# America's Wildlife Values

# Delaware State Report

AMERICA'S WILDLIFE VALUES

WAFWA
Western Association of Fish & Wildlife Agencies

Colorado State University

The Ohio State University

Responsive Management

# Acknowledgements

This project was administered by the Western Association of Fish and Wildlife Agencies (WAFWA) and the Midwest Association of Fish and Wildlife Agencies (MAFWA). The Association of Fish and Wildlife Agencies (AFWA) sponsored the project under the U.S. Fish and Wildlife Service's 2015 Multistate Conservation Grants Program (Grant number: F15AP00726). Additional funding support was provided by contributions from participating state fish and wildlife agencies. The authors would like to thank the following individuals for their contributions to this effort: Dean Smith, Larry Kruckenberg, Deb VonDeBur, Cathy Campbell, Carolyn Boyd, Andrea Criscione, and Alison Lanier, with a special thanks to Lynne Pusey, Matt DiBona, and Joe Rogerson of the Delaware Division of Fish & Wildlife.

We would also like to thank the following individuals who assisted with preparing various materials (e.g., tables, figures) for the many reports generated as part of the overall project: Stacy Armbruster (Colorado State University), Shelby Carlson (The Ohio State University), Colleen Hartel (The Ohio State University), and Kristina Slagle (The Ohio State University).

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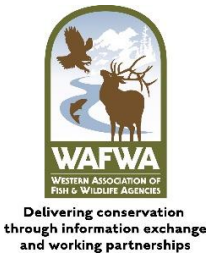
**Suggested Citation**

Dietsch, A.M., Don Carlos, A.W., Manfredo, M. J., Teel, T. L., & Sullivan, L. (2018). State report for Delaware from the research project entitled "*America's Wildlife Values*." Fort Collins, CO: Colorado State University, Department of Human Dimensions of Natural Resources.



*Cover photo credit: Jeremy Bruskotter*

# Executive Summary

The information contained in this summary highlights findings from a survey of residents living in the state of Delaware as part of the project entitled "America's Wildlife Values: Understanding Trends in Public Values toward Wildlife as a Key to Meeting Current and Future Wildlife Management Challenges." This multi-state project sought to explore the values, attitudes, and beliefs of residents across the U.S. in relation to fish and wildlife management. Such information can help agency decision-makers to understand more about the public's interest in fish and wildlife-related issues and their perspectives on management of the state's fish and wildlife.

Specific findings from this report include:

- In total, Delaware received 532 responses to the survey. Of those responses, 205 were from mail surveys (7.4% response rate) and 327 were from web-based panels.

- The breakdown of wildlife value orientations in your state is as follows[1].
    - Traditionalist: **24%**
    - Mutualist: **39%**
    - Pluralist: **21%**
    - Distanced: **17%**

- Nearly **59%** of respondents reported feeling that they share many of the same values as your state fish and wildlife agency regarding the management of fish and wildlife.

- Survey respondents held the following beliefs about funding for your state fish and wildlife agency:
    - **10%** view current funding as primarily coming from hunting and fishing license sales.
        - **18%** of respondents believe this should be the funding model used in the future.
    - **81%** view current funding as coming from a mix of hunting and fishing license sales and public tax dollars.
        - **75%** of respondents believe this should be the funding model used in the future.
    - **8%** view current funding as primarily coming from public tax dollars.
        - **7%** of respondents believe this should be the funding model used in the future.

- A majority of respondents **(56%)** expressed trust in your agency to do what is right for fish and wildlife in the state.

Additional information on each of these findings and more can be found within this report. Detailed frequencies for each survey item by wildlife value orientations and by current participation in hunting and fishing during the 12 months prior to respondents taking the survey are also included in the report. Information about the comparison of your state to other states and information about trends in your state can be found separately in the *Multistate Report on Wildlife Values in America*, made available in October, 2018.

[1] For definitions of these terms, see page 1 of the attached report.

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# Wildlife Value Orientations

*Wildlife value orientations* represent the different overarching themes in a person's patterns of thought about wildlife, and can be used to identify different "types" of people (Bright et al., 2000). Characterizing segments of the public in this manner allows for a better understanding of the diversity of publics that exists as well as anticipation of how different groups of people will respond to proposed management strategies and programs.

These orientation types are calculated based on responses to a variety of survey items that represent four belief dimensions: (1) social affiliation and (2) caring, which form the mutualism orientation, and (3) hunting and (4) use of wildlife, which form the domination orientation. Means for all items within the mutualist and domination orientation are computed and respondents are segmented into one of four value orientation types by comparing their scores on domination and mutualism simultaneously (high scores were defined as $> 4.50$ whereas low was defined by a score of $\leq 4.50$). For more information on the calculation of wildlife value orientations, see Teel & Manfredo (2009).

When applied to people as a classification,

**Traditionalists**:

- Score high on the domination orientation and low on the mutualism orientation
- Believe wildlife should be used and managed for human benefit

**Mutualists**:

- Score high on the mutualism orientation and low on the domination orientation
- Believe wildlife are part of our social network and that we should live in harmony

**Pluralists:**

- Score high on both the domination and mutualism orientations
- Prioritize these values differently depending on the specific context

**Distanced individuals**:

- Score low on both the domination and mutualism orientations
- Often believe that wildlife-related issues are less salient to them

Below is a detailed account of wildlife value orientation types in your state using our measurements (available in Appendix B to this report). Throughout this report, responses to additional items such as attitudes, trust, and participation in wildlife-related recreation will be explored by your state's current wildlife value orientation types to give you a feel for how these value types differ in their views on fish and wildlife management.[2]

[2] We also measured respondents' views on three additional scales: 1) social values including whether they hold materialist (e.g., emphasizing the need for physical and economic security) or post-materialist (e.g., emphasizing social affiliation needs) values; 2) the extent to which they anthropomorphized animals (i.e., attributed human traits to animals); and 3) the degree to which they perceived other people in their state as ascribing to a strict set of social norms (i.e., respect of socially agreed-upon practices). These data will be explored across states in relation to wildlife value orientations in our Multistate Report.

*Figure 1: Wildlife value orientations in your state*

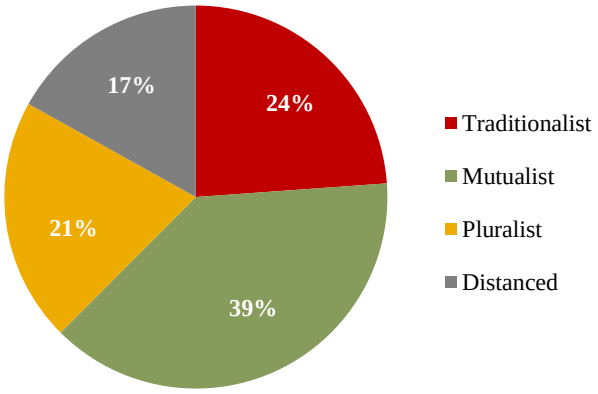



*Figure 2: Percent of each wildlife value orientation type who are current hunters/anglers*

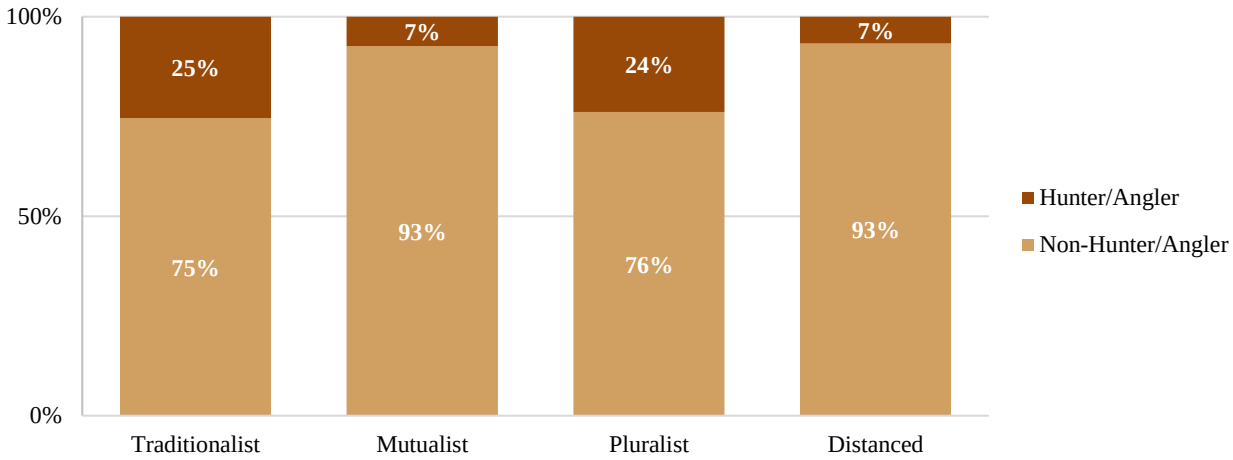



*Figure 3: Wildlife value orientations by gender*

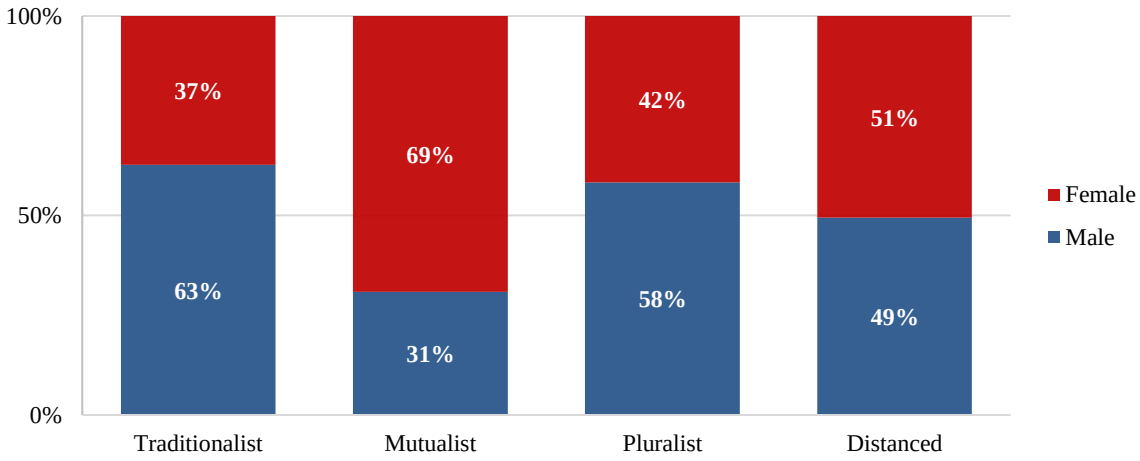


*Figure 4: Wildlife value orientations by age groups*

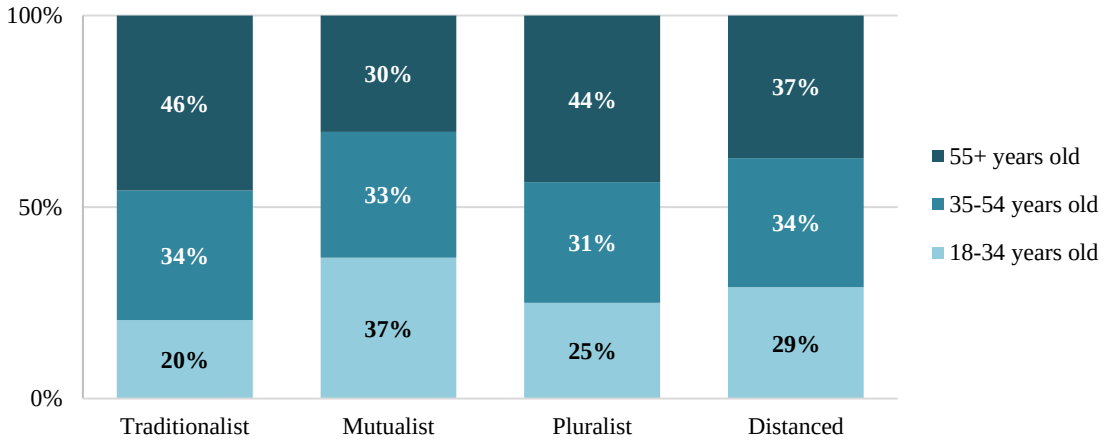



*Figure 5: Wildlife value orientations by income groups*

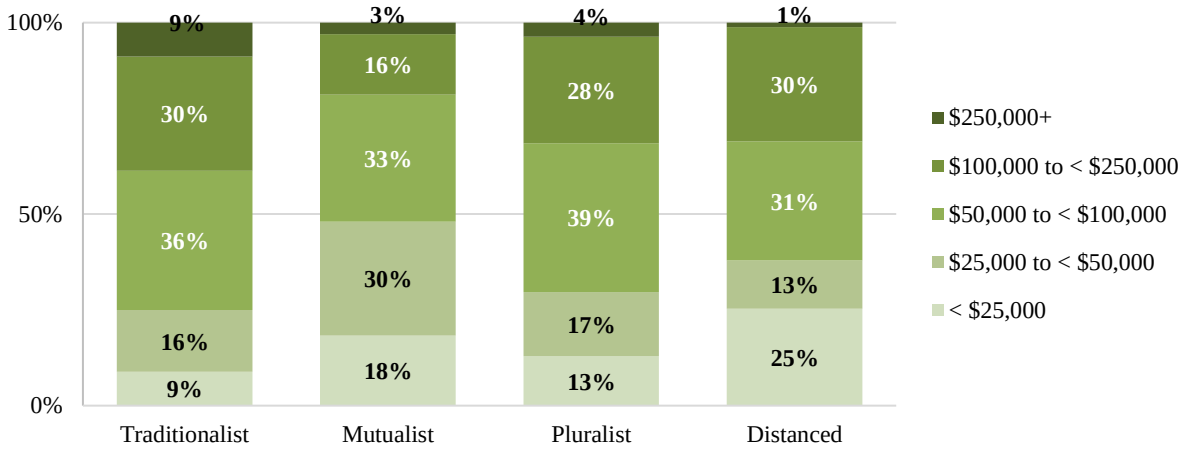



*Figure 6: Wildlife value orientations by education*

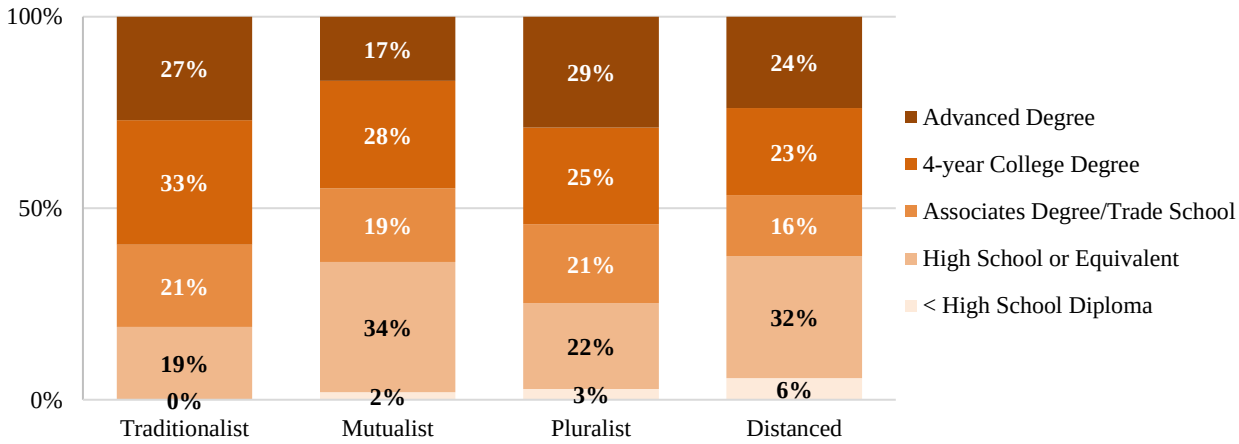
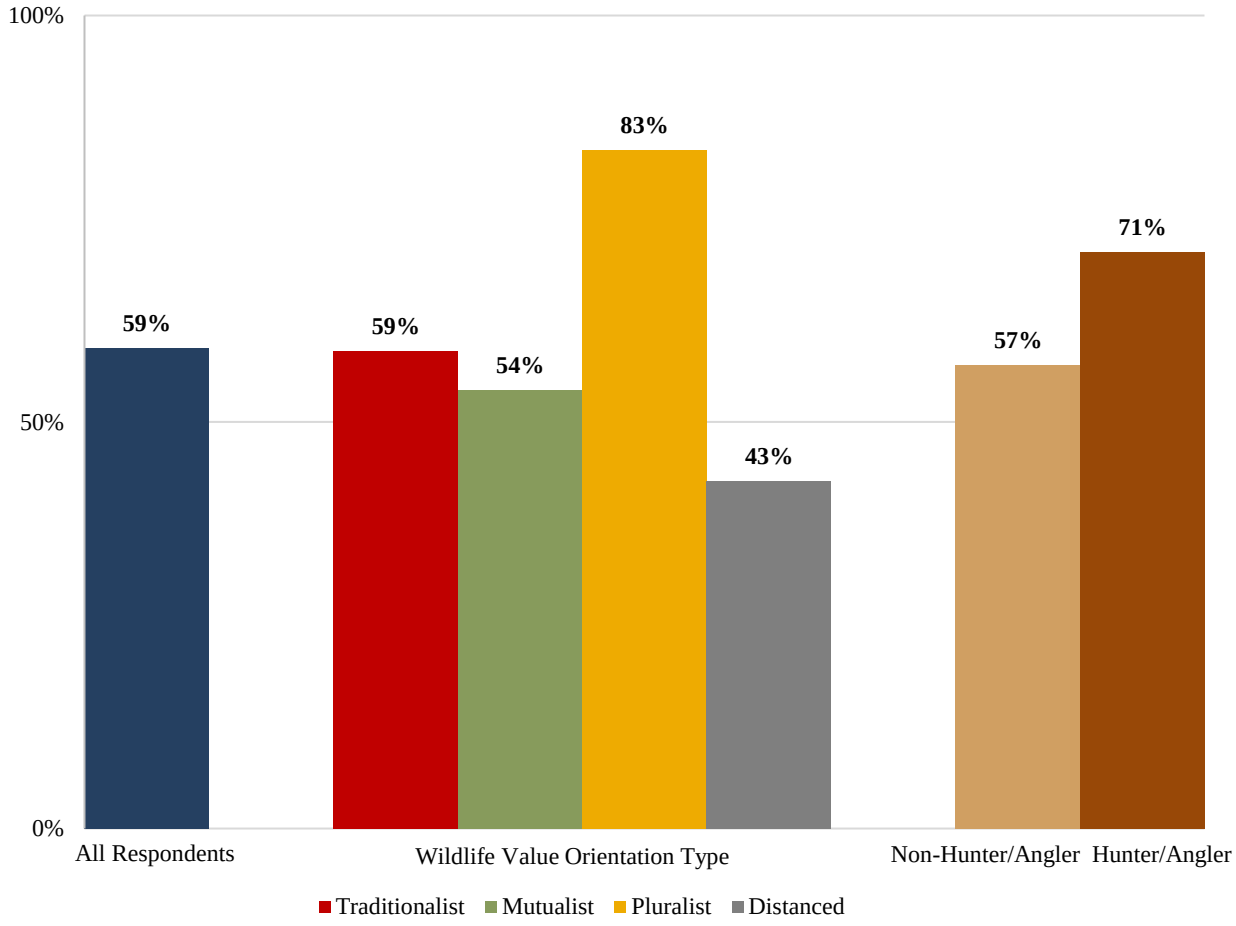


*Figure 7: Percent of individuals by group who believed they shared values with agency*



# Fish and Wildlife-Related Recreation

Having up-to-date information about fish and wildlife-related recreation is vitally important for fish and wildlife management professionals to understand the interests of the public in their states. On this survey, we asked residents from your state to indicate whether they had ever participated in hunting, fishing, and wildlife viewing and if they had participated in these same activities during the past year. Additionally, we asked residents if they had any interest in participating in these activities in the future. Responses to these questions are provided below.

*Figure 8: Participation and interest in fish and wildlife-related recreation*

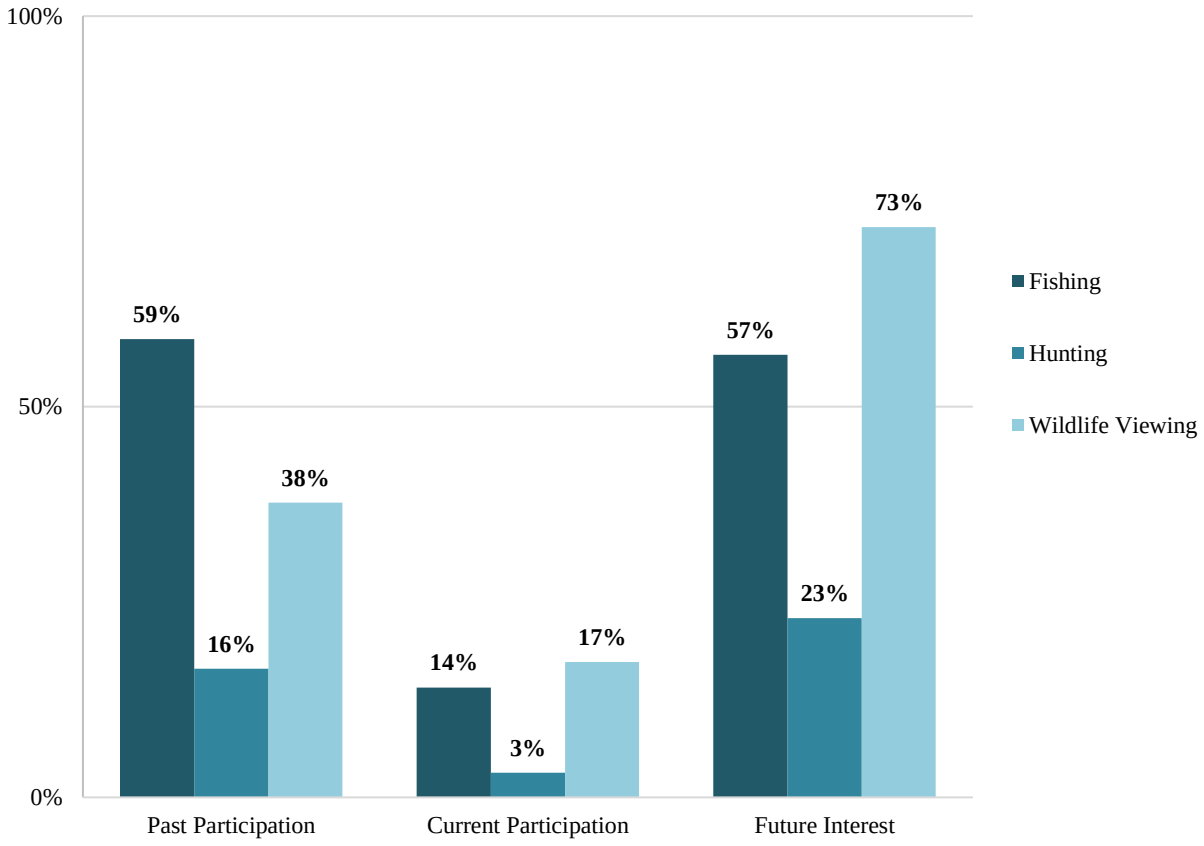


*Figure 9: Fishing participation and future interest by wildlife value orientation*

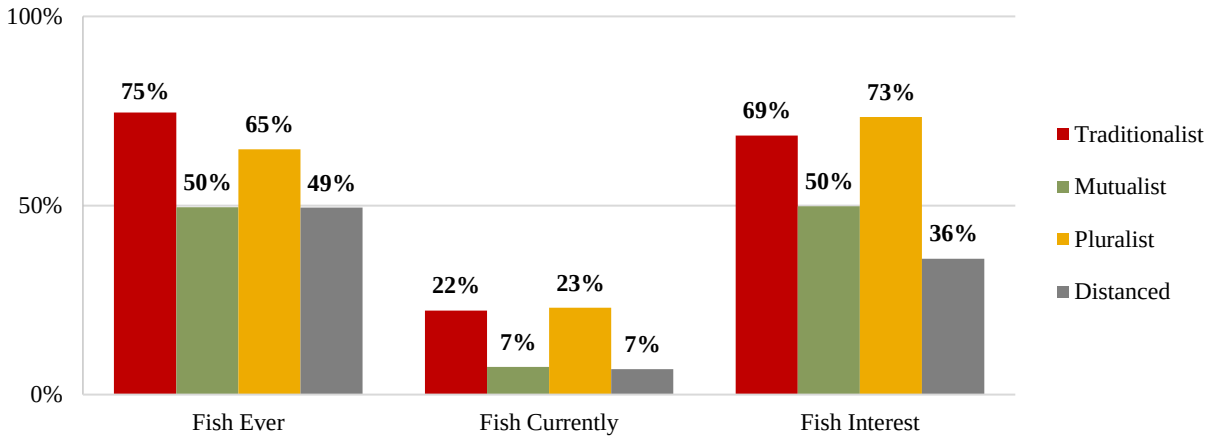



*Figure 10: Hunting participation and future interest by wildlife value orientation*

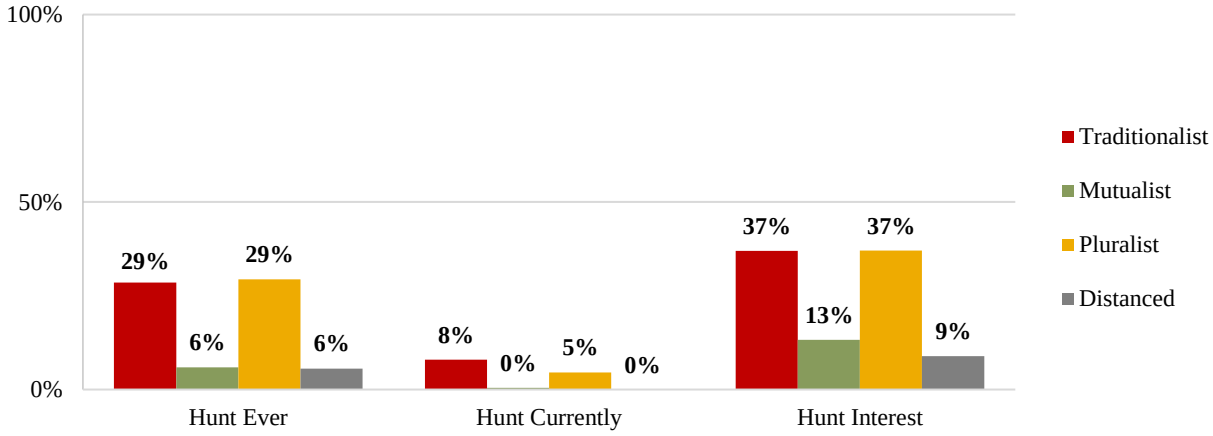
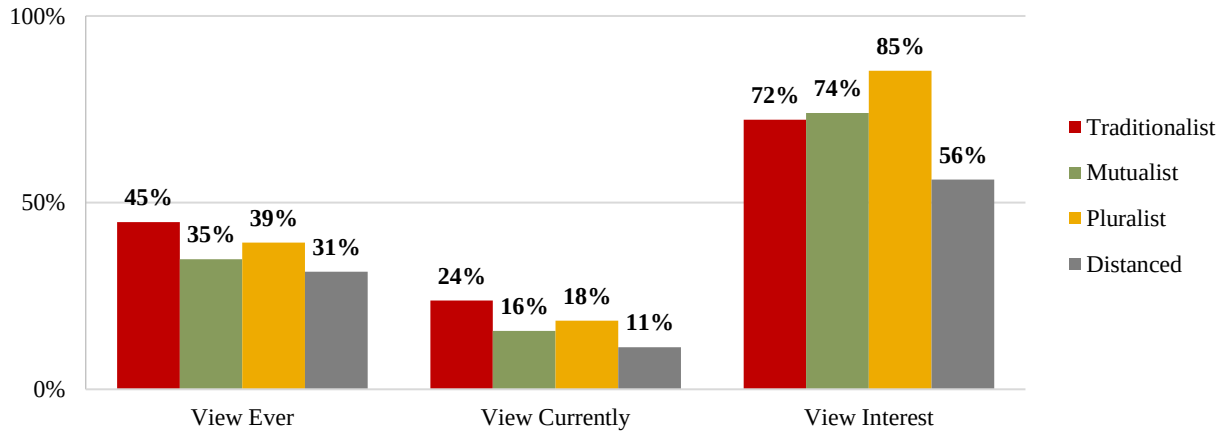



*Figure 11: Wildlife viewing participation and future interest by wildlife value orientation*



*Recruitment and Reactivation*

Many state fish and wildlife agencies are interested in recruiting more people to participate in fish and wildlife-related recreation, and reactivating those who are not current participants but have participated in such activities in the past. Below is the percent of respondents from these two categories who have expressed interest in future participation in fish and wildlife-related recreation.

Fishing

**57%** of respondents are interested in **fishing** in the future. Of those, approximately

- **23%** actively participate in fishing.
- **51%** have fished but not in the past year.
- **26%** have never fished before.

Hunting

**23%** of respondents are interested in **hunting** in the future. Of those, approximately

- **13%** actively participate in hunting.
- **33%** have hunted but not in the past year.
- **53%** have never hunted before.

Wildlife Viewing

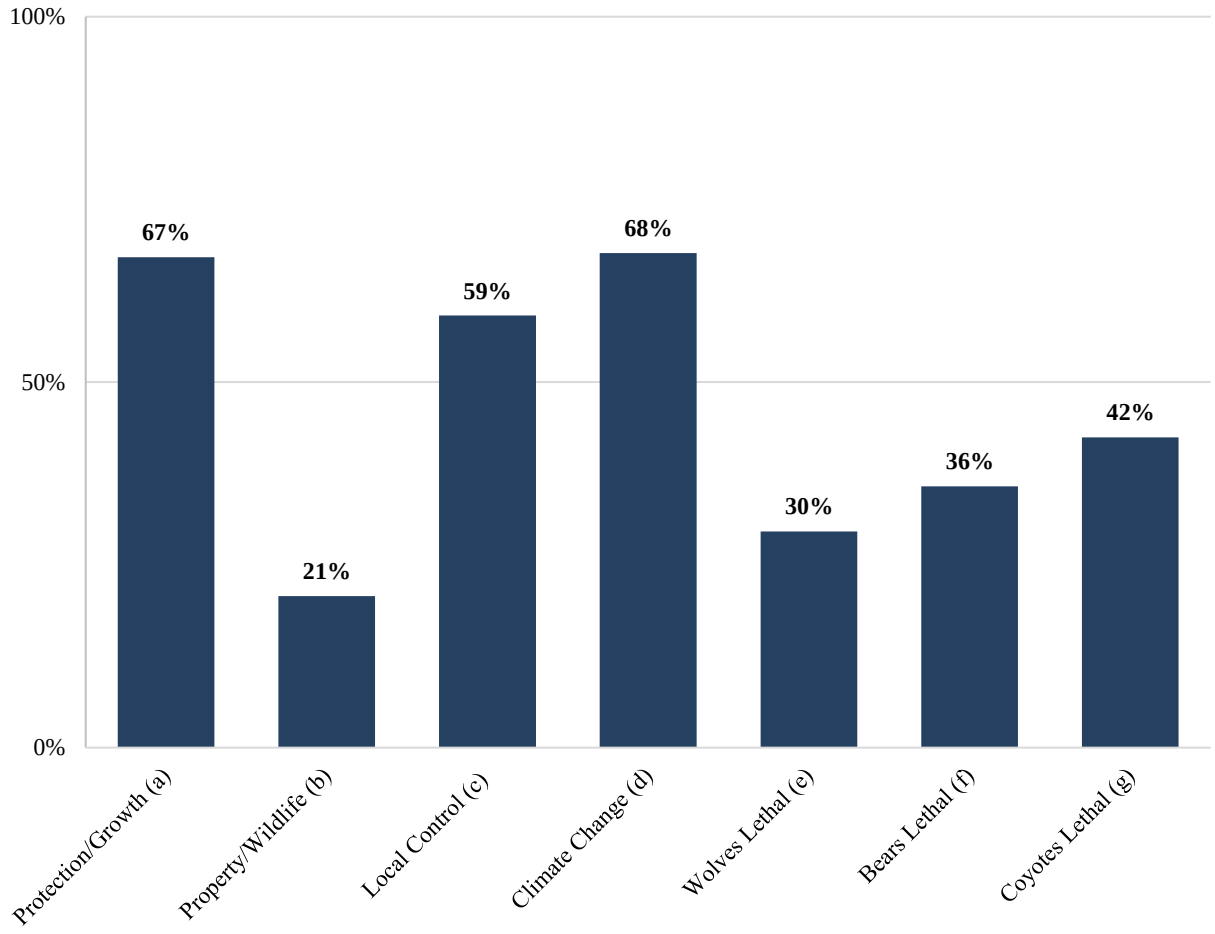
**73%** of respondents are interested in **wildlife viewing** in the future. Of those, approximately

- **23%** actively participate in wildlife viewing.
- **30%** have participated in wildlife viewing but not in the past year.
- **47%** have never participated in wildlife viewing before.

## Issue-Specific Attitudes

Respondents' attitudes towards different fish and wildlife management issues were also measured in this survey. For each statement, respondents were asked to rate their agreement from *strongly disagree* to *strongly agree*. Below are charts indicating agreement with each of these statements by wildlife value orientation type and current hunting/fishing participation. Detailed frequencies for these data can be found at the end of this report.

*Figure 12: Agreement with statements about fish and wildlife management*




Statement Texts:

*a. Protection/Growth: We should strive for a society that emphasizes environmental protection over economic growth.*
*b. Property/Wildlife: Private property rights are more important than protecting declining or endangered fish and wildlife.*
*c. Local Control: Local communities should have more control over the management of fish and wildlife.*
*d. Climate Change: The earth is getting warmer mostly because of human activity such as burning fossil fuels.*
*e. Wolves Lethal: Wolves that kill livestock should be lethally removed.*
*f. Bears Lethal: If a black bear attacks a person, that bear should be lethally removed regardless of the circumstances.*
*g. Coyotes Lethal: Coyotes that kill pets in residential areas should be lethally removed.*

*Figure 13: Agreement with statements about fish and wildlife management by wildlife value orientation*

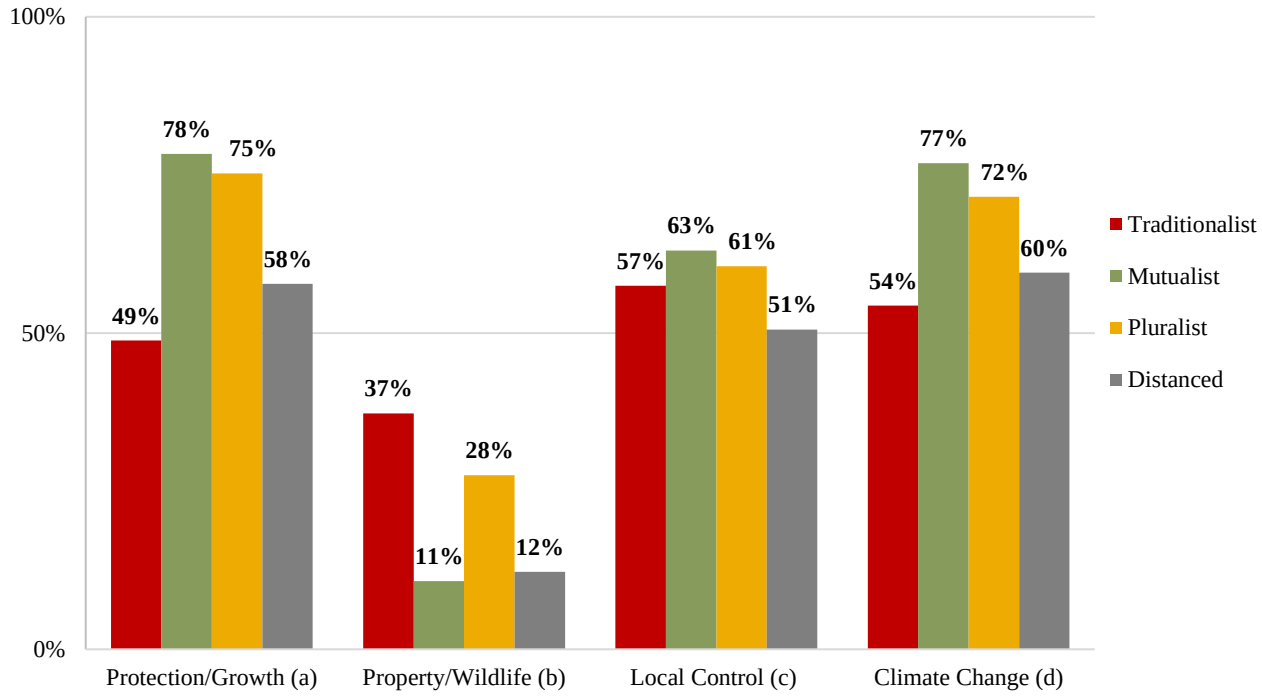



*Figure 14: Agreement with statements about fish and wildlife management by current hunting/fishing participation*

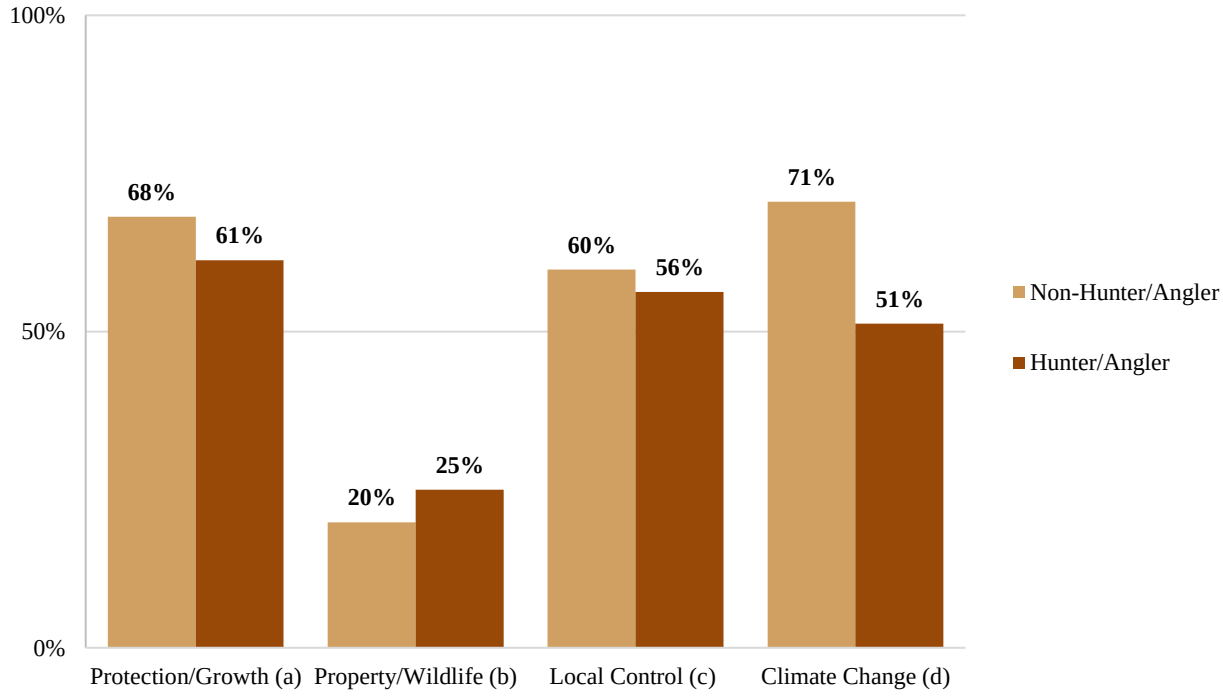


*Figure 15: Agreement with statements about lethal removal by wildlife value orientation*

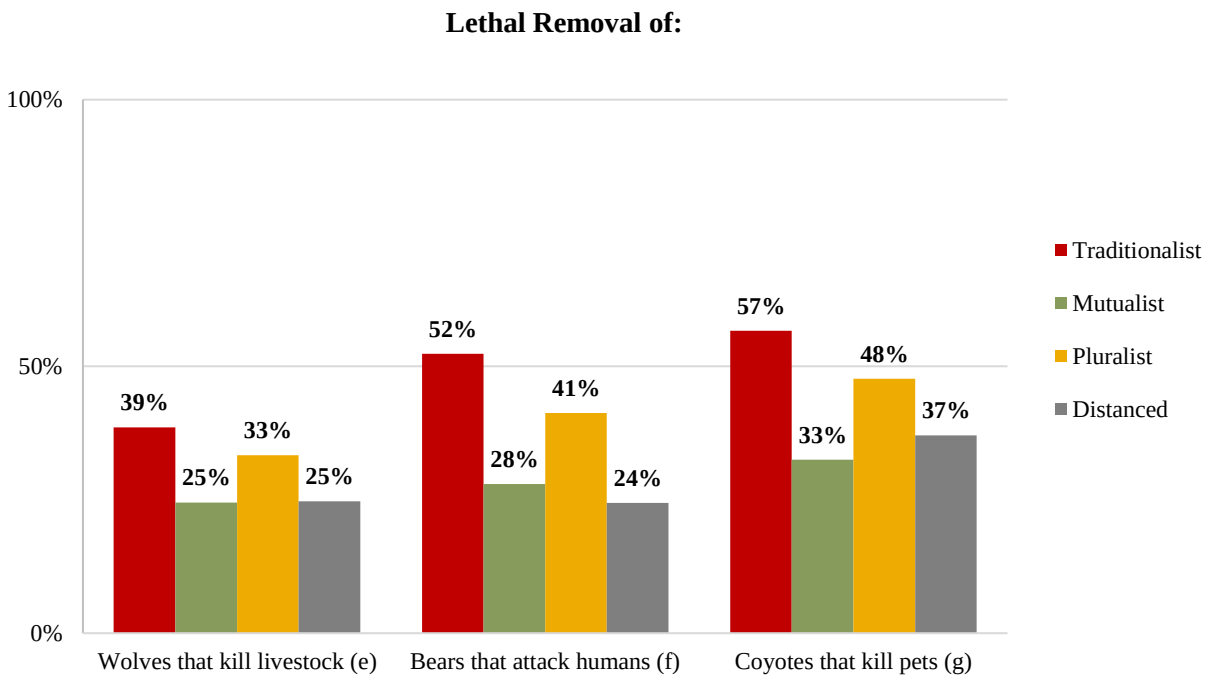
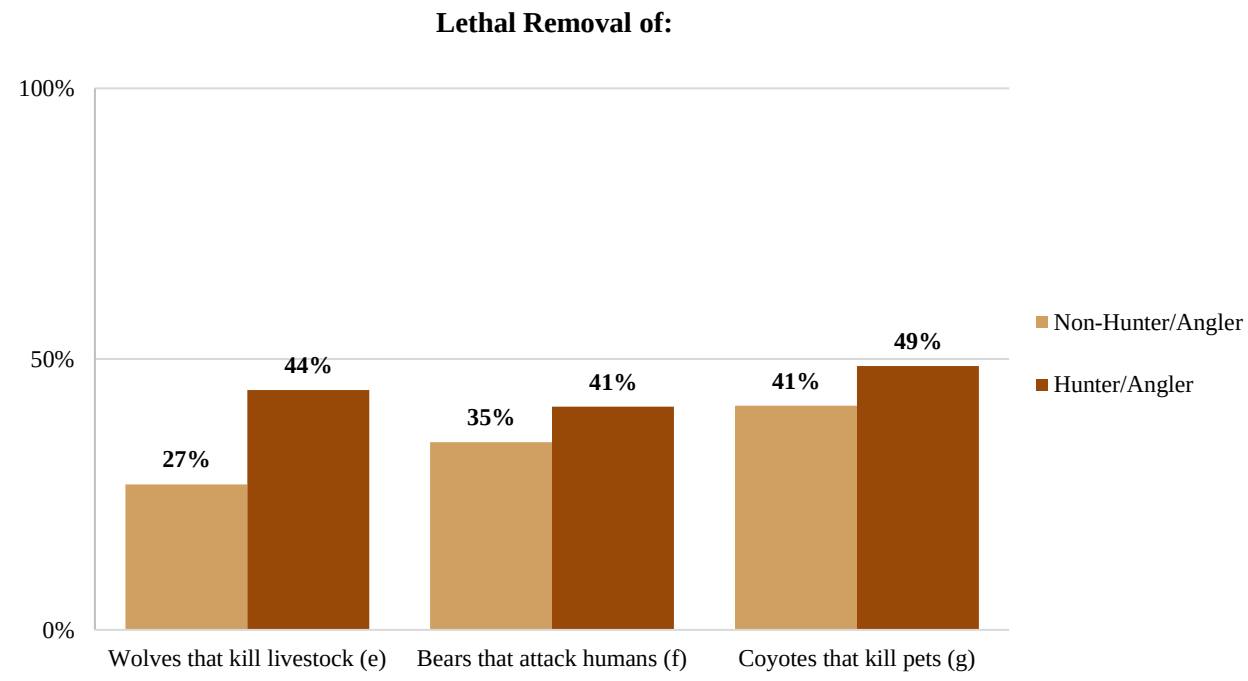



*Figure 16: Agreement with statements about lethal removal by current hunting/fishing participation*



## Funding for Fish and Wildlife Management

Respondents also provided their views on how fish and wildlife management is currently funded, and how management should be funded in the future on a 7-point scale ranging from entirely funded by hunting and fishing license fees (license fees) to equally funded by license fees and public tax funds (public taxes) to entirely funded by public taxes. Here we provide a 3-category reduced summary of how each item was answered by respondents with different wildlife value orientations and by current hunting and fishing participation so that "mostly" represents the 2 points on either tail of the 7-point scale, and the midpoint represents the 3 middle response options.

*Figure 17: Current and future funding for fish and wildlife management*

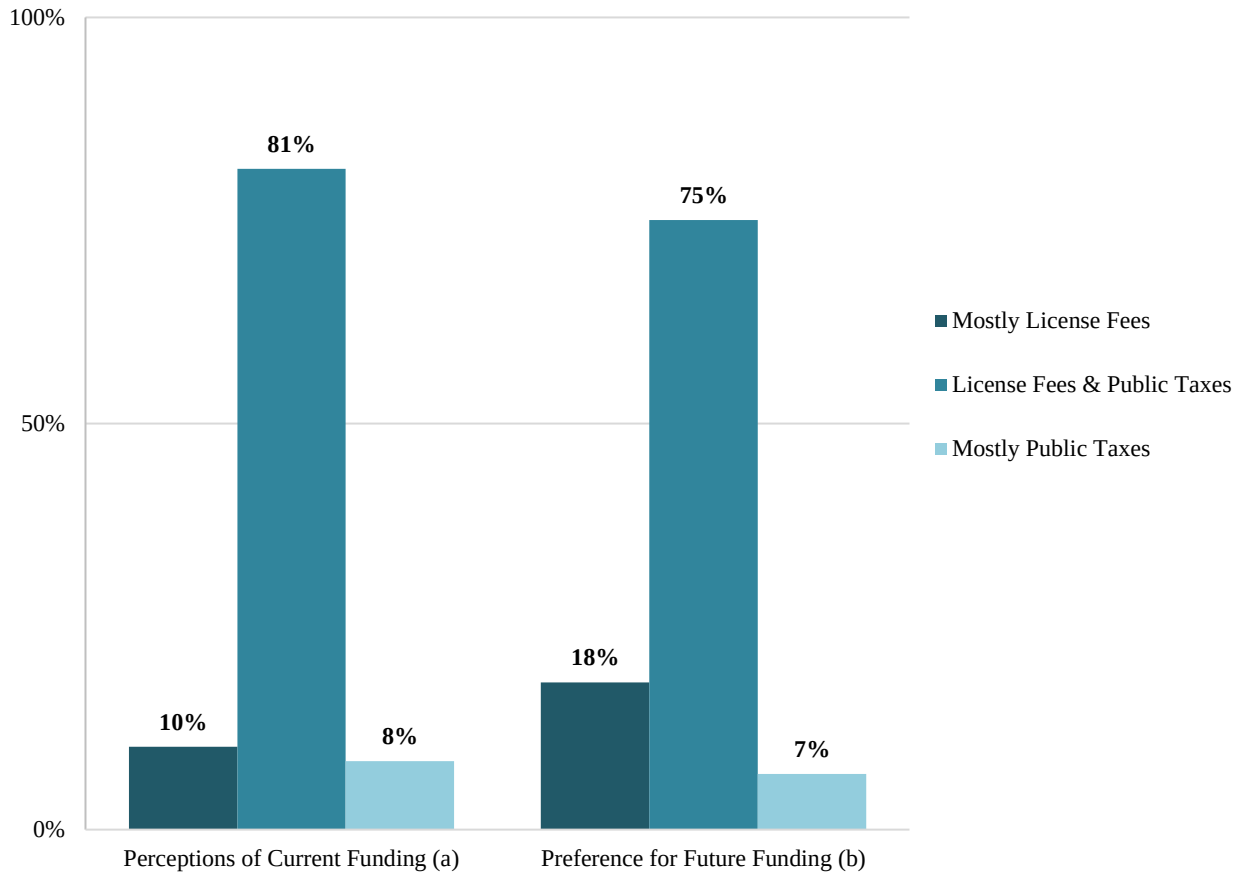


*Figure 18: Funding for fish and wildlife management by wildlife value orientation*

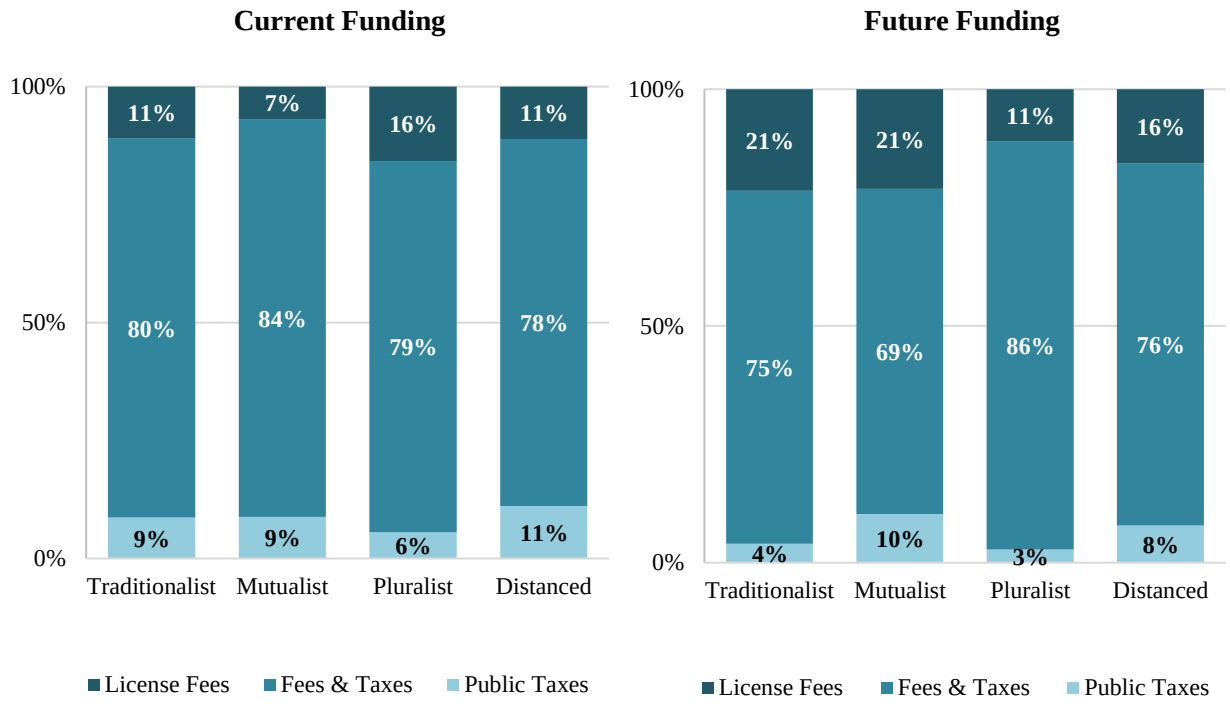
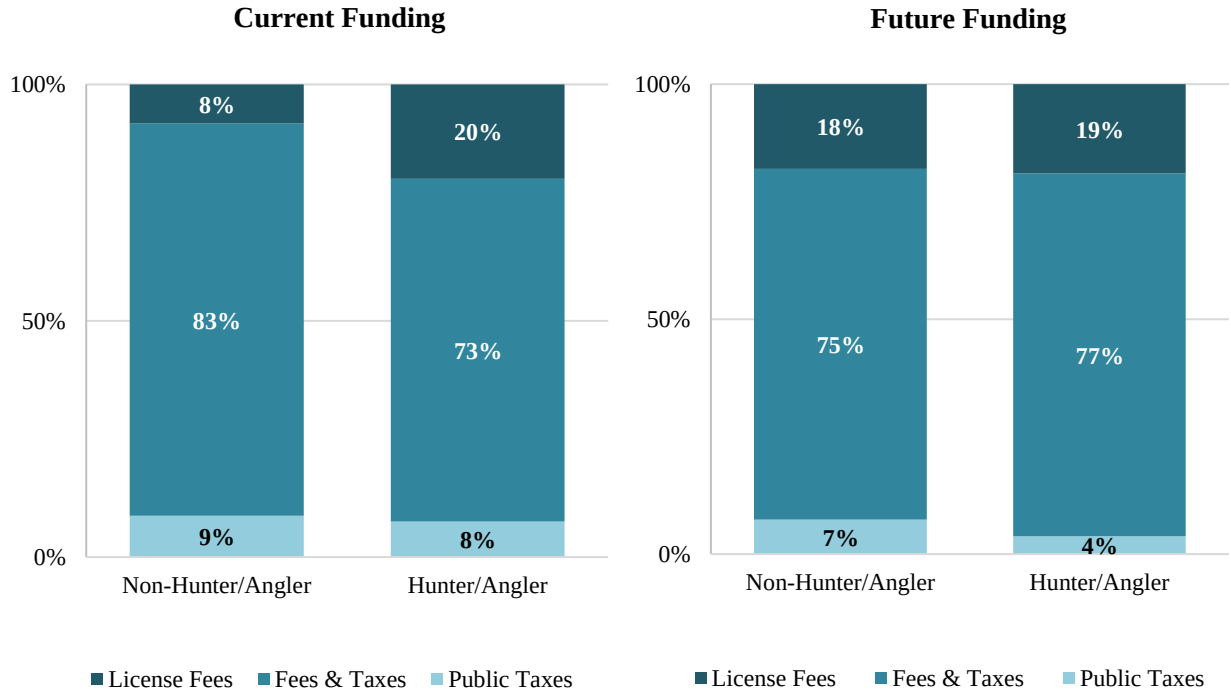



*Figure 19: Funding for fish and wildlife management by current hunting/fishing participation*



# Public Trust

Public trust in government is an important indicator for understanding public perceptions. In the United States, trust at all levels of government has been declining since the 1960s, which may be indicative of broad changes in how people view government and governing agencies (Chanley et al., 2000). We asked residents from your state to rate their trust in the federal government to do what is right for your country, state government to do what is right for your state, and state fish and wildlife agency to do what is right for fish and wildlife management in your state on a scale ranging from "almost never" to "almost always." The figures below indicate the percentage of respondents who expressed trust in these governing bodies "most" or "all" of the time.

*Figure 20: Trust in federal and state government and state fish and wildlife agency*

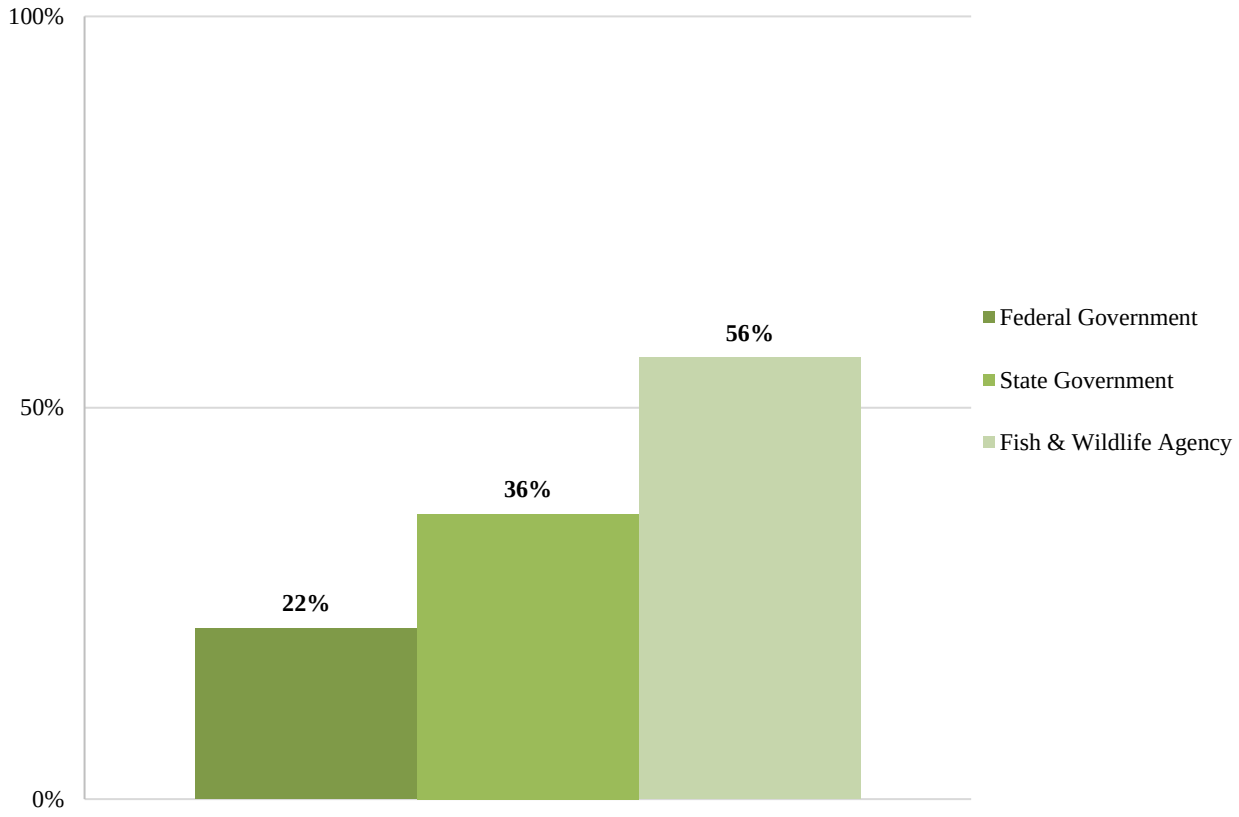


*Figure 21: Trust in government by wildlife value orientation*

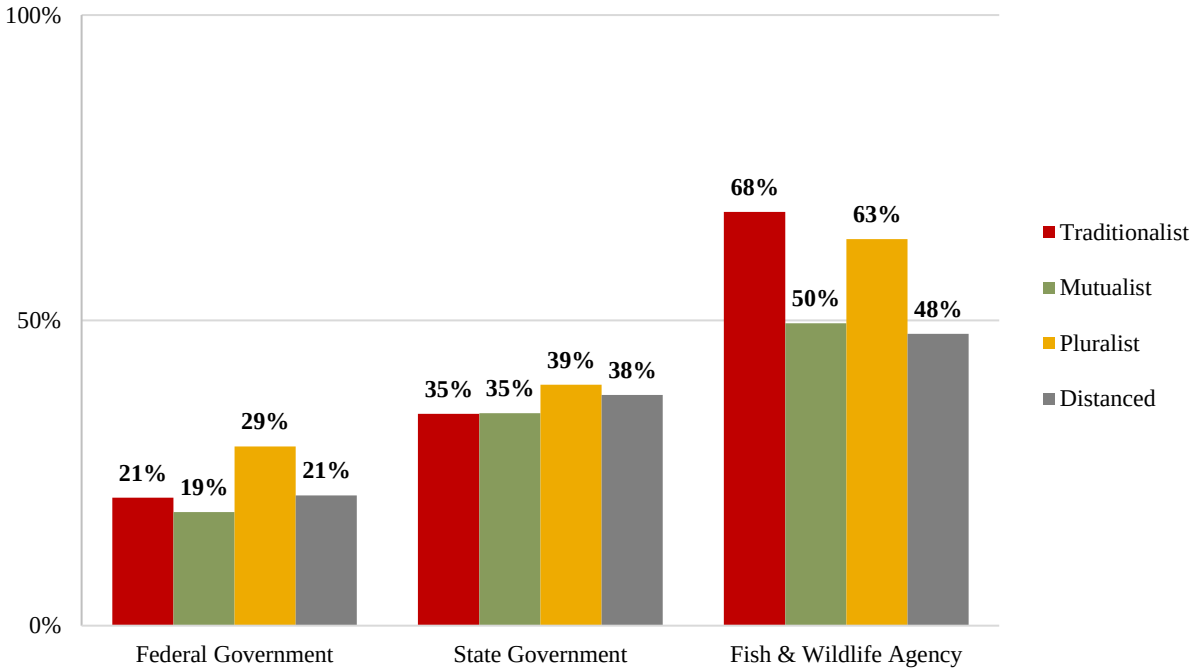
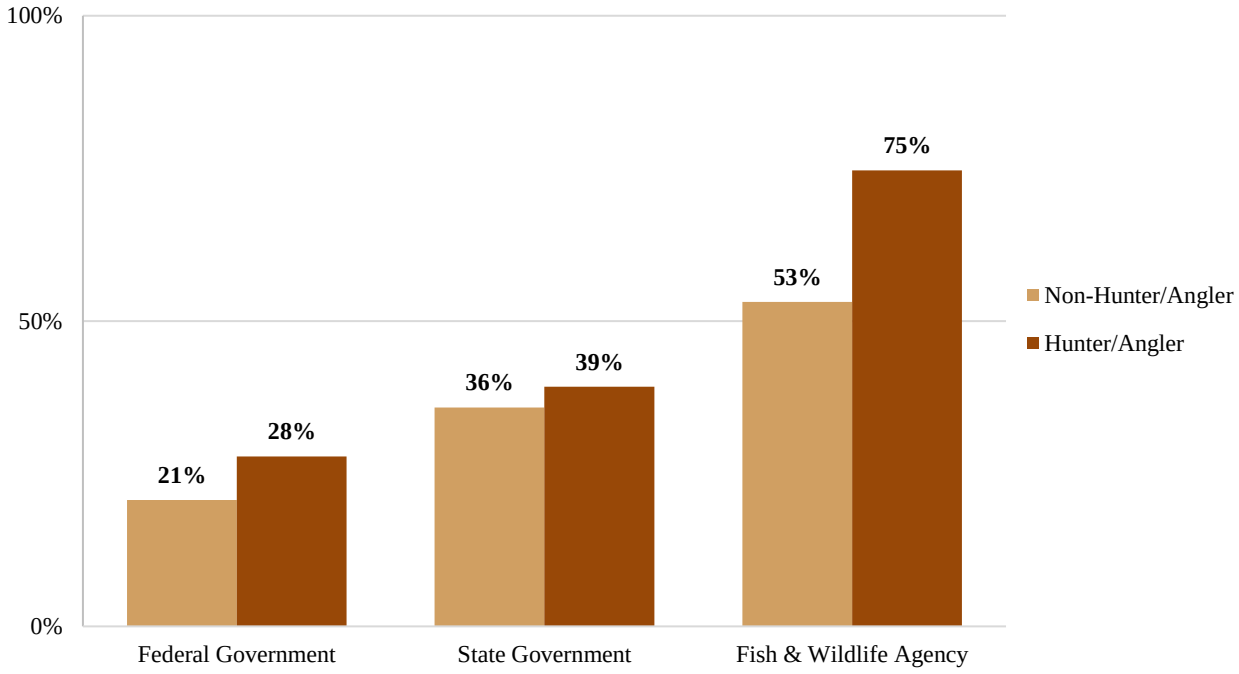



*Figure 22: Trust in government by current hunting/fishing participation*



## Support for Hunting as a Source of Local, Organic Meat

Residents were given the following prompt: "*Recently, there has been increased attention to the idea that hunting can provide a good way for people to obtain antibiotic-free, organic meat from a local source. We'd like to know if this idea is at all related to your current views about hunting and participation in the activity*." Respondents were asked to respond "yes" or "no" to indicate if this idea was related to their current views about and participation in hunting. Responses to the prompt are presented below for all residents, by wildlife value orientation, and by current hunting/fishing participation.

*Figure 23: Support for hunting as a source of local, organic meat*

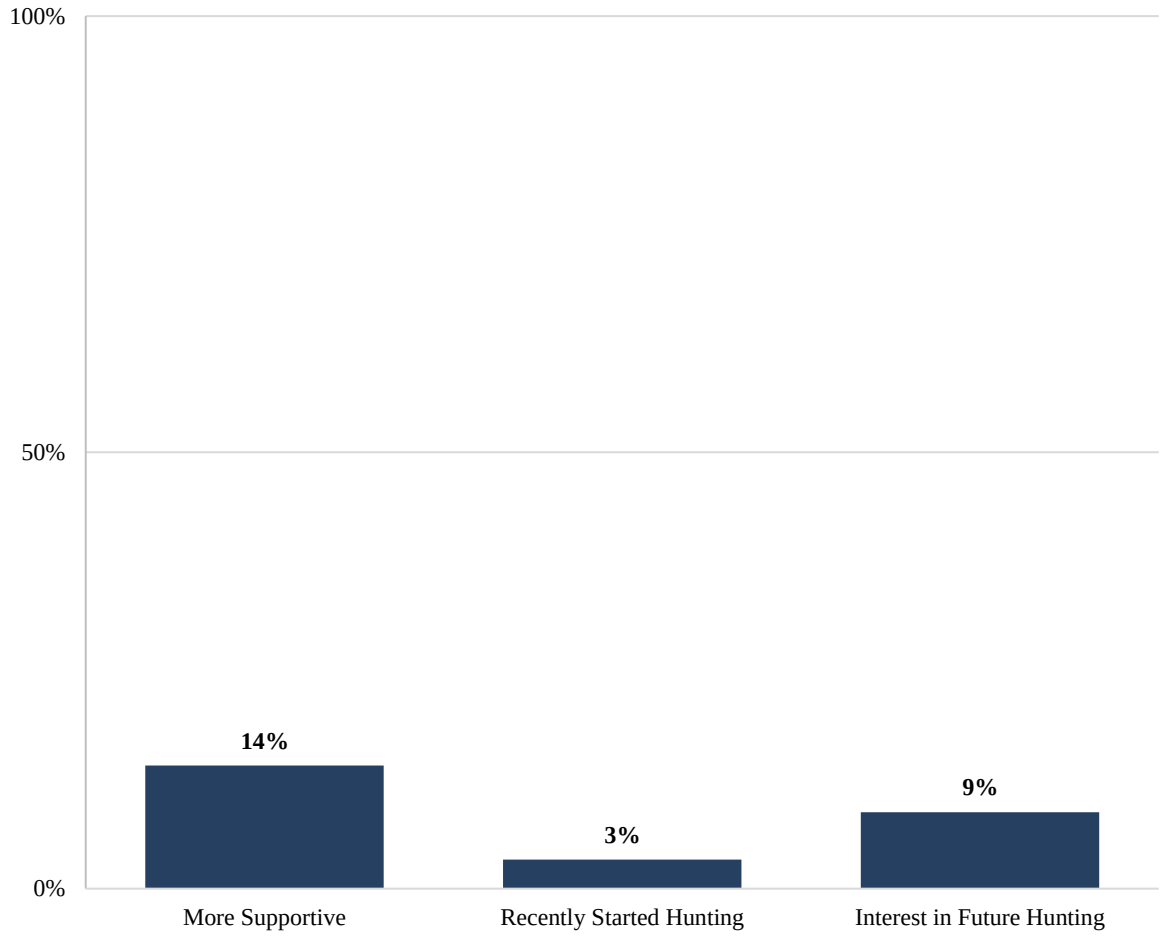


*Figure 24: Support for hunting as a source of local, organic meat by wildlife value orientation*

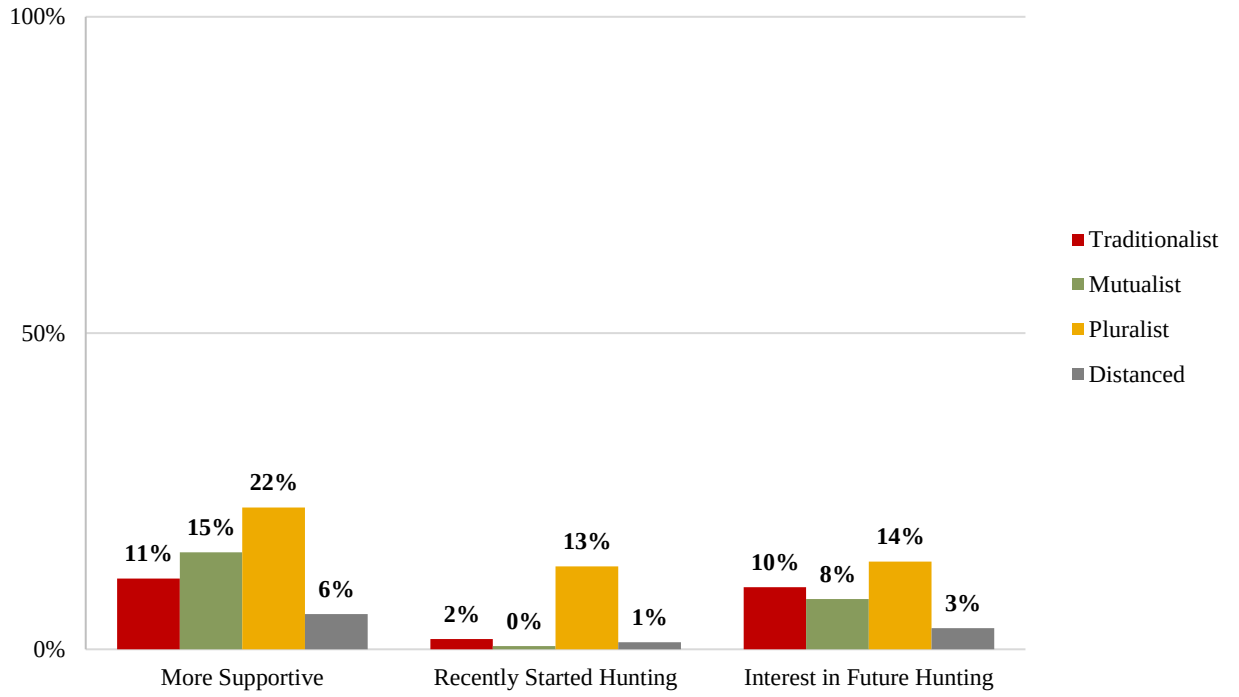
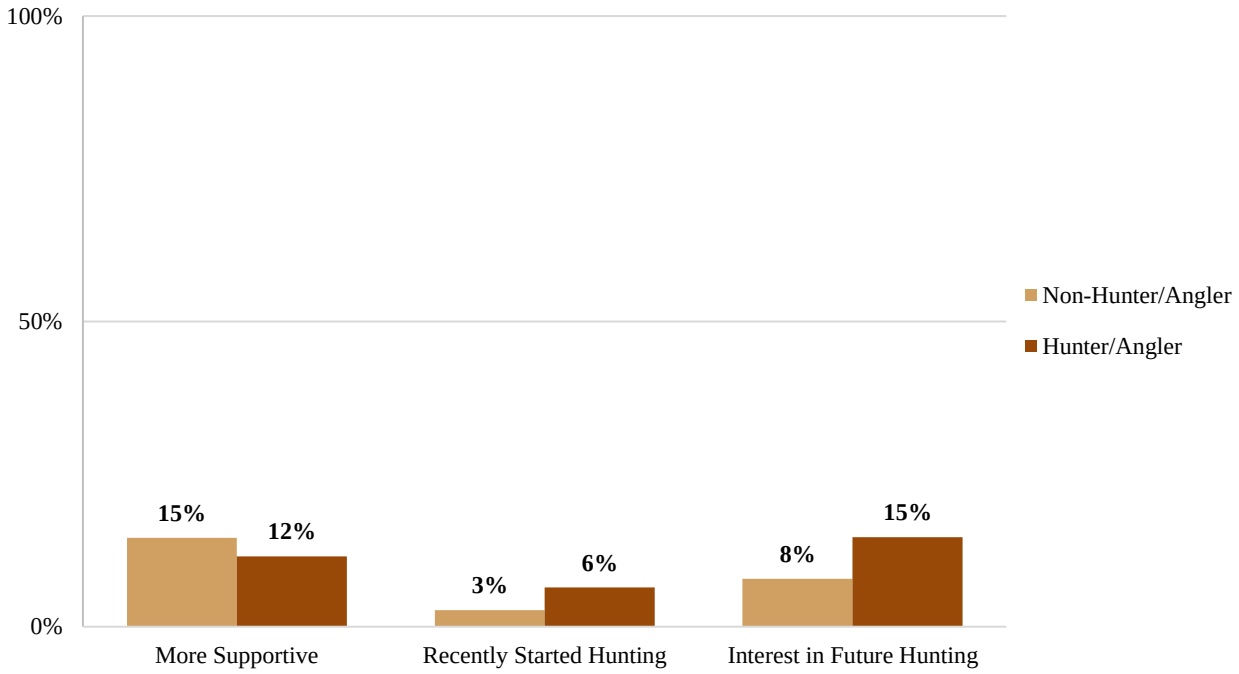



*Figure 25: Support for hunting as a source of local, organic meat by current hunting/fishing participation*



## Descriptive Tables for Items by Wildlife Value Orientation and Current Hunting/Fishing Participation

The information contained in the following tables below provides a more detailed look at the findings in the figures above. Responses to each item are provided below, and a copy of the survey instrument used to measure each of these items is available in Appendix B.

Table 1: Percent of respondents who believed that they shared similar values to their state fish and wildlife agency

| | Strongly Disagree | Slightly Disagree | Neither | Slightly Agree | Strongly Agree |
|---|---|---|---|---|---|
| All Respondents | 1.6% | 5.2% | 34.1% | 38.8% | 20.3% |
| Non-Hunters/Anglers | 1.6% | 4.7% | 36.7% | 37.9% | 19.2% |
| Hunters/Anglers | 2.5% | 7.6% | 19.0% | 44.3% | 26.6% |
| Traditionalists | 3.2% | 9.5% | 28.6% | 45.2% | 13.5% |
| Mutualists | 1.0% | 7.4% | 37.6% | 33.2% | 20.8% |
| Pluralists | 1.8% | 0.0% | 14.7% | 47.7% | 35.8% |
| Distanced | 1.1% | 1.1% | 54.4% | 32.2% | 11.1% |

Table 2: Percent of respondents who believed that we should strive for a society that emphasizes environmental protection over economic growth

| | Strongly Disagree | Slightly Disagree | Neither | Slightly Agree | Strongly Agree |
|---|---|---|---|---|---|
| All Respondents | 4.6% | 9.4% | 18.9% | 35.3% | 31.8% |
| Non-Hunters/Anglers | 4.2% | 9.6% | 18.2% | 35.1% | 32.9% |
| Hunters/Anglers | 7.5% | 8.8% | 22.5% | 36.3% | 25.0% |
| Traditionalists | 9.7% | 22.6% | 19.4% | 30.6% | 17.7% |
| Mutualists | 4.9% | 4.4% | 12.7% | 32.4% | 45.6% |
| Pluralists | 1.8% | 7.3% | 16.5% | 43.1% | 31.2% |
| Distanced | 0.0% | 5.7% | 36.4% | 37.5% | 20.5% |

Table 3: Percent of respondents who believed that private property rights are more important than protecting declining or endangered fish and wildlife

| | Strongly Disagree | Slightly Disagree | Neither | Slightly Agree | Strongly Agree |
|---|---|---|---|---|---|
| All Respondents | 26.1% | 31.2% | 21.9% | 14.9% | 5.8% |
| Non-Hunters/Anglers | 26.4% | 30.9% | 22.7% | 14.7% | 5.3% |
| Hunters/Anglers | 24.1% | 32.9% | 17.7% | 16.5% | 8.9% |
| Traditionalists | 16.0% | 25.6% | 20.8% | 28.0% | 9.6% |
| Mutualists | 40.7% | 30.4% | 18.1% | 7.4% | 3.4% |
| Pluralists | 18.3% | 33.9% | 20.2% | 19.3% | 8.3% |
| Distanced | 16.9% | 36.0% | 34.8% | 9.0% | 3.4% |

Table 4: Percent of respondents who believed that local communities should have more control over the management of fish and wildlife

| | Strongly Disagree | Slightly Disagree | Neither | Slightly Agree | Strongly Agree |
|---|---|---|---|---|---|
| All Respondents | 4.5% | 10.1% | 26.2% | 38.8% | 20.3% |
| Non-Hunters/Anglers | 4.4% | 8.7% | 27.3% | 39.3% | 20.2% |
| Hunters/Anglers | 5.1% | 19.0% | 20.3% | 35.4% | 20.3% |
| Traditionalists | 5.5% | 11.8% | 25.2% | 37.8% | 19.7% |
| Mutualists | 5.9% | 8.4% | 22.7% | 36.9% | 26.1% |
| Pluralists | 0.9% | 10.2% | 27.8% | 44.4% | 16.7% |
| Distanced | 3.4% | 12.4% | 33.7% | 37.1% | 13.5% |

Table 5: Percent of respondents who believed that the earth is getting warmer mostly because of human activity such as burning fossil fuels

| | Strongly Disagree | Slightly Disagree | Neither | Slightly Agree | Strongly Agree |
|---|---|---|---|---|---|
| All Respondents | 7.6% | 8.5% | 16.3% | 26.4% | 41.3% |
| Non-Hunters/Anglers | 5.6% | 7.6% | 16.2% | 27.6% | 43.1% |
| Hunters/Anglers | 18.8% | 13.8% | 16.3% | 20.0% | 31.3% |
| Traditionalists | 13.6% | 15.2% | 16.8% | 25.6% | 28.8% |
| Mutualists | 4.9% | 5.4% | 12.8% | 24.6% | 52.2% |
| Pluralists | 6.4% | 9.2% | 12.8% | 30.3% | 41.3% |
| Distanced | 5.6% | 5.6% | 28.9% | 26.7% | 33.3% |

Table 6: Percent of respondents who believed that wolves that kill livestock should be lethally removed

| | Strongly Disagree | Slightly Disagree | Neither | Slightly Agree | Strongly Agree |
|---|---|---|---|---|---|
| All Respondents | 20.9% | 27.1% | 22.4% | 19.7% | 9.9% |
| Non-Hunters/Anglers | 21.5% | 27.1% | 24.4% | 19.1% | 8.0% |
| Hunters/Anglers | 16.3% | 27.5% | 11.3% | 23.8% | 21.3% |
| Traditionalists | 14.2% | 27.6% | 19.7% | 21.3% | 17.3% |
| Mutualists | 26.5% | 28.4% | 20.6% | 18.1% | 6.4% |
| Pluralists | 20.4% | 26.9% | 19.4% | 17.6% | 15.7% |
| Distanced | 17.8% | 23.3% | 34.4% | 23.3% | 1.1% |

Table 7: Percent of respondents who believed that if a black bear attacks a person, that bear should be lethally removed regardless of the circumstances

| | Strongly Disagree | Slightly Disagree | Neither | Slightly Agree | Strongly Agree |
|---|---|---|---|---|---|
| All Respondents | 17.5% | 29.4% | 17.4% | 21.8% | 14.0% |
| Non-Hunters/Anglers | 17.1% | 28.9% | 19.3% | 21.3% | 13.3% |
| Hunters/Anglers | 18.8% | 32.5% | 7.5% | 23.8% | 17.5% |
| Traditionalists | 11.1% | 26.2% | 10.3% | 23.8% | 28.6% |
| Mutualists | 24.0% | 31.4% | 16.7% | 18.6% | 9.3% |
| Pluralists | 15.6% | 26.6% | 17.4% | 26.6% | 13.8% |
| Distanced | 13.3% | 33.3% | 28.9% | 20.0% | 4.4% |

Table 8: Percent of respondents who believed that coyotes that kill pets in residential areas should be lethally removed

| | Strongly Disagree | Slightly Disagree | Neither | Slightly Agree | Strongly Agree |
|---|---|---|---|---|---|
| All Respondents | 14.2% | 24.4% | 19.0% | 26.0% | 16.5% |
| Non-Hunters/Anglers | 14.3% | 24.7% | 19.6% | 26.7% | 14.7% |
| Hunters/Anglers | 13.9% | 22.8% | 15.2% | 21.5% | 26.6% |
| Traditionalists | 7.9% | 22.8% | 12.6% | 28.3% | 28.3% |
| Mutualists | 20.8% | 24.8% | 21.8% | 20.3% | 12.4% |
| Pluralists | 9.2% | 28.4% | 14.7% | 28.4% | 19.3% |
| Distanced | 14.4% | 21.1% | 27.8% | 32.2% | 4.4% |

Table 9: Percent of respondents who believed that current funding for fish and wildlife management is provided by hunting and fishing license fees vs. public tax dollars

| | Entirely by hunting & fishing license fees | | | Both license fees & public taxes | | | Entirely by public tax funds |
|---|---|---|---|---|---|---|---|
| All Respondents | 6.3% | 3.9% | 10.6% | 59.0% | 11.8% | 3.9% | 4.5% |
| Non-Hunters/Anglers | 5.8% | 2.5% | 11.0% | 60.4% | 11.6% | 3.6% | 5.1% |
| Hunters/Anglers | 8.9% | 11.4% | 7.6% | 53.2% | 12.7% | 5.1% | 1.3% |
| Traditionalists | 4.0% | 7.1% | 11.9% | 54.8% | 14.3% | 6.3% | 1.6% |
| Mutualists | 5.9% | 1.0% | 11.8% | 62.7% | 9.8% | 3.4% | 5.4% |
| Pluralists | 9.3% | 6.5% | 9.3% | 54.6% | 14.8% | 2.8% | 2.8% |
| Distanced | 9.0% | 2.2% | 7.9% | 61.8% | 9.0% | 2.2% | 7.9% |

Table 10: Percent of respondents who believed that future funding for fish and wildlife management should be provided by hunting and fishing license fees vs. public tax dollars

| | Entirely by hunting & fishing license fees | | | Both license fees & public taxes | | | Entirely by public tax funds |
|---|---|---|---|---|---|---|---|
| All Respondents | 12.8% | 5.4% | 11.0% | 56.5% | 7.6% | 2.5% | 4.4% |
| Non-Hunters/Anglers | 13.6% | 4.4% | 10.7% | 56.4% | 7.6% | 2.4% | 4.9% |
| Hunters/Anglers | 8.8% | 11.3% | 12.5% | 56.3% | 7.5% | 2.5% | 1.3% |
| Traditionalists | 11.1% | 10.3% | 15.1% | 50.0% | 9.5% | 4.0% | 0.0% |
| Mutualists | 18.2% | 2.5% | 7.4% | 54.7% | 6.9% | 2.5% | 7.9% |
| Pluralists | 5.5% | 6.4% | 12.8% | 61.5% | 11.0% | 1.8% | 0.9% |
| Distanced | 12.2% | 3.3% | 11.1% | 62.2% | 2.2% | 2.2% | 6.7% |

Table 11: Percent of respondents who trust their federal government

| | Almost never | Only some of the time | Most of the time | Almost always |
|---|---|---|---|---|
| All Respondents | 20.3% | 57.9% | 18.1% | 3.7% |
| Non-Hunters/Anglers | 20.9% | 58.4% | 17.4% | 3.3% |
| Hunters/Anglers | 16.7% | 55.1% | 21.8% | 6.4% |
| Traditionalists | 21.1% | 58.5% | 17.9% | 2.4% |
| Mutualists | 22.1% | 59.3% | 13.7% | 4.9% |
| Pluralists | 13.8% | 56.9% | 23.9% | 5.5% |
| Distanced | 22.5% | 56.2% | 21.3% | 0.0% |

Table 12: Percent of respondents who trust their state government

| | Almost never | Only some of the time | Most of the time | Almost always |
|---|---|---|---|---|
| All Respondents | 12.6% | 50.9% | 32.0% | 4.4% |
| Non-Hunters/Anglers | 13.4% | 50.8% | 31.8% | 4.0% |
| Hunters/Anglers | 8.9% | 51.9% | 32.9% | 6.3% |
| Traditionalists | 16.1% | 49.2% | 33.1% | 1.6% |
| Mutualists | 11.2% | 53.7% | 28.8% | 6.3% |
| Pluralists | 8.3% | 52.3% | 34.9% | 4.6% |
| Distanced | 16.7% | 45.6% | 34.4% | 3.3% |

Table 13: Percent of respondents who trust their state fish and wildlife agency

| | Almost never | Only some of the time | Most of the time | Almost always |
|---|---|---|---|---|
| All Respondents | 5.0% | 38.6% | 45.4% | 11.0% |
| Non-Hunters/Anglers | 5.6% | 41.4% | 43.0% | 10.1% |
| Hunters/Anglers | 1.3% | 23.1% | 59.0% | 16.7% |
| Traditionalists | 5.6% | 26.6% | 59.7% | 8.1% |
| Mutualists | 5.4% | 45.1% | 37.3% | 12.3% |
| Pluralists | 4.6% | 31.5% | 48.1% | 15.7% |
| Distanced | 2.3% | 50.0% | 40.9% | 6.8% |

Table 14: Percent of respondents who were more supportive of hunting because of game being a source of local, organic meat

| | No | Yes |
|---|---|---|
| All Respondents | 85.9% | 14.1% |
| Non-Hunters/Anglers | 85.5% | 14.5% |
| Hunters/Anglers | 88.5% | 11.5% |
| Traditionalists | 88.8% | 11.2% |
| Mutualists | 84.7% | 15.3% |
| Pluralists | 77.6% | 22.4% |
| Distanced | 94.4% | 5.6% |

Table 15: Percent of respondents who recently started hunting because of game being a source of local, organic meat

| | No | Yes |
|---|---|---|
| All Respondents | 96.7% | 3.3% |
| Non-Hunters/Anglers | 97.3% | 2.7% |
| Hunters/Anglers | 93.6% | 6.4% |
| Traditionalists | 98.4% | 1.6% |
| Mutualists | 99.5% | 0.5% |
| Pluralists | 86.9% | 13.1% |
| Distanced | 98.9% | 1.1% |

Table 16: Percent of respondents who do not hunt now but are interested in hunting in the future because of game being a source of local, organic meat

| | No | Yes |
|---|---|---|
| All Respondents | 91.2% | 8.8% |
| Non-Hunters/Anglers | 92.2% | 7.8% |
| Hunters/Anglers | 85.3% | 14.7% |
| Traditionalists | 90.2% | 9.8% |
| Mutualists | 92.1% | 7.9% |
| Pluralists | 86.1% | 13.9% |
| Distanced | 96.7% | 3.3% |

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# APPENDIX A
# Methodology

Data for this study were collected using a self-report survey. The survey instrument is included in Appendix B. The mode of data collection was selected following the review of results from two separate pilot studies during which telephone, mail and email panel methods were tested and compared. A mail survey with an online option was chosen for the final data collection. Mail surveys were administered in all 50 U.S. states between 2017 and 2018. To account for lower than expected response rates for the mail survey, sampling in each state was supplemented using an email panel survey. The email panel method showed similar results to the mail survey method in our pilot studies. Upon completion of the first email panel, analysis showed significant underrepresentation of certain racial and ethnic categories. As a result, one final email panel round of data collection was conducted in an effort to boost response in underrepresented categories. Both email panels were conducted in the Spring of 2018. For final analysis, mail and email panel data were merged for a state and then weighted to better reflect the state's population. Each state was weighted separately with variables including age categories, gender, race/ethnicity categories and participation in hunting and fishing. If a state had opted for a stratified geographic sample, state population estimates were weighted to reflect the relative proportion of the state's population in each stratum. A detailed description of the study methodology can be found at www.wildlifevalues.org.

### *Data Collection Details for Delaware*

For the mail survey, a random sample of 2984 households in Delaware was obtained from a commercial sampling firm (Survey Sampling International LLC). Sampled households received three mailings: a full survey questionnaire and cover letter (with an option to complete the survey electronically using a unique identification code); a follow-up reminder postcard; and a second full mailing including the survey questionnaire and cover letter. In an attempt to achieve relatively equal representation of males and females, the cover letter requested that the questionnaire be completed by the adult (age 18 or over) in the household who had the most recent birthday. Our sampling design also over-sampled those under age 35 and under-sampled those age 55 and older to help correct for the disproportionately high response rates typical among those over 55. A total of 205 usable questionnaires were received (185 paper and 20 online) from respondents contacted by mail. The Post Office returned 224 surveys marked as non-deliverable yielding an overall adjusted response rate of 7.4% for the mail survey.

An email panel sample of 327 Delaware respondents was recruited by a commercial sampling firm (Qualtrics LLC). Respondents were recruited via email invitation. Screening criteria were employed to ensure that the sample was representative of gender and age proportions within the Delaware population.

### *Data Weighting Procedure*

Upon the completion of data collection, responses were weighted to better reflect the state's population characteristics, including:

1) **Race/Ethnicity Categories** using estimates compiled by the Henry J. Kaiser Foundation based on the U.S. Census Bureau's 2016 American Community Survey;
2) **Participation in fish and wildlife-related recreation** using estimates obtained from the U.S. Fish and Wildlife Service's 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation;
3) **Gender** using estimates from the U.S. Census Bureau's 2016 American Community Survey; and
4) **Age Category** using estimates from the U.S. Census Bureau's 2016 American Community Survey.

# APPENDIX B
# Survey Instrument

# Management of Fish and Wildlife in the United States

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

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

Access Code: 00000.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Q1. Are you…?** ○ Male ○ Female

**Q2. What year were you born?** _____

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Please write in your 5-digit zip code below.**

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

**Since 1922, the Western Association of Fish and Wildlife Agencies (WAFWA) has advanced conservation in western North America. Representing 23 western states and Canadian provinces, WAFWA's reach encompasses more than 40 percent of North America, including two-thirds of the United States. Drawing on the knowledge of scientists across the West, WAFWA is recognized as the expert source for information and analysis about western wildlife. WAFWA supports sound resource management and building partnerships at all levels to conserve wildlife for the use and benefit of all citizens, now and in the future.**