and financial support, integration of non-game programs, and incorporation of broader societal interests and values toward wildlife into decision making processes (Nie, 2004; Jacobson et al., 2010; Decker et al., 2016). A better understanding of the factors that influence stakeholder support for alternative mechanisms for funding conservation may improve trust and transparency in decision making (Schroeder et al., 2021), leading to more broadly acceptable management decisions and enabling more effective governance of wildlife resources. Increased support for conservation funding may also help conservation advocates and decision makers build collaborative partnerships that alleviate political conflict and work toward sustainable funding models that incorporate the best interests of wildlife species and the diverse publics who value them.

### Factors Affecting Stakeholder Support for Conservation

As the diversity and popularity of non-hunting recreation has grown in North America, responsibilities for management have diversified from providing huntable game to providing for a range of wildlife tourism and recreation opportunities involving non-game species (Duffus and Dearden, 1990). Prior inquiries have evaluated support for conservation funding proposals that benefit both game and non-game wildlife species (e.g., Mangun and Shaw, 1984) and found support for a combination of funding sources, including preferences for excise taxes on general outdoor gear (Loomis and Mangun, 1987), sales taxes on outdoor gear (Dalrymple et al., 2012), and industry contributions (Larson et al., 2021). Socio-demographic characteristics often reflect cultural identities across rural-urban gradients, differing ethnicities, age groups, and gender identities that can influence views on wildlife conservation (Dalrymple et al., 2012; Kellert et al., 2017; Manfredo et al., 2017; van Eeden et al., 2020). However, achieving support for new laws or policies may also depend upon several social, political, economic, and individual factors. Evidence suggests that support for policies depends on the perceived burden to the individual (i.e., self-serving bias) (Caplan, 2011), whether the policy is voluntary or compulsory (Schroeder et al., 2020), as well as social-psychological variables such as personal values, social norms, and other contextual factors (Stern, 2000).

## Cognitive Factors

Individual cognitions influence attitudes and behaviors in different contexts (Ajzen, 1991; Stern, 2000). Values form the basis of a cognitive hierarchy through which fundamental values and beliefs influence attitudes and behaviors (Rokeach, 1973). Value orientations, or patterns of basic beliefs, have been shown to influence public support in a range of policy and management contexts, including support for energy policy measures (Ziegler, 2019), climate change policies (Rhodes et al., 2017), national forest management preferences (Vaske et al., 2001), and general environmental protection (Inglehart, 1995). In the context of wildlife management and conservation, value orientations have been associated with support for species reintroduction in Germany (Hermann et al., 2013), wildlife conservation policy preferences in Patagonia, Chile (Serenari et al., 2015), and levels of support for management actions in Yellowstone National Park (Borrie et al., 2002).

Fulton et al. (1996) developed measurement scales for wildlife value orientations that resulted in a “use-protection” spectrum that segments stakeholders according to their wildlife-oriented beliefs regarding the nature of relationships between people and wildlife. Individuals tend to fall into “wildlife-use” (domination orientation) on one end of the spectrum or “wildlife rights” (mutualism orientation) on the other end. Wildlife value orientations are often associated with socio-cultural forces, such as economic modernization, urbanization, educational attainment, and geographic mobility (Manfredo et al., 2009). In parallel fashion, broader society has shifted from an emphasis on materialist values that prioritize basic human needs like food, shelter, and safety, to a society characterized by post-materialist values and goals such as democratic governance, environmental protection, and self-expression (Inglehart and Baker, 2000). Together, shifting values and associated socio-demographic trends reflect the changing needs and expectations of the public toward nature, wildlife, and management of natural resources.

## Place-Based and Contextual Factors

Influences on behavior originate at multiple scales, and broader factors such as community-level dynamics, attachment to certain places or landscapes, and the regulatory environment synergistically influence perspectives on wildlife, nature, and conservation (Stedman, 2002; Larson et al., 2014). Local partnerships are often integral to the success of conservation efforts (e.g., community-based conservation) (Pretty and Smith, 2004), and studies have shown that stronger community attachments are associated with a higher likelihood of engaging in pro-environmental behaviors (Macias and Williams, 2016). Place-based attachments can give people a sense of purpose and meaning when interacting with that place and potentially motivate positive actions to protect threatened landscapes or support management actions designed to protect them. For example, attachment to rural landscapes in Maine positively predicted residents' support for conservation planning efforts (Walker and Ryan, 2008).

Cognitive and place-based factors may work in tandem through contextual factors like recreationist specialization.

Outdoor recreationists are situated along a spectrum from generalist to specialist (beginner to advanced) as they gain skills, knowledge, and experience in their recreational activity (Bryan, 1977). As specialization level changes, so do motivations and resulting satisfaction, setting and site preferences, and support for management actions (Martin, 1997). Activity specialists are thought to be more aware of management regulations and place more importance on place-based aspects of the recreational experience (Bricker and Kerstetter, 2000), indicating that place attachment and support for management decisions also depend on the extent to which one specializes in their recreational pursuits (Bryan, 2000). Further, highly specialized anglers have been shown to be more supportive of management actions including harvest restrictions (Oh and Ditton, 2006).

Nevertheless, the contribution of social capital, sense of place, and specialization in environmental behavioral models is often not measured, leading to spurious conclusions and biased estimates of environmental attitudes and behaviors (Lee, 1982). Linking place-based constructs, such as social capital and place attachment, with underlying value orientations and other social-psychological characteristics of individuals enables researchers to model the complex interactions that may lead to support for alternative conservation funding mechanisms. Additionally, the interactions between recreation participation, stewardship behaviors, and place-based concepts interest wildlife managers who wish to increase public support for conservation efforts (Larson et al., 2018).

Much empirical research has investigated how various social-psychological constructs such as cognitive factors, place-based motivations, and contextual influences such as specialization act as behavioral antecedents that affect stakeholder behavioral intentions. Studies of determinants of support for conservation funding, however, generally focus on socio-demographic characteristics (e.g., Kellert et al., 2017; Larson et al., 2021). Our study incorporates social-psychological and place-based variables, based on a conceptual framework of cognitive, affective, and normative influences on behavior (Ajzen, 1991; Stern, 2000), to investigate stakeholder support for alternative conservation funding strategies.

## METHODS

### Sampling and Data Collection

We designed a web-based survey to measure support for conservation policy proposals among a sample of Michigan hunters and wildlife watchers. In addition, we gathered information on relevant behavioral, social-psychological, and demographic variables we expected to be associated with support for conservation funding policies. The web-based survey was administered by the Michigan Department of Natural Resources' Marketing and Outreach Division in June-August 2020 as part of a broader research effort using a tailored design method for internet surveys (Dillman et al., 2014). The survey was presented on the Qualtrics platform and distributed to 522,993 addresses in the MDNR e-mail database. After removing out-of-state responses, incomplete surveys, and respondents who received the

survey link through external sources, we obtained a final sample of 19,143 responses (4%).

Participation in nature-based activities was assessed to segment respondents into recreational typologies based on self-reported measures of participation. Nature-based activities in which each individual participated were ranked such that the most important recreation became their “primary recreational activity” and allowed us to assign each respondent a recreational type. Since only one activity could be ranked #1, respondents could be segmented according to their primary recreational activity. Those who chose either hunting ( $n = 2,558$ ) or wildlife watching<sup>2</sup> ( $n = 942$ ) as their primary recreational activity were included in the sample for the following analysis. Research protocols were approved by the Michigan State University Institutional Review Board (STUDY00001445).

## Variables Measured

Our dependent variables were measured by four items asking respondents to rate their intention to support hypothetical scenarios designed to increase funding for wildlife conservation efforts on a 5-point scale: strongly oppose (1), somewhat oppose (2), neither support nor oppose (3), somewhat support (4), or strongly support (5). Items were chosen based on a review of policies proposed or adopted in various states to provide broadened funding sources for wildlife conservation and were deemed to adequately reflect respondent attitudes toward regulatory, policy, or management solutions to conservation funding dilemmas. Four items were chosen for analysis to assess support for broad-based funding measures for wildlife conservation:

1. Dedicate a portion of state sales tax to conservation.
2. Dedicate a portion of state lottery proceeds to conservation.
3. Allocate revenue from companies that profit from natural resource extraction (e.g., oil, gas, timber, etc.) to conservation.
4. Institute a “backpack tax” on outdoor gear (e.g., hiking gear, tents, binoculars, etc.) and use the proceeds to fund conservation.

Items were recoded to create four binary outcome variables indicating “support” or “oppose” for each policy category. Responses were combined such that “somewhat support” and “strongly support” became one category coded as a (1) to indicate support, while “strongly oppose,” “somewhat oppose,” and “neutral” responses were coded as (0) to indicate responses that were not in support of the proposed policies. Neutral responses were assumed to align more with oppositional responses in that both categories reflect the absence of support for a given policy option.

Covariates hypothesized to be associated with support for conservation policies included membership in a stakeholder group (hunter or wildlife watcher), wildlife value orientations, cognitive behavioral antecedents (e.g., social norms, efficacy), natural and civic place attachment, past engagement in stewardship behaviors, recreation specialization,

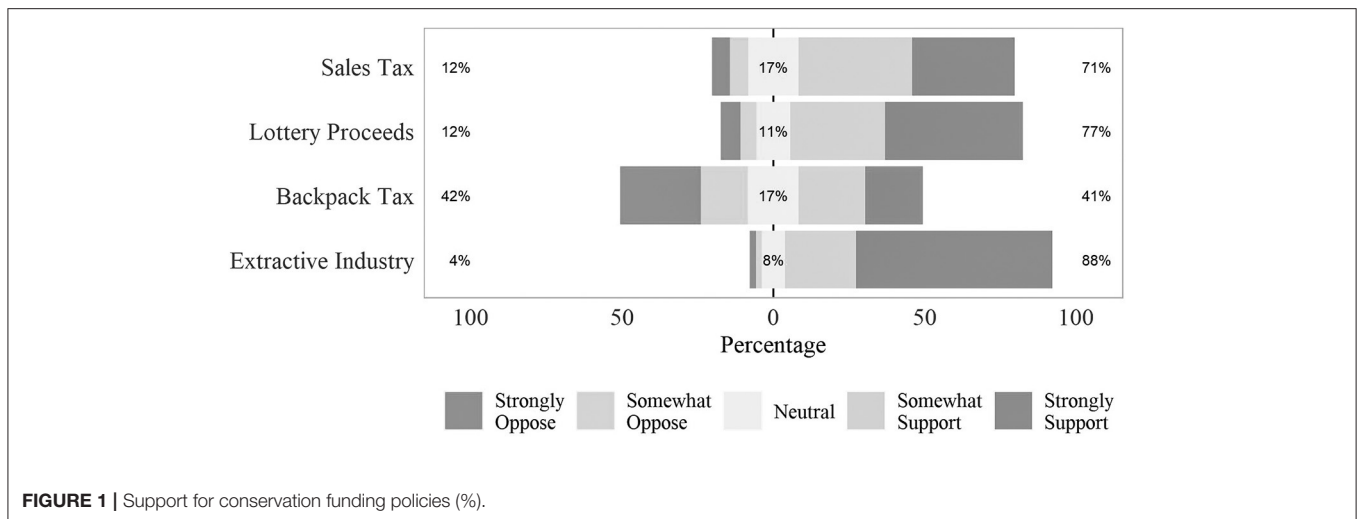
knowledge of conservation funding mechanisms, membership in a conservation organization, and socio-demographic characteristics. Wildlife value orientations reflect patterns of basic beliefs about the relationship between humans and wildlife. Generally, they fall along a spectrum from use-oriented (domination) perspectives and protection-oriented (mutualism) perspectives (Fulton et al., 1996). Confirmatory factor analysis supported the previously validated two-dimensional wildlife value orientation scales achieving high internal consistency (as measured by Cronbach’s alpha) with domination ( $\alpha = 0.73$ ) and mutualism ( $\alpha = 0.80$ ) as two ends on a spectrum of wildlife beliefs (Manfredo et al., 2009). We used 13 items from scales adapted from previous studies of wildlife value orientations. Items were presented as belief statements from 1 (strongly disagree) to 5 (strongly agree). Items were averaged to create a continuous composite index on the original 1–5 scale for each wildlife value orientation.

Social norms refer to societal pressure for individuals to conform (or deviate) relative to others to commonly accepted modes of behavior, which guides individual actions. One item was presented as a belief statement from “strongly disagree” (5) to “strongly agree” (1) to assess the extent to which respondents perceive others in their local community to act in ways that benefit the environment: “Most people in my local community engage in activities that help protect the natural environment” (Larson et al., 2018). Efficacy refers to the extent to which an individual controls their actions and perceives the outcome of their behavior. Environmental efficacy was measured with a single indicator adapted from Oreg and Katz-Gerro (2006), asking respondents to rate the extent to which they agree or disagree with the statement, “There is no point doing what I can for the natural environment unless others do the same.” Both items were recoded as binary variables for inclusion in regression models.

We divided sense of place into two measures reflecting natural and civic place attachment (Scannell and Gifford, 2010). Based on confirmatory factor analysis, we used a unidimensional natural place attachment scale ( $\alpha = 0.88$ ) to measure the extent to which recreationists were attached to the primary place where they recreate. We used four items to measure civic place attachment (i.e., social capital) based on involvement in local community activities and interactions with neighbors to reflect the extent of social ties, providing an affective dimension of social capital ( $\alpha = 0.84$ ). Items were presented as belief statements on a 5-point scale from “strongly disagree” (1) to “strongly agree” (5). Responses were averaged to construct composite indices where higher values reflect greater place attachment/social capital and lower values indicate less.

Past engagement in stewardship activities was measured as a set of pro-environmental behaviors adapted from previous research (Cooper et al., 2015; Larson et al., 2018) to reflect the wildlife conservation context of this study and presented as behavioral statements assessing the frequency with which respondents participated in various stewardships activities in the past 5 years on a five point scale: never (1), rarely (2), occasionally (3), often (4), or very often (5). Our unidimensional scale included eight items ( $\alpha = 0.85$ ) and averages were computed

<sup>2</sup>“Wildlife watching” category combined the reported activities wildlife viewing and birdwatching.



for each respondent to create a continuous composite index where higher totals (on a scale of 1–5) indicate more frequent engagement in stewardship activities and lower totals indicate less frequent involvement.

Additionally, we included a variable to gauge awareness of current conservation funding mechanisms. Several options were presented, along with the most accurate statement, “Funds from the sale of hunting and fishing licenses and equipment,” and a binary variable was created to indicate a correct answer (1), or incorrect answer (0). Membership in a conservation organization was measured as a binary variable, where (1) indicated the respondent belongs to an international, national, or local conservation or environmental organization, land conservancy, hunting-related organization, or birding/wildlife watching organization, while (0) indicates that they do not.

A specialization construct was measured using seven items representing respondent behavior, skill, commitment, and centrality to lifestyle of their primary recreational activity ( $\alpha = 0.80$ ). Items were combined and summed into a specialization index on a scale from 10 to 44 with higher values reflecting greater levels of specialization.

Socio-demographic information was collected from respondents, including age, gender, ethnicity, income, education, type of residence, and region of the state, and included as control variables in regression models and cluster analysis. Age, income, and education are continuous variables, while gender, type of residence, and region of the state were coded as dichotomous dummy variables. The reference category for each binary demographic variable is indicated in **Table 2**. Ethnicity was not included as a category for analysis due to the predominately homogenous sample of respondents indicating a white ethnic background (91%), and 6% of respondents choosing the “no response” option.

## Data Analysis

We conducted all statistical analyses using Stata 14 statistical software (StataCorp, 2015). We assessed descriptive statistics to compare overall support for various conservation policy

options and utilized chi-square independence tests to test for significant differences in conservation policy support between hunters and wildlife watchers. Bivariate correlations (Pearson’s  $r$ ) and Variance Inflation Factor (VIF) values were checked to assess multicollinearity among predictor variables in our regression models (Pearson’s  $r < 0.6$ ; mean VIF = 1.41). We modeled support for conservation funding policies using four binary logistic regression models with each policy as a dependent variable and hypothesized covariates included as independent variables. Additionally, we performed a k-means cluster analysis to segment respondents according to their patterns of responses to the conservation funding policies presented in the survey and explore associated typologies that may be meaningful for wildlife managers and policymakers.

## RESULTS

### Respondent Demographics

Of those in our overall sample ( $n = 3,500$ ), 73% identified primarily as hunters ( $n = 2,558$ ) and 27% as wildlife watchers ( $n = 942$ ). Respondent age was skewed toward older age groups. The greatest proportion of respondents for both groups was in the 50+ year age range and a mean age of 55 years for hunters and 59 years for wildlife watchers. Hunters were predominantly male (92%), while wildlife watchers were represented by more females (60%) than male (37%) respondents. Both groups reported to be mostly from a white ethnic background (91%) and tended to be college-educated (62%), although wildlife watchers had a greater proportion of post-baccalaureate degrees (27%) than hunters (14%). The most common residential context for hunters (41%) and wildlife watchers (42%) was in suburban or small towns, while more hunters (35%) were from rural areas than wildlife watchers (28%).

### Exploring Stakeholder Support for Wildlife Conservation Funding Policies

Support for conservation policies varied by policy type (**Figure 1**). Reallocation of sales taxes or lottery proceeds to fund

**TABLE 1** | Support and opposition for conservation policies by stakeholder group (%).

Policy	Hunters (n = 2,558)		Wildlife watchers (n = 942)	
	Support	Oppose	Support	Oppose
Sales tax	68%	32%	78%	22%
Lottery	75%	25%	80%	20%
Backpack tax	42%	58%	37%	63%
Extractive industry	86%	14%	93%	7%

conservation strategies received greater support than expanding the existing “user-pay” model. The idea that extractive industries who profit from natural resources should contribute a portion of their annual revenue to conservation received the highest support, with 88% somewhat supporting or strongly supporting the proposition and only 12% responding neutral or opposed. A user-based tax was evaluated to gauge support for a tax on general outdoor gear (i.e., a “backpack tax”) and proceeds earmarked for fish and wildlife programs (similar to the allocation of Pittman-Robertson funds). This idea received evenly split support, with 42% of respondents opposing or strongly opposing the idea and 41% in somewhat or strong support. The number of respondents “strongly opposed” to a backpack tax was much higher than the other three policies at nearly 27%; 17% reported being neutral on the idea of a backpack tax. The two policies assessed that would provide funds reallocated from state sales taxes or lottery proceeds received relatively strong support, with 72% and 77% in support, respectively. 12% somewhat or strongly opposed the sales tax option, while 13% opposed the lottery proceeds option, with 17% and 11% neutral, respectively.

Differences emerged when we compared support among the two stakeholder groups surveyed (Table 1). Hunters supported the extractive industry policy (86%), but not as strongly as wildlife watchers (93%) ( $X^2 = 37.4$ ,  $p < 0.001$ ). Hunters were also more likely to oppose reallocation of sales tax revenue, with 32% opposed compared to 22% of wildlife watchers ( $X^2 = 31.4$ ,  $p < 0.001$ ). Wildlife watchers supported the lottery proceeds option slightly more than hunters (80% vs. 75%) ( $X^2 = 37.4$ ,  $p < 0.001$ ). Hunters were slightly more supportive of a backpack tax (42%) than wildlife watchers (37%) ( $X^2 = 7.77$ ,  $p < 0.01$ ). When we compared awareness of conservation funding mechanisms, 87% of hunters correctly identified revenue from the sale of hunting licenses and equipment as the primary source of conservation funding, compared to only 51% of wildlife watchers ( $X^2 = 526.2$ ,  $p < 0.001$ ).

## Regression Analysis

Binary logistic regression results show how the odds of supporting the given policy (backpack tax, lottery proceeds, sales tax, or extractive industry) change based on the associated covariates (Table 2). Coefficients in logistic regression are log odds which are typically converted to odds ratios for easier interpretation. Odds ratios describe the change in the likelihood of the binary outcome associated with a one-unit change in

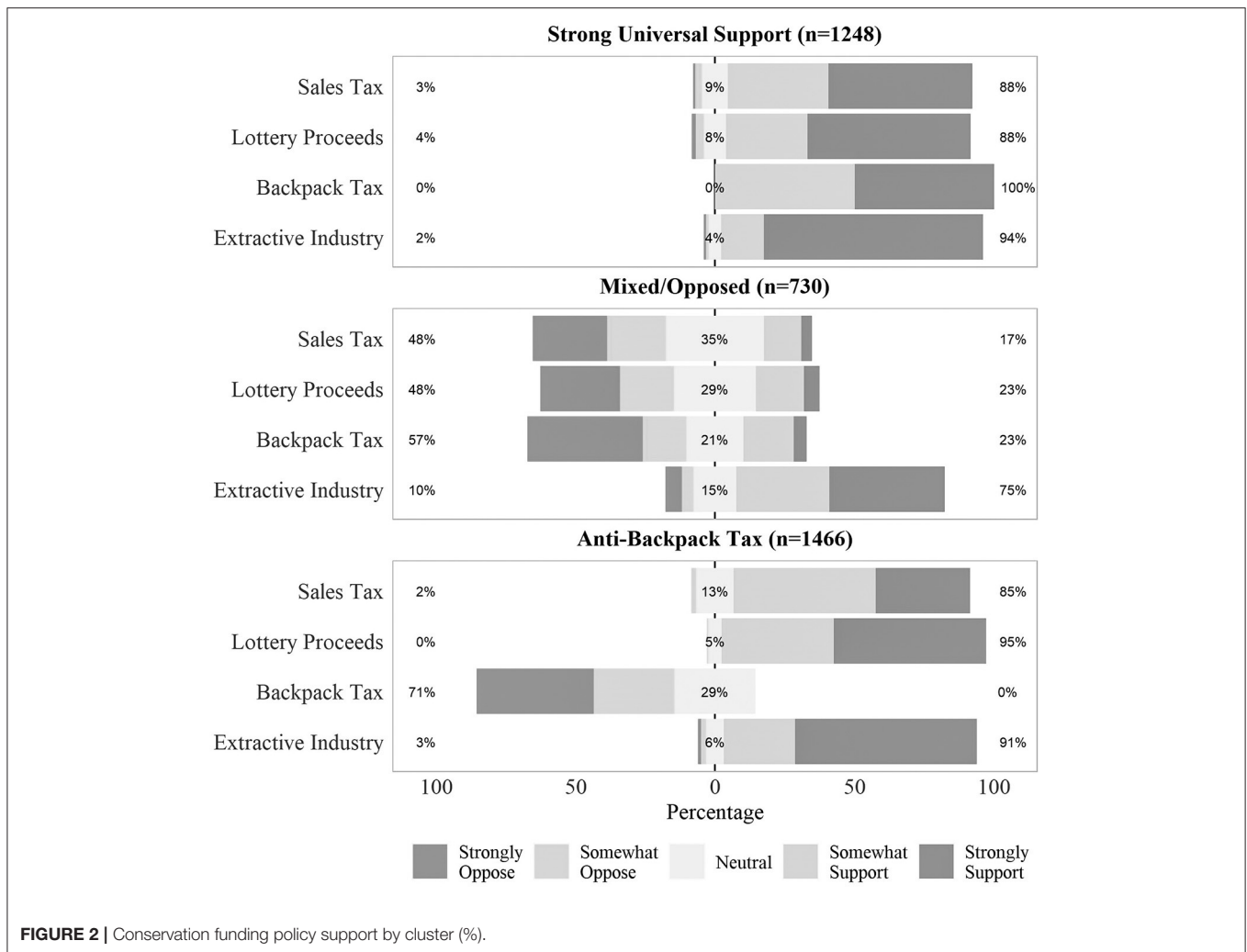
**TABLE 2** | Binary logistic regression results ( $\beta$  coefficients presented as odds ratios).

Variable	Backpack tax	Lottery	Sales tax	Extractive industry
Attitudinal variables				
Values				
Mutualistic orientation	1.09	1.54**	1.72**	1.70**
Domination orientation	0.91	1.03	0.78**	0.64**
Social norms	0.88	1.28*	1.38**	1.00
Environmental efficacy	0.83	1.22	0.91	1.25
Place-based variables				
Recreational place attachment	1.08	1.11	1.19**	0.94
Social capital	0.86**	0.80**	0.80**	0.86
Behavioral variables				
Stewardship engagement	1.77**	1.11	1.43**	1.42**
Specialization	0.99	1.02	1.02	1.01
Stakeholder group (ref. hunter)	0.78	0.85	1.11	1.23
Contextual variables				
Knowledge of conservation funding	1.34**	1.08	0.95	1.18
Conservation org member	1.10	1.17	1.07	1.03
Residence (ref. rural)	1.05	1.11	1.07	1.12
Socio-demographics				
Age	1.00	0.98**	0.98**	1.00
Gender (ref. male)	0.69**	1.56**	0.89	0.93
Education	1.11**	0.98	1.11*	0.99
Income	0.93*	1.00	1.04	0.93
Region of Michigan (ref. southern MI)	0.96	0.89	0.85	0.86
Constant	0.20**	1.06	0.39	6.30
Model summary (goodness of fit)				
McFadden's $R^2$	8%	5%	10%	9%
Hosmer-Lemeshow $\chi^2$	$p = 0.18$	$p = 0.29$	$p = 0.74$	$p = 0.37$
Pearson $\chi^2$	$p = 0.41$	$p = 0.54$	$p = 0.34$	$p = 0.17$
Classification accuracy	62%	77%	74%	88%

\*Significant at 95% confidence level. \*\*Significant at 99% confidence level.

continuous predictor variables and compare the odds of the binary outcome at two different levels for categorical predictor variables (Hosmer et al., 2013). Therefore, we interpret the odds ratios in terms of overall statistical significance and draw comparisons between models based on patterns observed in the independent variables.

Descriptive analysis and chi-square tests suggested that hunters and wildlife watchers differ in their support for conservation funding options. However, when accounting for the effects of other covariates, participation in hunting or wildlife watching did not have a statistically significant influence on stakeholder support. Regression results indicated that no variables were significantly associated with support or opposition across all four conservation funding policies presented, although several variables were associated with three out of four policies.



Odds ratios >1 indicated that more frequent involvement in stewardship activities was associated with increased odds of supporting the backpack tax, sales tax, and extractive industry options. Belonging to a conservation organization did not appear to influence support for any of the policies, and knowledge of conservation funding mechanisms only affected (increased) support for the backpack tax.

Mutualistic value orientations positively influenced support for three policies: lottery proceeds, sales tax, and extractive industry revenue. A domination orientation toward wildlife was associated with decreased odds of supporting the sales tax and extractive industry policies. Attachment to one’s primary recreational area was only associated with support for the sales tax option. Conversely, social capital was associated with decreased odds of supporting three policy options: backpack tax, lottery proceeds, and sales tax. However, closely related to the idea of social capital are descriptive social norms or the perception that others in one’s local community are engaged in actions to help protect the natural environment. Social norms were positively associated with the lottery and sales tax options, indicating increased odds of supporting those policies

when one perceives others in the community as taking pro-environmental actions. However, neither environmental efficacy nor specialization were measurably associated with any of the conservation funding policies.

Demographic variables exhibited varying degrees of predictive influences on support for conservation policies. Age was negatively associated with lottery and sales tax options, indicating that older respondents were less supportive of those particular conservation funding mechanisms. Gender was associated with degree of support for lottery and backpack tax policies, yet the relationship differed for each. Relative to the reference class male, those who identified as female, non-binary, or other had decreased odds of supporting a backpack tax and increased odds of supporting the lottery proceeds option. Education positively influenced support for backpack tax and sales tax options. Neither type of residence (rural, suburban, or urban) nor region of the state of Michigan were significantly associated with support for any of the four conservation funding policies. Hosmer-Lemeshow and Pearson chi-square goodness of fit statistics show *p*-values above the 0.05 cutoff, indicating that the models fit the data well.



## Cluster Analysis

Hierarchical clustering using Ward's linkage identified an optimal number of clusters (3) by iteratively minimizing the distance to the mean from the individual data points in that cluster, followed by a k-means cluster analysis specified with three respondent clusters: "strong support," "mixed/opposed," and "anti-backpack tax" (Figure 2). The respondents in these groups were more similar to each other in their patterns of responses to policy variables than they were to respondents in other clusters.

Respondents in the "strong support" cluster comprised 36% of the sample and generally somewhat or strongly supported all four policy options. Regarding the backpack tax, which was the least supported option for the entire sample, the "strong support" cluster exclusively somewhat or strongly supported the option, with zero respondents reporting neutral or opposed responses. The "anti-backpack tax" cluster comprised 43% of respondents, all of whom somewhat or strongly opposed the backpack tax option (with 29% neutral) while generally supporting the other three options. No one in the "anti-backpack tax" cluster supported the backpack tax option. Respondents in the "mixed/opposed" cluster comprised 21% of all respondents; a greater proportion of this cluster opposed policies than supported, except for the extractive industry-based option, and had a higher proportion of "neutral" responses to all four policies.

One-way analysis of variance (ANOVA) for continuous variables and chi-square tests for categorical variables indicated several associations between respondent clusters and covariates (Table 3). Respondents in the "strong support" cluster were more likely to have engaged in stewardship behaviors (Mean = 2.98), a higher percentage were aware of conservation funding mechanisms (81%), and 67% reported being a member of a conservation organization. Those in the "strong support" cluster were slightly more mutualistic in their value orientation toward wildlife (Mean = 3.59) than the "mixed/opposed" cluster (Mean = 3.07). They also had the highest proportion of respondents in the <40 age range (15.8%) and were more likely to have a Bachelor's (33%) or graduate/professional (20%) degree.

Respondents in the "anti-backpack tax" cluster were similar on many variables to the "strong support" cluster, with two notable exceptions: "anti-backpack tax" cluster respondents were less likely to report being a member of a conservation organization (55% vs. 67%) or correctly identify current conservation funding mechanisms (74% vs. 81%). The "mixed/opposed" cluster was slightly less mutualistic and more utilitarian in their perspectives and value orientations toward wildlife than the "strong support" or "anti-backpack tax" clusters. They were slightly less engaged in stewardship activities than the other two clusters (Mean = 2.24) and were the least likely group to report membership in a conservation organization at only 46%. The "mixed/opposed" group also had the highest proportion of male (82.3%), middle-aged (40–64; 65.6%), and rural (34.5%) respondents, though type of residence (urban/rural) and region of the state were not statistically significant.

**TABLE 3 |** Characteristics of each respondent cluster (Mean value for continuous, % for categorical variables).

Variable	Strong universal support	Mixed/opposed	Anti-backpack Tax
Attitudinal variables			
Values (1–5 scale)			
Mutualistic orientation**	3.59	3.07	3.59
Domination orientation**	3.47	3.72	3.47
Social norms (%)	32.9	31.5	34.8
Environmental efficacy (%)	93.3	91.1	92.0
Place-based variables (1–5 scale)			
Recreational place attachment**	3.89	3.78	3.88
Social capital**	3.31	3.43	3.33
Behavioral variables			
Stewardship engagement (1–5 scale)**	2.98	2.42	2.60
Specialization (10–44 scale)**	37.1	35.8	36.2
Stakeholder group (%)**			
Hunter	74.7	79.2	68.9
Wildlife watcher	25.3	20.8	31.1
Conservation organization membership (%)**	66.7	45.9	55.3
Contextual variables			
Knowledge of conservation funding (%)**	80.9	78.5	73.9
Residence (%)	25.7	23.4	24.1
Urban			
Suburban	41.0	40.2	41.1
Rural	32.1	34.5	33.5
Socio-demographics			
Age (%)**	15.8	7.0	12.6
<40			
40–64	53.6	65.6	61.7
65+	30.5	27.4	25.8
Gender (%)**	80.4	82.3	72.8
Male			
Female	17.3	14.0	23.7
Education (%)**			
Less than Bachelor's degree	32.1	38.9	37.8
Bachelor's degree	33.0	30.0	29.0
Graduate/professional degree	20.3	16.7	17.8
Income			
<\$75k	36.6	39.2	40.9
\$75k–\$100k	23.3	21.4	19.2
\$100k+	40.1	39.4	39.9
Region of Michigan (%)			
Southern lower peninsula	45.6	42.5	46.2
Northern lower peninsula	41.1	41.8	40.9
Upper peninsula	13.4	15.7	12.9

\*Significant at the 95% level (ANOVA for continuous and chi-square for categorical data).

\*\*Significant at the 99% level (ANOVA for continuous and chi-square for categorical data).

## DISCUSSION

Results of our study revealed that support exists for alternative wildlife conservation funding policies among key wildlife-associated stakeholder groups, which could lead to a broader suite of options available for funding conservation in the future. Support was greatest for the extractive industry option, followed by sales tax and lottery proceeds options, with a user-based tax (i.e., a backpack tax) being the least supported conservation funding option. Determinants of support, however, varied by type of policy and stakeholder characteristics. The results of our analysis suggest that wildlife-associated recreationists are heterogeneous in their values, behaviors, and willingness to engage in stewardship through pro-environmental behaviors. We found no measurable differences in support for the four conservation funding policies between hunters and wildlife watchers when accounting for other variables. Despite a traditional separation of hunters and wildlife watchers into a “consumptive vs. non-consumptive” dichotomy, our research aligns with a view that they are more alike than different in their motivations, values, and conservation involvement (Kellert, 1978; Teisl and O’Brien, 2003; Cooper et al., 2015; Larson et al., 2018).

Contrary to expectations, we did not find an association between specialization and support for conservation funding policies. Previous studies highlighted the roles of activity specialists in supporting management actions and involvement in conservation (Cole and Scott, 1999; Hvenegaard, 2002; Schroeder et al., 2006; Oh and Ditton, 2008), however, the hypothesis that greater specialization in hunting or wildlife watching would be related to support for conservation policies was not supported by our analysis. Similarly, the influence of demographic variables exhibited inconsistent and weak relationships with conservation policy support. Younger age was associated with support for sales tax and lottery proceeds options, but the effect was small. Previous studies suggested that women are more mutualistic in their value orientations and often support management actions designed to protect wildlife (Vaske et al., 2001; Schroeder et al., 2006; Teel et al., 2010; Hermann et al., 2013). Our findings, however, indicated that relative to males, people who identify as female, non-binary, or other were less likely to support the backpack tax, yet more likely to support the lottery proceeds option. Educational attainment was positively associated with support for the backpack tax and sales tax. Interestingly, we observed that income was negatively associated with support for the backpack tax. One of the primary arguments against such a tax is that it would present an unfair burden to lower income recreationists (Outdoor Industry Association, 2017).

Our results were similar to those of Mangun and Shaw (1984), Kellert et al. (2017), and Larson et al. (2021) in finding general opposition to new user-based tax options for conservation funding, and greater support for industry and state-based tax options. However, our findings differed from Dalrymple et al. (2012) who found preferences for user-based taxes for non-game conservation funding. These findings might be attributed to our survey sample. People tend to oppose new policies that they perceive to have a high personal cost (Caplan, 2011), and

generally want to shift the burden on to other groups. A sample of wildlife recreationists may be likely to favor general sources of taxation over specialized user-based taxes, whereas the general public may be more inclined to believe that fairness dictates that specialized users (e.g., wildlife-associated recreationists) should pay the costs of wildlife conservation (Dalrymple et al., 2012).

Perceptions of tax proposals among the public and the political mechanisms through which ideas are translated into legislation are complex (Loomis and Mangun, 1987). Most respondents (59%) opposed expanding the current user-pay system to include additional taxes on outdoor gear, and significant opposition exists in the private sector (Outdoor Industry Association, 2017). It may simply be more politically palatable to reallocate conservation funding from existing sources, such as state sales taxes or lottery proceeds, than to impose new taxes on the public or specific users. Generalized sources of taxation already exist, and reallocating revenue from those sources received substantially more support than the expanded “user-pay” model represented by the backpack tax option. Reallocation of funds from state sales taxes or lottery proceeds received 71% and 76% support in our survey, respectively. Several states, such as Missouri, Arizona, and Arkansas have applied this approach to conservation funding with varying levels of success (McKinney et al., 2005).

Our findings further underpin the variability of public perspectives on taxes, particularly among our “mixed-opposed” cluster who strongly supported the industry-based policy but opposed the other three options. Further information regarding implementation and expected effects of particular policies might resonate with respondents in the “mixed/opposed” cluster. Respondents with mixed or moderate positions may not have solidified their perspectives on policies and may be more likely to shift attitudes based on outreach and educational efforts designed to communicate the context and expected impact of management proposals (Campbell and Mackay, 2003; Vaske and Needham, 2007).

A third approach was favored by nearly 88% of respondents: institute a tax on extractive industries who profit from natural resources and allocate a portion of their annual revenue to pay for conservation efforts. This is reminiscent of other programs, such as the Land and Water Conservation Fund (LWCF) and Michigan’s Natural Resources Trust Fund (MNRTF), that have provided funds for conservation initiatives by apportioning revenue from extraction and development of natural resources like timber, oil, and gas. The LWCF is a federal program enacted in 1965 (and permanently reauthorized in 2020 as part of the Great American Outdoors Act) that provides funds for recreational access and infrastructure projects using royalties from offshore oil and gas development (Echols et al., 2019). The MNRTF is a state-based program that takes revenue from natural resource extraction in the state of Michigan and distributes grants to local and state entities for a wide variety of parks and recreation improvement projects [Michigan Department of Natural Resources (MDNR), 2015]. Industry-based funding models enjoy high levels of public support (e.g., Kellert et al., 2017; Larson et al., 2021) and fish and wildlife interests have capitalized on that support with the introduction of Recovering

America's Wildlife Act (RAWA) (Recovering America's Wildlife Act, 2021) in the United States Congress in 2021. Although bipartisan support exists for RAWA, its future is uncertain at this time.

Regression and cluster analyses revealed the importance of understanding the influence of stewardship behaviors (Cooper et al., 2015), values (Fulton et al., 1996; Manfredo et al., 2018), and normative and place-based influences (Larson et al., 2018) on likelihood to support conservation funding policies. Engagement in stewardship actions was positively associated with support for the backpack tax, sales tax, and extractive industry options. Presumably, those more engaged in stewardship activities, such as participating in habitat improvement projects, volunteerism, or donating to conservation causes, have a greater likelihood of being exposed to conservation policy issues, which may predispose them to support initiatives designed to provide increased funding (Zaradic et al., 2009; Cooper et al., 2015). Regression analysis indicated knowledge of conservation funding mechanisms is a unique characteristic of support for the backpack tax; it was not associated with any other conservation policies, suggesting that increased awareness of funding mechanisms and highlighting the connections between users (e.g., hunters, wildlife watchers) and the resource (e.g., wildlife) might lead to greater support for user-based taxes.

Engagement in stewardship actions and knowledge of conservation funding might be facilitated through membership in conservation organizations. Most hunters (87%) in our sample were aware that conservation funding currently depends on the sale of hunting licenses and equipment, while nearly half as many wildlife watchers had that knowledge. Since both groups reported belonging to various conservation organizations at similar rates, organizations focused on wildlife watching (e.g., birdwatching, wildlife photography) may benefit from incorporating educational messaging about the importance of wildlife conservation and the mechanisms that enable continued protection of wildlife species and habitats that are necessary to sustain wildlife-associated recreation (Kusmanoff et al., 2020). However, accounting for the influence of other covariates, membership in a conservation organization did not influence support for any of the four policies.

Those who expressed mutualistic value orientations were more likely to support the sales tax, lottery proceeds, and extractive industry options, but not the backpack tax. Domination value orientations decreased support for the sales tax and extractive industry options. Since those with mutualistic wildlife value orientations tend to favor protectionist perspectives and attitudes toward wildlife and nature, they may be more inclined to support policies because they perceive them as having an overall positive ecological effect (Rhodes et al., 2017). The negative association between domination value orientations and sales tax and extractive industry policies might be attributed to traditionalist or utilitarian world views reflected by use-oriented values. Traditionalists tend to focus on individual rights, economic development, and human uses of wildlife, and may be more likely to oppose ideas that they perceive as running counter to those values (Inglehart, 1995).

Although sense of place is frequently reported to be important in formation of environmental concern and participation in pro-environmental behaviors (e.g., Halpenny, 2010; Lee, 2011; Buta et al., 2014; Gifford and Nilsson, 2014; Siemer et al., 2017; Larson et al., 2018), place-based variables in our models were either not significant or had the opposite hypothesized effect. In the case of civic place attachment (Scannell and Gifford, 2010), we found that more extensive community networks and involvement in community activities decreased the odds of supporting three of the four policies (extractive industry revenue being the exception). This effect might be attributed to the community context through which social capital develops, and type of social connections developed through civic involvement (Peterson et al., 2006). Associations between natural place attachment and pro-environmental behaviors, but not civic place attachment, have been previously observed (Scannell and Gifford, 2010). Moreover, it is possible that individual-level measures do not adequately capture the multilevel nature of the social capital construct (Cho and Kang, 2017).

Another feature of collective social influence (i.e., social norms), however, did positively influence support for lottery proceeds and sales tax policy options. When individuals perceive their friends and neighbors to act in environmentally friendly ways, they may be more inclined to follow suit which could include supporting policies that benefit wildlife and conservation (Stern et al., 1999; Gifford and Nilsson, 2014; Steg, 2016). More comprehensive measures of natural place attachment and the various types of social capital may reveal the importance of emotional and symbolic affiliation with places and the ways in which sense of place motivates efforts to protect nature.

The inability to adapt institutional structures and expand funding models to be responsive to a greater diversity of expectations and interests in wildlife may reflect political barriers to implementation more so than lack of public support. Public buy-in, however, is a necessary antecedent to conservation approaches that provide benefits for stakeholders, communities, and wildlife (Muhumuza and Balkwill, 2013). A backpack tax appears to be a polarizing proposition; everyone in the "strong support" cluster somewhat or strongly supported it, while everyone in the "anti-backpack tax" cluster opposed it or were neutral. The nature of opposition to a backpack tax or other user-based taxes may be in part due to well-organized efforts by special interests (e.g., outdoor industry, equipment manufacturers) to oppose political strategies that might increase their costs. Groups that can exert political power over economic and social policy may have an inordinate influence over conservation funding strategies, even if public opinion can be swayed to support various user-based funding approaches (Galbraith, 2017). By understanding the forces driving opposition to user-based taxes and fees and finding ways to communicate the positive outcomes for wildlife that such approaches have enabled in the past, wildlife administrators and policymakers could secure needed support for expanding user-pay models to include a greater diversity of outdoor interests (Regan, 2010).

Our findings further underscore the sentiment revealed in previous studies that companies who profit from natural resource extraction should reinvest some of their revenue to improve

wildlife habitat and the natural environment for public benefit. Responses to tax-based funding options, whether applied to the general public or specific user groups, are typically more variable. In general, support for increased funding for wildlife, conservation, and nature programs remains high across broad demographic and political segments of the public (Kellert et al., 2017), but the particular details of funding proposals, combined with political and organizational barriers, present difficult pathways to implementation (Jacobson et al., 2007).

## Limitations and Future Research

Several limitations affect the generalizability of our findings. First, our sample comprises individuals in the MDNR e-mail database and likely are not representative of the general population of Michigan or broader geographic areas. Inferences should be limited to the population from which the sample was drawn. Furthermore, our sample consists of wildlife-associated recreationists who may be personally affected by some of the proposed policies (e.g., “backpack tax”) and not others (e.g., lottery and extractive industry options.) Future research efforts might strengthen these findings by drawing on broader sample frames to account for differential impacts of policies on different populations. Second, the conservation funding options presented are not exhaustive and reflect choices based on space and time limitations of the survey. For instance, we did not investigate voluntary programs such as specialized license plates, tax checkoffs, or conservation stamp purchases. Future research would benefit from exploring various other options that exist for funding conservation that may vary in efficacy or political feasibility. Third, no information was provided to respondents regarding the potential implementation of the policy options or the expected impacts on conservation funding. Our study design captured a cross-sectional snapshot of stakeholder support for specific policies; given the dynamic nature of politics, further research may benefit from longitudinal designs or choice experiments that measure how respondents weigh trade-offs and alternatives or how support changes over time in response to new information and social norms. Low  $R^2$  values in our regression models indicate that we did not adequately measure all factors that account for variance in conservation policy support. Future research could strengthen our model of conservation support by incorporating other potential covariates to create a more comprehensive framework for assessing and predicting conservation policy support. Finally, the data for this study were collected during the COVID-19 pandemic of 2020. It is currently not known how the unprecedented situation may have influenced peoples’ responses to surveys.

## CONCLUSIONS AND RECOMMENDATIONS

Our study suggests that public support exists for alternative conservation funding mechanisms among Michigan hunters and wildlife watchers. Despite public support for strategies that expand funding for conservation programs, political barriers exist to implementation. Special interests often leverage their

political capital and organizational networks to influence decisions that may not always align with public trust thinking and equitable governance of wildlife resources. The role of state wildlife agencies in overcoming political barriers may appear limited, as most policy decisions are made by elected or appointed trustees, including legislatures, boards, and commissions. State wildlife agencies and trust managers, however, often interface with the public and help shape public perceptions, including support for wildlife conservation. Future research and outreach programs may help clarify relationships between stakeholder support, decision processes, and policymakers by highlighting innovative approaches in the public and private sectors to conserve biodiversity at local to global scales, and gauge willingness to participate in various programs. This may be a particularly relevant approach among younger generations who represent key beneficiaries of future conservation efforts (Larson et al., 2021).

Novel avenues for stakeholder involvement in policymaking might ensure that the interests of broader publics are incorporated into decisions. State wildlife agencies that emphasize expanding institutional capacity for partnerships and facilitating involvement in conservation through various organizations might enable greater stakeholder involvement and support. Public-private partnerships are one conduit through which multiple sectors of conservation and wildlife interests may be able to bring collective organizational and political influence to bear on conservation decisions. Education, networking, and outreach can prioritize conservation-oriented messaging and bring awareness to the benefits that wildlife conservation provides the public, whether they engage in wildlife-associated recreation or not. Achieving a high level of public support for a policy does not ensure implementation, suggesting that a diversity of mechanisms might be necessary to broaden the scope of conservation funding strategies and utilize the support of beneficiaries to help inform the recommendations made by state wildlife agencies to trustees and policymakers.

## DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Michigan State University Institutional Review Board, Human Research Protection Program. The patients/participants provided their written informed consent to participate in this study.

## AUTHOR CONTRIBUTIONS

SR and CH: project administration. CH, SR, EP, and DK: conceptualization, revision, and feedback.

CH, SR, and DK: methodology. CH: data analysis and writing initial manuscript draft. All authors contributed to the article and approved the submitted version.

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