Perceptions and Management of Chronic Wasting Disease in Washington State: A Survey of Cervid Hunters

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Executive summary

Introduction:

Chronic wasting disease (CWD) is a fatal neurological disease caused by a misfolded protein, or prion, and is found in cervids (e.g., deer, elk, moose). It represents a serious threat to cervid populations and is one of the most important ungulate management issues facing state wildlife management agencies. Issues associated with CWD can affect many groups including hunters, tribal groups, biologists, rehabilitators, and farmers among others, and many can play an essential role in CWD management (e.g., hunters can help with cervid population control methods). In 2021, the Washington Department of Fish and Wildlife (WDFW) adopted the CWD Management Plan for Washington State, which specifically called for incorporating human dimensions of disease management with the ecological and epidemiological elements in CWD management. It is essential to develop a strong human dimensions component as management actions in other states have shown that when the public is not appropriately engaged, the probability of success is diminished. The study presented here sought to understand public preferences and perceptions of CWD and CWD management. We conducted 15 key constituent interviews and deployed a survey instrument in summer of 2023. (CWD was detected in Washington in July 2024, but this survey was completed ahead of that detection). The survey was emailed to 165,700 resident hunters in Washington State who had purchased a big game license since 2015 and the results presented below are based on interviews and completed survey responses from 7,403 individuals.

Key findings:

- WDFW is overwhelmingly the main source of public information about wildlife management for survey respondents, and the agency is also the preferred source for CWD information.
- Hunters in Washington are well informed about CWD prevalence, transmission and characteristics. However, interviews and qualitative survey responses suggest that further CWD education is warranted, especially regarding visual identification and the potential for cervids to appear healthy for several years after contracting CWD. Additionally, there was some uncertainty about the cause of CWD (prion vs. bacteria), which may affect understanding of disease origins and treatment potential.
- Hunters generally are most supportive of management activities that increase hunting opportunities (e.g., lengthening hunting seasons, creating special CWD permits) and are supportive of hunter-led strategies (e.g., employing hunter targeted deer and elk removals). But generally, hunters are not as supportive of management strategies that increase restrictions (e.g., banning baiting, feeding, urine-scent lures) and WDFW-led interventions (e.g., WDFW targeted deer and elk removals, aka sharpshooters).
- Hunters have limited trust in WDFW overall, but slightly more trust regarding WDFW's work on CWD.
- The practice of baiting is particularly divisive, and there is not broad support for banning baiting or feeding. The majority of respondents believe baiting bans are driven by an "anti-hunting contingent," which may make enforcement difficult given the contentious nature of the issue. However, there is uncertainty about the issue from a relatively large

proportion of respondents. Younger respondents and archery hunters were the least likely to support a baiting ban.

- More respondents who live in eastern Washington stay in the east to hunt, while a high proportion of respondents who live in western Washington travel east to hunt, which can increase carcass transportation from east to west.
- There was little difference in viewpoints between respondents who live in eastern Washington as compared to those who live in the west. Hunters were consistent in their beliefs and values despite living in a range of political geographies.
- Age had a strong effect on survey responses. Younger respondents were more likely to have less trust in WDFW, not support management restrictions, and support management that increased hunting opportunities when compared with older respondents.
- Hunter check station awareness and usage is linked strongly with age, with older hunters being more aware of check stations and more willing to use them. The most cited barrier to check station use was location. Respondents seemed receptive to a variety of different incentives to increase sample submission, though offering rifles or other hunting gear as incentives for submitting samples may be more controversial.

1. Introduction

Chronic wasting disease (CWD) is one of the most important ungulate management issues facing state wildlife management agencies (Gillin & Mawdsley, 2018). This is due in large part to the fact that CWD is fatal and, given its long incubation period and ability to remain in the environment for months to years, it can spread through large populations of cervids and significantly reduce those populations (Uehlinger et. al., 2016). At the beginning of this study, CWD had yet to be found in Washington State, but had been detected close to the state border in Idaho, and many Washington hunters travel to CWD positive states to hunt. In 2021, the Washington Department of Fish and Wildlife (WDFW) developed a CWD management plan that included robust herd surveillance in high-risk areas (e.g., eastern Washington), risk mitigation strategies, public outreach and communication, and an emergency response process to an initial detection (DeVivo, Hansen, and Mansfield, 2021). While WDFW has identified ecological strategies to identify and control the disease, experience in other states has shown that stakeholder behaviors and the public's trust of agency management actions play a crucial role in effective CWD responses (Heberlein, 2004).

Nationally, cervids are a public trust resource managed by the individual state wildlife agency, which also means CWD management activities (both biological and sociological) are inconsistent across North America (Thompson et al., 2023). While all agencies recognize that the disease represents a substantial long-term threat to wild cervid populations, the ability to implement effective management programs has been limited. In particular, the human dimension components of disease management often come second, if at all considered, to the biological aspects of CWD management (Uehlinger et. al., 2016). Agencies most often rely on the expert judgment of staff, which may not align with public perceptions of the same issue. Indeed, management actions in other states have shown that when the public is not appropriately engaged, the probability of success is diminished. Furthermore, many of the management actions required to control CWD rely on the public actions, engagement, and understanding (Decker et al., 2006; Schroeder et al., 2021; Slagle et al., 2023; Vaske, 2010). Thus, success in managing CWD must incorporate a human dimensions component where the knowledge, perceptions, and preferences of the public need to be understood and incorporated.

Our research was undertaken to identify the human dimension elements necessary for effective and sustainable CWD management in Washington based in a greater understanding of the preferences and perceptions of cervid hunters. Our research adds to a small but growing body of work seeking to understand the uncertainties, perceptions, and issues of trust that may define public support and opposition for CWD management, and to support effective education and outreach through this understanding.

Our study was conducted in two stages. First, we conducted initial interviews with key individuals who would be affected by the presence of CWD in Washington State, and second, we created and deployed a quantitative and qualitative state-wide survey of deer (*Odocoileus* spp.), elk (*Cervus* spp.), and moose (*Alces alces*) hunters. The survey was built to attempt and capture elements of knowledge and awareness about CWD and information sources, preferences regarding CWD management strategies or practices, and the amount of trust the hunting population has in WDFW generally and in terms of CWD management. As such, the results are presented in three overarching categories: Knowledge, Trust, and Practices/Management.

1.1 Definitions

In this report, we refer to a number of different concepts and practices which we define here:

Chronic wasting disease (CWD), sometimes referred to as "Zombie deer disease" by popular media is a fatal neurological disease caused by an infections protein (prion) that is found in free-ranging deer, elk, caribou (*Rangifer tarandus*), and moose. Prions can contaminate the environment and be transmitted between animals through their feces, saliva, urine, and other bodily fluids. At the time of the survey, CWD had not been detected in Washington State, but had been detected less than 50 miles from the border of Washington. The Centers for Disease Control and Prevention (CDC) reports that to date there have been no reported cases of CWD infection in people or in livestock.

Carcass transport restrictions would ensure whole carcasses would not be able to leave a specified area surrounding a detection of CWD.

Carcass disposal regulations would mandate that carcass parts would be required to be disposed of at a landfill or other sanctioned disposal location.

Hunter check stations in Washington State are locations where hunters may voluntarily stop to have a sample from their harvested deer or elk taken to test for CWD.

Baiting is using any substance that could serve as a lure, food, or attraction to attract deer or elk for the purposes of hunting.

Feeding is laying out food for animals, often on private land, without the intention to hunt the animals.

2. Methods

Our project was conducted in two phases: 1) a literature review and qualitative interviews, and 2) a statewide survey of big-game hunters. In the first phase, we conducted a literature review of publications on the human dimensions (i.e., the knowledge, attitudes, preferences, and values people hold) of CWD in North America to improve our understanding of the scope and nature of common issues in CWD management. Simultaneously, we conducted interviews with 15 key constituents that would be influenced by the emergence of CWD in Washington State (e.g., hunters, tribal wildlife biologists, wildlife rehabilitators, WDFW staff). We combined our findings from the literature reviews and interviews with discussions with collaborators and additional WDFW staff to create a state-wide survey of deer, elk, and moose hunters in Washington. Our survey aimed to identify key issues of trust, knowledge gaps and awareness, as well as perceptions of and preferences for CWD management. In the second phase of the project, we deployed the survey and analyzed the results. The survey was distributed to all resident deer, elk, and moose hunters on record in Washington State from 2015-2023. All methods were approved by the University of Washington's Institutional Review Board on the use of human subjects in research (STUDY00016285).

2.1 Survey development

We developed the survey questions using three main sources of input: 1) Drawing from questions used in previous CWD human dimensions surveys (e.g., Needham & Vaske, 2008; Schroeder et. al., 2019; Smith et. al., 2021), 2) From key constituent interviews, 3) From discussions amongst collaborators and additional WDFW agency CWD subject matter experts, and 4) From previously designed frameworks such as the Wildlife Value Orientations (Fulton et al., 1996) and Ecological Dominance Orientations (Uenal et al., 2022).

To measure respondent knowledge, we asked a series of True/False questions about CWD characteristics. For the knowledge questions, respondents were given the option to select "True," "Maybe true," "Maybe false," and "False." This was designed as such for two main reasons. First, previous CWD surveys that offered options of "True," "Unsure," and "False" often had high "Unsure" responses for many of the questions and many surveys categorize "unsure" as "False" in the analysis (Vaske et al., 2006) (Plotsky & Hall, 2024). Removing the unsure option allowed respondents to provide a clearer indication of their current knowledge. Additionally, including both "True" and "Maybe true" allowed for further inspection as to how certain respondents were in their knowledge of each question.

For the questions on baiting and feeding, respondents were given statements and were asked to indicate how strongly they agreed or disagreed (5-point scale from "Strongly agree" to "Strongly disagree") with those statements, known as the Likert scale. A majority of those statements were pulled directly from the initial interviews to try and encapsulate the breadth of opinions and thoughts across individuals in the state.

2.2 Survey Data Collection

We constructed and distributed the survey in the online survey platform Qualtrics. All registered deer, elk, and moose hunters in Washington State that were at least 18 years old with emails registered within the WILD system received a request to complete the survey through two email pushes. We sent an initial email followed by a reminder email two weeks later. The survey was live from late September 2023 through late October 2023. As an incentive for taking the survey, we offered respondents a chance at a draw for one of four $100 visa gift cards.

Overall, we distributed the survey to 165,700 emails on record. However, it is unknown how many of those emails successfully reached respondents. Our responses rate was limited if hunters had blocked emails, did not check emails, or if the survey email was forwarded to junk. For example, we heard from a number of individuals who had not received the email and who eventually found it had been directed to their junk file and deleted. While we were able to redistribute links to those who contacted us, it is unclear if additional interested respondents did not see the email. A total of 7,403 responses were recorded. Only those who completed the entirety of the survey and selected "submit" at the final stage were counted.

2.3 Data Analysis

After completion of the survey, we standardized the results in Excel. For example, for some of the write-in questions such as gender, results such as "F" "Woman" "Femle" were all standardized as "Female."

Qualitative data were analyzed separately. Some categories had an "other" option where respondents could write-in their own specific answers. For example, if respondents selected "Where would you like to get your information regarding chronic wasting disease-Other" they could write in specific groups/locations/methods where they would like to get their information. We then standardized, grouped, and tallied the responses (e.g., "Montana FWP," "Montana Fish and Wildlife," "Other state agencies-Montana" would be grouped and tallied together). Often respondents listed numerous responses, and each would be counted separately. Percentages of respondents were computed from the total number of respondents who answered "Other." For broader qualitative categories (e.g., "Do you have any other comments regarding information sources on CWD or CWD management?") we grouped answers and often provided additional ideas, sentiments, and quotes, though no specific quantitative calculations were performed given the broad nature of the question and responses.

We further binned respondents in age groups (18-30, 31-50, 51-65, and 66+ years old) and geographic regions. For the geographical data, we asked respondents to choose which county they lived in and which county they hunted in. If they hunted in more than one county, we asked them to select the one they hunted most frequently in. We then sorted respondents into one of the six WDFW regions (Coastal, Eastern, North Central, north Puget Sound, South Central, Southwest) separately for residency and hunting.

Basic analyses and data visualizations were performed in Excel and in the statistical program R (R Core Team 2021). We tested for statistical differences ($\alpha = 0.05$) in responses between groups within demographic categories using chi-squared tests in R with the package *psych* (Revelle, 2024). For Likert scale questions, we ran regressions using the R package *likert* (Breyer &

Speerschneider, 2016). Further visualizations of the significant data were completed in Excel and R.

2.4 Comparisons to overall population

We compared the demographics of the 7,403 responses to the overall state records for big game hunters in Washington State to see how representative our survey population was. Overall, we found significant differences for gender ($p<0.001$) and age ($p<0.001$), but no significant differences for location of residency ($p=0.06$). A higher proportion of men took the survey than in the total population of big game hunters in Washington State. In Washington, 87.5% of big game hunters are male, however 90.0% of survey respondents were male. Our survey results also included a proportion of respondents who did not provide information on their gender, which the overall records did not have.

We also observed some differences between age groups of survey respondents and big game hunters overall. Fewer 18–30-year-old hunters took our survey compared to the overall big game hunter population and the 51–65-year-old hunters submitted the most survey responses. In the state, 16.9% of big game hunters are 18-30 years old, however only 8.1% of survey respondents were in this age group. Additionally, 32.3% of survey respondents were 51-65 years old, while only 26.4% of state hunters were in this age group. There was a slightly higher proportion of hunters aged 66 years and over who took our survey than in the big game hunting registry (22.9% vs. 19.1%). The age group which has the greatest number of registered individuals (31-50 years old) was more similar in terms of the proportions who took the survey and the proportion of overall registered big game hunters (36.4% of survey respondents and 37.6% of total hunters).

We found no significant differences between the WDFW region of residence of survey respondents and the state hunting registry, indicating our survey had a representative sample from each region.

Despite these small differences between our survey respondents and the overall big game hunting population in Washington, this survey allows us to draw inferences about the state hunting population.

3. Results

3.1 CWD Knowledge

The following sections consider survey questions related to hunter knowledge of CWD.

3.1.1 CWD Awareness and concern

Overall, most respondents had heard of CWD and had been aware of it for at least a year, though almost half had been aware of it for over 7 years. We binned these years to represent milestones in CWD detections with Montana's first detection in 2017 and Idaho's first detection in 2021. Very few respondents were "not at all concerned" about CWD, though the level of concern did vary. Additionally, most respondents self-reported they were somewhat knowledgeable about CWD.

- Almost all respondents (95%) had heard of CWD.
- Of those respondents who had heard of CWD, many had known about it for 7 or more years (48%). Only a small proportion (2%) had only known about CWD for less than a year. The remaining respondents had either known about it for 1-3 years (18%) or 4-7 years (32%).
- Respondents mostly reported being somewhat knowledgeable about CWD (75%), with fewer respondents reporting that they were either not at all knowledgeable (17%), or very knowledgeable (8%).
- Most respondents expressed some concern about CWD with only 3% reporting they were not at all concerned. Most respondents were either somewhat concerned (34%) or very concerned (33%), with fewer respondents being a little concerned (20%), and only 1 in 10 expressing they were extremely concerned about CWD (10%).

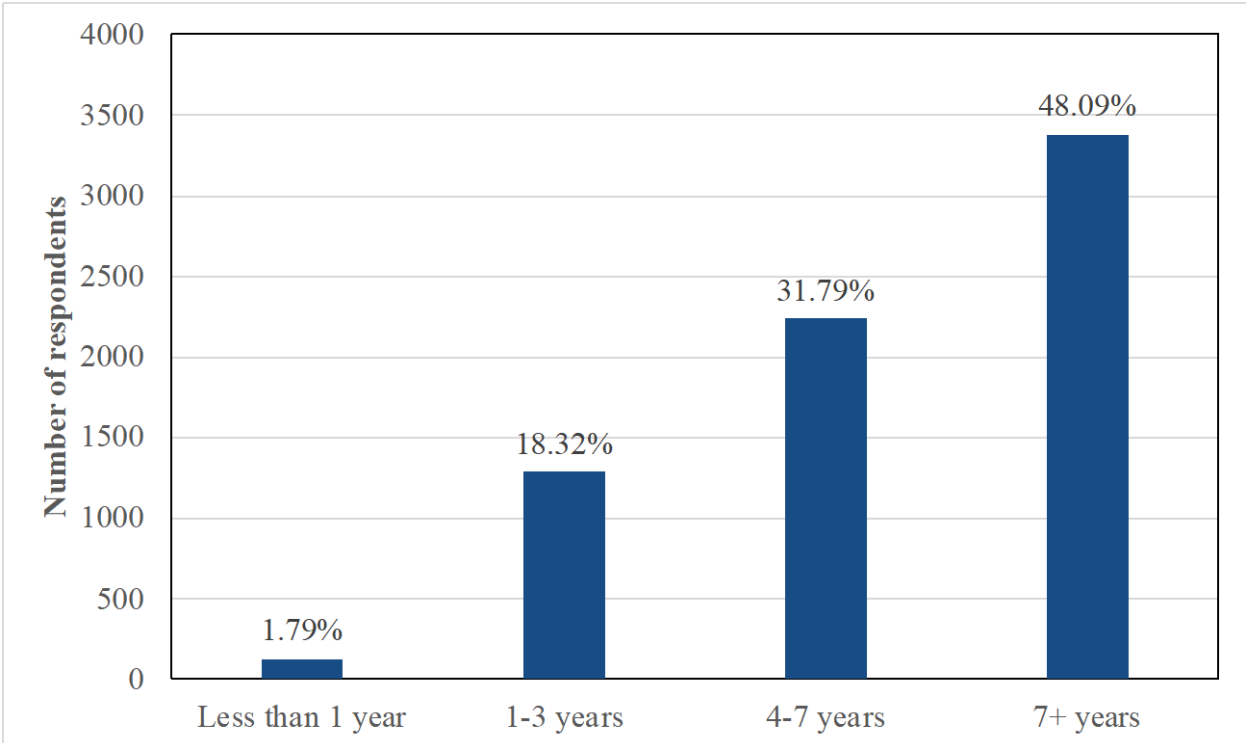


Figure 1. How long respondents have known about CWD. N=7030.

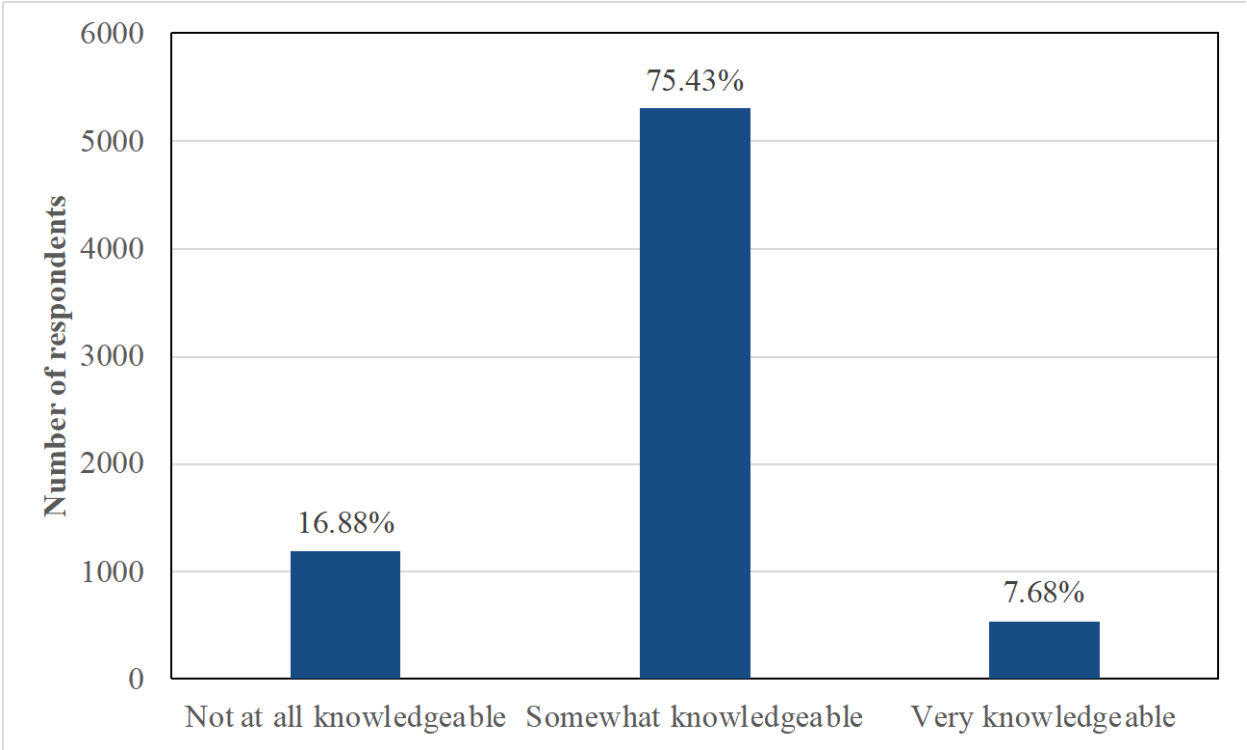


Figure 2. Respondents' self-reported level of knowledge about CWD. N=7030.

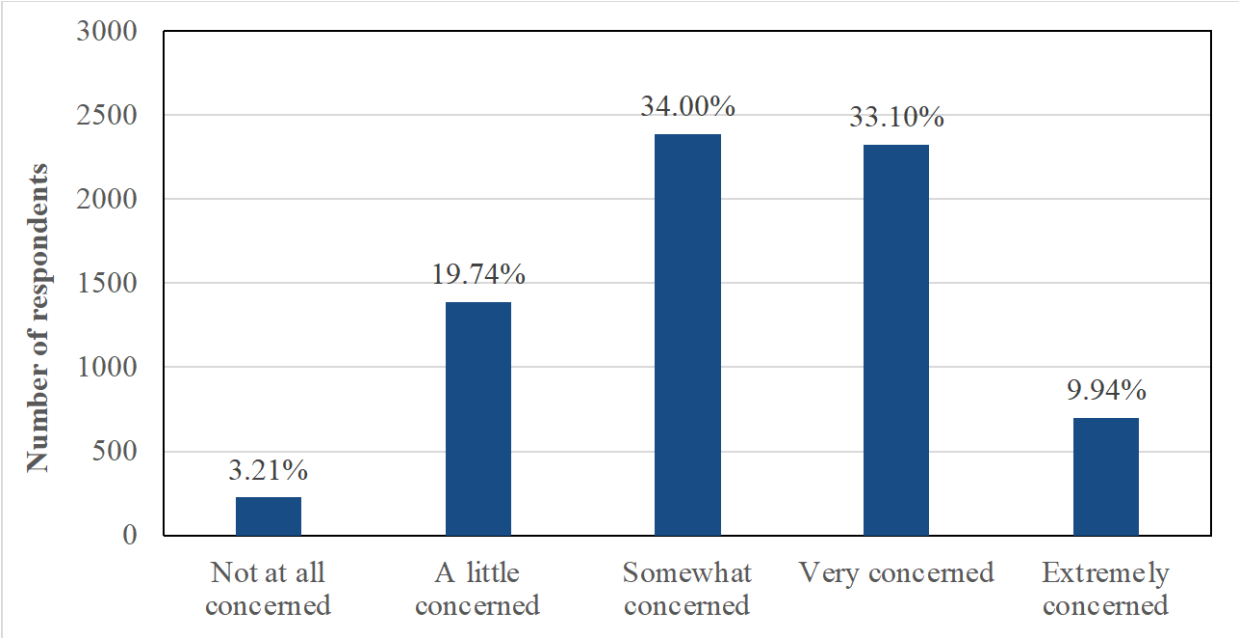


Figure 3. Respondents concern about CWD. N=7030.

3.1.2 Knowledge of disease characteristics

Overall, respondents were knowledgeable about basic CWD characteristics, including its lethality, affected species, and environmental persistence. However, there were notable knowledge gaps in the survey population, including the fact that many thought it was caused by bacteria and that it could be transmitted from wild animals to cattle. Respondents were asked to select whether statements were true, maybe true, maybe false, or false.

- Respondents were fairly confident that CWD was fatal to infected animals (97% of respondents selected true or maybe true) and that CWD was a disease found in deer, elk, and moose (96%). Additionally, most respondents knew that a deer infected with CWD can look healthy for many months (94%), that CWD can survive in the environment for several years (90%), and that large groups of deer and elk lead to increased spread of CWD (86%). Though for the latter three questions, more respondents selected "maybe true," than in the first two questions, indicating a higher level of uncertainty compared with the initial two questions.
- It is important to note that although the survey responses indicated a high number that professed to know that animals can appear healthy despite CWD infection, there were many indications within the comment section that requested further information about "how to tell" if CWD is present in a given animal and also professed a desire for more information in order to be more active in helping identify it in the field.

  > "I don't know how to recognize what CWD looks like when I'm hunting deer, elk…[I saw] I think it was some deer with their hair looking ruffled and…[on] half of their body their hair looked fine and the other half it looked all ruffled, and I thought, is that CWD or is that just they're losing their winter coat?" (Interview Hunter #7).
- While a majority of respondents (68%) correctly knew that CWD is a disease similar to mad cow disease caused by an infectious protein, an equal number of respondents incorrectly answered that CWD is believed to be caused by bacteria (68%).
- While 7 in 10 respondents correctly answered that people cannot get CWD from infected animals (72%), 57% of respondents incorrectly answered that CWD can be transmitted from wild animals to cattle.
- Just over 6 in 10 people (62%) knew that CWD had not (at the time of the survey) been found in Washington State.

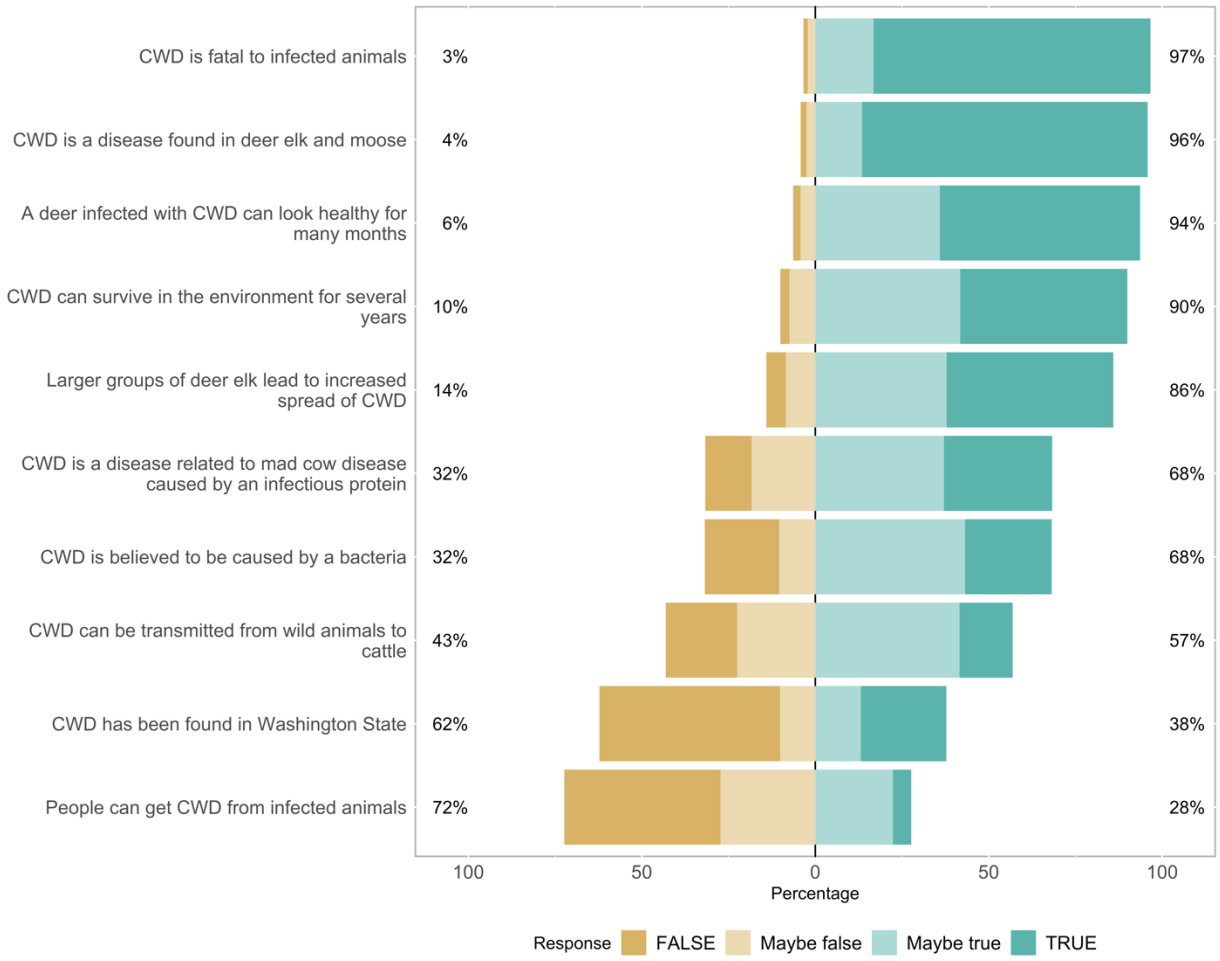


Figure 4. Respondents' knowledge of disease characteristics of CWD. N=7030

Table 1. Respondents' knowledge of disease characteristics of CWD

Knowledge Question	False (%)	Maybe false (%)	Maybe true (%)	True (%)	Mean[1] (SE)
CWD is fatal to infected animals	1	2	17	80	3.75 (0.01)
CWD is a disease found in deer, elk, and moose	2	3	13	82	3.76 (0.01)
A deer infected with CWD can look healthy for many months	2	4	36	58	3.49 (0.01)
CWD can survive in the environment for several years	3	7	42	48	3.35 (0.01)
Larger groups of deer/elk lead to increased spread of CWD	5	9	38	48	3.28 (0.01)
CWD is a disease related to mad cow disease caused by an infectious protein	13	19	37	31	2.86 (0.01)
CWD is believed to be caused by a bacteria	21	11	43	25	2.72 (0.01
CWD can be transmitted from wild animals to cattle	21	22	42	15	2.51 (0.01)
CWD has been found in Washington State	52	10	13	25	2.10 (0.02)
People can get CWD from infected animals	45	27	22	6	1.88 (0.01)

[1]Mean based on scale: 1=False; 2=Maybe false; 3=Maybe true; 4=True

3.2 Information

The following sections describe where residents got their information, and their preferred information sources for CWD and wildlife management. Respondents were asked to select all of their used and preferred sources of information and write in any additional sources. Information may include educational material about statewide wildlife, including population status, management regulations, threats such as CWD, and rationale for actions and policy, among others.

3.1.3 Information on Wildlife Management

A large proportion of Washington State hunters report that they get information regarding wildlife management from WDFW.

- A majority of respondents (74%) get information regarding wildlife management from WDFW.
- Just over half of respondents (51%) get information regarding wildlife management from the media (newspapers, social media, podcasts, etc.), while smaller percentages obtain information from sportsmen clubs, hunting clubs, and outfitters (31%), friends and family (31%) and academic sources (universities, papers, etc.) (18%).
- An additional 9% of respondents included "other" sources of information regarding wildlife management and wrote in specific sources. Of those responses:
    - 41% listed a type of media (e.g., "internet," "social media," "online," "TV," "magazines," "books")
    - 14% listed their own personal experience, education, or their job (e.g., "outdoor life," "personal observations", "bachelors in wildlife management," "hunting in other states," "wildlife biologist")
    - 18% listed other organizations as a source of information. The two most listed were the Rocky Mountain Elk Foundation (62% of "other organization" responses) and the Centers for Disease Control and Prevention (7% of "other organization" responses).
    - Finally, 26% of "other" respondents listed other state organizations as a source of information. The most commonly included were Montana Fish Wildlife and Parks (32%), "Other State Fish and Wildlife organizations" (27%), Idaho Fish and Game (14%) and Wyoming Department of Game and Fish (12%).

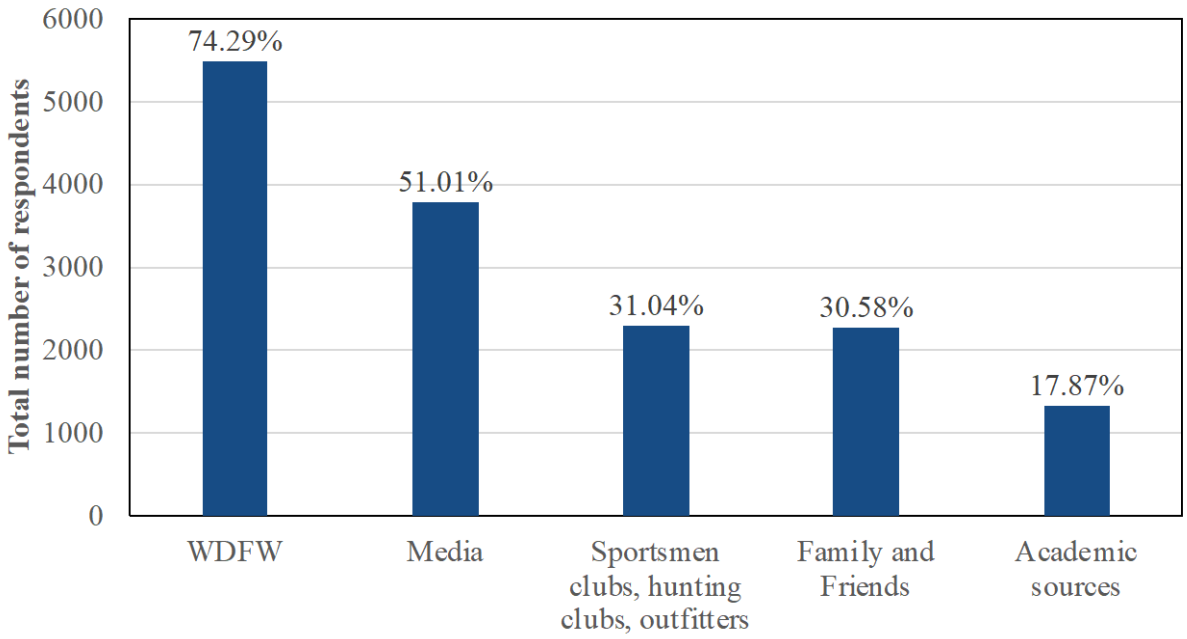


Figure 5. Where respondents get their information from. Respondents were able to select all answers that applied. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents. N=7403.

3.1.4 Information from WDFW

A large proportion of respondents who selected that they receive their wildlife management information from WDFW indicated they do so primarily though hunting regulations and the WDFW website, with slightly less receiving information through news releases.

- Approximately 77% of respondents who receive information regarding wildlife management from WDFW do so through the hunting regulations guide, while approximately 74% use the WDFW website and 63% look at WDFW news releases.
- Public meetings were not a widely accessed source of information on wildlife management. Only 10% of respondents indicated using this source.

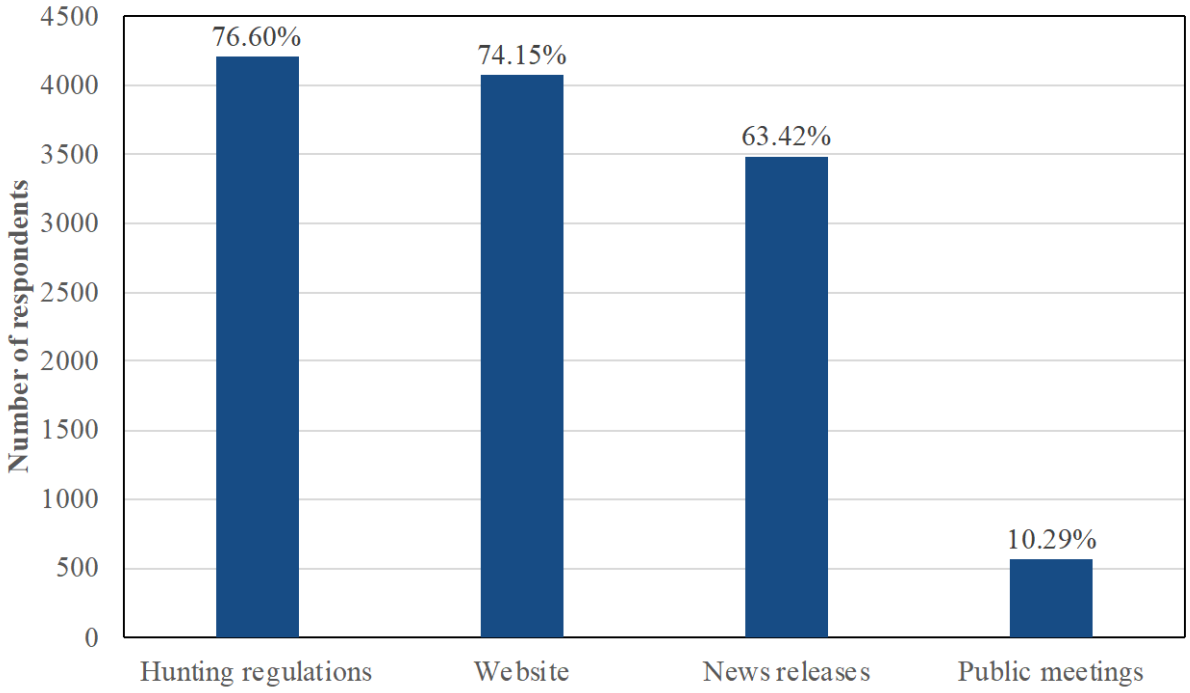


Figure 6. Which WDFW sources respondents get their information from. Respondents were able to select all answers that applied. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents who selected "WDFW" as a source of information. N=5500

3.1.5 Information from Media

While respondents indicated using a variety of different media sources for their information on wildlife management, the most commonly used were online social media and magazines/books.

- While no type of media was chosen by a majority of respondents, the two most commonly used were online social media (used by 44% of respondents), and magazines/books (used by 42%).
- The other types of media were reported as used by a lower percentage of respondents, specifically internet forums (29%), podcasts (25%), newspapers (24%), radio news reports (20%), YouTube (16%), and TV shows (15%).
- An additional 5% of respondents selected "other." These responses included specific media sources (e.g., "Online news outlets," "NPR," "Northwest Sportsman Magazine"), as well as more general ways of searching for information (e.g., "internet articles," "Google," "Reddit").
- The two most common newspapers that respondents reported using were the Spokane Spokesman Review (26%) and the Seattle Times (20%).
- The most commonly reported TV show was MeatEater (36%) followed by the Outdoor Channel (12%)
- MeatEater was also the most commonly mentioned YouTube program (46%) followed by Fresh Tracks (21%)

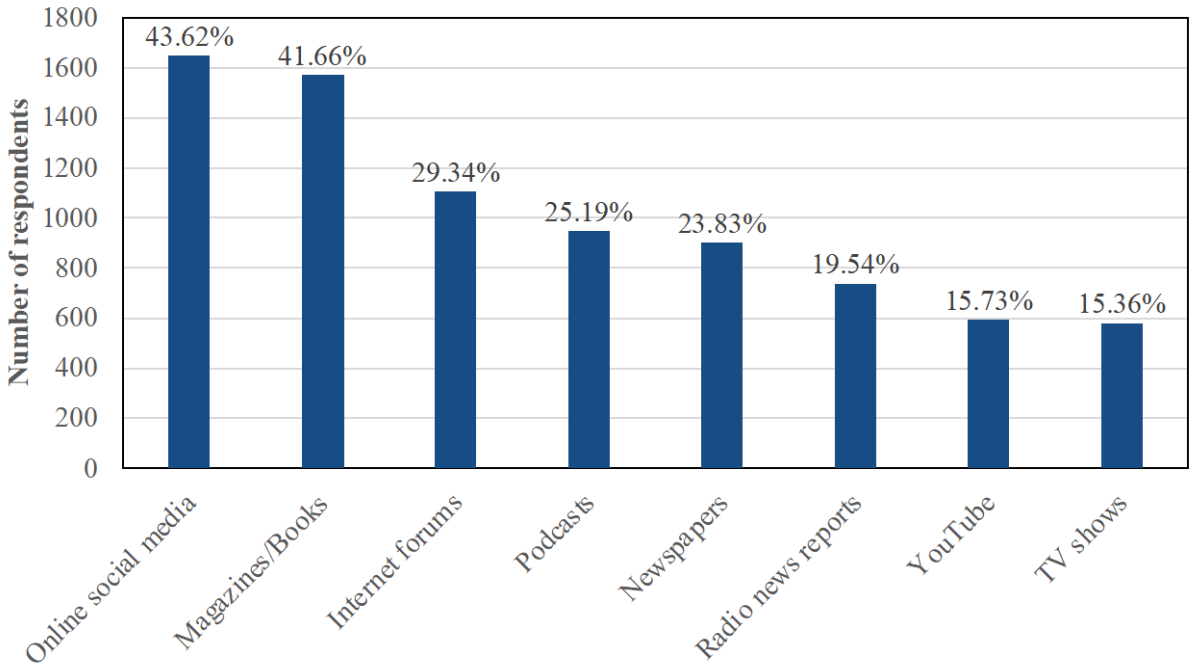


Figure 7. Which media sources respondents get their information from. Respondents were able to select all answers that applied. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents who selected "Media" as a source of information. N=3776

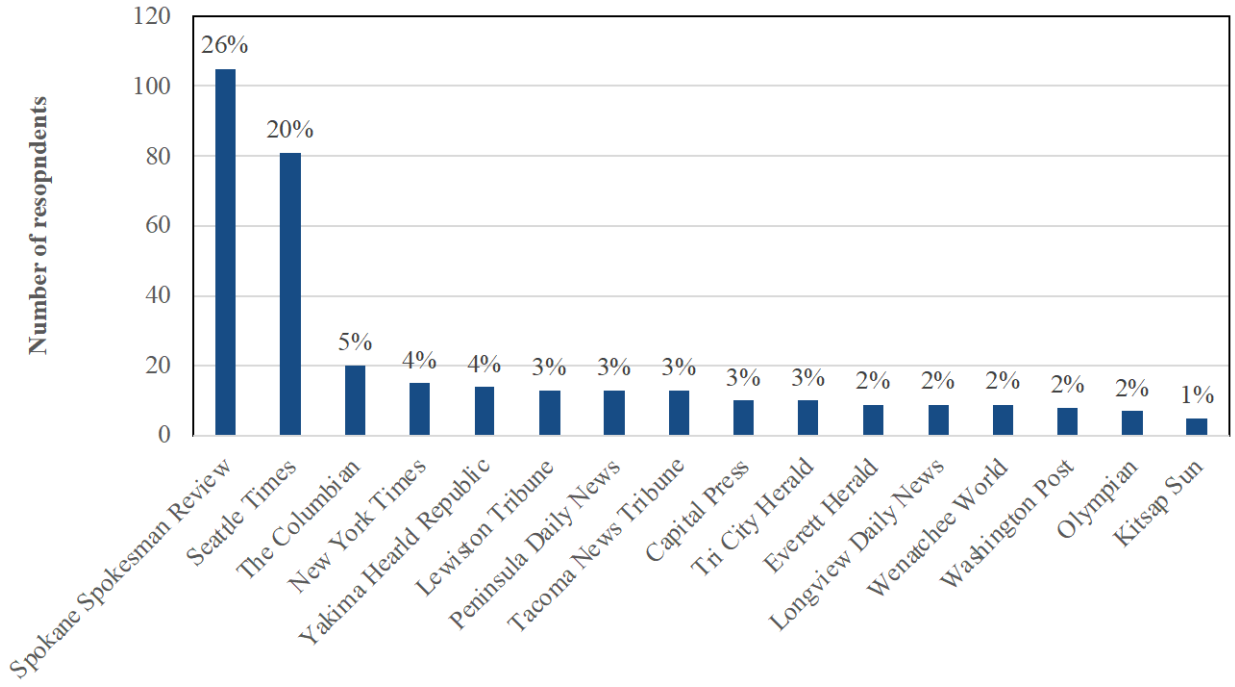


Figure 8. Which newspapers respondents get their information from. Respondents were given the option to write-in specific newspapers after selecting that they got their information from newspapers. Percentages are shown as the proportion of respondents who wrote each specific newspaper out of the total number of respondents who filled in the name of a newspaper. N=400.

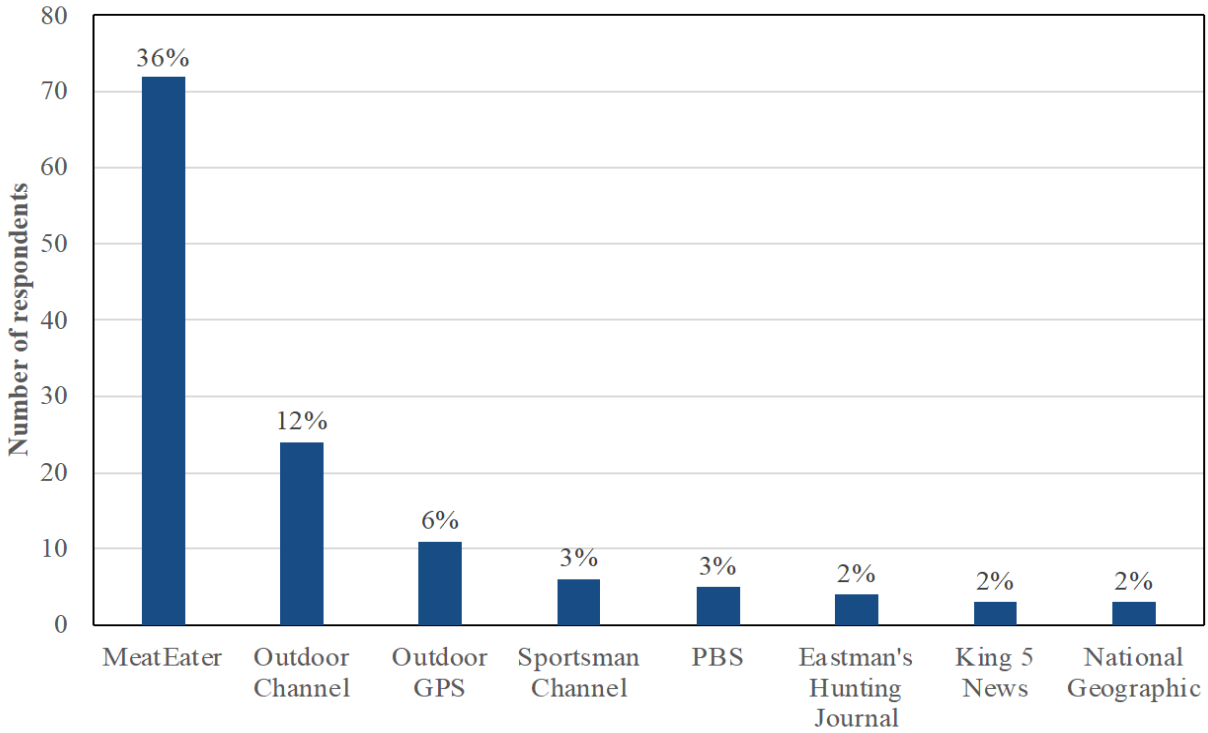


Figure 9. Which TV shows respondents get their information from. Respondents were given the option to write-in specific TV shows after selecting that they got their information from TV shows. Percentages are shown as the proportion of respondents who wrote each specific TV show out of the total number of respondents who filled in the name of a TV show. N=200.

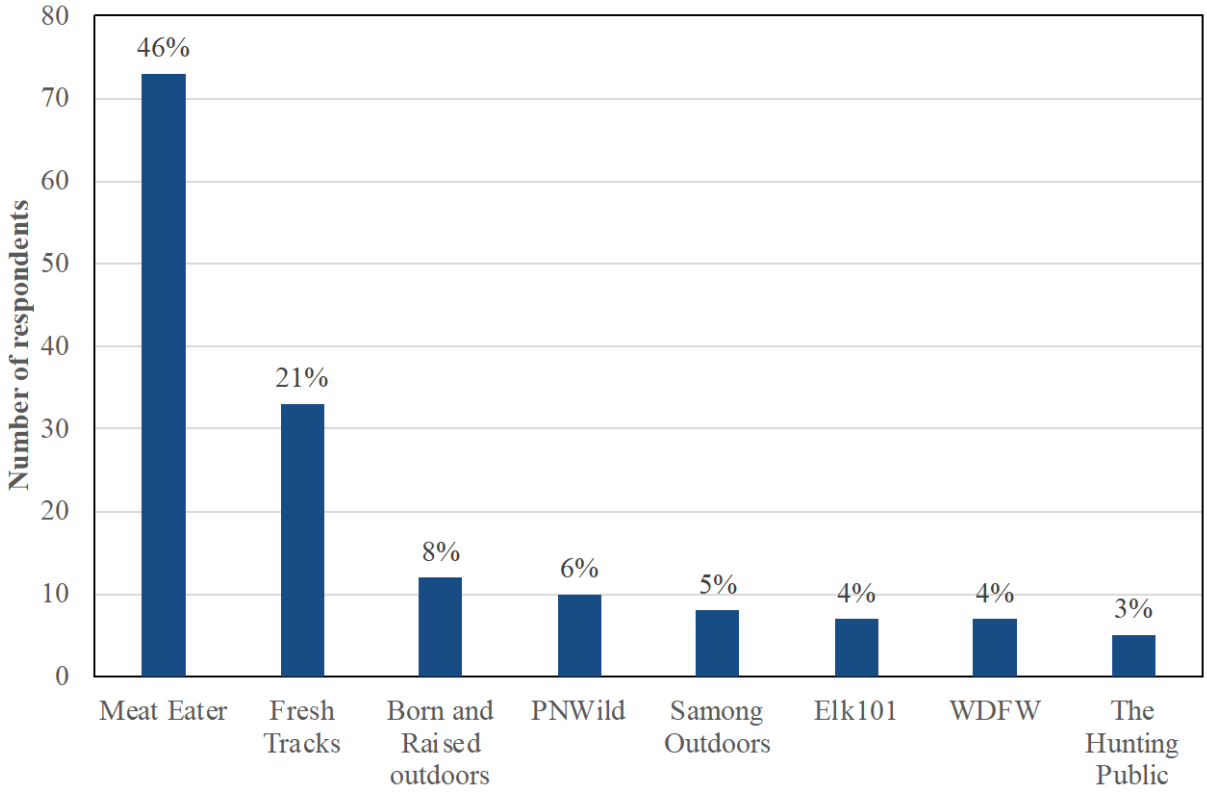


Figure 10. Which YouTube shows respondents get their information from. Respondents were given the option to write-in specific YouTube shows after selecting that they got their information from YouTube shows. Percentages are shown as the proportion of respondents who wrote each specific YouTube show out of the total number of respondents who filled in the name of a YouTube show. N=158.

3.1.6 Information from Sportsmen clubs, hunting clubs, and outfitters

Of those respondents who reported receiving information on wildlife management from sportsmen clubs, hunting clubs, or outfitters, the majority of respondents indicated they more readily received information from online sources as opposed to in-person sources.

- Approximately 70% of respondents selected that they received information regarding wildlife management from online sportsmen's blogs and websites.
- Comparatively fewer respondents reported receiving information from other sources including hunting organizations (37%), outdoor and recreational expos (36%), and outfitters (20%).

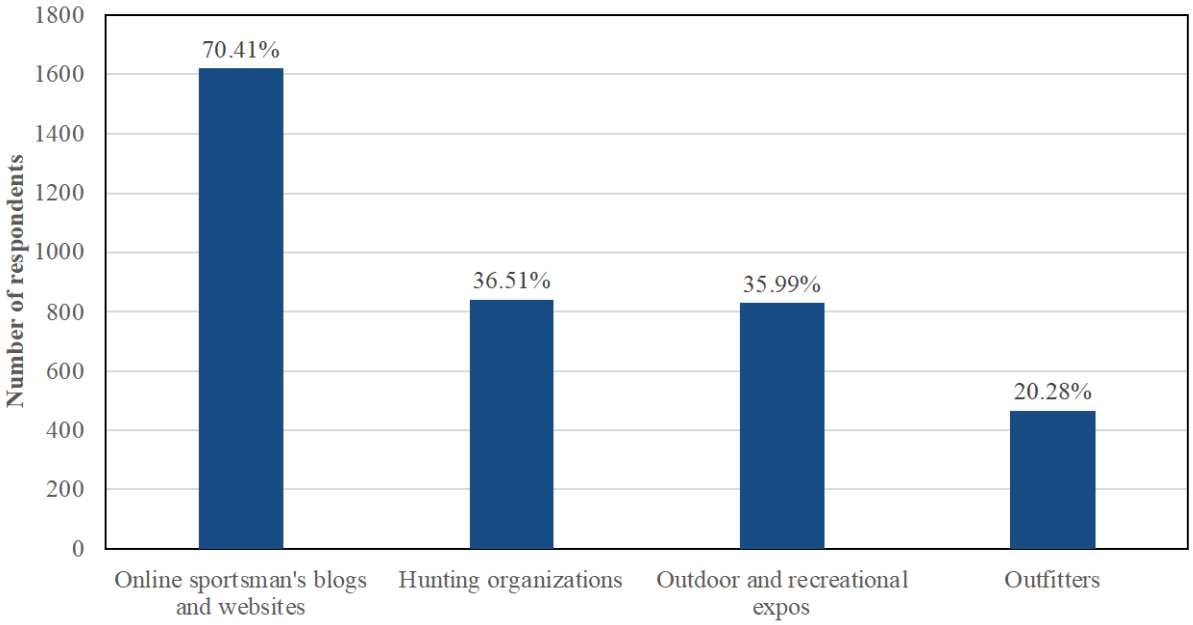


Figure 11. Which sportsmen club, hunting club, or outfitter sources respondents get their information from. Respondents were able to select all answers that applied. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents who selected "Sportsmen clubs, Hunting clubs, Outfitters" as a source of information. N=2298.

3.1.7 Preferred sources of Information

Results strongly showed that respondents would be open to receiving more information about CWD and would prefer to receive information from WDFW directly.

- The majority of respondents (87%) reported wanting to receive information about CWD from WDFW.
- There was significantly less preference for other categories of information. The next most preferred category was media sources (38%), followed by academic sources (26%), sportsmen clubs, hunting clubs, outfitters (24%), other governmental sources (11%), and family and friends (8%).
- Only 3% of respondents indicated that they did not want information on CWD.

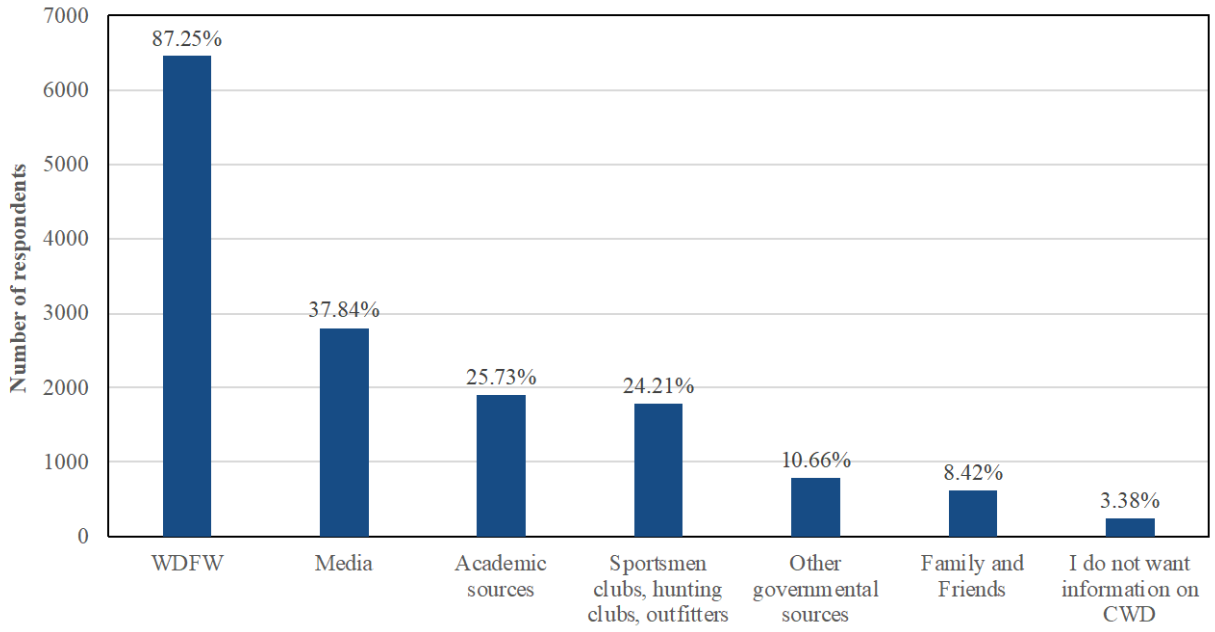


Figure 12. Where respondents want to get their information from. Respondents were able to select all answers that applied. Respondents who selected "I do not want information on CWD" were only able to select that one answer. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents. N=7403.

3.2 Trust

Our results suggest that trust in WDFW – or, in some cases, lack thereof – is critical to understanding hunter perspectives on CWD and its management. The following sections describe our findings about trust in the agency. Respondents were asked to respond to statements about WDFW based on a 5-point Likert scale (from strongly disagree to strongly agree), as well as respond whether or not they agreed with statements about WDFW.

3.2.1 Trust in WDFW

Results suggest that big game hunters do not have high levels of trust in WDFW, but are more likely to trust WDFW in relation to their work with CWD.

- Generally, respondents were more likely to disagree with the statement that WDFW listened to hunters' concerns (52% disagree or strongly disagreed)
- Many respondents believed that WDFW could not be trusted about big game management (50% agree or strongly agree), and they did not agree that WDFW was open and honest about their actions and what they say (45% disagree or strongly disagree).
- However, respondents were more likely to agree that WDFW had managers and biologists who were well trained for their jobs (45% agree/strongly agree, 22% disagree/strongly disagree).
- Additionally, respondents were more likely to agree with statements regarding WDFW's actions regarding CWD. More agreed that WDFW has made a reasonable effort to educate the public about CWD (43%) than disagreed (29%). Similarly, more agreed that WDFW was providing enough information to inform individual actions regarding CWD (40% agree, 28% disagree). While fewer people agreed that WDFW has taken appropriate actions to prevent the introduction of CWD (37%), only 15% disagreed.
- There were relatively high numbers of "Neither agree nor disagree" responses across all statements about trust in WDFW, however this was particularly true in regard to CWD. Almost half (48%) of respondents neither agreed nor disagreed that WDFW has taken appropriate actions to prevent the introduction of CWD. Additionally, over half (56%) of respondents neither agreed nor disagreed with the statement that WDFW has an appropriate plan for CWD in Washington.

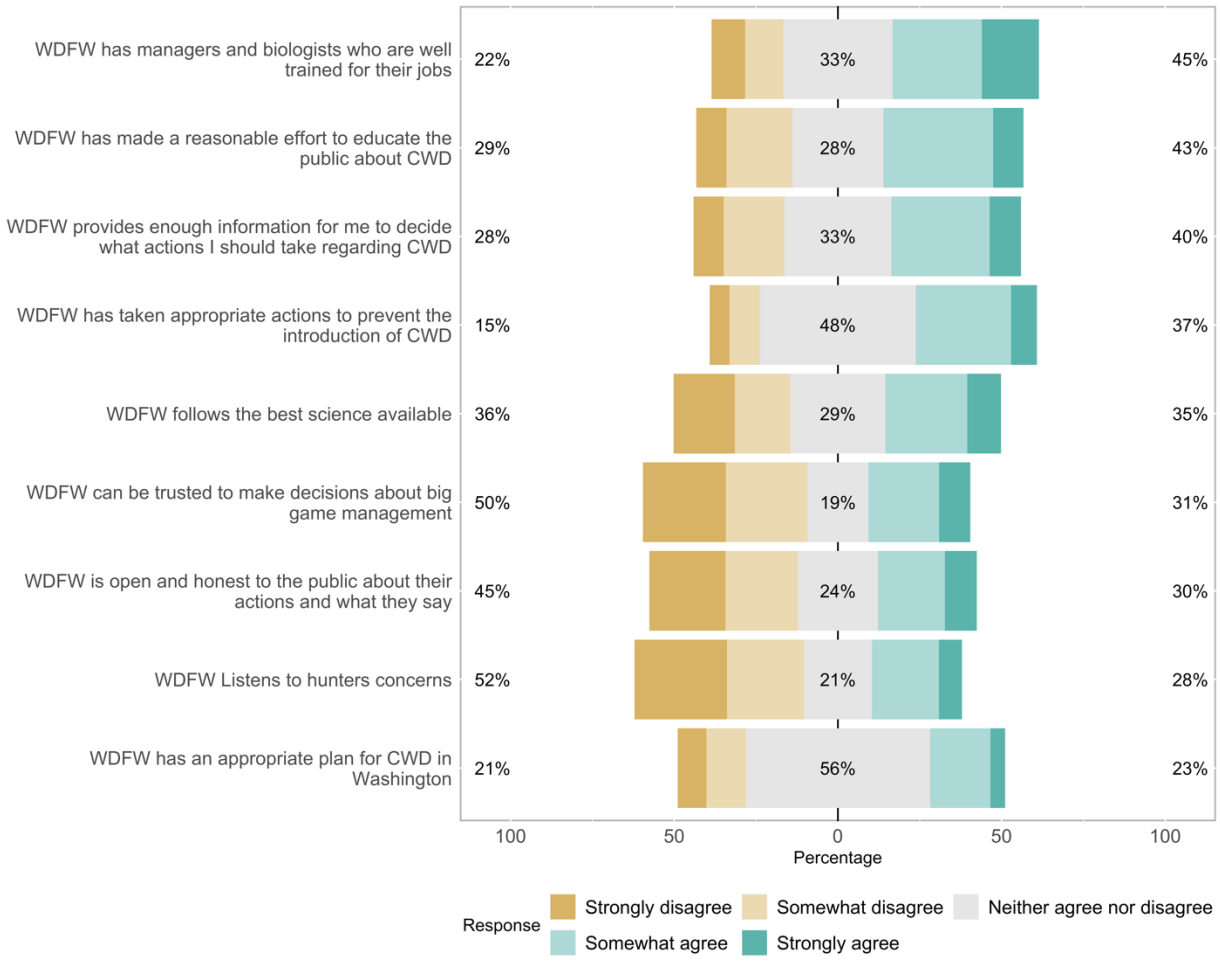


Figure 13. Trust in WDFW by respondents. Respondents were asked to indicate how much they agreed or disagreed with statements indicating trust in WDFW. N=7403.

Table 2. Respondents' trust in WDFW

Statement regarding trust in WDFW	Strongly disagree (%)	Somewhat disagree (%)	Neither agree nor disagree (%)	Somewhat agree (%)	Strongly agree (%)	Mean[1] (SE)
WDFW has managers and biologists who are well trained for their jobs	10	12	33	27	18	3.30 (0.02)
WDFW has made a reasonable effort to educate the public about CWD	9	20	28	34	9	3.13 (0.01)
WDFW provides enough information for me to decide what actions I should take regarding CWD	9	19	33	30	10	3.12 (0.01)
WDFW has taken appropriate actions to prevent the introduction of CWD	6	9	48	29	8	3.23 (0.02)
WDFW follows the best science available	19	17	29	25	10	2.91 (0.01)
WDFW can be trusted to make decisions about big game management	25	25	19	22	10	2.65 (0.02)
WDFW is open and honest to the public about their actions and what they say	23	22	24	20	10	2.71 (0.02)
WDFW listens to hunters' concerns	28	24	21	20	7	2.55 (0.01)
WDFW has an appropriate plan for CWD in Washington	9	12	56	18	4	2.98 (0.01)

[1]Mean based on scale: 1=Strongly disagree; 2=Somewhat disagree; 3=Neither agree nor disagree; 4=Somewhat agree; 5=Strongly agree

3.2.2 Public Values and WDFW

Respondents were generally more likely to disagree that WDFW shared similar opinions, goals, or values as they did than they were to agree. However, the highest percent of respondents indicated that they neither agreed nor disagreed.

- 45% of respondents neither agreed nor disagreed with the statements that WDFW shares similar opinions as they do or takes similar actions as they would, while only 19% agreed with those statements.
- Around 4 in 10 people neither agreed nor disagreed that WDFW shares similar values as them (40%) and WDFW shares similar goals as them (39%), while 26% agreed with those statements.

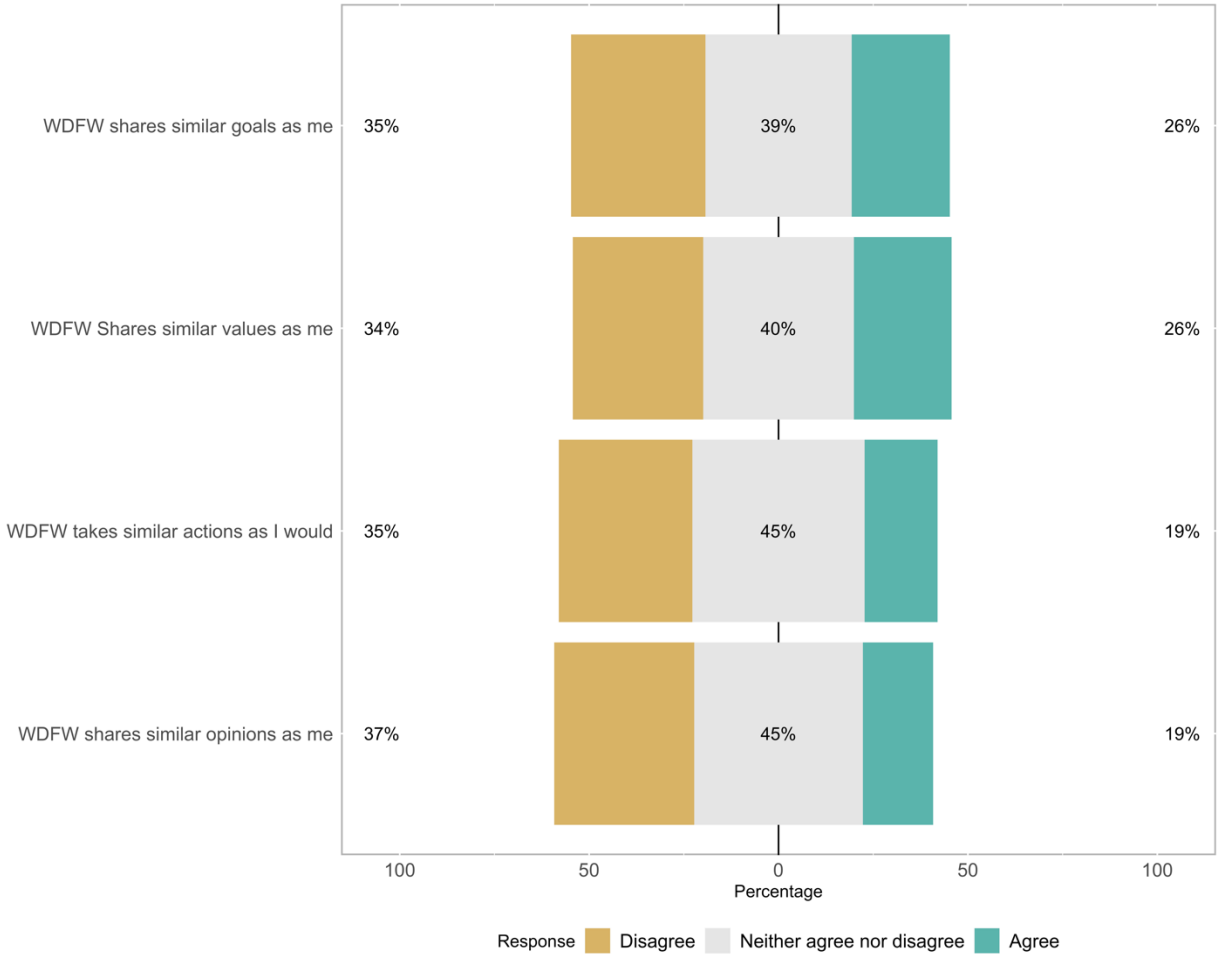


Figure 14. Respondents' perceptions of WDFW goals, values, actions, and opinions compared to their own. Respondents were asked to indicate whether they agreed or disagreed with statements about how much their values aligned with WDFW. N=7403.

Table 3. Respondents' perceptions of WDFW goals, values, actions, and opinions

Statement regarding perceptions of WDFW	Disagree (%)	Neither agree nor disagree (%)	Agree (%)	Mean[1] (SE)
WDFW shares similar goals as me	35	39	26	2.13 (0.01)
WDFW shares similar values as me	34	40	26	2.14 (0.01)
WDFW takes similar actions as I would	35	45	19	2.26 (0.01)
WDFW shares similar opinions as me	37	45	19	2.26 (0.01)

[1]Mean based on scale: 1=Disagree; 2= Neither agree nor disagree; 3=Agree

3.3 Practices of CWD Management

While our survey considered several overall trends about knowledge and trust, we also evaluated perspectives about specific management actions that have been implemented or considered to manage CWD based on best management practices (Gillin & Mawdsley, 2018). Respondents were asked to indicate whether or not they supported or did not support various management options, as well how much they agreed or disagreed (on a 5-point Likert scale) with statements about baiting and feeding. Here we discuss survey responses regarding those practices.

3.3.1 Broad perspectives on Management

If CWD enters Washington state, respondents were most supportive of management strategies for CWD that increased hunting opportunities for hunters. Respondents were more supportive of hunter-led strategies as opposed to WDFW interventions. In general, most respondents were not supportive of banning any current practices.

- Respondents were most supportive of the following management actions:
  - Creating new special CWD permits to increase harvest in detection zones (72% supportive, 7% non-supportive).
  - Employing hunter targeted deer removal (70% supportive, 9% non-supportive),
  - and lengthening hunting seasons (70% supportive, 10% non-supportive).
- Respondents were less unified in support, but still more supportive than unsupportive, for the following:
  - Making CWD testing of road-killed salvaged deer and elk mandatory (58% supportive, 16% unsupportive).
  - Increasing the number of hunting licenses (47% supportive, 20% unsupportive).
  - Enacting carcass transport restrictions within Washington State (49% supportive, 23% unsupportive).
  - Enacting carcass disposal regulations rules (42% supportive 27% unsupportive).
  - Making CWD testing of harvested deer and elk mandatory (35% supportive, 29% unsupportive).
- With the exception of making CWD testing of road-killed salvaged deer and elk mandatory, less than half of all respondents were supportive of the above actions.
- Respondents had mixed support of targeted removals:
  - While 70% of respondents supported employing hunter targeted deer and elk removals, only 33% supported employing WDFW targeted deer and elk removals (e.g., sharpshooters).
  - 41% did not support this management strategy.
- In general, respondents were not supportive of actions that would reduce deer density or herd sizes or decrease hunting opportunity.
- Respondents were least supportive of the following:
  - Banning feeding (43% unsupportive, 26% supportive).
  - Banning baiting (44% unsupportive, 32% supportive).
  - Banning urine scent lures (44% unsupportive, 22% supportive).
- There was also a high level of uncertainty ("unsure" response) for these management options (32%, 25%, and 34% respectively).

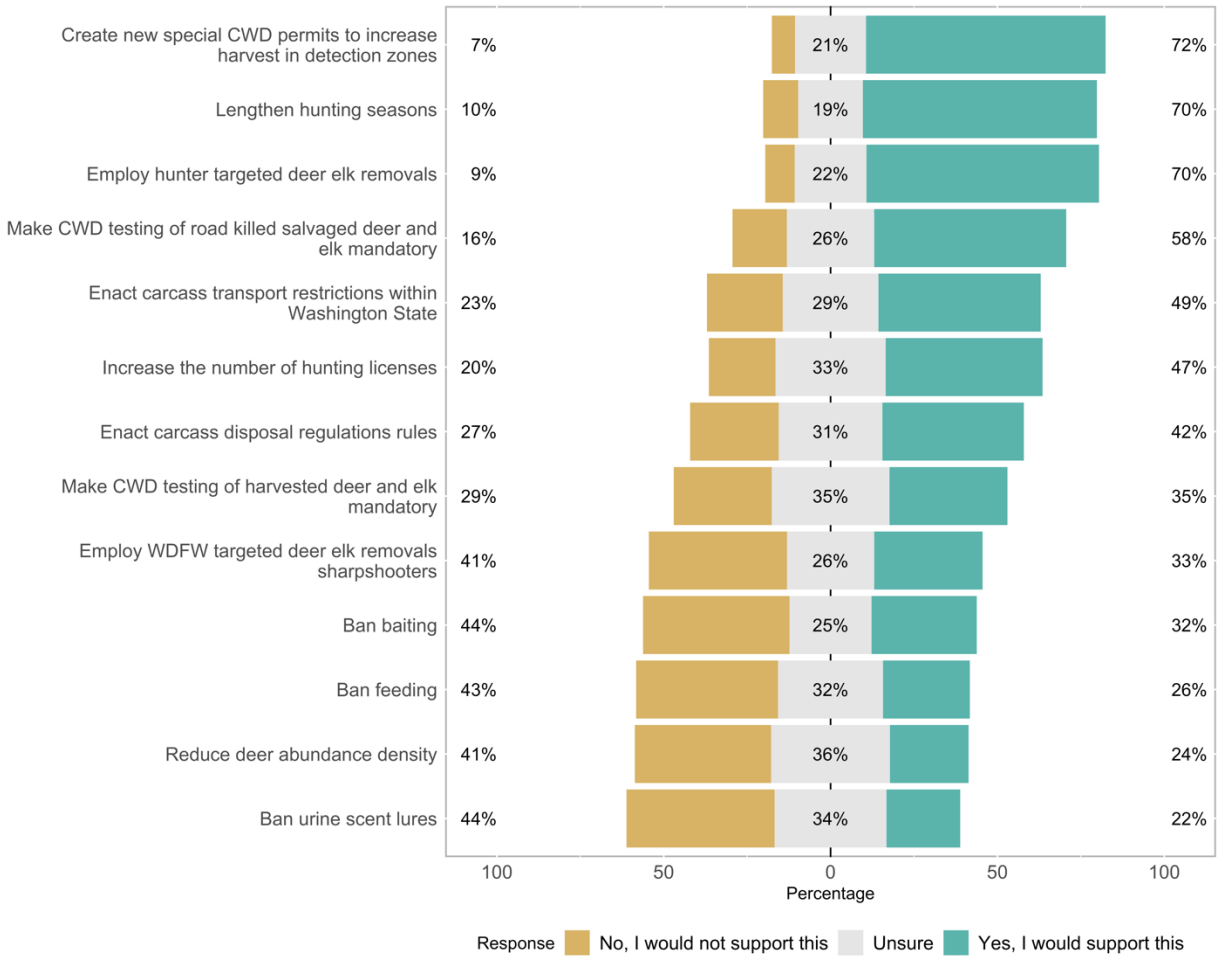


Figure 15. Respondents' perspectives of management strategies. Respondents were asked to indicate whether they would support or not support various management strategies. N=7403.

Table 4. Respondents' perspectives of management strategies

Possible management strategy	No, I would not support this (%)	Unsure (%)	Yes, I would support this (%)	Mean[1] (SE)
Create new special CWD permits to increase harvest in detection zones	7	21	72	2.65 (0.01)
Lengthen hunting seasons	10	19	70	2.60 (0.01)
Employ hunter targeted deer, elk removals	9	22	70	2.61 (0.01)
Make CWD testing of road killed salvaged deer and elk mandatory	16	26	58	2.41 (0.01)
Enact carcass transport restrictions within Washington State	23	29	49	2.26 (0.01)
Increase the number of hunting licenses	20	33	47	2.27 (0.01)
Enact carcass disposal regulations rules	27	31	42	2.16 (0.01)
Make CWD testing of harvested deer and elk mandatory	29	35	35	2.06 (0.01)
Employ WDFW targeted deer, elk removals (sharpshooters)	41	26	33	1.91 (0.01)
Ban baiting	44	25	32	1.88 (0.01)
Ban feeding	43	32	26	1.83 (0.01)
Reduce deer abundance, density	41	36	24	1.83 (0.01)
Ban urine scent lures	44	34	22	1.78 (0.01)

[1]Mean based on scale: 1=No, I would not support this; 2= Unsure; 3=Yes, I would support this

3.3.2 Perspectives on Baiting

Based on the survey results, baiting is one of the most divisive management practices. Responses to statements about baiting varied widely, with approximately equal numbers supporting or opposing various elements of the practice. Qualitative comments and interview responses suggest that for baiting, support or opposition can both be very strong, further suggesting this is a divisive management strategy unlikely to find consensus, though some uncertainty about the issue remains for many. One source of strong opposition came from a widely held belief that baiting bans are driven by an "anti-hunting contingent" in the state. The majority of respondents did agree that baiting was important to hunters with mobility issues.

- Slightly more people agreed than disagreed that baiting is important because it helps hunters provide wildlife population control (38% agree, 33% disagree), and that restrictions on baiting should be lifted (38% agree, 35% disagree).
- More respondents disagreed than agreed that being able to bait is every hunter's right (40% disagreed, 32% agreed).
- Many statements were very closely split between agreement and disagreement. Respondents were split on whether baiting is fair chase (38% agree, 40% disagree), whether baiting should only be banned in areas where CWD is found (35% agree, 34% disagree), and whether baiting is likely to contribute to the spread of CWD (33% agree, 31% disagree).
- Many respondents (36%) neither agreed nor disagreed that baiting was not likely to contribute to the spread of CWD than in any other statement.
- More respondents agreed than disagreed that baiting is necessary for hunters with mobility issues than disagreed (54% agreed, 24% disagreed).
- Additionally, 57% of respondents agreed that baiting bans are driven by the anti-hunting contingent, while only 20% disagreed.

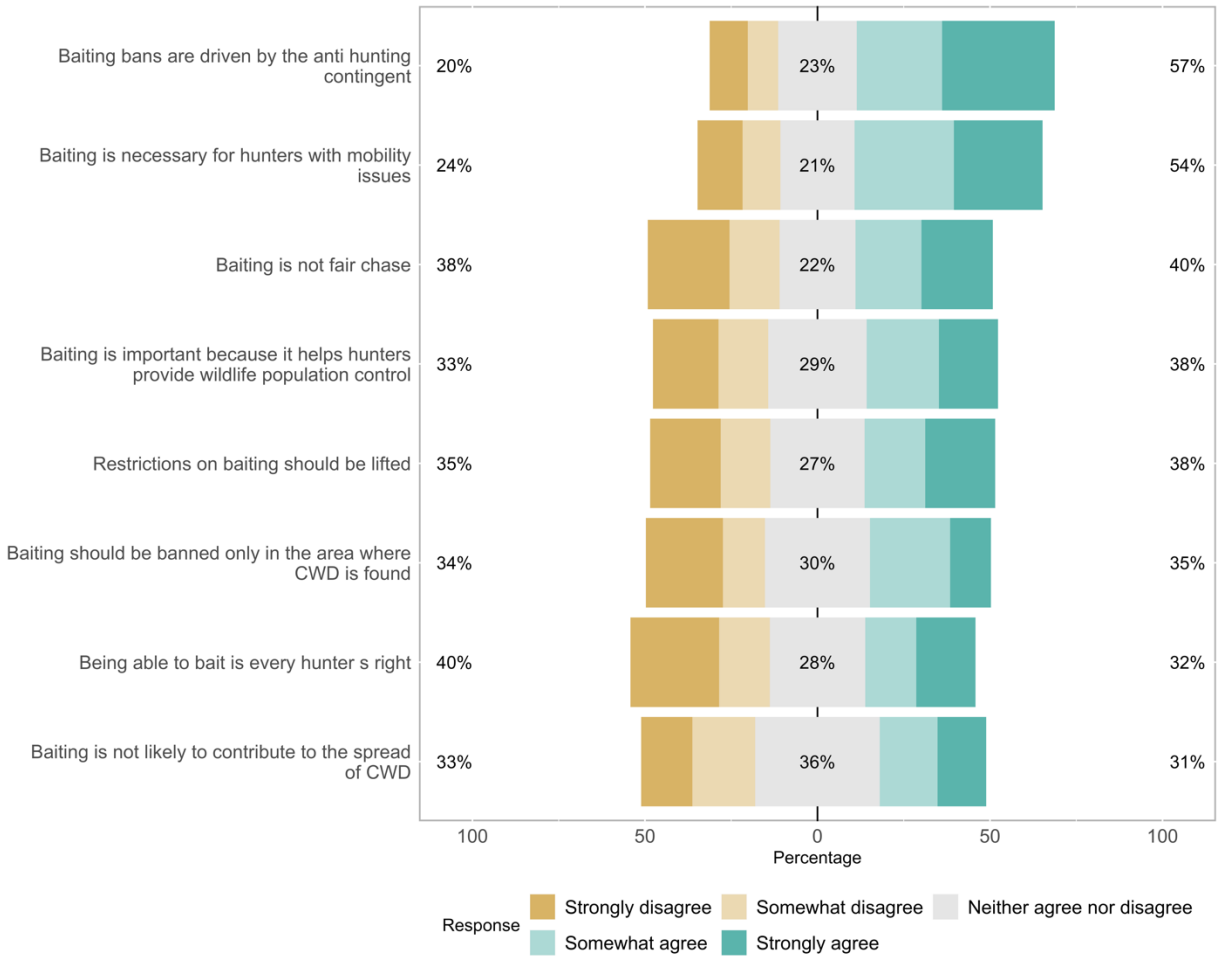


Figure 16. Respondents' perspectives on baiting. Respondents were asked to indicate how much they agreed or disagreed with statements about baiting. N=7403.

Table 5. Respondents' perspectives on baiting

Statement regarding baiting	Strongly disagree (%)	Somewhat disagree (%)	Neither agree nor disagree (%)	Somewhat agree (%)	Strongly agree (%)	Mean[1] (SE)
Baiting bans are driven by the anti-hunting contingent	11	9	23	25	32	3.59 (0.02)
Baiting is necessary for hunters with mobility issues	13	11	21	29	26	3.43 (0.02)
Baiting is not fair chase	24	14	22	19	21	2.99 (0.02)
Baiting is important because it helps hunters provide wildlife population control	19	14	29	21	17	3.03 (0.02)
Restrictions on baiting should be lifted	21	14	27	18	20	3.03 (0.02)
Baiting should be banned only in the area where CWD is found	22	12	30	24	12	2.90 (0.02)
Being able to bait is every hunter's right	26	14	28	15	17	2.83 (0.02)
Baiting is not likely to contribute to the spread of CWD	15	18	36	17	14	2.97 (0.02)

[1]Mean based on scale: 1=Strongly disagree; 2=Somewhat disagree; 3=Neither agree nor disagree; 4=Somewhat agree; 5=Strongly agree

3.3.3 Feeding

Results indicated that respondents generally agreed that feeding was a landowner's right. More respondents selected neither disagree nor agree for questions relating to CWD.

- Just over half of respondents (54%) agreed that feeding was a landowner's right, while only 25% disagreed.
- While 42% of respondents disagreed that feeding deer was necessary to help deer survive, 35% of respondents agreed it was necessary. Additionally, 38% of respondents believed feeding was necessary to protect crops, while 29% disagreed.
- In regard to CWD, 37% agreed that feeding should be banned only in areas where CWD is found while 30% disagreed. 38% disagreed with the statement that feeding was not likely to contribute to the spread of CWD while only 25% agreed with the statement. In both questions regarding CWD, a large proportion of respondents indicated no agreement or disagreement (32% and 37% respectively).

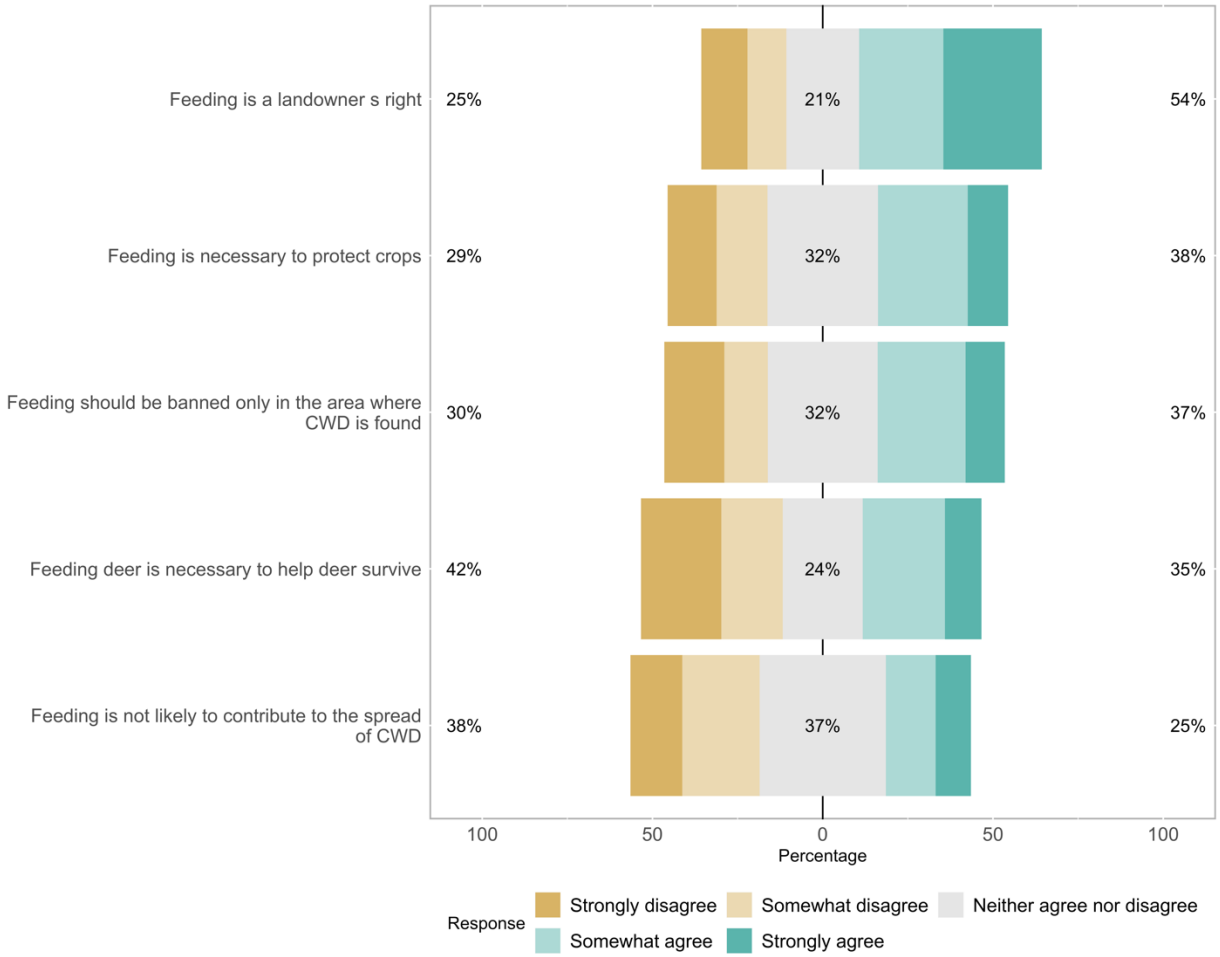


Figure 17. Respondents' perspectives on feeding. Respondents were asked to indicate how much they agreed or disagreed with statements about feeding. N=7403.

Table 6. Respondents' perspectives on Feeding

Statement regarding feeding	Strongly disagree (%)	Somewhat disagree (%)	Neither agree nor disagree (%)	Somewhat agree (%)	Strongly agree (%)	Mean[1] (SE)
Feeding is a landowner's right	14	11	21	25	29	3.44 (0.02)
Feeding is necessary to protect crops	14	15	32	26	12	3.06 (0.02)
Feeding should be banned only in the area where CWD is found	18	13	32	26	12	3.01 (0.02)
Feeding deer is necessary to help deer survive	24	18	24	24	11	2.80 (0.02)
Feeding is not likely to contribute to the spread of CWD	15	23	37	15	10	2.82 (0.02)

[1]Mean based on scale: 1=Strongly disagree; 2=Somewhat disagree; 3=Neither agree nor disagree; 4=Somewhat agree; 5=Strongly agree

3.3.4 Sampling

Just over half of respondents had heard of hunter check stations, while fewer respondents had heard of the other sampling methods in Washington State. However just over a third of respondents had not heard of any of the sampling methods.

- Just over half of respondents (53%) had heard of hunter check stations.
- Lower numbers of respondents had heard of other types of sampling methods including sample drop off stations (27%), mail in sampling (18%), by appointment with WDFW staff (13%), salvage program sampling (6%) and by appointment at Inland Northwest Wildlife Council (2%).
- Over a third of respondents (38%) had not heard of any type sampling methods.

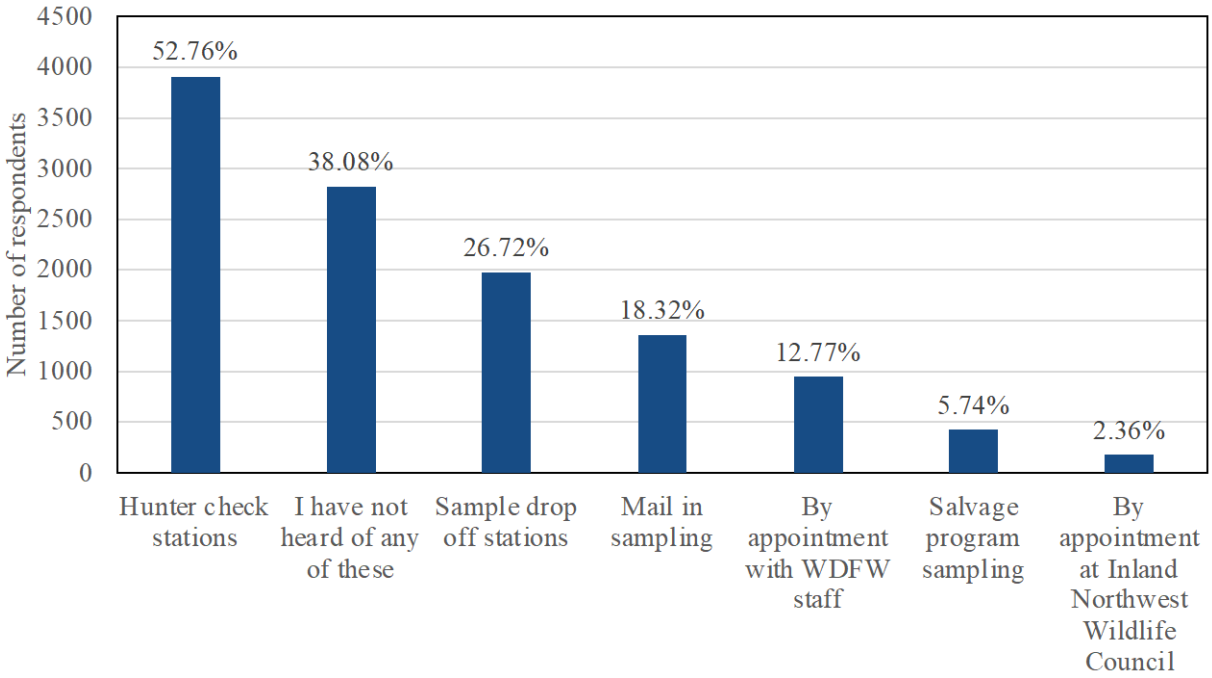


Figure 18. Which sampling opportunities respondents had heard of. Respondents were able to select all answers that applied. Respondents who selected "I have not heard of any of these" were only able to select that one answer. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents. N=7403.

3.3.5 Hunter Check Stations

Many respondents had heard of hunter check stations in Washington State, but a much smaller proportion of respondents have used them in Washington. The most common perceived barrier to using hunter check stations is that they are not in a convenient area. Additional barriers were cited, but over a third of respondents did not believe there was a barrier to hunter check station use.

- The majority of respondents had heard of hunter check stations in Washington State, but half of the total respondents had not used them (50%), while only 23% have used them.
- Just over 1 in 4 respondents (26%) have not heard of hunter check stations in Washington.
- The most commonly cited barrier to hunter check station use was that they were not in a convenient location (41%).
- Other barriers were cited less frequently and included the following:
  - Check stations were not open when hunters hunt (17%).
  - It takes too long to give a sample (9%).
  - Hunters are too tired after hunting (9%).
  - The check stations are not a good use of government time/money (8%).
  - Hunters want to keep their deer or elk intact, so they do not want to give a sample (5%).
  - Hunters do not want to know if their deer or elk has CWD (2%).
- 13% of respondents also indicated there were other barriers.
- However, over 1 in 3 respondents (36%) did not think there were barriers to using hunter check stations.

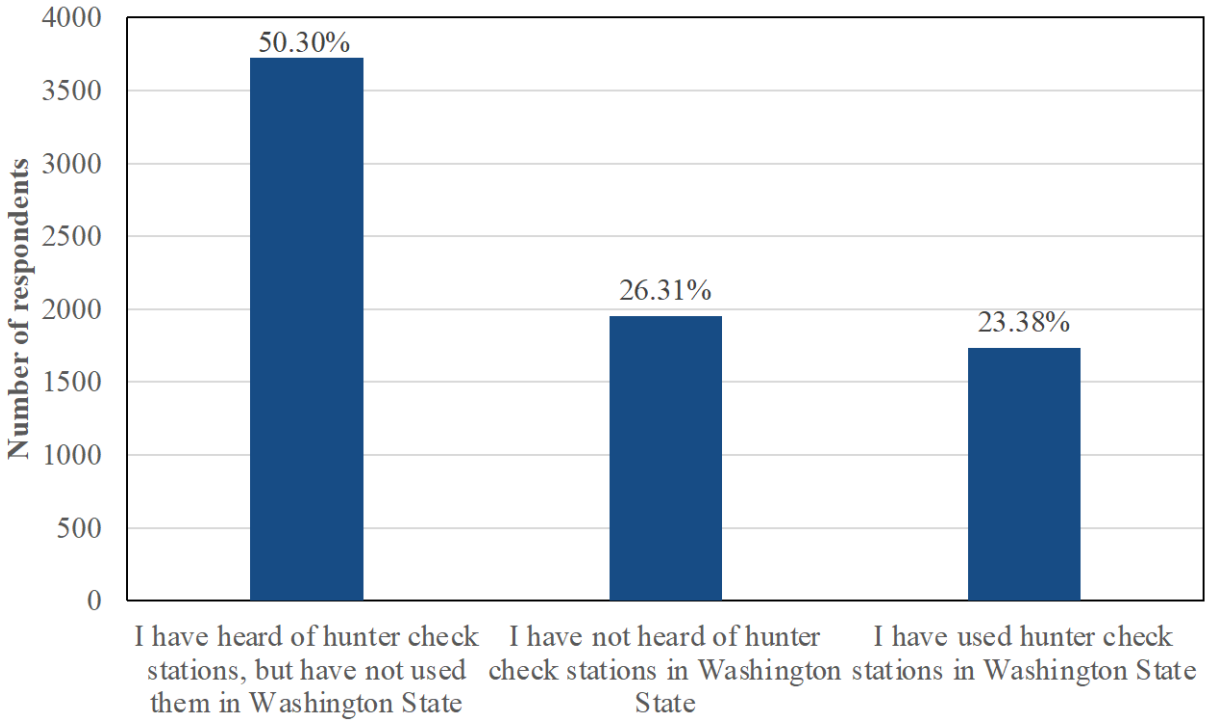


Figure 19. Respondents' awareness of and use of hunter check stations in Washington State. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents. N=7403.

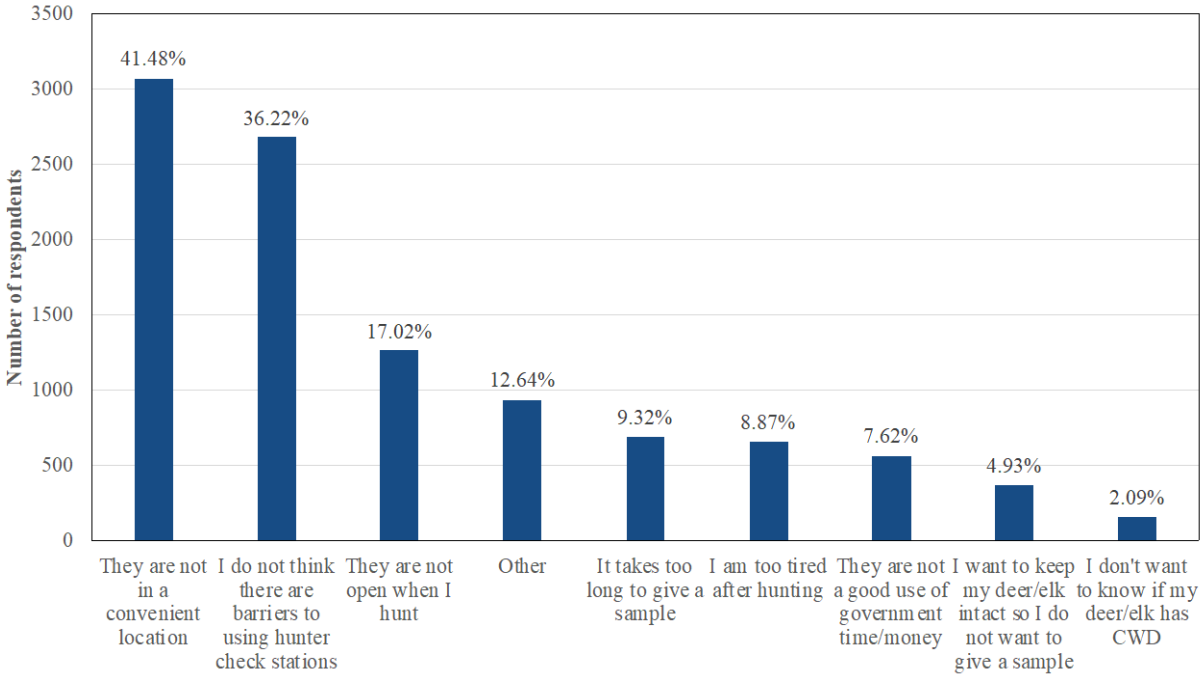


Figure 20. Barriers respondents identified to using hunter check stations. Respondents were able to select all answers that applied. Respondents who selected "I do not think there are barriers to using hunter check stations" were only able to select that one answer. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents. N=7403.

3.3.6 Incentives

Respondents were open to incentives for submitting samples of harvested animals. When asked what would make submitting samples more appealing, just over half of respondents indicated rifles or other hunting gear, big game annual licenses, and multi-season deer tags would all be appealing. However, in qualitative answers, respondents spoke out against using rifles or other hunting gear as incentives, and some believed submitting samples should be mandatory and not rewarded.

- To make submitting samples more appealing, over half of respondents preferred rifles or other hunting gear (54% thought it would make submitting samples more appealing), big game annual licenses (53%), and multi-season deer tags (51%).
- Slightly less than half preferred free deer licenses (46%) and moose hunting permits (46%).
- The least preferred of all the options was a free Discover Pass (only 26% of respondents reported it would make submitting samples more appealing).
- However, it should be noted that in write-in responses, many did say they did not support using rifles or other hunting gear as incentives. Even among those that favored incentives, there were rather pointed comments specifically addressing the possibility of using guns as a raffle prize as a motivating factor for participation ("I do not support the raffle or giveaways of firearms." "No firearms!")
- In the "other" category, a number of respondents also wrote that there should not need to be incentives, it should be mandatory ("Just make it a requirement and don't ask for permission") or hunters should do it because it is the best action ("we don't need a reward for doing something we should do anyways").
- Other respondents also included specific elements they thought may increase hunter check station use and sample procurement. These included, "Make stations more welcoming with clear signs, better lighting," "Include list of stations with yearly licenses," "Free sample kits with pre-paid postage?" "Could samples be sent in with kill report?"

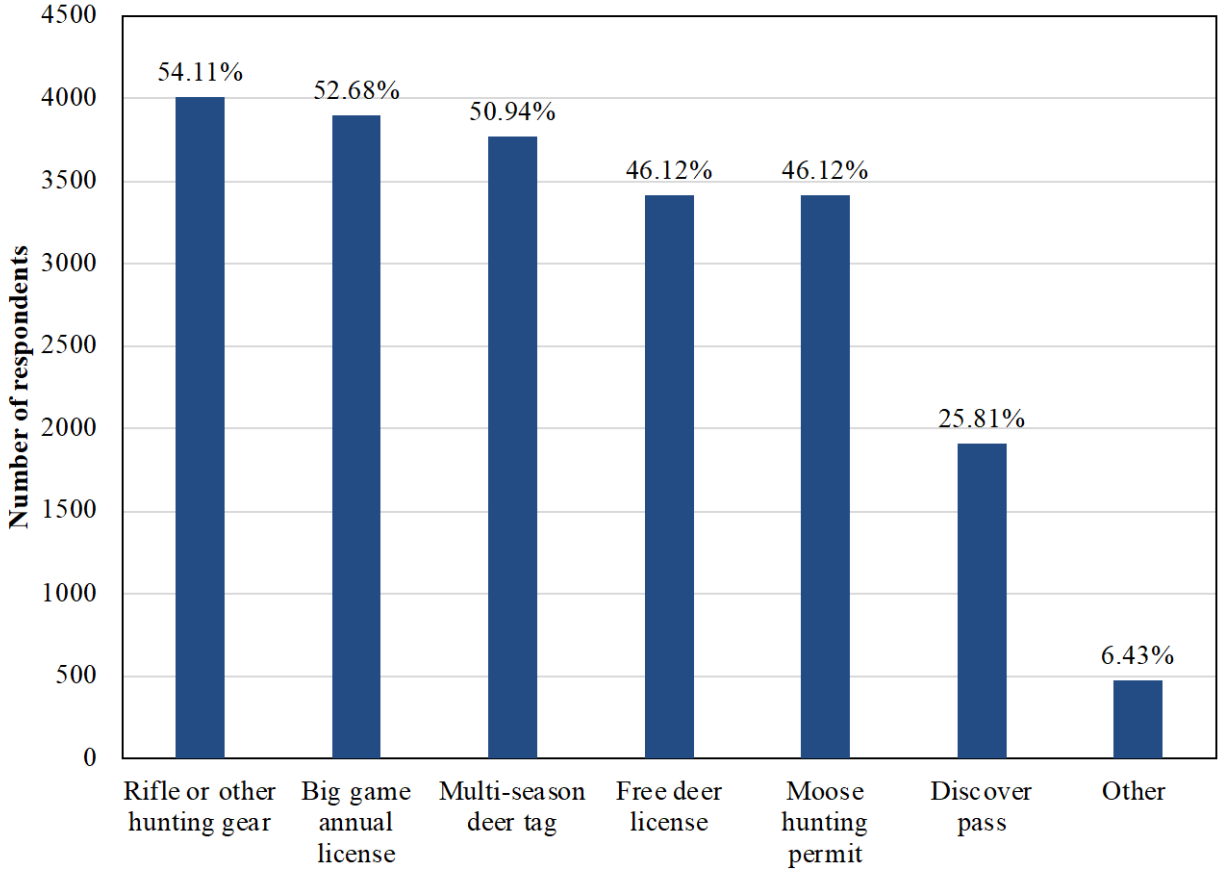


Figure 21. What would make submitting samples of harvested animals for CWD more appealing. Respondents were able to select all answers that applied. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents. N=7403.

3.4 Demographics and identity

We collected information on a number of demographic and identity characteristics of respondents to learn whether these were related to some of the key issues described above.

3.4.1 Demographics

Respondents were asked to input their age and respondents were categorized into one of four age groups (18-30, 31-50, 51-65, 66+ years old). For survey respondents, 601 respondents fell in the 18-30 year old age range, 2,698 were in the 31-50 year old age range, 2,388 were in the 51-65 year old age range and 1,695 were in the 66+ yeas old age range. 21 respondents did not answer.

Age groups	Total
18-30	601
31-50	2698
51-65	2388
66+	1695
Did not answer	21

Respondents were asked to identify their gender. 6,662 respondents were male, 668 were female and 73 respondents either preferred not to answer or did not answer.

Gender	Total
Male	6662
Female	668
Prefer not to answer/Did not answer	73

3.4.2 How do respondents interact with wildlife

Almost all respondents engaged in hunting, but a large proportion of respondents also reported interacting with wildlife through fishing, outdoor recreation, and wildlife viewing. Far fewer reported engaging in ranching or farming, wildlife rehabilitation, wildlife biology, taxidermy, and commercial meat processing.

- Overall, when asked about how they interact with wildlife most respondents reported hunting (98%).
- A majority of respondents also were generally likely to interact with wildlife through fishing (86%), outdoor recreation (e.g., hiking, camping, boating) (86%), and wildlife viewing or watching (72%).
- Low numbers of respondents reported engaging with wildlife through ranching or farming (23%), wildlife rehabilitation (10%), wildlife biology (7%), taxidermy (5%), and commercial meat processing (1.5%).

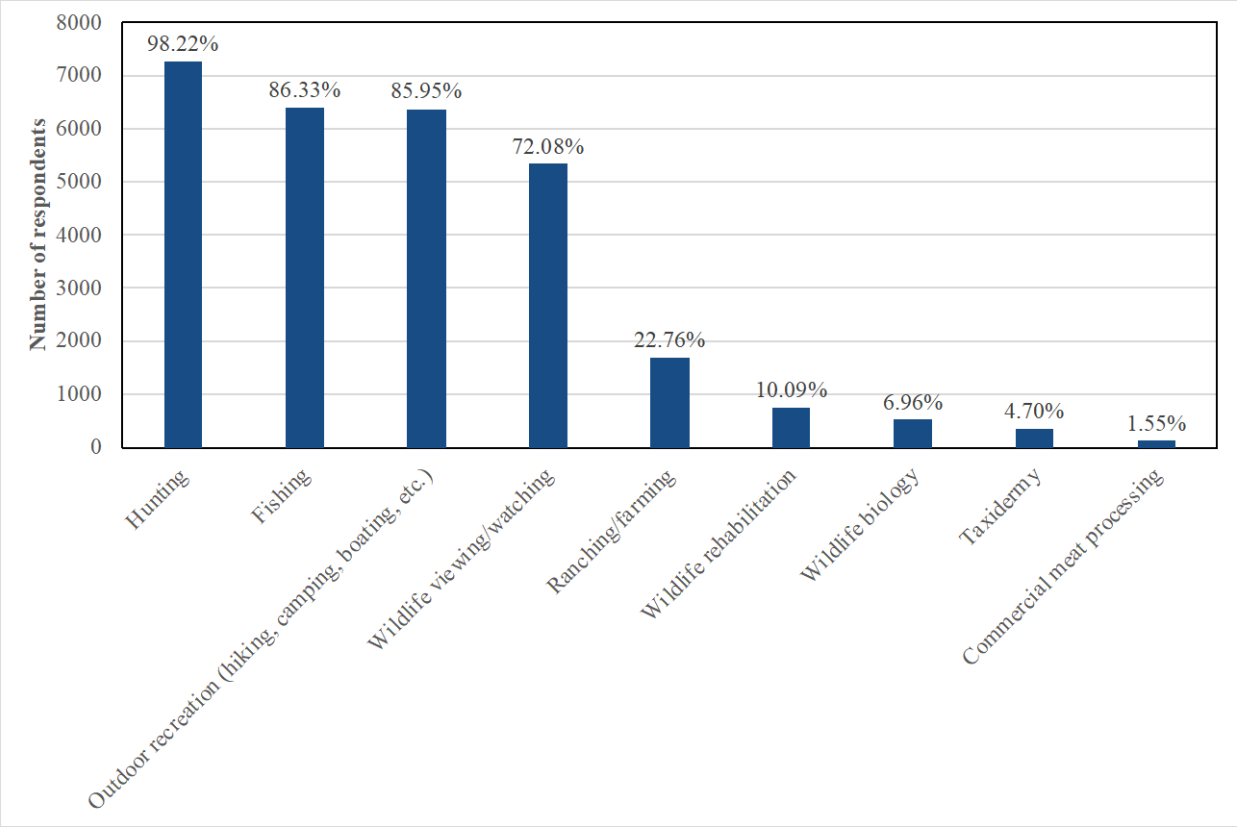


Figure 22. How respondents interact with wildlife in Washington State. Respondents were able to select all answers that applied. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents. N=7403.

3.4.3 Where people hunt

Results showed that about a quarter of respondents hunt predominately in the Eastern region, while a relatively equal number hunt in either the Southwest, North Central, Coastal or South Central regions. The least number of respondents hunt in the north Puget Sound region.

- One in four respondents (25%) report hunting predominately in the Eastern region.
- 18% of respondents reported hunting predominately in the Southwest or North Central regions, while 16% reported hunting in the Coastal or South Central regions.
- Only 7% of respondents reported hunting in north Puget Sound with less than 1% reporting that they do not hunt in Washington.

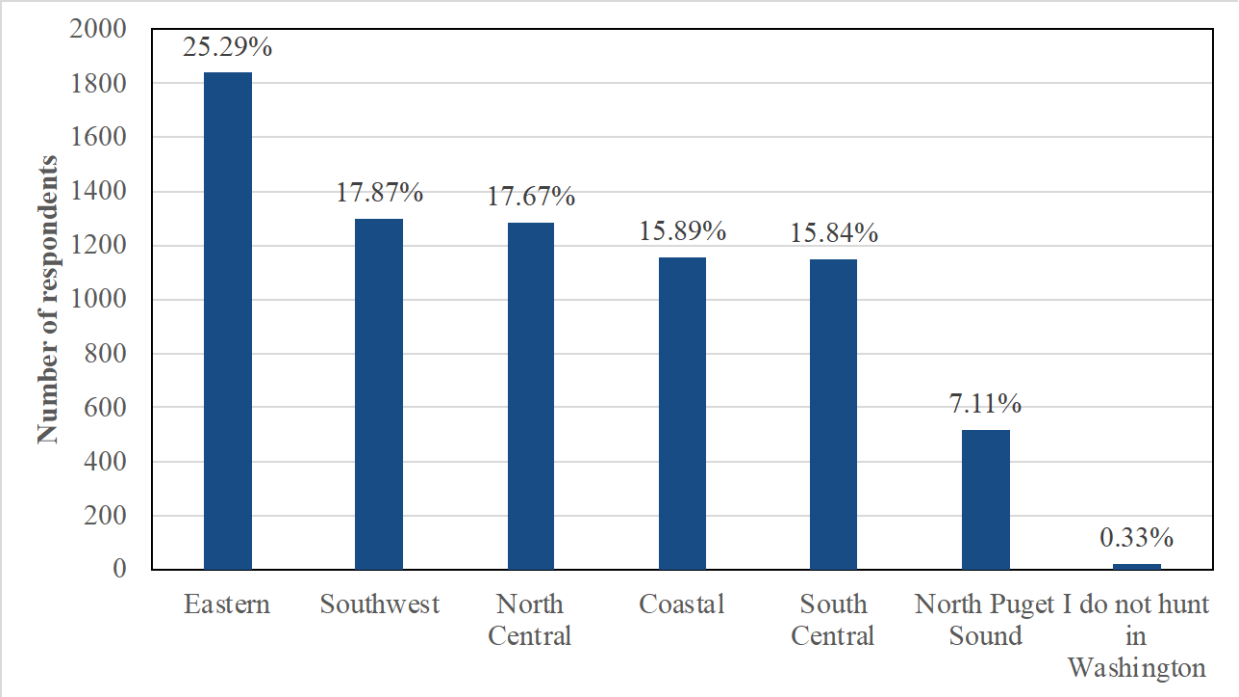


Figure 23. Where respondents hunt in Washington State. Respondents were asked to select which county they most commonly hunted in and counties were sorted into WDFW regions. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents who selected "hunting" as a way in which they interact with wildlife in Washington State. N=7271.

3.4.4 Where people live

A quarter of respondents reported living in the Coastal region followed closely by the Southwest region. The least number of respondents reported living in the South Central region.

- A quarter of respondents (25%) reported living in the Coastal region, while a slightly smaller proportion (23%) reported living in the Southwest.
- The North Central region (17.5%) and the north Puget Sound region (15%) had slightly fewer reported residents, while the Eastern (10.2%) and South Central (9%) had the least number of reported residents.

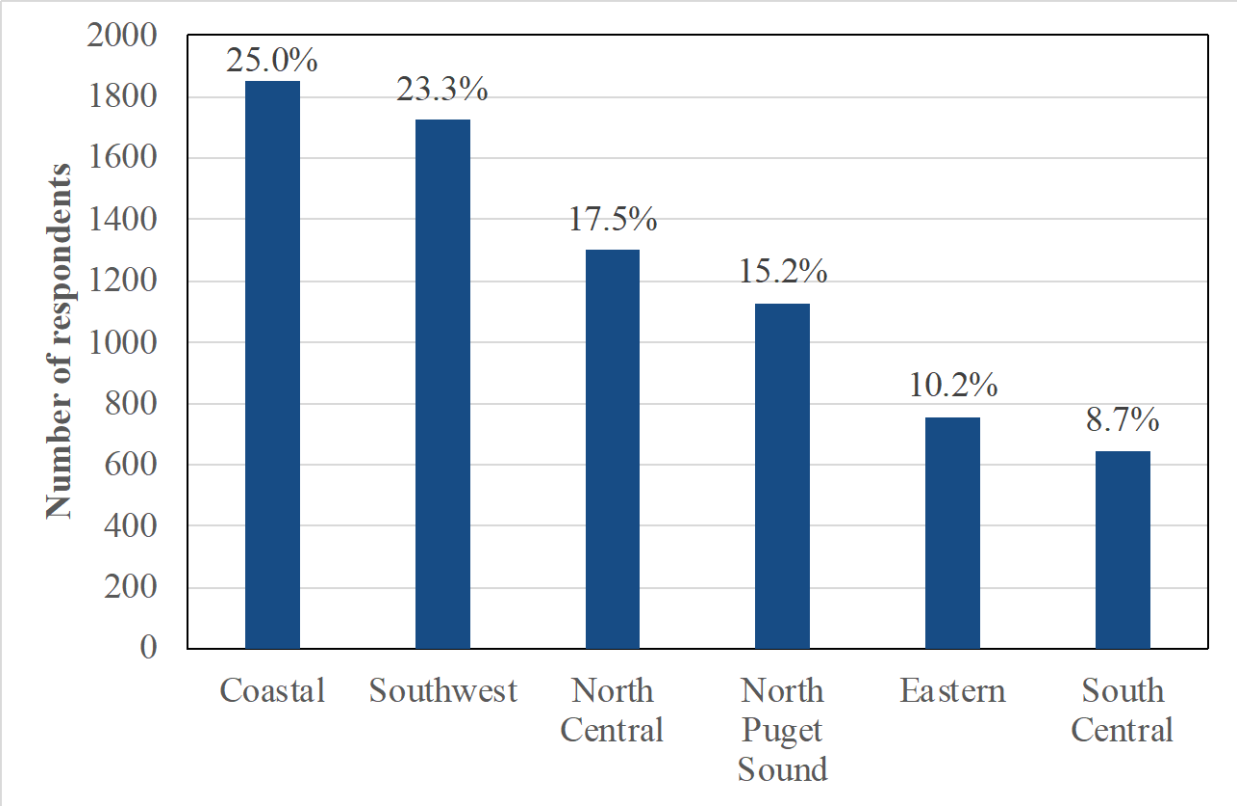


Figure 24. Where respondents live in Washington State. Respondents were asked to select which county they lived in and counties were sorted into WDFW regions. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents. N=7403.

3.4.5 Where respondents live and hunt

Comparing where respondents live and hunt, almost all respondents who live east of the Cascade Range stayed in one of the three Eastern regions to hunt, whereas a high proportion of residents in the Western portion of Washington State traveled to one of the East regions to hunt.

- Respondents who reported living in one of the three regions that are east of the Cascade Range (Eastern, South Central, and North Central) mostly stayed in the Eastern area to hunt with only 1.4% of respondents traveling to the West as their main hunting region.
- Just over four in ten (41%) respondents who reported living in one of the three regions west of the crest of the Cascade Range (Costal, north Puget Sound, and Southwest) reported hunting predominately on the eastern side of the mountain range.
- Note: Klickitat County, while in the Southwest region, is on the east of the mountains and was counted as an Eastern area.

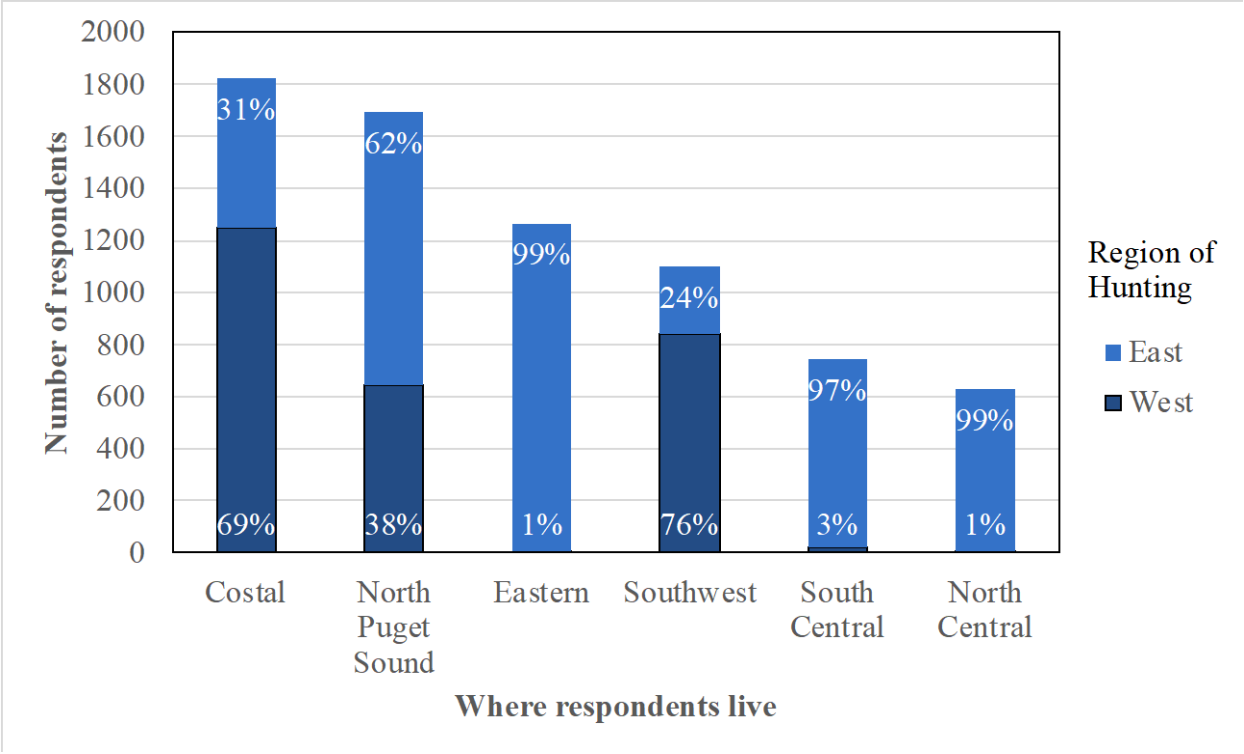


Figure 25. Where respondents live and hunt in Washington State. Respondents were asked to select which county they lived in and counties were sorted into WDFW regions. Respondents were also asked to select which county they most commonly hunted in and counties were sorted into East and West. WDFW regions where respondents live are indicated on the x-axis with the total number of respondents on the y-axis. Each region is comprised of respondents who hunt in the East (light blue) and respondents who hunt in the West (dark blue). Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents.

3.4.6 In what locations do people hunt

Almost all respondents hunt in Washington State, while around a third of respondents also hunt in other states. Very few respondents hunted in countries other than the United States.

- Of those respondents who hunt, most (98%) reported hunting in Washington State.
- Just over a third of respondents (35%) hunt in states other than Washington.
- Few hunt outside the country, with less than 4% hunting in countries other than the United States.

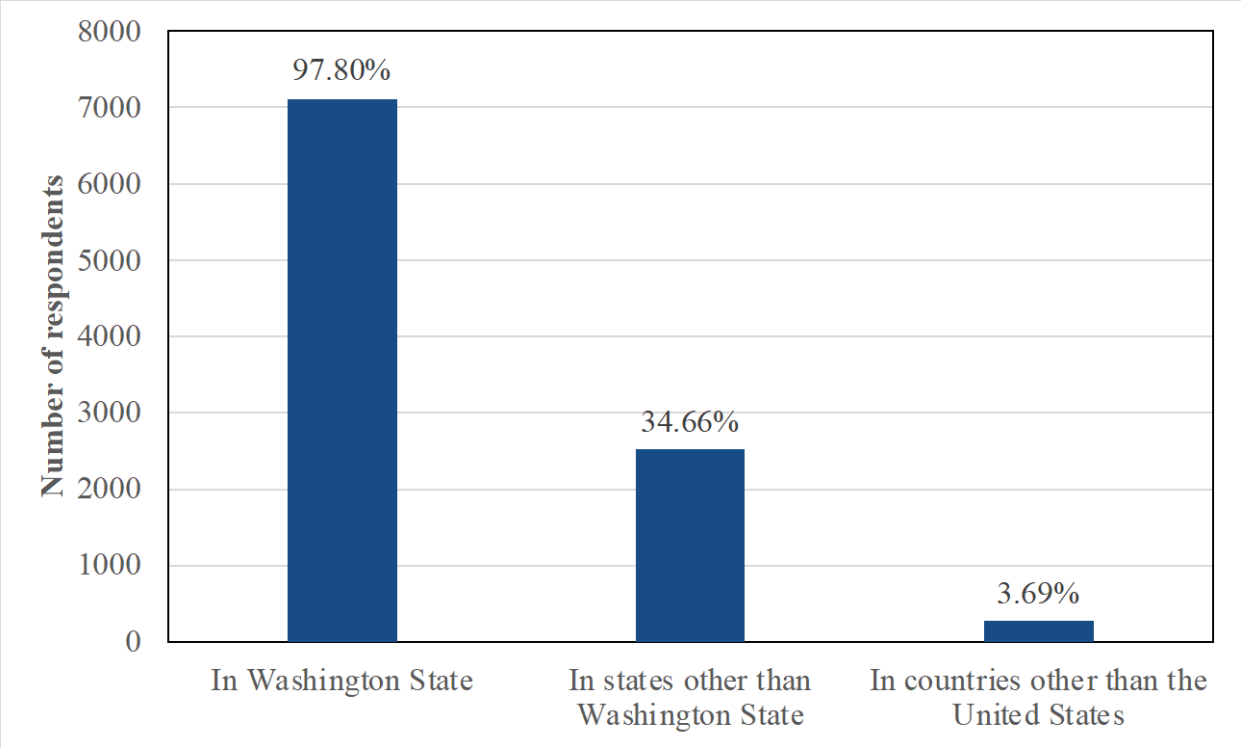


Figure 26. Where respondents hunt. Respondents were able to select all answers that applied. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents who selected "hunting" as a way in which they interact with wildlife in Washington State. N=7271.

3.4.7 On what type of land do respondents hunt

Although over a third of respondents hunt on private land they do not own or lease, the vast majority primarily use public land. About a quarter of respondents hunt on land they own and even less utilize land that has been leased to them for hunting.

- The vast majority of respondents (92%) hunt on public land.
- Additionally, 37% of respondents hunt on private land they do not own or lease, while a quarter of respondents (25%) hunt on private land that they own.
- Only a small proportion of respondents (8%) hunt on private land that they lease for hunting.

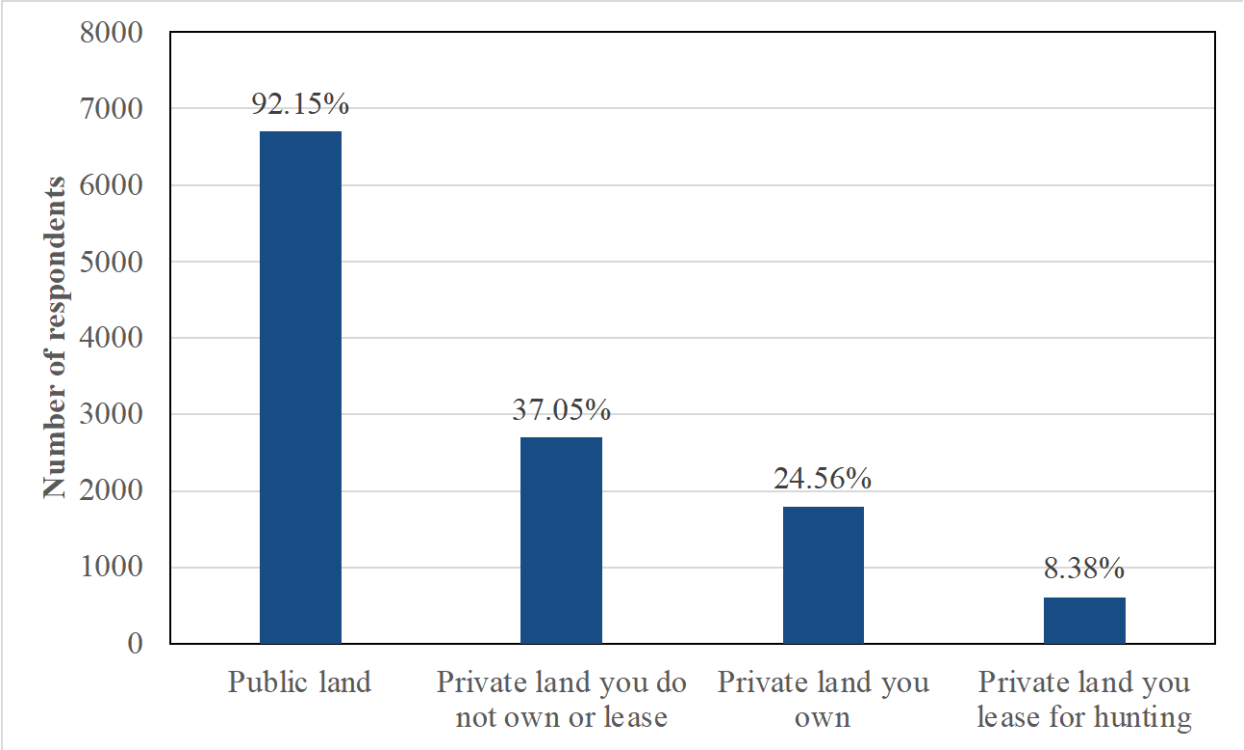


Figure 27. On what type of land respondents hunt. Respondents were able to select all answers that applied. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents who selected "hunting" as a way in which they interact with wildlife in Washington State. N=7271.

3.4.8 Type of animal hunted

Almost all respondents who reported hunting, hunt either deer, elk, or moose. The most commonly hunted animal is elk followed by mule deer. Just over half of respondents also hunt while-tailed deer and black-tailed deer, while a much lower proportion of respondents hunt moose.

- Almost all (99%) of respondents who reported hunting indicated they hunted deer, elk, or moose.
- The most commonly hunted animals were elk (83% of respondents hunted elk) and mule deer (71%).
- Over half of respondents also reported hunting white-tailed deer (58%) and black-tailed deer (57%).
- A much lower proportion of respondents hunt moose (14%).

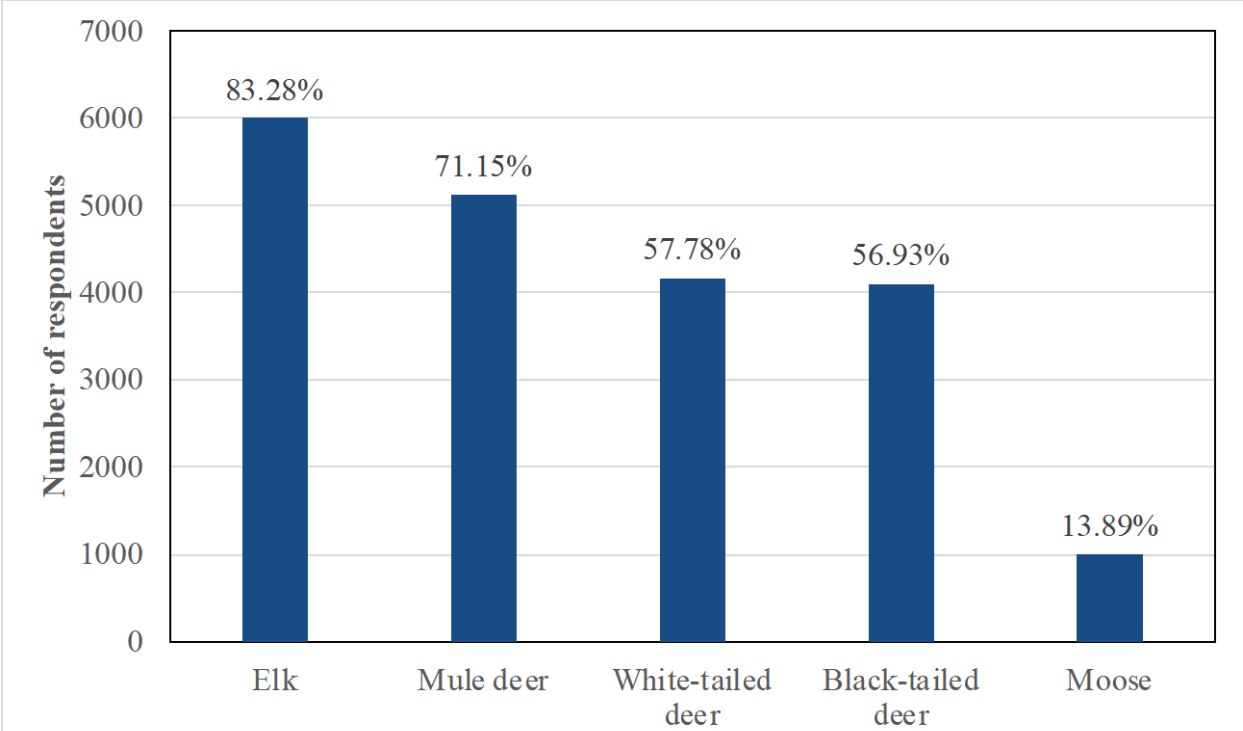


Figure 28. What type of big game animal respondents hunt. Respondents were able to select all answers that applied. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents who selected that they hunted deer, elk, and moose. N=7271.

3.4.9 Type of weapon

Overall, most respondents used modern firearms to hunt, while less than half of respondents are archery or muzzleloader hunters.

- Most respondents (87%) have used modern firearms to hunt.
- However, while less than half, there are still high percentages of archery hunters (43%) and muzzleloader hunters (35%).

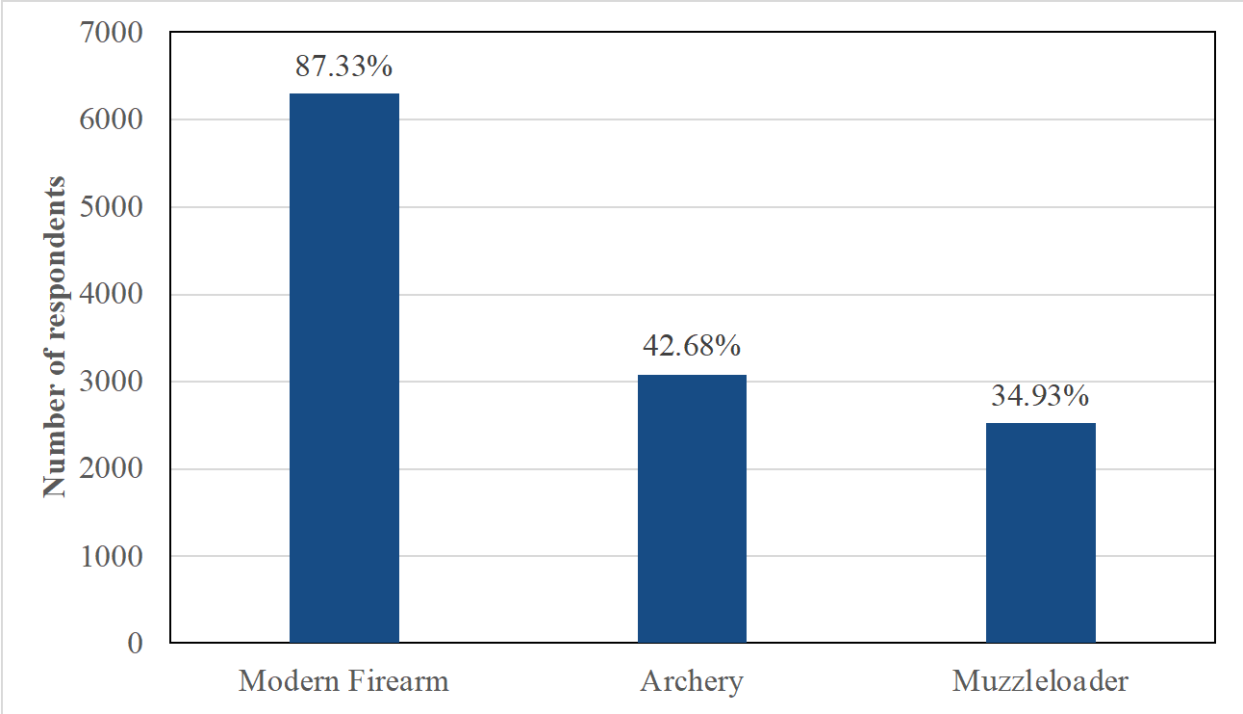


Figure 29. What type of weapon respondents use in big game hunting. Respondents were able to select all answers that applied. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents who selected "hunting" as a way in which they interact with wildlife in Washington State. N=7271.

3.4.10 Type of hunting

A majority of hunters are recreational hunters and subsistence hunters. A smaller proportion of hunters are trophy hunters.

- The majority of hunters consider themselves recreational hunters (73%) and subsistence hunters (64%).
- A smaller proportion of hunters self-designated as trophy hunters (17%). However, in interviews and comments several individuals made it clear they did not prefer this term. So it may be this category is not representative and/or the phrasing was not sufficiently expressed to fully capture the category.
- In addition to comments about the trophy category, the "other" category generally contained comments where respondents indicated they picked more than one option.

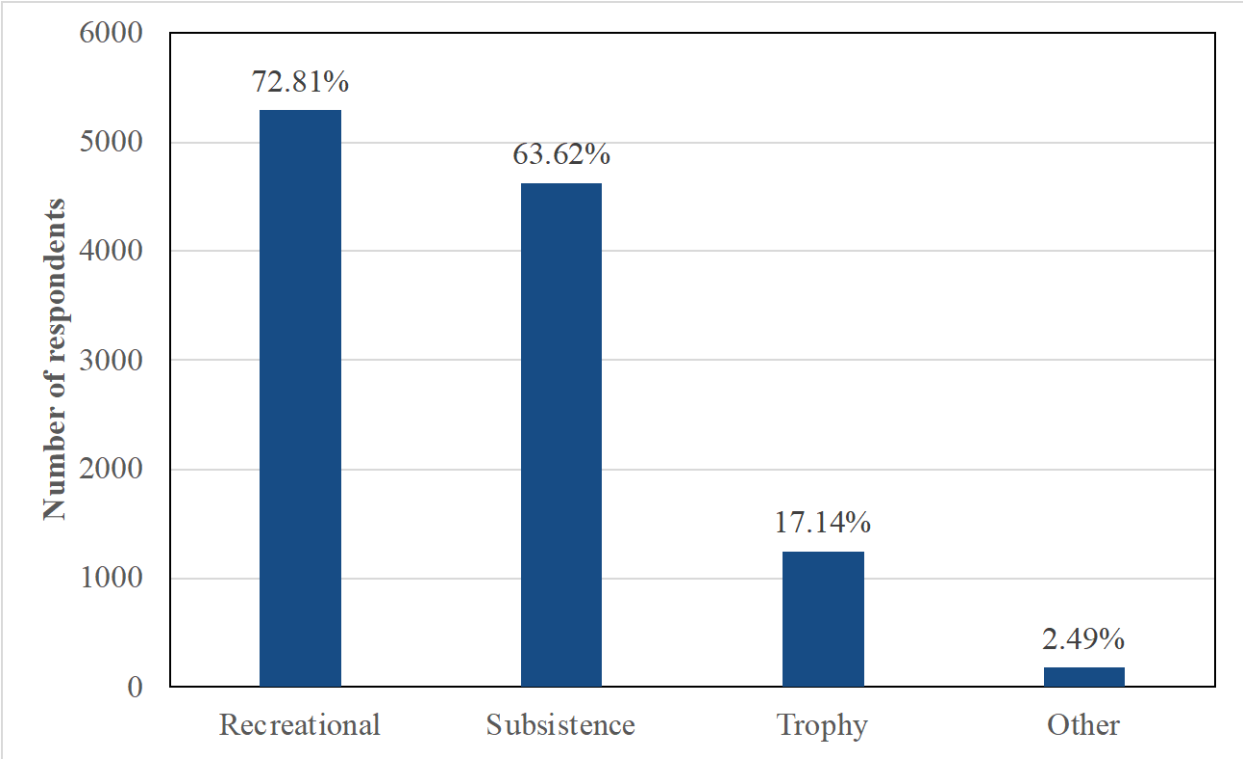


Figure 30. What type of hunting respondents engaged in. Respondents were able to select all answers that applied. Percentages are shown as the proportion of respondents who selected each option out of the total number of respondents who selected "hunting" as a way in which they interact with wildlife in Washington State. N=7271.

3.4.11 Meat processing

After hunting, most hunters process the meat by themselves, while a lower proportion report taking it to a meat processor.

- The majority of hunters (78%) process the meat by themselves.
- A smaller proportion of hunters (38.5%) take their meat to a meat processor.
- A few respondents (1.5%) reported they process the meat by “other” means.

3.4.12 Member of a hunting group

The majority of respondents are not members of a hunting group or organization. Of those who specified a group or organization, the most common included the Rocky Mountain Elk Foundation, the Backcountry Hunters & Anglers, and Ducks Unlimited.

- Over eight out of ten respondents who hunt are not members of a hunting group (84%).
- Two thirds of those respondents who were members of a hunting group identified which specific group or groups they were a member of (67%).
- Just under half of all respondents who identified a hunting group were members of the Rocky Mountain Elk Foundation (49.5%).
- The other commonly cited groups (those with 20+ respondents indicating membership) were Backcountry Hunters & Anglers (17%), Ducks Unlimited (13%), National Rifle Association (5%), Pheasants Forever (5%), Safari Club International (4%), Mule Deer Foundation (4%), and individual family and friend groups (3%).

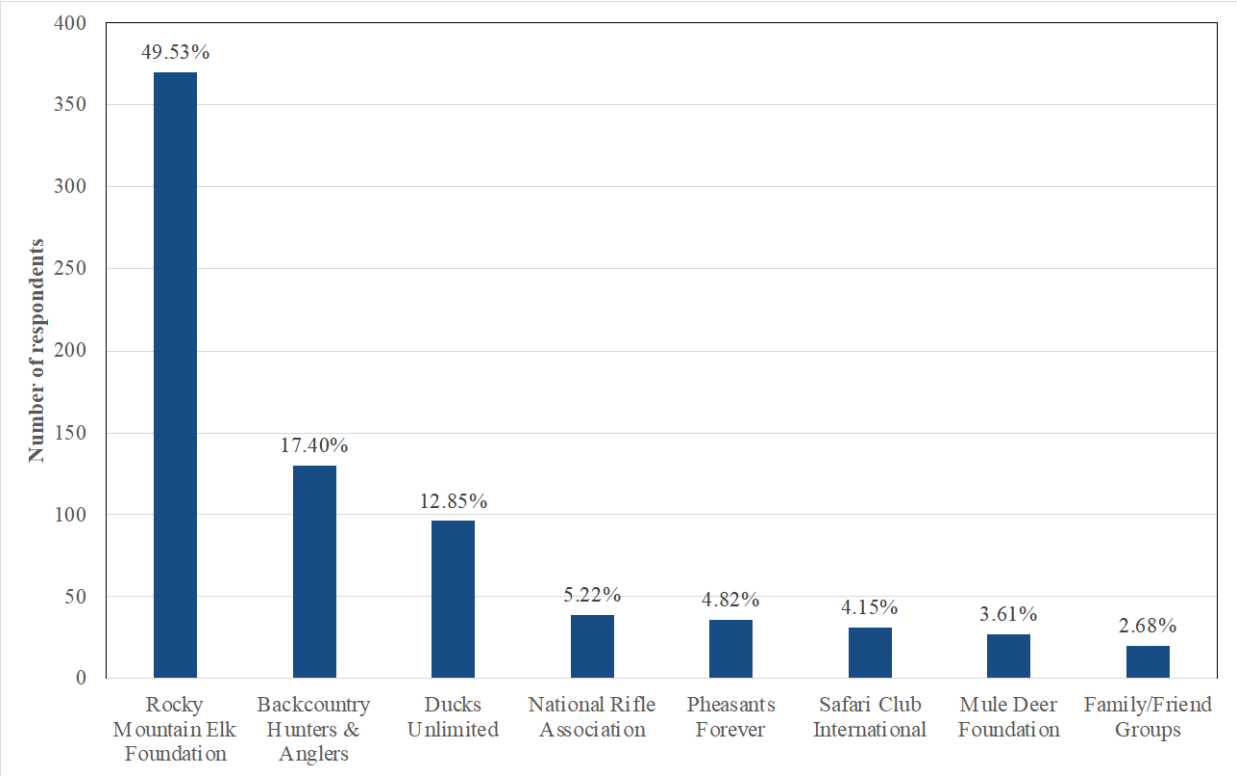


Figure 31. What hunting group or organization respondents were members of. Respondents who selected that they were a member of a hunting organization were given the option to list that organization or organizations. Percentages are shown as the proportion of respondents who listed each hunting group out of the total number of respondents who listed a hunting group. N=747.

3.4.13 Top-down

The Ecological Dominance Orientation (EDO) is a measure to explore hierarchical relationships between humans, animals and the environment which can help highlight perceptions and potential acceptance or rejection of policies (Uneal et. al., 2022). Overall, respondents generally had a preference for a more top-down relationship between humans, animals, and the natural environment.

- Respondents were the most likely to express a preference for a more top-down relationship between humans, animals, and the natural environment (a more hierarchical relationship with humans at the top), with the highest proportion of respondents strongly preferring a more top-down relationship (21%) and the lowest proportion of respondents strongly preferring a less top-down relationship (5%) (a less hierarchical relationship with humans and animals more equal).
- Overall, over half preferred a more top-down relationship (58%), just over a quarter preferring a less top-down relationship (26%), and 16% indicating no preference one way or the other.

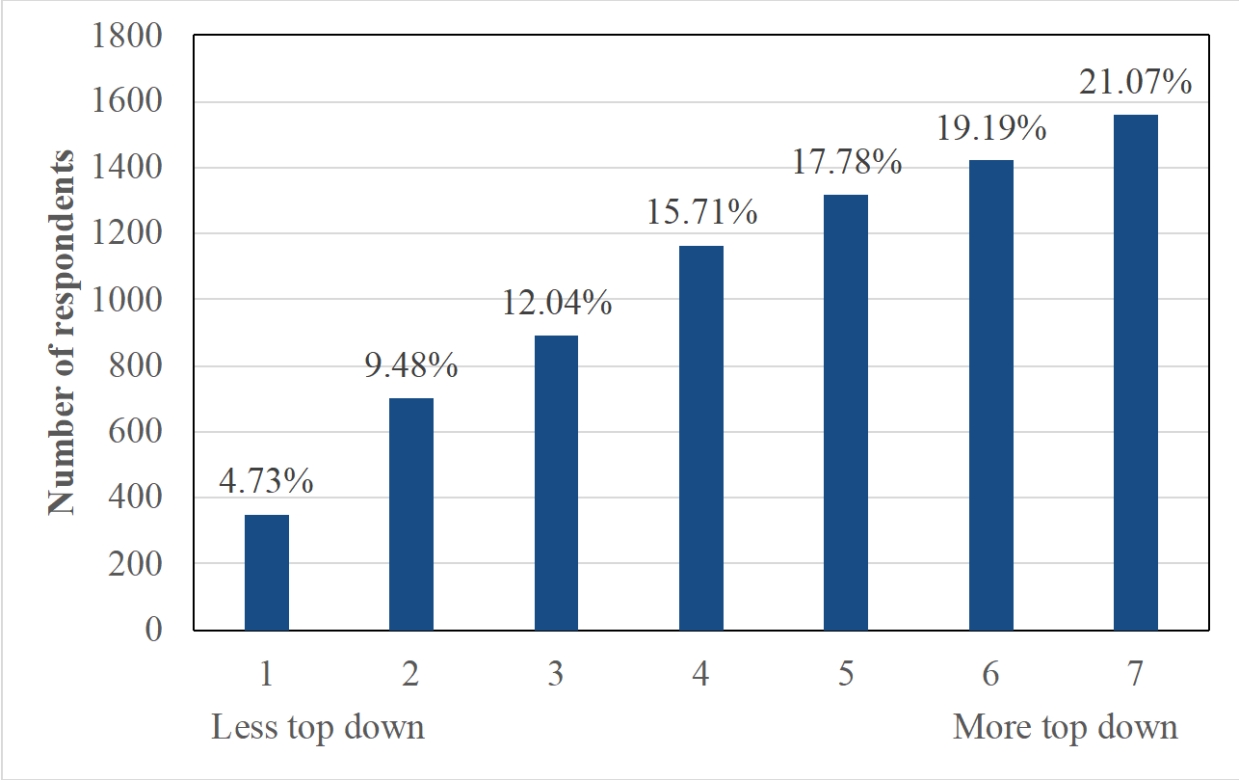


Figure 32. Whether respondents preferred a more or less top-down relationship between humans, animals, and the natural environment. N=7403.

3.4.14 Wildlife Value Orientations

The widely used Wildlife Value Orientations were created in 1996 (Fulton, Manfredo, & Lipscomb, 1996), to determine fundamental values and beliefs towards wildlife. By grouping respondents in one of four groups (traditionalists, pluralists, mutualists, and distanced), they can help anticipate how respondents might feel towards various wildlife management suggestions and activities and can help inform education and outreach strategies. The majority of respondents were either traditionalists, or pluralists, while a small proportion of respondents were mutualists and distanced.

- Just over half of respondents (52%) were traditionalists, who generally believe in a more top-down approach where wildlife may be used for human benefit.
- A large proportion of respondents (42%) were Pluralists who both believe in a top-down approach as well as a less top-down approach, where wildlife may be both used for human benefit and should co-exist with more equal status.
- A small number of respondents (4%) were Mutualists, believing humans and wildlife should co-exist in harmony with generally equal rights.
- The fewest number of respondents (3%) were Distanced indicating a lower interest in issues relating to wildlife.

3.5 Intersections between identity and CWD management

The following results intersect a number of the previous results for comparison. In particular, we consider how identity characteristics including Geography (whether respondents live in eastern Washington—east of the Cascade Range—or in western Washington), and Age (age groups of 18-30, 31-50, 51-65, 66+ years old) are associated with responses about knowledge, trust, and practices about CWD. These two measures were chosen as Geography had been hypothesized to have a strong influence on responses, while Age, a standard demographic, was found to be one of the most predictive factors of differences between responses. We do not present all possible intersections in the results below, but have identified key results that best inform CWD management.

3.5.1 Geography and Hunter Check Stations

When comparing respondents who live in the East and West, there were not large differences in regard to hunter check station awareness and use in Washington State. However, respondents in the East were more likely than those in the West to have used hunter check stations, whereas respondents who live in the West were more likely to have not heard of hunter check stations. It is important to note WDFW stopped running hunter check stations in most of western Washington in the mid-2000s. During the time of this survey check stations were only operated in the East.

- Respondents from eastern Washington were more likely to have used hunter check stations in Washington State (26% had used) compared to respondents from western Washington (22%).
- Similarly, respondents from eastern Washington were more likely to have heard of hunter check stations, but not used them (53%) compared with western Washington respondents (49%).
- Respondents from western Washington were the more likely to have not heard of hunter check stations (30%) compared with eastern Washington respondents (21%).

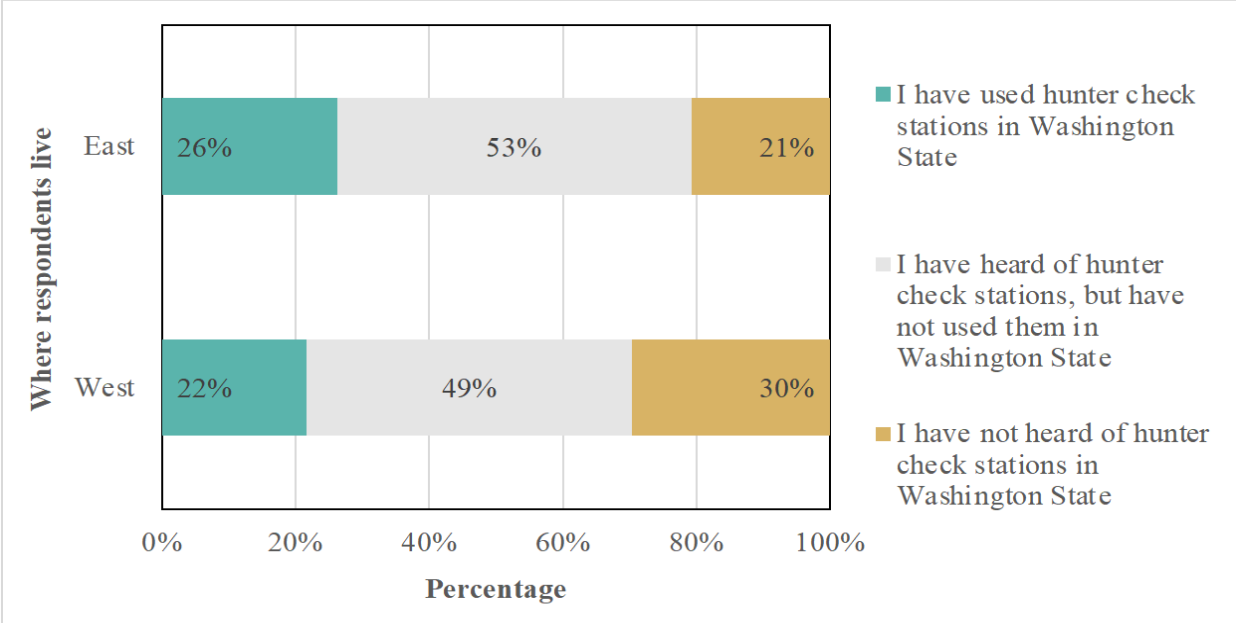


Figure 33. Whether or not respondents had heard of and used hunter check stations in Washington State by geographical location. Respondents were divided into those who lived in the East and in the West as indicated on the y-axis. N=7403.

3.5.2 Age—Hunter Check Stations

Overall, hunter check station use and awareness in Washington State increased with age, with older respondents more likely to have heard of and used hunter check stations, while younger respondents were more likely to have not heard of hunter check stations.

- Respondents aged 66 and over were the most likely to have used hunter check stations in Washington (37% have used hunter check stations).
- The likelihood of using hunter check stations decreased with age with 51-65 year old respondents being second likeliest to use hunter check stations (28%), followed by 31-50 year old respondents (14%), and finally only 8% of 18-30 year old respondents had used hunter check stations in Washington State.
- Conversely, younger respondents were more likely to have not heard of hunter check stations in Washington State with 37% of 18-30 year old respondents and 34% of 31-50 year old respondents not having heard of hunter check stations in Washington State.
- Awareness increased with age and only 23% of 51-65 year old respondents and 15% of 66+ year old respondents had not heard of hunter check stations.

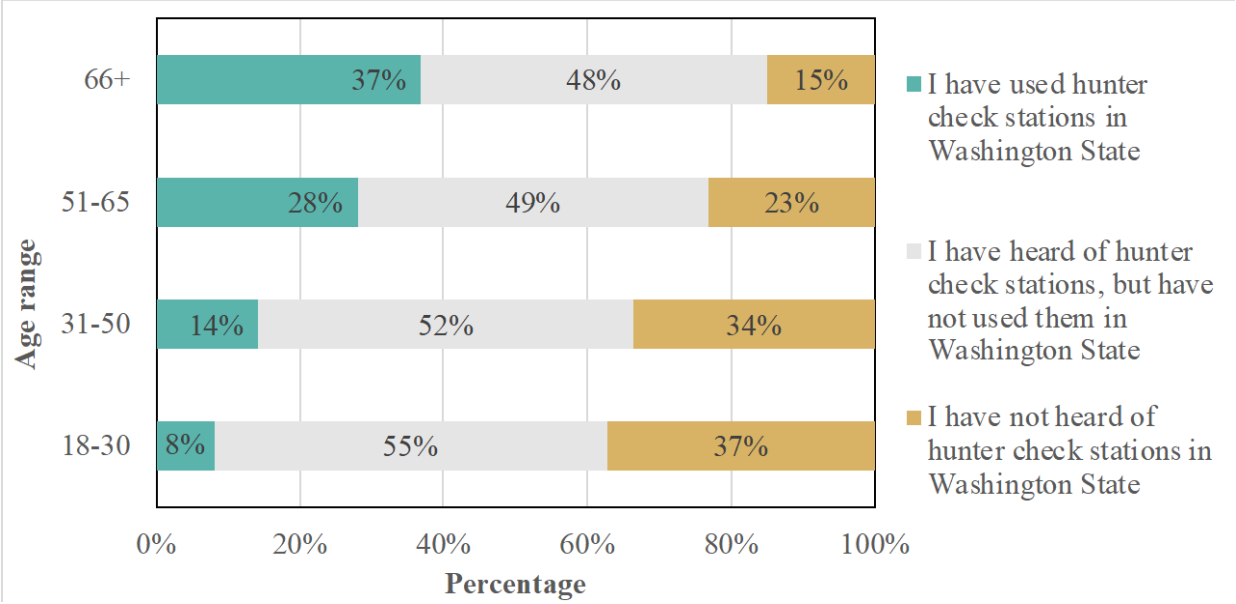


Figure 34. Whether or not respondents had heard of and used hunter check stations in Washington State by age. Respondents were divided into different age groups as indicated on the y-axis. N=7403.

3.5.3 Age—Information

Overall, WDFW was the primary source of information for all age groups, followed by media. However, younger age groups slightly preferred academic sources and family and friends compared to older age groups, while older age groups preferred WDFW compared to younger age groups.

- Younger age groups reported getting information on wildlife management from family and friends at a higher proportion than older age groups (18-30 years old: 44% reported receiving information on wildlife management from family and friends, 31-50 years old: 34%, 51-65 years old: 28%, 66+ years old: 25%).
- Similarly, younger groups were more likely to report receiving information from academic sources (18-30: 28%, 31-50: 22%, 51-65: 13%, 66+: 14%).
- Older age groups were slightly more likely to receive information on wildlife management from WDFW when compared with younger age groups, as 70% of 18–30 year old respondents reported receiving information on wildlife management from WDFW while 76% of respondents 66 and over reported receiving information from WDFW.

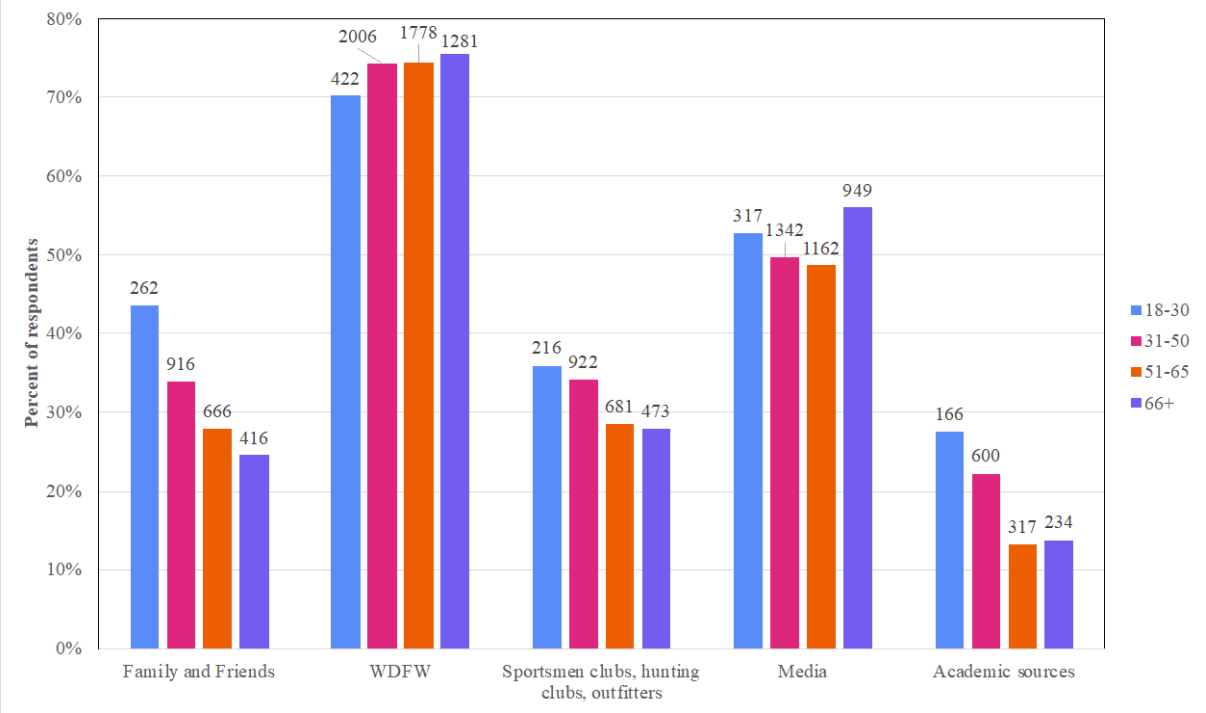


Figure 35. Where respondents get their information from by age group. Respondents were able to select all answers that applied. Percentages are shown as the proportion of respondents in each age group who selected each option out of the total number of respondents in each age group. Total number of respondents are shown on the label of each bar. N=7403.

3.5.4 Geography—Information

The most common source of information on wildlife management for residents who live in both eastern and western Washington is WDFW. There is no strong difference between respondents who live in eastern and western Washington regarding where they get their information on wildlife management.

- While there were more total respondents in the west, differences between east and west across all categories were very minor, and not statistically significant ($p>0.05$ for all sources of information).

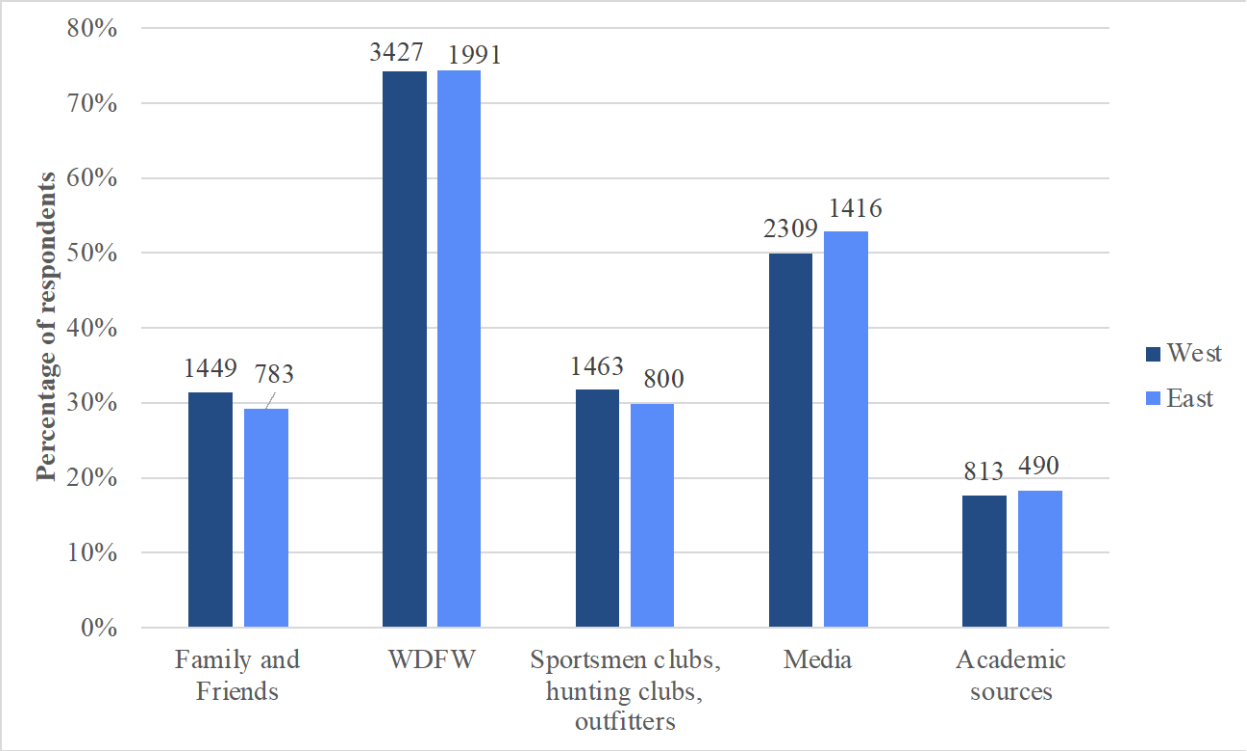


Figure 36. Where respondents get their information from by geographical location. Respondents were able to select all answers that applied. Percentages are shown as the proportion of respondents in each geographical location who selected each option out of the total number of respondents in each geographical location. Total number of respondents are shown on the label of each bar. N=7403.

3.5.5 Age—Information Preference

While the majority of all age groups prefer to get information on CWD from WDFW, younger respondents would prefer more information from academic sources and slightly more information from sportsmen clubs, hunting clubs, and outfitters compared with older respondents. Most older respondents would prefer to receive information from WDFW.

- While all age groups would prefer to receive information on CWD from WDFW, just over nine in ten (91%) of 66+ year old respondents want to receive information from WDFW while just over eight in ten (82%) of 18–30 year old respondents want information from WDFW.
- Younger respondents are more likely to prefer information from academic sources with that preference decreasing with age (18-30 years old: 37% would prefer information on CWD from academic sources, 31-50 years old: 30%, 51-65 years old: 20%, 66+ years old: 23%).
- Younger respondents also slightly prefer receiving information on CWD from sportsmen clubs, hunting clubs, and outfitters with 27% of both 18-30 and 31-50 year old respondents wanting to receive information in this manner and only 23% of 51-65 year old respondents and 22% of 66 and over year old respondents preferring to receive their information from those sources.

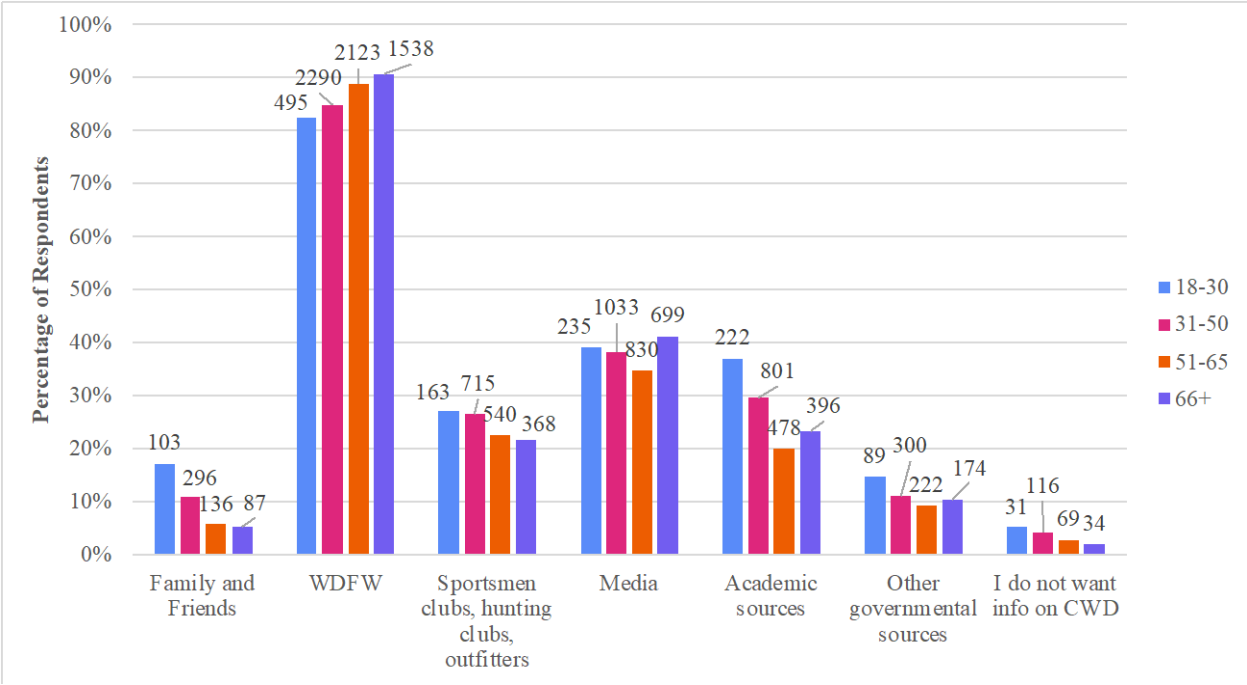


Figure 37. Where respondents want to get their information from by age group. Respondents were able to select all answers that applied. Percentages are shown as the proportion of respondents in each age group who selected each option out of the total number of respondents in each age group. Total number of respondents are shown on the label of each bar. N=7403.

3.5.6 Geography—Information Preference

There was very little difference between respondents from eastern and western Washington in terms of where they want to receive their information about CWD. Eastern residents have a slight preference for media compared with western respondents, but generally there are no notable or statistically significant differences.

- While there were more total respondents in the west, differences between east and west across all categories were very minor, and not statistically significant for most categories ($p>0.05$).
- However it was significant for media ($p<0.05$) with a slightly higher percentage of respondents in the East preferring to receive information from media sources compared to those in the West.

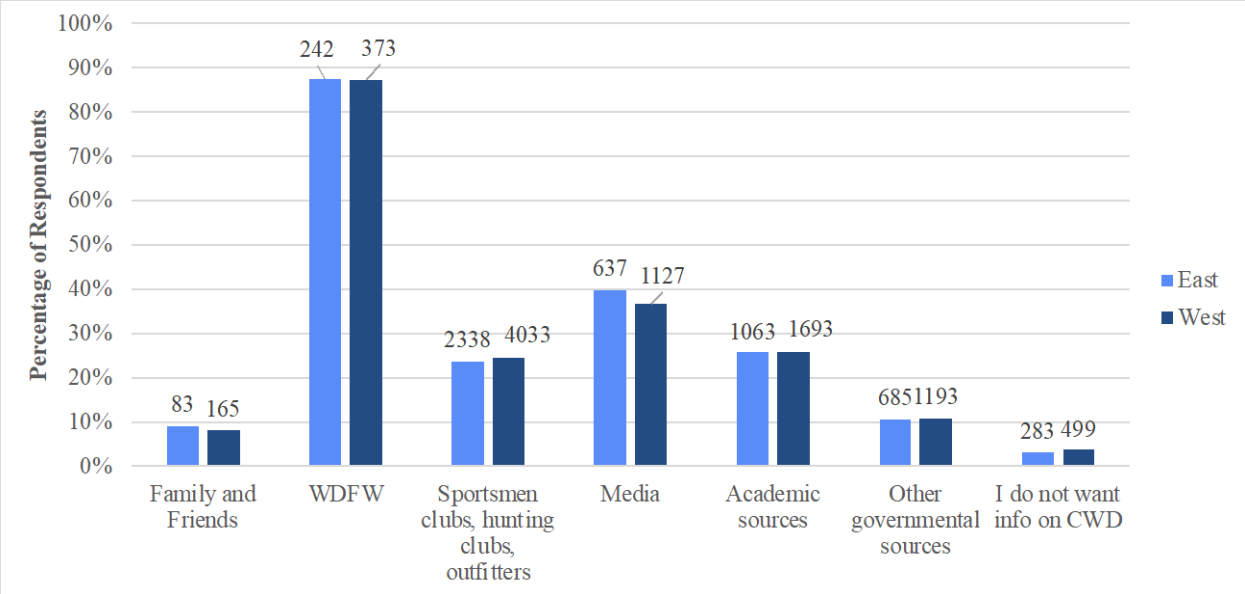
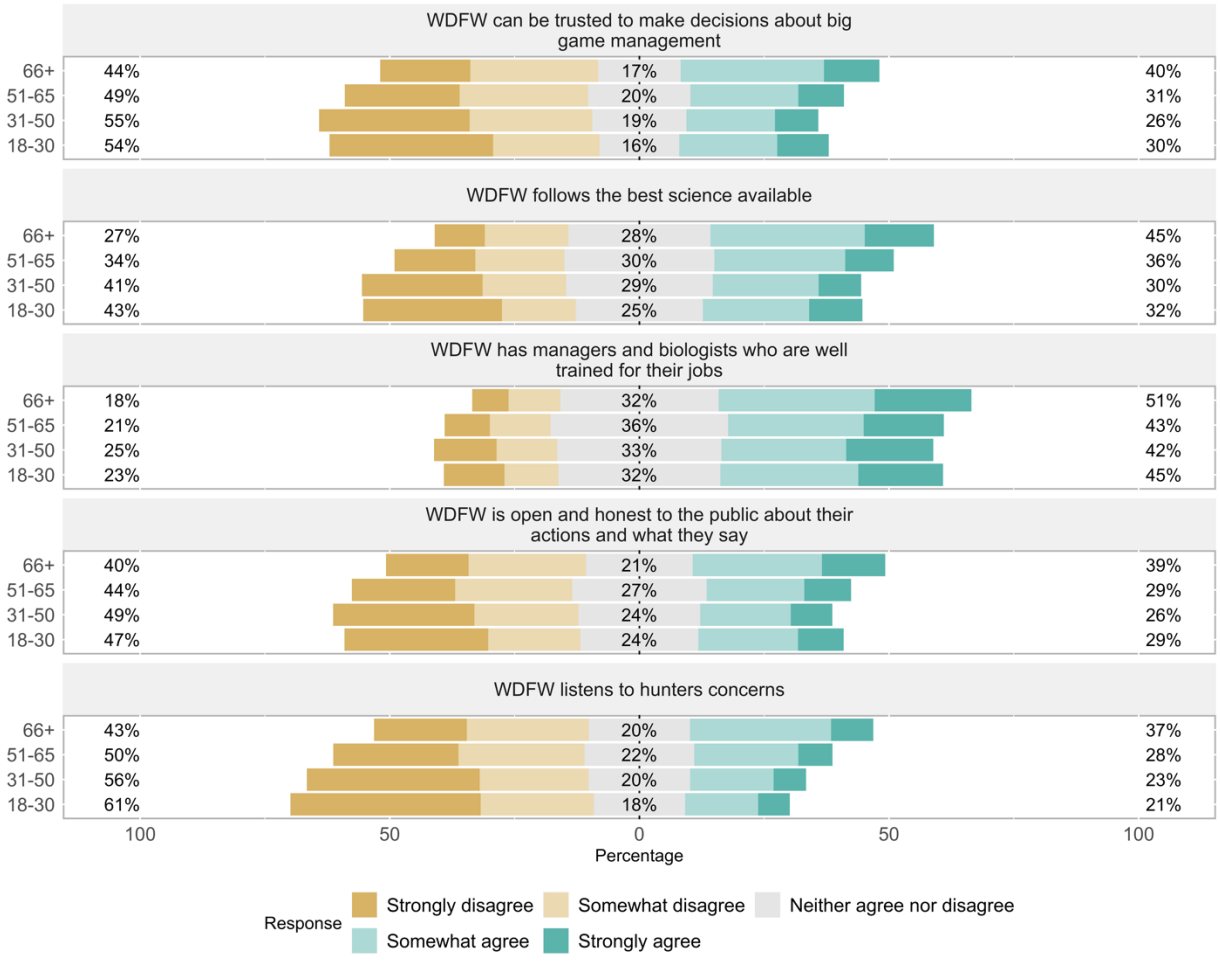


Figure 38. Where respondents want to get their information from by geographical location. Respondents were able to select all answers that applied. Percentages are shown as the proportion of respondents in each geographical location who selected each option out of the total number of respondents in each geographical location. Total number of respondents are shown on the label of each bar. N=7403.

3.5.7 Age—Trust in WDFW

Overall, older respondents were generally more likely to agree with statements indicating trust in WDFW when compared with younger respondents. This was especially true regarding whether or not WDFW listens to hunters' concerns. The difference between younger and older respondents was smaller in regards to actions WDFW has taken about CWD, and a higher proportion of respondents were unsure about those statements.

- For each statement regarding WDFW, the youngest respondents (18-30 year old age group) were more likely to disagree and less likely to agree when compared with older respondents (66+ years old), indicating a lower trust in WDFW. With most statements, the other age groups followed this pattern as well (31-50 year old respondents generally agreed less and disagreed more than the 51-65 and 66+ age groups, but not as much as the 18-30 age group).
- One of the bigger differences was the statement that WDFW listens to hunters' concerns ($p<0.001$). Only 21% of 18-30 year old respondents agreed with this statement while 37% of the 66 and over group of respondents agreed. Conversely, more than half (61%) of 18-30 years old respondents disagreed with the statement, while less than half (43%) of 66+ respondents disagreed.



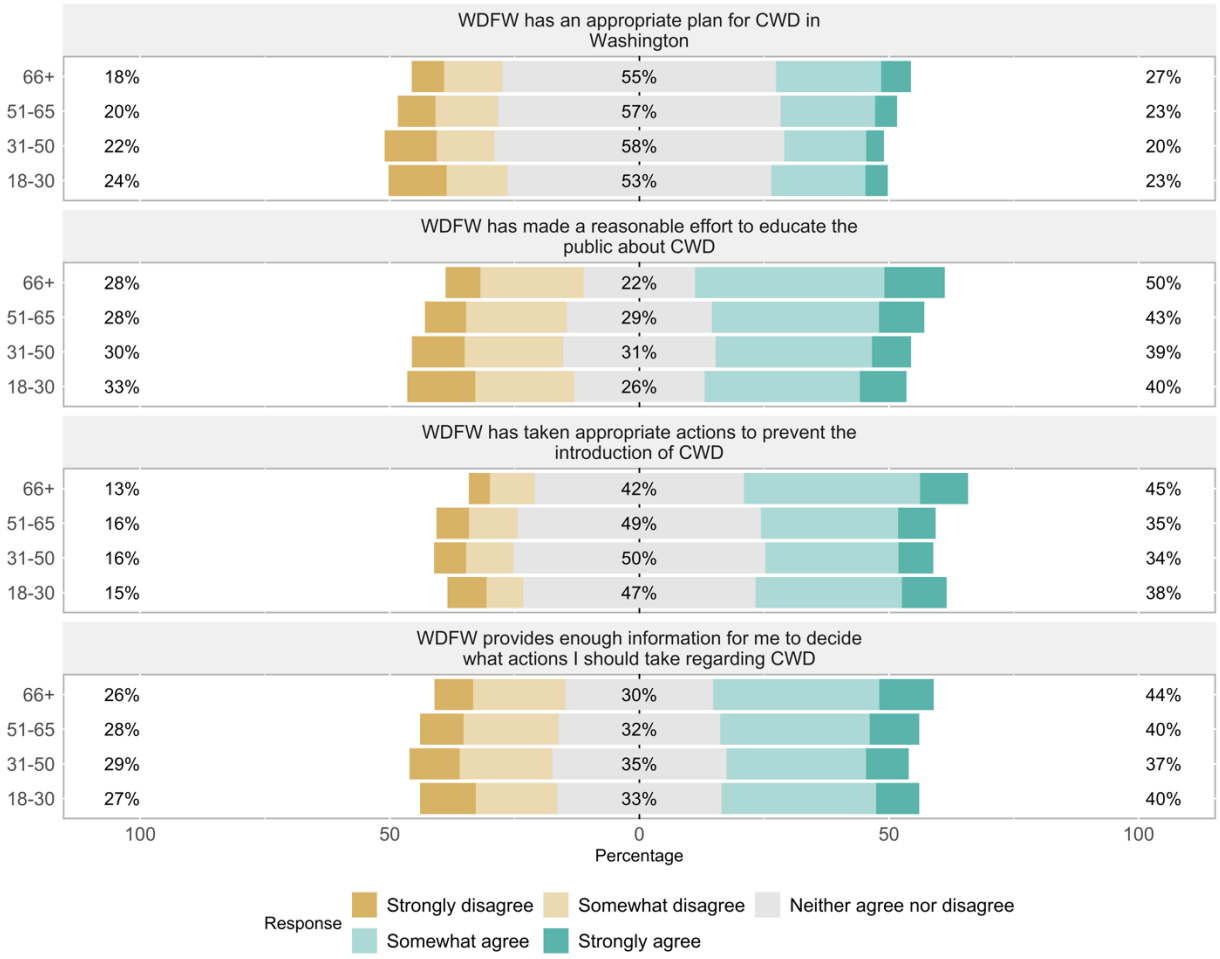


Figure 39. Respondents' trust in WDFW by age groups. Respondents were asked to indicate how much they agreed or disagreed with statements indicating trust in WDFW. N=7403.

Table 7. Respondents' trust in WDFW by age groups

Age range	Strongly disagree (%)	Somewhat disagree (%)	Neither agree nor disagree (%)	Somewhat agree (%)	Strongly agree (%)	Mean[1] (SE)
WDFW can be trusted to make decisions about big game management						
18-30	33	21	16	20	10	2.13 (0.09)
31-50	30	25	19	18	9	2.50 (0.05)
51-65	23	26	20	22	9	2.68 (0.05)
66+	18	26	17	29	11	2.89 (0.07)
WDFW follows the best science available						
18-30	28	15	25	21	11	2.30 (0.09)
31-50	24	17	29	21	9	2.73 (0.05)
51-65	16	18	30	26	10	2.95 (0.06)
66+	10	17	28	31	14	3.22 (0.08)
WDFW has managers and biologists who are well trained for their jobs						
18-30	12	11	32	28	17	2.59 (0.11)
31-50	13	12	33	25	17	3.23 (0.06)
51-65	9	12	36	27	16	3.29 (0.07)
66+	7	10	32	31	9	3.45 (0.08)
WDFW is open and honest to the public about their actions and what they say						
18-30	29	18	24	20	9	2.26 (0.09)
31-50	28	21	24	18	8	2.57 (0.05)
51-65	21	23	27	20	9	2.73 (0.06)
66+	17	24	21	26	13	2.95 (0.07)
WDFW listens to hunters' concerns						
18-30	38	23	18	15	6	2.28 (0.09)

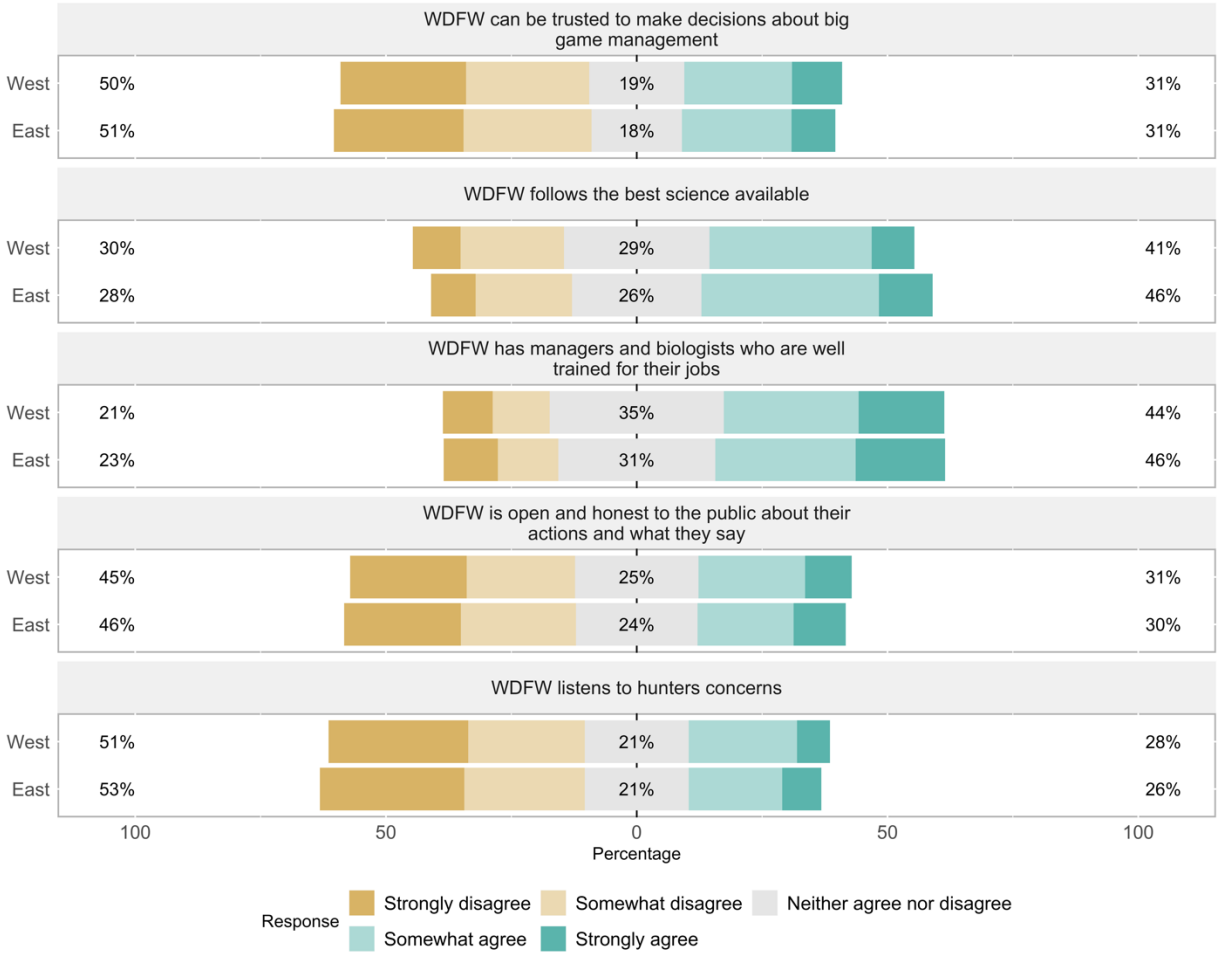
31-50	35	22	20	17	6	2.39 (0.05)
51-65	25	25	22	21	7	2.59 (0.05)
66+	19	24	20	28	8	2.83 (0.07)
WDFW has an appropriate plan for CWD in Washington						
18-30	12	12	53	19	4	2.75 (0.11)
31-50	10	12	58	16	4	2.91 (0.06)
51-65	8	13	57	19	4	3.00 (0.06)
66+	6	12	55	21	6	3.08 (0.07)
WDFW has made a reasonable effort to educate the public about CWD						
18-30	14	20	26	31	9	2.66 (0.11)
31-50	11	20	31	31	8	3.06 (0.06)
51-65	8	20	29	34	9	3.15 (0.06)
66+	7	21	22	38	12	3.27 (0.08)
WDFW has taken appropriate actions to prevent the introduction of CWD						
18-30	8	7	47	29	9	2.89 (0.12)
31-50	6	9	50	27	7	3.18 (0.06)
51-65	7	10	49	27	7	3.20 (0.07)
66+	4	9	42	35	10	3.37 (0.08)
WDFW provides enough information for me to decide what actions I should take regarding CWD						
18-30	11	16	33	31	9	2.76 (0.11)
31-50	10	19	35	28	9	3.06 (0.06)
51-65	9	19	32	30	10	3.13 (0.06)
66+	8	19	30	33	11	3.21 (0.08)

[1]Mean based on scale: 1=Strongly disagree; 2=Somewhat disagree; 3=Neither agree nor disagree; 4=Somewhat agree; 5=Strongly agree

3.5.8 Geography—Trust in WDFW

There were not significant differences between eastern and western respondents in terms of their general trust in WDFW. There were some slight differences in terms of responses to WDFW's actions regarding CWD, with eastern respondents professing slightly more support for the agency than western respondents.

- For the five statements about general WDFW actions that can indicate trust or lack of trust in WDFW, there were no significant differences between East and West respondents ($p>0.05$). However, Eastern respondents were more likely to agree that WDFW follows the best science available compared with Western respondents (46% vs. 41%).
- For the statements about WDFW actions regarding CWD, Eastern respondents were slightly more likely to agree with the statements than Western respondents. Eastern respondents were more likely to believe that WDFW has made a reasonable effort to educate the public about CWD (40% vs. 35% agreement). Included also were the responses that WDFW has taken appropriate actions to prevent the introduction of CWD (25% vs. 22%), that WDFW has an appropriate plan for CWD in Washington (36% vs. 35%), and that WDFW provides enough information for respondents to decide what actions they should take regarding CWD (42% vs. 38%).



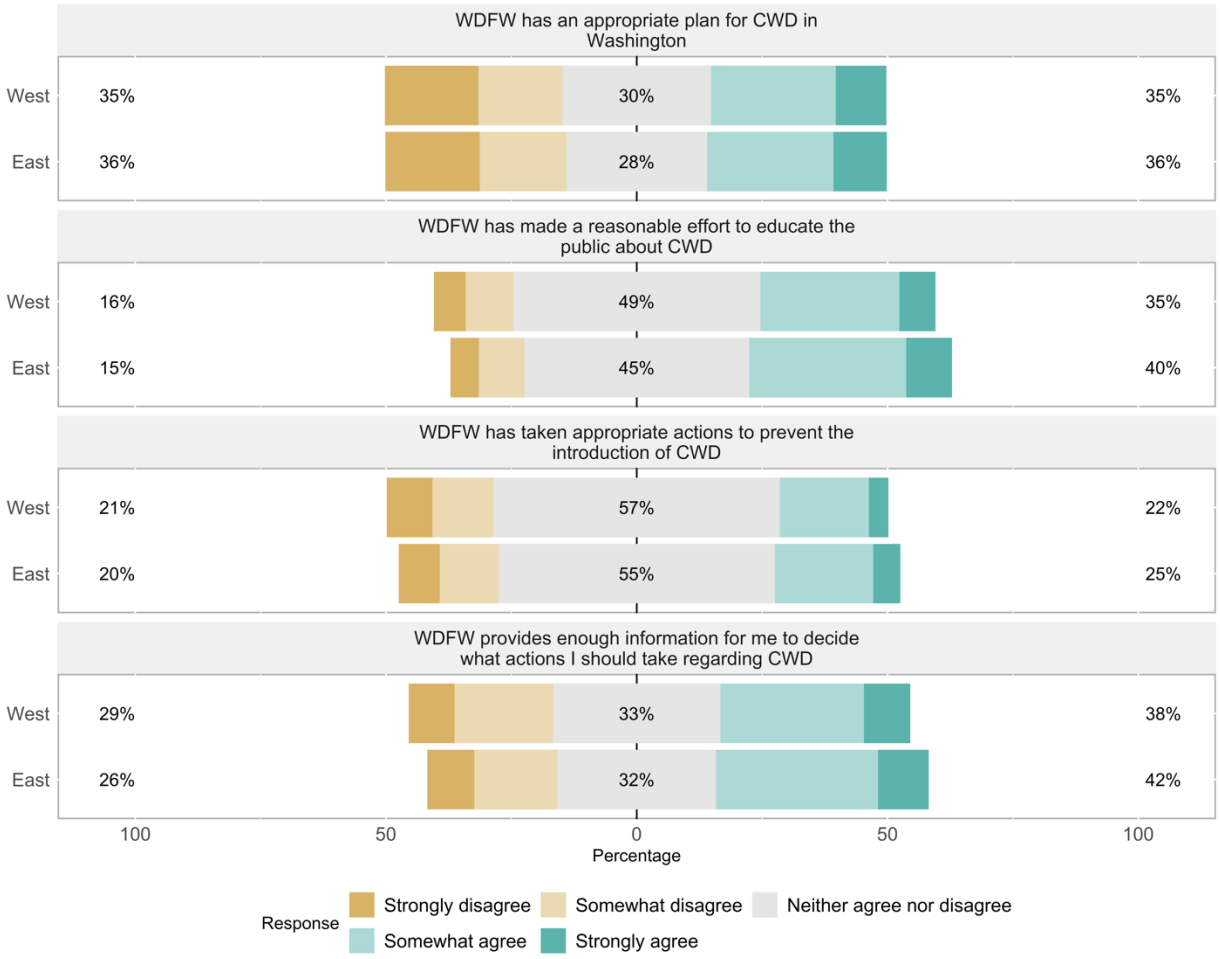


Figure 40. Respondents' trust in WDFW by geographical range. Respondents were asked to indicate how much they agreed or disagreed with statements indicating trust in WDFW. N=7403.

Table 8. Respondents' trust in WDFW by geographical range

Age range	Strongly disagree (%)	Somewhat disagree (%)	Neither agree nor disagree (%)	Somewhat agree (%)	Strongly agree (%)	Mean[1] (SE)
WDFW can be trusted to make decisions about big game management						
West	25	25	19	21	10	2.67 (0.04)
East	26	25	18	22	9	2.62 (0.05)
WDFW follows the best science available						
West	9	21	29	32	8	3.10 (0.05)
East	9	19	26	35	11	3.20 (0.06)
WDFW has managers and biologists who are well trained for their jobs						
West	10	11	35	27	17	3.30 (0.05)
East	11	12	31	28	18	3.30 (0.06)
WDFW is open and honest to the public about their actions and what they say						
West	23	22	25	21	9	2.72 (0.04)
East	23	23	24	19	10	2.70 (0.05)
WDFW listens to hunters' concerns						
West	28	23	21	22	7	2.56 (0.04)
East	29	24	21	19	8	2.53 (0.05)
WDFW has an appropriate plan for CWD in Washington						
West	19	17	30	25	10	2.91 (0.04)
East	19	17	28	25	11	2.92 (0.06)
WDFW has made a reasonable effort to educate the public about CWD						
West	6	9	49	28	7	3.20 (0.05)
East	6	9	45	31	9	3.29 (0.06)
WDFW has taken appropriate actions to prevent the introduction of CWD						
West	9	12	57	18	4	2.95 (0.04)
East	8	12	55	20	5	3.02 (0.06)

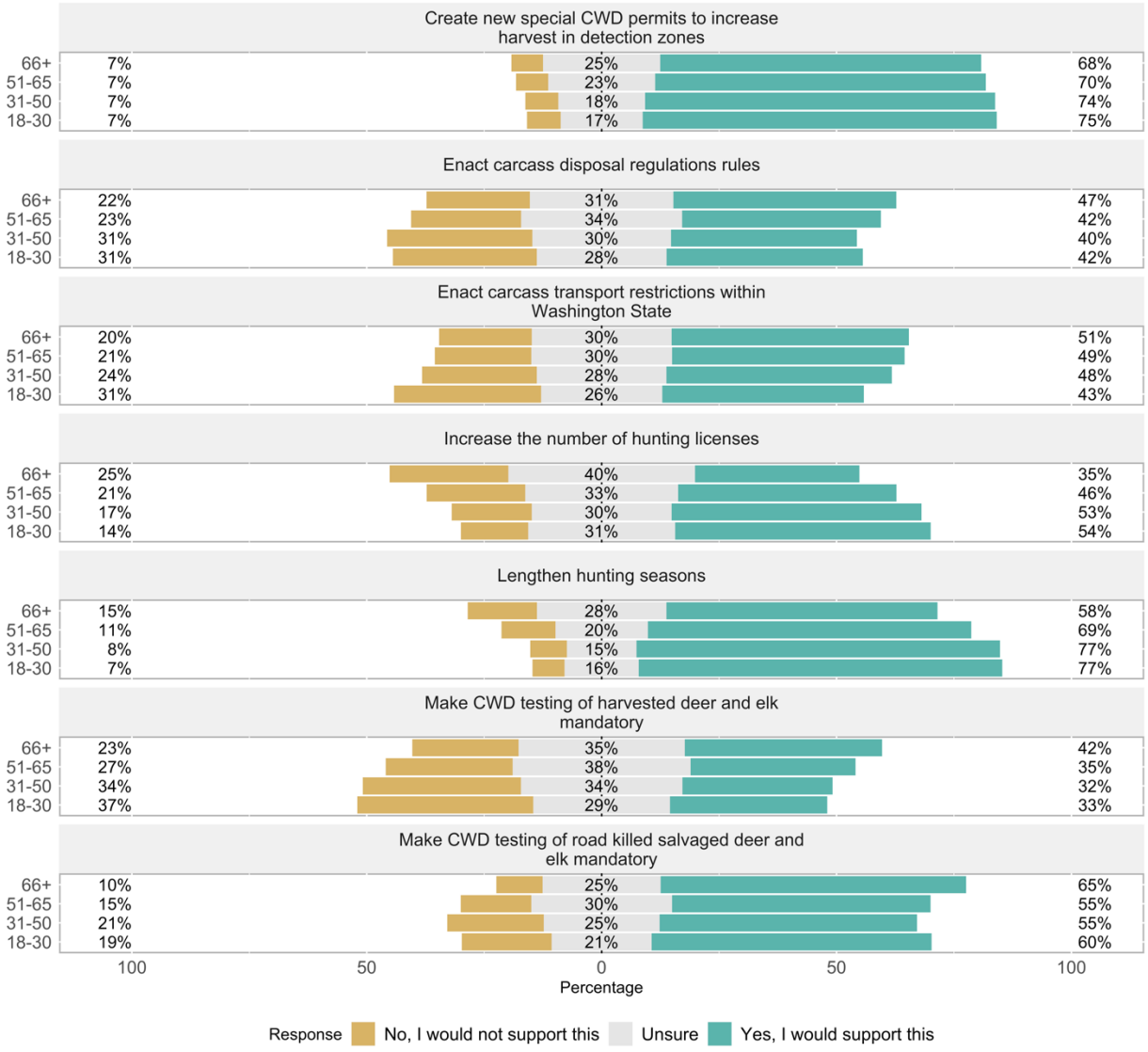
WDFW provides enough information for me to decide what actions I should take regarding CWD						
West	9	20	33	29	9	3.09 (0.05)
East	9	17	32	32	10	3.17 (0.06)

[1]Mean based on scale: 1=Strongly disagree; 2=Somewhat disagree; 3=Neither agree nor disagree; 4=Somewhat agree; 5=Strongly agree

3.5.9 Age—Management

In general, younger respondents were more supportive of management strategies that would increase hunting opportunities when compared to older respondents. Older respondents were generally more supportive of, and less opposed to management strategies that would increase restrictions when compared with younger respondents.

- While overall, most hunters supported lengthening hunting seasons, younger respondents were more likely to support it ($p<0.001$), with 77% of both the 18-30 and 31-50 age groups supporting the management strategy compared to the 51-65 year old respondents (69% supportive) and the 66+ year old respondents (58% supportive)
- Overall 18–30 year old respondents and 31-50 year old respondents were significantly more supportive of hunter targeted deer/elk removal (72% and 73% respectively) compared to 66+ year old respondents (64% supportive), however there was little difference in percentages that did not support it (8-10% unsupportive). Employing WDFW sharpshooters for removal was not supported more equally across age groups.
- Similarly, younger respondents were more in favor ($p<0.001$) of increasing hunting licenses (18-30 years old: 54% in favor, 14% against) compared with older respondents (66+ years old: 35% in favor 25% against)
- While slightly more older respondents were in favor of banning baiting ($p<0.001$), feeding ($p<0.001$), and urine-scent lures ($p<0.001$), compared to younger respondents, more younger respondents would oppose those practices comparably:
    - Banning baiting was supported by 42% in the 66+ category but only 25% in both the 18-30 and 31-50 age groups. This practice was not supported by 31% in the 66+ group and 52% in the two lower aged groups. Those indicating "not sure" ranged from 22% to 26%.
    - Banning feeding was less popular than banning baiting in the 66+ group (29% for, 34% against). But younger respondents were more opposed (18-30: 49% opposed, 31-50: 48% opposed)
    - There was lower support for banning urine-scent lures, but there were more opposed from the younger groups (18-30 years old: 53% opposed, 31-50 years old: 51% opposed) compared with the 66+ years old group (32% opposed).
- Older respondents were generally slightly more likely to support restrictions when compared with younger respondents, though usually less than a majority was in support of restrictions even in the older age groups.
    - 50.5% of 66+ year old respondents would support carcass transport restrictions compared with 43% of 18-30 year old respondents ($p<0.001$).
    - 47% of 66+ years old would support carcass disposal regulations compared with 42% of 18-30 year old respondents ($p<0.001$).
    - 42% of 66+ year old would support making CWD testing of harvested deer and elk mandatory compared with 33% of 18-30 year old respondents ($p<0.001$).
- Contrary to most results which generally decreased across age groups, the oldest and youngest respondent groups were more supportive of making CWD testing of road-killed salvaged deer and elk mandatory (66+ years old: 65%, 18-30 years old: 60% supportive) compared with 51-65 and 31-50 year old respondents (both 55% supportive).


Create new special CWD permits to increase harvest in detection zones
66+ 7% 25% 68%
51-65 7% 23% 70%
31-50 7% 18% 74%
18-30 7% 17% 75%
Enact carcass disposal regulations rules
66+ 22% 31% 47%
51-65 23% 34% 42%
31-50 31% 30% 40%
18-30 31% 28% 42%
Enact carcass transport restrictions within Washington State
66+ 20% 30% 51%
51-65 21% 30% 49%
31-50 24% 28% 48%
18-30 31% 26% 43%
Increase the number of hunting licenses
66+ 25% 40% 35%
51-65 21% 33% 46%
31-50 17% 30% 53%
18-30 14% 31% 54%
Lengthen hunting seasons
66+ 15% 28% 58%
51-65 11% 20% 69%
31-50 8% 15% 77%
18-30 7% 16% 77%
Make CWD testing of harvested deer and elk mandatory
66+ 23% 35% 42%
51-65 27% 38% 35%
31-50 34% 34% 32%
18-30 37% 29% 33%
Make CWD testing of road killed salvaged deer and elk mandatory
66+ 10% 25% 65%
51-65 15% 30% 55%
31-50 21% 25% 55%
18-30 19% 21% 60%
100
50
0
50
100
Percentage
Response
No, I would not support this
Unsure
Yes, I would support this

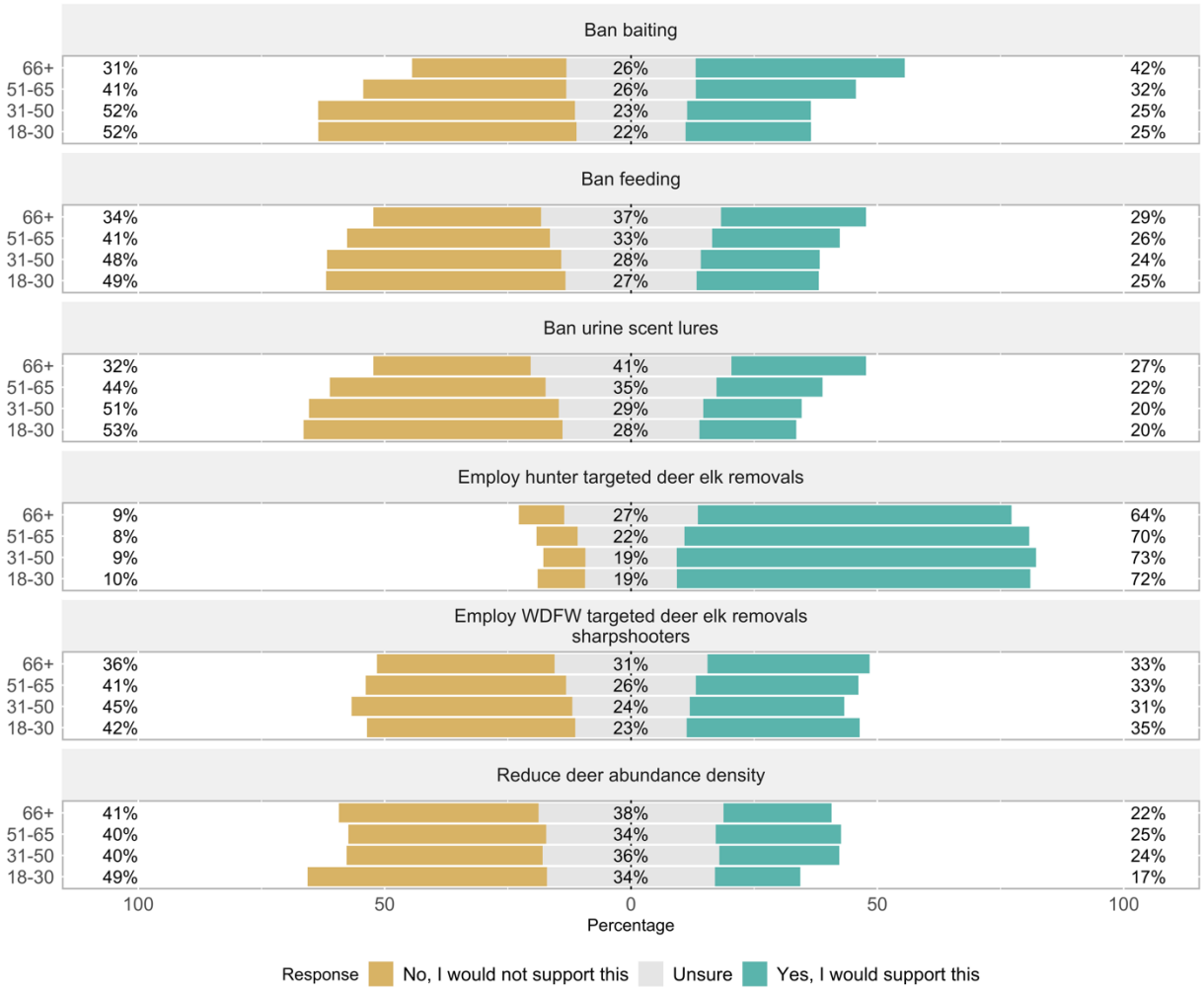


Figure 41. Respondents' preferences for management by age group. Respondents were asked to indicate whether they would support or not support various management strategies. N=7403.

Table 9. Respondents' preference for management by age groups

Possible management strategy	No, I would not support this (%)	Unsure (%)	Yes, I would support this (%)	Mean[1] (SE)
Create new special CWD permits to increase harvest in detection zones				
18-30	7	17	75	2.68 (0.11)
31-50	7	18	74	2.67 (0.05
51-65	7	23	70	2.64 (0.05)
66+	7	25	68	2.62 (0.06)
Enact carcass disposal regulations				
18-30	31	28	42	2.11 (0.09)
31-50	31	30	40	2.09 (0.04)
51-65	23	34	42	2.19 (0.04)
66+	22	31	47	2.25 (0.05)
Enact carcass transport restrictions within Washington State				
18-30	31	26	43	2.12 (0.09)
31-50	24	28	48	2.24 (0.04)
51-65	21	30	48	2.29 (0.05)
66+	20	30	51	2.31 (0.06)
Increase the number of hunting licenses				
18-30	14	31	54	2.40 (0.10)
31-50	17	30	53	2.36 (0.05)
51-65	21	33	46	2.26 (0.05)
66+	25	40	35	2.10 (0.05)
Lengthen hunting seasons				
18-30	7	16	77	2.71 (0.11)

31-50	8	15	77	2.70 (0.05)
51-65	11	20	69	2.57 (0.05)
66+	15	28	58	2.43 (0.06)
Make CWD testing of harvested deer and elk mandatory				
18-30	37	29	33	1.96 (0.08)
31-50	34	34	32	1.98 (0.04)
51-65	27	38	35	2.08 (0.04)
66+	23	35	42	2.19 (0.05)
Make CWD testing of road killed salvaged deer and elk mandatory				
18-30	19	21	60	2.40 (0.10)
31-50	21	25	55	2.34 (0.05)
51-65	15	30	55	2.40 (0.05)
66+	10	25	65	2.55 (0.06)
Ban baiting				
18-30	52	22	25	1.73 (0.07)
31-50	52	23	25	1.73 (0.03)
51-65	41	26	32	1.91 (0.04)
66+	31	26	42	2.11 (0.05)
Ban feeding				
18-30	49	27	25	1.76 (0.07)
31-50	48	28	24	1.77 (0.03)
51-65	41	33	26	1.85 (0.04)
66+	34	37	29	1.95 (0.05)
Ban urine scent lures				
18-30	53	28	20	1.67 (0.07)

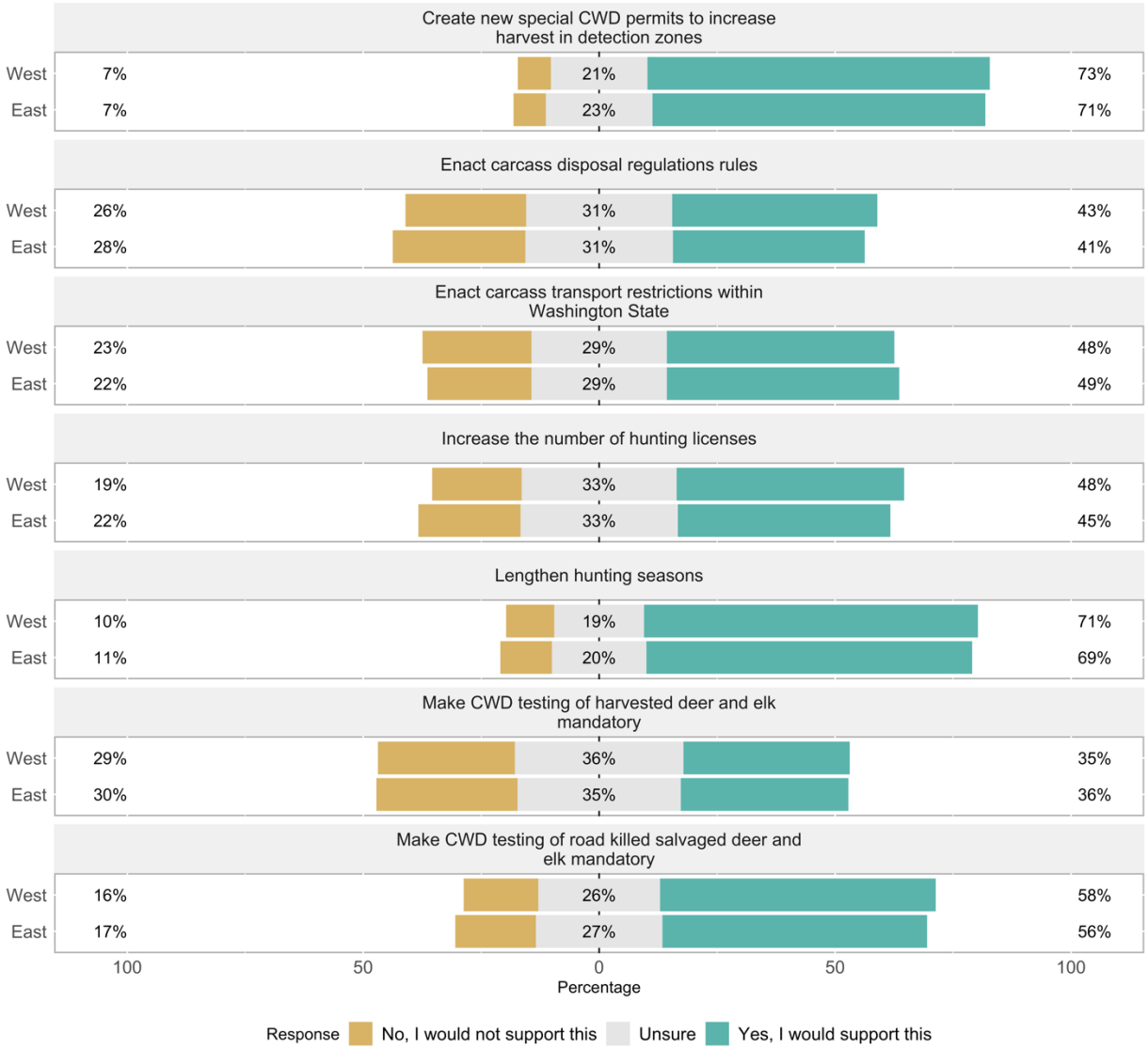
31-50	51	29	20	1.69 (0.03)
51-65	44	35	22	1.78 (0.04)
66+	32	41	27	1.95 (0.05)
Employ hunter targeted deer, elk removals				
18-30	10	19	72	2.62 (0.11)
31-50	9	19	73	2.64 (0.05)
51-65	8	22	70	2.62 (0.05)
66+	9	27	64	2.54 (0.06)
Employ WDFW targeted deer, elk removals (sharpshooters)				
18-30	42	23	35	1.93 (0.08)
31-50	45	24	31	1.87 (0.04)
51-65	41	26	33	1.92 (0.04)
66+	36	31	33	1.97 (0.05)
Reduce deer abundance density				
18-30	49	34	17	1.69 (0.07)
31-50	40	36	24	1.85 (0.04)
51-65	40	34	25	1.85 (0.04)
66+	41	38	22	1.81 (0.04)

[1]Mean based on scale: 1=No, I would not support this; 2= Unsure; 3=Yes, I would support this

3.5.10 Geography—Management

There were few differences between Eastern and Western respondents in terms of support for management activities. However, Western respondents were slightly more likely to support certain management strategies including enacting carcass disposal regulations/rules, employing WDFW targeted deer/elk removals (sharpshooters), and employing hunter targeted deer/elk removals.

- Overall, there were very few differences in responses between respondents who live in Eastern Washington and those who live in Western Washington.
- Western respondents were more likely ($p=0.006$) to support enacting carcass disposal regulations/rules (43% west vs. 41% east), significantly more likely to support ($p<0.001$) employing WDFW targeted deer/elk removals (sharpshooters) (34% west vs. 29% east), and while not significantly more likely ($p=0.06$), trended towards supporting employing hunter targeted deer/elk removals (71% west vs. 68% east).



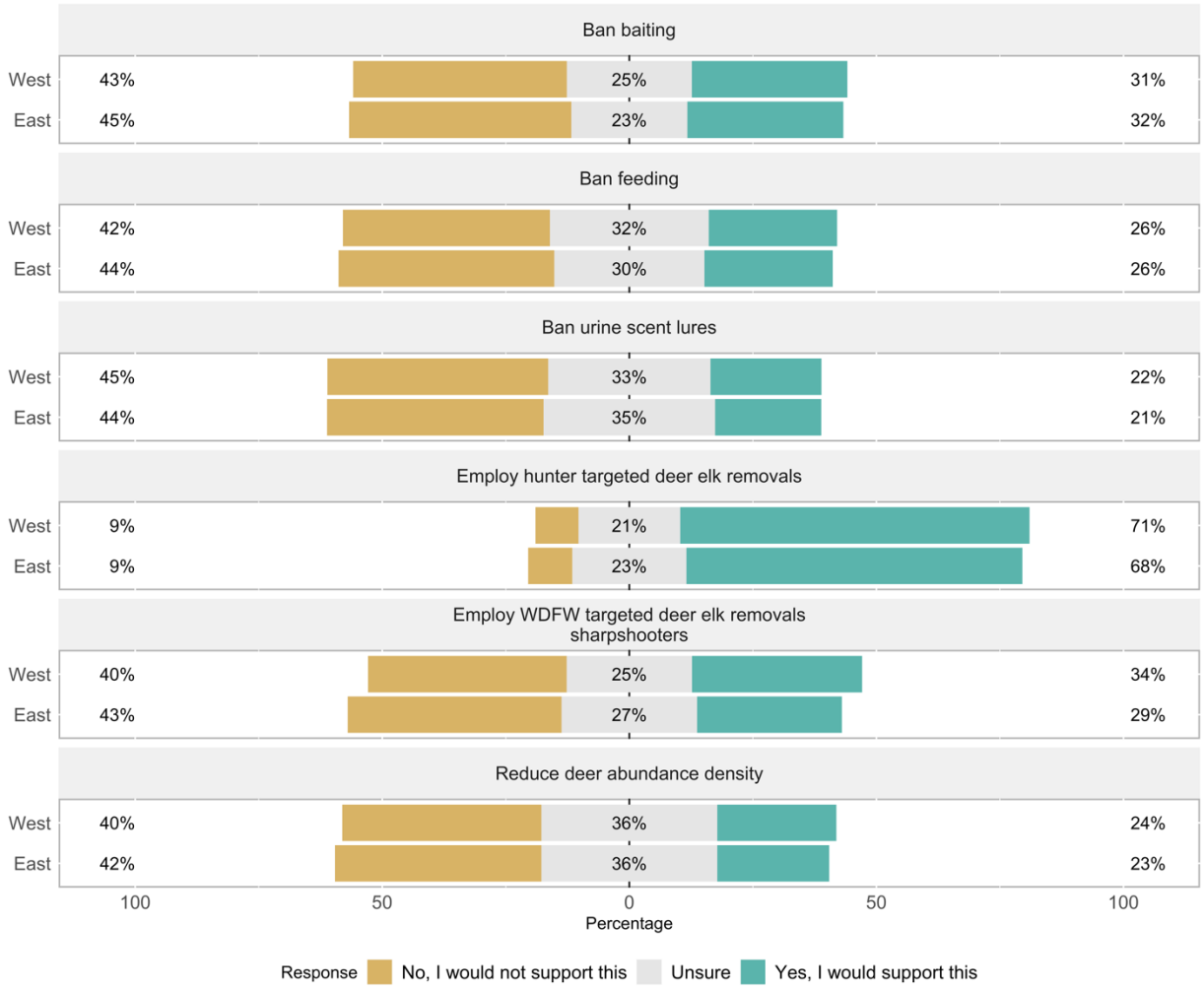


Figure 42. Respondents' preferences for management by geographical range. Respondents were asked to indicate whether they would support or not support various management strategies. N=7403.

Table 10. Respondents' preference for management by geographical range

Possible management strategy	No, I would not support this (%)	Unsure (%)	Yes, I would support this (%)	Mean (SE)
Create new special CWD permits to increase harvest in detection zones				
West	7	21	73	2.66 (0.04)
East	7	23	71	2.64 (0.05)
Enact carcass disposal regulations				
West	26	31	43	2.18 (0.03)
East	28	31	41	2.13 (0.04)
Enact carcass transport restrictions within Washington State				
West	23	29	48	2.25 (0.03)
East	22	29	49	2.27 (0.04)
Increase the number of hunting licenses				
West	19	33	48	2.29 (0.03)
East	22	33	45	2.23 (0.04)
Lengthen hunting seasons				
West	10	19	71	2.61 (0.05)
East	11	20	69	2.58 (0.05)
Make CWD testing of harvested deer and elk mandatory				
West	29	36	35	2.06 (0.03)
East	30	35	36	2.06 (0.04)
Make CWD testing of road killed salvaged deer and elk mandatory				
West	16	26	58	2.43 (0.04)
East	17	27	56	2.39 (0.05)
Ban baiting				
West	43	25	31	1.88 (0.03)
East	45	23	32	1.87 (0.04)

Ban feeding				
West	42	32	26	1.84 (0.03)
East	44	30	26	1.82 (0.03)
Ban urine scent lures				
West	45	33	22	1.78 (0.03)
East	44	35	21	1.78 (0.03)
Employ hunter targeted deer/elk removals				
West	9	21	71	2.62 (0.04)
East	9	23	68	2.59 (0.05)
Employ WDFW targeted deer/elk removals (sharpshooters)				
West	40	25	34	1.94 (0.03)
East	43	27	29	1.86 (0.04)
Reduce deer abundance density				
West	40	36	24	1.84 (0.03)
East	42	36	23	1.81 (0.03)

[1]Mean based on scale: 1=No, I would not support this; 2= Unsure; 3=Yes, I would support this

4. Major findings

4.1 Knowledge

Awareness and knowledge

In general, we found most respondents were aware of the existence of CWD and have been aware for at least over a year with almost half of respondents aware of CWD for over 7 years. Respondents generally reported that they were somewhat to very concerned about CWD, with very few respondents expressing no concern at all. Overall trends in knowledge and awareness suggest that, in Washington, poor knowledge of CWD is likely not a major issue among big game hunters, meaning that CWD education across the board may not be a priority management action. However, there are some topics in which knowledge was low, which we discuss below.

Respondents generally self-reported that they considered themselves somewhat knowledgeable about CWD (75% reported they were somewhat knowledgeable, 8% considered themselves very knowledgeable and 17% reported they were not at all knowledgeable). The survey questions about specific facets of CWD in large part corroborated this high self-reported knowledge. For example, respondents overwhelmingly were confident that CWD was a disease in deer, elk, and moose, and that it was fatal to all infected animals. As another example, the vast majority of respondents were aware that CWD cannot be transmitted to people. Finally, respondents overwhelmingly knew that contagion occurs more frequently when larger groups of deer and elk congregate, and thus such activity predisposes to the increased spread of CWD. It was also understood that the infectious prion can persist in the environment for several years. This general knowledge is important for management activities and the extent of this understanding may contribute to the acceptance of some management strategies.

However, there were some aspects of CWD about which survey respondents had incomplete or poor knowledge. The biological characteristics of the disease are one important example. Although about two thirds of respondents (68%) answered correctly that CWD is a disease related to mad cow disease caused by an infectious protein, there was an equal number of respondents (68%) who answered that CWD was caused by bacteria. This distinction is important for management strategies and for distinguishing between an invariably fatal disease and a potentially treatable one. Further education on the disease characteristics could be part of a broad strategy to emphasize the importance and difficulty of disease management. Additionally, clarifying for the public that it is incurable appears to be an important message to communicate.

Another area where knowledge was imperfect was the ability of respondents to identify disease signs. A majority of respondents (94%) correctly answered the question indicating that a deer infected with CWD can look healthy for many months. However, in verbal and written comments, many individuals frequently indicated they were not worried because they had never seen a sick deer, suggesting that many respondents connect risk perceptions only with visible signs. Others noted that they did not know and wanted to be informed as to what CWD looked like, so they could help identify infected animals in the wild. While it is important to know that a CWD-infected animal may have visible signs (e.g., emaciation, lack of coordination, excessive salivation, lack of fear of people), it is equally important for individuals to know that simply because they do not see any of these signs it does not mean that the animal is healthy. Further public education on the progression of the disease and its clinical signs may help improve the ability of the public to report CWD, as well as to improve awareness of the disease's potential invisible presence in the state's cervid populations.

Respondents also had incomplete knowledge about disease transmission across species. A majority of respondents (57%) indicated that CWD may be transmitted from wild animals to cattle. However, at present there is no evidence for transmission from cervids to bovids. Survey comments and interview discussions suggest that fears around transmission to cattle are important to some members of Washington's public. As a result, clearer communication about the potential for transmission to cattle may be warranted to educate the public and alleviate some concerns.

Where people get information

Washington's hunters overwhelmingly turn to WDFW for information on wildlife management in general. WDFW is currently the main source of information about wildlife management for survey respondents (74% of respondents report getting wildlife management information from WDFW). WDFW is thus well positioned to disseminate outreach and educational messages to the public about the disease that will reach a wide audience.

The most commonly referenced WDFW sources of information were the hunting regulations (77%) and the website (74%), followed by news releases (63%). Public meetings were not a frequently used source of information on wildlife management (10%). This echoed qualitative responses, as generally respondents expressed a preference for information they could access online or in their own homes as opposed to in person. Specifically, the qualitative responses indicated that many respondents preferred direct and more personalized communication (e.g., emails and mailed flyers). These findings suggest that the hunting regulations are an essential, widely accessed information source on CWD that can be the focus of public information sharing. While public meetings may be critical to reach certain groups in the state, the survey results suggest that parallel to broader trends on information consumption, reaching the state's hunters with CWD information will be most effective through online and remote venues.

After WDFW, the second most popular source of information on CWD was media. Respondents further indicated their most preferred sources of media were social media (44%) or magazines/books (42%). Similar to preferences for the WDFW website and news releases over public meetings, respondents preferred sportsman's blogs and websites (70%) over outdoor and recreational expos (36%) and outfitters (20%). While these sources of media may be important, they are likely less accessible to agency efforts toward outreach and education. Given the overwhelming reliance on WDFW for information, the most effective and efficient platforms for reaching the public are likely internal to the agency, rather than external media outlets.

A few other sources of information were commonly mentioned in the qualitative responses to some of the "other" categories. Respondents often mentioned fish and wildlife agencies in other states as current or preferred sources of information, most notable Montana Fish, Wildlife, and Parks (32% of those who selected they get their information from "other" sources), Idaho Fish and Game (14%), and Wyoming Department of Game and Fish (12%). Based on these write-in responses, WDFW may consider working with these agencies to disseminate Washington-specific CWD information. Some commonly cited "other" current sources of information were the Rocky Mountain Elk Foundation and MeatEater (as a TV show, YouTube channel, and Podcast).

Younger respondents were slightly more likely to prefer academic sources and family and friends as sources of information compared to older respondents (18-30 years old: 28%, 31-50 years old: 22%, 51-65 years old: 13%, 66+ years old: 14%). While all respondents primarily

received information regarding wildlife management from WDFW, older respondents were slightly more likely to do so when compared with younger age groups (18-30 years old: 70%, 66+ years old: 76%). Older respondents were also more likely to prefer newspapers as a source of information (18-30 years old: 7%, 66+ years old: 20%). While respondents reported using many different newspapers, the most commonly cited were the Spokane Spokesman Review and the Seattle Times. These small differences in preferences by age group do not suggest that drastic action is needed, but point to a trend seen across many of the survey results, suggesting that greater engagement with younger hunters may be an effective strategy to increase awareness of CWD and its management. One way to engage and educate younger and new hunters is to incorporate CWD information into the hunter education program.

Where people want to get information

Overwhelmingly, most people (87%) wanted to get information on CWD from WDFW. Preferences for other sources of information among respondents were much lower, including information via media (38%), academic sources (26%), and sportsmen clubs, hunting clubs, and outfitters (24%). Indeed, more respondents indicated they preferred information on CWD from WDFW than reported getting general wildlife management information from WDFW. As a result, WDFW is well positioned to communicate information to the public about CWD, and there may even be an appetite for more information from the agency than is currently being supplied.

While these numbers are encouraging for CWD management efforts, it should be noted that a number of the qualitative comments professed not trusting WDFW to give them information, but when asked about specific sources, most respondents indicated they wanted CWD information from WDFW. We discuss this tension in more detail below under section 4.3 Trust.

Though all respondents preferred receiving CWD information from WDFW, older respondents were more likely to prefer WDFW compared with younger respondents (76% vs. 70%). Younger respondents slightly preferred receiving information on CWD from sportsmen clubs, hunting clubs, and outfitters as well as from academic sources compared with older respondents. The preference for academic sources was echoed in the qualitative responses, as a number of respondents indicated they would prefer information from unbiased academic sources.

The responses in the "other" categories revealed additional information. A number of respondents indicated they wanted to receive emails about CWD. Others also wanted pamphlets or flyers to be sent out via mail to all registered hunters "Is there a pamphlet that can be sent by mail to people who want to have the information, if so that would be great, some places when hunting has no internet [so] it would be a good backup source while in the woods?" or at the location they purchase their license "I believe if hunters are notified of the sampling station locations at the time they purchase their license they would tend to be more proactive about the process. Notification can be accomplished by attaching a special colored flyer to the license at the time of purchase." Echoing findings in section 3.1.7 "Preferred sources of information," for most respondents, direct, individualized communication is the most desired mode of receiving information. Furthermore, a number of respondents indicated they would prefer if information came from a number of different sources (e.g., academic, WDFW, media) so that they could verify it, instead of just being forced to trust one source.

As shown in section 3.2, issues of trust are thus closely connected with issues of knowledge and information. While WDFW is surprisingly well positioned as a source of

information on CWD, this position is in tension with low trust in the agency among respondents, and a desire to have information corroborated by other sources. While the agency might thus focus on communicating information through its existing platforms, partnering with other media outlets to share information from more than one venue may help increase knowledge of CWD and trust in WDFW.

4.2 Practice/Management

Overview of findings on management practices

In our survey, we presented respondents with a range of common CWD management actions and asked them to indicate whether they would support the management action, not support it, or were unsure. This provided information on a variety of possible management actions, including insight into broad trends and specific actions. In this section, we discuss these results in detail, highlighting particularly important and divisive management practices in their own section. Here, we present some broader trends that emerged from the responses.

Respondents were generally most supportive of management activities that increase hunting opportunities such as lengthening hunting seasons and creating special CWD permits to increase harvest in detection zones. In addition, respondents were more supportive of hunter-led strategies, such as employing hunters for targeted deer and elk removals, and less supportive of WDFW-led interventions such as employing WDFW (sharpshooters) for targeted deer and elk removals. Respondents were not as supportive of management strategies that increase restrictions such as bans on baiting, feeding, and urine scent lures. Many of these practices were divisive among respondents, and thus implementing any practices is likely to face public opposition, though the specific source of opposition varies by topic. Seeking management strategies that engage hunters as leaders and expand hunting opportunity appear best positioned to garner public support.

Compared to bans, respondents expressed slightly greater support for a few other common CWD management actions, including mandating testing and carcass transport restrictions. When asked about mandating testing, respondents were more supportive of mandating road-killed salvaged deer (58% supportive, 16% unsupportive) than they were of mandating the testing of harvested deer and elk (35% supportive, 29% unsupportive). However, slightly more were supportive of making harvested testing mandatory than there were opposed to it, and there was a large proportion of “unsure” respondents.

Transport restrictions (49% supportive, 23% unsupportive), were slightly more supported than carcass disposal regulations (42% supportive, 27% unsupportive), and both had more respondents supporting those restrictions as opposed to not supporting, however neither had a majority of respondents supporting them.

For most potential management activities, there was a high level of uncertainty regarding the level of respondent support. The lowest levels of uncertainty involved the management actions that increased hunting opportunities. When asked about lengthening hunting seasons, only (19%) of respondents neither disagreed nor agreed with the management strategy, similarly with employing hunter targeted deer and elk removals (22%), and creating new special CWD permits to increase harvest in detection zones (21%). Those activities were also all generally supported by most respondents.

Part of a broader trend within the survey results, the biggest factor that influenced responses regarding support of management actions was age. Younger respondents were more likely to oppose management restrictions, and support management that increased hunting

opportunities when compared with older respondents. Engaging with younger hunters, especially around divisive management issues, is an emerging target for CWD management, based on the results of this survey.

In general, the results of this survey section point to a tension between the management actions respondents most strongly supported and the range of feasible and available actions to WDFW for managing CWD. A high proportion (41%) of respondents opposed reducing deer abundance and density, but that is often a necessity in areas of detection. More challengingly, some survey responses presented a disconnect between some of the proposed management actions and desired outcomes. For example, there is a tension between respondents' strong preference for increasing hunting opportunities in response to CWD and a reluctance to reduce deer abundance and density (the principal reason for increasing hunting opportunities). These results suggest that the agency may be required to better clarify these mechanisms to the public, and it also suggests that some level of discontent with management actions will be inevitable.

Baiting

The practice of baiting has long been a divisive management issue for CWD (Farnese, 2018; Sorensen et al., 2014), and the responses in the survey reiterated that trend. In the survey, we presented a number of statements regarding baiting and feeding and asked respondents to indicate their level of agreement ranging from "Strongly agree" to "Strongly disagree." Although there was not strong support for banning baiting or feeding, neither was there a majority of respondents who opposed it. Currently, baiting is allowed but restricted in Washington State, and there was an even split in respondents regarding whether or not those restrictions should be lifted.

More respondents disagreed than agreed that being able to bait is every hunter's right (40% disagreed, 32% agreed), though a majority did agree that baiting is necessary for hunters with mobility issues (54% agreed). The strongest belief (and least disagreement) was that baiting was driven by what respondents called the "anti-hunting contingent" (57% agreed, 20% disagreed). Some of the comments from the survey illuminated this issue further including: "Reasonable, scientific, and professional game management is my highest priority combined with an emphasis on maximizing resident hunting opportunity where appropriate. I regard wdfw as excessively prone [to] prioritize anti-hunting sentiment above these principles." "In my opinion, our State Game Commission is working against hunters. At this point I hate to think about how many taxpayer dollars are wasted on Game Biologists because the commission does what they want based on their anti-hunting agenda, not on science." "Banning of baiting is an emotional-based decision, much like most anti-hunting legislation." This may make any actions more difficult to enforce given the divisive and loaded nature of the issue.

However, in spite of strong positions among many respondents for and against baiting, among many others there was a high level of uncertainty, indicating a potential future need for more information and discourse.

When delving into the potential relationship between CWD and baiting, respondents indicated a high level of uncertainty when they were asked about whether or not they believed baiting was likely to contribute to the spread of CWD. In verbal and written comments, there was a clear split. Some individuals believed baiting brings animals together, with the result of significantly and detrimentally increasing the chances of spreading CWD, "…baiting [is] all but guaranteed to spread prions." "CWD changes the equation, where needed, ban it." On the other hand, some individuals see baiting as paling in comparison to other ways in which animals may

congregate (e.g., orchards, feeding) and thus see the cons of banning it (e.g., impact on hunters, loss of trust in WDFW) greater than the pros.

Frustration among respondents was apparent on both ends of the spectrum of support and opposition for baiting. For example, as a result of the perceived link to the anti-hunting contingent, some respondents indicated they would lose what little trust they have left in WDFW and would be unwilling to engage in other activities should baiting be banned, "Give WDFW an inch and they'll take a mile." The concern was expressed that "if baiting is banned, will we ever get it back?" Other respondents are instead frustrated that nothing is being done about banning baiting given its potential to increase congregated animals and believe that the issue is being continually swept aside and decisions are postponed.

There were some differences in support for baiting and baiting bans across different groups. Respondents who indicated they interact with wildlife through wildlife biology and wildlife rehabilitation were more likely to support baiting bans and felt that it was necessary to "…push the scientific evidence stressing that when animals come together, CWD can result." Younger respondents and archery hunters were the most likely to oppose a baiting ban.

Feeding

Feeding did not elicit as strong responses as baiting. It was generally agreed that feeding was a landowner's right on their private property (54% agreed, 25% disagreed). There was slightly more belief that it was necessary to protect crops (38% agreed, 29% disagreed), though there was a higher level of disagreement than agreement with the idea that feeding deer was necessary to help deer survive (42% disagreed, 35% agreed). In terms of CWD, there was slightly more belief that feeding was likely to contribute to the spread of CWD compared with baiting.

Hunter check stations

The most familiar type of sampling method to respondents was hunter check stations (53%), whereas they were significantly less aware of other sampling methods. Only just over a quarter of respondents (27%) had heard of the next most familiar type of method, sample drop-off stations. The other sampling methods (mail in sampling (18%), by appointment with WDFW staff (13%), salvage program sampling (6%), and by appointment at Inland Northwest Wildlife Council (2%)) had progressively fewer respondents indicating they had heard of those programs.

While more respondents had heard of hunter check stations, only just under a quarter of respondents (24%) had actually used them in Washington State. Hunter check station awareness and usage can be linked strongly with age, with older hunters being more aware of check stations and more willing to use them. It should be noted WDFW stopped running hunter check stations in most of western Washington in the mid-2000s. This coincided with many private commercial timberlands being gated off and charging for hunter access. These areas are much more productive to hunt than public lands.

The most commonly cited barrier to using hunter check stations was that they are not in a convenient location (42%). Notably, hunter check stations during the time of this survey were only operated in the eastern region of the state. The second most commonly cited barrier, though much lower, was that they were not open when respondents hunt (17%). Hunter check stations were operated during the modern firearm deer seasons on weekends as current harvest reports indicated that is when most animals are harvested during the hunting season. A large proportion of respondents did not believe there were barriers to using hunter check stations (36%). There

does appear to at least be an interest in testing as very few respondents indicated that a barrier for them was not wanting to know if their deer or elk has CWD (2%).

Respondents were generally open to different ways of making sampling more appealing, such as using incentives for participating in sampling. The most preferred incentives were prizes such as rifles and other hunting gear (54%), big game annual licenses (53%), and multi-season deer tags (51%). In the written comments though, respondents did not support using firearms as an incentive, so these may be more controversial of an incentive. These incentives were followed closely by free deer licenses (46%) and moose hunting permits (46%). Respondents indicated that a free Discover Pass was less desired (26%). Additionally, in the optional qualitative responses, a number of respondents thought there should not be any incentives, but sampling should either be done because it was mandatory or because it was the right thing to do.

4.3 Trust

In general, respondents indicated a lower level of trust overall in WDFW, compared to a slightly higher level of trust regarding WDFW's specific management of CWD. A slight majority of respondents did not agree that WDFW listens to hunters 'concerns (52%) or that WDFW could be trusted to make decisions about big game management (50%), but more respondents did agree that WDFW has managers and biologists who are well trained for the job (45% agreed, 22% disagreed). The biggest identifier that influenced responses was age. Younger respondents were more likely to have lower trust in WDFW compared with older respondents.

Respondents were slightly more supportive of WDFW's management of CWD than they were of the agency's management approaches in general. Respondents were generally supportive of WDFW's efforts to educate the public (43% agree, 29% disagree), provide information about actions (37% agree, 15% disagree), and take action to prevent CWD introduction in Washington (37% agree, 15% disagree). By contrast, there was a high degree of uncertainty in regard to whether or not WDFW has an appropriate plan for CWD in Washington (56% neither agree nor disagree). This may be due to either a lack of awareness about the management plan adopted in 2021, or the fact that it is difficult to evaluate a plan that has not yet been fully implemented as CWD had not been detected in Washington State at the time of the survey. Some of the comments from the survey indicated more of a lack of awareness about the plan, including "I have no idea what WDFW has done or is planning on doing," and "If you have a plan what is it?"

When asked about WDFW's opinions, values, goals, and actions, generally more respondents indicated that the values, goals, opinions, and actions of WDFW did not align with their own. However, uncertainty was quite prominent in this section of the survey since the highest proportion of respondents for each question neither agreed nor disagreed that the thoughts and actions of WDFW parallel their own.

It is worth noting that while all questions were in reference to WDFW, there were a number of comments in the qualitative portions of the survey which indicated some respondents may be conflating or responding to the Fish and Wildlife Commission in addition to or rather than WDFW. For example, one response stated "The WDFW commission is antagonistic to hunting and my trust for them is extremely low. The WDFW agents and biologists are hard working, aligned with science and not antagonistic to hunting. My trust for the agency outside of the commission is high." Future research can explore this by separating the two entities to better identify if there is a difference in trust between the two. Additionally, WDFW could benefit from

presenting a consistent and unified narrative related to how science is used to propose management recommendations to the Fish and Wildlife Committee

Respondents indicated in written and verbal responses that upcoming actions by WDFW in response to CWD may affect the overall level of trust in the agency, especially in regards to practices such as baiting. Lower trust makes it difficult to adopt, implement, and enforce controversial management strategies as constituents are less likely to be cooperative and forgiving when their preferences are different. One notable caveat is that while trust in WDFW is not that robust, an overwhelming majority of respondents do want to get information from WDFW.

Geography

There was little difference between respondents who live in eastern and western Washington across all of these previous topics. Our finding here thus may suggest that the beliefs and values of hunters in Washington are consistent despite oft-noted differences in political geographies in the wider public. Given this consistency, management decisions as well as education and outreach efforts about those decisions may not have to vary or account for different geographical areas.

From a management perspective, it is interesting to note that both residents of the East and the West hunt much more frequently in the East, indicating a significant amount of travel post-hunt from east to west. Given that currently all hunter check stations are situated in the East, it is important to realize that many harvested animals may be brought back to the West, and current hunter check stations may not be positioned to fully capture that greater-than-expected direction of travel and additional opportunities for sample collection are likely missed.

5. Implications for Management

5.1 Knowledge

Given that WDFW was the most highly preferred source of information for CWD, this presents an opportunity for WDFW to provide clear and easy to access information. The two most cited areas where individuals reported getting information on wildlife management were the hunting regulations and the WDFW website, followed by the WDFW news releases. Thus, these may be the optimal sources to focus on when imparting information. In the qualitative portions of the survey where comments were added, some respondents also mentioned preferring mailings and emails for all registered big game hunters. Some areas highlighted in the survey that could benefit from additional information are as follows:

- *Agent of CWD information:* There was some confusion about the origin of CWD (prion vs. bacteria). The importance of this distinction has implications for proper understanding of management strategies. The transmission pathways of prions vs. bacteria and the treatable nature of a bacterial illness and the untreatable and inevitable fatal course of a prion illness can be important distinctions, especially with a relatively unknown entity such as a prion. Ensuring increased awareness of the underlying nature of what a prion is, how it behaves, and how it is transmitted may aid in clarifying management needs.
- *Signs of CWD:* An additional area that could be addressed concerned the potential visible signs of clinical CWD. While end-stage CWD disease may manifest with such neurological signs as uncoordinated movements, severe weight loss and muscle wasting, and loss of fear of humans, earlier stages are asymptomatic and thus it may not be

possible to tell if an animal has CWD. While most respondents correctly answered that an animal may not display signs of CWD for several years after infection, some of the qualitative responses indicated this merited further emphasis in informational material. Since hunters professed a desire to help with identifying CWD in the wild, ensuring they have the correct and most up to date knowledge available could help with CWD management in general while also emphasizing that most infected animals will go undetected due to the long incubation of this disease.

- *Justifications of management strategies:* Further information on how management practices address CWD in the wild could be beneficial to alleviate concerns about certain outcomes. Respondents did not want to reduce deer abundance and density, yet that is the primary goal of many of the management strategies that were supported. Making clear that the reduction of density and abundance in certain CWD positive areas is necessary to contain spread and thus ultimately protect long-term state-wide deer herd health could help to build support for management actions. Hunters expressed wanting to be included in management decisions, and the more information that can be provided about the rationale behind such decisions to achieve the desired outcomes of the management strategies could help to build support for those necessary management decisions.
- *Sample submission information:* It may further be beneficial to increase information and awareness regarding not only hunter check stations, but other forms of sample submission. This is especially important for younger hunters as they are the least likely to have heard of or used hunter check stations. Given that many hunters in western Washington travel to eastern Washington to hunt, and one of the major barriers of hunter check station use is their location, emphasizing other forms of sampling to hunters from the West (e.g., at specific outfitters, or via email or mailed flyers) could provide more samples.

5.2 Practice/Management

Given the uncertainty and divisiveness across many of the potential management strategies, there are challenges with implementing CWD management strategies. Increasing awareness, given the high proportion of respondents who identified WDFW as a desired source of CWD information, as well as increasing trust through hunter-led programs could improve management implementation.

- *Uncertainty of management strategies:* Given the high level of uncertainty about restrictive management strategies from many respondents, this provides a strong opportunity for increased communication and outreach from WDFW. As stated before, emphasizing the rationale behind the strategy and expected outcome may help to alleviate some concerns about the purpose of the strategy (e.g., restrictions do not exist for the sake of taking away rights, but are specifically formulated for distinct outcomes and that WDFW shares the long-term goal with hunters of preserving the ultimate health of the cervid population).
- *Hunter-led actions:* There was stronger support for management strategies that increased hunting opportunities as well as hunter-led actions (employing hunter-led deer/elk removals) as opposed to WDFW-led actions (employing WDFW targeted deer/elk removals). As such, hunter-led actions may be more supported, especially if they are utilized earlier on in the process to build support and hunter input.

- *Baiting:* Baiting is a particularly difficult area for management given the strong feelings on both sides of the issue and as such merits a sensitive and careful approach. In the survey, it was revealed that those who interact with wildlife through wildlife biology and wildlife rehabilitation tend to be more supportive of baiting bans. Older respondents were also more likely to support baiting bans compared with younger respondents. On the other side, younger respondents and archery hunters were more likely to be unsupportive of baiting bans. Additionally, baiting bans were believed to be driven by the anti-hunting contingent. It is important to consider and reach out to all invested parties to ensure their voices are heard in order to help develop and strengthen trust in the department. As one archery hunter said: "Most sportsmen in general aren't going to buy in if you or the state or whoever presses to ban the small amount of baiting that we have. Because as we know, prions, they exist in the soil for a long period of time, they can move around, so if the state or somebody else comes to us and says we're going to ban baiting to prevent it, we're going to lose faith in them."
- *Uncertainty about baiting:* It should also be noted there was a high level of uncertainty regarding whether or not to ban baiting as well as much uncertainty as to whether or not baiting was likely to contribute to the spread of CWD. With this degree of equivocation, it may be useful and effective to focus on certain areas when imparting information regarding baiting, such as that the rationale behind baiting bans is to stop the congregation of animals and thus the potential proliferation of CWD.
- *Feeding:* There was slightly more belief that feeding was likely to contribute to the spread of CWD compared with baiting. Thus feeding bans may represent a logical precursor to baiting bans.
- *Sampling awareness:* As stated above, even though hunter check stations are the most commonly heard of and used sampling method, there was still a large percentage of respondents who had not heard of them. In addition, there is a sharp drop off in regard to whether or not respondents had heard of other sampling methods. Given the potential barriers individuals have to hunter check stations, increasing awareness and soliciting opinions of other sampling opportunities may be helpful to increase the likelihood of obtaining more samples. In addition, reiterating the useful nature of widespread sampling and its ultimate use in combating CWD spread could perhaps increase compliance, especially given some of the qualitative responses stating it should be done because it is the right thing to do.
- *Hunter check station location:* Additionally, as there was a high number of respondents who lived in the West and traveled to the East for hunting, it may be necessary to increase sampling along commonly used routes to the West. Given the largest barrier to check station use is that the stations are not present in a convenient location, making them more visible and accessible along commonly traversed roads that run East to West (e.g., the passes), could increase the samples, especially from hunters who live in the West.

5.3 Trust

- *Building trust:* There is currently a low amount of trust in WDFW. Low trust makes it difficult to adopt controversial management strategies as constituents are less likely to be forgiving, so building trust in the agency might be considered an important part of a broader management strategy for CWD. Trust can be built through actions such as

transparency of actions, including multiple voices in decision making, and clear communication.

- *Bringing everyone to the table:* Additionally, given the lower trust of WDFW and lack of support from groups such as archers and younger hunters, it may be important to bring those specific groups to the table and solicit additional feedback should WDFW consider implementing additional restrictions. This is especially important for restrictive management strategies such as banning baiting given their stronger negative opinions.
- *Hunter-led strategies*: Management strategies that increased hunting opportunities and allowed for hunter-led management were strongly supported. A broader stakeholder engaged approach to management could help increase public support, especially for more divisive issues.
- *Countering anti-hunting perceptions*: The most agreed upon statement regarding baiting was that baiting bans were driven by the anti-hunting contingent. Some of the comments explicitly referenced the Fish and Wildlife Commission, but others generally discussed the policy or WDFW. With any future baiting management, transparency and education, especially centered around confronting any perceptions that WDFW is anti-hunting could be beneficial for buy in and could help to build trust in general.
- *Distinguishing Commission from Agency:* While many comments did refer specifically to the Fish and Wildlife Commission as separate from WDFW, others seemed to conflate the two and it may be beneficial to further emphasize the general roles and abilities of each entity, and how management decision are made.

6. Next steps

The survey presented in this report is an important first step in illuminating and understanding perceptions and preferences towards CWD and CWD management in Washington State. Future steps can be taken that could build upon these results. A few possible examples are discussed below:

- A possible next step would be the *deployment of additional surveys*. The survey presented in this report provides a clear baseline of understandings, perceptions, and attitudes towards CWD and CWD management in Washington. This is especially important as it was conducted before the recent detection of CWD in Washington. Thus, future surveys could reference this starting point as a baseline and could be helpful identifying shifting perceptions and examine the effectiveness of informational material and education. It would be instructive in the future to redistribute updated parts of the survey to help evaluate changing attitudes and perspectives as well as evaluate efforts.
- A number of respondents mentioned that other state fish and wildlife agencies were either one of their preferred or current sources of information. As such, a beneficial next step would be *coordinating across state and country boundaries* to further understand information dissemination and attempt to standardize and coordinate as much as possible as well as to share ideas and techniques.
- While steps have been taken in this direction, *building an effective advisory panel* to consolidate differing viewpoints and to give suggestions could be a useful and effective tool. Many survey respondents indicated that they wanted to be involved in defining management. Hunters especially want their voices to be heard in terms of management strategies. The management strategies to prevent and control CWD were developed over

several decades of studying and understanding how the disease is transmitted thus there are limited options for adapting or introducing new strategies. Thus, a panel or other group might be instrumental in helping to ensure public engagement, maintaining hunting opportunities, and limiting disease spread through their input and through education and outreach opportunities.

- A potential helpful tool for future decision-making strategies, especially for an advisory panel, is the use of *Structured Decision Making (SDM*) (Hemming et al., 2022; Runge et al., 2020). This is a method that allows participants to agree upon the problem at hand and systematically evaluate potential solution pathways. SDM has a dual role in identifying priorities for science and management and building trust through transparent discussion of values and objectives.
- It is important to ensure the *dissemination of material through education and outreach*. This survey has highlighted areas of potential need, as well as the tools with which respondents are most familiar and most prefer. In addition to the creation and dissemination of these sources of education and outreach, the *evaluation of those tools* is an important continuing step, as is the ability to adapt the tools as needed.
- Finally, given the recent detection of CWD, the *experimental evaluation of techniques* for addressing the issue of CWD in Washington will be especially helpful and important. For example, since maximizing samples is crucial in terms of quantifying disease and aiding in mitigation strategies, quantifiably looking more closely at how to increase the utilization of hunter check stations (e.g., different incentives, better information) could prove valuable.

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