

**Hunter Perspectives on Obtaining Hunting
Access to Private Land
in Alberta, 2021–2022**

Final Report



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Sherwood Park, Alberta, Canada T8A 6J7

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**ACA PROJECT
REPORT**

**Hunter Perspectives on Obtaining Hunting Access
to Private Land in Alberta, 2021–2022**

Final Report

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EXECUTIVE SUMMARY

Alberta Conservation Association and several partnering organizations surveyed Alberta hunters to gather insight into their experiences and perspectives on gaining access for hunting on private property. The Hunter Access Survey was conducted to complement the 2021 Landowner Hunter Access Survey, which asked landowners for their perceptions. The hunter-focused survey was active for 36 days in 2021–2022. We asked hunters a series of questions pertaining to their demographics, their general hunting activities, as well as their perception of gaining access on private lands. We received 3,455 valid responses from 97% of the postal code regions in Alberta. Two-thirds of the respondents were between the age of 45 and 75 and had been hunters for an average of 34 years. Respondents hunted on private land an average of 16.7 days per year and 85% contacted ten or fewer landowners per year to request hunting access.

Most survey respondents often had success gaining access to private land to hunt, were satisfied with their experience accessing private land, and did not perceive a change in their rate of success gaining permission over the previous five years. However, there are certain demographics that appear to have greater difficulty accessing private land: hunters who have not lived in Canada their entire lives, speak a language other than English at home, live in the southern portion of the province, or live or hunt near large urban areas. Respondents who hunt ungulate big game, particularly elk, and primarily hunt in the Foothills or Mountain regions were also more likely to have difficulty gaining permissions on private land.

Our survey results imply that respondents who were older, had hunted for more years, relied heavily on private land for hunting, contacted fewer landowners, and/or had larger social networks were more likely to have a greater success gaining permissions on private land. They were also less likely to perceive a change in their rate of success gaining permission over the past five years, and more likely to be satisfied with their experience accessing private land. Because our survey used a non-random (voluntary) sample of hunters, we cannot know if these trends pertain to the entire population of hunters in Alberta. However, we were able to learn about the types of hunters that are more commonly given access to private land, some of the challenges that hunters face, and the areas of common interest that may help to build and maintain hunter–landowner relationships over time. The importance of developing hunter–landowner relationship skills deserves greater emphasis among those seeking permissions, and especially for those entering hunter education systems.

Key words: hunters, hunting access, private land, landowner, relationships, survey, trespassing, Alberta.

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1.0 INTRODUCTION

Over the past century, Alberta's hunting community has played an essential role in ensuring the sustainable management of wildlife in the province (Federation of Alberta Naturalists 2005, Meredith and Radford 2008). Because of their close and regular interaction with the environment, hunters are often the first to recognize changes in wildlife populations and habitats that might go unnoticed by others. When this firsthand experience is shared with conservation organizations, researchers, and wildlife management agencies, it can serve as an indicator of potential issues impacting wildlife. Moreover, Alberta hunters collectively contribute millions of dollars to conservation efforts annually, through the purchase of hunting licences (GOA 2021). In Alberta, several organizations use hunter licence levy dollars to fund conservation efforts and wildlife management programs. For example, Alberta Conservation Association (ACA), a non-profit organization, uses hunter licence levies to finance habitat conservation, wildlife research, population monitoring, and related projects throughout the province (ACA 2023). Sustaining hunter numbers is a key component for financing future conservation efforts and fosters a community valuing wildlife and habitats.

A systemic decline in the number of hunters has been a major concern for wildlife managers and conservation organizations across North America (Ryan and Shaw 2011, Larson et al. 2013) for more than 20 years. Alberta has fared better than many jurisdictions (Sillars 2020), and ACA actively engages in activities that lead to the recruitment and retention of new hunters. Anecdotally, one of the greatest barriers for developing and maintaining an interest in hunting is simply finding places to hunt, particularly places that are not overcrowded. There is limited information pertaining to hunter retention within the province, but access to huntable land is often raised as a barrier in other jurisdictions (Gruntorad and Chizinski 2020, Hansson-Forman et al. 2020).

Alberta's land base includes a substantial portion of privately-owned land (GOA 2018), which encompasses almost one third (30%) of the province (Lee et al. 2021). Private land includes many habitat types and a wide range of human activities, including agriculture (Sinnatamby et al. 2023). Beyond its monetary value, private land can have intrinsic value, holding emotional or historical importance for some owners. Privately-held land may also serve practical purposes for the owner, such as functioning as a place to live and offering opportunities for hunting and fishing, and various other outdoor recreational activities. Habitats that exist within privately-owned land are essential for the well-being and survival of many wildlife species, including a variety of game animals (Lee et al. 2021).

In Alberta, public access to privately-held land for hunting is not a guaranteed right but rather a privilege granted by the property owners. It hinges on the willingness of these landowners to

allow access to their property. As such, rural landowners in Alberta play a significant role in offering opportunities for places to hunt. In turn, this impacts hunter retention and recruitment by providing accessible locations for hunting activities that foster continued interest and participation in hunting.

The reliance of hunters on access to private land underscores the significance of maintaining positive relationships and mutual respect between those seeking access and the landowners who grant it. Driven by cultural, economic, and policy changes, limitations to hunting access has been documented since the early twentieth century (Burke et al. 2018). While some jurisdictions in North America have attempted to explore the factors influencing hunting access on private land, we could find no research to date that addresses this at the provincial level for Alberta, Canada (Wright et al. 1988, Burke et al. 2018, Walberg et al. 2018). In 2021, ACA and partnering organizations implemented an online Hunter Access Survey (hereafter, hunter survey) to better understand what may be limiting or prohibiting access for hunters in Alberta. Specifically, we sought to identify variables explaining patterns of hunter satisfaction and successful permissions on private land. Lastly, elements of the hunter survey results were compared with the relevant conclusions from the Landowner Hunting Access Survey (hereafter, landowner survey) that was completed in early 2021. The landowner survey sought to understand the attitudes and concerns of private landowners related to providing access to their land for hunting.

At the onset of the survey, we made several predictions about the dynamics of obtaining hunting access on private land in Alberta: (1) access is affected by distance from urban centres and the further away from urban areas, the more likely a hunter will be to gain access; (2) access differs between species being hunted and a person is more likely to obtain access to hunt waterfowl and upland birds than big game; (3) newer hunters have greater difficulty acquiring access than those who have hunted for many years and have perfected their ability to gain permissions; (4) permissions vary across the province depending on the Wildlife Management Unit (WMU) series and the ranges of particular game species (see prediction 2); and (5) hunters without a connection to a landowner are less likely to gain permission relative to those with a relationship.

2.0 STUDY AREA

Our study area was the province of Alberta, Canada, where individuals hold private-titled lands. An estimated 30% of the province landmass is held privately, with an additional 60% held by the province and the remaining 10% held as federal public land (Alberta Wilderness Association 2023). Since 1948, Alberta has been categorized into two zones; the Green Zone is composed mainly of forested areas, and the White Zone is predominantly non-forested and includes cultivated lands (GOA 2017). Private land is found throughout both zones; however, the majority of the Green Zone is provincially-held public land, whereas the White Zone is composed primarily of private land and a smaller portion of public agricultural land held in long-term

grazing leases (GOA 2017). Our survey focused solely on hunting access for lands held privately, but in both the green and white zones.

Individuals are legally required to obtain permission to access any private property and, if permission is not obtained, trespassing charges can be pursued even if there is no indication of damage to the property (Trespass Statutes [Protecting Law-abiding Property Owners] Amendment Act 2019). For agricultural land, this means that entry without notice is prohibited on all land used for crop production and rangelands that are surrounded by a fence or natural boundary and extends to any other means that suggest the landowner is attempting to keep livestock on their land or keep people off their land (Trespass Statutes [Protecting Law-abiding Property Owners] Amendment Act 2019). In contrast to private-titled property, public lands that have a provincial grazing lease designation are subject to unique requirements for access and we did not include them as part of our survey.

Alberta is divided into five hunting regions including the Prairie Grasslands, Boreal Forest, transitional Parkland, Foothills, and the Rocky Mountain range (Figure 1). These regions are further divided into geographic sub-units termed Wildlife Management Units (GOA 2024). Our survey was structured to enable resolution at the regional and WMU levels.

Hunting regulations are broken down to the WMU level including the method allowed (i.e., rifle vs. bow), season dates, harvestable species, as well as bag limits. There are 175 WMUs across Alberta. For this report, WMU series refers to the larger hunting region where WMUs are located (see Figure 1). Hunting regulations are reviewed and updated annually by the provincial government and special licences are administered on draw priority system (GOA 2023a, 2023b).

3.0 MATERIALS AND METHODS

3.1 Survey design

The hunter survey was developed using Qualtrics online survey software (Version: November 2021; Qualtrics 2021). Survey questions were developed by a working group and focused on topics deemed important to explore, to gain insight on the factors driving private land access for hunters in Alberta.

We collected demographic and other introductory information from respondents, as well as the postal code of their primary residence and the WMU of private land they wanted to hunt. This allowed us to better understand the geographic distribution of respondents, and patterns of private land access throughout the province based on their residence and the hunting area where they sought permissions.

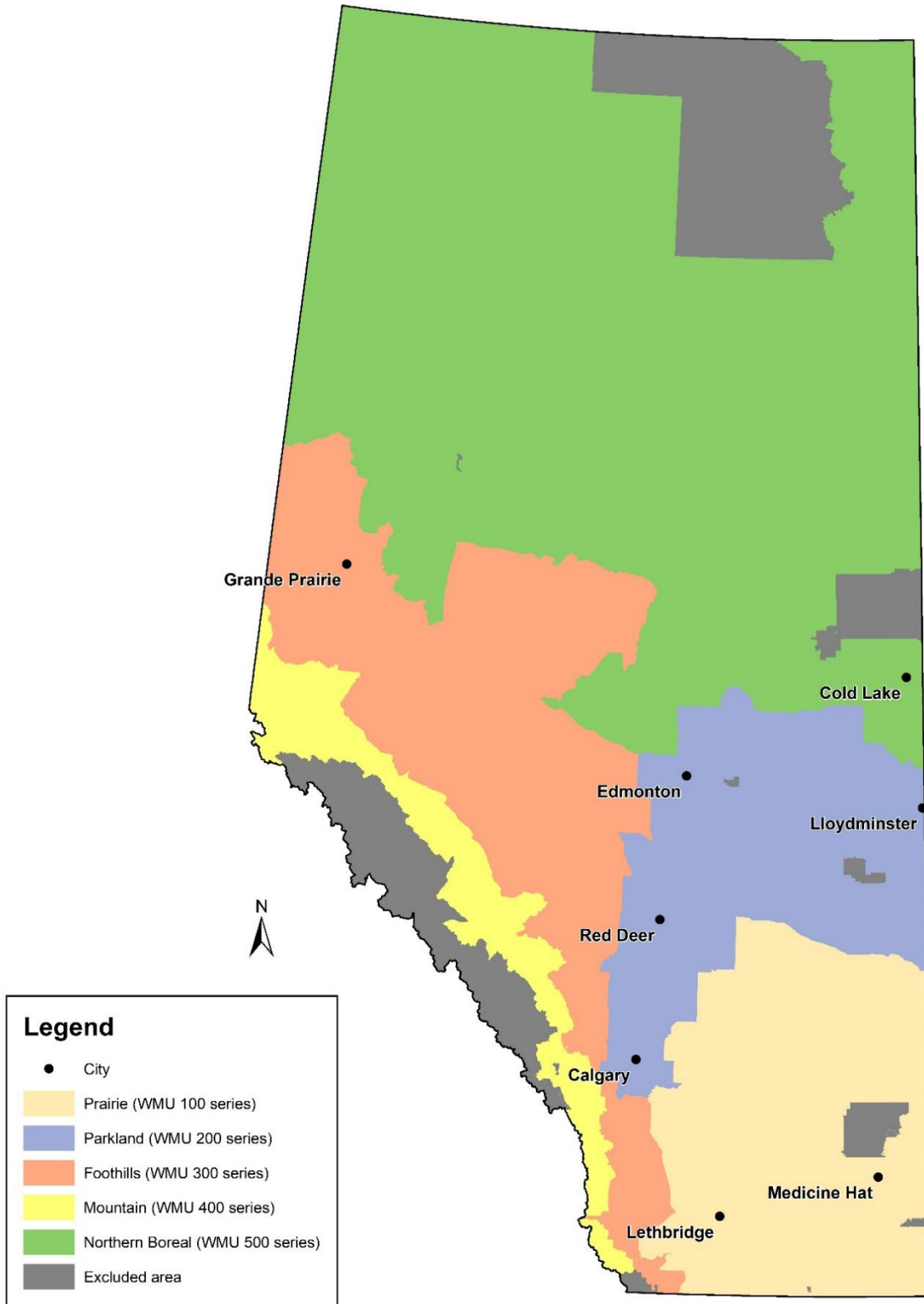


Figure 1. Map of Alberta illustrating hunting regions and the Wildlife Management Unit series considered for our survey.

Our survey contained 65 questions, some with advanced branching, directing respondents to different sections and questions based on their previous responses. For instance, if a respondent selected a particular answer choice, branching guided them to relevant follow-up questions or allowed them to skip certain sections of the survey entirely. At the end, respondents were offered an opportunity to provide open-ended comments. Most questions were restricted to respondents who had hunted within the past three years; however, a limited number of questions targeted those who had hunted in the past, as well as those who anticipated hunting in the future. A subset of questions pertained to respondents' most recent permissions request experience, so we could obtain more specific information. We report results for the different groups separately. A complete list of survey questions is found in Appendix 1.

3.2 Survey implementation

The hunter survey was active for 36 days (December 1, 2021 to January 5, 2022). Those who started a survey had one week to complete it if they were unable to do so in one session. We advertised the survey through various social media platforms, publications, and websites of relevant partner groups, as well as ACA social media accounts.

We developed a data-cleaning procedure to identify suspicious data or data that would not be usable for analysis. We removed records dated prior to the survey release date from tests completed by researchers and survey designers. Records with no responses were also excluded. Suspicious records were flagged and further investigated to determine validity of the data. Suspicious records included surveys completed within an unusually short and uninterrupted time, an IP address outside of North America or multiple respondents with the same IP address, and records identified as spam through the Qualtrics software.

With the understanding that multiple hunters responding to the survey may be living in the same household, we assessed responses to questions (e.g., age, where they grew up, number of years hunted, etc.) to remove duplicate records from an identical IP address. In instances where no substantial differences were found between responses with an identical IP address, the most recent record was retained, and the former was excluded from the analysis.

3.3 Analysis

For most questions, the current analysis is limited to summary statistics that tabulate the responses received for each respective question. This basic method of analysis allows us to individually explore questions and themes put forward in the survey to determine next steps and potential future research questions. For survey questions with text answers, we analyzed each response individually and noted general sentiments.

We also used generalized linear models to explore the relationship between respondents' answers to select survey questions and their success gaining access, to better understand: 1) overall hunting access rate on private land; 2) change in permissions for obtaining access over the past five years; 3) satisfaction with accessing private land; and 4) success gaining hunting permission on private land during the most recent request (R Core Team 2023). Success for gaining hunting permission on private land the last time respondents sought access was pre-structured as a binomial question (i.e., yes/no), whereas the remaining four questions modelled were structured as single-answer multiple choice.

To complete our analysis, we restructured the responses to these multiple-choice questions into two categories (positive and negative) and excluded the neutral category. For example, respondents who were extremely and somewhat satisfied with accessing private land were combined into one "positive" category, whereas extremely and somewhat dissatisfied responses were combined to into one "negative" category. Neutral respondents who were neither satisfied nor dissatisfied with access were excluded from the analysis.

For our detailed analysis, we excluded all records from non-hunters, non-Alberta residents, and respondents who did not hunt on private land in the previous three years. First, we modelled the individual effect of each variable of interest (e.g., WMU series, number of landowners contacted per year, respondent's age, etc.) on our response variables (i.e., overall access rate, change in permissions, satisfaction, and most recent access) and used Akaike Information Criteria (AIC) to test the prediction fit of our models relative to an intercept-only null model (Burnham and Anderson 2002). We also used estimated marginal means to interpret the differences between levels of categorical variables that had a statistical effect on our response variables (Wickham et al. 2022). Next, we constructed a model containing all variables that had a predictive effect and used backward and forward stepwise selection to achieve a model with the fewest number of variables and greatest predictive strength (i.e., lowest AIC value). If variables were added to the top model, it must have improved the fit by greater than two AIC units for us to retain that variable. Our sample size was limited to records with complete data for all variables included in the model, but was continuously adjusted as variables were added and dropped during the model-selection process. The sample size of the intercept-only model used to compare the strength of the fitted model at each stage of the model-selection process was also continuously adjusted. This ensured that both the fitted and reference model always used the same data set while maximizing the sample size for each combination of questions.

4.0 RESULTS

In total, 3,545 respondents visited the survey. Data-cleaning procedures identified 90 records (3%) that yielded no usable data, reducing the sample to 3,455 responses. Of the 3,455 records, 2,975 (86%) respondents completed the entire survey. Incomplete records ranged from 2% to

94% completion, with 6% (199) completing less than 50% of the survey, 5% (164) completing 50–75%, and 3% (117) completing 76–99% of the survey. Incomplete records were retained for the summary of individual questions but were not generally included when we combined multiple questions during more in-depth analysis. As a result, the sample size varied depending on the question being considered. See Appendix 1 for the tabulated responses for each survey question.

4.1 Demographics and general patterns

Respondents ranged in age from under 24 to over 85 years old. Two-thirds of respondents were between 45 and 74 years old (Figure 2). Most respondents lived in a rural area (population less than 2,000; 31%), followed by large urban area (population \geq 500,000; 24%) and small town (population 2,000 to 9,999; 19%). A similar distribution was observed with regards to where respondents grew up, with a slight shift to more growing up in rural areas (40%) and small towns (22%). Based on the responses from survey participants who voluntarily provided their postal code, we had representation from 97% of postal code regions across Alberta. The greatest number of responses were from the Cardston, High Level, and Sundre areas, and the average number of responses from each postal code region was 18.6.

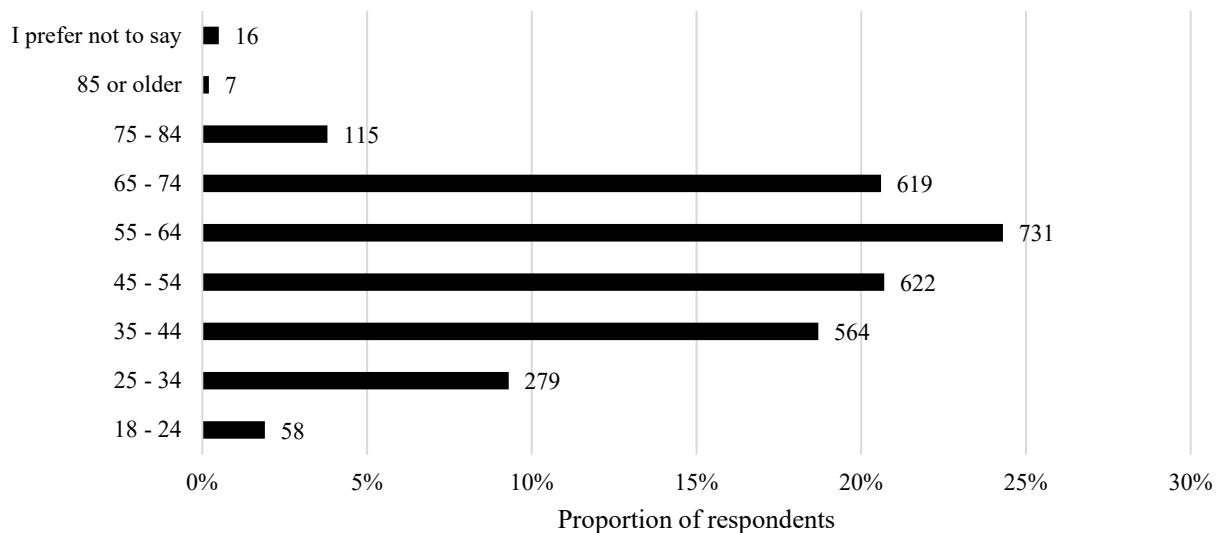


Figure 2. The proportion of survey respondents within each age category. The numbers at the end of each bar represent the total number of responses in each age category.

Seven percent of respondents identified as a visible minority and 14% preferred not to say. English was the most selected language spoken at home (95%), followed by French (1%), and a language other than English or French (1%). Three percent of respondents preferred not to specify their primary language. Most respondents indicated they had lived in Canada their entire

life (92%), 7% had lived in Canada for 11 years or longer, 1% preferred not to say, and less than 1% had lived in Canada for ten years or less.

Nearly all respondents (99%) identified themselves as hunters, and from this sample 98% had hunted within the past three years (i.e., in 2019, 2020, and/or 2021). Of the 32 non-hunters, 81% stated that they had obtained all the requirements to be a first-time hunter. Almost all respondents who identified as hunters (96%) were classified as Alberta resident licence holders, and few indicated they were a non-resident Canadian, Métis, First Nations, non-resident alien, or an outfitter. Overall, the average time spent as an active hunter was 34 years with responses ranging from one to 70 years. Respondents hunted on private land an average of 16.7 days per year during the previous three years and responses ranged from zero to 300 days.

Ungulate big game was the most common category of game species hunted within the past three years and most respondents (88%) specifically characterized themselves as ungulate big game hunters (e.g., deer, moose, elk, etc.; Figure 3). Migratory and upland game birds were the next most hunted species. The same trend for species hunted was observed for respondents who had not hunted in the past three years. Ungulates were the species most often being targeted by respondents the last time they approached a private landowner for hunting permission: white-tailed deer – 69%; mule deer – 39%; elk – 35%; moose – 24%; and pronghorn – 2%. Other species/groups included upland game birds (excluding turkey; 11%), migratory game birds (9%), black bear (3%), and turkey (<1%).

The Foothills region was the WMU series that many (32%) respondents had most frequently hunted in over the previous three years, followed by Parkland (28%), Prairie (19%), Northern Boreal (18%), and Mountain (3%) regions. Similarly, for respondents who had not hunted in the past three years, the Foothills region was the WMU series that many (58%) respondents had most frequently hunted in the past, followed by Prairie (33%), Northern Boreal and Parkland (19%), and Mountain (18%) regions.

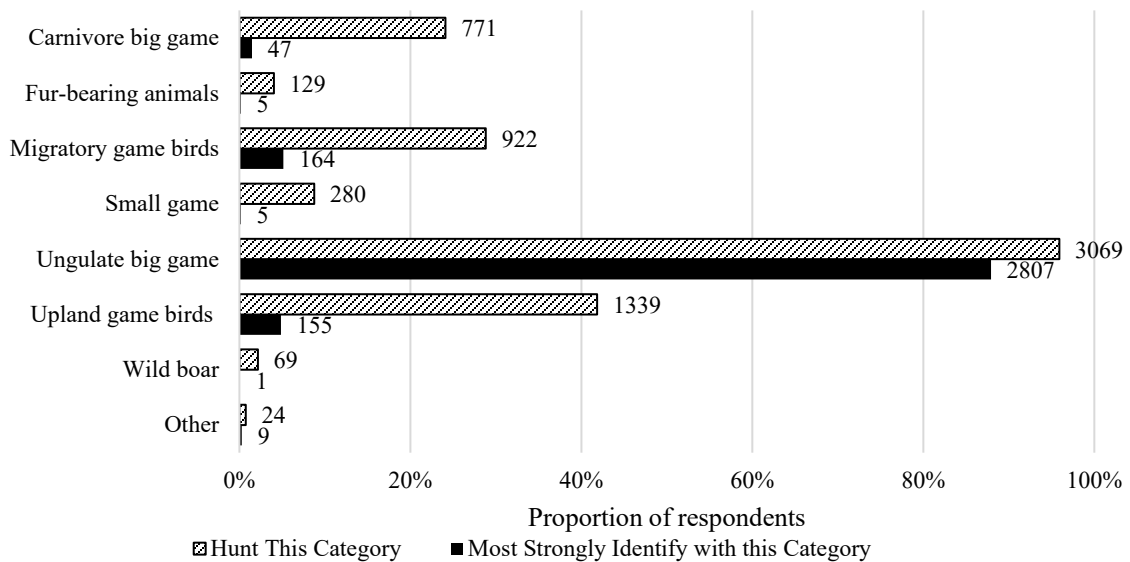


Figure 3. Proportion of survey respondents who hunt each game animal category (striped bars) and the single category hunters most strongly identify with (black bars). The total number of responses for each category is indicated.

Over half of the respondents either entirely or mostly rely on private land, where permission is required to hunt (Figure 4). Only 4% selected that they never hunt on private land. During the past three years, respondents most often hunted on private land owned by someone they did not know well but had built a relationship with over time for hunting access (50%), land owned by a close friend (39%), land owned by an acquaintance (37%), and land owned by a stranger (35%; Figure 5). Respondents least commonly hunted their own land, land owned by an irrigation district, and other property types (22%, 8%, and 5%, respectively). Most land types indicated in the “Other” category were provincial lease land or some other form of government crown land. Hutterite colonies were also frequently listed, as well as many responses that fit into one of the categories we provided in our list of options.

There was almost an equal number of cases where landowners did or did not live on the property that respondents were asking permission to hunt on. Pasture/rangeland was the most common primary habitat type where permissions were sought (51%), followed by annual crops (29%).

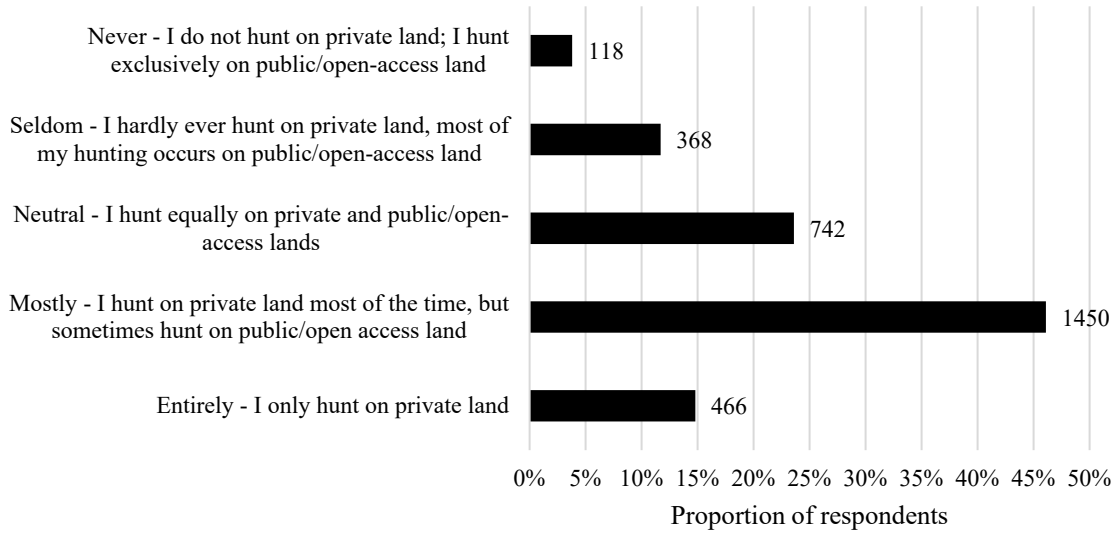


Figure 4. The degree to which respondents relied on private land to hunt and needed private landowner permission for access. The numbers at the end of each bar are the total responses in each category.

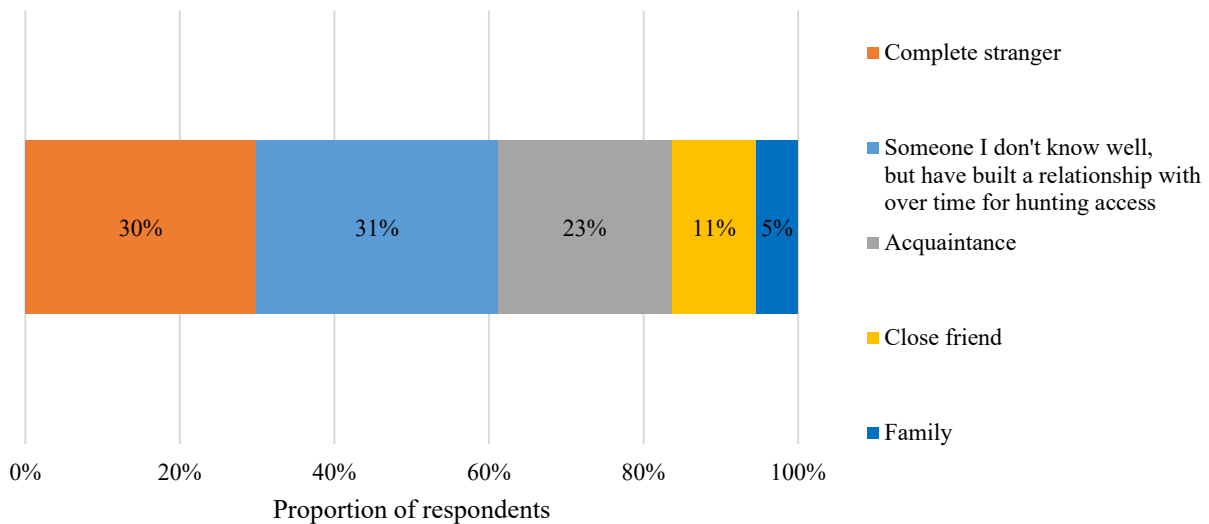


Figure 5. Respondent's relationship with the landowner who they had most recently requested hunting access from. The proportion of respondents within each category is indicated.

Roughly half of the respondents indicated they had most recently sought permission for a hunting party of two people (53%) and nearly one-quarter indicated the request was for themselves only or for a group of three to five people (23% each). Only 1% of respondents indicated they requested permission for a party of six or more. Most respondents contacted

landowners in person or by phone as their most recent method used to ask for permission on private land (68% and 60%, respectively), followed by text or email (19%). Other approaches with less frequent application (selected by < 10% of respondents) included cases where a referral came from someone else, sign-in boxes, online sign-in systems, mail, and other means.

There is some uncertainty regarding what hunters feel influences landowners' decisions to grant or deny them access. According to our survey results, 34% of respondents indicated that none of the possible reasons we provided influenced the landowner's decision to grant or deny them access when they most recently sought permission. An additional 20% did not know the landowner's reasoning. However, 28% felt that their mode of travel while on the property (e.g., truck, ATV, foot access, etc.) influenced the landowner's decision to allow access, and 25% suggested their target species played a role. Only a small proportion thought the hunting method (e.g., rifle, shotgun, bow, etc.) and sex of the species they intended to hunt (e.g., doe vs. buck) influenced whether they had been granted permission or not (14% and 8%, respectively). Of the small proportion of respondents who indicated these factors weighed in the landowner's decision, we can infer that most believed it had a positive effect, since their request was granted in almost all instances (i.e., mode of travel – access granted for 94% of respondents; species of animal – 85%; hunting method – 89%; sex of animal – 85%).

Most respondents who felt that mode of travel while on the property played a role in the landowner's decision to grant or deny them permission, specifically requested foot access (84%). Less frequent selections included on-highway automobile (30%), and off-highway recreational vehicle (16%). All other modes of travel were selected by less than 3% of respondents. Of the respondents who felt that hunting method influenced the landowner's decision, most requested to use a rifle (74%), followed by bow and arrow (36%) and shotgun (17%). Crossbow and muzzleloader were selected by less than 5% of respondents.

4.2 Success and satisfaction

When questioned about their overall access rate, 64% of respondents indicated that they often or always get access to private land when they ask (Figure 6). Over the past five years, close to half of the respondents have noticed no change in their hunting permissions on private land. Even so, 38% reported they have become less likely to be granted permission (Figure 7). Over half of respondents expressed that they were either extremely or somewhat satisfied with their experience accessing private land for hunting, and only 10% revealed that they were extremely dissatisfied (Figure 8).

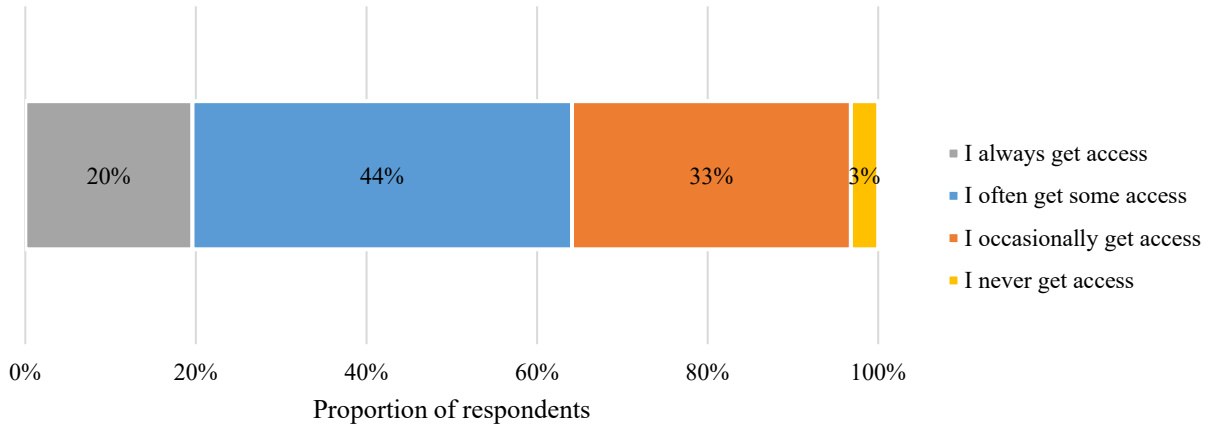


Figure 6. Respondents' perceived overall hunting access rate on private land when permission was required. The proportion of respondents within each category is indicated.

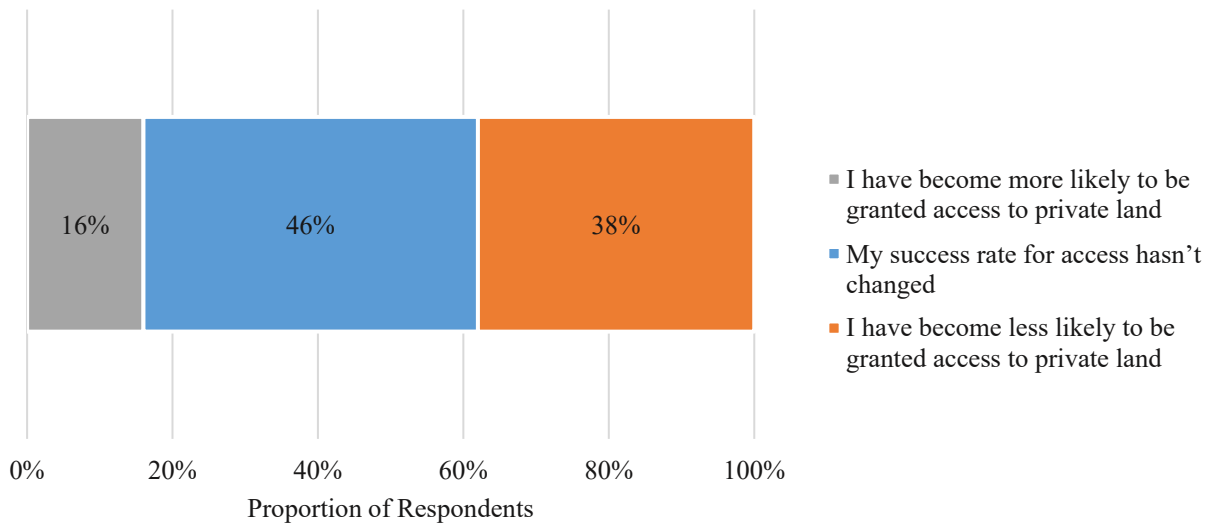


Figure 7. Respondents' perceived change in permissions for acquiring hunting access to private land over the past five years, when permission was required. The proportion of respondents within each category is indicated.

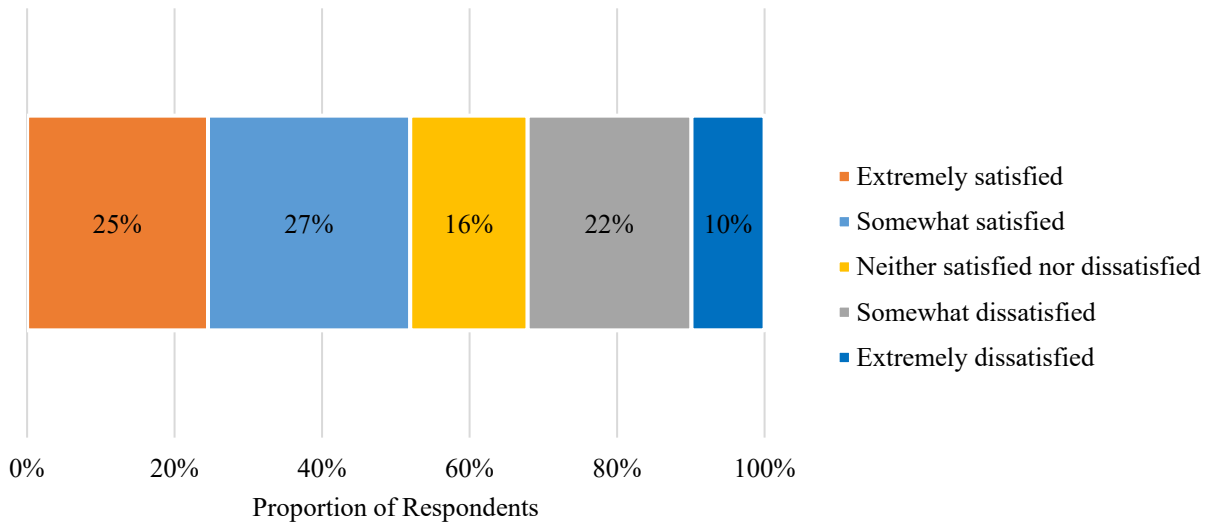


Figure 8. Respondents’ overall satisfaction with their experience accessing private land to hunt in Alberta. The proportion of respondents within each category is indicated.

Most extremely dissatisfied respondents stated that they were not able to gain access to private land because of the bad experiences that landowners have had with hunters in the past or that landowners only allow access to people they know. There were a wide variety of frustrations expressed by hunters, including cases where outfitters were thought to block access to private land, companies and corporations that do not allow access to their land, difficulty finding contact information or getting a response, landowners wishing to fill their landowner tags, anti-hunting sentiment, and negative interactions with landowners. Even though our survey was focused on hunting access on private land, many respondents expressed their frustration with accessing provincial lease lands.

Despite many respondents not having a close relationship with the landowners they most recently asked for hunting access, approximately three-quarters (76%) of respondents were successful obtaining access. One of the contributing factors may be that a similar proportion (69%) of respondents indicated that they had asked that same landowner for hunting access in the past. With regards to respondents who stated that they choose to hunt exclusively on public land, the most selected reason for doing so was that public land is convenient and provides all the hunting access they require (49%). Survey respondents also indicated that their experiences and/or the experiences of others has made them hesitant to approach private landowners (32%), while a similar proportion of respondents stated they would like to access private land but were unsure where to begin (30%). Many of the text responses to this question in the “Other” category identified difficulty obtaining private land access or, to a lesser extent, they are uncomfortable approaching landowners.

4.3 Challenges

Of the respondents who were denied access, the three most common reasons cited by the landowner were previous trespassing issues (24%), general anti-hunting sentiment or opposition to hunting (21%), and too many hunters had already been given permission on the land (18%; Figure 9). Responses in the “Other” category in Figure 9 generally related to saving hunting for family members, outfitters, and/or concerns for livestock in the area. Of the species or groups of animals being pursued by hunters, elk were identified as the most difficult to gain permissions for on private land (30%). However, 27% of respondents also stated that they found no difference among species when asking for hunting permission (Figure 10).

Almost half of the respondents identified a specific WMU as particularly challenging seeking permission for hunting big game (Figures 11 and 12). In contrast, less than a quarter of respondents identified a particular WMU as most challenging when seeking access for migratory or upland game birds (Figure 13). This suggests that a larger proportion of game bird hunters feel there is no difference between WMUs for gaining permissions.

Ninety-three percent of the WMUs in the Prairie WMU series were selected by at least one respondent as most challenging to obtain private land access for big game. In comparison, 70% and 73% of Prairie WMUs were selected by at least one respondent as most challenging to obtain private access for migratory and upland game birds, respectively. Similarly, the number of times WMUs were selected as most challenging was greater for big game (averaging 7.1 respondents per selected WMU) than it was for migratory or upland game birds (2.2 and 2.9 respondents per selected WMU, respectively). Based on responses to our survey, the most challenging WMUs for access in the Prairie region were WMU 108 for big game, migratory game birds, and upland game birds; WMU 160 for big game; and WMU 156 for migratory game birds and upland game birds.

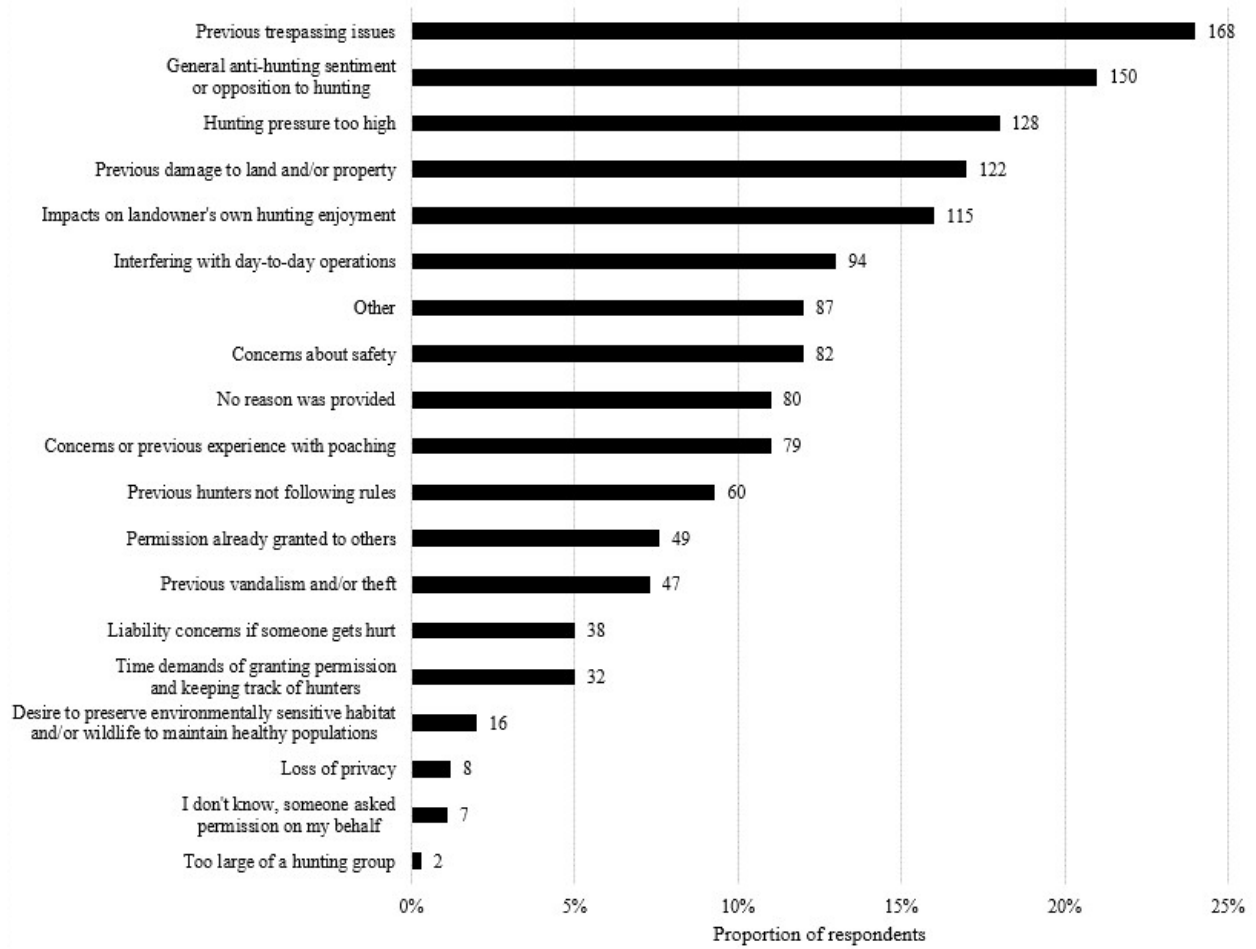


Figure 9. Reasons given to respondents who were denied hunting access by private landowners during their most recent access request. The numbers at the end of each bar are the total responses in each category.

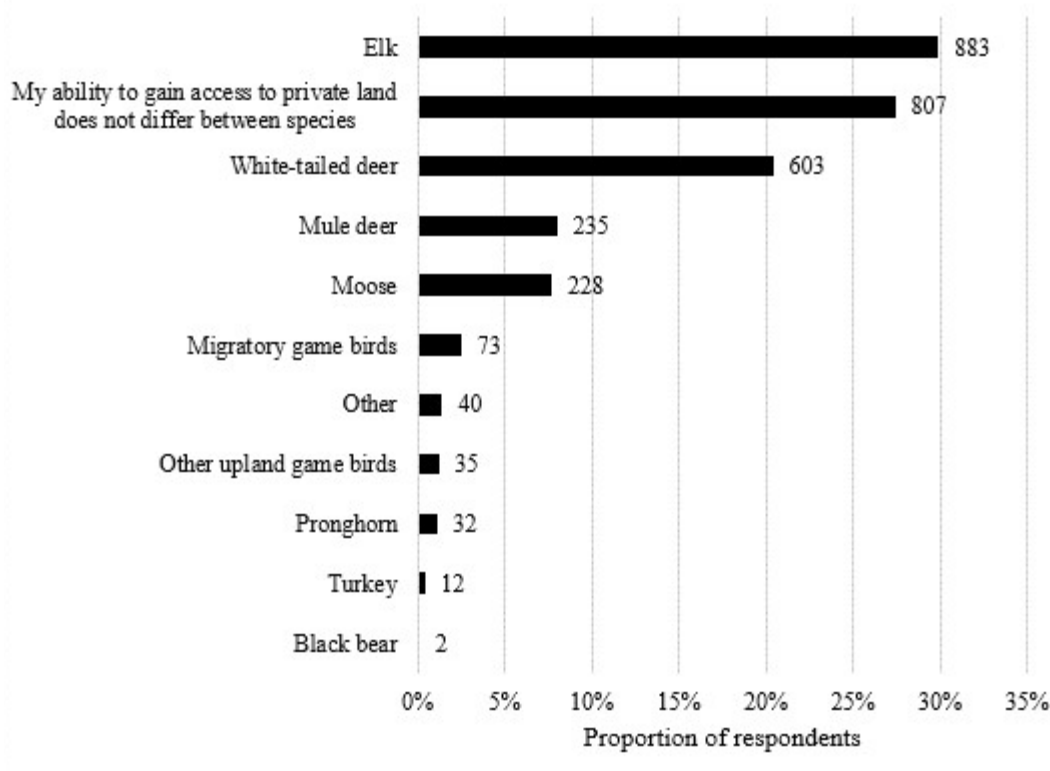


Figure 10. Game species or species groups that respondents found most challenging to obtain hunting access permission for on private land. The numbers at the end of each bar are the total responses in each category.

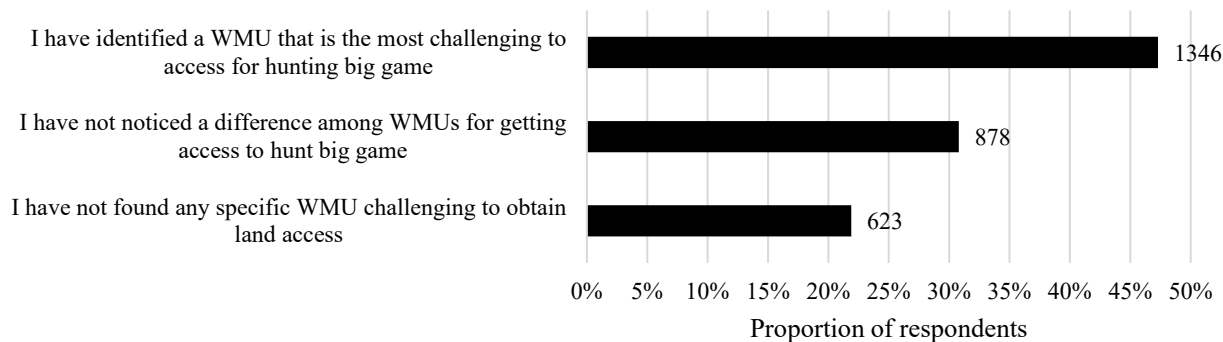


Figure 11. Perceived differences in the ability to acquire hunting access for big game on private land within different Wildlife Management Units (WMU) in Alberta. Specific WMUs listed by respondents are shown in Figure 12. The numbers at the end of each bar are the total responses in each category.

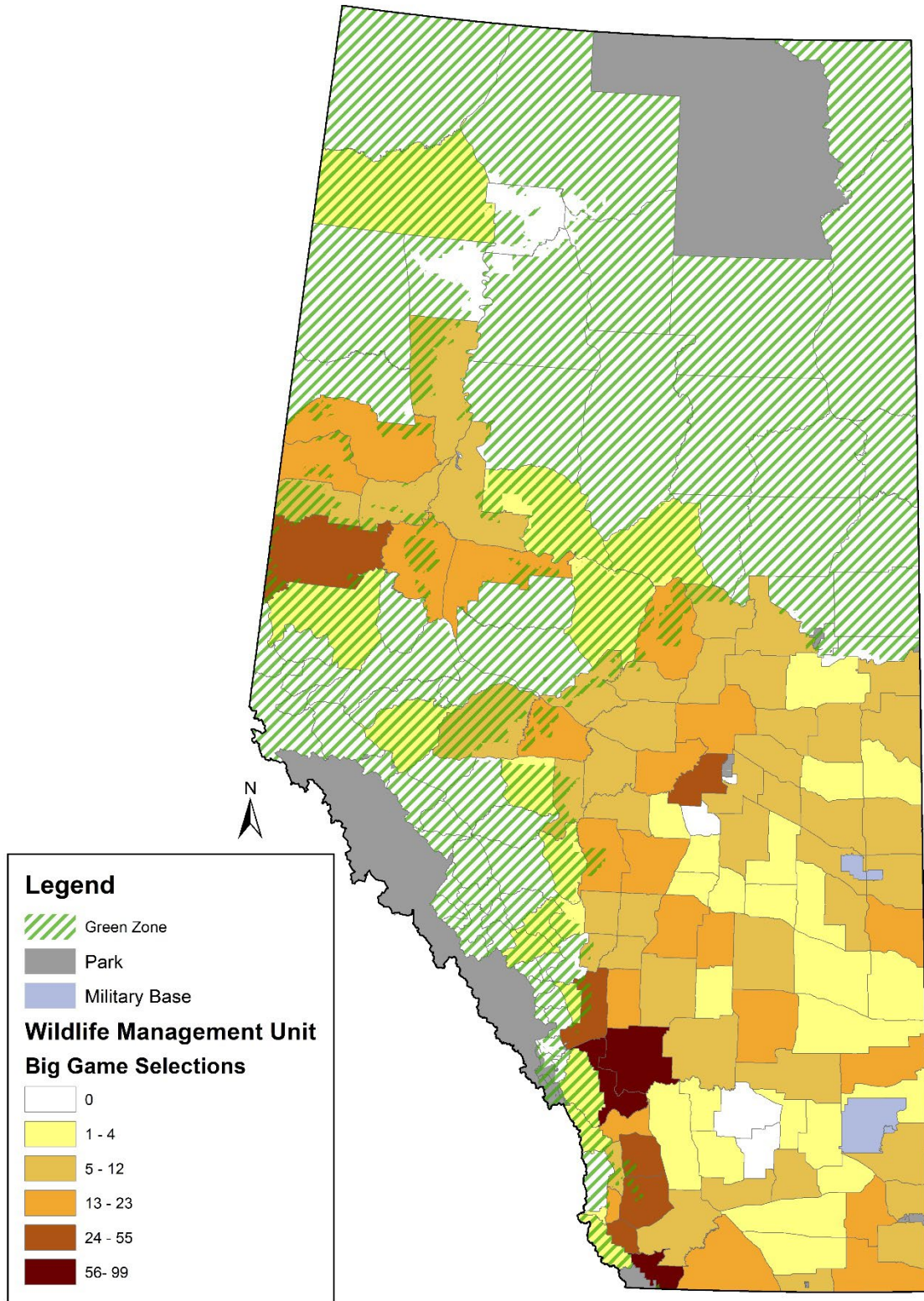


Figure 12. Number of respondents who found it challenging obtaining permission to access private land in each Wildlife Management Unit in Alberta for big game hunting.

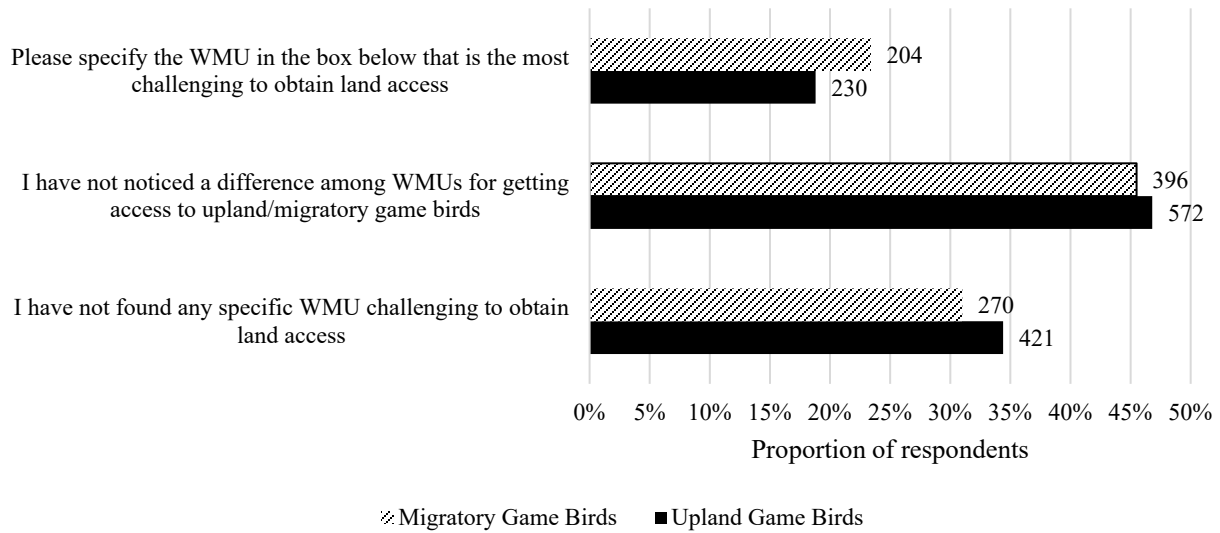


Figure 13. Perceived differences in the ability to acquire hunting access for upland and migratory game birds on private land within different Wildlife Management Units (WMU) in Alberta. Specific WMUs listed by respondents are provided in Appendix 1. The numbers at the end of each bar are the total responses in each category.

In the Parkland WMU series, 97%, 81%, and 59% of the WMUs were selected by at least one respondent as most challenging to obtain private land access for big game, migratory game birds, and upland game birds, respectively. The average number of times WMUs in the Parkland region were identified as challenging to get access for big game, migratory game birds, and upland game birds was 12.7, 3.5, and 3.2 respondents per selected WMU, respectively. Based on our responses, the most challenging WMUs for access in the Parkland region were WMUs 212 and 248 for all three game categories.

In the Foothills WMU series, 71%, 33%, and 52% of WMUs were selected by at least one respondent as most challenging to obtain private land access for big game, migratory game birds, and upland game birds, respectively. The percentages of WMUs selected for the Foothills, Mountain, and Northern Boreal series cannot be compared directly with the Prairie and Parkland series because some WMUs exist entirely within the Green Zone and contain little to no private land. However, these percentages do provide a good comparison between species groups within a particular WMU series. The average number of times WMUs in the Foothills region were identified as challenging to get access for big game, migratory game birds, and upland game birds was 18.1, 2.1, and 3.2 respondents per selected WMU, respectively. Based on our responses, the most challenging WMUs for access in the Foothills region were WMU 312 for all three species categories, WMU 300 for big game, WMU 357 for migratory and upland game birds, and WMU 304 for upland game birds. Only seven respondents selected a WMU in the

Mountain region as most challenging to obtain hunting access for big game, and no respondents identified a WMU in this region as challenging for migratory or upland game birds.

In the Northern Boreal WMU series, 48%, 32%, and 35% of WMUs were selected by at least one respondent as most challenging to obtain private land access for big game, migratory game birds, and upland game birds, respectively. The average number of times WMUs in the Northern Boreal region were identified as challenging to get access for big game, migratory game birds, and upland game birds was 8.1, 2.0, and 1.8 respondents per selected WMU, respectively. Although the challenge of getting private land access in specific WMUs was lower in the Northern Boreal relative to other WMU series, the most challenging WMUs identified for access were WMU 510 for big game and upland game birds, WMU 526 for big game, WMU 508 for migratory and upland game birds, and WMU 521 for big game and upland game birds.

Respondents who had not hunted in the three years prior to the survey could select one or more reasons from a list of 12 possibly keeping them from hunting. The top three reasons were all selected by 24% of respondents: it's become too costly, my physical ability has declined, and hunting sites are too crowded. Notably, the option "I have been unable to get permission to hunt anywhere" was the next most selected choice by 22% of respondents. Most text responses in the "Other" category identified COVID-19 restrictions and not being drawn for their desired licences as their reasons for not hunting in the previous three years. Other text responses reflected sentiment similar to options we provided in one or more of our categories.

Out of 24 respondents who had never hunted but had the legal requirements to hunt, half said they had experienced challenges accessing private land and this had affected their ability to start hunting for the first time. These challenges included difficulty in finding contact information for landowners, landowners not returning their messages, landowners unwilling to provide access or only allowing access to family or close friends, and landowner experiences with previous hunters causing them to stop allowing access.

When asked to comment in their own words as to what they felt were the greatest challenges to gaining permissions, over half of respondents provided feedback. The most common response from active hunters was that landowners have either eliminated hunting access or reduced who they allow on their property due to hunters' lack of respect for the landowner or the land itself. This was mentioned in over 20% of comments, and examples included hunters not following the rules dictated by the landowner (e.g., foot-access only), damaging fences or crops, and leaving garbage on the site. The second most common response (>15%) alluded to landowner frustrations with trespassing and hunters accessing their land without permission. Similarly, respondents mentioned that landowners were reducing access because of the difficulty with tracking who had been approved to hunt versus those who were accessing the property without

permission. In many instances, respondents were told it was easier to keep everyone off the land during the hunting season.

Other frequent challenges cited (10–15% of comments) included the perception that other hunters had ruined relationships with landowners, the tendency for landowners to prioritize access to family and people they knew, the difficulty of building trust with landowners they did not know, identifying and contacting the landowner, and too many hunters seeking permission from the same landowner. Other noteworthy topics, but less frequently mentioned (~5% of comments), included denial of access because the owner was a hunter or frustration with landowner tags, lack of hunting access on grazing leases, the prevalence of poaching causing landowners to restrict access, outfitters and guides tying up hunting permission on large tracts of land, and compensation to landowners for hunting access. Most comments about compensation were claims that outfitters and guides were compensating landowners for access to their property, but some respondents said they had been asked for compensation directly by landowners. There was also a portion of respondents who felt that landowners should be receiving some type of compensation because as it stands there is very little benefit to the landowner and a lot of risk involved.

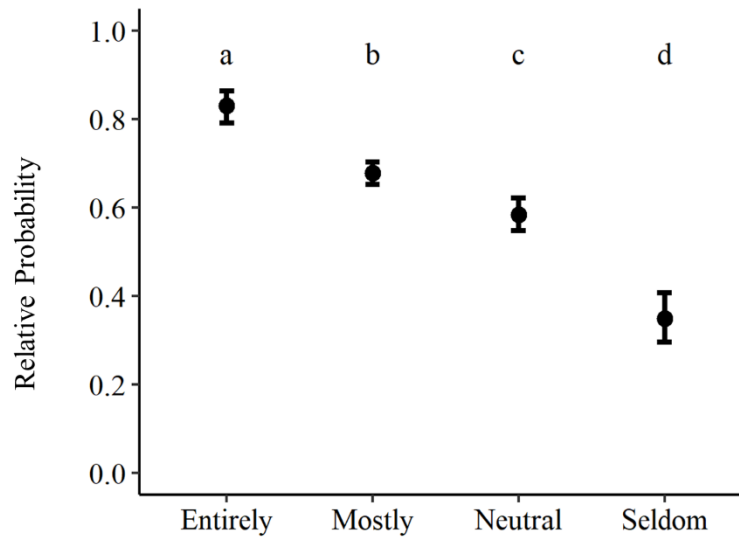
4.4 Factors that affect hunters' perceptions of access

We found that respondents' overall access rate, perceived change in likelihood of permissions, and satisfaction pertaining to private land access were associated with many of the same responses to the survey questions we used as predictor variables. This implies that certain factors similarly increase or decrease overall access rate, perceived change in likelihood of permissions, and satisfaction. Those who relied heavily on private land (Figure 14) and contacted fewer landowners (Figure 15) were more likely to have greater overall access, less likely to have noticed a change in their permissions over the past five years, and more likely to have a greater sense of satisfaction with the current state of hunting access on private land in Alberta (Appendix 2). Respondents who have hunted for more years were also more likely to have a greater overall access rate and be satisfied with the amount of private land access. However, there was no difference based on the number of days in an average year respondents hunted (Appendix 2).

Respondents who indicated they hunt on their own land and land owned by family and/or a close friend were more likely to have greater overall access, feel their permissions have either not changed or improved, and were more satisfied with hunting access on private land. The opposite was true for those who hunted on land owned by people they did not know prior to requesting access. Respondents who hunt on land owned by someone they had built a relationship with for hunting were more likely to have greater overall access but were also more likely to feel like their ability to gain permissions has decreased over the last five years. We found that the greater

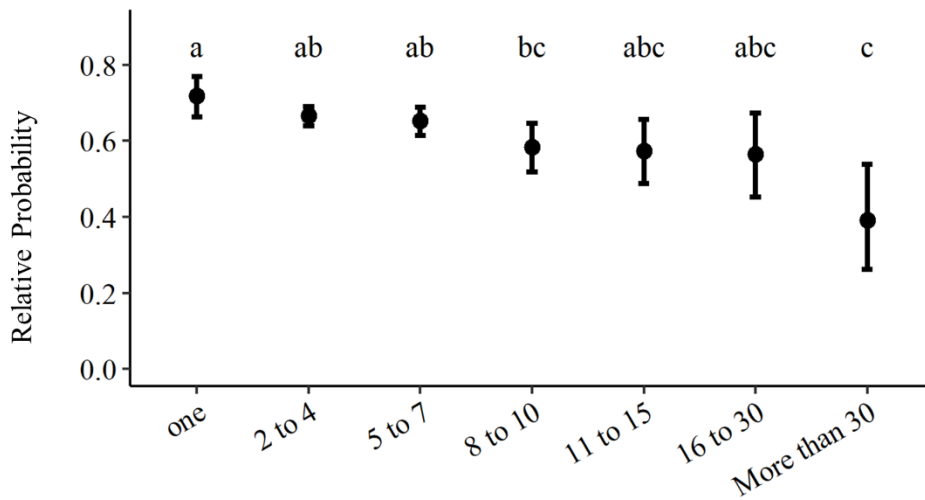
the number of private land categories a respondent chose to hunt on, the greater their overall access and more likely they are to be satisfied with private land access but also the more likely they felt their permissions have decreased within the last five years (Appendix 2).

Respondents who most strongly identified with upland game bird hunting had a greater overall access rate than those who most strongly identified with ungulate hunting (Figure 16). We also found respondents were more likely to be satisfied with private land access and feel their ability to gain permissions has remained the same or improved if they primarily identified with any species or species group other than ungulates. The fewer the number of game categories a respondent chose to hunt, the more likely they felt their ability to gain permissions has remained the same or improved (Appendix 2).



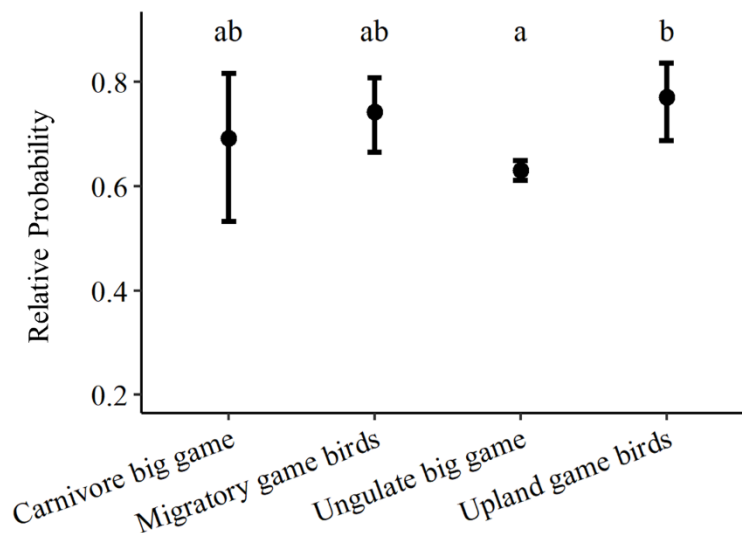
Overall, how much do you rely on privately-owned land to hunt?

Figure 14. Predicted relative probability (and 95% confidence intervals) of hunters having greater than 50% overall access rate on private land based on how much they rely on private land for their hunting. Different letters indicate a significant difference in the probability of access.



In an average year, how many private landowners do you approach or contact to gain hunting access?

Figure 15. Predicted relative probability (and 95% confidence intervals) of hunters having greater than 50% overall access rate on private land based on the number of landowners they contact. Different letters indicate a significant difference in the probability of access.

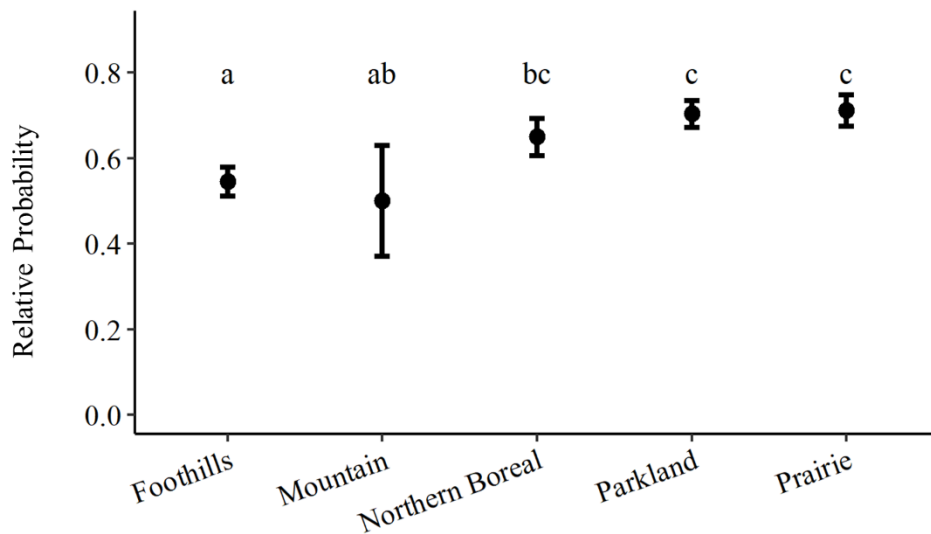


Which hunting category do you most strongly identify with?

Figure 16. Predicted relative probability (and 95% confidence intervals) of hunters having greater than 50% overall access rate on private land based on the species hunted category they most strongly identify with. Different letters indicate a significant difference in the probability of access.

Respondents who primarily hunted in the Parkland, Prairie, or Northern Boreal regions were more likely to obtain access and have greater satisfaction than those who hunted in the Foothills (Figure 17). Respondents who primarily hunted in the Parkland and Prairie WMU series also had a greater access rate and satisfaction than those who hunted in the Mountain WMU series, while those who hunt in the Northern Boreal were more satisfied than those hunting in Mountain WMUs. Respondents who hunted in the Parkland WMU series were more likely to feel their access rate on private land has remained the same or improved than those hunting in the Foothills (Appendix 2).

We found that respondents were more likely to have positive views regarding all aspects of hunting access on private land that we tested if they lived within the same WMU series they regularly hunt in. Respondents were also more likely to gain permissions, feel their access rate has remained the same or improved, and be satisfied with private land access as the latitude of their residence (i.e., postal code) increased. Our data therefore suggest that ease of private land access generally increases moving north. However, the longitude of their existing residence had no effect. Overall access, perceived recent changes in permissions, and overall satisfaction also increased as respondents hunted further from large cities (Appendix 2).



In the past 3 years, which WMU series did you hunt most frequently in?

Figure 17. Predicted relative probability (and 95% confidence intervals) of hunters having greater than 50% overall access rate on private land based on the WMU series they most frequently hunt in. Different letters indicate a significant difference in the probability of access.

Respondents who were part of an older age category (i.e., > 55 years) were more likely to have a greater overall access rate (Figure 18); they were less likely to have noticed a change in their access rate; and they had a higher sense of satisfaction with hunting access on private land in Alberta (Appendix 2). Respondents who currently live or grew up in a rural area were more likely to have a greater access rate or satisfaction with the amount of private land access they are obtaining (Figure 19, Appendix 2).

Respondents who spoke primarily English at home were more likely to gain access to a higher proportion of properties and be more satisfied with private land access than those who regularly spoke a language other than English (Figure 20). However, language spoken at home was not associated with a perceived change in the ability to acquire access (Appendix 2). Respondents who have lived in Canada all their life were more satisfied with gaining permissions than those who have not (Figure 21). Although, when examining overall access rate, there was no difference between respondents who had lived in Canada their entire life and those who had not. Additionally, we found no difference in the overall access rate, change in permissions, or satisfaction based on whether a respondent identified as a visual minority or not (Appendix 2).

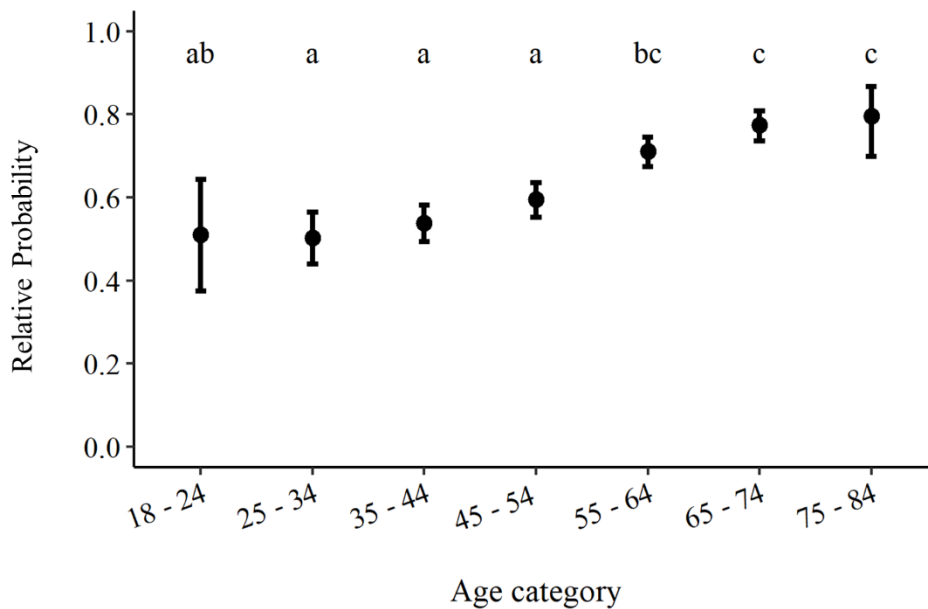
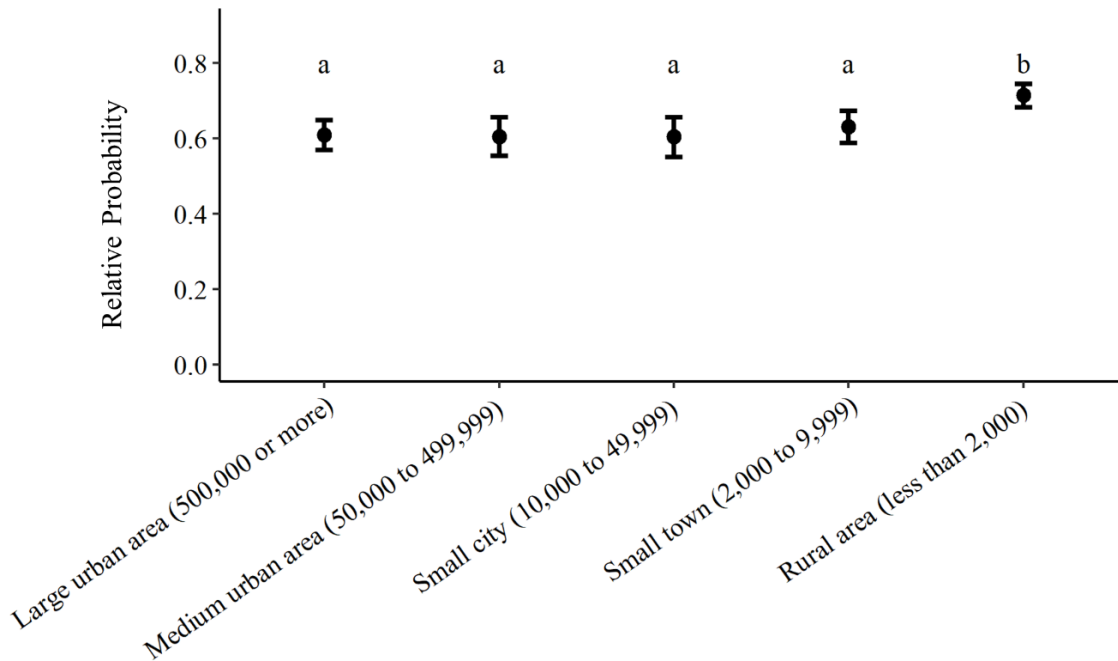


Figure 18. Predicted relative probability (and 95% confidence intervals) of hunters having greater than 50% overall access rate on private land based on their age category. Different letters indicate a significant difference in the probability of access.



Which of these categories best describes the place where you live now?

Figure 19. Predicted relative probability (and 95% confidence intervals) of hunters having greater than 50% overall access rate on private land based on the size of settlement where they live. Different letters indicate a significant difference in the probability of access.

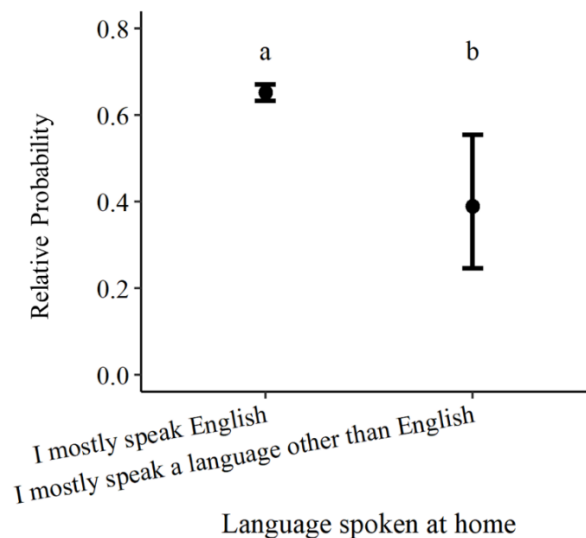


Figure 20. Predicted relative probability (and 95% confidence intervals) of hunters having greater than 50% overall access rate on private land based on language spoken at home. Different letters indicate a significant difference in the probability of access.

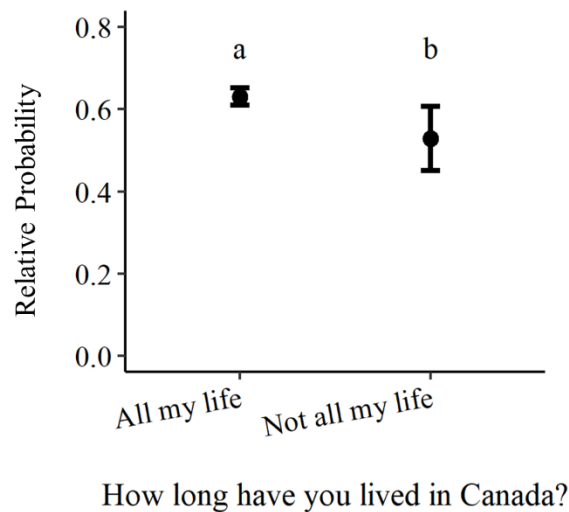


Figure 21. Predicted relative probability (and 95% confidence intervals) of hunter satisfaction with private land access based on the number of years lived in Canada. Different letters indicate a significant difference in the probability of access.

4.5 Factors that affected hunters' most recent access experience

When we analyzed respondents' survey answers and the outcome of their most recent request for permission to access land to hunt, we found many of the same associations outlined above (Appendix 2). The number of landowners approached per year, a respondent's reliance on private land for hunting, the number of years as a hunter, their age, the length of time living in Canada, and language spoken at home all explained the probability of a respondent's recent success acquiring hunting access.

Recent success at getting hunting access did not vary by latitude or longitude of postal code where the respondent lived; however, the likelihood of recent success was greater for respondents seeking access in eastern WMUs than those seeking access in western WMUs. Respondents who had postal codes or hunted in WMUs further from large urban areas were also more likely to be granted access during their most recent experience. The distance between postal code and WMU hunted had no effect (Appendix 2).

We gained some unique insights from respondents' answers regarding their most recent access experience. We found that respondents who had previously approached that same landowner were more likely to be granted hunting access during their most recent experience. We also found that respondents who had most recently asked a close friend for hunting access were significantly more likely to be accepted relative to all other categories, except family (Figure 22).

Those who had asked a family member or someone they did not know well but built a relationship with for hunting purposes were more likely to get access than those who had asked an acquaintance. However, when respondents asked an acquaintance for access, they were still significantly more likely to get hunting permission than those who had asked someone new that they had never interacted with before (Appendix 2).

Respondents who most recently requested permission indirectly via text/email or using a sign-in box were more likely to be granted permission and those who requested permission in person were less likely. Respondents were also more likely to be granted hunting permission on their most recent attempt if the landowner lived on the property they were inquiring about. We found that hunting party size was also a predictor of recent success for obtaining access. Surprisingly, hunting parties of three or more people were more likely to be granted access than hunting parties of two and both were more likely to get access than single hunters (Appendix 2).

We found that habitat type and the game species targeted also influenced a respondent's recent success at getting permission. Those who asked for permission on properties composed primarily of permanent crops, non-agriculture (coulees and/or valleys), annual crops, or pasture/rangeland were more likely to get access than those who asked for permission on non-agriculture (treed) or non-agriculture (wetland) properties (Figure 23). Respondents who asked to hunt white-tailed deer, mule deer, or migratory game birds were more likely to get access on their most recent attempt compared to those who asked to hunt elk. The greater the number of game species or species groups a respondent asked for permission to hunt, the more likely that they would get access to private land during their most recent attempt (Appendix 2).

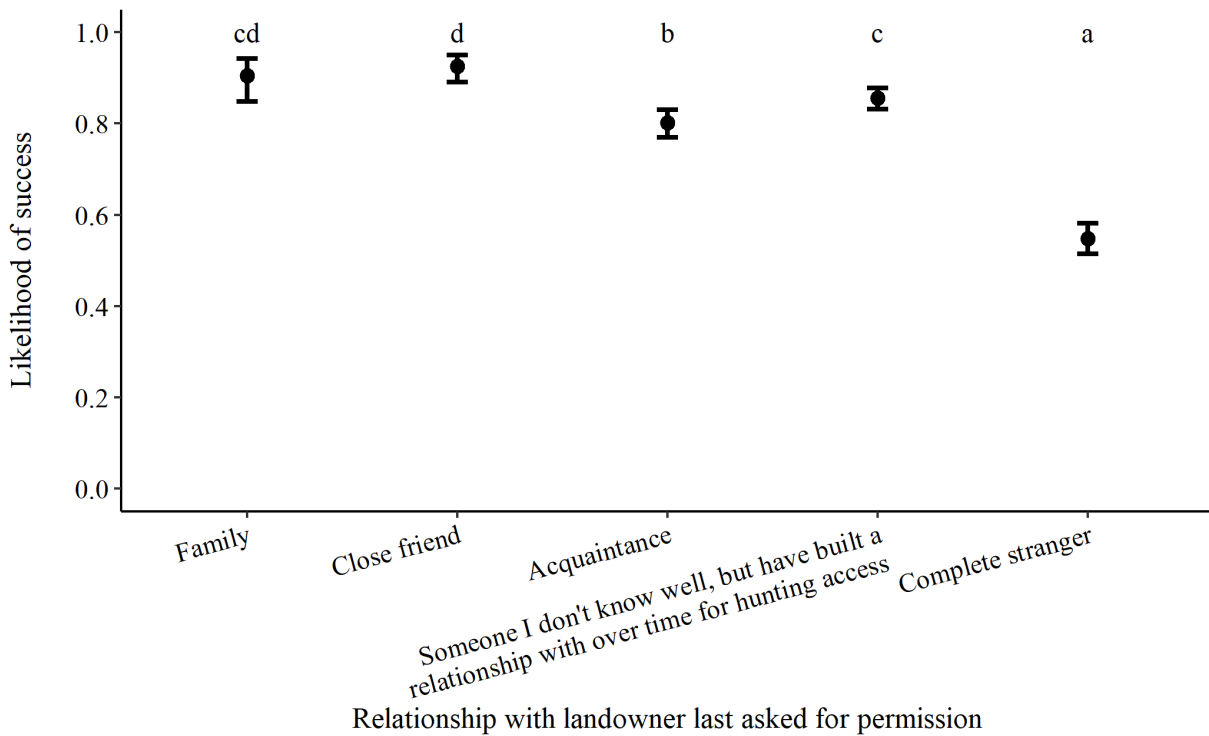


Figure 22. Predicted likelihood (and 95% confidence intervals) of hunter success gaining access to private land during their most recent request based on their relationship with the landowner. Different letters indicate a significant difference in the likelihood of access.

We found that respondents who requested to hunt with a rifle were slightly less likely to gain access to private land during their most recent request. However, this effect was not strong enough to have a significant statistical difference when we compared the estimated marginal means of respondents who selected rifle to those who did not. We also found that the greater the number of firearm types, or other devices, a respondent requested to hunt with, the less likely they were to obtain access during their most recent request (Appendix 2). Their probability of successfully gaining hunting access was not influenced by whether respondents requested to access the property on foot, using an on-highway vehicle, or off-highway vehicle during their most recent request. The same was true for respondents who requested to use multiple modes of travel on the property.

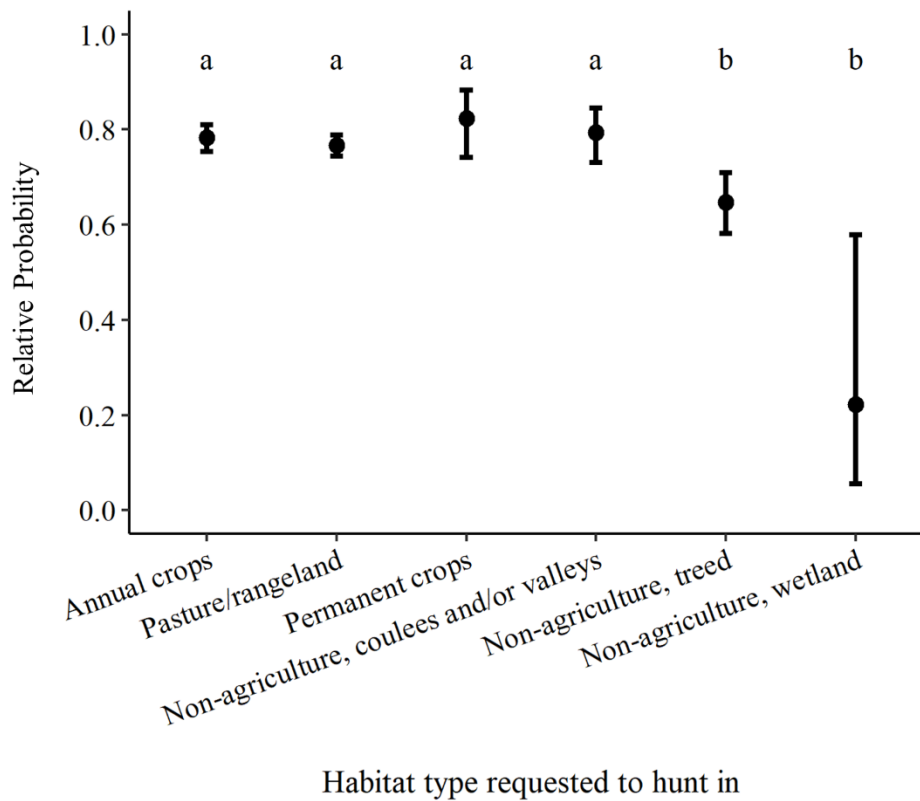


Figure 23. Predicted relative probability (and 95% confidence intervals) of hunter success gaining access to private land during their most recent request based on the habitat type. Different letters indicate a significant difference in the probability of access.

4.6 Factors most likely to influence hunting access on private land

Hunters want to have success gaining access to hunt private land, feel like they can improve their chances, and feel satisfied with their ability to gain access. Therefore, we built models to determine the most important factors that affect those three metrics. The model that explained the most variation in overall access rate with the fewest number of variables included the number of private landowners contacted in an average year, how much a respondent relied on private land for hunting, the WMU series most frequently hunted in, respondent's age, the total number of different private land types they hunted on, and latitude of their postal code (Appendix 3). Our top model explaining perceived change in permissions on private land also included the number of private landowners contacted, reliance on private land for hunting, respondent's age, and the number of different private land types hunted. Additionally, it included whether the respondent selected ungulate big game as the category they most strongly identified with, whether they approached private landowners who were complete strangers for access, and the distance between the respondent's postal code and nearest large urban area (Appendix 3).

Our top model explaining variation in respondent satisfaction with private land access was nearly identical to the top model for overall access rate. The only differences were that it also included whether they approached private landowners who were complete strangers for access, language spoken at home, number of years as a hunter, and whether the respondent selected ungulate big game as the category they most strongly identified with (Appendix 3). Like all other top models, the model explaining the most variation in respondents' recent success obtaining hunting access on private land included average number of private landowners contacted in a year, reliance on private land, and respondent's age. It also included whether respondents have lived in Canada all their life, whether they contacted the most recent landowner in person, hunting party size, relationship with the landowner contacted, whether the landowner lives on the property, habitat type of the property, distance from the hunting location (i.e., WMU) to the nearest large urban area, and whether they asked to hunt mule deer, elk, or migratory game birds (Appendix 3).

5.0 DISCUSSION

5.1 Survey limitations

Our survey distribution methods and voluntary approach to procure survey respondents means that our sample of hunters was not random; therefore, we cannot say if our results reflect the overall population of Alberta's hunters or whether the trends we note are applicable to the entire population. The proportion of hunters that was denied permissions during their most recent request is likely under-represented because after being rejected access many hunters would continue asking landowners for permission throughout the season until they were successful. We were still able to get a large enough sample size of respondents who were denied access to examine some of the factors that influence the probability of access being granted; however, a survey specifically designed to study this objective is likely to yield more accurate results.

Respondents also only provided the hunting method and mode of transport they requested to use on the property during their most recent request if they felt either of these factors played a role in the landowner's decision to grant or deny access. Therefore, we had a much smaller sample size to test the effect of these questions and the results must be interpreted with caution as they were biased toward situations where respondents felt these variables were influential.

Our results for the most challenging WMUs to gain access may have been affected by respondents who only hunted in one WMU but still indicated that it was the most challenging. Some respondents indicated multiple WMUs as most challenging, in which case we selected the first WMU provided.

Another limitation of this survey is the demographics of our participants. For example, many respondents had hunted for more than 30 years and spend an average of 16 days per year

participating in the activity. This suggests that our survey is biased toward hunters who are more experienced and put in more effort than the average licence holder in Alberta. As such, their ability to obtain permissions may not be representative of the average hunter and certainly does not represent hunters new to the pastime.

5.2 General patterns of hunting access to private land in Alberta

Although hunting opportunities are available in a variety of forms, access to private land plays a crucial role in meeting the interests of hunters and by spreading hunting pressure over a broad landscape (Larson et al. 2013). Our survey results suggest that most hunters have positive or neutral views toward hunting access on private land and there appears to be a close connection between access rate, change in permissions, and satisfaction with private land access.

Approximately one-half to two-thirds of respondents indicated they do not have difficulty acquiring access on private land, have noticed no change or an increase in their permissions over the past five years, and are satisfied with the amount of hunting access private landowners provide.

Results from our landowner survey (MacDonald et al. 2024) also support our findings that access to private land in Alberta may not be as significant of a barrier as in other jurisdictions. We found that most landowners (70%) allowed hunting access on their properties to someone other than themselves or immediate family. However, it is worth monitoring how these trends change over time as 40% of the landowners we surveyed stated they have decreased the amount of hunting access they now provide. The proportion of hunters who felt that they have been less likely to obtain hunting access during the past five years was nearly identical (38%) and in both instances, for hunters and landowners, access was more likely to decrease than increase.

Even though most of the hunters from our survey reported little or no issues acquiring hunting access, there appears to be a segment of the population that does find acquiring hunting access on private land more difficult. Addressing these challenges would benefit hunter retention and recruitment as the ability to get permission was one of the main reasons why many previous hunters in our survey had not continued to hunt during the past three years. However, this is not the only barrier to hunter retention and may not be the most prominent. A previous ACA survey found that not knowing where to go and reduced harvest opportunities were not significant factors contributing to why Alberta hunters had not participated in hunting in the previous year (ACA 2020). Rather, the cost of hunting, physical ability, and overcrowding at hunting sites may be the greatest barriers in Alberta (ACA 2020).

Unlike Alberta, access to land has been identified as a major barrier to attracting new participants to hunting and keeping current hunters engaged in the activity in other jurisdictions (e.g., Miller and Vaske 2003, Hansson-Forman et al. 2020). For example, a study from Nebraska found that,

depending on the region, between 35–83% of participants interviewed at public-access hunting sites reported a lack of access to private land was their motivation to seek public-access sites (Fontaine et al. 2019). Similarly, 43% of hunters in Illinois reported that their hunting effort has decreased and lack of access to private land was identified as the main reason by over half of the survey's respondents (Miller et al. 2002).

5.3 Variation in hunting access across Alberta

Geographically, we found that respondents who live or hunt in areas closer to large urban centres, like Calgary and Edmonton, and moderate-sized urban centres, like Grand Prairie and Lethbridge, were likely to have more issues gaining hunting access to private land. Furthermore, WMUs closer to urban centres were consistently listed as more challenging areas to gain access. The survey comments also identified the number of hunters (i.e., overcrowding) as one of the biggest challenges to obtaining access on private land. This was due to competition with other hunters to get access to a shrinking number of accessible properties, as well as frustration from the landowner with having to field so many requests in densely populated areas. Negative perceptions on private land access were greatest at southern latitudes and diminished northwards. This may be attributed to much of Alberta's population and larger cities being concentrated in the southern half of the province.

Although one of the smaller WMU series in terms of area, we found that the Foothills region is hunted most often, which is likely due to its proximity to large cities like Calgary and Edmonton. We also found that private land access is more challenging for those who primarily hunt in the Foothills and Mountain WMU series. The Mountain WMU series is located entirely within the Green Zone, which has very little privately owned land. Large portions of the Foothills also overlap with the Green Zone and therefore much of its private land is concentrated within a small number of WMUs. This amount of hunting pressure likely puts extensive strain on the private landowners within the region who are fielding access requests. Results from our landowner survey found that landowners in the northern Foothills region were more likely (than in other regions) to have stopped allowing hunting access even though they had allowed it in the past; however, there was no difference in willingness to continue granting hunting permissions in the southern Foothills region relative to other WMU series (MacDonald et al. 2024).

Hunters' perceptions of private land access appear to be strongly influenced by big game hunting within the Foothills WMUs, which were frequently selected as the most challenging to get private land access. In contrast, there was a more even distribution of WMUs selected as most challenging to obtain hunting access for game birds (migratory and upland). In fact, acquiring access to hunt migratory birds appears to be most challenging in the Parkland region where most of this type of hunting is undertaken, but this is masked when all species are analyzed together.

5.4 Variation in hunting access by species and hunting method

The species and method of hunting is likely to influence a hunter's odds of acquiring access, but to a lesser extent than their geographic location and social networks. We found that variables associated with game species were rarely retained in our top models. Slightly less than a third of respondents felt that the species of animal they were hunting influenced their likelihood of obtaining access during their most recent request. Hunters felt that the sex of the animal hunted had almost no effect on whether they received access or not. Similarly, only approximately one-third of landowners from our previous survey stated that the sex or species of the animal being hunted influenced their decision to allow access to hunters (MacDonald et al. 2024). However, respondents who did not strongly identify as ungulate big game hunters were less likely to have noticed a negative change in their permissions on private land over the previous five years. Additionally, a larger proportion of big game hunters selected a specific WMU that they felt was the most challenging to obtain private land access within, in comparison to migratory or upland game bird hunters.

There seems to be disparity even among targeted ungulate species as respondents who requested to hunt white-tailed deer and mule deer were more likely to get access to private land during their most recent request, compared to those who requested to hunt elk. Exploring the licence draw length and landowners' perceptions and challenges regarding hunting access for these species is something worth exploring in future work. There are no draws for game bird species, other than turkey, and in many WMUs some form of white-tailed or mule deer licence (e.g., antlerless) can be purchased or drawn every one to three years. It is probable that hunters who purchase these licences are returning to the same properties to inquire about hunting permission on a near annual basis and thereby building a relationship with the landowner. However, licences that require many years to obtain through the draw system can, in some cases, be once-in-a-lifetime opportunity. In these instances, the pressure to harvest an animal may be stronger than obeying the rules set out by the landowner, especially if the consequences are minimal and they never return to that property again.

If coveted and rare tags are influencing a landowner's decision to allow access, upland and migratory game bird hunting could potentially be the best place to start for hunters who do not have existing connections with private landowners but with whom they would like to build rapport. Upland game bird hunters appear to have the highest overall access rate and satisfaction with their access to private land. There are a variety of reasons landowners may be more receptive to upland bird hunting than hunting other types of game. For example, safety concerns may be alleviated as a result of the type of firearm used, and upland game birds are less charismatic and occur at greater densities. This form of hunting may also be less intensive as it does not require the set up of blinds and decoys or pre-hunt scouting, and upland game bird hunting coincides nicely with foot-access only requirements. The hunting season for upland

game birds is generally longer and starts earlier so access requests may not be as concentrated and these hunters may be the first to contact landowners, reaching them before the fatigue of managing requests sets in.

Migratory game bird hunting shares many similarities to hunting upland game birds. Although we found no difference in overall access rate and satisfaction between migratory game bird hunters and other hunter groups, respondents were more likely to gain permissions to hunt migratory game birds during their most recent request. Hunters could start by approaching unfamiliar landowners to hunt birds on their private land earlier in the season and then, as trust and familiarity is built, they may be more successful at acquiring access to hunt big game. The same may be said for big game during the archery season. However, due to our survey limitations and the small number of respondents we collected hunting method information from, we were unable to analyze the effects of archery on access success.

5.5 Variation in hunting access based on experience and social network

Other major contributors to gaining permissions on private land and satisfaction with the current situation were hunter experience and social networks. The number of landowners contacted by a respondent in an average year was a good indicator of satisfaction and overall access rate.

Respondents who contacted more landowners were less effective at gaining permissions and largely dissatisfied with their ability to acquire hunting access. This suggests that the reason for contacting a greater number of landowners is likely due to the lack of success from previous inquiries, resulting in the need to contact many landowners to fulfill their hunting needs.

Respondents who return to their same, preferred hunting locations annually likely only need to contact landowners who they have previous experience with every year. Therefore, beyond the first year of making initial contact, the likelihood of getting permission is much more probable.

Our survey results highlight the importance of the landowner–hunter relationship. Those who contact greater numbers of landowners may also be inquiring about access from strangers or people they do not interact with on a regular basis, which greatly reduces the probability of acquiring access and ultimately their satisfaction. Hunters who approach landowners with whom they have had no previous interactions often do so in person, which likely explains the lower probability of success for this method of contact. In this case, it is likely not the method used to approach the landowner that reduced success, as most respondents from our landowner survey stated they prefer to be contacted in person. This further highlights the importance of the hunter–landowner relationship. Landowners who are familiar with the hunter who is asking for permission may be more comfortable with a simple text or email request, which likely explains the higher probability of success using this method demonstrated by this survey. Contact by phone is a common approach used by hunters to request permission from landowners they have never interacted with before, as well as those for whom relationships have been built. Therefore,

it is not surprising that we found no difference in whether access was granted for respondents who contacted landowners by phone than those who used a different contact method when they last asked for hunting permission.

Clearly, social networks and building relationships are key to obtaining access on private land. Those who have friends or family that own private land they can hunt on are at a distinct advantage. The same is also true for hunters with larger social networks because they are more likely to know someone with land they can hunt on (Hansson-Forman et al. 2020). Our landowner survey also found that landowners were more likely to provide hunting access to family and close friends, and hunters with whom they had formed a relationship (MacDonald et al. 2024). Studies in the United States also found that landowners were more likely to grant hunting permission to friends, family, and neighbours and only a small percentage allowed public hunting access (Walberg et al. 2018, Lauber and Brown 2000, Miller et al. 2002). This hesitancy to allow strangers permission to hunt on private property likely originates from concerns and uncertainty about whether they will hunt safely and how they will treat the property (Lauber and Brown 2000).

Trust is a big hurdle for getting hunting access on private land. Many of the respondents in this survey acknowledged that the behaviour of past hunters has made it difficult for landowners to trust people they do not know. New hunters or those who have moved to a new area where they do not have a social network with land to hunt on may be at a disadvantage and experience substantial rejection of their access requests. Unfortunately, it is common for hunters to experience rejection when making access requests; for example, in Illinois, 62% of hunters using private land stated that they had been denied access at least once within the previous year (Miller et al. 2002).

As hunters begin their search for private properties to access it would be beneficial to focus their attention on a few receptive landowners, build trust, and maintain these relationships rather than contacting many different landowners. If given the opportunity, they can continue to strengthen their relationships with these landowners until they build a core area where they can regularly hunt each year. This appears to be a better strategy than continuing to approach new landowners that they have never interacted with before. Including areas with public access, such as public land, conservation sites, or areas with sign-in boxes, in one's core area is also wise to ensure hunting access early on, until relationships with private landowners are developed. Once that consistent core area for hunting each year has been established, hunters can then work at expanding it to include new properties, such as areas with better habitat, less hunting pressure, or a greater variety of game species they wish to hunt.

Our results suggest that a hunter's background affects their ability to obtain access on private land. Hunters who live or grew up in rural areas are not only likely to have closer relationships with landowners who could provide hunting access, but they may also be better equipped to communicate and relate with landowners. This coincides with our findings that respondents who have lived in rural areas had a greater access rate and satisfaction when requesting permissions on private land. Our landowner survey also found that landowners were more likely to allow hunting access to people from their local area, as well as someone from a rural setting or small town that was not local (MacDonald et al. 2024).

Connecting with landowners in Alberta may also be more difficult for hunters who do not speak English as their primary language or those who have not lived in Canada for their entire life. However, we did not find a difference in access rate based on whether respondents identified as a visible minority. This suggests that newer Canadians' lack of access to private land is likely the result of language and/or communication barriers or perhaps an unfamiliarity with rural Canadian society and culture. The good news is that a hunter's odds of successfully accessing private land can be improved through experience, as respondents who were older and had hunted for more years were less likely to encounter access-related issues on private land. Hunter mentorship can also help those who are struggling to get access on private land, as they connect with other hunters and receive feedback to improve their technique when approaching landowners.

5.6 Barriers to private land access

The most common reasons given to hunters who were denied access included previous trespassing issues, general anti-hunting sentiment, and landowners had already reached the maximum number of hunters they were willing to allow. The landowner survey also found that trespassing issues were the top concern (MacDonald et al. 2024). Although we did not specifically ask landowners in that survey whether they had anti-hunting views, we found that nearly two-thirds of the 30% who did not allow hunting had previously provided access. This would suggest that although some aspect had changed to stop them from allowing hunting access, at least at one point they were not opposed to hunting. Conversely, 61% of landowners who did not allow hunting stated that there was no scenario that would motivate them to allow hunting on their land, which might suggest anti-hunting sentiment. The results from our landowner survey also appear to be biased toward respondents who had positive views toward hunting. However, hunters could also be mistaking anti-hunting sentiment with landowners' frustrations and concerns from access-related issues rather than opposition to the activity itself (Lauber and Brown 2000).

Hunters living in urban areas may choose to travel further to avoid heavier hunting pressure and increase their likelihood of obtaining access even though areas nearby may be more convenient;

however, in this instance many of the landowners they would need to approach (at least initially) would be strangers, which also reduces the probability of obtaining access. There is very little that hunters can do to alleviate landowner concerns about trespassing other than inquire about and obey the rules dictated by the landowner, be good ambassadors for other hunters, and report any suspicious or illegal activity. It often only takes a single negative event for landowners to eliminate hunting access on their property (Walberg et al. 2018).

5.7 Summary

Although acquiring access to private land for hunting is not a guarantee and there are many factors at play, the responses from most hunters who participated in our survey indicate that accessing private land is not restricting hunting opportunities. More than two-thirds of respondents stated that they are granted access by over half of the landowners they approach, are satisfied with their experience accessing private land in Alberta, and feel that their ability to gain permissions on private land has remained constant or increased over the past five years. However, we acknowledge that these results may not represent the average hunter in Alberta. As noted, our survey results are likely biased toward practiced hunters and do not reflect the experiences and opinions of Albertans who are new to hunting. Nonetheless, this survey provided valuable insights that can help hunters improve their success in accessing private land.

Private land access for hunting in Alberta appears to be the most difficult to obtain near large urban areas and, to a lesser extent, in southern parts of the province and for those hunting big game species. Furthermore, the segment of the population that appears to be struggling the most to get permissions is hunters who do not have close relationships with people who own land, and therefore, must approach unfamiliar landowners. In this instance, acquiring hunting access can be limited by a hunter's ability to make a good first impression and connect with landowners. Some hunters offered advice in the survey comments to that effect: present yourself in a respectful and professional manner, initiate contact well ahead of the hunting season and when landowners are not busy with farm or ranch work, and take time to develop a personal relationship or provide assistance (e.g., report illegal activity on the property). The good news is that conversing with landowners, building their trust, and requesting hunting permission is a skill that can be improved with age and experience. Far from just self-serving, this skill is critical to maintaining access opportunities for the hunting community, as one negative experience with a hunter can be enough for landowners to block access entirely.

The importance of developing hunter–landowner relationship skills deserves greater emphasis among those seeking permissions, and especially for those entering hunter education systems. To retain new hunters, we need to ensure that they are not immediately discouraged with their lack of access and abandon hunting as a pastime. New and experienced hunters alike must also be

aware that their actions while on private land not only influence the likelihood they will be allowed to return, but also access opportunities for everyone else in the future.

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7.0 APPENDICES

Appendix 1. List of questions and the tabulated responses from the 2021–2022 Hunter Access Survey.

Are you a hunter?

Number of survey respondents who selected each category with percentage in parentheses.
n = 3,455

Yes	3,416	(99%)
No	39	(1%)

As someone who has never hunted, have you obtained all the requirements for first-time hunters? *Respondents who do not identify as a hunter

Number of survey respondents who selected each category with percentage in parentheses.
n = 32

Yes	26	(81%)
No	6	(19%)

Have you experienced challenges accessing private land that has affected your ability to start hunting for the first time? *Respondents who do not identify as a hunter

Number of survey respondents who selected each category with percentage in parentheses.
n = 24

Yes	12	(50%)
No	12	(50%)

Which class of licenced game hunter in Alberta best describes you? Select one.

Number of survey respondents who selected each category with percentage in parentheses.
n = 3,405

AB Resident	3,271	(96%)
First Nations	13	(< 1%)
Métis	37	(1%)
Non-resident Canadian	61	(2%)
Non-resident Alien	8	(< 1%)
Outfitter	15	(< 1%)

Have you hunted in the past three years (i.e., in 2019, 2020, and/or 2021)?

Number of survey respondents who selected each category with percentage in parentheses.
n = 3,400

Yes	3,330	(98%)
No	70	(2%)

Which of the following statements describe reason(s) that have kept you from hunting during the past three years (i.e., in 2019, 2020, and/or 2021)? Select all that apply.

*Respondents who have not hunted in the past three years

Number of survey respondents who selected each category with percentage in parentheses.
n = 67

Wildlife populations are too low to hunt	4	(6%)
I am no longer interested in or motivated to go hunting	4	(6%)
I participate in other recreational activities instead	5	(7%)
I have concerns about safety	6	(9%)
Places to hunt are too far from my home	9	(13%)
I don't have anyone to hunt with	9	(13%)
I don't know where to go hunting	12	(18%)
I've been unable to get permission to hunt anywhere	15	(22%)
I have too many family or work commitments	15	(22%)
Hunting sites are too crowded	16	(24%)
My physical ability has declined	16	(24%)
Hunting has become too costly	16	(24%)
Other (please specify)	16	(24%)

What types of private land have you hunted on in the past three years (i.e., 2019, 2020, 2021)? Select all that apply.

Number of survey respondents who selected each category with percentage in parentheses.
n = 3,318

My own land	735	(22%)
Land owned by family (e.g., parent(s), sibling(s), cousin(s), etc.)	924	(28%)
Land owned by a close friend	1,281	(39%)
Land owned by an acquaintance	1,231	(37%)
Land owned by someone I don't know well, but have built a relationship with over time for hunting access	1,668	(50%)
Land owned by a complete stranger	1,173	(35%)
Land owned by a conservation organization (e.g., ACA, Ducks Unlimited, etc.)	806	(24%)
Land owned by an Irrigation District	254	(8%)
Other (please specify)	163	(5%)
I have not hunted on private land in the past three years	166	(5%)

How many years have you been a hunter? *Respondents who have not hunted in the past three years

Number of survey respondents who selected each category with percentage in parentheses.
n = 61

0	1	(2%)	35	2	(3%)
2	2	(3%)	38	1	(2%)
4	1	(2%)	40	7	(11%)
5	1	(2%)	42	2	(3%)
6	2	(3%)	44	1	(2%)
10	4	(7%)	45	7	(11%)
12	1	(2%)	50	5	(8%)
13	1	(2%)	55	4	(7%)
14	1	(2%)	60	3	(5%)
15	1	(2%)	64	1	(2%)

20	2	(3%)	65	1	(2%)
25	2	(3%)	70	1	(2%)
30	7	(11%)			

In the past three years, which of the following hunting categories best describe the type of hunter you are? Select all that apply. *Respondents who have not hunted in the past three years

Number of survey respondents who selected each category with percentage in parentheses.

n = 58

Carnivore big game (e.g., black bear, cougar, wolf, coyote, etc.)	14	(24%)
Fur-bearing animals (e.g., red fox, bobcat, etc.)	2	(3%)
Migratory game birds – waterfowl and/or sandhill crane	17	(29%)
Small game (e.g., rabbit and hares, squirrels, etc.)	11	(19%)
Ungulate big game (e.g., deer, moose, elk, etc.)	48	(83%)
Upland game birds (e.g., grouse, pheasant, partridge, turkey, etc.)	31	(53%)
Wild boar	3	(5%)

Of the hunting categories you selected that best describe you, which single type do you most strongly identify with? Select one. *Respondents who have not hunted in the past three years

Number of survey respondents who selected each category with percentage in parentheses.

n = 58

Carnivore big game (e.g., black bear, cougar, wolf, coyote, etc.)	1	(2%)
Migratory game birds – waterfowl and/or sandhill crane	7	(12%)
Small game (e.g., rabbit and hares, squirrels, etc.)	3	(5%)
Ungulate big game (e.g., deer, moose, elk, etc.)	42	(72%)
Upland game birds (e.g., grouse, pheasant, partridge, turkey, etc.)	4	(7%)
Wild boar	1	(2%)

Which of the following five Wildlife Management Unit (WMU) series have you hunted in? Select all that apply. *Respondents who have not hunted in the past three years

Number of survey respondents who selected each category with percentage in parentheses.

n = 55

Foothills WMUs – 300 Series	32	(58%)
Mountain WMUs – 400 Series	10	(18%)
Northern Boreal WMUs – 500 Series	11	(19%)
Parkland WMUs – 200 Series	11	(19%)
Prairie WMUs – 100 Series	18	(33%)

Which of these categories best describes the place where you live now? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 3,006

First Nations Reserve	0	(0%)
Métis Settlement	3	(< 1%)
Large urban area (population 500,000 or more)	721	(24%)
Medium urban area (population 50,000 to 499,999)	406	(14%)
Small city (population 10,000 to 49,999)	382	(13%)
Small town (population 2,000 to 9,999)	576	(19%)
Rural area (population less than 2,000)	918	(31%)

Which of these categories best describes the place where you lived most of the time growing up (that is until age 16)? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,933

First Nations Reserve	1	(< 1%)
Métis Settlement	2	(< 1%)
Large urban area (population 500,000 or more)	553	(19%)
Medium urban area (population 50,000 to 499,999)	283	(10%)
Small city (population 10,000 to 49,999)	275	(9%)
Small town (population 2,000 to 9,999)	657	(22%)
Rural area (population less than 2,000)	1,162	(40%)

What is your postal code?

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,770

Code	Region	Number of Responses	Code	Region	Number of Responses	Code	Region	Number of Responses
T0A	Eastern Alberta (St. Paul)	100	T3E	Calgary (Lakeview / Glendale / Killarney / Glamorgan)	12	T6G	Edmonton (West University / Strathcona Place)	3
T0B	Wainwright Region (Tofield)	106	T3G	Calgary (Hawkwood / Arbour Lake / Royal Oak / Rocky Ridge)	13	T6H	Edmonton (Southgate / North Riverbend)	3
T0C	Central Alberta (Stettler)	91	T3H	Calgary (Discovery Ridge / Signal Hill / Aspen Woods / Patterson / Cougar Ridge)	23	T6J	Edmonton (Kaskitayo)	6
T0E	Western Alberta (Jasper)	43	T3J	Calgary (Martindale / Taradale / Falconridge / Saddle Ridge)	8	T6K	Edmonton (West Mill Woods)	5
T0G	North Central Alberta (Slave Lake)	57	T3K	Calgary (Sandstone / Harvest Hills / Coventry)	19	T6L	Edmonton (East Mill Woods)	11

Code	Region	Number of Responses	Code	Region	Number of Responses	Code	Region	Number of Responses
				Hills / Panorama Hills / Beddington)				
T0H	Northwestern Alberta (High Level)	119	T3L	Calgary (Tuscany / Scenic Acres)	12	T6M	Edmonton Southwest	7
T0J	Southeastern Alberta (Drumheller)	81	T3M	Calgary (Cranston)	11	T6N	Edmonton (South Industrial)	0
T0K	International Border Region (Cardston)	131	T3N	Calgary Northeast	1	T6P	Edmonton (East Southeast Industrial / South Clover Bar)	2
T0L	Kananaskis Country (Claresholm)	76	T3P	Calgary (Symons Valley)	2	T6R	Edmonton (Riverbend)	7
T0M	Central Foothills (Sundre)	118	T3R	Calgary Northwest	9	T6S	Edmonton (North Clover Bar)	0
T0P	Northeastern Alberta (Fort Chipewyan)	1	T3S	Calgary	1	T6T	Edmonton (Meadows)	3
T0V	Remote Northeast (Fitzgerald)	0	T3Z	Redwood Meadows	9	T6V	Edmonton (West Castledowns)	4
T1A	Medicine Hat Central	29	T4A	Airdrie East	17	T6W	Edmonton (Heritage Valley)	18
T1B	Medicine Hat South	39	T4B	Airdrie West	31	T6X	Edmonton (Ellerslie)	3
T1C	Medicine Hat North	10	T4C	Cochrane	38	T7A	Drayton Valley	19
T1G	Taber	11	T4E	Red Deer County	11	T7E	Edson	18
T1H	Lethbridge North	18	T4G	Innisfail	19	T7N	Barrhead	17
T1J	Lethbridge West and Central	21	T4H	Olds	7	T7P	Westlock	10
T1K	Lethbridge Southeast	39	T4J	Ponoka	15	T7S	Whitecourt	18
T1L	Banff	6	T4L	Lacombe	18	T7V	Hinton	6
T1M	Coaldale	12	T4M	Blackfalds	5	T7X	Spruce Grove North	35
T1P	Strathmore	32	T4N	Red Deer Central	9	T7Y	Spruce Grove South	32
T1R	Brooks	20	T4P	Red Deer North	12	T7Z	Stony Plain	9
T1S	Okotoks	52	T4R	Red Deer South	25	T8A	Sherwood Park West	41
T1V	High River	24	T4S	Sylvan Lake	14	T8B	Sherwood Park Outer Southwest	8
T1W	Canmore	5	T4T	Rocky Mountain House	24	T8C	Sherwood Park Inner Southwest	7
T1X	Chestermere	13	T4V	Camrose	23	T8E	Sherwood Park Central	12
T1Y	Calgary (Rundle / Whitehorn / Monterey Park)	10	T4X	Beaumont	13	T8G	Sherwood Park East	16
T1Z	Rocky View	2	T5A	Edmonton (West Clareview / East Londonderry)	10	T8H	Sherwood Park Northwest	19
T2A	Calgary (Penbrooke Meadows / Marlborough)	11	T5B	Edmonton (East North Central / West Beverly)	1	T8L	Fort Saskatchewan	21
T2B	Calgary (Forest Lawn / Dover / Erin Woods)	7	T5C	Edmonton (Central Londonderry)	11	T8N	St. Albert	43
T2C	Calgary (Lynnwood Ridge / Ogden / Foothills Industrial / Great Plains)	16	T5E	Edmonton (West Londonderry / East Calder)	6	T8R	Morinville	22
T2E	Calgary (Bridgeland / Greenview / Zoo / YYC)	10	T5G	Edmonton (North Central / Queen Mary Park / YXD)	1	T8S	Peace River	16
T2G	Calgary (Inglewood / Burnsland / Chinatown / East Victoria Park / Saddledome)	1	T5H	Edmonton (North and East Downtown Fringe)	2	T8T	St. Albert	13
T2H	Calgary (Highfield / Burns Industrial)	3	T5J	Edmonton (North Downtown)	1	T8V	Grande Prairie Central	20
T2J	Calgary (Queensland Downs / Lake Bonavista / Willow Park / Acadia)	38	T5K	Edmonton (South Downtown / South Downtown Fringe)	1	T8W	Grande Prairie South	31
T2K	Calgary (Thornecliffe / Tuxedo)	16	T5L	Edmonton (North Westmount / West Calder / East Mistatim)	4	T8X	Grande Prairie East	21
T2L	Calgary (Brentwood / Collingwood / Nose Hill)	4	T5M	Edmonton (South Westmount / Groat Estate / East Northwest Industrial)	3	T9A	Wetaskiwin	13
T2M	Calgary (Mount Pleasant / Capitol Hill / Banff Trail)	4	T5N	Edmonton (Glenora / SW Downtown Fringe)	2	T9C	Vegreville	15
T2N	Calgary (Kensington / Westmont / Parkdale / University)	3	T5P	Edmonton (North Jasper Place)	2	T9E	Leduc	23
T2P	Calgary (City Centre / Calgary Tower)	4	T5R	Edmonton (Central Jasper Place / Buena Vista)	10	T9G	Devon	5
T2R	Calgary (Connaught / West Victoria Park)	0	T5S	Edmonton (West Northwest Industrial / Winterburn)	3	T9H	Fort McMurray Outer Central	4
T2S	Calgary (Elbow Park / Britannia / Parkhill / Mission)	2	T5T	Edmonton West (West Jasper Place / West Edmonton Mall)	24	T9J	Fort McMurray Inner Central	0
T2T	Calgary South (Altadore / Bankview / Richmond)	3	T5V	Edmonton (Central Mistatim)	1	T9K	Fort McMurray Northwest	17

Code	Region	Number of Responses	Code	Region	Number of Responses	Code	Region	Number of Responses
T2V	Calgary (Oak Ridge / Haysboro / Kingsland / Windsor Park)	7	T5W	Edmonton (Central Beverly)	7	T9M	Cold Lake	11
T2W	Calgary (Braeside / Woodbine)	21	T5X	Edmonton (East Castledowns)	11	T9N	Bonnyville	24
T2X	Calgary (Midnapore / Sundance)	18	T5Y	Edmonton (Landbank / Oliver / East Lake District)	16	T9S	Athabasca	19
T2Y	Calgary (Millrise / Somerset / Bridlewood / Evergreen)	17	T5Z	Edmonton (West Lake District)	5	T9V	Lloydminster	17
T2Z	Calgary (Douglas Glen / McKenzie Lake / Copperfield / East Shepard)	31	T6A	Edmonton (North Capilano)	6	T9W	Wainwright	16
T3A	Calgary (Dalhousie / Edgemont / Hamptons / Hidden Valley)	13	T6B	Edmonton (SE Capilano / West Southeast Industrial / East Bonnie Doon)	6	T9X	Vermilion	13
T3B	Calgary (Montgomery / Bowness / Silver Springs / Greenwood)	18	T6C	Edmonton (Central Bonnie Doon)	6			
T3C	Calgary (Rossarock / Wildwood / Shaganappi / Sunalta)	9	T6E	Edmonton (South Bonnie Doon / East University)	5			

Please select the category that best describes your age? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 3,011

18–24	58	(2%)
25–34	279	(9%)
35–44	564	(19%)
45–54	622	(21%)
55–64	731	(24%)
65–74	619	(21%)
75–84	115	(4%)
85 or older	7	(< 1%)
I prefer not to say	16	(1%)

Which of these statements would best describe you? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 3,003

I do not identify as a visible minority	2,368	(79%)
I identify as a visible minority	226	(7%)
I prefer not to say	409	(14%)

What language do you speak most often and on a regular basis at home? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 3,001

I mostly speak a language other than English or French at home	42	(1%)
I mostly speak English at home	2,850	(95%)
I mostly speak French at home	14	(1%)
I prefer not to say	95	(3%)

How long have you lived in Canada? Select one.

Number of respondents who selected each category with percentage in parentheses. n = 3,002

2 years or less	1	< 1%
3 to 5 years	2	< 1%
6 to 10 years	8	< 1%
11 years or longer	203	7%
All my life	2,769	92%
I prefer not to say	19	1%

How many years have you been a hunter? *Respondents who have hunted in the past three years

Number of survey respondents who selected each category with percentage in parentheses.

n = 3,193

<i>1</i>	19	(1%)	<i>33</i>	25	(1%)	<i>65</i>	21	(1%)
<i>2</i>	27	(1%)	<i>34</i>	36	(1%)	<i>66</i>	3	(< 1%)
<i>3</i>	42	(1%)	<i>35</i>	154	(5%)	<i>67</i>	2	(< 1%)
<i>4</i>	24	(1%)	<i>36</i>	40	(1%)	<i>68</i>	2	(< 1%)
<i>5</i>	54	(2%)	<i>37</i>	23	(1%)	<i>69</i>	1	(< 1%)
<i>6</i>	33	(1%)	<i>38</i>	27	(1%)	<i>70</i>	9	(< 1%)
<i>7</i>	28	(1%)	<i>39</i>	18	(1%)	<i>71</i>	1	(< 1%)
<i>8</i>	49	(2%)	<i>40</i>	289	(9%)	<i>72</i>	1	(< 1%)
<i>9</i>	33	(1%)	<i>41</i>	23	(1%)	<i>74</i>	2	(< 1%)
<i>10</i>	136	(4%)	<i>42</i>	29	(1%)	<i>75</i>	1	(< 1%)
<i>11</i>	23	(1%)	<i>43</i>	22	(1%)	<i>78</i>	1	(< 1%)
<i>12</i>	59	(2%)	<i>44</i>	47	(2%)	<i>80</i>	1	(< 1%)
<i>13</i>	28	(1%)	<i>45</i>	172	(5%)			
<i>14</i>	28	(1%)	<i>46</i>	28	(1%)			
<i>15</i>	115	(4%)	<i>47</i>	18	(1%)			
<i>16</i>	23	(1%)	<i>48</i>	35	(1%)			
<i>17</i>	17	(1%)	<i>49</i>	16	(1%)			
<i>18</i>	34	(1%)	<i>50</i>	281	(9%)			
<i>19</i>	18	(1%)	<i>51</i>	17	(1%)			
<i>20</i>	162	(5%)	<i>52</i>	20	(1%)			
<i>21</i>	21	(1%)	<i>53</i>	15	(1%)			
<i>22</i>	25	(1%)	<i>54</i>	24	(1%)			
<i>23</i>	27	(1%)	<i>55</i>	77	(2%)			
<i>24</i>	23	(1%)	<i>56</i>	18	(1%)			

25	135	(4%)	57	11	(< 1%)
26	24	(1%)	58	12	(< 1%)
27	27	(1%)	59	3	(< 1%)
28	35	(1%)	60	96	(3%)
29	23	(1%)	61	4	(< 1%)
30	219	(7%)	62	4	(< 1%)
31	15	(1%)	63	5	(< 1%)
32	30	(1%)	64	3	(< 1%)

In the past three years, how many days per year on average did you spend hunting on private land?

Number of survey respondents who selected each category with percentage in parentheses.

n = 3,185

0	103	(3%)	20	295	(9%)	50	38	(1%)
1	49	(2%)	21	40	(1%)	55	1	(< 1%)
2	84	(3%)	22	4	(< 1%)	56	1	(< 1%)
3	159	(5%)	23	1	(< 1%)	60	52	(2%)
4	134	(4%)	24	11	(< 1%)	65	5	(< 1%)
5	249	(8%)	25	110	(4%)	68	1	(< 1%)
6	130	(4%)	26	1	(< 1%)	70	9	(< 1%)
7	146	(5%)	27	1	(< 1%)	72	1	(< 1%)
8	106	(3%)	28	3	(< 1%)	74	1	(< 1%)
9	21	(1%)	30	203	(6%)	75	2	(< 1%)
10	474	(15%)	31	2	(< 1%)	80	11	(< 1%)
11	6	(< 1%)	33	1	(< 1%)	90	23	(1%)
12	106	(3%)	35	25	(1%)	100	10	(< 1%)
13	3	(0%)	36	4	(< 1%)	120	5	(< 1%)
14	100	(3%)	38	2	(< 1%)	128	1	(< 1%)
15	290	(9%)	40	76	(2%)	130	1	(< 1%)
16	12	(< 1%)	42	1	(< 1%)	175	1	(< 1%)
17	5	(< 1%)	44	1	(< 1%)	180	2	(< 1%)
18	14	(< 1%)	45	39	(1%)	200	6	(< 1%)
19	1	(< 1%)	46	1	(< 1%)	300	1	(< 1%)

In the past three years, which of the following hunting categories best describe the type of hunter you are? Select all that apply.

Number of survey respondents who selected each category with percentage in parentheses.

n = 3,200

Carnivore big game (e.g., black bear, cougar, wolf, coyote, etc.)	771	(24%)
Fur-bearing animals (e.g., red fox, bobcat, etc.)	129	(4%)
Migratory game birds – waterfowl (i.e., ducks and geese) and/or sandhill crane	922	(29%)
Other (please specify)	24	(1%)
Small game (e.g., rabbit and hares, squirrels, etc.)	280	(9%)
Ungulate big game (e.g., deer, moose, elk, etc.)	3,069	(96%)
Upland game birds (e.g., grouse, pheasant, partridge, turkey, etc.)	1,339	(42%)
Wild boar	69	(2%)

Of the hunting categories you selected that best describe you, which single type do you most strongly identify with? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 3,193

Carnivore big game (e.g., black bear, cougar, wolf, coyote, etc.)	47	(1%)
Fur-bearing animals (e.g., red fox, bobcat, etc.)	5	(< 1%)
Migratory game birds – waterfowl (i.e., ducks and geese) and/or sandhill crane	164	(5%)
Other (please specify)	9	(< 1%)
Small game (e.g., rabbit and hares, squirrels, etc.)	5	(< 1%)
Ungulate big game (e.g., deer, moose, elk, etc.)	2,807	(88%)
Upland game birds (e.g., grouse, pheasant, partridge, turkey, etc.)	155	(5%)
Wild boar	1	(< 1%)

In the past three years, which WMU series did you hunt most frequently in? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 3,156

Foothills WMUs – 300 Series	1,025	(32%)
Mountain WMUs – 400 Series	85	(3%)
Northern Boreal WMUs – 500 Series	554	(18%)
Parkland WMUs – 200 Series	875	(28%)
Prairie WMUs – 100 Series	617	(19%)

Overall, how much do you rely on privately-owned land, where permission is required to hunt? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 3,144

Entirely – I only hunt on private land	466	(15%)
Mostly – I hunt on private land most of the time, but sometimes hunt on public/open-access land	1,450	(46%)
Neutral – I hunt equally on private and public/open-access lands	742	(24%)
Seldom – I hardly ever hunt on private land, most of my hunting occurs on public/open-access land	368	(12%)
Never – I do not hunt on private land; I hunt exclusively on public/open-access land	118	(4%)

Why do you choose to hunt exclusively on public land? Select all that apply.

Number of survey respondents who selected each category with percentage in parentheses.

n = 117

I'd like to access private land but don't know where to begin	35	(30%)
My experiences or those of others have made me hesitant to approach private landowners	38	(32%)
Obtaining permission to access private land is too much work	22	(19%)
Public land is convenient and provides all the hunting access I require	57	(49%)
Other	12	(10%)

In an average year, how many private landowners do you approach or contact to gain hunting access?

Number of survey respondents who selected each category with percentage in parentheses.

n = 3,021

1	307	(10%)
2–4	1,395	(46%)
5–7	643	(21%)
8–10	232	(8%)
11–15	134	(4%)
16–30	78	(3%)
More than 30	46	(2%)
I don't know, I have not kept track	51	(2%)
Zero, I do not need to ask for permission for access	135	(4%)

Overall, how successful have you been at accessing private land for hunting, where permission is required? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,818

I never get access (e.g., 0 out of 5 times)	90	(3%)
I occasionally get access (e.g., 1 or 2 out of 5 times)	922	(33%)
I often get some access (e.g., 3 or 4 out of 5 times)	1,253	(44%)
I always get access (e.g., 5 out of 5 times)	553	(20%)

Over the past five years, where permission is required to access private land to hunt, how has your success in obtaining access changed? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,831

I have become less likely to be granted access to private land	1,089	(38%)
I have become more likely to be granted access to private land	444	(16%)
My success rate for access hasn't changed	1,298	(46%)

Overall, how satisfied are you with your experience accessing private land in Alberta for hunting? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,998

Extremely dissatisfied	297	(10%)
Somewhat dissatisfied	667	(22%)
Neither satisfied nor dissatisfied	476	(16%)
Somewhat satisfied	822	(27%)
Extremely satisfied	736	(25%)

What Wildlife Management Unit (WMU), if any, have you found the most challenging to obtain private land access to hunt big game?

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,847

Please specify the WMU that is the most challenging to access for hunting big game (see table below for list of specific WMUs)	1,346	(47%)
I have not noticed a difference among WMUs for getting access to hunt big game	878	(31%)
I have not found any specific WMU challenging to obtain land access	623	(22%)

What Wildlife Management Unit (WMU), if any, have you found the most challenging to obtain private land access to hunt migratory game birds (e.g., waterfowl and/or sandhill crane)?

Number of survey respondents who selected each category with percentage in parentheses.
n = 870

Please specify the WMU that is the most challenging to access for hunting migratory game birds (see table below for list of specific WMUs)	204	(23%)
I have not noticed a difference among WMUs for getting access to hunt migratory game birds	396	(46%)
I have not found any specific WMU challenging to obtain land access	270	(31%)

What Wildlife Management Unit (WMU), if any, have you found the most challenging to obtain private land access to hunt upland game birds?

Number of survey respondents who selected each category with percentage in parentheses.
n = 1,223

Please specify the WMU that is the most challenging to access for hunting upland game birds (see table below for list of specific WMUs)	230	(19%)
I have not noticed a difference among WMUs for getting access to hunt upland game birds	572	(47%)
I have not found any specific WMU challenging to obtain land access	421	(34%)

Please specify the WMU that is the most challenging to access for hunting big game, migratory game birds, and upland game birds (Number of selections for each hunting category). n = 1,405

WMU*	Big Game	Migratory Game Birds	Upland Game Birds	WMU	Big Game	Migratory Game Birds	Upland Game Birds
102	13	0	3	256	3	0	0
104	9	0	1	258	11	2	2
106	4	1	0	260	7	1	1
108	21	5	13	300	67	2	6
110	6	1	1	302	31	0	4
112	3	2	1	303	1	0	0
116	13	4	5	304	37	1	9
118	11	0	1	305	32	1	1
119	8	0	1	306	21	0	3
124	4	0	0	308	6	0	0
128	5	3	2	310	21	1	2
130	7	4	3	312	99	7	9
132	2	2	2	314	30	0	4
134	2	1	0	316	1	1	1
136	3	1	2	320	12	0	1
140	0	1	0	322	8	0	3
142	2	1	1	324	4	0	0
144	1	1	0	326	1	0	1
148	9	1	1	330	3	1	2
150	1	0	2	332	18	0	0
151	13	0	1	334	8	0	2
152	8	2	6	336	12	1	1
156	10	9	7	337	9	1	1
158	4	0	0	338	4	0	0
160	18	1	6	344	1	0	0
162	3	1	0	346	10	0	0
163	4	1	2	348	21	1	5
164	4	1	1	350	4	0	1
166	12	4	1	356	3	0	0
200	23	1	6	357	43	8	9
202	10	0	0	358	8	1	2
203	4	1	0	359	15	2	2
204	3	0	0	360	14	1	1
206	4	3	0	400	3	0	0
208	16	3	2	404	1	0	0
210	7	3	2	406	2	0	0
212	78	18	18	420	1	0	0
214	18	2	2	500	9	1	0
216	8	2	2	501	8	2	1
220	15	3	1	502	2	1	1

WMU*	Big Game	Migratory Game Birds	Upland Game Birds	WMU	Big Game	Migratory Game Birds	Upland Game Birds
221	8	4	0	503	8	2	2
222	2	0	1	504	6	0	2
224	13	1	1	505	5	3	0
226	3	1	1	506	5	1	1
228	8	3	0	507	12	0	0
230	4	2	0	508	11	6	3
232	9	0	0	509	9	0	3
234	12	1	1	510	15	3	3
236	8	2	2	511	3	0	1
238	5	1	2	514	0	0	1
240	6	2	0	521	13	1	3
242	11	6	1	522	11	0	2
244	0	2	0	523	8	3	1
246	3	0	0	526	14	1	1
247	14	1	0	527	11	1	0
248	55	15	10	536	1	1	0
250	20	7	4	544	2	0	0
252	5	1	1				
254	3	2	0				

*WMUs with zero selections for all three game categories are not listed in this table

Overall, what game species or species group have you found the most challenging to obtain private land access to hunt? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,950

Black bear	2	(< 1%)
Turkey	12	(< 1%)
Other upland game birds (e.g., grouse, pheasant, partridge)	35	(1%)
Migratory game birds (e.g., waterfowl and/or sandhill crane)	73	(2%)
Pronghorn	32	(1%)
Moose	228	(8%)
White-tailed deer	603	(20%)
Mule deer	235	(8%)
Elk	883	(30%)
Other	40	(1%)
None of the above. My ability to gain access to private land does not differ between species	807	(27%)

When was the last time you asked for permission to hunt on private land? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,938

Hunting season(s) prior to 2019	238	(8%)
The 2020 and/or 2019 hunting season(s)	352	(12%)
This current hunting season (i.e., 2021)	2,348	(80%)

Were you successful at getting hunting permission?

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,946

No	712	(24%)
Yes	2,234	(76%)

Were you given a reason by the landowner why you were denied access? Select up to three.

Number of survey respondents who selected each category with percentage in parentheses.

n = 703

Concerns about safety (e.g., shooting near landowner's house, shot livestock, etc.)	82	(12%)
Concerns or previous experience with poaching	79	(11%)
Desire to preserve environmentally sensitive habitat and/or wildlife to maintain healthy populations	16	(2%)
General anti-hunting sentiment or opposition to hunting	150	(21%)
Hunting pressure too high (i.e., too many hunters already given permission)	128	(18%)
I don't know, someone asked permission on my behalf	7	(1%)
Impacts on landowner's own hunting enjoyment	115	(16%)
Interfering with day-to-day operations (e.g., leaving gates open, blocking field approaches with vehicles, spooking livestock, etc.)	94	(13%)
Liability concerns if someone gets hurt	38	(5%)
Loss of privacy	8	(1%)
No reason was provided	80	(11%)
Permission already granted to others	49	(7%)
Previous damage to land and/or property (e.g., soil rutting, crop damage, wildfire, weeds, etc.)	122	(17%)
Previous hunters not following rules	60	(9%)
Previous trespassing issues	168	(24%)
Previous vandalism and/or theft	47	(7%)
Time demands of granting permission and keeping track of hunters	32	(5%)
Too large of a hunting group (i.e., too many people in hunting party)	2	(< 1%)

Which of the following methods did you use to contact the landowner? Select all that apply.

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,929

In person (i.e., knock on a landowner's door)	1,993	(68%)
Phone landowner	1,743	(60%)
Send text/email message to landowner	565	(19%)
Referral from someone else	276	(9%)
Sign-in box	56	(2%)
Sign-in using online access system(s)	45	(2%)
Mail (i.e., write a letter to ask permission)	18	(1%)
Other (specify)	38	(1%)

How many people were in your hunting party? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,922

Only myself	664	23%
2 people	1,551	53%
3 to 5 people	684	23%
6 or more people	23	1%

Had you previously asked the landowner permission to hunt on their land?

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,926

No	895	(31%)
Yes	2,031	(69%)

How would you best describe your relationship with the landowner that you last asked for permission? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,919

Acquaintance	656	(23%)
Close friend	319	(11%)
Complete stranger	873	(30%)
Family (e.g., parent(s), sibling(s), cousin(s), etc.)	159	(5%)
Someone I don't know well, but have built a relationship with over time for hunting access	912	(31%)

Does the landowner live on the property you were asking permission to hunt on?

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,816

No	1,412	(50%)
Yes	1,404	(50%)
I don't know	0	(0%)

What was the main habitat type you were asking to hunt in? Select one.

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,918

Annual crops (e.g., wheat, canola, etc.)	853	(29%)
Non-agriculture, coulees and/or valleys	202	(7%)
Non-agriculture, treed	225	(8%)
Non-agriculture, wetland	12	(<1%)
Pasture/rangeland (i.e., areas for grazing livestock, with or without trees)	1,482	(51%)
Permanent crops (e.g., hay, fruit/berries, etc.)	114	(4%)
I don't know	30	(1%)

Select the WMU where you last asked for permission to hunt on private land. n = 2,840

WMU	Number of Responses	WMU	Number of Responses	WMU	Number of Responses	WMU	Number of Responses
102	28	208	43	316	1	414	1
104	18	210	25	318	6	429	1
106	10	212	37	320	22	439	1
108	54	214	28	322	24	445	1
110	21	216	22	324	11	500	11
112	12	220	47	326	3	501	10
116	25	221	10	328	3	502	23
118	33	222	12	330	1	503	28
119	28	224	21	332	46	504	15
124	7	226	7	334	31	505	18
128	20	228	38	336	36	506	38
130	23	230	22	337	12	507	27
132	15	232	40	338	11	508	32
134	9	234	43	339	1	509	18
136	8	236	26	340	1	510	47
138	13	238	22	342	1	511	3
140	6	240	13	344	1	512	4
142	6	242	42	346	27	514	2
144	6	244	13	347	1	515	3
148	31	246	11	348	56	519	2
150	12	248	31	349	2	520	2
151	25	250	32	350	6	521	29
152	46	252	23	351	1	522	34
156	37	254	28	353	1	523	29
158	24	256	14	354	3	524	1
160	39	248	37	355	1	525	2
162	23	300	46	356	3	526	42
163	18	302	32	357	75	527	27
164	7	304	53	358	28	528	1
166	47	305	53	359	39	534	1
200	45	306	25	360	32	535	8
202	40	308	17	400	1	537	2
203	23	310	31	402	2	540	1
204	34	312	80	404	1	542	1
206	24	314	40	406	2	544	2

What game species, or group, did you ask permission to hunt? Select all that apply.

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,854

Black bear	81	(3%)
Elk	988	(35%)
Moose	681	(24%)
Mule deer	1,117	(39%)
Pronghorn	53	(2%)
White-tailed deer	1,957	(69%)
Migratory game birds – waterfowl and/or sandhill crane	254	(9%)
Turkey	5	(<1%)
Other upland game birds	323	(11%)
Other (please specify)	38	(1%)

Which of the following factors, if any, do you feel influenced the landowner’s decision to grant or deny you access in the WMU that you most recently sought permission? Select all that apply.

Number of survey respondents who selected each category with percentage in parentheses.

n = 2,843

Method of hunting (e.g., rifle, shotgun, bow, etc.)	402	(14%)
Mode of travel while on property (e.g., truck, ATV, foot access, etc.)	796	(28%)
None of the above	955	(34%)
Sex of the animal you were hunting	216	(8%)
Species of the animal you were hunting	720	(25%)
I don’t know	568	(20%)

Please indicate what firearm type, or other device or means, you wished to hunt with when you most recently sought hunting permission. Select all that apply.

Number of survey respondents who selected each category with percentage in parentheses.

n = 402

Bow and arrow	145	(36%)
Crossbow	16	(4%)
Muzzle loader	10	(2%)
Rifle	296	(74%)
Shotgun	70	(17%)
Other (specify)	2	(< 1%)

Please indicate which mode(s) of travel you wished to use when you most recently sought hunting permission. Select all that apply.

Number of survey respondents who selected each category with percentage in parentheses.

n = 793

Non-motorized boat (e.g., canoes and kayaks)	1	(< 1%)
Regular or traditional bicycle	2	(< 1%)
Mobility assisted device (e.g., wheelchair, walker, etc.)	3	(< 1%)

Electric-assist bicycle	5	(1%)
Horse or mule	19	(2%)
Off-highway recreational vehicle (e.g., ATV, side-by-side utility task vehicle, snowmobile, etc.)	128	(16%)
On-highway automobile (e.g., pickup truck)	241	(30%)
Foot access	669	(84%)
Other (specify)	8	(1%)

Appendix 2. Change in Akaike Information Criterion (Δ AIC) values between our intercept-only model and univariate model of each applicable survey question (predictor variable) for our four response variables (i.e., Overall Access, Change in Permissions, Satisfaction, and Recent Access). A decrease in Δ AIC of > 2 indicates that a survey question explained some of the variation (but not the direction of the relationship) in the response variable and are indicated with bold text.

Predictor variable	Overall Access	Change in Permissions	Satisfaction	Recent Access
In an average year, how many private landowners do you approach or contact to gain hunting access?	-17.723	-89.417	-29.807	-26.568
Overall, how much do you rely on privately-owned land, where permission is required to hunt?	-179.25	-43.73	-209.648	-83.99
In the past 3 years, which WMU series did you hunt most frequently in?	-56.17	-6.313	-30.557	–
In the past 3 years, which of the following hunting categories best describe the type of hunter you are? Select all that apply.				
Carnivore big game (e.g., black bear, cougar, wolf, coyote, etc.)	1.432	-0.443	1.875	–
Fur-bearing animals (e.g., red fox, bobcat, etc.)	1.275	1.851	1.801	–
Migratory game birds – waterfowl (i.e., ducks and geese) and/or sandhill crane	0.485	0.453	2.0	–
Small game (e.g., rabbit and hares, squirrels, etc.)	-0.662	0.575	0.316	–
Ungulate big game (e.g., deer, moose, elk, etc.)	1.304	1.41	2.035	–
Upland game birds (e.g., grouse, pheasant, partridge, turkey, etc.)	1.664	0.311	1.125	–
Wild boar	1.283	1.984	1.651	–
Number of hunting categories selected	1.678	-2.377	1.2	–
Of the hunting categories you selected that best describe you, which single type do you most strongly identify with?	-8.194	2.615 ^a	-4.231	–
Number of years as a hunter	-77.348	0.433	-3.135	-18.081
Average number of days hunted per year	0.654	1.638	0.271	1.663

^a Dividing the responses into all potential hunter categories did not explain variation in the data but whether or not a respondent selected ungulate hunter as the category they most strongly identified with did explain variation.

What types of private land have you hunted on in the past 3 years (i.e., 2019, 2020, 2021)? Select all that apply				
My own land	-53.732	-7.887	-28.78	–
Land owned by family	-41.378	-6.629	-30.376	–
Land owned by a close friend	-35.904	-6.949	-31.796	–
Land owned by an acquaintance	-19.921	1.127	-21.016	–
Land owned by someone I don't know well, but have built a relationship with over time for hunting access	-11.798	-7.908	-1.612	–
Land owned by a complete stranger	-2.949	-70.349	-10.429	–
Number of private land types selected	-38.005	-8.418	-16.319	–
How long have you lived in Canada?	-1.117	1.987	-4.115	-2.746
What language do you speak most often and on a regular basis at home?	-8.158	0.829	-6.236	-3.583
Do you identify as a visible minority?	1.829	1.963	1.994	1.884
Please select the category that best describes your age.	-106.258	-29.335	-20.537	-35.117
Which of these categories best describes the place where you live now?	-18.425	0.3	-8.18	-0.057
Which of these categories best describes the place where you lived most of the time while growing up (that is until age 16)?	-19.903	2.141	-8.102	3.458
Postal code latitude	-5.463	-8.047	-25.764	0.25
Postal code longitude	-1.186	0.546	1.791	-0.325
Distance between postal code and nearest city	-7.224	-9.993	-16.044	-2.716
Which of the following methods did you use to contact the landowner that you last asked for permission? Select all that apply.				
In person (i.e., knock on a landowner's door)	–	–	–	-33.565
Mail (i.e., write a letter to ask permission)	–	–	–	0.832
Phone landowner	–	–	–	1.983
Send text/email message to landowner	–	–	–	-7.915
Referral from someone else	–	–	–	0.197
Sign-in box	–	–	–	-4.637
Sign-in using online access system(s)	–	–	–	1.065
How many people were in your hunting party?	–	–	–	-81.734
Had you previously asked the landowner permission to hunt on their land?	–	–	–	-112.601
How would you best describe your relationship with the landowner that you last asked for permission?	–	–	–	-305.141
Does the landowner live on the property you were asking permission to hunt on?	–	–	–	-18.634
What was the main habitat type you were asking to hunt in?	–	–	–	-21.345
WMU latitude	–	–	–	0.564

WMU longitude	–	–	–	-14.346
Distance from WMU to nearest city	–	–	–	-4.219
Distance between postal code and WMU last hunted	–	–	–	1.92
What game species, or group, did you ask permission to hunt?				
White-tailed deer	–	–	–	-17.515
Mule deer	–	–	–	-34.029
Elk	–	–	–	-11.055
Moose	–	–	–	0.744
Pronghorn	–	–	–	0.935
Black bear	–	–	–	1.975
Turkey	–	–	–	-0.686
Other upland game birds (e.g., grouse, pheasant, partridge)	–	–	–	-1.518
Migratory game birds – waterfowl (i.e., ducks, geese) and/or sandhill crane	–	–	–	-2.994
Other (please specify)	–	–	–	1.648
Number of species selected	–	–	–	-19.459
Indicate what firearm type, or other device or means, you wished to hunt with when you most recently sought hunting permission. Select all that apply.				
Bow and arrow	–	–	–	-1.2917
Shotgun	–	–	–	-0.5236
Rifle	–	–	–	-2.2969
Number of firearm types when asking for permission	–	–	–	-2.6192
Indicate which mode(s) of travel you wished to use when you most recently sought hunting permission. Select all that apply.				
Off-highway recreational vehicle (e.g., ATV, side-by-side utility task vehicle, snowmobile, etc.)	–	–	–	1.5823
On-highway automobile (e.g., pickup truck)	–	–	–	1.5831
Foot access	–	–	–	-0.0736
Number of mode of travel types when asking for permission	–	–	–	1.2882

Appendix 3. Model-selection results used to derive our top model for each response variable. We indicate which covariates were removed and the resulting change in AIC (Δ AIC). Negative Δ AIC values indicate that the predictive fit of the model improved. The survey questions (Q) included in our global models are defined at the end of the appendix.

1. Overall access rate for private land:

Model Tested: Q13_F + Q13_G + Q22A + Q22B + Q24A + Q25 + Q28A + Q36 + Q40 + Q41 + Q42 + Q44 + Q70 + Q72

Step	Covariate Removed	Δ AIC	Sample Size
Step 1	Q40	-6.693	1,685
Step 2	Q22B	-1.953	1,686
Step 3	Q22A	-1.909	1,709
Step 4	Q28A	-1.679	1,711
Step 5	Q36	-1.747	1,761
Step 6	Q72	-1.71	1,768
Step 7	Q13_F	-1.412	1,768
Step 8	Q70	-0.401	1,768
Step 9	None	N/A	N/A

Final model: Q13_G + Q24A + Q25 + Q41 + Q42 + Q44

2. Change in permissions over the past 5 years:

Model Tested: Q13_E + Q13_F + Q13_G + Q24A + Q25 + Q39_I + Q40_A + Q41 + Q42 + Q44 + Q70 + Q72

Step	Covariate Removed	Δ AIC	Sample Size
Step 1	Q41	-5.12	1,767
Step 2	Q72	-1.746	1,767
Step 3	Q39_I	-1.481	1,778
Step 4	Q13_E	-1.393	1,778
Step 5	Q24A	-1.001	1,778
Step 6	None	N/A	N/A

Final model: Q13_F + Q13_G + Q25 + Q40_A + Q42 + Q44 + Q70

3. Satisfaction with accessing private land:

Model Tested: Q13_F + Q13_G + Q24A + Q25 + Q28A + Q29A + Q36 + Q40_A + Q41 + Q42 + Q44 + Q70 + Q72

Step	Covariate Removed	Δ AIC	Sample Size
Step 1	Q70	-1.976	1,684
Step 2	Q72	-1.68	1,684
Step 3	Q29A	-1.666	1,684
Step 4	None	N/A	N/A

Final model: Q13_F + Q13_G + Q24A + Q25 + Q28A + Q36 + Q40_A + Q41 + Q42 + Q44

4. Success getting hunting permission on private land during the most recent request:

Model Tested: Q25 + Q28A + Q29A + Q36 + Q42 + Q44 + Q57_A + Q57_D + Q57_F + Q58 + Q59 + Q61 + Q62 + Q63 + Q65A + Q69_A + Q69_B + Q69_C + Q69_I + Q69_K + Q70 + Q73

Step	Covariate Removed	ΔAIC	Sample Size
Step 1	Q59	-1.993	1,653
Step 2	Q28A	-1.963	1,653
Step 3	Q36	-1.95	1,687
Step 4	Q57_F	-1.122	1,694
Step 5	Q69_K	-0.941	1,694
Step 6	Q69_A	-0.811	1,694
Step 7	Q57_D	-0.583	1,694
Step 8	Q65A	-0.172	1,694
Step 9	Q70	-0.472	1,694
Step 10	None	N/A	N/A

Final model: Q25 + Q29A + Q42 + Q44 + Q57_A + Q58 + Q61 + Q62 + Q63 + Q69_B + Q69_C + Q69_I + Q73

Survey Questions:

Q13_E - What types of private land have you hunted on in the past 3 years (i.e., 2019, 2020, 2021)? Select all that apply.

- Land owned by someone I don't know well, but have built a relationship with over time for hunting access selected

Q13_F - What types of private land have you hunted on in the past 3 years (i.e., 2019, 2020, 2021)? Select all that apply.

- Land owned by a complete stranger selected

Q13_G - What types of private land have you hunted on in the past 3 years (i.e., 2019, 2020, 2021)? Select all that apply.

- Number of private land types selected

Q22A - Which of these categories best describes the place where you live now? Select one.

Q22B - Which of these categories best describes the place where you lived most of the time while growing up (that is until age 16)? Select one.

Q24A - Postal code latitude

Q25 - Select the category that best describes your age. Select one.

Q28A - What language do you speak most often and on a regular basis at home?

- I mostly speak English at home vs. I mostly speak another language other than English

Q29A - How long have you lived in Canada?

- All my life vs. not all my life

Q36 - Number of years as a hunter

Q39_I - In the past 3 years, which of the following hunting categories best describe the type of hunter you are? Select all that apply.

- Number of species groups selected
- Q40 - Of the hunting categories you selected that best describe you, which single type do you most strongly identify with? Select one.
- Q40_A - Of the hunting categories you selected that best describe you, which single type do you most strongly identify with? Select one.
- Ungulate big game (e.g., deer, moose, elk, etc.) selected
- Q41 - In the past 3 years, which WMU series did you hunt most frequently in? Select one.
- Q42 - Overall, how much do you rely on privately-owned land, where permission is required to hunt? Select one.
- Q44 - In an average year, how many private landowners do you approach or contact to gain hunting access? Select one.
- Q57_A - Which of the following methods did you use to contact the landowner? Select all that apply.
- In person (i.e., knock on a landowner's door) selected
- Q57_D - Which of the following methods did you use to contact the landowner? Select all that apply.
- Send text/email message to landowner selected
- Q57_F - Which of the following methods did you use to contact the landowner? Select all that apply.
- Sign-in box selected
- Q58 - How many people were in your hunting party? Select one.
- Q59 - Had you previously asked the landowner permission to hunt on their land?
- Q61 - How would you best describe your relationship with the landowner that you last asked for permission? Select one.
- Q62 - Does the landowner live on the property you were asking permission to hunt on?
- Q63 - What was the main habitat type you were asking to hunt in? Select one.
- Q65A - WMU longitude
- Q69_A - What game species, or group, did you ask permission to hunt? Select all that apply.
- White-tailed deer selected
- Q69_B - What game species, or group, did you ask permission to hunt? Select all that apply.
- Mule deer selected
- Q69_C - What game species, or group, did you ask permission to hunt? Select all that apply.
- Elk selected
- Q69_I - What game species, or group, did you ask permission to hunt? Select all that apply.
- Migratory game birds – waterfowl (i.e., ducks, geese) and/or sandhill crane selected
- Q69_K - What game species, or group, did you ask permission to hunt? Select all that apply.
- Number of species selected
- Q70 - Distance from postal code to nearest city
- Q72 - Does postal code fall within WMU series most commonly hunted?
- Q73 - Distance from WMU to nearest city



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