

COLORADO PARKS & WILDLIFE

Exploring Nuances in Colorado's Big Game License Distribution System: Perspectives from Resident and Nonresident Hunters

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**Exploring nuances in Colorado's big game
license distribution system:
Perspectives from resident and nonresident hunters.**

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Executive summary

Response rate

- We mailed the survey to 5,338 total hunters (about the same number of resident and nonresident hunters).
- In total, 2,180 hunters completed the questionnaire resulting in a 41% response rate. About 79% participated via standard mail compared to 21% who completed the questionnaire online.
 - ▶ 1,069 resident hunters responded and 1,072 nonresident hunters responded.

Hunter attributes

- On average, respondents were 54 years old (mean) and the vast majority (96%) self-identified as male (4% female; <1% nonbinary).
- In total, 1,862 respondents self-identified as White or Caucasian, 115 preferred not to say, 64 identified as Hispanic or Latinx, and 48 identified as American Indian or Native Alaskan.

Hunting behavior and preferences

- On average, respondents have hunted big game in Colorado for 19 years (mean).
- The vast majority (89%) hunted elk from 2018 to 2021 while 59% hunted deer, 24% hunted black bear and 16% hunted pronghorn. About 4% hunted bighorn sheep, mountain goat, or moose.
 - ▶ Most prefer to hunt elk (85%) followed by deer (12%). About half (51%) of respondents who hunted elk were satisfied with their experience and nearly half (45%) who hunted deer were satisfied. Another 13% of elk and 14% of deer hunters were neither satisfied nor dissatisfied.
- Several broad themes emerged from open-ended responses about why hunters were dissatisfied including perceptions about: crowding, declining big game populations, and declining habitat.
- Rifle is the most preferred method to hunt big game in Colorado (43% of respondents) versus 33% who prefer archery hunting and 24% who prefer muzzleloader.

Motivations (Very important responses indicated below)

- The top three reasons why respondents hunt big game in Colorado were: to spend time in nature (77%), to spend time with family/friends (67%), and to obtain wild game meat (49%). Resident motivations were somewhat different from nonresident hunters.
 - ▶ For example, spending time in nature was more important to resident (81%) than nonresident hunters (74%).
 - ▶ Similarly, obtaining game meat was more important to resident than nonresident hunters (57% and 42%, respectively).
 - ▶ Lastly, more resident hunters (42%) identified contributing to wildlife management as very important versus 35% of nonresident respondents.

Big game license allocation

- About half (47%) of all survey respondents indicated that a 65% resident–35% nonresident across-the-board allocation would be the fairest way to allocate big game licenses.
 - ▶ About one-third (31%) of total survey respondents believed that an 80% resident–20% nonresident across-the-board split would be the fairest.

- There were substantive differences between resident and nonresident respondents' preferences.
 - ▶ 59% of residents indicated that an 80% resident-20% nonresident across-the-board split would be the most fair, whereas, the vast majority of nonresidents (83%), indicated that a 65% resident–35% nonresident allocation would be the fairest.
 - ▶ 21% of resident hunters believed that a 75% resident–25% nonresident across-the-board allocation would be the most fair.
- Respondents also ranked which method they believed to be the fairest way to distribute high demand licenses.
 - ▶ Overall, the top three choices (*by #1 overall rank*) were: (1) preference points (61%), weighted draw (51%), and hybrid (47%). These three options ranked first, second, and third across all resident and nonresident respondents.
- About half (52%) of all respondents (56% resident; 47% nonresident) supported having one across-the-board allocation split for deer, elk, bear, and pronghorn hunt codes (22% of all respondents opposed this).
 - ▶ Approximately 25% of respondents reported that they (or their hunting companions) participate in Colorado's hybrid draw system. In contrast, nearly 35% of respondents were not sure if they had participated in the hybrid draw.

Limited licenses and preference points

■ Limited licenses

- ▶ The majority of respondents (72%) applied for a limited license for big game between 2018 and 2021 and half (48%) were somewhat-to-very satisfied with their ability to draw a limited license.
 - › More residents (38%) were dissatisfied than nonresidents (25%).

■ Preference points

- ▶ Respondents ranked which attributes were most important to them when considering gaining/using preference points. The most important were (*as reported by a #1 ranking*): (1) fairness (37%), (2) predictability (29%), (3) opportunity (25%), and (4) simplicity (13%).
 - › Resident hunters selected fairness (42%) as their number one most important attribute; nonresidents selected predictability (34%).
- ▶ More than half (51%) of the total survey respondents were satisfied with the way preference points are used to award deer, elk, bear, and pronghorn licenses.
 - › We detected minimal differences based on residency.
- ▶ About 23% of the total survey respondents were either somewhat satisfied or were neither satisfied nor dissatisfied with how preference points are used to award sheep, goat, and moose licenses; however, 51% had never applied for a limited license for these species.

Over the counter licenses (OTC)

- Few respondents strongly supported any of the three OTC options provided in the survey which included: (1) limiting all OTC elk licenses for archery seasons, (2) limiting all OTC elk licenses for rifle seasons, and (3) allowing only Colorado residents be eligible to obtain OTC licenses
- However, there were substantive differences in support/opposition between resident and nonresident hunters.
 - ▶ For example, 74% of resident hunters supported only allowing residents to be eligible to obtain OTC licenses while 85% of nonresidents opposed it.

- When asked if CPW were to only consider one of the three OTC options, approximately 39% of all respondents would prefer that the agency limit OTC for only residents though 38% would prefer CPW limit OTC rifle.
 - ▶ About two-thirds (67%) of resident hunters would prefer that the agency consider allowing only residents to be eligible for OTC licenses (only 12% of nonresidents selected this option).
 - ▶ More than half (56%) of nonresidents would recommend that CPW consider limiting OTC rifle licenses if forced to choose (compared to 20% of residents).

Fair chase

- Overall, few respondents indicated concerns about six of the seven technologies or practices that were identified in the fair chase section of the survey. However, about 79% of respondents were moderately-to-very concerned with advanced thermal imaging equipment used to locate big game during legal hunting seasons.

Big game season structure

- Nearly two-thirds (64%) of all survey respondents indicated that they would prefer to hunt elk every 2-4 years (*with possibly more larger and older animals and less hunter crowding*). Similarly, a slight majority (56%) of respondents indicated they would prefer to hunt deer every 2-4 years as well.
- We documented substantive differences between resident and nonresident hunters' preferences across species.
 - ▶ More resident (33%) than nonresident (21%) hunters would prefer to hunt elk every year though overall, more resident (58%) and nonresident (70%) hunters would prefer to hunt elk in the 2-4 year timeframe.
 - ▶ More resident (41%) than nonresident (27%) hunters would prefer hunting pronghorn every 2-4 years.
 - ▶ About 30% of resident respondents compared to only 12% of nonresident respondents, would prefer to hunt deer every year.

■ *Season length*

- ▶ Slightly more than two-thirds (67%) of respondents would prefer to keep the length of the hunting seasons as they are now.
- ▶ About 14% indicated a desire for more but shorter hunting seasons with fewer hunters in the field; while only 11% expressed interest in fewer, but longer seasons.
- ▶ Fewer residents (61%) than nonresident (72%) would prefer to keep the length of the hunting season as it is now.

■ *Elk hunting season*

- ▶ About half (51%) of respondents agreed that OTC antlered elk licenses should continue to be offered during the 2nd and 3rd rifle seasons (about 20% disagreed).
- ▶ Half (50%) disagreed that OTC either-sex archery elk licenses should be replaced with OTC antlered archery licenses (only 17% agreed).
 - We detected minimal differences based on residency.

■ *Pronghorn hunting season*

- ▶ About 39% agreed that OTC either sex pronghorn licenses should continue to be offered during archery seasons in current units (37% were not sure).

■ *Bear hunting season*

- ▶ More than half (52%) of respondents agreed that hunters should be able to purchase a bear license without needing a deer or elk license for the same season.

■ *Archery-muzzleloader season overlap*

- ▶ Hunter safety: About 71% of all respondents are not at all or only somewhat concerned about hunter safety during the overlapping archery and muzzleloader seasons.
 - 56% of the total survey respondents indicated that they would prefer CPW to make no changes to existing regulations (which allow for archery-muzzleloader season overlap). Conversely, about 30% supported separating the seasons so there is no overlap as their most preferred choice.



Background

About every five years, Colorado Parks and Wildlife (CPW) conducts the Big Game Attitude Survey (BGAS) to understand hunters' attitudes, concerns, and preferences regarding big game license distribution and season structure in Colorado. The BGAS is typically mailed to a random sample of Colorado resident and nonresident hunters though more recent efforts have also included an online option. Using a probability based approach ensures that each member of the hunting population has an equal chance of being selected for the study which minimizes selection and response bias. The topics that are often included in the BGAS – especially those addressed in the 2021-2022 survey (e.g., license allocation, preference points, over-the-counter licensing preferences) – are extremely important to a wide range of stakeholders. As a result, the 2022 BGAS represented one of several public involvement opportunities intended to collect data from individuals who are interested in big game hunting in Colorado. In addition to the BGAS, other opportunities included an online public comment form and resident and nonresident focus groups. More than 11,000 members of the public completed the online comment form and the agency held ten focus groups, eight were held across the state with Colorado residents, and two were held virtually with nonresidents. Additionally, staff provided several presentations at Colorado Parks and Wildlife Commission meetings allowing members of the public to provide public testimony (both in-person and virtually) and written public comments.

The overarching goal of the BGAS was to understand hunters' perceptions about big game license distribution in Colorado. Specifically, two objectives guided this inquiry:

1. To identify resident and nonresident hunters' perspectives about license allocation, preference points, over-the-counter licenses, season structure and fair chase principles.
2. To track and monitor resident and nonresident hunters' preferences, motivations, experiences and satisfaction as indicators of activity participation and long-term retention.

Methods

We collected data for this inquiry using a standard mail survey instrument. Additionally, we provided hunters with an opportunity to participate online via a unique link, which we included in our mail correspondence. The questionnaire contained six sections and 31 total questions. We used a modified Dillman tailored design method to implement the survey, which included four total contacts (Dillman, Smyth, & Christian, 2014). We mailed the questionnaire to 5,338 hunters (2,736 resident and 2,602 nonresident) in early March. Nonrespondents received a follow up postcard about three weeks later. A second round of questionnaires was mailed to nonrespondents about three weeks after the initial reminder, followed by one final postcard about two weeks after that.

Analysis

We analyzed survey responses using the Statistical Package for Social Science (SPSS) software and provided basic descriptive statistics (e.g., percentages, frequencies, mean) throughout the report. When applicable, we examined whether differences across groups (e.g., resident and nonresident respondents) were statistically significantly different at $p \leq .05$ using chi-square and independent samples t-tests for specific questions that addressed topics such as hunter motivations, support/opposition for modifying license allocation regulations, hunting experience satisfaction, Colorado's preference point system, and the ability to draw a limited license. We removed certain response options such as neither/nor to conduct chi-square analyses and we used phi (ϕ) and Cohen's d to examine the extent to which differences were considered minimal, typical, or substantive (Vaske, 2008).

Qualitative data from open-ended questions were analyzed using standard inductive coding procedures. Specifically, we used a three-step process to code these data drawing upon previous research (Crabtree & Miller, 1992; Quartuch, Siemer, Decker, & Stedman, 2020). First, the second author read each statement and began identifying and pulling out broad themes (or categories) participants were describing. Second, we examined similarities and differences across broad themes and revised them accordingly. Lastly, we re-reviewed each response to ensure they belonged within the broader code (or theme).

Results

Findings presented below include all respondent data unless otherwise noted (e.g., resident versus nonresident comparisons). Even though it was not one of our objectives for this inquiry, we also chose to examine potential differences across respondents based on method of take (e.g., archery, muzzleloader, and rifle hunters) for several questions given their relevance for, and implications related to big game license distribution in Colorado. For example, we highlighted differences in hunters' preferences about allocation, season structure, and season length across their preferred method of take (archery, muzzleloader, and rifle).



RESPONSE RATE AND RESPONDENT ATTRIBUTES

In total, 2,180 individuals responded to the BGAS. After removing 283 individuals from the sample due to incomplete or incorrect addresses our final response rate was 41%. The majority (79%) participated via standard mail; (21%) participated online. About the same percentage of participants were resident (49.9%) and nonresident (50.1%) hunters. Interestingly, very similar response rates were observed across each of the three different methods of take; 31% were archery hunters, 37% were muzzleloader hunters, and 31% were rifle hunters (Table 1).

Table 1. Response rates across different sample segments.

METHOD OF TAKE	RESIDENT	NON-RESIDENT
Archery (n = 685; 31%)	355 (33%)	316 (30%)
Muzzleloader (n = 814; 37%)	398 (37%)	394 (37%)
Rifle (n = 684; 31%)	316 (30%)	362 (24%)
Total (n = 2,183)	1,069	1,072

On average, respondents were 54 years old (mean) although the percentage of respondents varied across age classes (Figure 1). For example, more than one-quarter (27%) were between the ages of 59-68 years old and another 23% were between 49-58 years old. About 14% were between 69-78 years old and 12% were between 29-38 years old. Almost all respondents (96%) self-identified as male and the majority of respondents (1,862 out of 2,077) self-identified as White or Caucasian (Figure 2). One hundred fifteen respondents preferred not to provide data about their race/ethnicity, 64 people identified as Hispanic or Latinx, and 48 identified as American Indian or Native Alaskan.

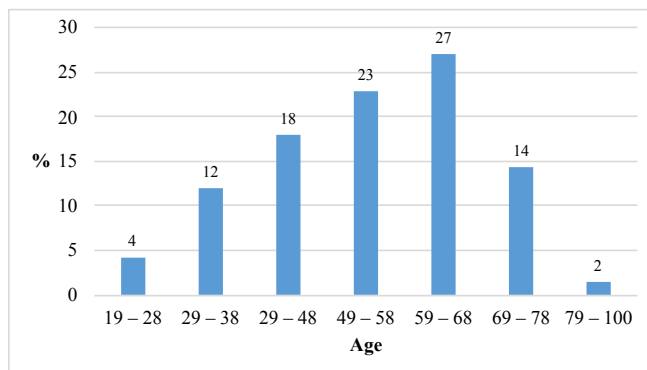


Figure 1. Age classes of respondents.

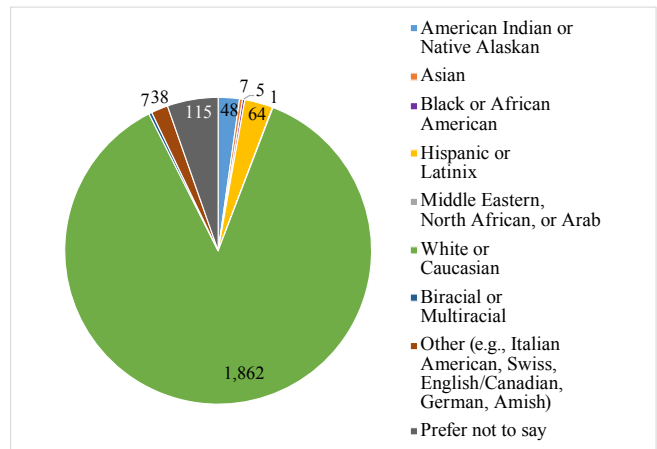


Figure 2. Respondents' self-reported race/ethnicity.

HUNTING BEHAVIOR AND PREFERENCES

On average, respondents have hunted big game in Colorado for 19 years (mean). About one-quarter (24%) have only hunted big game in Colorado for 1-5 years and about 27% have hunted between 6-10 years (Table 2). Nearly one-third (31%) have hunted for more than 25 years. The vast majority hunted elk (89%) or deer (59%) during the 2018-2021 timeframe (Figure 3). Nearly one-quarter of all respondents (24%) reported hunting black bear and about 16% hunted pronghorn during the same period. Less than 1% did not hunt any of these species, and those individuals were removed from further analysis.

Table 2. Years hunted across categories.

YEARS HUNTED	PERCENTAGE
Less than 1 year	< 1
1-5 years	24
6-10 years	17
11-15 years	11
16-20 years	10
21-25 years	8
More than 25 years	31

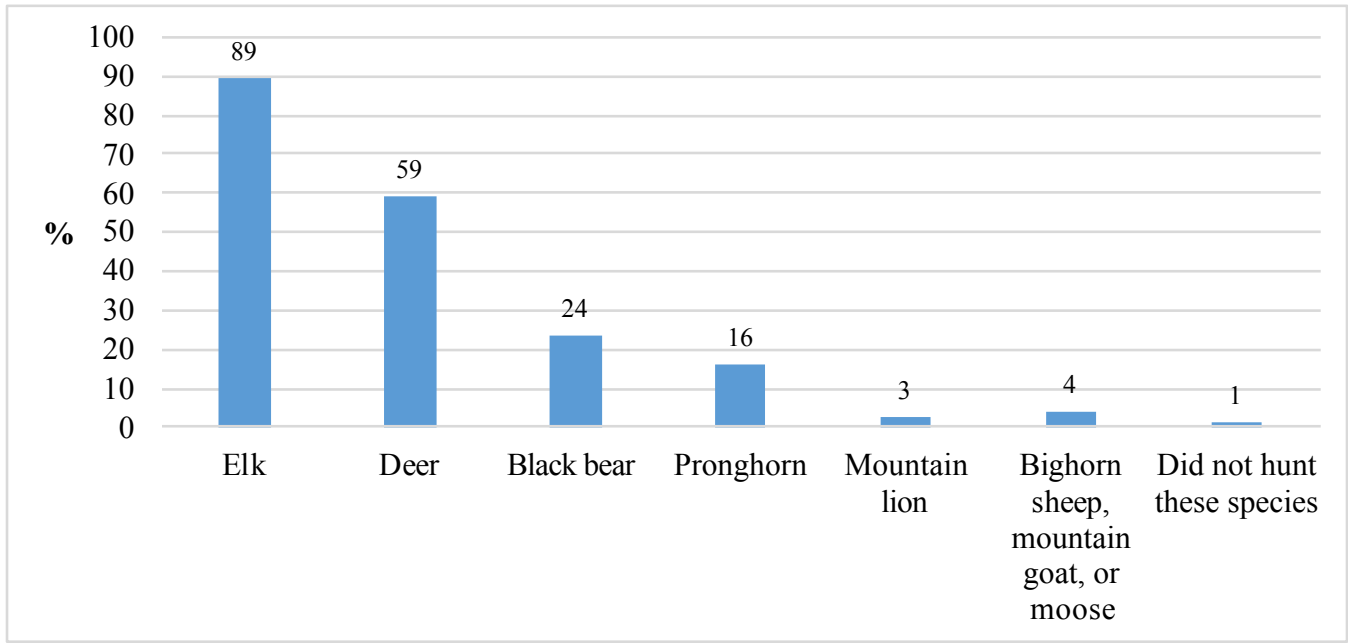


Figure 3. Percentage of respondents that reported hunting different big game species in Colorado between 2018 and 2021.

About 43% of respondents indicated that rifle hunting was their most preferred method of take followed by archery (33%) and muzzleloader (24%) (Figure 4). We detected only minor differences in preferred method of take across resident and nonresident hunters. For example, slightly more resident (44%) than nonresident hunters (42%) preferred hunting with a rifle (Figure 5). Similarly, about the same percentage of resident and nonresident hunters preferred archery hunting (33% and 32%, respectively).

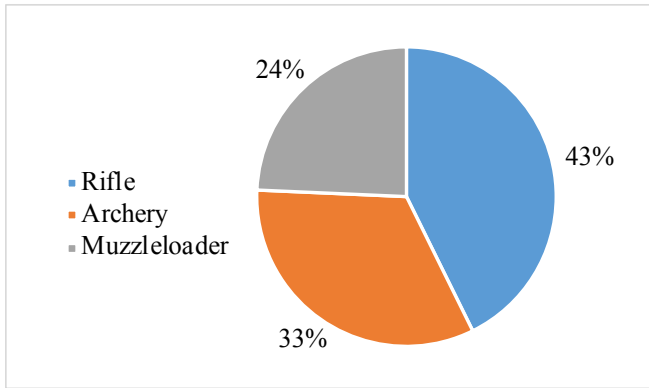


Figure 4. Respondents' preferred method of take.

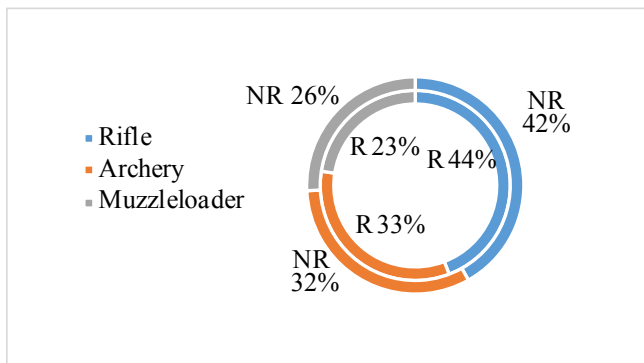


Figure 5. Resident (R) and nonresident (NR) comparison of preferred method of take.



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Respondents were also asked to choose which species they most preferred to hunt and the degree to which they were satisfied with their experience. The majority (85%) preferred to hunt elk (Figure 6). Deer was the second most preferred species with about 12% of respondents selecting this species. Very few hunters (<5%) selected any of the other species listed in the question (Figure 6).

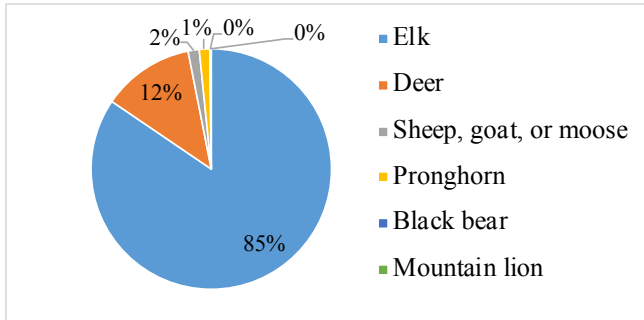


Figure 6. Respondents' most preferred species to hunt in Colorado.

Slightly more than half of all respondents (51%) who preferred to hunt elk were satisfied with their experience and about half (49%) of deer hunters were satisfied with their experience (Figure 7). However, about one-third (34%) of elk hunters were dissatisfied and about one-quarter (24%) of deer hunters were dissatisfied with their hunting experience (Figure 7). A greater percentage of nonresident respondents (60%, mean = 3.5) were satisfied with their elk hunting experience than resident hunters (45%, mean = 3.0) ($t(2,020) -7.29, p \leq .001$), indicating a minimal-to-typical relationship ($d = 0.369$). Slightly more nonresidents (58%, mean = 3.5) than residents (52%, mean = 3.3) were satisfied with their deer hunting experience ($t(1,238) 2.59, p \leq .010$). This difference represents a minimal relationship ($d = 0.161$) (Figure 8).

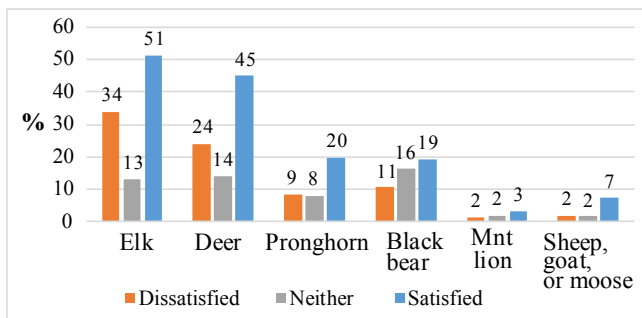


Figure 7. Respondents' hunting satisfaction across big game species. Percentages do not add up to 100% because we removed "Not applicable" responses for ease of interpretation.

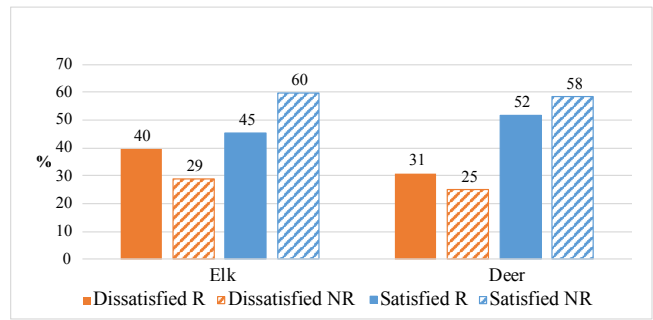


Figure 8. Resident (R) and nonresident (NR) hunters' satisfaction across big game species.

Respondents who indicated being somewhat or very dissatisfied, were also asked to describe why their experience was less than optimal. Overall, six themes emerged from hunters' open-ended responses (Table 3). Themes ranged from issues with obtaining licenses and hunter crowding to concerns about wildlife populations and season structure challenges. Specifically, about 350 respondents described challenges associated with the number of people in the field with almost 200 additional comments that provided nuance to this discussion. These additional comments emphasized other aspects of crowding such as: OTC and public land issues, OTC archery challenges, and other recreationists.



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Table 3. Reasons why respondents were dissatisfied with their hunting experience.

THEMES (BOLD) AND SUBTHEMES	NUMBER OF COMMENTS*	EXAMPLE COMMENTS
Crowding		
Number of people	357	"Quite crowded with hunters, but anything except a public land hunt is too costly."
Number of NR hunters	53	"Too many out of state hunters"
OTC/public land	67	"Too many hunters in OTC public units"
OTC Archery	16	"Primarily an OTC archery elk hunter. Crowding is extreme causing elk and go quiet and hide in blow downs"
Number of recreationists	35	"To many tourists, hikers and other hunters. Much more difficult to find animals than it was 25 years ago."
Backcountry	16	"The backcountry is too crowded and it is very difficult to have a quality hunting experience."
Obtaining licenses		
Preference point system	29	"Your preference point system is broken. Fix it!! Too many people. Need a better system"
Too many licenses sold	25	"Too many tags given for 1st season elk hunting"
Resident preference	23	"Not succeeding in the draw. No preference over out of state. Do more for residents"
Concerns about Wildlife populations		
Unspecified	186	"Seen little or no game"
Hunting pressure	57	"Minimal access, heavy hunting pressure."
Private property	41	"Can see hundreds of elk on private property. Cannot pursue because of corner crossing!"
Elk	199	"The elk numbers have dropped over the past 10 years where it is hard even to see an elk"
Deer	83	"Mule deer numbers are down in my area and to many tags are given out."
Bear/Pronghorn	25	"Lack of deer and pronghorn."
Season Structures		
Season dates	38	"2nd OTC rifle season changed too late in the season for 2021. Too much snow, too cold, elk behavior changed, no one was successful."
Archery and Muzzleloader overlap	31	"Last year was not safe with muzzleloaders in the field at the same time as archery"
Miscellaneous		
Access (56); Weather (51); Costs (46); ATV/OHV disruptions (34); Habitat quality (22); Inconsiderate people (33); Domestic livestock (20); Human safety (19); Outfitting challenges (12); Bear restrictions (10).		

HUNTER MOTIVATIONS

The psychological reasons why respondents choose to hunt big game in Colorado illustrate what attributes of one's hunting experience are important to them. Overall, the top two motivations were spending time in nature (77%) and spending time with family/friends (67%). Contributing to wildlife management was also very important to nearly 40% of respondents (Figure 9). Findings across resident and nonresident hunters indicated that a greater percentage of resident hunters participated to spend time in nature (81%) and to harvest locally sourced meat (57%) than nonresidents (74% and 42%, respectively). These findings support previous research with hunters in Colorado (Quartuch, 2019) and statistically significant differences were detected for five out of eight motivations (Table 4).

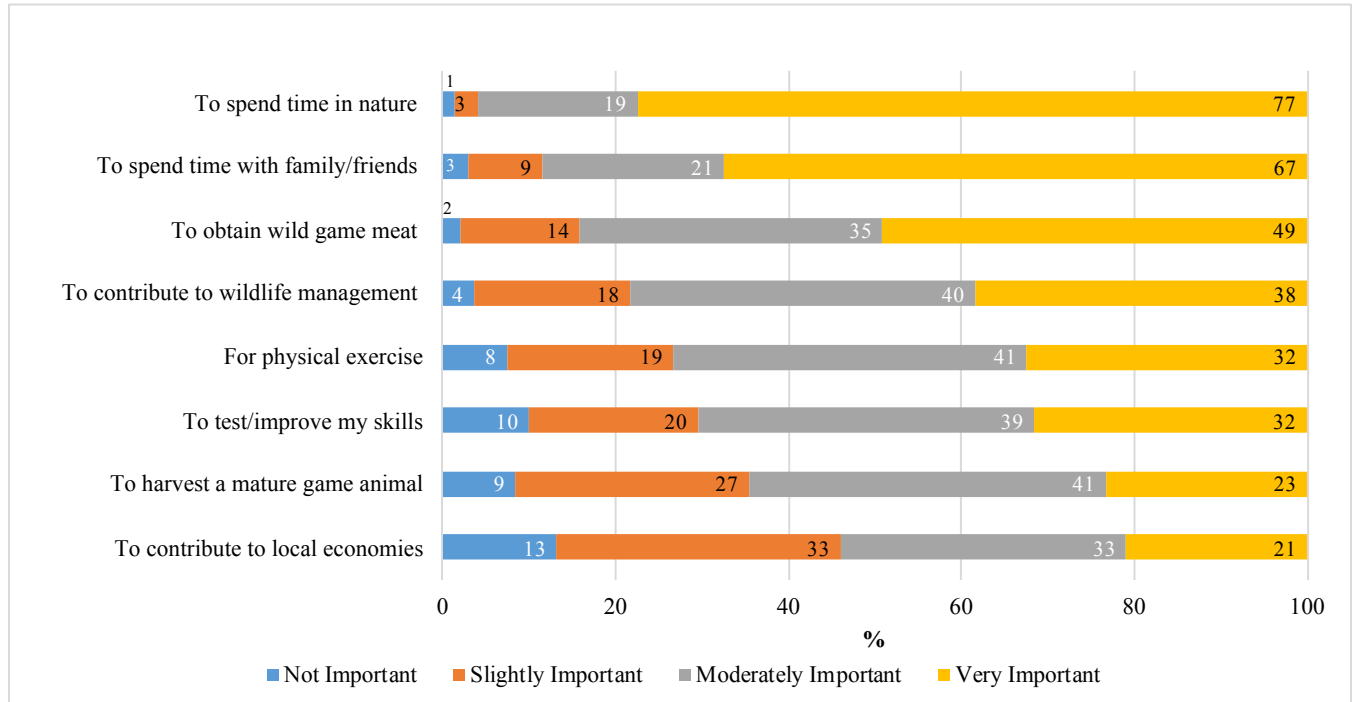


Figure 9. Hunters' psychological motivations for hunting big game in Colorado.

Table 4. Statistical analysis of resident and nonresident hunters' psychological motivations.

MOTIVATION	% (VERY IMPORTANT)	MEAN	T-SCORE	SIGNIFICANCE (P-VALUE)	COHEN'S D (TYPE OF RELATIONSHIP)
Spend time in nature					
Resident	81	3.8	2.37	0.018	.105 (Minimal)
Nonresident	74	3.6			
Harvest local meat					
Resident	57	3.4	6.76	0.001	.298 (Minimal-to-typical)
Nonresident	42	3.2			
Harvest mature animal					
Resident	22	2.6	-6.23	0.001	-.275 (Minimal)
Nonresident	25	2.9			
Wildlife management					
Resident	42	3.1	3.41	0.001	.151 (Minimal)
Nonresident	35	3.0			
Exercise					

MOTIVATION	% (VERY IMPORTANT)	MEAN	T-SCORE	SIGNIFICANCE (P-VALUE)	COHEN'S D (TYPE OF RELATIONSHIP)
Resident	36	3.0	3.70	0.001	.163 (Minimal)
Nonresident	29	2.9			
Spend time with friends & family					
Resident	67	3.5	-1.83	NS*	—
Nonresident	68	3.5			
Improve skills					
Resident	33	2.9	0.51	NS*	—
Nonresident	30	2.9			
Contribute to local economy					
Resident	23	2.6	0.52	NS*	—
Nonresident	19	2.6			

*Not statistically significant at $p \leq 0.05$.

BIG GAME LICENSE ALLOCATION AND THE HYBRID DRAW

Allocation

We asked respondents which of the following methods would be the fairest way to award big game licenses between resident and nonresident hunters if Colorado were to use a single, across-the-board allocation split. Response options included the following ways to allocate licenses:

65% resident – 35% nonresident (current allocation for most limited hunts)

70% resident – 30% nonresident

75% resident – 25% nonresident

80% resident – 20% nonresident (current allocation for high demand hunts)

Overall, about half (47%) of all survey respondents indicated that the 65%-35% allocation would be the most fair way to award licenses followed by the 80%-20% split (31%) (Figure 10). Another 14% indicated that the 75%-25% allocation would be the most fair. However, we detected substantive differences in preferences across resident and nonresident respondents. For example, 83% of nonresident respondents believed the 65%-35% allocation is the fairest method versus only 10% of resident hunters (Figure 11). More than half (59%) of residents indicated that the 80%-20% allocation is the fairest approach to distributing licenses compared to only 3% of nonresident respondents. These data also illustrate that

80% of residents believed that an allocation split above what is currently distributed to residents would be the fairest way of doing this (Figure 11). However, this also means that about 41% of resident hunters indicated an allocation split at or below the 75%-25% breakdown as the fairest approach.

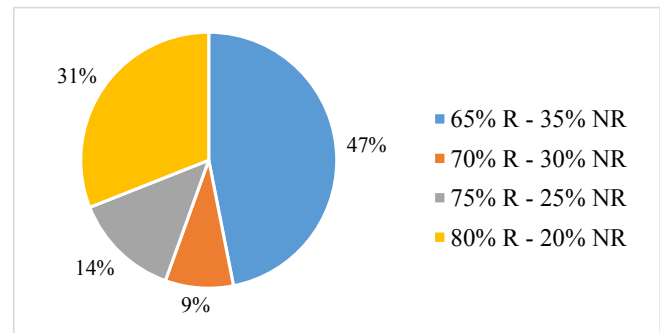


Figure 10. All respondents' perceptions about the fairest way to allocate resident and nonresident big game licenses in Colorado (only #1 fairest responses included).

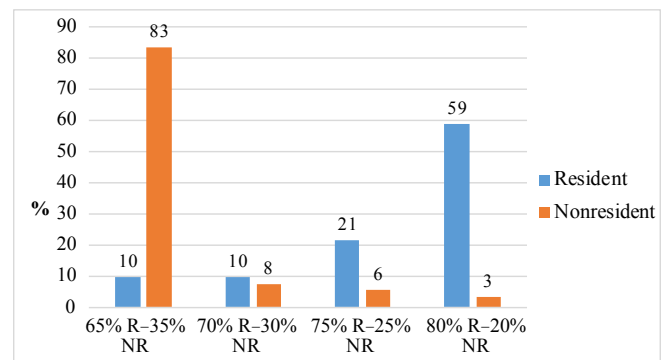


Figure 11. Resident and nonresident perceptions about the fairest way to allocate licenses in Colorado (only the #1 fairest responses included).

We separately examined archery, muzzleloader, and rifle hunters' allocation preferences. Results were somewhat variable across groups. For example, about the same percentage of muzzleloader and rifle hunters (48% and 51%, respectively) would prefer the 65%-35% allocation compared to 42% of archery hunters. On the contrary, a greater percentage of archery and muzzleloader hunters (42% and 39%, respectively) would prefer the 80%-20% split compared to only 25% of rifle hunters (Figure 12).

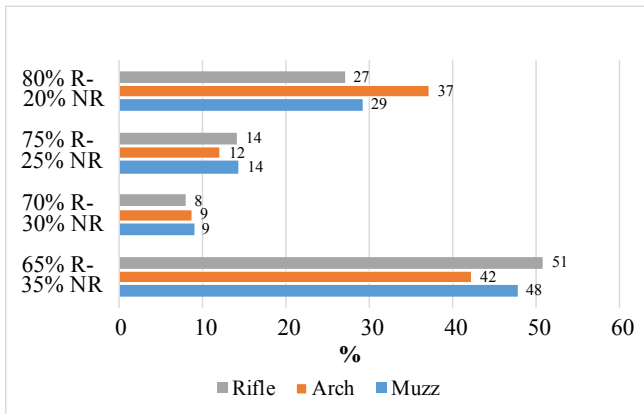


Figure 12. Muzzleloader, archery, and rifle hunters' perceptions about fairest way to allocate resident and nonresident big game licenses (only the #1 fairest responses included).

Additionally, we asked hunters to rank five methods to distribute licenses – from most fair to least fair – specifically in units where demand is higher than the number of licenses available (Table 5). Overall, the following three methods received the number one ranking by the most respondents (1) preference points (61%), (2) weighted draw (51%), and (3) hybrid (47%) (Figure 13). These three options were ranked 1st, 2nd, and 3rd (by overall #1 ranking) by resident hunters, whereas nonresident hunters selected hybrid followed by weighted draw as their 2nd and 3rd overall rankings (Figure 14).

Table 5. License allocation approaches and corresponding descriptions.

METHODS TO ALLOCATE LICENSES	DESCRIPTION
Hybrid	A portion of the license quota is distributed through a random draw, and the remaining quota is issued to those with the most preference points.
Random	The drawing should be random with no preference of any type.
Banking	Accumulated preference points may be split up to be used in multiple draw years for multiple licenses. More points may be required to draw a particular license.
Weighted draw	Is a random draw whereby an individual's position in the draw order statistically improves based on how many years they have applied to hunt that species.
Preference points	Those with the most points are issued a license first.

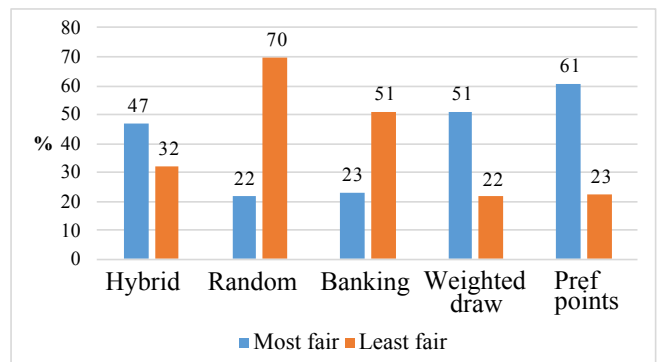


Figure 13. Respondent rankings of the most equitable ways of distributing licenses in high demand units.

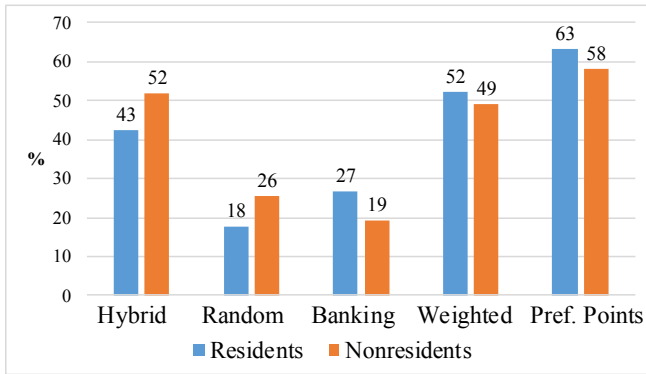


Figure 14. Most equitable way to distribute licenses in high demand units across resident and nonresident respondents (overall #1 rankings only).

Lastly, we assessed hunters' attitudes about three different alternatives for changing Colorado's big game license distribution and the degree to which respondents would support or oppose them. The only option that garnered a noteworthy level of support was having one across-the-board allocation split (i.e., a certain percentage to residents and nonresidents) for all deer, elk, bear, and pronghorn hunt codes. Slightly more than half (51%) of respondents supported this option (Figure 15). About 37% supported the notion of expanding the current hybrid draw to include all deer, elk, bear and pronghorn hunt codes and about one-third (34%) supported developing a new hybrid draw that uses different requirements or ways to allocate licenses (e.g., different preference points needed, a lottery system, etc.) (Figure 15).

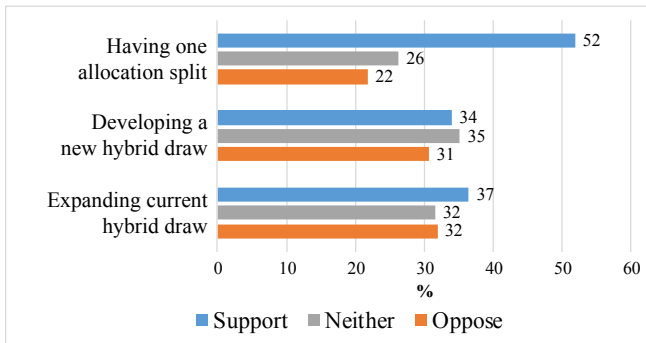


Figure 15. Support/opposition for modifying license allocation rules and policies.

For these topics, noticeable differences were detected between resident and nonresident hunters. Specifically, 56% of resident hunters supported having one allocation split compared to 47% of nonresident hunters (Figure 16). However, this difference was not statistically significant. On the contrary, slightly more nonresident hunters (40%) supported expanding the current hybrid draw versus 33% of residents. This was

a statistically significant difference across residents and nonresidents ($\chi^2 = 36.79$; $df = 1$; $p \leq 0.001$; $\phi = -.162$ (minimal relationship)). Similarly, we detected statistically significant differences across the two groups with respect to developing a new hybrid draw using different requirements. Specifically, more nonresidents (35%) opposed it than residents (33%) ($\chi^2 = 8.47$; $df = 1$; $\phi = -.080$ (minimal relationship)). Lastly, about 27% of resident and 22% of nonresident hunters or their hunting companions had participated in the hybrid draw system (Figure 17). Interestingly, more than one-third of resident and nonresident hunters were unsure if they had participated in Colorado's hybrid system (34% and 35%, respectively).

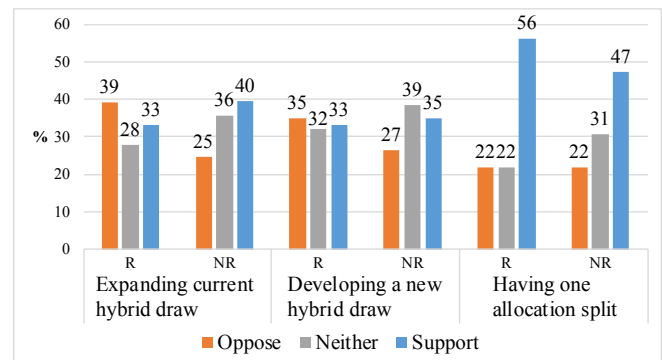


Figure 16. Resident and nonresident hunters' support/opposition for modifying license allocation rules and policies.

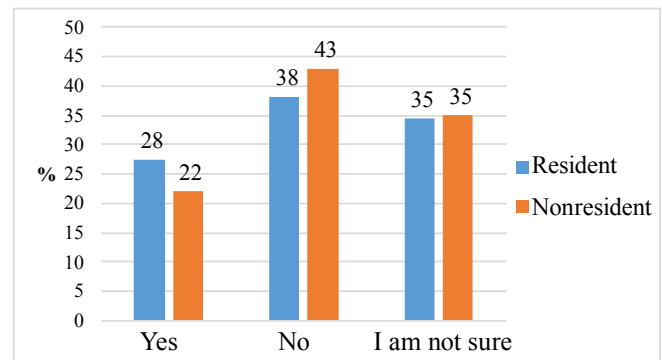


Figure 17. Resident and nonresident hunters' participation in the hybrid draw.

LIMITED BIG GAME LICENSES AND PREFERENCE POINTS

Limited licenses

Nearly three-quarters (72%) of respondents applied for a limited license between 2018-2021. Nearly half (48%) of respondents who applied for a limited license were satisfied with their ability to draw a license; about one-third (32%) were dissatisfied (Figure 18). A greater percentage of nonresident hunters (55%) were satisfied with their ability to draw a limited license compared to 43% of resident hunters (Figure 19). Chi-square tests

indicated a statistically significant difference across groups ($\chi^2 = 31.90$; $df = 1$; $p \leq 0.001$; $\phi = -.158$ (minimal relationship)).

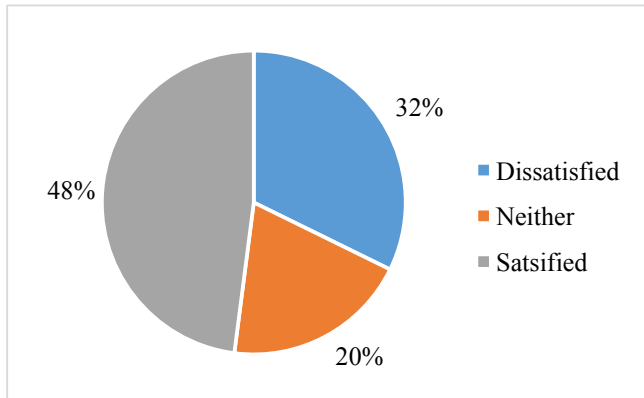


Figure 18. Respondents' satisfaction with ability to draw a limited license.

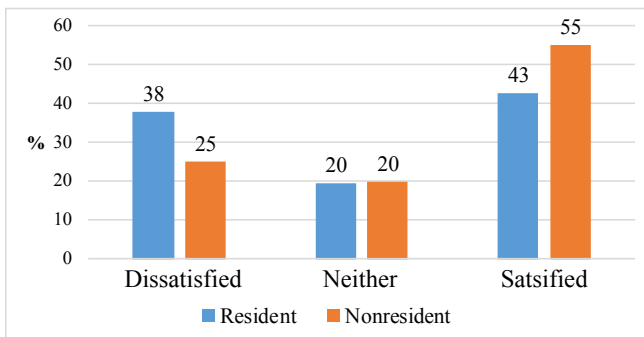


Figure 19. Percentage of resident and nonresident hunters who are satisfied with their ability to draw a limited license.

Preference points

Survey respondents identified fairness (74%), predictability (59%), and opportunity (49%) as the top three most important factors when considering gaining or using preference points (Table 6). However, the importance of these factors varied across resident and nonresident respondents (Figure 20). More resident hunters (42%) considered fairness to be the most important factor versus about one-third (31%) of nonresidents. Fairness was the second most important factor to nonresidents preceded by predictability (34%) as the most important. Only about 25% of resident hunters selected predictability as the most important factor. Simplicity was the least important factor across resident and nonresident respondents.

Table 6. Characteristics of preference point system

WHICH OF THE FOLLOWING ARE MOST IMPORTANT TO YOU WHEN CONSIDERING GAINING OR USING PREFERENCE POINTS	DESCRIPTION
Predictability	The ability to plan and predict when you could draw a particular license.
Fairness	Those who have waited in line the longest, should draw a particular license first.
Simplicity	The system used to draw preference points is clear and easy to understand.
Opportunity	Every applicant has a realistic opportunity to draw a particular license in their lifetime.

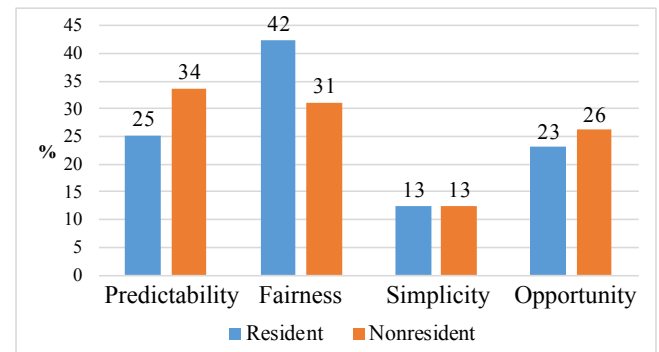


Figure 20. Most important attributes of preference system among resident and nonresident hunters (overall #1 ranking only).

Slightly more than half (51%) of respondents were satisfied with the way preference points are used to award deer, elk, bear, and pronghorn licenses (Figure 21). About the same percentage (51%) of resident and nonresident hunters were satisfied with the preference point system but slightly more residents were dissatisfied compared to nonresidents, 28% and 21%, respectively (Figure 22). Because we wanted to examine the extent to which there were statistically significant differences in resident and nonresident satisfaction, we removed all respondents who had never applied for a limited license (for these species) or were unsure if they had applied. Results from the corresponding t -test indicated statistically significant differences ($t(1,965)$

2.41, $p \leq .016$; $d = .109$). On average, nonresidents were more satisfied with the preference point system (mean = 3.4) than residents (mean = 3.2).

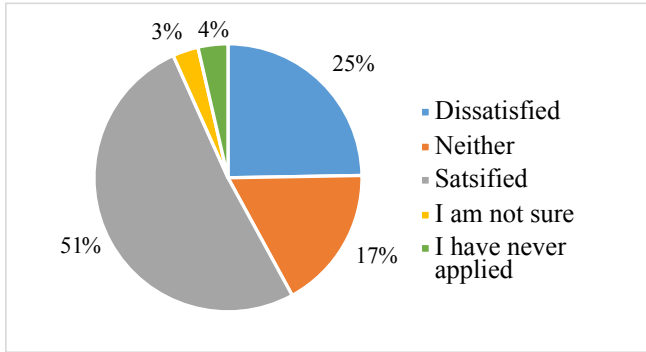


Figure 21. Satisfaction with awarding preference points for deer, elk, bear, and pronghorn licenses.

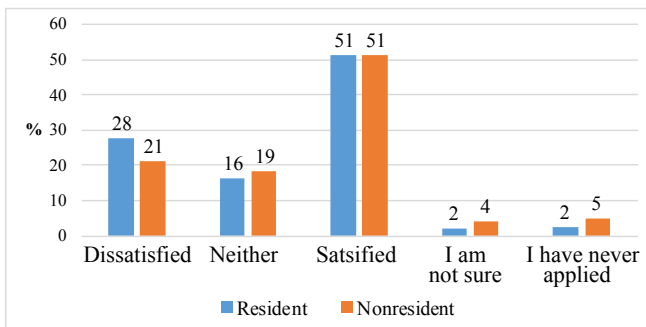


Figure 22. Resident and nonresident hunters' satisfaction with preference point system to award deer, elk, bear, and pronghorn licenses. Not sure and never applied responses were removed to conduct t-test.

More than half (51%) of respondents had never applied for a limited bighorn sheep, mountain goat, or moose license and another 5% were not sure if they had. About 15% of respondents who had applied for those species were satisfied with the way preference points were used to award licenses and about 17% were dissatisfied. To note: these percentages would be greater if we removed the 56% of respondents who had never applied or were unsure if they had applied (Figure 23). A greater percentage of nonresident than resident hunters had never applied (67% and 36%, respectively).

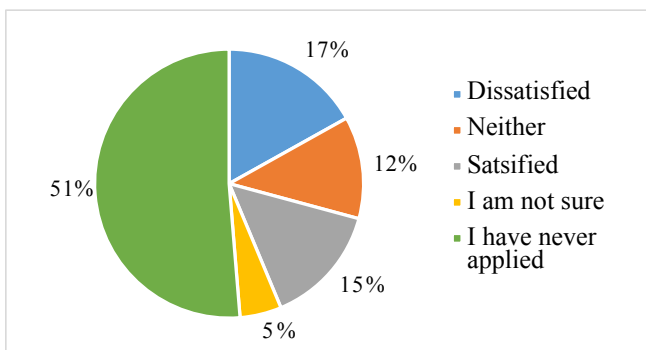


Figure 23. Satisfaction with awarding preference points for bighorn sheep, mountain goat, and moose licenses.

OVER-THE-COUNTER LICENSES (OTC)

In order to understand hunters' current perceptions about OTC licensing, we asked to what extent they would support or oppose the agency considering any of the following three options: (1) limiting all OTC elk licenses for archery seasons, (2) limiting all OTC elk licenses for rifle seasons, and (3) allowing only Colorado residents be eligible to obtain OTC licenses. Less than half (45%) of all survey respondents supported option #2 and even fewer supported options #3 and #1 (40% and 36%, respectively) (Figure 24). As might be expected, there were very substantive differences across resident and nonresident respondents. About three-quarters (74%, mean = 4.0) of resident hunters supported the idea of allowing only Colorado residents to be eligible for OTC licenses while 85% (mean = 1.5) of nonresidents opposed it (Figure 25). This difference was also statistically significant ($t(1,941) 51.8, p \leq .001; d = 2.26$). A similar percentage of resident and nonresident hunters supported limiting all OTC elk licenses for archery (about 36% and 35%, respectively) as well as limiting all OTC elk licenses for rifle seasons (47% resident; 42% nonresident) (Figure 25). The latter was statistically significant (at $p \leq 0.043$) but the difference was not substantive ($d = .089$).

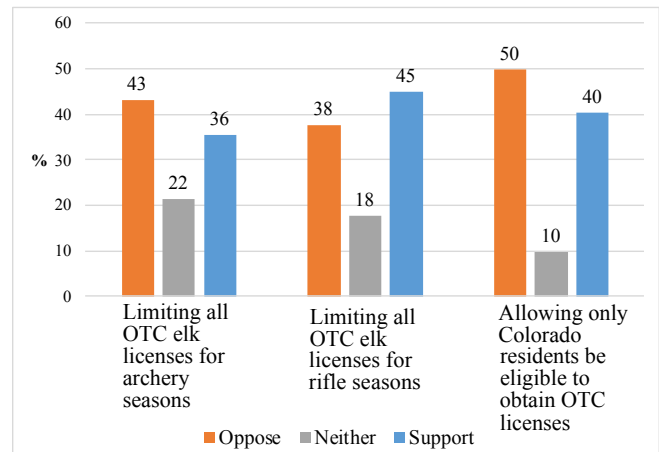


Figure 24. Support/opposition for potential OTC changes. Opposition/support measured using a 5-point scale from 1 (strongly oppose) to 5 (strongly support).

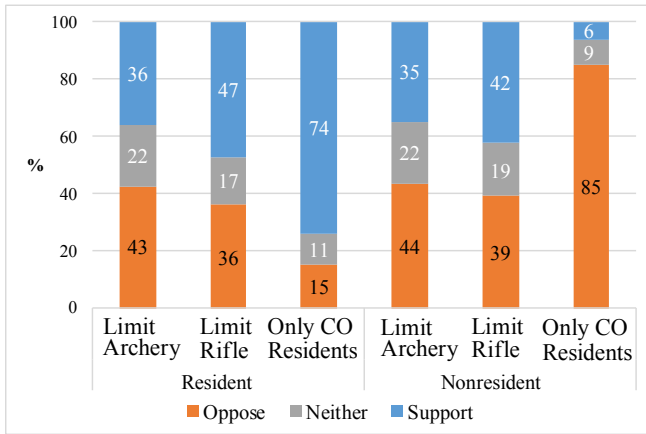


Figure 25. Resident and nonresident hunters' support/opposition for potential OTC changes.

When asked if CPW were only able to consider one of the three OTC options described above, about 39% of all survey respondents selected allowing only Colorado residents to be eligible for OTC licenses followed by limiting OTC elk licenses for rifle season (38%), and then limiting OTC licenses for archery elk seasons (23%) (Figure 26). A similar pattern of responses across resident and nonresident support/opposition was detected for this question. In terms of the highest priorities, slightly more than two-thirds of resident respondents (67%) suggested that CPW should consider allowing only residents to be eligible for OTC licenses (Figure 27). More than half (56%) of nonresidents would recommend that CPW consider limiting OTC rifle licenses (Figure 27).

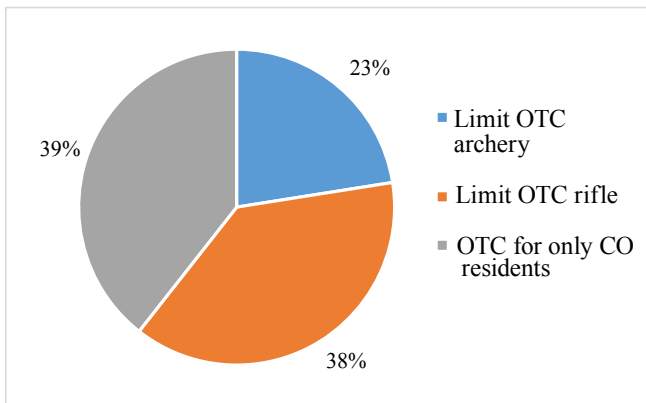


Figure 26. Potential OTC options for CPW to prioritize.

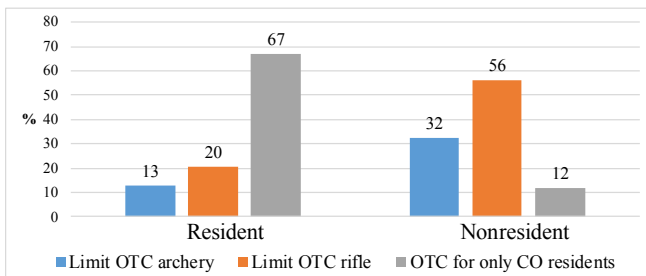


Figure 27. Resident and nonresident OTC priority preferences.

FAIR CHASE

Overall, survey respondents indicated a low degree of concern for six of seven possible technologies, practices or policies (e.g., season dates) which may currently provide hunters with an improper or unfair advantage with respect to the agency's Fair Chase Policy (see appendix B, pp. 38 for description of the Policy). Less than one-quarter of all respondents indicated they were 'very concerned' with six of the issues presented by CPW (Figure 28). However, about 61% were very concerned about advanced thermal imaging equipment used to locate big game during legal hunting seasons and another 18% were moderately concerned. Furthermore, about 45% were moderately-to-very concerned about advanced bow and firearm technologies that could be used to take game at long distances (Figure 28). Very few respondents were concerned about hunting seasons that overlap with the rut (82% were not at all concerned-to-somewhat concerned).



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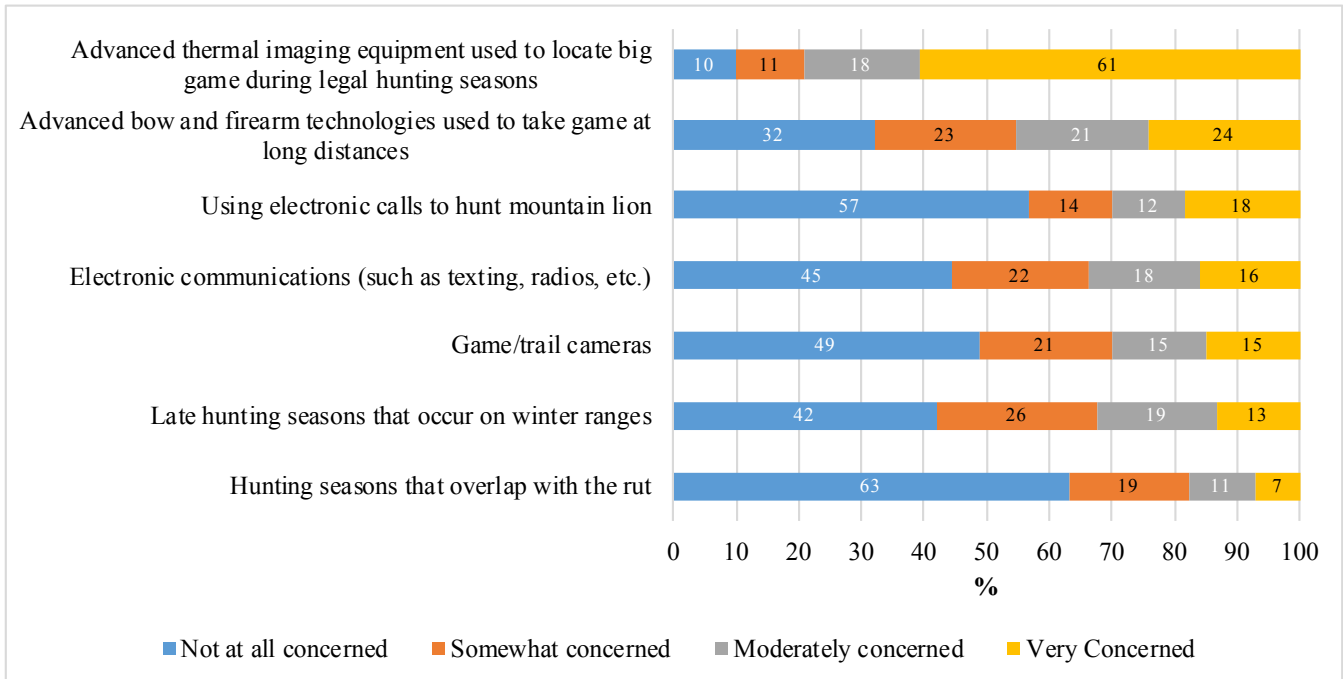


Figure 28. Respondents' level of concern with practices or technologies that challenge Fair Chase Policy.

There were very few differences between resident and nonresident hunters' concerns about practices or technologies that may offer an improper fair chase advantage. Both residents and nonresidents were moderately-to-very concerned about advanced thermal imaging equipment (80% and 79%, respectively). Almost half (48%) of resident hunters and (42%) of nonresidents were moderately-to-very concerned about advanced bow and firearm technologies used to take game at long distances (Figure 29).

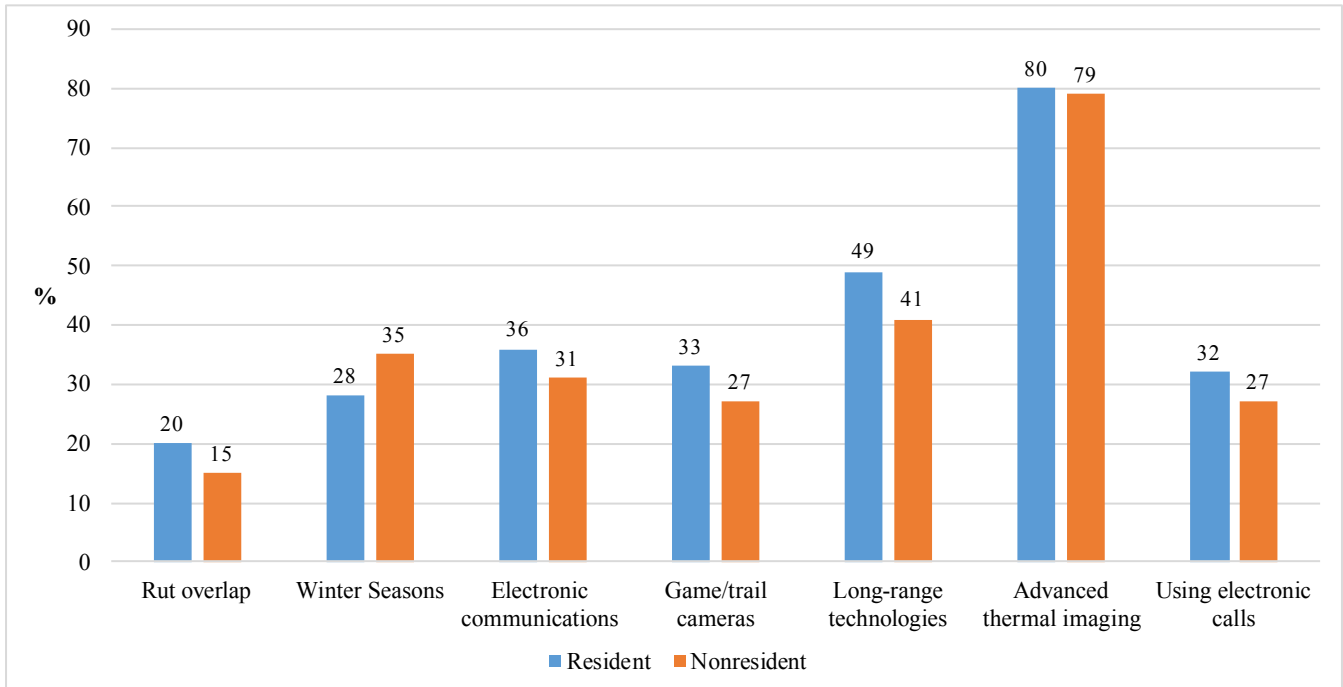


Figure 29. Resident and nonresident hunters' level of concern with practices or technologies that may challenge Fair Chase Policy.

We also asked respondents to share information about additional conditions of improper advantage that they thought the Parks and Wildlife Commission should consider adding to their Fair Chase Policy. Overall, several themes emerged (Table 7). Specifically, a vast majority of responses mentioned drones (n = 137), the use of ATV/OHVs or other vehicles (n = 77) and other remote controlled technology (n = 63) which they believe should be

prohibited. On the contrary, 52 respondents described a desire for hunters to be allowed to use more advanced technologies such as scopes, other optics, range finding sights or specific bullets which they believed would result in more ethical and humane harvest of big game animals. About 30 respondents even used this opportunity – though somewhat out of context – to share concerns about the license allocation process.

Table 7. Respondents’ perceptions about additional technologies or practices to include in the Fair Chase Policy.

THEMES (BOLD) AND SUBTHEMES	NUMBER OF COMMENTS*	EXAMPLE COMMENTS
Beliefs about ethical opportunities		
More advanced technology	52	<i>"I <u>don't</u> think technology that make hunters more ethical should be outlawed. ex: rangefinding bowsight, scope on ML, sabots in ML, rangefinding scopes"</i>
Return to primitive hunting techniques (e.g., muzzleloaders and bows, own season, no advanced technology)	71	<i>"You should open a traditional weapon only week of hunting. Long bow, recurve bow, muzzleloader (Iron sights only, only loaded from muzzle, cap or flint only)."</i> <i>"No technology"</i>
Prohibit		
Drones	137	<i>"Don't allow drones"</i> <i>"Drones should be illegal during season IE August thru Dec"</i>
ATV/OHVs/electric bikes	77	<i>"Very limited use of ATV or UTV access to hunting areas"</i>
Cameras (remote-controlled and otherwise)	63	<i>"Game cameras that are cell connected to have instant access to activity as it gives unfair advantage to hunters that can afford them."</i>
Long range technology	38	<i>"Eliminate use of long distance shooting, use of .50 cal sniper rifles"</i> <i>"Hunters overestimate the energy of a bolt at longer distances."</i>
Herding wildlife	25	<i>"Herding elk from public onto private land."</i>
Baiting (for and against)	18	<i>"No baiting during hunting seasons"</i> <i>"Allow baiting for bear"</i>
Allocation/Draw process	31	<i>"Get rid of out of state hunters"</i>

Miscellaneous

Challenges with guides (or other non-hunters) influencing hunts (22); Disability allowances (16); Archery/ Muzzleloader overlap (11); Predators (11)



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BIG GAME SEASON STRUCTURE

Species preferences

Nearly two-thirds (64%) of all survey respondents would prefer to hunt elk every 2 to 4 years with the possibility of hunting more larger, older animals with less hunter crowding specifically when demand for hunting opportunity is higher than the number of licenses CPW can supply. About 56% indicated that they would prefer to hunt deer every 2 to 4 years for the same possibilities (Figure 30). About 27% and 21% of survey respondents would prefer to hunt elk and deer every year, respectively, even if that meant possibly hunting smaller, younger animals. A similar pattern was detected across resident and nonresident respondents, although fewer residents (58%) preferred to hunt elk every 2 to 4 years than nonresidents (70%) for possibly more larger, older animals with less hunter crowding (Figure 31). Additionally, 22% of nonresidents selected “not applicable” in regards to deer (i.e., they do not hunt this species), compared to 4% of residents.

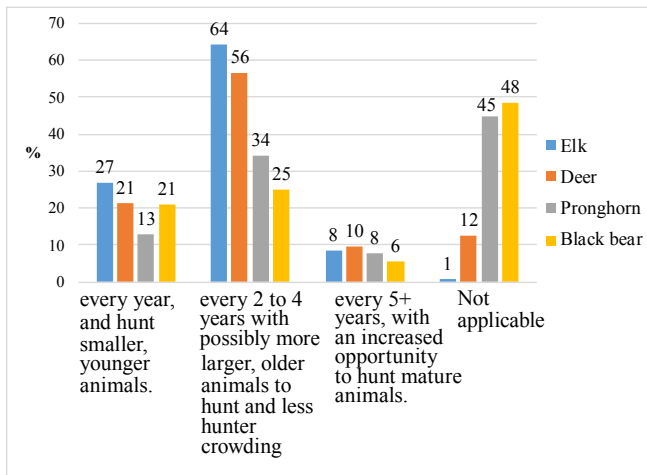


Figure 30. Hunting preference when demand is greater than available licenses.

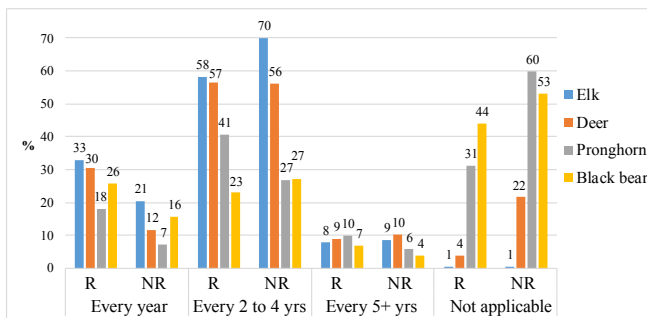


Figure 31. Resident and nonresident hunters' preferences when demand is greater than available licenses.



Across methods of take, archery, muzzleloader, and rifle hunters would prefer to hunt elk and deer every 2 to 4 years for possibly larger, older animals and less hunter crowding. Specifically, about two-thirds (67%) of archery hunters, 64% of muzzleloader hunters, and 63% of rifle hunters would prefer hunting elk every 2 to 4 years (Figure 32). About 60% of archery hunters would prefer to hunt deer in this timeframe as well compared to 54% of muzzleloader hunters and 55% of rifle hunters (Figure 32). About 60% of archery hunters would prefer to hunt deer in this timeframe as well compared to 54% of muzzleloader hunters and 55% of rifle hunters (Figure 32).

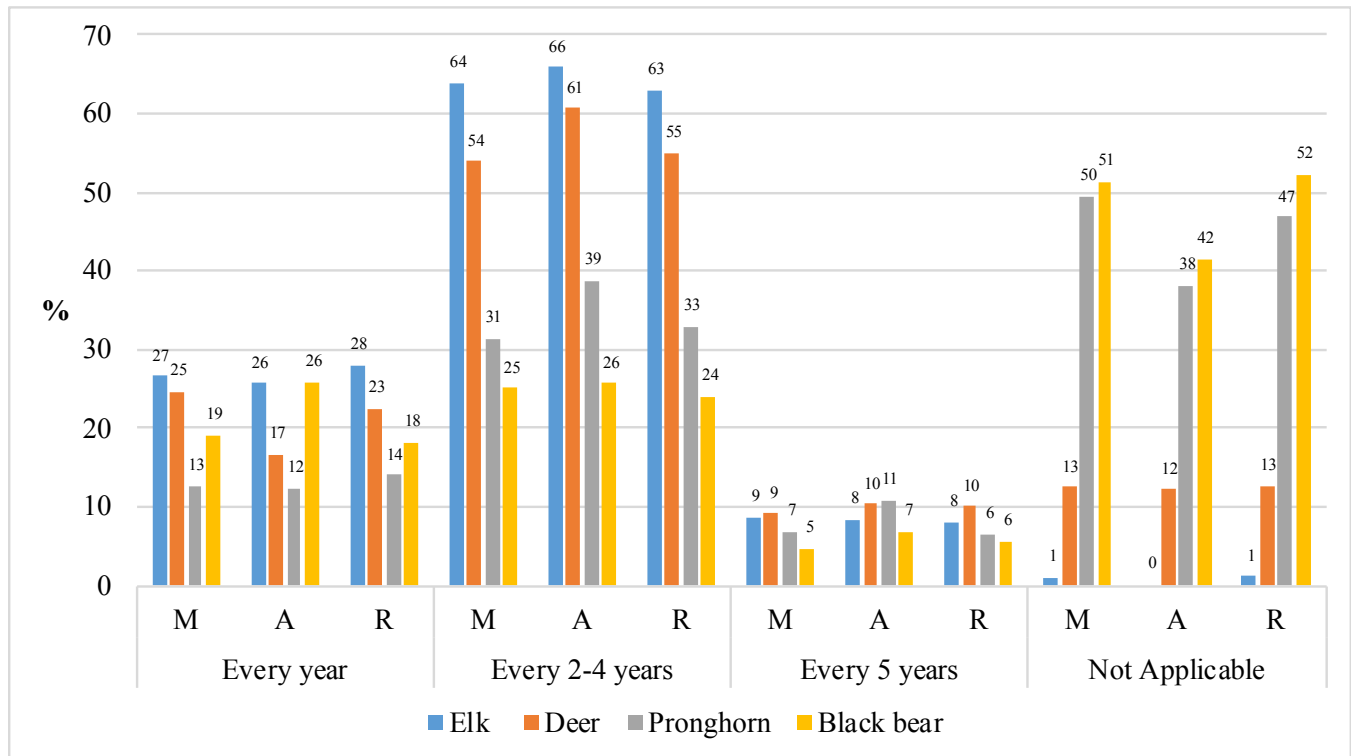


Figure 32. Muzzleloader, archery, and rifle hunters' preferences when demand is greater than available licenses.

Season length preferences

The majority of respondents (67%) would prefer to keep season lengths as they are now. Just under 15% of respondents want more, but shorter seasons, while 10% want fewer, but longer seasons. About 8% responded that they were not sure which option they would prefer (Figure 33). Across residents and nonresidents, a greater percentage of nonresidents would prefer to keep seasons as is (72%) compared to 61% of residents (Figure 34). Additionally, 15% of residents would prefer fewer, but longer seasons and 16% would prefer more, but shorter seasons. In comparison, only 6% of nonresidents would prefer fewer, but longer seasons, and 13% had a preference for more, but shorter seasons. Both residents and nonresidents responded similarly for the "I am not sure" option (8% and 9%, respectively) (Figure 34).

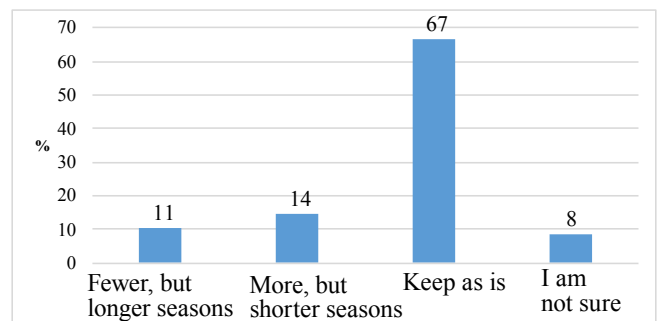


Figure 33. Respondents' season length preferences.

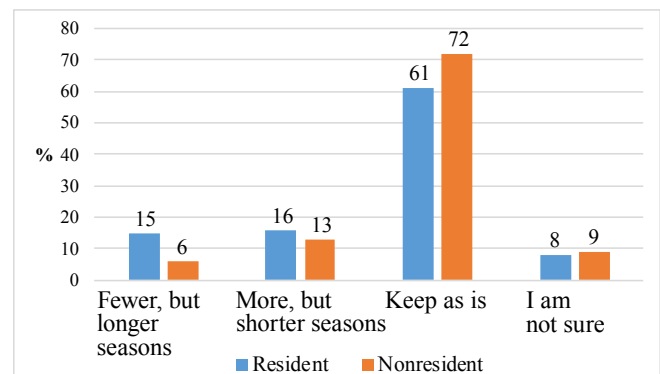


Figure 34. Resident and nonresident hunters' season length preferences.

Across all three methods of take, most respondents were in support of the current season structure. Nearly three-quarters (70%) of archery hunters would prefer to keep the season length as it is now. About 67% of muzzleloaders and 63% of rifle hunters indicated the same sentiment (Figure 35).

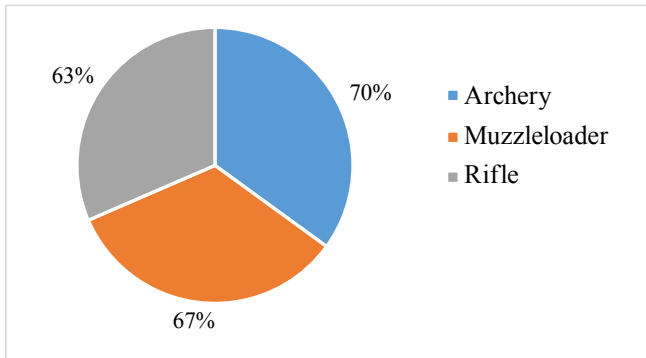
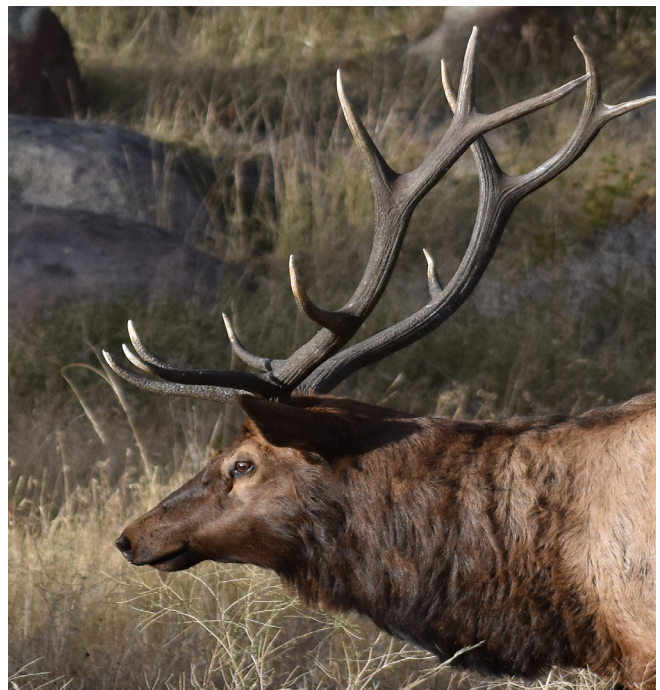


Figure 35. Percentage of archery, muzzleloader and rifle hunters who prefer to keep the season lengths as it is now.



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OTC ELK SEASONS

When asked to indicate their level of agreement for replacing either-sex OTC elk licenses with antlered OTC licenses, half of the respondents (50%) disagreed, with only 17% agreeing with that possible change (Figure 36). Residents and nonresidents' responded similarly with respect to converting either-sex OTC elk licenses to antlered only (50% and 48%, respectively) (Figure 37). However, 17% of residents and nonresidents agreed with that statement. In response to the question of continuing to provide OTC antlered elk licenses in the 2nd and 3rd rifle seasons, both resident and nonresidents responded similarly; about 51% of resident and 46% of nonresident respondents supported OTC antlered licenses during the 2nd and 3rd rifle seasons (Figure 37).

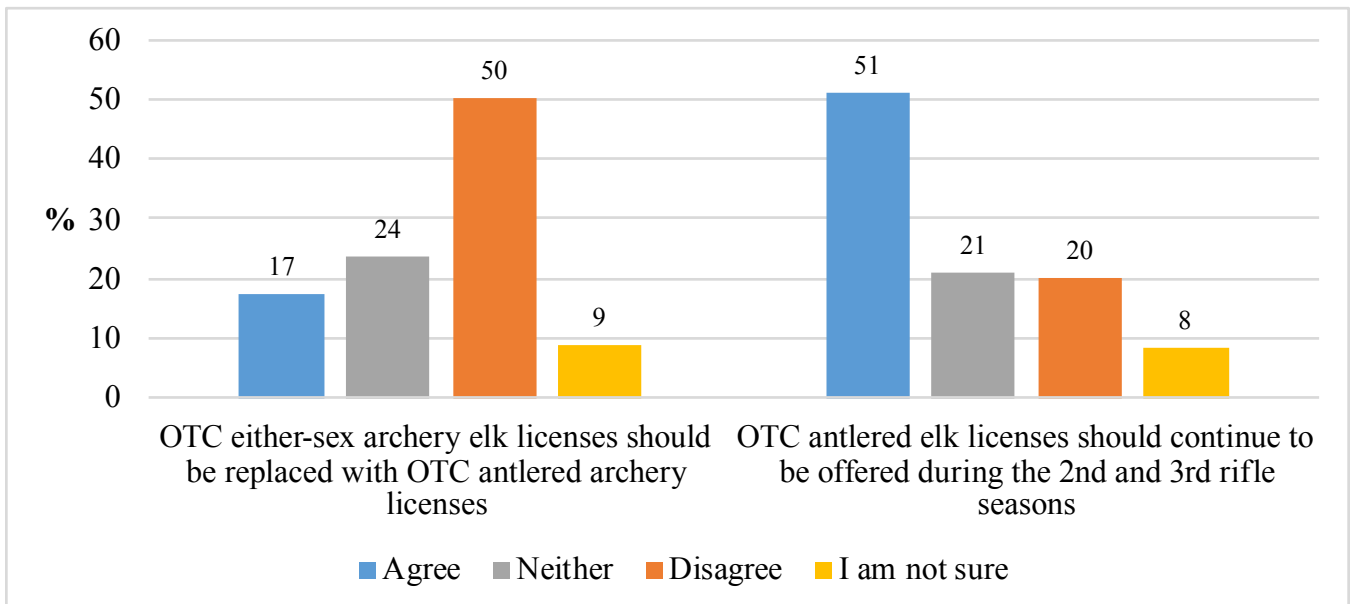


Figure 36. Respondents' level of agreement with two different aspects of elk hunting seasons.

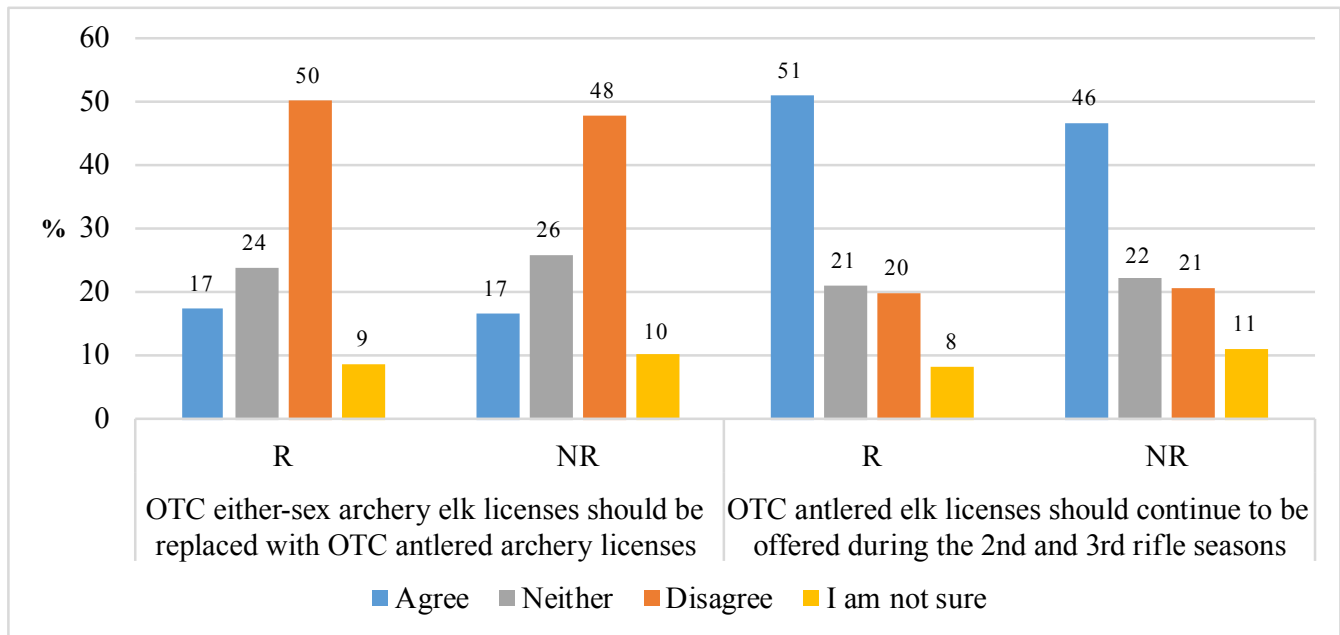


Figure 37. Resident and nonresident hunters' level of agreement with two different aspects of elk hunting seasons.

PRONGHORN HUNTING SEASON

We asked hunters to select their level of agreement with continuing to offer either-sex OTC archery pronghorn licenses where they are currently offered. Just over 38% of respondents agreed with that statement while only 3% disagreed (Figure 38). Another 37% were unsure, and 21% selected neither agree nor disagree (Figure 38). Residents and nonresidents differed significantly on continuing to offer either-sex pronghorn OTC licenses with 48% of residents agreeing compared to 30% of nonresidents (Figure 39). Conversely, almost 48% of nonresidents were unsure as opposed to 27% of residents who answered unsure (Figure 39). The two groups differed only slightly in disagreement, with almost 5% of residents disagreeing with the statement and 2% of nonresidents disagreeing (Figure 39).

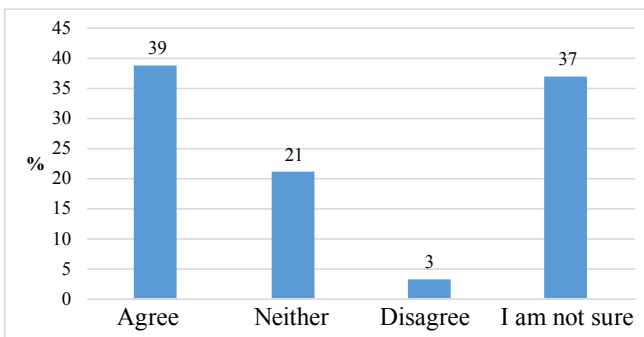


Figure 38. Respondents' level of agreement with continuing to offer OTC either sex archery pronghorn hunting licenses.

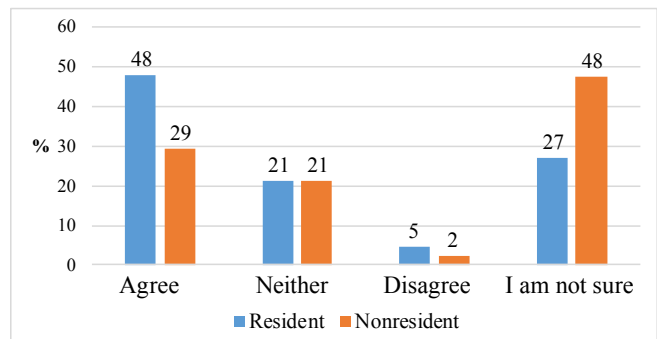


Figure 39. Resident and nonresident hunters' agreement with continuing to offer OTC either sex archery pronghorn hunting licenses.

BEAR HUNTING SEASONS

We asked respondents about their level of agreement on three statements related to black bear season structure and hunting experience. The first statement asked if the quality of their bear hunt was affected by crowding. About 18% of all respondents agreed that the quality of their bear hunt was affected by crowding (Figure 40). About 12% of respondents disagreed that bear hunts were affected by crowding, though nearly half (45%) were not sure (Figure 40). We also examined hunters' agreement with having multiple, shorter bear hunting seasons. Half either disagreed (25%) or neither disagreed nor agreed with this idea (25%) (Figure 40). Additionally, 43% of respondents were unsure (Figure 40). The third statement asked about the ability to purchase a bear license independently from buying a deer or elk license. Over half (52%) of all respondents agreed with this statement.

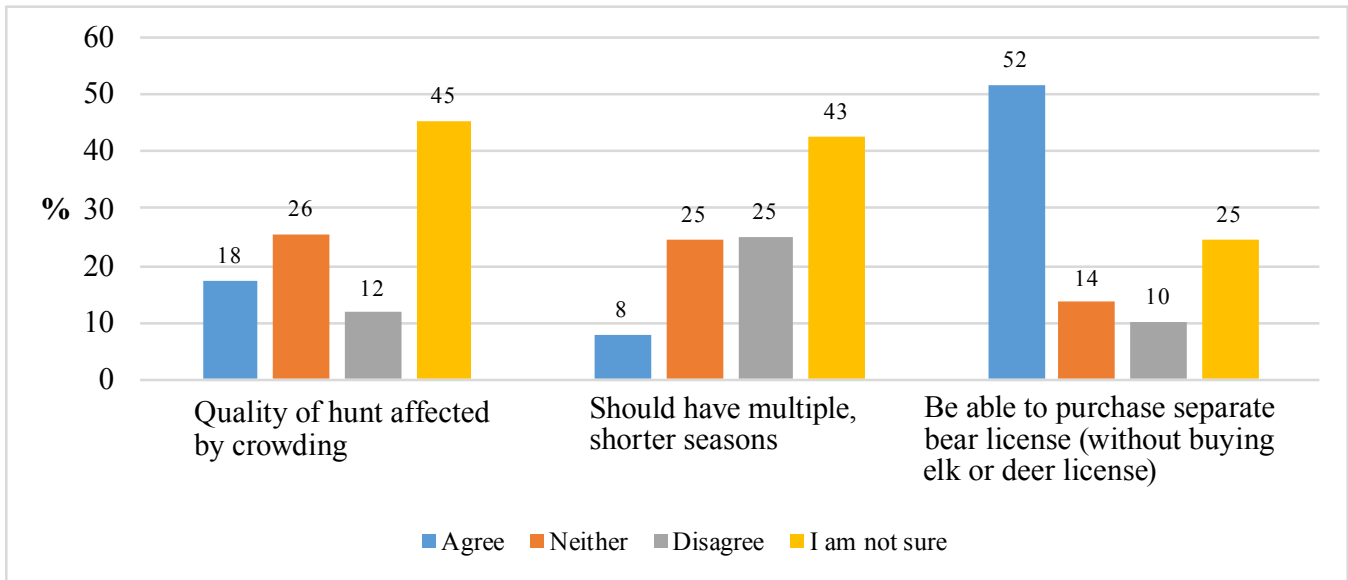


Figure 40. Respondents' level of agreement with three different aspects of black bear hunting season structure.

When comparing resident to nonresident responses for the bear hunting section of the survey, a greater number of nonresidents were unsure about the proposed options. For example, about half of all nonresidents selected “I am not sure” for the first two options compared to 39% and 35% of resident hunters, respectively (Figure 41). More residents (32%) disagreed with having multiple, shorter bear seasons than nonresidents (18%) (Figure 41).

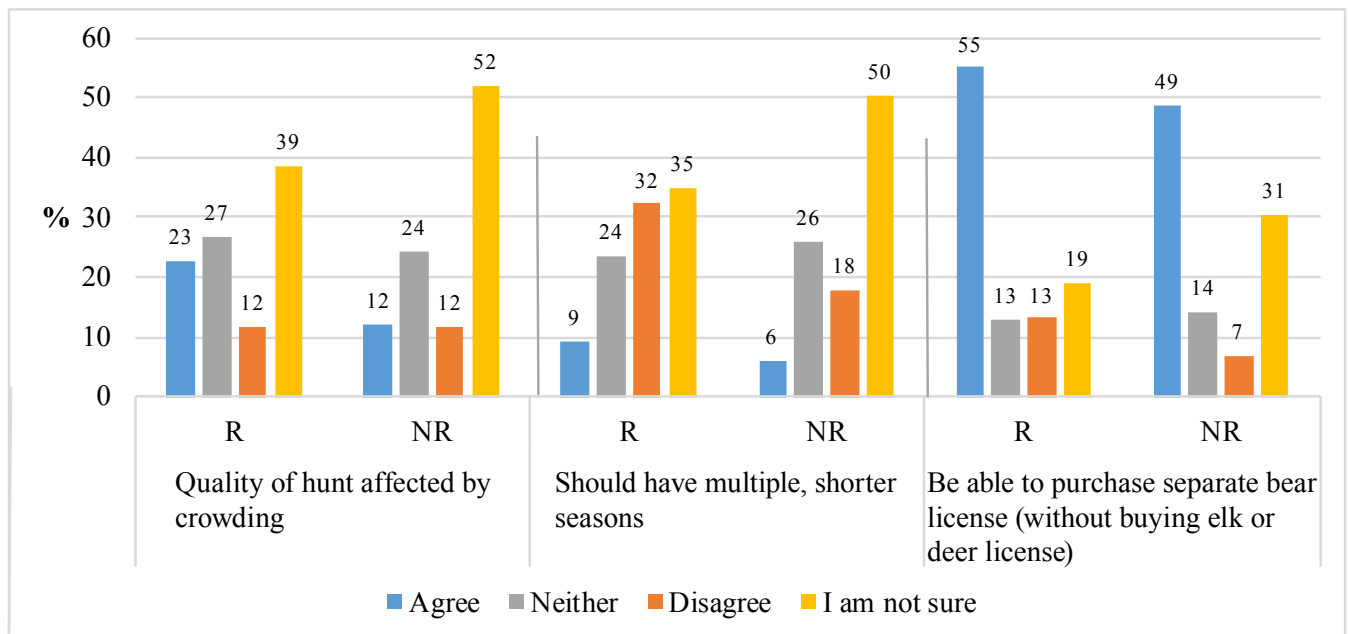


Figure 41. Resident (R) and nonresident (NR) hunters' agreement with black bear season structure options.

ARCHERY-MUZZLELOADER SEASON OVERLAP

Half of all respondents were not at all concerned about hunter safety during the overlapping archery and muzzleloader hunting seasons (Figure 42). However, about one-third (30%) indicated that they were moderately-to-very concerned. Resident respondents had a higher level of concern with the overlap compared to nonresidents (19% and 12%, respectively) (Figure 43). Over half (54%) of nonresidents were not at all concerned with hunter safety during overlapping seasons compared to (46%) of residents (Figure 43).

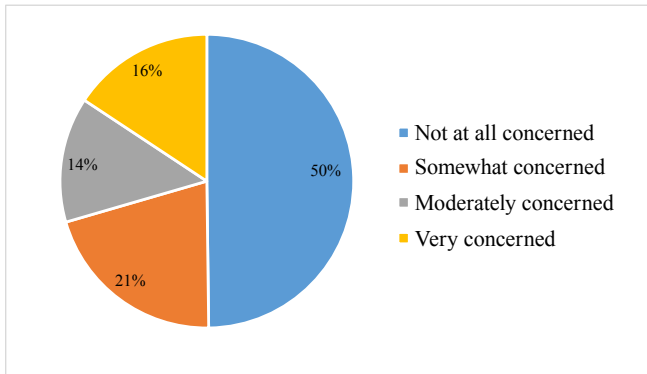


Figure 42. Respondents' concern about overlapping archery and muzzleloader season.

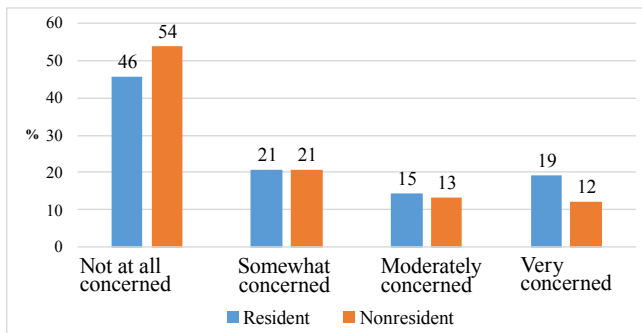


Figure 43. Resident and nonresident concerns about overlapping archery and muzzleloader seasons.

More than half (56%) of respondents would prefer to make no changes to the overlapping archery and muzzleloader seasons, which was the highest ranked preference, followed by separating archery and muzzleloader seasons (30%) (Figure 44). Very few respondents supported a requirement for both archers and muzzleloaders to wear fluorescent orange

or pink (13%) or separating both groups of hunters geographically (5%) (Figure 44). We detected minimal differences between residents and nonresidents on their preferred alternative. However, slightly more nonresident hunters (59%) ranked “no change” as their most preferred option as opposed to 53% of residents (Figure 45).

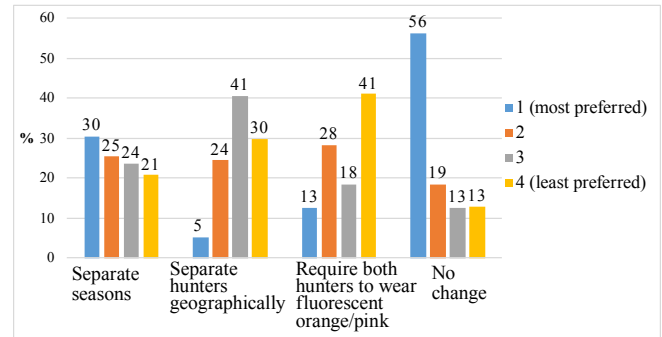


Figure 44. Respondents' preferences for addressing concerns about overlapping archery and muzzleloader seasons. Scale is from 1 (most preferred) to 4 (least preferred).

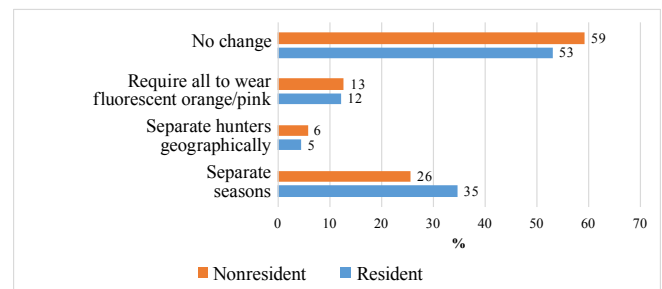


Figure 45. Resident and nonresident hunters' preferences for addressing overlapping archery and muzzleloader seasons.





Discussion

The topic of big game hunting license distribution in Colorado is of significant importance to a wide range of individuals and stakeholders. Any changes made to this system have the potential to affect broad audiences and ultimately, wildlife management in the state. During 2021-2022, an internal team of CPW staff identified a variety of methods – including public comment forms, surveys, focus groups, and public presentations – which the agency used to engage and learn from the public about a variety of topics spanning different aspects of big game license distribution. Public participation during the past year has clearly demonstrated stakeholders’ strong interest in, and current relevancy of, these topics.

The BGAS was implemented as a means to obtain statistically representative data about resident and nonresident hunters’ attitudes, preferences, and perspectives regarding these topics, and in many ways, the results highlight the complexity surrounding license distribution. They also highlighted important differences in the perspectives of resident and nonresident hunters.

LICENSE DISTRIBUTION

Across nearly every survey topic, resident and nonresident hunters both agreed and disagreed with one another, but the level of dis/agreement varied depending upon the topic in question. Generally, there was more agreement from both groups regarding preference points and the hybrid draw, and far less agreement about license allocation. These findings mirror those from the public focus groups ([Boydston, 2022](#)). For example, resident and nonresident survey respondents believed that using preference points followed by a weighted draw and then a hybrid draw approach were the fairest ways to distribute licenses in units where demand is higher than the number of licenses available. Two other options, preference point banking and a totally random draw system (Table 5) – which the agency does not currently use for big game license allocation (aside from desert bighorn sheep) – were identified as the least fair options by both resident and nonresident survey respondents. Focus group participants shared somewhat similar sentiments, oftentimes describing a desire to expand the current hybrid draw in a way that would include more hunt codes. Other focus group participants expressed interest in point banking, though there was limited agreement across focus groups about the benefits or drawbacks of doing so. Additionally, about half of all respondents (51% of residents and 51% nonresidents) indicated being satisfied with the current way preference points are used to award deer, elk, bear, and pronghorn licenses and about half (48%) were somewhat-to-very satisfied with their ability to draw a limited license.

At first glance, these results may indicate broad-level agreement among hunters that the agency is appropriately distributing big game licenses. However, findings from additional survey questions illustrate disagreements about allocation. For example, resident and nonresident hunters did not agree about which overall allocation split is the fairest. Somewhat unsurprisingly, the “fairest” allocation split selected by resident or nonresident hunters were most beneficial for their particular group. In other words, more resident and nonresident hunters would prefer an allocation split that awarded more – rather than less – hunting opportunities to their respective group.

We also learned that a greater proportion of resident hunters supported having one, across the board allocation split or developing a new hybrid draw using different requirements, versus nonresidents who showed greater support for expanding the current hybrid draw to include all deer, elk, bear, and pronghorn limited hunt codes. The only example pointing to some agreement by resident and nonresident hunters is the fact that only about one-quarter of all hunters strongly supported having one allocation split. In this way, both groups agree that this may not be their top option.

Questions about over-the-counter (OTC) licenses revealed the greatest disparity between resident and nonresident hunters’ in terms of their level of support or opposition for potential changes to Colorado’s OTC licensing system. Specifically, nearly all nonresident hunters opposed the option that would allow only Colorado residents to purchase OTC licenses. While this is somewhat unsurprising since it would eliminate nonresidents’ opportunity to purchase OTC licenses, it should be noted that nearly 40% of residents also opposed this option (about the same percentage as supported it). The other two OTC options received similar support/opposition from both resident and nonresident

respondents. Less than half of all respondents supported limiting all OTC elk licenses for rifle season and fewer – about one-third – supported limiting all OTC elk licenses for archery season. Based on these results, any decision to limit archery elk OTC opportunities and/or allow only Colorado residents to purchase OTC licenses may be met with consternation from some hunters.

STATUS QUO SEASON STRUCTURE

Resident and nonresident hunters' attitudes about big game season structure – including species preferences and to a lesser degree, season length preferences – were somewhat similar. Overall, most respondents indicated that they would prefer to hunt deer and elk every two-to-four years for possibly more and larger animals with less hunter crowding than hunt every year or wait five or more years to hunt these species. Despite this, the majority of survey respondents would prefer to keep the seasons as they are currently (61% resident v. 72% nonresident). These data provide important insights for wildlife managers who are tasked with ensuring the long-term health of Colorado's big game populations as well as providing safe, diverse, and satisfactory hunting experiences for sportspeople. Hunter preferences, expectations, and experiences can and often do change over time based on a variety of factors including hunter crowding and encountering wildlife. Future research could continue to monitor the potential impact of these factors on hunters' experience. For example, human dimensions scholars could examine how hunters define crowding, who and what they perceive is contributing to crowding in the areas where they hunt (e.g., other hunters, hikers, mountain bikers, OHV's, etc.) and the extent to which these factors shape their experiences and corresponding satisfaction. This research may prove timely given projected increases in Colorado's population over the next 20 years ([CPW Existing Conditions](#), 2020) and based on results from this survey which illustrated 40% dissatisfaction in current elk hunting experiences among residents and less so (28%) among nonresidents. While we did not set out to compare differences between previous BGAS's and the current inquiry, it is important to note that dissatisfaction with elk hunting experiences appears to be increasing over time. Slightly less than one-quarter of respondents from the 2014 BGAS indicated being dissatisfied with their elk hunting experience compared to about one-third of respondents in the 2022 BGAS.

FAIR CHASE AND OVERLAPPING ARCHERY AND MUZZLELOADER SEASONS

Based on these survey results, most respondents, regardless of residency, were not overly concerned about the majority of technologies or practices presented by CPW that might offer an unfair advantage to hunters. That being said, the majority of both resident and nonresident hunters were concerned about advanced thermal imaging technology, with another 45% moderately-to-very concerned about advanced bow and firearm technologies that could be used to take game at long distances. The Parks and Wildlife Commission adopted a fair chase policy in May of 2016, and CPW continues to recognize the importance of maintaining a fair chase standard when considering current and future hunting regulations. Doing so will continue to be important for garnering and ensuring broad public support for hunting in the state. Future research or public engagement efforts could examine these and other fair chase topics and issues described by survey respondents.

Similarly, few respondents were substantively concerned about the overlapping archery and muzzleloader hunting seasons. While more than two-thirds of resident hunters and three-quarters of nonresident hunters were not at all or only somewhat concerned about the overlapping archery and muzzleloader hunting seasons, it is important to highlight that about one-third of all respondents (slightly more residents) were moderately-to-very concerned about it. Future research could explore these concerns within the context of hunter crowding and real or perceived impacts to hunter safety. Additionally, we did not examine hunters' knowledge about or awareness of historical issues associated with the overlapping seasons. It is possible that respondents were unaware of the four accidental deaths which occurred during the 2018-2021 hunting seasons. Future research could also examine the impact of awareness on respondents concerns or preferences.

Conclusion

Understanding similarities and differences in resident and nonresident hunters' perceptions of big game license allocation, preference points, and availability of OTC licenses, as well as overall hunter satisfaction and attitudes about big game season structure help inform CPW decision making, policy and regulations. Through the BGAS, the agency learned a great deal about hunter preferences and why they prefer certain outcomes or changes to the agency's license distribution system versus others. What makes many of these results inherently complex is the fact that some hunters stand to gain and/or lose from any potential change. Because hunter preferences and perceptions are inherently social issues, they will require decision makers to have difficult discussions about how any changes to the system will affect specific groups. They also require multiple data points collected using different methods (i.e., quantitative and qualitative) to collect data from a variety of individuals and stakeholder groups. Fortunately, CPW and the Colorado Parks and Wildlife Commission can use these data – as well as those gathered from other public involvement efforts (e.g., focus groups) – as a way to frame conversations about the potential impacts that different decisions may have on different stakeholder groups. Recent results from the BGAS and focus groups conducted by CPW suggest that simplicity in the system is not a priority of most hunters (Boydston, 2022). Furthermore, hunters seem to understand the complexities associated with balancing herd health and hunter satisfaction, and do not expect a simple solution. As such, CPW will continue to engage hunters and examine the relationship between perceptions and satisfaction in conjunction with herd management to ensure any changes made maintain a balanced system. Research efforts like these and the corresponding datasets that they provide, offer compelling evidence for wildlife managers about ways they can continue to manage for a robust and stable big game population while balancing increasing demand for big game hunting opportunities.

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Appendix A

Q31: Any Additional Comments

(co-authors qualitatively coded open-ended comments and grouped them in Table 8 by broad themes and corresponding subthemes)

Table 8. Respondents' additional comments.

THEMES (BOLD), SUBTHEMES	NUMBER OF COMMENTS*	EXAMPLE COMMENTS
Draw options		
Point creep	21	<i>"Another huge issue is the point creep. I know guys waiting for 24 years to hunt elk in trophy units and each year he is beat out by one hunter due to this BS point creep. It needs highly addressed."</i>
Fewer tags	20	<i>"1. The archery season for elk is too long. 2. Archery OTC should be limited 3. The elk OTC tags should be changed to limited. 4. Too many tags given to non residents"</i>
Only limited tags (only draw)	17	<i>"Have everyone apply for a license's for the area so you know how many people are in an area at any given time."</i>
Simplify	16	<i>"New online system is difficult in my opinion. Log on and look up is way more difficult."</i>
Likely won't draw	14	<i>"Change points system to recognize age-point creep means senior hunter hunters won't ever draw while still being able to hunt"</i>
Banking (positive)	12	<i>"banking of preference points would allow for a more manageable setup for me."</i>
Tag valid any manner of take	10	<i>"I think you should be able to hunt another season if you have an unfilled tag."</i>
Unfair	8	<i>"I just want to see a draw that is fair and consistent."</i>
Preference points (negative)	6	<i>"Preference points could be better. My dad has waited 30 years to draw an elk tag."</i>
Either sex tags	5	<i>"would like to see either sex option for elk 1st season rifle like in past years"</i>
Weighted (positive)	4	<i>"I like the weighted point system for moose, sheep, and goat and would be all for this system transitioning to all species."</i>
Length of time hunting	4	<i>"Points should favor most consistent applicants"</i>
Hybrid (positive)	3	<i>"Please turn all Preference points into bonus points, and allocate the draw to 50% bonus draw, 50% random draw to make things as equal as possible for all hunter both new and old."</i>
Weighted (negative)	3	<i>"Next is the weighed point system, their is absolutely no need for it. Weighted points don't give you a better chance to draw a tag"</i>
Lottery/Random (positive)	3	<i>"Lottery draw system!!!"</i>
Cap on points	3	<i>"Max accumulation of Pref. pts - 3 yrs. 4."</i>
Update stats	3	<i>"CPW should update the "high demand hunt codes" based on current data versus using 2007-2009 draw data."</i>

THEMES (BOLD), SUBTHEMES	NUMBER OF COMMENTS*	EXAMPLE COMMENTS
Want to plan	3	<i>"Very enjoyable I wish I could make plans in Aug instead of April Plans may change"</i>
Leftover (negative)	3	<i>"The draw process has become ridiculous. Let's start the improvement process by eliminating any leftover draw."</i>
Hybrid (negative)	2	<i>"I am not a fan of the hybrid license because of where I am with preference points."</i>
Preference points (positive)	2	<i>"The existing preference point system for all big game is good, and does not require change."</i>
Gift points	2	<i>"Consider ability for Residents to do a one time gift of points"</i>
Tag valid anywhere in state	2	<i>"Make season or the year anywhere in the state."</i>
Cost		
Requirement to buy a small game license (negative)	71	<i>"I find that having to buy a small game license to hunt big game is extortion"</i>
Expensive	51	<i>"Your fees are getting hard to afford"</i>
Unfair to NR	36	<i>"the non resident cost goes up every year and may soon be an inhibiting factor"</i>
CO only cares about money	33	<i>"Take the big money out, think of the wildlife and the tax paying residents"</i>
Exclusive	20	<i>"I fear the loss of public lands and hunting/fishing taken over by the "elite""</i>
Pay for preference points	12	<i>"I also think you should eliminate the option to only purchase a point I think you should have to actually apply for the tag and then if unsuccessful you get a point."</i>
Increase resident prices	12	<i>"Raise fees for resident hunters"</i>
Charge fee to recreationists	10	<i>"Would like to see day use by hikers and recreation other than hunting and fishing charged to use public lands"</i>
Private landowners overcharge	9	<i>"I disagree with the private land hunting in whereas the property owner sell tags to out of state or to guides"</i>
Increase license costs	9	<i>"Raise prices and limiting tags will improve hunting and respect for the support.?"</i>
Pay upfront (like years past)	4	<i>"I really think you should pay for your tag when you apply for the tag, This will stop alot of the preference point people From apply every year, Plus I think it will cut down on some of the over crowding."</i>
Would pay a reasonable fee	4	<i>"My only complaint is the requirement to purchase a small game license in order to apply for big game licenses. Pricing is over the top, especially for a license you won't likely draw for. Tack on a fee, but make it reasonable (\$40 or less), and do it only when you draw or actually purchase a license."</i>
Special hunt	2	<i>"Those willing to pay top \$ towards "exclusive" hunts let them pay for the "Wonka Ticket""</i>

THEMES (BOLD), SUBTHEMES	NUMBER OF COMMENTS*	EXAMPLE COMMENTS
Allocation preferences		
Resident preference	47	<i>"Open up more for Colo hunters"</i>
Factor in age	19	<i>"No draw required for hunters in their 80s"</i>
Encourage youth	17	<i>"Take care of the youth 1st! They are your Next Generation!"</i>
NR preference	12	<i>"More tags for non-resident hunters."</i>
Landowner preference	10	<i>"Closer attention to landowners"</i>
Disability allowances	6	<i>"Add out of state 50% + disabled vet hunts more affordable!"</i>
90/10	5	<i>"90%-10% resident to non resident license allocations"</i>
Veteran preference	4	<i>"These should have priority: 1) years of residence 2) age of hunter 3) military veteran"</i>
Promote under-represented groups	3	<i>"Colorado should also consider new hunter preference programs for adults, especially women, to promote further adoption into under represented demographic populations."</i>
OTC		
Keep	19	<i>"Colorado is one of the only states that guarantees someone a hunt every year with the OTC options. It would be sad to lose that opportunity."</i>
Cap	16	<i>"The nonresident over the counter archery license should be limited by units not state count. Each unit should have a cap for nonresident over the counter elk archery licenses"</i>
Residents only	14	<i>"Over the counter must be limited to residents only."</i>
Eliminate	12	<i>"Please eliminate the over-the-counter archery elk tag system and make it a lottery type draw. Way too many archery hunters are pushing elk like crazy but not may harvest anything, it just makes for more people in the woods disturbing game."</i>
Bad for elk	12	<i>"I think the OTC elk tags are crushing the population and allowing so much pressure and over crowded hunting."</i>
Archery (negative)	10	<i>"Archery OTC should be limited"</i>
Rifle (negative)	8	<i>"I feel the OTC rifle seasons are the most important to adress. Way too many immature bulls are getting killed."</i>
Archery (positive)	3	<i>"Please keep at least part of the state OTC for archery. Please keep it fair for non-residents as far as tag preference"</i>
Aids group hunts	3	<i>"I feel very strongly about leaving the over the counter purchases an option. For the last 30 years, our group of 6-10 hunters have always been able make our annual trip. If we were unsuccessful in a draw, we can still go."</i>
Unsuccessful should be able to trade licenses	2	<i>"An option to buy an OTC elk tag that is valid for archery season but, if unsuccessful during archery season, could be used later in the year as a rifle tag would be awesome."</i>

THEMES (BOLD), SUBTHEMES	NUMBER OF COMMENTS*	EXAMPLE COMMENTS
Archery/Muzzleloader overlap		
Separate archery and muzzleloader	50	<i>"I am most concerned with overlapping rifle (bear and muzzle loaders) and archery seasons. It makes for poor archery hunting when rifles (rifle and muzzle loaders) are being fired during archery season."</i>
Dangerous	15	<i>"Muzzleloaders do not have a fair chance with 9 days in the early to middle part of warm Sept. and hunting with so many archers at the same time is extremely dangerous. I once took a shot at an elk muzzleloading and instantaneously an archer in a gillie suit of camo within 10 yards of me asked if I hit the elk. I had no idea he was there."</i>
No orange	12	<i>"The whole debate over archery/muzzleloaders flo orange for me is not needed. Hunters identifying their target before shootings is whats important."</i>
Need orange	6	<i>"orange hats only for archers solves many issues"</i>
Caters to archery hunters	4	<i>"Archery technology has come so far but length of season in the same not fair and muzzleloaders can't even use scopes!"</i>
No problem	2	<i>"I have experienced very little conflict with muzzleloader hunters during my archery hunts, and therefore I do not support changing the muzzleloader or archery elk seasons."</i>
Technology		
OHV (negative)	22	<i>"My experience... There are fewer elk and more backcountry adventurers thousands of ATV's, side by sides. Some habitat closures should be considered..."</i>
Not primitive weapons anymore	14	<i>"I think either the muzzleloader season should not exist, or restrictions on the equipment so its a primitive season. I dont understand allowing people with weapons that are now basically rifles to hunt during the rut."</i>
Update technology	16	<i>"Allow scopes on muzzleloaders, and sabots please."</i>
Long range weapons (negative)	8	<i>"The technology growth of modern rifle ballistics have made too many too effective at killing elk at long distances. The young bulls take a beating 2nd and 3rd rifle."</i>
Tech for disability	8	<i>"Allow crossbows for seniors - ages 55+ who can't pull a compound bow"</i>
Better online tools	7	<i>"Would like to see functionality improvements with your website in regards to finding public hunting locations within Colorado."</i>
Separate season for primitive only	4	<i>"I would like to see a true "primitive weapons" season. For example; Long or recurve bows only, no sights. Flintlock muzzleloaders with black powder and round balls only."</i>
OHV (positive)	3	<i>"Without a 4 wheel ATV, our chance of a successful hunt is diminished. ATV accessibility should be limited to 2nd half of seasons."</i>

THEMES (BOLD), SUBTHEMES	NUMBER OF COMMENTS*	EXAMPLE COMMENTS
Inconsiderate		
Rude hunters	14	<i>"Shooters on Pawnee Grasslands leaving trash behind, shooting signs, driving where ever they please."</i>
Poachers	9	<i>"There should be more game wardens out in the field as poachery is a problem"</i>
NR don't care	8	<i>"Too many out of state hunters, very rude and non friendly"</i>
Guides	8	<i>"In my area - outfitters have changed and ruined the area for public hunting"</i>
Dive animals to private land	8	<i>"Keep ranchers in GMU 54 from sending people out at night and chasing elk off of public lands onto their ranches"</i>
Trash left	5	<i>"Out of Staters should take more responsibility on campsites to take care of Colorado land not trash."</i>
Dangerous	2	<i>"If you are worried about getting shot by a muzzleloader how about we give non residents on additional hunter safety class so they learn not to shoot at anything that moves."</i>
Helicopters/aircraft	2	<i>"I have heard but not sure if it happens much, but i would like to see ranchers (owners) that heard the elk and keep their property using helicopters, or whatever, punished. Like I said, only hear say, but not sure how much it happens."</i>
Crowding		
Hunters	74	<i>"The combining of units has caused overcrowding in many areas I've hunted."</i>
OTC	18	<i>"Unlimited OTC is excessive and causes crowding."</i>
Recreationists	17	<i>"To many tourist/campers out hiking/walking/riding when trying to hunt. They dont wear orange"</i>
Nonresidents	11	<i>"I would prefer fewer out-of-state hunters since they get lost and need help the most. They have ruined some of my hunts in the past."</i>
Archery	7	<i>"Regarding the archery Elk season perhaps could split the season to early/late reducing the number of hunters in OTC units."</i>
Archery/Muzzleloader	6	<i>"Recent fire activity has pushed to many hunters into unburned areas las archery/ muzzleloader season was over crowded"</i>
Rifle	4	<i>"I agree there are to many people hunting during the rifle season."</i>
Safety	4	<i>"Crowding creates unsafe situations and can ultimately make a young hunter lose interest."</i>
Positives		
Enjoy hunt in CO	80	<i>"Started hunting when I was 12. Have enjoyed every hunt I was on, animals or not."</i>
Thankful	75	<i>"You all have a tough job and I appreciate all that you do for us hunters!!"</i>
Hunt with family/ friends	25	<i>"I love hunting in CO w/family and friends."</i>
Beautiful state	23	<i>"Colorado is a beautiful state with amazing habitat and good game populations."</i>

THEMES (BOLD), SUBTHEMES	NUMBER OF COMMENTS*	EXAMPLE COMMENTS
Good staff experiences	19	<i>"Colorado is a great state to visit and hunt. Your hunt planners are great people."</i>
Good draw process	11	<i>"I think CPW does a great job of managing wildlife and the hunting experience while keeping in mind the need for recreation, private property rights and development. This is no easy feat and you do it well."</i>
Traditions	10	<i>"Elk hunting has been our family tradition since 1970s."</i>
Help conservation	6	<i>"I love hunting in Colorado and mostly want to help the wildlife and aid conservation."</i>
Youth opportunities	3	<i>"I look forward to mentoring my six year old grandson in his hunting. I appreciate the wonderful youth support programs that are in place."</i>
Support economy	2	<i>"Hunters are a vital component to local economies throughout the state as well as helping to manage and maintain thriving big game herds."</i>
Species		
Elk (decreasing population)	49	<i>"I believe the deer and elk herds are a lot smaller these days"</i>
Wolves	48	<i>"No Wolfs!!!"</i>
Deer (decreasing population)	27	<i>"Please focus on rebuilding the deer herd. It's really fun to hunt them!"</i>
Unspecified population decrease	16	<i>"I wish I would see more wildlife in general while out hunting. The herds seem to be very small."</i>
Depend on meat	14	<i>"We rely on Deer and elk meat for our survival, they are chasing off public lands more and more to us hunters but not to bicycle riders."</i>
Bear	12	<i>"Need spring bear season badly in some areas of the state. Allow spring bear hunting"</i>
On private land	11	<i>"To many private land owners keeping the Elk on their property to make money."</i>
Mountain lions	10	<i>"Your starting to loose a ton of elk in our area, something needs to be done to take care of the mountain lions that we have"</i>
Want trophy hunt	6	<i>"Manage for 'trophy class' and quality of experience, NOT opportunity!"</i>
Concerned with CWD	6	<i>"Also I am very concerned you are not doing enough to make hunters aware of what CWD is and can potentially do if it jumped species."</i>
Moose (population. increases)	3	<i>"I am seeing more moose in the 15/27 areas. Why not allow more tags? Why so expensive?"</i>
Miscellaneous		
Quality decrease	34	<i>"Hunting pressure has decreased the quality of big game hunting in Colorado, public lands."</i>
Season dates (negative)	26	<i>"Don't like the new hunting calendar with 2nd, 3rd and 4th rifle seasons a week later."</i>
Will hunt elsewhere	25	<i>"You have made it so hard for residents that I go to WY these days"</i>
Leave it to experts (keep politics out)	20	<i>"Please use biologist based science when determining game rules and laws. Leave politics out of it."</i>

THEMES (BOLD), SUBTHEMES	NUMBER OF COMMENTS*	EXAMPLE COMMENTS
Improve access to public land	16	<i>"I think that the biggest change that must happen is that public access to public lands needs to be opened up. Way too much of it is only open to those who can afford to have property bordering those lands."</i>
Livestock (negative)	13	<i>"Then the areas are over run by sheep and cattle well after the hunting season starts"</i>
Separate CPW and DOW	12	<i>"Divide parks from DOW otters and elk don't mix"</i>
Allow hunts on private land	10	<i>"Would sure like to see elk on public land, not sure how possible that is with most preferred food sources on private. Maybe more incentive to private land owners to open their land, especially if experiencing crop damage."</i>
Require education	10	<i>"For every archery hunter should be manditory to have a archery hunter education course or class."</i>
Climate change	9	<i>"Hotter temperatures are changing wildlife behavior and smoke from forest fires now occurs for months at a time. I sense wildlife are experiencing multiple impacts from these changes"</i>
Spring bear hunt	9	<i>"have a spring bear season"</i>
No change	8	<i>"I like how it is structured now. I can plan and choose to hunt limited license areas. I also have the option to build preference points and come out for an over the counter hunt if I do not draw a license"</i>
Too many regulations	8	<i>"The regulations on muzzleloaders are to strict."</i>
Wildfires	8	<i>"Recent fire activity has pushed to many hunters into unburned areas las archery/ muzzleloader season was over crowded"</i>
More staff	8	<i>"Poaching hotline needs to be staffed better to respond quickly"</i>
Allow baiting	8	<i>"Baiting and or dogs should be legal for hunting bears"</i>
Want to hunt every year	7	<i>"I loved hunting in Colorado great state. Wish I could go every year."</i>
Rut hunts concerning	3	<i>"I believe archery season/muzzle loader seasons should run later into October Bulls are still rutting during 1st rifle season which makes it an unfair advantage for rifle hunters"</i>
Too many bike trails	3	<i>"More restrictions on ATV's and Bikes on trails in archery season."</i>
Ban lead ammo	2	<i>"I have switched to lead free ammo for years now with great success. I think lead should be banned in all hunting ammunition. It harms all wildlife including eagles and people and there are many alternatives."</i>
Downed timber (negative)	2	<i>"Allow people to remove downed trees in the wilderness blocking trails with use of gas powered chain saws"</i>
Fewer private tags	2	<i>"Limit the private land tags."</i>

Appendix B

Survey Instrument

Your Hunting Activities in Colorado. We are interested in learning about your big game hunting experiences in Colorado including which species you prefer to hunt, why you hunt, and how satisfied you were with your hunting experiences. *For purposes of this survey, please consider elk, deer, pronghorn, black bear, mountain lion, bighorn sheep, mountain goat, and moose to be big game.*

1. How many years, in total, have you hunted big game in Colorado? **(Please write in your response.)**

_____ YEARS

2. Which of the following species have you hunted in Colorado between 2018 and 2021? **(Please check all that apply.)**

1 Elk

2 Deer

3 Pronghorn

4 Black bear

5 Mountain lion

6 Bighorn sheep, mountain goat, or moose

7 I **did not hunt** these species in Colorado between 2018 and 2021. **SKIP to question #4**

2a. Which species do you **most prefer** to hunt? (Please check **only one**.)

1 Elk

2 Deer

3 Pronghorn

4 Black bear

5 Mountain lion

6 Bighorn sheep, mountain goat, or moose

2b. For each species that you hunted in Colorado between 2018 and 2021, please indicate how dissatisfied or satisfied you were with your hunting experience. (Please check **one** response for **each** species. If you **did not hunt** a certain species, please **SKIP** it or check “**Not applicable.**”)

HOW SATISFIED WERE YOU WITH...	VERY DIS-SATISFIED	SOMEWHAT DISSATISFIED	NEITHER DISSATISFIED, NOR SATISFIED	SOMEWHAT SATISFIED	VERY SATISFIED	NOT APPLICABLE
your elk hunts	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
your deer hunts	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
your pronghorn hunts	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

HOW SATISFIED WERE YOU WITH...	VERY DIS-SATISFIED	SOMEWHAT DISSATISFIED	NEITHER DISSATISFIED, NOR SATISFIED	SOMEWHAT SATISFIED	VERY SATISFIED	NOT APPLICABLE
your black bear hunts	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
your mountain lion hunts	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
your bighorn sheep, mountain goat, or moose hunts	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

3. If you were dissatisfied with any of your hunts, please tell us why in the space below.

4. Which method of take do you most prefer to use when hunting big game in Colorado? **(Please check one.)**

- 1 Rifle
- 2 Archery
- 3 Muzzleloader

5. How important to you is each of the following reasons to hunt big game in Colorado? (Please check **one** response for **each** statement.)

REASONS TO HUNT	NOT IMPORTANT	SLIGHTLY IMPORTANT	MODERATELY IMPORTANT	VERY IMPORTANT
To spend time in nature	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
To spend time with family/friends	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
To harvest a mature game animal (e.g., >4 points on one side)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
To obtain wild game meat	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
To contribute to wildlife management	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
To contribute to local economies	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
To test/improve my skills	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
For physical exercise	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Other (please specify): _____	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

License Distribution in Colorado. CPW uses several methods to award big game licenses in areas where there is more demand than the number of licenses available. For most units, a drawing system that uses preference points determines who is awarded a license.

6. Which of the following alternatives would be the fairest way to determine how big game licenses should be allocated between Colorado resident and nonresident hunters? (Please **check one**.)

- 1 65% resident – 35% nonresident (current allocation for most hunts)
- 2 70% resident – 30% nonresident
- 3 75% resident – 25% nonresident
- 4 80% resident – 20% nonresident (current allocation for high demand hunts)

7. Which of the following methods do you think would be the fairest way to distribute licenses in units where demand is higher than the number of licenses available? (Please rank them with **1** being the **MOST fair** and being the **LEAST fair** method.)

- _____ *Hybrid*—A portion of the license quota is distributed through a random draw, and the remaining quota is issued to those with the most preference points.
- _____ *Random*—The drawing should be random with no preference of any type.
- _____ *Banking*—Accumulated preference points may be split up to be used in multiple draw years for multiple licenses. More points may be required to draw a particular license.
- _____ *Weighted draw*—Is a random draw whereby an individual’s position in the draw order statistically improves based on how many years they have applied to hunt that species.
- _____ *Preference points*—Those with the most points are issued a license first.

8. Are there additional methods that you believe might also be a fair way to distribute licenses in units where demand is higher than the number of licenses available? (**Please write in your response below.**)

9. Please indicate how much you would oppose or support the following alternatives if CPW modified license allocation rules and policies? **(Please check one response for each option.)**

	STRONGLY OPPOSE	SOMEWHAT OPPOSE	NEITHER OPPOSE, NOR SUPPORT	SOMEWHAT SUPPORT	STRONGLY SUPPORT
Expanding the current hybrid draw to include all deer, elk, bear and pronghorn hunt codes	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Developing a new hybrid draw that uses different requirements or ways to allocate licenses (e.g., different preference points needed, a lottery system, etc.)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Having one allocation split (a certain % to residents and nonresidents) for all deer, elk, bear, and pronghorn hunt codes (Currently, high demand hunts are allocated 80% to Colorado residents and 20% to nonresidents for hunts requiring at least 6 resident preference points; the remaining hunts are allocated 65% to Colorado residents and 35% to nonresidents, where less than 6 preference points are required.)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

10. Have you or any of your hunting companions participated in the hybrid draw system? **(Please check one.)**

- 1 Yes
- 0 No
- 3 I am not sure

11. Please indicate your preference below for each species that you hunt, specifically when demand for hunting opportunity is higher than the number of licenses CPW can supply. (Please check **one** for **each** species you hunt.)

I WOULD PREFER TO HUNT...	...EVERY YEAR, AND HUNT SMALLER, YOUNGER ANIMALS. <i>(LIKELY SEEING MORE HUNTERS AND POSSIBLY FEWER ANIMALS)</i>	...EVERY 2 TO 4 YEARS WITH POSSIBLY MORE LARGER, OLDER ANIMALS TO HUNT AND LESS HUNTER CROWDING.	...EVERY 5+ YEARS, WITH AN INCREASED OPPORTUNITY TO HUNT MATURE ANIMALS. <i>(LIKELY SEEING FEWER HUNTERS AND POSSIBLY MORE ANIMALS)</i>	NOT APPLICABLE <i>(I DO NOT HUNT THIS SPECIES)</i>
Elk	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Deer	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Pronghorn	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Black bear	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

Limited Licenses (and preference points). In recent years, there has been a growing trend where demand for limited licenses is increasing or has outpaced the supply of these licenses. This creates a situation where more points are required to draw a limited license than were required previously and is often referred to as “preference point creep.”

12. Did you apply for a limited license (or purchase a leftover or reissued limited license) in Colorado for any big game species between 2018 to 2021? (Please check one.)

1 Yes

0 No (If “No” **SKIP** to #14)

13. How satisfied were you with your ability to draw a limited license? (Please check one.)

VERY DISSATISFIED	SOMEWHAT DISSATISFIED	NEITHER DISSATISFIED, NOR SATISFIED	SOMEWHAT SATISFIED	VERY SATISFIED
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Preference Points

14. Overall, how satisfied are you with the way preference points are used to award **deer, elk, bear,** and **pronghorn** licenses to hunters through Colorado Parks and Wildlife’s limited license drawings? (Please check one.)

VERY DISSATISFIED	SOMEWHAT DISSATISFIED	NEITHER DISSATISFIED, NOR SATISFIED	SOMEWHAT SATISFIED	VERY SATISFIED	I AM NOT SURE	I HAVE NEVER APPLIED FOR A LIMITED LICENSE <i>(FOR THESE SPECIES)</i>
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

15. Overall, how satisfied are you with the way weighted preference points are used to award **sheep, goat, and moose** licenses to hunters through Colorado Parks and Wildlife’s limited license drawings? (Please check one.)

VERY DISSATISFIED	SOMEWHAT DISSATISFIED	NEITHER DISSATISFIED, NOR SATISFIED	SOMEWHAT SATISFIED	VERY SATISFIED	I AM NOT SURE	I HAVE NEVER APPLIED FOR A LIMITED LICENSE <i>(FOR THESE SPECIES)</i>
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

16. If you indicated being “somewhat” or “very” **dissatisfied** with the way preference points are used to award big game licenses in Colorado (for any species listed in questions 14 or 15 above), please tell us why in the space below.

17. Which of the following are most important to you when considering gaining or using preference points? (Please rank these options from **1 (most important)** to **4 (least important)**.)

- Predictability (i.e., the ability to plan and predict when you could draw a particular license)
- Fairness (e.g., those who have waited in line the longest, should draw a particular license first)
- Simplicity (i.e., the system used to draw preference points is clear and easy to understand)
- Opportunity (e.g., every applicant has a realistic opportunity to draw a particular license in their lifetime)

Over-the-counter licenses

18. If CPW were to consider any of the following, how much would you oppose or support each?

(Please check **one** response for **each**.)

	STRONGLY OPPOSE	SOMEWHAT OPPOSE	NEITHER OPPOSE, NOR SUPPORT	SOMEWHAT SUPPORT	STRONGLY SUPPORT
Limiting all over-the-counter elk licenses for archery seasons	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Limiting all over-the-counter elk licenses for rifle seasons	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Allowing only Colorado residents be eligible to obtain over-the-counter licenses	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

19. If CPW were only able to consider one of three options listed above (see question 18), which would you prefer the agency address first? (Please check **ONLY one**.)

- 1 Limiting all over-the-counter elk licenses for archery seasons
- 2 Limiting all over-the-counter elk licenses for rifle seasons
- 3 Allowing only Colorado residents be eligible to obtain over-the-counter licenses

20. To what extent are you concerned with the following technologies or practices because you believe they provide hunters with an improper or unfair advantage according to the conditions listed in the Fair Chase Policy above? (Please check one response for each.)

	NOT AT ALL CONCERNED	SOMEWHAT CONCERNED	MODERATELY CONCERNED	VERY CONCERNED
Hunting seasons that overlap with the rut	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Late hunting seasons that occur on winter ranges	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Electronic communications (such as texting, radios, etc.)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

Fair Chase. CPW is interested in understanding hunters’ perceptions about Fair Chase. The Colorado Parks and Wildlife Commission’s Fair Chase Policy recognizes that technologies and practices may provide hunters or anglers with an improper or unfair advantage in the pursuit and taking of wildlife. Improper advantage includes conditions such as:

1. A technology or practice that allows a hunter or angler to locate or take wildlife without acquiring necessary hunting and angling skills or competency
2. A technology or practice that allows a hunter or angler to pursue or take wildlife without being physically present and pursuing wildlife in the field
3. A technology or practice that makes harvesting wildlife almost certain when the technology or practice prevents wildlife from eluding take

	NOT AT ALL CONCERNED	SOMEWHAT CONCERNED	MODERATELY CONCERNED	VERY CONCERNED
Game/trail cameras	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Advanced bow and firearm technologies used to take game at long distances	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Advanced thermal imaging equipment used to locate big game during legal hunting seasons	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Using electronic calls to hunt mountain lion	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

21. Are there additional conditions of improper advantage that you think the Parks and Wildlife Commission should consider adding to their Fair Chase Policy? (Please write in your response below.)

Big Game Hunting Seasons in Colorado. Hunters desire a variety of experiences in Colorado. Please help us understand what you would like in a hunting season by answering the following questions.

22. Which of the following options for the length of big game hunting seasons would you most prefer? (Please check one.)

- 1 Fewer, but longer hunting seasons spanning 1 or more weekends with more hunters in the field
- 2 More, but shorter hunting seasons (e.g., lasting 3 or 5 days) with fewer hunters in the field
- 3 I prefer to keep the length of hunting seasons as they are now
- 4 I am not sure

23. Please indicate your level of disagreement or agreement with the following statements describing aspects of **elk hunting seasons** in Colorado. (Please check **one** for **each** item.)

	AGREE	NEITHER AGREE, NOR DISAGREE	DISAGREE	I AM NOT SURE
a. Over-the-counter either-sex archery elk licenses should be replaced with over-the-counter antlered archery licenses	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
b. Over-the-counter antlered elk licenses should continue to be offered during the 2nd and 3rd rifle seasons	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

24. Please indicate your level of disagreement or agreement with the following statement describing aspects of **Pronghorn hunting seasons** in Colorado. (Please check **one** for **each** item.)

	AGREE	NEITHER AGREE, NOR DISAGREE	DISAGREE	I AM NOT SURE
a. Over-the-counter either sex pronghorn licenses should continue to be offered during archery seasons in units where they are currently offered	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

25. Please indicate your level of disagreement or agreement with the following statements describing aspects of **bear hunting seasons** in Colorado. (Please check **one** for **each** item.)

	AGREE	NEITHER AGREE, NOR DISAGREE	DISAGREE	I AM NOT SURE
a. During the September bear hunting seasons, the quality of bear hunting is affected by crowding	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
b. The September rifle bear hunting season should be broken up into multiple, shorter seasons	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
c. Hunters should be able to purchase a bear license and hunt bears without the requirement to also have a deer or elk license for the same season	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

Archery-muzzleloader season overlap

26. How concerned are you about hunter safety during the overlapping archery and muzzleloader seasons? (Please check one.)

NOT AT ALL CONCERNED	SOMEWHAT CONCERNED	MODERATELY CONCERNED	VERY CONCERNED
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

27. If CPW were to consider making any of the following changes, which, if any, should the agency consider during the next big game season structure process? (Please **rank** the following from **1** [MOST preferred] to **4** [LEAST preferred].)

- Separate archery and muzzleloader seasons so there is no overlap, even if it affects the timing or number of days I can hunt
- Separate archery and muzzleloader hunters geographically
- Require archery and muzzleloader hunters to wear fluorescent orange/pink to make them more visible to other hunters
- Make no change to existing seasons or regulations (*i.e., archery hunters maintain the option to wear fluorescent orange/pink during the overlap*)

Background Information. The following questions will help us understand more about the people who hunt big game in Colorado. All responses are confidential.

28. Are you a resident of Colorado? (Please check one.)

- 1 Yes
- 0 No

29. With what gender do you identify? _____

30. How old are you? (*Please write in your age as a whole number.*) _____ YEARS OLD

31. How would you describe your racial or ethnic background? (Please check all that apply.)

1 American Indian or Native Alaskan

2 Asian

3 Black or African American

4 East or Southeast Asian

5 Hispanic or Latinx

6 Middle Eastern, North African, or Arab

7 Native Hawaiian or other Pacific Islander

8 South Asian

9 White or Caucasian

10 Biracial or Multiracial

11 Other (Please specify): _____

12 Prefer not to say

Please use the space below to provide any additional comments you may have about big game hunting in Colorado.



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