Responsive Management™

ANCHORAGE RESIDENTS' OPINIONS ON BEAR AND MOOSE POPULATION LEVELS AND MANAGEMENT STRATEGIES

Conducted for the Alaska Department of Fish and Game

by Responsive Management

2010

ANCHORAGE RESIDENTS' OPINIONS ON BEAR AND MOOSE POPULATION LEVELS AND MANAGEMENT STRATEGIES

2010

Responsive Management National Office
Mark Damian Duda, Executive Director
Martin Jones, Senior Research Associate
Tom Beppler, Research Associate
Steven J. Bissell, Ph.D., Qualitative Research Associate
Andrea Criscione, Research Associate
James B. Herrick, Ph.D., Research Associate
Weldon Miller, Research Associate
Joanne Nobile, Research Associate
Amanda Ritchie, Research Associate
Carol L. Schilli, Research Associate
Tim Winegord, Survey Center Manager
Alison Lanier, Business Manager

130 Franklin Street
Harrisonburg, VA 22801
Phone: 540/432-1888 Fax: 540/432-1892
E-mail: mark@responsivemanagement.com
www.responsivemanagement.com

Acknowledgments

Responsive Management would like to thank Grant Hilderbrand of the Alaska Department of Fish and Game, who initiated and supported development of this project, and the following members of the Anchorage Bear Committee for their input: Herman Griese, U.S. Air Force; Dave Battle, U.S. Army; Tom Harrison, Alaska State Parks; Brad Dunker and John McCleary, Municipality of Anchorage; and Jessy Coltrane, James Hasbrouck, Matt Miller, and Jennifer Yuhas, Alaska Department of Fish and Game.

Responsive Management would like to thank Mark Burch and Rick Sinnott of the Alaska Department of Fish and Game for their input, support, and guidance throughout this project as well.

EXECUTIVE SUMMARY

This study was conducted for the Alaska Department of Fish and Game to determine Anchorage residents' opinions on bear and moose populations, problems caused by bear and moose, and the management of these populations in the Anchorage area. The study included a telephone survey of residents (at least 18 years old) of the Anchorage area.

WILDLIFE VALUES AND KNOWLEDGE OF WILDLIFE

The increase of wildlife populations in the Anchorage area is considered an important wildlife issue to residents, particularly the moose and bear populations. Nonetheless, despite some concern about wildlife populations, Anchorage residents have generally positive attitudes toward wildlife—for instance, a majority of residents say that wildlife is an important part of their community, and a majority say that wildlife encounters, despite the possible danger, make life in Anchorage more interesting and special.

Other questions in the survey tested residents' tolerance levels with bears, and a majority (regarding black bear) and nearly half (regarding brown bear) indicate being tolerant of having bears in the Anchorage area. Conversely, about a third (regarding black bear) and nearly half (regarding brown bear) do not want bears in the Anchorage area. Note that tolerance levels are higher regarding black bears than they are regarding brown bears.

The survey tested tolerance levels regarding moose, as well. The large majority of Anchorage residents agree that, while moose cause some problems, these problems make life in Anchorage seem more interesting and special. A further indication of the tolerance towards moose is that an overwhelming majority of Anchorage residents indicate that they have enjoyed watching moose in the Anchorage area in the past 2 years.

Residents' self-rated knowledge levels indicate fairly high knowledge about black and brown bears, with a majority saying that they know a great deal or moderate amount about black bears and a majority saying the same about brown bears. Related to knowledge is how residents get their information about bears and moose. The leading sources of information about bear and

moose among Anchorage residents are (in order of decreasing importance) newspapers, television, the Internet, personal experience, books, and word of mouth.

OPINIONS ON THE AMOUNT OF WILDLIFE IN THE ANCHORAGE AREA

Although residents, generally speaking, are tolerant of wildlife in the Anchorage area, they do not want the wildlife populations to increase, as a large majority want the populations of both black and brown bears and of moose to remain the same. Furthermore, the percentages wanting a decrease far exceed the percentages wanting an increase in the populations of black bears, brown bears, and moose.

The survey explored how often residents actually see black and brown bears in their neighborhoods and how often they would like to see them in their neighborhoods. Regarding black bears, the most common response among residents is that they see them about as much as they would like to see them in their neighborhood (note, however, that the large majority never see them, and the large majority never want to see them in their neighborhoods). However, those who see black bears the most often have the highest tendency to want to actually see them *less* often, although not to the degree of saying that they never want to see them. Additionally, those who never see black bears are the most likely to say that they never *want* to see them.

Regarding brown bears, again the most common response among residents is that they see them about as much as they would like to see them in their neighborhood; however, among those who see brown bears a few times a year, two-fifths would like to *never* see them. Indeed, very few people indicated that they want to see brown bears more often.

In a comparison of the two types of bear, black bears are seen more often in residents' neighborhoods than are brown bears, and residents would like to see black more often than brown bears.

OPINIONS ON WILDLIFE IN ANCHORAGE PARKS

A large majority of Anchorage residents think it is acceptable to have bears (both black and brown) in Far North Bicentennial Park and in Chugach State Park (with black bears being

slightly more acceptable). In comparing the two parks, there is more acceptance about having bears in Chugach State Park than in Far North Bicentennial Park (the latter is closer to downtown Anchorage).

Although residents, for the most part, think it is acceptable to have bears in Far North Bicentennial Park, majorities nonetheless support legal, regulated hunting of bears to control their populations in the park. Likewise, although having moose in the Anchorage area is deemed okay by most residents, a majority support legal, regulated hunting of moose to control their population in the Anchorage area, including the large parks.

Another indication of the fairly high level of tolerance toward bears and moose is that the possibility of encountering a black bear, brown bear, or moose has *not* prevented the overwhelming majority of Anchorage residents from using trails and parks in the Anchorage area. In this analysis, note that brown bears are perceived the most negatively regarding trail and park use.

Finally regarding trail use, the overwhelming majority of Anchorage residents support temporarily closing trails at times when the risk of encountering a brown bear in the area is high. Additionally, regarding a proposed new or improved trail along a salmon stream where authorities believe the risk of brown bear attacks will be increased with increased trail use, the majority of residents still favor building the trail, with conditions.

NEGATIVE INTERACTIONS AND DAMAGE CAUSED BY WILDLIFE

Residents were asked about problems with black and brown bears in the past 2 years at their primary home, and black bear problems were more common, although very few residents reported problems with either black or brown bears—only about 1 in 20 reported having problems. The specific problems vary by the type of bear. Getting into garbage, entering a home, and damage to ornamental or fruit trees are the leading problems with black bears. On the other hand, building damage (but no entry), getting into garbage, being in the yard, and damage to a parked vehicle are the leading problems with brown bears.

Despite the problems with bears, residents overwhelmingly agree that most problems with bears in the Anchorage area can be prevented by taking a few simple precautions, such as using bear-proof garbage containers. In this line of questioning, the large majority of residents support fines for *not* storing garbage to prevent problems with bears. Also, the overwhelming majority support a regulation or ordinance requiring Anchorage area residents to use bear-proof garbage containers in neighborhoods frequented by bears. Additionally in this section, the large majority of residents support paying more for their trash service if the City of Anchorage were to provide bear-proof garbage containers.

Finally regarding wildlife-human conflicts, the majority of residents indicated that they were driving a car or were a passenger in a car that had to swerve and/or brake hard to avoid hitting a moose. Also, slightly more than 1 in 10 have been the driver of or been a passenger in a vehicle that hit a moose.

OPINIONS ON WILDLIFE MANAGEMENT OPTIONS

Opinion on management options for bears and moose again demonstrate that Anchorage residents are tolerant of wildlife. A majority of Anchorage residents oppose having wildlife authorities destroy some black or brown bears in Anchorage every year to reduce the population, and a majority oppose having wildlife authorities destroy some moose in Anchorage every year to reduce the population.

The above should not be taken to mean that there are not situations in which Anchorage residents would support killing bears. In particular, a large majority support having wildlife authorities destroy specific bears at their discretion when the bears pose a threat to human safety, and a bare majority support having wildlife authorities kill bears at their discretion that cause property damage. Residents are split over killing bears that get into garbage, and support for is exceeded by opposition to killing bears that are seen frequently in neighborhoods. Indeed, just being seen is *not* cause to kill bears, in most residents' view, as a majority of Anchorage residents *oppose* designating specific areas in Anchorage where any bears coming into the area would be killed. Regarding the interaction between bears and moose, there is much more opposition to than

support for reducing the moose population (a food source for bears) in Anchorage to reduce the number of brown bears.

The last management question pertained to salmon fishing. A majority of Anchorage residents support supplementing wild salmon runs in Anchorage area streams with stocked fish to provide salmon fishing opportunities.

USE OF ANCHORAGE PARKS AND TRAILS, AND PARTICIPATION IN OUTDOOR RECREATION

The majority of residents used Anchorage's three largest parks (Chugach State Park, Far North Bicentennial Park, and Kincaid Park) in the past 2 years frequently or sometimes. Furthermore, an overwhelming majority used them at least rarely. Additionally, the majority of residents used trails in the Anchorage area frequently or sometimes, and an overwhelming majority used them at least rarely.

TABLE OF CONTENTS

List of Tables

List of Figures

TABLE OF CONTENTS (continued)

List of Figures (continued)

TABLE OF CONTENTS (continued)

List of Figures (continued)

TABLE OF CONTENTS (continued)

List of Figures (continued)

TABLE OF CONTENTS (continued)

List of Figures (continued)

TABLE OF CONTENTS (continued)

List of Figures (continued)

INTRODUCTION AND METHODOLOGY

This study was conducted for the Alaska Department of Fish and Game (ADFG) to determine Anchorage residents' opinions on bear and moose populations, problems caused by bear and moose, and the management of these populations in the Anchorage area. The study entailed focus groups of Anchorage residents and trail users and a telephone survey of Anchorage residents (at least 18 years old). Specific aspects of the research methodology are discussed below.

Focus groups are non-directive group discussions that expose spontaneous attitudes of small groups. Focus groups entail an in-depth, structured discussion with a small group of participants about select subjects. The use of focus groups is an accepted research technique for qualitative explorations of attitudes, opinions, perceptions, motivations, constraints, participation, and behaviors.

Three focus groups with Anchorage residents and trail users were conducted in Anchorage, Alaska, on August 17 and 18, 2009. The focus groups were conducted based on residents' likelihood of encountering bears in their neighborhoods: the first group was held with residents from Region 1 (the low bear density region), the second group with residents from Regions 2 and 3 (the high bear density regions), and the third group with trail users from all regions. Although the primary purpose of the focus group research was to help refine survey topics and questions, a separate focus group report was produced titled *Anchorage Residents' Opinions on and Experiences With Bears and Other Wildlife: Focus Group Report,* which is available from the ADFG or can be found on Responsive Management's website at:

http://www.responsivemanagement.com/download/reports/AK_Bear_Focus_Group_Report.pdf.

For the focus groups, Responsive Management screened all interested individuals using a standardized questionnaire that determined whether the respondent met the established guidelines set for the group (for example, that they lived in an area of Anchorage applicable to the study). Specific focus group facilities were selected based on availability in Anchorage, Alaska. To encourage participation, Responsive Management provided a monetary incentive to

participants who attended the focus groups. Additionally, dinner was provided for focus group participants attending an early evening discussion, and refreshments were provided for groups scheduled for late evening.

The focus groups were moderated by Mark Damian Duda, Executive Director of Responsive Management. The moderator used discussion guides developed by the ADFG and Responsive Management, which allowed for consistency in the data collection. Furthermore, using the discussion guide, the moderator kept the discussions within design parameters without exerting a strong influence on the discussion content. All focus group discussions were recorded for further analysis.

For the survey, telephones were selected as the preferred sampling medium because of the almost universal ownership of telephones among Anchorage residents. Additionally, telephone surveys, relative to mail or Internet surveys, allow for more scientific sampling and data collection, provide higher-quality data, obtain higher response rates, are more timely, and are more cost-effective. Telephone surveys also have fewer negative effects on the environment than do mail surveys because of reduced use of paper and reduced energy consumption for delivering and returning the questionnaires.

A central polling site at the Responsive Management office allowed for rigorous quality control over the interviews and data collection. Responsive Management maintains its own in-house telephone interviewing facilities. These facilities are staffed by interviewers with experience conducting computer-assisted telephone interviews on the subjects of natural resources and outdoor recreation. The telephone survey questionnaire was developed cooperatively by Responsive Management and the ADFG (Appendix A). Responsive Management conducted a pre-test of the questionnaire to ensure proper wording, flow, and logic in the survey.

To ensure the integrity of the telephone survey data, Responsive Management has interviewers who have been trained according to the standards established by the Council of American Survey Research Organizations. Methods of instruction included lecture and role-playing. The Survey Center Managers and other professional staff conducted project briefings with the interviewers

prior to the administration of this survey. Interviewers were instructed on type of study, study goals and objectives, handling of survey questions, interview length, termination points and qualifiers for participation, interviewer instructions within the survey instrument, reading of the survey instrument, skip patterns, and probing and clarifying techniques necessary for specific questions on the survey instrument. The Survey Center Managers and statisticians monitored the data collection, including monitoring of the actual telephone interviews without the interviewers' knowledge, to evaluate the performance of each interviewer and ensure the integrity of the data. After the surveys were obtained by the interviewers, the Survey Center Managers and/or statisticians checked each completed survey to ensure clarity and completeness.

Interviews were conducted Monday through Friday from 9:00 a.m. to 9:00 p.m., Saturday from noon to 5:00 p.m., and Sunday from 5:00 p.m. to 9:00 p.m., local time. A five-callback design was used to maintain the representativeness of the sample, to avoid bias toward people easy to reach by telephone, and to provide an equal opportunity for all to participate. When a respondent could not be reached on the first call, subsequent calls were placed on different days of the week and at different times of the day. The survey was conducted in December 2009 and January 2010.

Responsive Management obtained a total of 1,258 completed interviews, as shown in Table 1. In all, 3,378 telephone numbers were called, but 195 telephone numbers were of people who were not eligible (e.g., not a resident of the correct area), 608 of the telephone numbers had been disconnected, and 61 of them were for businesses or government offices. Of the remaining 2,514 eligible numbers, 77 respondents terminated the interview before completion, 229 refused to participate in the survey, and 950 were answering machines for which callbacks were to be tried or were to people who asked to be called back at a different time but were never subsequently reached. The response rate was 50.0% among the eligible numbers (1,258 completed interviews out of 2,514 eligible numbers). The mean length of call was 14.9 minutes.

Table 1. Calling Effort for the Survey.

Call Category	Number of Calls
Ineligible Numbers	**864**
Not eligible	195
Disconnected	608
Business / Government	61
Eligible Numbers	**2,514**
Terminated	77
Refusal	229
Answering Machine / Call Back	950
Completed Interviews	1,258
Total Numbers Attempted	**3,378**

The software used for data collection was Questionnaire Programming Language (QPL). The survey data were entered into the computer as each interview was being conducted, eliminating manual data entry after completion of the survey and the concomitant data entry errors that may occur with manual data entry. The survey instrument was programmed so that QPL branched, coded, and substituted phrases in the survey based on previous responses to ensure the integrity and consistency of the data collection. The analysis of data was performed using Statistical Package for the Social Sciences as well as proprietary software developed by Responsive Management.

The sample was divided into three regions, as shown in Figure 1 and Table 2. Region 1 includes the downtown and midtown area, as well as West Anchorage neighborhoods, seldom visited by black bears and even less frequently (1 to 2 times per year) by brown bears. Region 2 includes neighborhoods in North, East, and South Anchorage adjacent to large undeveloped areas in Chugach State Park, Fort Richardson, and Elmendorf Air Force Base, which are often visited by black bears and by at least 20 brown bears annually. Region 3 includes communities outside the Anchorage Bowl that are surrounded by bear habitat and are often visited by black and brown bears.

Figure 1. Anchorage Regions.

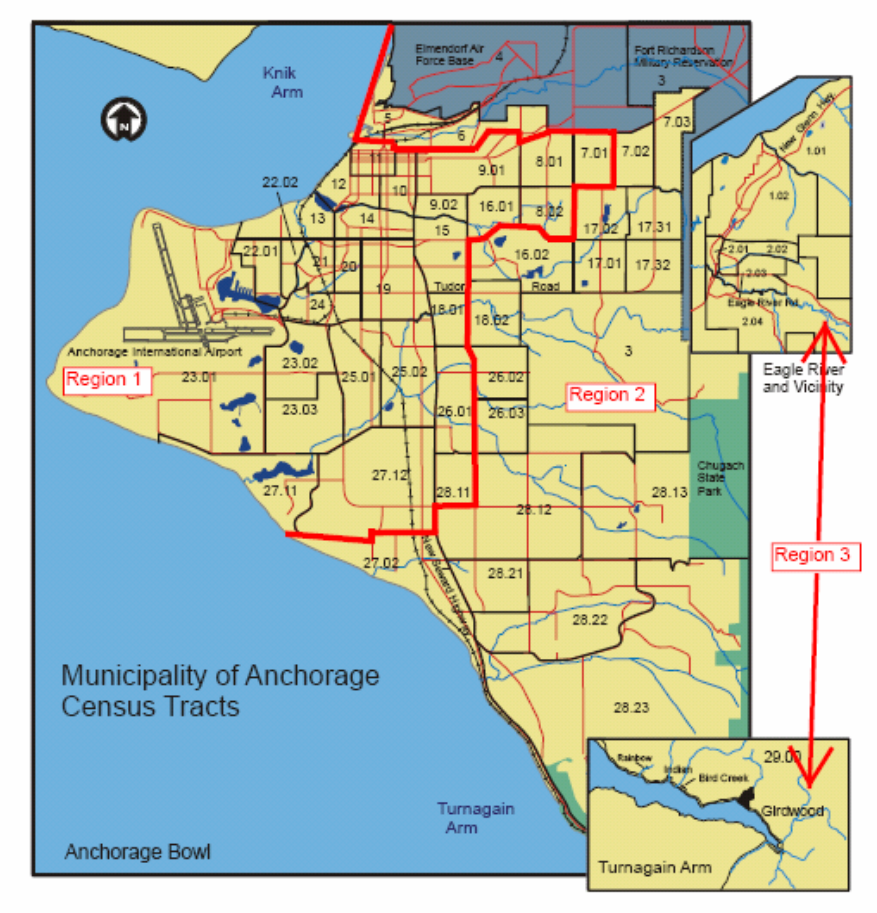


Table 2. Census Tracts Included in Each Anchorage Region.

Region 1			Region 2		Region 3
7.01	15	23.02	3	18.02	1.01
8.01	16.01	23.03	5	26.02	1.02
8.02	18.01	24	6	26.03	2.01
9.01	19	25.01	7.02	27.02	2.02
9.02	20	25.02	7.03	28.12	2.03
10	21	26.01	16.02	28.13	2.04
11	22.01	27.11	17.01	28.21	29
12	22.02	27.12	17.02	28.22	
13	23.01	28.11	17.31	28.23	
14			17.32		

Within each of these regions, the results were weighted by age and gender to match the actual population breakdown in the regions. For the total results, the three regions were weighted to match the population distribution of the entire Anchorage area. Crosstabulations of all the questions by region of residence were run; these graphs are shown following each overall graph in the report, but the differences are discussed only when marked and statistically significant. Note that not all regional graphs were tested for significance, if the differences that existed were not deemed substantial enough to warrant being further examined and tested or if the differences were not deemed to have much impact on the overall conclusions.

On many questions, crosstabulations were also run of trail users versus those who did not use an Anchorage trail in the past 2 years, and park users versus those who did not use a park in the past 2 years, as the researchers were interested in these aspects of the survey.

For this report, a nonparametric analysis examined how the various responses related to behavioral, participatory, and demographic characteristics. Responses for selected questions were tested by means of z-scores for relationships to behavioral, participatory, and demographic characteristics. A positive z-score means that the response and characteristic are positively related; a negative z-score means that the response and characteristic are negatively related.

The z-score shows the strength of the relationship between the characteristic and the response to the question. Those z-scores that have an absolute value of 3.30 or greater indicate a relationship that is so strong that it would happen by chance only 1 out of 1,000 times ($p \leq 0.001$). Those z-scores that have an absolute value of 2.58 to 3.29 indicate a relationship that is so strong that it would happen by chance only 1 out of 100 times ($p \leq 0.01$). Finally, those z-scores that have an absolute value of 1.96 to 2.57 indicate a relationship that is so strong that it would happen by chance only 5 out of 100 times ($p \leq 0.05$).

The z-scores were calculated as shown in the formula below.

$$z = \frac{(p_1 - p_2)}{\sqrt{p(1-p)\left[\frac{1}{n_1} + \frac{1}{n_2}\right]}}$$

where: n_1 represents the number of observations in Group 1.
n_2 represents the number of observations in Group 2.
$p_1 = a/(a + b) = a/n_1$ and represents the proportion of observations in Group 1 that falls in Cell *a*. It is employed to estimate the population proportion Π_1 (% of Group 1 who had specific characteristic).
$p_2 = c/(c + d) = c/n_2$ and represents the proportion of observations in Group 2 that falls in Cell *c*. It is employed to estimate the population proportion Π_2 (% of Group 2 who had specific characteristic).
$p = (a + c)/(n_1 + n_2) = (a + c)/n$ and is a pooled estimate of the proportion of respondents who had specific characteristic in the underlying population.

(Equation from *Handbook of Parametric and Nonparametric Statistical Procedures, 2nd Edition* by David J. Sheskin. © 2000, Chapman & Hall/CRC, Boca Raton, FL.)

The characteristics examined are shown in Table 3 below.

Table 3. Variables Analyzed in the Nonparametric Analysis.

Variables Analyzed in the Nonparametric Analysis
Lives in Region 1.
Lives in Region 2.
Lives in Region 3.
Thinks bear population increasing in populated areas is one of the most important wildlife issues facing Anchorage area residents today.
Thinks moose population increasing in populated areas is one of the most important wildlife issues facing Anchorage area residents today.
Thinks fishing access is one of the most important wildlife issues facing Anchorage area residents today.
Has used at least one of Anchorage's three largest parks (Chugach State Park, Far North Bicentennial Park, and/or Kincaid Park) frequently or sometimes in the past 2 years.
Has rarely or never used any of Anchorage's three largest parks (Chugach State Park, Far North Bicentennial Park, and/or Kincaid Park) in the past 2 years.
Has used trails in the Anchorage area frequently or sometimes in the past 2 years.
Has rarely or never used trails in the Anchorage area in the past 2 years.
Agrees that he/she takes pride in the amount of wildlife in the Anchorage area, even if they cause some problems or hazards.
Does not indicate agreeing that he/she takes pride in the amount of wildlife in the Anchorage area, even if they cause some problems or hazards.
Agrees that an important part of his/her community is the wildlife he/she sees there from time to time.
Does not indicate agreeing that an important part of his/her community is the wildlife he/she sees there from time to time.
Agrees that while some wildlife encounters can be dangerous, they make life in Anchorage more interesting and special.

Variables Analyzed in the Nonparametric Analysis
Does not indicate agreeing that while some wildlife encounters can be dangerous, they make life in Anchorage more interesting and special.
Agrees that some wildlife may be dangerous and that he/she doesn't want to have these potentially dangerous species in the Anchorage area.
Does not indicate agreeing that some wildlife may be dangerous and that he/she doesn't want to have these potentially dangerous species in the Anchorage area.
Agrees that people who live in the Anchorage area should learn to live with some conflicts or problems with wildlife.
Does not indicate agreeing that people who live in the Anchorage area should learn to live with some conflicts or problems with wildlife.
Indicates that he/she knows a great deal or a moderate amount about black bears.
Indicates that he/she knows a little or nothing about black bears.
Indicates that he/she knows a great deal or a moderate amount about brown bears.
Indicated that he/she knows a little or nothing about brown bears.
Thinks the black bear population in the Anchorage area should be increased.
Thinks the black bear population in the Anchorage area should remain the same.
Thinks the black bear population in the Anchorage area should be decreased.
Thinks the brown bear population in the Anchorage area should be increased.
Thinks the brown bear population in the Anchorage area should remain the same.
Thinks the brown bear population in the Anchorage area should be decreased.
Thinks the moose population in the Anchorage area should be increased.
Thinks the moose population in the Anchorage area should remain the same.
Thinks the moose population in the Anchorage area should be decreased.
Wants to see and have black bears in his/her neighborhood.
Wants to see and have black bears in the Anchorage area but not in his/her neighborhood.
Wants to see and have black bears in Alaska but not in the Anchorage area.
Having black bears in Far North Bicentennial Park is acceptable to him/her.
Does not indicate that having black bears in Far North Bicentennial Park is acceptable to him/her.
Having black bears in Chugach State Park is acceptable to him/her.
Does not indicate that having black bears in Chugach State Park is acceptable to him/her.
Wants to see and have brown bears in his/her neighborhood.
Wants to see and have brown bears in the Anchorage area but not in his/her neighborhood.
Wants to see and have brown bears in Alaska but not in the Anchorage area.
Having brown bears in Far North Bicentennial Park is acceptable to him/her.
Does not indicate that having brown bears in Far North Bicentennial Park is acceptable to him/her.
Having brown bears in Chugach State Park is acceptable to him/her.
Does not indicate that having brown bears in Chugach State Park is acceptable to him/her.
Never sees black bears in his/her neighborhood in an average year.
Sees black bears a few times each year in his/her neighborhood in an average year.
Sees black bears a few times per month or more often in his/her neighborhood in an average year.
Would never like to see black bears in his/her neighborhood.
Would like to see black bears a few times each year in his/her neighborhood.
Would like to see black bears a few times per month or more often in his/her neighborhood.
Never sees brown bears in his/her neighborhood in an average year.
Sees brown bears a few times each year in his/her neighborhood in an average year.
Sees brown bears a few times per month or more often in his/her neighborhood in an average year.
Would never like to see brown bears in his/her neighborhood.
Would like to see brown bears a few times each year in his/her neighborhood.
Would like to see brown bears a few times per month or more often in his/her neighborhood.
Agrees that the possibility of encountering a brown bear is a positive aspect of living in the Anchorage area.

Variables Analyzed in the Nonparametric Analysis
Does not indicate agreeing that the possibility of encountering a brown bear is a positive aspect of living in the Anchorage area.
Agrees that while moose cause some problems, these problems make life in Anchorage seem more interesting and special.
Does not indicate agreeing that while moose cause some problems, these problems make life in Anchorage seem more interesting and special.
Agrees that the possibility of encountering a black bear has prevented him/her from using Anchorage area parks or trails as much as he/she would like in the past 2 years.
Does not indicate agreeing that the possibility of encountering a black bear has prevented him/her from using Anchorage area parks or trails as much as he/she would like in the past 2 years.
Agrees that the possibility of encountering a brown bear has prevented him/her from using Anchorage area parks or trails as much as he/she would like in the past 2 years.
Does not indicate agreeing that the possibility of encountering a brown bear has prevented him/her from using Anchorage area parks or trails as much as he/she would like in the past 2 years.
Agrees that the possibility of encountering a moose has prevented him/her from using Anchorage area parks or trails as much as he/she would like in the past 2 years.
Does not indicate agreeing that the possibility of encountering a moose has prevented him/her from using Anchorage area parks or trails as much as he/she would like in the past 2 years.
Personally has had problems or property damage at his/her primary home caused by black bears within the past 2 years.
Has not personally had problems or property damage at his/her primary home caused by black bears within the past 2 years.
Personally has had problems or property damage at his/her primary home caused by brown bears within the past 2 years.
Has not personally had problems or property damage at his/her primary home caused by brown bears within the past 2 years.
Agrees that most problems with bears in the Anchorage area can be prevented by taking a few simple precautions.
Does not indicate agreeing that most problems with bears in the Anchorage area can be prevented by taking a few simple precautions.
Has personally enjoyed watching moose in the Anchorage area.
Has personally driven or been a passenger in a vehicle that has hit a moose.
Has personally driven or been a passenger in a vehicle that had to swerve or brake hard to avoid hitting a moose.
Supports legal, regulated hunting as a way to control the black bear population in Far North Bicentennial Park.
Does not indicate supporting legal, regulated hunting as a way to control the black bear population in Far North Bicentennial Park.
Supports legal, regulated hunting as a way to control the brown bear population in Far North Bicentennial Park.
Does not indicate supporting legal, regulated hunting as a way to control the brown bear population in Far North Bicentennial Park.
Supports having wildlife authorities destroy some black bears in Anchorage every year to reduce the population.
Does not indicate supporting having wildlife authorities destroy some black bears in Anchorage every year to reduce the population.
Supports having wildlife authorities destroy some brown bears in Anchorage every year to reduce the population.
Does not indicate supporting having wildlife authorities destroy some brown bears in Anchorage every year to reduce the population.
Supports having wildlife authorities destroy specific bears at their discretion when they believe that the bear poses a threat to human safety in the Anchorage area.

Variables Analyzed in the Nonparametric Analysis
Does not indicate supporting having wildlife authorities destroy specific bears at their discretion when they believe that the bear poses a threat to human safety in the Anchorage area.
Supports having wildlife authorities destroy bears when bears are seen frequently in neighborhoods in the Anchorage area.
Does not indicate supporting having wildlife authorities destroy bears when bears are seen frequently in neighborhoods in the Anchorage area.
Supports having wildlife authorities destroy bears when bears get into garbage in neighborhoods in the Anchorage area.
Does not indicate supporting having wildlife authorities destroy bears when bears get into garbage in neighborhoods in the Anchorage area.
Supports having wildlife authorities destroy bears when bears cause property damage in neighborhoods in the Anchorage area.
Does not indicate supporting having wildlife authorities destroy bears when bears cause property damage in neighborhoods in the Anchorage area.
Supports designating areas in which bears would be killed as soon as possible.
Does not indicate supporting designating areas in which bears would be killed as soon as possible.
Agrees that bears should not be destroyed for any reason in the Anchorage area.
Does not indicate agreeing that bears should not be destroyed for any reason in the Anchorage area.
Supports fines for not storing garbage to prevent problems with bears.
Does not indicate supporting fines for not storing garbage to prevent problems with bears.
Supports a regulation or ordinance requiring Anchorage area residents to use bear-proof garbage containers in neighborhoods frequented by bears.
Does not indicate supporting a regulation or ordinance requiring Anchorage area residents to use bear-proof garbage containers in neighborhoods frequented by bears.
Supports paying more for his/her trash service if Anchorage provided bear-proof garbage containers.
Does not indicate supporting paying more for his/her trash service if Anchorage provided bear-proof garbage containers.
Supports supplementing wild salmon runs in Anchorage area streams with stocked fish to provide salmon fishing opportunities.
Does not indicate supporting supplementing wild salmon runs in Anchorage area streams with stocked fish to provide salmon fishing opportunities.
Supports reducing the moose population in Anchorage to reduce the number of brown bears.
Does not indicate supporting reducing the moose population in Anchorage to reduce the number of brown bears.
Supports temporary trail closures at times when the risk of encountering a brown bear in that area is high.
Does not indicate supporting temporary trail closures at times when the risk of encountering a brown bear in that area is high.
In order to minimize bear encounters, would prefer to build a new or improved trail along a salmon stream, but authorities should kill only the brown bears that charge or maul people in the area.
In order to minimize bear encounters, would prefer to build a new or improved trail along a salmon stream, but close it seasonally when bears are most likely to be there.
In order to minimize bear encounters, would prefer not to build a new or improved trail along a salmon stream.
Supports legal, regulated hunting as a way to control the moose population in the Anchorage area in general, including large parks.
Does not indicate supporting legal, regulated hunting as a way to control the moose population in the Anchorage area in general, including large parks.
Supports having wildlife authorities destroy some moose in Anchorage every year to reduce the population.
Does not indicate supporting having wildlife authorities destroy some moose in Anchorage every year to reduce the population.
Gets his/her information about bears and moose from the newspaper.
Gets his/her information about bears and moose from the television.

Variables Analyzed in the Nonparametric Analysis
Gets his/her information about bears and moose from personal experience.
Gets his/her information about bears and moose from word of mouth.
Gets his/her information about bears and moose from books.
Gets his/her information about bears and moose from the Internet.
He/She or his/her spouse is currently serving in the armed forces and is assigned to Anchorage.
He/She or his/her spouse is currently serving, or has served, in the armed forces and has been assigned to Anchorage in the past.
He/She or his/her spouse is currently serving, or has served, in the armed forces but has never been assigned to Anchorage.
He/She or his/her spouse has never served in the armed forces.
He/She has hunted in the past 2 years.
He/She has hunted, but not in the past 2 years.
He/She has never hunted.
He/She has fished for salmon in the past 2 years.
He/She has fished for salmon, but not in the past 2 years.
He/She has never fished for salmon.
Has been an Alaska resident for the mean number of years or more.
Has been an Alaska resident for less than the mean number of years.
Has lived in the Anchorage area for the mean number of years or more.
Has lived in the Anchorage area for less than the mean number of years.
Does not have any children, age 12 or younger, living in his/her household.
Has at least one child, age 12 or younger, living in his/her household.
Primarily grew up in a rural area or a small town or city.
Primarily grew up in a large or very large city or a suburb of a large or very large city.
Highest level of education is no more than some college without a degree.
Has a college degree.
Is from 18 years old to 34 years old.
Is from 35 years old to 64 years old.
Is 65 years old or older.
Is male.
Is female.

Throughout this report, findings of the telephone survey are reported at a 95% confidence interval. For the entire sample of Anchorage residents, the sampling error is at most plus or minus 2.75 percentage points. This means that if the survey were conducted 100 times on different samples that were selected in the same way, the findings of 95 out of the 100 surveys would fall within plus or minus 2.75 percentage points of each other. Sampling error was calculated using the formula described in Figure 2, with a sample size of 1,255 and a population size of 180,392 Anchorage residents ages 18 years and older.

Figure 2. Sampling Error Equation.

$$B = \left(\sqrt{\frac{\frac{N_p(.25)}{N_s} - .25}{N_p - 1}} \right) (1.96)$$

Where: B = maximum sampling error (as decimal)
N_P = population size (i.e., total number who could be surveyed)
N_S = sample size (i.e., total number of respondents surveyed)

Derived from formula: p. 206 in Dillman, D. A. 2000. *Mail and Internet Surveys*. John Wiley & Sons, NY.

Note: This is a simplified version of the formula that calculates the maximum sampling error using a 50:50 split (the most conservative calculation because a 50:50 split would give maximum variation).

Note that some results may not sum to exactly 100% because of rounding. Additionally, rounding on the graphs may cause apparent discrepancies of 1 percentage point between the graphs and the reported results of combined responses (e.g., when "strongly support" and "moderately support" are summed to determine the total percentage in support).

WILDLIFE VALUES AND KNOWLEDGE OF WILDLIFE

- In an open-ended question (meaning that no answer set is read; respondents can say anything that comes to mind) asking respondents to name the most important wildlife issues that Anchorage residents face today, the top answers are that wildlife populations are increasing in populated areas: 27% say an important issue is the increase in the moose population, and 25% say an important wildlife issue is the increase in the bear population (Figure 3). In total, 56% named as an issue that some type of wildlife is increasing or wildlife in general is increasing.
  - Other answers of lesser importance relate to access for outdoor recreation (fishing access, development of natural lands, and hunting access) and to water pollution.
  - Regional crosstabulation: Region 1 residents are the *least* likely to say that the bear population's increase in populated areas is an important wildlife issue ($p \leq 0.001$); Region 3 residents are the *least* likely to say that the moose population's increase in populated areas is an important wildlife issue ($p \leq 0.001$) (Figure 4).
  - Trail users crosstabulation: Trail users show more concern about the bear population increasing and less concern about the moose population increasing, relative to those who are not described as trail users ($p \leq 0.001$) (Figure 5).
  - Park users crosstabulation: Park users, compared to those not described as park users, show *less* concern about the moose population increasing in populated areas ($p \leq 0.01$), have no correlation regarding the bear population, and show *more* concern about fishing access ($p \leq 0.001$) (Figure 6).

- Five statements were read to respondents: four of them are generally positive toward wildlife, and one is negative, as listed in Text Box 1; the results are shown in Figures 7 through 11.
  - The four generally positive statements have large majorities who *strongly* agree with them:
    - People who live in the Anchorage area should learn to live with some conflicts or problems with wildlife (70% strongly agree).
    - An important part of my community is the wildlife I see there from time to time (65% strongly agree).

  - While some wildlife encounters can be dangerous, they make life in Anchorage more interesting and special (64% strongly agree).
  - I take pride in the amount of wildlife in the Anchorage area, even if they cause some problems or hazards (62% strongly agree).
- The negative statement (Some wildlife may be dangerous, and I don't want to have these potentially dangerous species in the Anchorage area.) has 39% agreeing, with only 17% *strongly* agreeing; conversely, a majority (57%) disagree, with 35% strongly disagreeing.
- These results suggest that most Anchorage residents have a moderate to high comfort level regarding wildlife in their community; however, many residents are less tolerant of potentially dangerous wild animals in their community.
- Regional crosstabulation: On Question 19, Region 1 respondents are the most likely to *strongly* agree (with Region 3 respondents the *least* likely to *strongly* agree) that wildlife encounters, despite being sometimes dangerous, make life in Anchorage more interesting and special ($p \leq 0.001$) (Figure 14). Despite this finding, on Question 20, Region 1 respondents are the most likely to *strongly* agree (with Region 3 respondents the most likely to *strongly* disagree) that some wildlife may be dangerous and that they do not want these species in the Anchorage area ($p \leq 0.001$) (Figure 15). The other questions did not have marked differences among the regions (Figures 12, 13, and 16).
- Trail users crosstabulation: Crosstabulations of trail users are shown on all five of the questions in this series, but statistically significant differences appeared on only four of the questions.
  - On Question 17, trail users are more likely to *strongly* agree that they take pride in the amount of wildlife in the Anchorage area, even if the wildlife causes some problems or hazards, compared to those not described as trail users ($p \leq 0.001$) (Figure 17).
  - On Question 18, trail users are more likely to *strongly* agree that an important part of their community is the wildlife they see there from time to time, compared to those not described as trail users ($p \leq 0.001$) (Figure 18).
  - There are no statistically significant differences on Question 19 (Figure 19).
  - On Question 20, trail users are more likely to *disagree* that some wildlife may be dangerous and that they don’t want to have these potentially dangerous species in the

Anchorage area, compared to those not described as trail users ($p \leq 0.001$) (Figure 20).

- Finally, on Question 21, trail users are more likely to *strongly* agree that people who live in the Anchorage area should learn to live with some conflicts or problems with wildlife, compared to those not described as trail users ($p \leq 0.001$) (Figure 21).

- Park users crosstabulation: Crosstabulations of park users are shown on all five of the questions in this series; statistically significant differences appeared on all five of the questions.
  - On Question 17, park users are more likely to *strongly* agree that they take pride in the amount of wildlife in the Anchorage area, even if the wildlife causes some problems or hazards, compared to those not described as park users ($p \leq 0.001$) (Figure 22). Note that overall agreement (strongly and moderately together) is similar for both.
  - On Question 18, park users are more likely to *strongly* agree that an important part of their community is the wildlife they see there from time to time, compared to those not described as park users ($p \leq 0.001$) (Figure 23). Again, overall agreement is similar.
  - On Question 19, park users are more likely to *strongly* agree that wildlife, despite being sometimes dangerous, make life in Anchorage more interesting and special, compared to those not described as park users ($p \leq 0.001$) (Figure 24).
  - On Question 20, park users are more likely to *disagree* that some wildlife may be dangerous and that they don't want to have these potentially dangerous species in the Anchorage area, compared to those not described as park users ($p \leq 0.001$) (Figure 25).
  - Finally, on Question 21, park users are more likely to *strongly* agree that people who live in the Anchorage area should learn to live with some conflicts or problems with wildlife, compared to those not described as park users ($p \leq 0.001$) (Figure 26).
- Note that trends are shown for three questions in this series, with no marked differences, taken from a survey conducted in 1997 by Colorado State University (Figures 27 through 29).

Text Box 1: Wildlife Values Statements in Survey
Q17. I take pride in the amount of wildlife in the Anchorage area, even if they cause some problems or hazards. (POSITIVE)
Q18. An important part of my community is the wildlife I see there from time to time. (POSITIVE)
Q19. While some wildlife encounters can be dangerous, they make life in Anchorage more interesting and special. (POSITIVE)
Q20. Some wildlife may be dangerous, and I don't want to have these potentially dangerous species in the Anchorage area. (NEGATIVE)
Q21. People who live in the Anchorage area should learn to live with some conflicts or problems with wildlife. (POSITIVE)

- Other questions in the survey tested residents' tolerance levels with bears, and tolerance levels are higher regarding black bear than they are regarding brown bear. At the highest level of tolerance, 27% (regarding black bear) and 17% (regarding brown bear) want to see and have black/brown bears in their neighborhood (Figure 30). In looking at sums, a majority (61%) (regarding black bear) and nearly half (48%) (regarding brown bear) are comfortable having bears in the Anchorage area (i.e., they gave one of the two answers at the top of the scale). Nonetheless, substantial percentages do not want to see or have bears in the Anchorage area (35% do not want black bears in the Anchorage area, and 48% say the same about brown bears).
  - Regional crosstabulation: Region 1 residents are the *least* likely and Region 3 residents are the *most* likely to say that they want to see and have *black* bears in their neighborhood ($p \leq 0.001$) (Figure 31). Results are similar regarding *brown* bears ($p \leq 0.001$) (Figure 32).
  - The nonparametric analysis found that the following responses are correlated with wanting to see and have black or brown bears in his/her neighborhood:
    - Shows a fairly high level of tolerance about having bears around (e.g., says it is acceptable to have bears in area parks; agrees that the possibility of encountering a brown bear is a positive aspect of living in the Anchorage area) (all at $p \leq 0.05$ or greater significance).

  - On most questions that include a bear-killing option, does *not* favor killing the bear (e.g., does not indicate support of designating areas in which bears will be killed; does not indicate support for having wildlife authorities destroy bears when they are seen frequently in neighborhoods) (all at $p \leq 0.01$ or greater significance).
  - Thinks having moose around make life in Anchorage more interesting and special ($p \leq 0.001$).
  - On questions that include a moose-killing option, does *not* favor killing the moose ($p \leq 0.001$).
  - Has used trails and largest parks in Anchorage frequently or sometimes in the past 2 years (all at $p \leq 0.01$ or greater significance).
  - Indicates that he/she knows a great deal or moderate amount about black ($p \leq 0.001$) and brown ($p \leq 0.001$) bears.
  - Is in the middle age bracket (35 to 64 years old) ($p \leq 0.001$).
  - Lives in Region 3 ($p \leq 0.001$).
  - Primarily grew up in a large or very large city, or a suburb of a large or very large city ($p \leq 0.001$ for black bears; no correlation regarding brown bears).
  - Does not have any children, age 12 or younger, living in his/her household ($p \leq 0.001$ for black bears; no correlation regarding brown bears).
  - Has a college degree, with or without a post-graduate degree ($p \leq 0.01$).
  - Is a long-term resident of Alaska ($p \leq 0.01$ for black bears; no correlation for brown bears) and of Anchorage ($p \leq 0.01$ for black bears; no correlation for brown bears).
  - Supports fines for not storing garbage to prevent problems with bears ($p \leq 0.001$ for black bears; $p \leq 0.05$ for brown bears).
- The nonparametric analysis found that the following responses are correlated with wanting to see and have black or brown bears in the Anchorage area but not in his/her neighborhood:
  - Shows some tolerance about having bears around (e.g., says it is acceptable to have bears in area parks) (all at $p \leq 0.001$).
  - On most questions that include a bear-killing option, does *not* favor killing the bear (e.g., does not indicate supporting wildlife authorities destroying some black bears in

Anchorage every year to reduce the population) (all at $p \leq 0.01$ or greater significance).

- On questions that include a moose-killing option, does *not* favor killing the moose (all at $p \leq 0.05$ or greater significance).
- Has never hunted ($p \leq 0.001$).
- Has used trails and largest parks in Anchorage frequently or sometimes in the past 2 years (all at $p \leq 0.05$ or greater significance).
- Indicates that he/she knows a great deal or moderate amount about black ($p \leq 0.001$) and brown ($p \leq 0.01$) bears.
- Gets his/her information about bears and moose from books ($p \leq 0.05$) and/or from the Internet ($p \leq 0.01$).
- Has at least one child, age 12 or younger, living in his/her household ($p \leq 0.001$).
- He/She or his/her spouse is currently serving, or has served, in the armed forces, and has been assigned to Anchorage in the past ($p \leq 0.01$).
- Has been an Alaska resident for less than the mean number of years ($p \leq 0.01$).
- Has a college degree, with or without a post-graduate degree ($p \leq 0.001$).
- Has lived in the Anchorage area for less than the mean number of years ($p \leq 0.01$).
- Is in the middle age bracket (35 to 64 years old) ($p \leq 0.001$).

- The following responses are correlated with wanting to see and have black or brown bears in Alaska but not in the Anchorage area:
  - Does not show much tolerance about having bears around (e.g., does not say it is acceptable to have bears in area parks; does not agree that the possibility of encountering a brown bear is a positive aspect of living in the Anchorage area) (all at $p \leq 0.05$ or greater significance).
  - On most questions that include a bear-killing option, favors killing the bear (e.g., indicates support of designating areas in which bears will be killed; indicates support for having wildlife authorities destroy bears when they are seen frequently in neighborhoods) (all at $p \leq 0.001$).
  - Does not think having moose around make life in Anchorage more interesting and special ($p \leq 0.001$ for black bears; no correlation for brown bears).

- On questions that include a moose-killing option, favors killing the moose ($p \leq 0.001$).
- Has used trails ($p \leq 0.001$) and largest parks ($p \leq 0.001$) in Anchorage rarely or never in the past 2 years.
- Has hunted in the past 2 years ($p \leq 0.01$ for black bears; $p \leq 0.05$ for brown bears).
- Indicates that he/she knows a little or nothing about black ($p \leq 0.05$) or brown bears ($p \leq 0.01$).
- Gets his/her information about bears and moose from the television ($p \leq 0.01$ for black bears; no correlation for brown bears) and/or personal experience ($p \leq 0.001$ for black bears, $p \leq 0.001$ for brown bears).
- Is in the young age bracket (18 to 34 years old) ($p \leq 0.001$).
- Does not have any children, age 12 or younger, living in his/her household ($p \leq 0.001$ for black bears; no correlation for brown bears).
- Does not have a college degree ($p \leq 0.001$).
- Primarily grew up in a rural area or a small town or city ($p \leq 0.001$).
- He/She or his/her spouse has never served in the armed forces ($p \leq 0.001$).
- Is not a long-term resident of Anchorage ($p \leq 0.01$).
- Does not indicate supporting fines for not storing garbage to prevent problems with bears (no correlation for black bears; $p \leq 0.001$ for brown bears).

➢ Another question tested tolerance levels and opinions on having brown bears in the Anchorage area. On this question, residents are split: 47% agree that the possibility of encountering a brown bear is a positive aspect of living in the Anchorage area, but 44% disagree (Figure 33). Note that most disagreement is *strong* disagreement.

- The regional crosstabulation is shown (Figure 34).
- Trail users crosstabulation: Trail users, compared to those not described as trail users, are more likely to agree (as well as to strongly agree) that the possibility of encountering a brown bear is a positive aspect of living in the Anchorage area ($p \leq 0.001$) (Figure 35).
- Park users crosstabulation: Similar to the above, park users, compared to those not described as park users, are more likely to agree (as well as to strongly agree) that the

possibility of encountering a brown bear is a positive aspect of living in the Anchorage area ($p \leq 0.001$) (Figure 36).

- A graph that compares current data to the data from a 1997 study suggests that the trend is for just a little more disagreement nowadays regarding whether the possibility of encountering a brown bear is a positive aspect of living in the Anchorage area (Figure 37).
- The nonparametric analysis found that the following responses are correlated with agreeing that the possibility of encountering a brown bear is a positive aspect of living in the Anchorage area:
  - Shows a fairly high level of tolerance about having bears around (e.g., says it is acceptable to have bears in area parks; wants to see and have black bears in his/her neighborhood) (all at $p \leq 0.01$ or greater significance).
  - On most questions that include a bear-killing option, does *not* favor killing the bear (e.g., does not indicate support of designating areas in which bears will be killed; does not indicate support for having wildlife authorities destroy bears when they are seen frequently in neighborhoods) (all at $p \leq 0.01$ or greater significance).
  - Thinks having moose around make life in Anchorage more interesting and special ($p \leq 0.001$).
  - Does not indicate supporting reducing the moose population in Anchorage to reduce the number of brown bears ($p \leq 0.001$).
  - Has used trails ($p \leq 0.001$) and largest parks ($p \leq 0.001$) in the Anchorage area frequently or sometimes in the past 2 years.
  - Has fished for salmon in the past 2 years ($p \leq 0.001$).
  - Indicates that he/she knows a great deal or a moderate amount about black ($p \leq 0.001$) and brown ($p \leq 0.001$) bears.
  - Gets his/her information about bears and moose from the Internet ($p \leq 0.01$).
  - Is in the middle age bracket (35 to 64 years old) ($p \leq 0.001$).
  - Has a college degree, with or without a post-graduate degree ($p \leq 0.001$).
  - Primarily grew up in a large or very large city or a suburb of a large or very large city ($p \leq 0.001$).

- He/She or his/her spouse is currently serving in the armed forces and assigned to Anchorage ($p \leq 0.05$).
- Has not personally had problems or property damage at his/her primary home caused by black bears within the past 2 years ($p \leq 0.001$) or brown bears ($p \leq 0.05$).
- Supports fines for not storing garbage to prevent problems with bears ($p \leq 0.001$).
- Supports paying more for his/her trash service if Anchorage provided bear-proof garbage containers ($p \leq 0.001$).

➢ The survey tested tolerance levels regarding moose, as well. The large majority of Anchorage residents (87%) agree that, while moose cause some problems, these problems make life in Anchorage seem more interesting and special (Figure 38). Most of that agreement is *strong* agreement (62% *strongly* agree). Only 8% disagree.

- The regional crosstabulation is shown (Figure 39).
- Trail users crosstabulation: Trail users, compared to those not described as trail users, are more likely to strongly agree that moose, while causing some problems, make life in Anchorage seem more interesting and special ($p \leq 0.001$) (Figure 40).
- Park users crosstabulation: Park users, relative to those not described as park users, are more likely to strongly agree that moose, while causing some problems, make life in Anchorage seem more interesting and special ($p \leq 0.001$) (Figure 41).
- A graph of trends for this question, compared to a 1997 study, is shown, with little difference between the two studies (Figure 42).
- Another question asked if respondents enjoyed watching moose in the Anchorage area, and the overwhelming majority (94%) indicated that they did (Figure 43). (This multi-part question also touched on conflicts with moose; another graph for Question 57, which shows problems associated with moose, is shown in the section of this report titled, "Negative Interactions and Damage Caused by Wildlife.")
- The regional crosstabulation regarding watching moose is shown (Figure 44), with little difference regarding enjoying watching moose.
- A graph of trends for Question 57, relative to a study conducted in 1997, is shown (Figure 45).

- Residents' self-rated knowledge levels show fairly high knowledge about black and brown bears: 71% say that they know a great deal or moderate amount about black bears, and 66% say the same about brown bears (Figure 46). On the other end, only 5% and 8%, respectively, say that they know nothing about black and brown bears.
  - Regional crosstabulation: Region 1 residents are the most likely to say that they know *nothing* about black bears; conversely, Region 3 residents are the most likely to say that they know a *great deal* or *moderate amount* about black bears ($p \leq 0.001$) (Figure 47). Region 3 residents are the most likely to say that they know a *great deal* or *moderate amount* about brown bears, as well ($p \leq 0.001$) (Figure 48).

- The leading sources of information about bear and moose among Anchorage residents are newspapers (30% say that they get information through this source), television (25%), the Internet (20%), personal experience (20%), books (15%), and word of mouth (15%) (Figure 49).
  - The regional crosstabulation regarding information sources is shown (Figure 50).
  - Residents who are in the armed services or who were at one time in the armed services and are/were stationed in Anchorage were asked if the military personnel orientation that they received included information about bears: 50% indicated that it included bear information (Figure 51). Overall, 8% of residents received information about bears in the military personnel orientation (this percentage was derived from this question and the question about sources of information).
    - The regional crosstabulation is shown for the question about receiving the military personnel orientation (Figure 52).
  - A follow-up question of those who had received the military personnel orientation found that the overwhelming majority of them (90%) said that the information was very or somewhat useful; less than 1% said it was not at all useful (Figure 53).
    - The regional crosstabulation for this last question is shown (Figure 54).

Figure 3. Question 12.

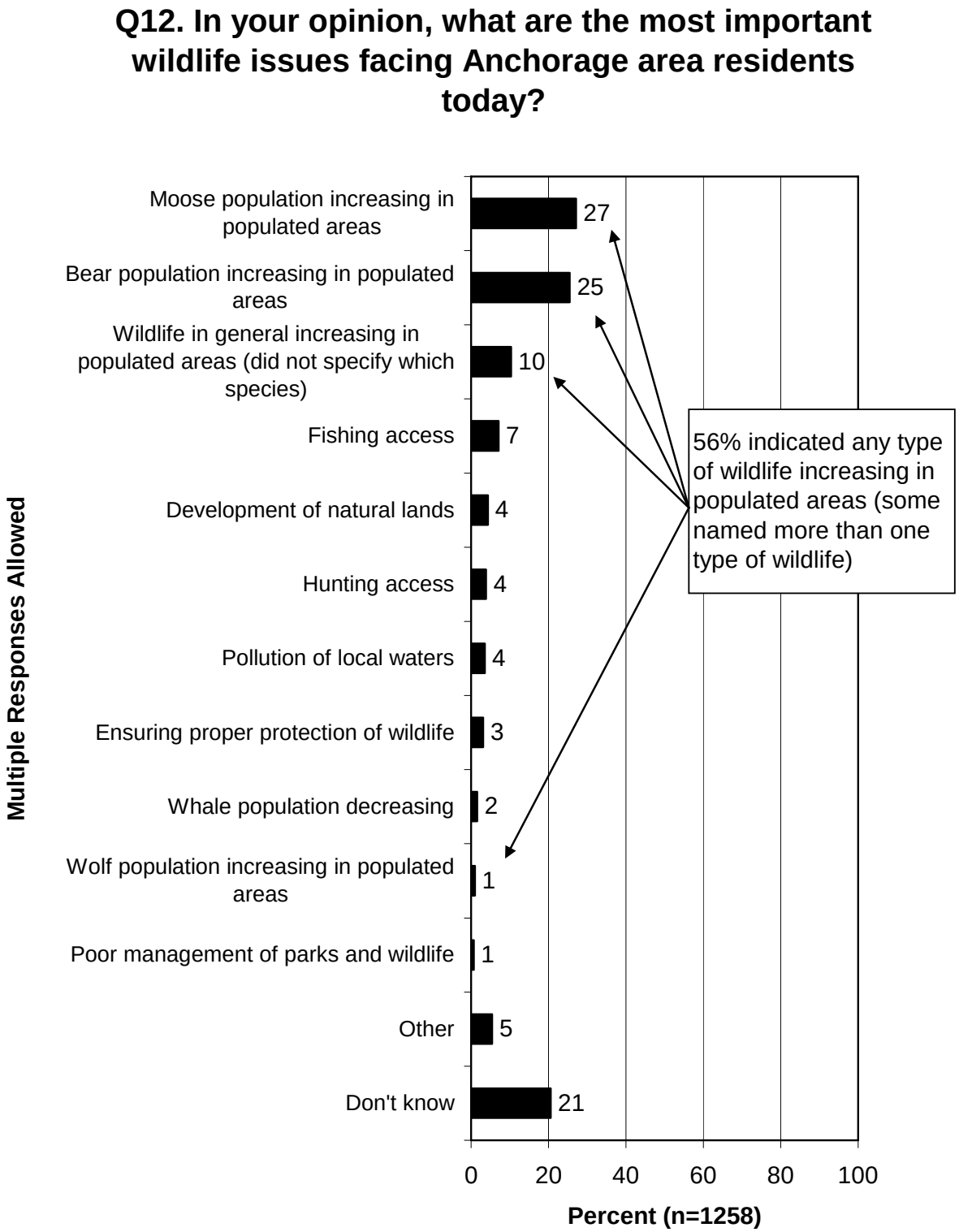


Figure 4. Question 12 Crossed by Region.

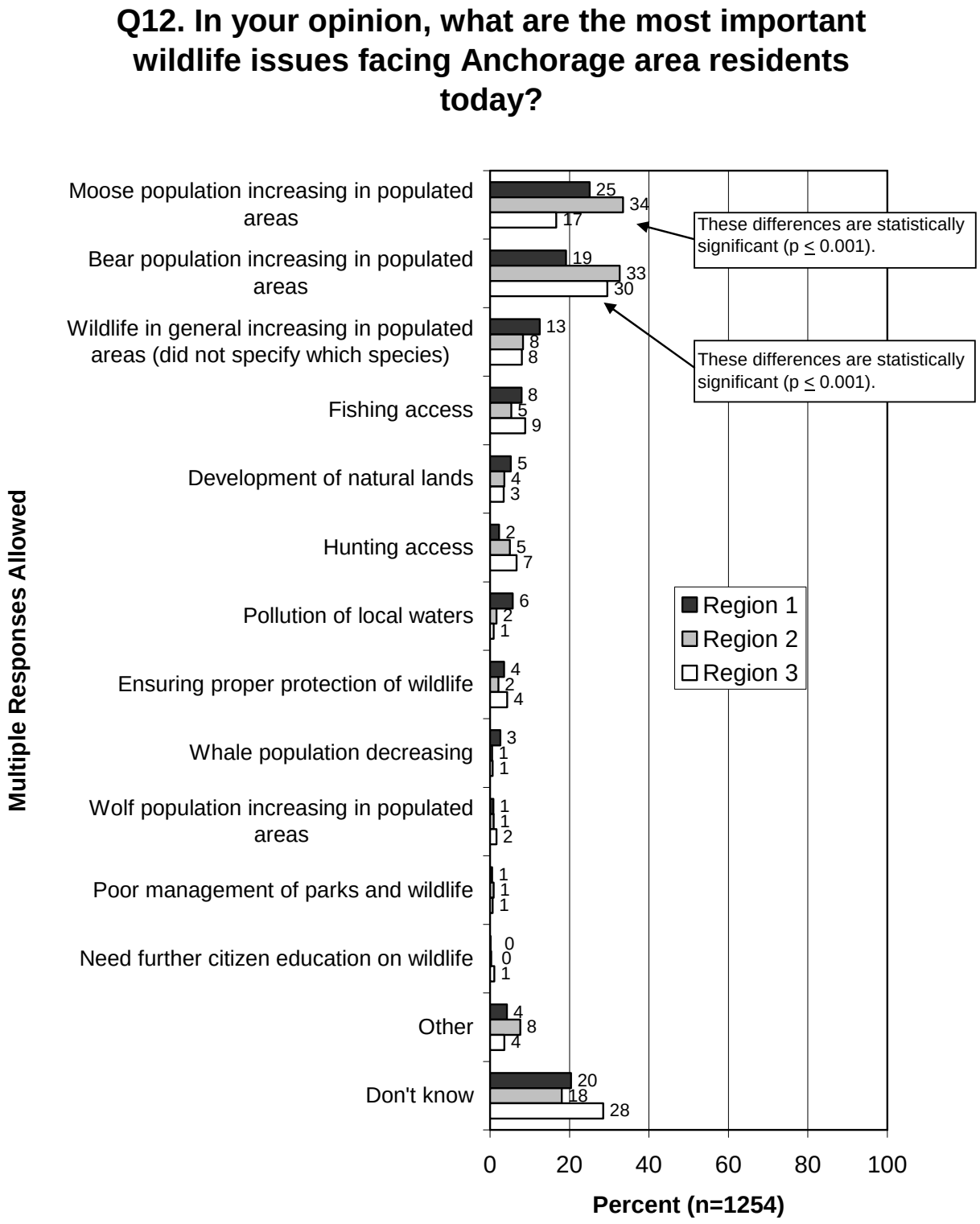


Figure 5. Question 12 Crossed by Trail Users.

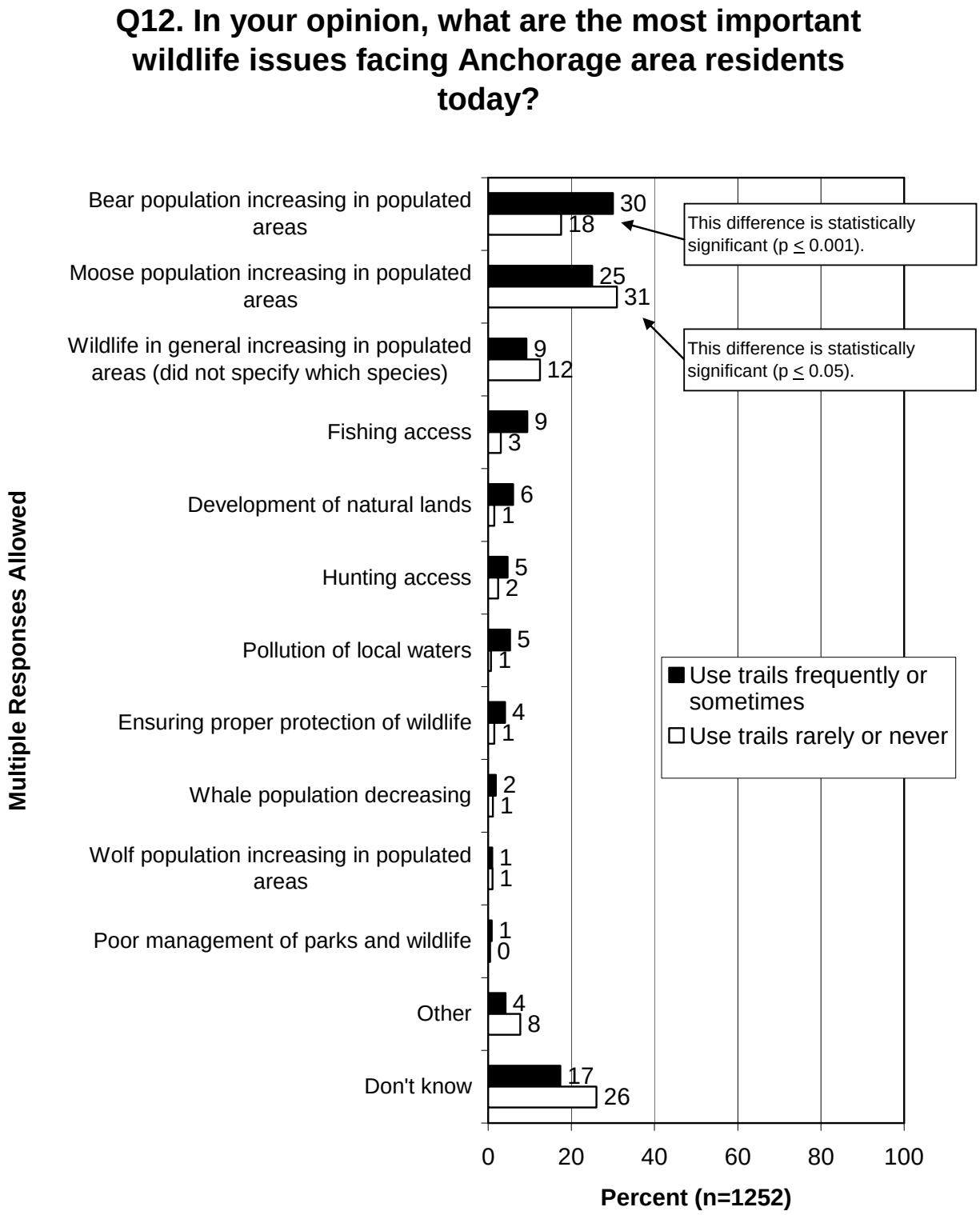


Figure 6. Question 12 Crossed by Park Users.

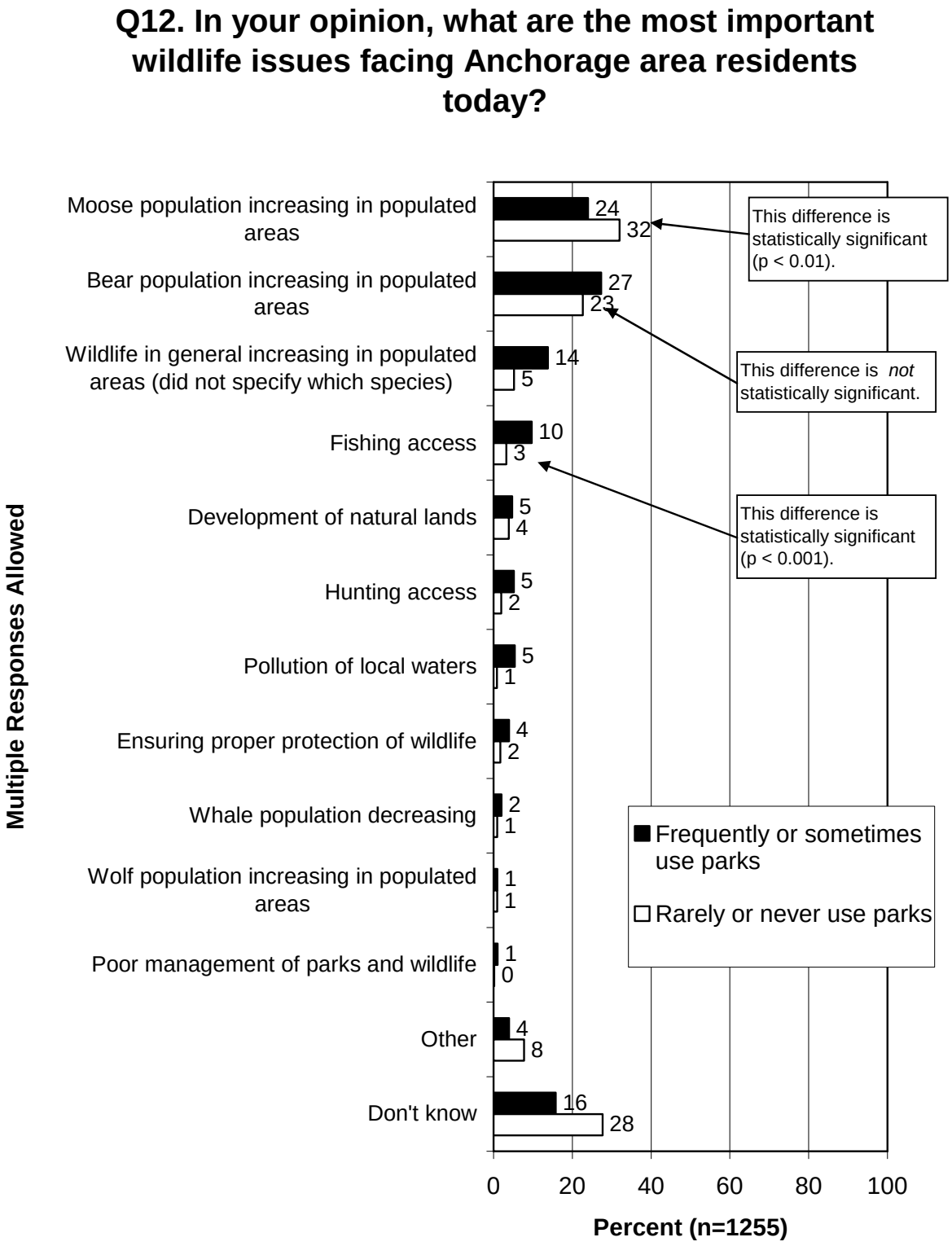


Figure 7. Strong Agreement With Wildlife Values Statements.

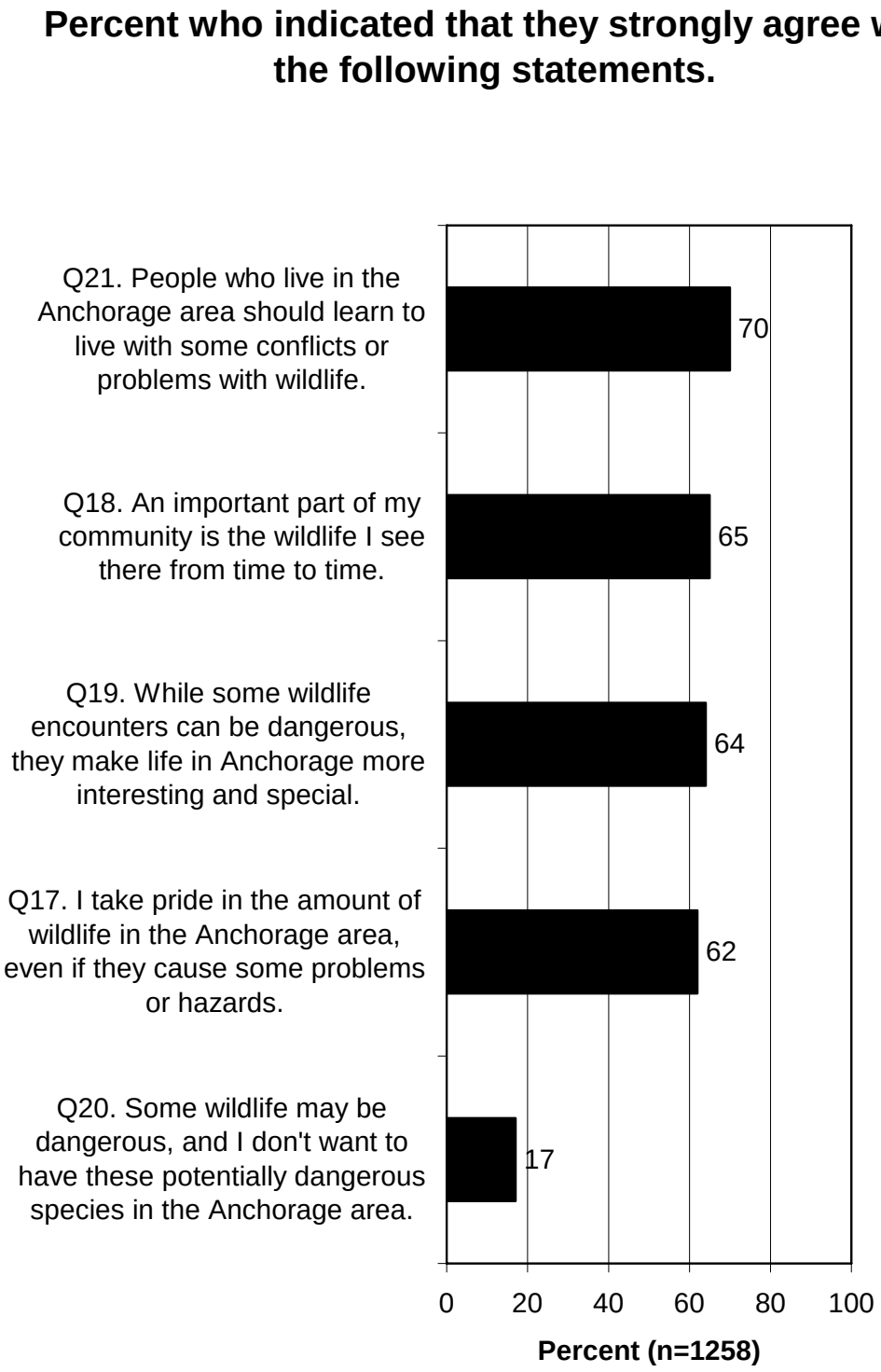


Figure 8. Strong or Moderate Agreement With Wildlife Values Statements.

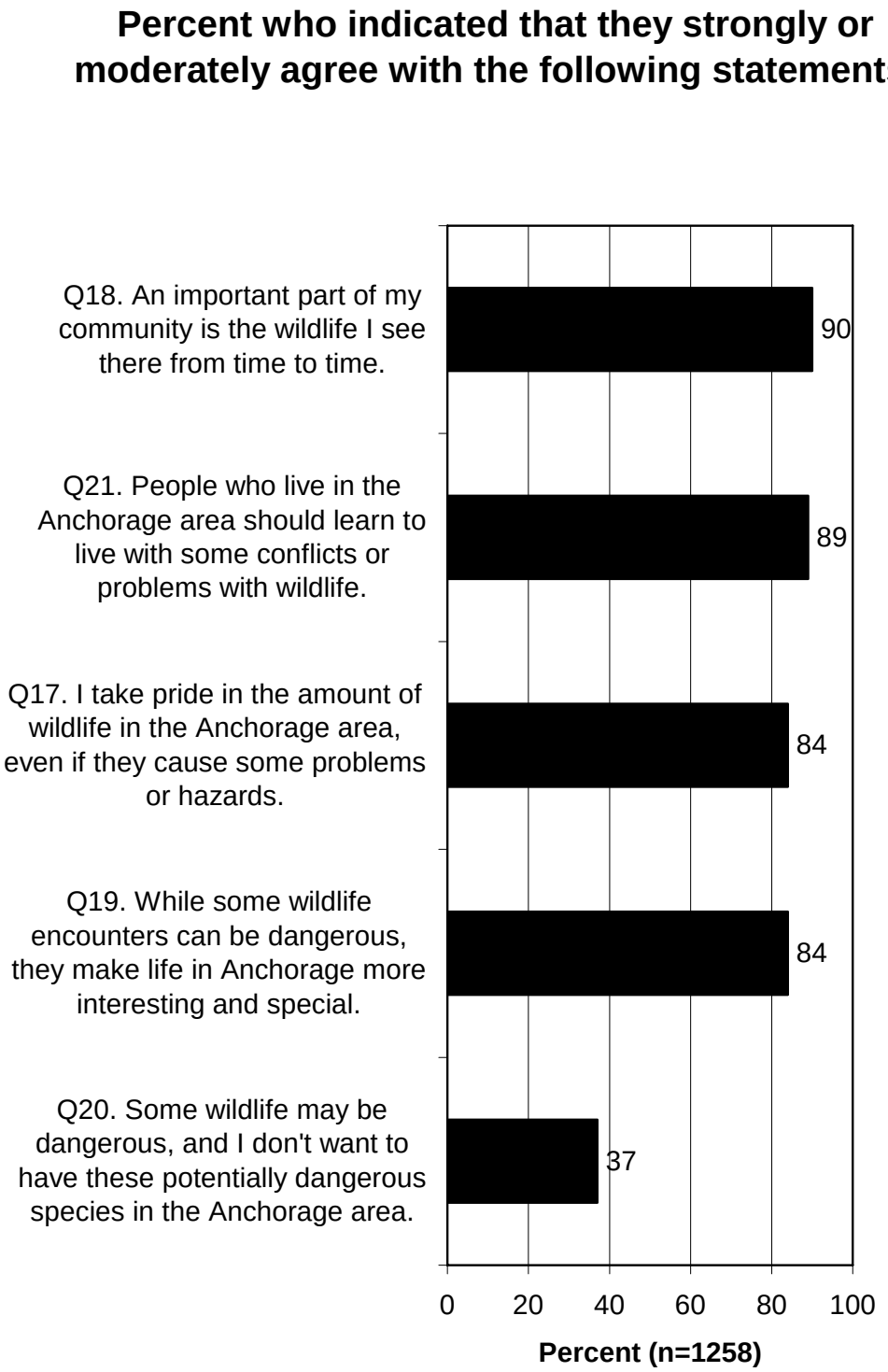


Figure 9. Total Agreement With Wildlife Values Statements.

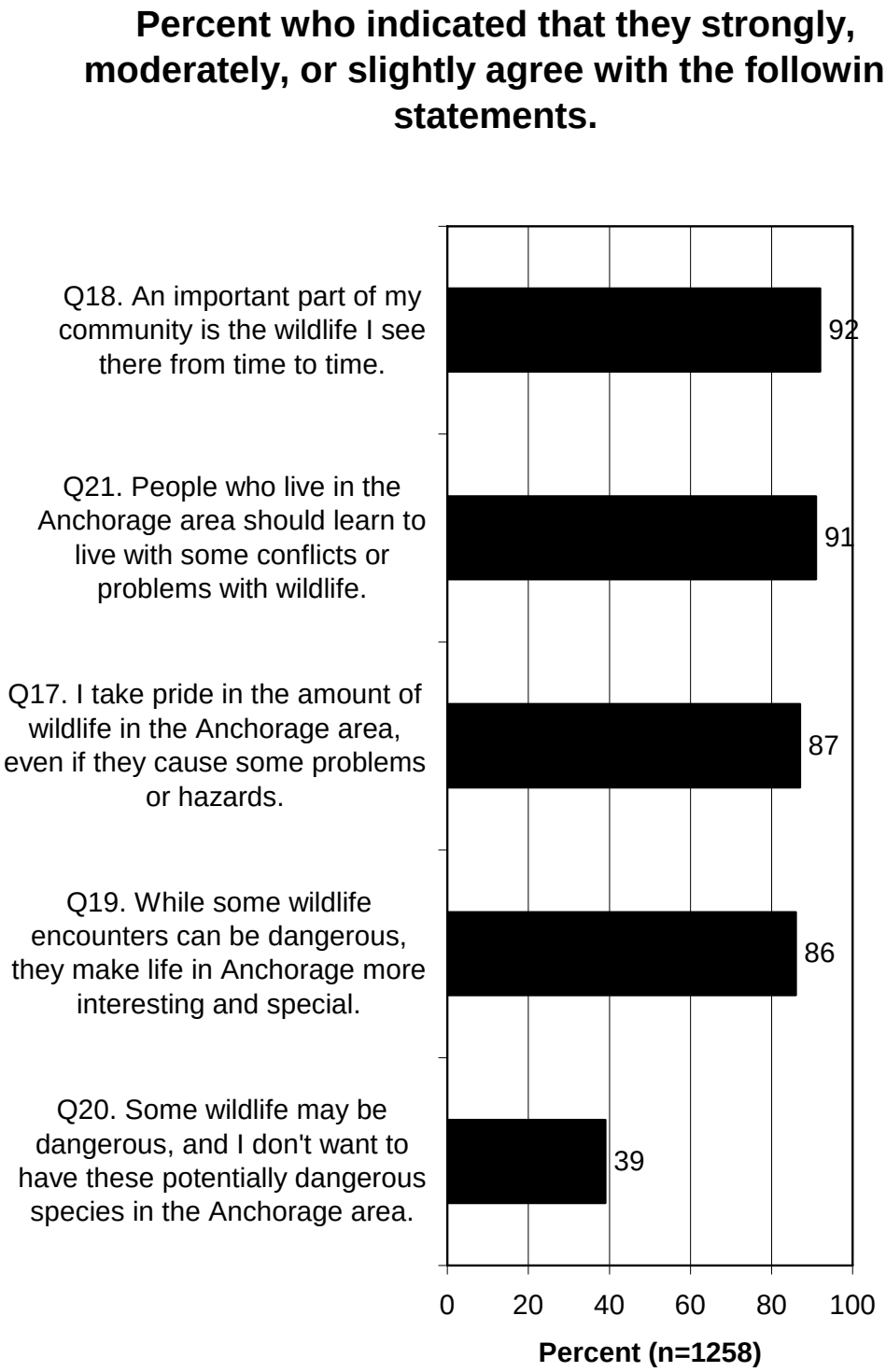


Figure 10. Total Disagreement With Wildlife Values Statements.

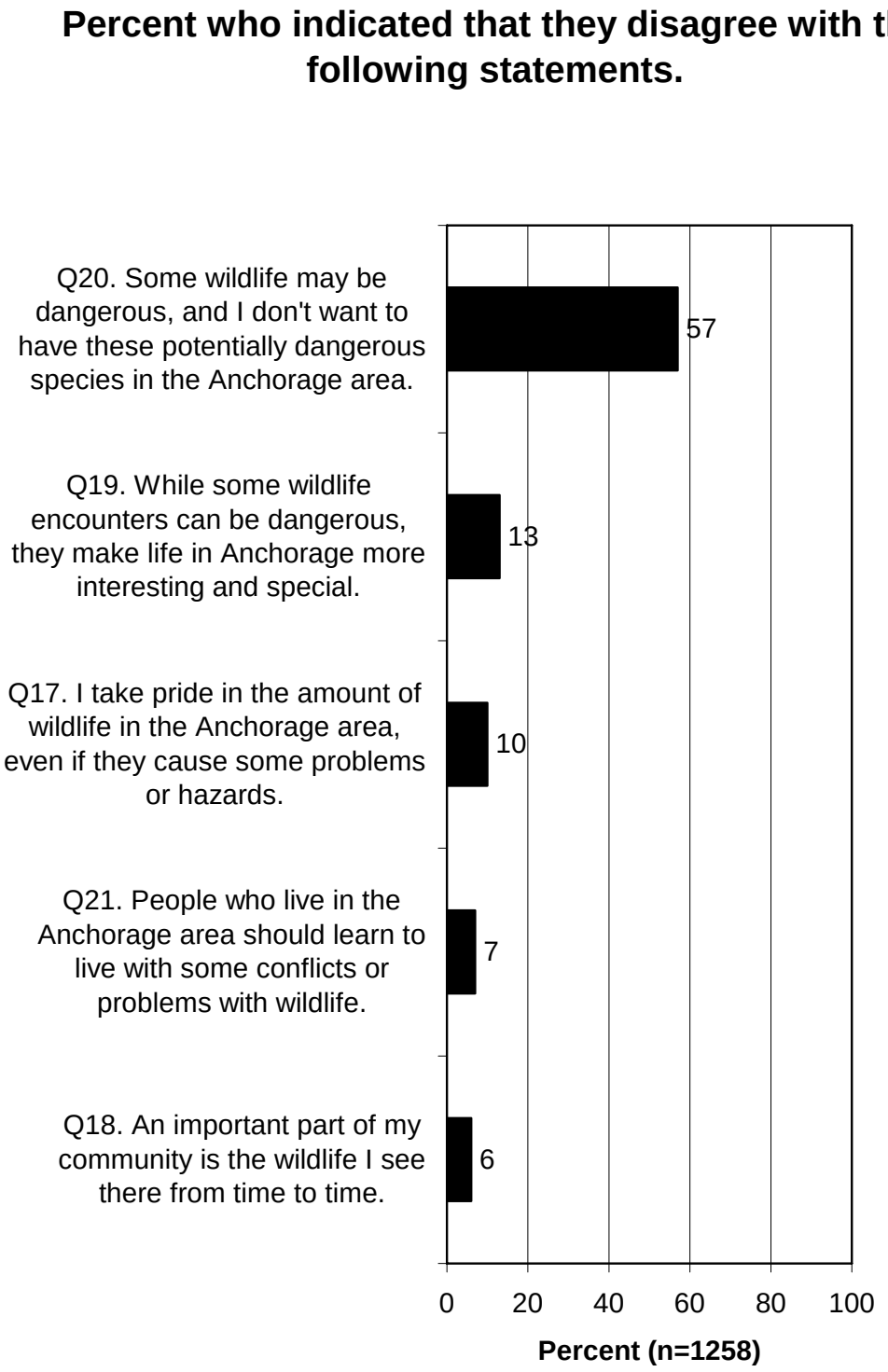


Figure 11. Strong Disagreement With Wildlife Values Statements.

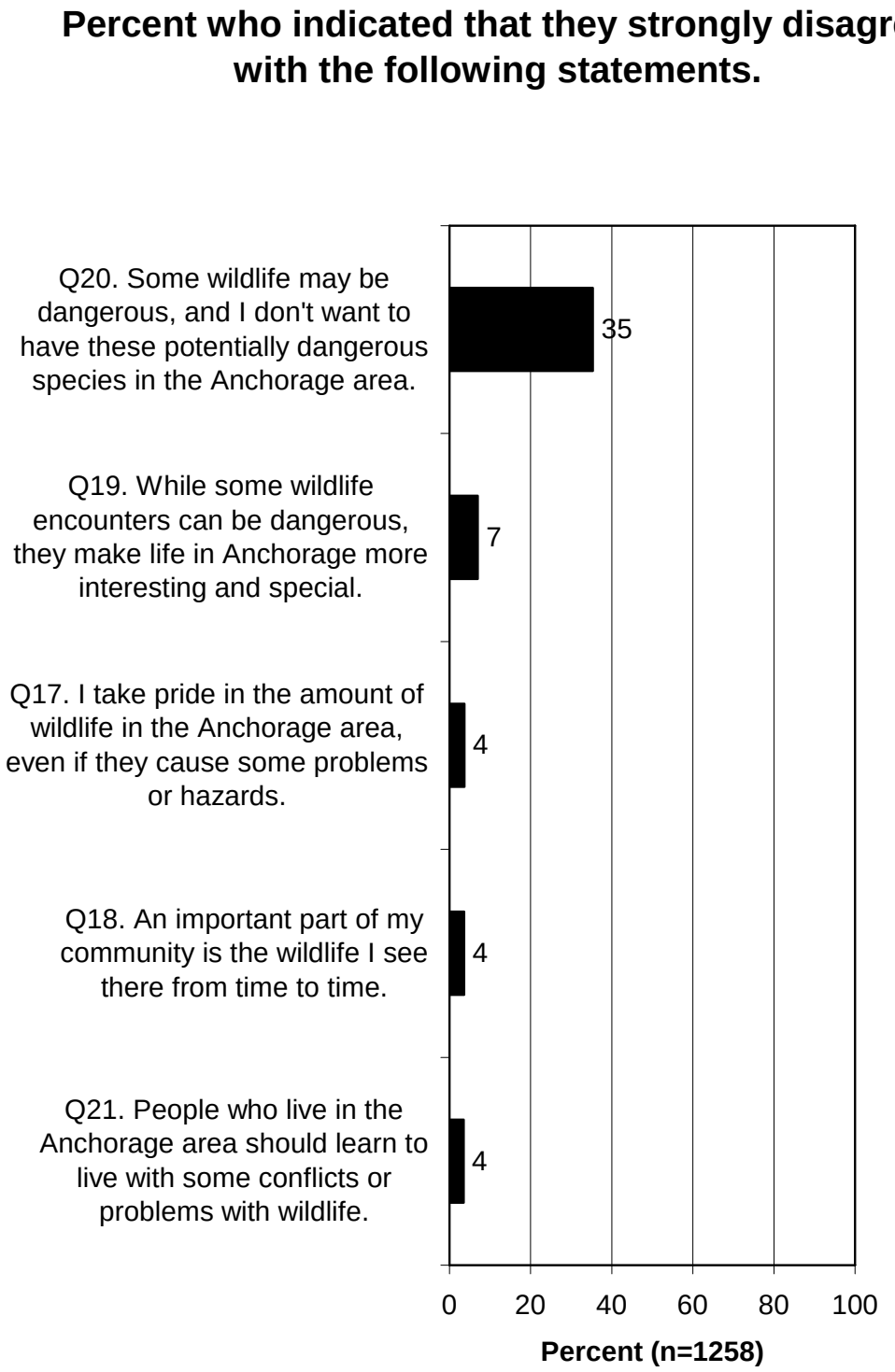


Figure 12. Question 17 Crossed by Region.

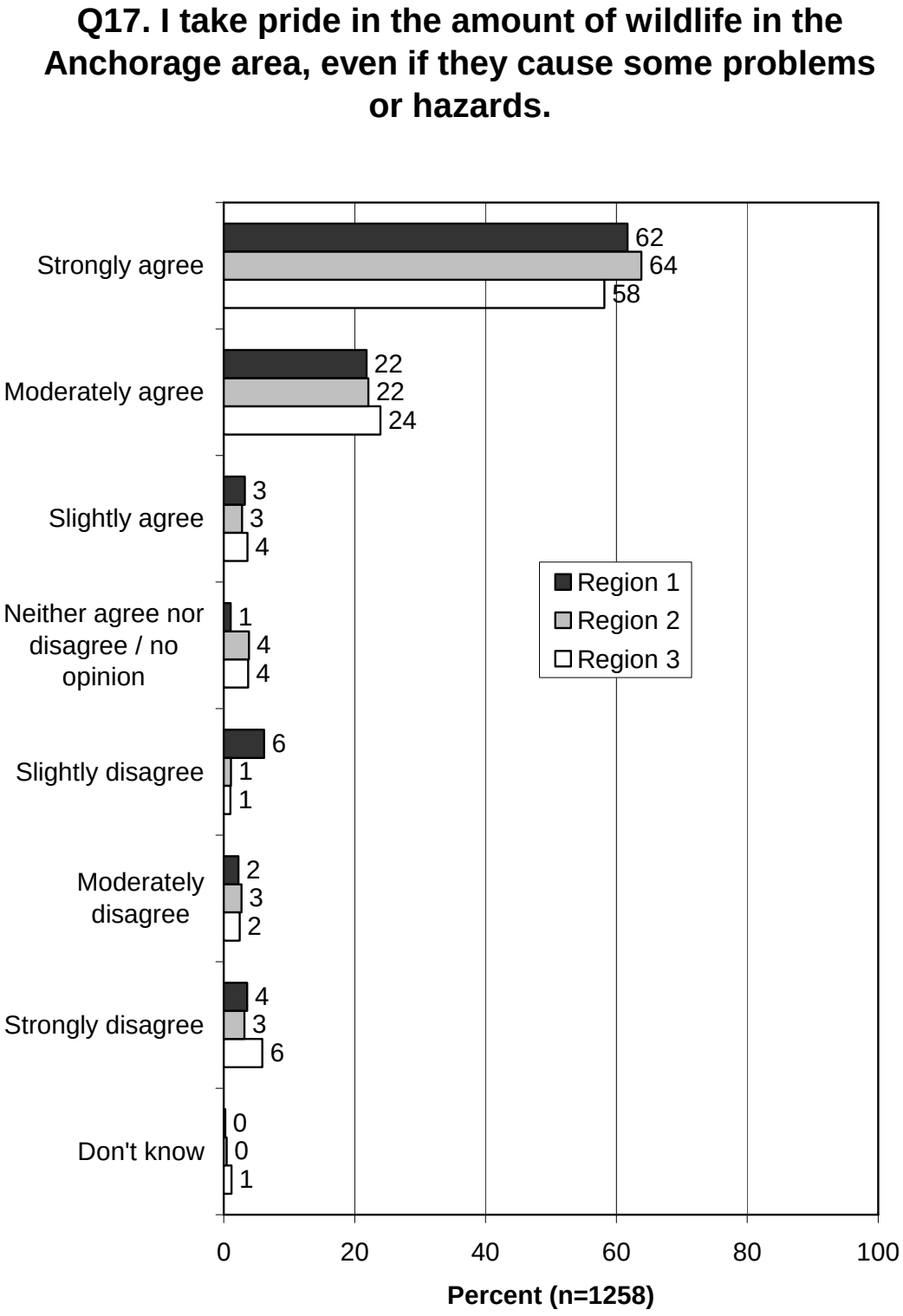


Figure 13. Question 18 Crossed by Region.

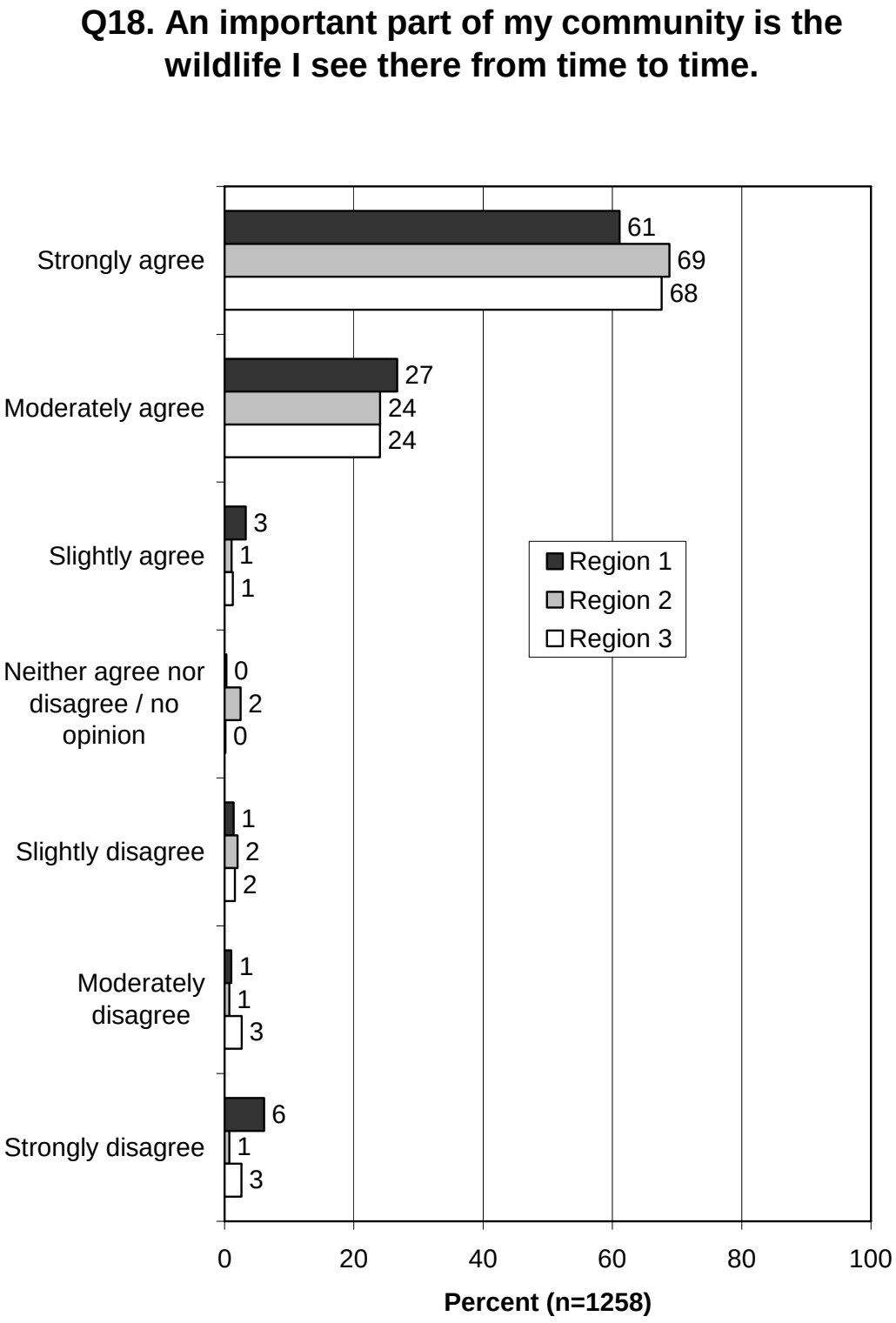


Figure 14. Question 19 Crossed by Region.

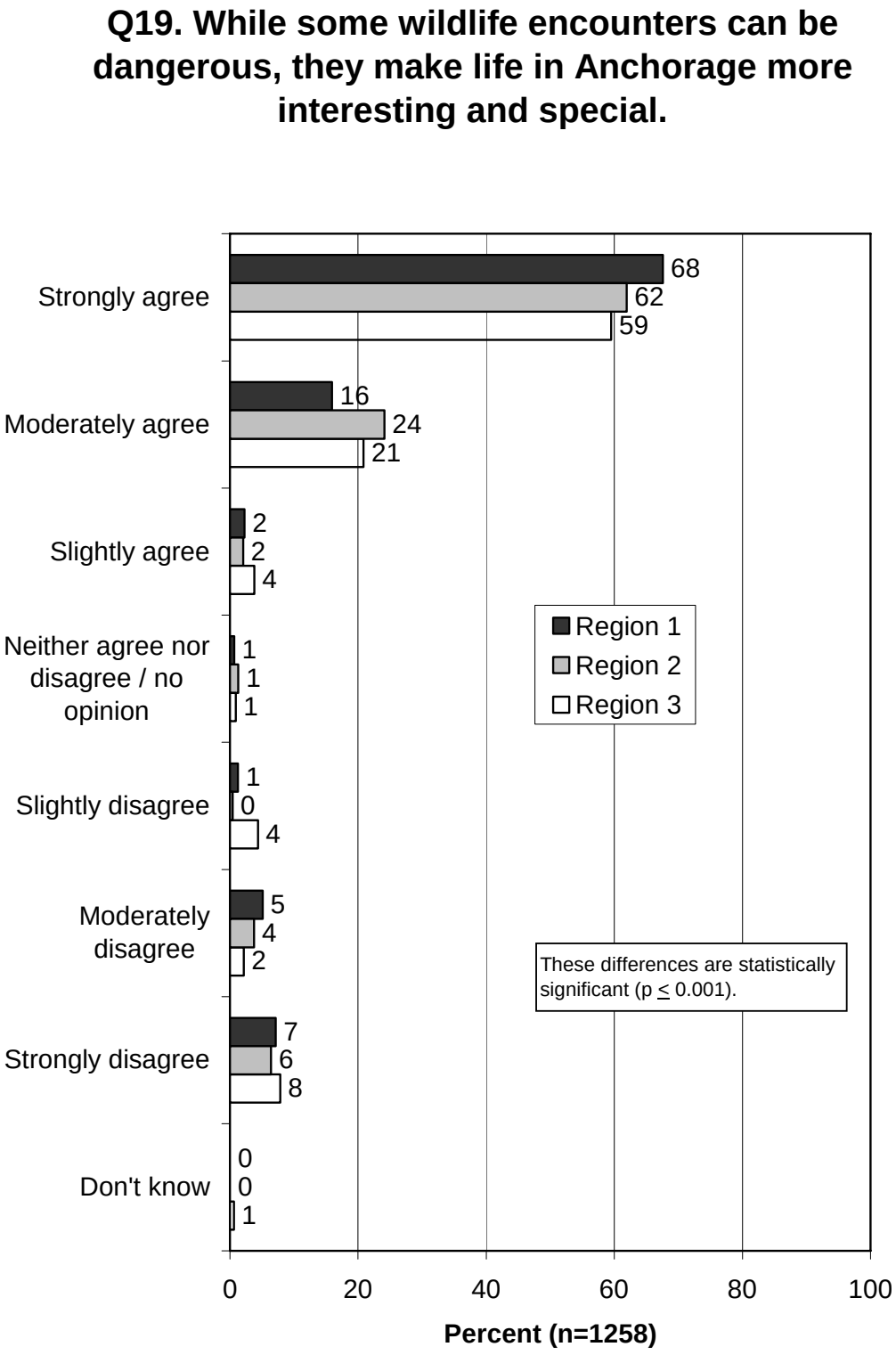


Figure 15. Question 20 Crossed by Region.

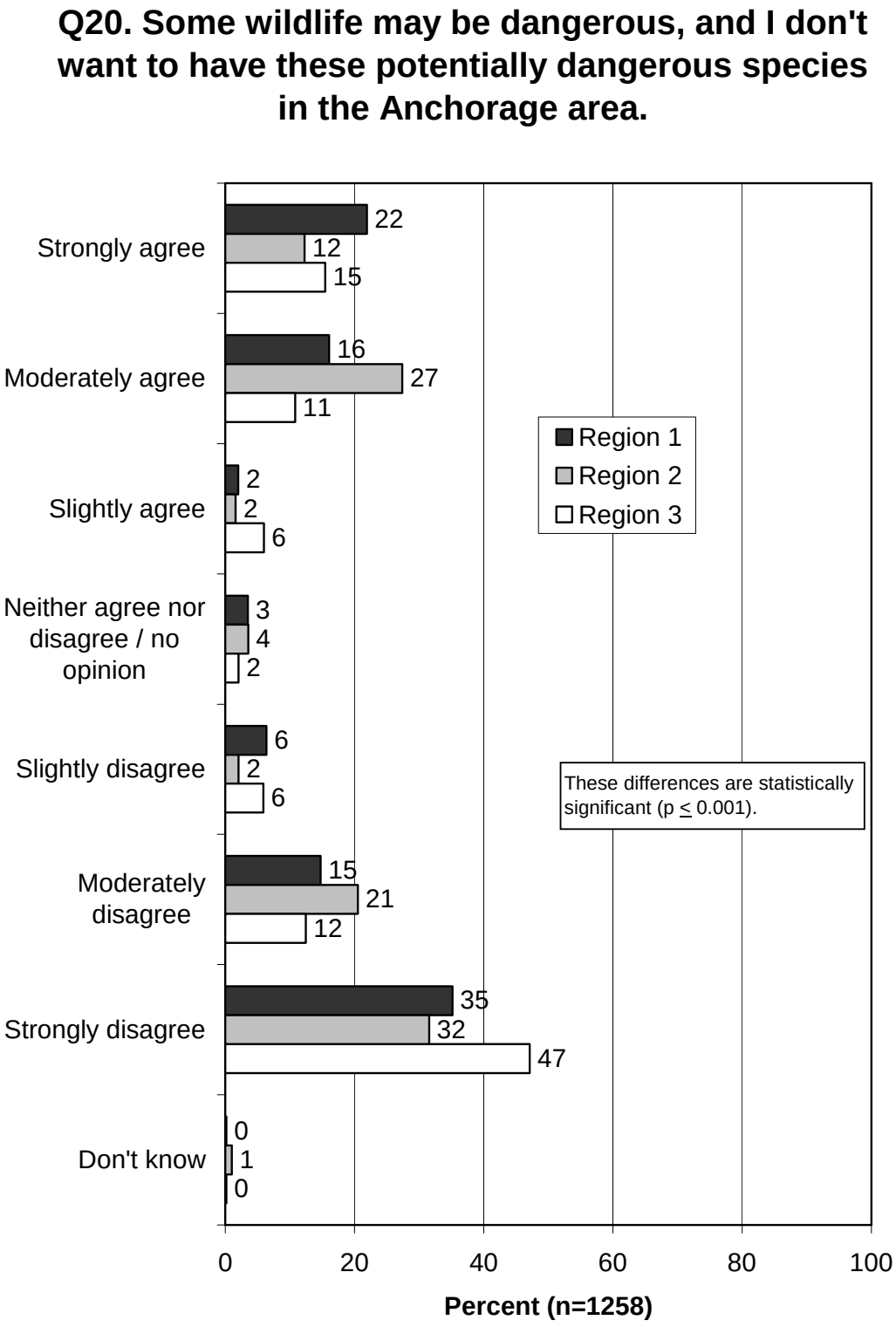


Figure 16. Question 21 Crossed by Region.

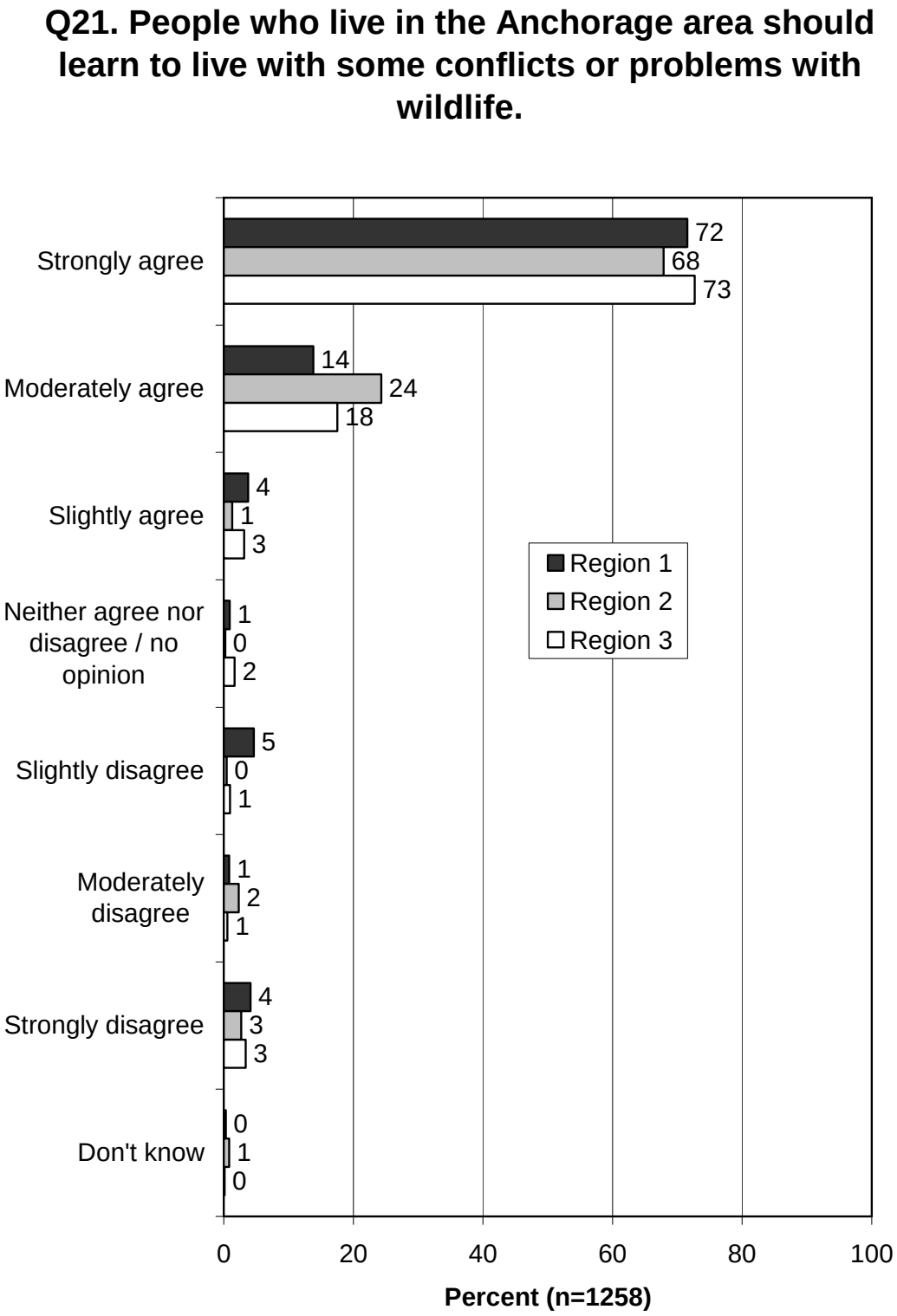


Figure 17. Question 17 Crossed by Trail Users.

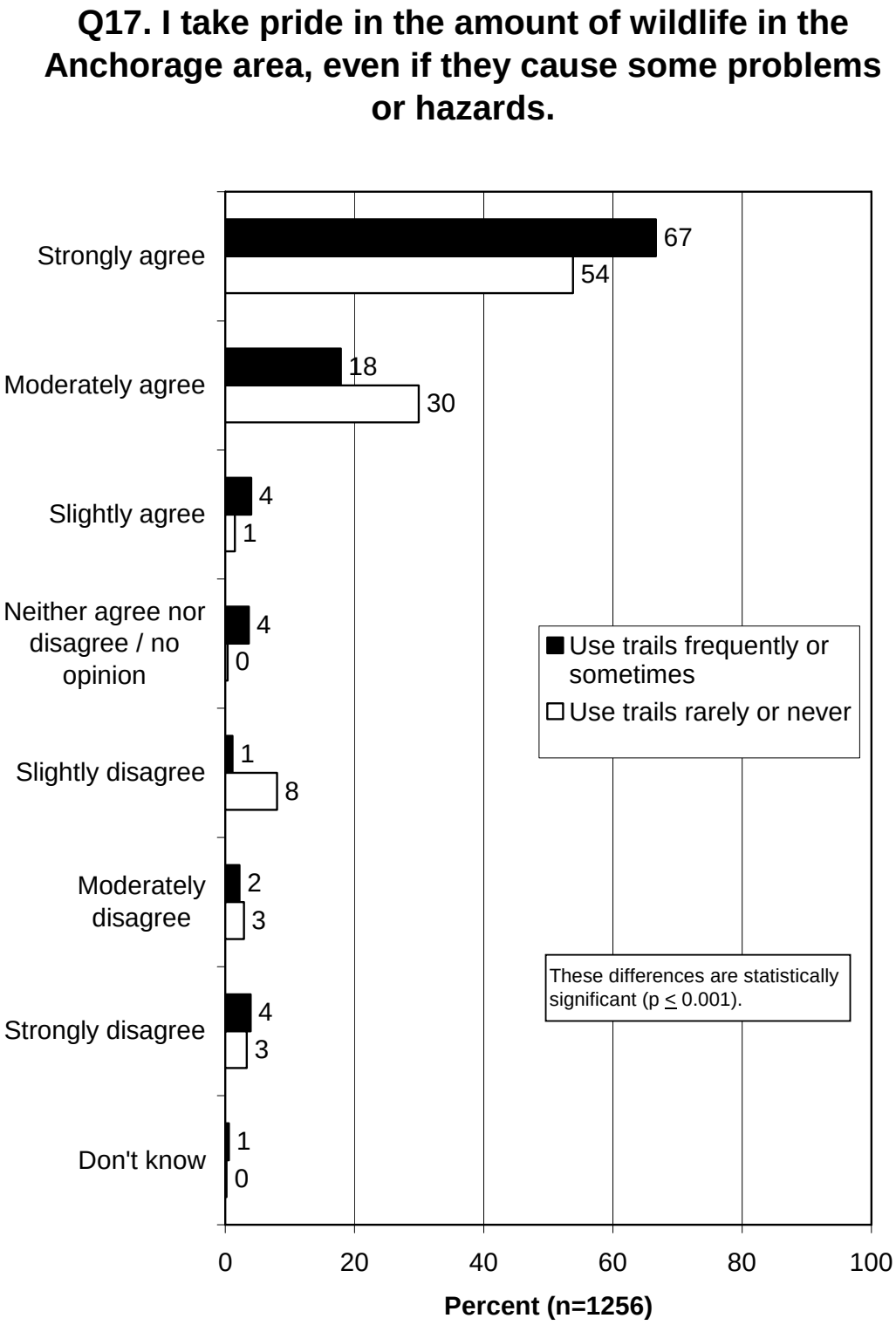


Figure 18. Question 18 Crossed by Trail Users.

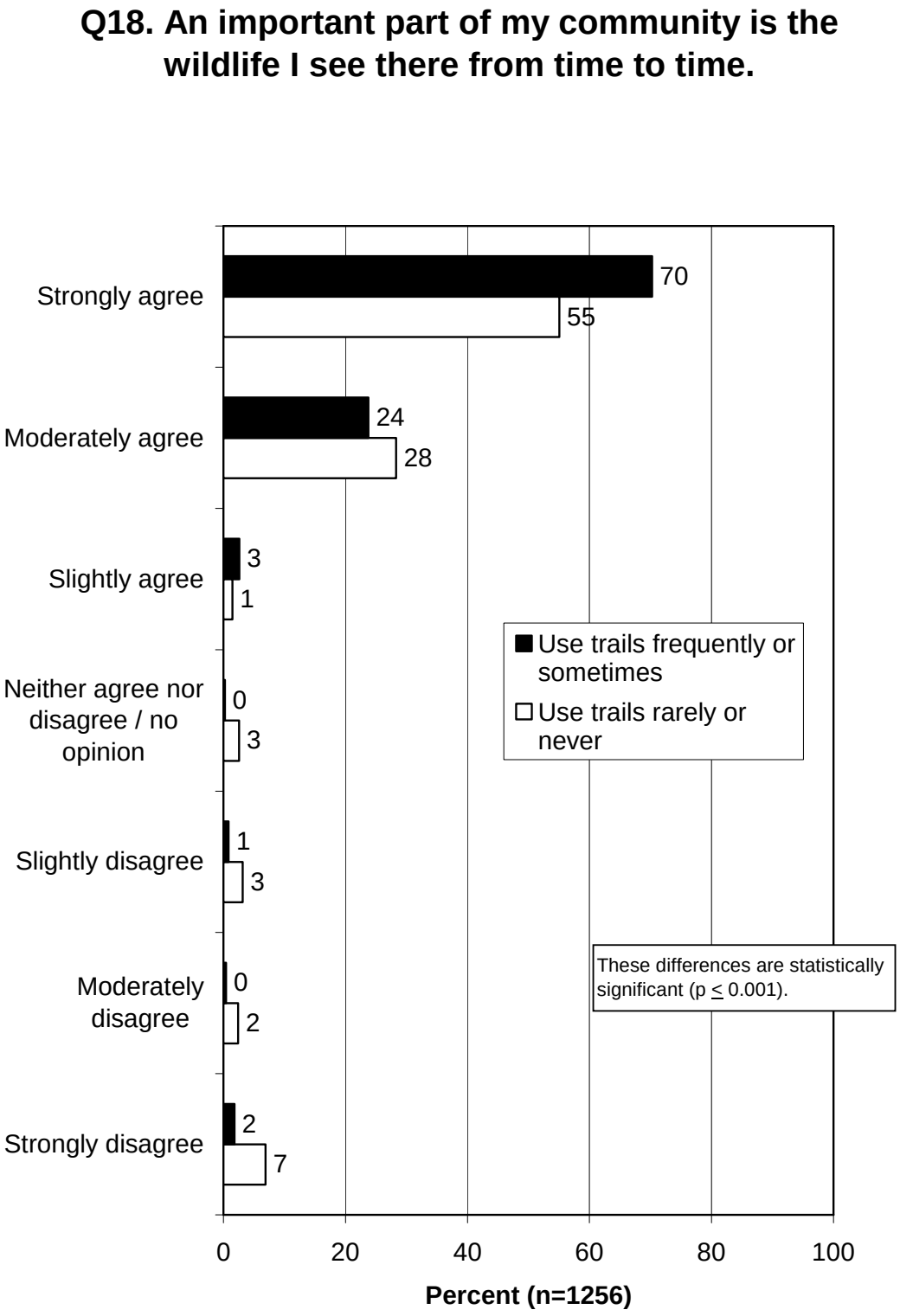


Figure 19. Question 19 Crossed by Trail Users.

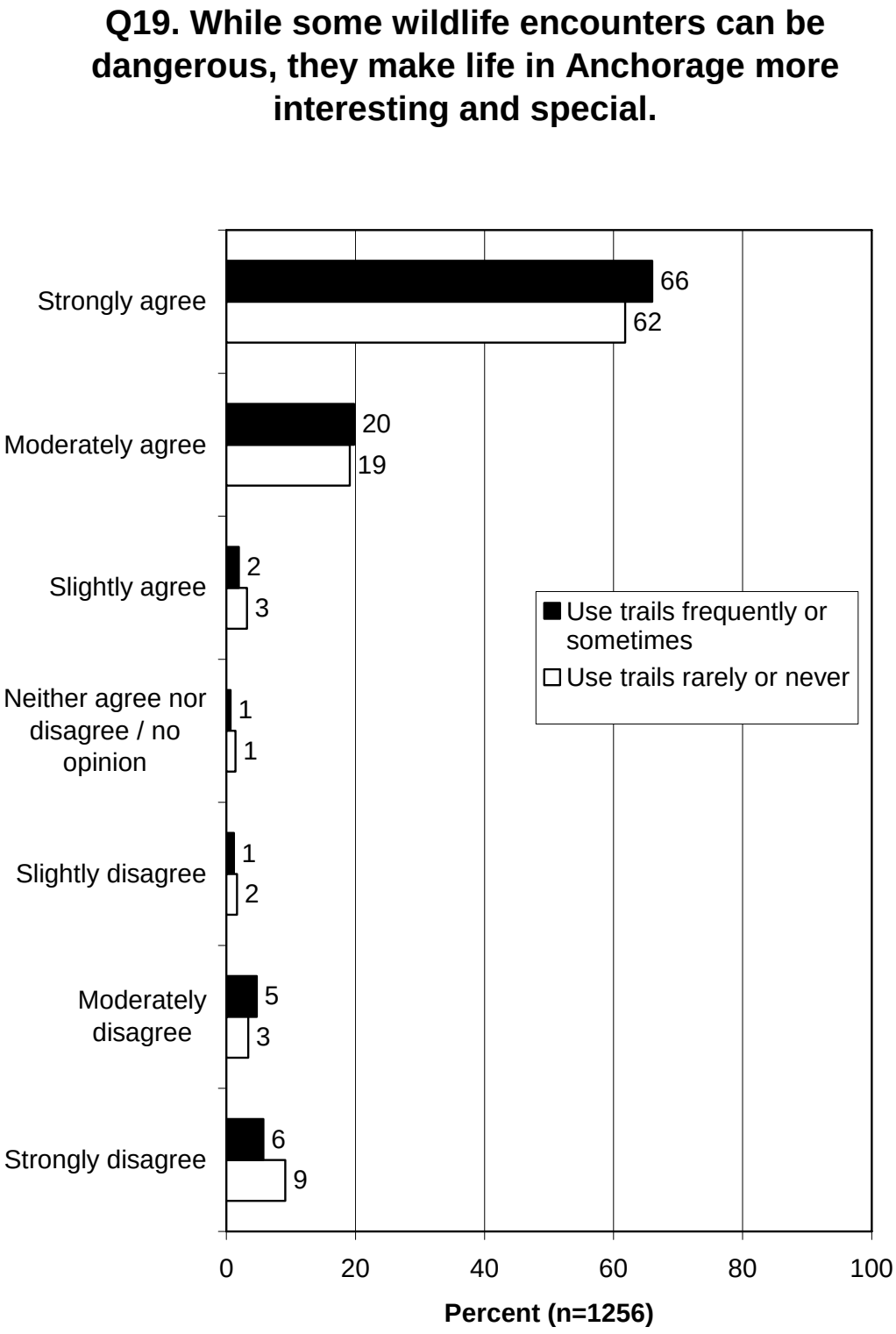


Figure 20. Question 20 Crossed by Trail Users.

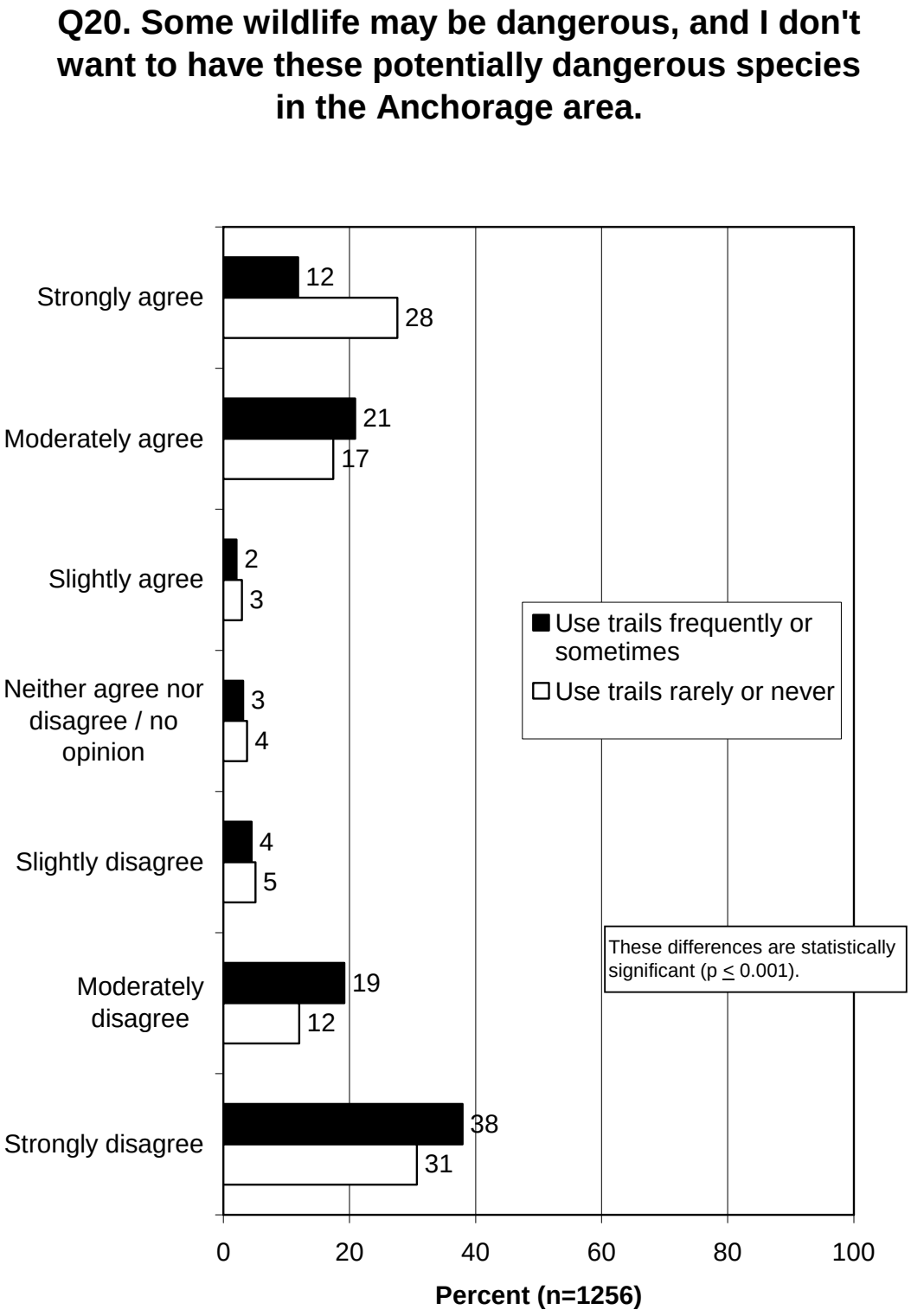


Figure 21. Question 21 Crossed by Trail Users.

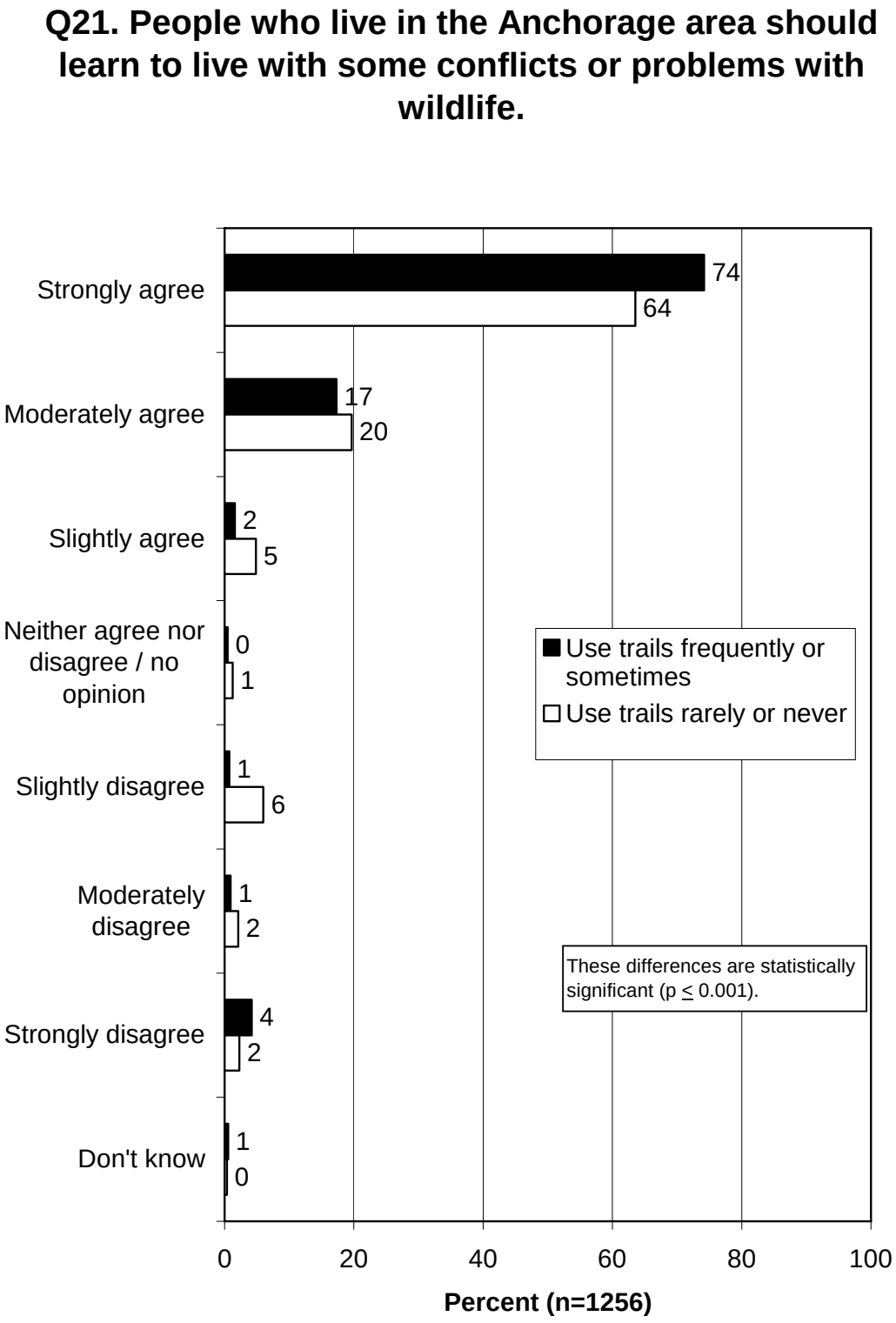


Figure 22. Question 17 Crossed by Park Users.

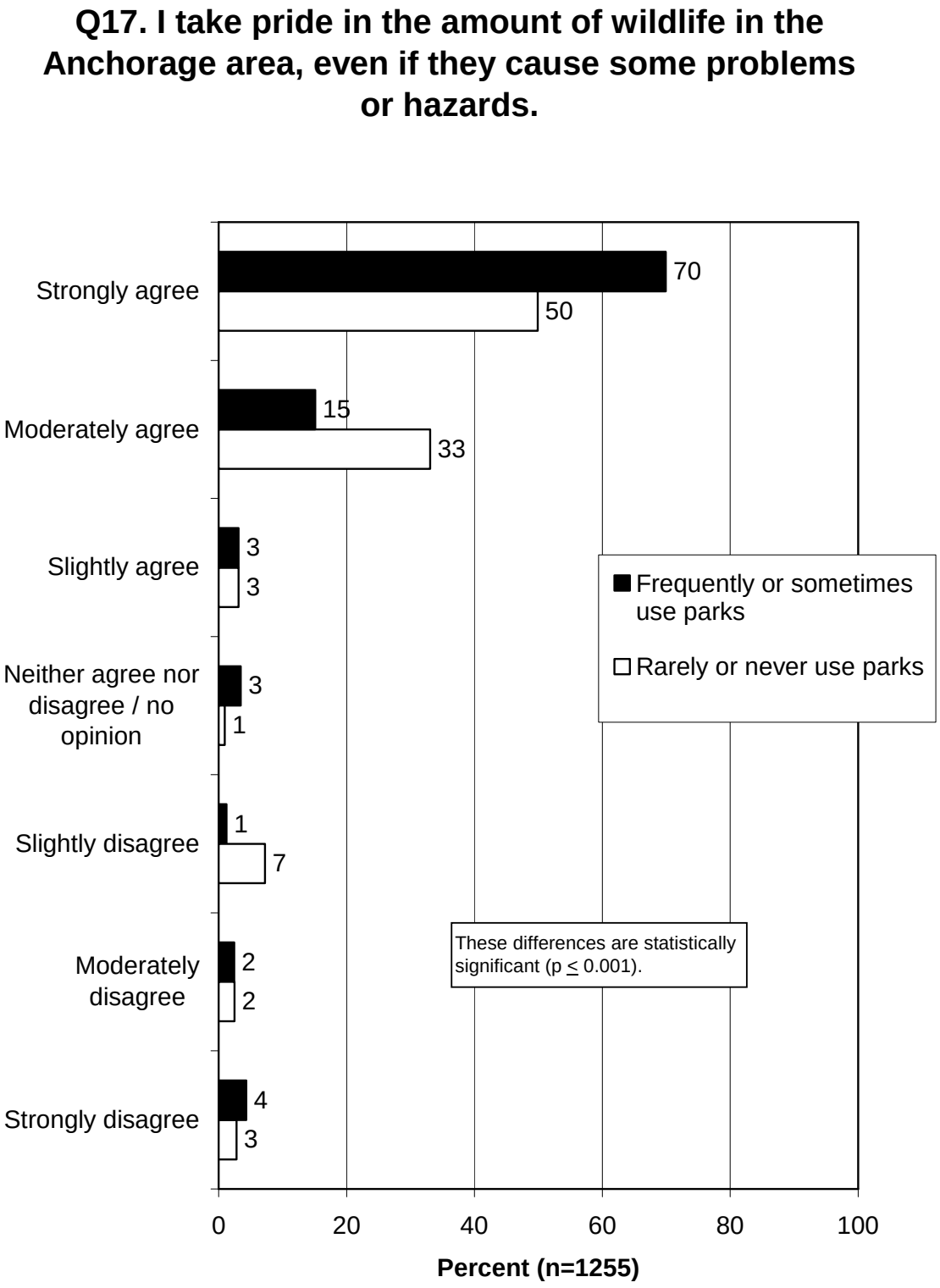


Figure 23. Question 18 Crossed by Park Users.

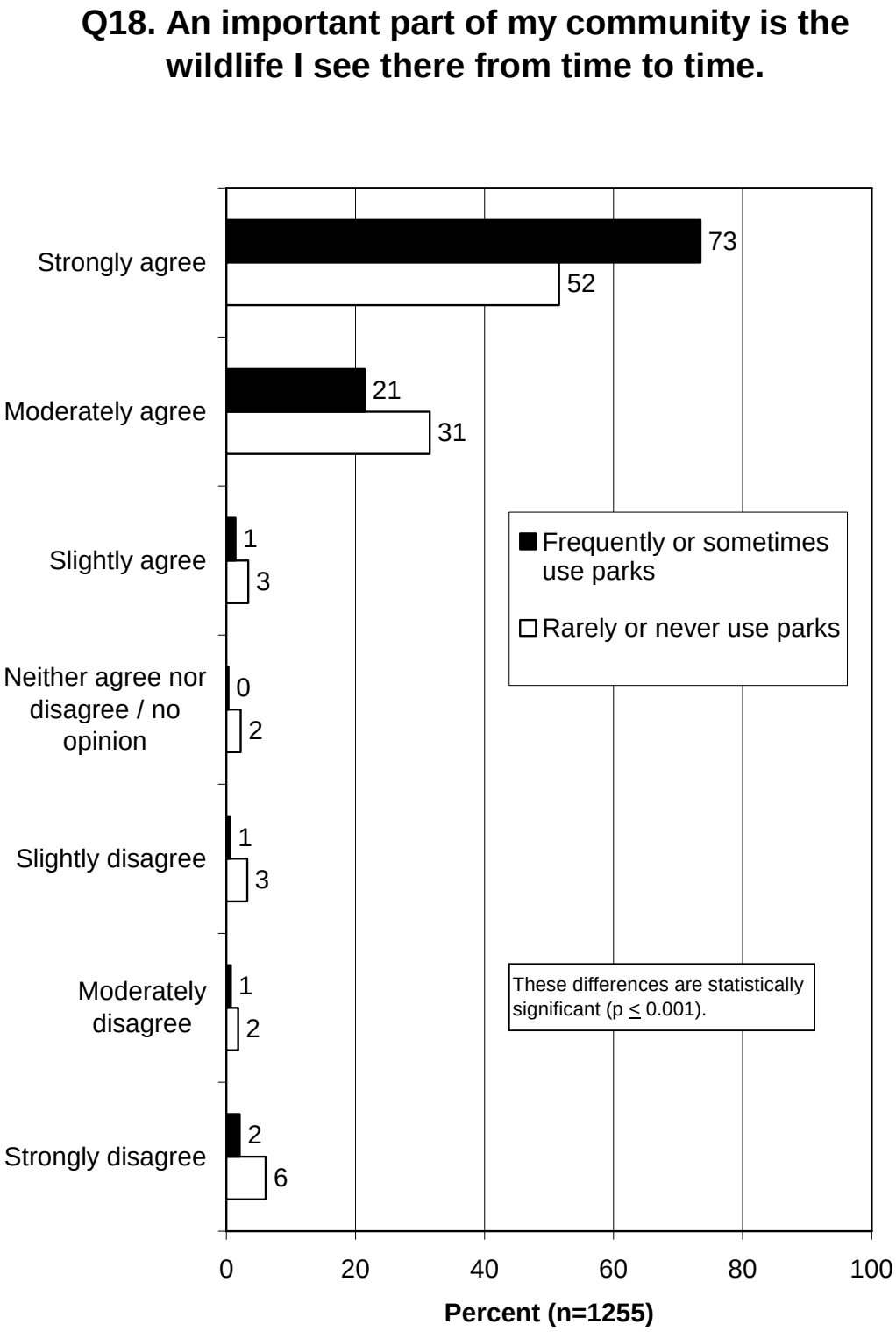


Figure 24. Question 19 Crossed by Park Users.

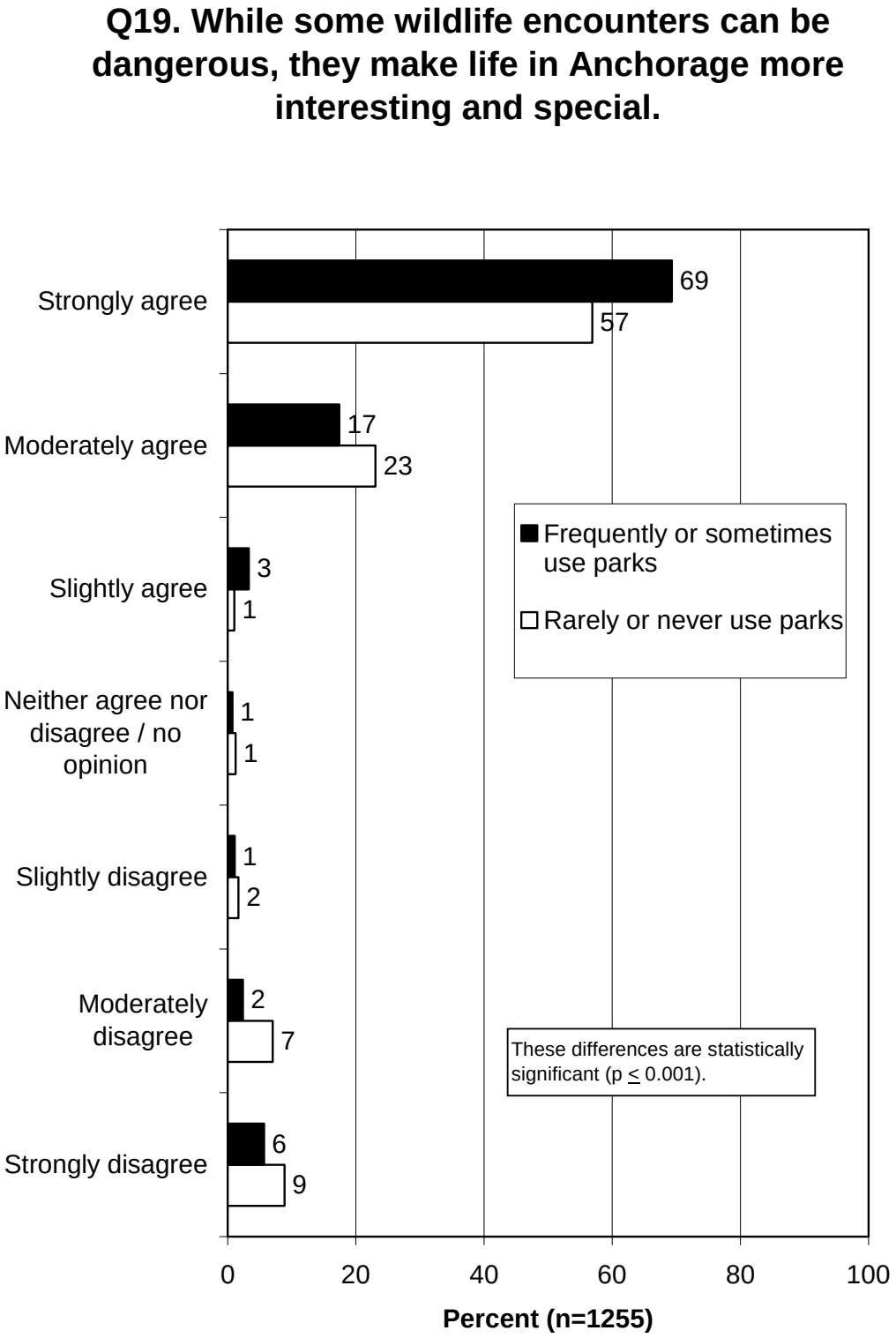


Figure 25. Question 20 Crossed by Park Users.

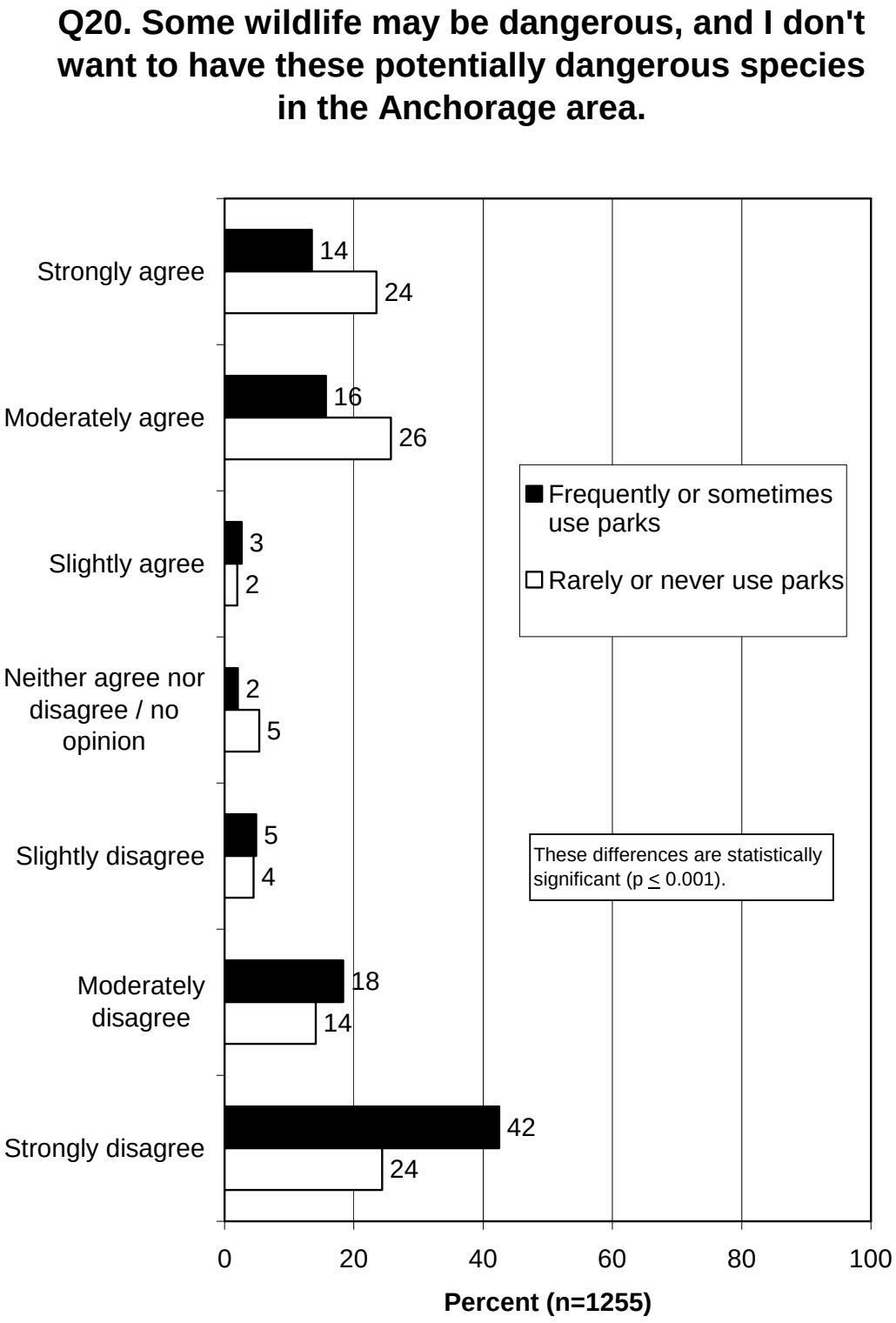


Figure 26. Question 21 Crossed by Park Users.

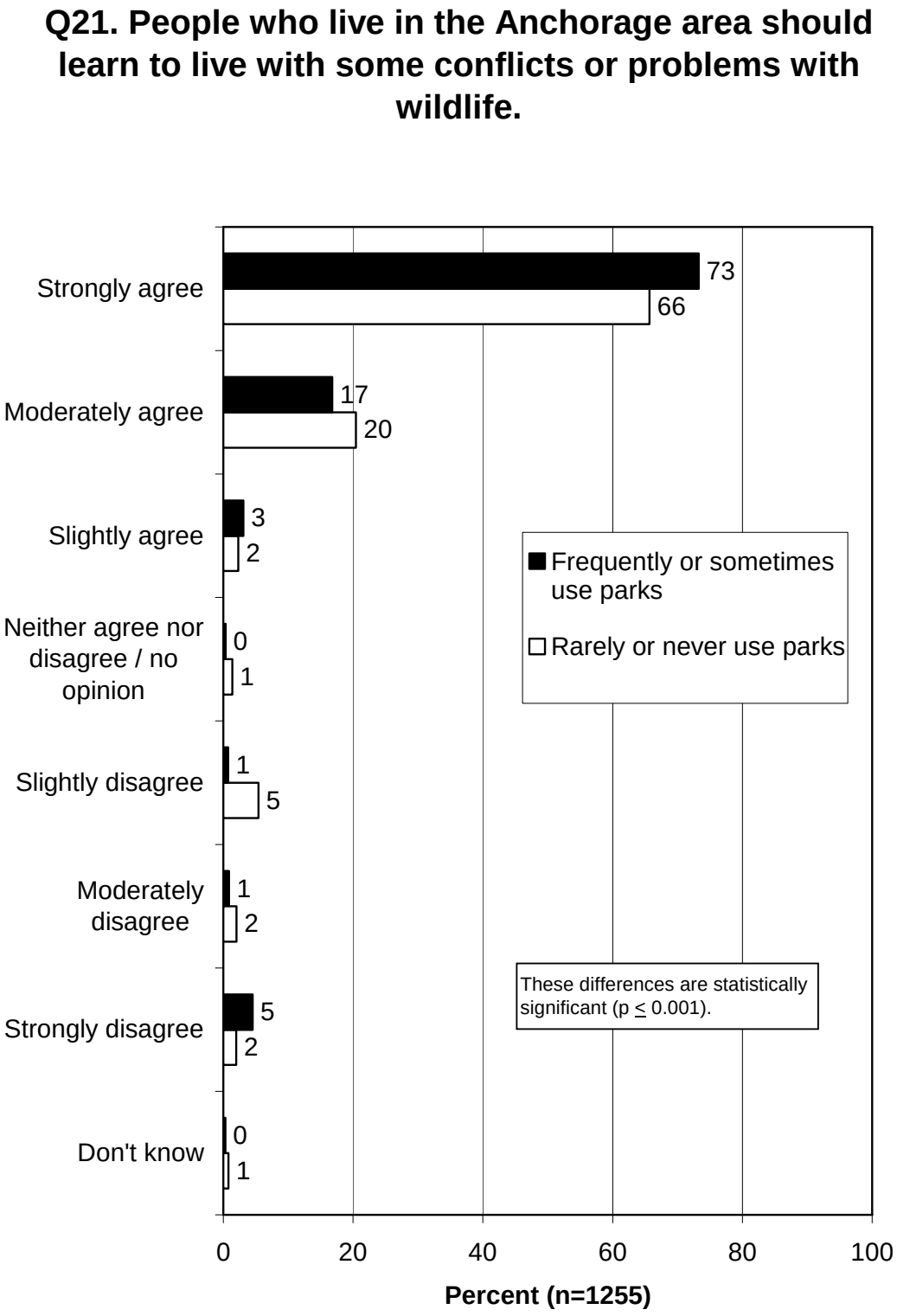


Figure 27. Question 17 Trends.

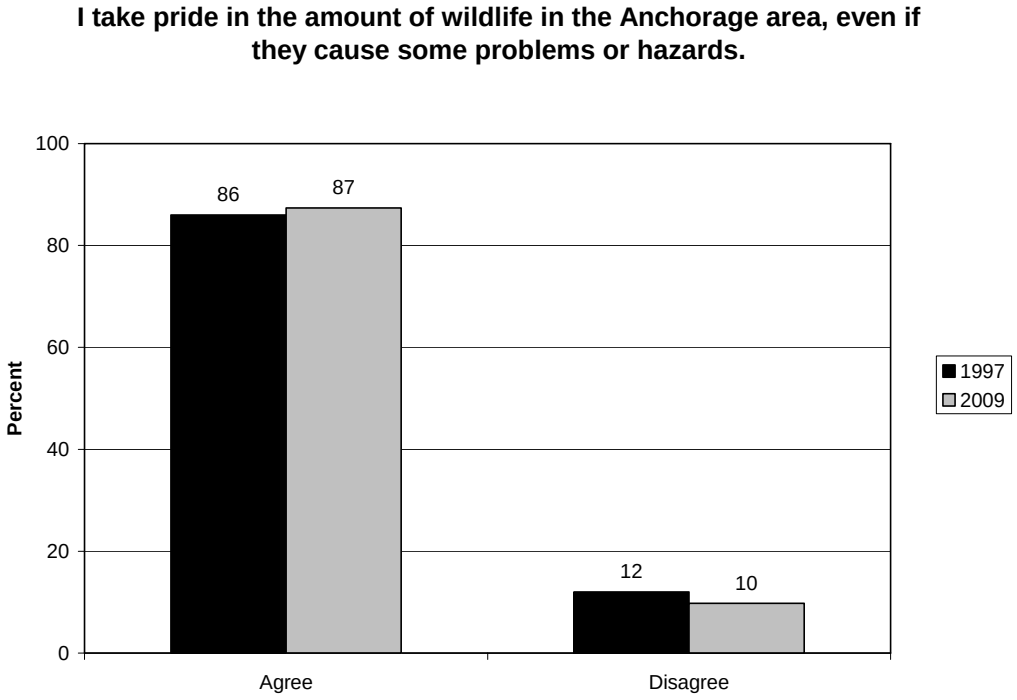


Figure 28. Question 19 Trends.

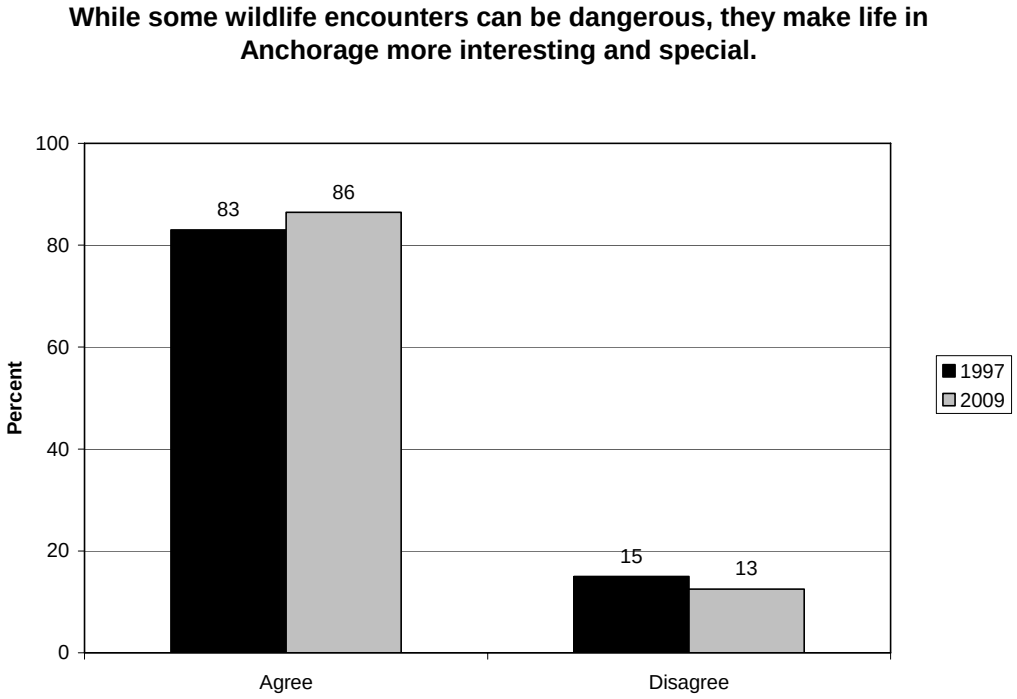


Figure 29. Question 21 Trends.

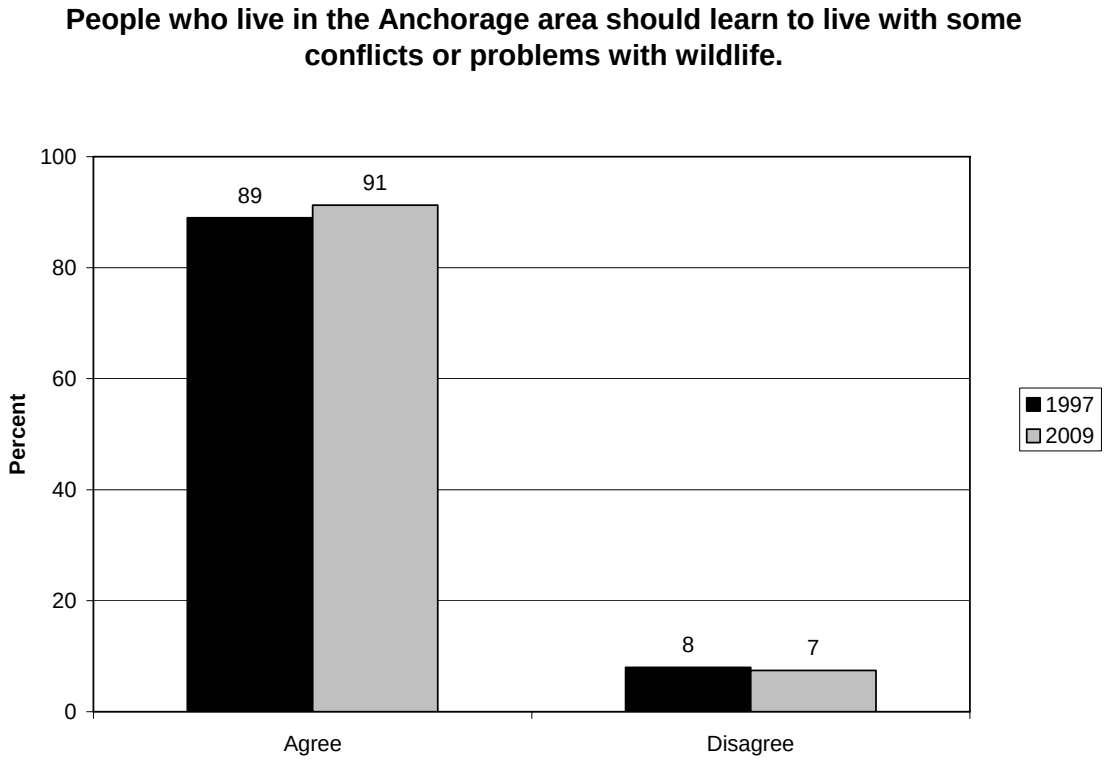


Figure 30. Questions 29 and 32.

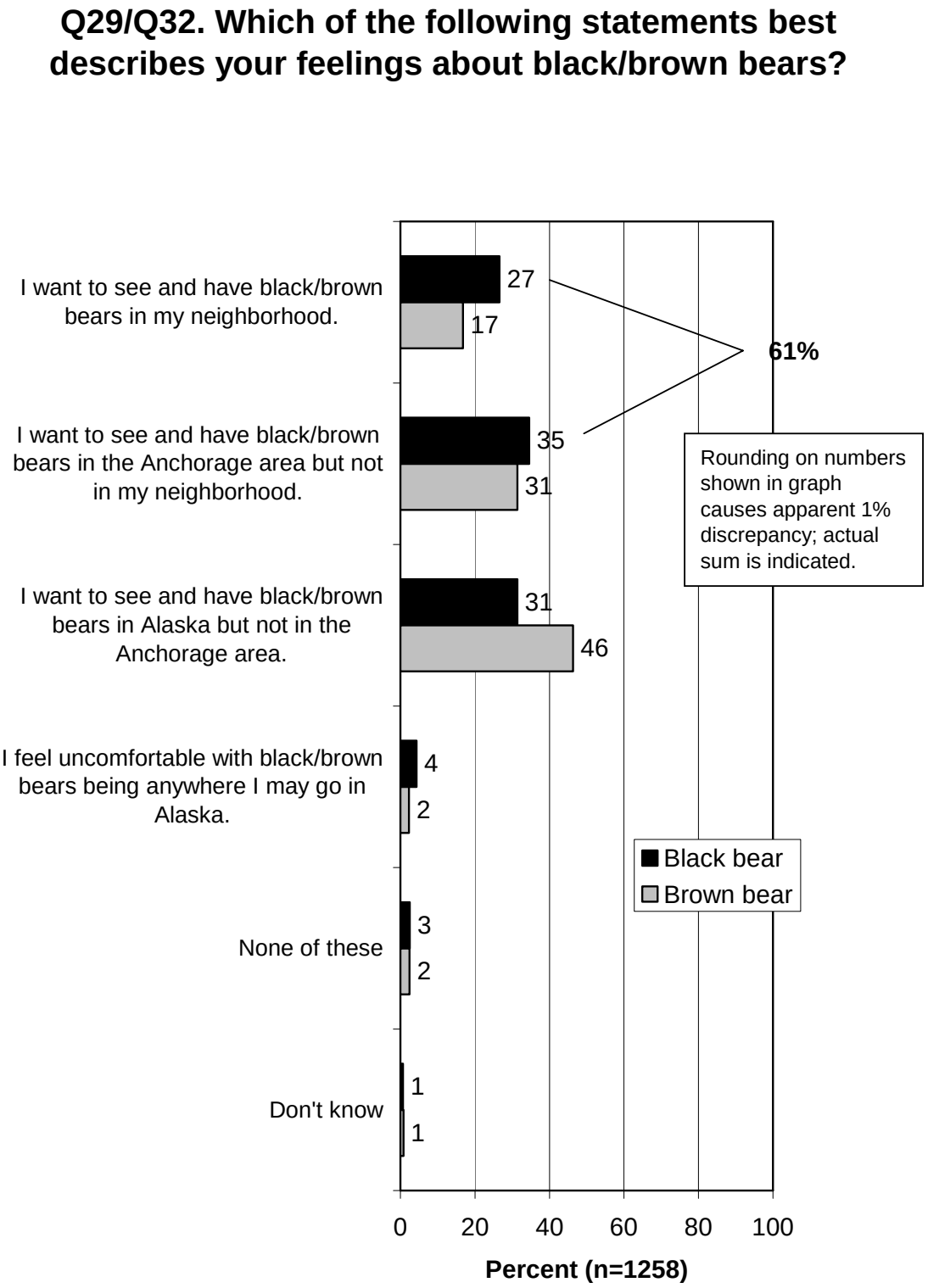


Figure 31. Question 29 Crossed by Region.

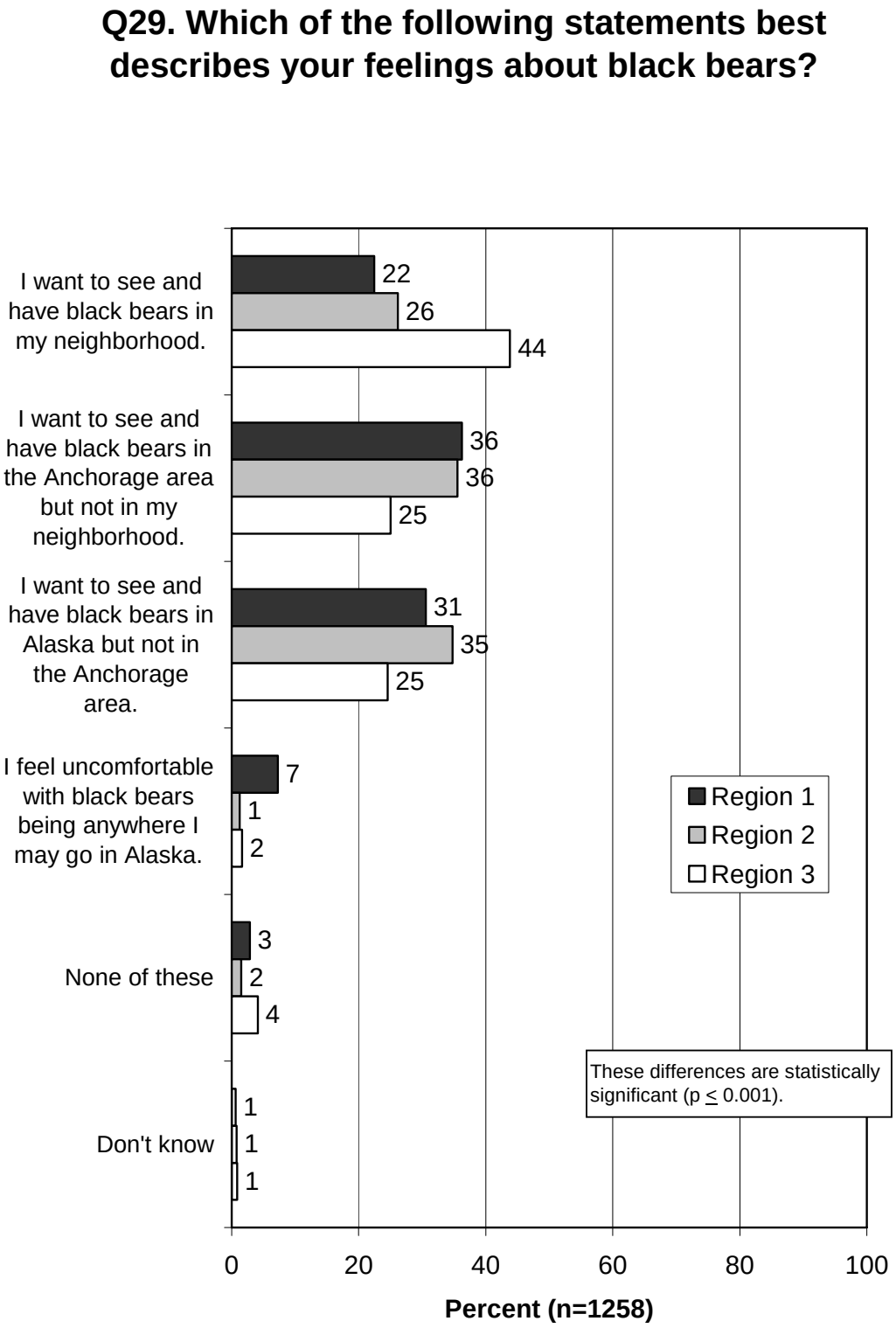


Figure 32. Question 32 Crossed by Region.

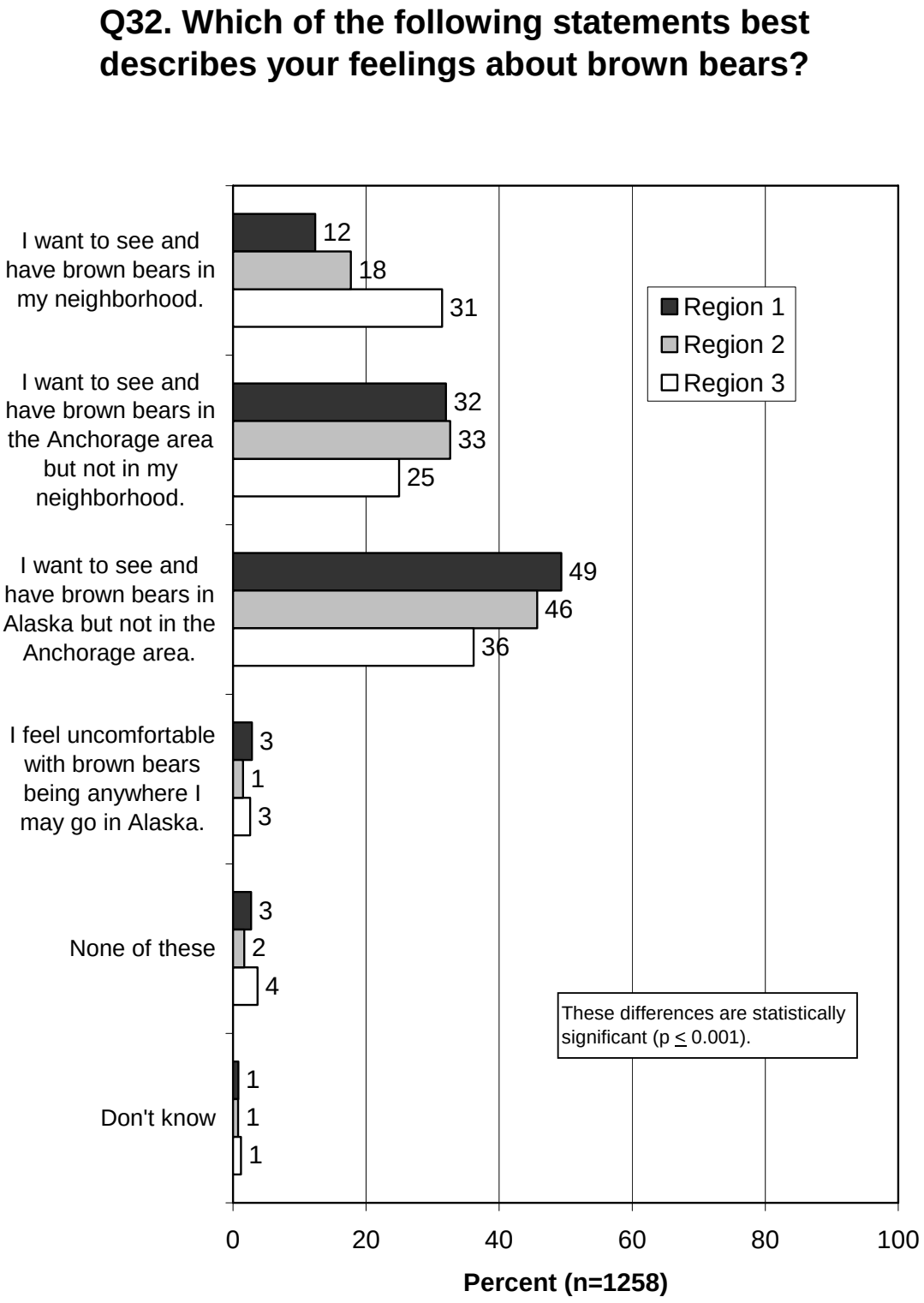


Figure 33. Question 39.

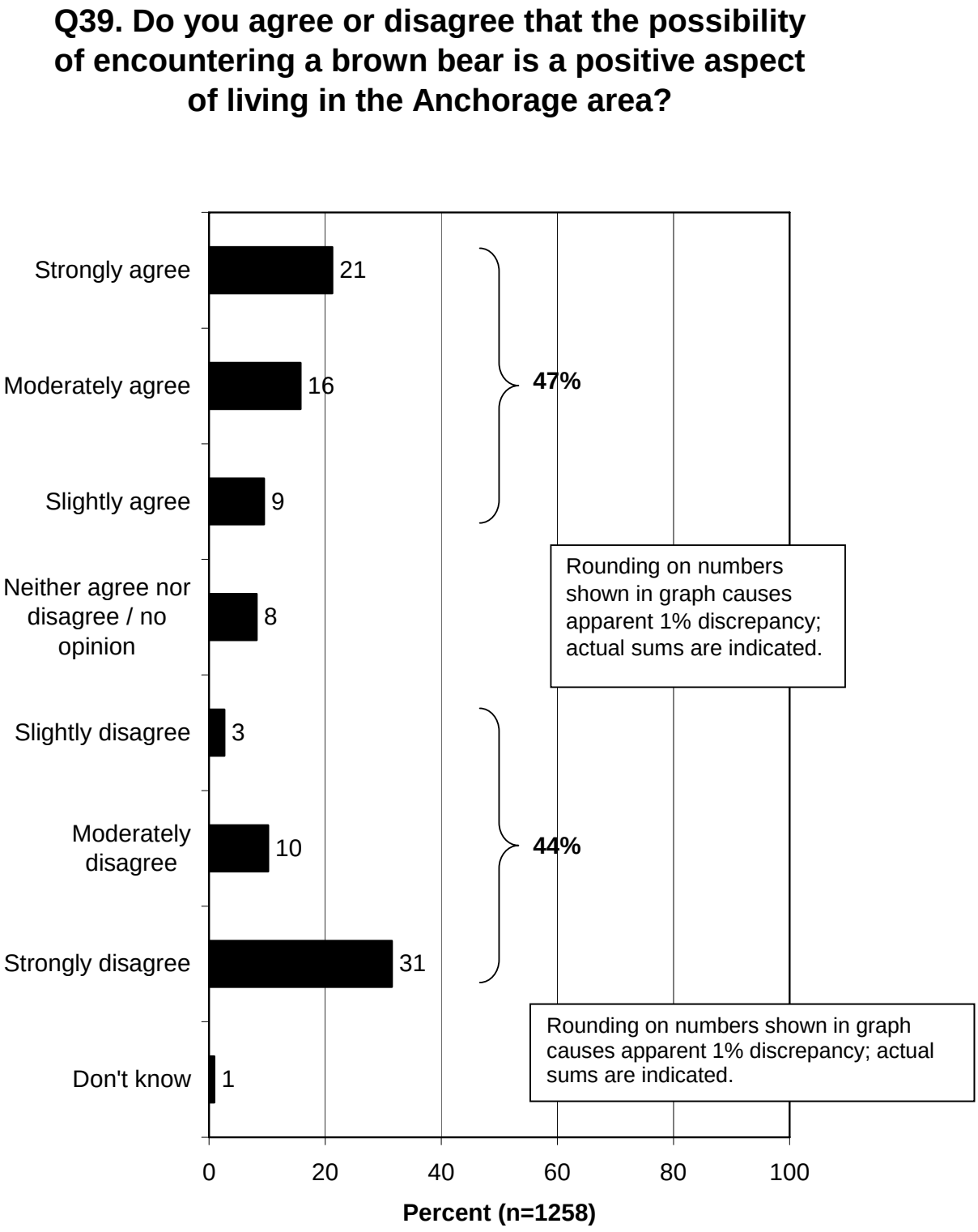


Figure 34. Question 39 Crossed by Region.

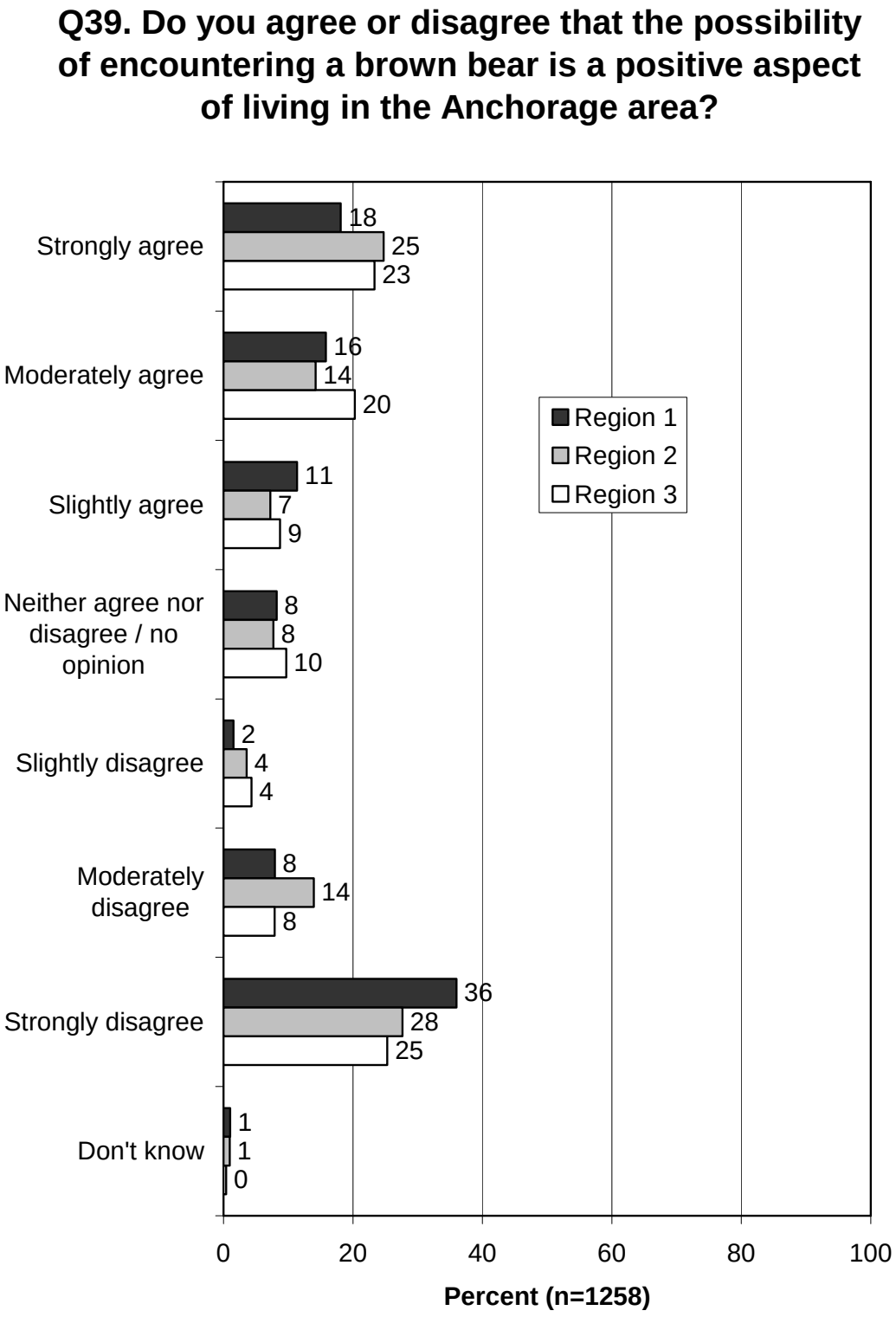


Figure 35. Question 39 Crossed by Trail Users.

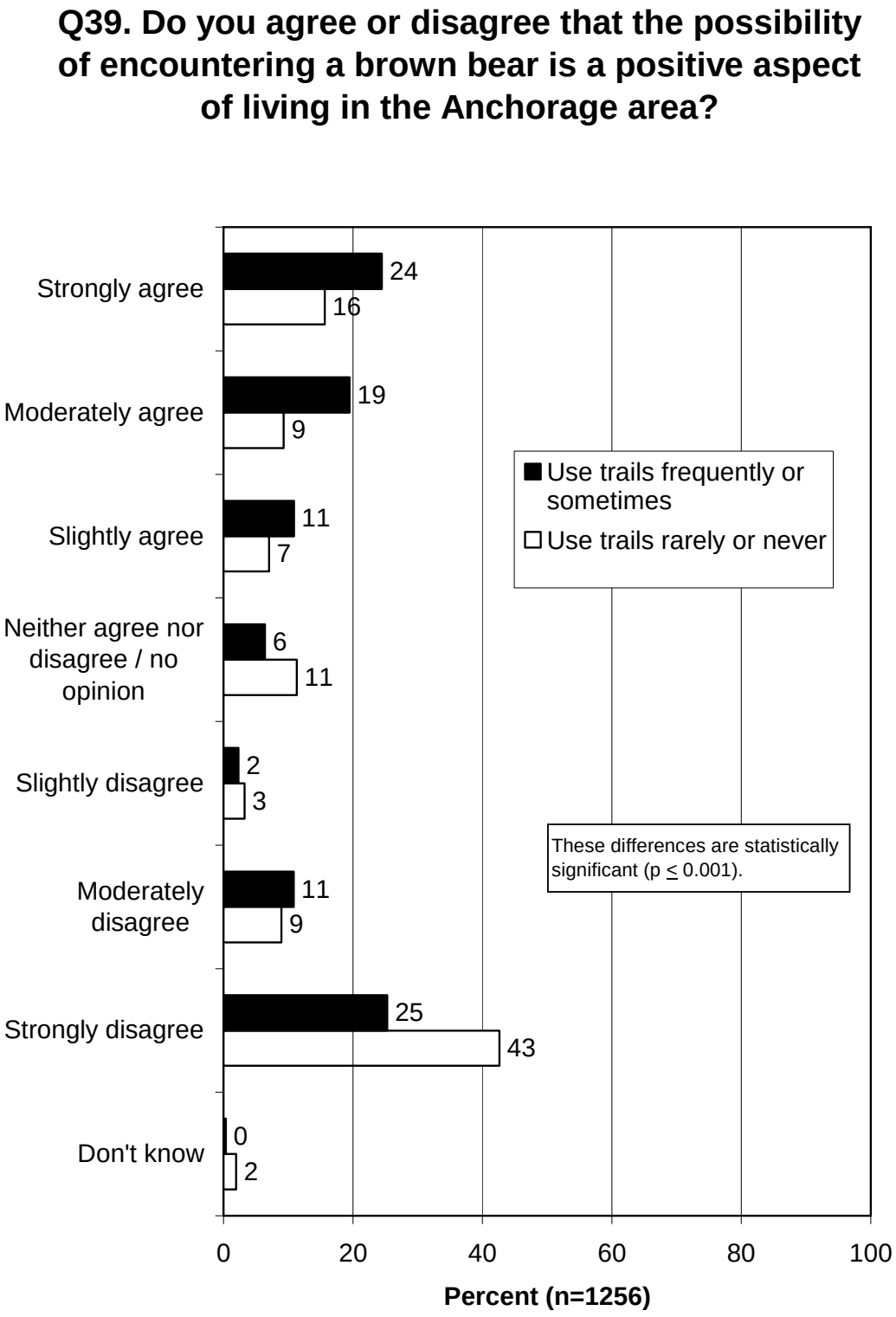


Figure 36. Question 39 Crossed by Park Users.

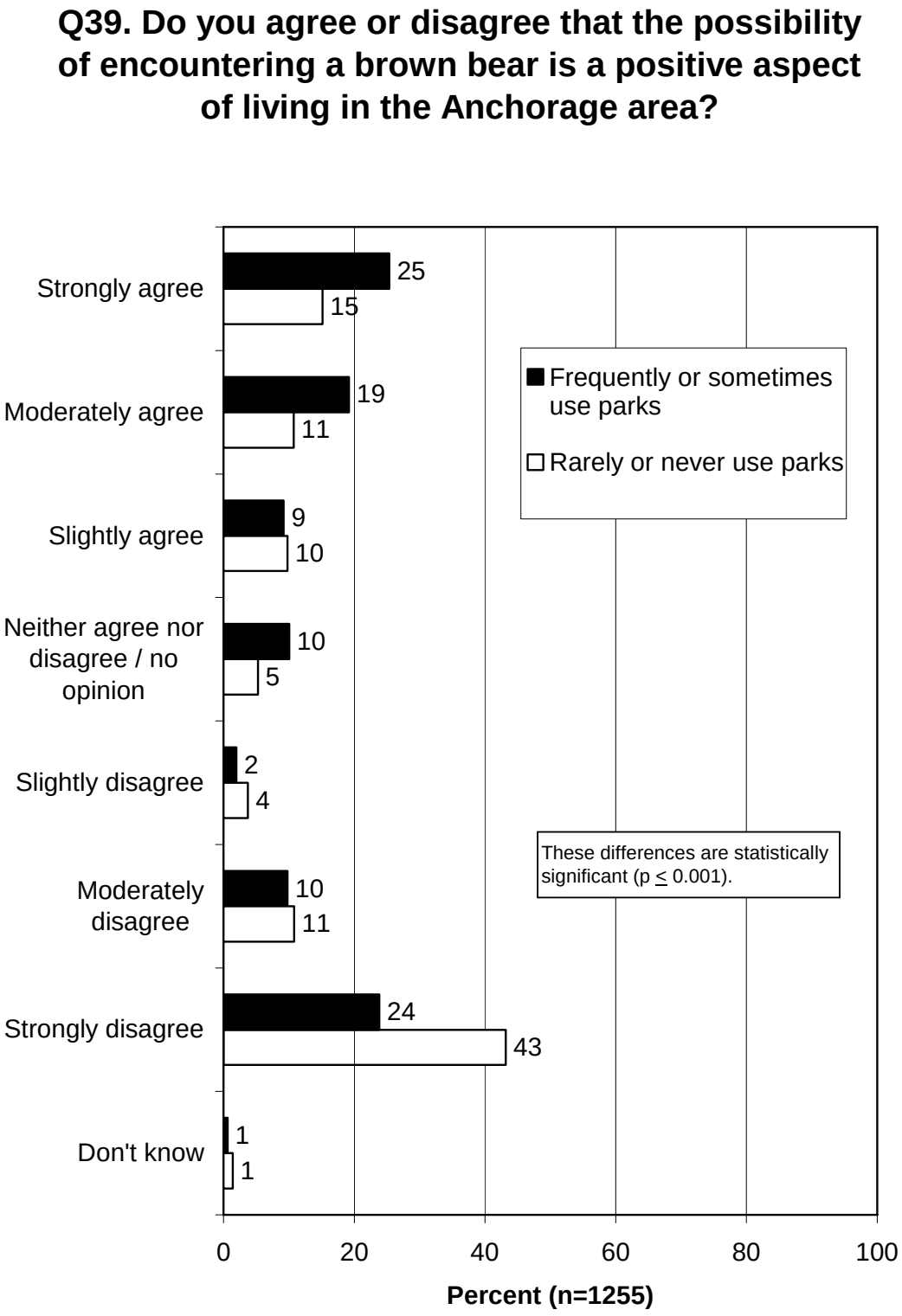


Figure 37. Question 39 Trends.

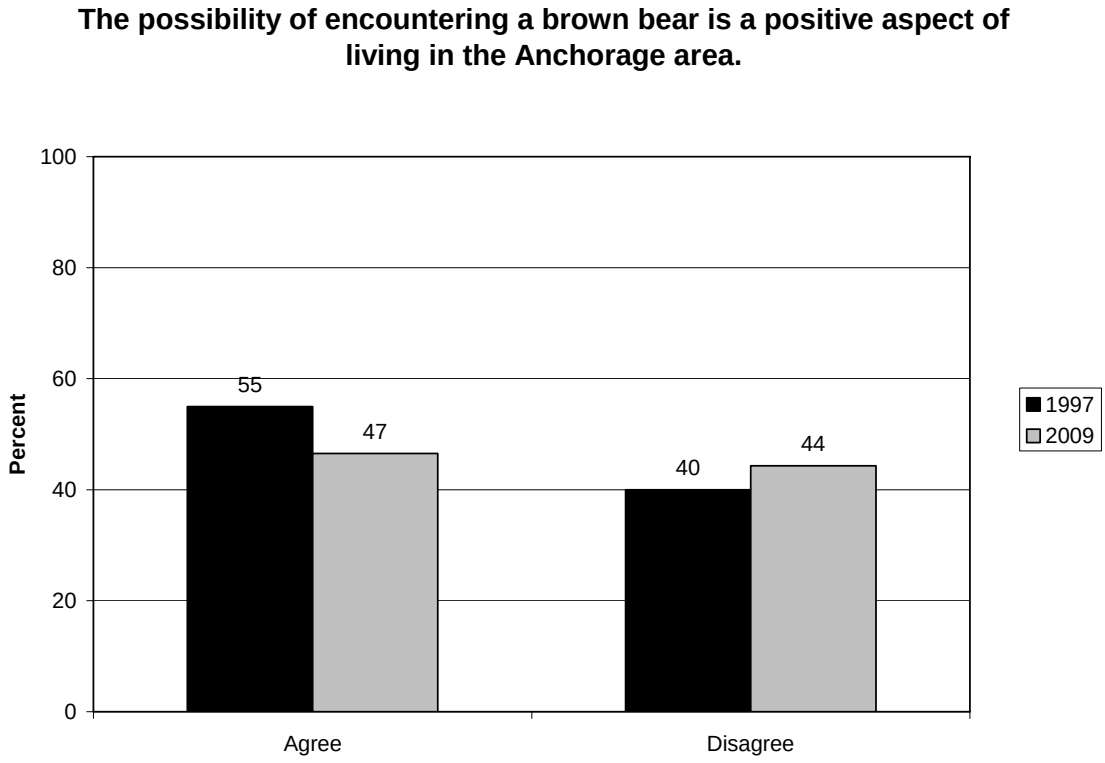


Figure 38. Question 40.

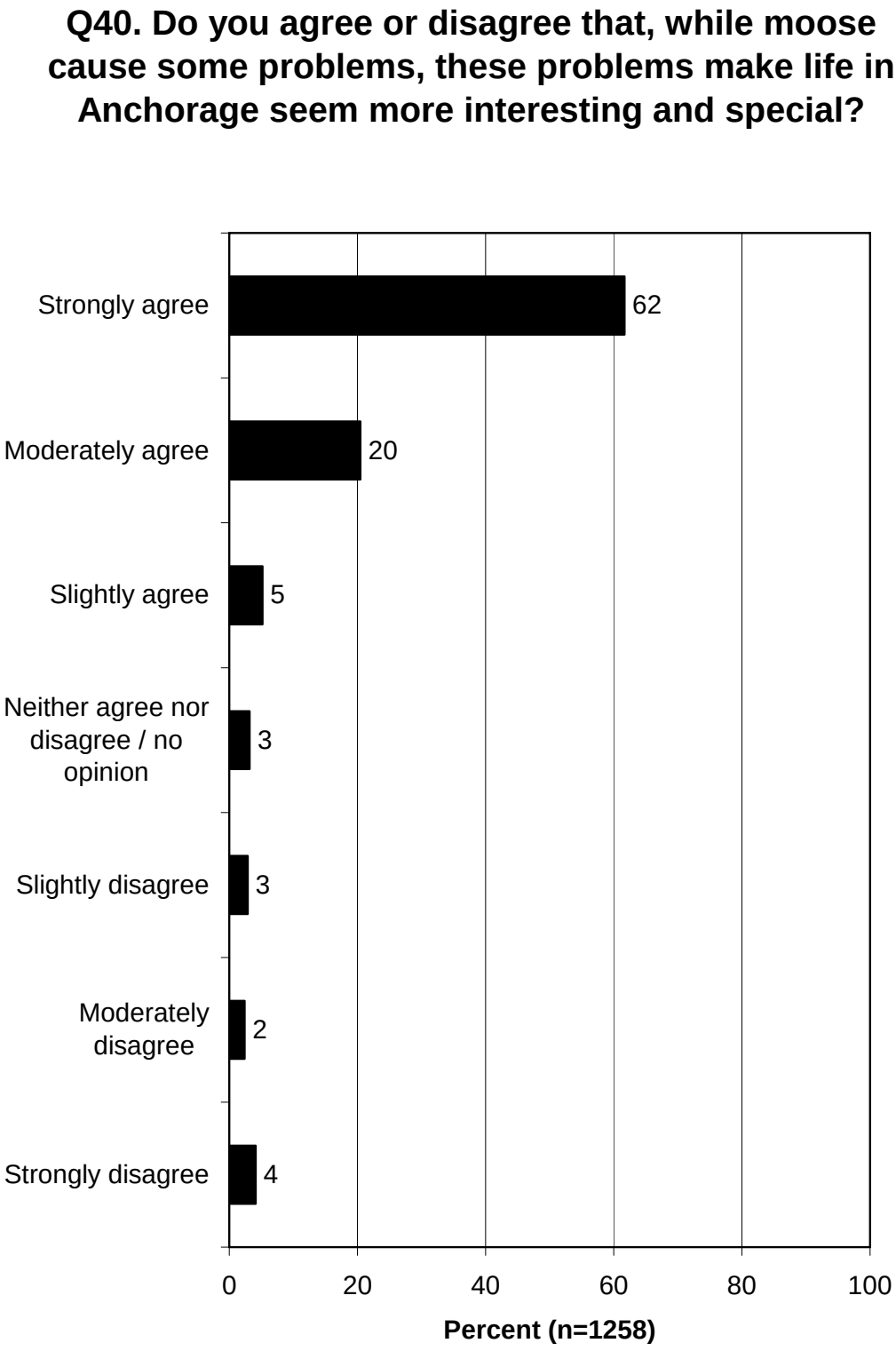


Figure 39. Question 40 Crossed by Region.

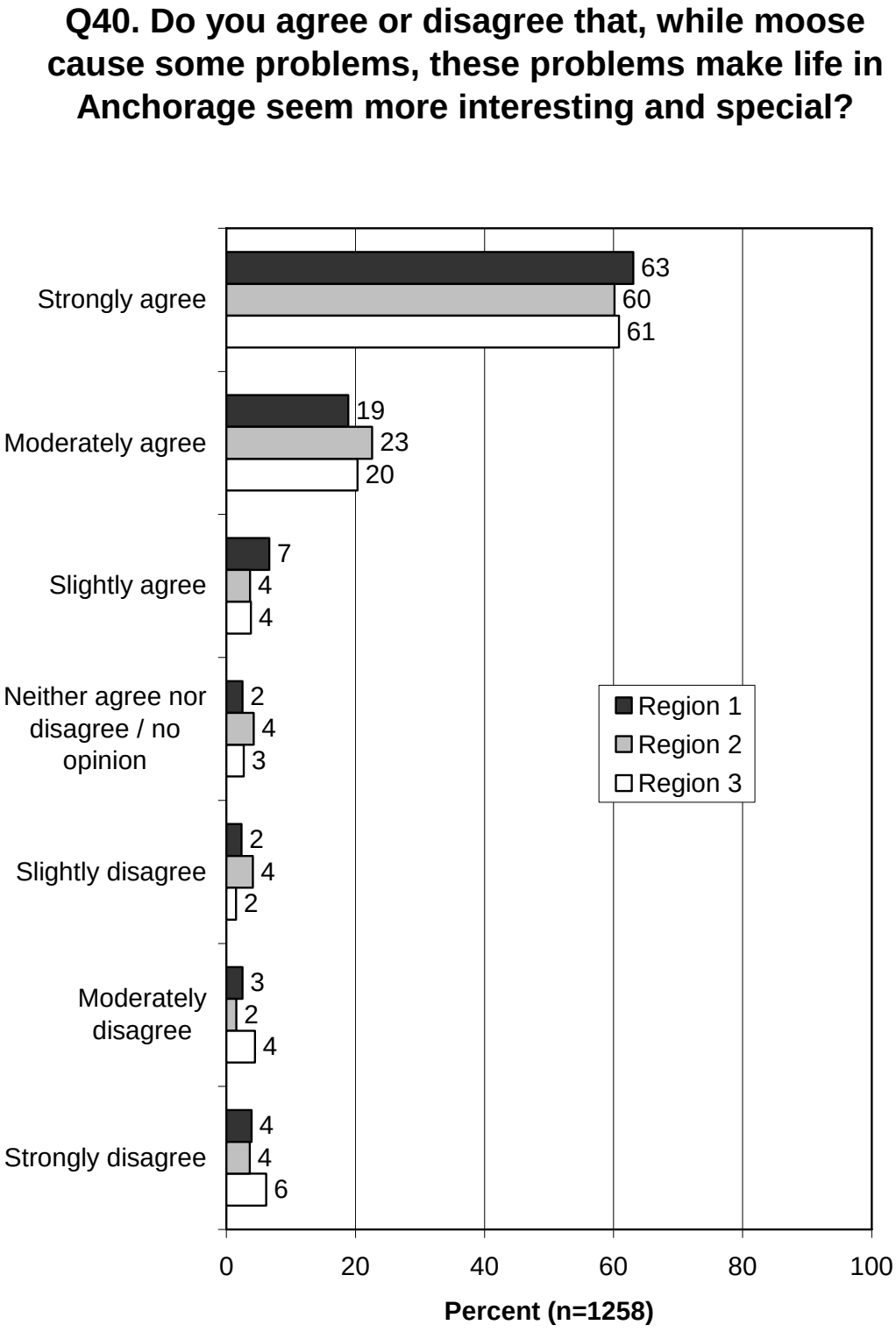


Figure 40. Question 40 Crossed by Trail Users.

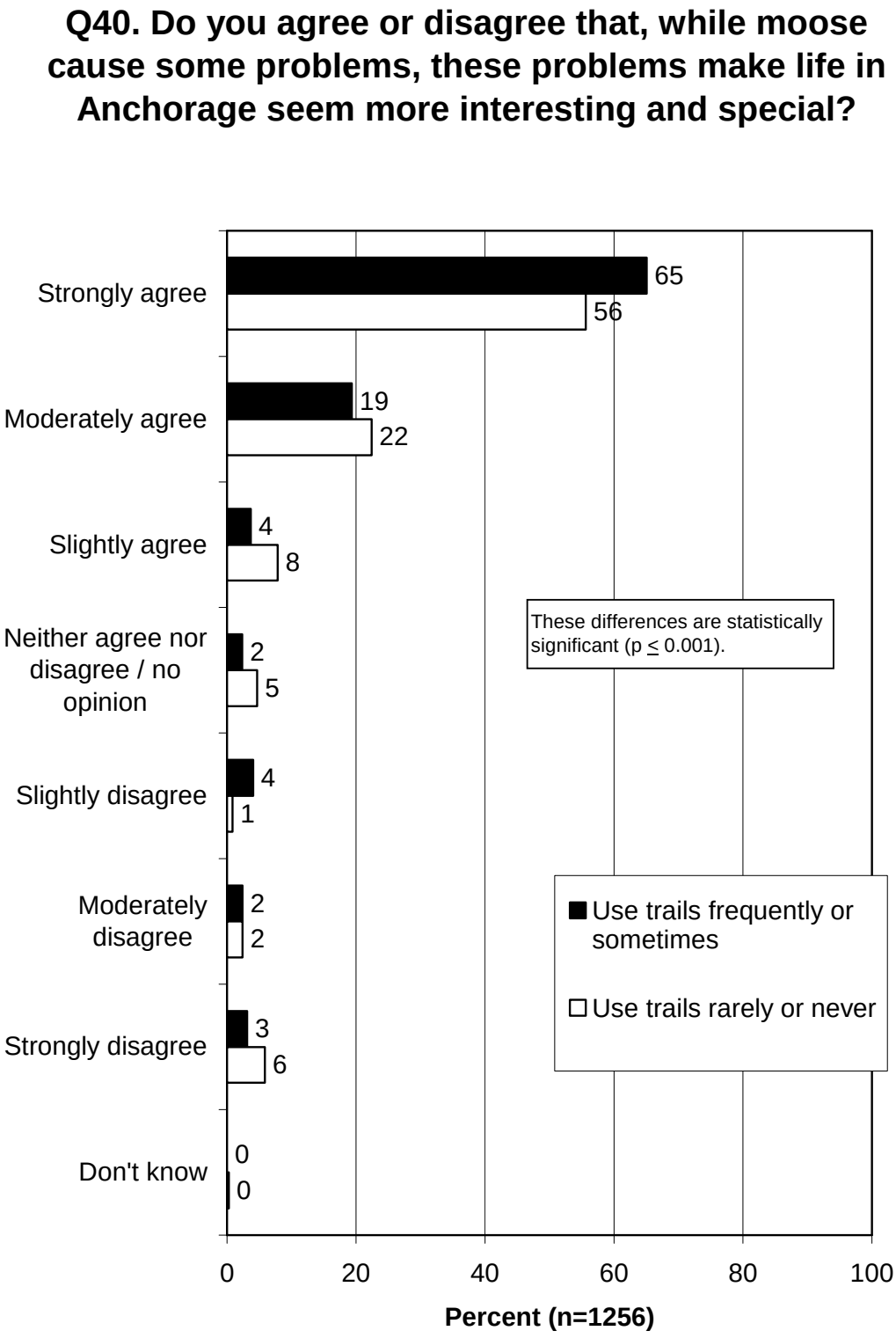


Figure 41. Question 40 Crossed by Park Users.

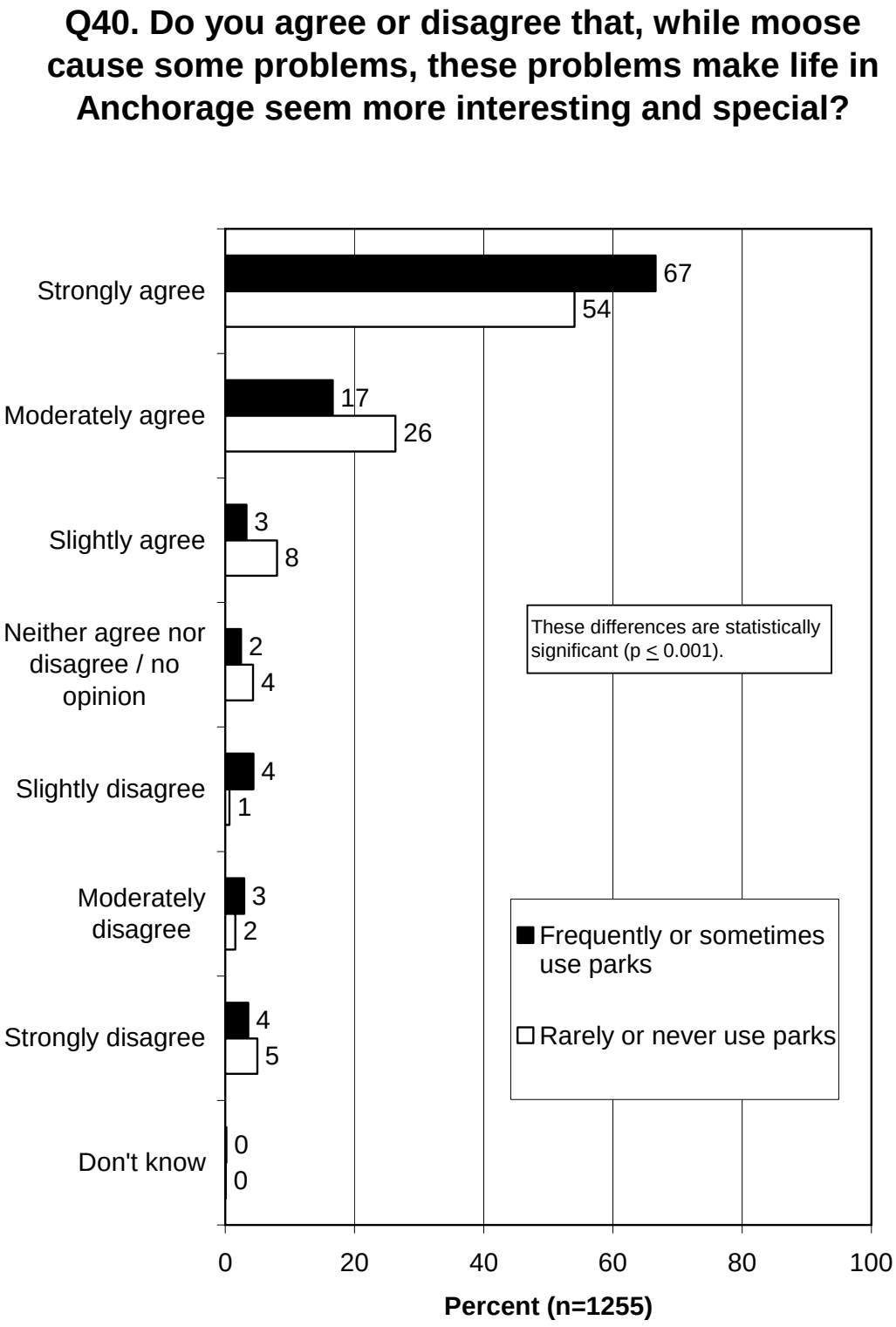


Figure 42. Question 40 Trends.

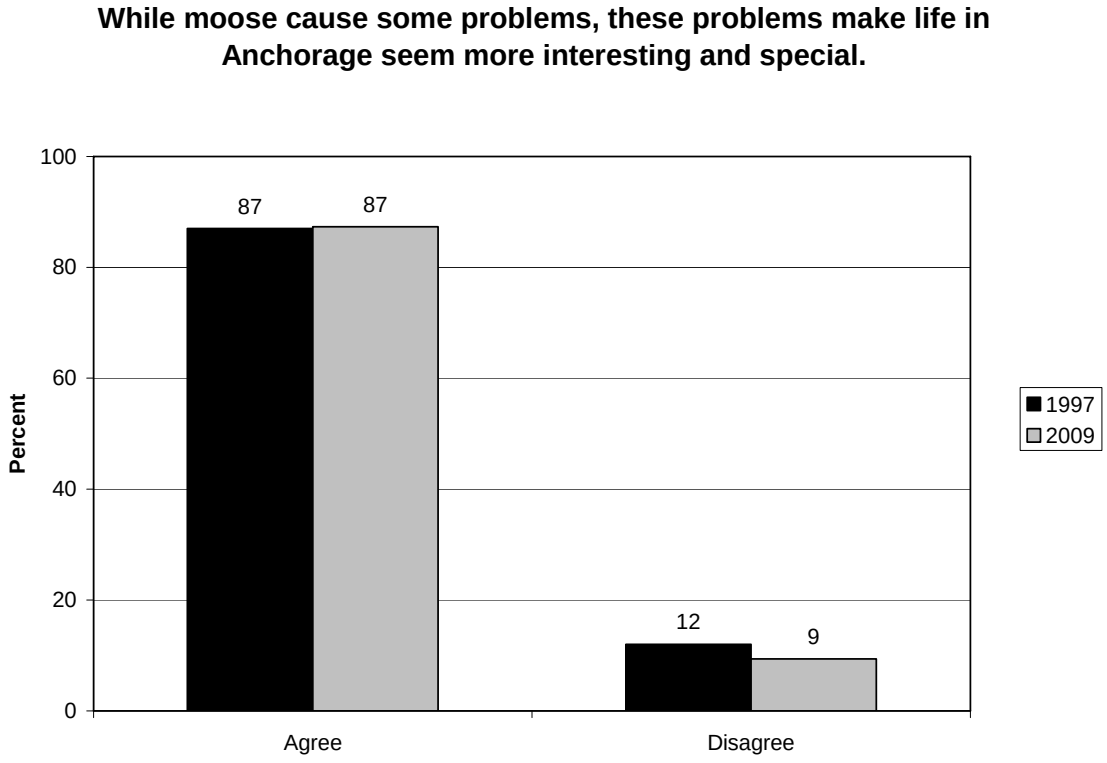


Figure 43. Question 57 Regarding Watching Moose.

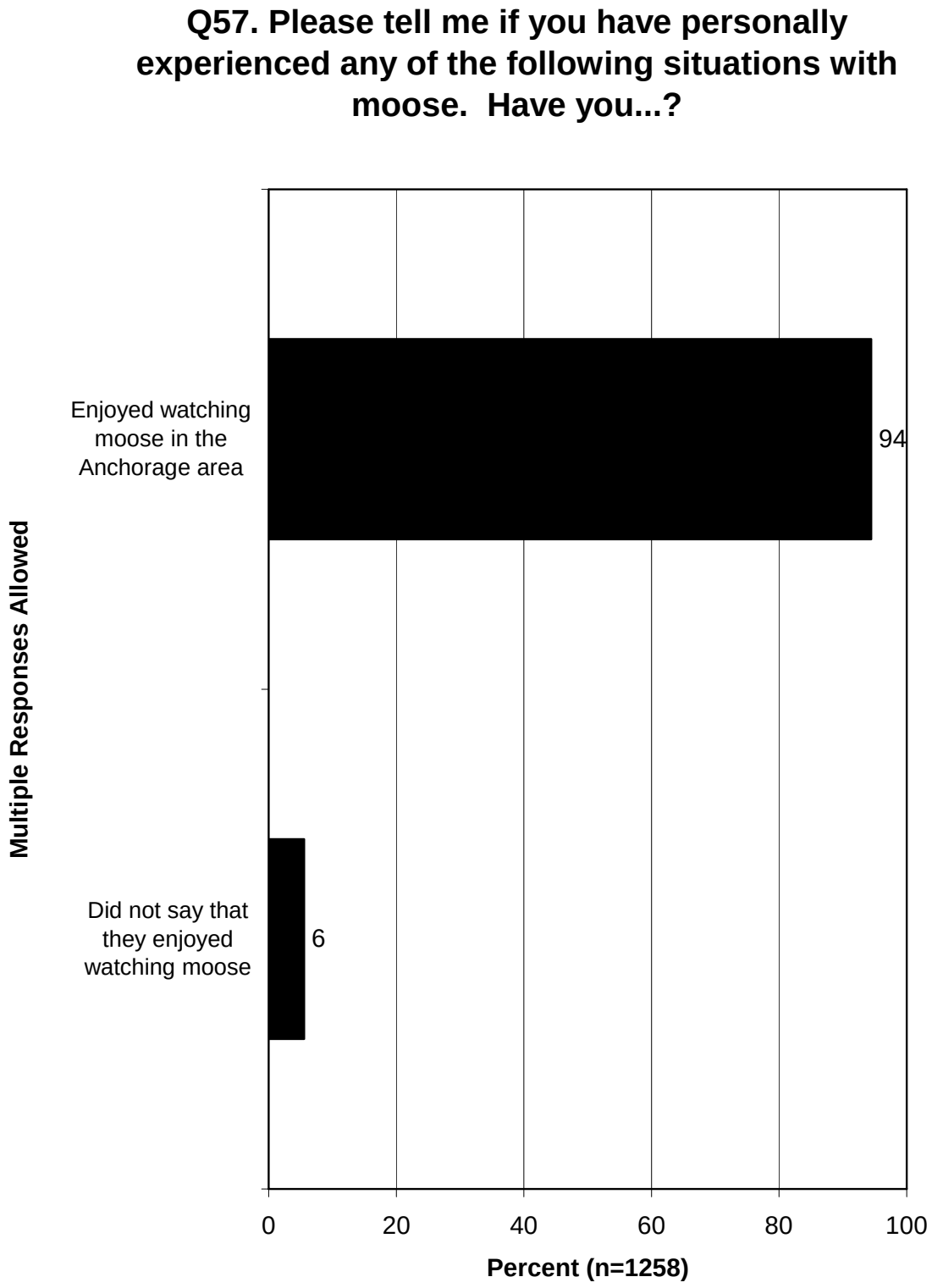


Figure 44. Question 57 Crossed by Region.

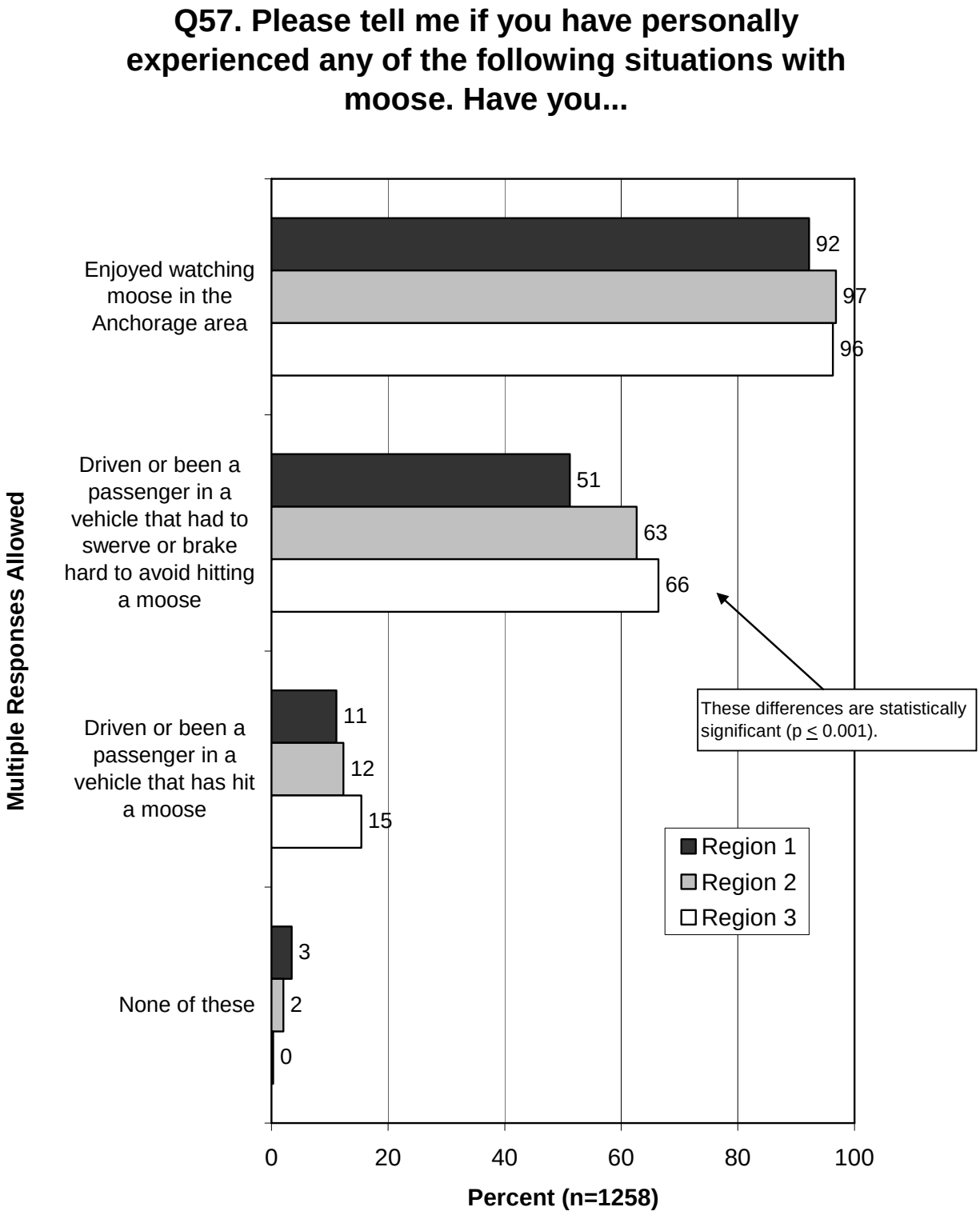
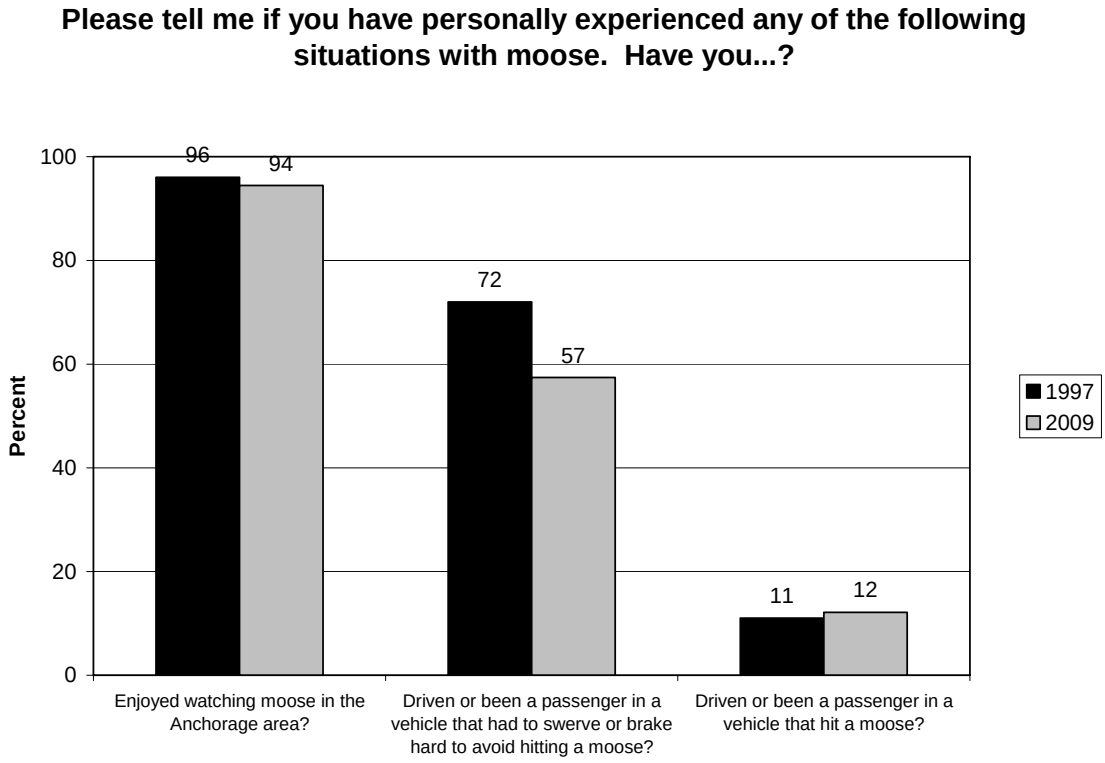


Figure 45. Question 57 Trends.



Note: The 2009 survey added "hard" to the wording of the middle choice because the 1997 survey did not capture the essence of the avoidance behavior being tested. Therefore, it was expected that the results in 2009 regarding having to swerve or brake would be lower.

Figure 46. Questions 23 and 24.

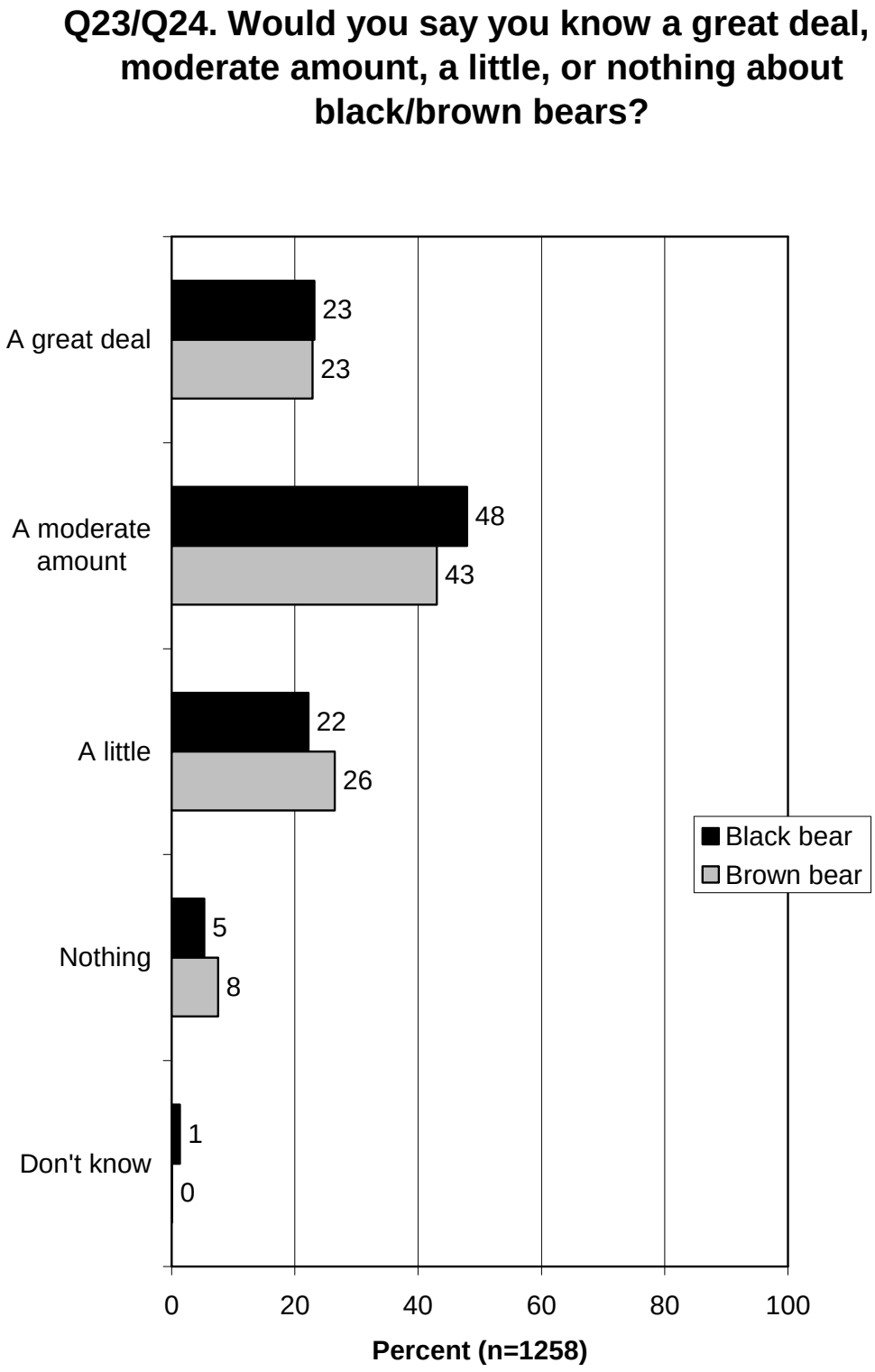


Figure 47. Question 23 Crossed by Region.

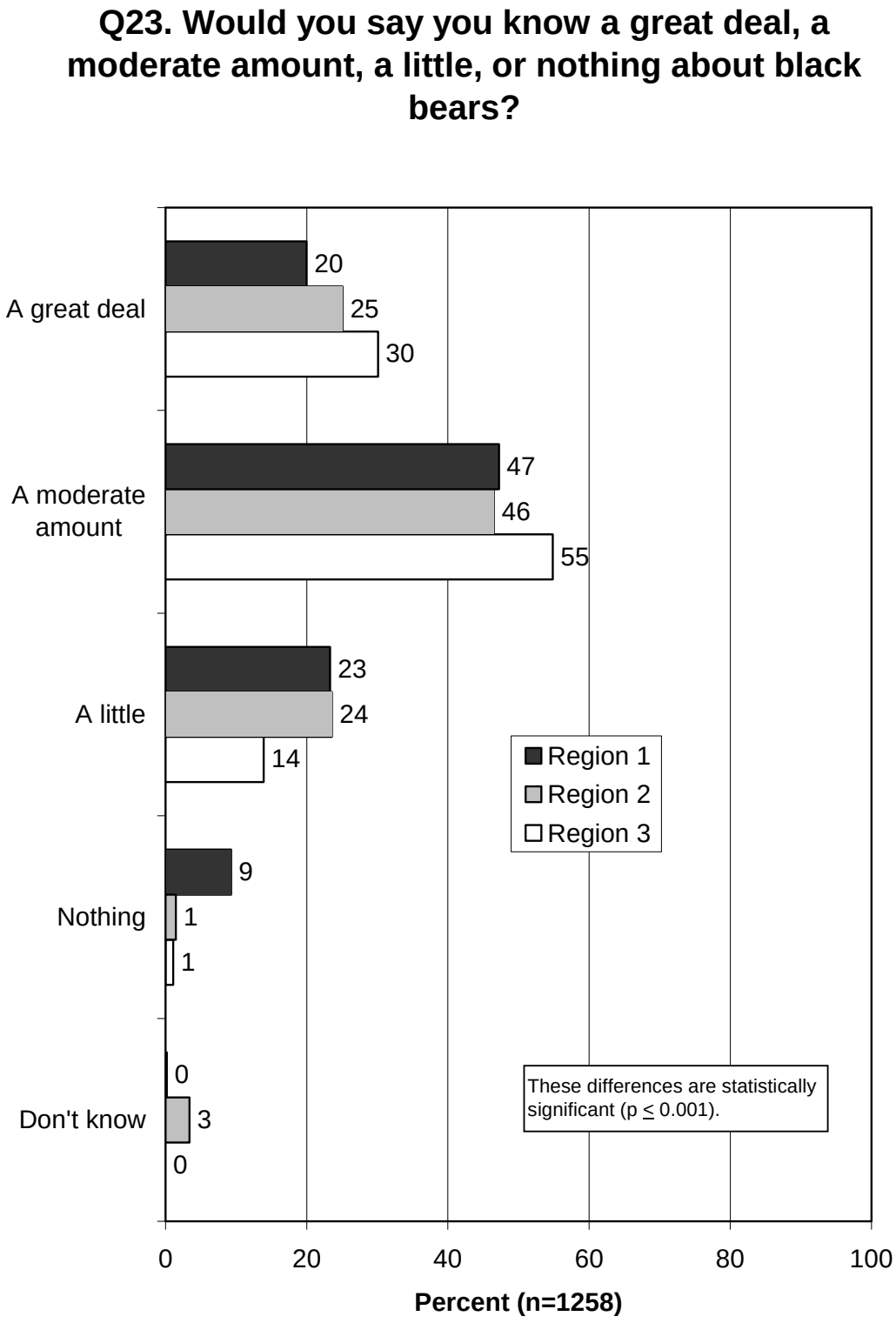


Figure 48. Question 24 Crossed by Region.

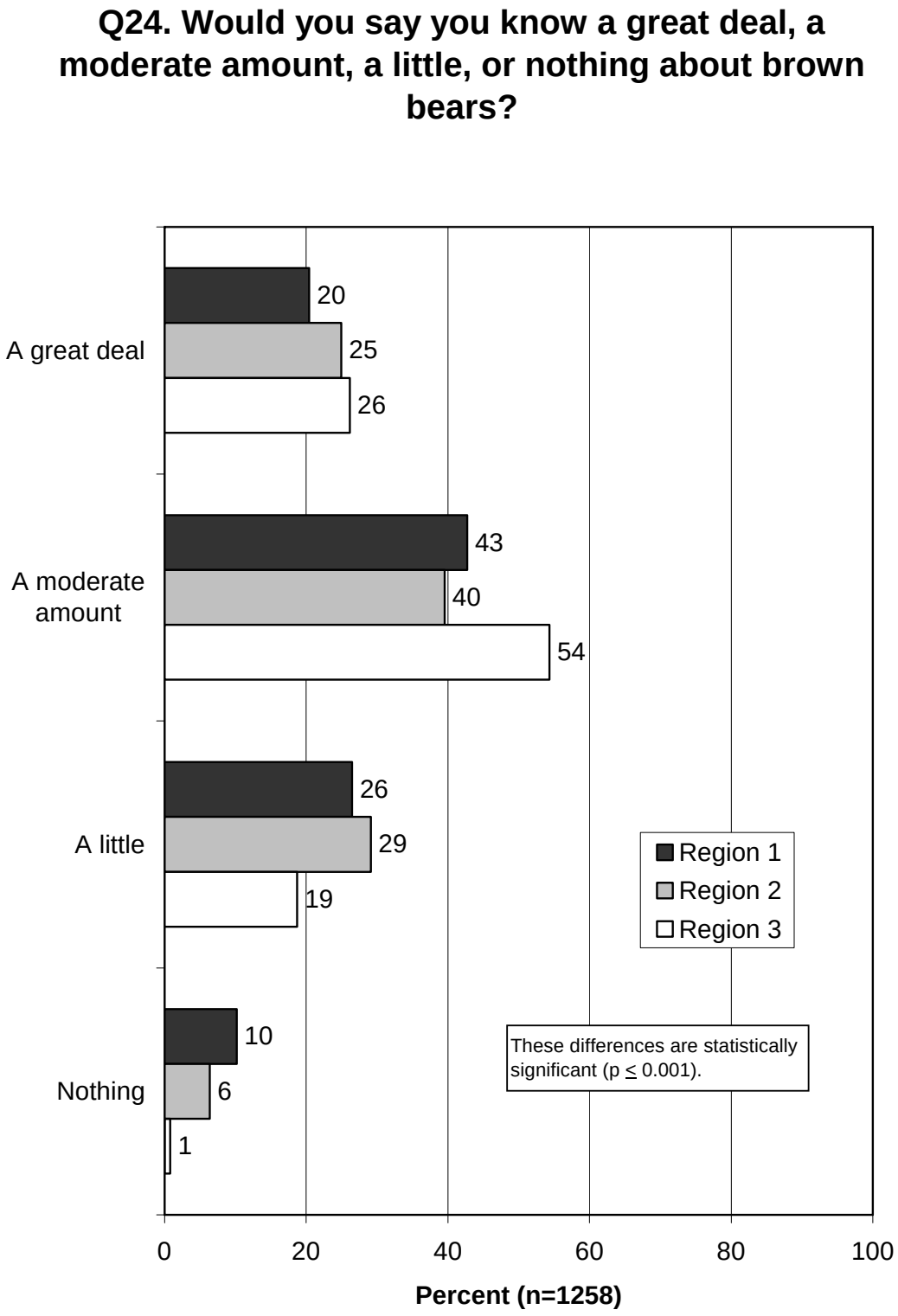


Figure 49. Question 84.

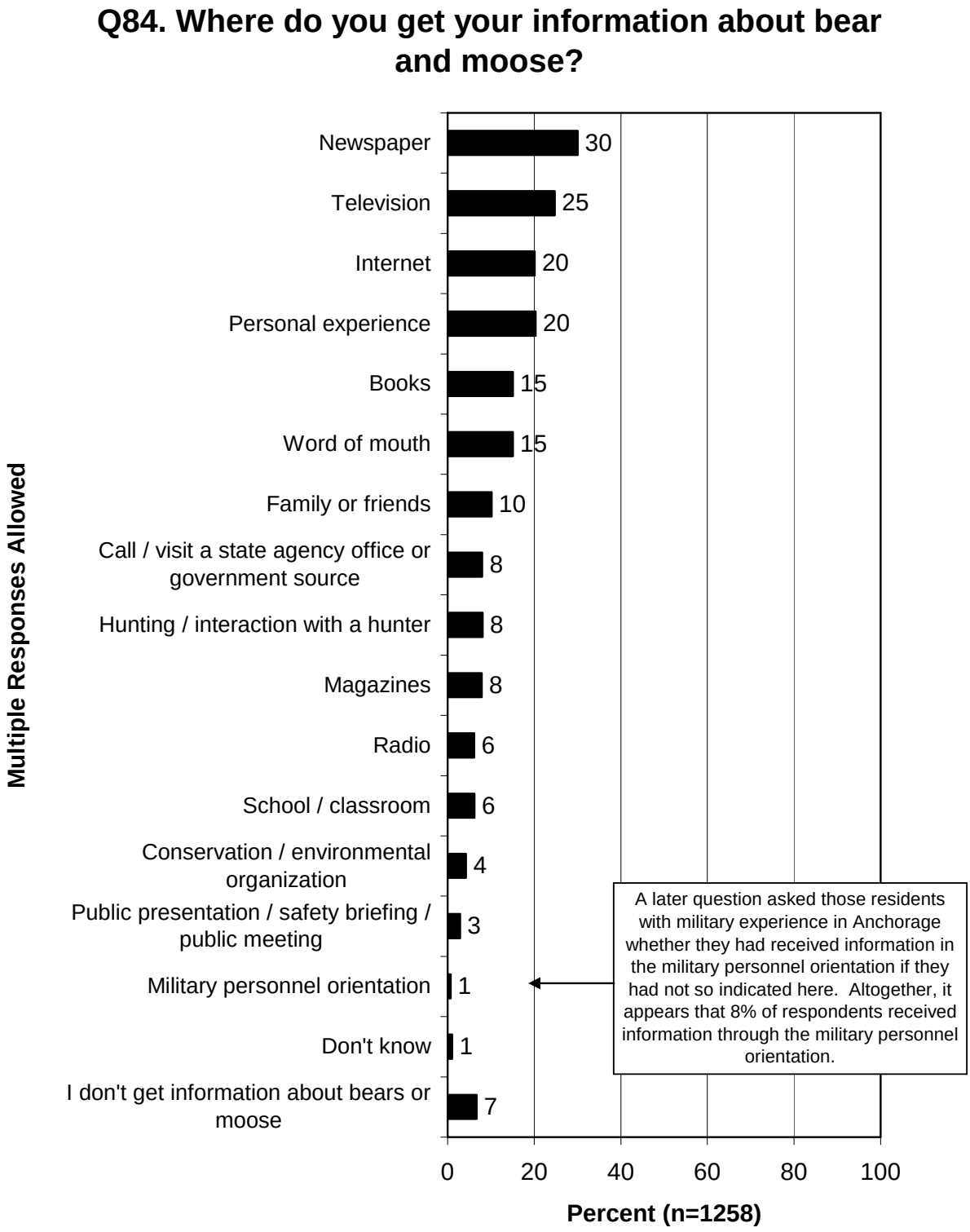


Figure 50. Question 84 Crossed by Region.

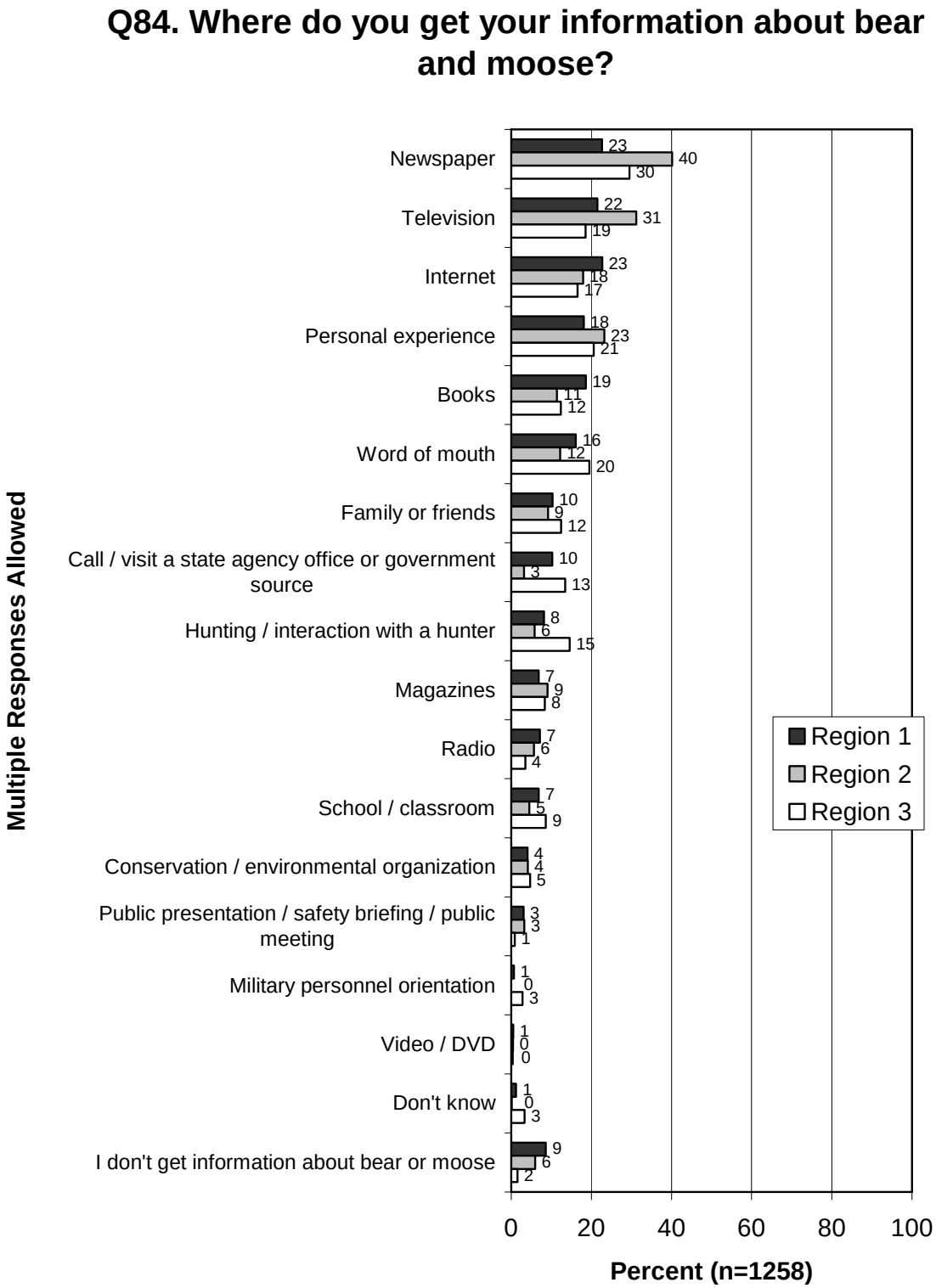


Figure 51. Question 89.

Q89. Did you receive any information or learn about bears at your military personnel orientation when you were assigned to Anchorage? (Asked of those who are personally assigned or have been assigned to Anchorage in the military or whose spouse is or has been assigned to Anchorage AND who did not mention getting information about bears or moose as part of military personnel orientation.)

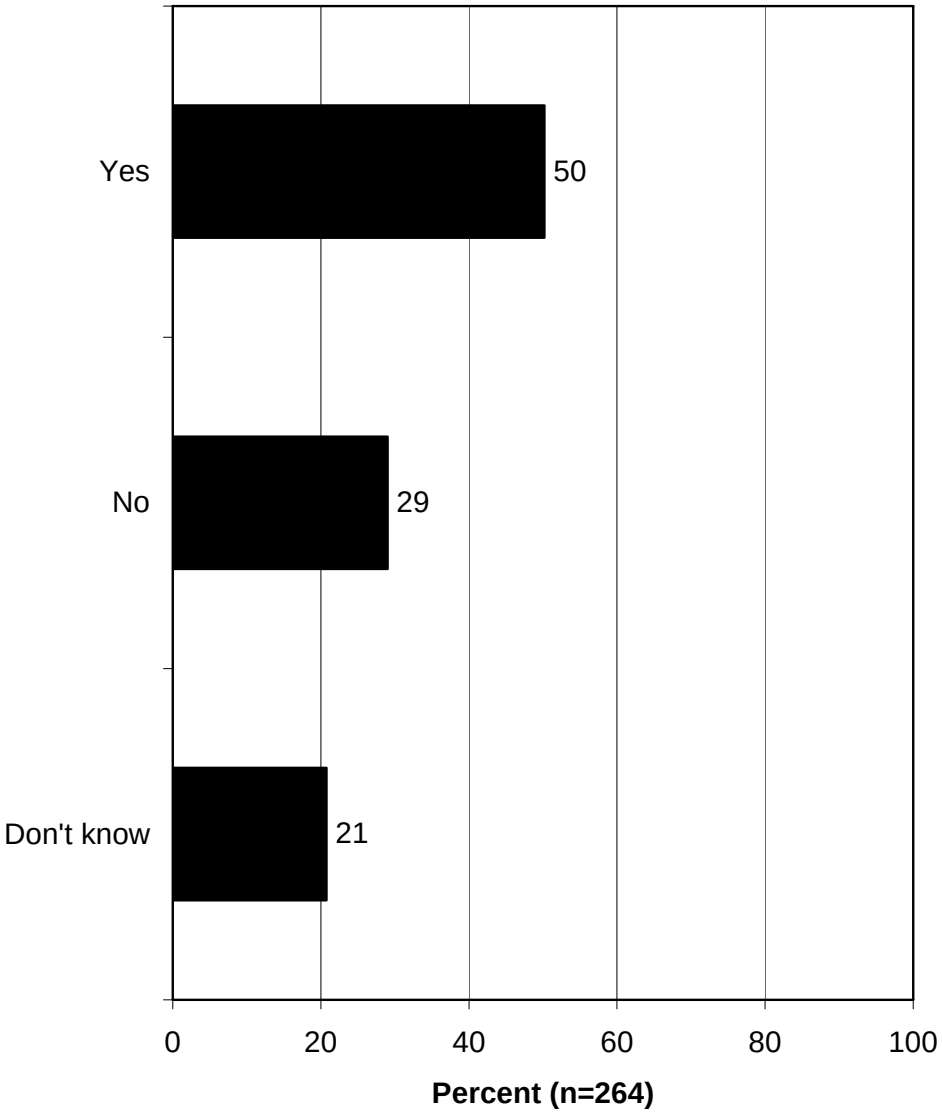


Figure 52. Question 89 Crossed by Region.

Q89. Did you receive any information or learn about bears at your military personnel orientation when you were assigned to Anchorage? (Asked of those who are personally assigned or have been assigned to Anchorage in the military or whose spouse is or has been assigned to Anchorage AND who did not mention getting information about bears or moose as part of military personnel orientation.)

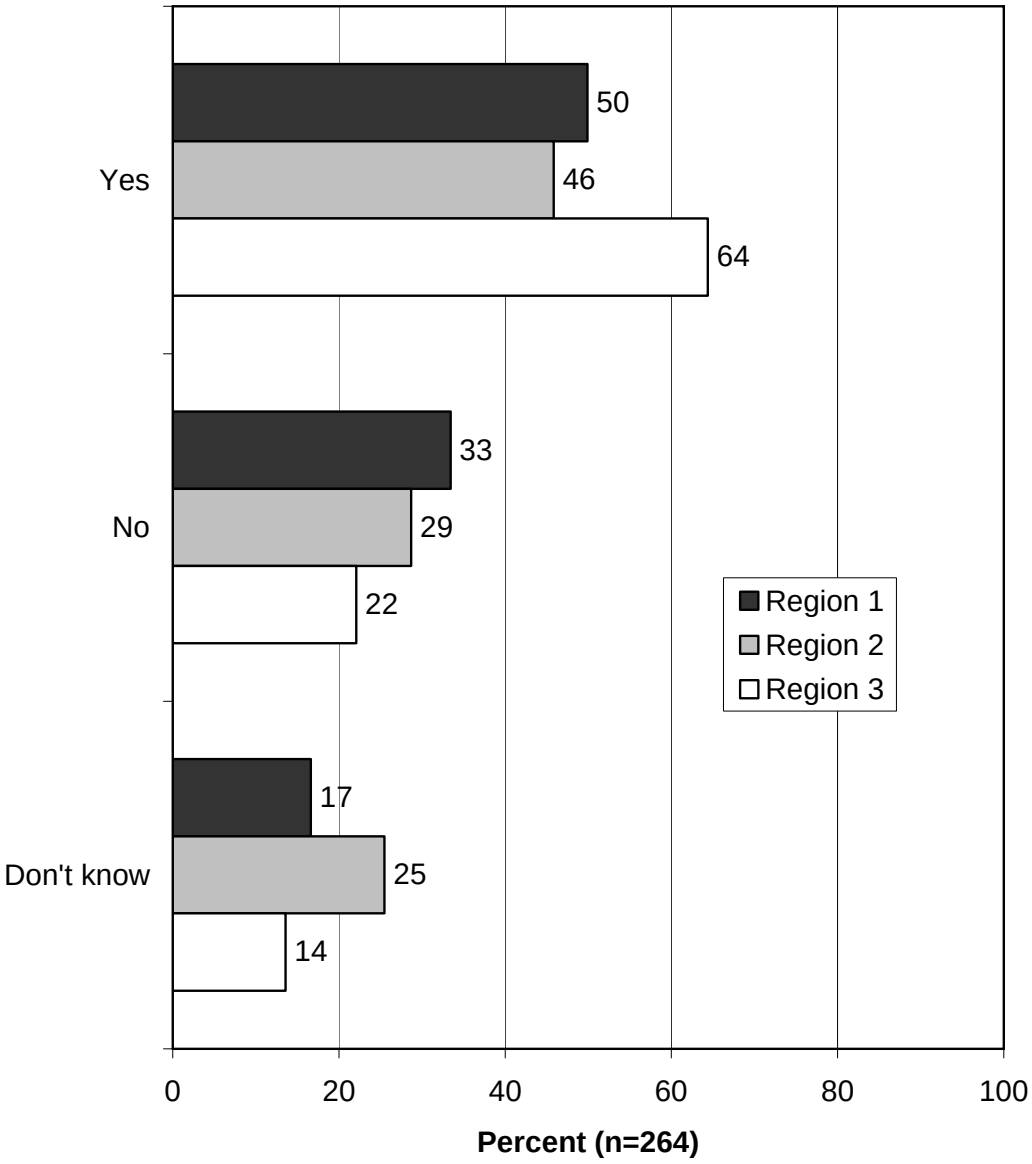


Figure 53. Question 91.

Q91. Considering any interaction with bears that you have had since your military personnel orientation in Anchorage as well as any interaction with bears you may have in the future, how would you rate the usefulness of the information about bears that you received at the orientation? (Asked of those who received information at a military personnel orientation.)

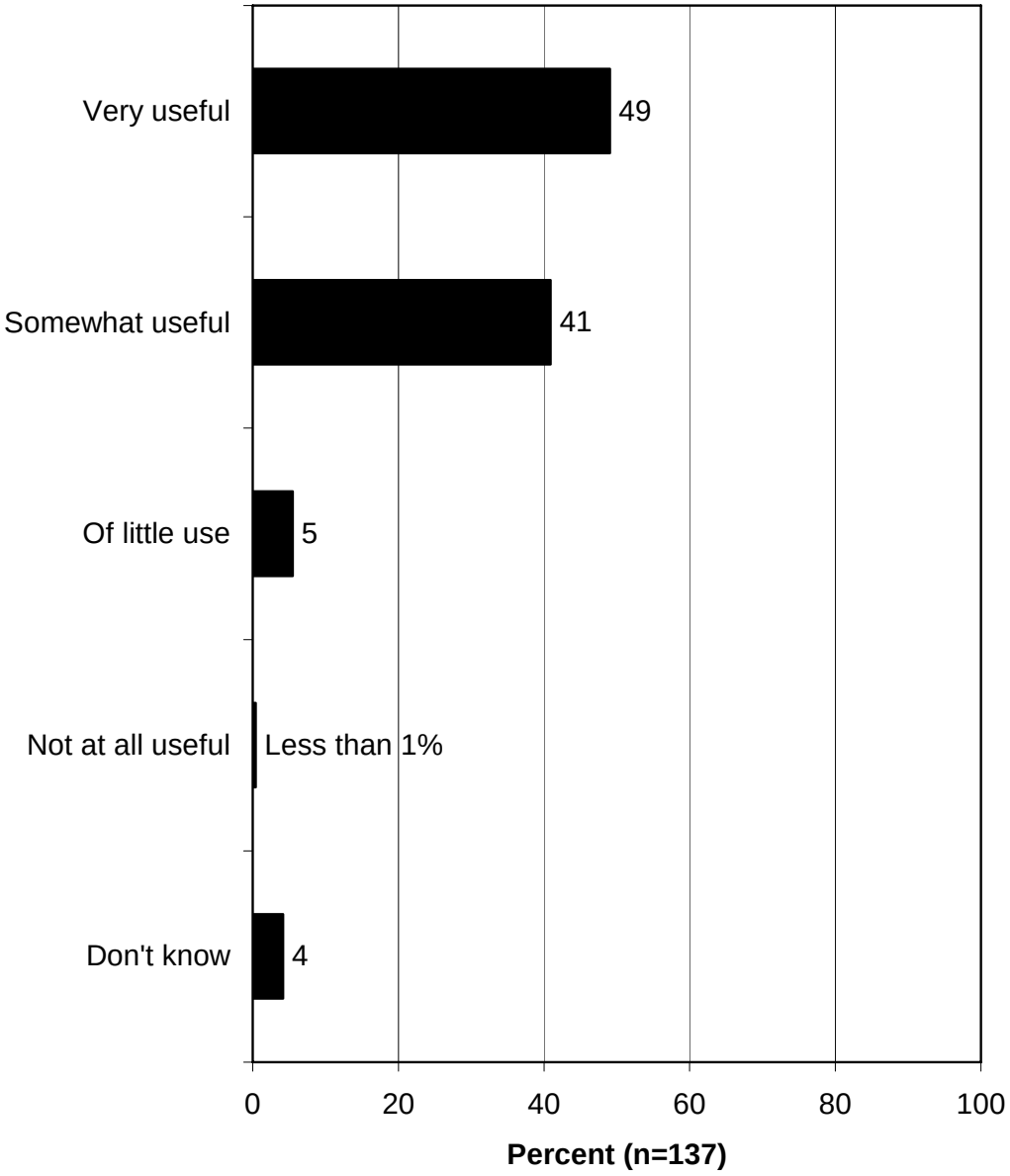
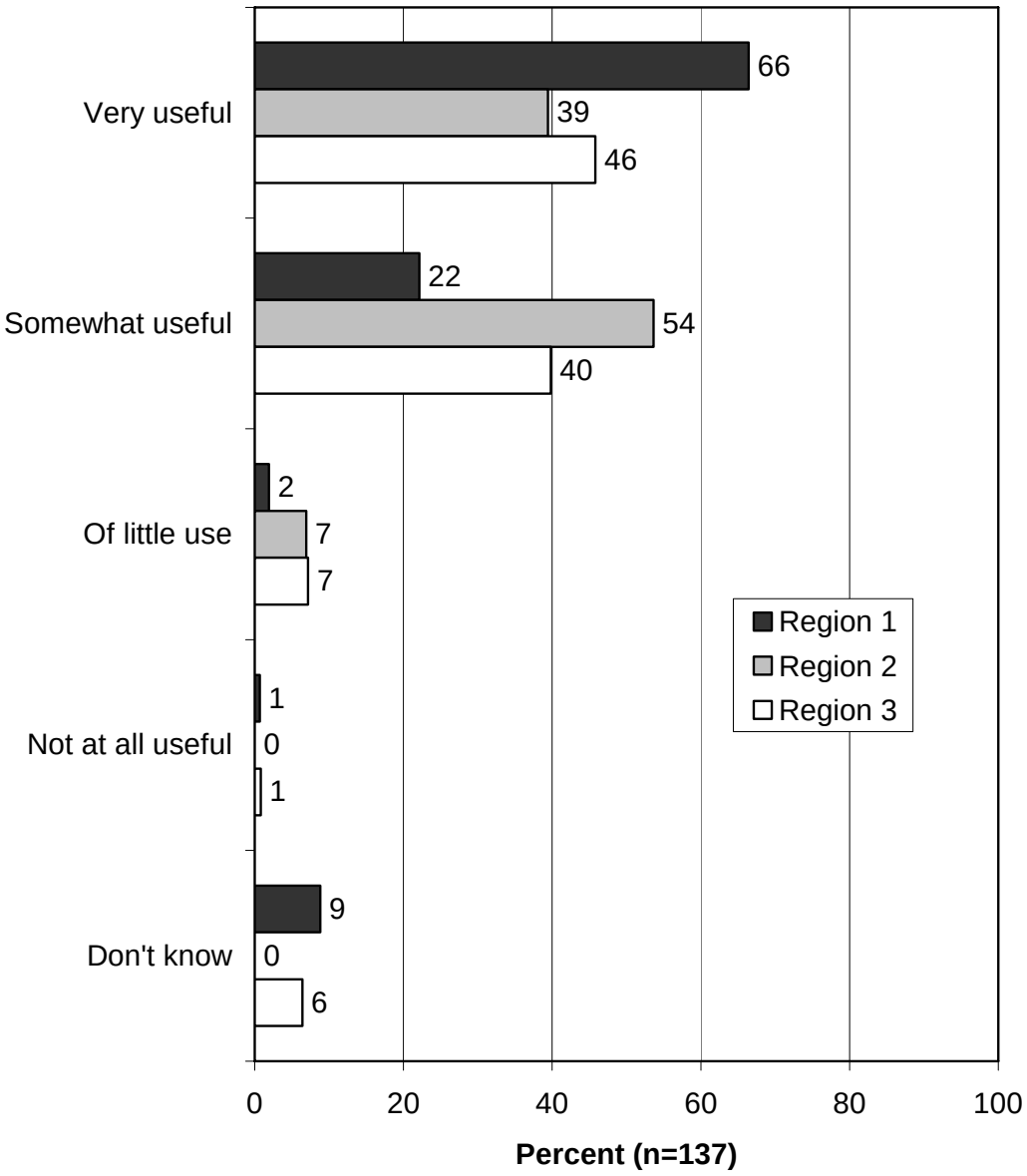


Figure 54. Question 91 Crossed by Region.

Q91. Considering any interaction with bears that you have had since your military personnel orientation in Anchorage as well as any interaction with bears you may have in the future, how would you rate the usefulness of the information about bears that you received at the orientation? (Asked of those who received information at a military personnel orientation.)



OPINIONS ON WILDLIFE POPULATIONS AND MANAGEMENT

OPINIONS ON THE AMOUNT OF WILDLIFE IN THE ANCHORAGE AREA

- Residents were asked if they thought the black and brown bear populations and the moose population in the Anchorage area should be increased, remain the same, or be decreased (Figure 55). For each animal, a majority (58% for black bears; 56% for brown bears; 63% for moose) think the population should remain the same. Otherwise, the percentages wanting a decrease (28% for black bears; 31% for brown bears; 24% for moose) far exceed the percentages wanting an increase (3% for black bears; 3% for brown bears; 8% for moose).
  - Regional crosstabulation: Region 1 residents are the *least* likely to want the black bear population to remain the same, being more likely to want it changed (either increased or decreased) ($p \leq 0.001$) (Figure 56). The results are the same regarding brown bear, with Region 1 residents being the *least* likely to want the brown bear population to remain the same, being more likely to want it changed (either increased or decreased) ($p \leq 0.001$) (Figure 57). On the other hand, Region 1 residents are the *most* likely to want the moose population to remain the same ($p \leq 0.001$) (Figure 58).
  - Trail users crosstabulation: Trail users, relative to those who are not described as trail users, are *less* likely to want a decrease in the black bear population ($p \leq 0.001$) (Figure 59) or a decrease in the brown bear population ($p \leq 0.001$) (Figure 60), but trail users are *more* likely to want a decrease in the moose population ($p \leq 0.001$) (Figure 61).
  - Park users crosstabulation: Park users, compared to those not described as park users, are *less* likely to want a decrease in the black bear population in the Anchorage area ($p \leq 0.001$) (Figure 62); park users are *less* likely to want the brown bear population in the Anchorage area to be decreased *a lot* ($p \leq 0.001$) (Figure 63); and park users are *less* likely to want a decrease in the moose population in the Anchorage area ($p \leq 0.001$) (Figure 64).
  - Another analysis crosstabulated opinion on increasing or decreasing bear populations by the frequency that respondents see bears in their neighborhoods. Those who see black bears with any frequency are more likely, compared to those who never see black bears in their neighborhoods, to want the black bear population in Anchorage decreased a lot ($p \leq 0.001$) (Figure 65). Regarding brown bears, opinion is more uniform, the most marked difference being that those who never see brown bears are more likely, compared to those who see brown bears in their neighborhoods, to say that they don't know whether the brown bear population should be increased or deceased ($p \leq 0.001$) (Figure 66).

- When the questions regarding opinion on increasing or decreasing bear and moose populations were crosstabulated by support or opposition to destroying some bears and moose every year to reduce their populations, statistically significant correlations were found. For both black and brown bears and for moose, there is a correlation to support for destroying some bears or moose every year to reduce their populations and wanting to see the bear and moose populations in Anchorage decreased (all at $p \leq 0.001$) (Figures 67 through 69).
- The nonparametric analysis found that the following responses are correlated with wanting to see a decrease in the *black bear* population:
  - Does not show much tolerance about having bears around (e.g., does not want bears in the Anchorage area, would never like to see bears in his/her neighborhood) (all at $p \leq 0.001$).
  - On most questions that include a bear-killing option, favors killing the bear (e.g., supports wildlife authorities destroying bears when bears are seen frequently in neighborhoods in the Anchorage area, supports designating areas in which bears would be killed as soon as possible) (all at $p \leq 0.001$).
  - Does not think having moose around make life in Anchorage more interesting and special ($p \leq 0.001$).
  - On questions that include a moose-killing option, favors killing the moose ($p \leq 0.001$).
  - Has rarely or never used trails ($p \leq 0.001$) or large parks ($p \leq 0.01$) in the Anchorage area in the past 2 years.
  - Has fished for salmon, but not in the past 2 years ($p \leq 0.001$).
  - Indicated that he/she knows a little or nothing about brown bears ($p \leq 0.001$).
  - Gets his/her information about bears and moose from books ($p \leq 0.001$), television ($p \leq 0.001$), and/or word of mouth ($p \leq 0.01$).
  - Has been a long-term resident of Anchorage ($p \leq 0.001$).
  - Is in the young age bracket (18 to 34 years old) ($p \leq 0.05$).
  - Is female ($p \leq 0.01$).
  - Personally has had problems or property damage at his/her primary home caused by black bears within the past 2 years ($p \leq 0.001$).
  - Does not indicate supporting supplementing wild salmon runs in Anchorage area streams with stocked fish to provide salmon fishing opportunities ($p \leq 0.01$).

- The nonparametric analysis found that the following responses are correlated with wanting to see a decrease in the *brown bear* population:
  - Does not show much tolerance about having bears around (e.g., does not want bears in the Anchorage area, would never like to see bears in his/her neighborhood) (all at $p \leq 0.001$).
  - On most questions that include a bear-killing option, favors killing the bear (e.g., supports wildlife authorities destroying bears when bears are seen frequently in neighborhoods in the Anchorage area, supports wildlife authorities destroying bears when bears cause property damage in neighborhoods in the Anchorage area) (all at $p \leq 0.001$).
  - Does not think having moose around make life in Anchorage more interesting and special ($p \leq 0.001$).
  - On questions that include a moose-killing option, favors killing the moose ($p \leq 0.001$).
  - Has rarely or never used trails in the Anchorage area in the past 2 years ($p \leq 0.001$).
  - Has hunted in the past 2 years ($p \leq 0.001$).
  - Has fished for salmon, but not in the past 2 years ($p \leq 0.01$).
  - Indicated that he/she knows a little or nothing about brown bears ($p \leq 0.001$).
  - Gets his/her information about bears and moose from books ($p \leq 0.001$) and/or television ($p \leq 0.01$).
  - Has been a long-term resident of Anchorage ($p \leq 0.001$).
  - Primarily grew up in a rural area or a small town or city ($p \leq 0.001$).
  - Is in the young age bracket (18 to 34 years old) ($p \leq 0.001$).
  - Has at least one child, age 12 or younger, living in his/her household ($p \leq 0.01$).
  - Is in the lower educational bracket (no college degree) ($p \leq 0.05$).
  - Personally has had problems or property damage at his/her primary home caused by black bears within the past 2 years ($p \leq 0.001$).
  - Does not indicate supporting fines for not storing garbage to prevent problems with bears ($p \leq 0.001$).
- The nonparametric analysis found that the following responses are correlated with wanting to see a decrease in the *moose* population:
  - Does not show much tolerance about having bears around (e.g., thinks the black and brown bear populations in the Anchorage area should be decreased) (all at $p \leq 0.01$ or greater significance).

- On most questions that include a bear-killing option, favors killing the bear (e.g., supports wildlife authorities destroying bears when bears are seen frequently in neighborhoods in the Anchorage area, supports wildlife authorities destroying bears when bears get into garbage in neighborhoods in the Anchorage area) (all at $p \leq 0.001$).
- Does not think having moose around make life in Anchorage more interesting and special ($p \leq 0.001$).
- On other questions that include a moose-killing option, favors killing the moose ($p \leq 0.001$).
- Has frequently or sometimes used large parks ($p \leq 0.001$) and trails ($p \leq 0.001$) in the Anchorage area in the past 2 years.
- Has hunted in the past 2 years ($p \leq 0.01$).
- Indicates that he/she knows a great deal or a moderate amount about black ($p \leq 0.001$) and brown ($p \leq 0.001$) bears.
- Gets his/her information about bears and moose from the newspaper ($p \leq 0.01$).
- Is male ($p \leq 0.001$).
- Has been a long-term resident of Anchorage ($p \leq 0.05$).
- Primarily grew up in a large or very large city or a suburb of a large or very large city ($p \leq 0.001$).
- Is in the middle age bracket (35 to 64 years old) ($p \leq 0.01$).
- Does not have any children, age 12 or younger, living in his/her household ($p \leq 0.001$).
- Has personally driven or been a passenger in a vehicle that has hit a moose ($p \leq 0.001$).
- Does not indicate supporting a regulation or ordinance requiring Anchorage area residents to use bear-proof garbage containers in neighborhoods frequented by bears ($p \leq 0.001$).

➢ Four questions asked residents to indicate how often they see black and brown bears in their neighborhood and how often they would like to see them in their neighborhood. There are several ways to examine these questions.

- Regarding black bears, Figure 70 shows that 61% of residents never see black bears, while 60% *say* they would never like to see them; and 34% see them a few times a year, while 30% would like to see them that often. These close percentages make it appear that residents see them about as much as they would like. However, another analysis

compared these two questions in a matrix, showing how each response group (e.g., the group who answered "never" to seeing black bears) to the first question responded to the second question, which showed much movement between levels of seeing/wanting to see them. Figure 71 shows that 78% of those who never see black bears want to see them at that level (i.e., never), but that 16% of the "never see black bear" group would *like* to see them a few times a year, and 3% would like to see them even more often (for a sum of 19% wanting to see them more often). On the other end, 35% of those who see black bears daily are comfortable seeing them daily, but 59% of that "sees them daily" group would like to see them less often. Based on the analysis of this matrix, the following generalizations can be made about black bears:

- The most common response for each group is to want to see black bears at the current level that they see them (e.g., the most common response among those who see them a few times a year is that they *would like* to see them a few times a year).
- Those who see black bears the most often have the highest tendency to want to actually see them *less* often, although not to the degree of saying that they never want to see them.
- Those who never see black bears are the most likely to say that they never *want* to see them.
- None of the group who see black bears daily say that they would *never* like to see them.

- Regarding brown bears, the same analyses were run. Figure 72 shows the percentages who see brown bears at various levels and the percentage who *would like* to see them at various levels. Again, refining the analysis, a matrix was produced (Figure 73). Note that the first two columns of data are of most interest in this matrix (the number who had seen brown bears more than a few times a year is negligible, so the percentages in those columns—the last three columns in the matrix—represent very few people). The results show that the most common response among those who never see brown bears is that they *would like* to never see them, and the most common response among those who see them a few times a year is that they *would like* to see them a few times a year. However, among those who see brown bears a few times a year, 40% would like to *never* see them. Indeed, very low percentages across the matrix wish to see brown bears more often.
  - Regional crosstabulation: Region 1 residents are the most likely, by far, to never see black or brown bears in their neighborhoods ($p \leq 0.001$) (Figures 74 and 76). They are also the most likely to never *want* to see black and brown bears in their neighborhoods ($p \leq 0.001$) (Figures 75 and 77).

- In comparing black and brown bears, black bears are seen more often in residents' neighborhoods than are brown bears: 39% see black bears at least a few times a year, compared to only 12% who see brown bears at least a few times a year in their neighborhood (Figure 78).
- In comparing how much residents would like to see black and brown bears, they again favor the black bears: 37% would like to see black bears at least a few times a year, compared to only 18% who would like to see brown bears at least a few times a year in their neighborhood (Figure 79).
- For the reader's convenience, Figure 80 shows all four questions together.
- The questions about how much residents want to see and have bears around were crosstabulated extensively by many other variables.
    - Those *without* a college degree are more likely than are those with a college degree to *never* want to see black bears ($p \leq 0.001$) or brown bears ($p \leq 0.001$) in their neighborhoods (Figures 81 and 82).
    - There is little marked differences by gender on how often respondents want to see black bears in their neighborhood; nonetheless, the small differences are statistically significant ($p \leq 0.01$) (Figure 83). Regarding brown bears, men are slightly more likely than are women to never want to see brown bears in their neighborhood ($p \leq 0.05$) (Figure 84).
    - There is no correlation to wanting to see black bears in their neighborhood and the length of time of residency in Anchorage (Figure 85). Regarding brown bears, longer-term residents are *less* likely to never want to see brown bears in their neighborhood ($p \leq 0.05$) (Figure 86).
    - Younger residents, compared to those in the middle and older age groupings, are more likely to never want to see black or brown bears in their neighborhood (both at $p \leq 0.001$) (Figures 87 and 88).

Figure 55. Questions 26, 27, and 28.

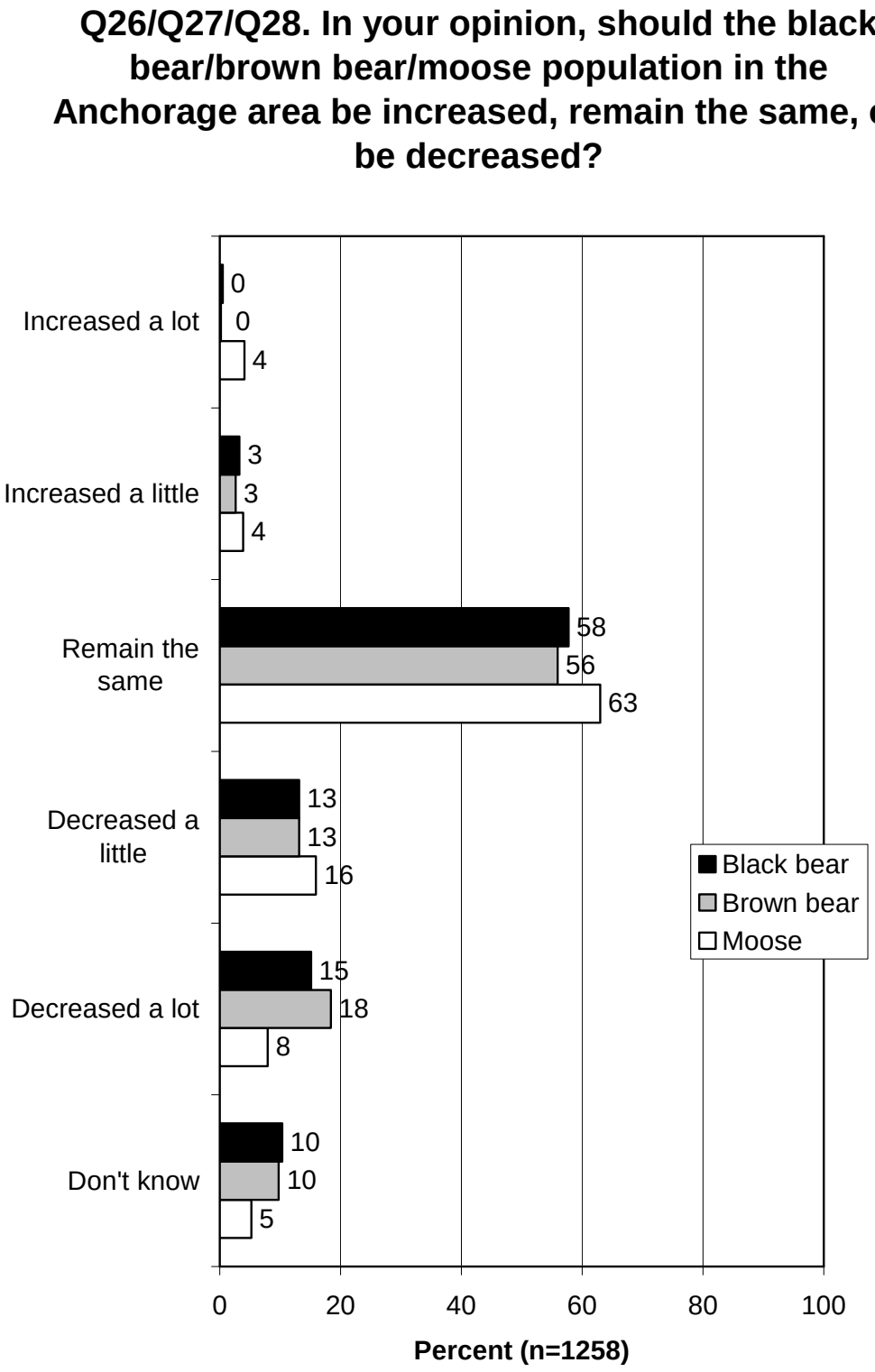


Figure 56. Question 26 Crossed by Region.

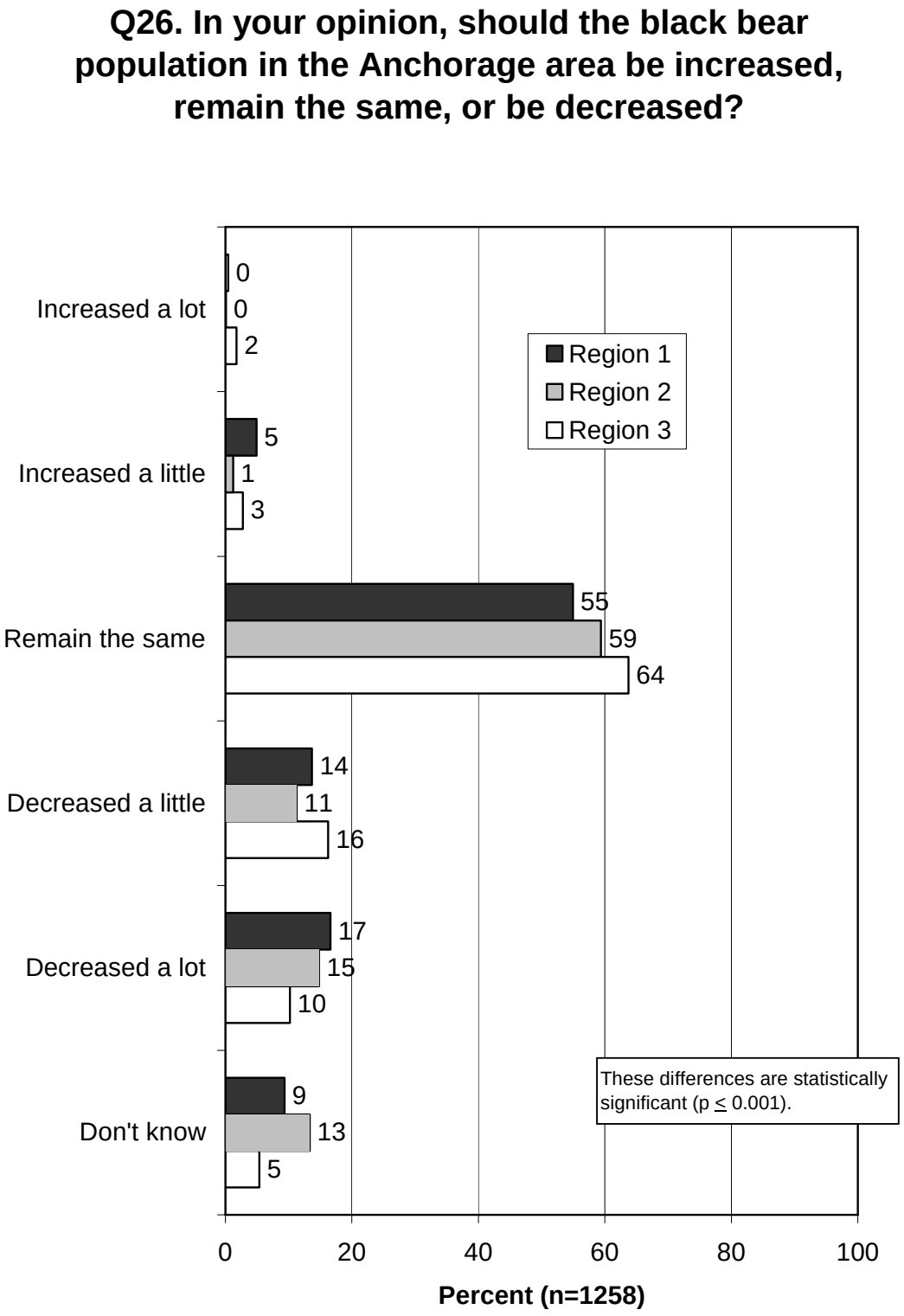


Figure 57. Question 27 Crossed by Region.

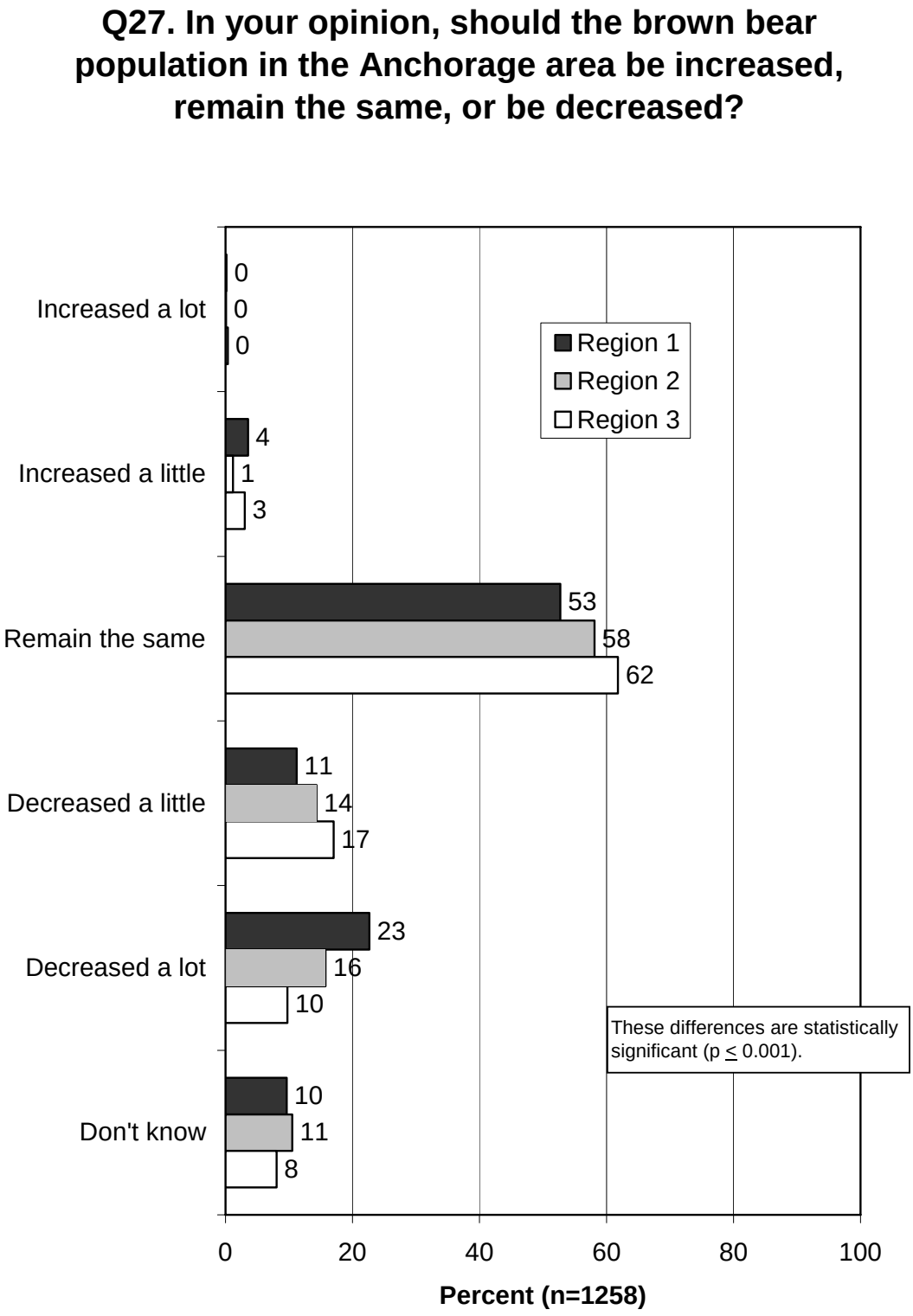


Figure 58. Question 28 Crossed by Region.

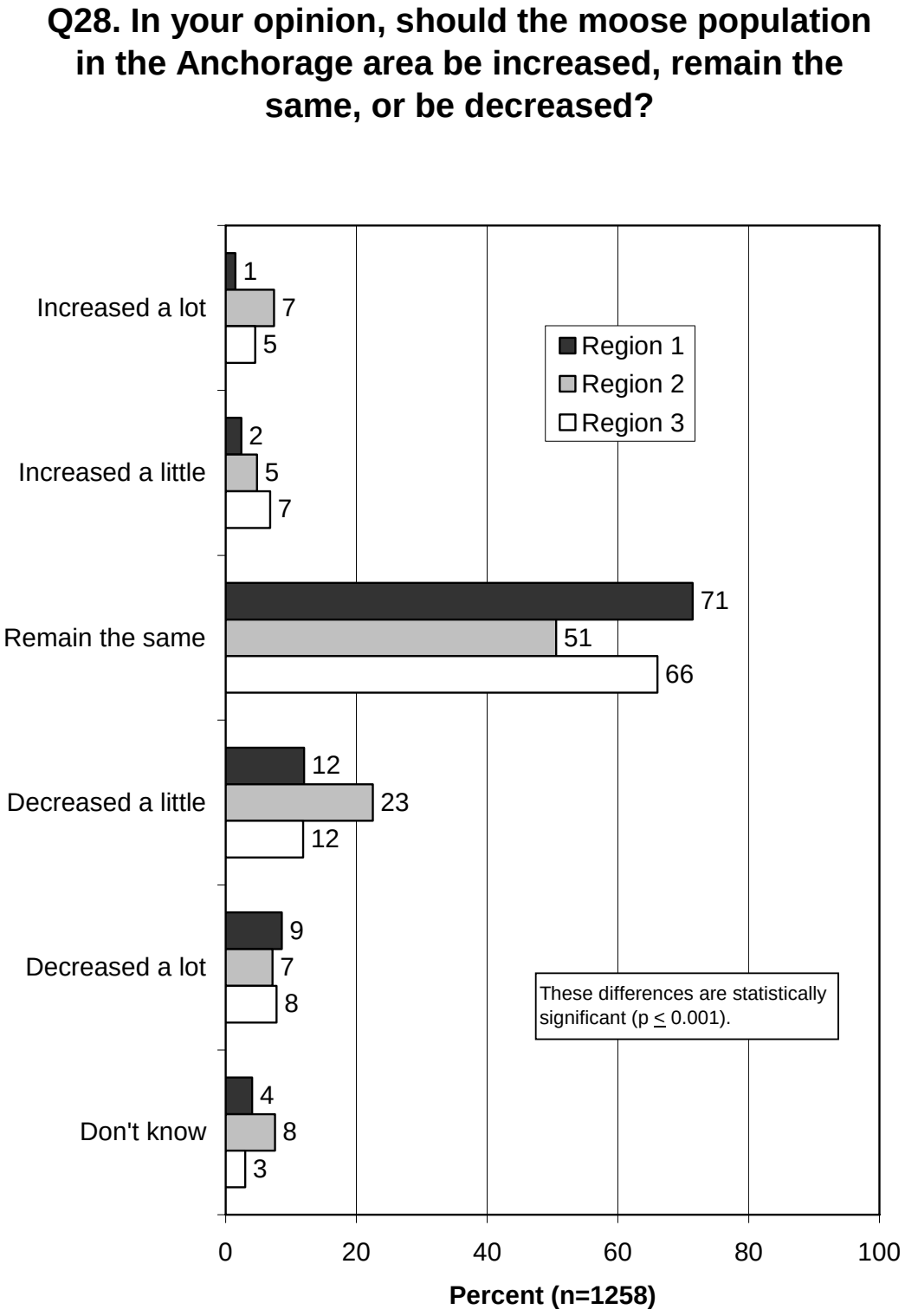


Figure 59. Question 26 Crossed by Trail Users.

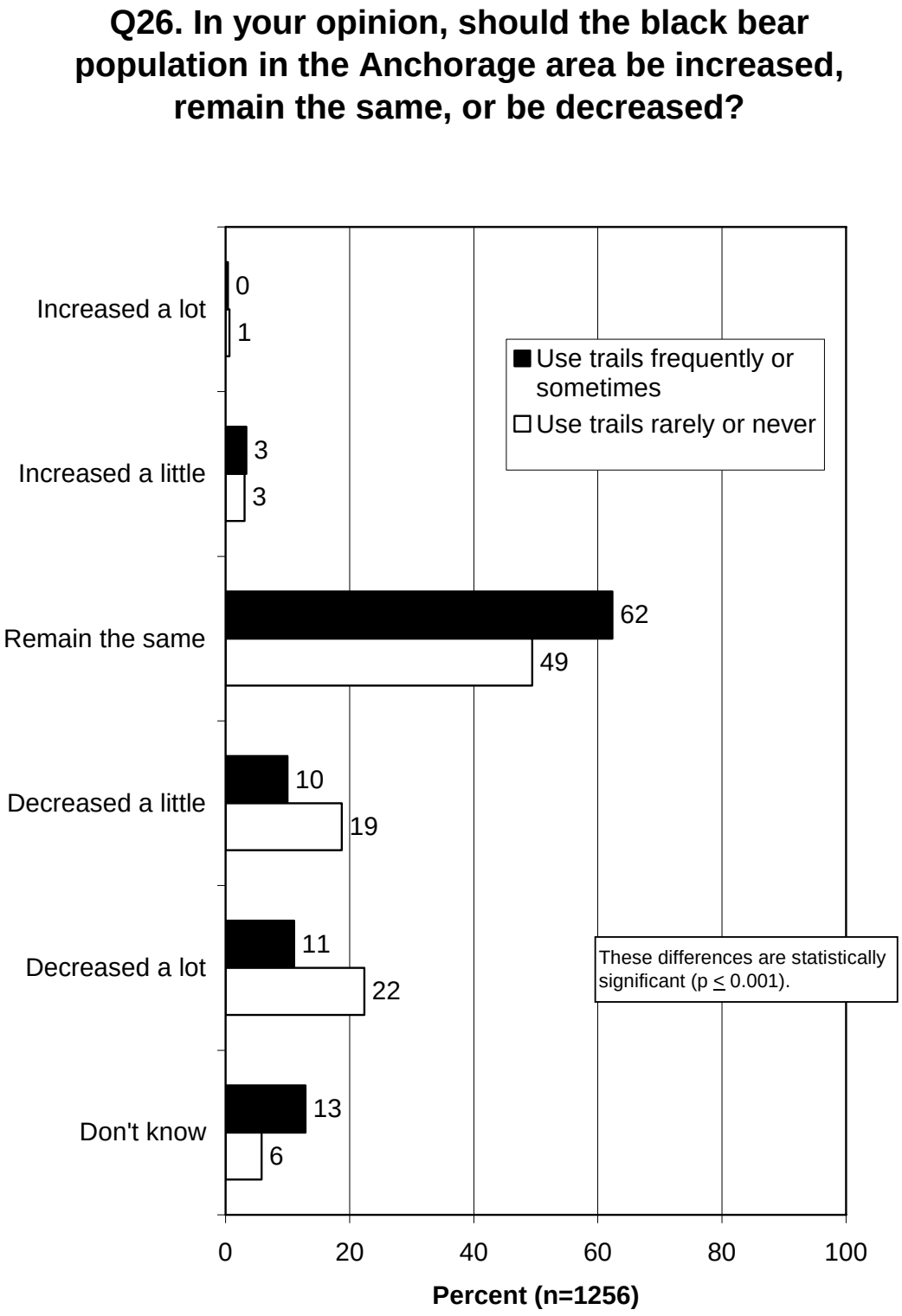


Figure 60. Question 27 Crossed by Trail Users.

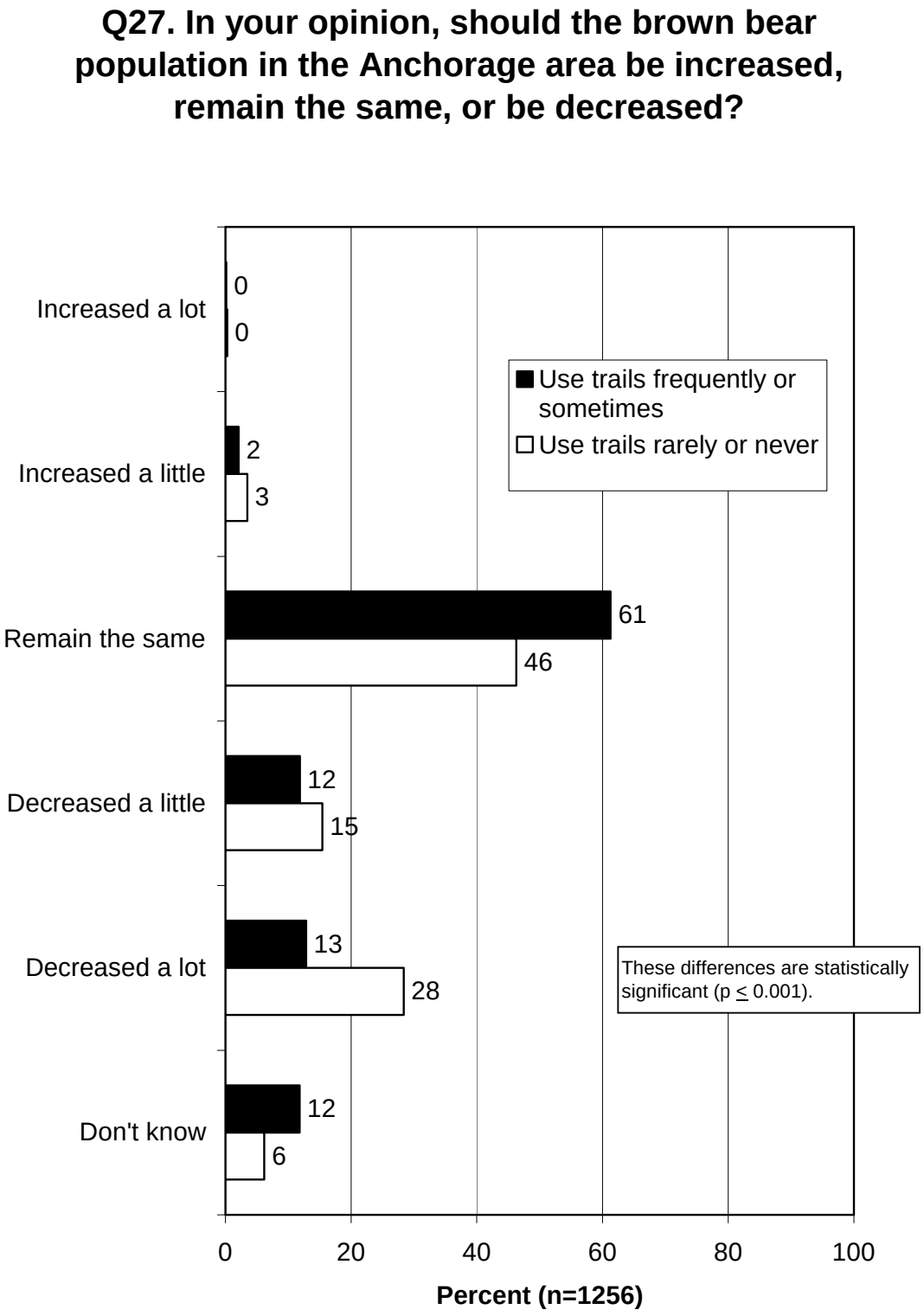


Figure 61. Question 28 Crossed by Trail Users.

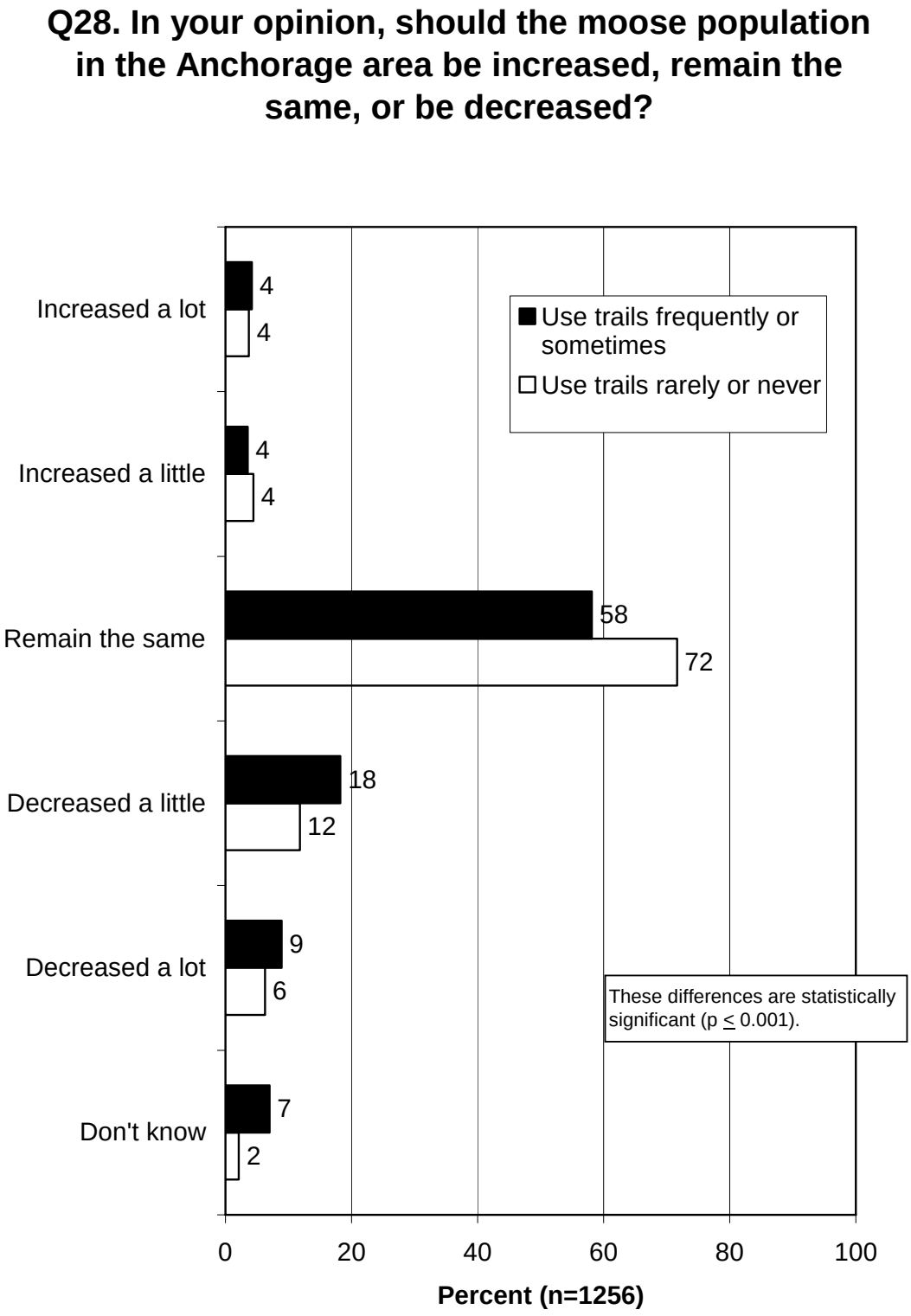


Figure 62. Question 26 Crossed by Park Users.

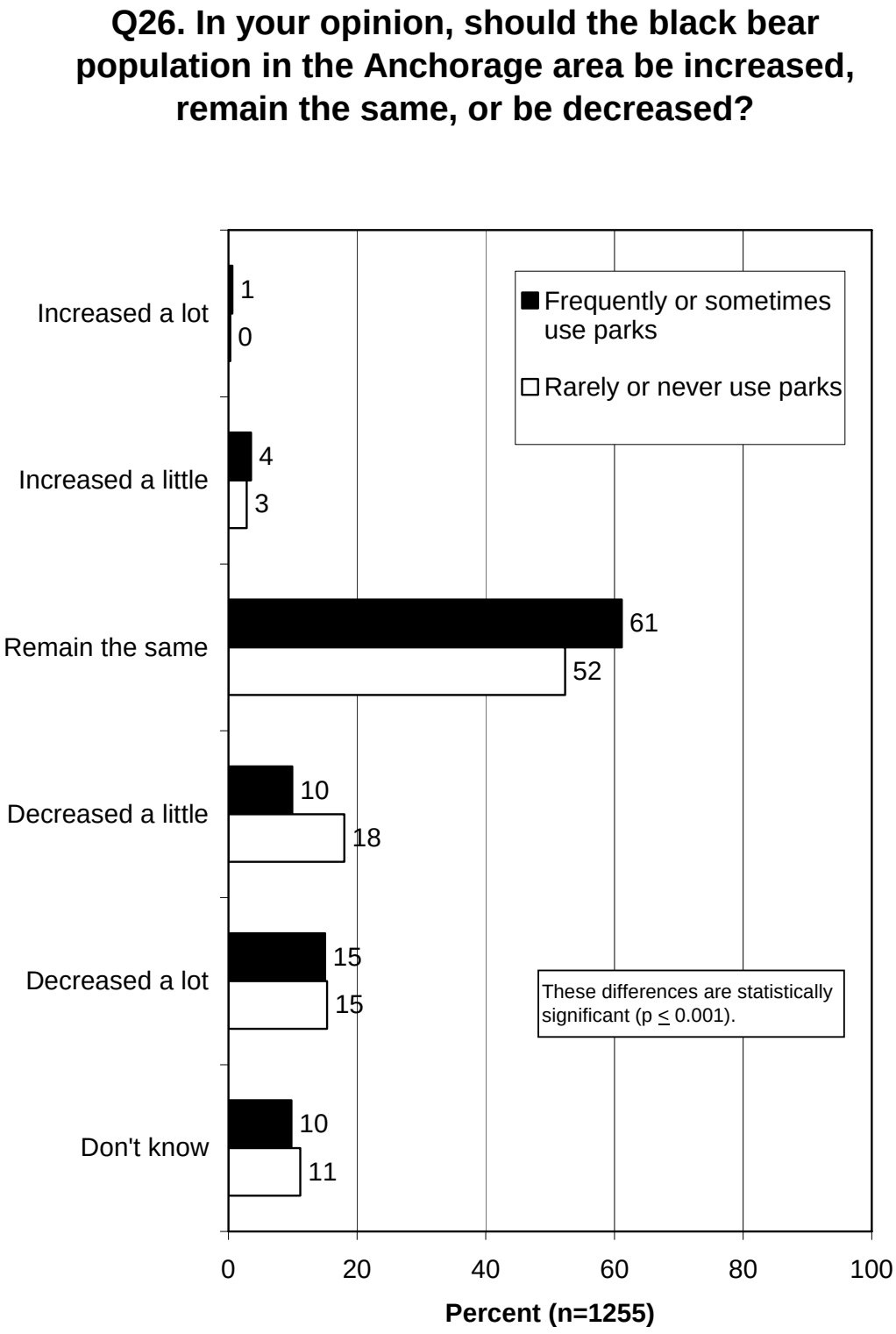


Figure 63. Question 27 Crossed by Park Users.

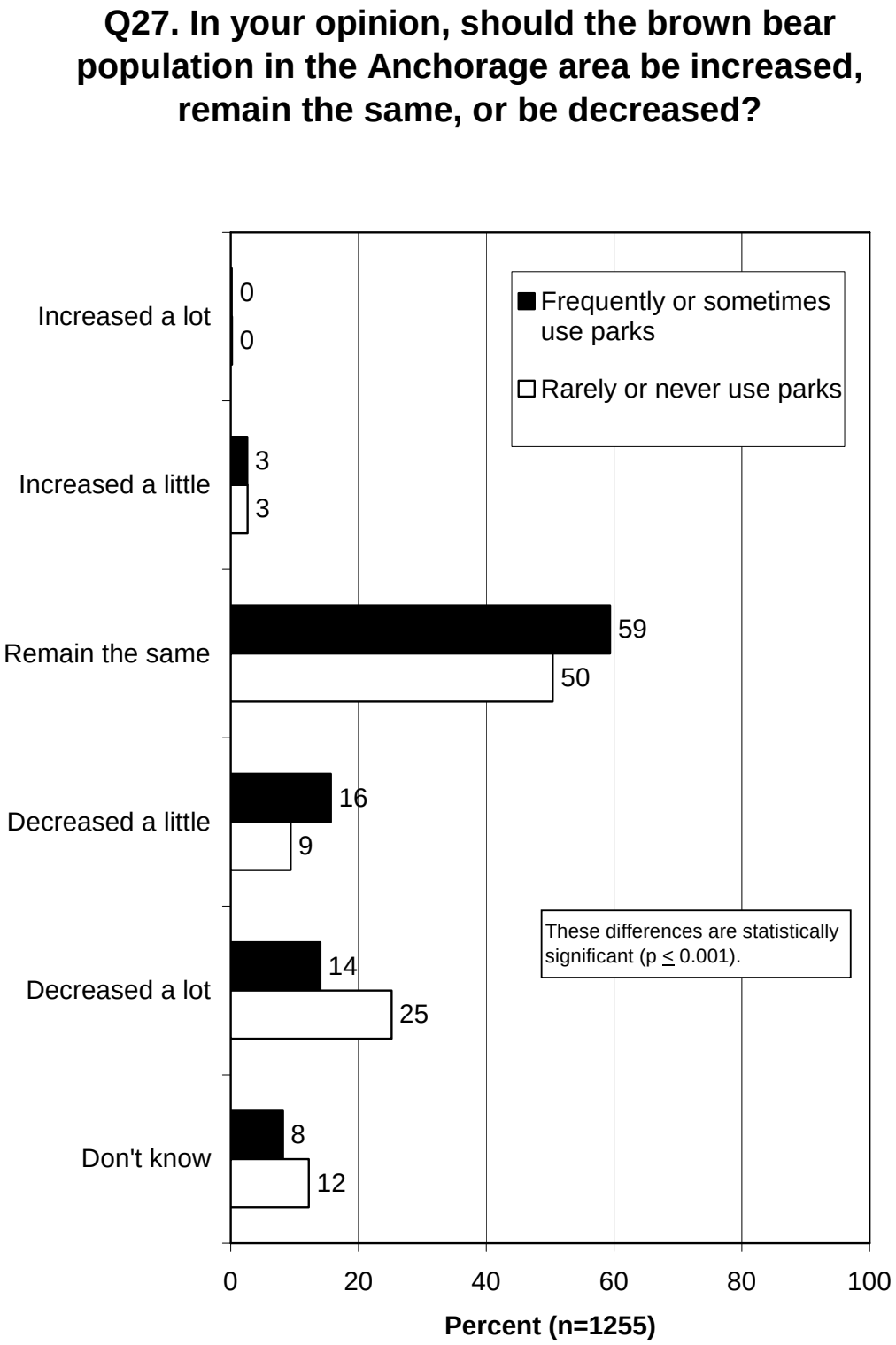


Figure 64. Question 28 Crossed by Park Users.

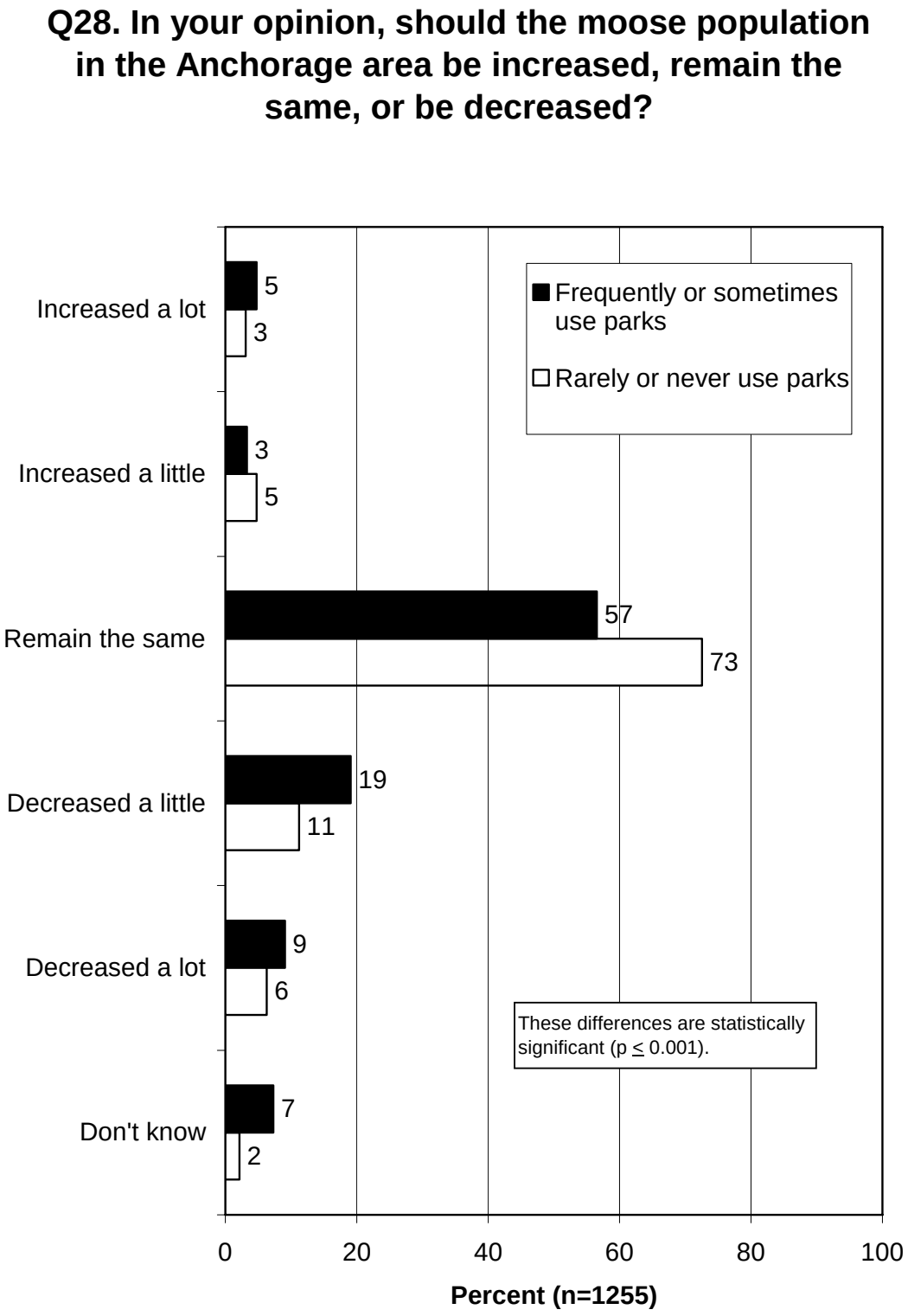


Figure 65. Question 26 Crossed by Amount Sees Black Bears.

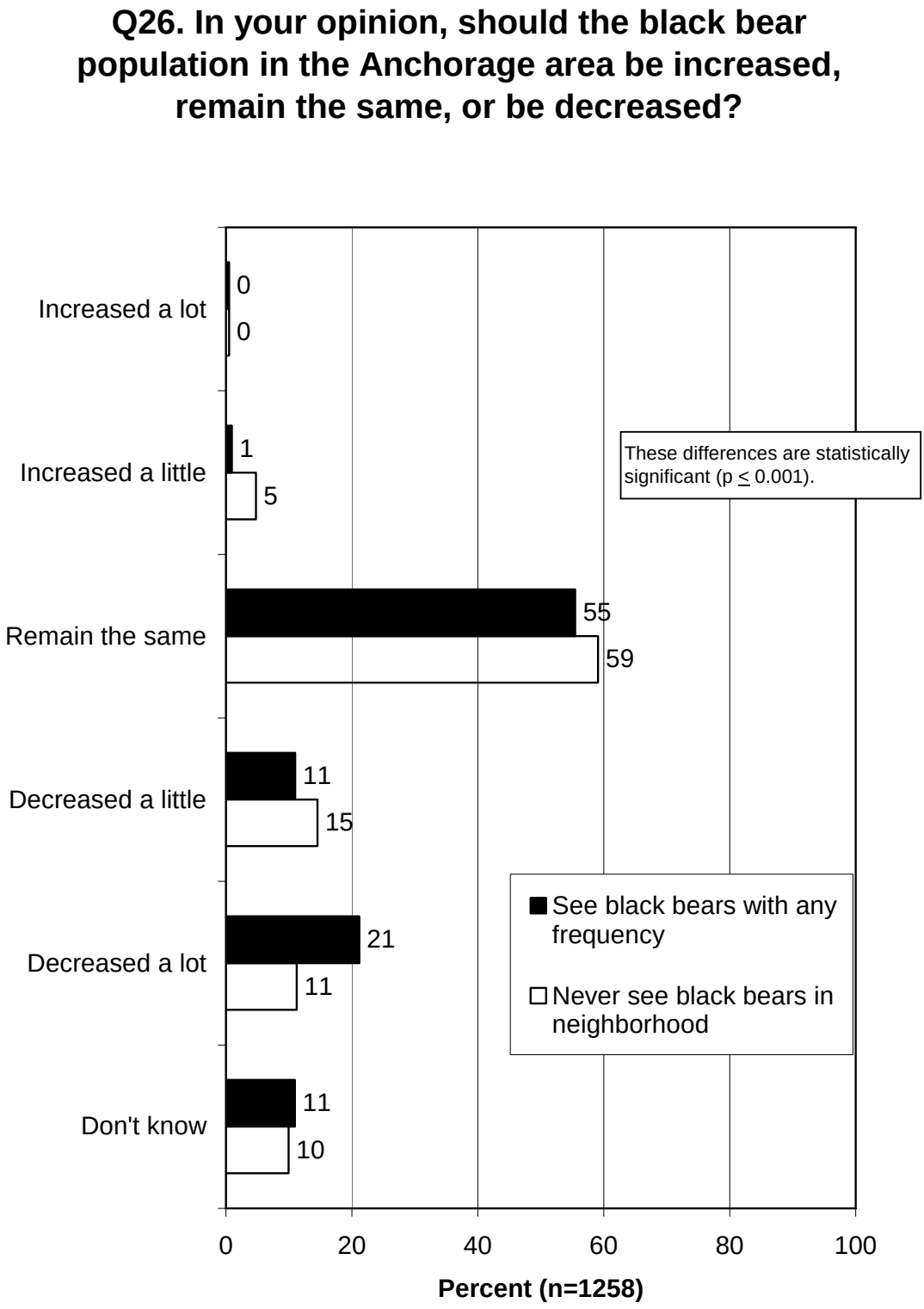


Figure 66. Question 26 Crossed by Amount Sees Brown Bears.

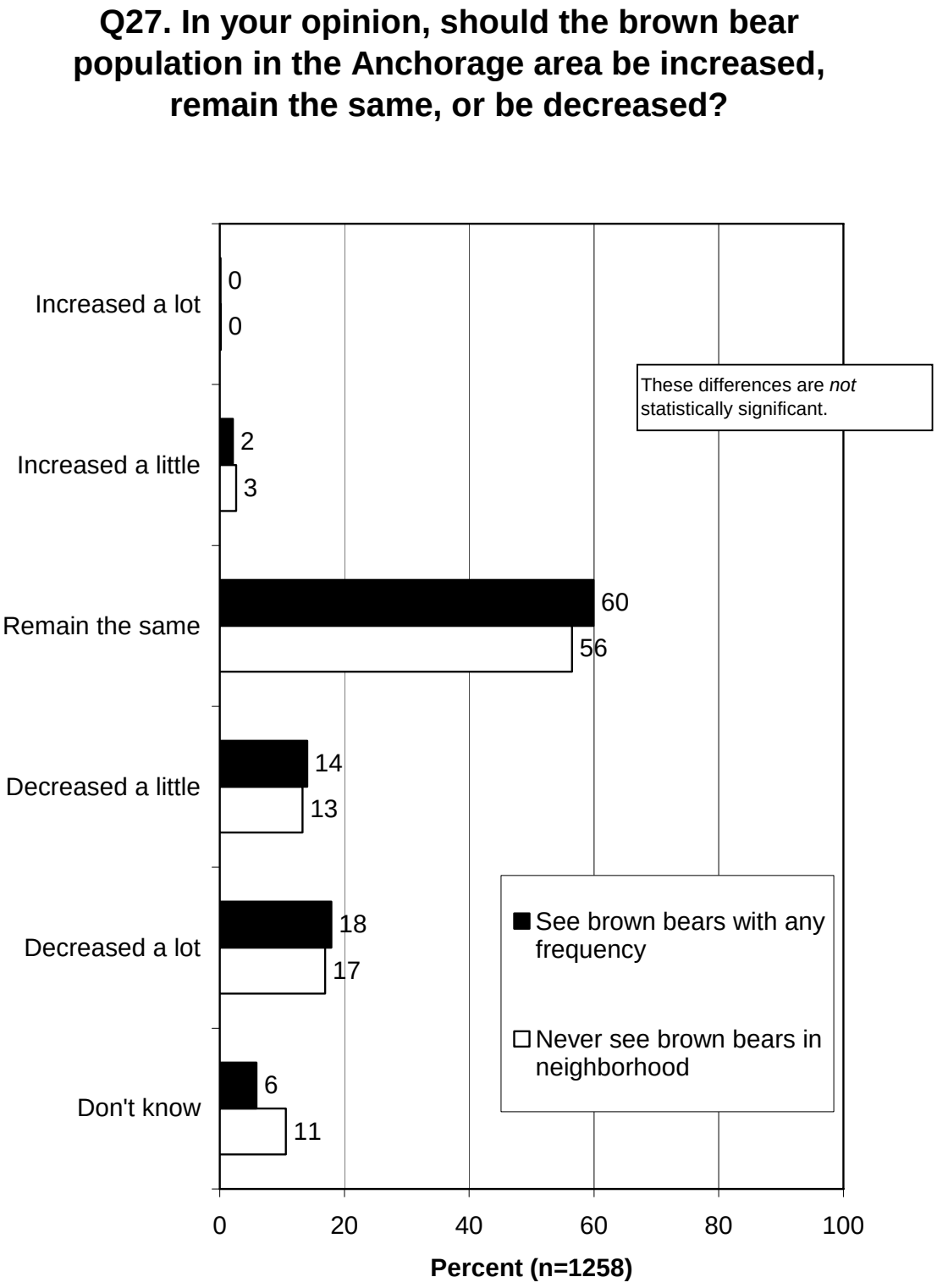


Figure 67. Question 26 Crossed by Support for/Opposition to Destroying Some Black Bears Every Year.

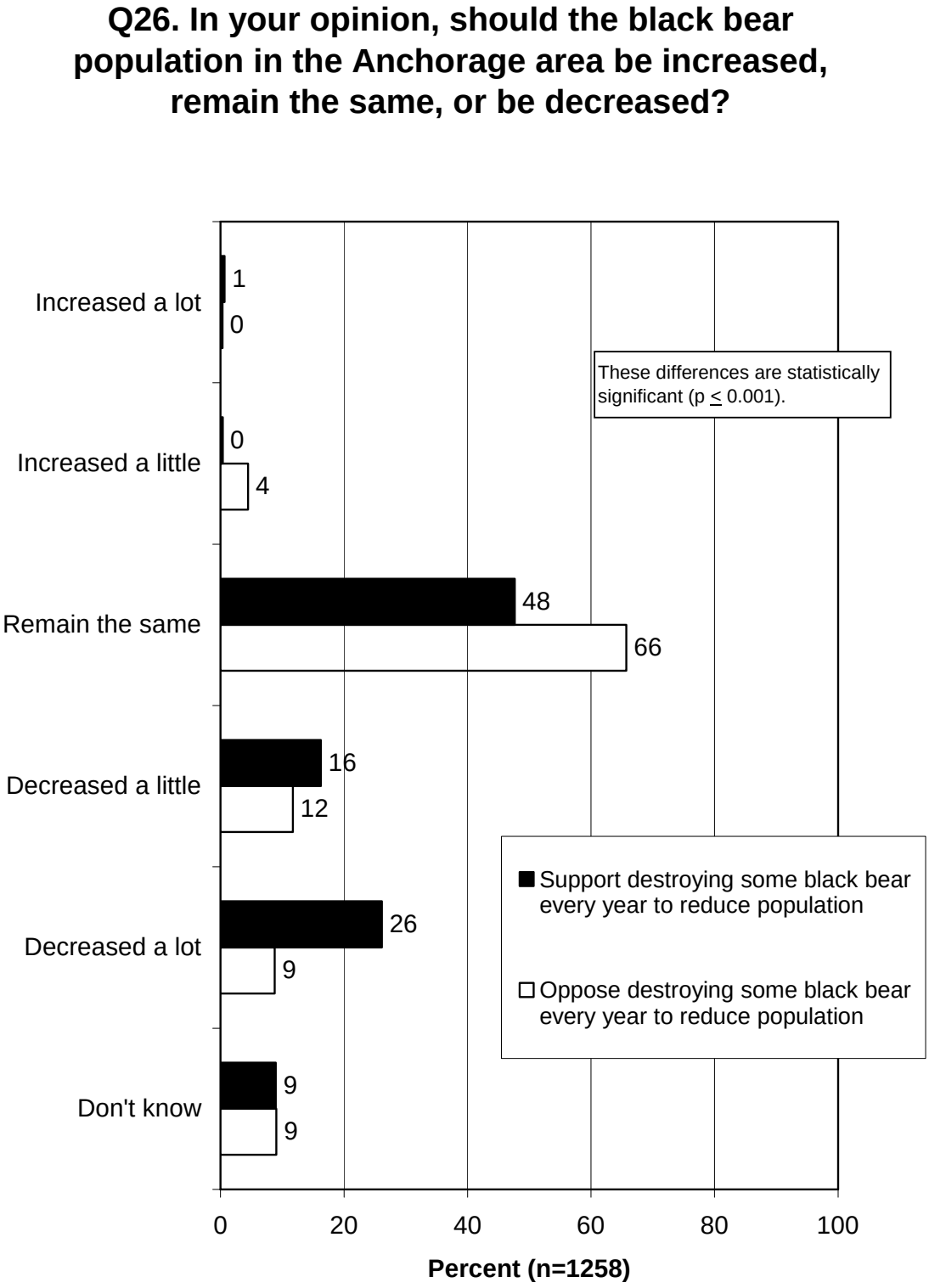


Figure 68. Question 27 Crossed by Support for/Opposition to Destroying Some Brown Bears Every Year.

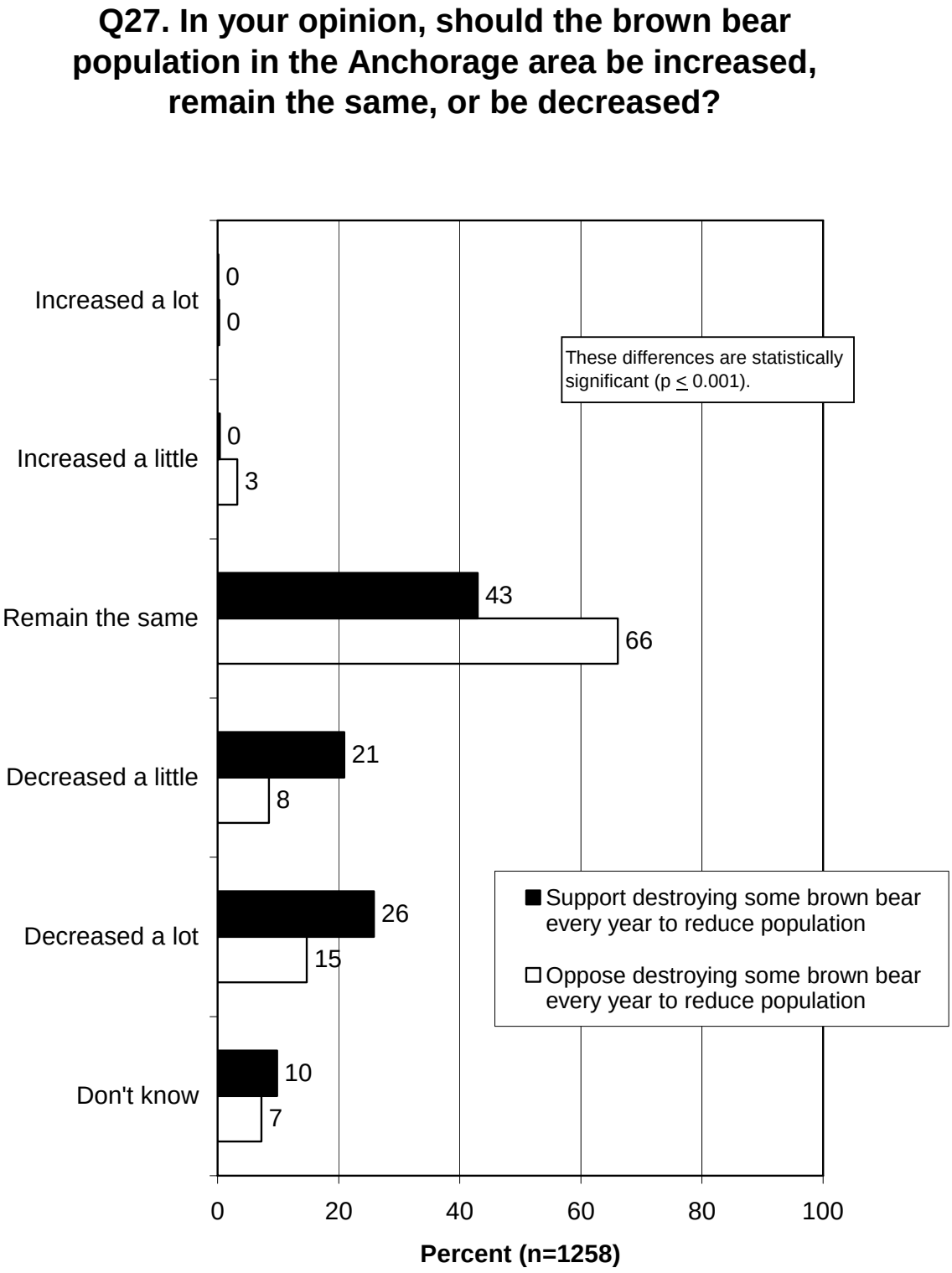


Figure 69. Question 28 Crossed by Support for/Opposition to Destroying Some Moose Every Year.

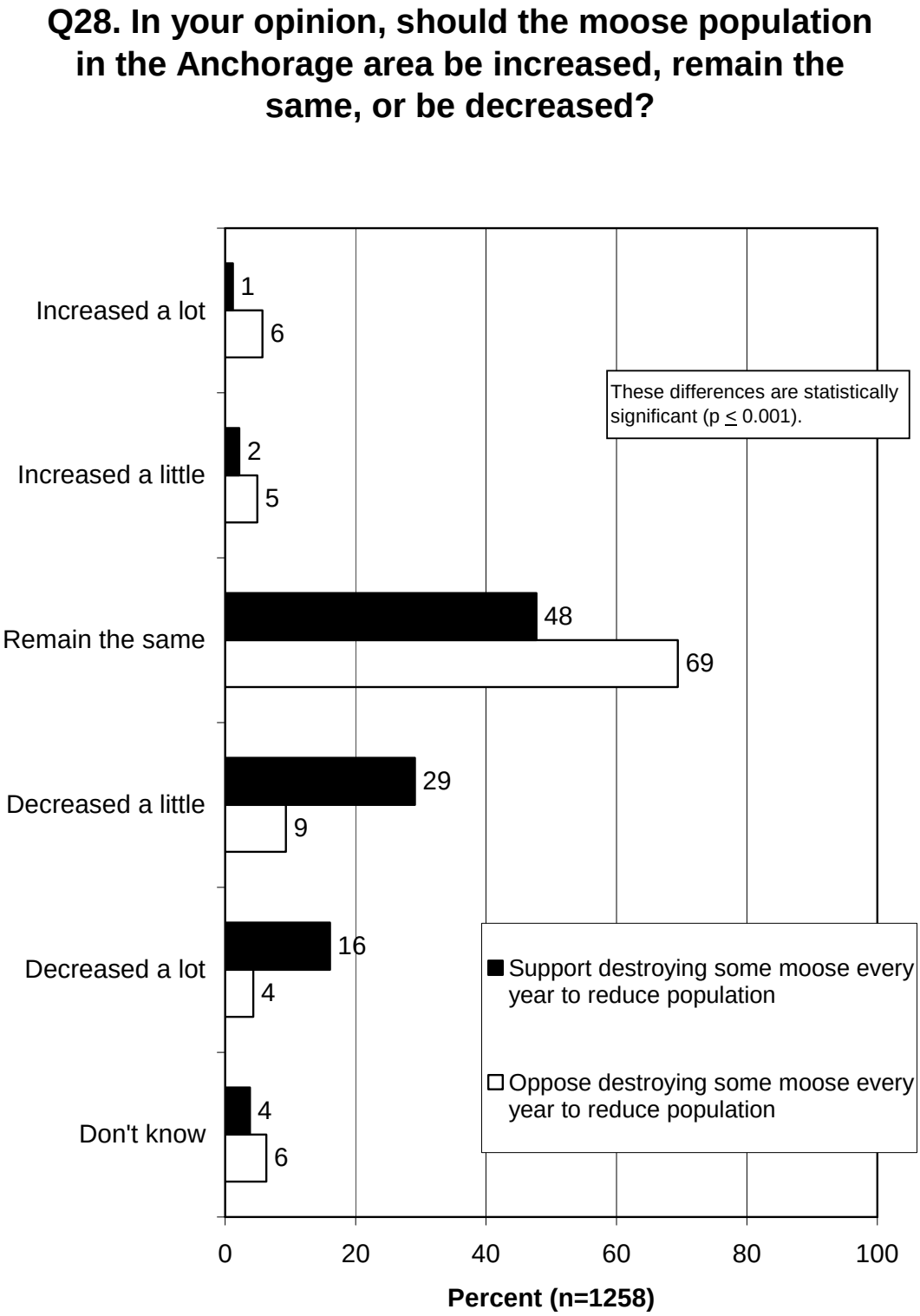


Figure 70. Questions 35 and 36.

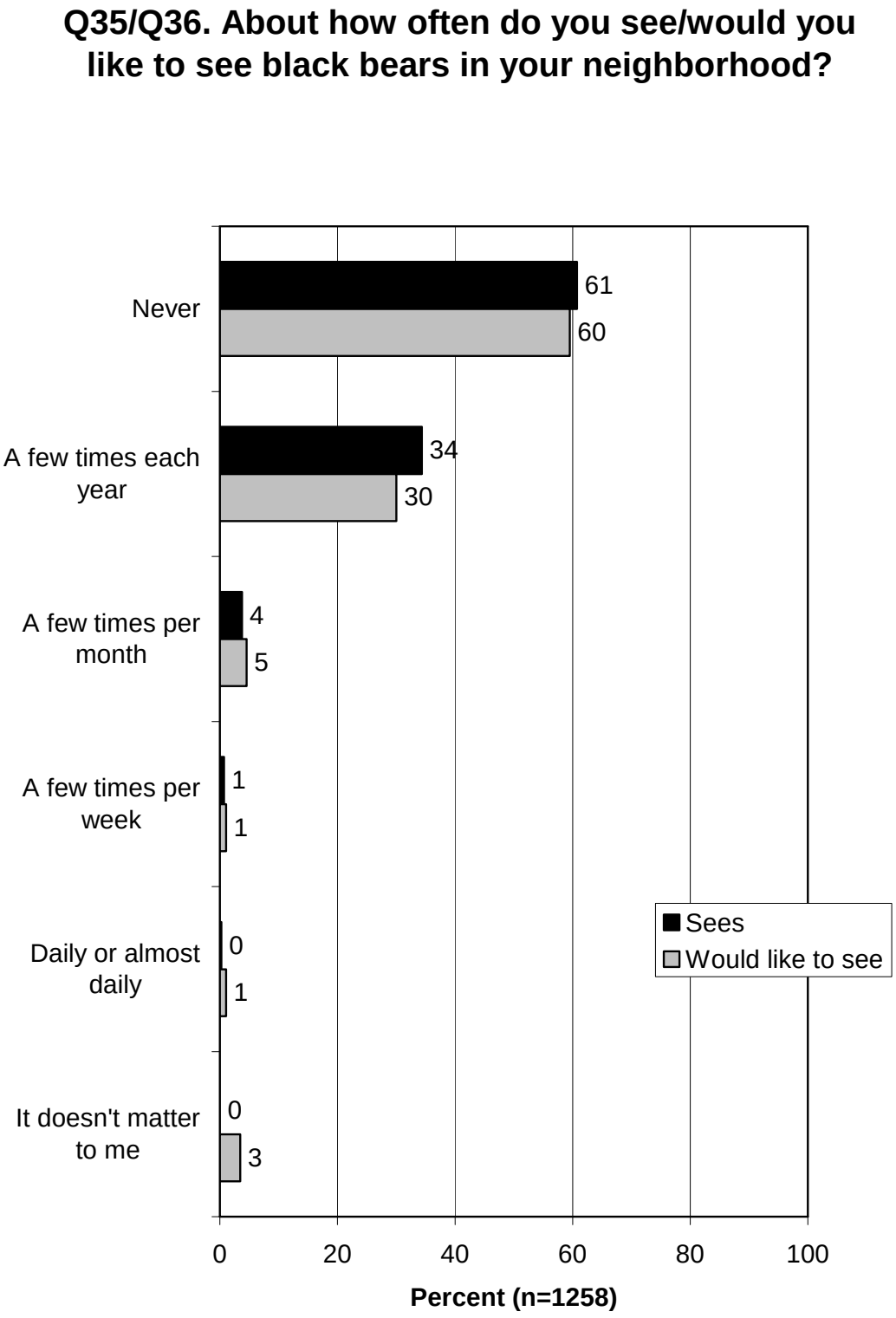


Figure 71. Questions 35 and 36 Combined.

Matrix: Desired level of black bear sightings versus actual level of sightings						
		Never sees black bears	**Sees black bears a few times / year**	**Sees black bears a few times / month**	**Sees black bears a few times / week**	**Sees black bears daily or almost daily**
Q36. About how often would you like to see black bears in your neighborhood?	Never	78%	33%	27%	17%	0%
	A few times each year	16%	56%	17%	23%	32%
	A few times per month	1%	6%	41%	20%	16%
	A few times per week	1%	1%	1%*	39%	11%
	Daily or almost daily	1%	1%	4%*	2%	35%
	It doesn't matter to me	4%	3%	9%	0%	6%
	Don't know	0%	0%	1%	0%	0%
		Never sees black bears	**Sees black bears a few times / year**	**Sees black bears a few times / month**	**Sees black bears a few times / week**	**Sees black bears daily or almost daily**
Wants to see them less:		NA	33%	44%	60%	59%
Wants to see them the same:		78%	56%	41%	39%	35%
Wants to see them more:		19%	8%	6%*	2%	NA

*Rounding causes apparent discrepancy in sum.

How to read matrix:

Of the group who never see black bears, 78% want to see them never, 16% want to see them a few times each year, 1% want to see them a few times per month, 1% want to see them a few times per week, and 1% want to see them daily or almost daily. The bottom part of the matrix shows the sums. Again, of the group who never see black bears, 78% want to see them the same amount, and 19% want to see them more.

The other columns are read in the same manner.

Note that each column sums to 100%; however, each column does not represent the same number of respondents, as the largest group consists of those who never see black bears and the smallest group consists of those who see them daily.

The cells shaded light gray running diagonally across the matrix represent where actual level of sightings and desired level of sightings are the same.

Figure 72. Questions 37 and 38.

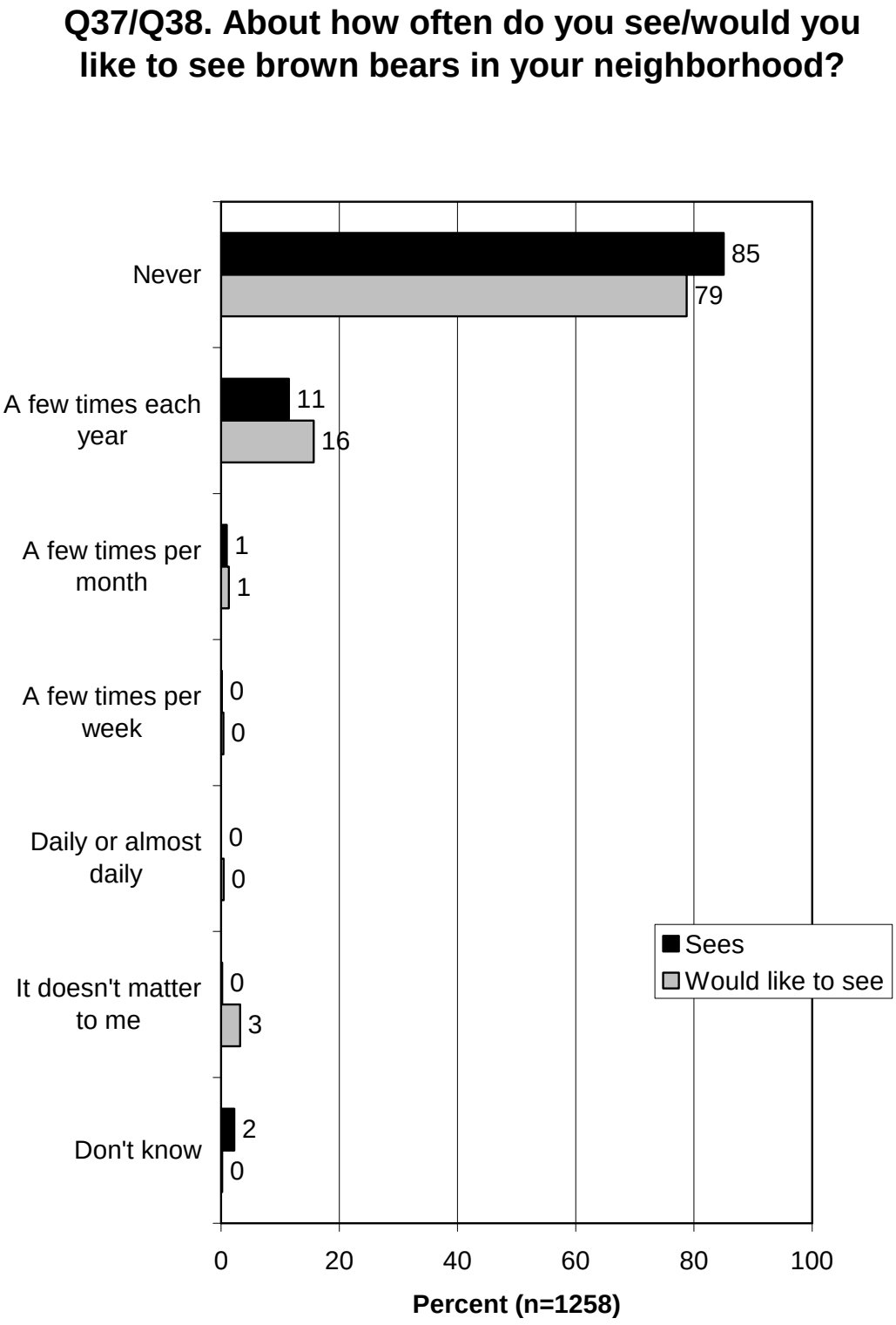


Figure 73. Questions 37 and 38 Combined.

Matrix: Desired level of brown bear sightings versus actual level of sightings						
		Never sees brown bears	**Sees brown bears a few times / year**	**Sees brown bears a few times / month**	**Sees brown bears a few times / week**	**Sees brown bears daily or almost daily**
Q38. About how often would you like to see brown bears in your neighborhood?	Never	84%	40%	71%	60%	100%
	A few times each year	11%	53%	9%	0%	0%
	A few times per month	1%	5%*	19%	0%	0%
	A few times per week	0%	0%*	1%	35%	0%
	Daily or almost daily	0%	0%*	0%	5%	0%
	It doesn't matter to me	3%	2%	1%	0%	0%
	Don't know	0%	0%	0%	0%	0%
		Never sees brown bears	**Sees brown bears a few times / year**	**Sees brown bears a few times / month**	**Sees brown bears a few times / week**	**Sees brown bears daily or almost daily**
Wants to see them less:		NA	40%	80%	60%	100%
Wants to see them the same:		84%	53%	19%	35%	0%
Wants to see them more:		12%	6%*	1%	5%	NA

*Rounding causes apparent discrepancy in sum.

(An explanation of how to read the matrix is shown with Figure 71.)

Figure 74. Question 35 Crossed by Region.

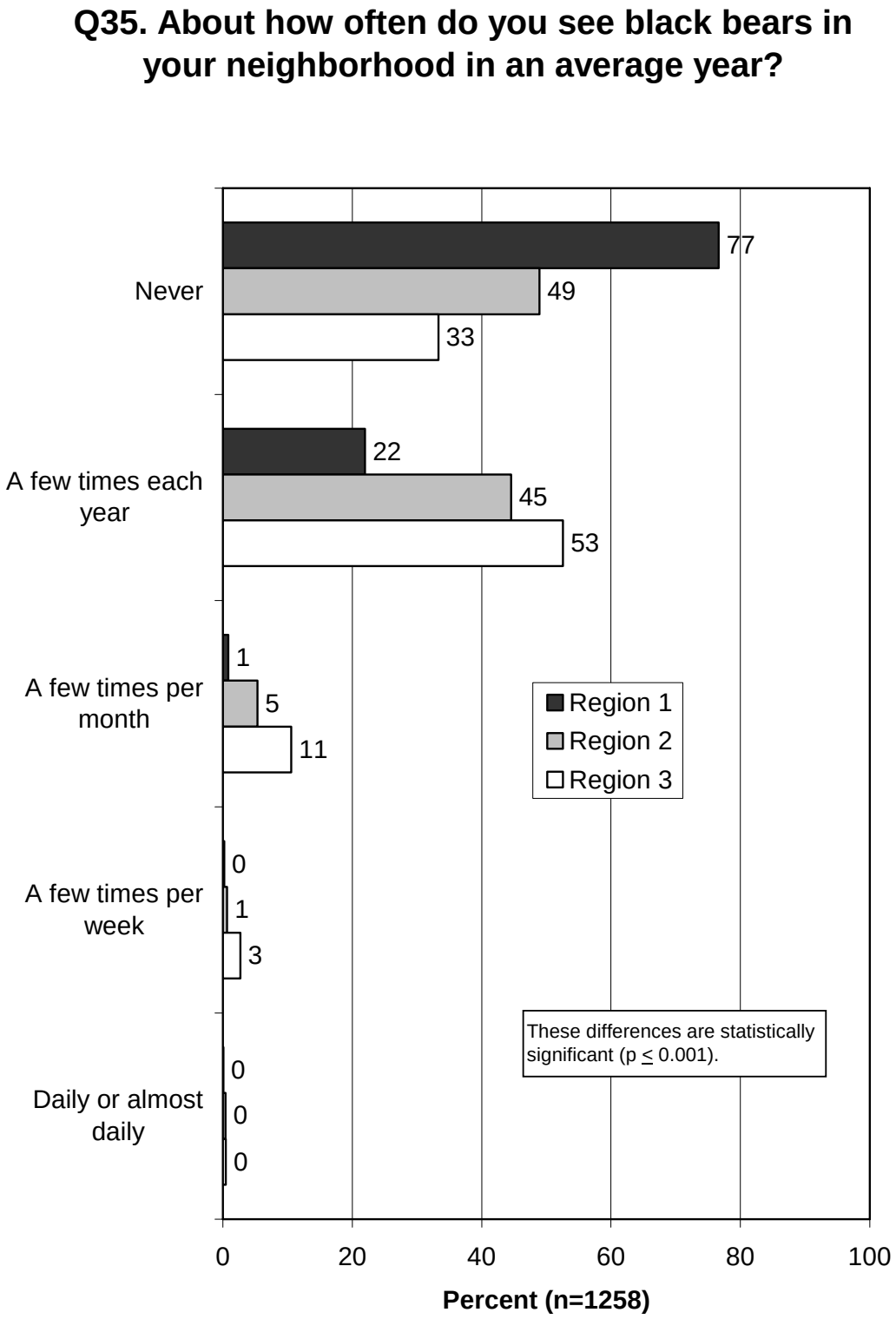


Figure 75. Question 36 Crossed by Region.

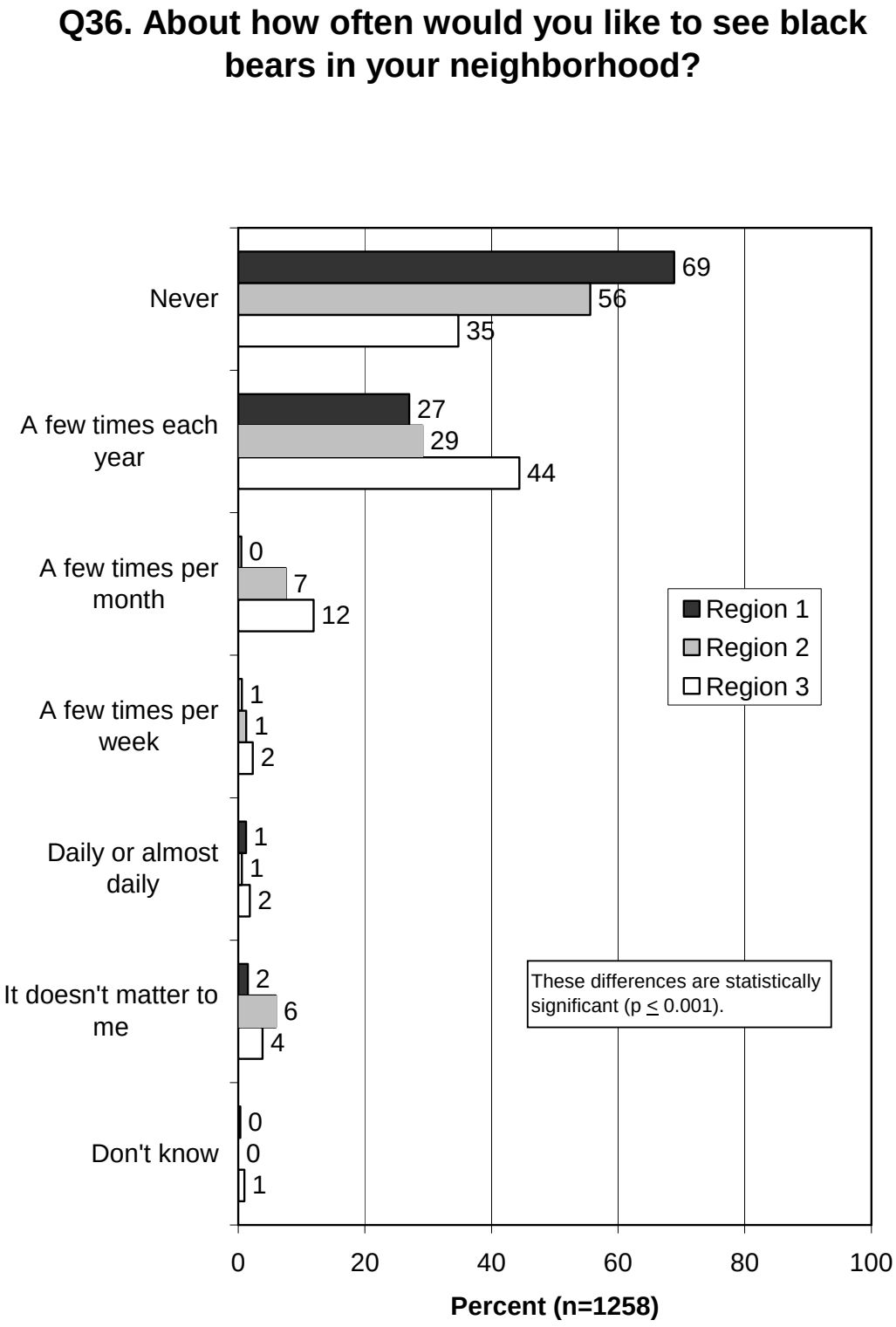


Figure 76. Question 37 Crossed by Region.

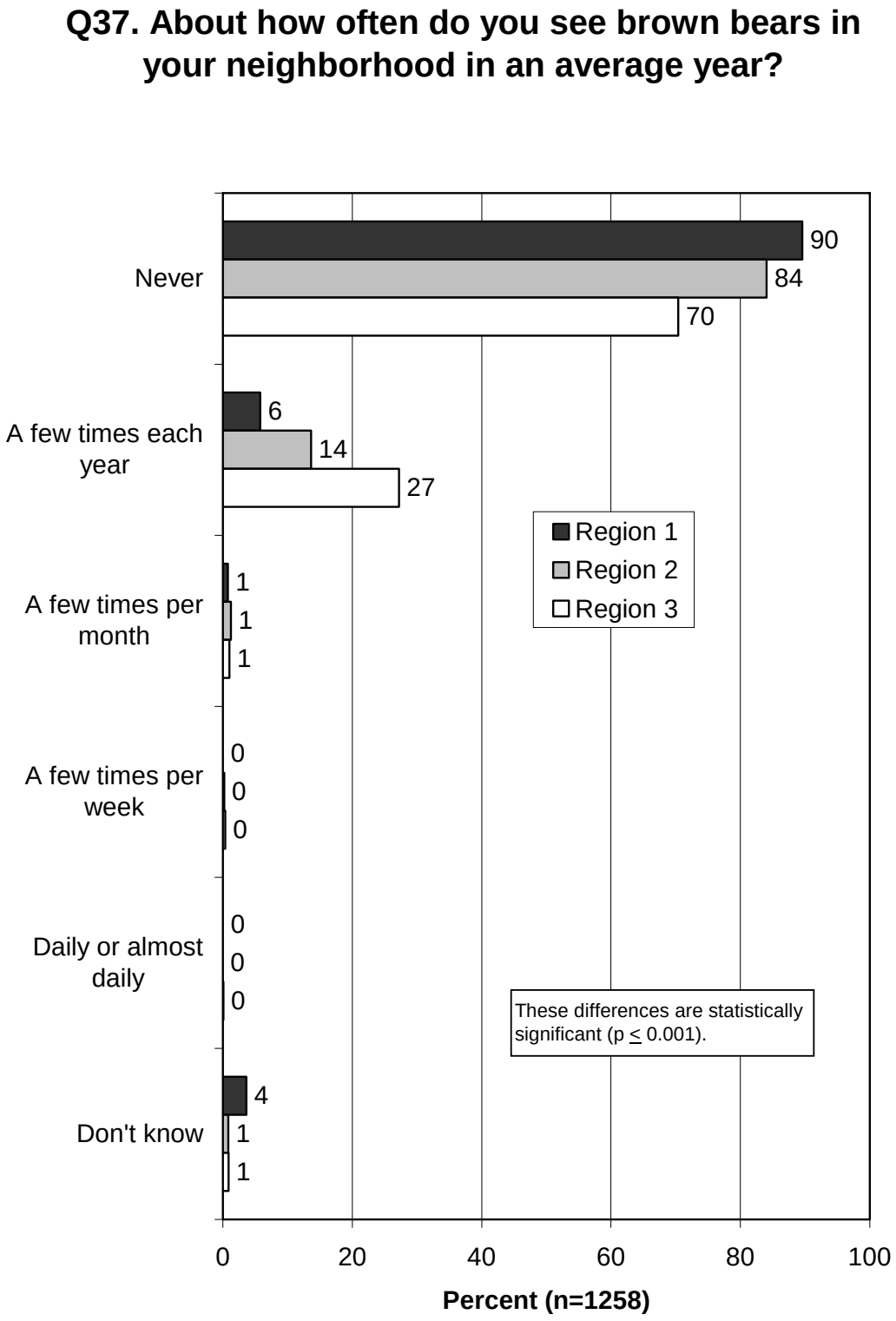


Figure 77. Question 38 Crossed by Region.

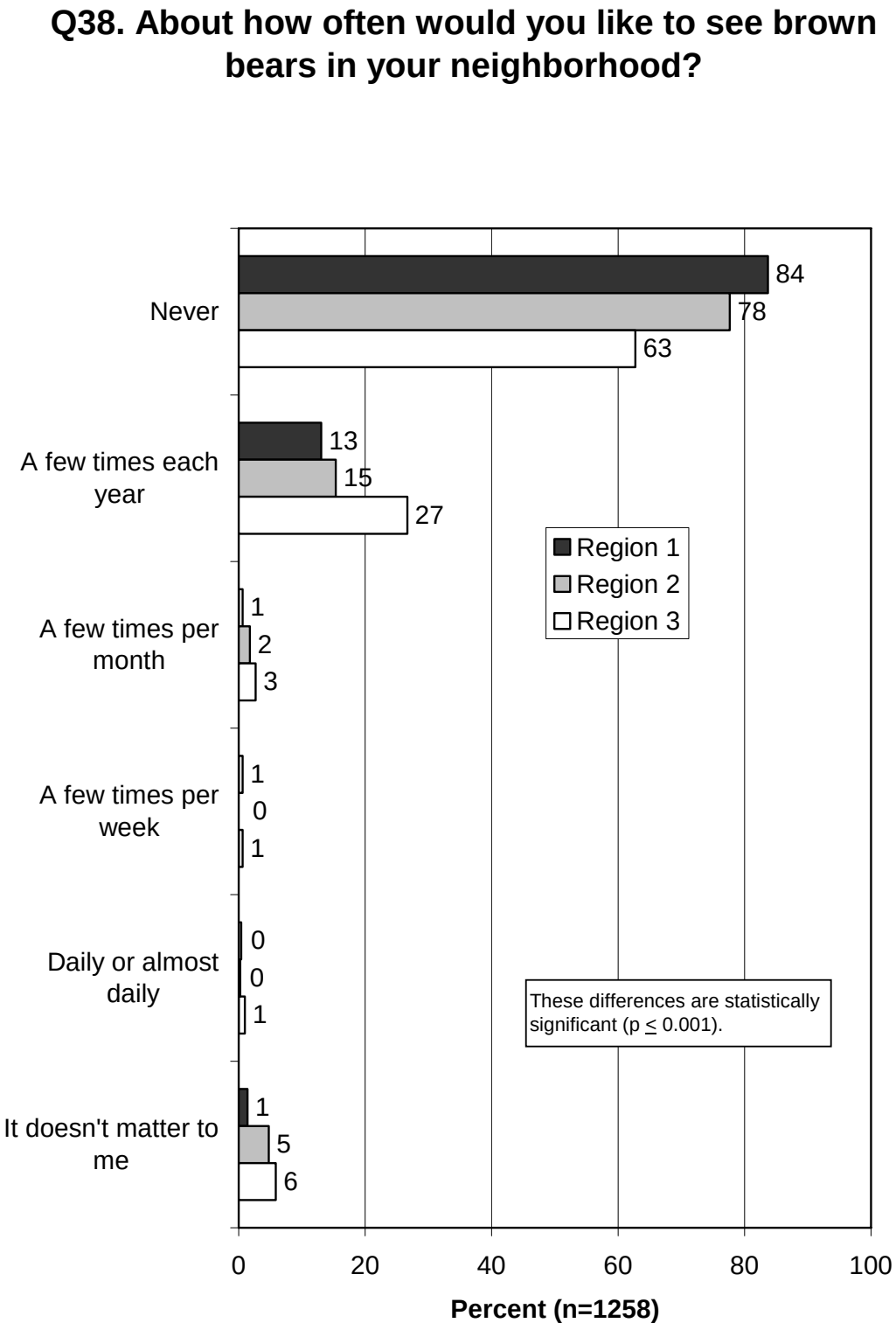


Figure 78. Questions 35 and 37.

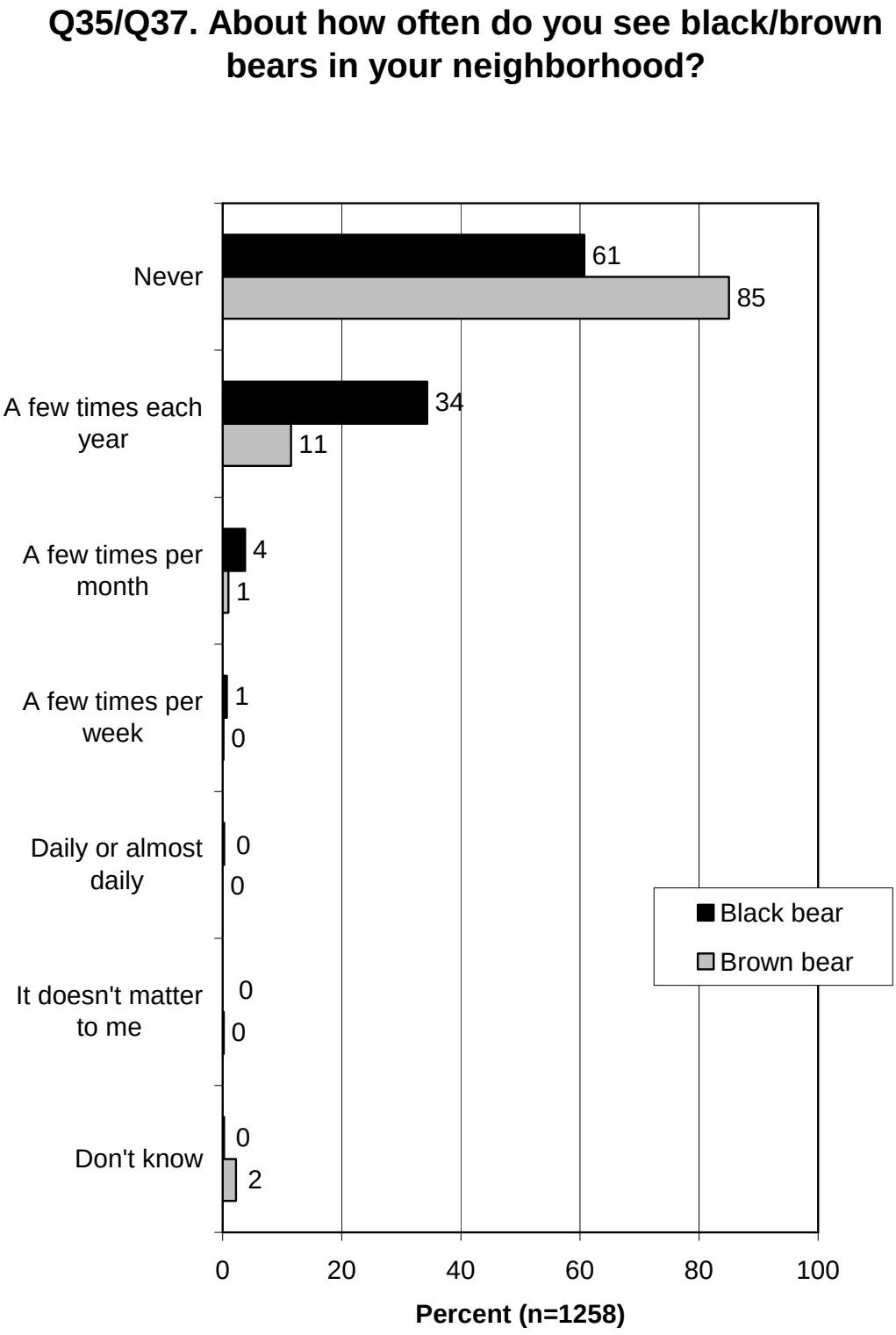


Figure 79. Questions 36 and 38.

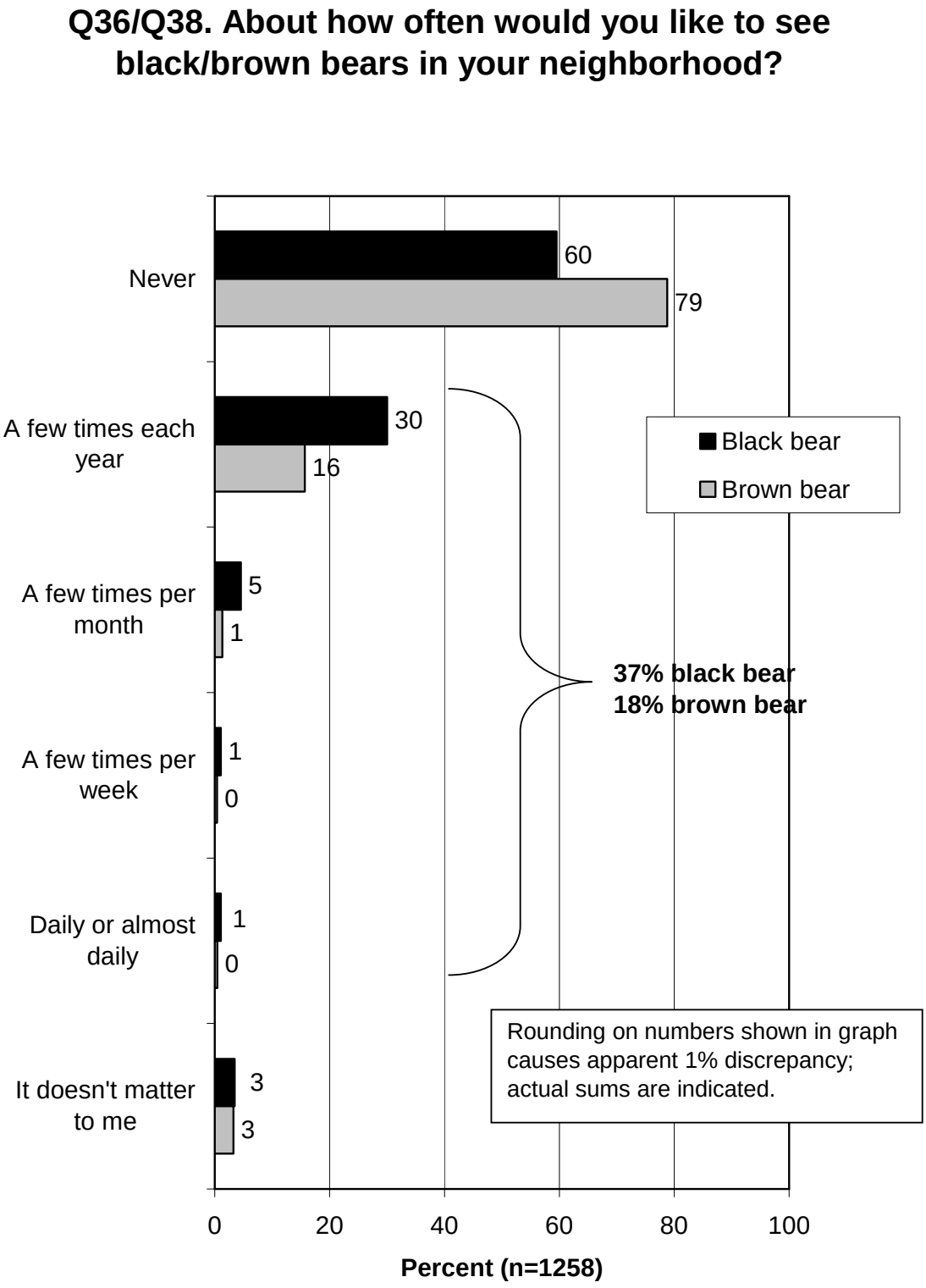


Figure 80. Questions 35, 36, 37, and 38.

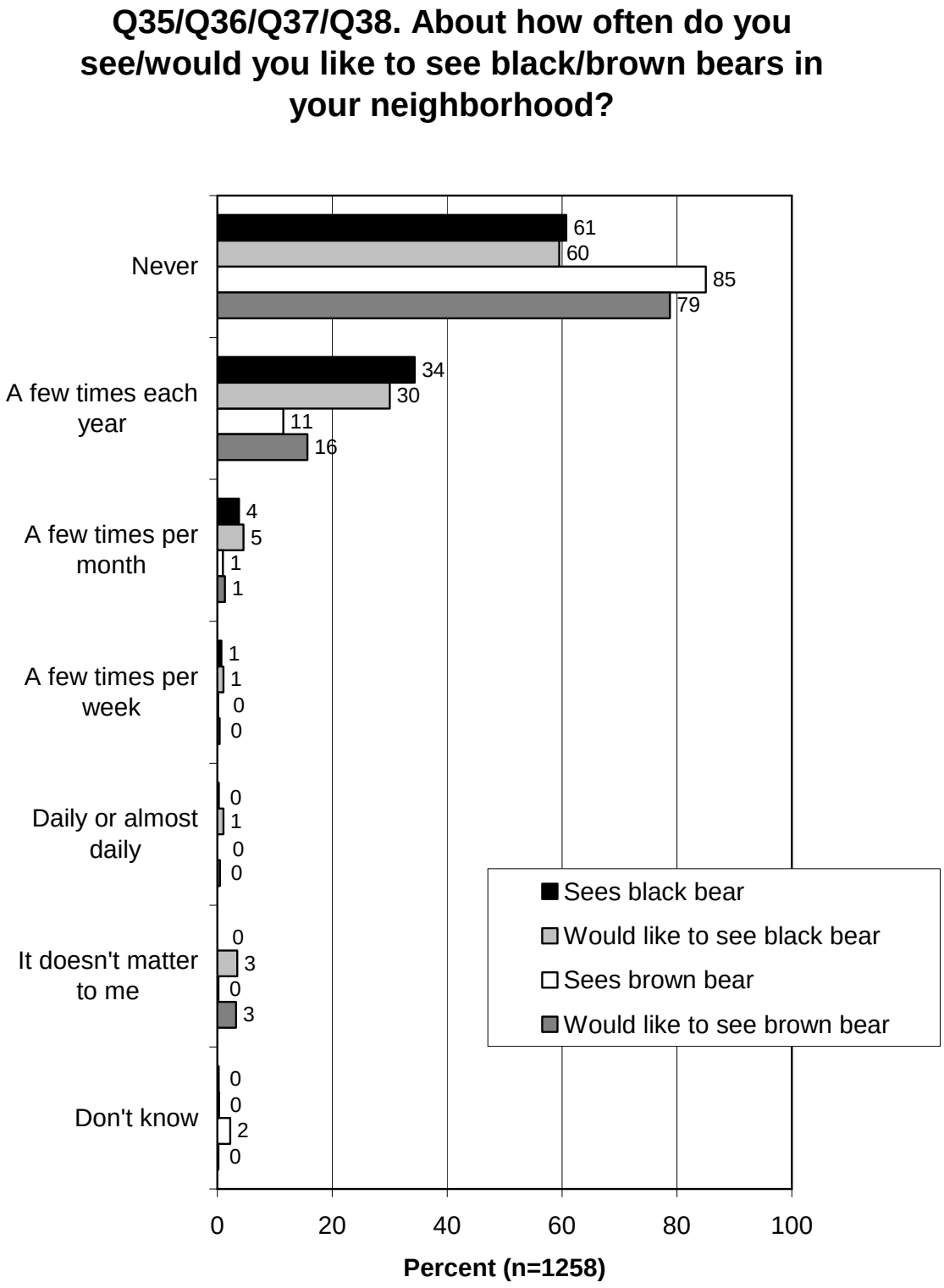


Figure 81. Question 36 Crossed by Education.

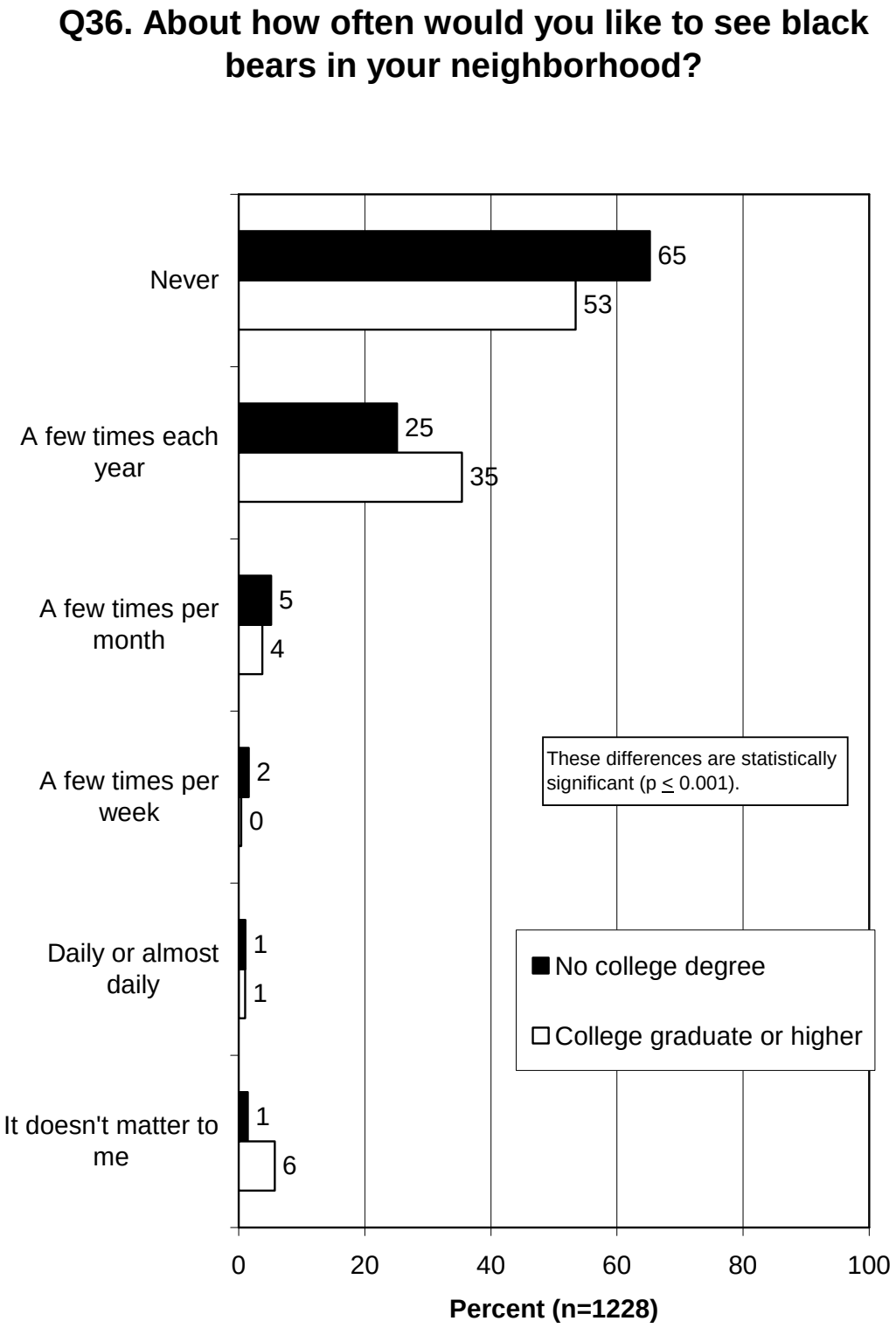


Figure 82. Question 38 Crossed by Education.

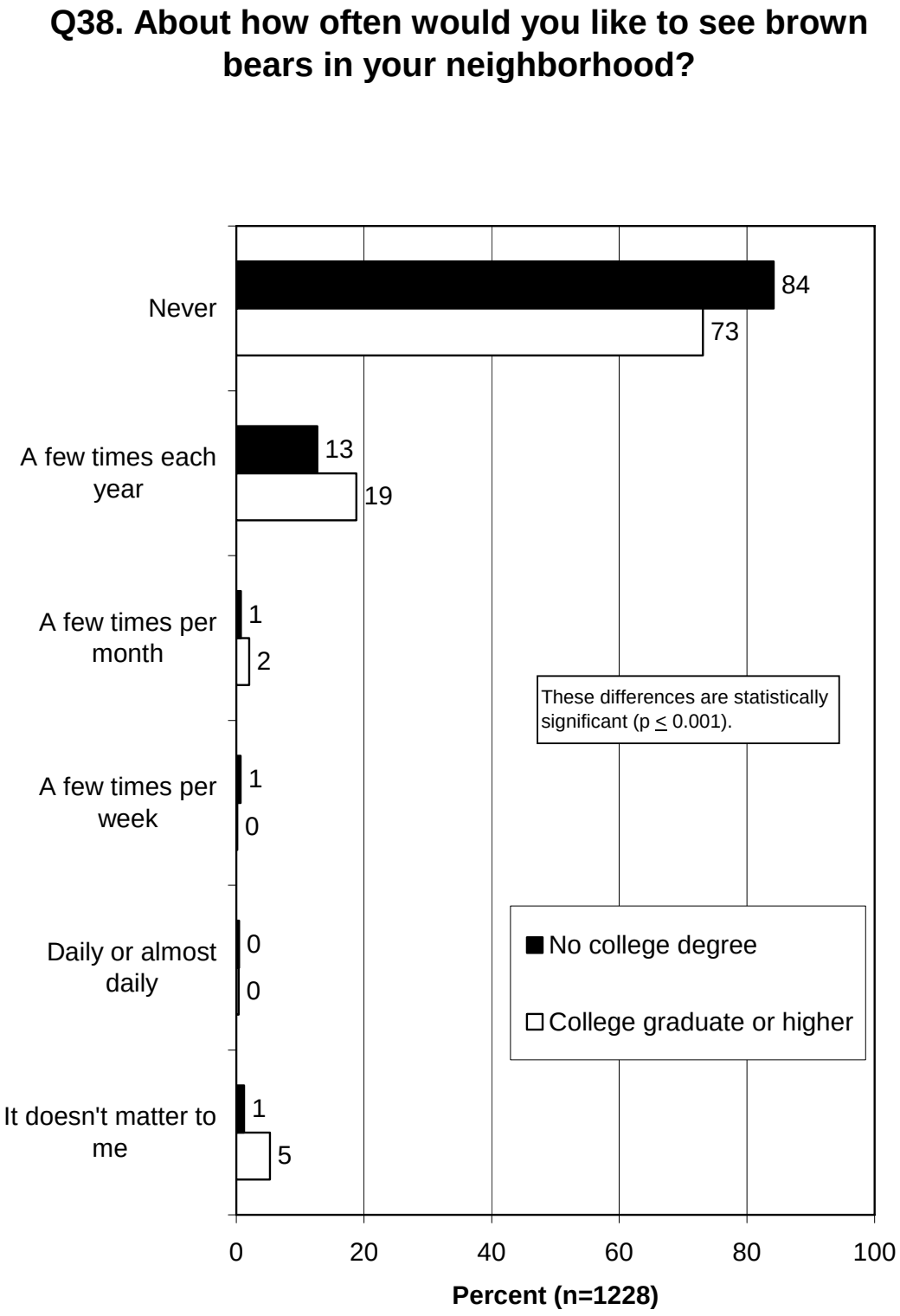


Figure 83. Question 36 Crossed by Gender.

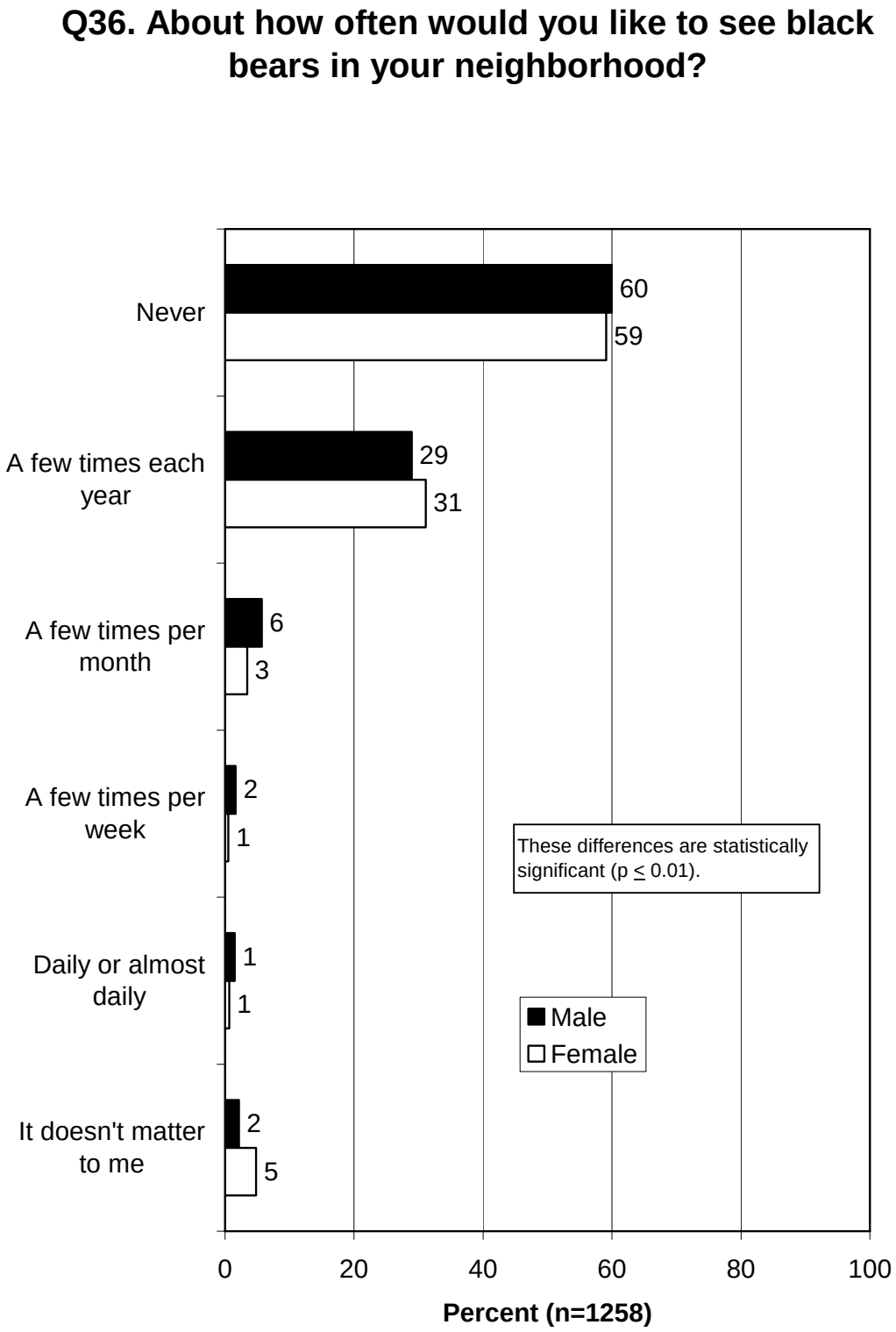


Figure 84. Question 38 Crossed by Gender.

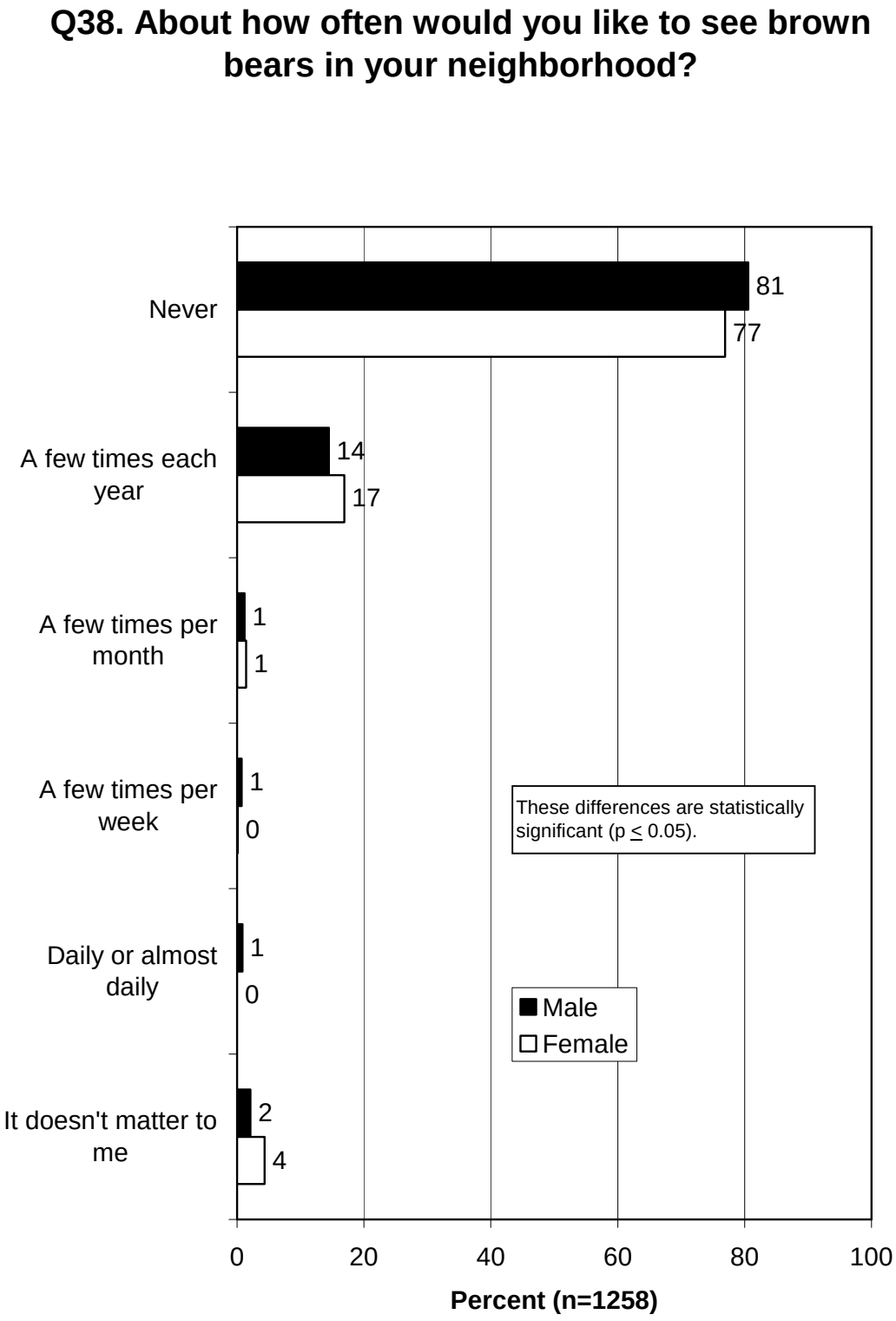


Figure 85. Question 36 Crossed by Time of Residency.

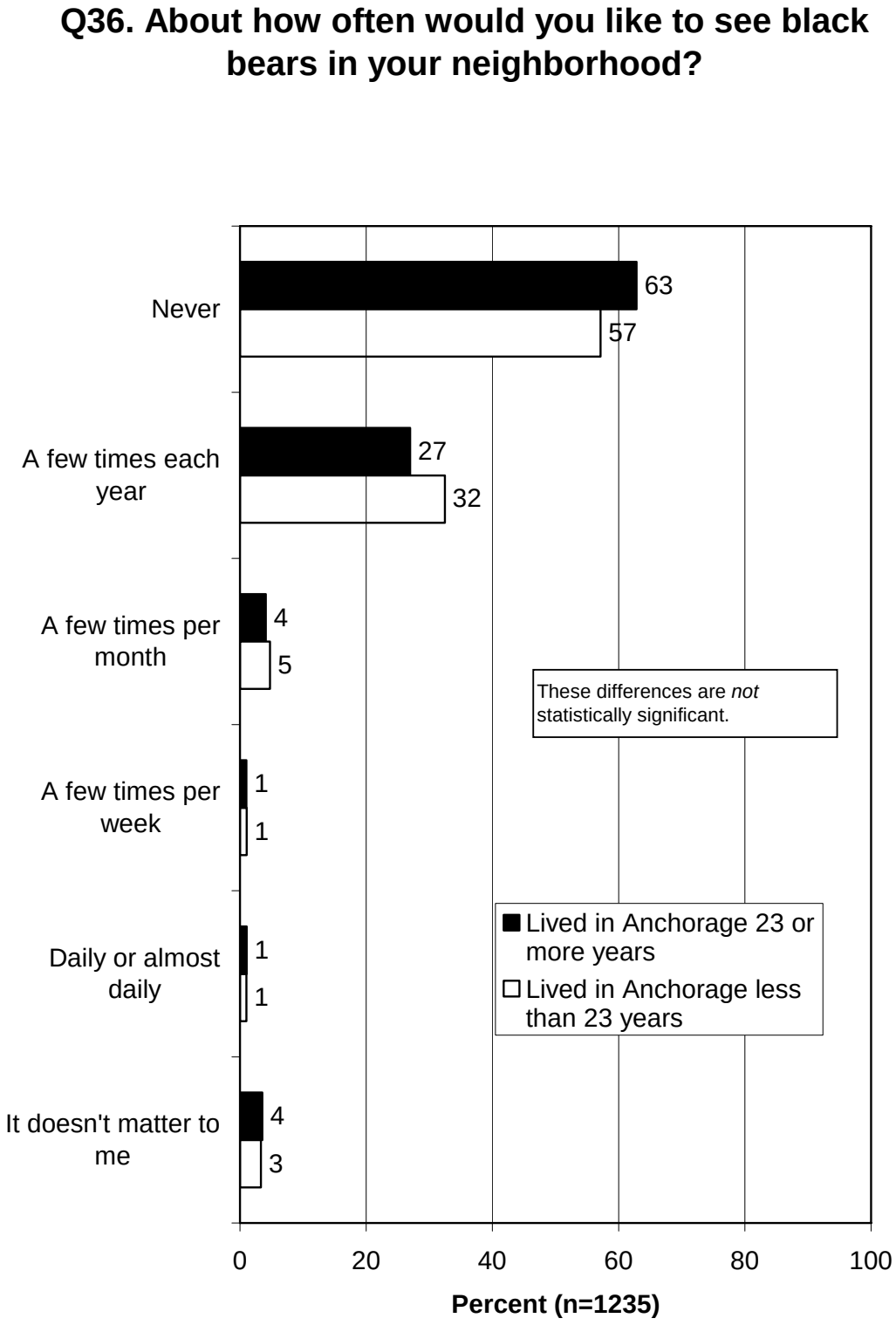


Figure 86. Question 38 Crossed by Time of Residency.

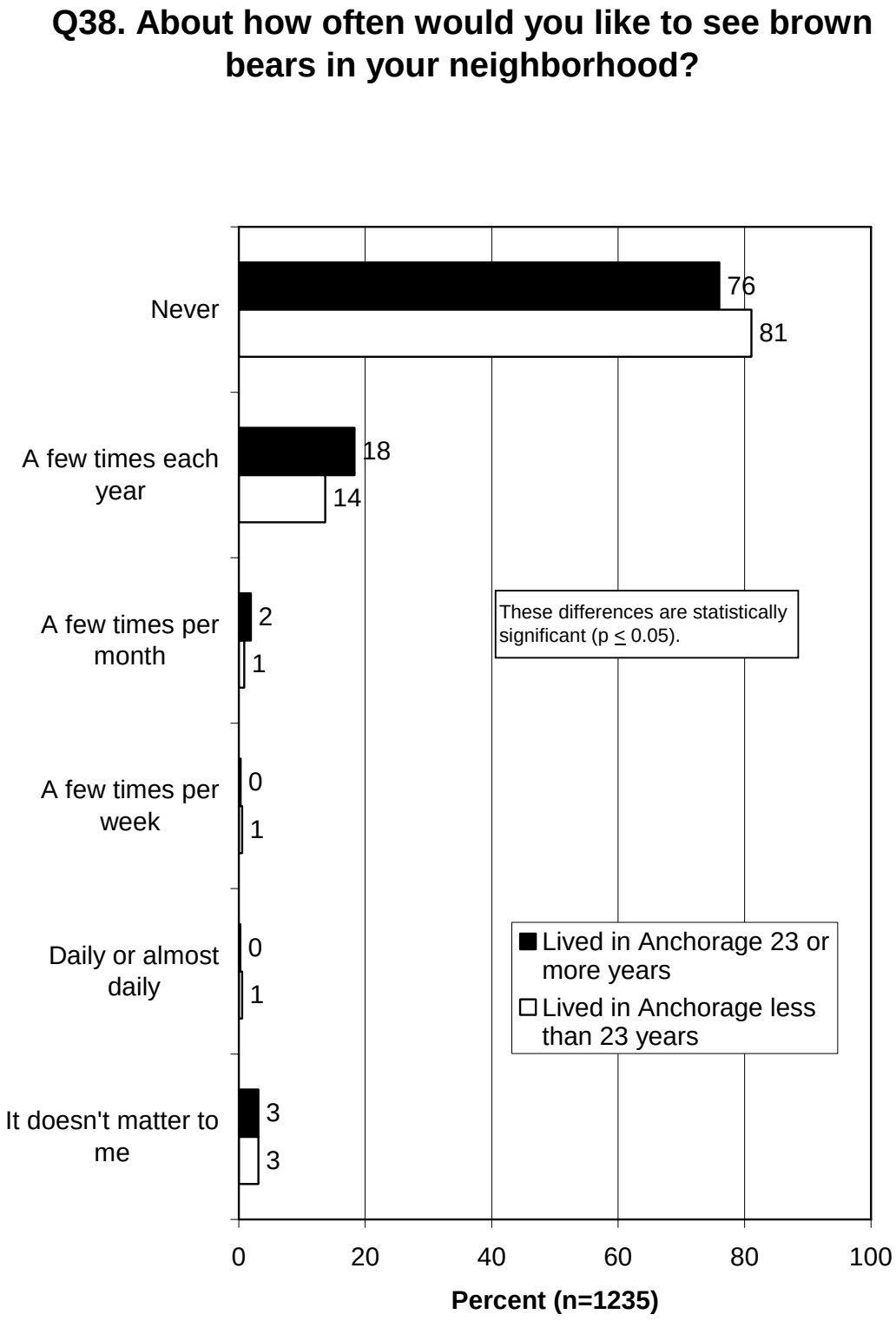


Figure 87. Question 36 Crossed by Age.

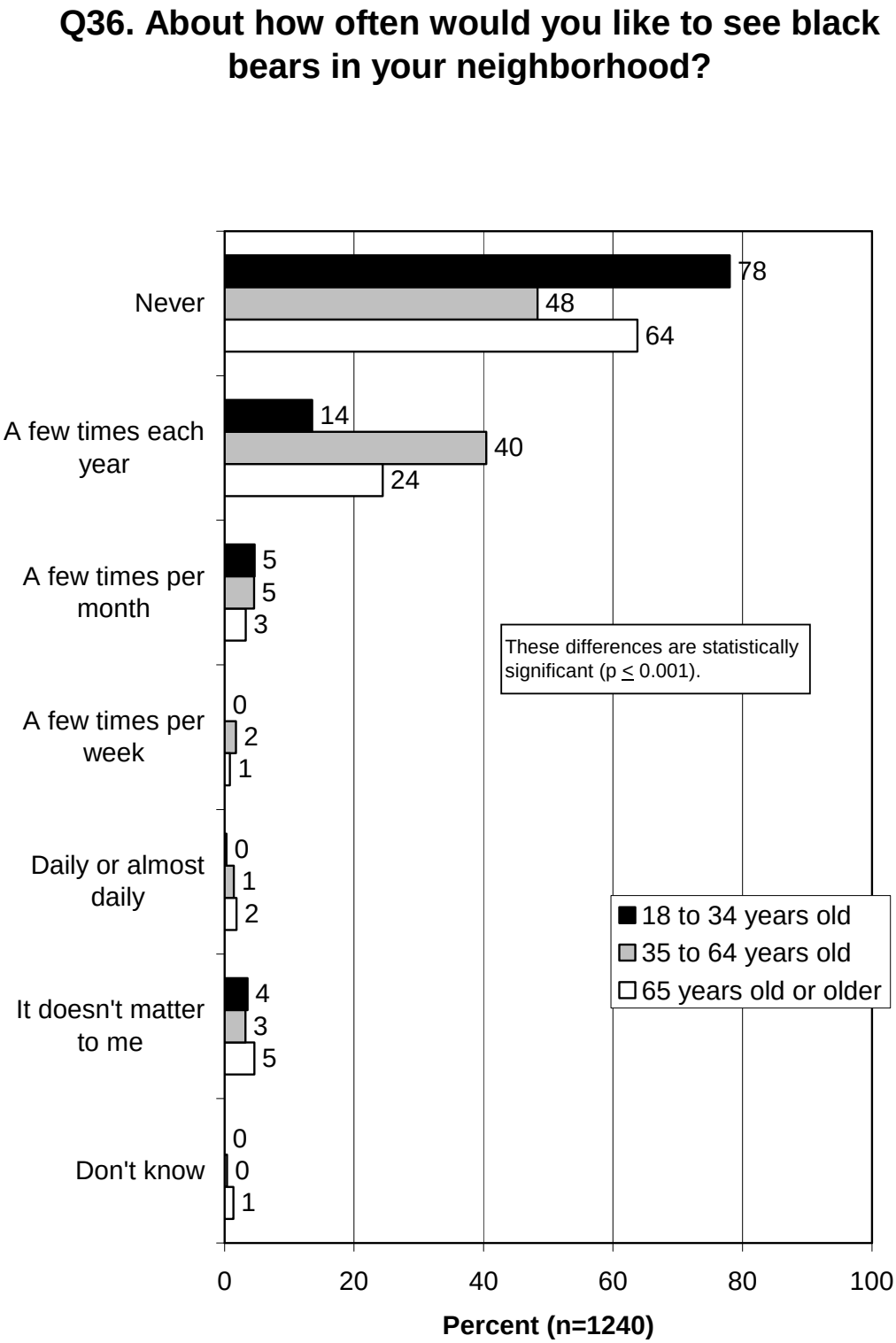
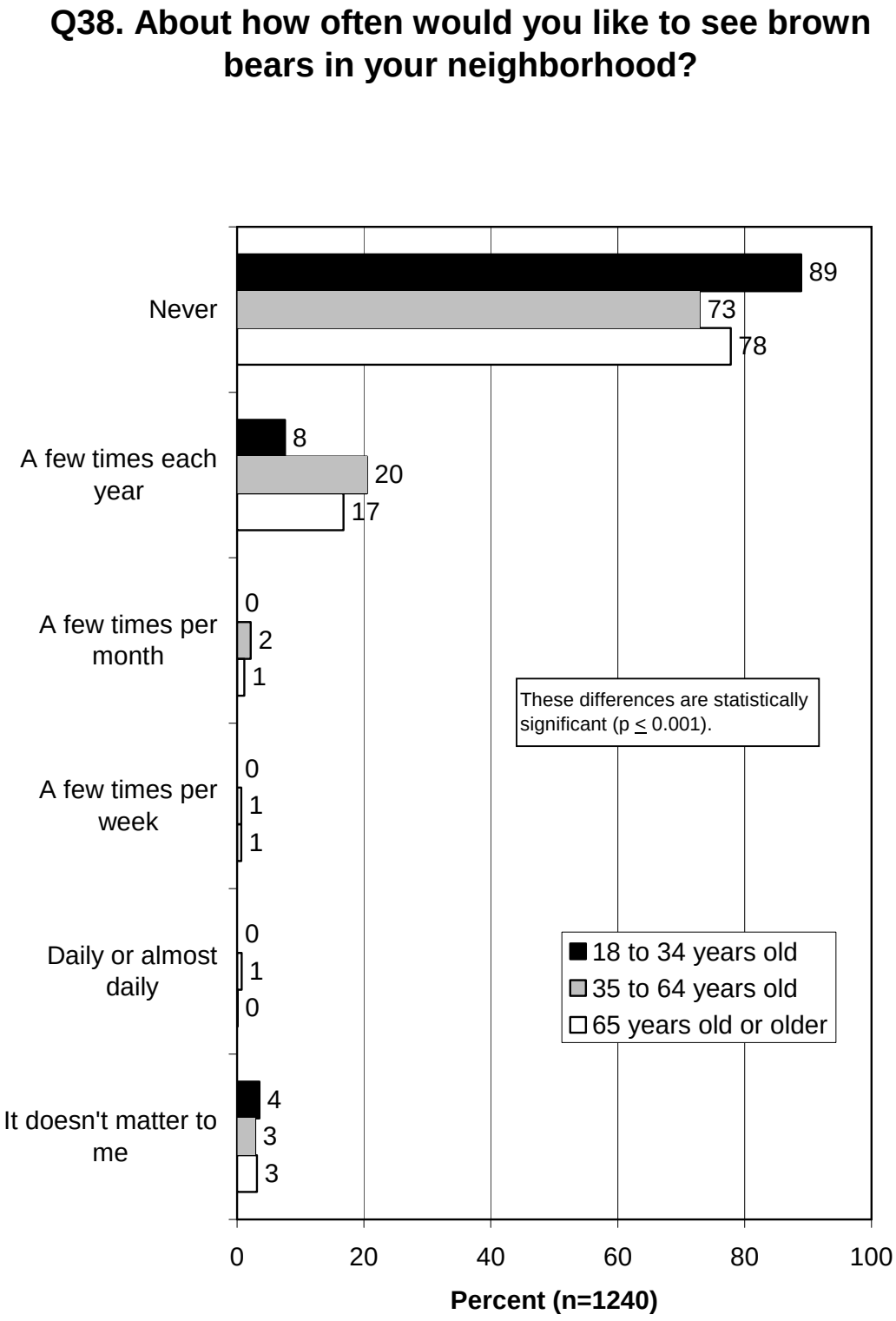


Figure 88. Question 38 Crossed by Age.



OPINIONS ON WILDLIFE IN ANCHORAGE PARKS

- Residents were asked about the acceptability of having bears in *Far North Bicentennial Park*. For both black and brown bears, a majority of residents think it is acceptable to have them in the park (Figure 89): 73% (for black bears) and 63% (for brown bears) think it is acceptable to have them in the park. On the other hand, 16% (for black bears) and 26% (for brown bears) think it is unacceptable to have them in the park. Note that black bears are more acceptable to residents than are brown bears.
  - Regional crosstabulation: Region 3 residents are the *least* likely to find having black bears in Far North Bicentennial Park to be *unacceptable* ($p \leq 0.001$), although the difference is small (Figure 90). Region 3 residents are also the *least* likely to find having brown bears in Far North Bicentennial Park to be *unacceptable* ($p \leq 0.001$) (Figure 91). On the latter question regarding brown bears, Region 1 residents are the most likely to find it be *unacceptable* ($p \leq 0.001$).
  - Trail users crosstabulation: On both questions, trail users, relative to those who are not described as trail users, are more likely to say that having black and brown bears in Far North Bicentennial Park is *highly* acceptable ($p \leq 0.001$) (Figures 92 and 93).
  - Park users crosstabulation: Park users are more likely to say it is *highly* acceptable, compared to those not described as park users, to have black and brown bears in Far North Bicentennial Park ($p \leq 0.001$ for both black and brown bears) (Figures 94 and 95).
  - Other crosstabulations find positive correlations between opinions on acceptability of having black and brown bears in Far North Bicentennial Park and the tolerance level regarding black and brown bears in their neighborhoods. In short, those who think it is acceptable to have black ($p \leq 0.001$) and brown ($p \leq 0.001$) bears in Far North Bicentennial Park, compared to those who think it is unacceptable, are more likely to want to see and have black and brown bears in their neighborhoods (Figures 96 and 97).

- The same questions asked above about Far North Bicentennial Park were asked about *Chugach State Park*, with similar results. The same as above, for both black and brown bears, a majority of residents think it is acceptable to have them in the Chugach State Park (Figure 98): 87% (for black bears) and 82% (for brown bears) think it is acceptable to have them in the park. On the other hand, 8% (for black bears) and 13% (for brown bears) think it

is unacceptable to have them in the park. Again, black bears are more acceptable to residents than are brown bears.

- Regional crosstabulation: Region 3 residents are the most likely to find having black bears in Chugach State Park to be acceptable ($p \leq 0.001$) (Figure 99), and they are also the most likely to find having brown bears in Chugach State Park to be acceptable ($p \leq 0.001$) (Figure 100).
- Trail users crosstabulation: As before, on both questions, trail users, relative to those who are not described as trail users, are more likely to say that having black and brown bears in Chugach State Park is *highly* acceptable ($p \leq 0.001$) (Figures 101 and 102).
- Park users crosstabulation: Park users are more likely to say it is *highly* acceptable, compared to those not described as park users, to have black and brown bears in Chugach State Park ($p \leq 0.001$ for both black and brown bears) (Figures 103 and 104).
- A comparison of Far North Bicentennial Park and Chugach State Park shows that residents are more comfortable with bears in Chugach State Park. Note that Far North Bicentennial Park is closer to downtown of the two parks.

➢ Although residents, for the most part, think it is acceptable to have bears in Far North Bicentennial Park, majorities nonetheless support legal, regulated hunting of bears to control their populations in the park: 65% (for black bears) and 66% (for brown bears) support legal, regulated hunting of them (Figure 105). Opposition stands at 27% for both black and brown bears.

- The regional crosstabulations are shown (Figures 106 and 107).
- Trail users crosstabulation: Trail users, relative to those who are not described as trail users, are *less* likely to support legal, regulated hunting of bears to control their populations in Far North Bicentennial Park ($p \leq 0.001$) (Figures 108 and 109).
- Park users crosstabulation: Park users are *less* likely than are those not described as park users to support legal, regulated hunting of bears to control their populations in Far North Bicentennial Park ($p \leq 0.001$) (Figures 110 and 111).
- There are positive correlations between support for legal, regulated hunting of black and brown bears to control their populations in Far North Bicentennial Park and support for

destroying some black and brown bears every year to reduce their populations (both at $p \leq 0.001$) (Figures 112 and 113).

- Regarding the moose population, 70% support and 27% oppose legal, regulated hunting of moose to control their population in the Anchorage area, including the large parks (Figure 114).
  - The regional crosstabulation regarding the moose population is shown (Figure 115).
  - Trail users crosstabulation: Trail users are more likely than are those who are not described as trail users to strongly *oppose* legal, regulated hunting of moose to control their population in the Anchorage area, including the large parks ($p \leq 0.001$) (Figure 116).
  - Park users crosstabulation: Park users, compared to those not described as park users, are more likely to strongly oppose legal, regulated hunting of moose to control their population in the Anchorage area, including the large parks ($p \leq 0.001$) (Figure 117).
  - There is a positive correlation between support for legal, regulated hunting of moose to control their population in Anchorage in general and support for destroying some moose every year to reduce their population ($p \leq 0.001$) (Figure 118).

- When asked if the possibility of encountering a black bear, brown bear, or moose prevented them from using Anchorage area parks and/or trails as much as they would have liked, overwhelming majorities of respondents disagree (with most *strongly* disagreeing) (Figure 119): 71% (regarding black bear), 64% (regarding brown bear), and 90% (regarding moose) disagree. Nonetheless, a few respondents agree: 25% (black bear), 33% (brown bear), and 8% (moose) agree. Brown bears are again perceived the most negatively.
  - Regional crosstabulation: Region 1 residents are the most likely to *strongly agree* that the possibility of encountering a black or brown bear prevented them from using Anchorage area parks and/or trails as much as they would have liked; Region 3 residents are the most likely to *strongly disagree* ($p \leq 0.001$) (Figures 120 and 121). There were no marked differences regarding the effects of possibly encountering a moose (Figure 122).

- Trail users crosstabulation: Trail users, relative to those who are not described as trail users, are more likely to disagree on this question regarding both black and brown bears (both at $p \leq 0.001$) (Figures 123 and 124). However, trail users are more likely to agree than are those not described as trail users regarding moose ($p \leq 0.001$) (Figure 125).
- Park users crosstabulation: Park users, compared to those not described as park users, are more likely to strongly disagree on both bear questions and the moose question that they have been prevented from using Anchorage area parks or trails as much as they would have liked in the past 2 years because of the possibility of encountering a bear or moose ($p \leq 0.001$ for both bear questions, $p \leq 0.01$ for the moose question) (Figures 126 through 128).

➢ Residents were asked if they support or oppose temporary closures of trails at times when the risk of encountering a brown bear in the area is high. Support is overwhelming: 89% support, with 74% *strongly* supporting (Figure 129). Only 8% oppose.
- The regional crosstabulation regarding temporary closures of trails is shown (Figure 130).
- Trail users crosstabulation: The differences are very small between trail users and those not described as trail users on this question, although statistically significant nonetheless (Figure 131). The results suggest that trail users are slightly more likely to strongly support temporary closures of trails at times when the risk of encountering a brown bear in the area is high ($p \leq 0.001$).
- Park users crosstabulation: Park users are slightly more likely to *oppose*, compared to those not described as park users, temporary trail closures at times when the risk of encountering a brown bear in that area is high ($p \leq 0.001$) (Figure 132). The difference, however, is quite small.

➢ Regarding a proposed new or improved trail along a salmon stream where authorities believe the risk of brown bear attacks will be increased with increased trail use, the majority of residents (57%) still favor building the trail with conditions; however, 35% oppose the trail (Figure 133). The most popular of those conditions for building the trail would be to build the trail but close it seasonally when bears are most likely to be there (32%).
- The regional crosstabulation is shown regarding a new or improved trail (Figure 134).

- Trail users crosstabulation: Trail users, relative to those who are not described as trail users, are more likely to favor building the trail and killing only bears that charge or maul people, as well as favor building the trail but closing it seasonally when bears are most likely to be there ($p \leq 0.001$) (Figure 135).
- Park users crosstabulation: Park users, compared to those not described as park users, are more likely to favor building the trail and killing only bears that charge or maul people, as well as favor building the trail but closing it seasonally when bears are most likely to be there ($p \leq 0.001$) (Figure 136).

Figure 89. Questions 30 and 33.

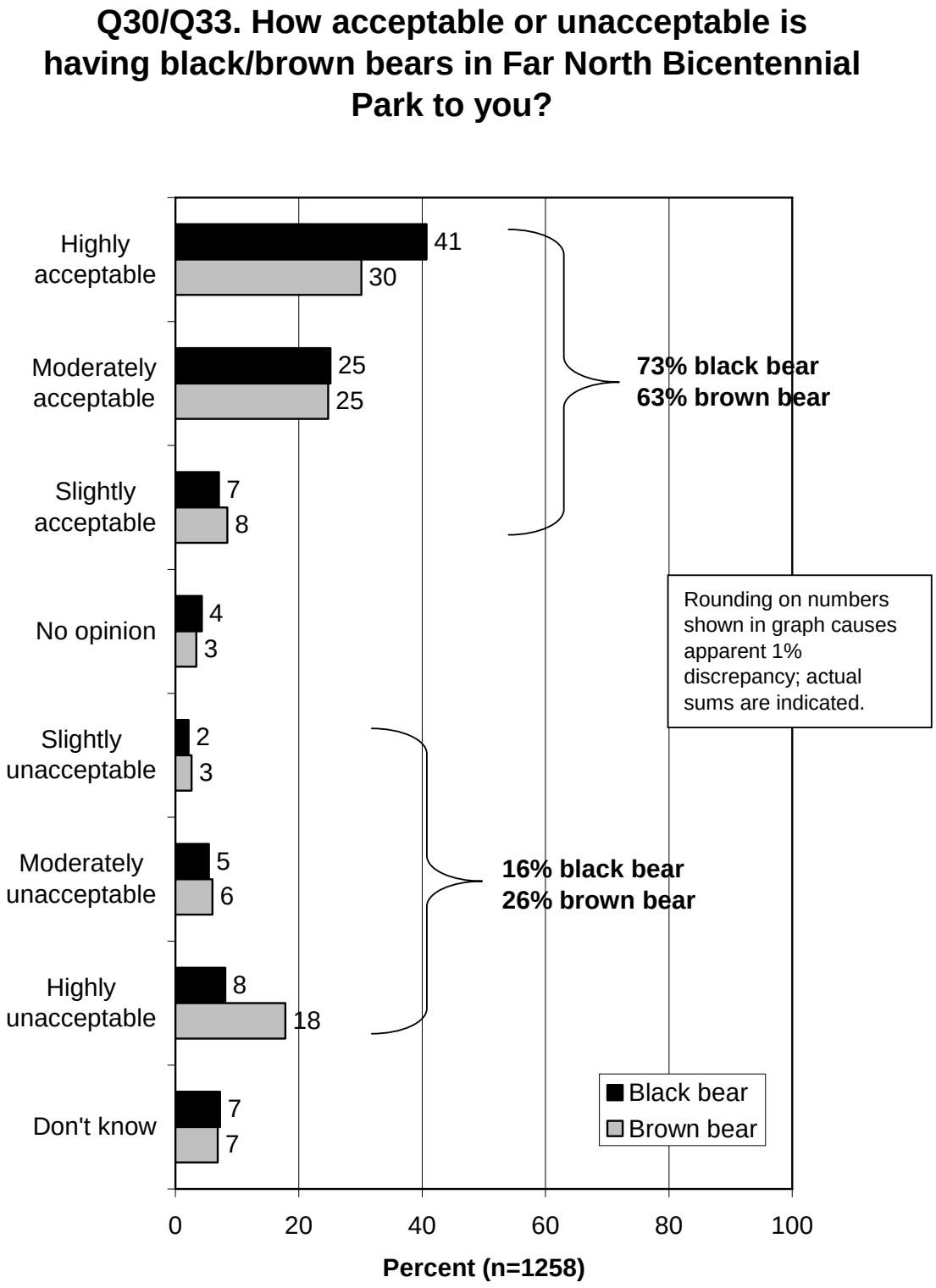


Figure 90. Question 30 Crossed by Region.

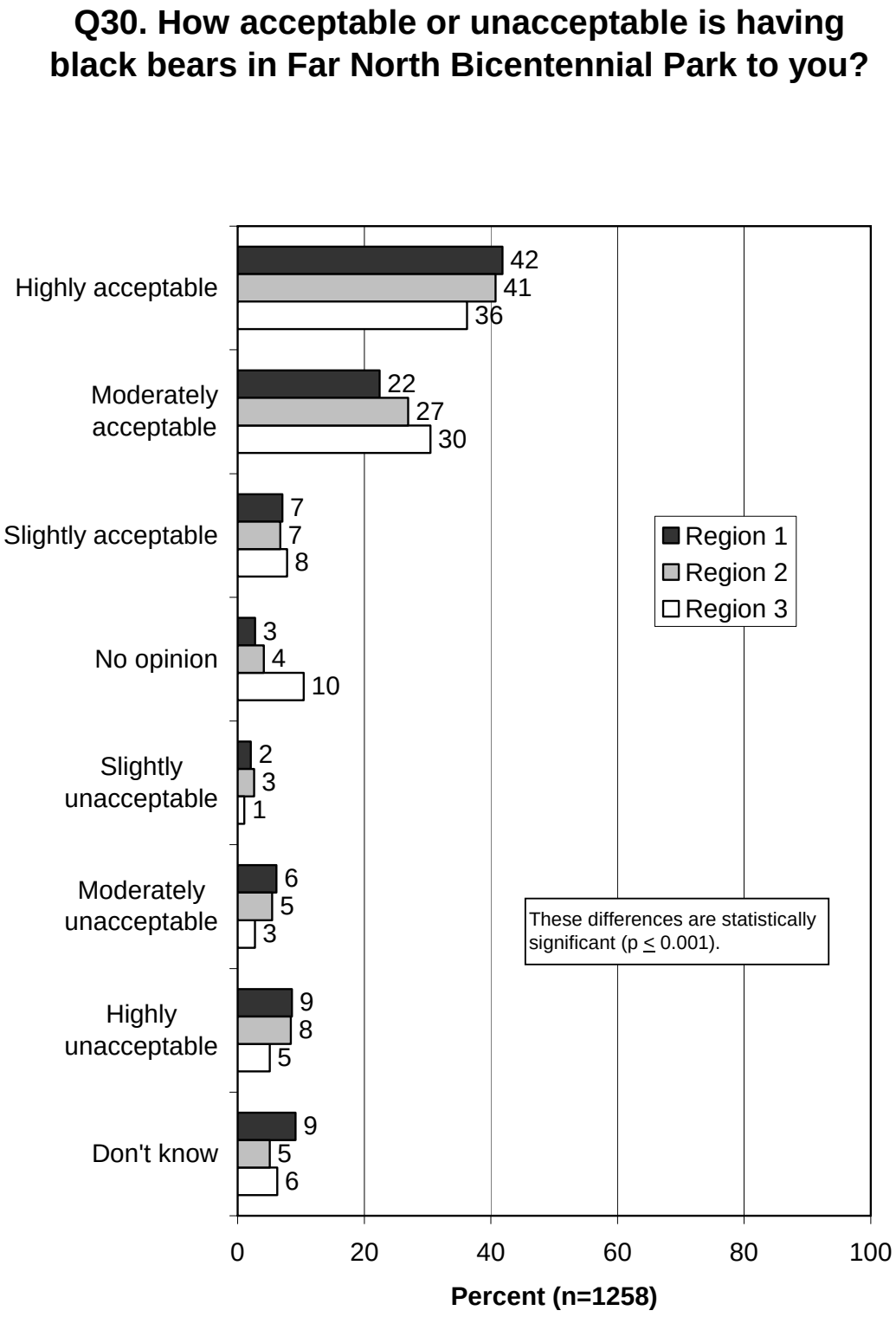


Figure 91. Question 33 Crossed by Region.

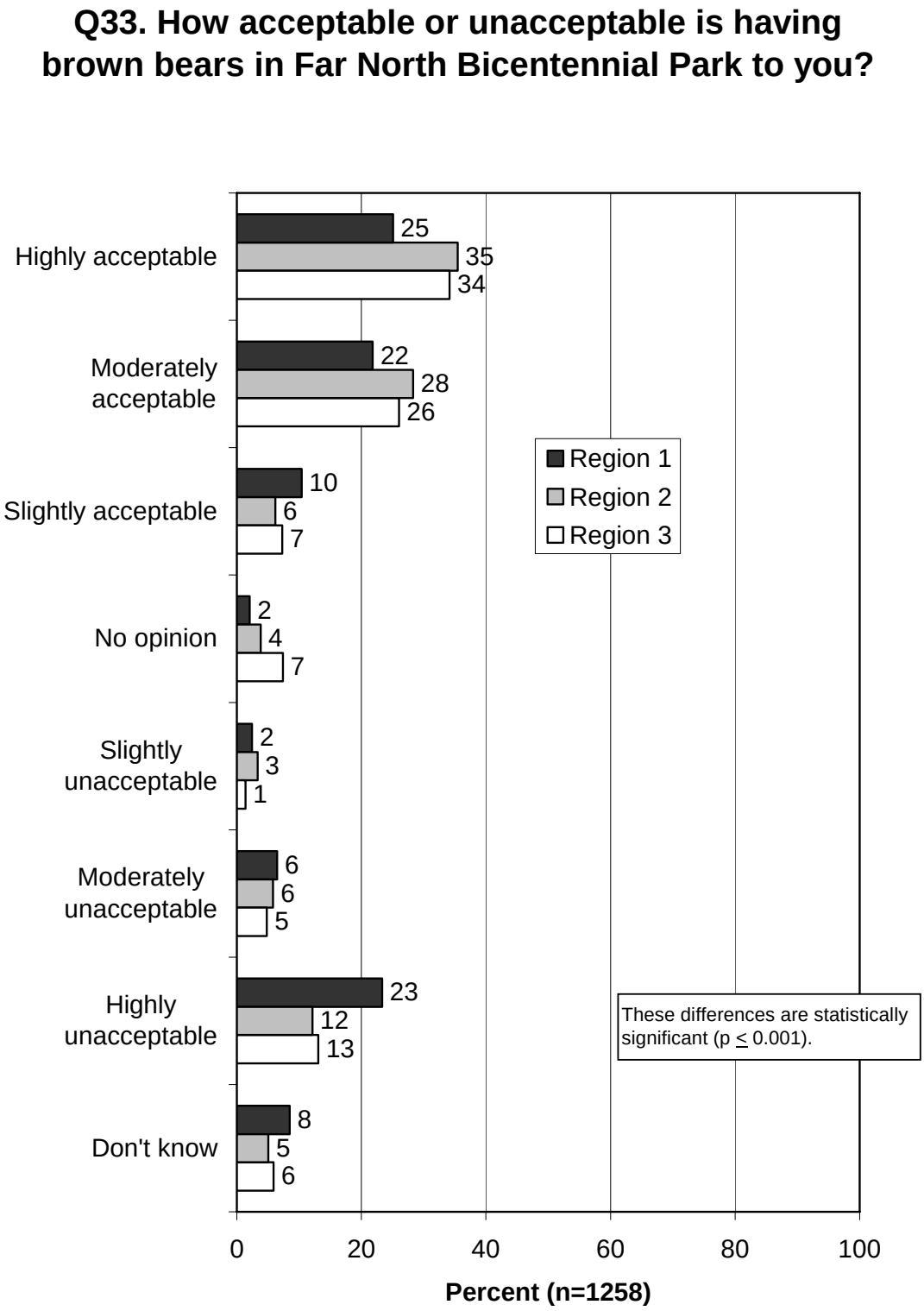


Figure 92. Question 30 Crossed by Trail Users.

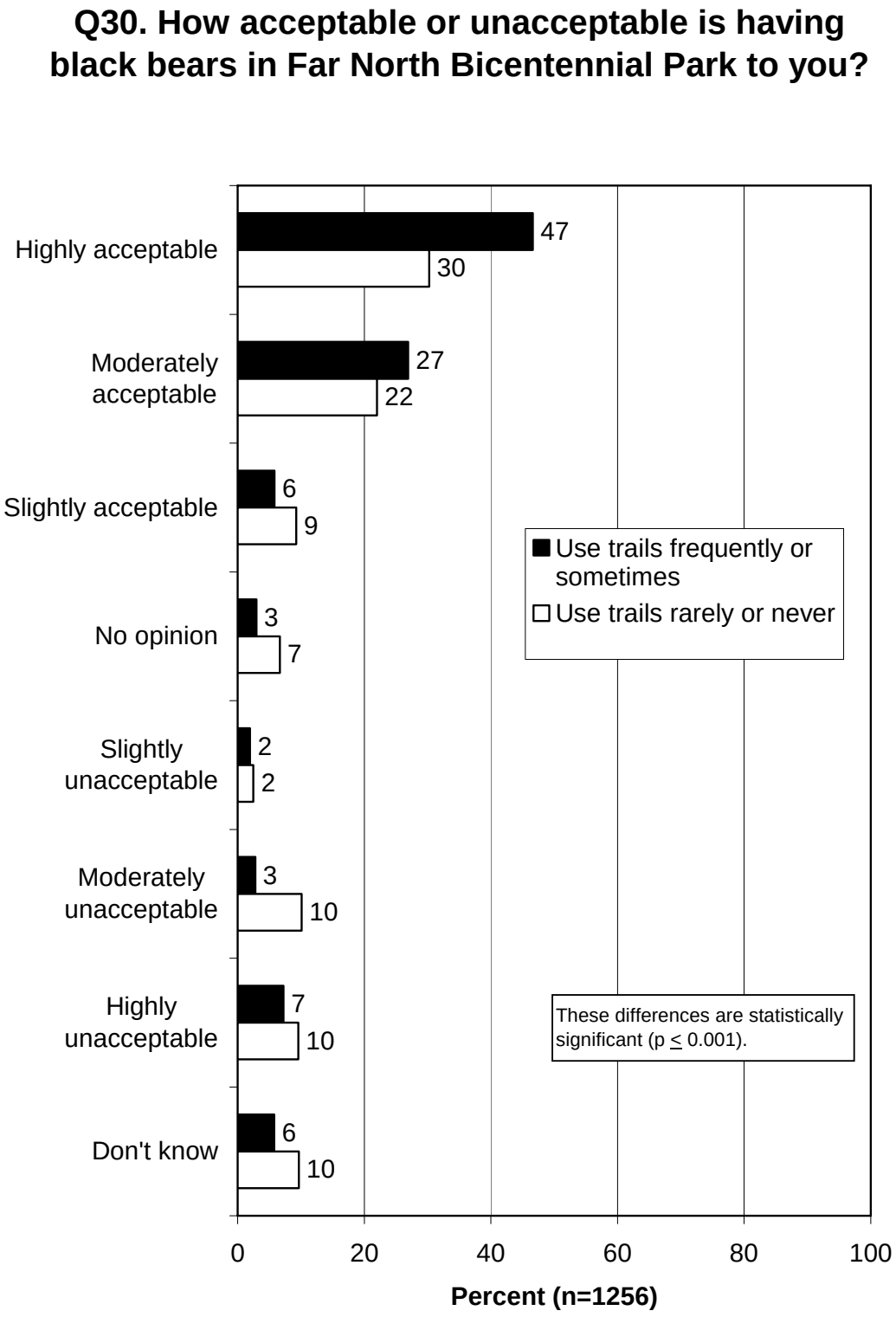


Figure 93. Question 33 Crossed by Trail Users.

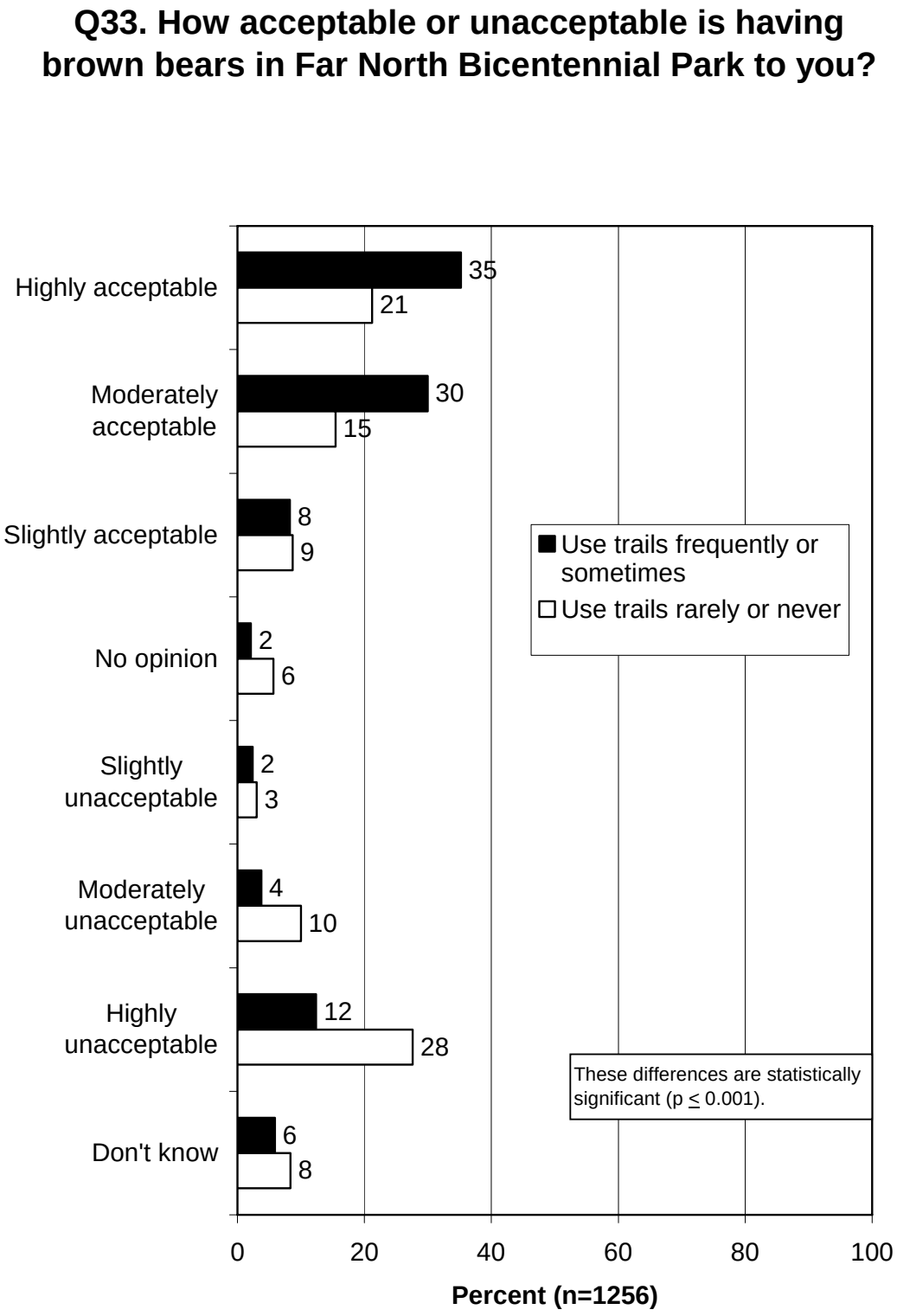


Figure 94. Question 30 Crossed by Park Users.

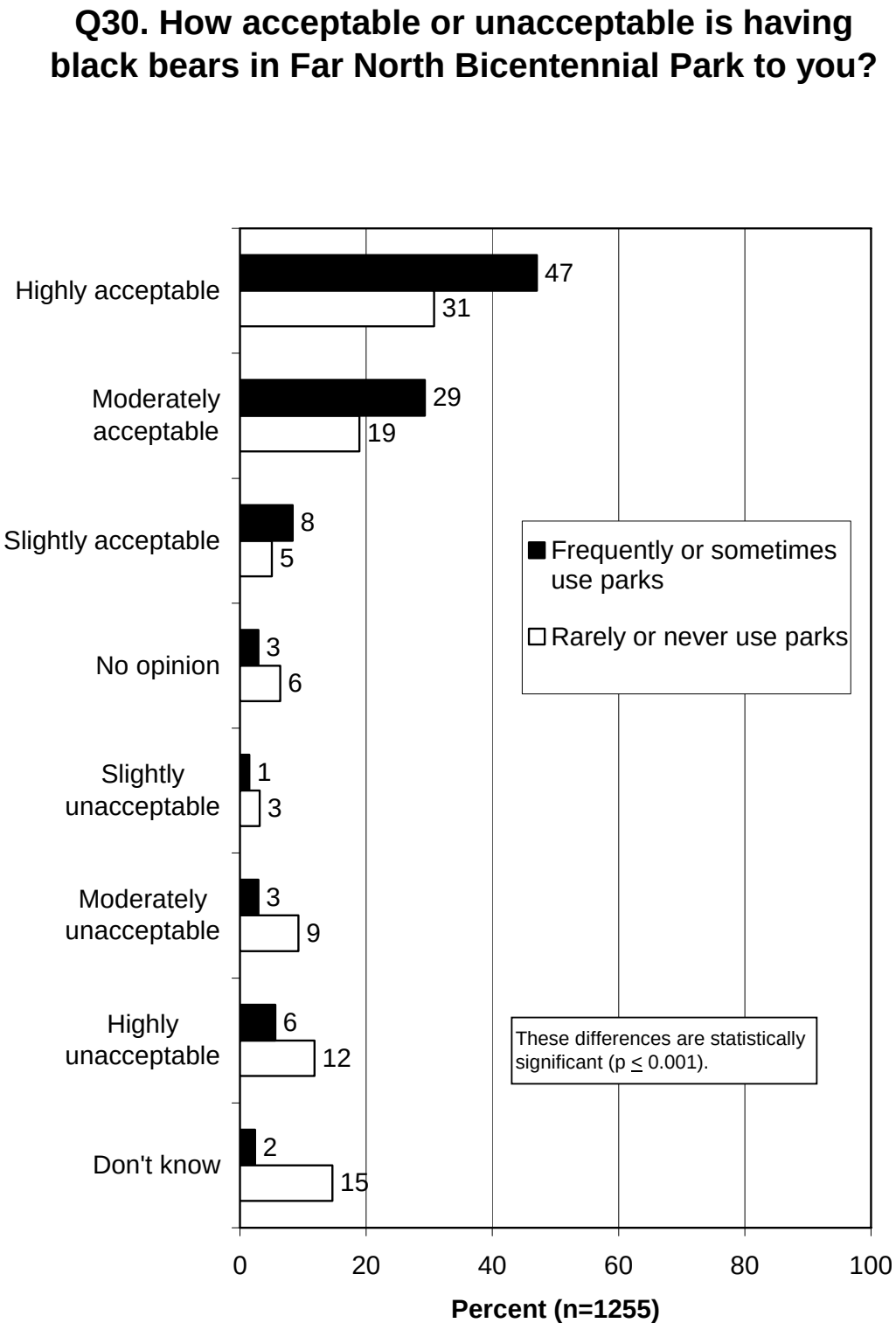


Figure 95. Question 33 Crossed by Park Users.

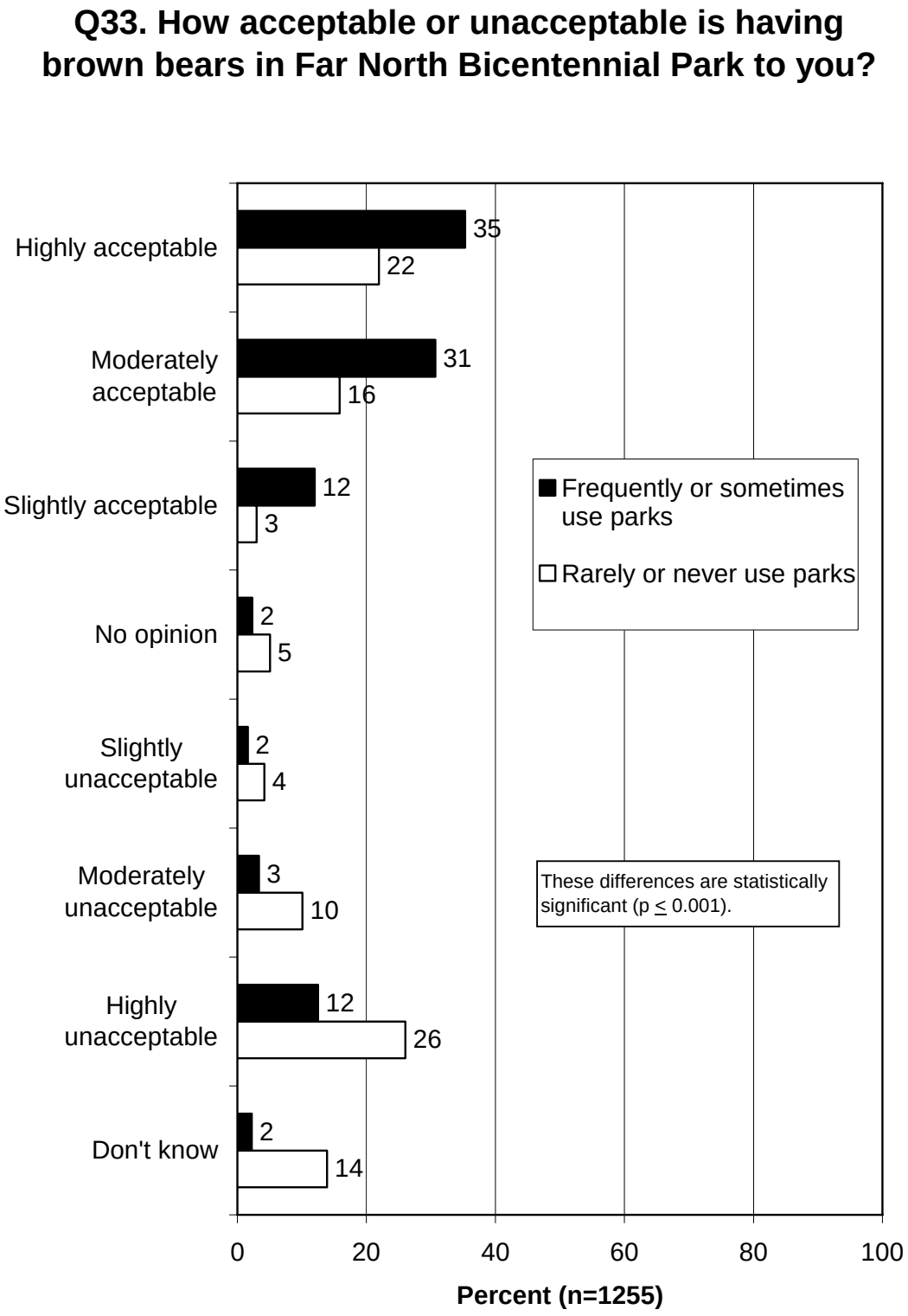


Figure 96. Question 29 Crossed by Acceptability of Having Black Bears in Far North Bicentennial Park.

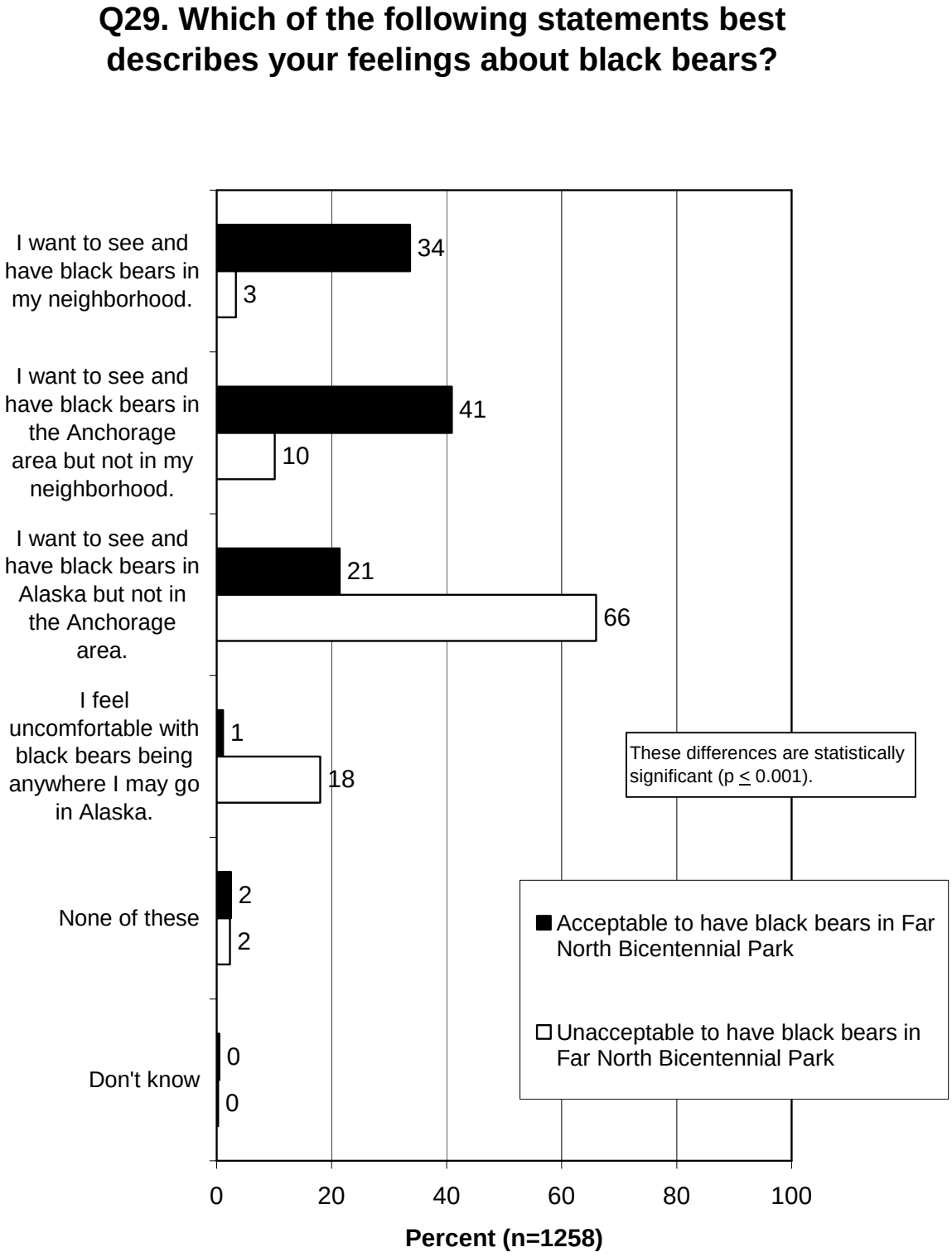


Figure 97. Question 32 Crossed by Acceptability of Having Brown Bears in Far North Bicentennial Park.

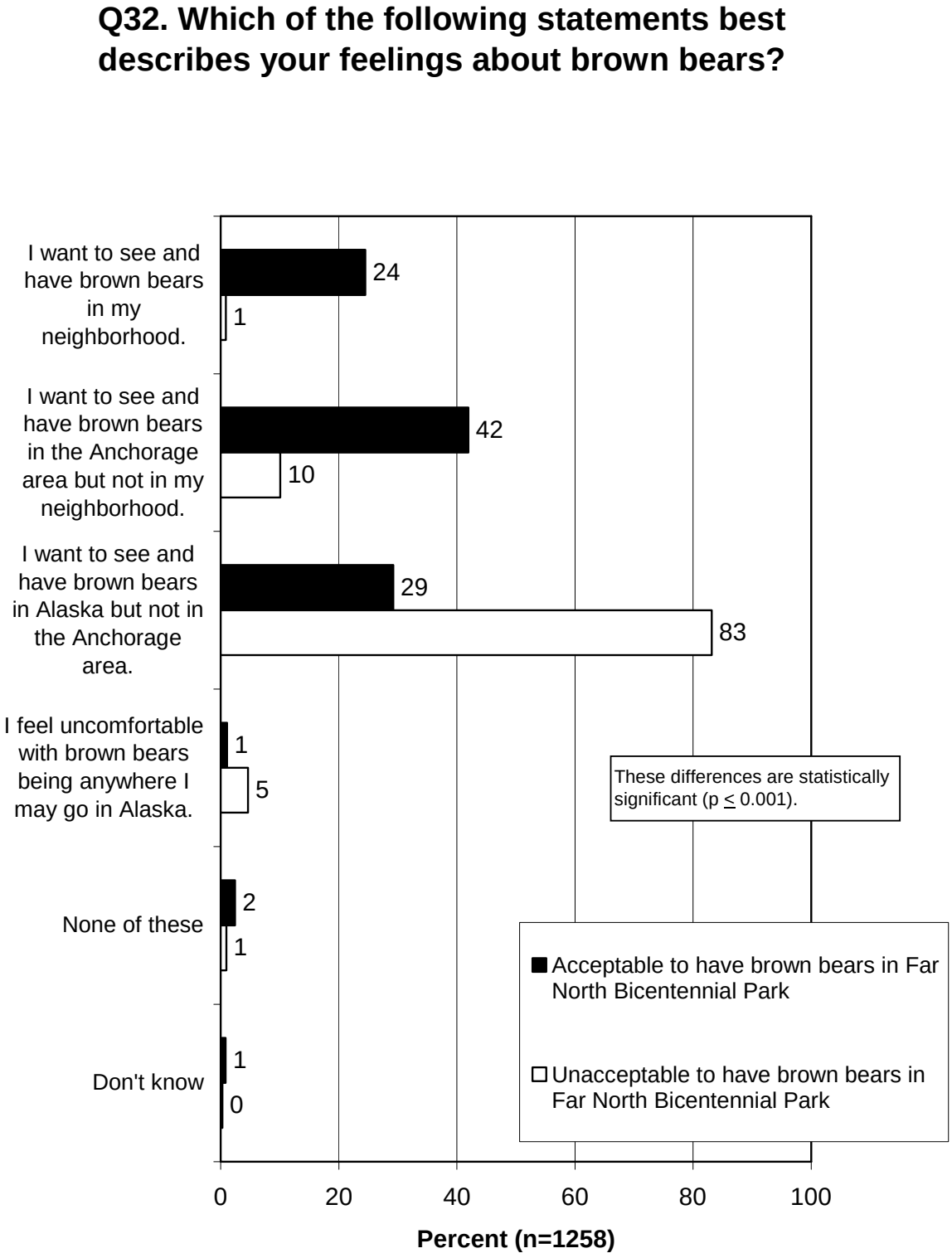


Figure 98. Questions 31 and 34.

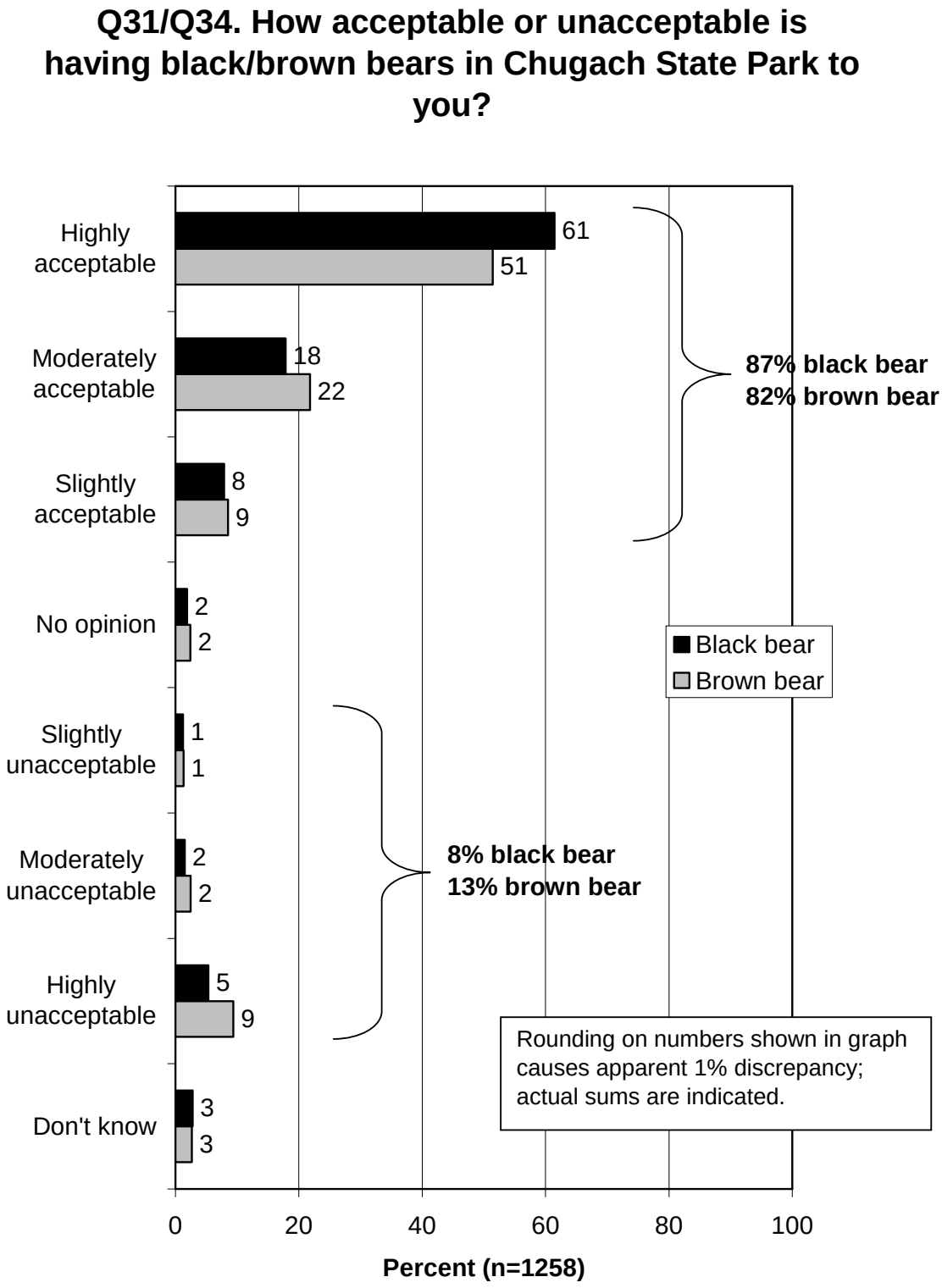


Figure 99. Question 31 Crossed by Region.

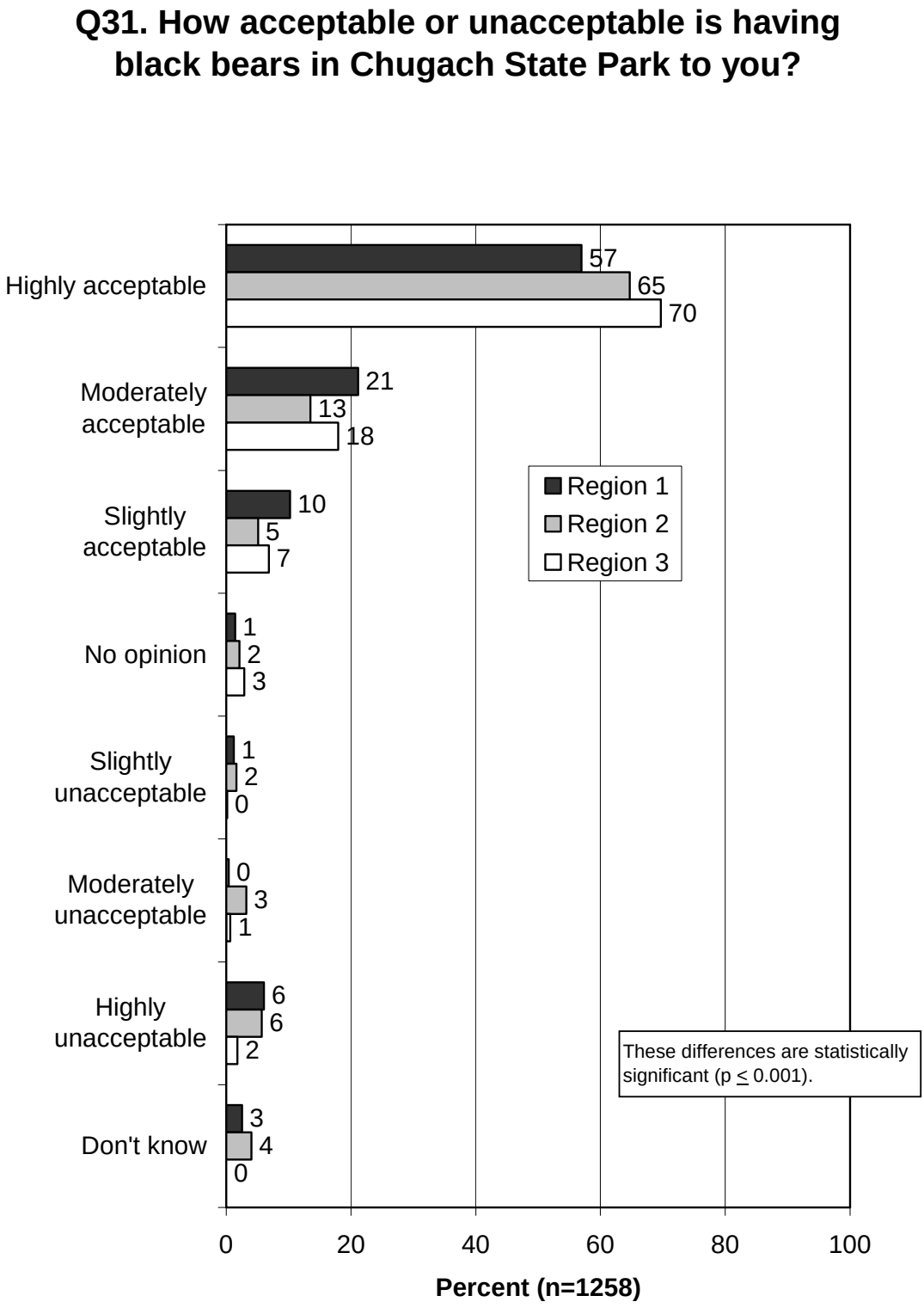


Figure 100. Question 34 Crossed by Region.

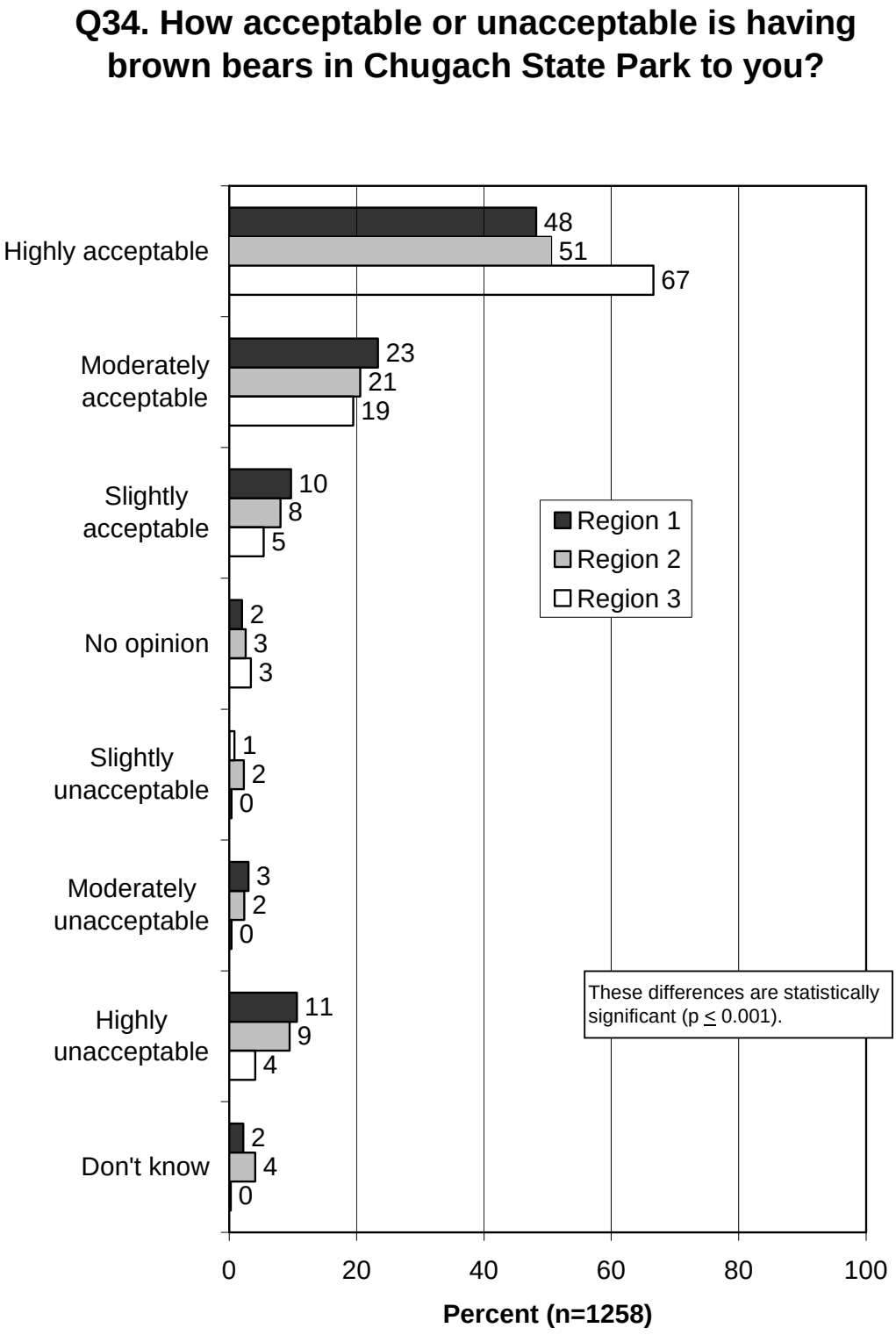


Figure 101. Question 31 Crossed by Trail Users.

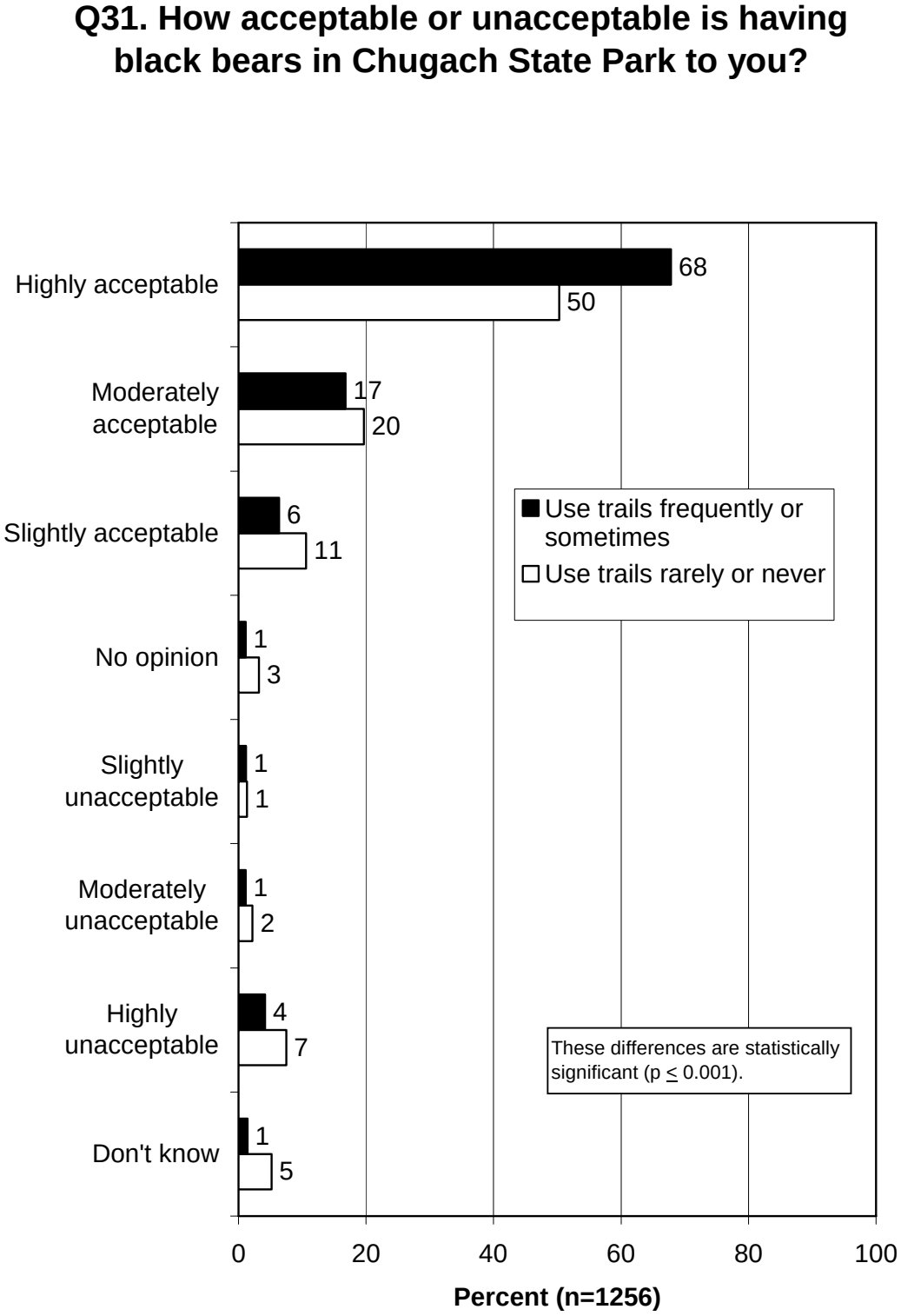


Figure 102. Question 34 Crossed by Trail Users.

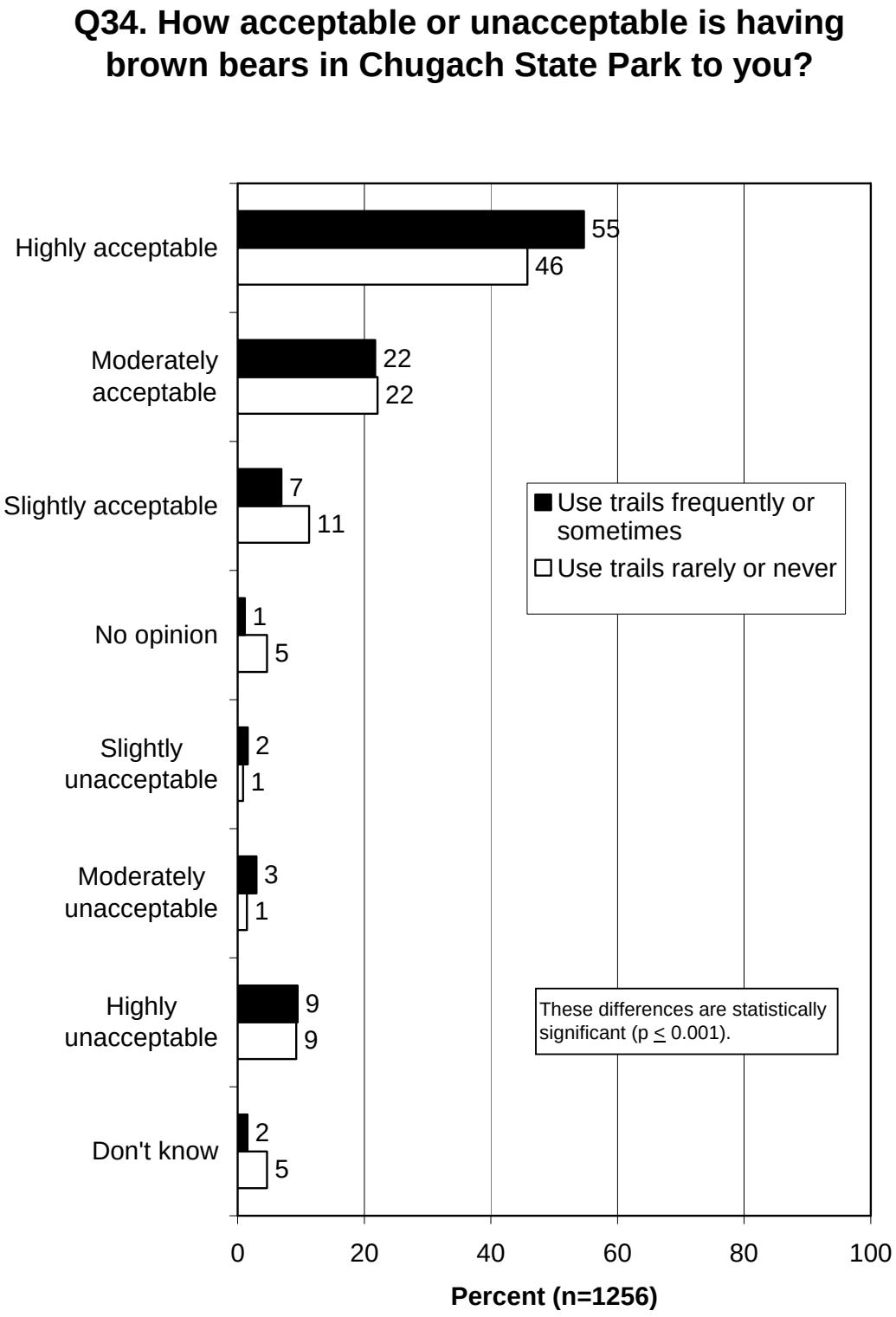


Figure 103. Question 31 Crossed by Park Users.

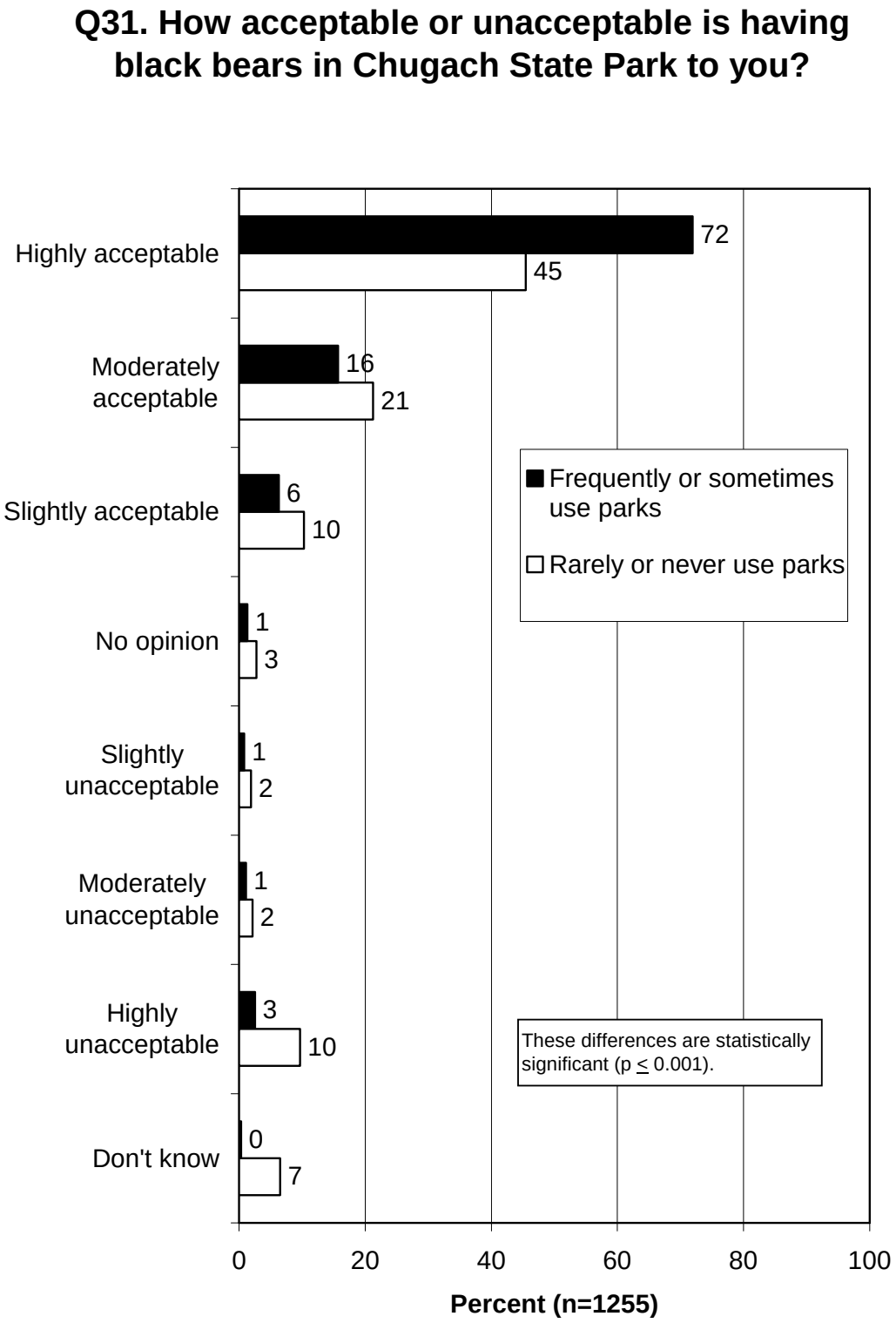


Figure 104. Question 34 Crossed by Park Users.

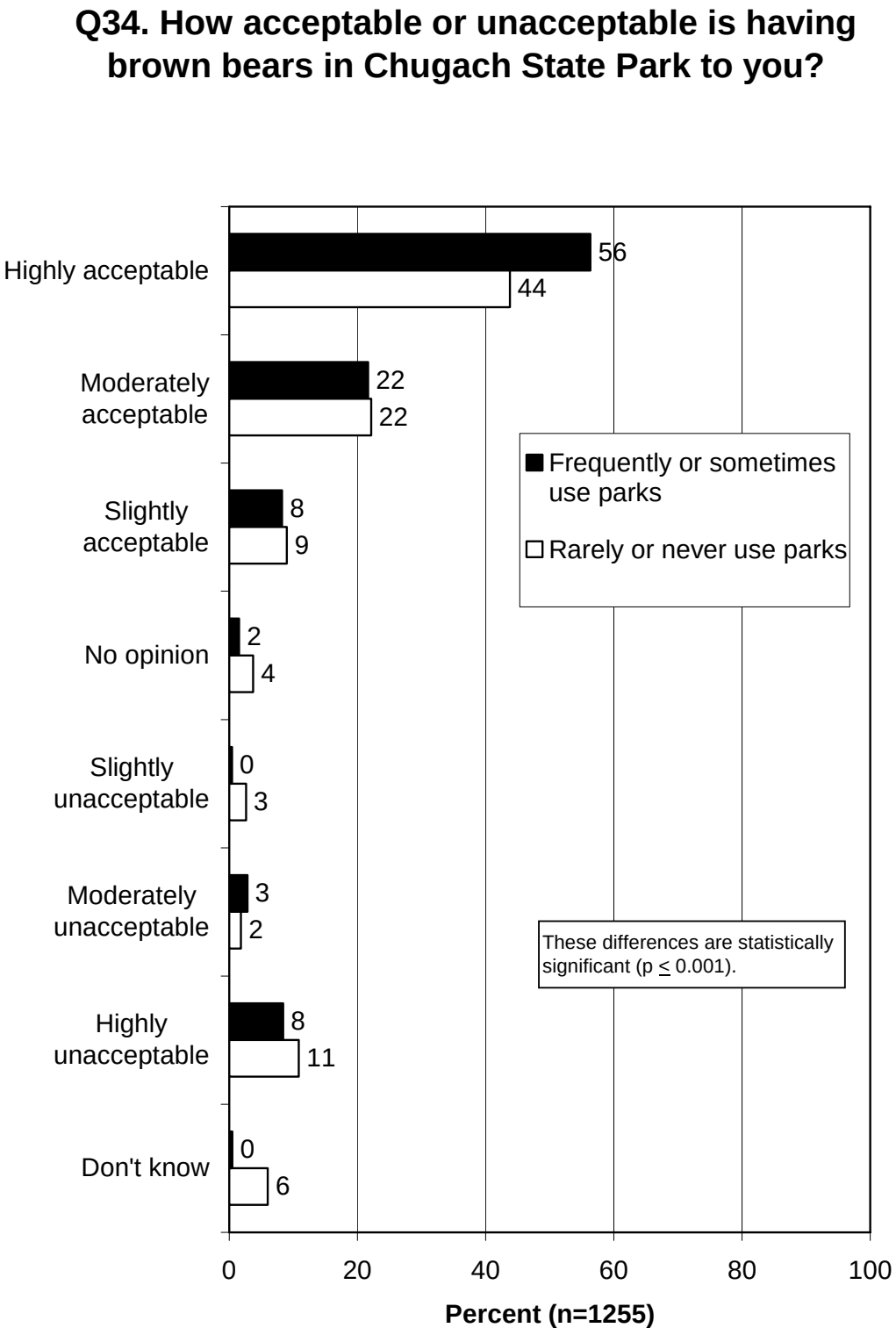


Figure 105. Questions 59 and 60.

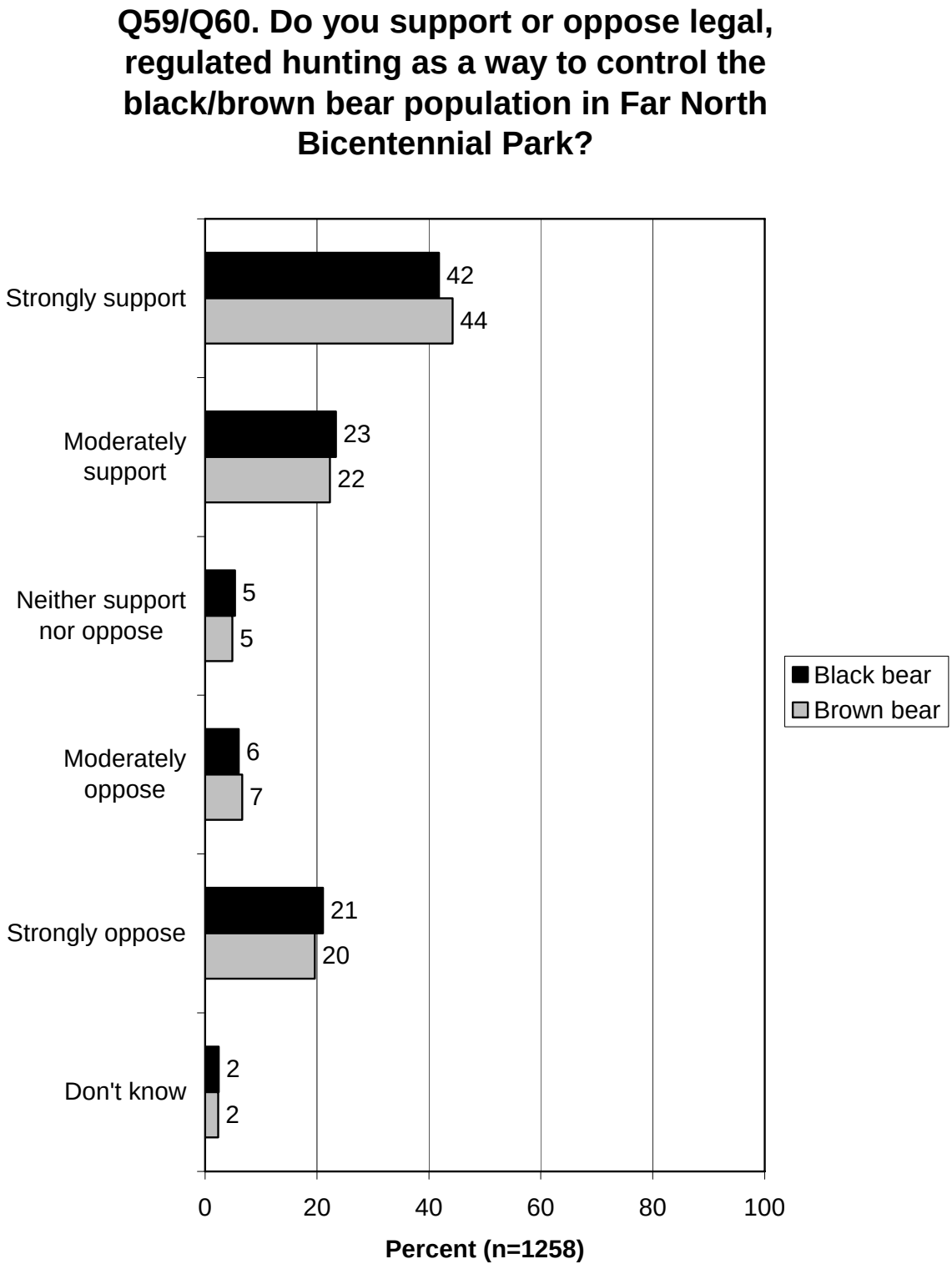


Figure 106. Question 59 Crossed by Region.

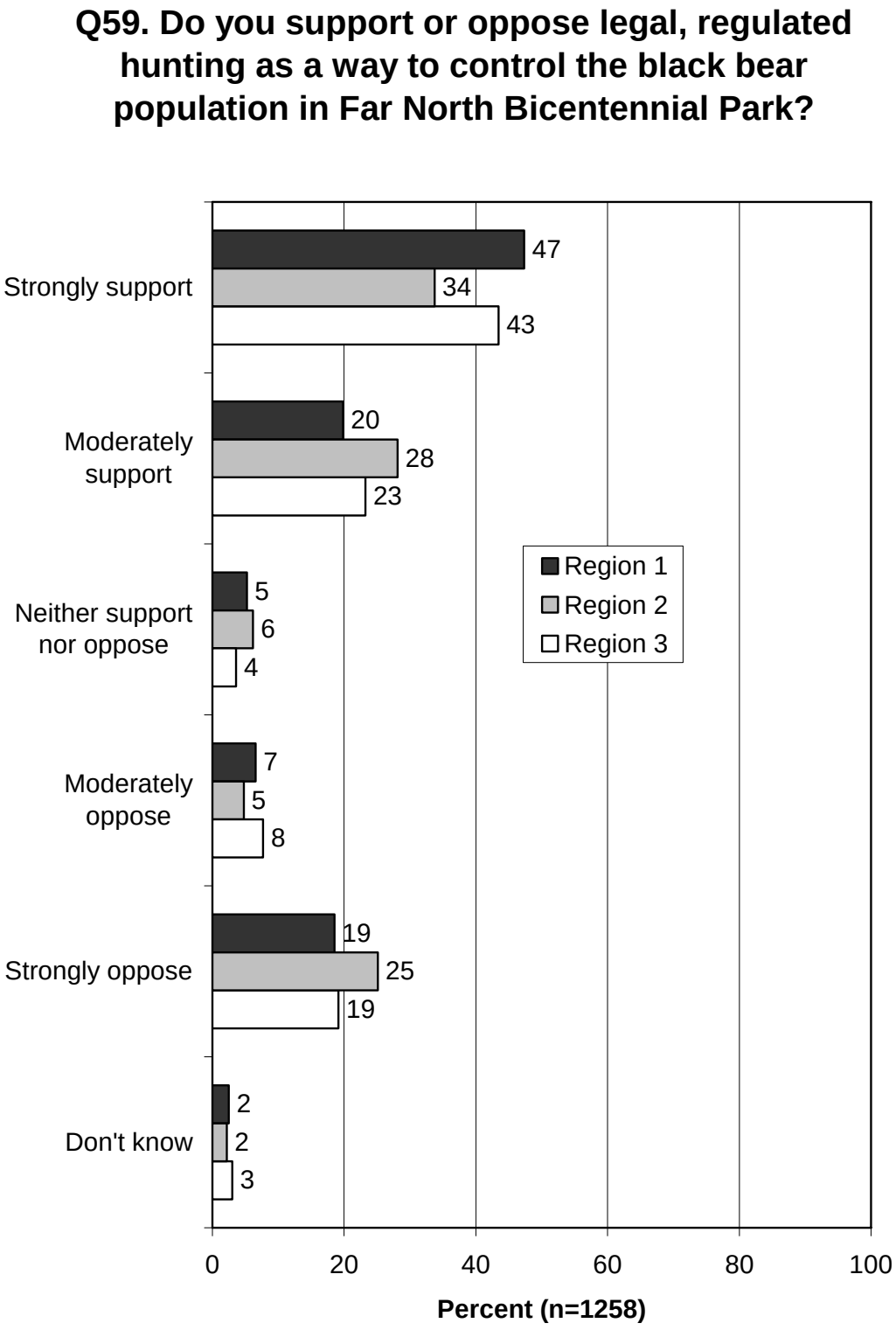


Figure 107. Question 60 Crossed by Region.

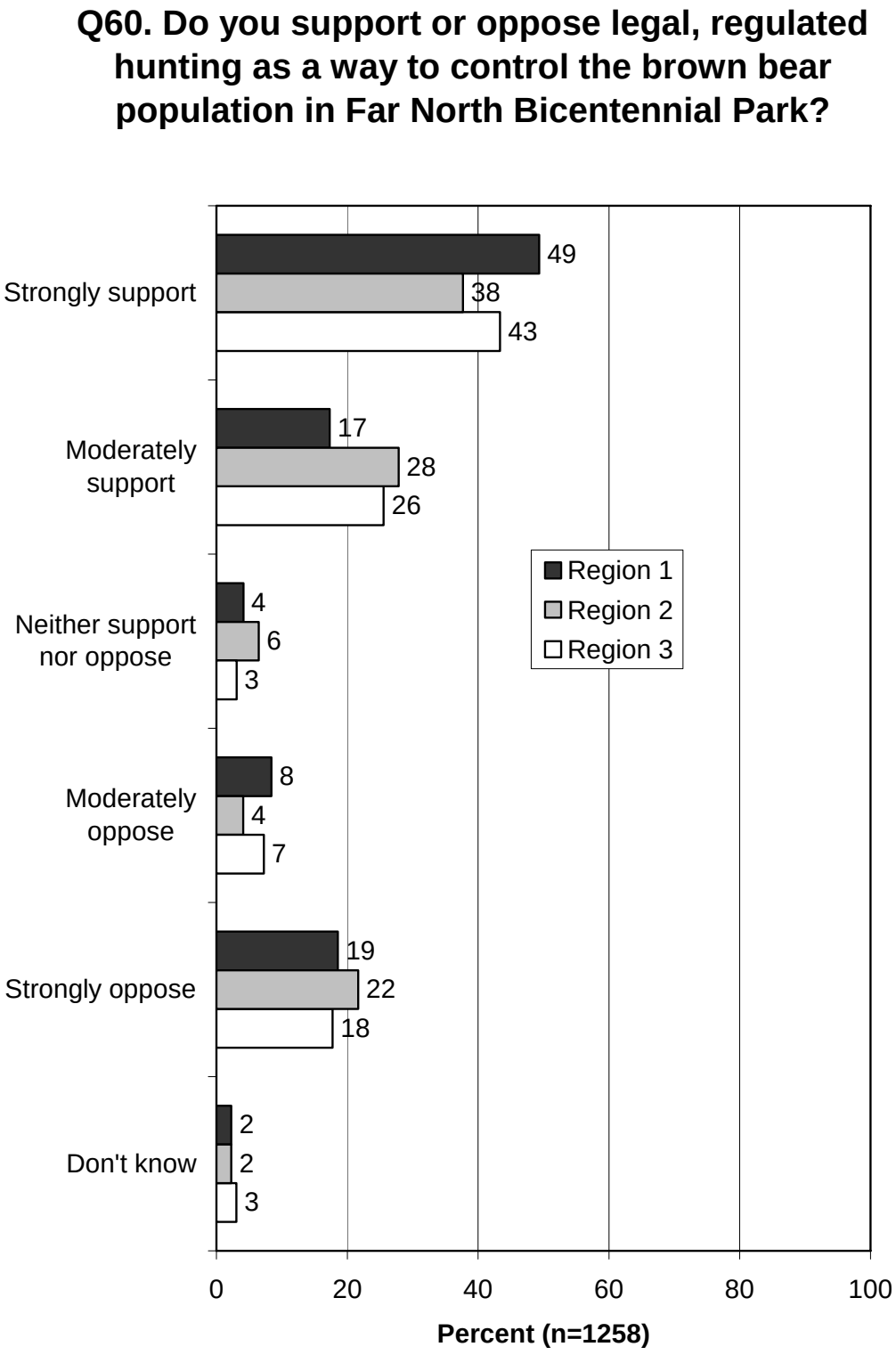


Figure 108. Question 59 Crossed by Trail Users.

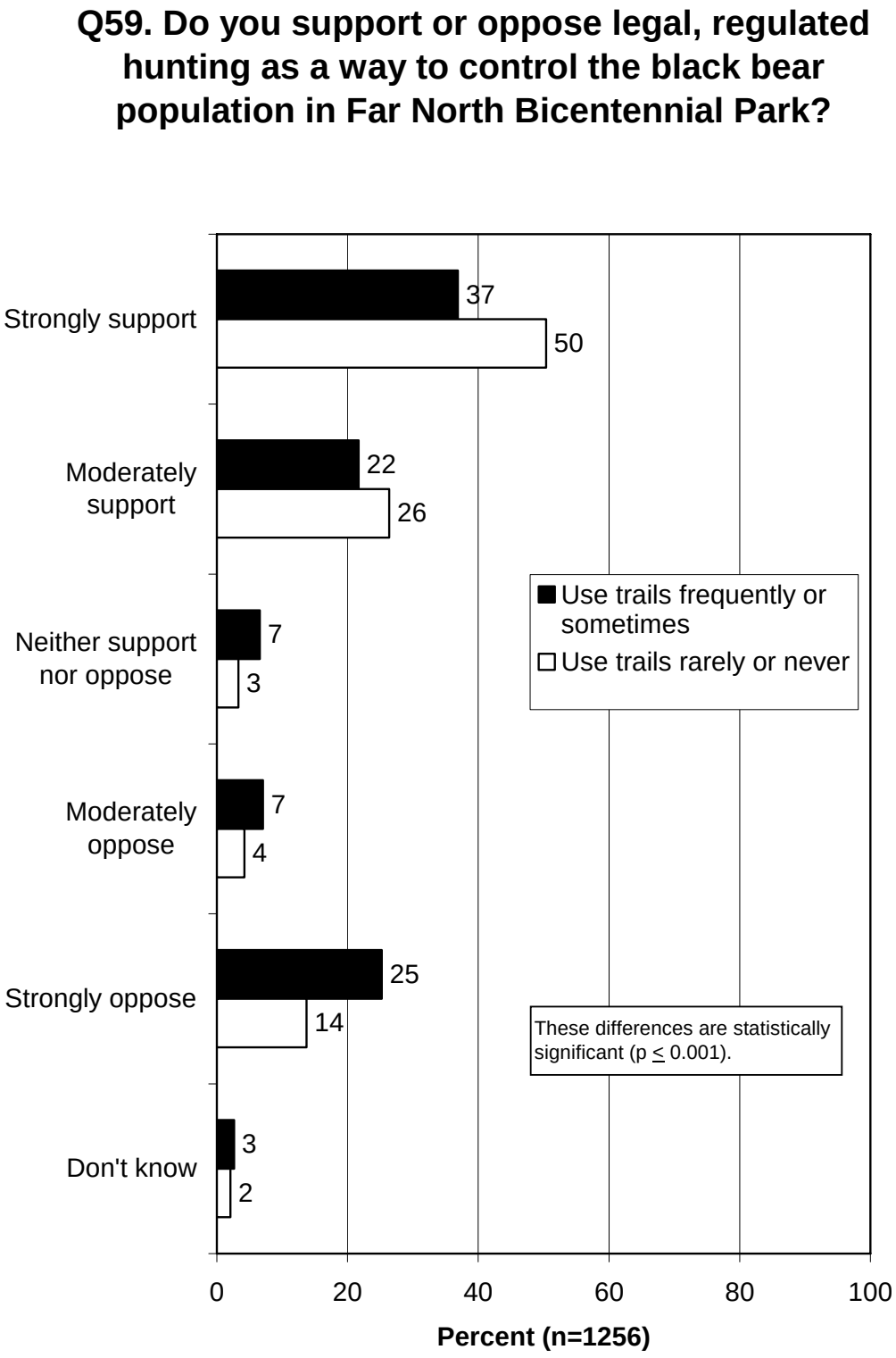


Figure 109. Question 60 Crossed by Trail Users.

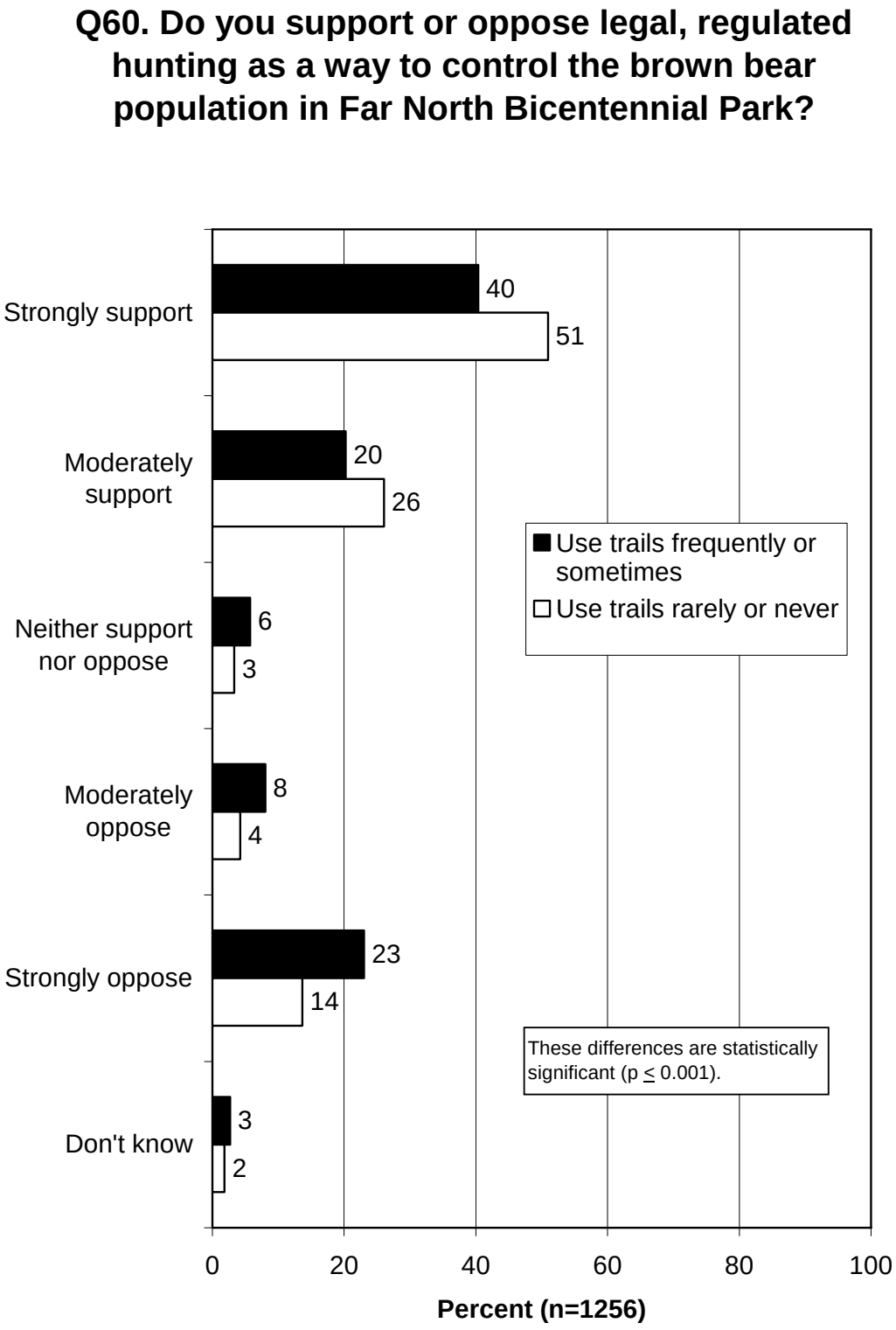


Figure 110. Question 59 Crossed by Park Users.

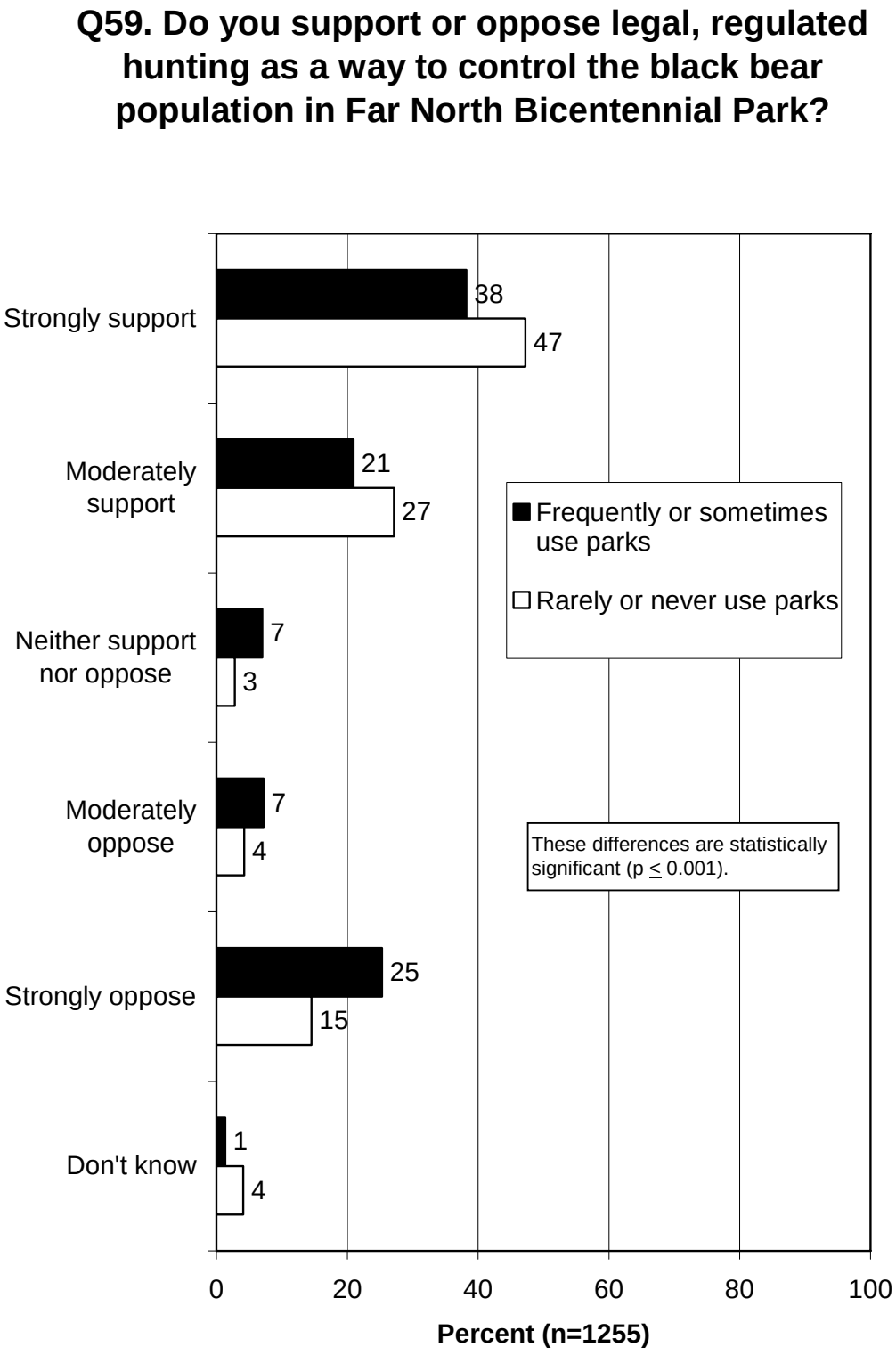


Figure 111. Question 60 Crossed by Park Users.

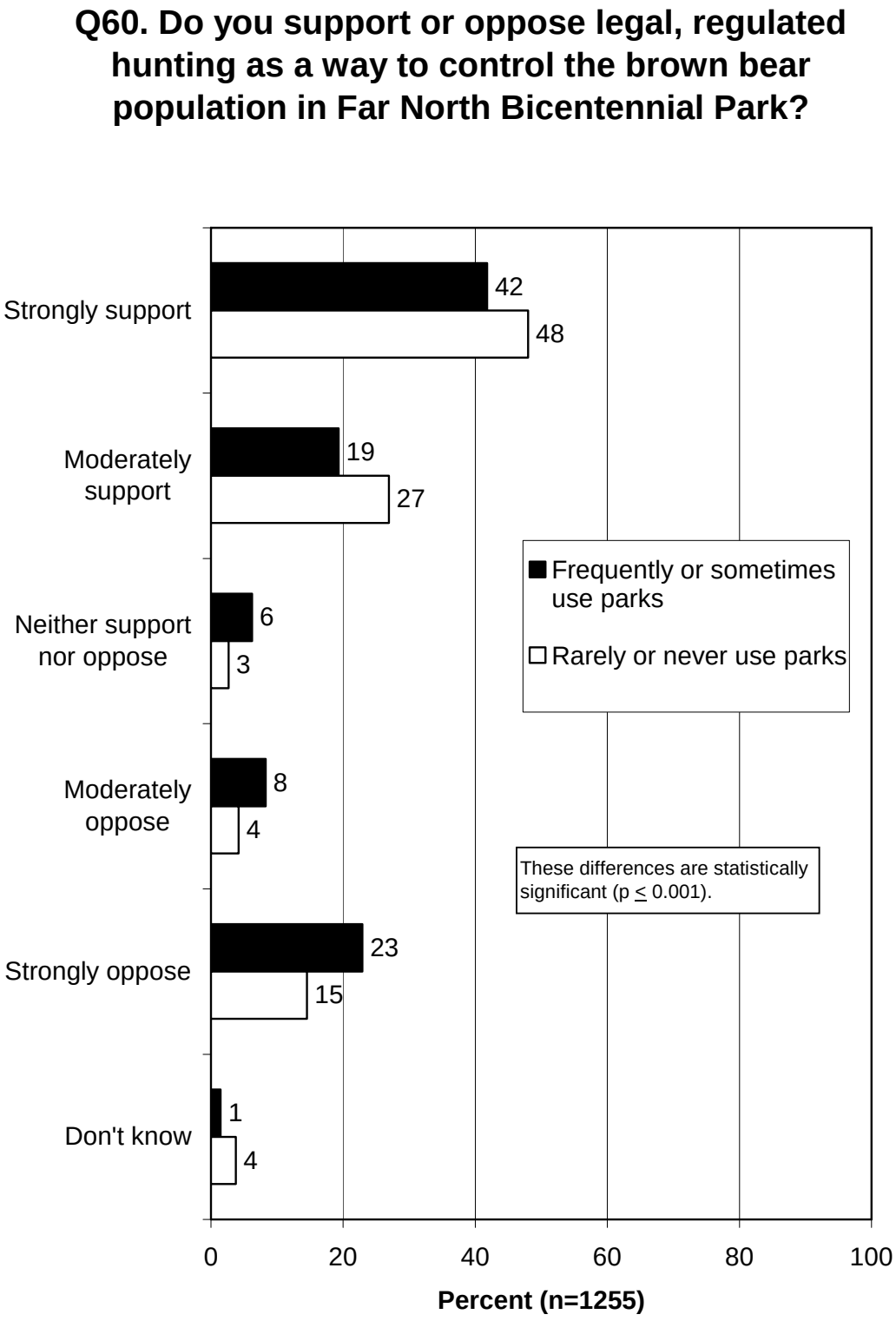


Figure 112. Question 59 Crossed by Support for/Opposition to Destroying Some Black Bears Every Year.

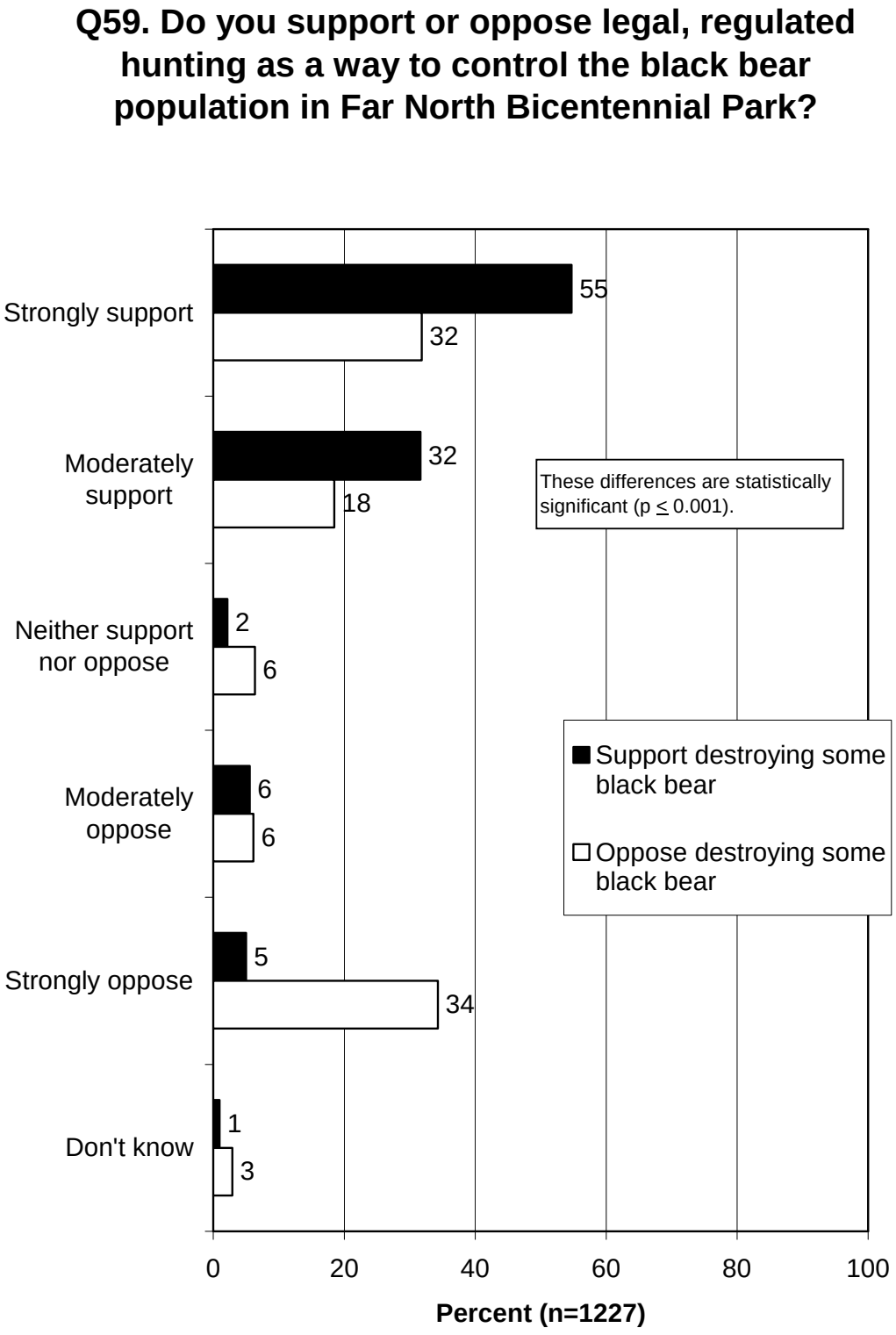


Figure 113. Question 60 Crossed by Support for/Opposition to Destroying Some Brown Bears Every Year.

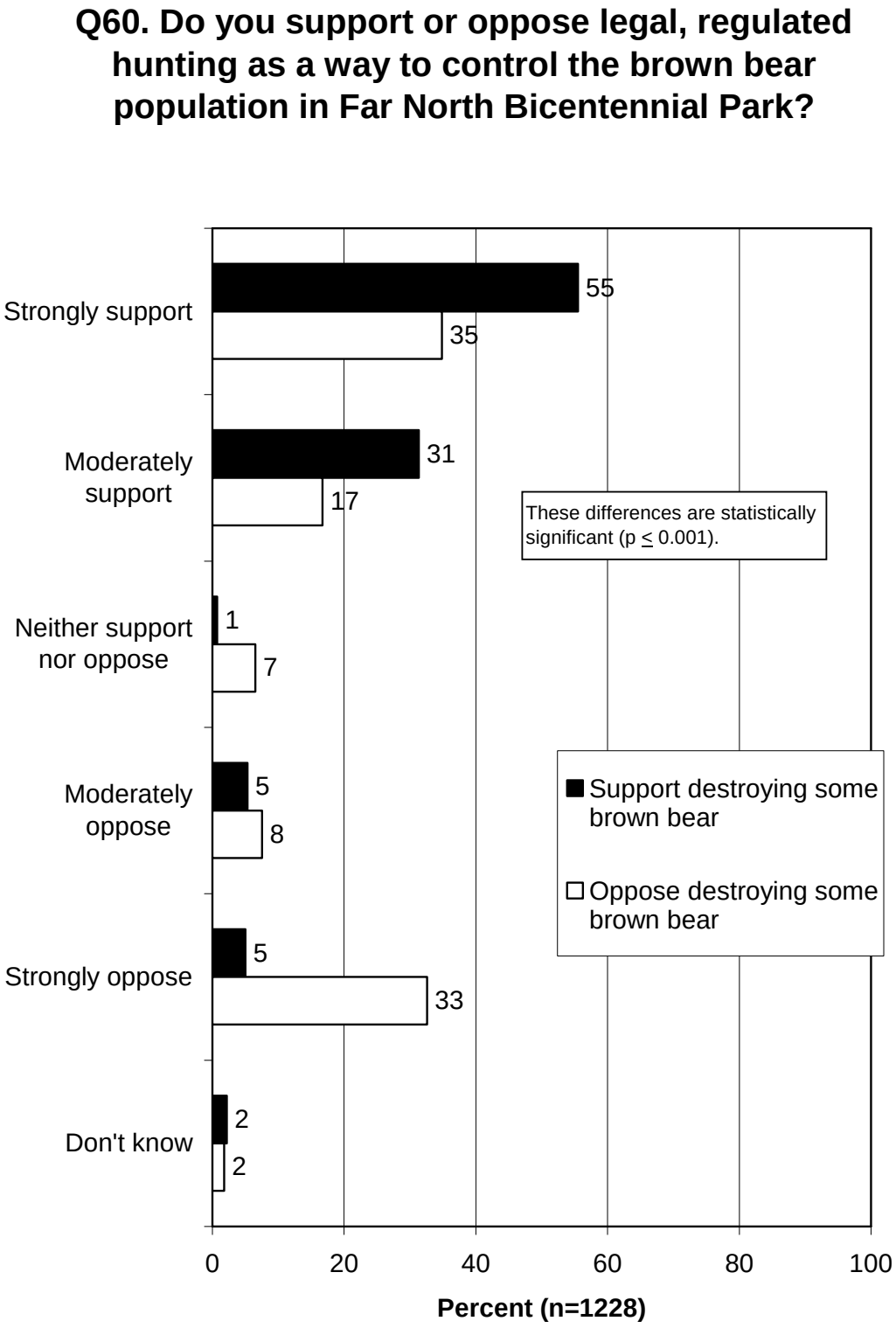


Figure 114. Question 80.

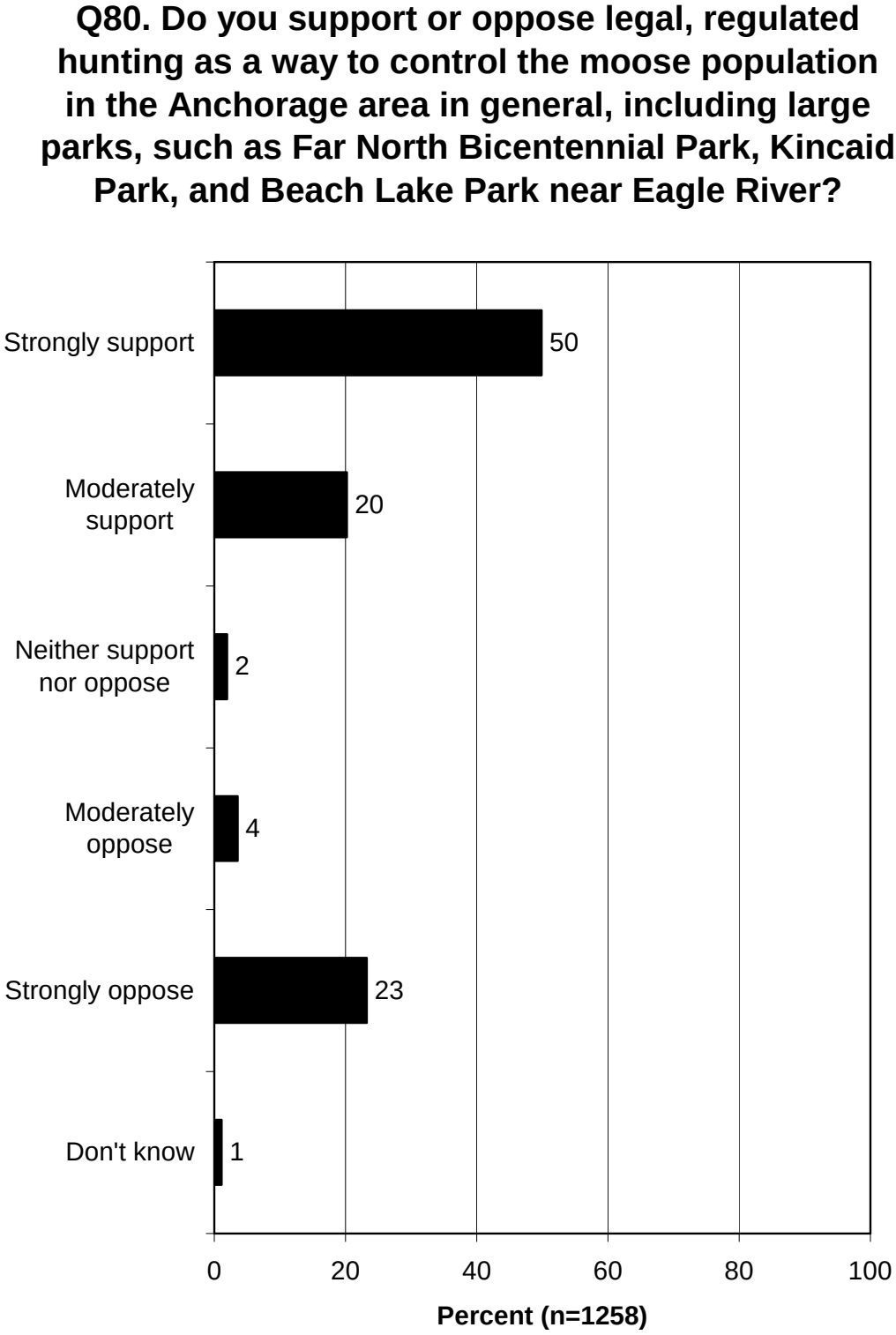


Figure 115. Question 80 Crossed by Region.

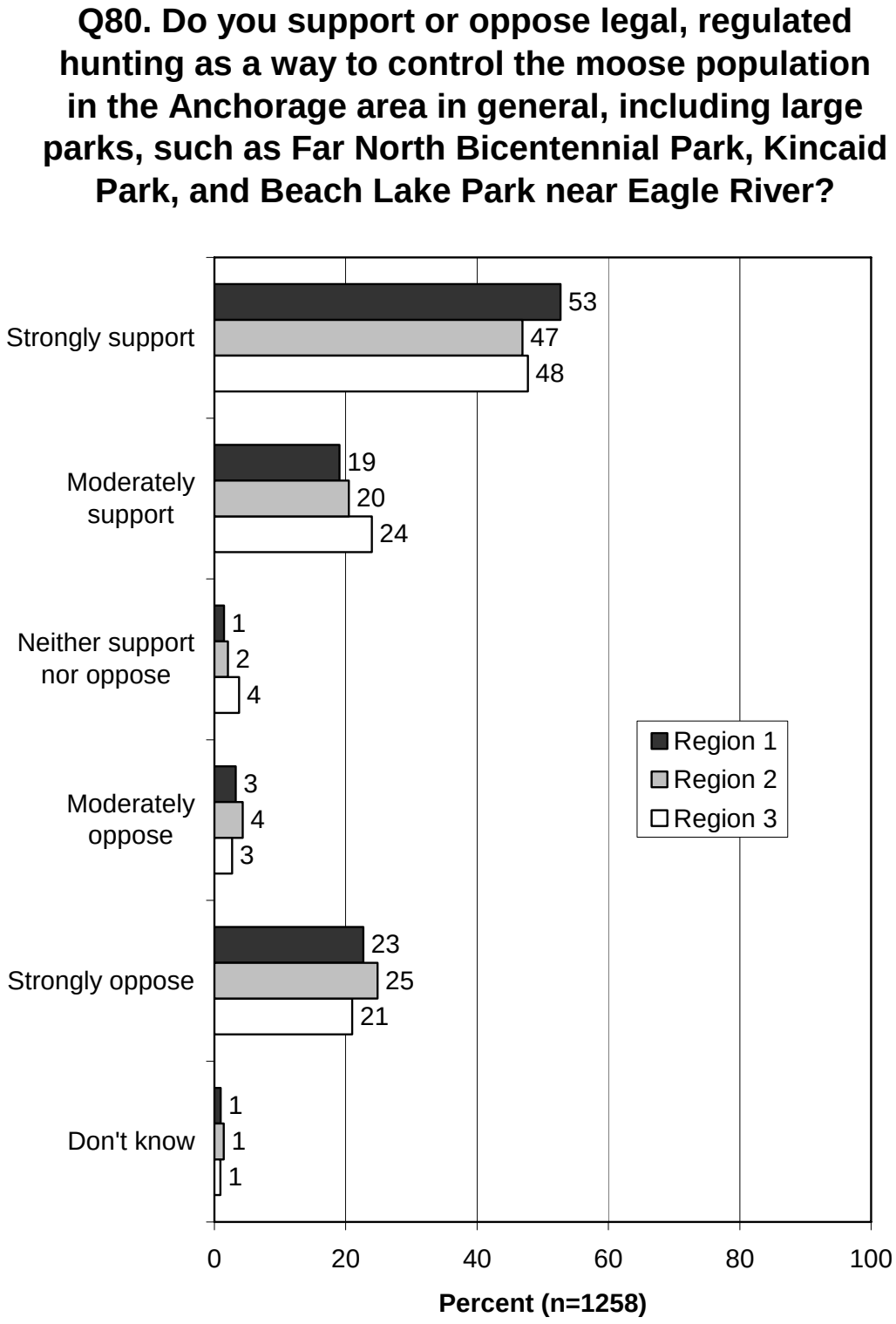


Figure 116. Question 80 Crossed by Trail Users.

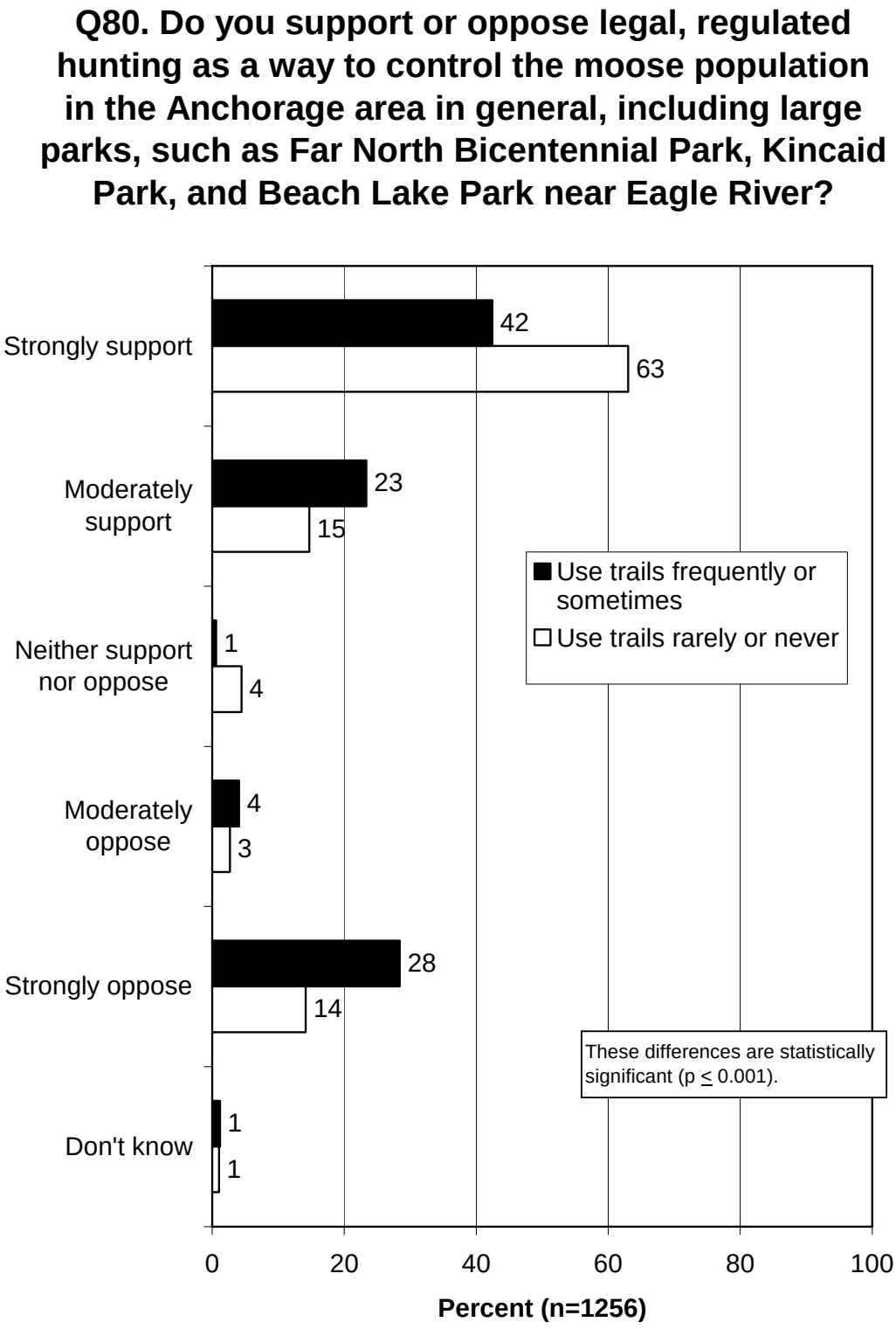


Figure 117. Question 80 Crossed by Park Users.

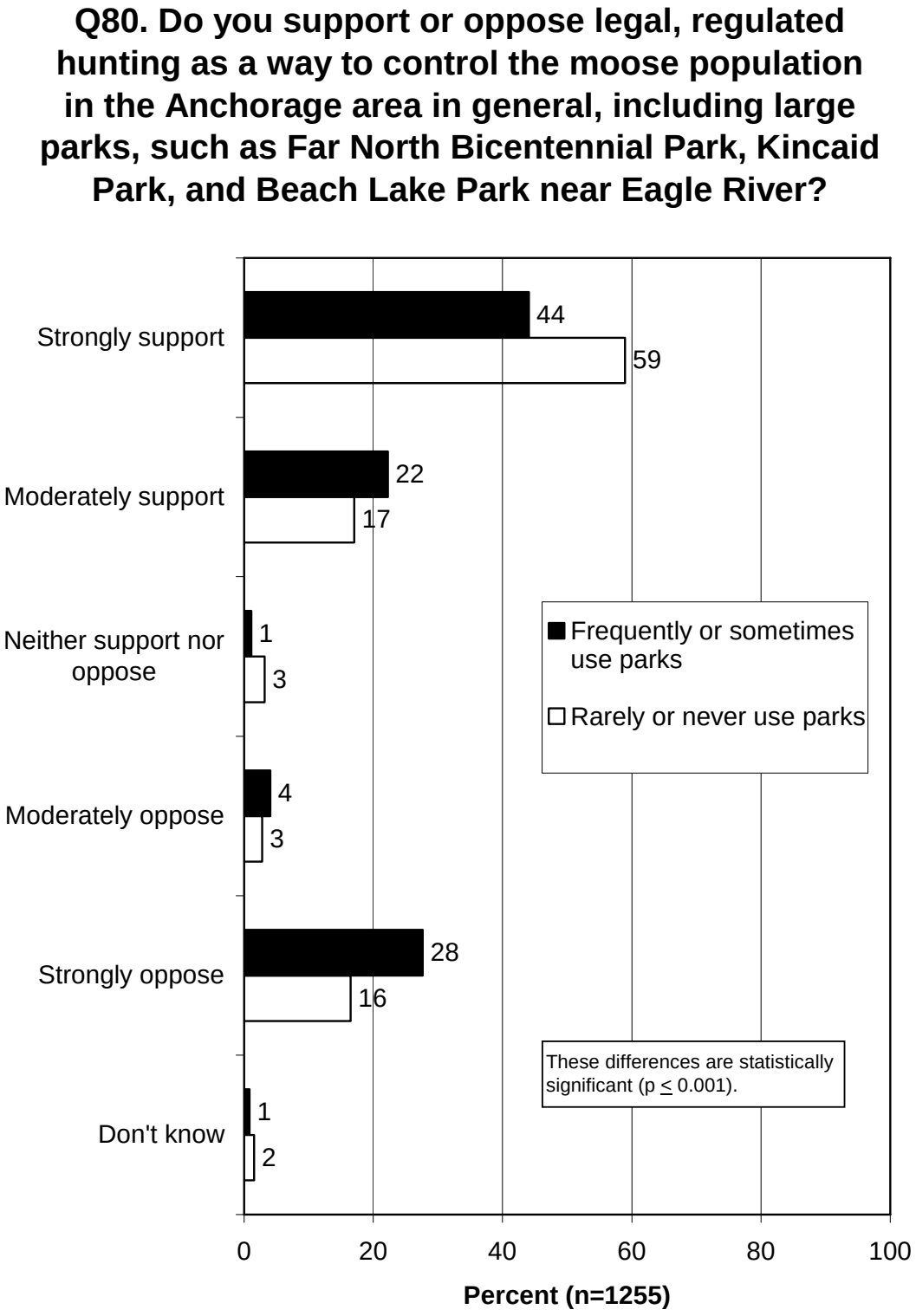


Figure 118. Question 80 Crossed by Support for/Opposition to Destroying Some Moose Every Year.

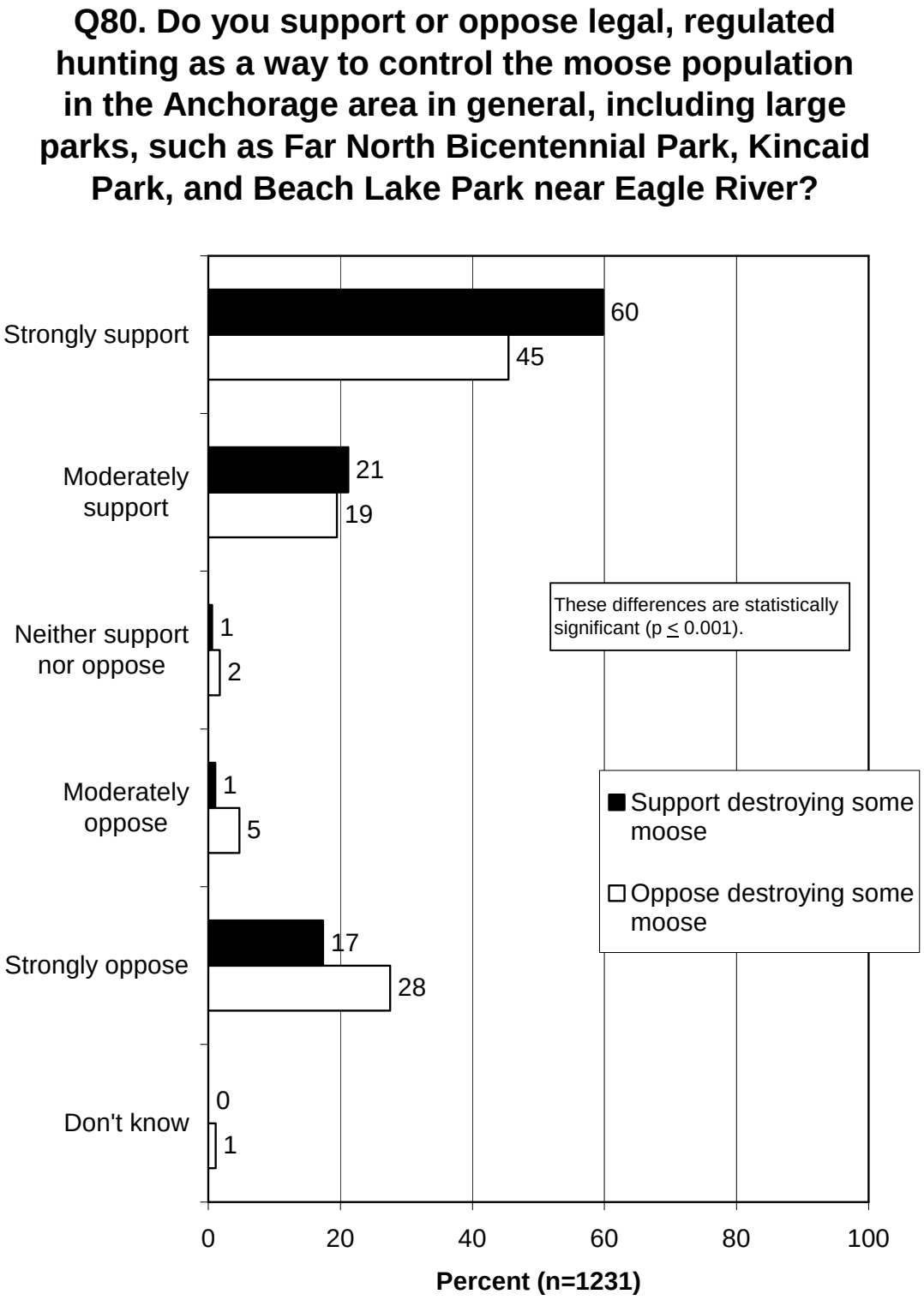


Figure 119. Questions 41, 42, and 43.

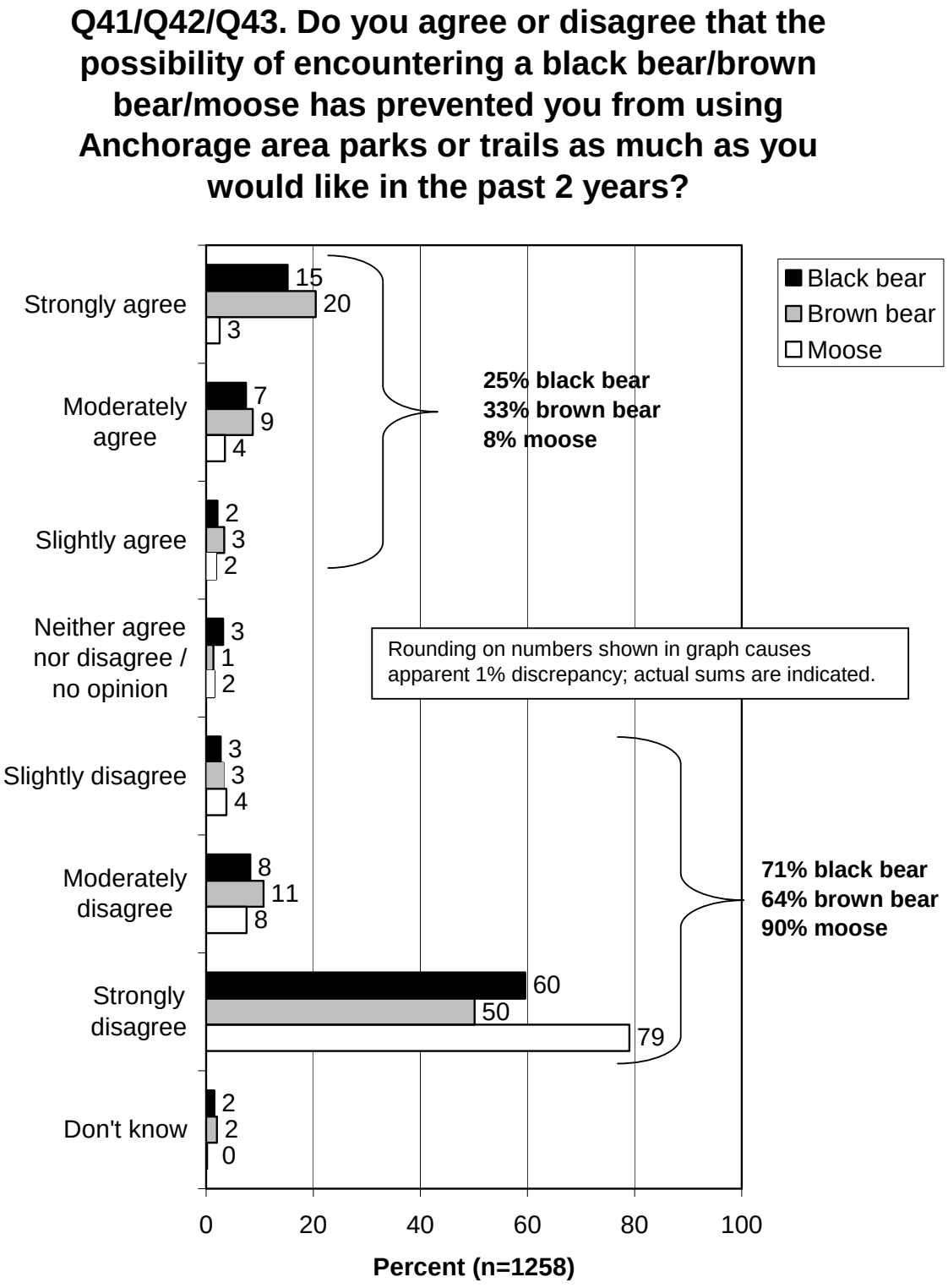


Figure 120. Question 41 Crossed by Region.

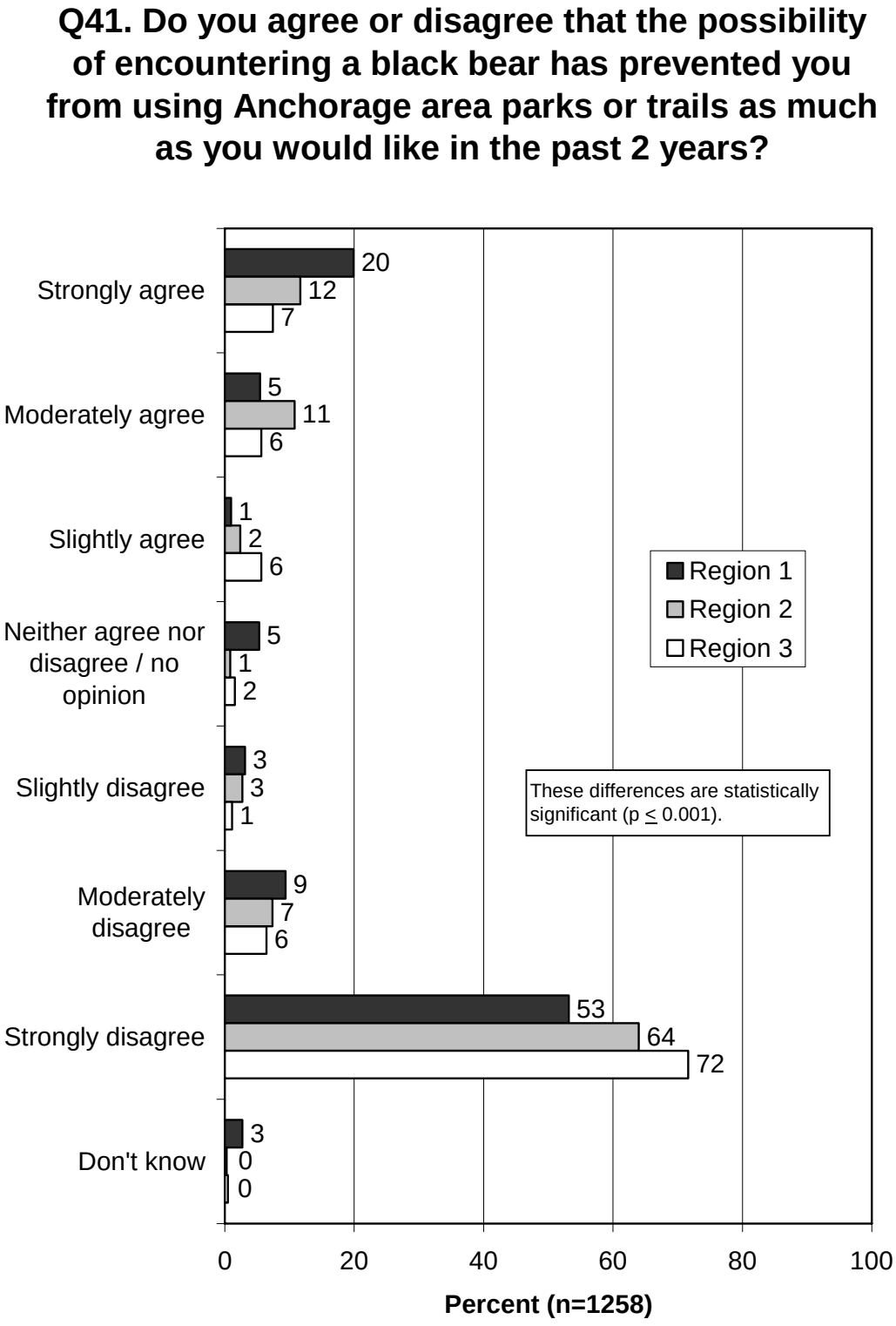


Figure 121. Question 42 Crossed by Region.

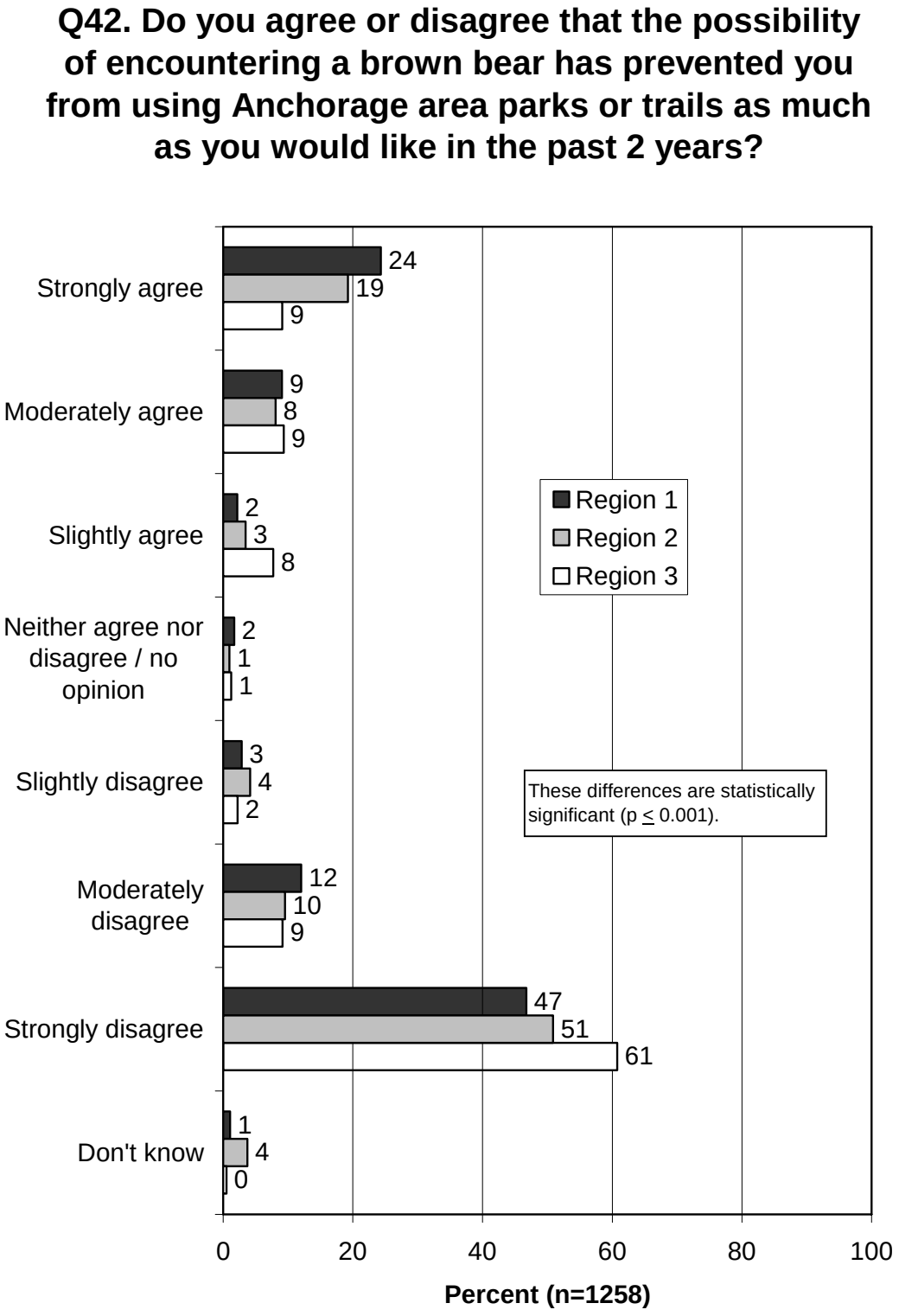


Figure 122. Question 43 Crossed by Region.

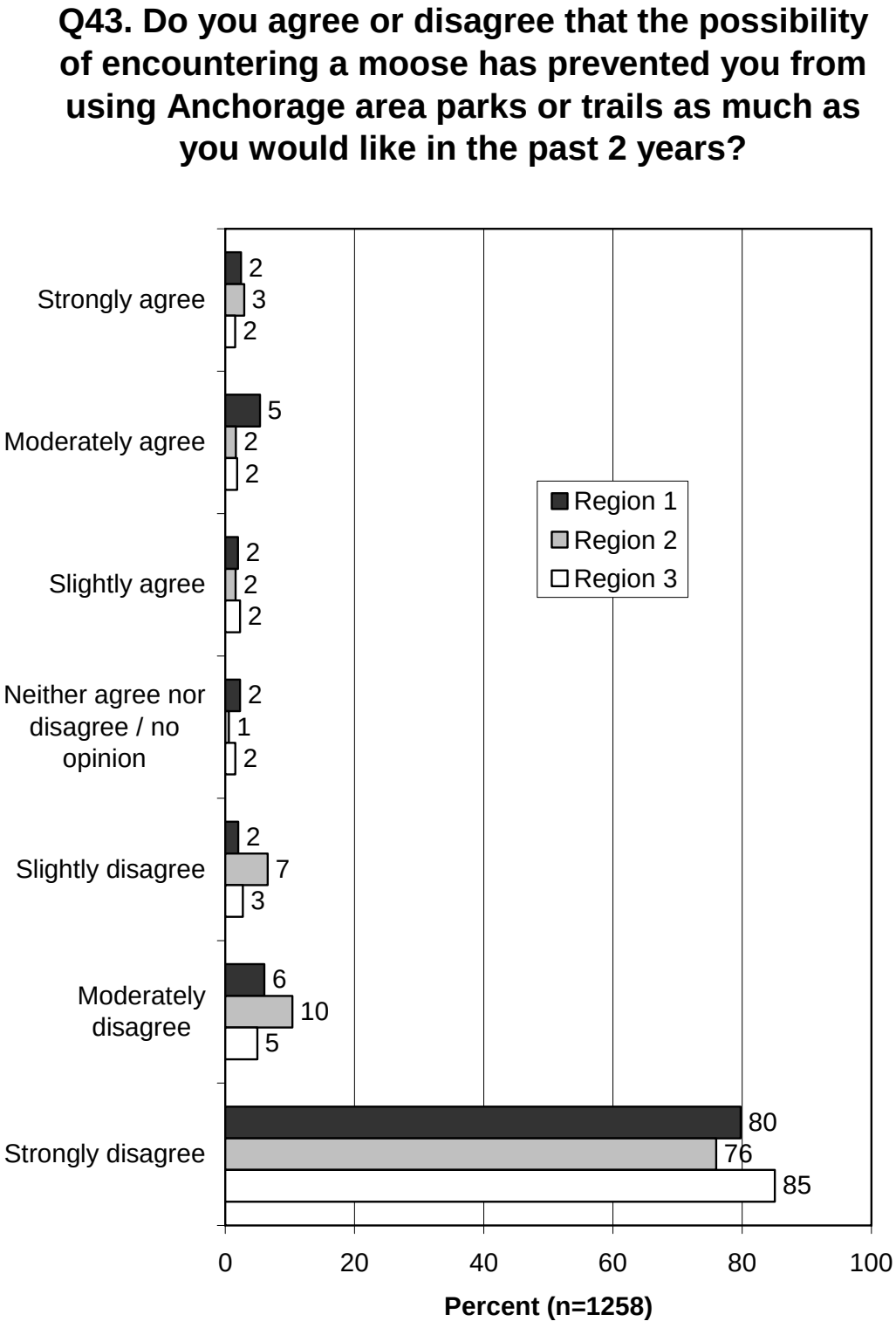


Figure 123. Question 41 Crossed by Trail Users.

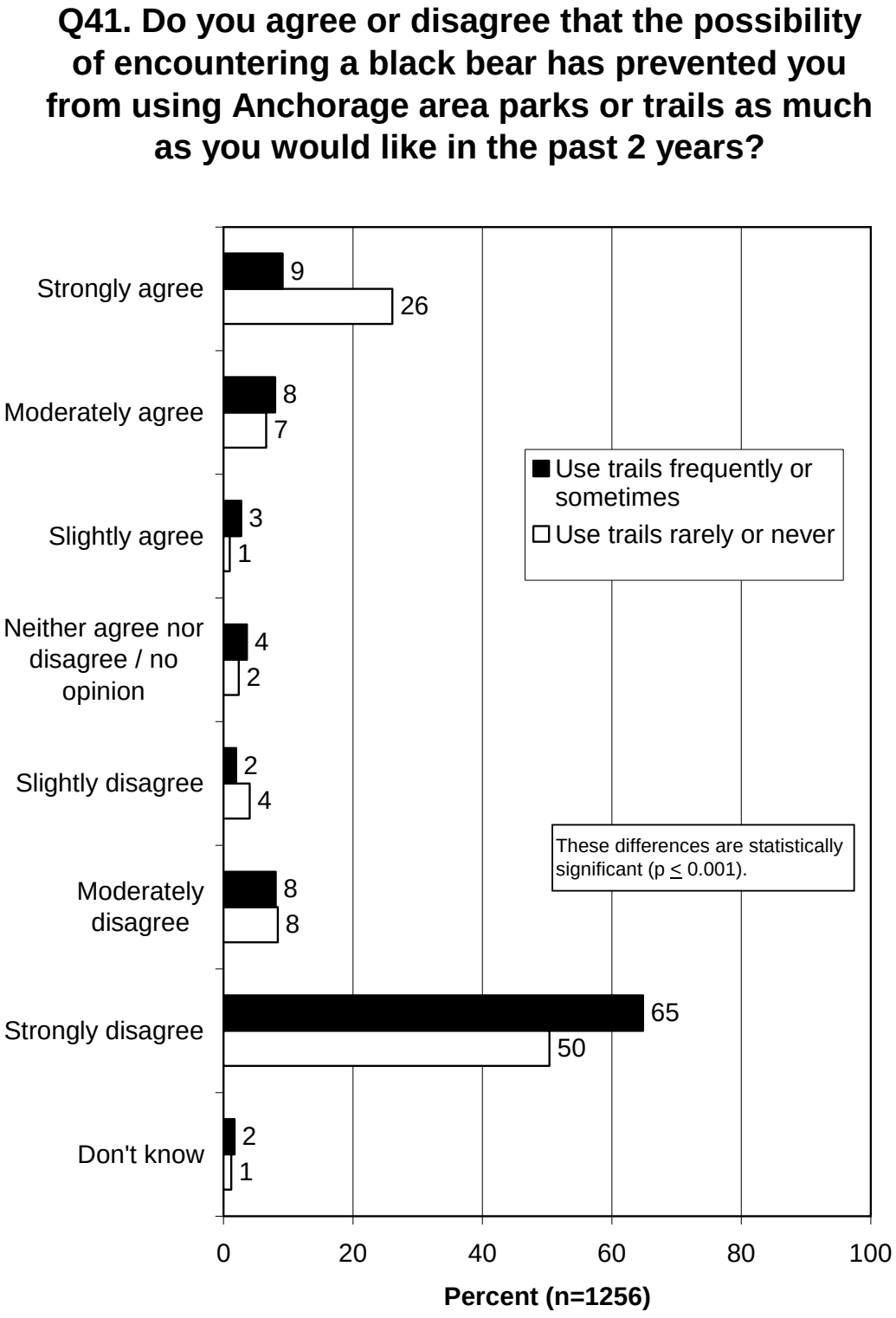


Figure 124. Question 42 Crossed by Trail Users.

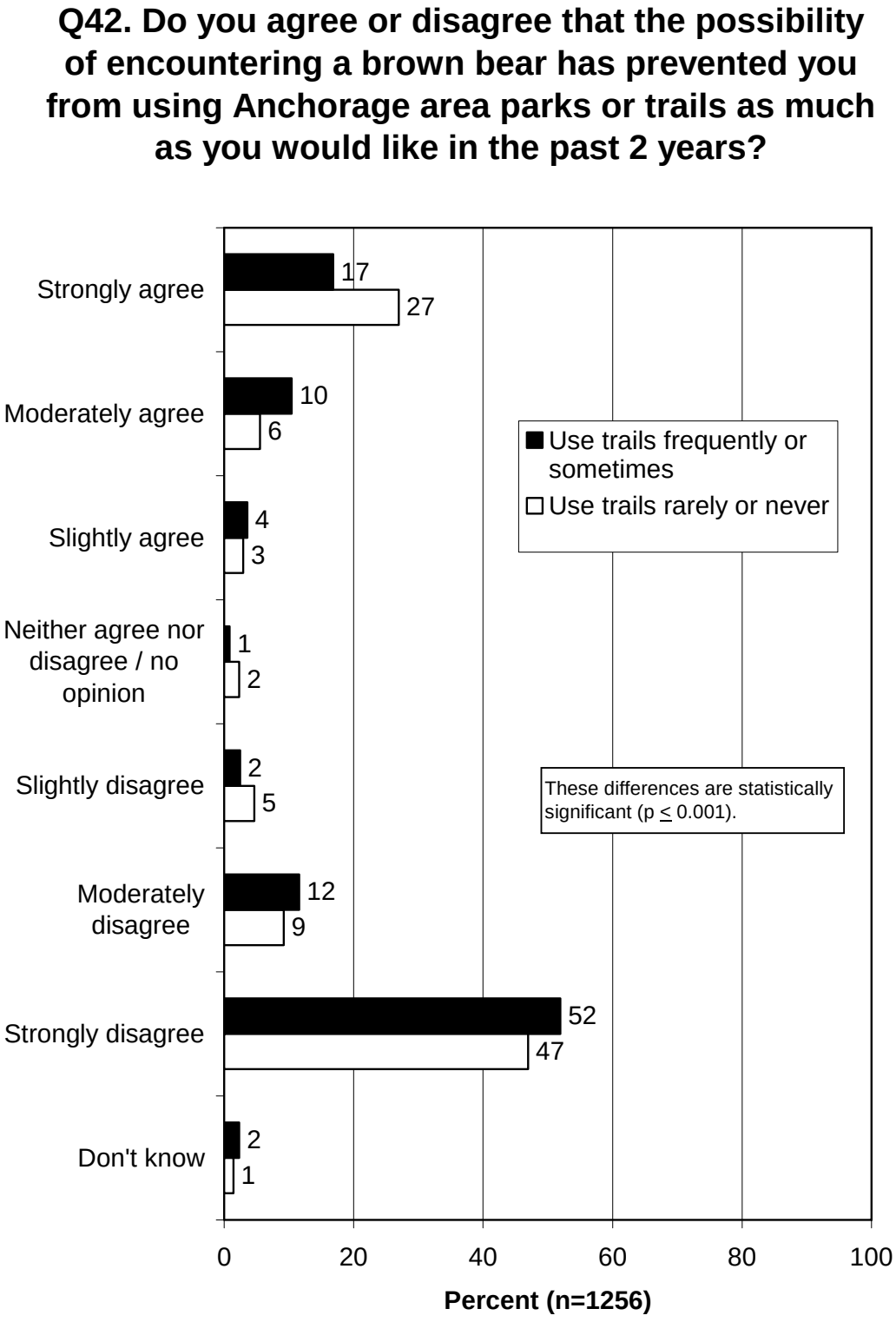


Figure 125. Question 43 Crossed by Trail Users.

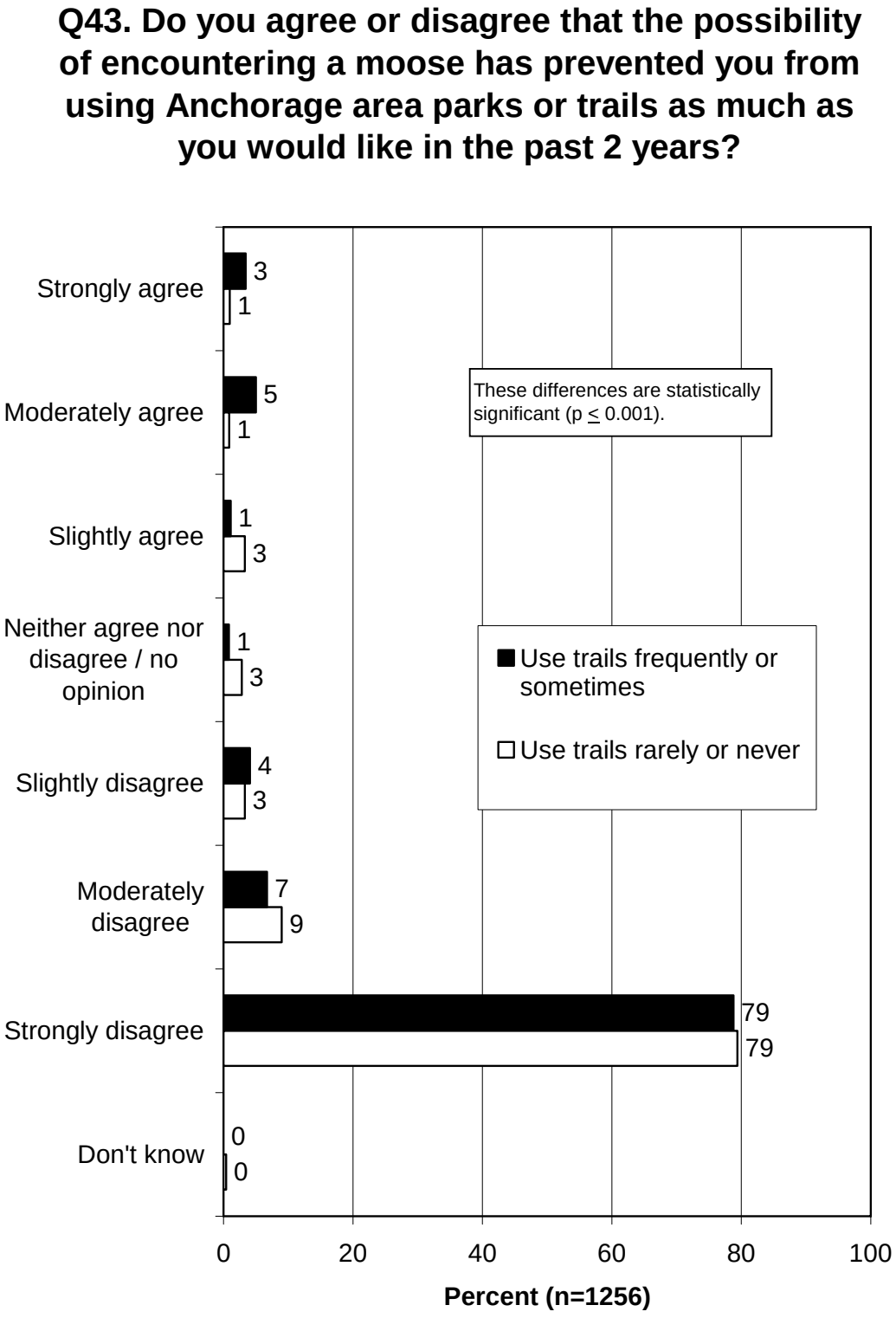


Figure 126. Question 41 Crossed by Park Users.

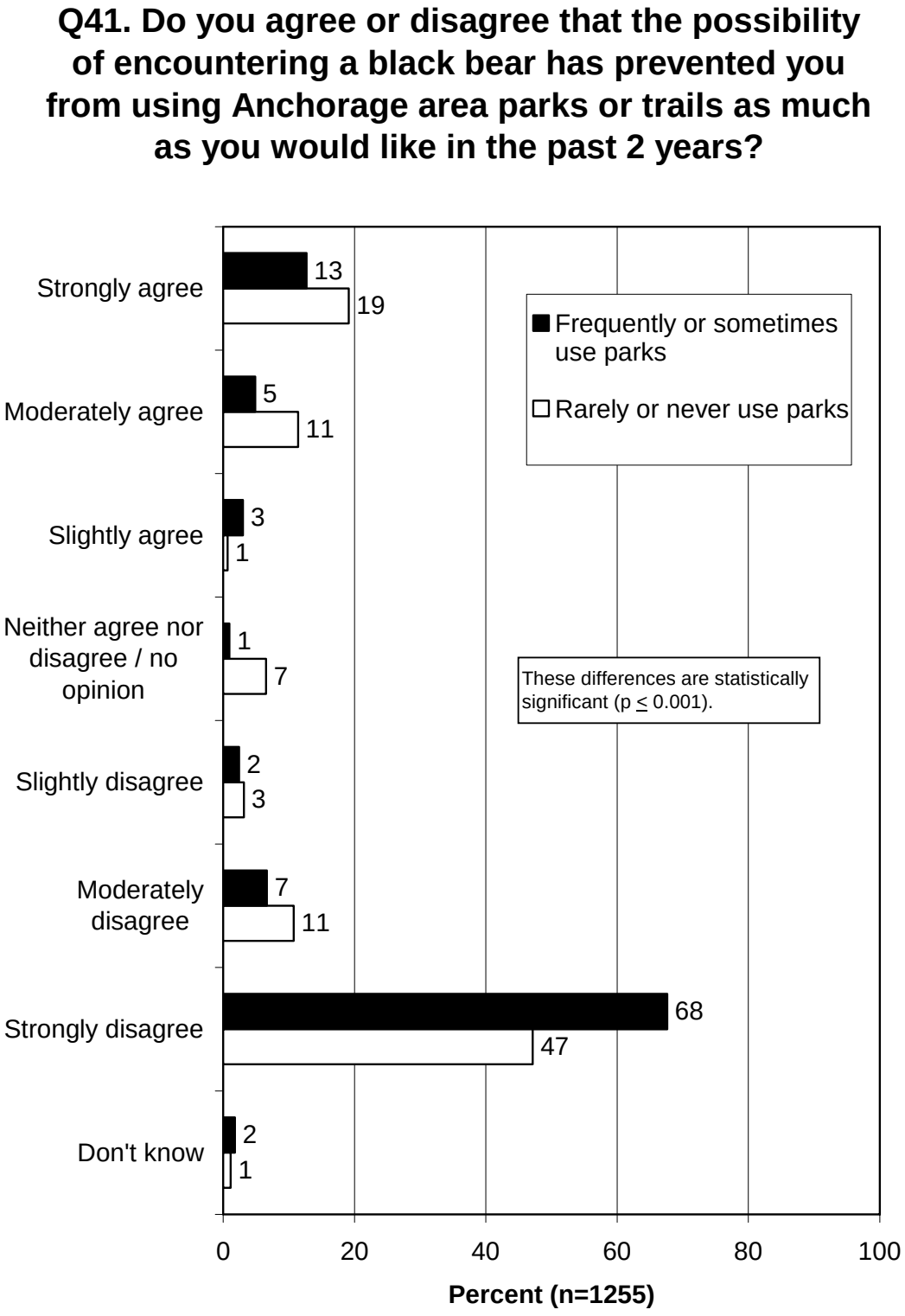


Figure 127. Question 42 Crossed by Park Users.

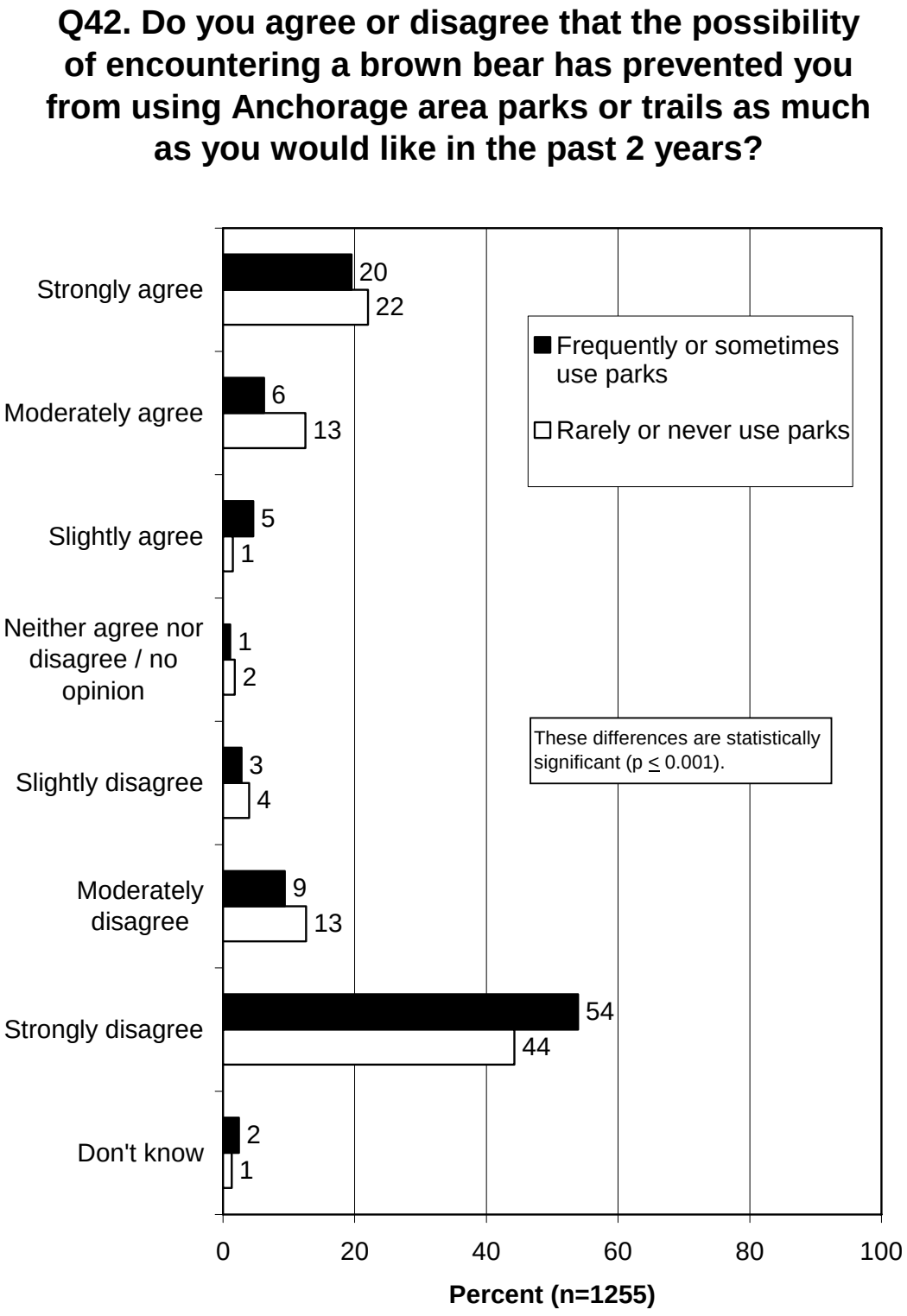


Figure 128. Question 43 Crossed by Park Users.

Figure 129. Question 77.

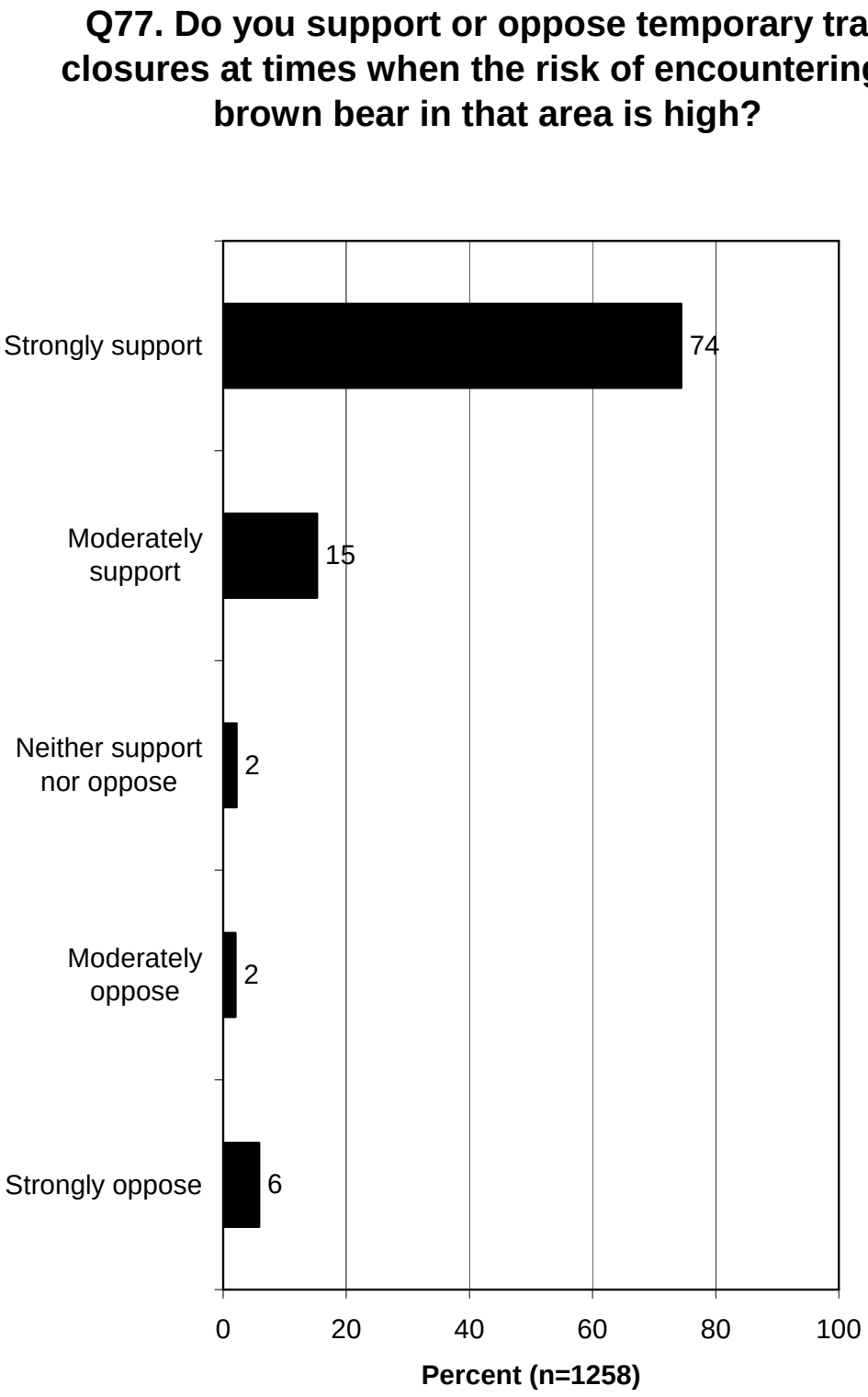


Figure 130. Question 77 Crossed by Region.

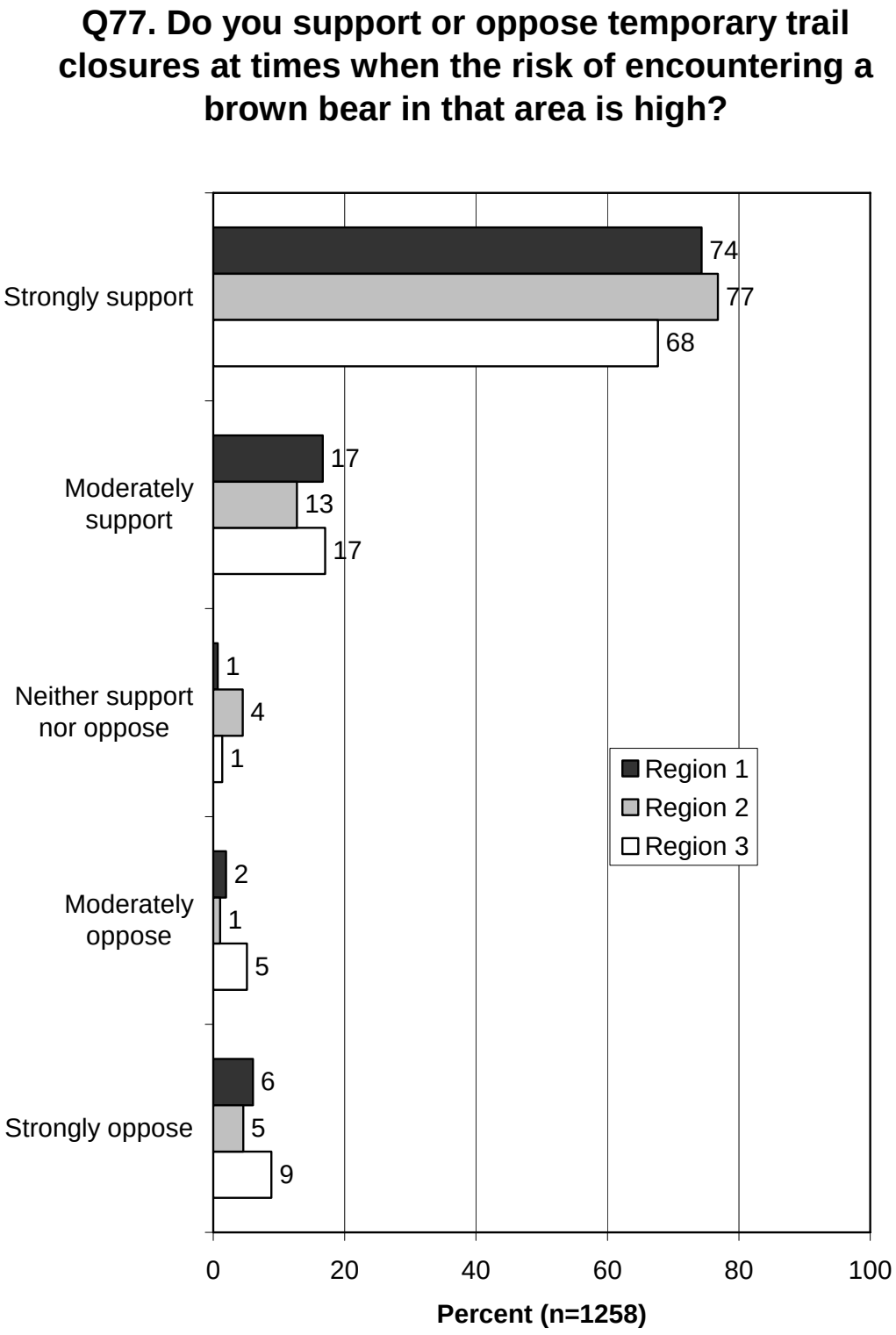


Figure 131. Question 77 Crossed by Trail Users.

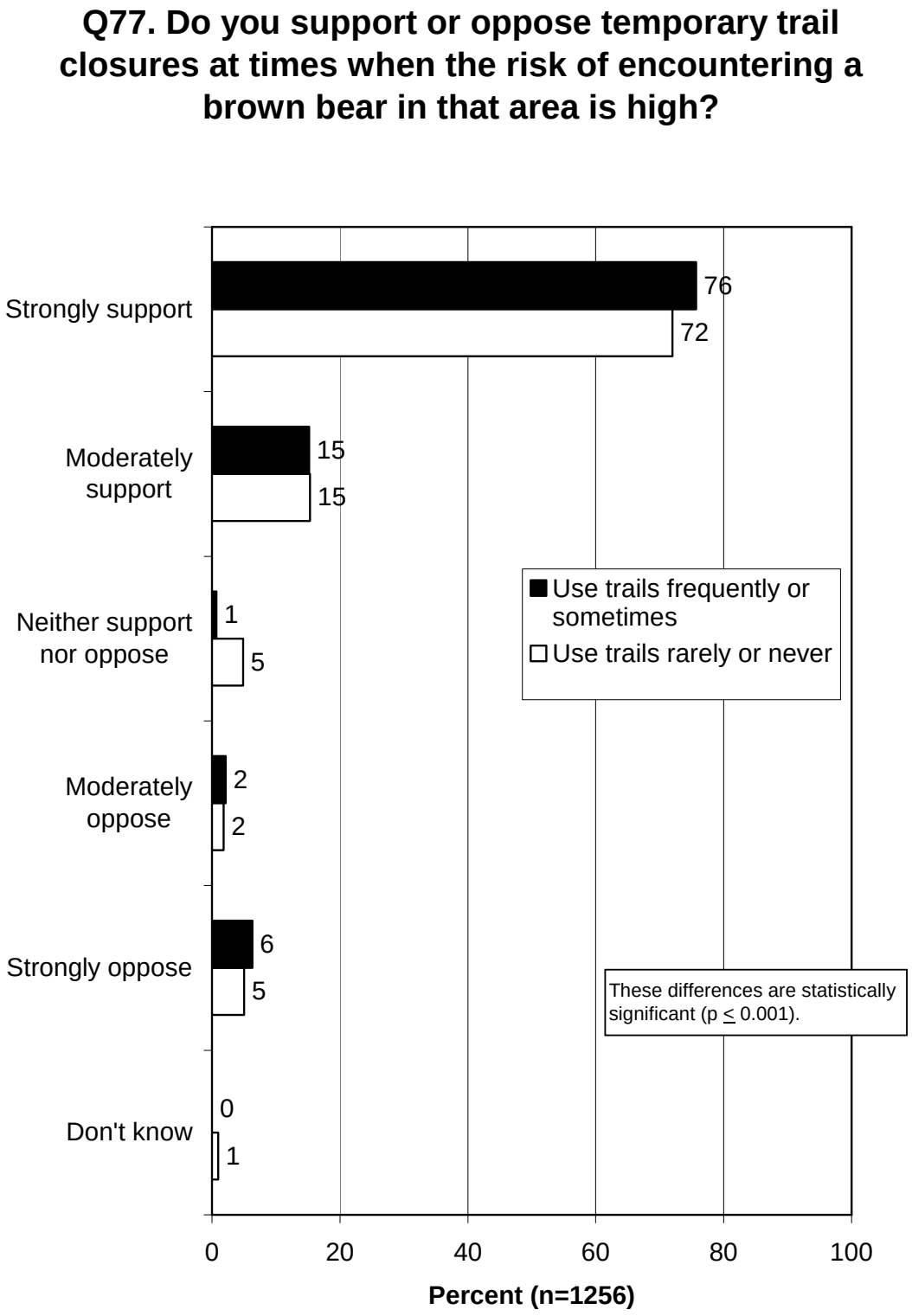


Figure 132. Question 77 Crossed by Park Users.

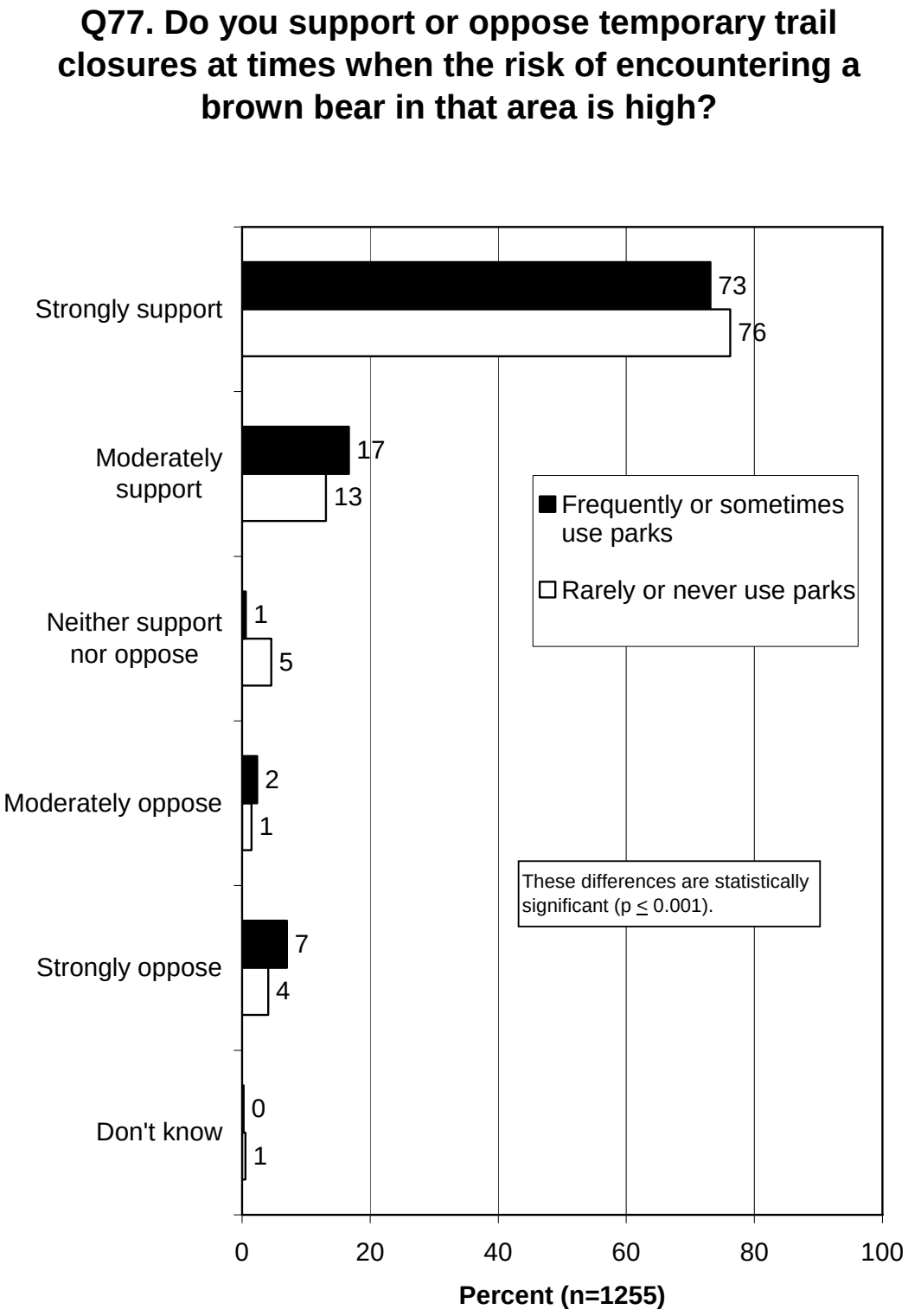


Figure 133. Question 78.

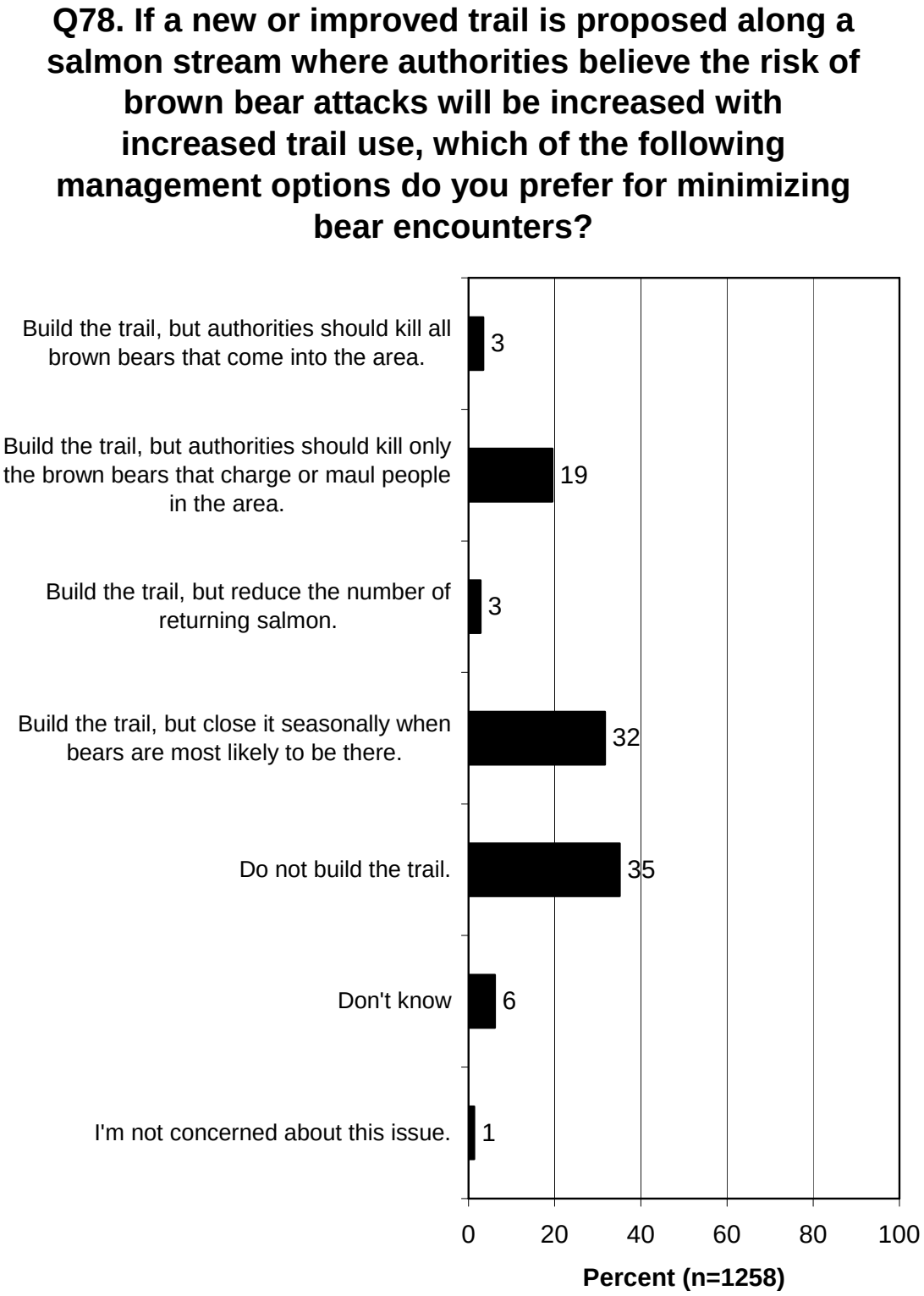


Figure 134. Question 78 Crossed by Region.

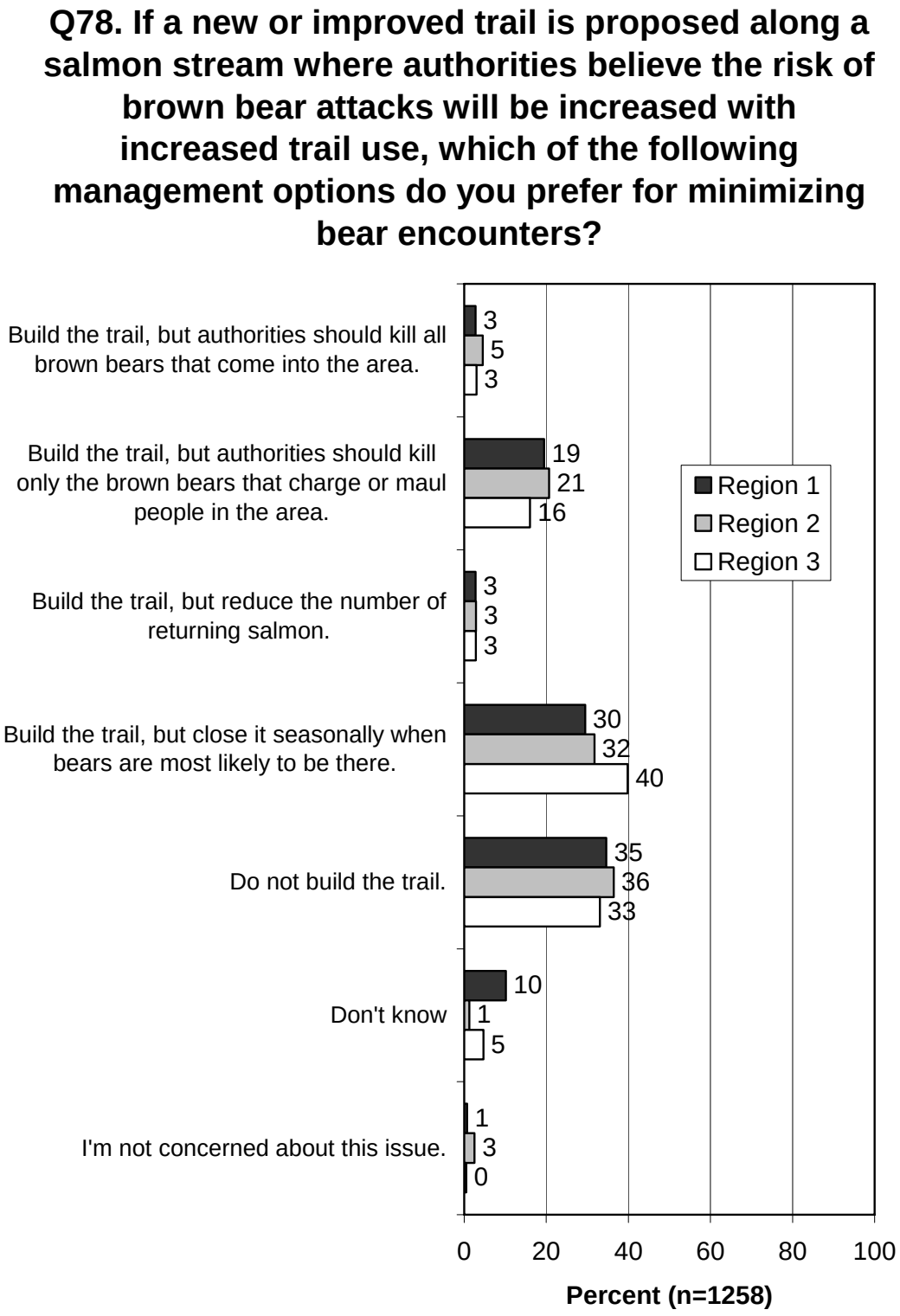


Figure 135. Question 78 Crossed by Trail Users.

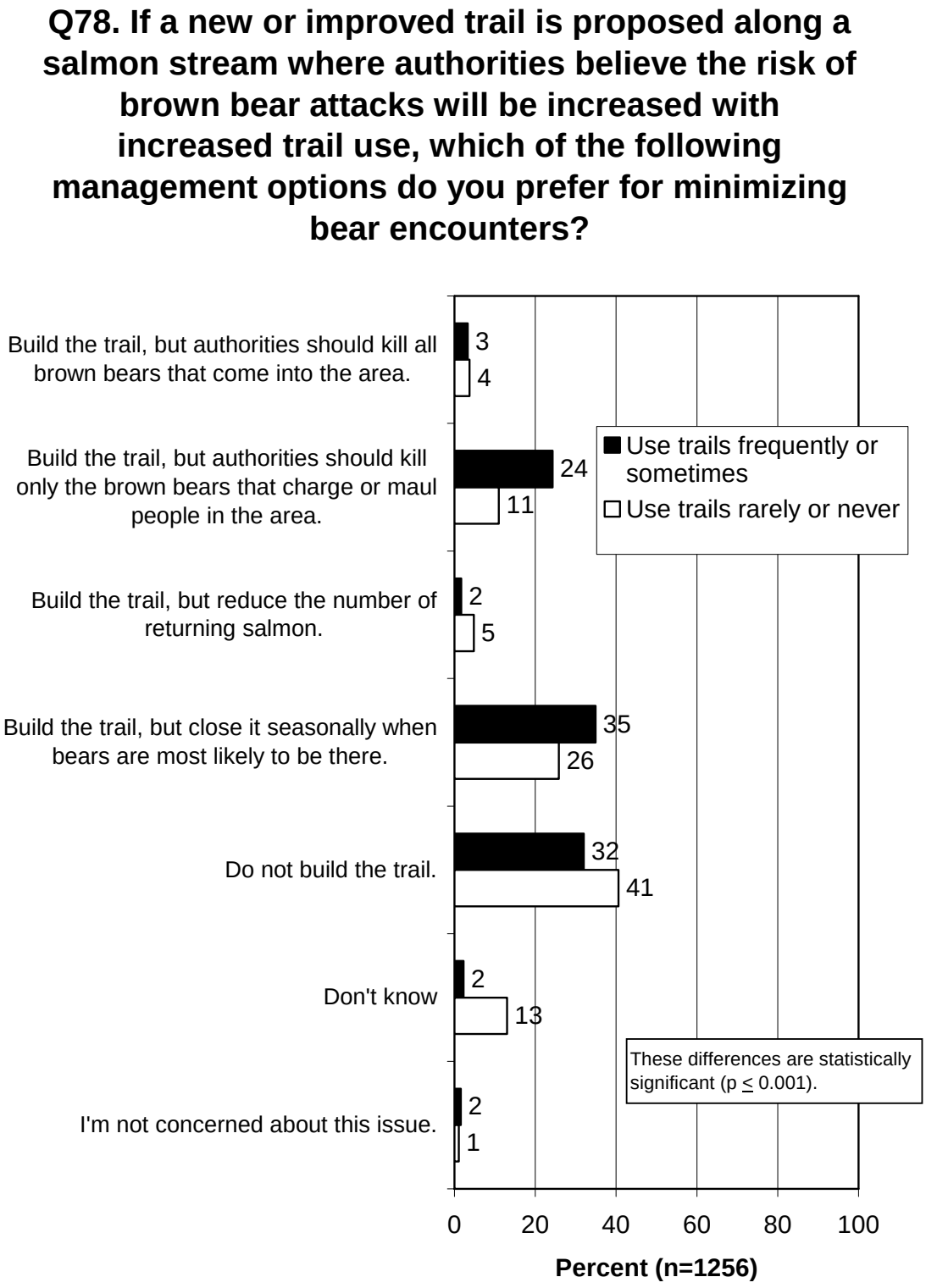
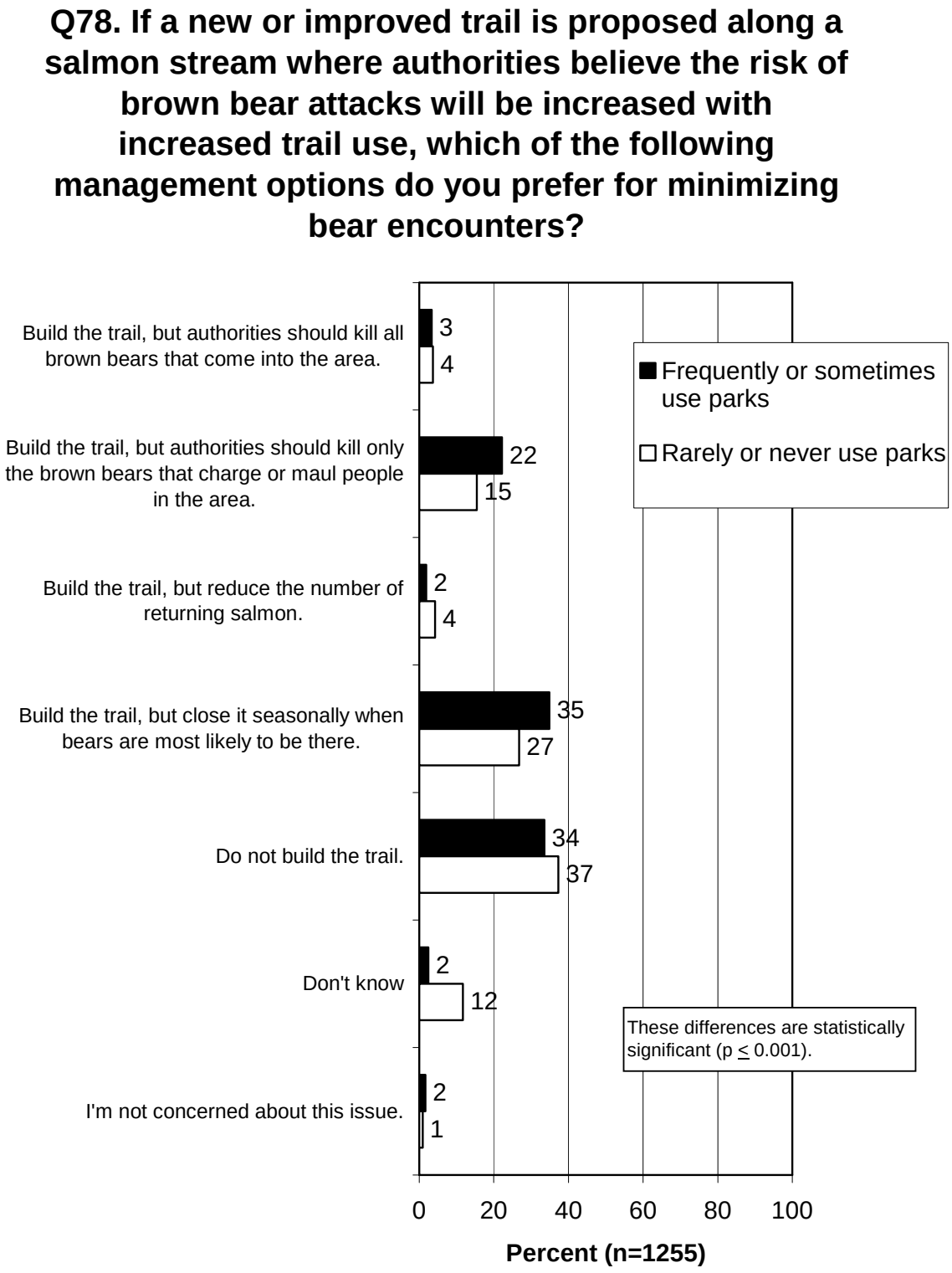


Figure 136. Question 78 Crossed by Park Users.



NEGATIVE INTERACTIONS AND DAMAGE CAUSED BY WILDLIFE

- Residents were asked about problems with black and brown bears in the past 2 years at their primary home, and black bear problems were more common: 6% had problems with black bears, and only 1% had problems with brown bears (Figure 137).
  - Regional crosstabulation: Region 1 residents are the *least* likely to have experienced problems with *black* bears ($p \leq 0.001$) (Figure 138); there were no marked regional differences regarding brown bear (Figure 139).
  - The specific problems vary by the type of bear (Figure 140). Getting into garbage, entering a home, and damage to ornamental or fruit trees are the leading problems with black bears. Building damage (but no entry), getting into garbage, being in the yard, and damage to a parked vehicle are the leading problems with brown bears. Another graph shows all problems regarding both black and brown bears together to give a better idea of proportion of the problems caused by black bears and caused by brown bears (Figure 141).
    - Regional crosstabulation: A graph is included of the regional crosstabulation regarding problems with black bears, with significance tests on those responses with large differences shown on the graph itself (Figure 142). No regional breakdown of the question regarding brown bears is included; the n-value (i.e., sample answering the question) was too low because the percentage of people who had problems with brown bears was low.
  - Despite the problems with bears, residents overwhelmingly agree that most problems with bears in the Anchorage area can be prevented by taking a few simple precautions, such as using bear-proof garbage containers: 88% agree, with 72% *strongly* agreeing (Figure 143). Only 10% disagree.
    - The regional crosstabulation for this question is shown (Figure 144).
  - In this line of questioning, 84% of residents support fines for *not* storing garbage to prevent problems with bears; 10% oppose (Figure 145). Similarly, 85% support a regulation or ordinance requiring Anchorage area residents to use bear-proof garbage containers in neighborhoods frequented by bears; 13% oppose (also Figure 145).
    - Regional crosstabulation: Both regional crosstabulation graphs are shown; for the latter of the two questions immediately above, Region 1 residents are more likely to

strongly support a regulation or ordinance requiring Anchorage area residents to use bear-proof garbage containers in neighborhoods frequented by bears ($p \leq 0.001$) (Figures 146 and 147).

- If the City of Anchorage provided bear-proof garbage containers, 71% of residents would support paying more for their trash service to pay for the containers, while 20% would oppose (Figure 148).
  - Regional crosstabulation: Region 1 residents, relative to residents of the other two regions, are more likely to strongly support paying more for trash service in return for being provided bear-proof garbage containers ($p \leq 0.001$) (Figure 149).

➢ One question explored problems regarding moose-vehicle collisions (Figure 150). A majority of residents (57%) indicated that they were driving a car or were a passenger in a car that had to swerve and/or brake hard to avoid hitting a moose. Additionally, 12% indicated that they were in a collision with a moose, either as a driver or passenger.

- Regional crosstabulation: Driving problems vis-à-vis moose are worse among Region 3 and, to a lesser extent, Region 2 residents, relative to Region 1 residents (Figure 151). The regional differences regarding swerving and/or braking hard are statistically significant ($p \leq 0.001$), but not the regional differences in actually hitting a moose.
- A graph showing trends based on a study from 1997 is shown (Figure 152). Although it would appear that near misses are less prevalent nowadays, the wording of the two surveys was slightly different. The wording from 1997 (...in a vehicle that had to swerve or brake to avoid hitting a moose) was changed with the addition of the word, "hard" (...in a vehicle that had to swerve or brake hard to avoid hitting a moose), which better represented the situation about which information was wanted. It is likely this wording change that caused the lowering of the percentage giving this response in 2009 when compared to 1997.

Figure 137. Questions 44 and 49.

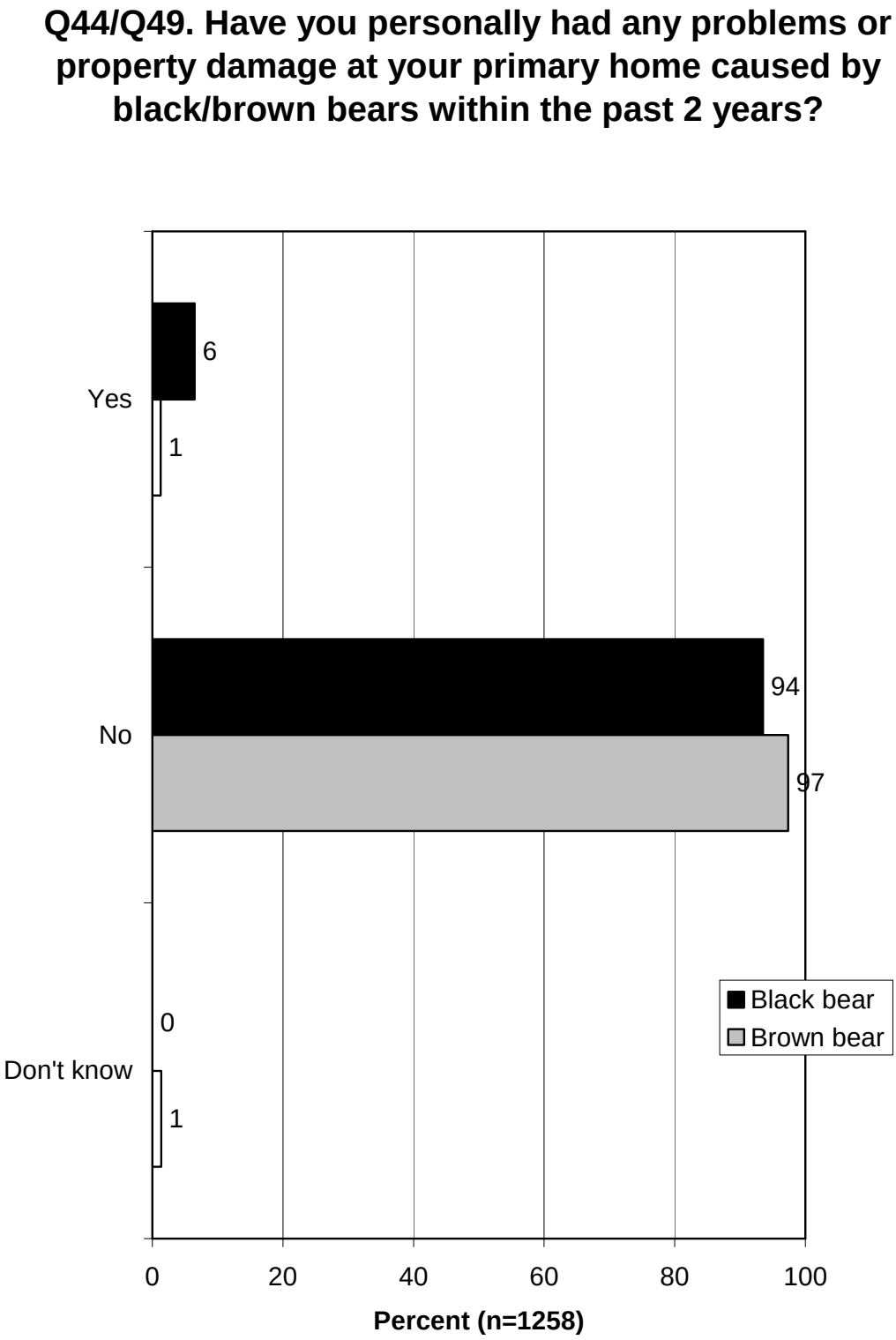


Figure 138. Question 44 Crossed by Region.

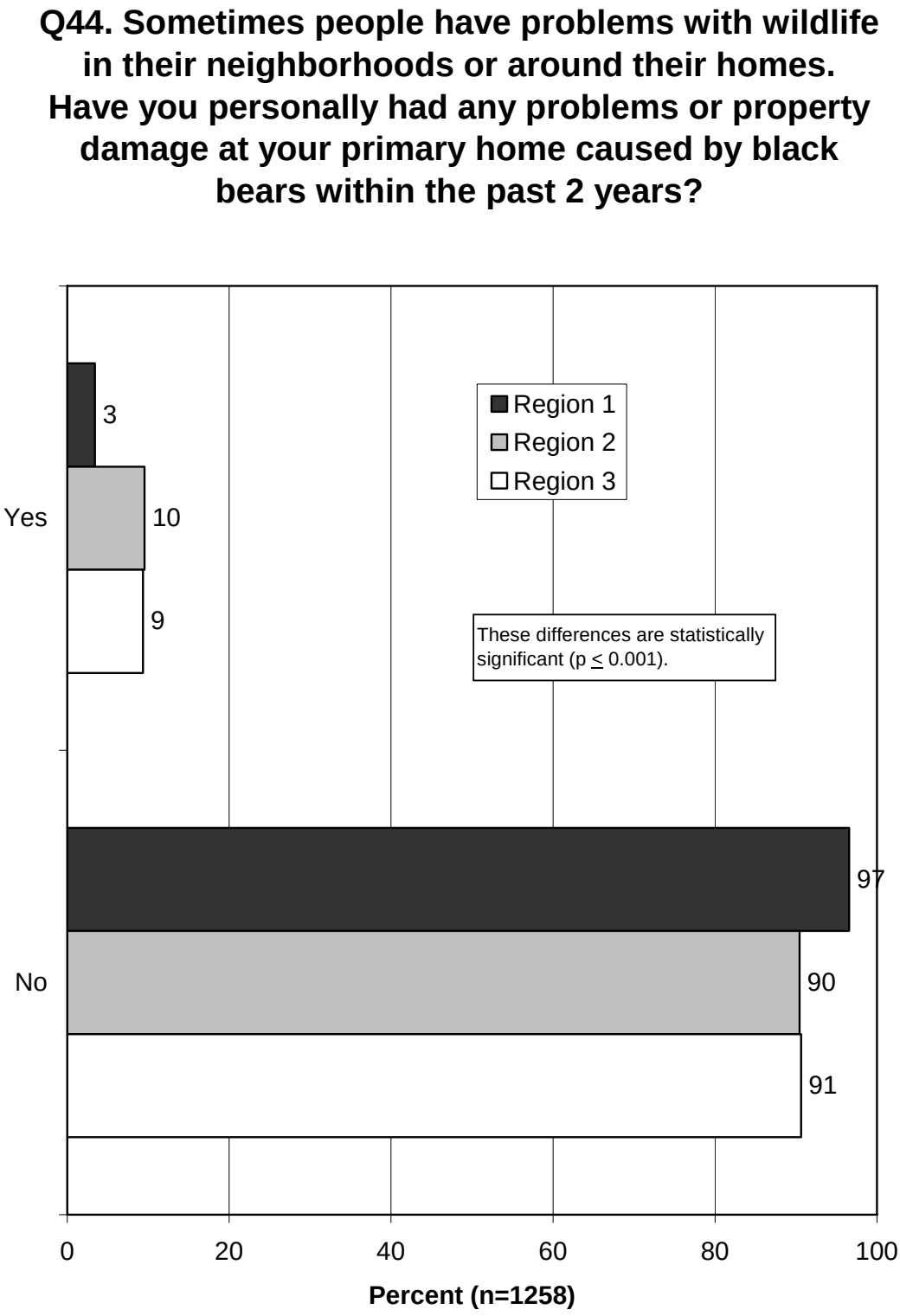


Figure 139. Question 49 Crossed by Region.

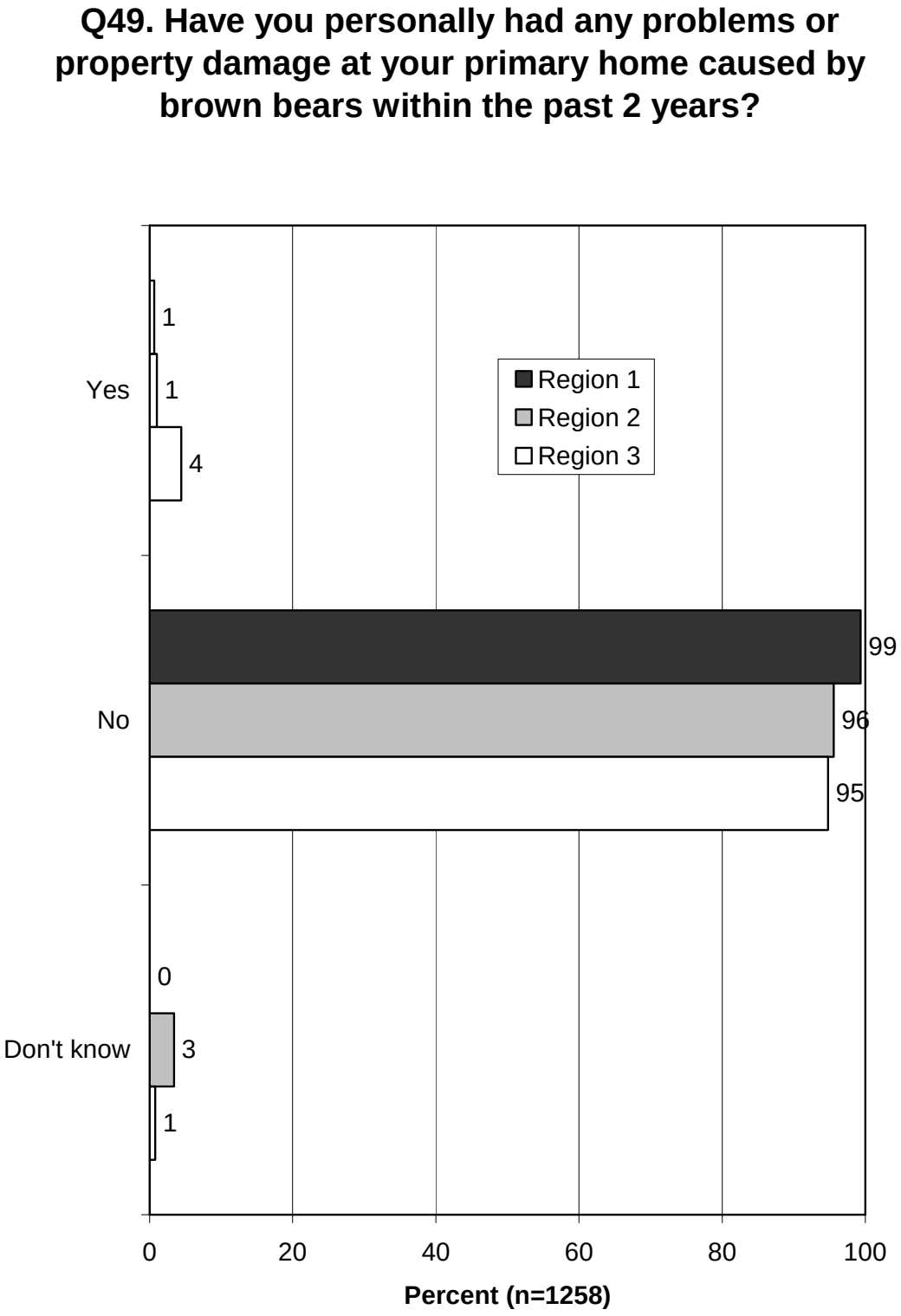


Figure 140. Questions 47 and 52.

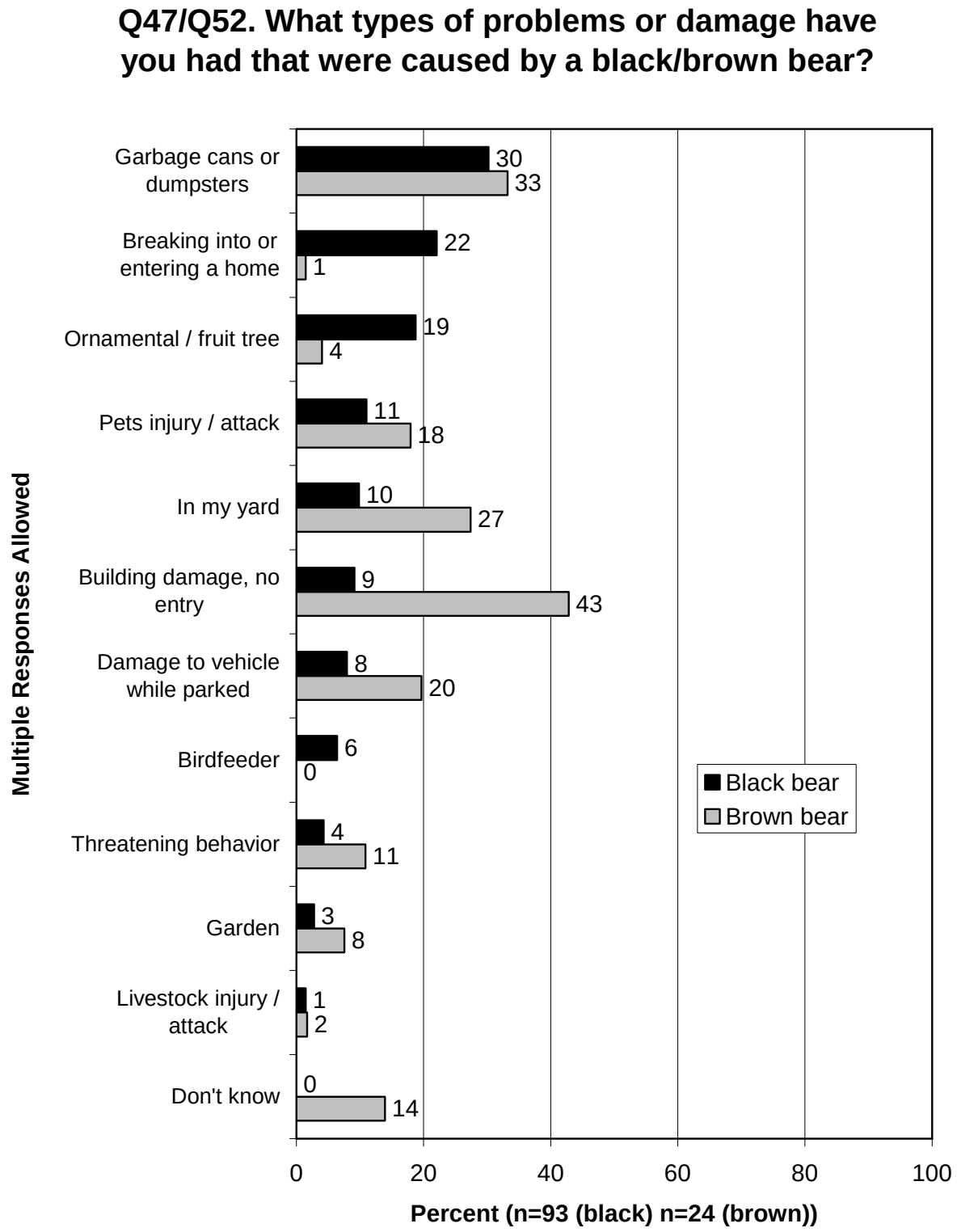


Figure 141. Questions 47 and 52 Combined.

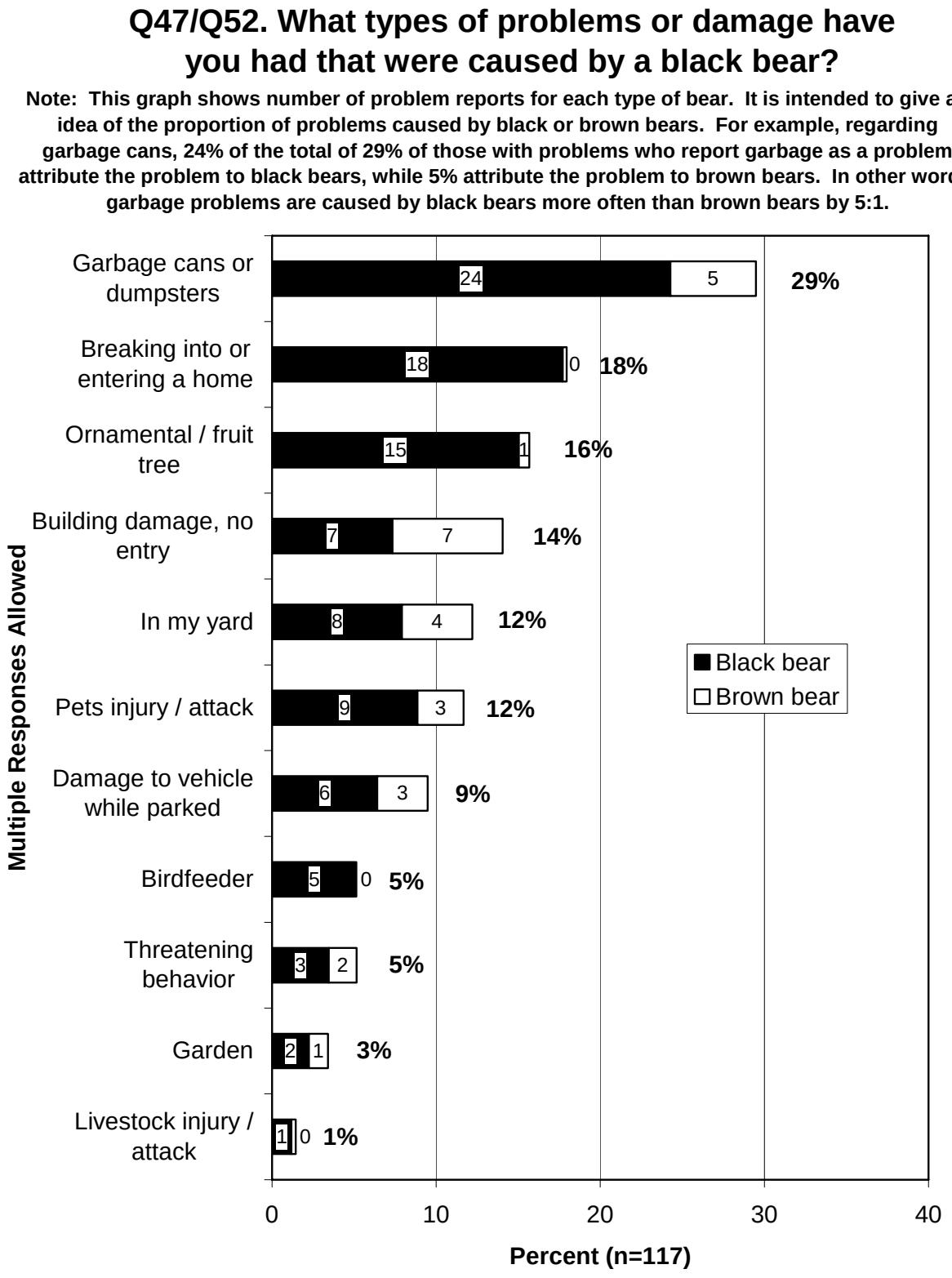


Figure 142. Question 47 Crossed by Region.

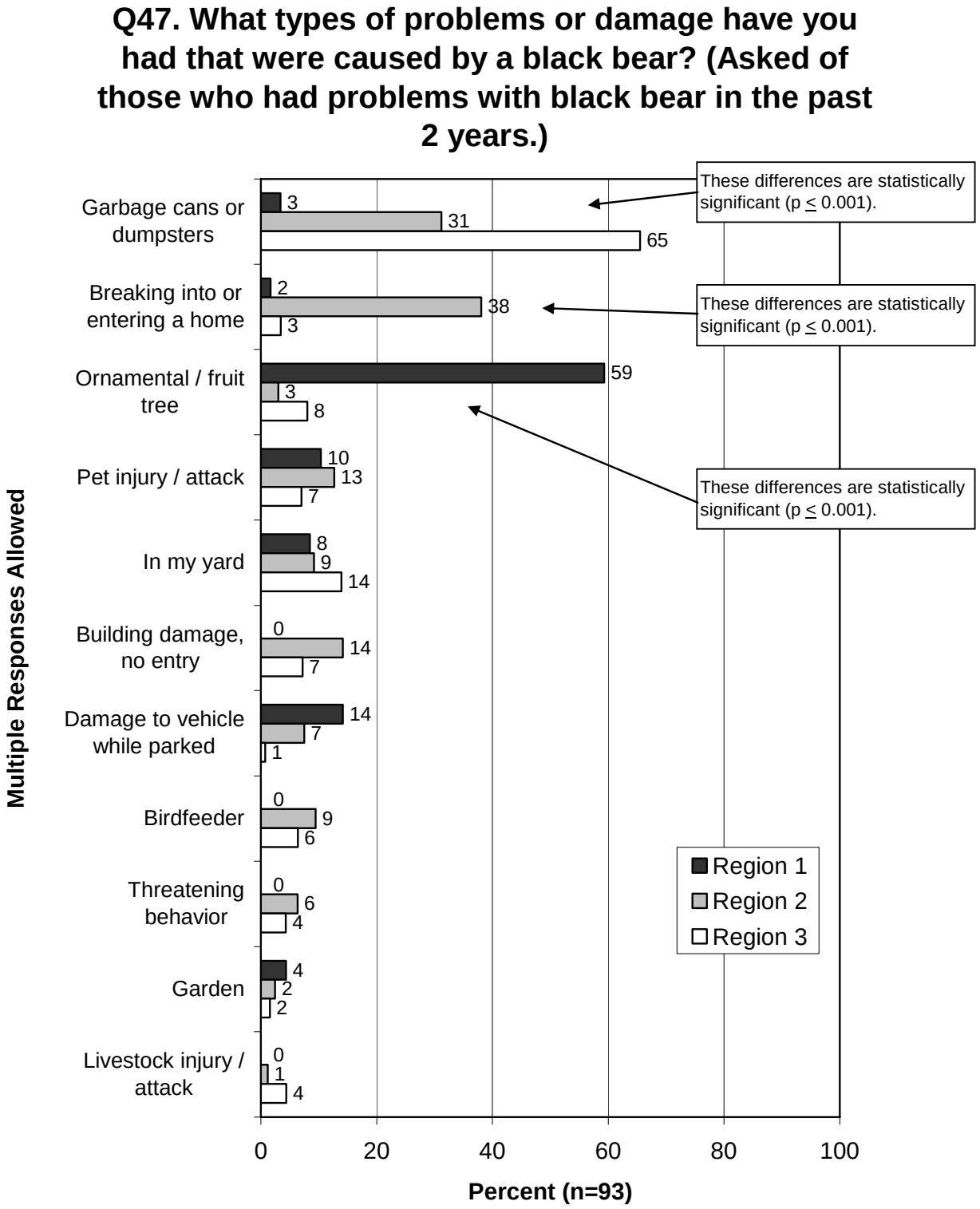


Figure 143. Question 54.

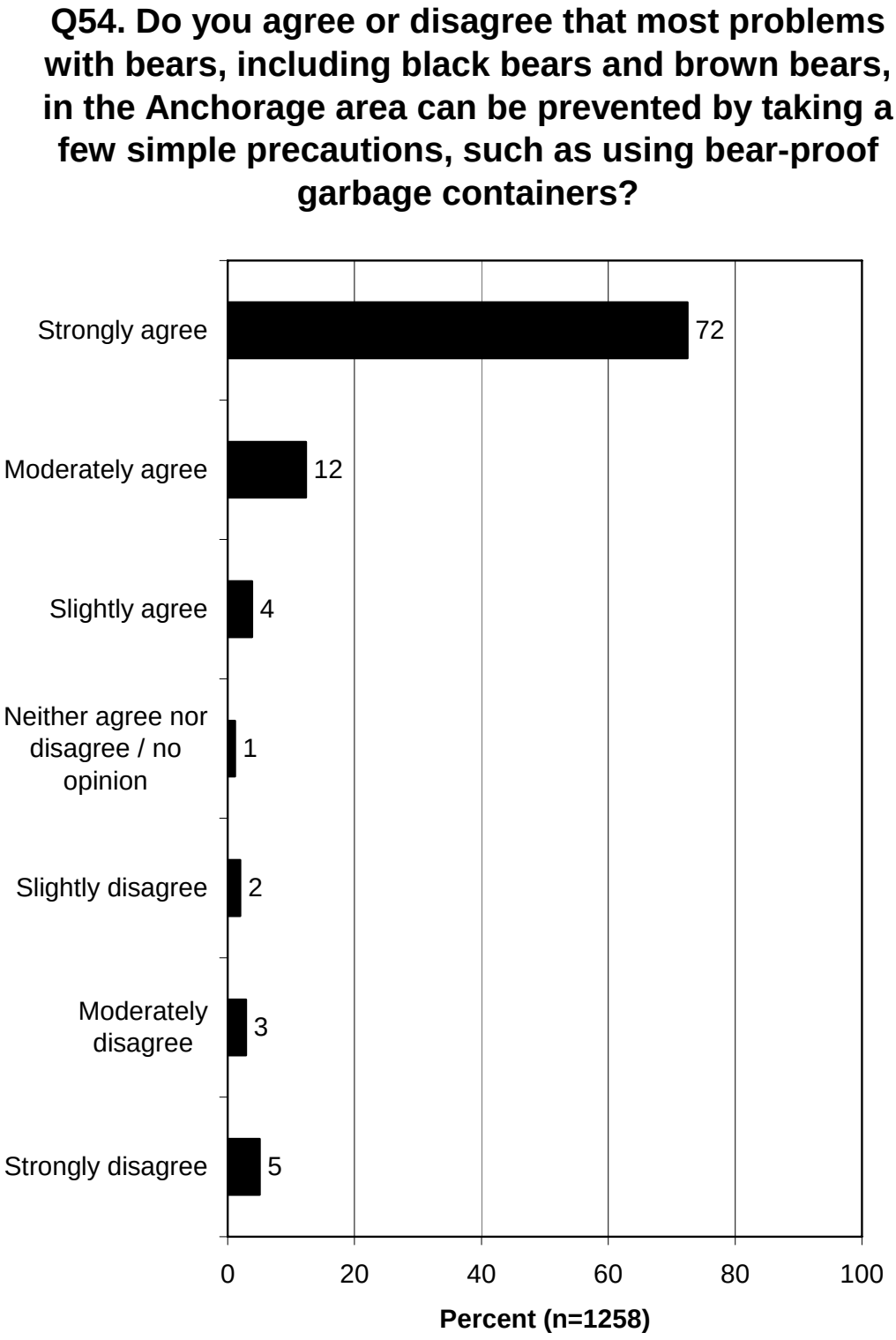


Figure 144. Question 54 Crossed by Region.

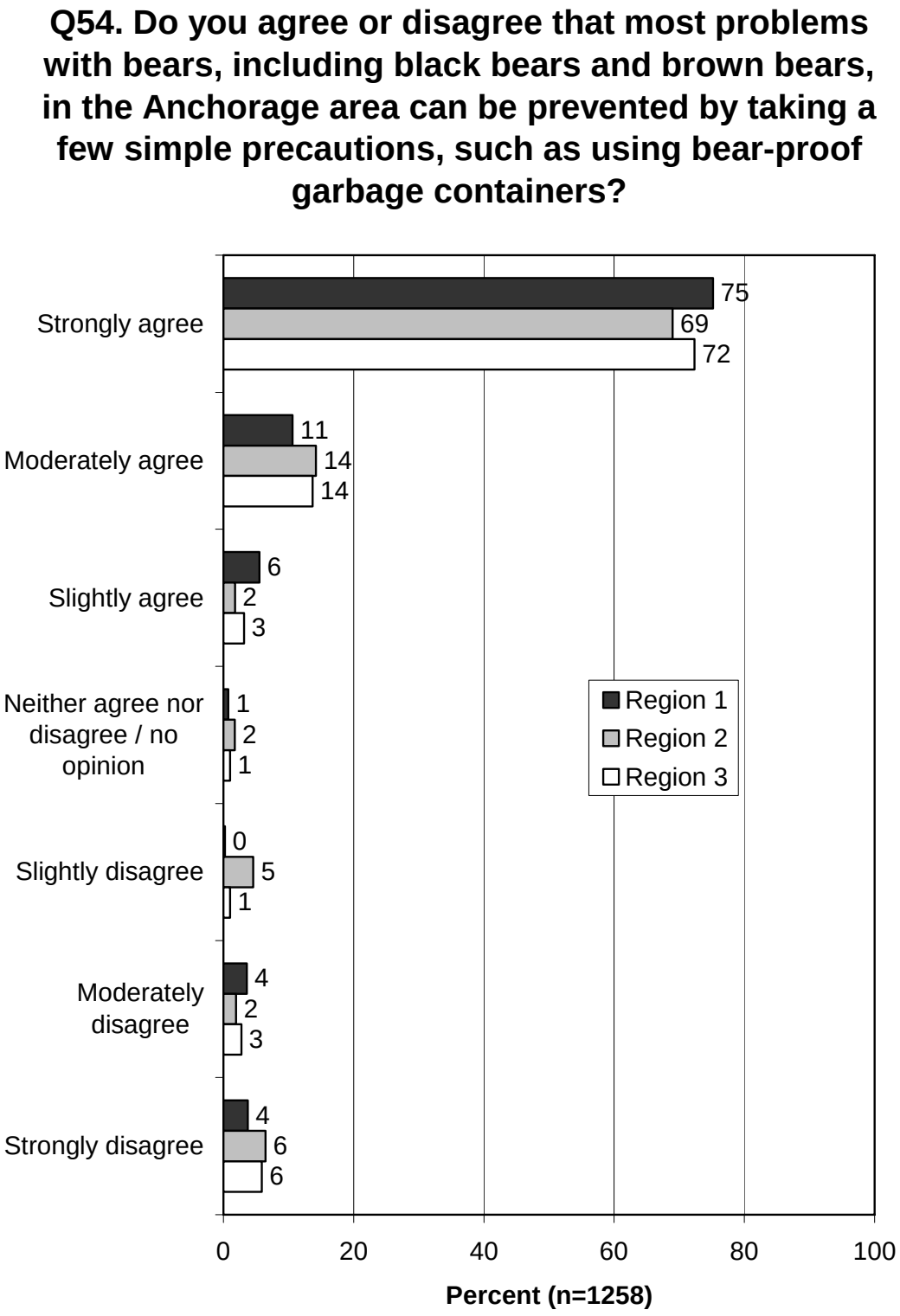


Figure 145. Questions 72 and 73.

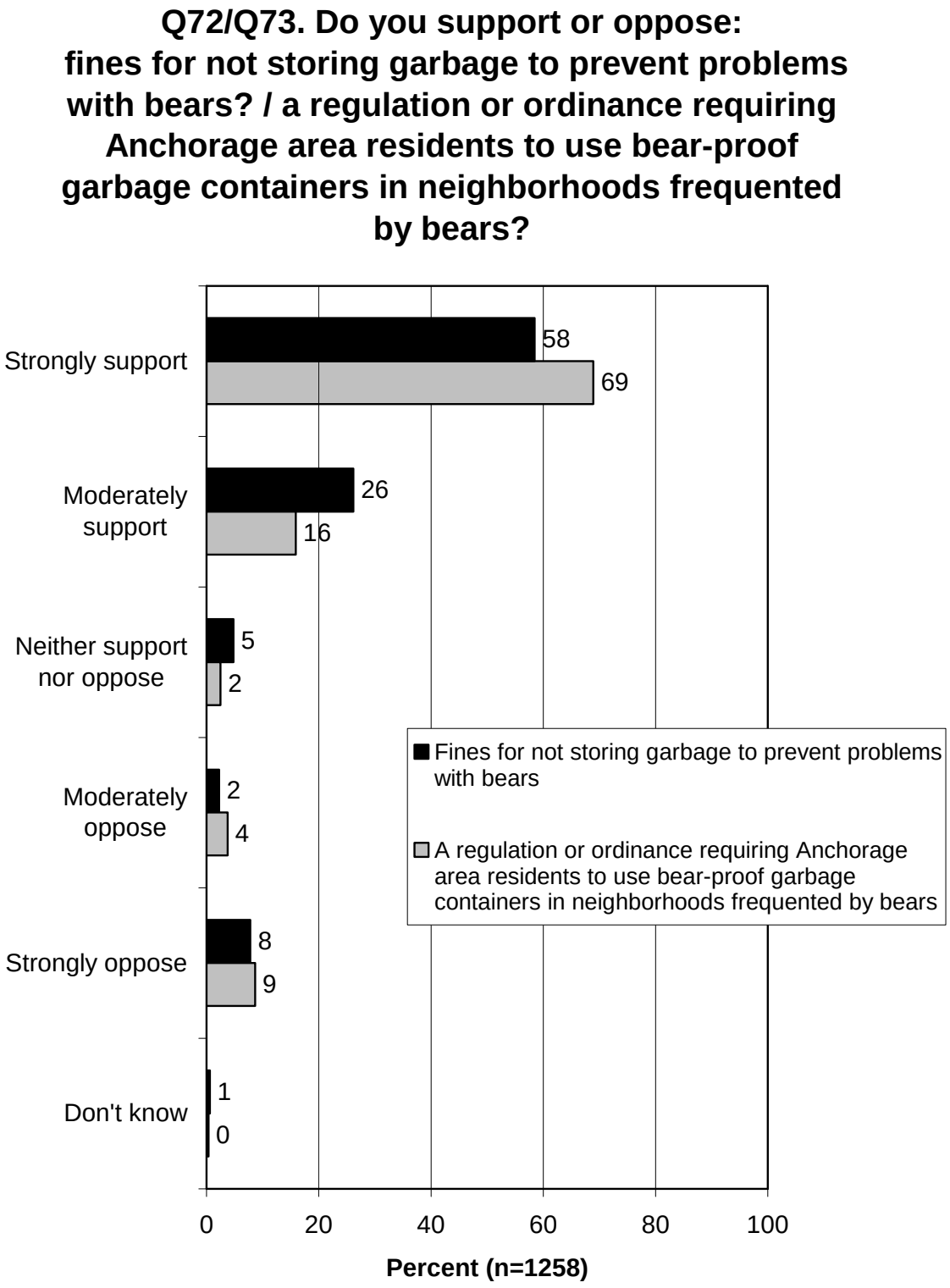


Figure 146. Question 72 Crossed by Region.

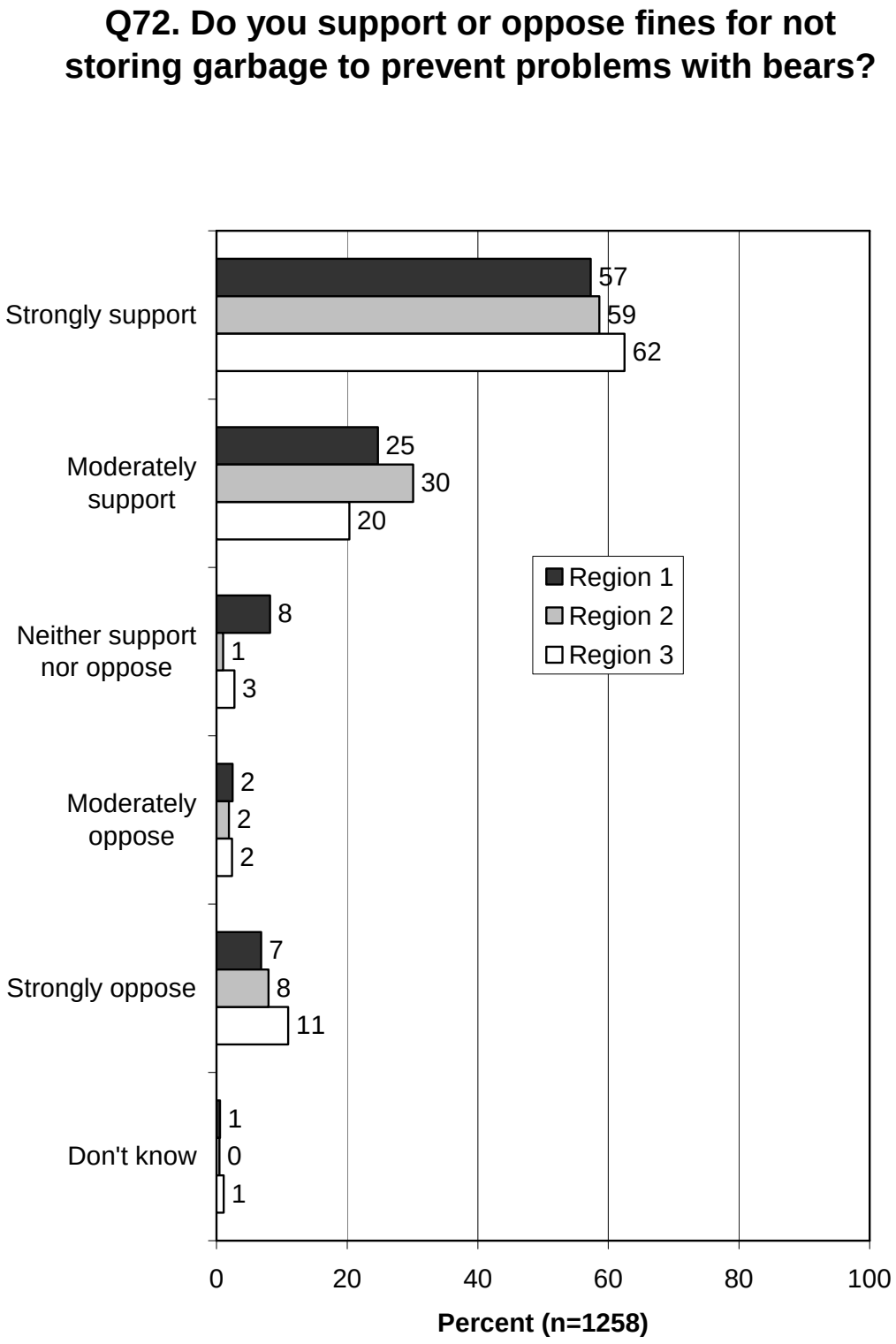


Figure 147. Question 73 Crossed by Region.

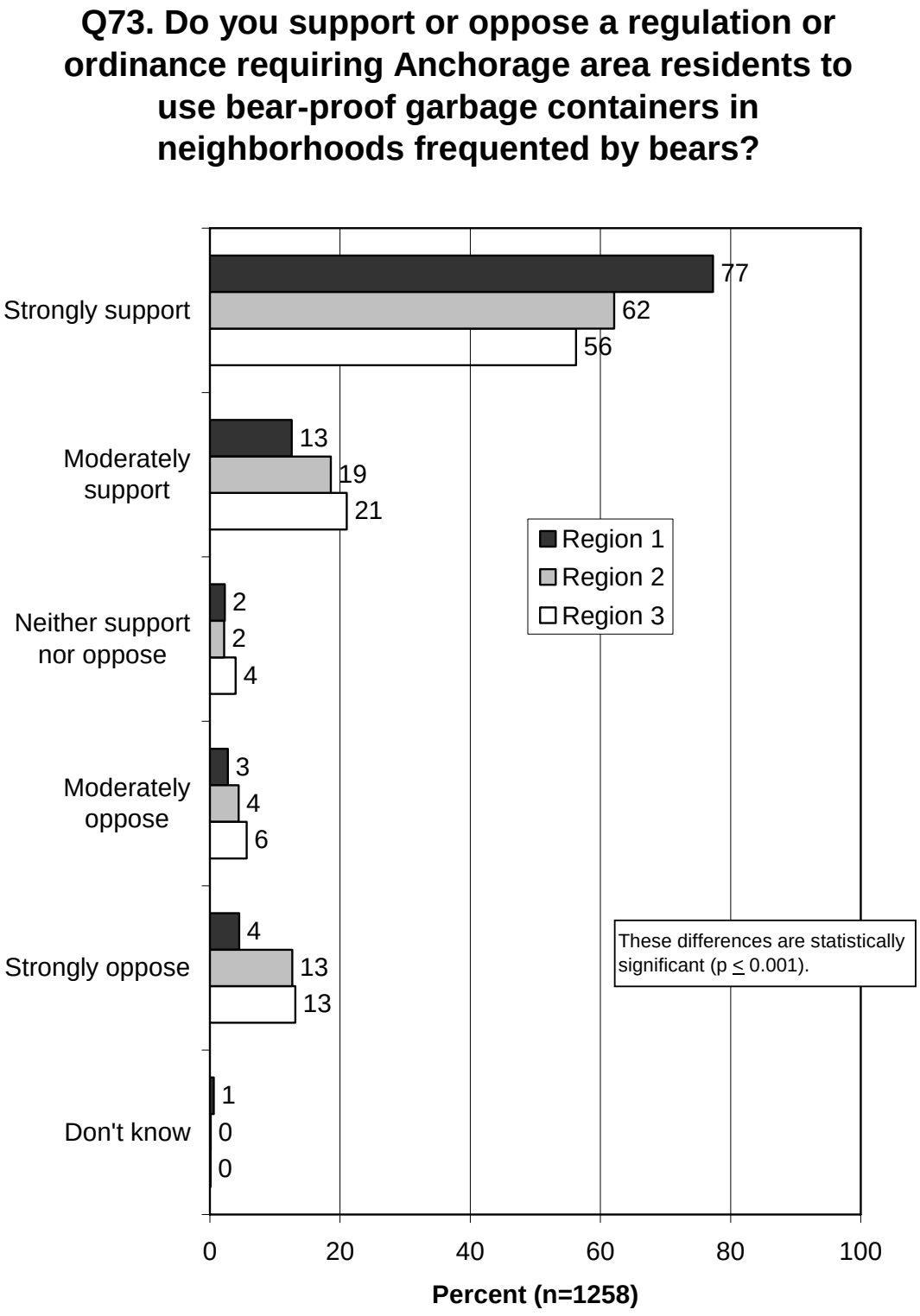


Figure 148. Question 74.

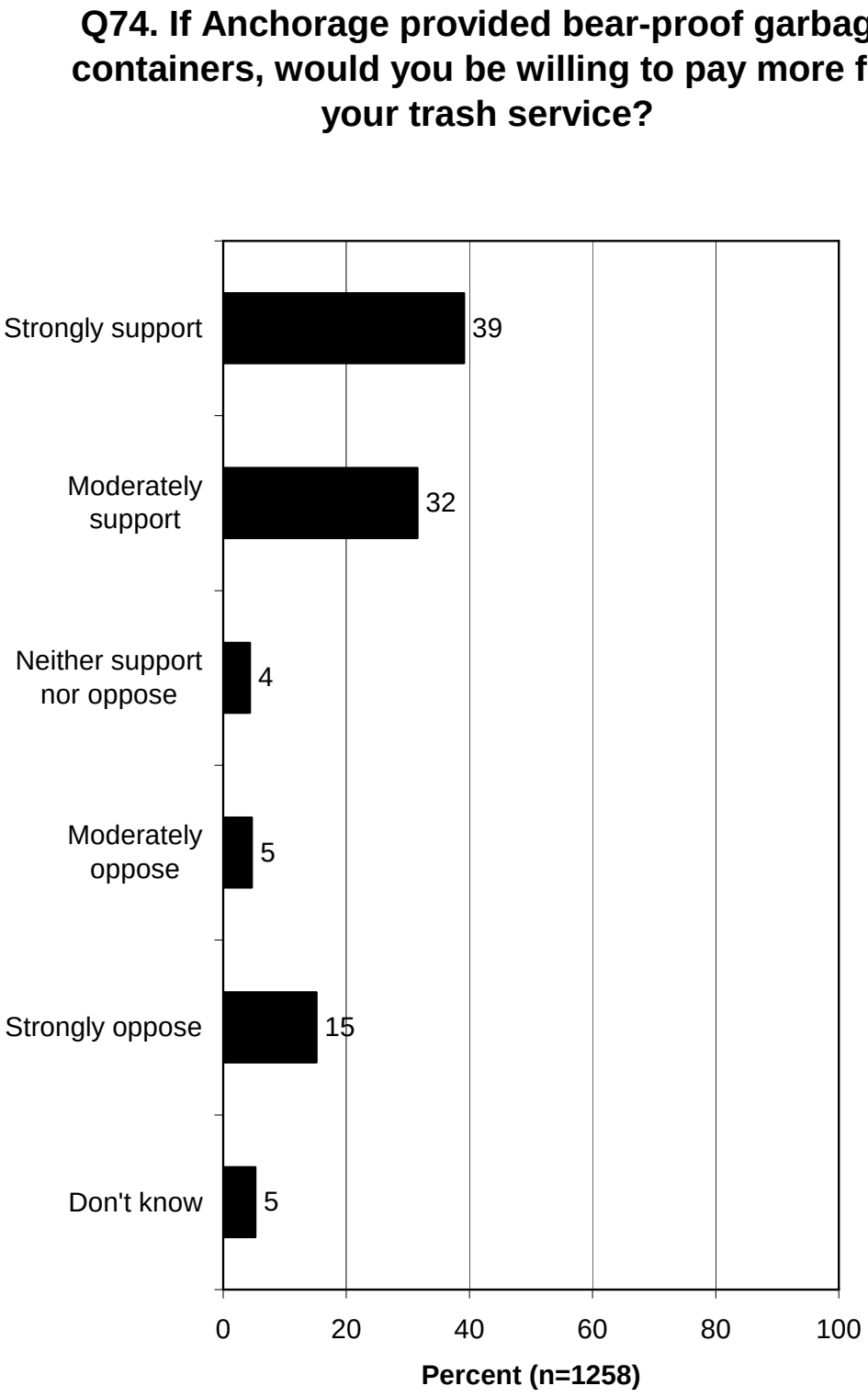


Figure 149. Question 74 Crossed by Region.

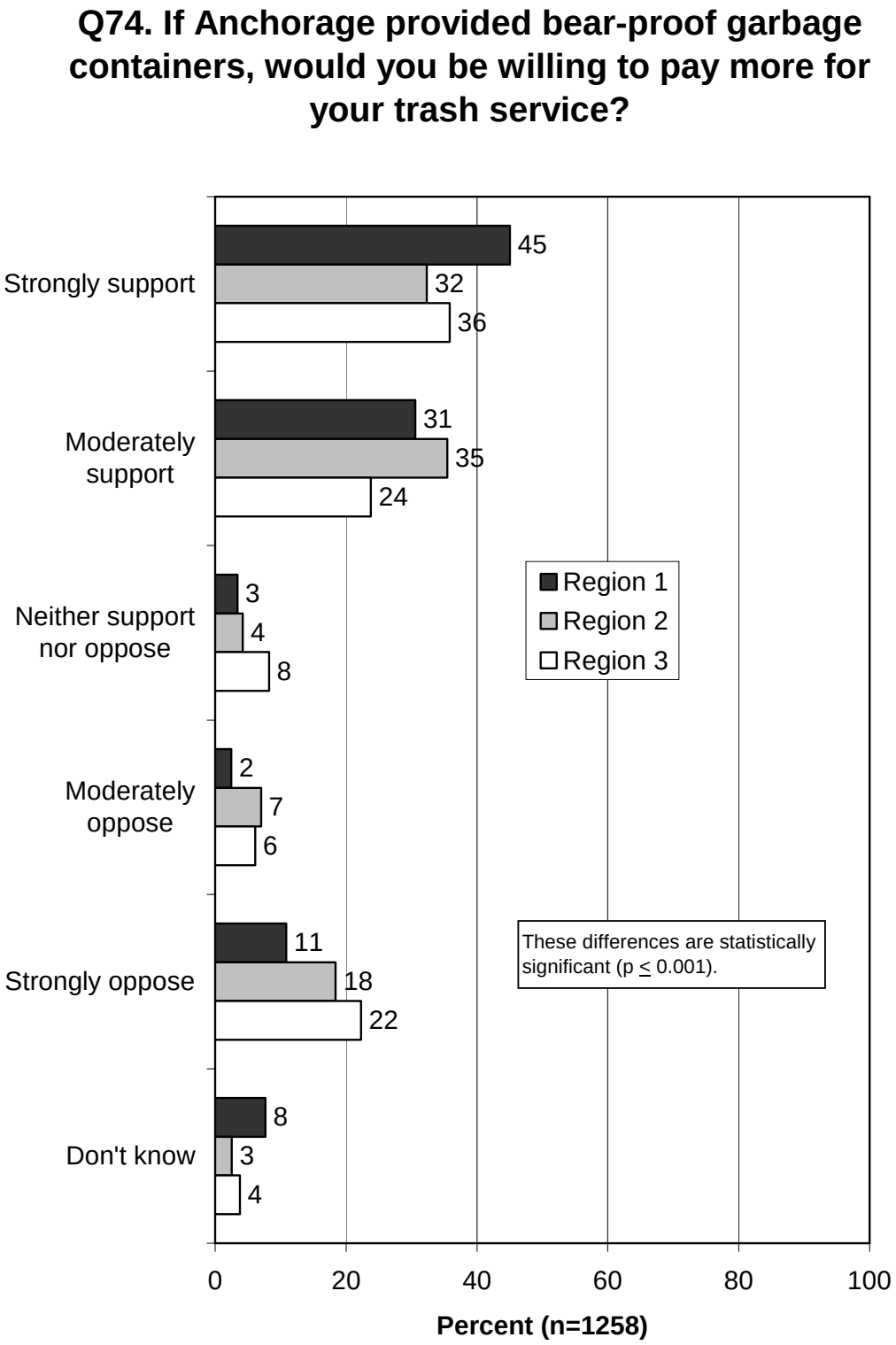
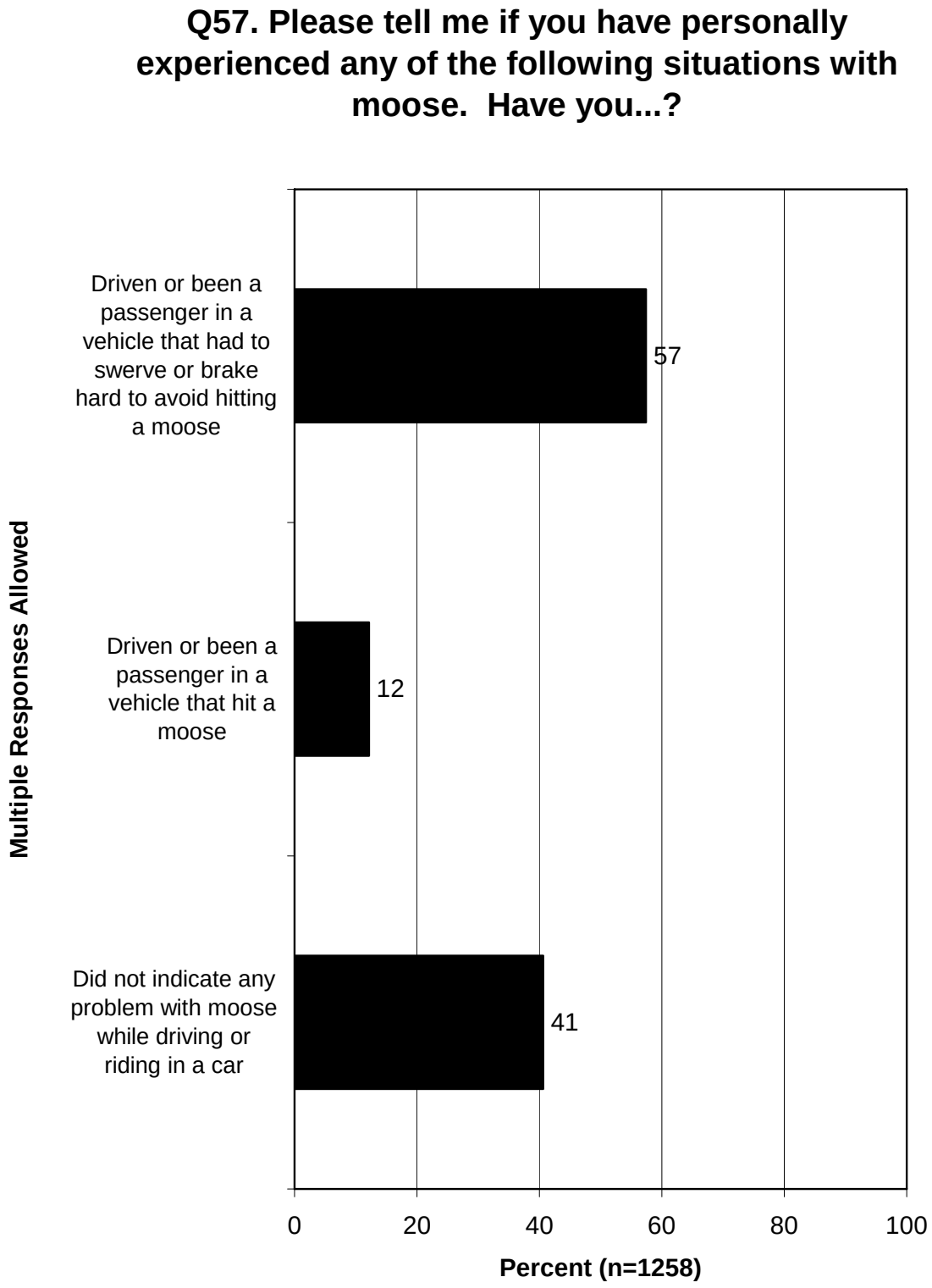
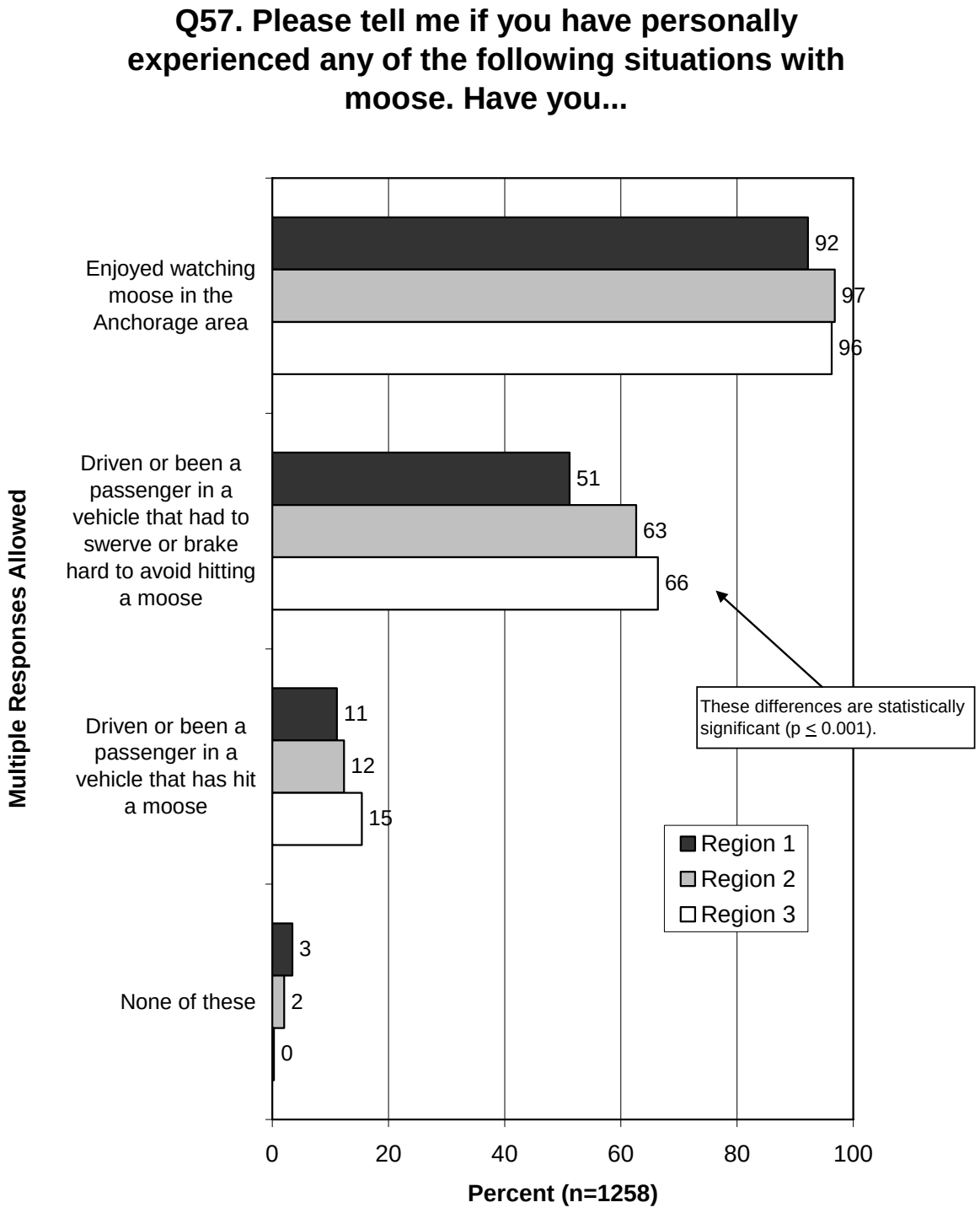


Figure 150. Question 57 Regarding Driving.



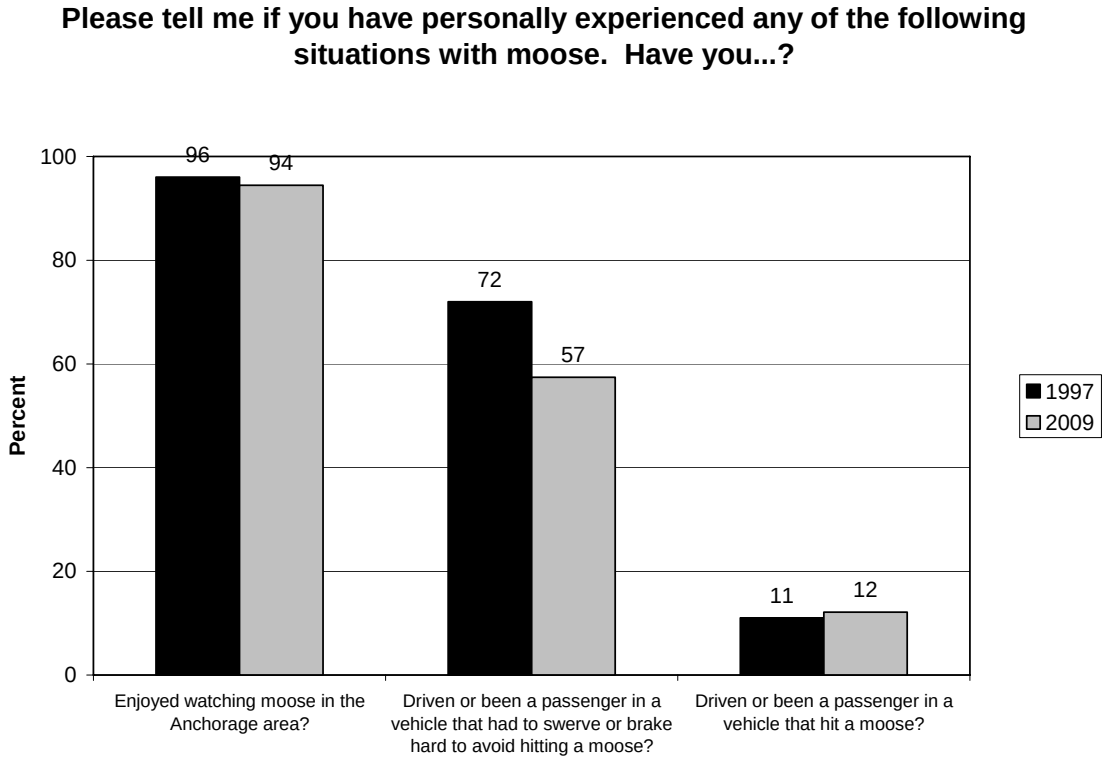
Note that this graph was previously shown in the section of this report titled "Wildlife Values and Knowledge of Wildlife."

Figure 151. Question 57 Crossed by Region.



Note that this graph was previously shown in the section of this report titled "Wildlife Values and Knowledge of Wildlife."

Figure 152. Question 57 Trends.



Note: The 2009 survey added "hard" to the wording of the middle choice because the 1997 survey did not capture the essence of the avoidance behavior being tested. Therefore, it was expected that the results in 2009 regarding having to swerve or brake would be lower.

OPINIONS ON WILDLIFE MANAGEMENT OPTIONS

- A majority of Anchorage residents oppose having wildlife authorities destroy some black or brown bears in Anchorage every year to reduce the population: 54% oppose regarding black bears and 53% oppose regarding brown bears (Figure 153). On the other hand, substantial percentages support: 40% support destroying some black bears and 40% support destroying some brown bears. Regarding moose, there is again a majority (63%) in opposition for having wildlife authorities destroy some moose in Anchorage every year to reduce the population, which is about double the percentage in support (32%) (also Figure 153).
  - The regional crosstabulations are shown for these three questions (Figures 154 through 156).
  - The nonparametric analysis found that the following responses are correlated with support for having wildlife authorities destroy some *black bears* in Anchorage every year to reduce the population:
    - Does not show much tolerance about having bears around (e.g., wants to see and have black bears in Alaska but not in the Anchorage area, does not indicate agreeing that most problems with bears in the Anchorage area can be prevented by taking a few simple precautions) (all at $p \leq 0.001$).
    - On most questions that include a bear-killing option, favors killing the bear (e.g., supports wildlife authorities destroying bears when bears get into garbage in neighborhoods in the Anchorage area, supports wildlife authorities destroying bears when bears are seen frequently in neighborhoods in the Anchorage area) (all at $p \leq 0.001$).
    - Does not think having moose around make life in Anchorage more interesting and special ($p \leq 0.001$).
    - On questions that include a moose-killing option, favors killing the moose ($p \leq 0.001$).
    - Has hunted ($p \leq 0.001$).
    - Has fished for salmon in the past 2 years ($p \leq 0.05$).
    - Gets his/her information about bears and moose from the television ($p \leq 0.001$) and/or newspapers ($p \leq 0.01$).
    - Is male ($p \leq 0.001$).

- Primarily grew up in a rural area or a small town or city ($p \leq 0.001$).
- Has been an Alaska resident for the mean number of years or more ($p \leq 0.001$).
- Is in the middle age bracket (35 to 64 years old) ($p \leq 0.001$).
- Lives in Region 3 ($p \leq 0.05$).
- Personally has had problems or property damage at his/her primary home caused by black bears within the past 2 years ($p \leq 0.001$).
- Does not indicate supporting paying more for his/her trash service if Anchorage provided bear-proof garbage containers ($p \leq 0.001$).
- Does not indicate supporting a regulation or ordinance requiring Anchorage area residents to use bear-proof garbage containers in neighborhoods frequented by bears ($p \leq 0.001$).

- The nonparametric analysis found that the following responses are correlated with support for having wildlife authorities destroy some *brown bears* in Anchorage every year to reduce the population:
  - Does not show much tolerance about having bears around (e.g., wants to see and have black and brown bears in Alaska but not in the Anchorage area, does not indicate that having black or brown bears in Far North Bicentennial Park is acceptable to him/her) (all at $p \leq 0.01$ or greater significance).
  - On most questions that include a bear-killing option, favors killing the bear (e.g., supports wildlife authorities destroying bears when bears cause property damage in neighborhoods in the Anchorage area, supports wildlife authorities destroying bears when bears get into garbage in neighborhoods in the Anchorage area) (all at $p \leq 0.001$).
  - Does not think having moose around make life in Anchorage more interesting and special ($p \leq 0.001$).
  - On questions that include a moose-killing option, favors killing the moose ($p \leq 0.001$).
  - Has hunted ($p \leq 0.001$).
  - Has fished for salmon in the past 2 years ($p \leq 0.01$).
  - Gets his/her information about bears and moose from the television ($p \leq 0.001$) and/or newspapers ($p \leq 0.05$).

- Is male ($p \leq 0.001$).
- Primarily grew up in a rural area or a small town or city ($p \leq 0.001$).
- Has been an Alaska resident for the mean number of years or more ($p \leq 0.001$).
- Personally has had problems or property damage at his/her primary home caused by black bears within the past 2 years ($p \leq 0.001$).

- The nonparametric analysis found that the following responses are correlated with support for having wildlife authorities destroy some *moose* in Anchorage every year to reduce the population:
  - Does not show much tolerance about having bears around (e.g., wants to see and have black bears in Alaska but not in the Anchorage area, does not indicate agreeing that most problems with bears in the Anchorage area can be prevented by taking a few simple precautions) (all at $p \leq 0.05$ or greater significance).
  - On most questions that include a bear-killing option, favors killing the bear (e.g., supports wildlife authorities destroying some black and brown bears in Anchorage every year to reduce the population, supports designating areas in which bears would be killed as soon as possible) (all at $p \leq 0.001$).
  - Indicates that he/she knows a great deal or a moderate amount about brown bears ($p \leq 0.001$).
  - Is male ($p \leq 0.001$).
  - Has been an Anchorage resident for less than the mean number of years ($p \leq 0.001$).
  - Supports supplementing wild salmon runs in Anchorage area streams with stocked fish to provide salmon fishing opportunities ($p \leq 0.001$).
  - Does not indicate supporting a regulation or ordinance requiring Anchorage area residents to use bear-proof garbage containers in neighborhoods frequented by bears ($p \leq 0.05$).
  - Does not indicate supporting fines for not storing garbage to prevent problems with bears ($p \leq 0.05$).

- Four questions probed support for or opposition to destroying specific bears in various situations (Figure 157). The most support was for destroying specific bears when authorities believe that the bears pose a threat to human safety: 83% support (12% oppose). The only other condition for which a majority support destroying some bears is when they cause property damage in neighborhoods: 53% support (38% oppose). Otherwise, only 35% support (but 56% oppose) destroying bears that are seen frequently in neighborhoods, and 46% support (but 48% oppose) doing so when bears get into garbage.
  - Regional crosstabulation: Region 3 residents are the most likely, of residents of the three regions, to strongly support having wildlife authorities destroy specific bears when authorities believe that the bears pose a threat to human safety ($p \leq 0.001$) (Figure 158). Region 2 residents are the most likely, compared to other residents, to strongly support having wildlife authorities destroy bears when they are seen frequently in neighborhoods in the Anchorage area ($p \leq 0.001$) (Figure 159). Region 1 residents are the *least* likely to strongly support having wildlife authorities destroy bears when they get into garbage in neighborhoods in the Anchorage area ($p \leq 0.001$) (Figure 160). Finally, the last of these four questions did not have any statistically significant differences in the regional crosstabulation (Figure 161).

- A majority of Anchorage residents (60%) oppose designating specific areas in Anchorage where any bears coming into the area would be killed; 31% support (Figure 162).
  - Regional crosstabulation: Region 1 residents are the most likely to *strongly* support as well as to support overall designating specific areas in Anchorage where any bears coming into the area would be killed ($p \leq 0.001$) (Figure 163).
  - In follow-up, those who support the above were asked about their continued support if managing such areas would be expensive and would require the hiring of additional city or state employees: the majority (78%) still support (Figure 164). Nonetheless, 11% switched to opposition.
    - The regional crosstabulation is shown for this follow-up question (Figure 165).
  - A graph shows Questions 69 and 70 combined (Figure 166). In this analysis, 25% support designating specific areas in Anchorage in which any bears coming into the area

should be killed, even though it would be expensive and would require the hiring of additional city or state employees.

- Another question directly asked about agreement or disagreement with the opinion that bears should *not* be destroyed for any reason in the Anchorage area: 78% disagree (i.e., they favor killing some bears in some situations), while 19% agree (Figure 167).
  - The regional crosstabulation is shown (Figure 168).

- There is much more opposition to (68%) than support for (23%) reducing the moose population (a food source for bears) in Anchorage to reduce the number of brown bears (Figure 169).
  - The regional crosstabulation regarding reducing the moose population is shown (Figure 170).
  - These results are quite similar to the more general question about destroying moose. Recall from a previous question (Figure 153) in this section that there was more opposition to (63%) than support for (32%) having wildlife authorities destroy some moose in Anchorage every year to reduce the population.

- One question in the survey asked about a management option regarding salmon fishing: 56% of residents support supplementing wild salmon runs in Anchorage area streams with stocked fish to provide salmon fishing opportunities, while 37% oppose (Figure 171).
  - The regional crosstabulation is shown (Figure 172).
  - A crosstabulation by salmon anglers finds that those who have ever fished for salmon are more likely, compared to those who have *never* fished for salmon, to strongly support supplementing wild salmon runs in Anchorage area streams with stocked fish to provide salmon fishing opportunities ($p \leq 0.001$) (Figure 173).

Figure 153. Questions 61, 62, and 81.

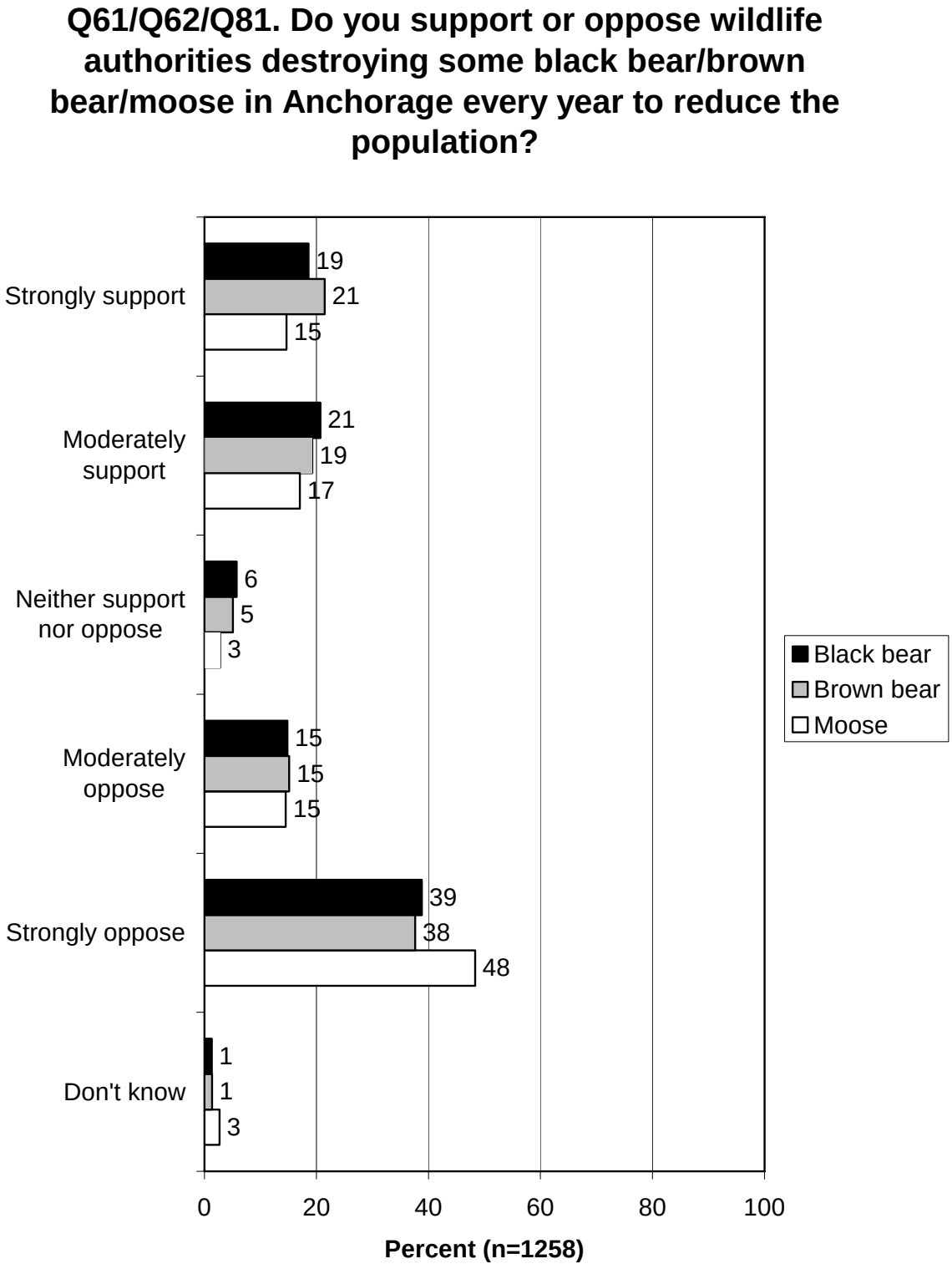


Figure 154. Question 61 Crossed by Region.

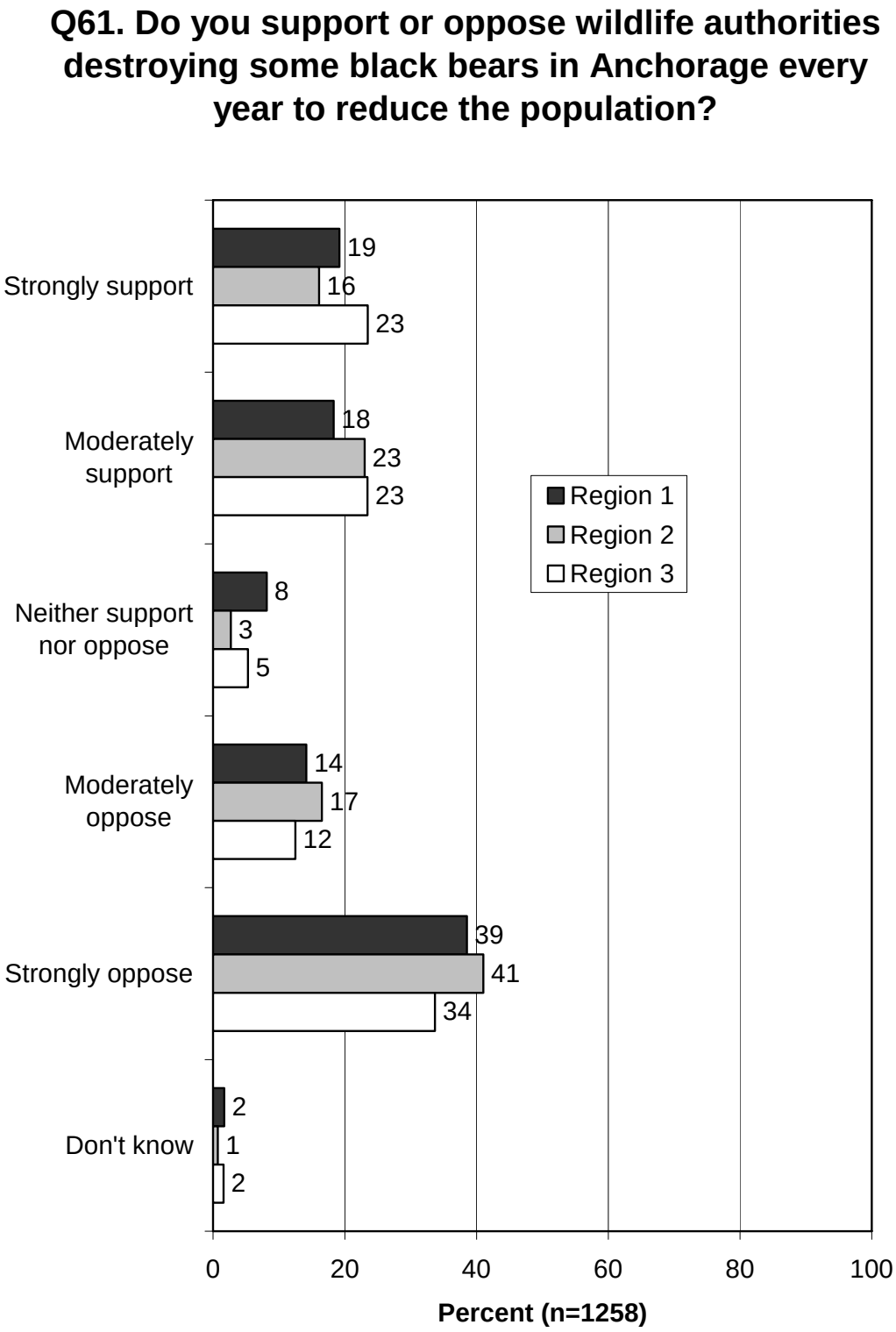


Figure 155. Question 62 Crossed by Region.

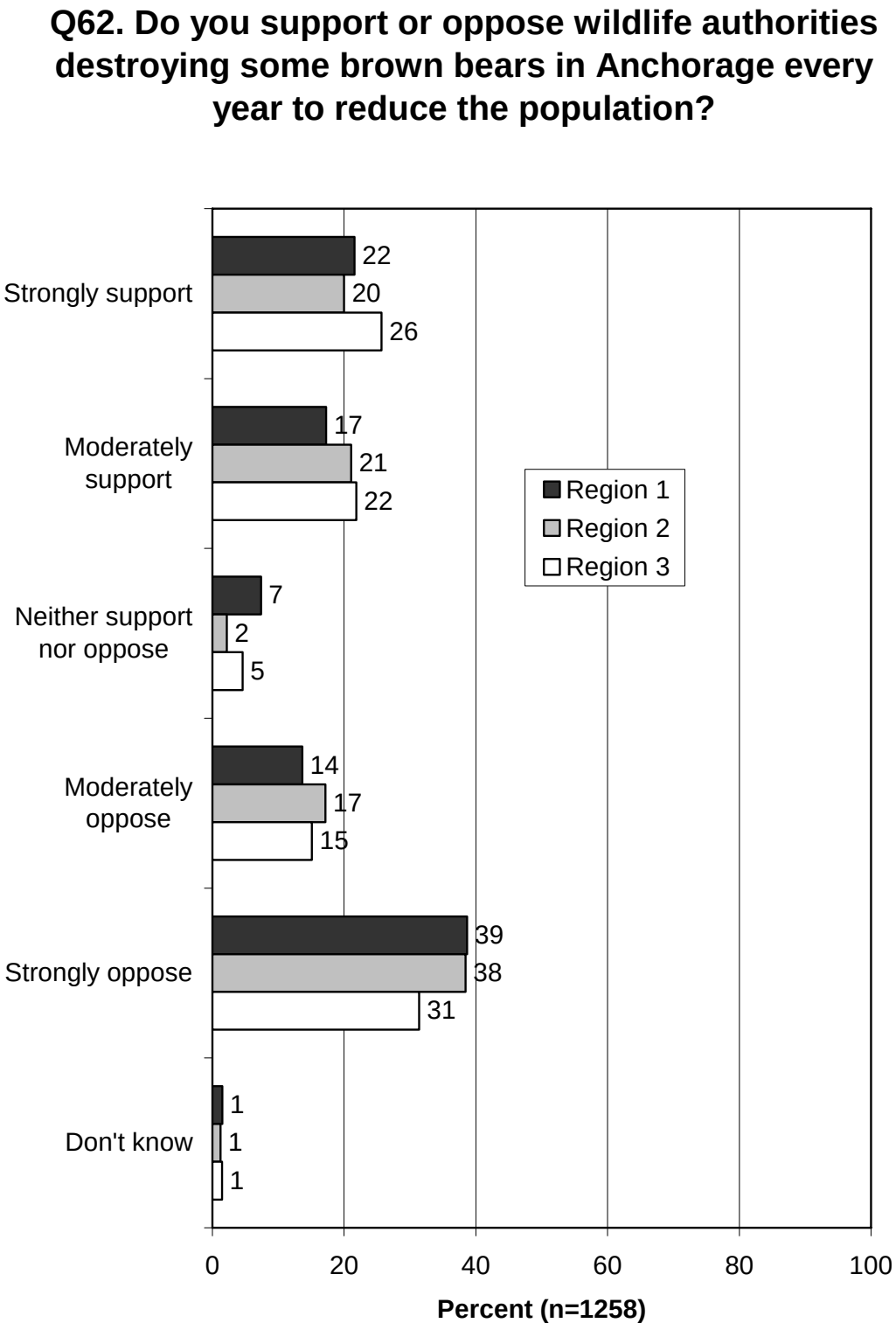


Figure 156. Question 81 Crossed by Region.

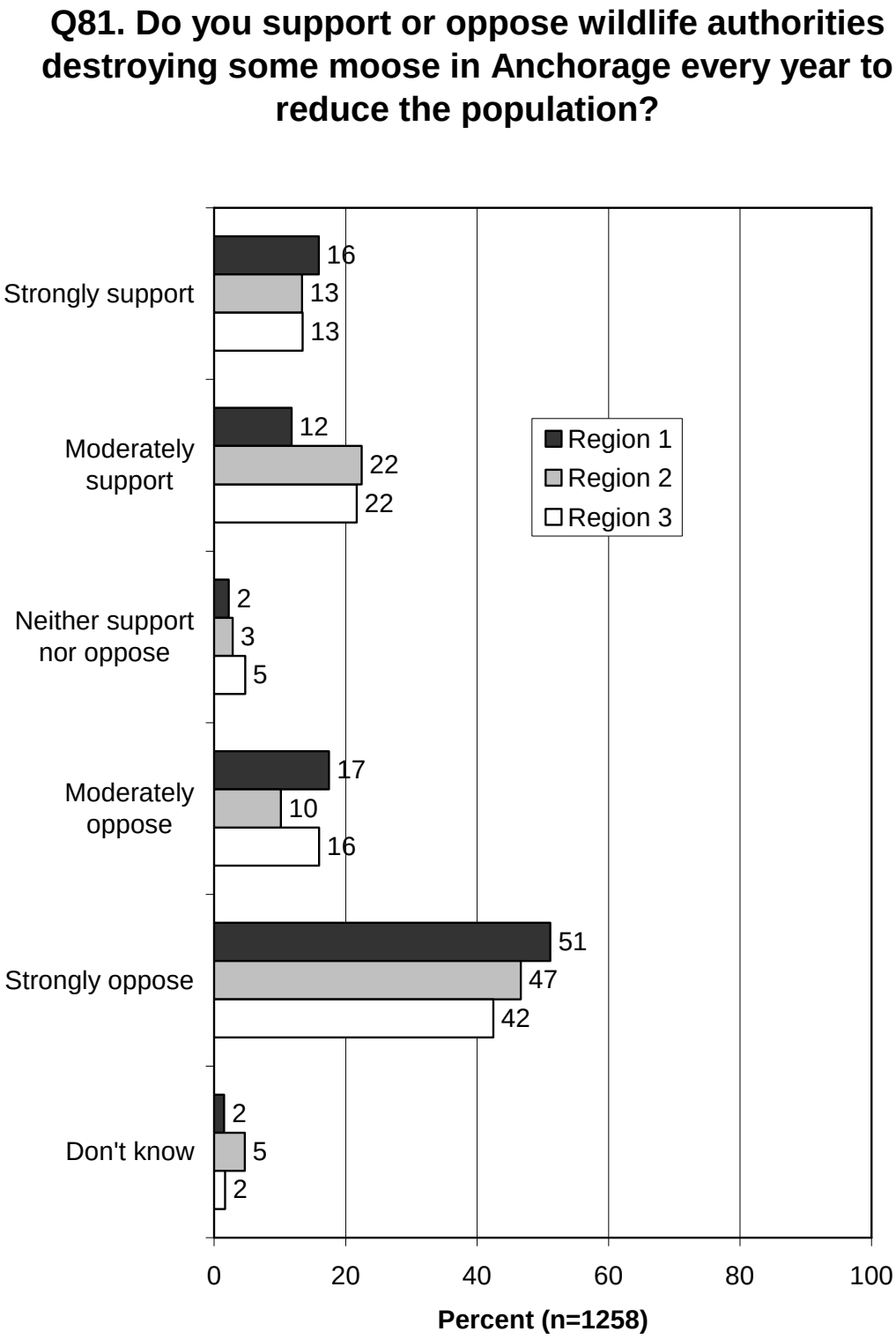


Figure 157. Questions 64, 66, 67, and 68.

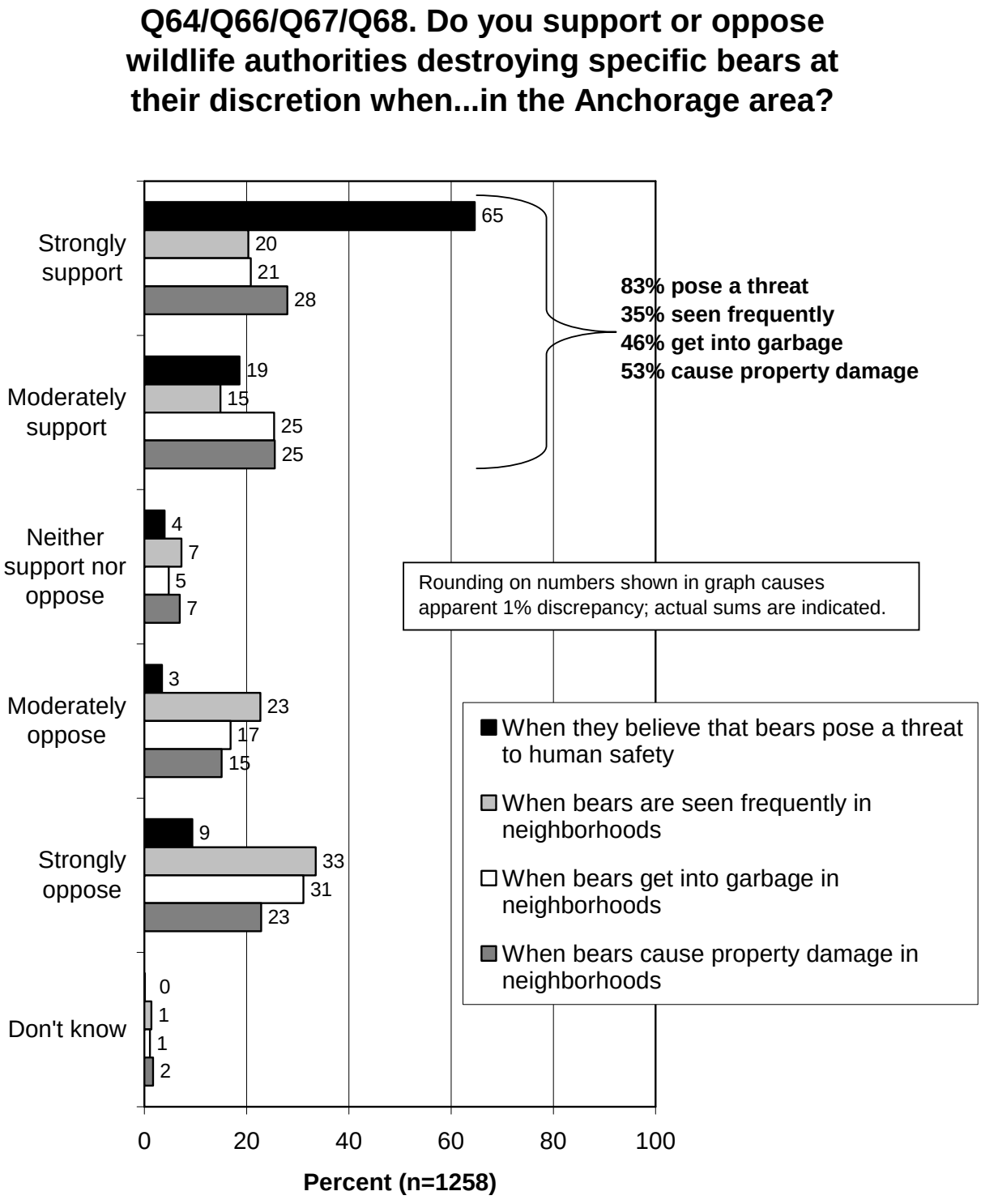


Figure 158. Question 64 Crossed by Region.

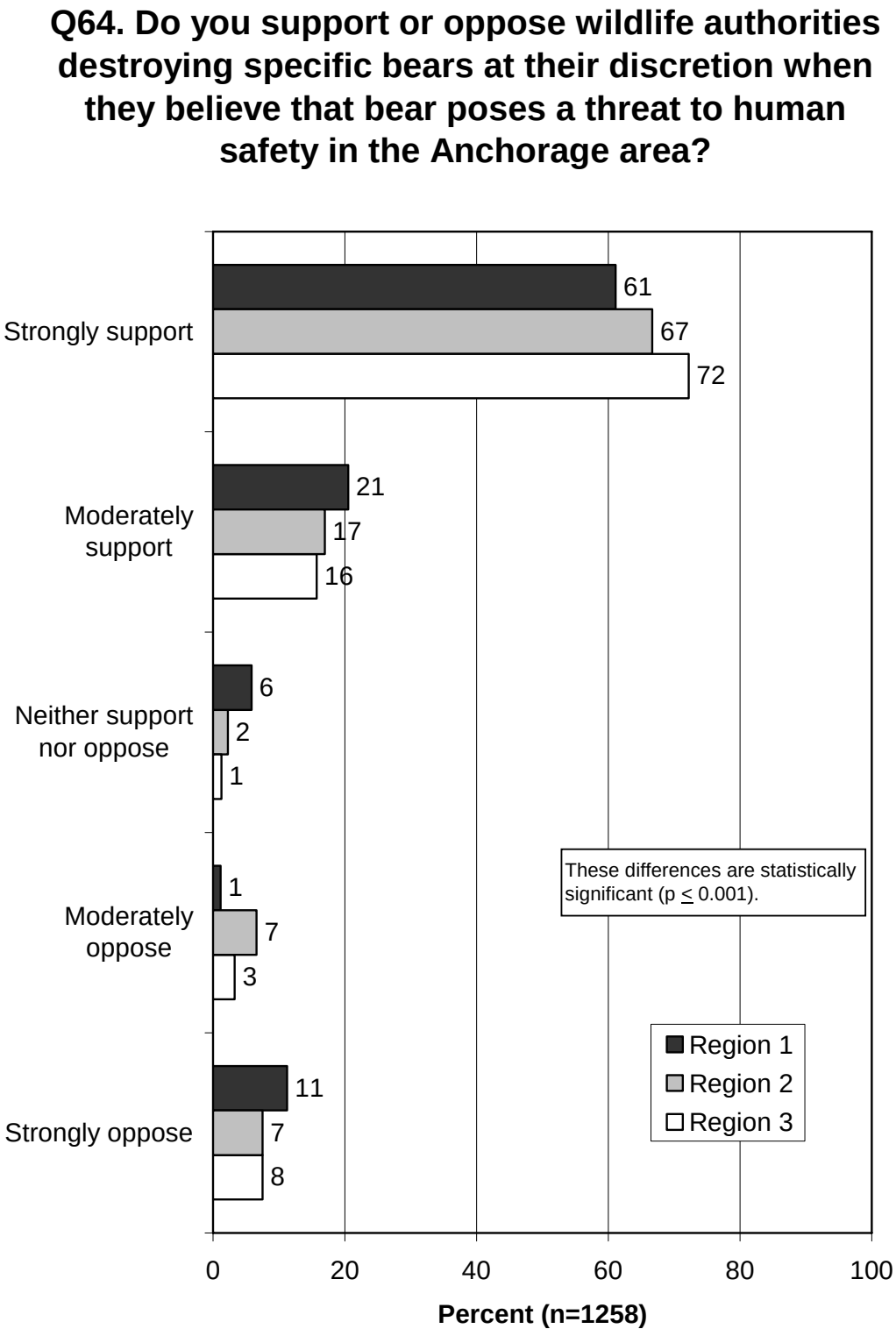


Figure 159. Question 66 Crossed by Region.

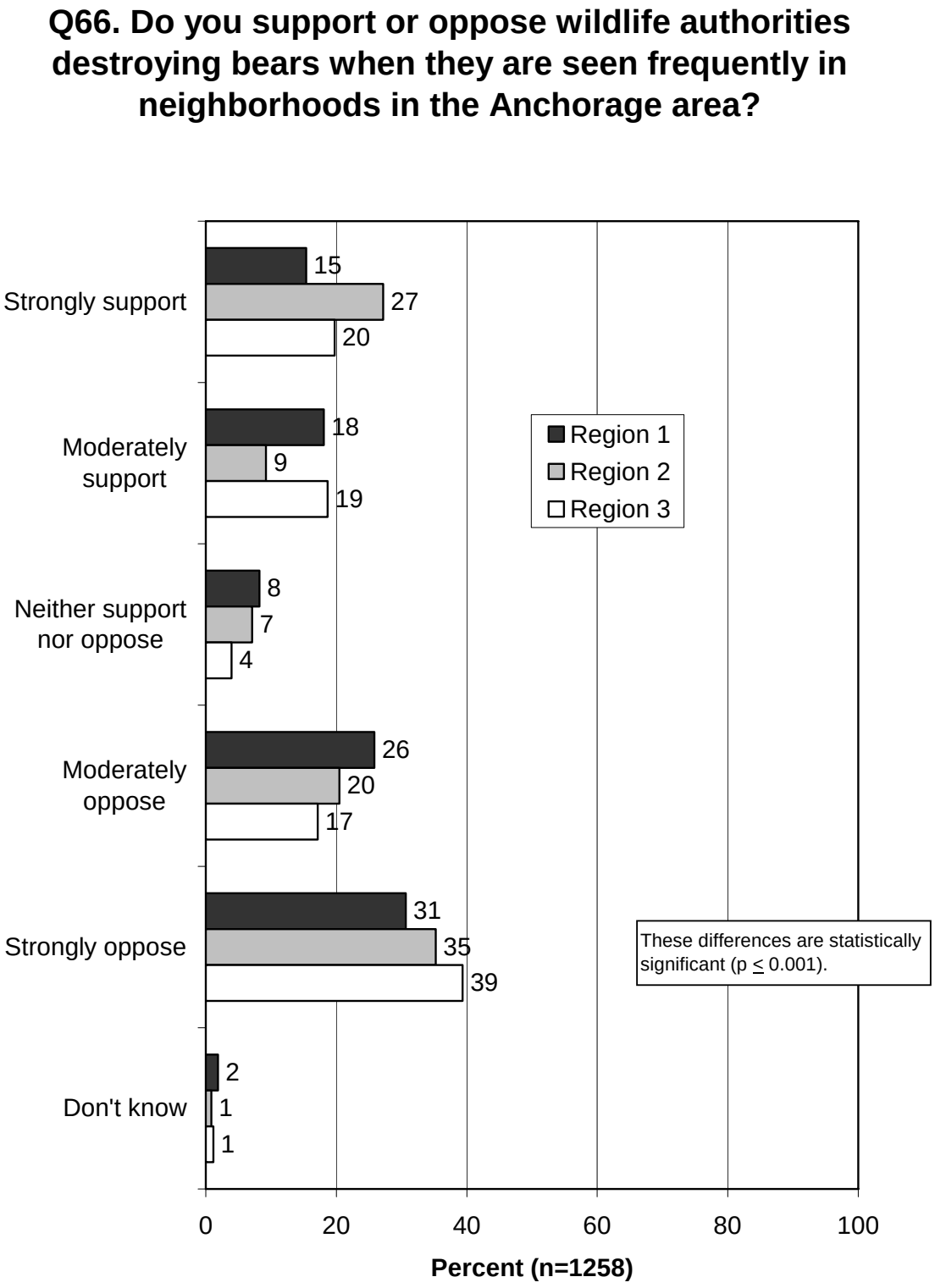


Figure 160. Question 67 Crossed by Region.

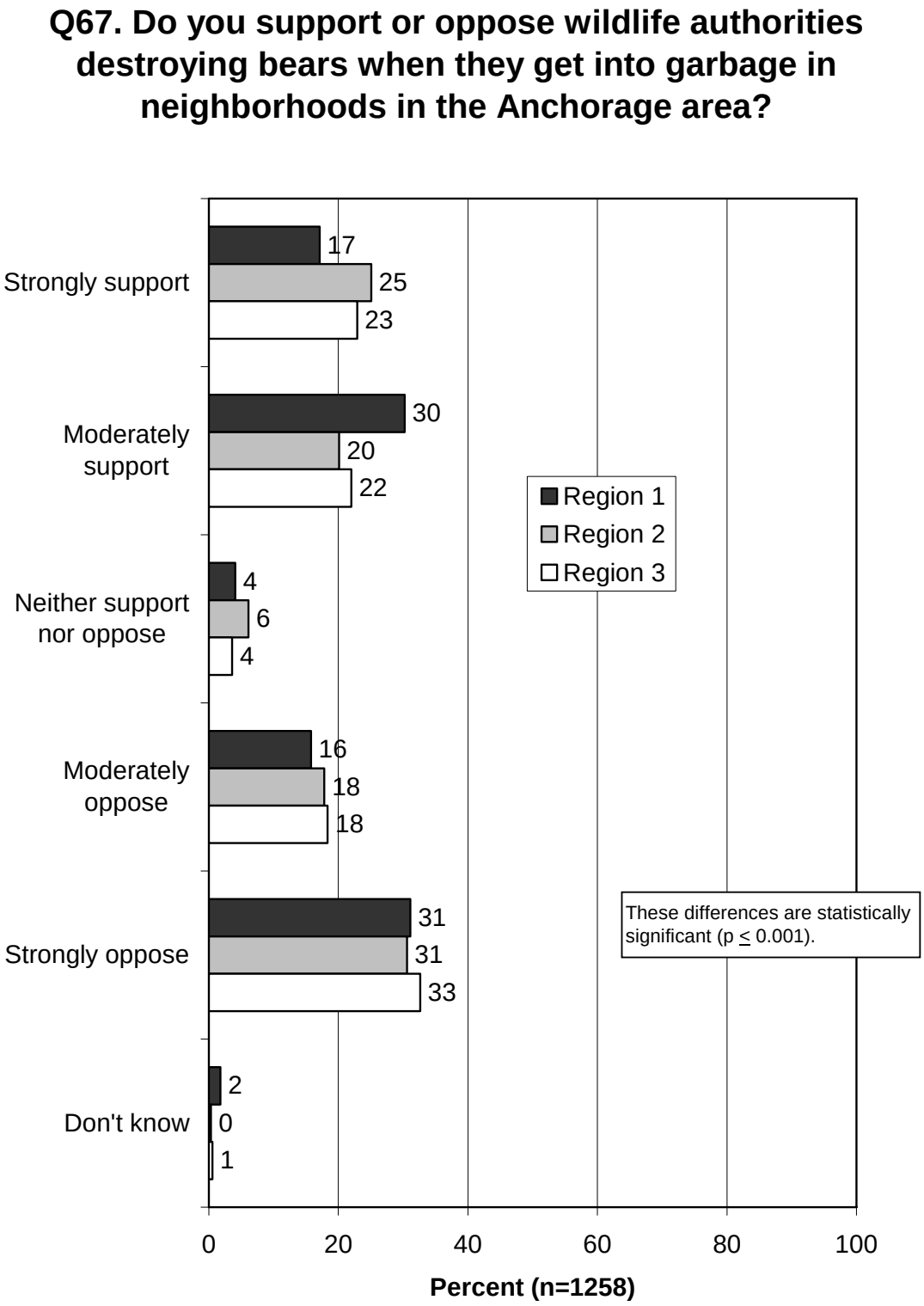


Figure 161. Question 68 Crossed by Region.

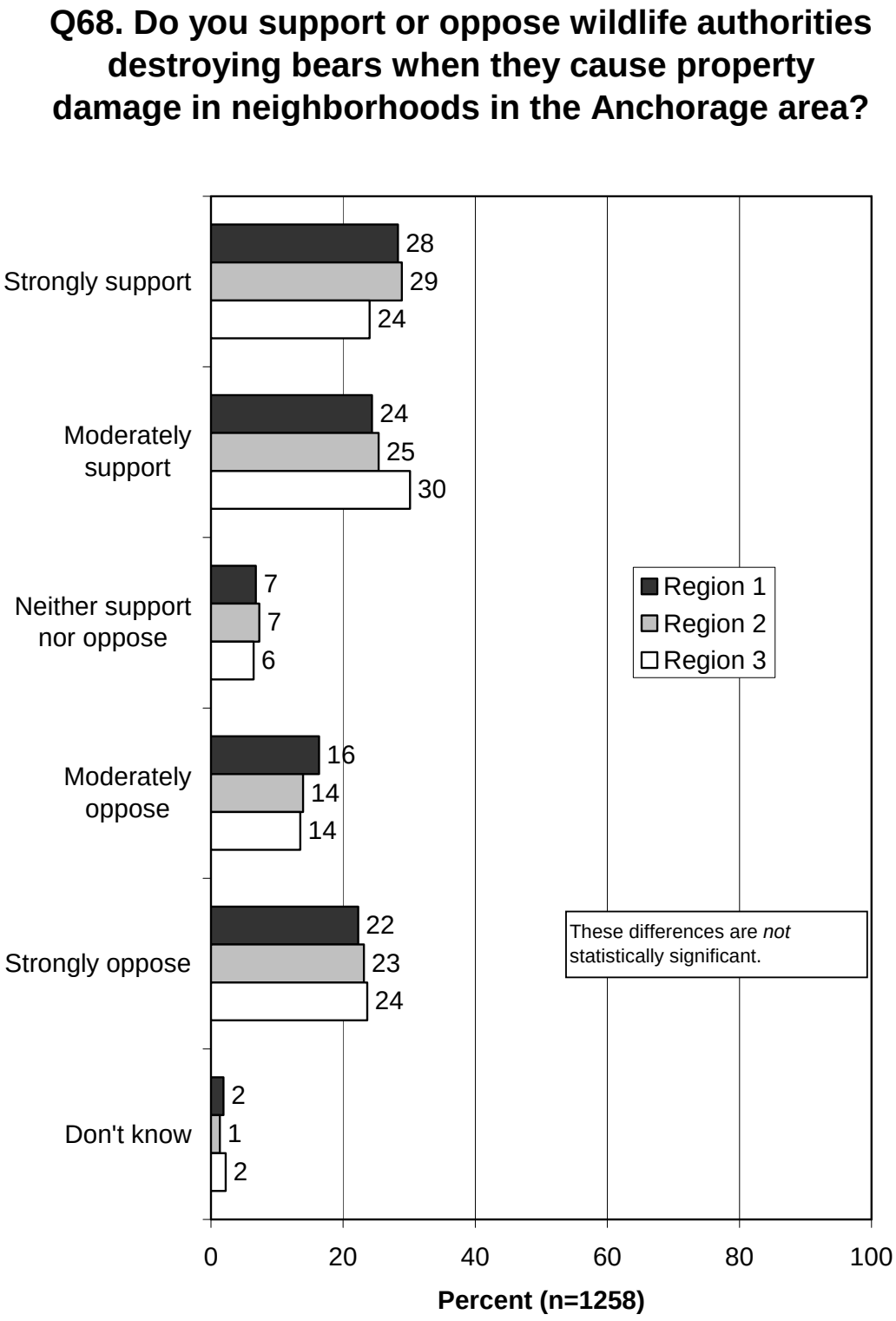


Figure 162. Question 69.

Q69. Some people have proposed designating specific areas in which bears that come into the area should be killed as soon as possible, such as downtown Anchorage and some specific neighborhoods. Do you support or oppose designating areas in which bears would be killed as soon as possible?

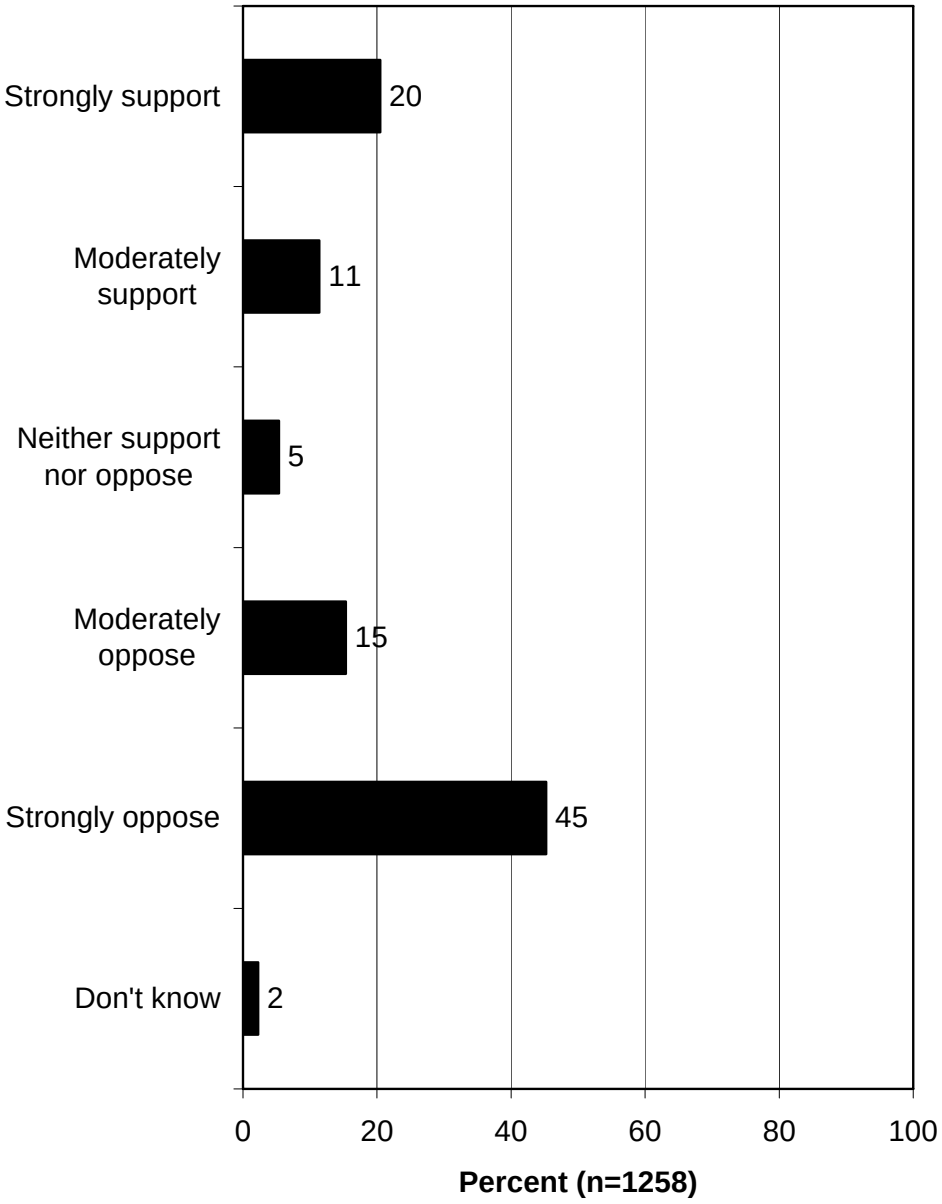


Figure 163. Question 69 Crossed by Region.

Q69. Some people have proposed designating specific areas in which bears that come into the area should be killed as soon as possible, such as downtown Anchorage and some specific neighborhoods. Do you support or oppose designating areas in which bears would be killed as soon as possible?

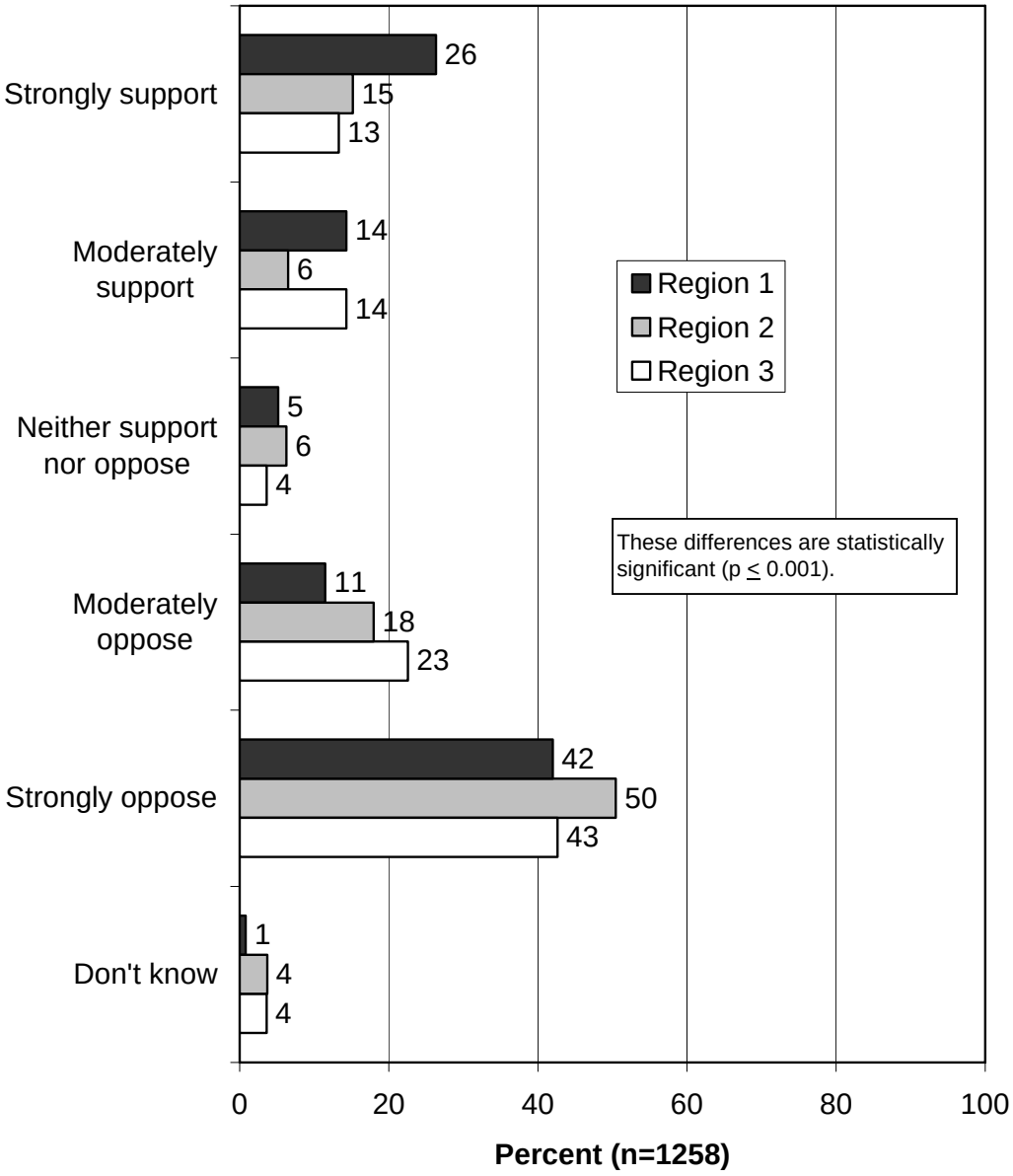


Figure 164. Question 70.

Q70. Do you support or oppose designating areas in which bears would be killed as soon as possible if managing such designated areas to kill bears would be expensive and require hiring additional city or state employees? (Of those who supported designating kill-areas in the previous question.)

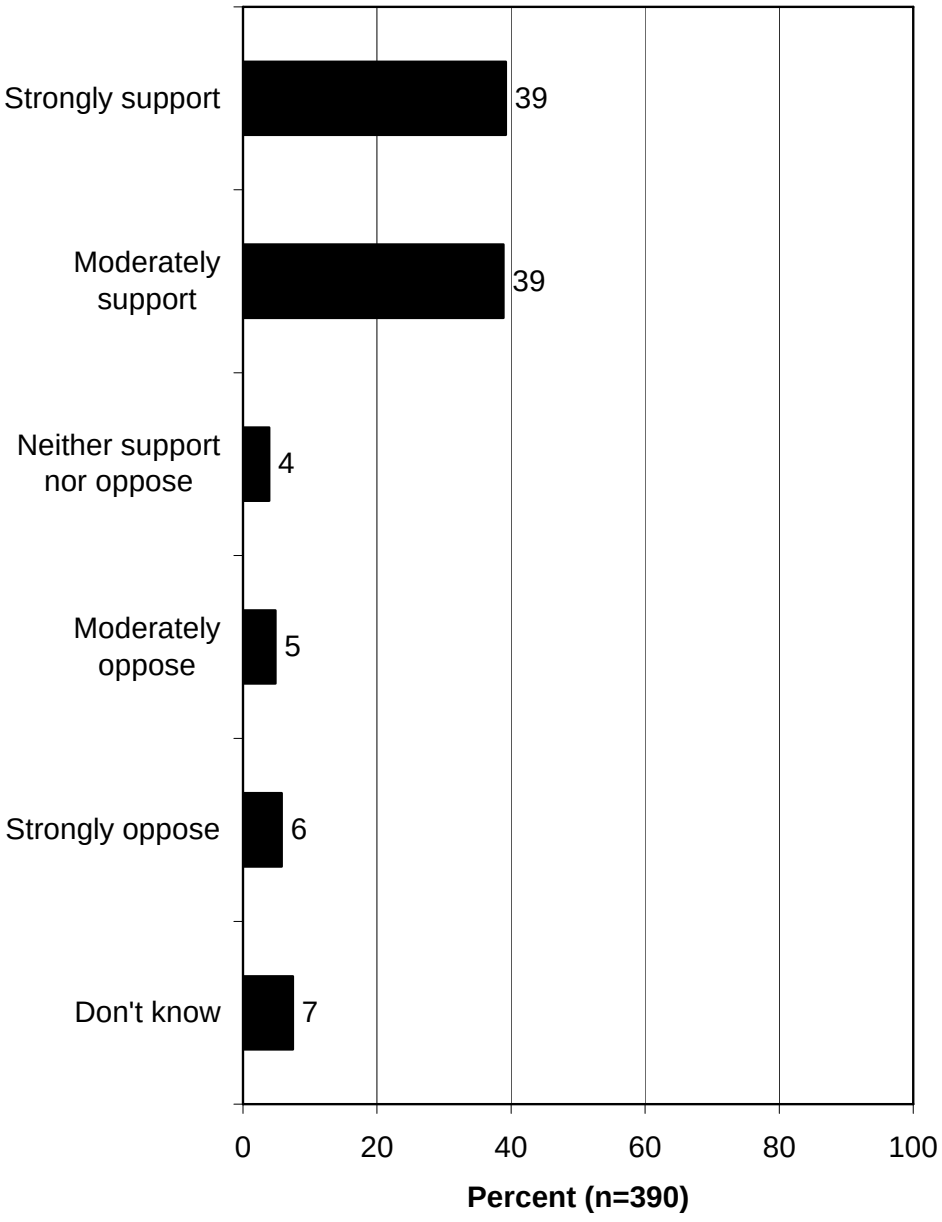


Figure 165. Question 70 Crossed by Region.

Q70. Would you support or oppose designating areas in which bears would be killed as soon as possible if you knew that managing such designated areas to kill bears would be expensive and require hiring additional city or state employees? (Of those who support designating areas in which bears would be killed as soon as possible.)

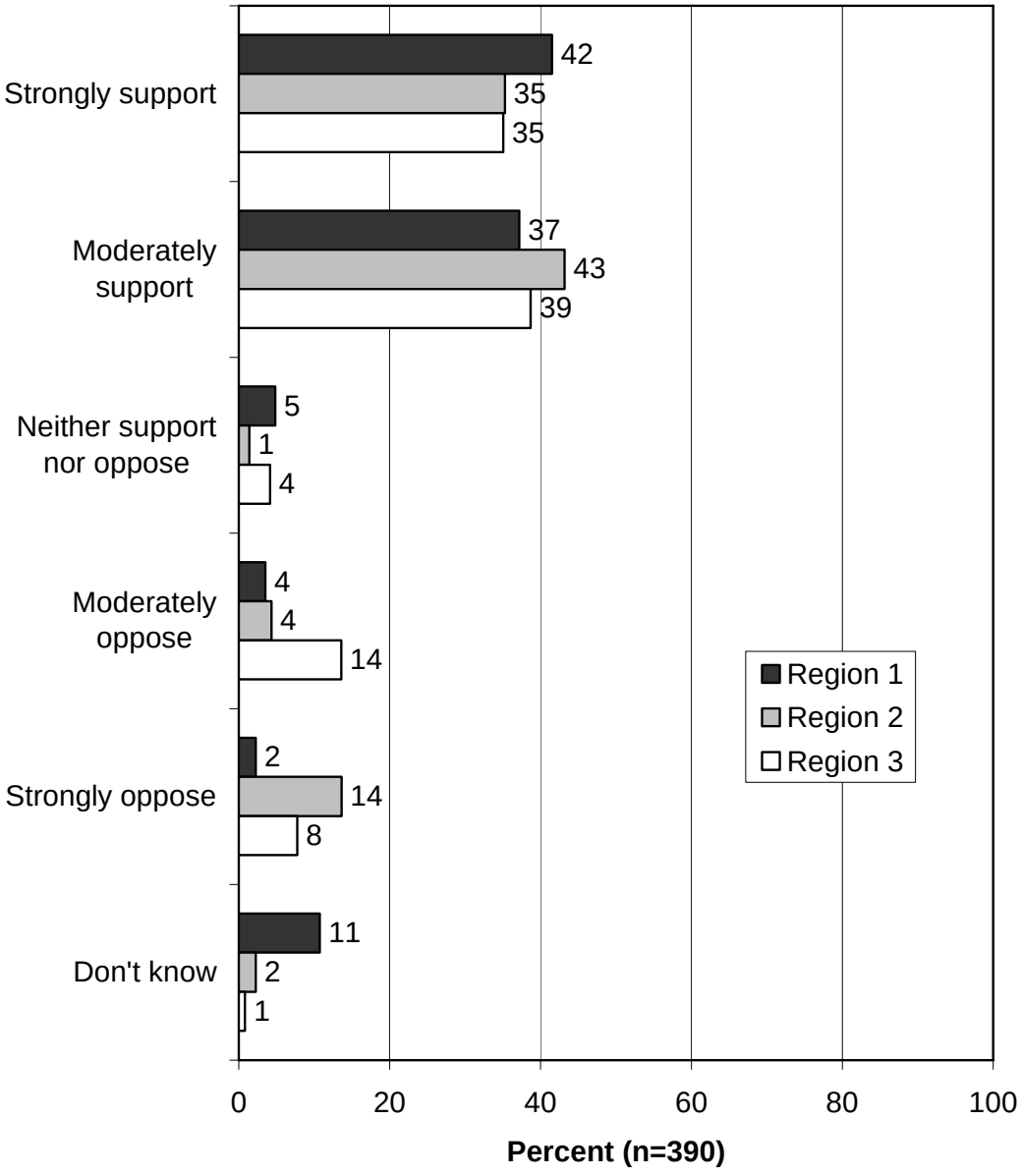


Figure 166. Questions 69 and 70 Combined.

Q69. Some people have proposed designating specific areas in which bears that come into the area should be killed as soon as possible, such as downtown Anchorage and some specific neighborhoods. Do you support or oppose designating areas in which bears would be killed as soon as possible?

Q70. How about if you knew that managing such designated areas to kill bears would be expensive and require hiring additional city or state employees?

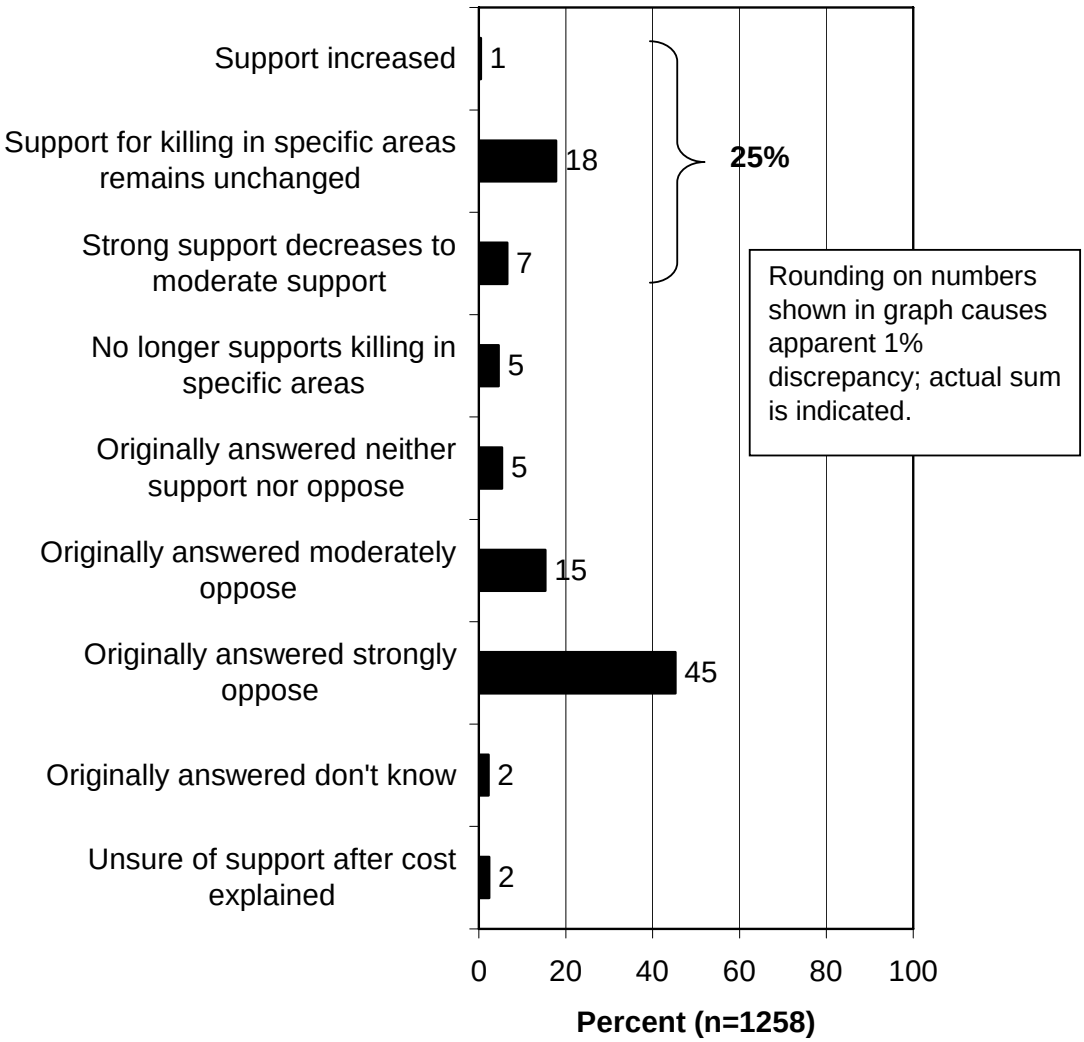


Figure 167. Question 71.

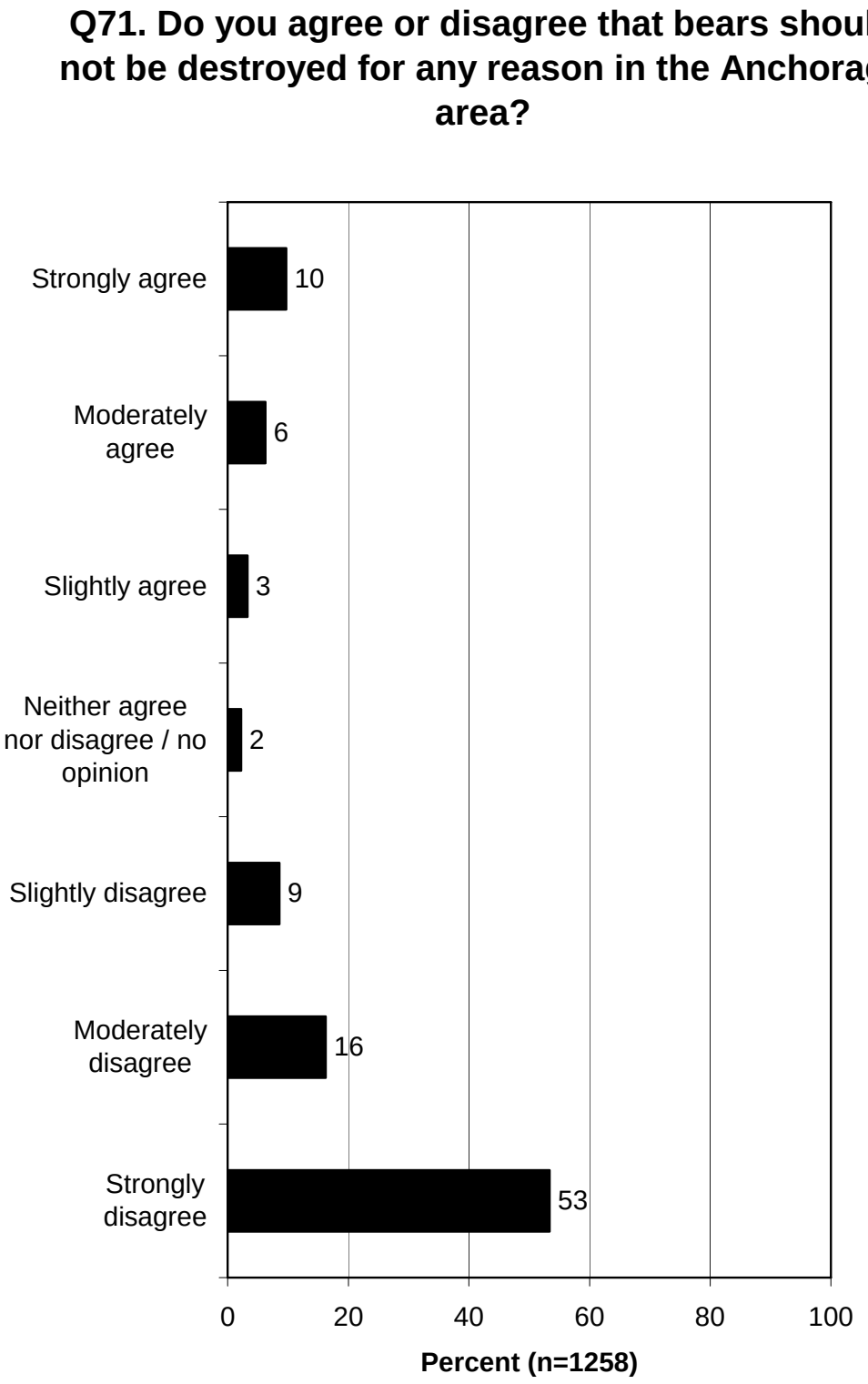


Figure 168. Question 71 Crossed by Region.

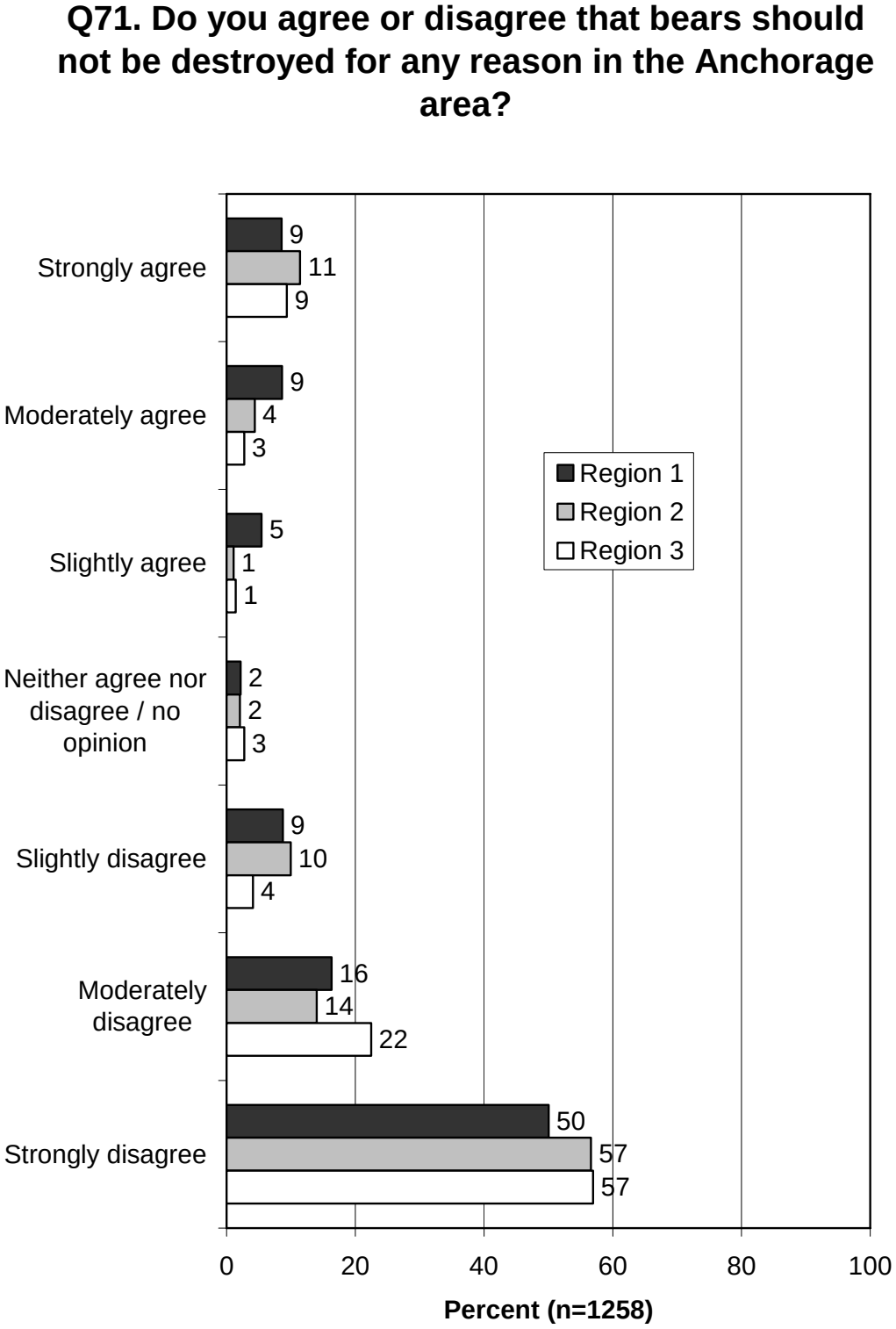


Figure 169. Question 76.

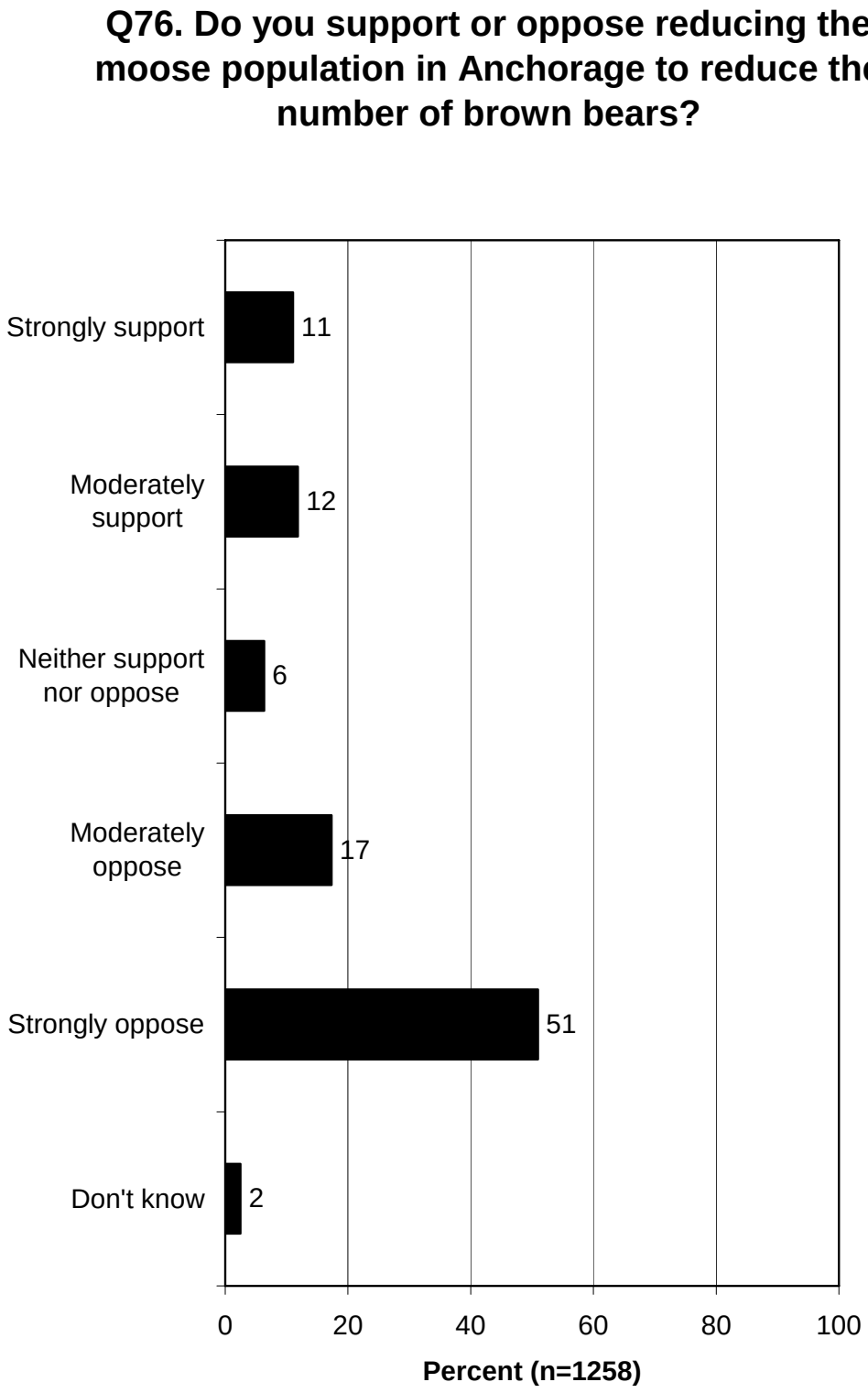


Figure 170. Question 76 Crossed by Region.

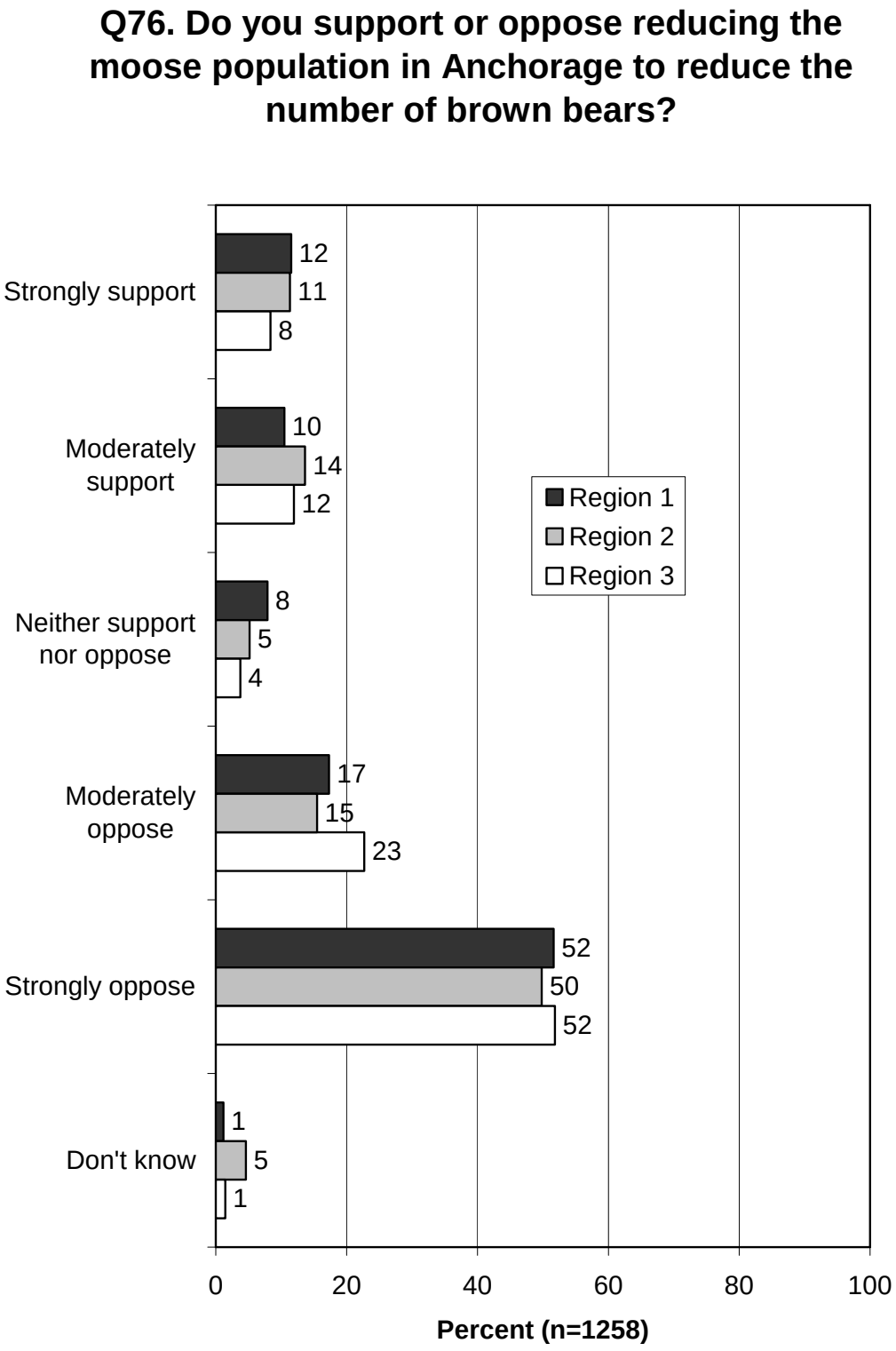


Figure 171. Question 75.

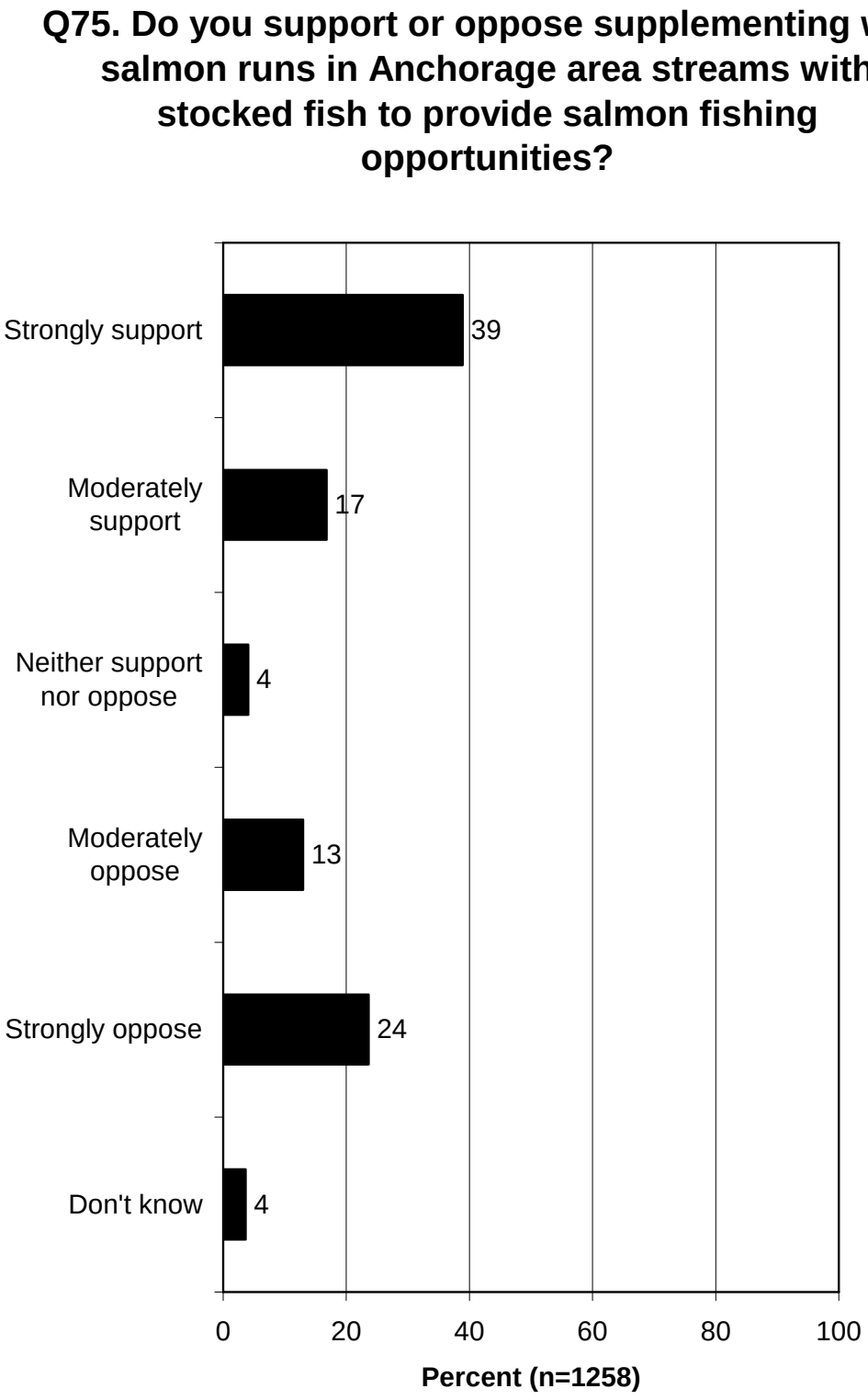


Figure 172. Question 75 Crossed by Region.

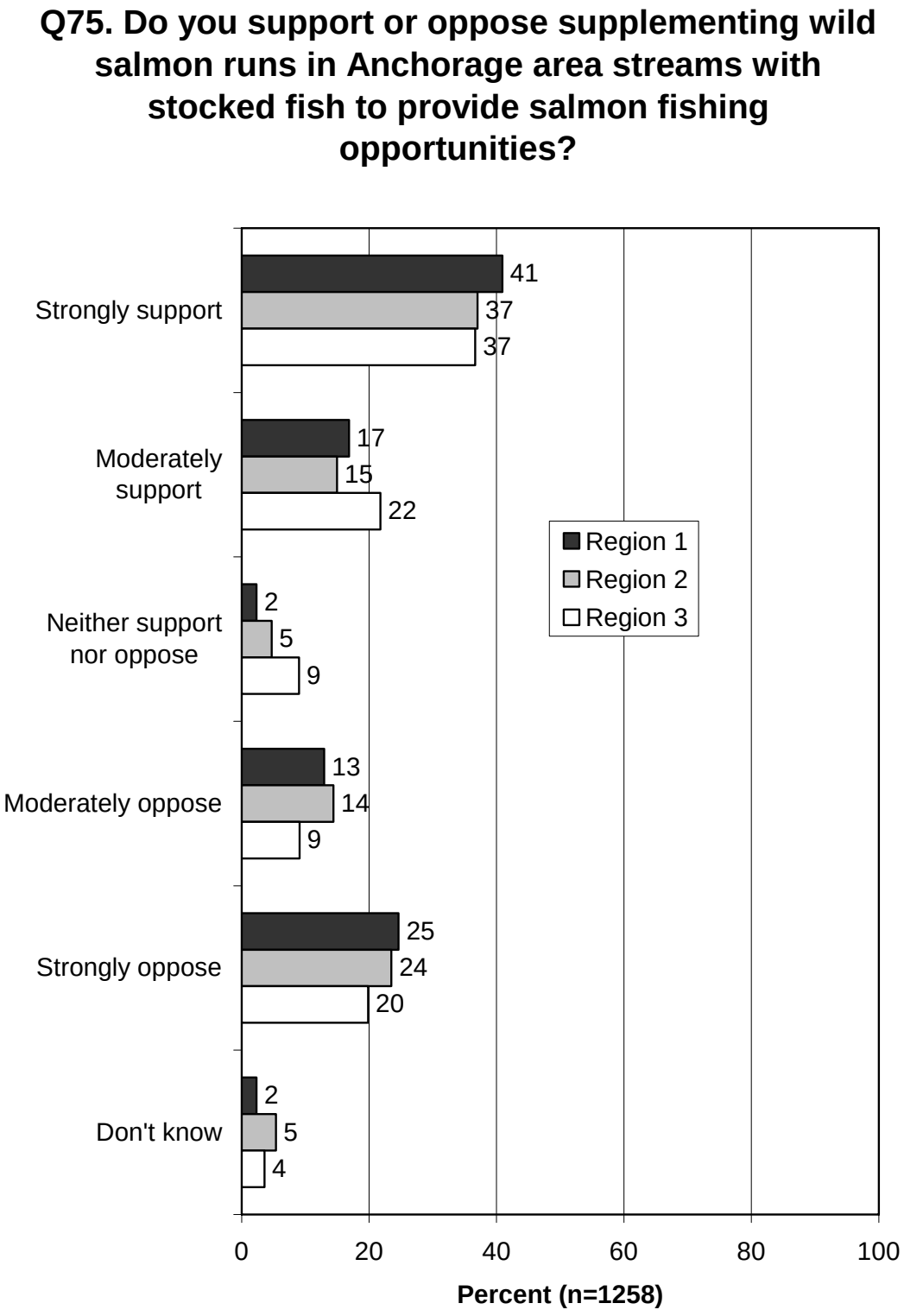
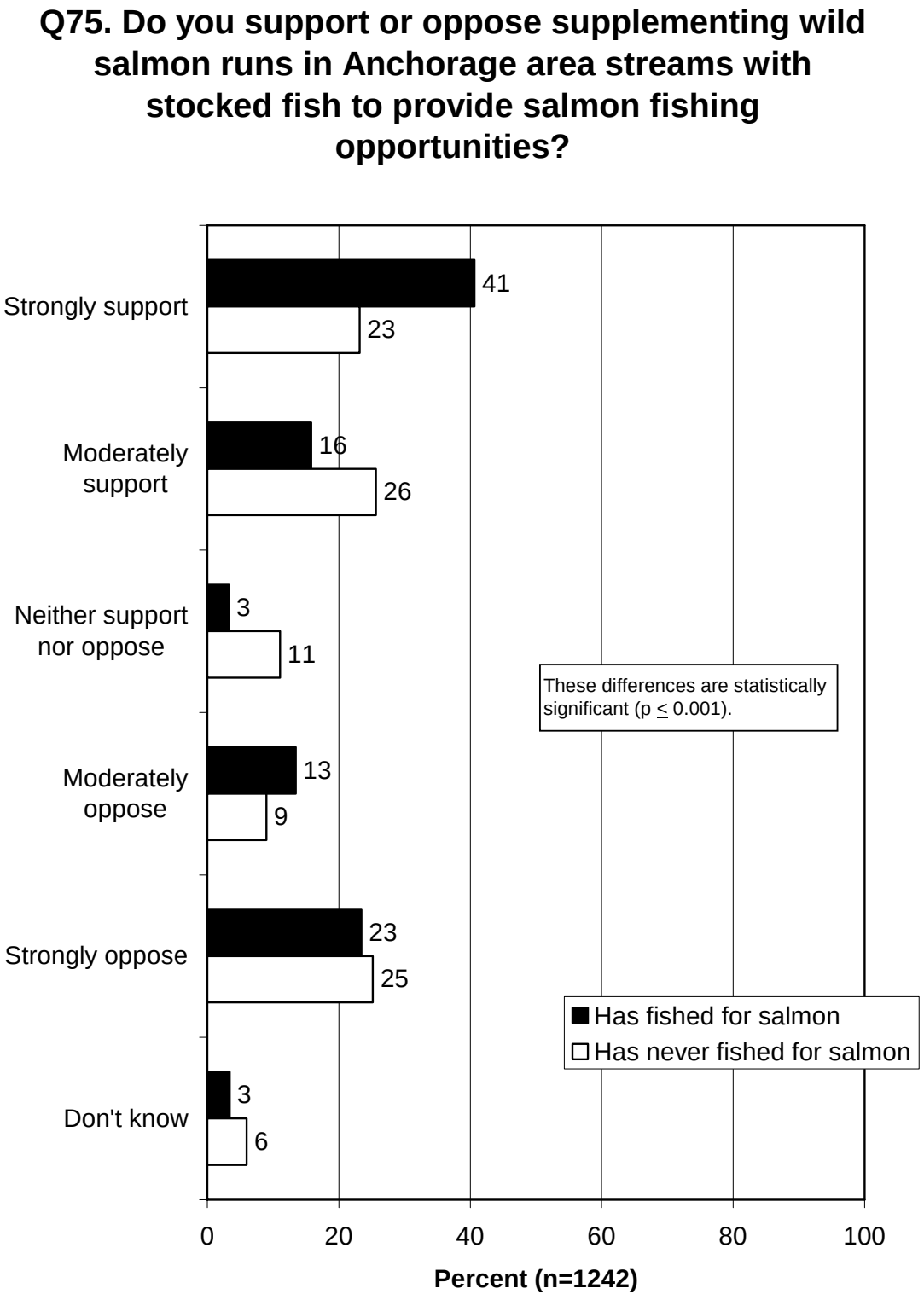


Figure 173. Question 75 Crossed by Ever Fished for Salmon.



USE OF ANCHORAGE PARKS AND TRAILS, AND PARTICIPATION IN OUTDOOR RECREATION

- While of interest on their own, the questions in this section are useful in crosstabulations and in the nonparametric analysis.

- Residents were asked about the frequency that they had visited Anchorage's three largest parks (Chugach State Park, Far North Bicentennial Park, and Kincaid Park) in the past 2 years. The majority of residents (60%) had visited them frequently or sometimes, and 83% had visited them at least rarely (Figure 174). Only 17% had never visited them in the past 2 years.
  - Regional crosstabulation: Region 1 residents are the most likely to say that they had *rarely* or *never* visited Anchorage's three largest parks ($p \leq 0.01$) (Figure 175).
  - Trail users crosstabulation: Not surprisingly, this crosstabulation finds that trail users, compared to those not described as trail users, have a greater frequency of park use ($p \leq 0.001$) (Figure 176).
  - The nonparametric analysis found that the following responses are correlated with having *frequently* or *sometimes* visited one of Anchorage's three largest parks in the past 2 years:
    - Shows a fairly high level of tolerance about having bears around (e.g., having black and brown bears in Far North Bicentennial Park is acceptable to him/her, agrees that the possibility of encountering a brown bear is a positive aspect of living in the Anchorage area) (all at $p \leq 0.05$ or greater significance).
    - On most questions that include a bear-killing option, does *not* favor killing the bear (e.g., does not indicate supporting designating areas in which bears would be killed as soon as possible, does not indicate supporting wildlife authorities destroying bears when bears cause property damage in neighborhoods in the Anchorage area) (all at $p \leq 0.001$).
    - Thinks the moose population in the Anchorage area should be decreased ($p \leq 0.001$).
    - Does not indicate supporting regulated hunting as a way to control the moose population in the Anchorage area in general, including large parks ($p \leq 0.001$).
    - Has used trails in the Anchorage area frequently or sometimes in the past 2 years ($p \leq 0.001$).

- Has fished for salmon in the past 2 years ($p \leq 0.001$).
- Has hunted in the past 2 years ($p \leq 0.001$).
- Indicates that he/she knows a great deal or a moderate amount about black ($p \leq 0.001$) and brown ($p \leq 0.001$) bears.
- Gets his/her information about bears and moose from personal experience ($p \leq 0.001$).
- Has a college degree, with or without a post-graduate degree ($p \leq 0.001$).
- Is in the middle age bracket (35 to 64 years old) ($p \leq 0.001$).
- Has lived in the Anchorage area for less than the mean number of years ($p \leq 0.001$).
- Is male ($p \leq 0.01$).
- Lives in Region 2 ($p \leq 0.05$).
- Has personally driven or been a passenger in a vehicle that has hit a moose ($p \leq 0.001$).
- Has not personally had problems or property damage at his/her primary home caused by brown bears within the past 2 years ($p \leq 0.01$).
- Supports fines for not storing garbage to prevent problems with bears ($p \leq 0.001$).
- Supports paying more for his/her trash service if Anchorage provided bear-proof garbage containers ($p \leq 0.001$).

➢ In a question similar to the one above, residents were asked about their use of trails in the Anchorage area in the past 2 years: the majority of residents (63%) used them frequently or sometimes, and 79% used them at least rarely (Figure 177). Only 21% never used them in the past 2 years.

- Regional crosstabulation: Region 1 residents are the most likely to say that they *never* use trails in Anchorage ($p \leq 0.05$) (Figure 178).
- Park users crosstabulation: Park users, compared to those not described as park users, have a greater frequency of trail use ($p \leq 0.001$) (Figure 179).
- Trail users crosstabulation: Several graphs that crosstabulated trail users by demographic questions are shown. They suggest that trail users, relative to those who are not described as trail users, are more recent residents of Alaska (i.e., they have lived in Alaska for a shorter amount of time) ($p \leq 0.001$) (Figure 180), are more likely to have

children ($p \leq 0.001$) (Figure 181), are *less* likely to have grown up in a rural area ($p \leq 0.001$) (Figure 182), are more educated ($p \leq 0.001$) (Figure 183), are more likely to be in the middle age bracket (from 35 to 54 years old) ($p \leq 0.001$) (Figure 184), and are slightly more likely to be male ($p \leq 0.001$) (Figure 185).

- Additional park users crosstabulation: Several demographic questions were also crosstabulated by park users, as shown. Park users, compared to those not described as park users, are less likely to be long-term residents of Alaska ($p \leq 0.001$) (Figure 186), are *less* likely to have children ($p \leq 0.001$) (Figure 187), are more educated ($p \leq 0.001$) (Figure 188), are more likely to be in the middle age bracket (from 35 to 54 years old) ($p \leq 0.001$) (Figure 189), and are more likely to be male ($p \leq 0.01$) (Figure 190).
- The nonparametric analysis found that the following responses are correlated with having *frequently* or *sometimes* used trails in the Anchorage area in the past 2 years:
  - Shows a fairly high level of tolerance about having bears around (e.g., having brown bears in Far North Bicentennial Park is acceptable to him/her, agrees that the possibility of encountering a brown bear is a positive aspect of living in the Anchorage area) (all at $p \leq 0.001$).
  - On most questions that include a bear-killing option, does *not* favor killing the bear (e.g., does not indicate supporting wildlife authorities destroying bears when bears cause property damage in neighborhoods in the Anchorage area, does not indicate supporting wildlife authorities destroying bears when bears are seen frequently in neighborhoods in the Anchorage area) (all at $p \leq 0.01$ or greater significance).
  - Has personally enjoyed watching moose in the Anchorage area ($p \leq 0.001$).
  - Does not indicate supporting regulated hunting as a way to control the moose population in the Anchorage area in general, including large parks ($p \leq 0.001$).
  - However, despite the two above bullets, there is a correlation to thinking that the moose population in the Anchorage area should be decreased ($p \leq 0.001$). This may be because there is also a correlation to agreeing that the possibility of encountering a moose prevented him/her from using Anchorage area parks or trails as much as he/she would have liked in the past 2 years ($p \leq 0.01$).
  - Has fished for salmon in the past 2 years ($p \leq 0.001$).
  - Has hunted in the past 2 years ($p \leq 0.001$).

- Indicates that he/she knows a great deal or a moderate amount about black ($p \leq 0.001$) and brown ($p \leq 0.001$) bears.
- Gets his/her information about bears and moose from the newspaper ($p \leq 0.05$).
- Has a college degree, with or without a post-graduate degree ($p \leq 0.001$).
- Is in the middle age bracket (35 to 64 years old) ($p \leq 0.001$).
- Has been an Alaska ($p \leq 0.001$) and an Anchorage ($p \leq 0.001$) resident for less than the mean number of years.
- Has at least one child, age 12 or younger, living in his/her household ($p \leq 0.01$).
- Primarily grew up in a large or very large city or a suburb of a large or very large city ($p \leq 0.001$).
- Is male ($p \leq 0.01$).
- Has not personally had problems or property damage at his/her primary home caused by brown bears within the past 2 years ($p \leq 0.001$).
- Supports paying more for his/her trash service if Anchorage provided bear-proof garbage containers ($p \leq 0.001$).
- Supports fines for not storing garbage to prevent problems with bears ($p \leq 0.001$).

Figure 174. Question 13.

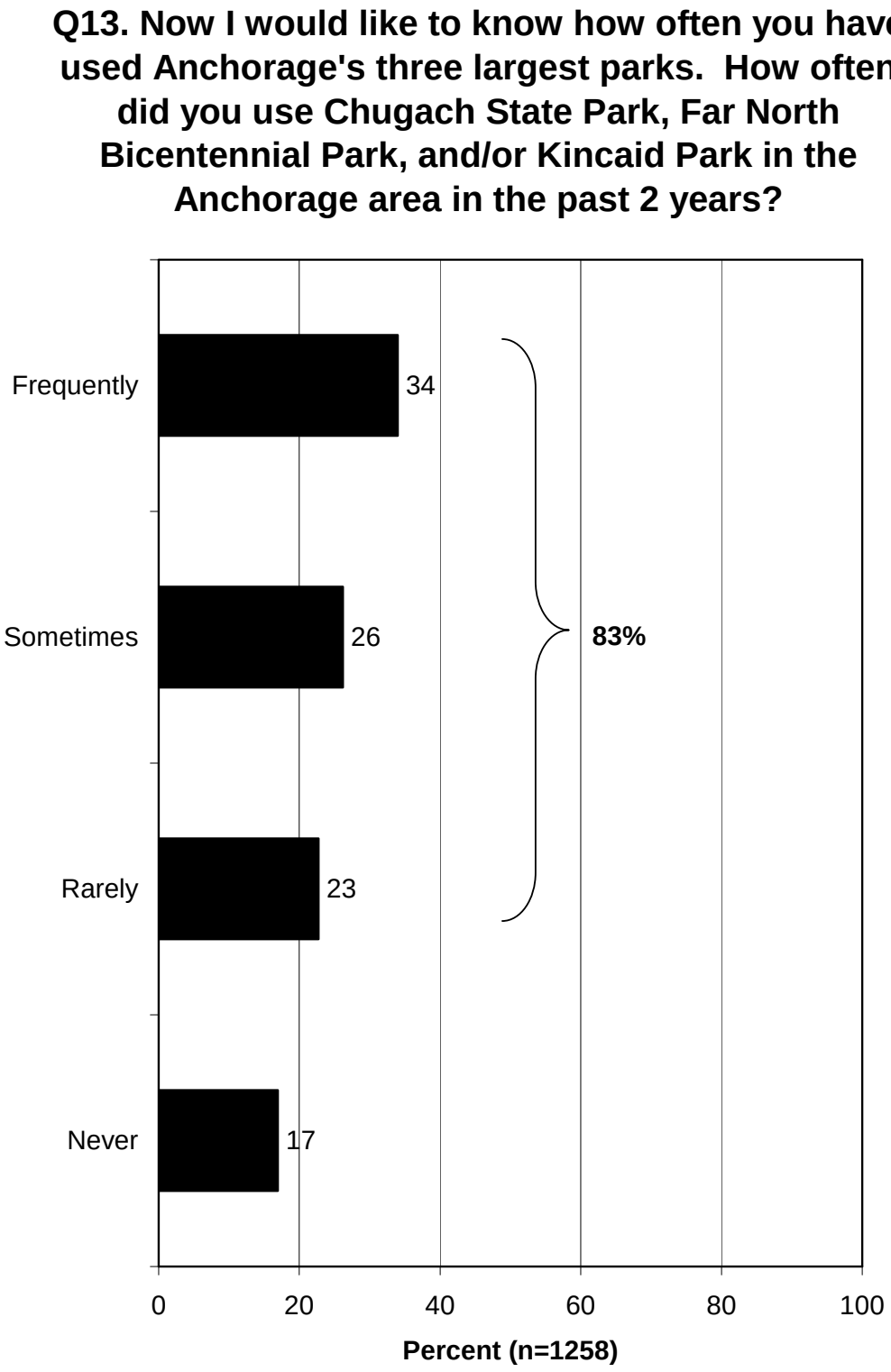


Figure 175. Question 13 Crossed by Region.

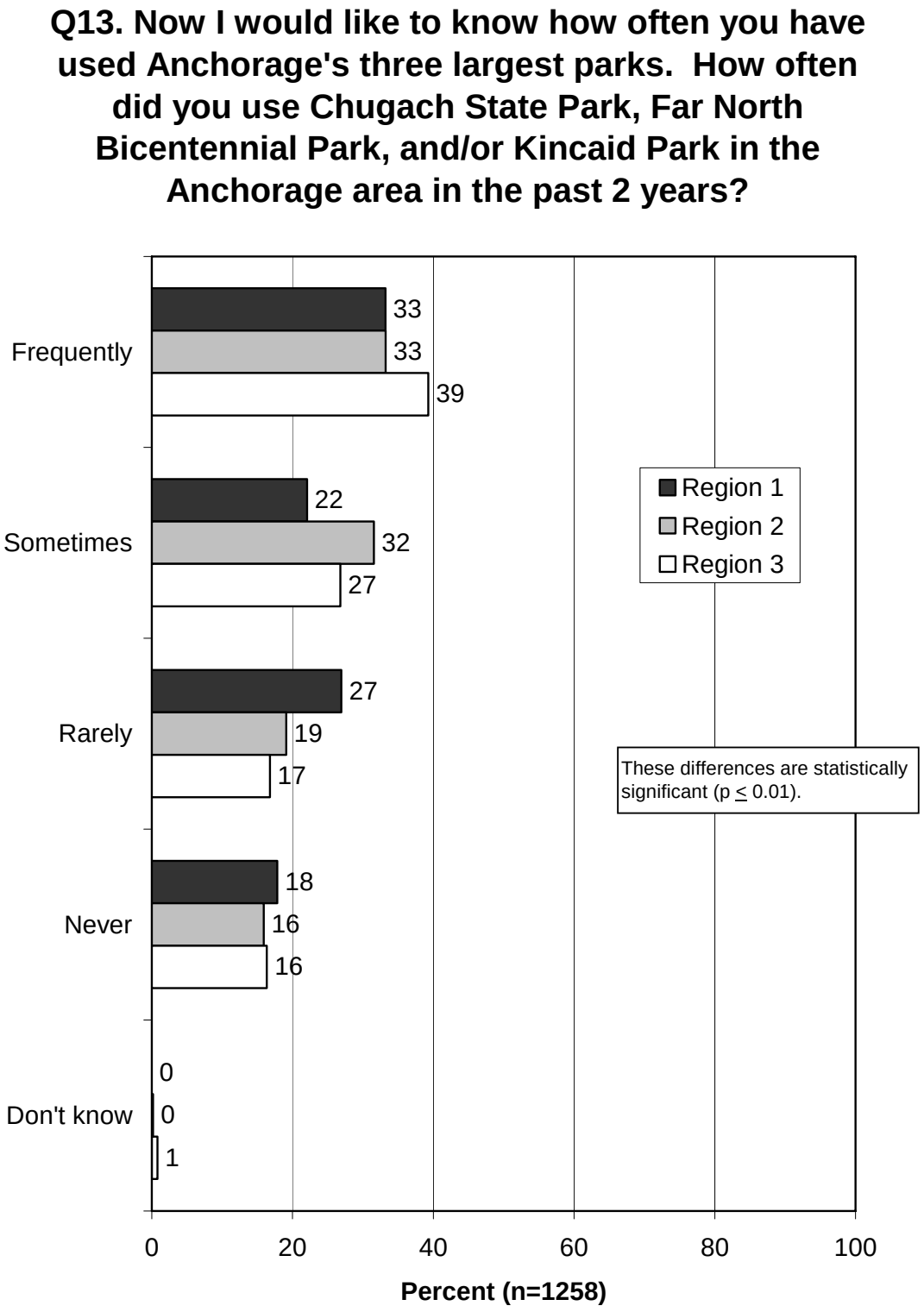


Figure 176. Question 13 Crossed by Trail Users.

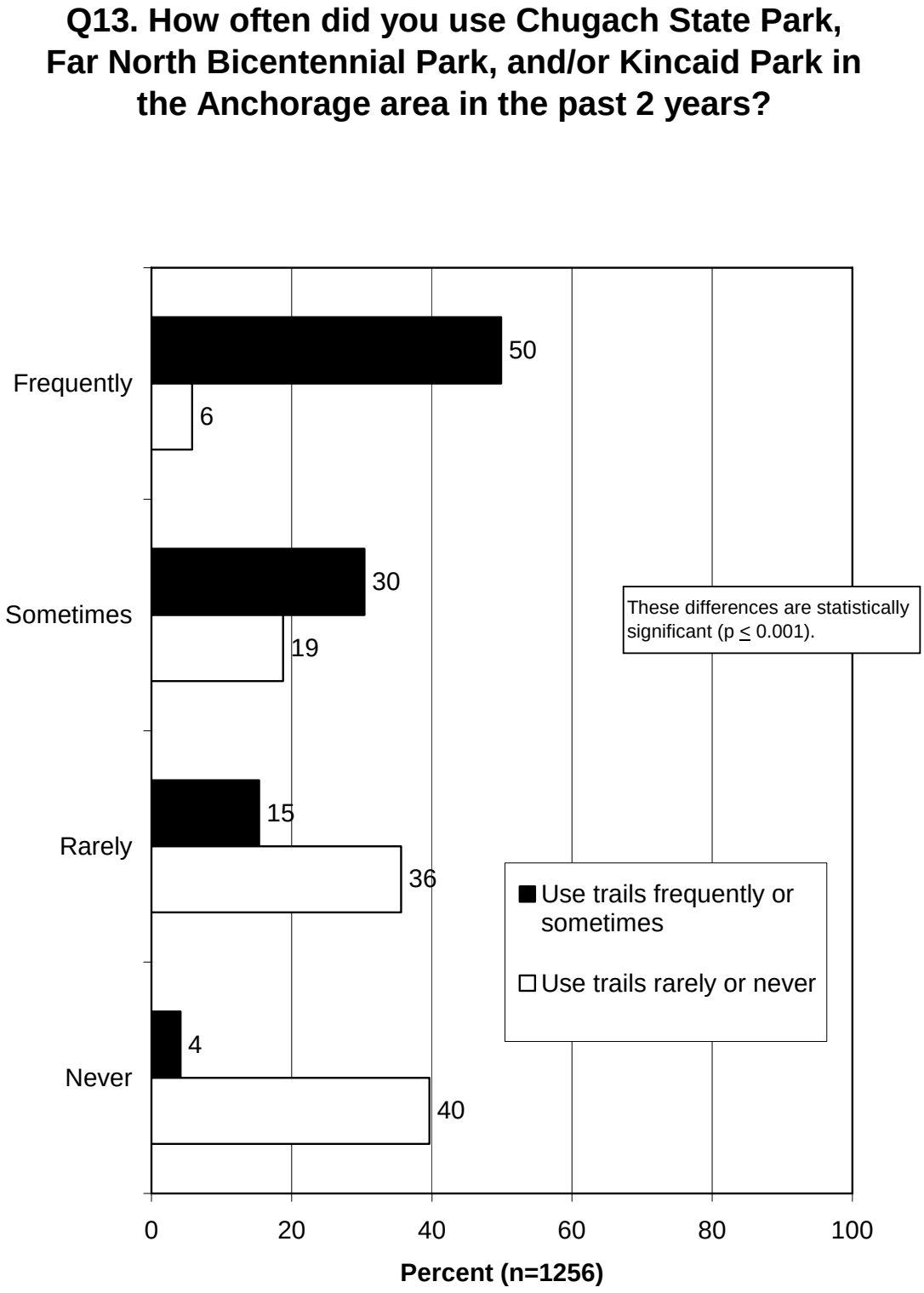


Figure 177. Question 14.

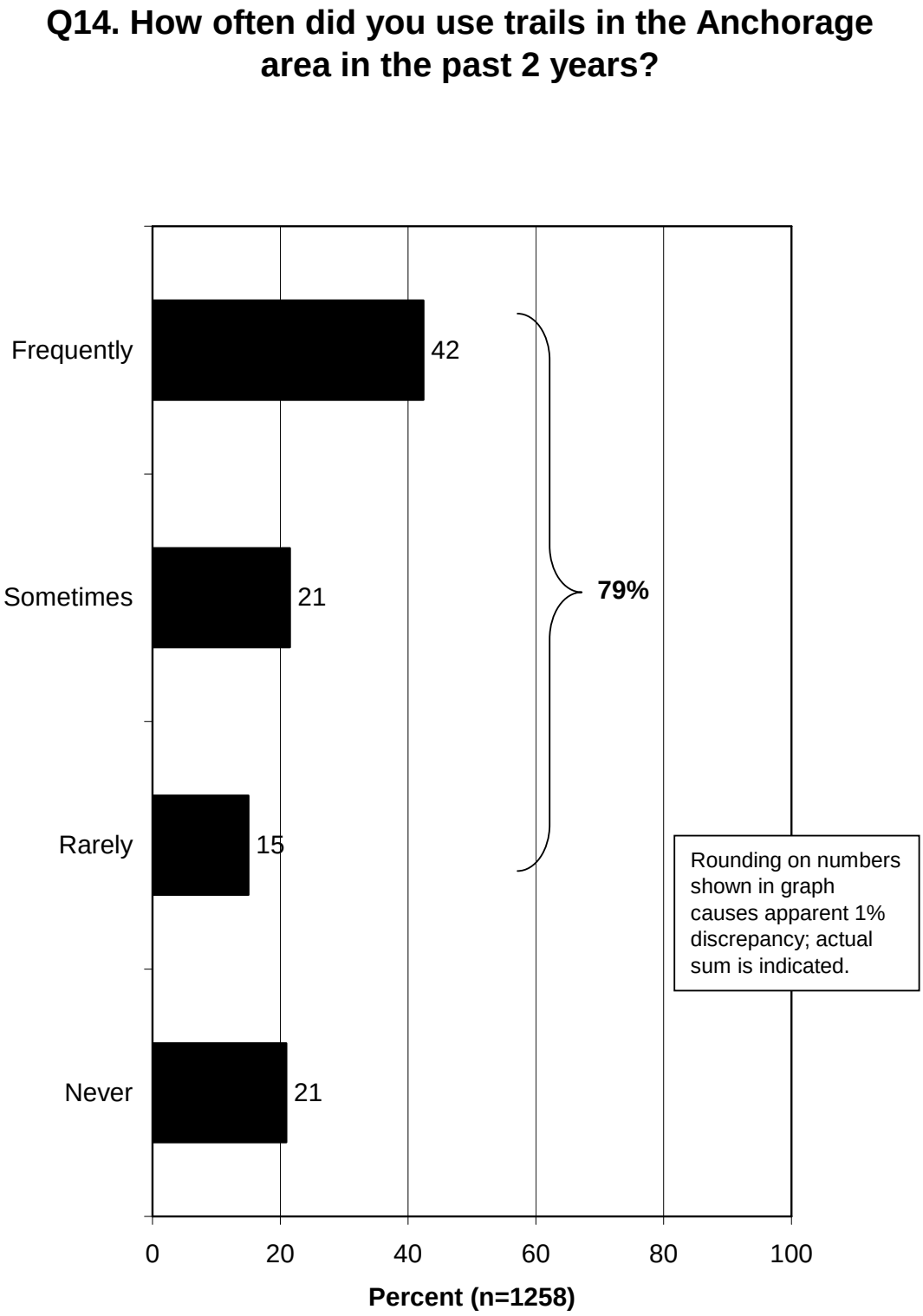


Figure 178. Question 14 Crossed by Region.

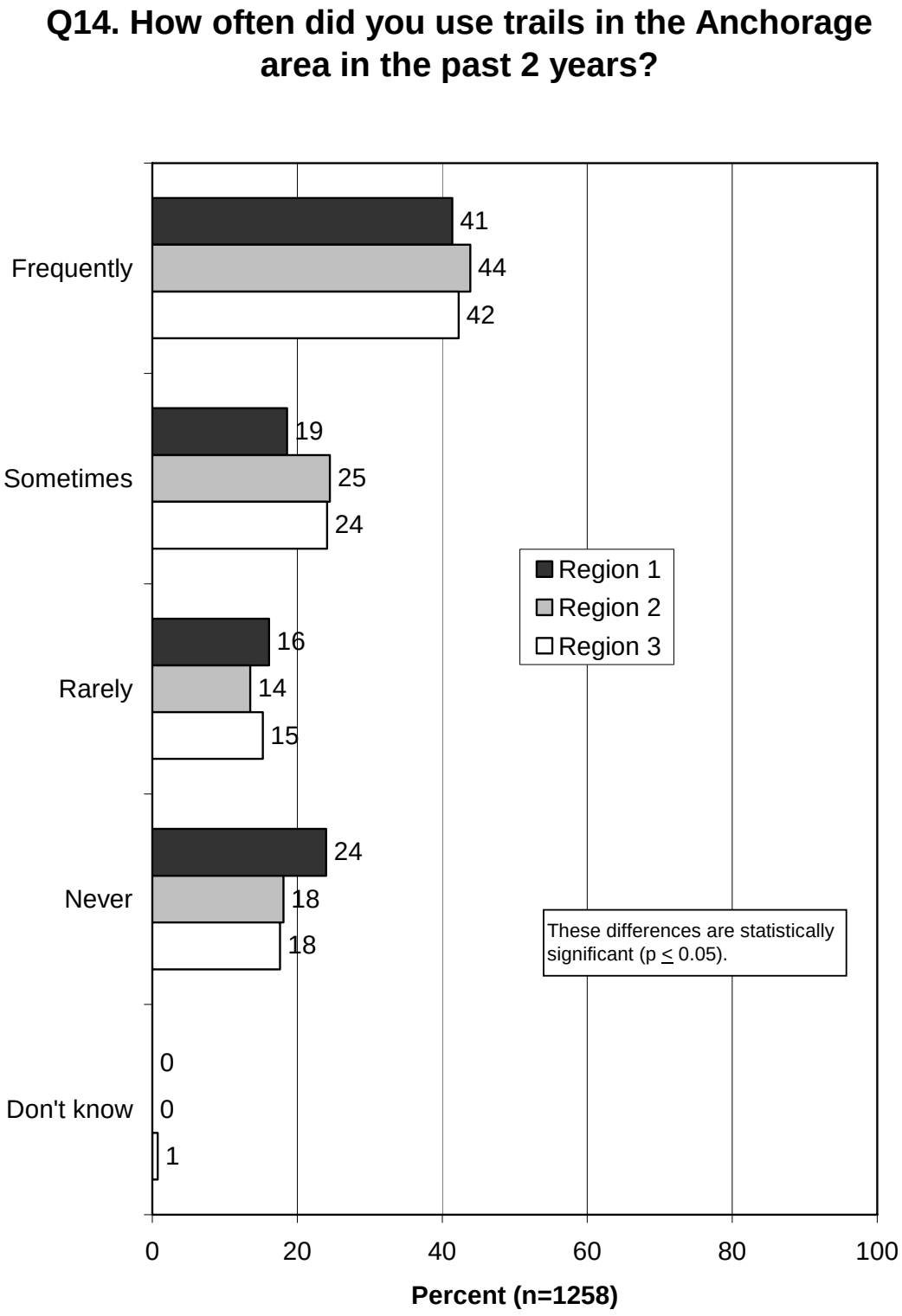


Figure 179. Question 14 Crossed by Park Users.

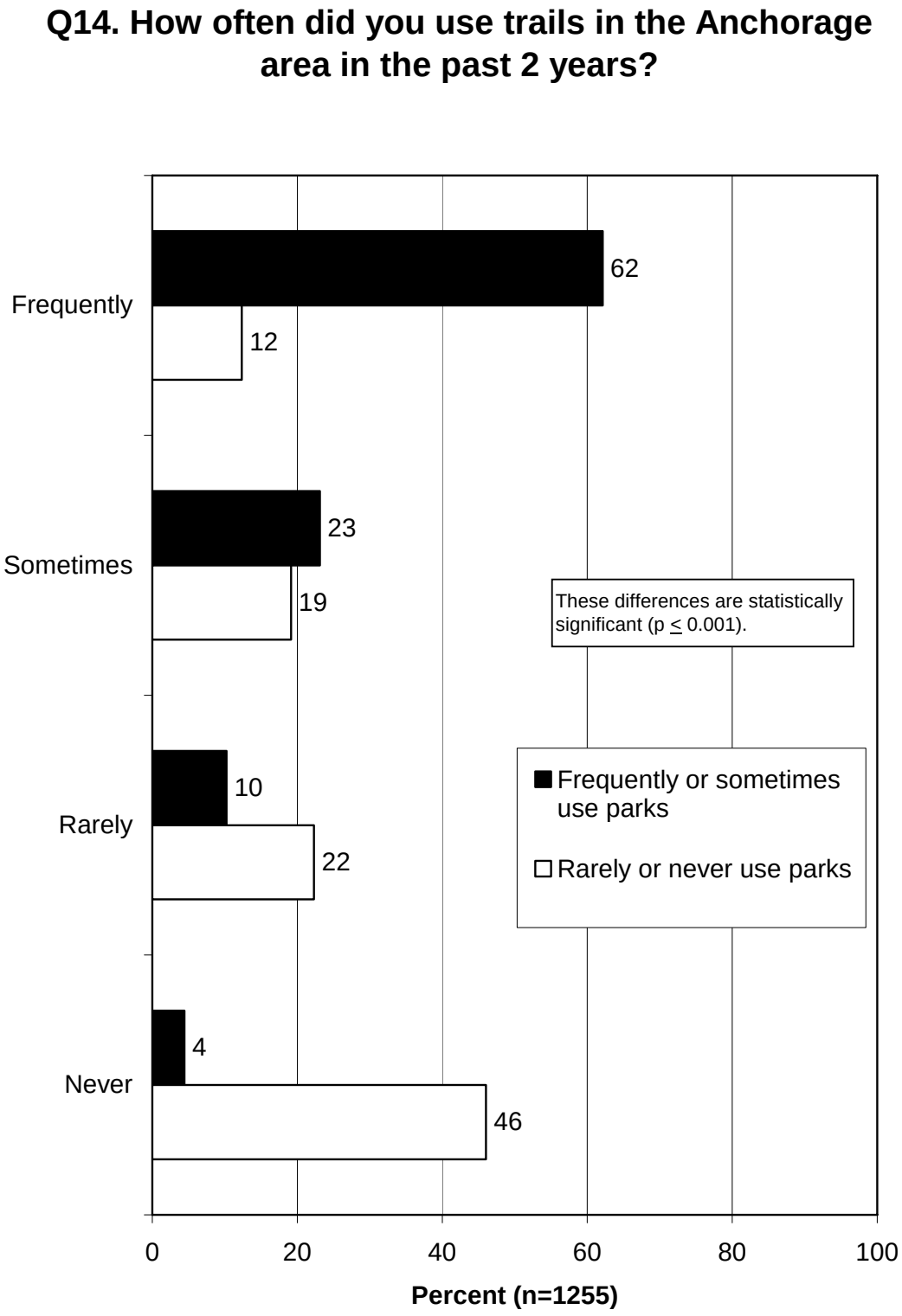


Figure 180. Question 97 Crossed by Trail Users.

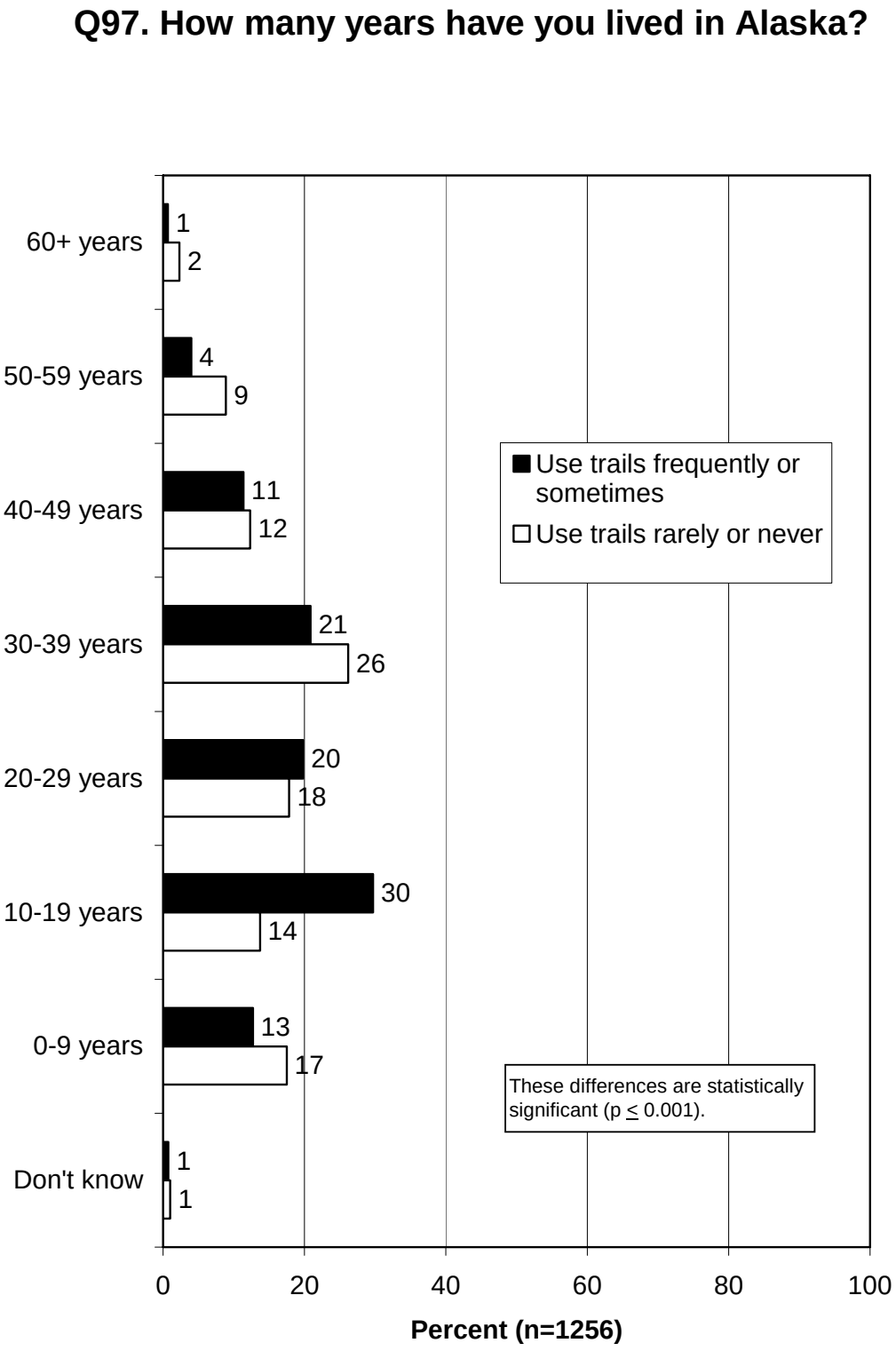


Figure 181. Question 103 Crossed by Trail Users.

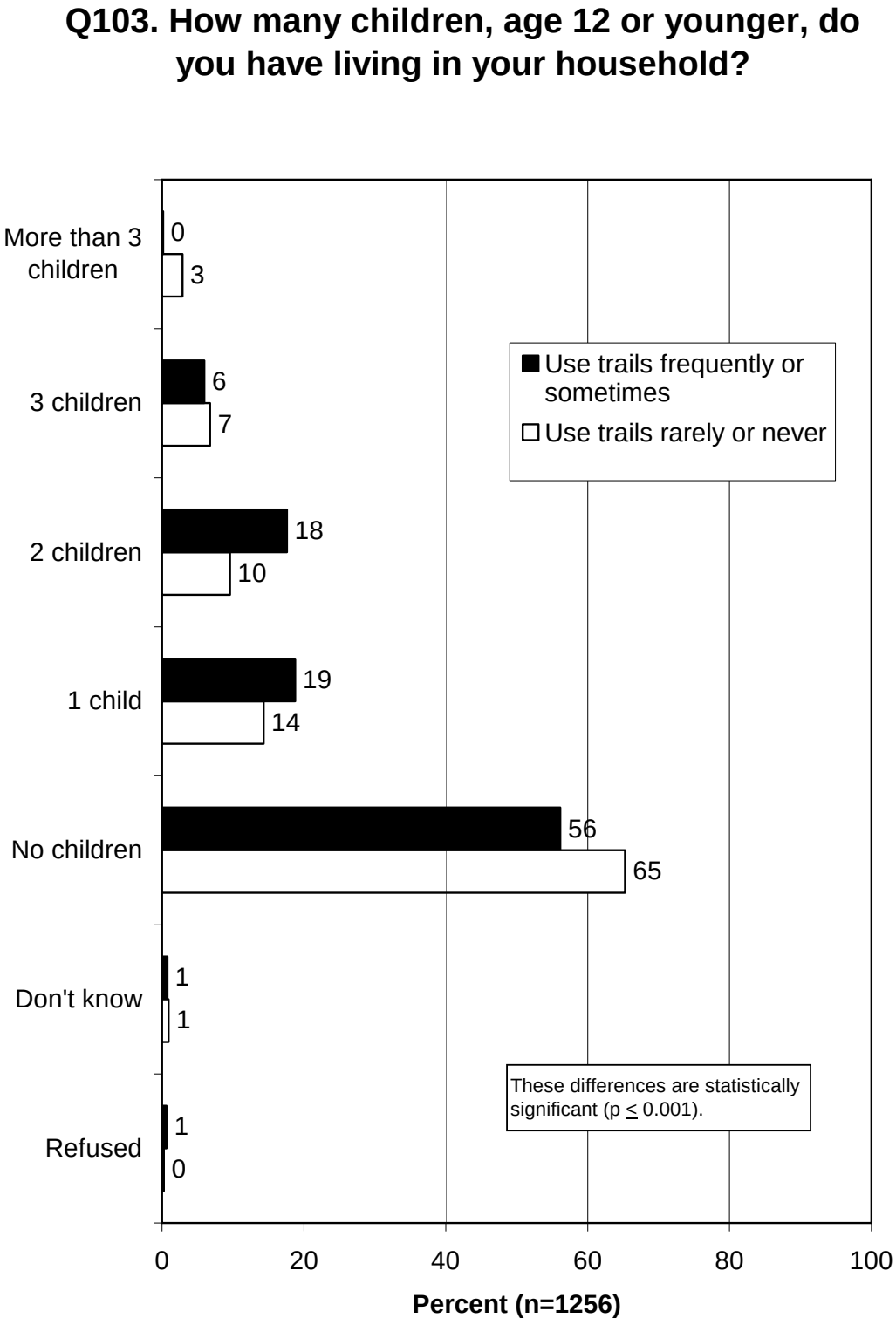


Figure 182. Question 106 Crossed by Trail Users.

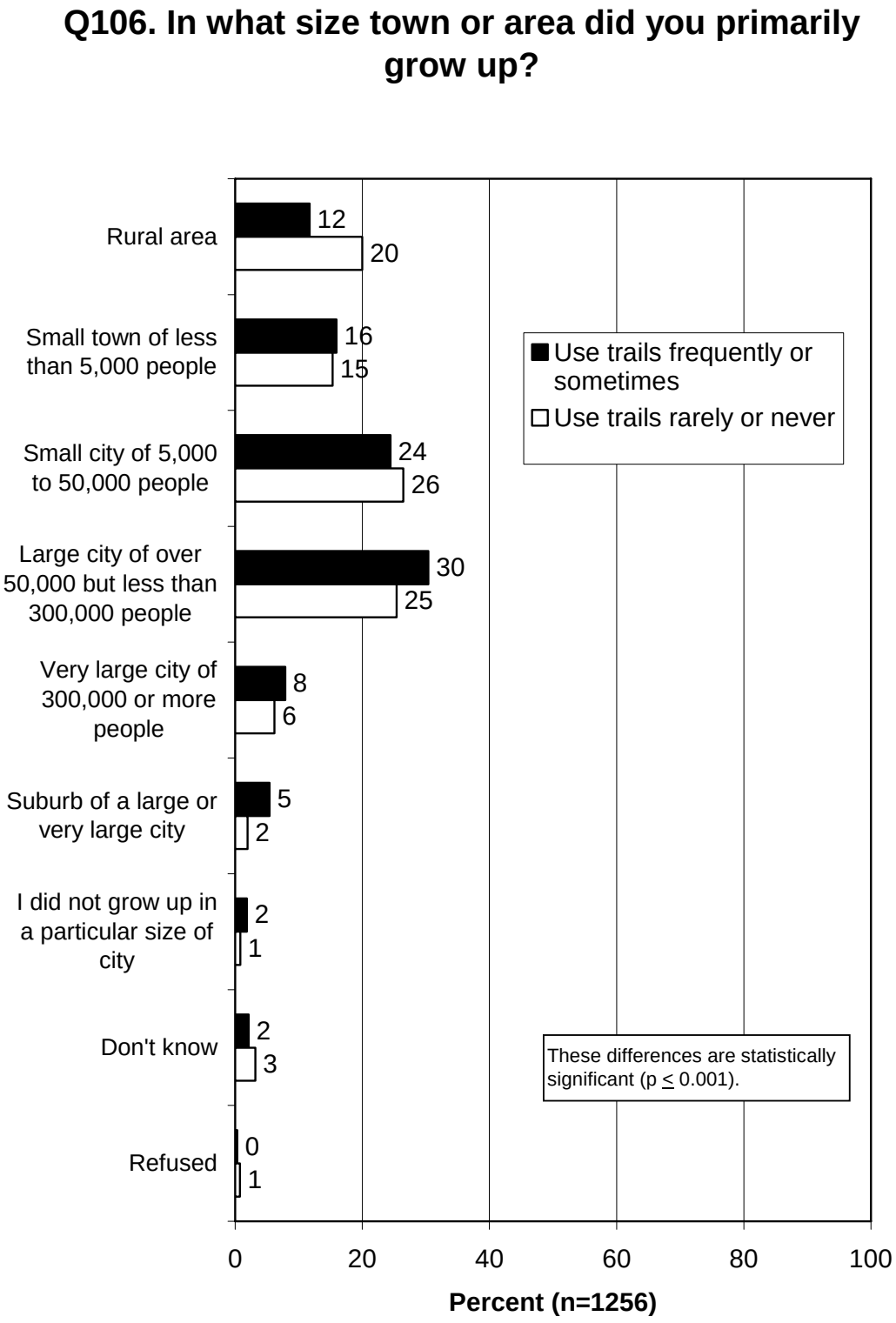


Figure 183. Question 107 Crossed by Trail Users.

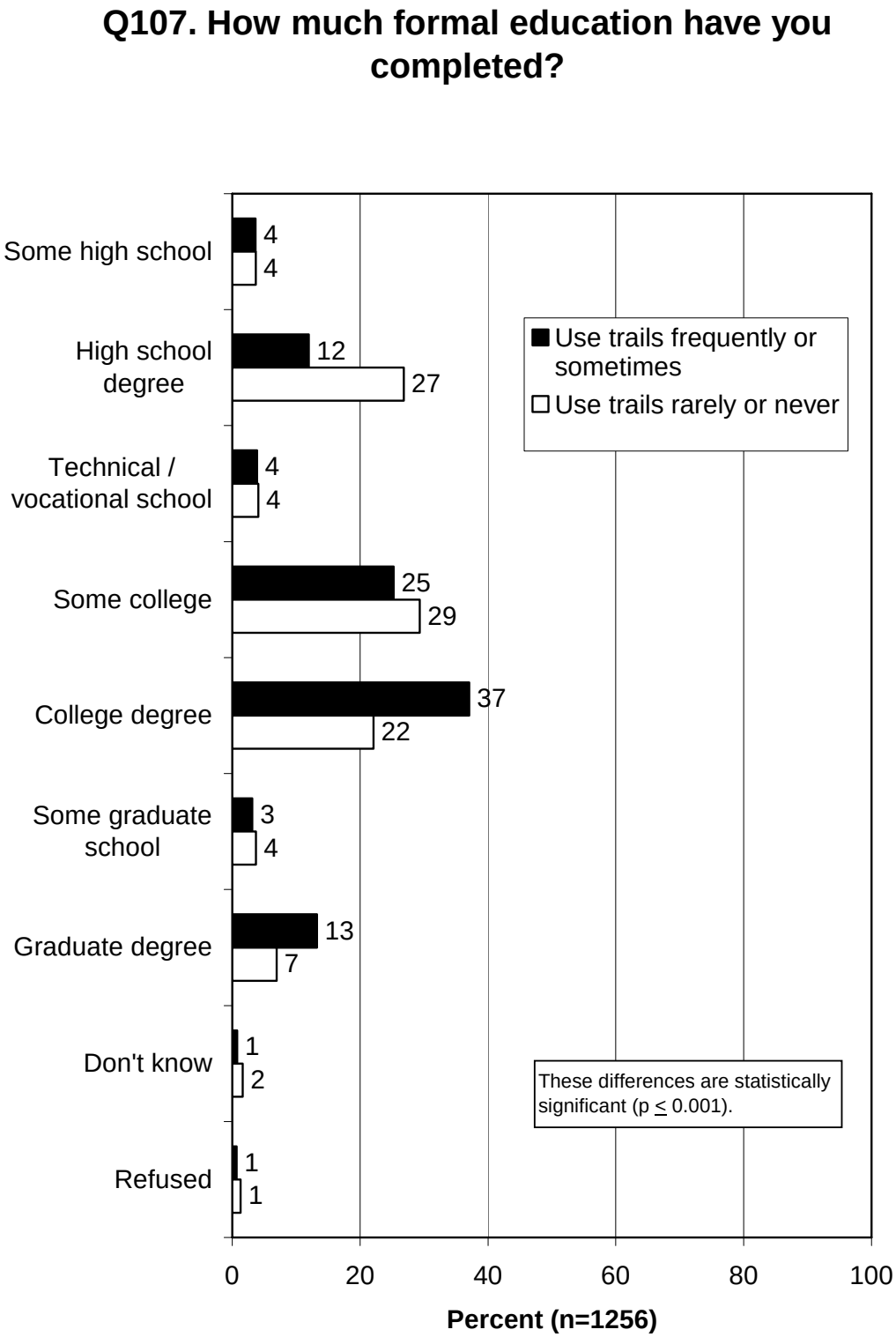


Figure 184. Question 108 Crossed by Trail Users.

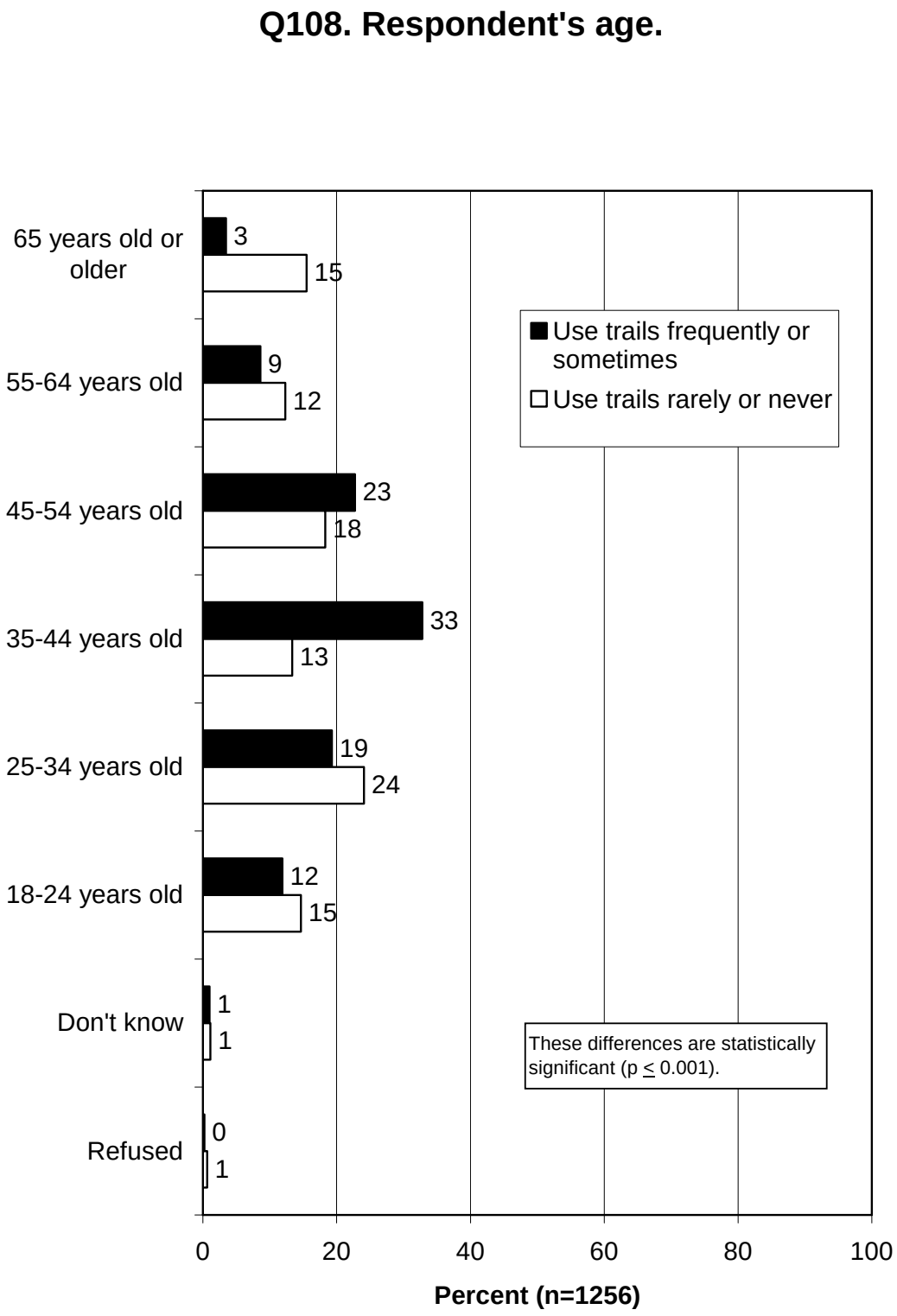


Figure 185. Question 114 Crossed by Trail Users.

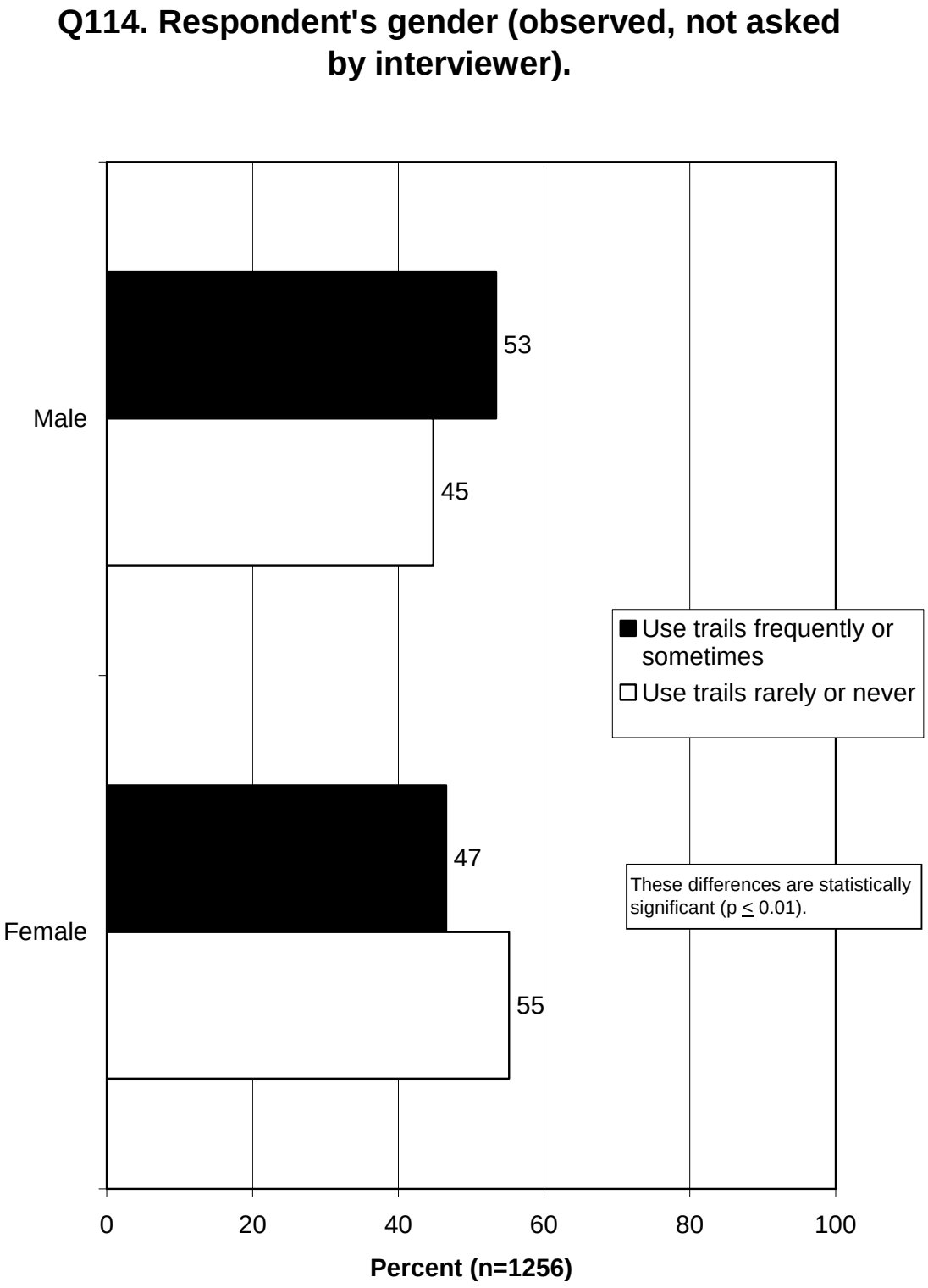


Figure 186. Question 97 Crossed by Park Users.

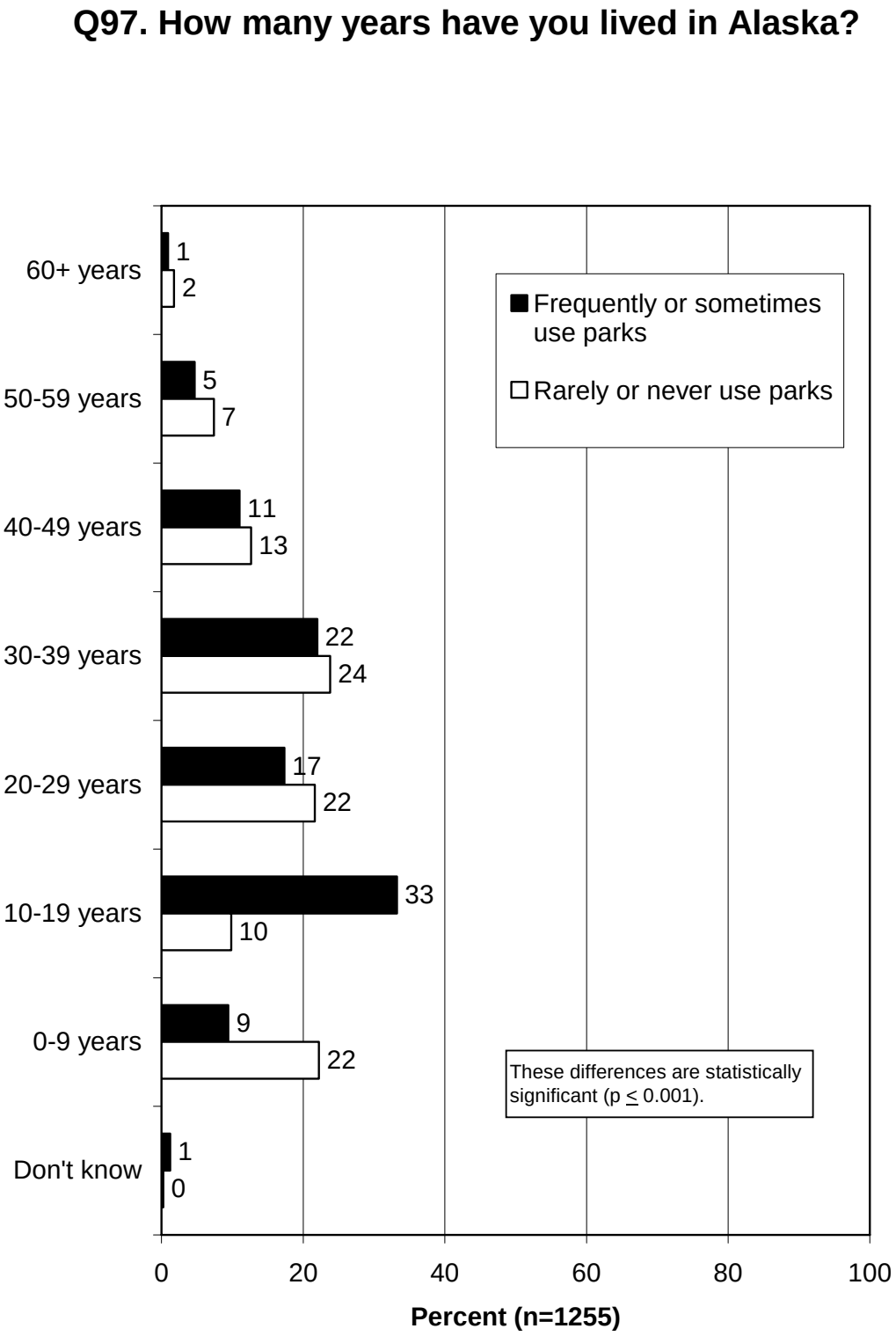


Figure 187. Question 103 Crossed by Park Users.

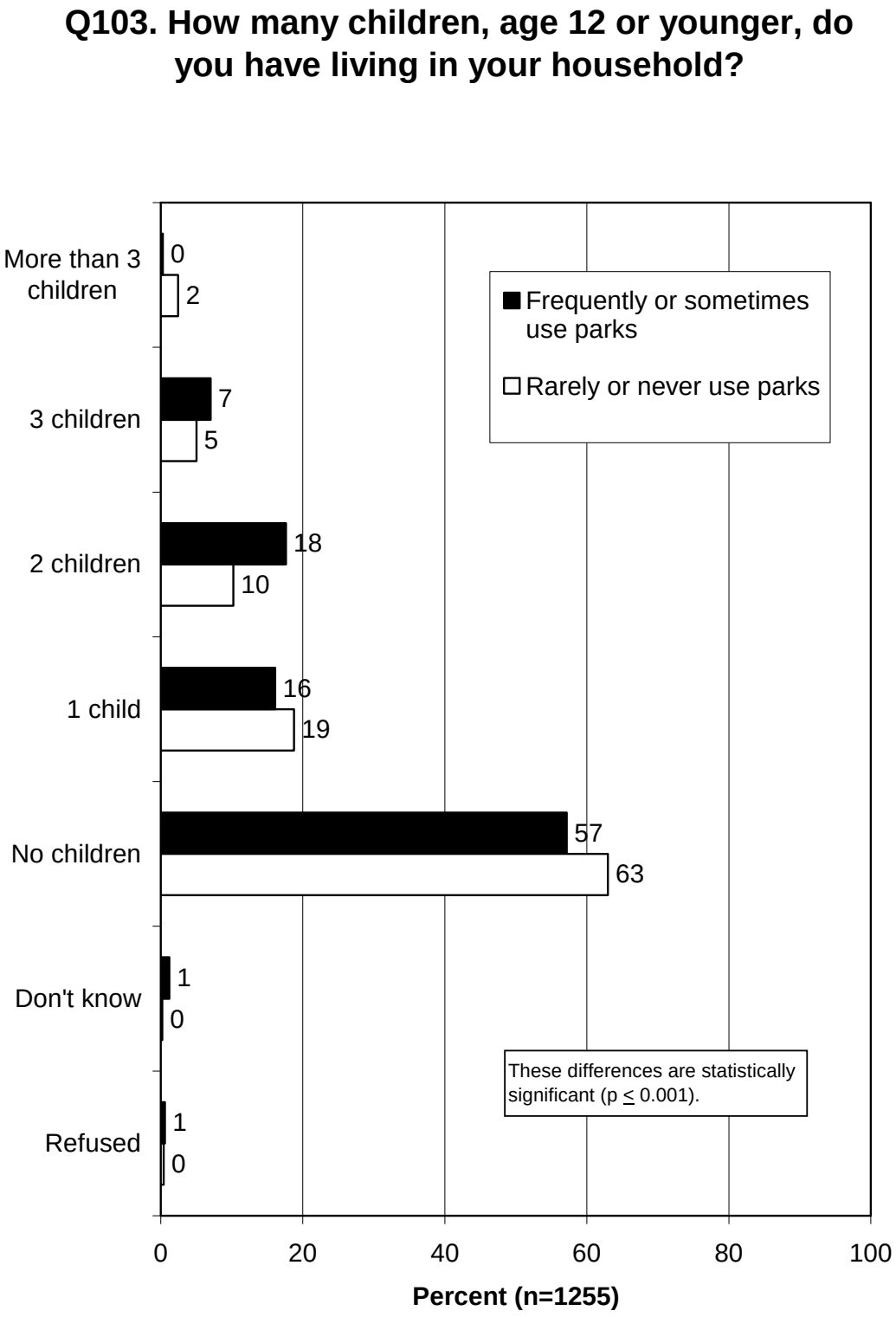


Figure 188. Question 107 Crossed by Park Users.

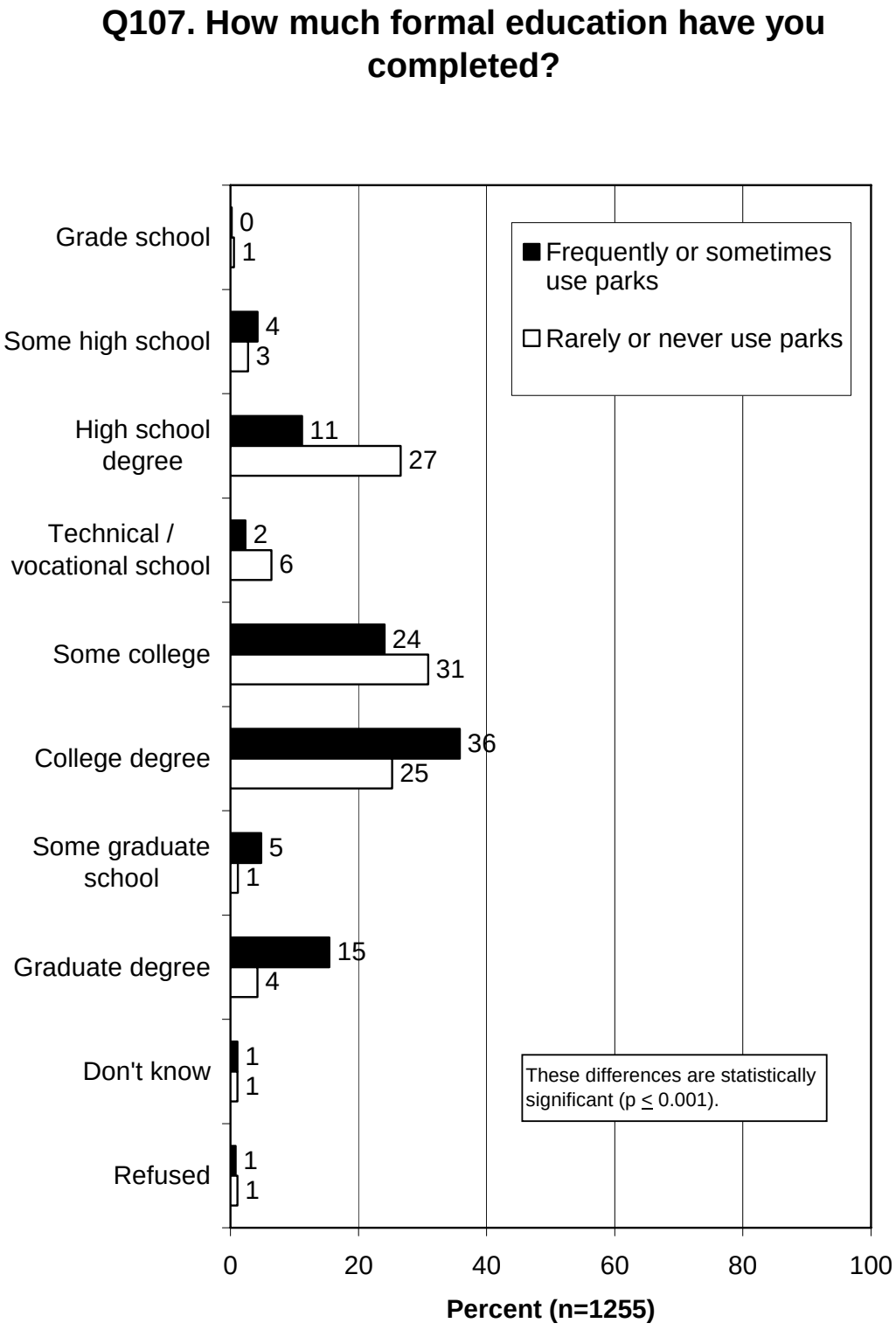


Figure 189. Question 108 Crossed by Park Users.

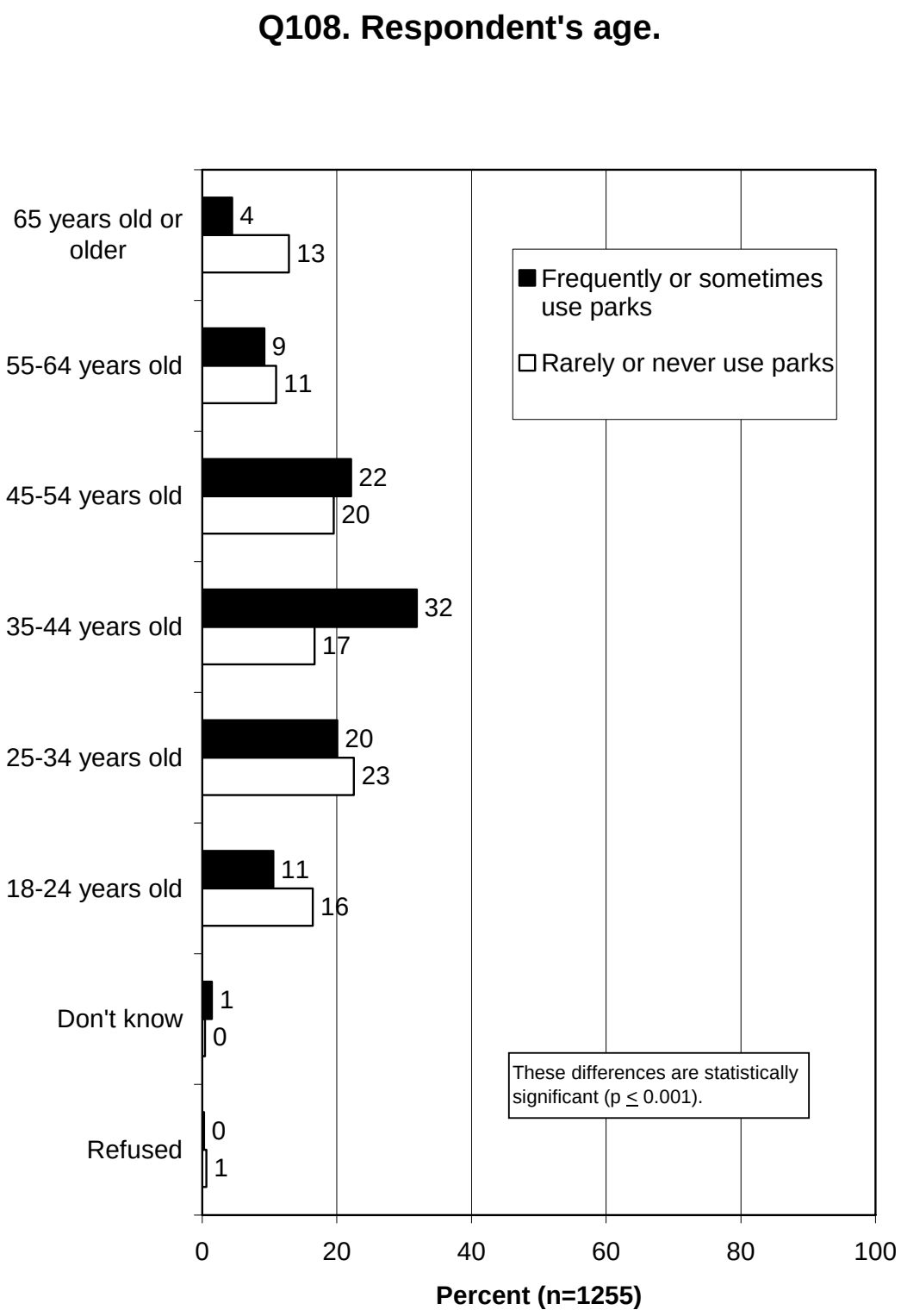
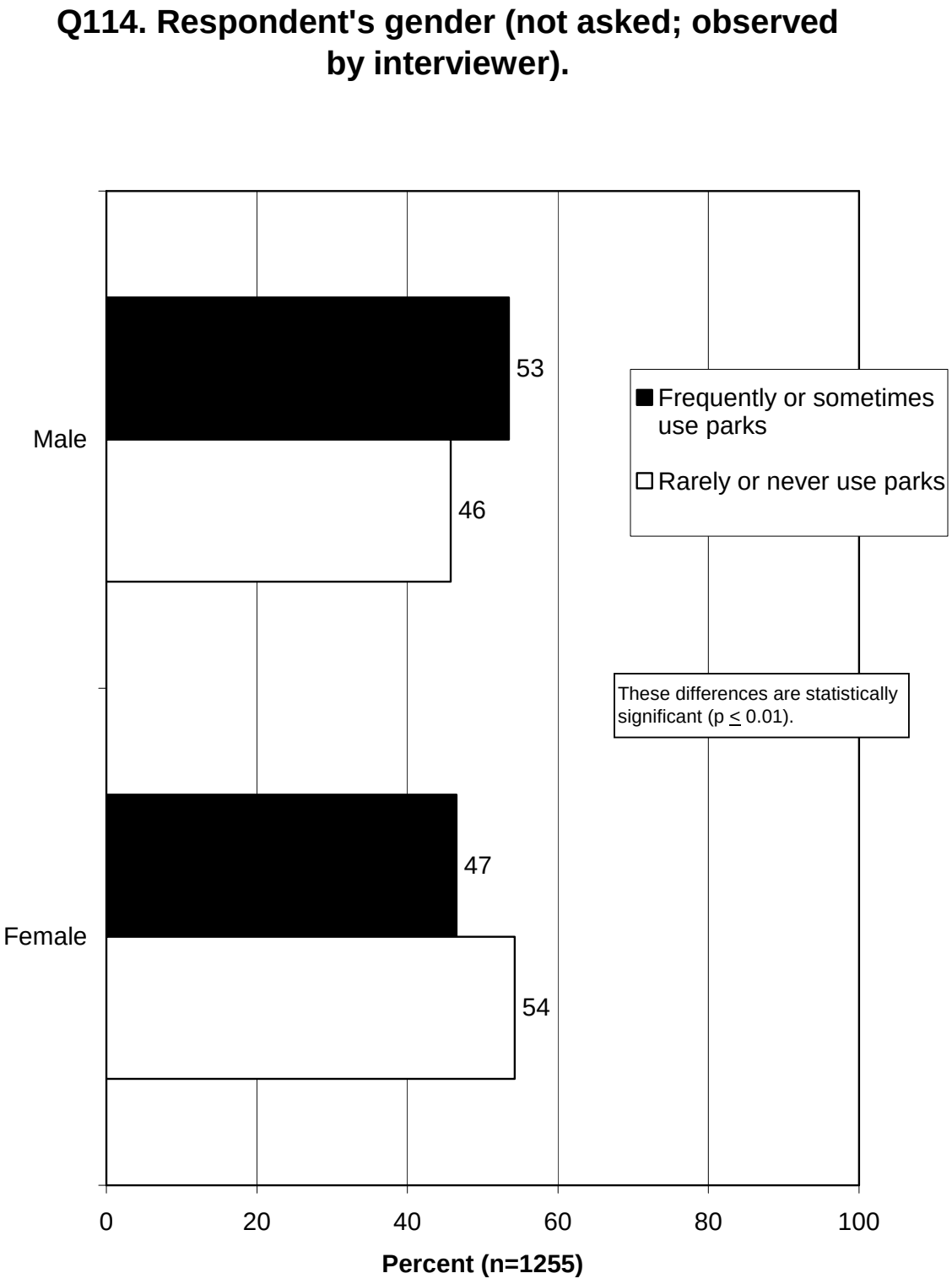


Figure 190. Question 114 Crossed by Park Users.



DEMOGRAPHIC DATA

- Many of the questions within this section were used in crosstabulations and in the nonparametric analysis. Age and gender graphs are not shown because the data were weighted for these variables to match the actual Anchorage population breakdown.

- Education levels of Anchorage residents are shown: 77% have taken some post-high school coursework; 46% have a college degree, with or without a graduate degree (Figure 191).
  - The regional crosstabulation is shown (Figure 192).

- A substantial percentage of residents (39%) have children ages 12 or younger living in their household (Figure 193). The number of children in households is shown in the graph as well.
  - The regional crosstabulation is shown (Figure 194).

- Years of residency in Alaska are shown; the median is 25 years (Figure 195). Years of residency in the Anchorage area are also shown; the median is 22 years (Figure 197).
  - Regional crosstabulation: Region 3 residents, compared to residents of the other two regions, are shorter-term residents, having lived in Alaska for fewer years ($p \leq 0.001$) (Figure 196) and having lived in Anchorage for fewer years ($p \leq 0.001$) (Figure 198).

- The type of residential area in which respondents grew up is shown: 31% grew up in a rural area or in a small town of no more than 5,000 people (Figure 199). At the other end, 65% grew up in an urban environment.
  - The regional crosstabulation is shown (Figure 200).

- Just more than a quarter of Anchorage residents (28%) are currently serving or have served in the armed forces; 15% of residents are serving or have served in the armed forces *and* are or have been stationed in Anchorage (Figure 201).
  - The regional crosstabulations are shown (Figures 202 and 203).

Figure 191. Question 107.

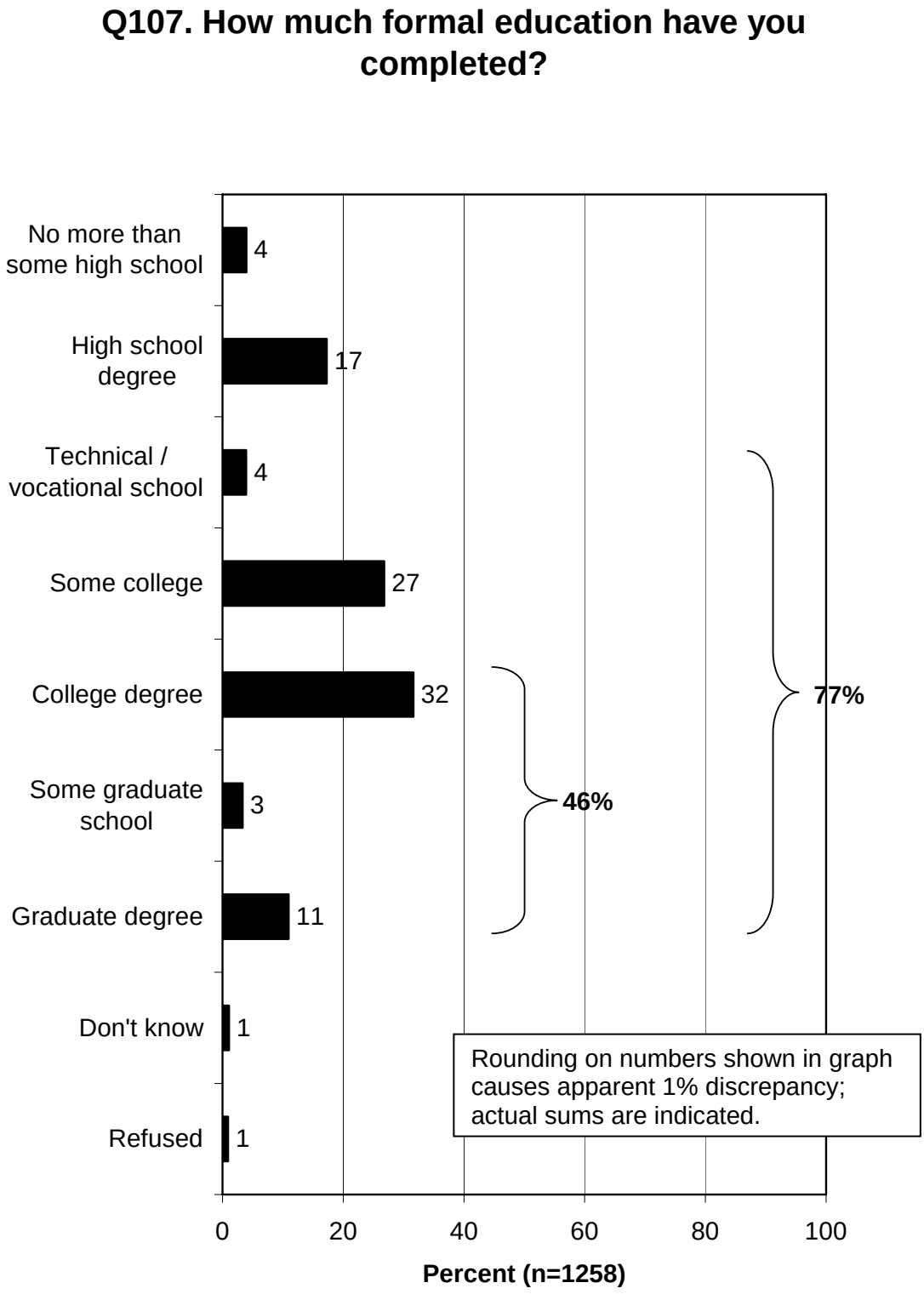


Figure 192. Question 107 Crossed by Region.

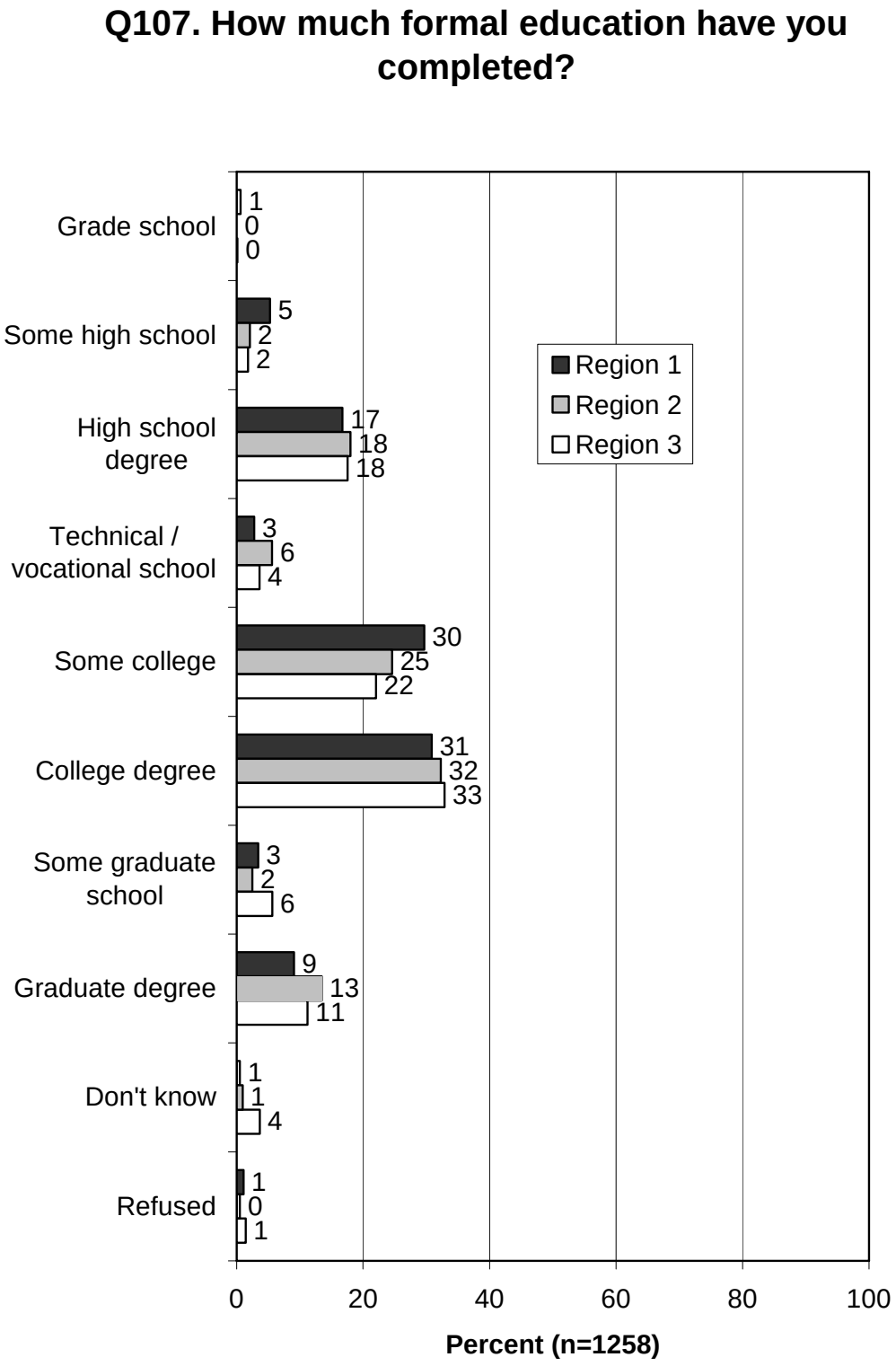


Figure 193. Question 103.

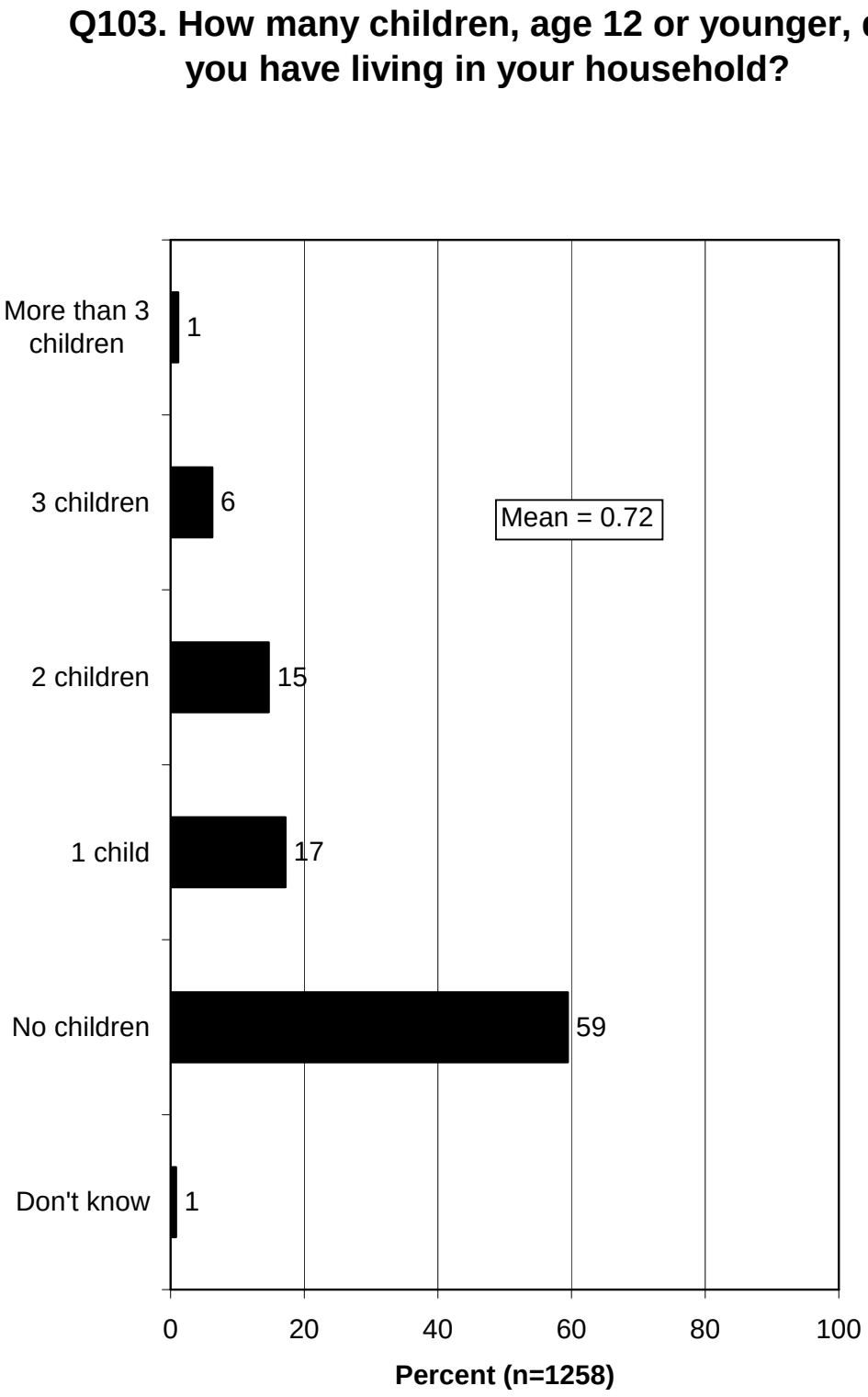


Figure 194. Question 103 Crossed by Region.

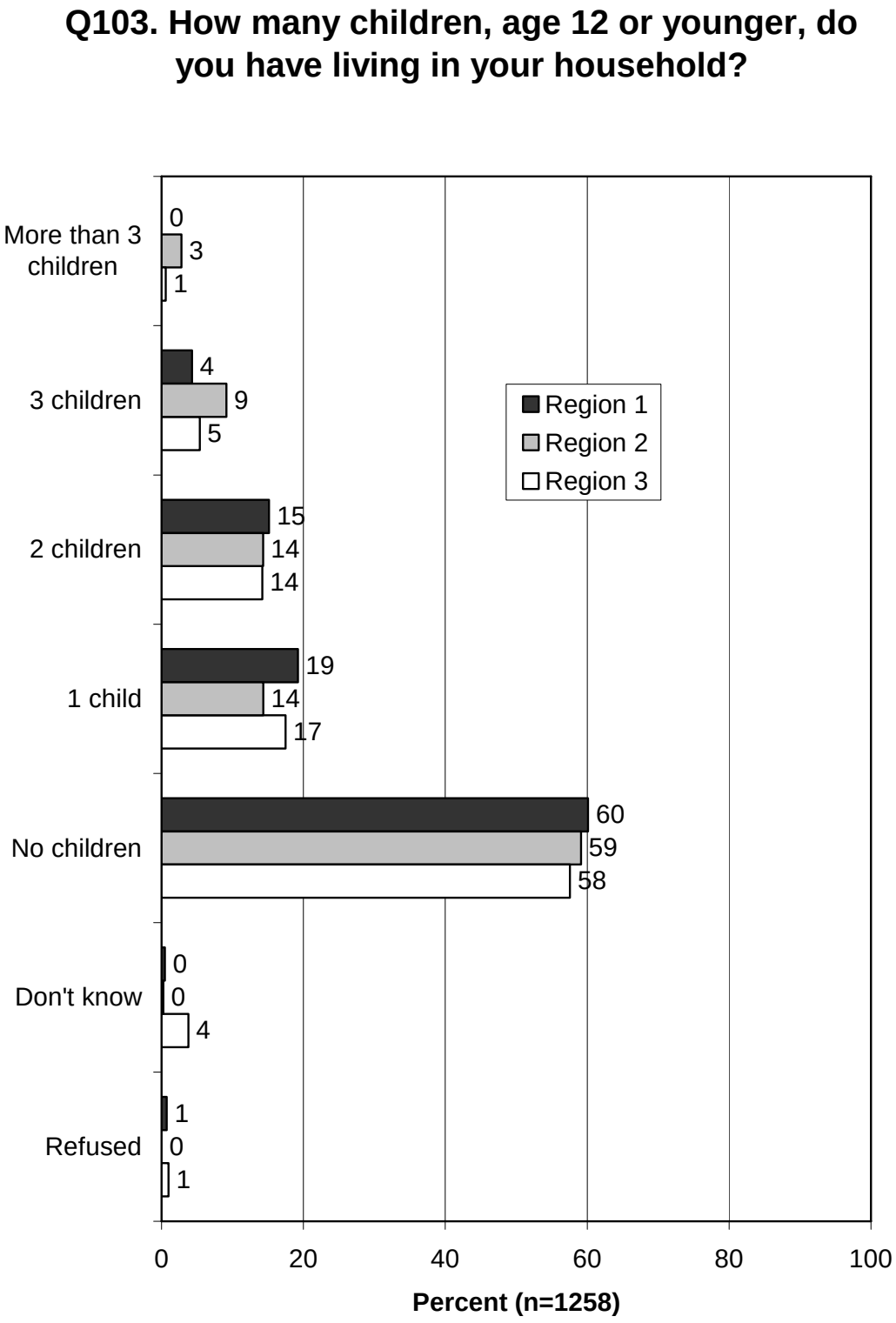


Figure 195. Question 97.

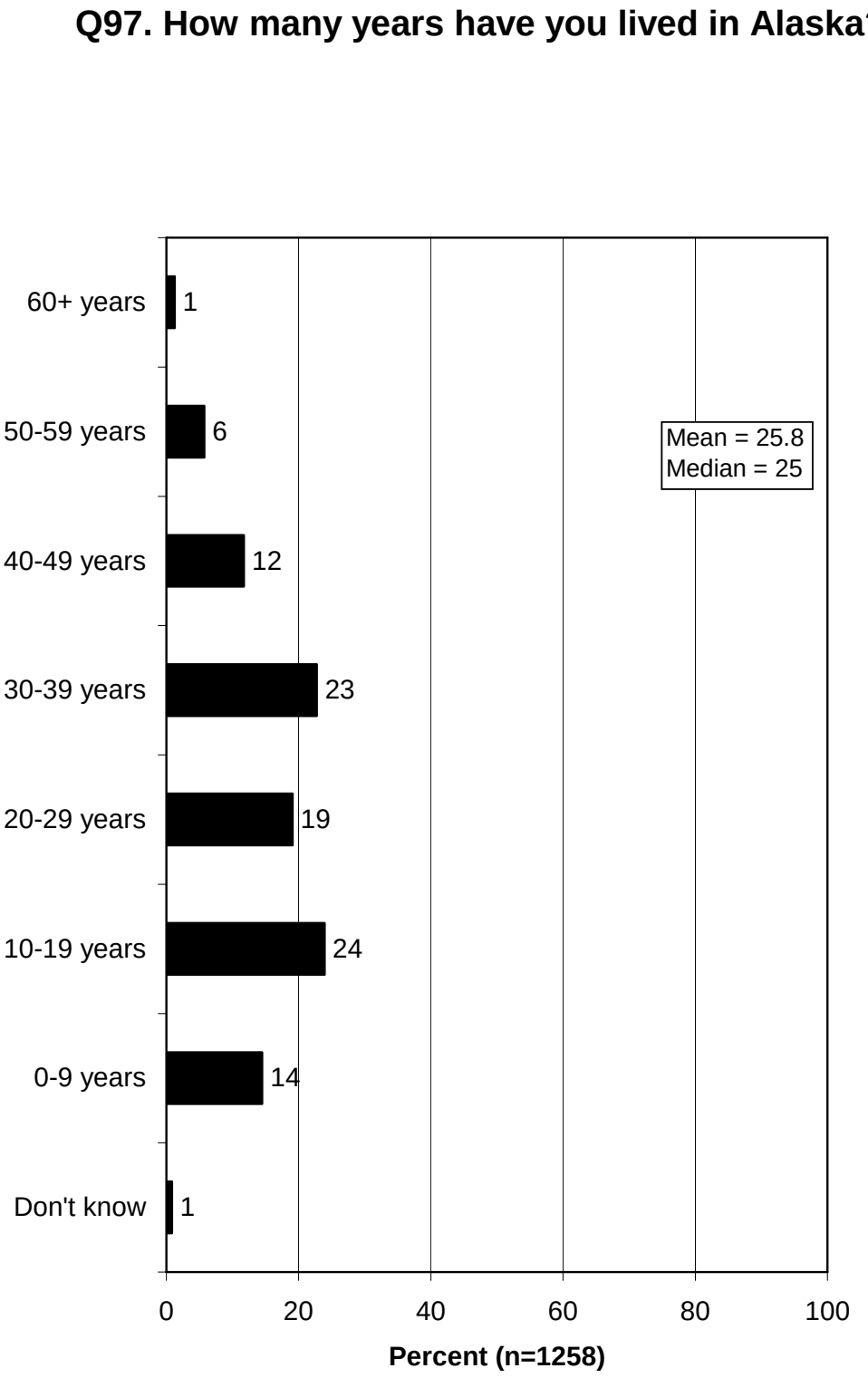


Figure 196. Question 97 Crossed by Region.

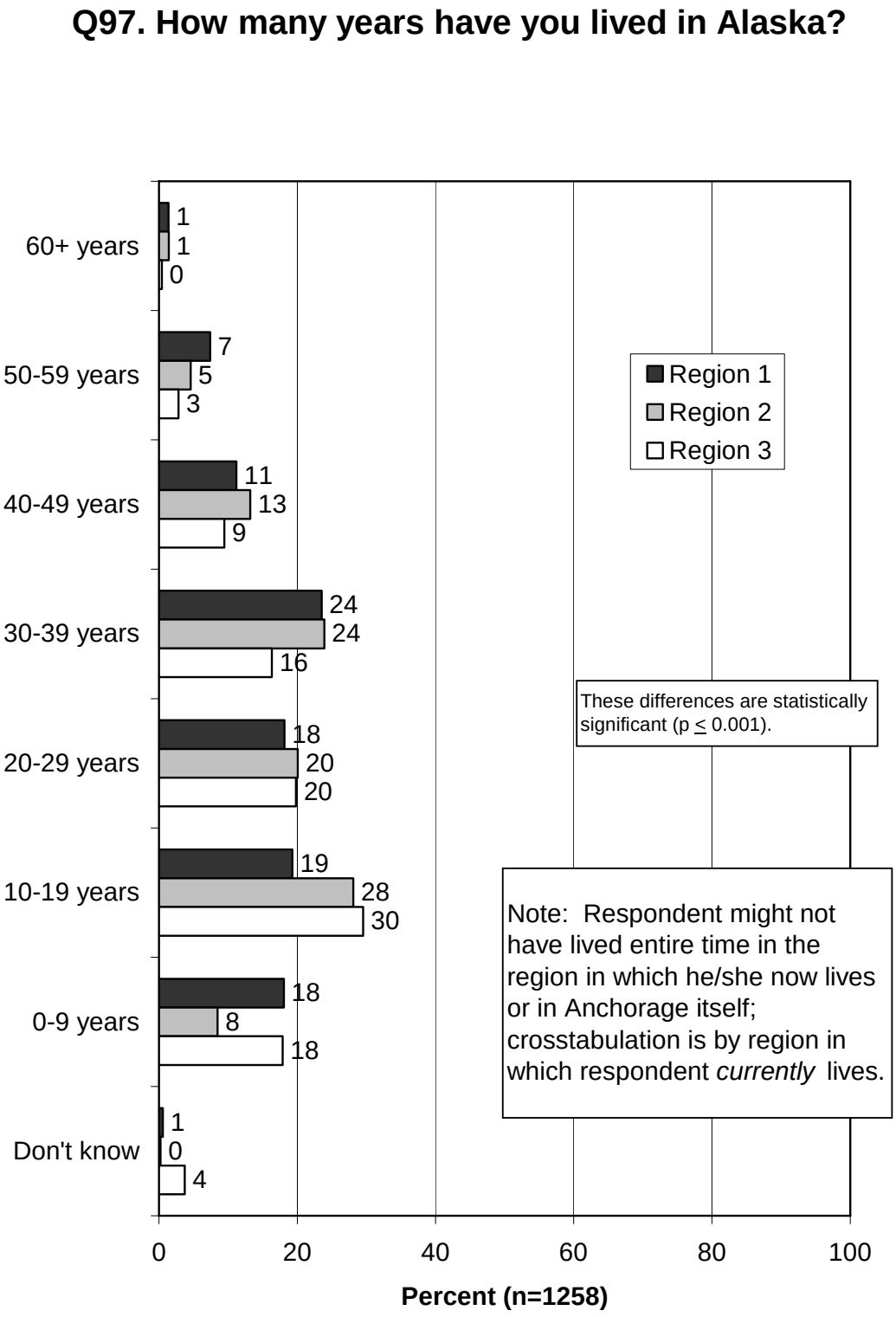


Figure 197. Question 100.

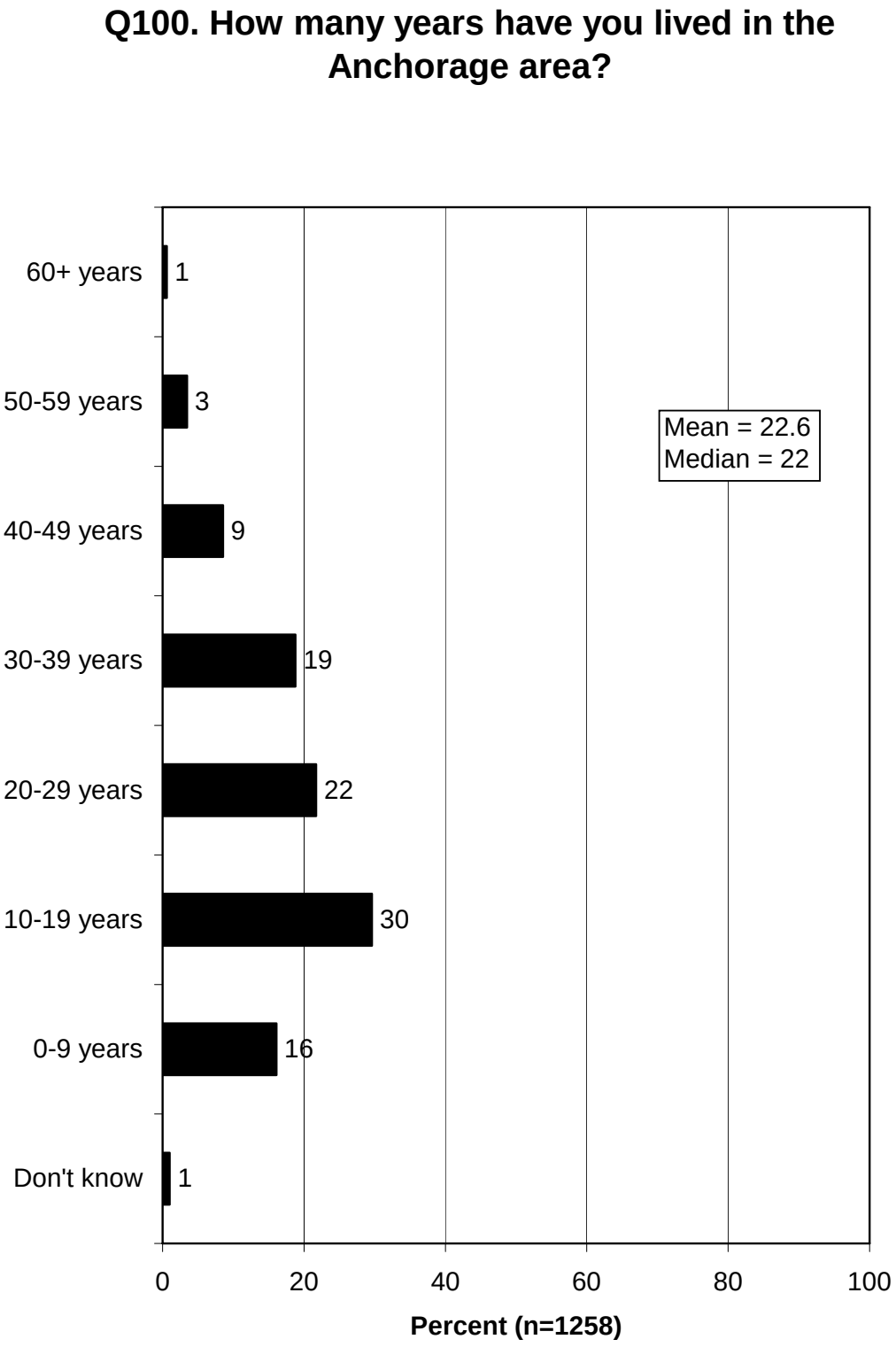


Figure 198. Question 100 Crossed by Region.

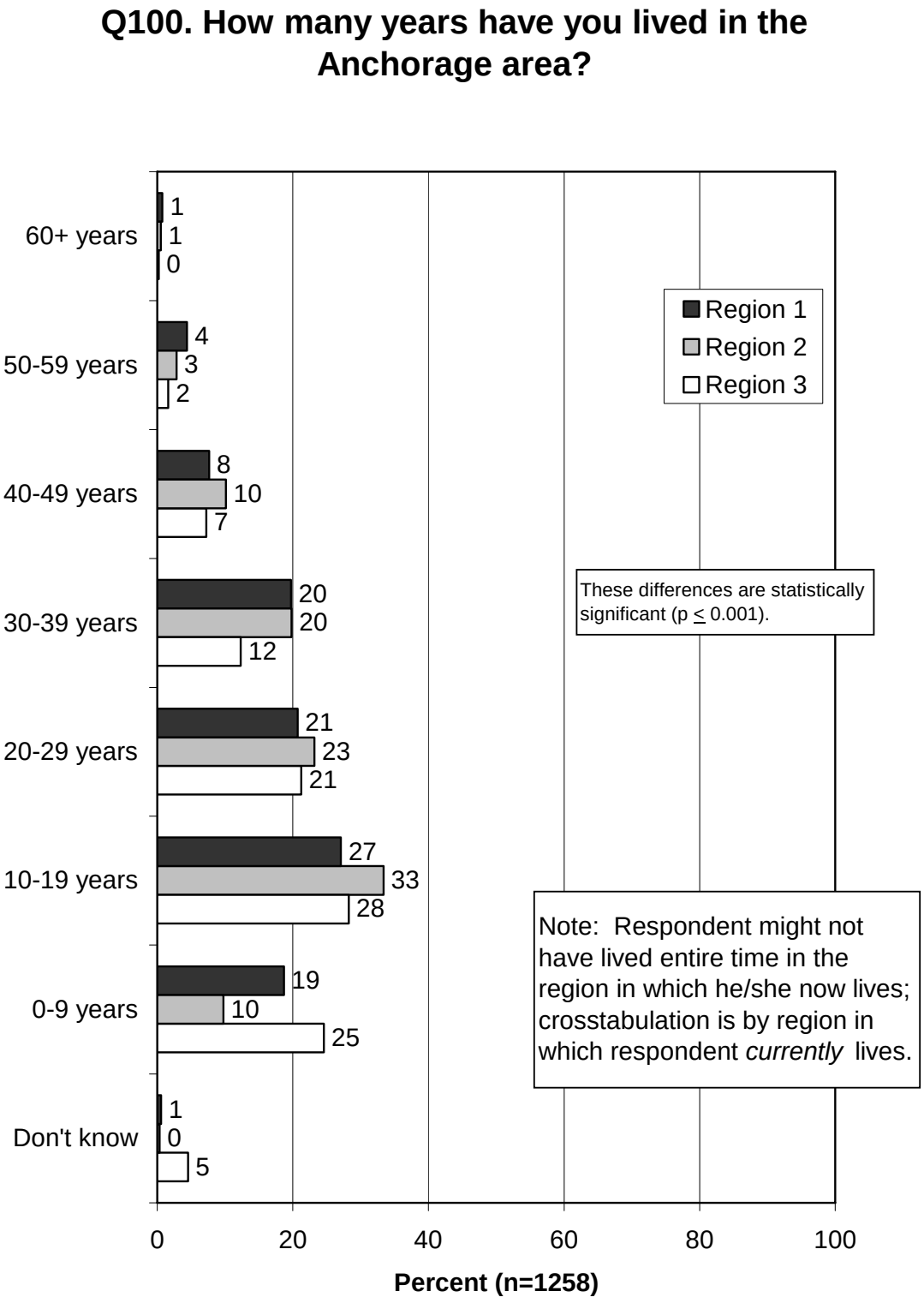


Figure 199. Question 106.

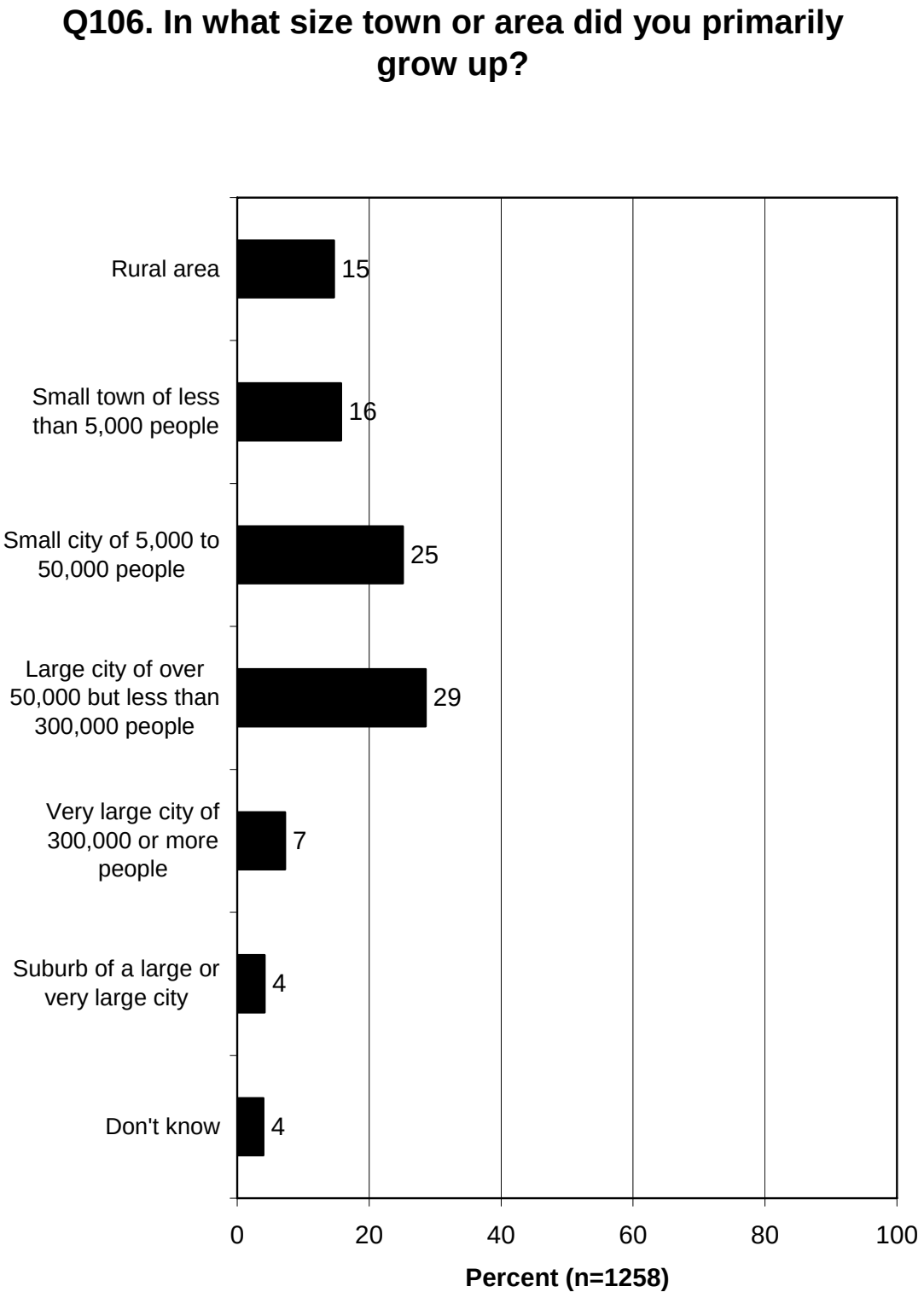


Figure 200. Question 106 Crossed by Region.

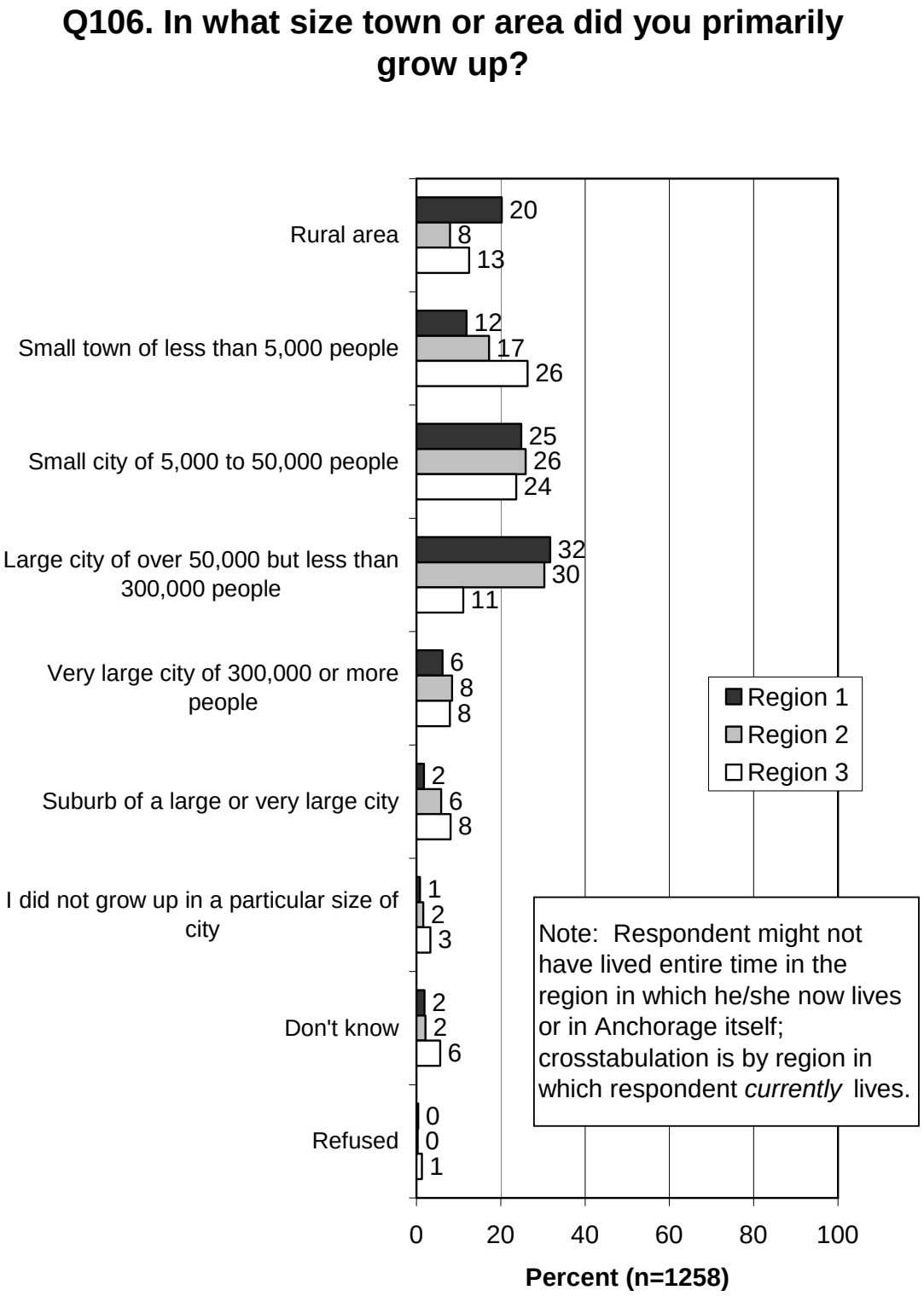


Figure 201. Questions 86 and 87 Combined.

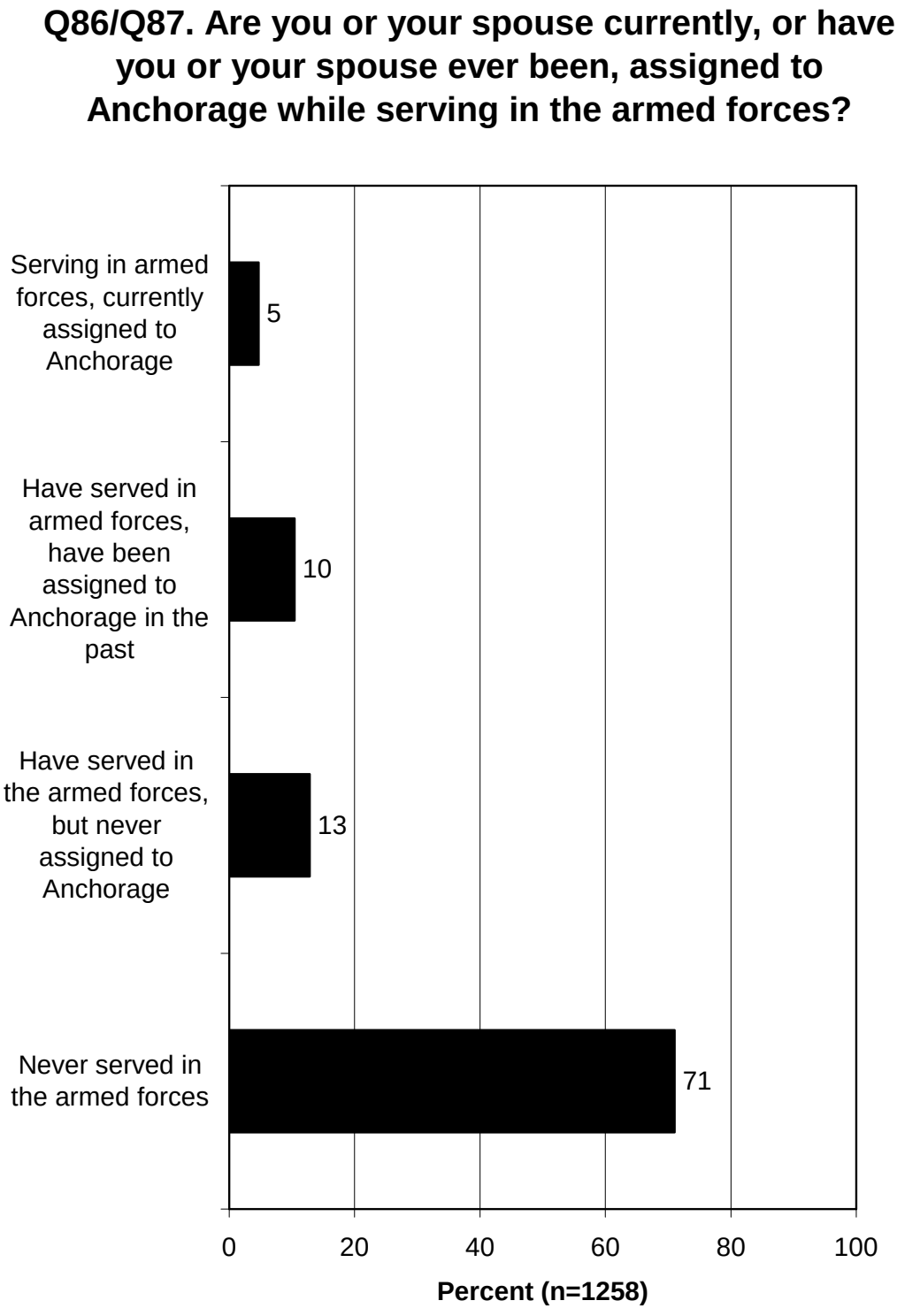


Figure 202. Question 86 Crossed by Region.

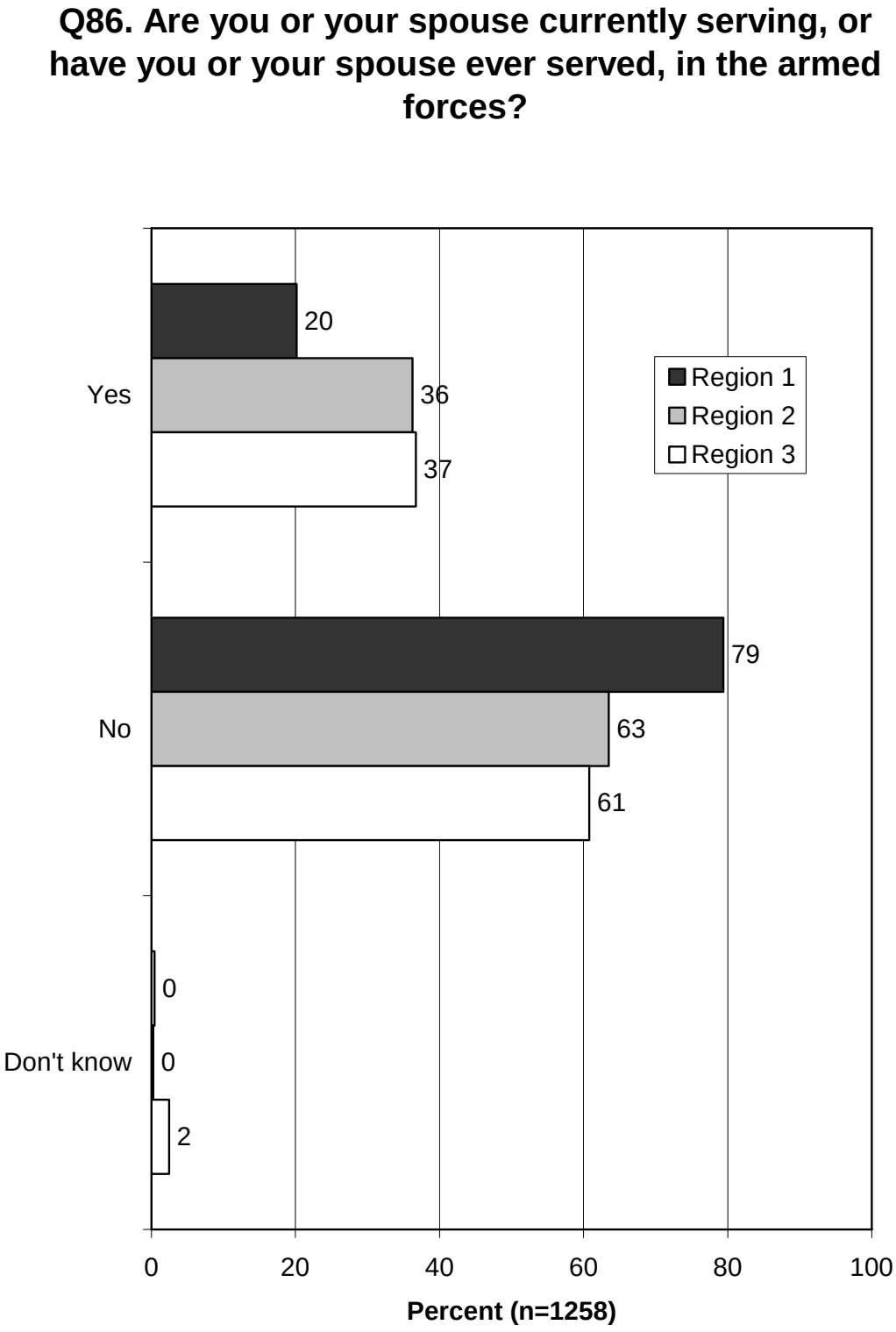
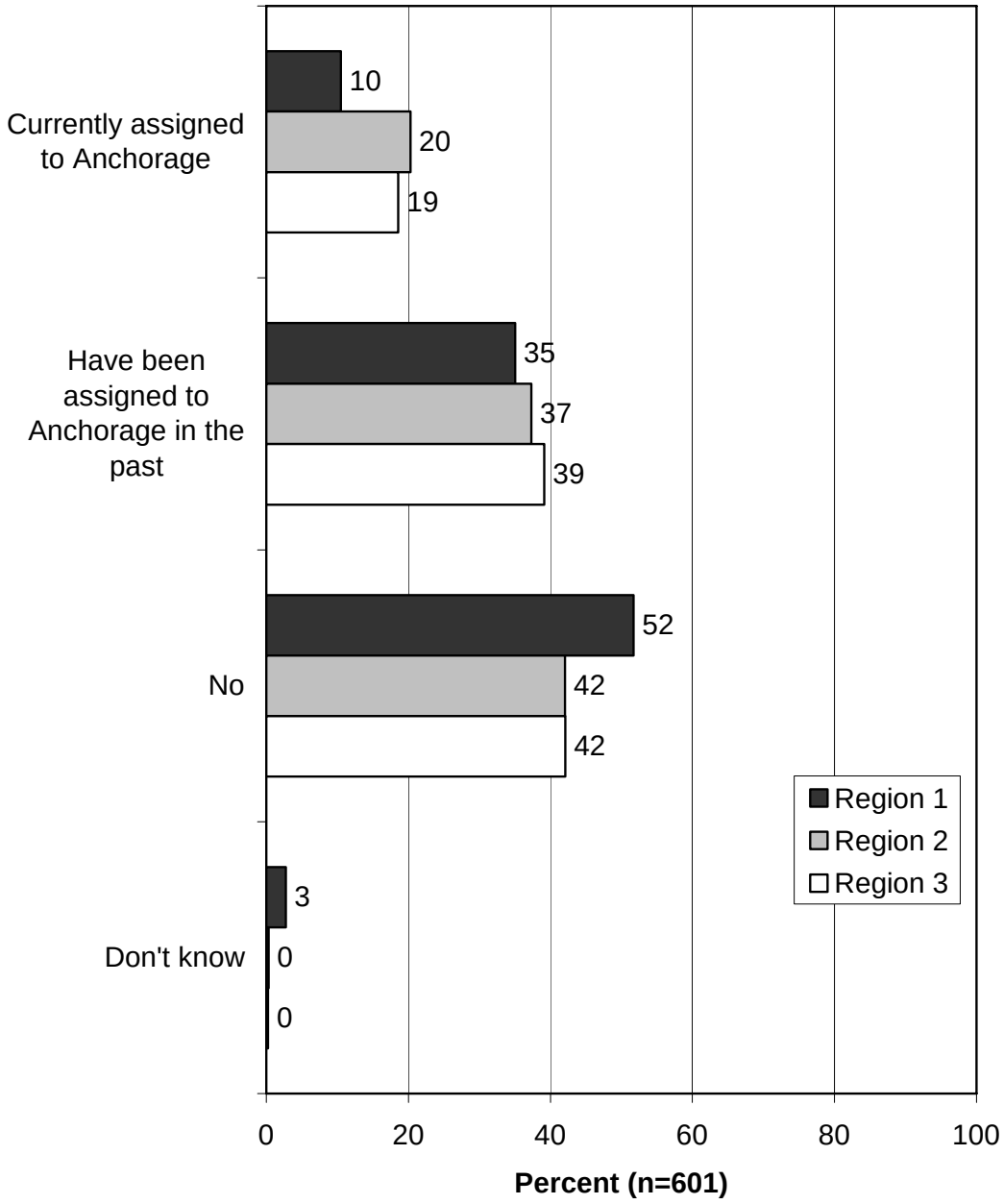


Figure 203. Question 87 Crossed by Region.

Q87. Are you or your spouse currently, or have you or your spouse ever been, assigned to Anchorage while serving in the armed forces? (Of those who are personally serving or have served in the armed forces or whose spouse is serving or has served in the armed forces.)



APPENDIX A: SURVEY INSTRUMENT

ALASKA BEAR AND MOOSE SURVEY INSTRUMENT'

(Note: Error checkers, some skip codes, and some internal QPL statements have been removed.)

4. ENTER ANCHORAGE REGION FROM CALL SHEET

5. Hello, my name is _____, and I am calling on behalf of the Alaska Department of Fish and Game and other partner agencies. I am calling to ask some questions about wildlife and outdoor recreation issues in the Anchorage area. I am not selling anything or asking for donations. Do you have some time to answer some questions for me?

8. Are you at least 18 years old? (NO IS OUT OF SURVEY)

11. Great, thank you. For this survey, when I say THE ANCHORAGE AREA, I mean all areas, neighborhoods, and communities within the municipality of Anchorage. This includes areas from the Knik River in the north to Portage in the south.

12. In your opinion, what are the MOST important wildlife issues facing Anchorage area residents today?

13. Now I would like to know how often you have used Anchorage's three largest parks. How often did you use Chugach State Park, Far North Bicentennial Park, and/or Kincaid Park in the Anchorage area in the past 2 years?

14. How often did you use trails in the Anchorage area in the past 2 years?

==========
==========

15. Next, I have some questions about wildlife. I am going to read some statements that reflect different beliefs people may have about wildlife. Please tell me if you agree or disagree with each of the following statements.

16. Choose a random starting question (17-21)
|__| 2. Strongly agree
|__| 3. Moderately agree
|__| 4. Slightly agree
|__| 5. Neither agree nor disagree / no opinion
|__| 6. Slightly disagree
|__| 7. Moderately disagree
|__| 8. Strongly disagree
|__| 9. DO NOT READ: Don't know

17. I take pride in the amount of wildlife in the Anchorage area, even if they cause some problems or hazards.
18. An important part of my community is the wildlife I see there from time to time.
19. While some wildlife encounters can be dangerous, they make life in Anchorage more interesting and special.
20. Some wildlife may be dangerous, and I don't want to have these potentially dangerous species in the Anchorage area.
21. People who live in the Anchorage area should learn to live with some conflicts or problems with wildlife.

==========
==========

22. Now I have some questions specifically about black bears, brown bears, and moose.

23. Would you say you know a great deal, a moderate amount, a little, or nothing about BLACK BEARS?

24. How about BROWN BEARS?

25. Black bears and brown bears are two different species. In the Anchorage area black bears are generally black in color and brown bears are various shades of brown.

26. In your opinion, should the BLACK BEAR population in the Anchorage area be increased, remain the same, or be decreased?

27. In your opinion, should the BROWN BEAR population in the Anchorage area be increased, remain the same, or be decreased?

28. In your opinion, should the MOOSE population in the Anchorage area be increased, remain the same, or be decreased?

29. Which of the following statements best describes your feelings about BLACK BEARS?

|__| 2. I want to see and have black bears in my neighborhood.
|__| 3. I want to see and have black bears in the Anchorage area but not in my neighborhood
|__| 5. I want to see and have black bears in Alaska but not in the Anchorage area.
|__| 6. I feel uncomfortable with black bears being anywhere I may go in Alaska.
|__| 7. DO NOT READ: None of these
|__| 8. DO NOT READ: Don't know

30. How acceptable or unacceptable is having BLACK BEARS in FAR NORTH BICENTENNIAL PARK to you?

31. How about in CHUGACH STATE PARK?

32. Which of the following statements best describes your feelings about BROWN BEARS?

|__| 2. I want to see and have brown bears in my neighborhood.
|__| 3. I want to see and have brown bears in the Anchorage area but not in my neighborhood.
|__| 5. I want to see and have brown bears in Alaska but not in the Anchorage area.
|__| 6. I feel uncomfortable with brown bears being anywhere I may go in Alaska.
|__| 7. DO NOT READ: None of these
|__| 8. DO NOT READ: Don't know

33. How acceptable or unacceptable is having BROWN BEARS in FAR NORTH BICENTENNIAL PARK to you?

34. How about in CHUGACH STATE PARK?

35. About how often do you see BLACK BEARS in your neighborhood in an average year? Would you say...?

36. About how often would you LIKE to see BLACK BEARS in your neighborhood?

37. About how often do you see BROWN BEARS in your neighborhood in an average year? Would you say...?

38. About how often would you LIKE to see BROWN BEARS in your neighborhood?

39. Do you agree or disagree that the possibility of encountering a BROWN BEAR is a positive aspect of living in the Anchorage area?

40. Do you agree or disagree that, while moose cause some problems, these problems make life in Anchorage seem more interesting and special?

41. Do you agree or disagree that the possibility of encountering a BLACK BEAR has prevented you from using Anchorage area parks or trails as much as you would like in the past 2 years?

42. Do you agree or disagree that the possibility of encountering a BROWN BEAR has prevented you from using Anchorage area parks or trails as much as you would like in the past 2 years?

43. Do you agree or disagree that the possibility of encountering a MOOSE has prevented you from using Anchorage area parks or trails as much as you would like in the past 2 years?

44. Sometimes people have problems with wildlife in their neighborhoods or around their homes. Have you personally had any problems or property damage at your primary home caused by BLACK BEARS within the past 2 years? (IF ASKED: Question refers to respondent's primary home, not a cabin or other vacation house.)

|__| 2. Yes (GO TO QUESTION 47)
|__| 3. No
|__| 4. DO NOT READ: Don't know
SKIP TO QUESTION 49

47. What types of problems or damage have you had that were caused by a BLACK BEAR? (Asked of those who had problems with black bear in the past 2 years.)

49. Have you personally had any problems or property damage at your primary home caused by BROWN BEARS within the past 2 years? (IF ASKED: Question refers to respondent's primary home, not a cabin or other vacation house.)

|__| 2. Yes (GO TO QUESTION 52)
|__| 3. No
|__| 4. DO NOT READ: Don't know
SKIP TO QUESTION 54

52. What types of problems or damage have you had that were caused by a BROWN BEAR? (Asked of those who had problems with brown bear in the past 2 years.)

54. Do you agree or disagree that most problems with BEARS, including black bears and brown bears, in the Anchorage area can be prevented by taking a few simple precautions, such as using bear-proof garbage containers?

57. Please tell me if you have personally experienced any of the following situations with MOOSE. Have you...?

|__| 1. Enjoyed watching moose in the Anchorage area?
|__| 2. Driven or been a passenger in a vehicle that has hit a moose?
|__| 3. Driven or been a passenger in a vehicle that had to swerve or brake hard to avoid hitting a moose?
|__| 5. DO NOT READ: None of these
|__| 6. DO NOT READ: Don't know

58. Alaska wildlife authorities have several options for managing bear and moose populations. Next, I am going to ask you about some of those options, and I would like for you to tell me if you support or oppose each one. First, I am going to ask you about bears.

59. Do you support or oppose legal, regulated hunting as a way to control the BLACK BEAR population in FAR NORTH BICENTENNIAL PARK?

60. Do you support or oppose legal, regulated hunting as a way to control the BROWN BEAR population in FAR NORTH BICENTENNIAL PARK?

61. Do you support or oppose wildlife authorities destroying some BLACK BEARS in Anchorage EVERY YEAR to reduce the population?

62. Do you support or oppose wildlife authorities destroying some BROWN BEARS in Anchorage EVERY YEAR to reduce the population?

63. Now I have some questions about bears in general, which includes both black and brown bears.

64. Do you support or oppose wildlife authorities destroying specific BEARS at their discretion when they believe that bear poses a threat to human safety in the Anchorage area?

==========
==========

65. Please tell me if you support or oppose wildlife authorities destroying BEARS in each of the following situations.

|__| 2. Strongly support
|__| 3. Moderately support
|__| 4. Neither support nor oppose
|__| 5. Moderately oppose
|__| 6. Strongly oppose
|__| 7. DO NOT READ: Don't know

66. What about when BEARS are seen frequently in neighborhoods in the Anchorage area?
67. What about when BEARS get into garbage in neighborhoods in the Anchorage area?
68. What about when BEARS cause property damage in neighborhoods in the Anchorage area?

==========
==========

69. Some people have proposed designating specific areas in which bears that come into the area should be killed as soon as possible, such as downtown Anchorage and some specific neighborhoods. Do you support or oppose designating areas in which bears would be killed as soon as possible?

|__| 2. Strongly support (GO TO QUESTION 70)
|__| 3. Moderately support (GO TO QUESTION 70)
|__| 4. Neither support nor oppose
|__| 5. Moderately oppose
|__| 6. Strongly oppose
|__| 7. DO NOT READ: Don't know
SKIP TO QUESTION 71

70. How about if you knew that managing such designated areas to kill bears would be expensive and require hiring additional city or state employees? (Of those who support designating areas in which bears would be killed as soon as possible.)

71. Do you agree or disagree that BEARS should NOT be destroyed for any reason in the Anchorage area?

72. Do you support or oppose fines for not storing garbage to prevent problems with BEARS?

73. Do you support or oppose a regulation or ordinance requiring Anchorage area residents to use bear-proof garbage containers in neighborhoods frequented by bears?

74. If Anchorage provided bear-proof garbage containers, would you be willing to pay more for your trash service?

75. Bears are attracted to salmon streams. Do you support or oppose supplementing wild salmon runs in Anchorage area streams with stocked fish to provide salmon fishing opportunities?

76. Bears feed on moose. Do you support or oppose reducing the moose population in Anchorage to reduce the number of brown bears?

77. Do you support or oppose temporary trail closures at times when the risk of encountering a BROWN BEAR in that area is high?

78. If a new or improved trail is proposed along a salmon stream where authorities believe the risk of BROWN BEAR attacks will be increased with increased trail use, which of the following management options do you prefer for minimizing bear encounters?

|__| 2. Build the trail, but authorities should kill ALL brown bears that come into the area.
|__| 4. Build the trail, but authorities should kill ONLY the brown bears that charge or maul people in the area.
|__| 6. Build the trail, but reduce the number of returning salmon.
|__| 7. Build the trail, but close it seasonally when bears are most likely to be there.
|__| 9. Do not build the trail.
|__| 10. DO NOT READ: Don't know
|__| 11. DO NOT READ: I'm not concerned about this issue.

79. Now, I'd like to know if you support or oppose some management options for MOOSE.

80. Do you support or oppose legal, regulated hunting as a way to control the MOOSE population in the Anchorage area in general, including large parks, such as Far North Bicentennial Park, Kincaid Park, and Beach Lake Park near Eagle River?

81. Do you support or oppose wildlife authorities destroying some MOOSE in Anchorage EVERY YEAR to reduce the population?

84. Where do you get your information about BEARS and MOOSE?

86. Are you or your spouse currently serving, or have you or your spouse ever served, in the armed forces?

|__| 2. Yes (GO TO QUESTION 87)
|__| 3. No
|__| 4. DO NOT READ: Don't know
SKIP TO QUESTION 92

87. Are you or your spouse currently, or have you or your spouse ever been, assigned to Anchorage while serving in the armed forces? (IF ASKED: U.S. military bases in Anchorage include Fort Richardson and Elmendorf Air Force Base.) (Of those who are personally serving or have served in the armed forces or whose spouse is serving or has served in the armed forces.)

|__| 2. Yes, currently assigned to Anchorage
|__| 3. Yes, have been assigned to Anchorage in the past
|__| 4. No (GO TO QUESTION 92)
|__| 5. DO NOT READ: Don't know (GO TO QUESTION 92)

88. Branching question on bear info
|__| 1. Did not mention receiving info at orientation (GO TO QUESTION 89)
|__| 2. Did mention receiving info (GO TO QUESTION 90)
COMPUTE IF ((#87 = 2 OR #87 = 3) AND NOT (#84 @ 5)) 1
COMPUTE IF ((#87 = 2 OR #87 = 3) AND (#84 @ 5)) 2

89. Did you receive any information or learn about BEARS at your military personnel orientation when you were assigned to Anchorage? (Asked of those who are personally assigned or have been assigned to Anchorage in the military or whose spouse is or has been assigned to Anchorage AND who did not mention getting information about bears or moose as part of military personnel orientation.)

|__| 2. Yes (GO TO QUESTION 91)
|__| 3. No
|__| 4. DO NOT READ: Don't know
SKIP TO QUESTION 92

90. You indicated you received information about bears or moose at your military personnel orientation.

91. Considering any interaction with bears that you have had since your military personnel orientation in Anchorage as well as any interaction with bears you may have in the future, how would you rate the usefulness of the information about bears that you received at the orientation? Would you say it was...?

|__| 2. Very useful
|__| 3. Somewhat useful
|__| 4. Of little use
|__| 5. Not at all useful
|__| 6. DO NOT READ: Don't know

92. Thank you, we are just about through. The final questions are for background information and help us analyze the results.

93. Have you ever hunted?

|__| 2. Yes (GO TO QUESTION 94)
|__| 3. No
|__| 4. DO NOT READ: Don't know
SKIP TO QUESTION 95

94. Have you hunted in the past 2 years? (Of those who have ever hunted.)

95. Have you ever fished for salmon?

|__| 2. Yes (GO TO QUESTION 96)
|__| 3. No
|__| 4. DO NOT READ: Don't know
SKIP TO QUESTION 97

96. Have you fished for salmon in the past 2 years? (Of those who have ever fished for salmon.)

97. How many years have you lived in Alaska?

100. How many years have you lived in the Anchorage area?

103. How many children, age 12 or YOUNGER, do you have living in your household?

106. In what size town or area did you primarily grow up? (Would you say it was a...?)

|__| 2. Rural area
|__| 3. Small town of less than 5,000 people
|__| 4. Small city of 5,000 to 50,000 people
|__| 5. Large city of over 50,000 but less than 300,000 people
|__| 6. Very large city of 300,000 or more people
|__| 7. Suburb of a large or very large city
|__| 8. DO NOT READ: I did not grow up in a particular size of city (I lived in many).
|__| 9. DO NOT READ: Don't know
|__| 10. DO NOT READ: Refused

107. How much formal education have you completed?

108. May I ask your age?

112. That's the end of the survey. Thanks for your time and cooperation. If you have any additional comments, I can record them here.

113. ENTER ANY IMPORTANT NOTES ABOUT THE SURVEY.

114. OBSERVE AND RECORD RESPONDENT'S GENDER.

ABOUT RESPONSIVE MANAGEMENT

Responsive Management is a nationally recognized public opinion and attitude survey research firm specializing in natural resource and outdoor recreation issues. Its mission is to help natural resource and outdoor recreation agencies and organizations better understand and work with their constituents, customers, and the public.

Utilizing its in-house, full-service, computer-assisted telephone and mail survey center with 45 professional interviewers, Responsive Management has conducted more than 1,000 telephone surveys, mail surveys, personal interviews, and focus groups, as well as numerous marketing and communications plans, need assessments, and program evaluations on natural resource and outdoor recreation issues.

Clients include most of the federal and state natural resource, outdoor recreation, and environmental agencies, and most of the top conservation organizations. Responsive Management also collects attitude and opinion data for many of the nation's top universities, including the University of Southern California, Virginia Tech, Colorado State University, Auburn, Texas Tech, the University of California—Davis, Michigan State University, the University of Florida, North Carolina State University, Penn State, West Virginia University, and others.

Among the wide range of work Responsive Management has completed during the past 20 years are studies on how the general population values natural resources and outdoor recreation, and their opinions on and attitudes toward an array of natural resource-related issues. Responsive Management has conducted dozens of studies of selected groups of outdoor recreationists, including anglers, boaters, hunters, wildlife watchers, birdwatchers, park visitors, historic site visitors, hikers, and campers, as well as selected groups within the general population, such as landowners, farmers, urban and rural residents, women, senior citizens, children, Hispanics, Asians, and African-Americans. Responsive Management has conducted studies on environmental education, endangered species, waterfowl, wetlands, water quality, and the reintroduction of numerous species such as wolves, grizzly bears, the California condor, and the Florida panther.

Responsive Management has conducted research on numerous natural resource ballot initiatives and referenda and helped agencies and organizations find alternative funding and increase their memberships and donations. Responsive Management has conducted major agency and organizational program needs assessments and helped develop more effective programs based upon a solid foundation of fact. Responsive Management has developed websites for natural resource organizations, conducted training workshops on the human dimensions of natural resources, and presented numerous studies each year in presentations and as keynote speakers at major natural resource, outdoor recreation, conservation, and environmental conferences and meetings.

Responsive Management has conducted research on public attitudes toward natural resources and outdoor recreation in almost every state in the United States, as well as in Canada, Australia, the United Kingdom, France, Germany, and Japan. Responsive Management routinely conducts surveys in Spanish and has also conducted surveys and focus groups in Chinese, Korean, Japanese, and Vietnamese.

Responsive Management's research has been featured in most of the nation's major media, including CNN, ESPN, *The Washington Times*, *The New York Times*, *Newsweek*, *The Wall Street Journal*, and on the front pages of *The Washington Post* and *USA Today*.

Visit the Responsive Management website at:

www.responsivemanagement.com