

Responsive Management™



ARCHERY PARTICIPATION AMONG ADULT UNITED STATES RESIDENTS IN 2014

Conducted for the Archery Trade Association

by Responsive Management

2015

ARCHERY PARTICIPATION AMONG ADULT UNITED STATES RESIDENTS IN 2014

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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
Amanda Center, Research Associate
Andrea Criscione, Research Associate
Patrick Doherty, Research Associate
Gregory L. Hughes, P.E., Research Associate
Claudia Reilly, Survey Center Manager
Alison Lanier, Business Manager

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

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EXECUTIVE SUMMARY

This study, which follows up on a previous similar study, was conducted for the Archery Trade Association (ATA) to determine adult Americans' participation in archery. The study also obtained information about archers themselves and their archery participation. The study entailed a scientific telephone survey, using a dual-frame sample that included both cell phones and landlines in their proper proportions, of randomly selected residents of the United States.

For the survey, telephones were selected as the preferred sampling medium because of the almost universal ownership of telephones, particularly with the coverage provided by the dual-frame sample that included both cell phones and landlines. 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.

The telephone survey questionnaire was developed cooperatively by Responsive Management and the ATA, based on the aforementioned previous similar survey conducted for the ATA. Responsive Management conducted pre-tests of the questionnaire to ensure proper wording, flow, and logic in the survey.

The methodology used a dual-frame sample, which consisted of a random sample of landline telephones and a random sample of cell phone numbers, called in their proper proportions, which ensures that all people in the pool of telephone users have an approximately equal chance of being called. The scientific sampling plan entailed obtaining a target number of interviews in each state so that the number of respondents in each state in the sample would be exactly proportional to the state's population within the United States population as a whole. The sample was representative of all Americans 18 years old and older. The survey was conducted in February and March 2015. Responsive Management obtained 5,103 completed interviews. The analysis of data was performed using Statistical Package for the Social Sciences as well as proprietary software developed by Responsive Management.

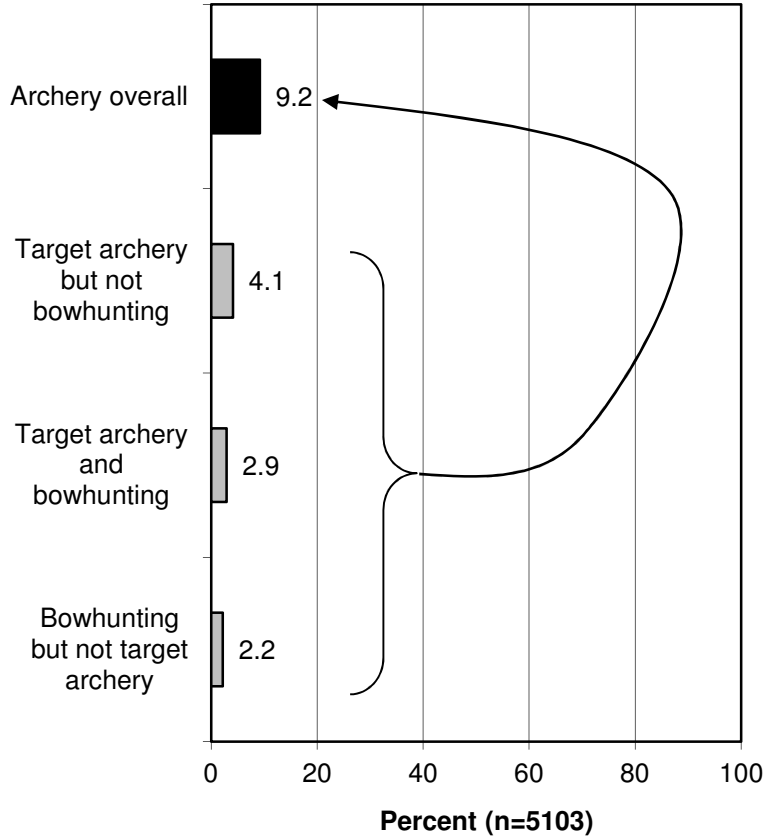
All archery participants can be divided into three subgroups:

- Those who participate in archery but not bowhunting (hereinafter referred to as *target archery only participants*).
- Those who participate in both archery and bowhunting (hereinafter referred to as *target archery and bowhunting participants*).
- Those who participate in bowhunting but not archery outside of bowhunting (hereinafter referred to as *bowhunting only participants*).

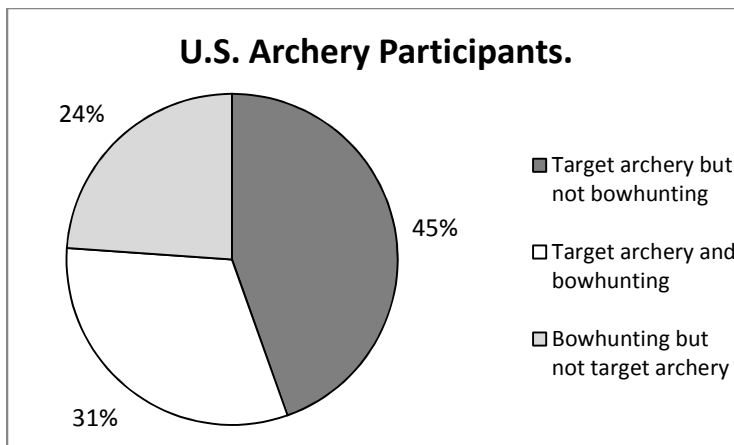
PARTICIPATION OVERALL

Among United States residents as a whole, 9.2% participated in archery (an estimated 21.6 million archery participants) in 2014, broken down as follows: 4.1% of all residents are *target archery only participants*, 2.9% are *target archery and bowhunting participants*, and 2.2% are *bowhunting only participants*, as shown in the graph on the following page.

Percent of respondents who participated in archery in 2014 (and the subgroups making up all archery participants).



The following pie graph shows the proportions of archery participants; a little more than half of all archery participants in the U.S. (55%) bowhunt.



Three specific archery activities were asked about in the survey: shooting casually or for fun (93% of archery participants had done this), shooting in preparation for hunting (48% of archery participants had done this), and shooting for competitions or leagues (9%).

Those who participated in archery in 2014 are more likely to say that their archery participation has increased over the past 5 years than to say it has decreased: 39% say it has increased, while 20% say it has decreased. Meanwhile, 35% say it has stayed about the same. Demographic analyses are included that suggest that women are more likely than men to say that their participation has increased, and younger archery participants are more likely than older participants to say that their participation has increased (more extensive analyses are included in the body of the report).

Important reasons for increased participation include increased interest, more free time, and because of bowhunting; however, the top reason for increased participation is because of family involvement. This is particularly true of women archery participants. (Family involvement is also an important way that women archery participants were initiated into archery.)

EQUIPMENT USED

Among those who participated in target archery, compound bows are the most popular for shooting exclusive of bowhunting (71% of archers use them), distantly followed by recurve bows (25%) and crossbows (15%). For bowhunting, the most popular bows are compound bows (83%), distantly followed by crossbows (23%) and recurve bows (11%). (Note that respondents could select more than one type of bow in the survey.)

DAYS OF ARCHERY PARTICIPATION

About a third of those who participated in archery exclusive of bowhunting participated for no more than 5 days (34% gave a response in the range of 1 to 5 days). On the other hand, about a quarter (24%) did so for more than 20 days. The median was 10 days, and the mean was 17.67 days.

A quarter of all bowhunters (25%) went bowhunting for no more than 5 days in 2014. Nearly that much (22%), on the other hand, went for 20 days or more. The median was 10 days, and the mean was 17.75 days.

LOCATIONS IN WHICH ARCHERS PARTICIPATE IN ARCHERY

The majority of archery participants engaged in the activity on their own land (63%). Other places named by substantial percentages include a friend's land (20%), a range for archery (16%), and public park, National Forest land, or other public land (15%).

INITIATION INTO ARCHERY

The survey asked archery participants to indicate what had influenced them to become involved in archery. The top influence was family/as part of their heritage—39% of 2014 archery participants gave this response. Other ways to be initiated included wanting to have fun (16%), through friends/community (13%), and through hunting (11%).

The question about initiation into archery was also analyzed among the three subgroups:

- Among *target archery only participants*, 34% were influenced by family/as part of their heritage, 15% because they wanted to have fun, 15% by friends/community, and only 3% through hunting.
- Among *target archery and bowhunting participants*, 45% were influenced by family/as part of their heritage, 18% because they wanted to have fun, 15% through hunting, and 11% by friends/community.
- Finally, among *bowhunting only participants*, 41% were influenced by family/as part of their heritage, 23% through hunting, 17% because they wanted to have fun, and 10% by friends/community.

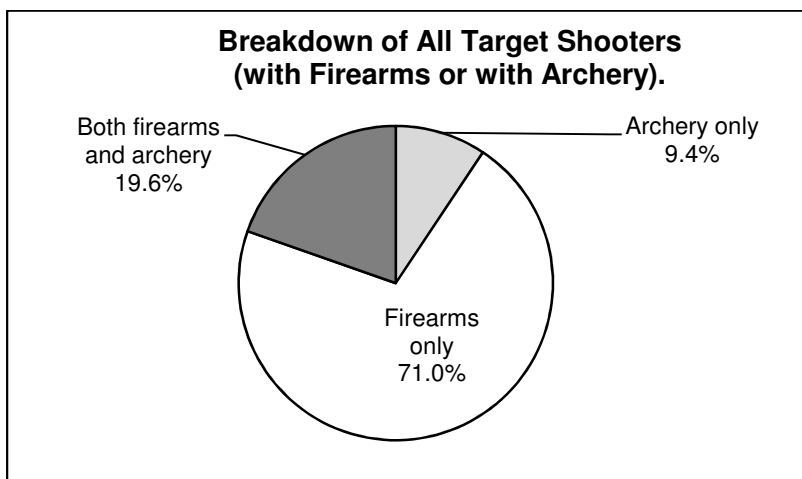
DEMOGRAPHIC CHARACTERISTICS OF ARCHERY PARTICIPANTS

The survey data suggest that archery participants were more often male than female by about a 3:1 margin: 78% of 2014 archers were male, and 22% were female. Archery participants in 2014 were typically younger than non-archers. Also, archers were more on the rural side of the continuum rather than the urban side, they had a strong Midwest presence, and they typically grew up with a firearm in their household. The body of the report contains a more detailed discussion of the demographic analyses conducted for this project.

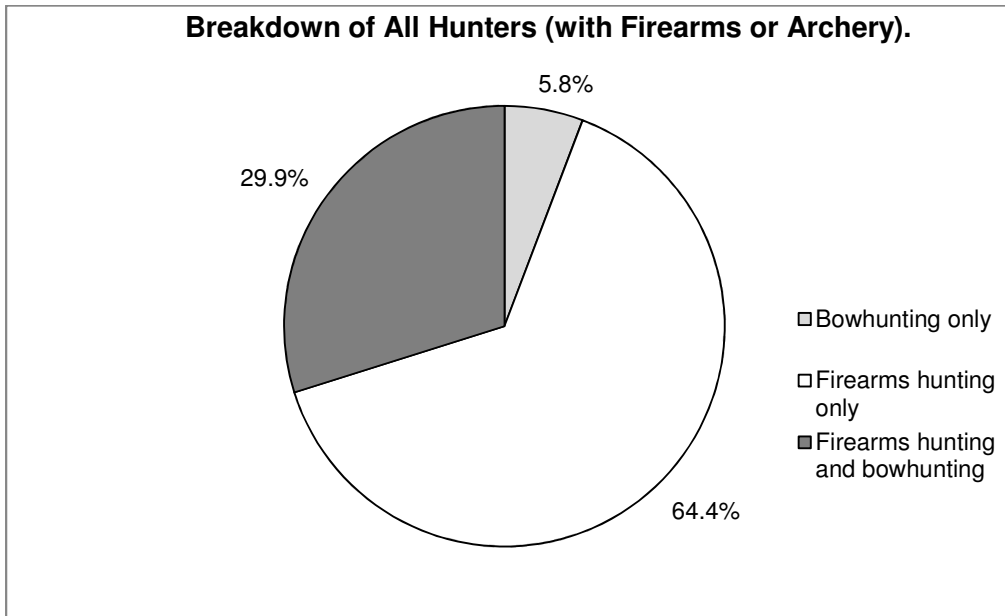
Some trends analyses showed that the proportion of archery participants who are men increased slightly from 2012 to 2014, as the proportion made up of women decreased slightly. In particular, there was an increase in the proportion made up of young males. The proportion made up of rural participants increased between 2012 to 2014.

TARGET SHOOTING, HUNTING, AND ARCHERY PARTICIPATION

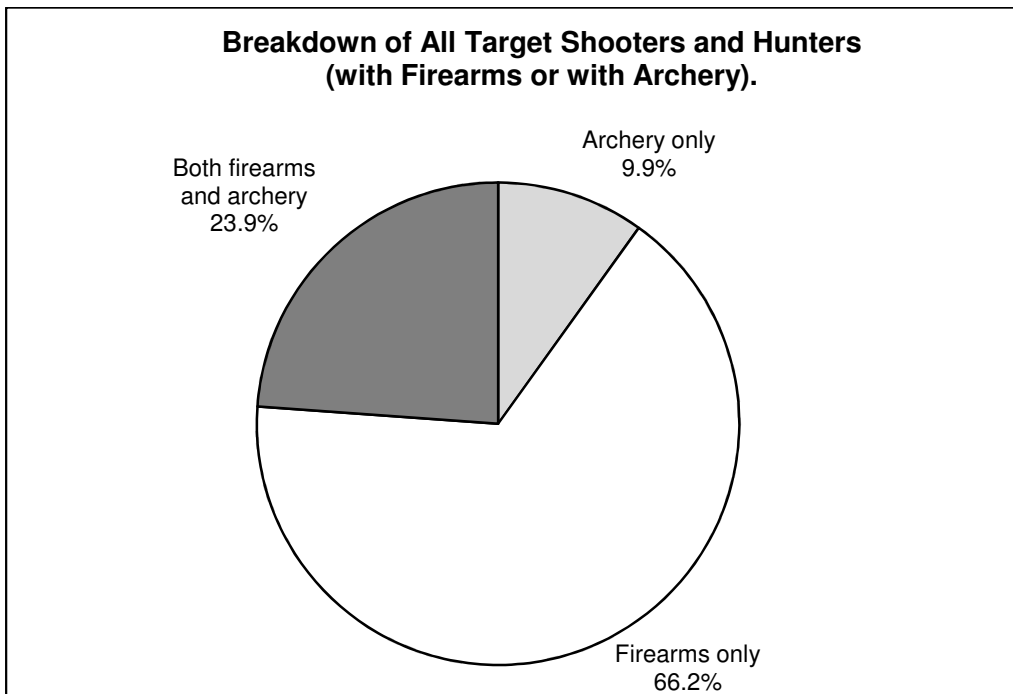
The survey explored the interactions of target shooting (with firearms or archery) and hunting (with firearms or archery). The first analysis is of all target shooters. Among all target shooters, 29.0% use archery, including 9.4% who target shoot exclusively with archery. Meanwhile, 71.0% use firearms only for target shooting, and another 19.6% use both firearms and archery (a sum of 90.6% using firearms).



- As was done previously, all hunters were categorized into groups. A little more than a third of hunters (35.7%) use archery equipment at least some of the time.



- Finally, all those who did either target shooting or hunting, with either firearms or archery, were categorized. In this breakdown, 33.8% use archery for one or both of the activities (firearms still predominate, with 90.1% using them for one or both activities).



AN ATTITUDINAL AND DEMOGRAPHIC ANALYSIS OF NON-ARCHERS

Among those who did not participate in archery in 2014, the survey asked about reasons for not participating. Among those who did no archery or firearm shooting, lack of interest was the top reason (66% of those non-participants). However, there appear to be some people showing signs of interest in the sport because they name constraints other than lack of interest: age/health (11%), lack of time (9%), and lacking equipment (7%). Among firearms shooters who did not participate in archery, lack of interest is the top reason, but at a lower percentage than among non-shooters. The body of the report contains more extensive analyses of this question.

PUTTING RESPONSIVE MANAGEMENT'S PARTICIPATION DATA INTO CONTEXT

The report includes a final section that has an extensive examination of Responsive Management's data collection methods and its data. Its methods were compared to a variety of other data collection methods, and its data, likewise, were compared to other data. The evidence presented suggests that scientifically conducted telephone surveys may provide better data on participation in archery and hunting than online panel samples. Furthermore, the evidence helps to validate the accuracy of Responsive Management's research on these sports.

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INTRODUCTION AND METHODOLOGY

This study, which follows up on a previous similar study, was conducted for the Archery Trade Association (ATA) to determine adult Americans' participation in archery. The study also obtained information about archers themselves and their archery participation. The study entailed a scientific telephone survey, using a dual-frame sample that included both cell phones and landlines in their proper proportions, of randomly selected residents of the United States 18 years old and older. Specific aspects of the research methodology are discussed below.

USE OF TELEPHONES FOR THE SURVEY

For the survey, telephones were selected as the preferred sampling medium because of the almost universal ownership of telephones, particularly with the coverage provided by the dual-frame sample that includes both cell phones and landlines. 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.

QUESTIONNAIRE DESIGN

The telephone survey questionnaire was developed cooperatively by Responsive Management and the ATA, based on the aforementioned previous similar survey conducted for the ATA. Responsive Management conducted pre-tests of the questionnaire to ensure proper wording, flow, and logic in the survey.

The survey used a "ruse" line of questioning at the beginning of the survey. This was done because the main objective of the survey was to determine national and regional participation rates in archery, and the survey was worded to avoid bias that would arise from the tendency for those who do *not* participate in archery to refuse to participate in a survey about that activity. Therefore, the survey started by asking about some general activities, mixing archery and hunting in with other activities.

SURVEY SAMPLE

The methodology used a dual-frame sample, which consisted of a random sample of landline telephones and a random sample of cell phone numbers, called in their proper proportions, which ensures that all people in the pool of telephone users have an approximately equal chance of being called. The scientific sampling plan entailed obtaining a target number of interviews in each state so that the number of respondents in each state in the sample would be exactly proportional to the state's population within the United States population as a whole.

The sample was obtained from Survey Sampling International and DatabaseUSA, companies specializing in providing scientifically valid telephone survey samples. The overall sample with landlines and cell phones was representative of all Americans 18 years old and older.

TELEPHONE INTERVIEWING FACILITIES

A central polling location in Harrisonburg, Virginia, 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 outdoor recreation and natural resources.

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 a project briefing 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 questionnaire, reading of the survey questions, skip patterns, and probing and clarifying techniques necessary for specific questions on the survey questionnaire.

For this survey, interviewers fluent in Spanish conducted interviews on respondents who had previously been called but could not take the survey in English. Those respondents were put on a callback list and were called by interviewers fluent in Spanish.

INTERVIEWING DATES AND TIMES

Responsive Management's calling times are 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 February and March 2015. Responsive Management obtained 5,103 completed interviews overall.

TELEPHONE SURVEY DATA COLLECTION AND QUALITY CONTROL

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 the completion of the survey and the concomitant data entry errors that may occur with manual data entry. The survey questionnaire 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 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. The survey questionnaire itself contained error checkers and computation statements to ensure quality and consistent 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.

DATA ANALYSIS

The analysis of data was performed using Statistical Package for the Social Sciences as well as proprietary software developed by Responsive Management. The results were weighted by demographic characteristics so that the sample was exactly representative of residents of the United States (18 years old and older) as a whole.

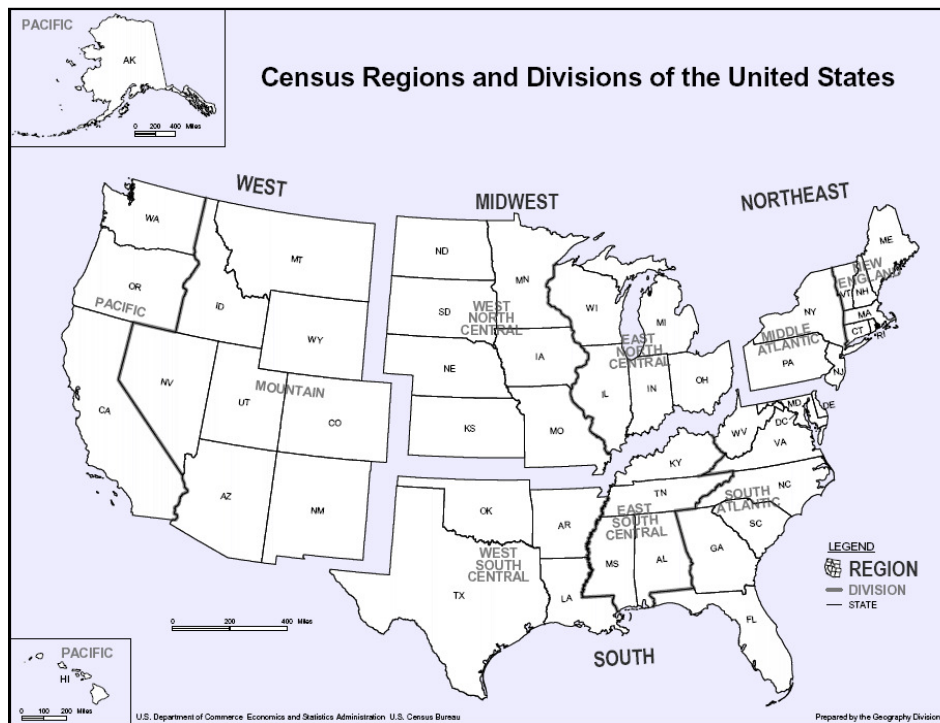
The analysis included a breakdown of all archery participants into three subgroups, with crosstabulations on those three subgroups on many questions:

- Those who participate in archery but not bowhunting (hereinafter referred to as *target archery only participants*).
- Those who participate in both archery and bowhunting (hereinafter referred to as *target archery and bowhunting participants*).
- Those who participate in bowhunting but not archery outside of bowhunting (hereinafter referred to as *bowhunting only participants*).

The data analyses and results in the report are based on a nationwide sample of 5,103 randomly selected United States residents, 18 years old and older, 462 of whom participated in archery. The sample size on individual graphs and on individual groups or regions within those graphs varies based on geographical and demographic weighting, as well as survey skip-outs when questions do not apply to certain respondents. Because of the weighting, it would not be statistically valid to simply take the number of respondents in the survey who participated in archery and divide by the entire sample (i.e., $462 \div 5,103$) to arrive at the rate of participation. Only after the weights were applied to the sample was the rate of participation in archery determined.

On questions that asked respondents to provide a number (e.g., number of days), the graph may show ranges of numbers rather than the precise numbers in some places. Nonetheless, in the survey each respondent provided a precise number, and the dataset includes this precise number. Note that the calculation of means and medians used the precise numbers that the respondents provided.

In the data analysis, the states were also grouped into regions to aid in comparison and analysis. Four regions were used that followed U.S. Census Bureau standards. The map on the following page from the U.S. Census Bureau website shows each region:



SAMPLING ERROR

Throughout this report, findings of the telephone survey are reported at a 95% confidence interval. For the entire sample, the sampling error is at most plus or minus 1.37 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 1.37 percentage points of each other. Sampling error was calculated using the formula described below, with a sample size of 5,103 and a population size of 234,564,071 United States residents 18 years old and older.

Sampling Error Equation

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

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).

ADDITIONAL INFORMATION ABOUT THE PRESENTATION OF RESULTS IN THE REPORT

In examining the results, it is important to be aware that the questionnaire included several types of questions:

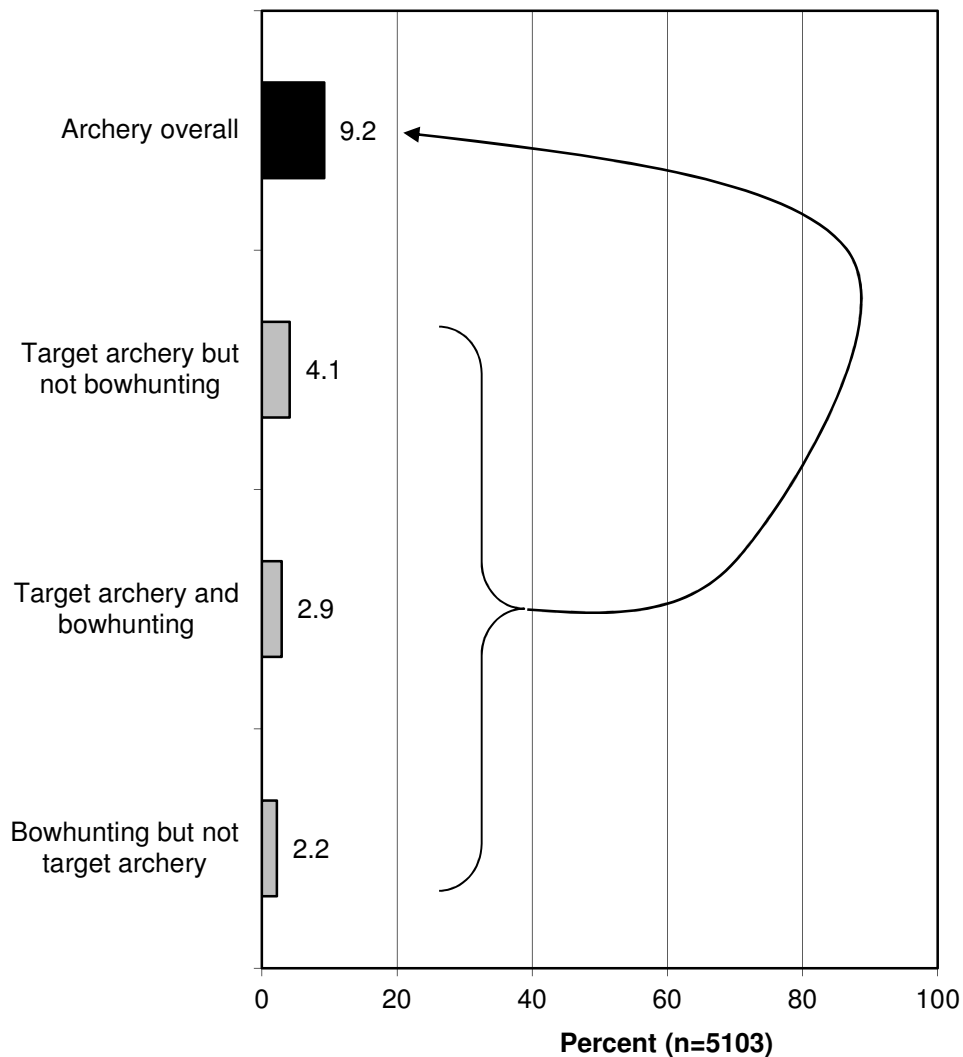
- Open-ended questions are those in which no answer set is read to the respondents; rather, they can respond with anything that comes to mind from the question.
- Closed-ended questions have an answer set from which to choose.
- Single or multiple response questions: Some questions allow only a single response, while other questions allow respondents to give more than one response or choose all that apply. Those that allow more than a single response are indicated on the graphs with the label, “Multiple Responses Allowed.”

Some graphs or tabulations show an average, either the mean or median (or both). The mean is simply the sum of all numbers divided by the number of respondents. Because outliers (extremely high or low numbers relative to most of the other responses) may skew the mean, the median may be shown. The median is the number at which half the sample is above and the other half is below. In other words, a median of 30 days means that half the sample gave an answer of more than 30 days and the other half gave an answer of less than 30 days.

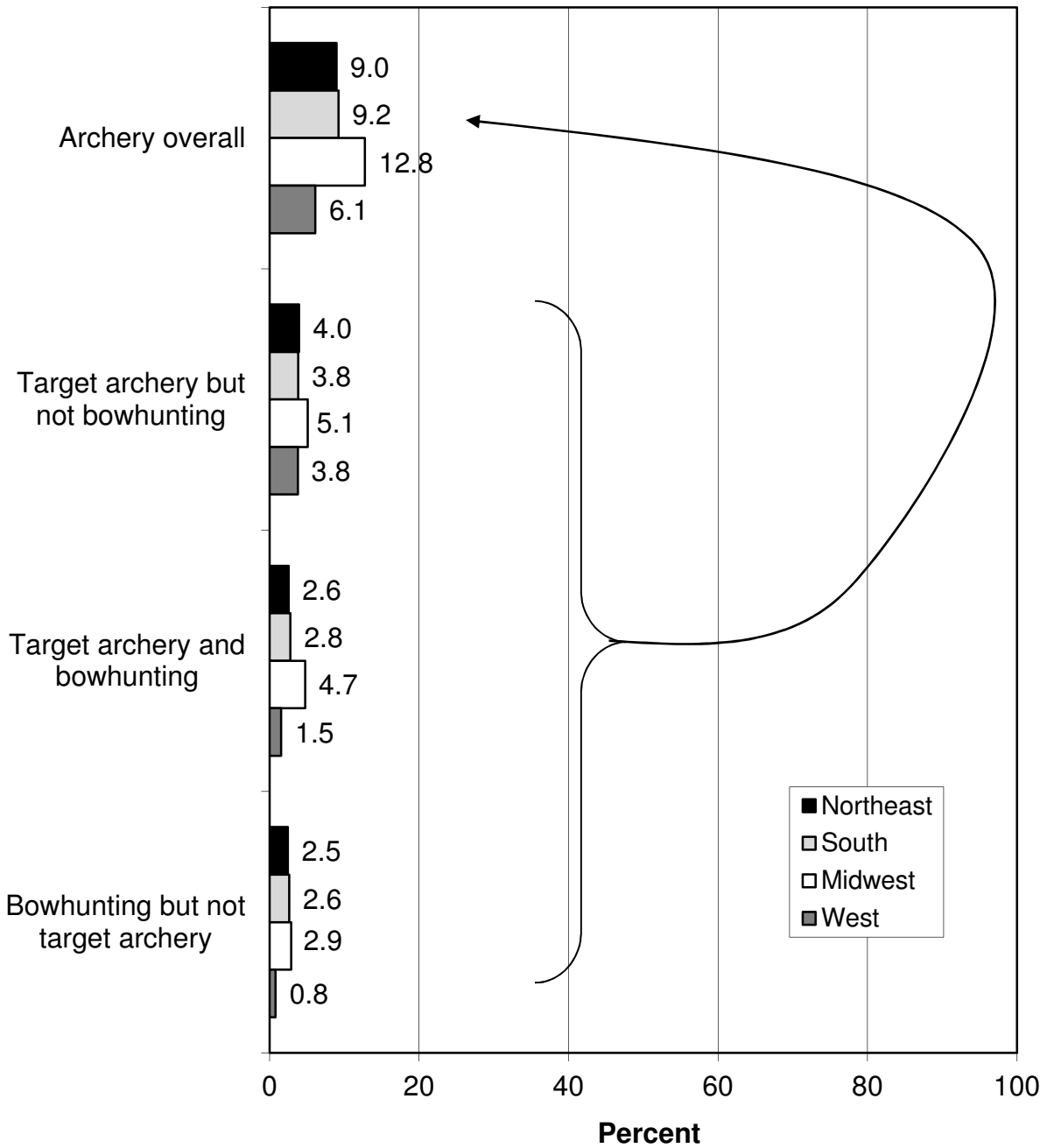
PARTICIPATION IN ARCHERY

- Among adult United States residents as a whole, 9.2% participate in archery. The total archery participation rate of 9.2% includes 4.1% of all residents who are *target archery only participants*, 2.9% who are *target archery and bowhunting participants*, and 2.2% who are *bowhunting only participants*. (See page 3 for definitions of these three subgroups.)
- This rate provides an estimate of 21,626,807 archery participants (in a range at the 95% confidence interval of 19,764,663 to 23,488,951).
 - A regional comparison is also shown. As in 2012, the Midwest has the highest rate of archery participation overall.

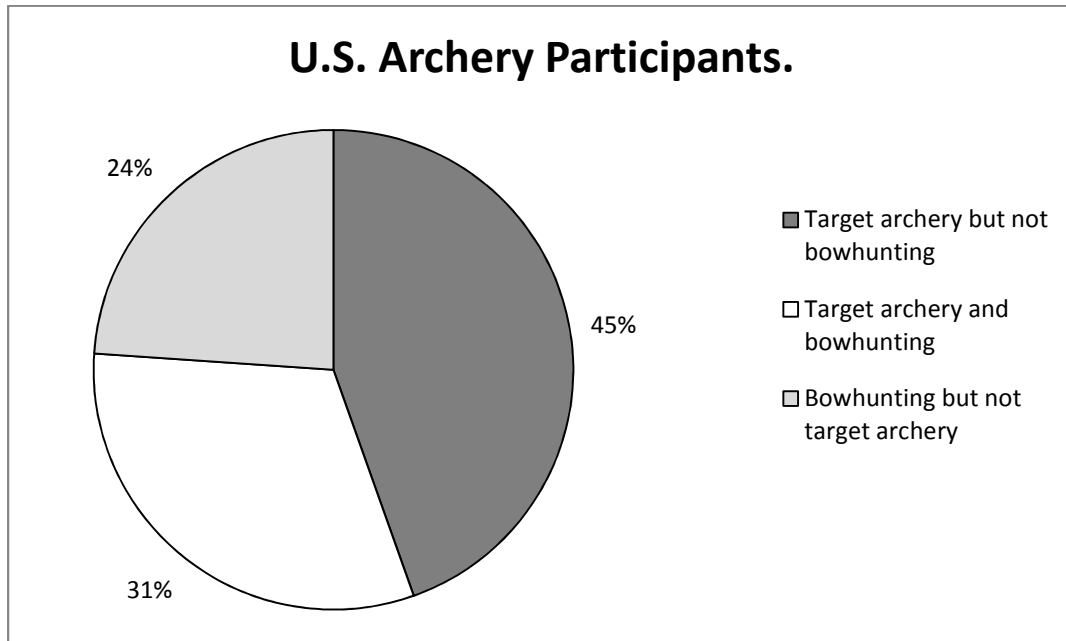
Percent of respondents who participated in archery in 2014 (and the subgroups making up all archery participants).



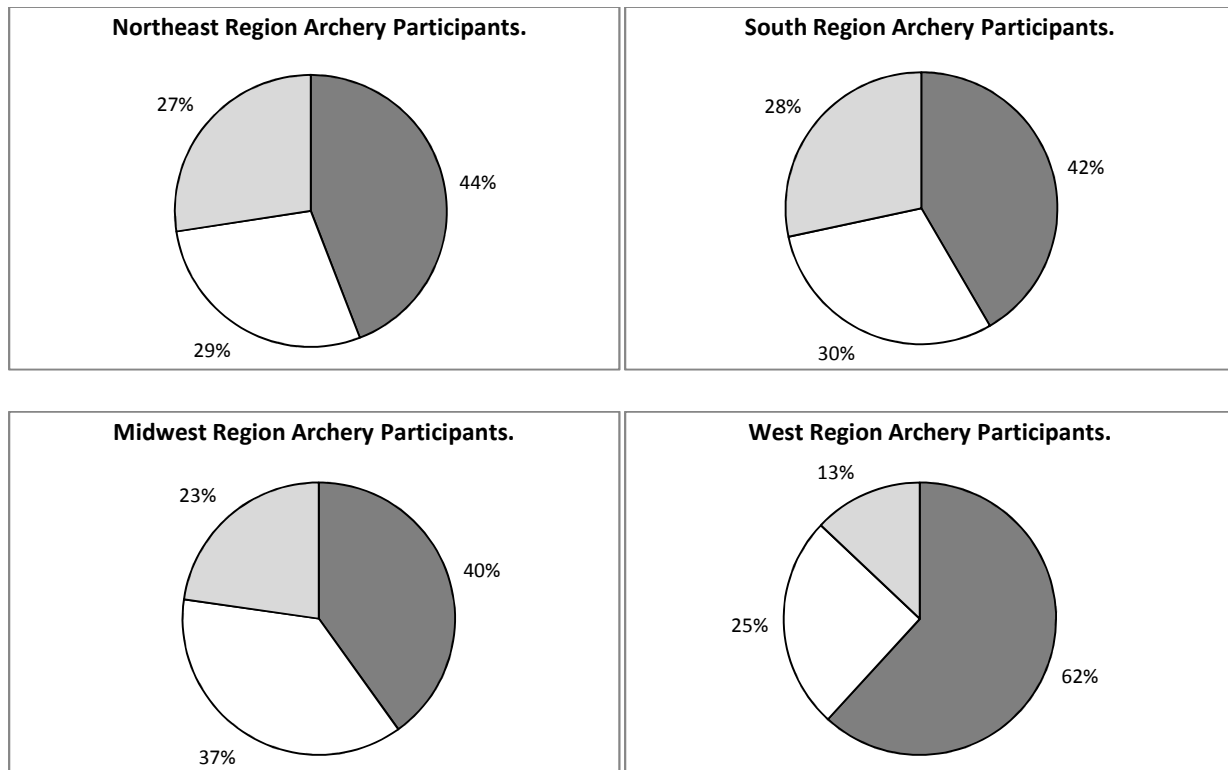
Percent of respondents who participated in archery in 2014 (and the subgroups making up all archery participants).



- The data can also be shown in a pie graph.
 - A little more than half of all archery participants in the U.S. (55%) bowhunt.

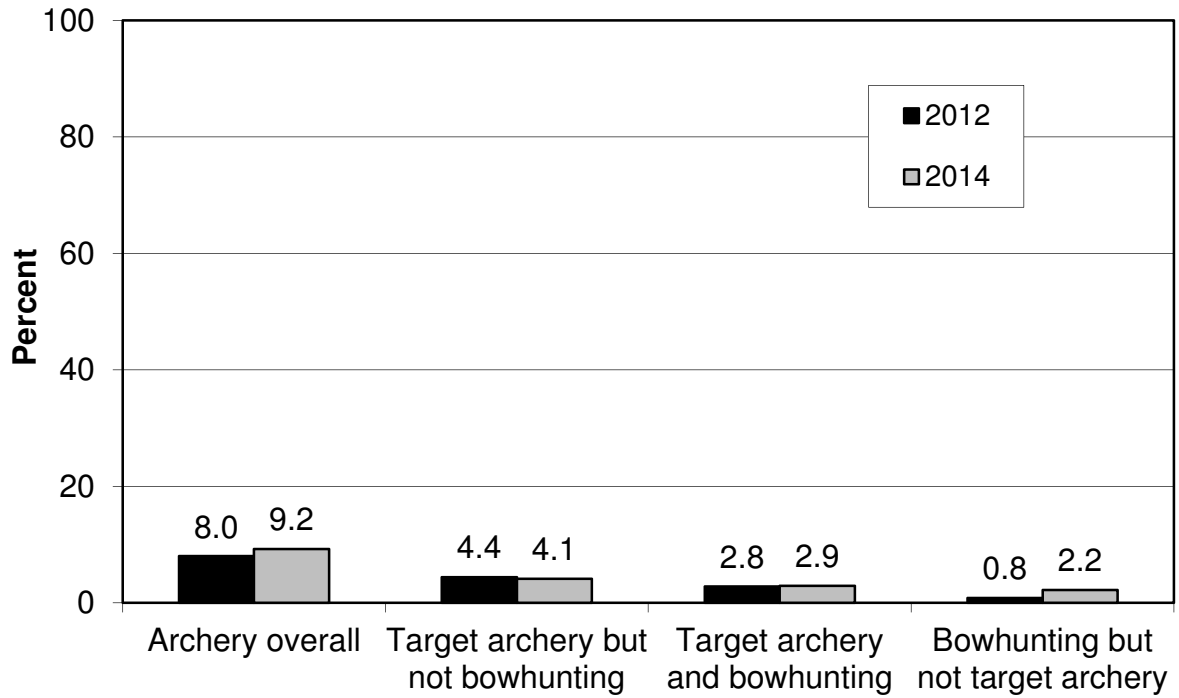


- The results are shown regionally; the West Region is markedly different from the other regions, with a greater percentage of archery-only participants.



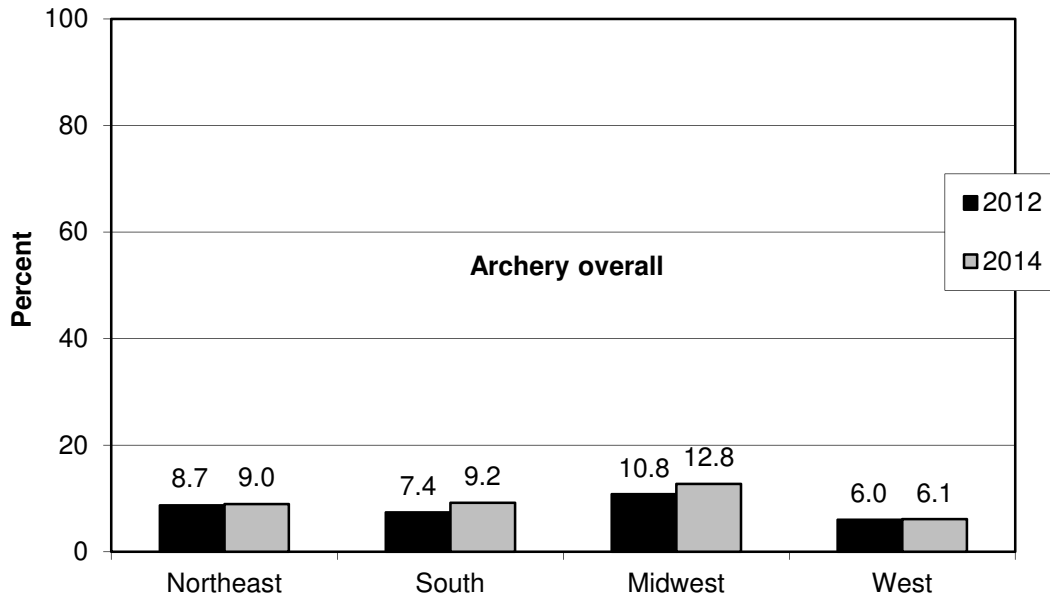
- Graphs show the trends in archery participation overall and regionally.
 - The first graph shows trends in participation overall. On the following page are trends regionally.

Percent of respondents who participated in archery in [2012 / 2014].

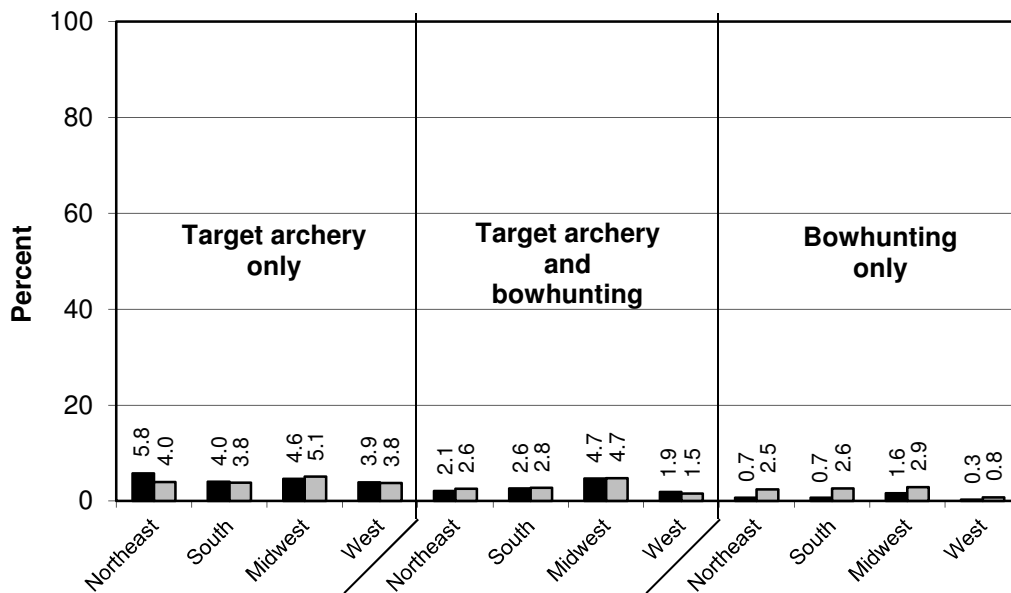


- One finding is that the uptick in the bowhunting-only groups is spread across all regions in the data. Note, however, that the differences between years are slight.

Percent of respondents who participated in archery in [2012 / 2014].

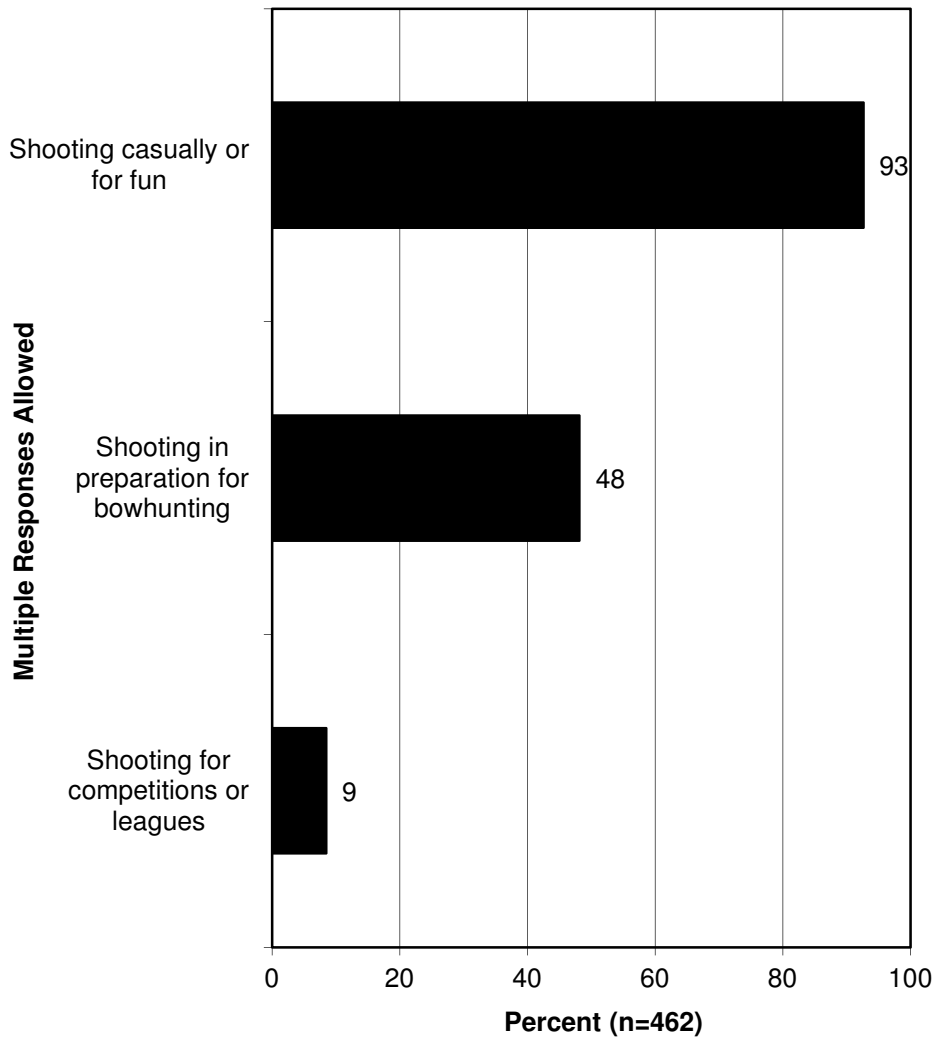


Percent of respondents making up the subgroups of archery participants.

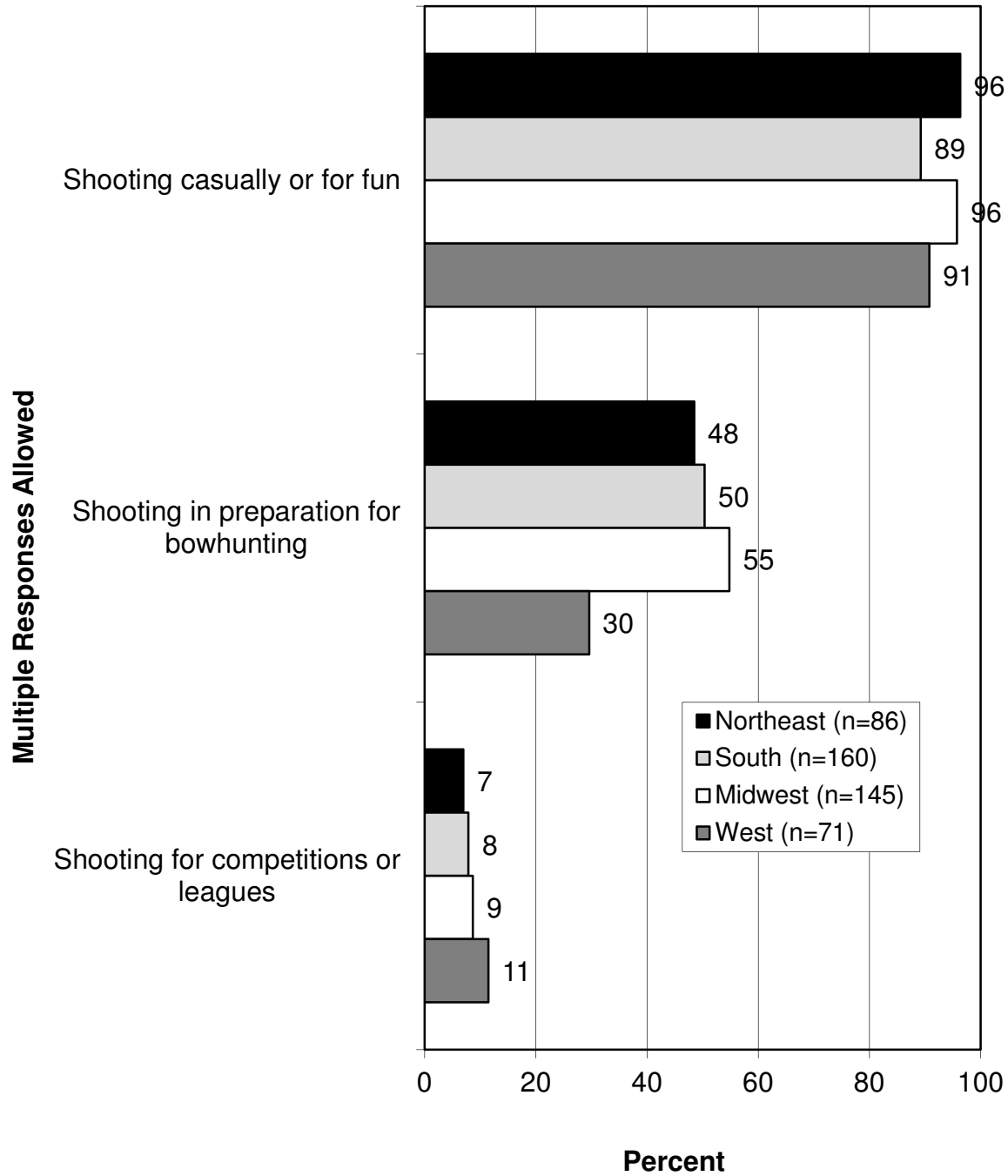


- Among all archery participants (in either bowhunting or archery exclusive of bowhunting), shooting casually/for fun is the most common activity (93% do it). Nonetheless, nearly half (48%) shoot in preparation for bowhunting.
 - Regional results are also shown.

In which of the following archery activities did you participate? (Asked of those who participated in archery or bowhunting in 2014.)

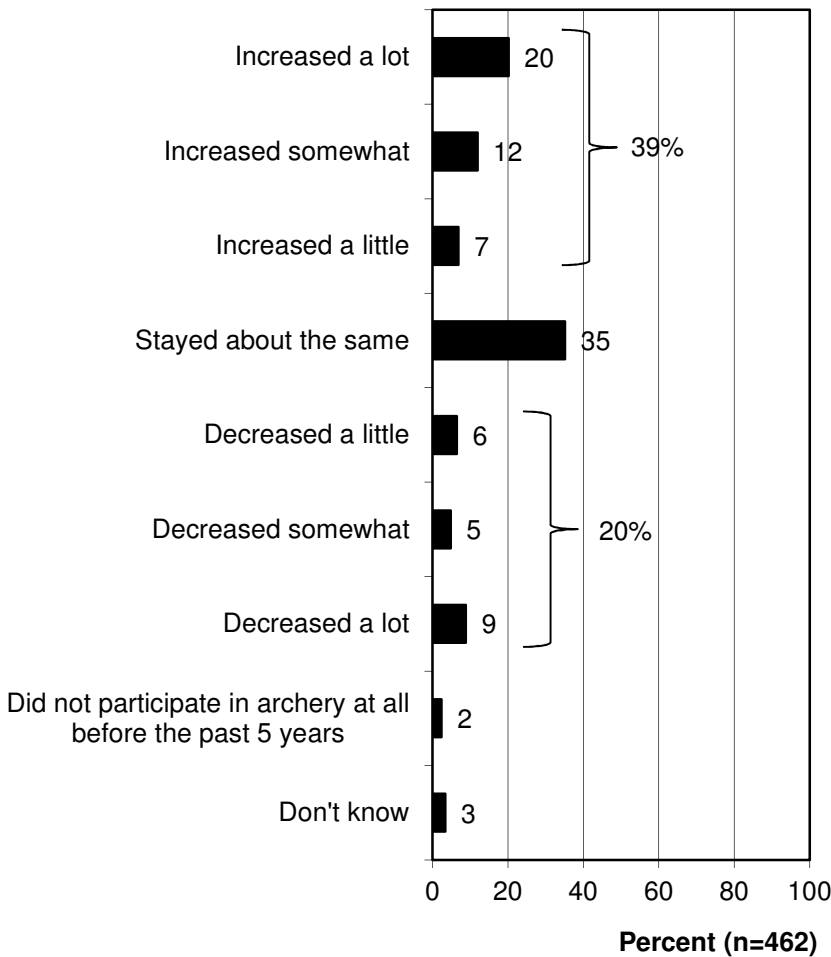


**In which of the following archery activities did you participate?
(Asked of those who participated in archery in 2014.)**

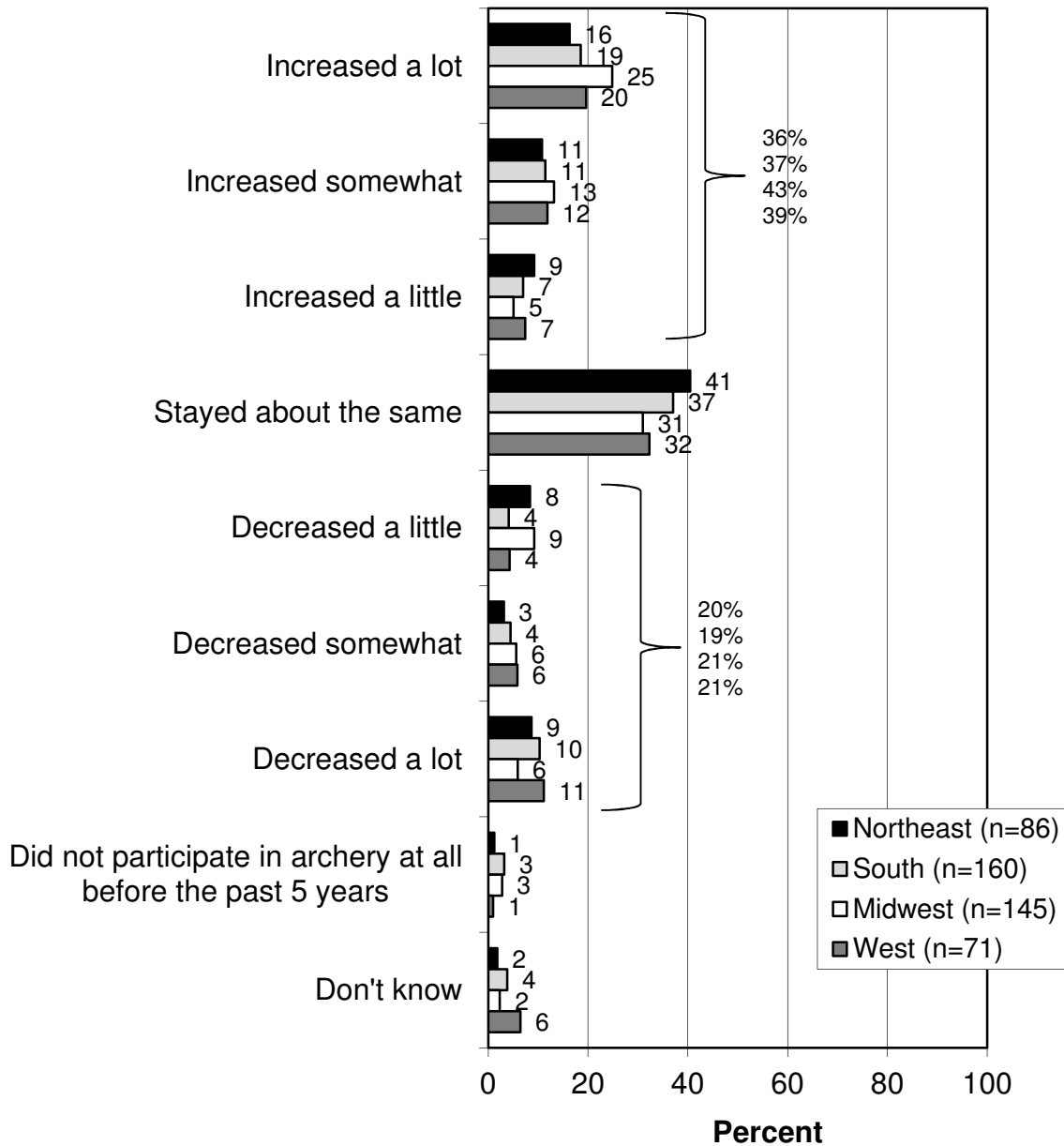


- Archery participants were asked to assess their trend in participation over the past 5 years. About twice as many say it has increased (39%) than say it has decreased (20%), with about a third responding that it stayed about the same (35%).
 - Regional results are also included.
 - Following the regional results are some demographic analyses of those who say their archery has increased and those who say it has decreased.

**Would you say that your participation in archery activities in the past 5 years has increased, stayed about the same, or decreased, when compared to the time before that?
(Asked of those who participated in archery in the past 5 years.)**

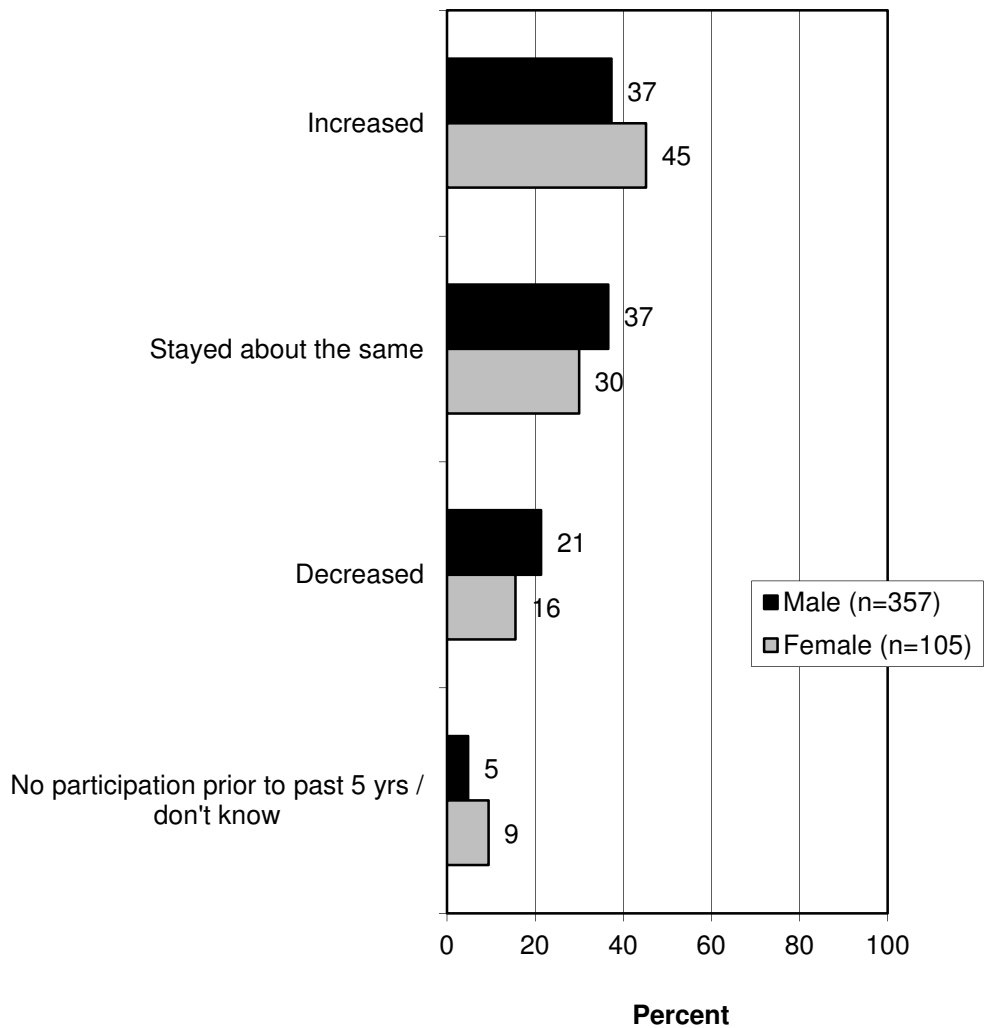


**Would you say that your participation in archery activities in the past 5 years has increased, stayed about the same, or decreased, when compared to the time before that?
(Asked of those who participated in archery in the past 5 years.)**



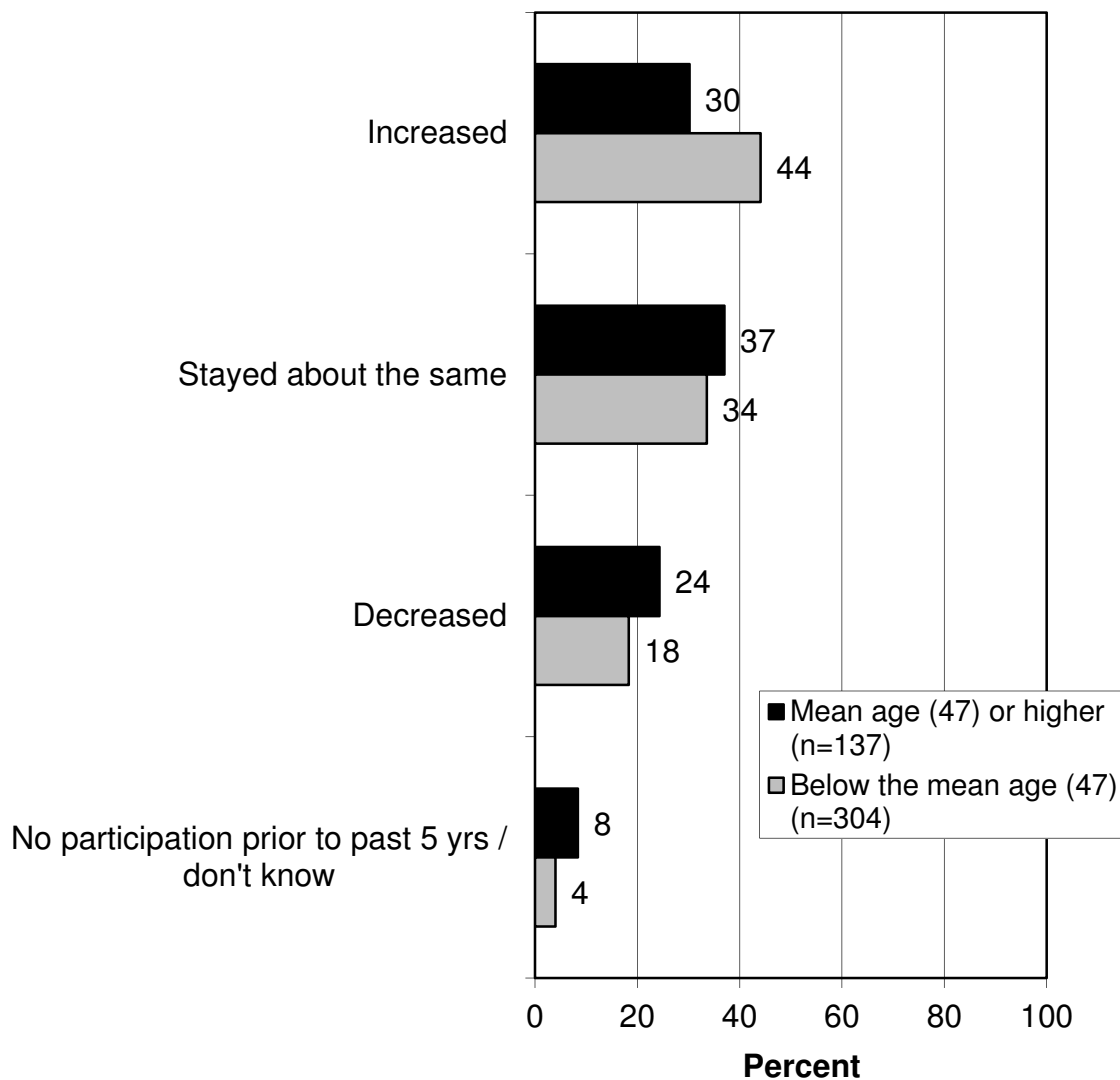
- Women are more likely than men to say that their archery participation has increased: 45% of women archery participants say that their participation has increased over the past 5 years, compared to 37% of men. Additionally, women are more likely to be newer to the sport, based on the percent saying that they had not been participating more than 5 years.

Would you say that your participation in archery activities in the past 5 years has increased, stayed about the same, or decreased, when compared to the time before that? (Asked of those who participated in archery or bowhunting in the past 5 years.)

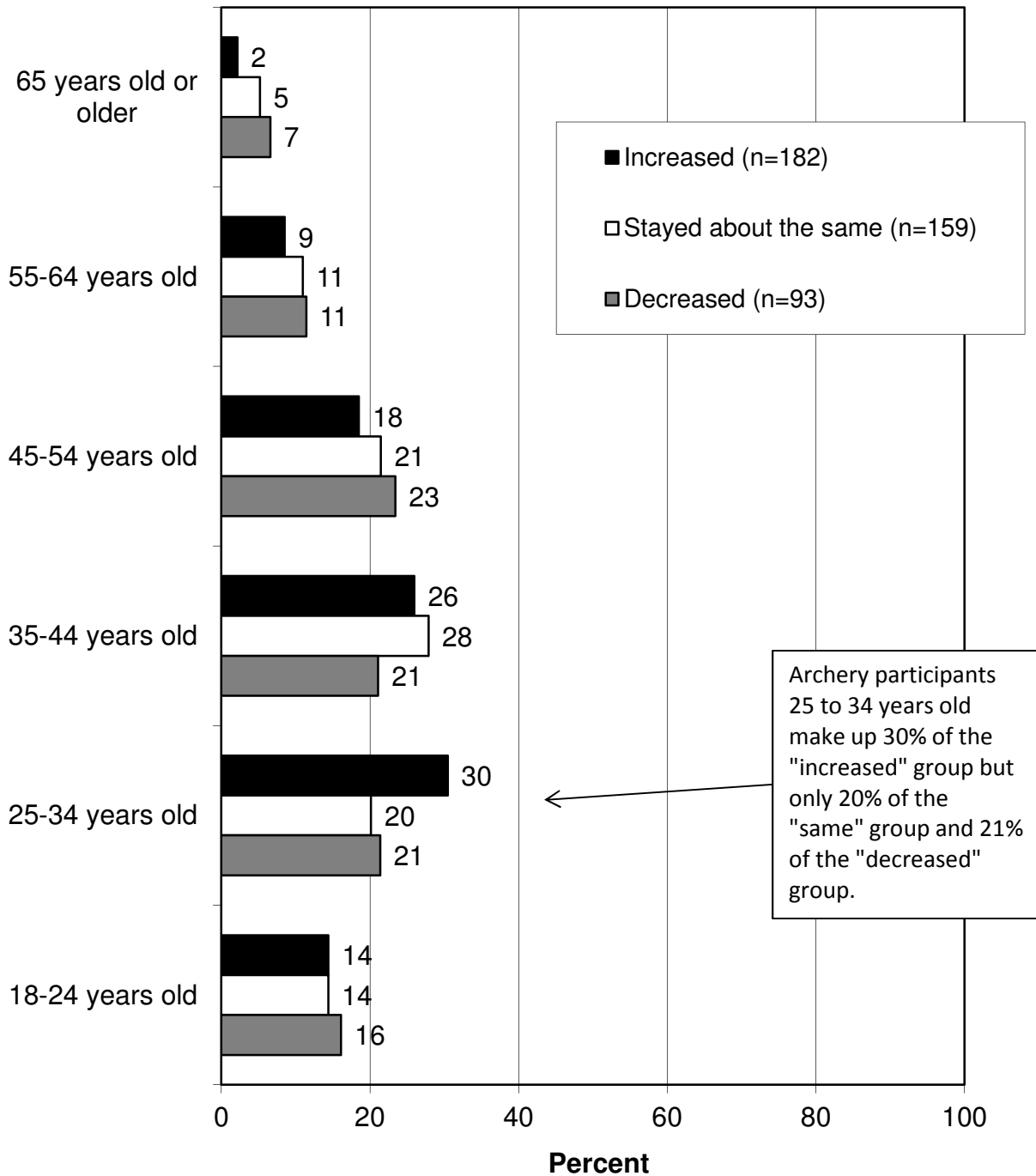


- Those who say that their archery participation has increased tend to be younger than those who say their participation has remained the same or decreased. There are two graphs presented regarding age.

Would you say that your participation in archery activities in the past 5 years has increased, stayed about the same, or decreased, when compared to the time before that? (Asked of those who participated in archery or bowhunting in the past 5 years.)

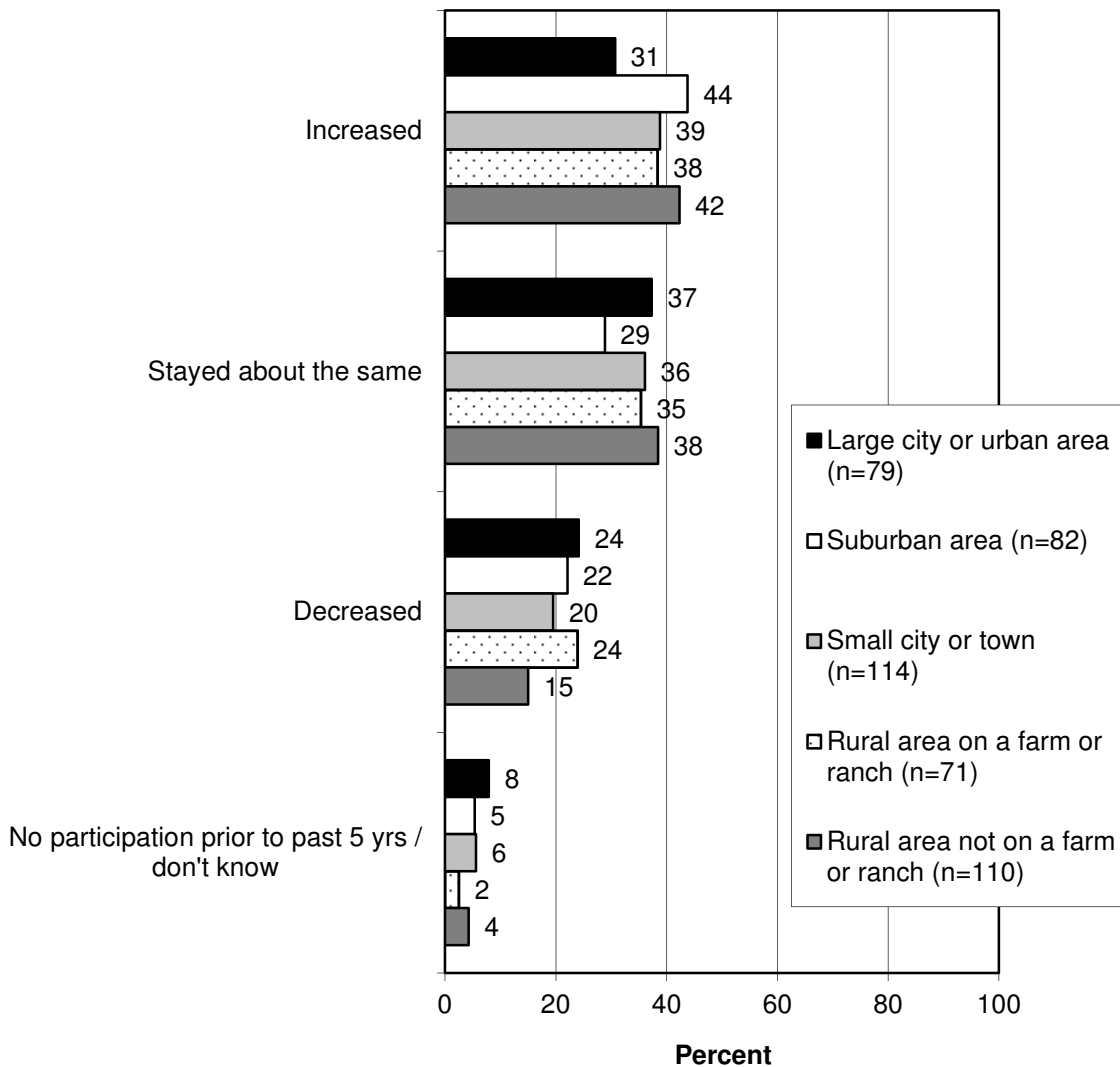


May I ask your age? (Archery participants in 2014.)



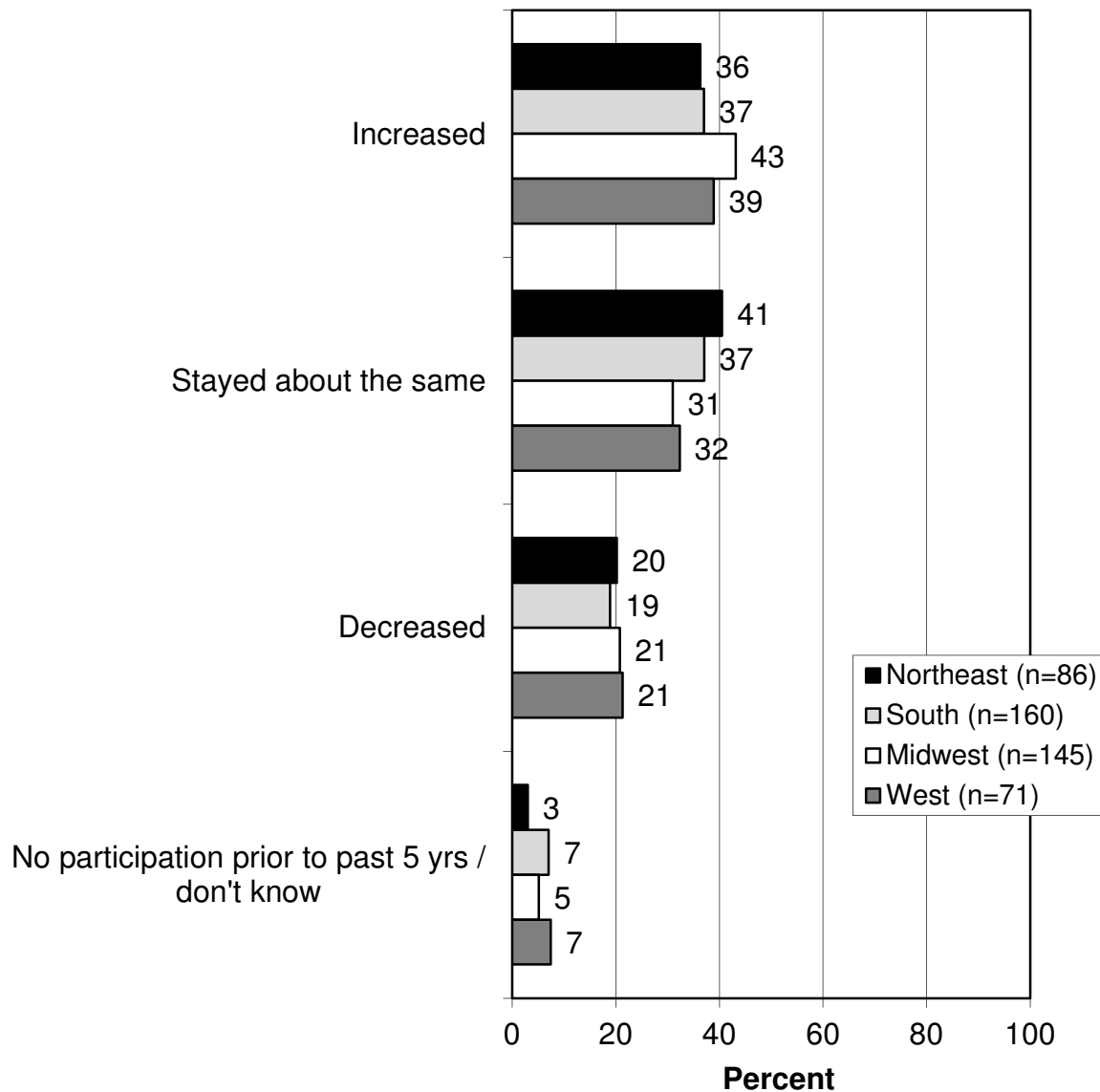
- Those archery participants from a large city/urban area are the least likely to say that their participation has increased, while on the other hand suburban archers are the most likely to say that their participation has increased.

Would you say that your participation in archery activities in the past 5 years has increased, stayed about the same, or decreased, when compared to the time before that? (Asked of those who participated in archery or bowhunting in the past 5 years.)



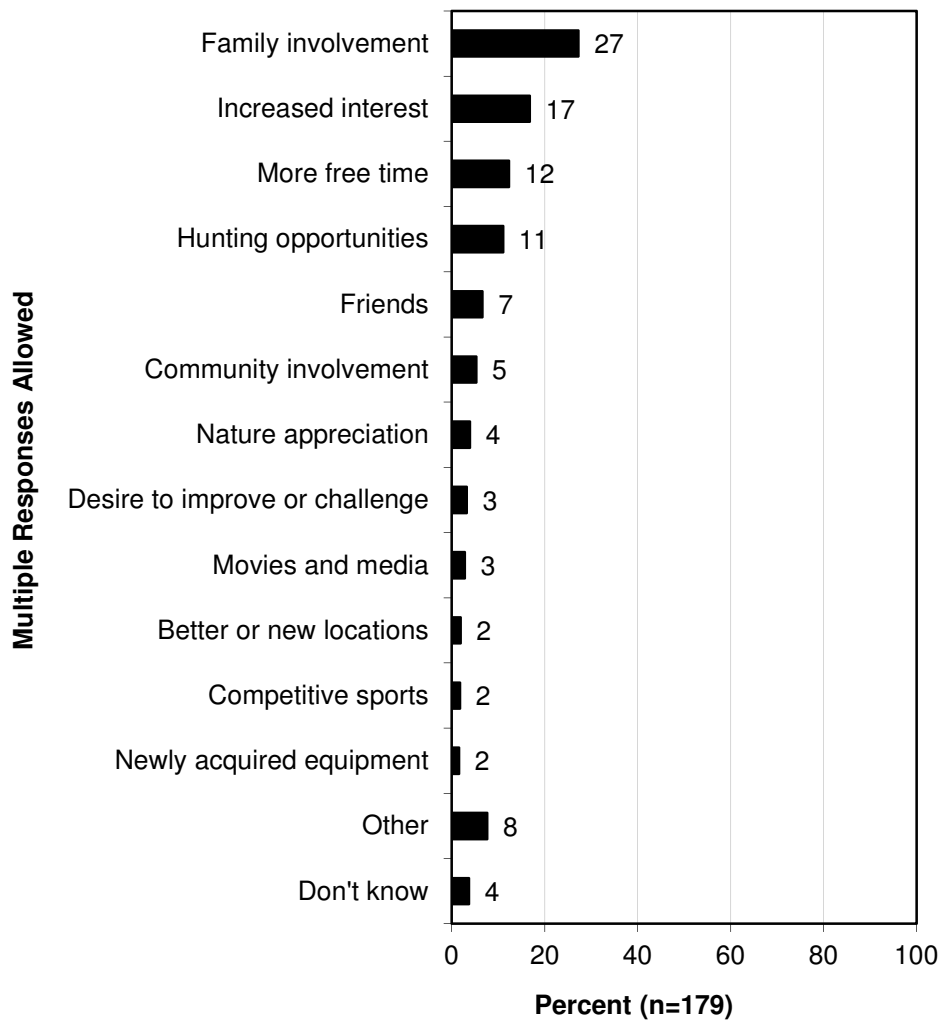
- Archery participants from the Midwest have the highest percentage saying that their archery participation increased.

Would you say that your participation in archery activities in the past 5 years has increased, stayed about the same, or decreased, when compared to the time before that? (Asked of those who participated in archery or bowhunting in the past 5 years.)

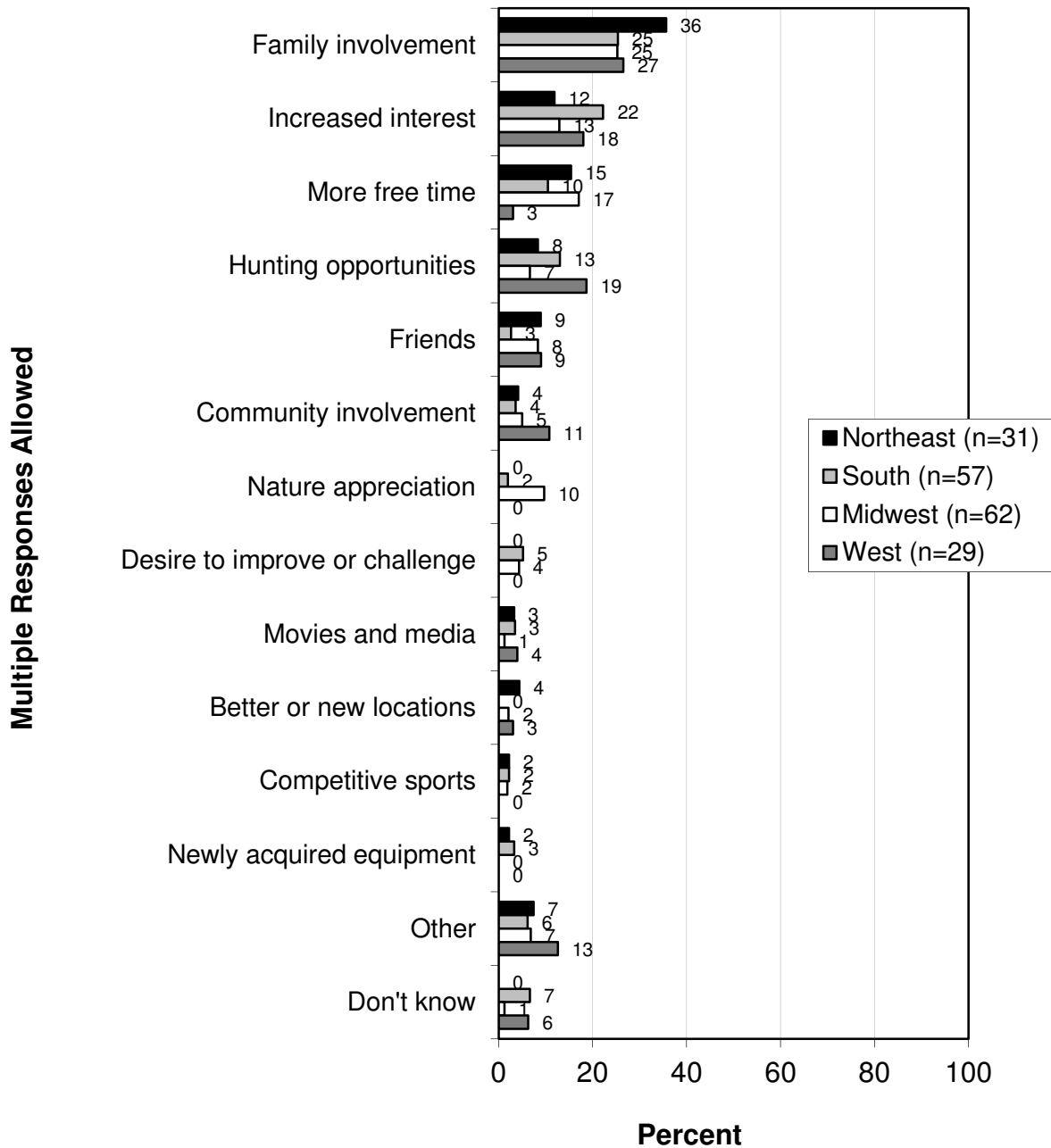


- In follow-up to self-assessed trends, those who say that their participation increased were asked why it had increased, and those who say that it has decreased were also asked the follow-up question. Regional results are also shown following each graph of overall results.
 - The top reason for increased archery participation over the past 5 years is family involvement (27% of those who say their participation increased), followed by three other common reasons: increased interest (17%), more free time available (12%), and hunting opportunities (11%).

What prompted you to increase your participation in archery activities over the past 5 years? (Asked of those whose archery participation increased in the past 5 years.)

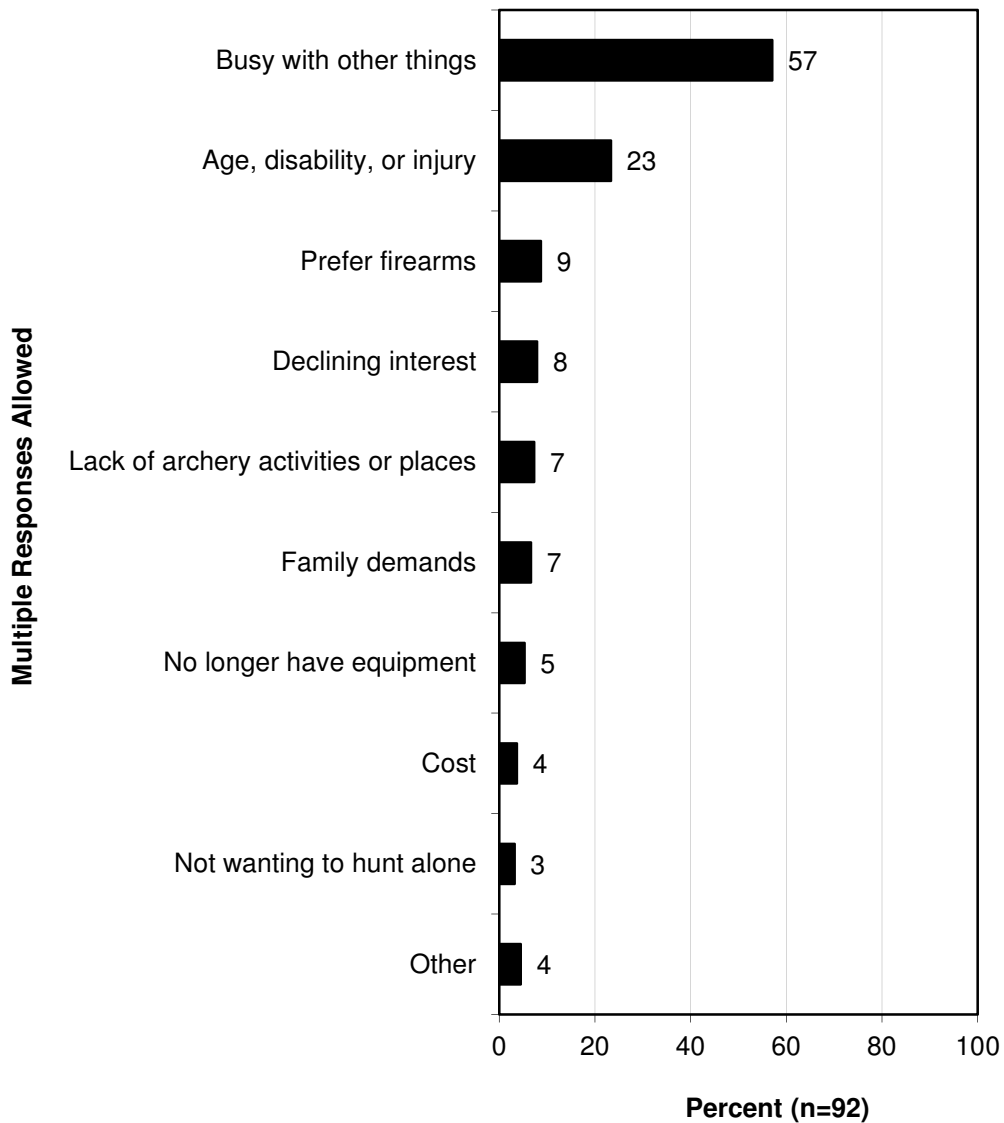


What prompted you to increase your participation in archery activities over the past 5 years? (Asked of those whose archery participation increased in the past 5 years.)

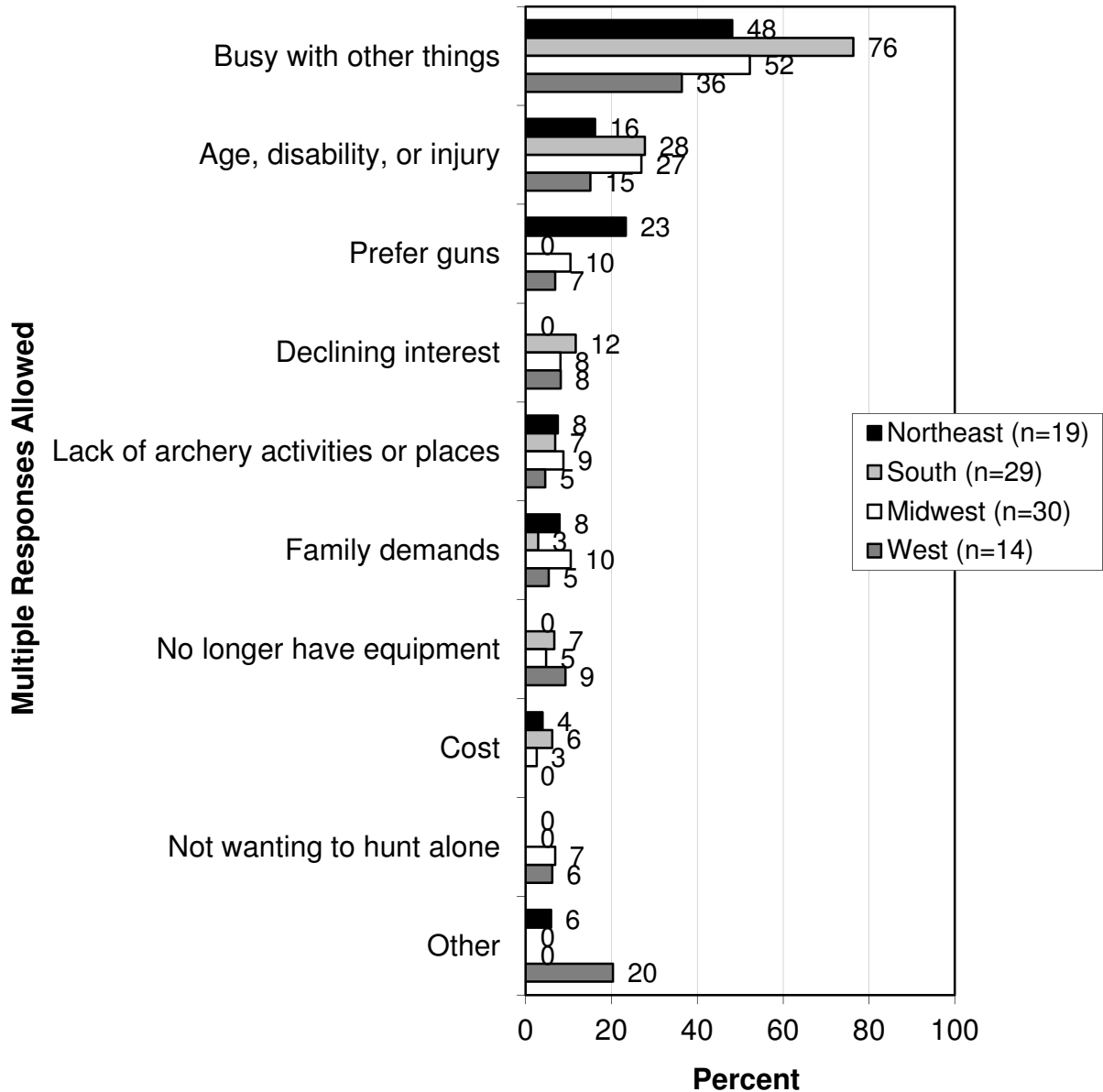


- Regarding reasons for decreased participation, the primary culprit is simple lack of time: more than half of those who say that their participation has decreased responded that they are busy with other things. Age and health/disability problems are also prominent.

**What caused your participation in archery activities to decrease over the past 5 years?
(Asked of those whose archery participation decreased in the past 5 years.)**

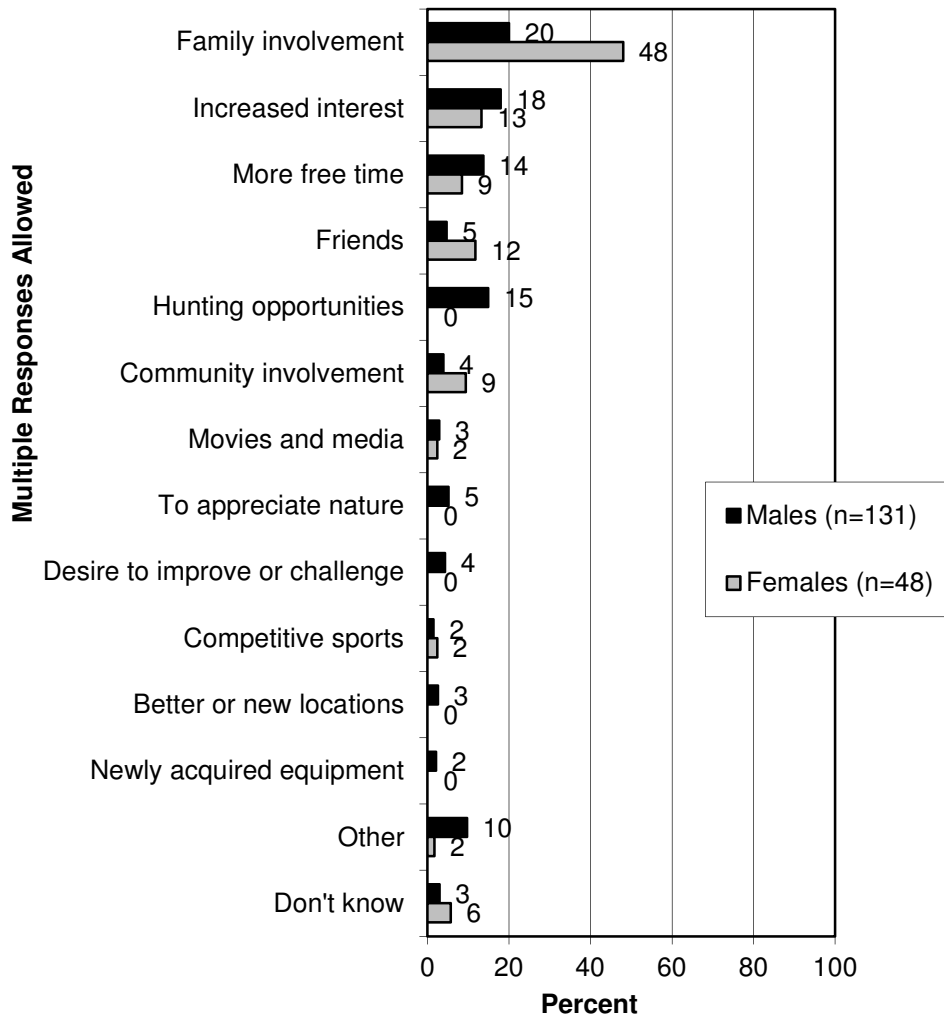


**What caused your participation in archery activities to decrease over the past 5 years?
(Asked of those whose archery participation decreased in the past 5 years.)**



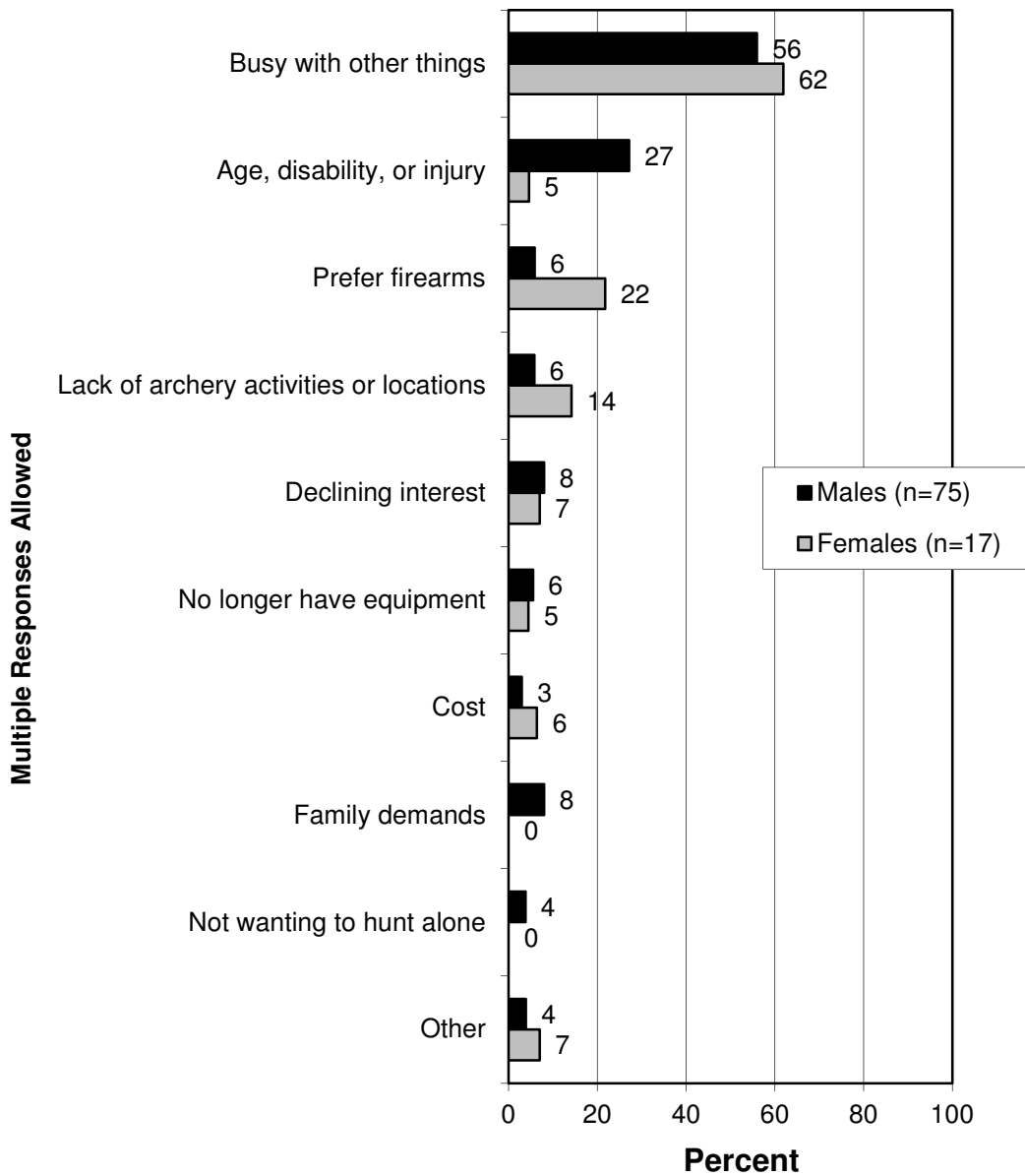
- An analysis by gender provides some insight into the group that recently *increased* their participation and the group that recently decreased their participation. The report first presents the analysis of those who increased participation.
 - Family involvement appears to have particularly drawn women into the sport of archery: 48% of women who increased their participation did so because of family involvement. Furthermore, this is also the most common reason given by men (but at 20%, well less than half the percentage of women). Hunting, on the other hand, is male-oriented.

What prompted you to increase your participation in archery activities over the past 5 years? (Asked of those whose archery participation increased in the past 5 years.)



- The gender of those who *decreased* their participation was examined in the report as well.
 - Among the findings of the crosstabulation by gender, there are two in particular that are interesting. Men are more likely than women to cite age, disability, or injury; women are more likely to cite a preference for firearms.

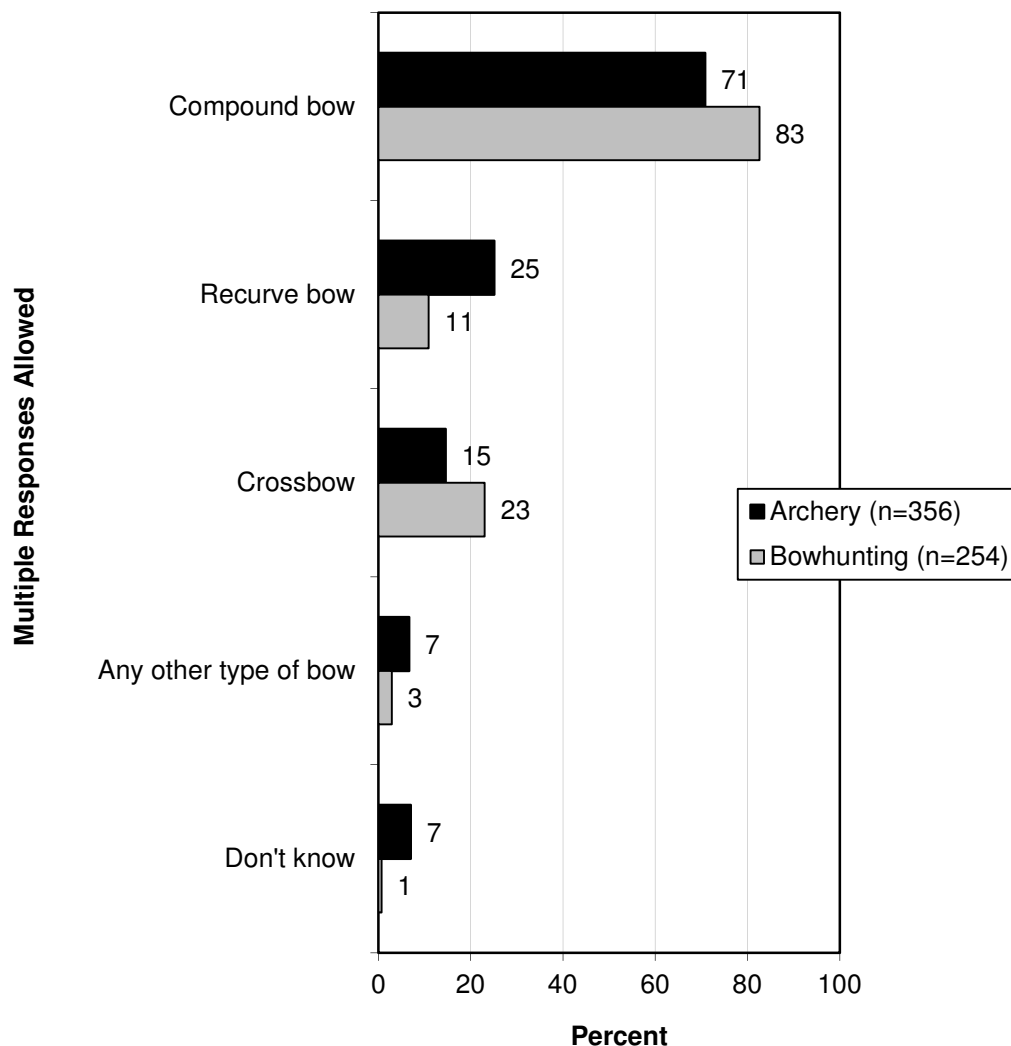
**What caused your participation in archery activities to decrease over the past 5 years?
(Asked of those whose archery participation decreased in the past 5 years.)**



EQUIPMENT USED

- Among those who participated in target archery, compound bows are the most popular for shooting exclusive of bowhunting (71% of archers use them), distantly followed by recurve bows (25%) and crossbows (15%). For bowhunting, the most popular bows are compound bows (83%), distantly followed by crossbows (23%) and recurve bows (11%). (Note that respondents could select more than one type of bow in the survey.)

Which of the following types of bows did you use in 2014 for [archery / bowhunting]? (Asked of those who participated in the activity.)



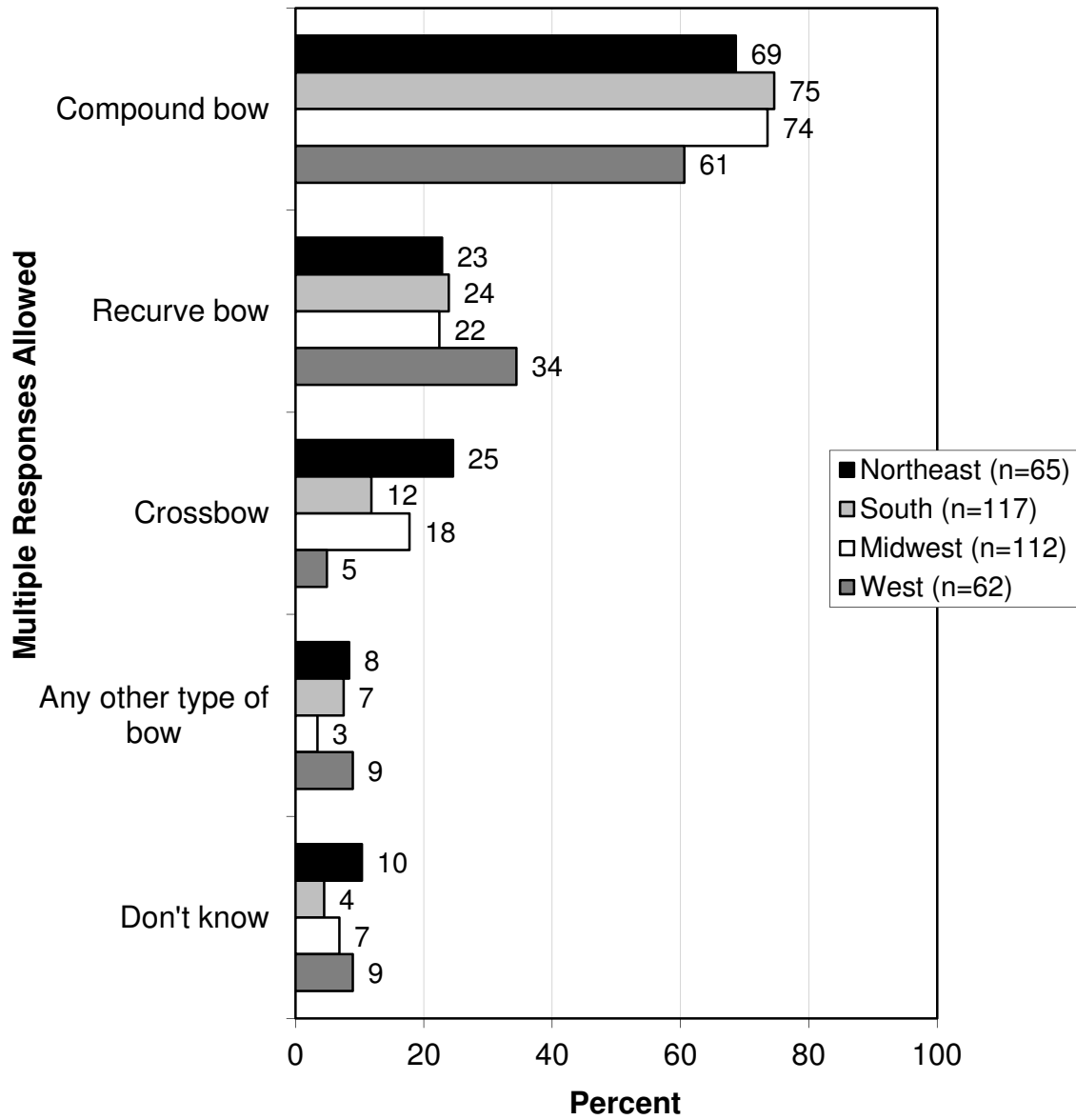
- The tabulations below show the percent of all archery participants in each of the mutually exclusive groups in bow use. The largest group for archery exclusive of bowhunting and for bowhunting is those who use a compound bow exclusively (53.1% for archery; 68.1% for bowhunting). Interestingly, 71.6% use only one type of bow for archery exclusive of bowhunting, and 81.3% use only one type of bow for bowhunting.

Archery Exclusive of Bowhunting				
Type of Archery Equipment Used (All Possible Combinations; Groups Are Mutually Exclusive)	Percentage in Each Mutually Exclusive Group (All Groups Shown)	Compound	Crossbow	Recurve
Compound Only	53.1	53.1		
Crossbow Only	5.9		5.9	
Recurve Only	12.6			12.6
Compound and Crossbow (no Recurve)	5.5	5.5	5.5	
Compound and Recurve (no Crossbow)	9.4	9.4		9.4
Crossbow and Recurve (no Compound)	0.4		0.4	0.4
Compound, Crossbow, and Recurve	2.8	2.8	2.8	2.8
Subtotal	89.6			
Don't Know / Other	10.4			
Total	100.0	70.8	14.6	25.2

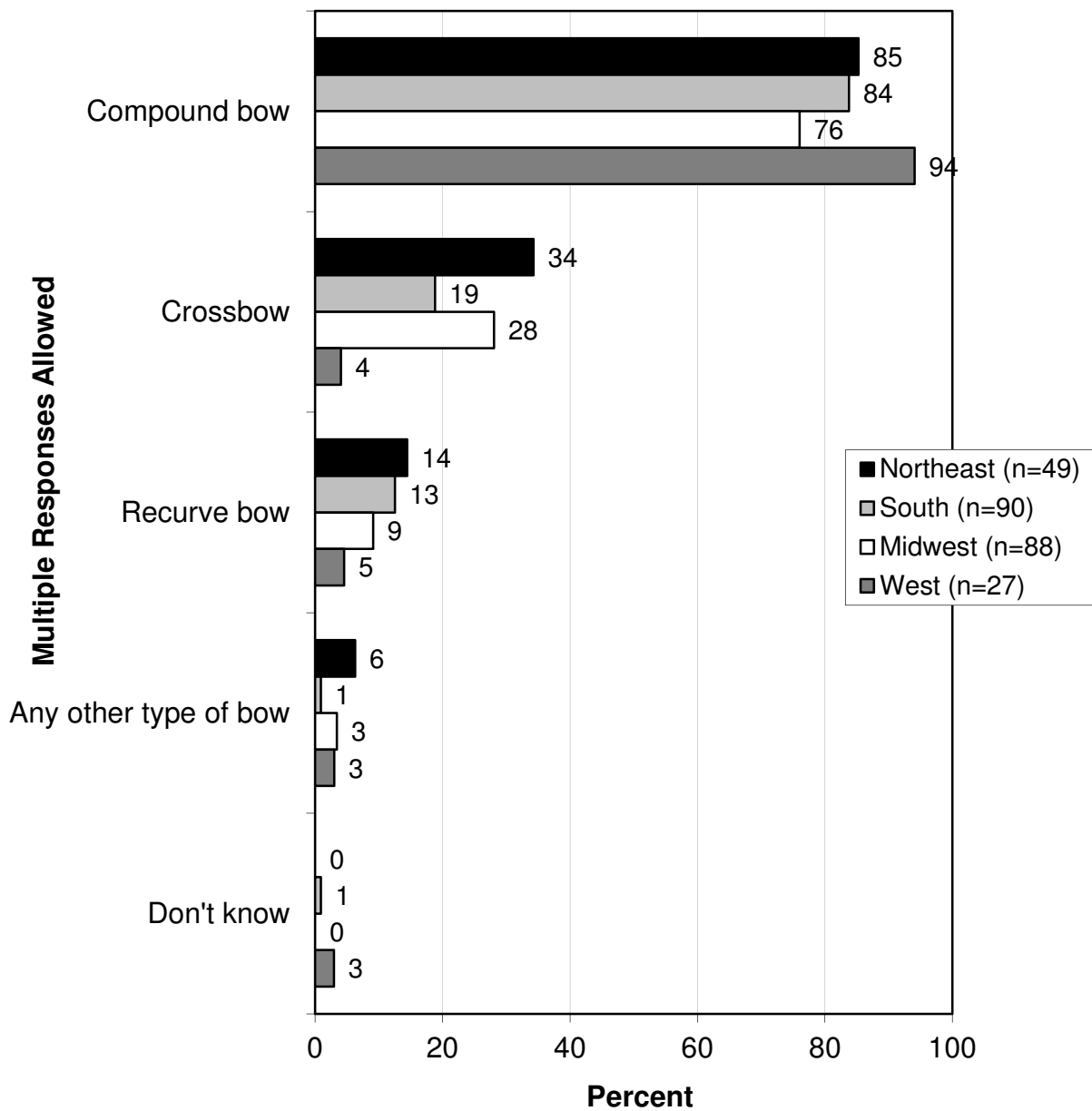
Bowhunting				
Type of Archery Equipment Used (All Possible Combinations; Groups Are Mutually Exclusive)	Percentage in Each Mutually Exclusive Group (All Groups Shown)	Compound	Crossbow	Recurve
Compound Only	68.1	68.1		
Crossbow Only	10.0		10.0	
Recurve Only	3.2			3.2
Compound and Crossbow (no Recurve)	8.9	8.9	8.9	
Compound and Recurve (no Crossbow)	3.5	3.5		3.5
Crossbow and Recurve (no Compound)	2.0		2.0	2.0
Compound, Crossbow, and Recurve	2.1	2.1	2.1	2.1
Subtotal	97.8			
Don't Know / Other	2.2			
Total	100.0	82.6	23.0	10.8

- Regional results are included regarding types of bows used.

Which of the following types of bows did you use in 2014 for archery exclusive of bowhunting?



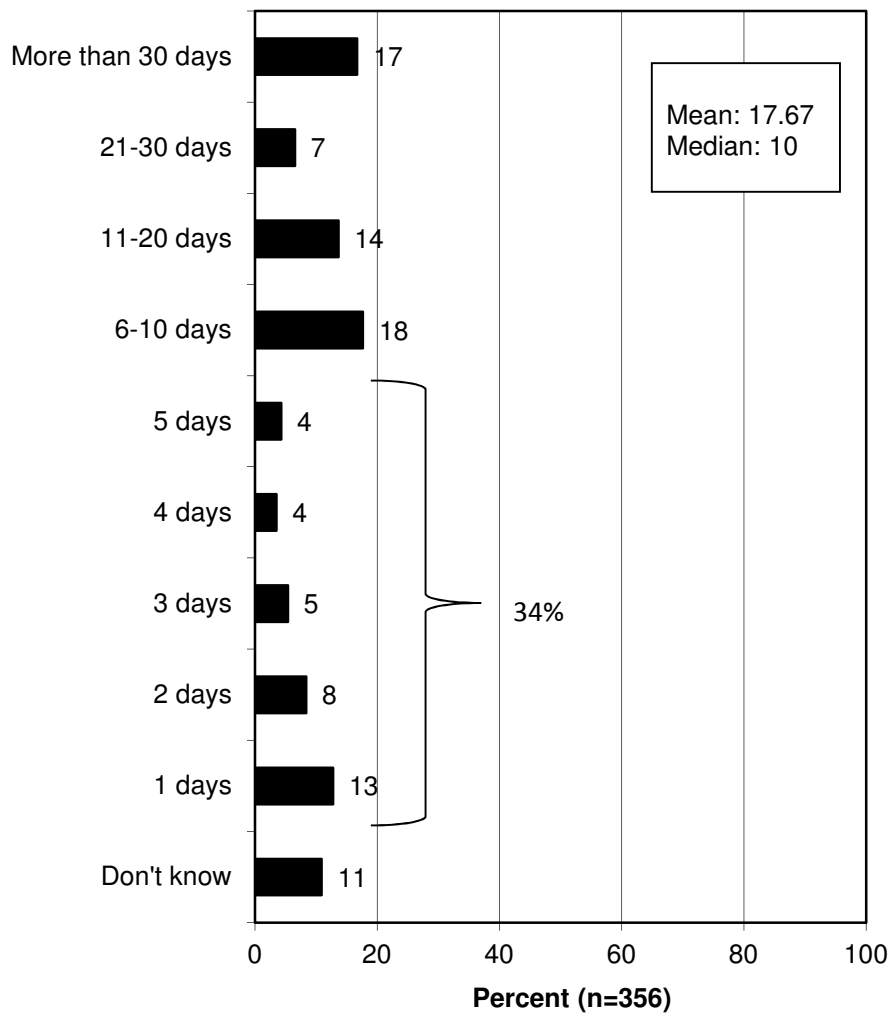
Which of the following types of bows did you use in 2014 for bowhunting?



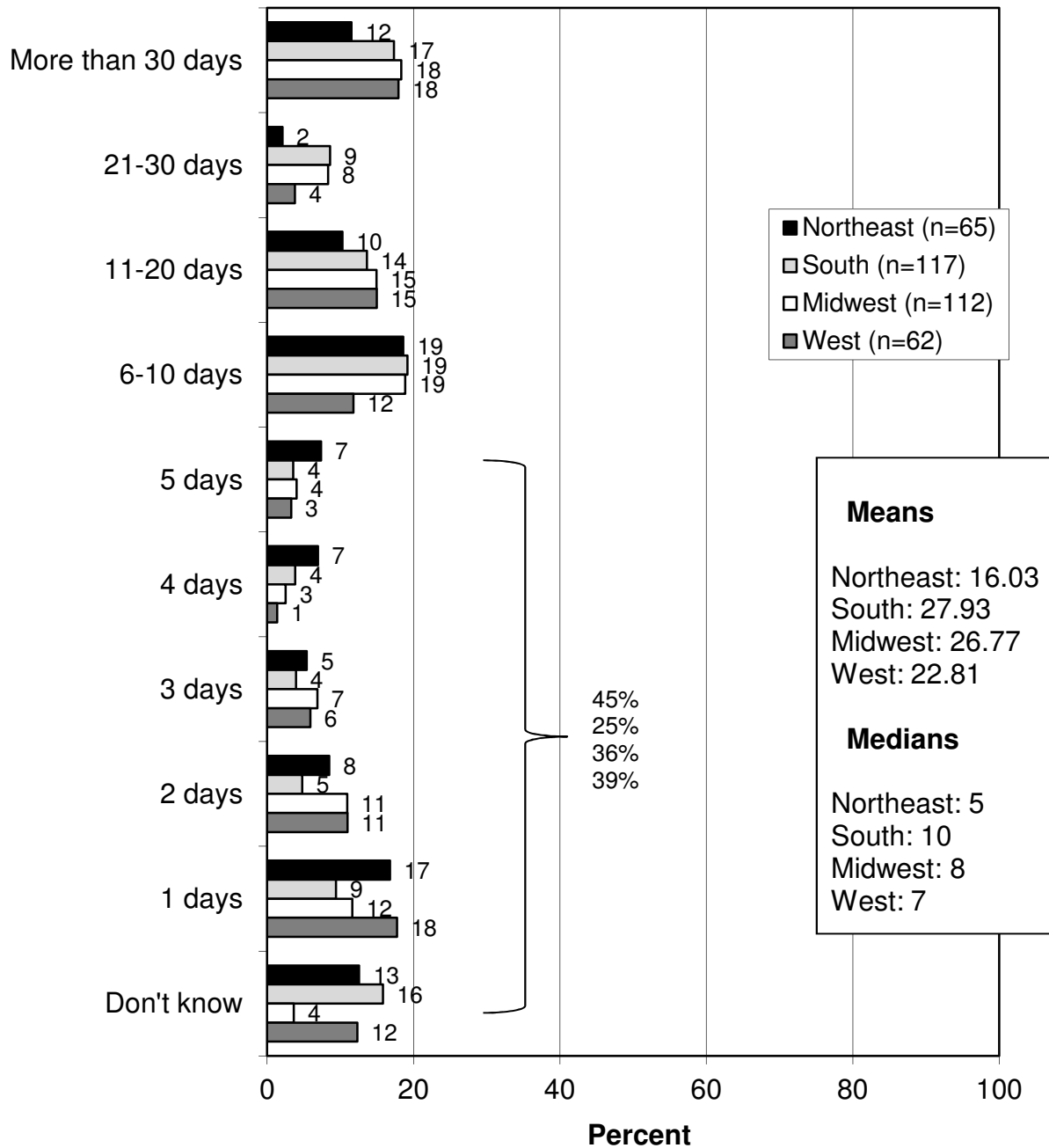
DAYS OF ARCHERY PARTICIPATION AND TYPICAL FREQUENCY OF SHOOTING ARCHERY

- About a third of those who participated in archery exclusive of bowhunting participated for no more than 5 days (34% gave a response in the range of 1 to 5 days). On the other hand, about a quarter (24%) did so for more than 20 days. The median was 10 days, and the mean was 17.67 days. A regional breakdown of days of participation is also shown.

**About how many days did you participate in archery in 2014 (not including bowhunting)?
(Asked of those who participated in archery in 2014.)**

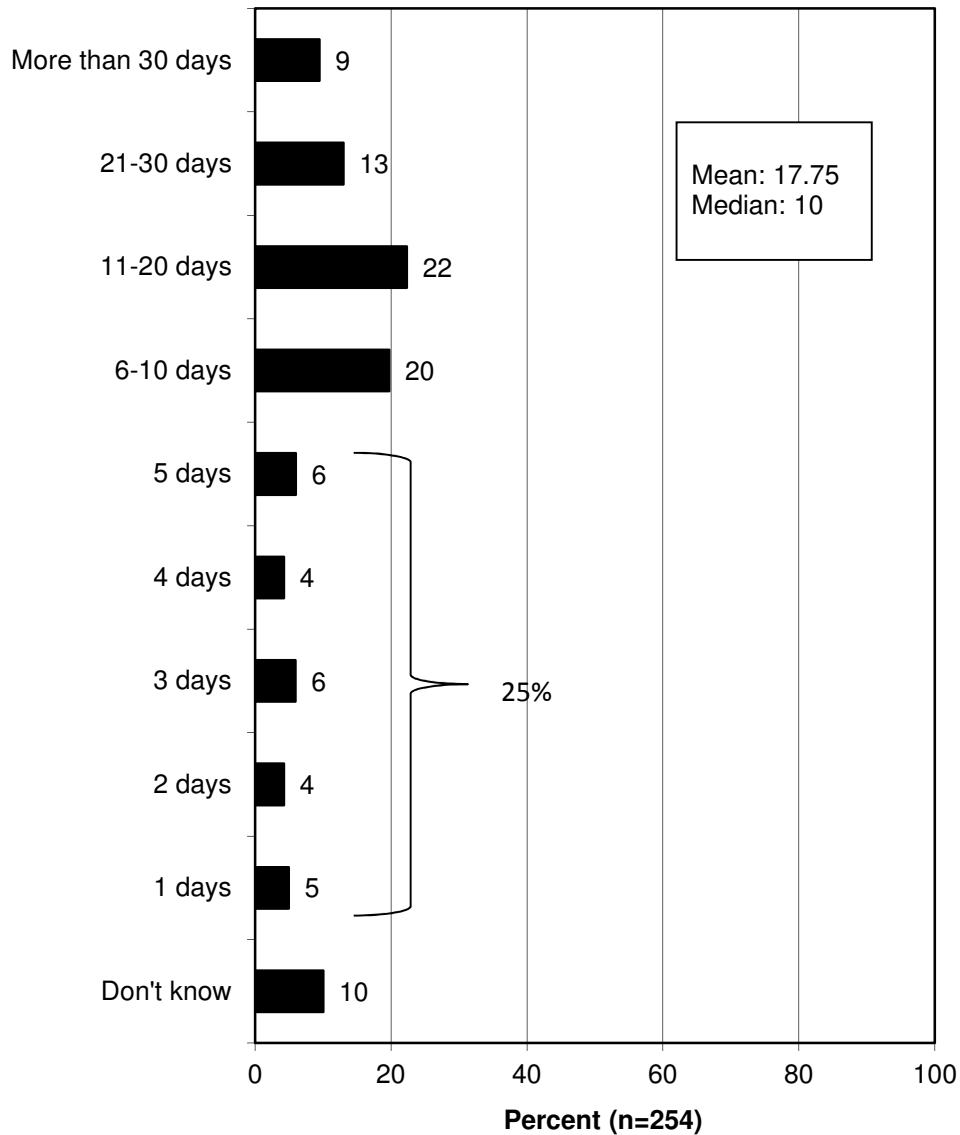


**About how many days did you participate in archery in 2014 (not including bowhunting)?
(Asked of those who participated in archery in 2014.)**

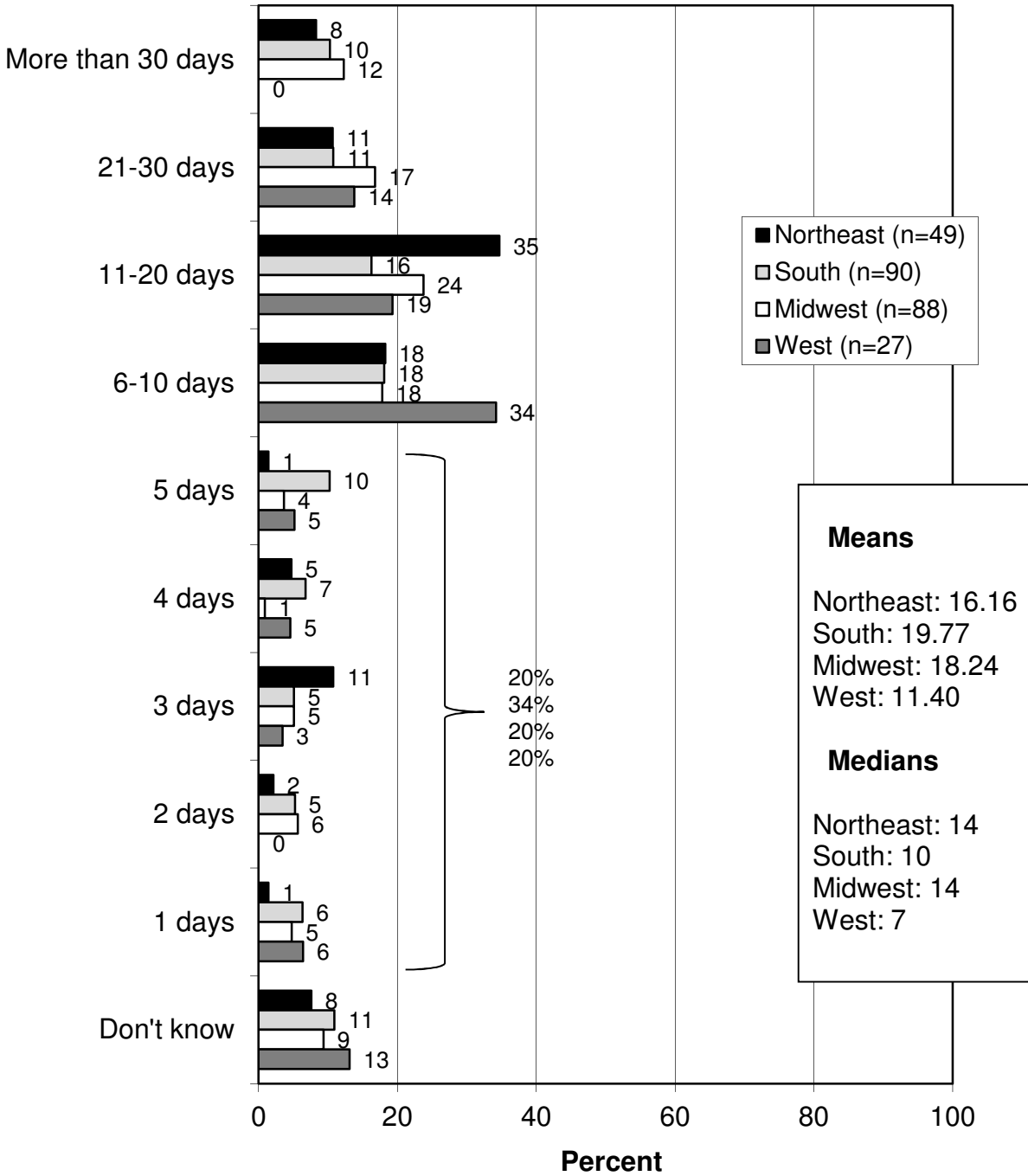


- A quarter of all bowhunters (25%) went bowhunting for no more than 5 days in 2014. Nearly that much (22%), on the other hand, went for 20 days or more. The median was 10 days, and the mean was 17.75 days. The regional breakdown is also included.

**How many days did you bowhunt in 2014?
(Asked of those who went bowhunting in
2014.)**

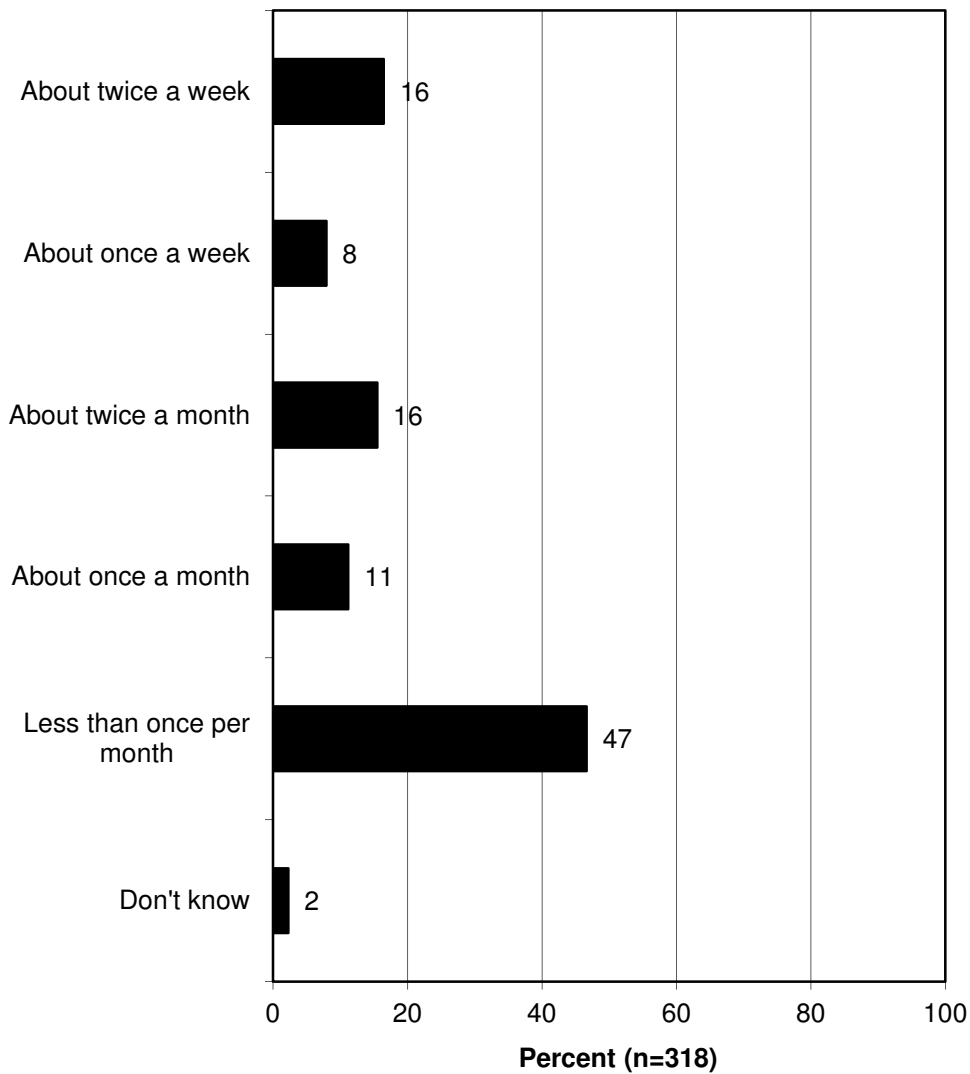


How many days did you bowhunt in 2014? (Asked of those who went bowhunting in 2014.)

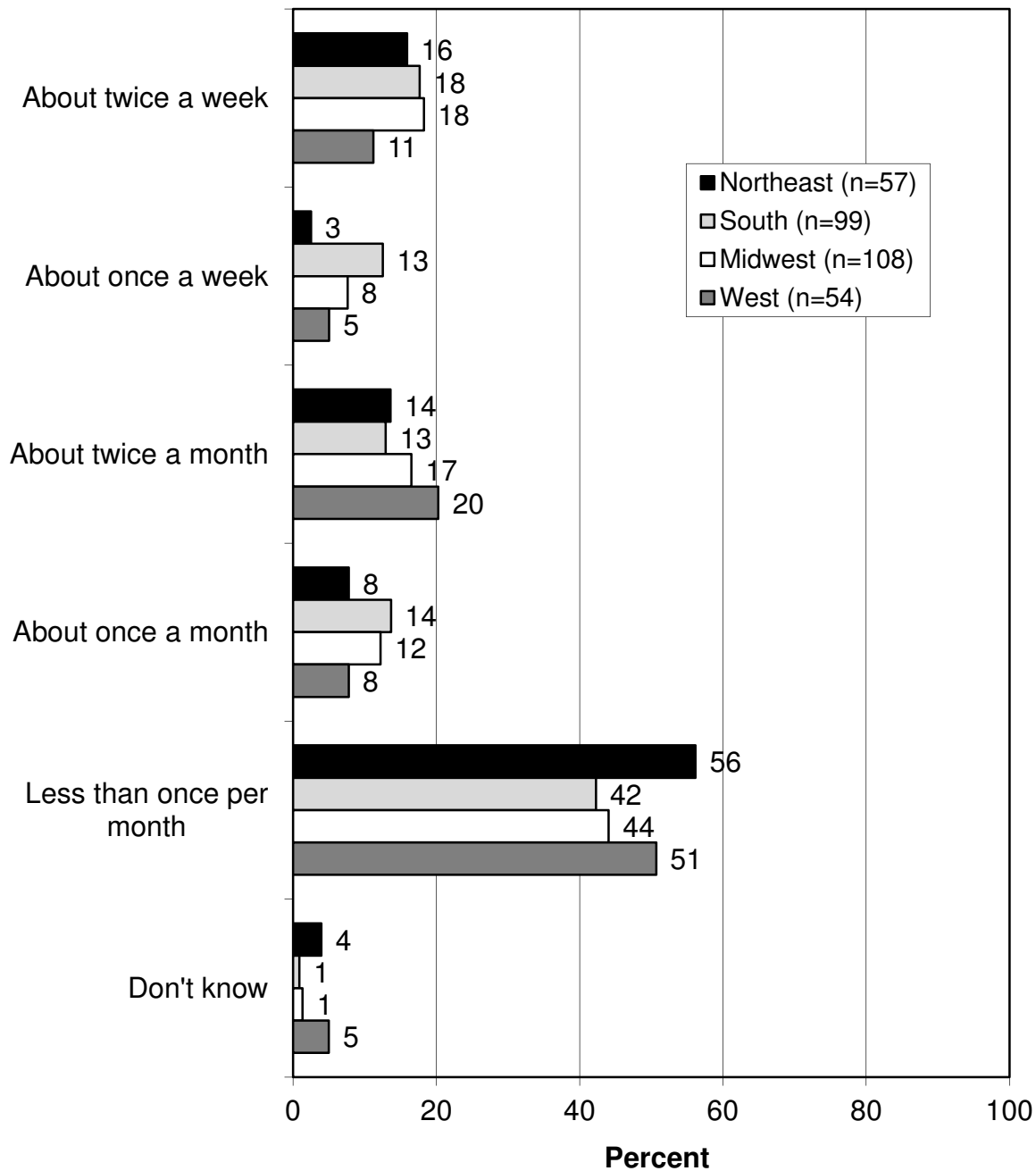


- Another question in the survey explored frequency of archery shooting. This question was not asked of those who bowhunted only, as the typical frequency of shooting does not apply to the seasonal activity of bowhunting. It was also not asked of those who reported shooting archery for 5 or fewer days, but they are included on the graph as “Less than once per month.” Regional results are also shown; South Region and Midwest Region archers are the most avid in days shooting archery.

How frequently would you say you shot archery in 2014? Would you say...? (Asked of those who participated in target archery in 2014; excludes those who did bowhunting only.)



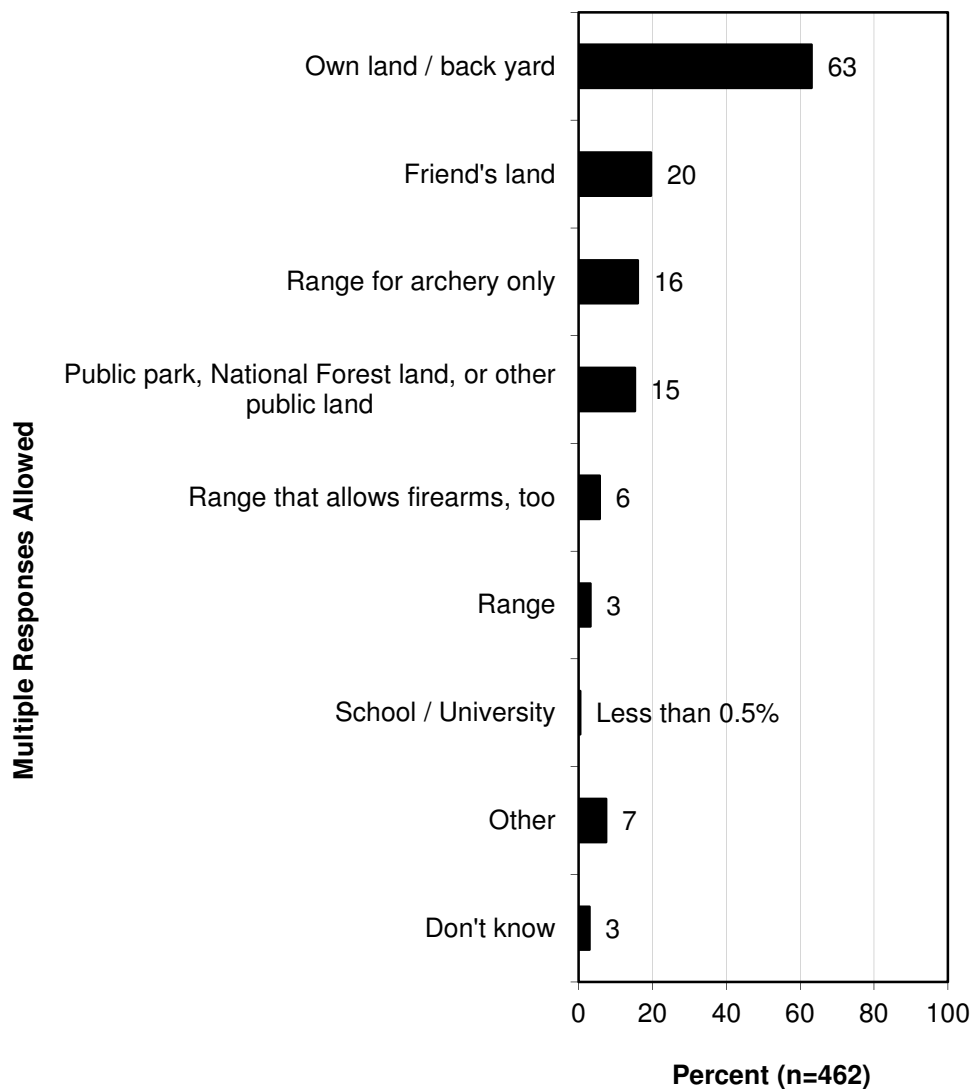
How frequently would you say you shot archery in 2014? Would you say...? (Asked of those who participated in target archery in 2014; excludes those who did bowhunting only.)



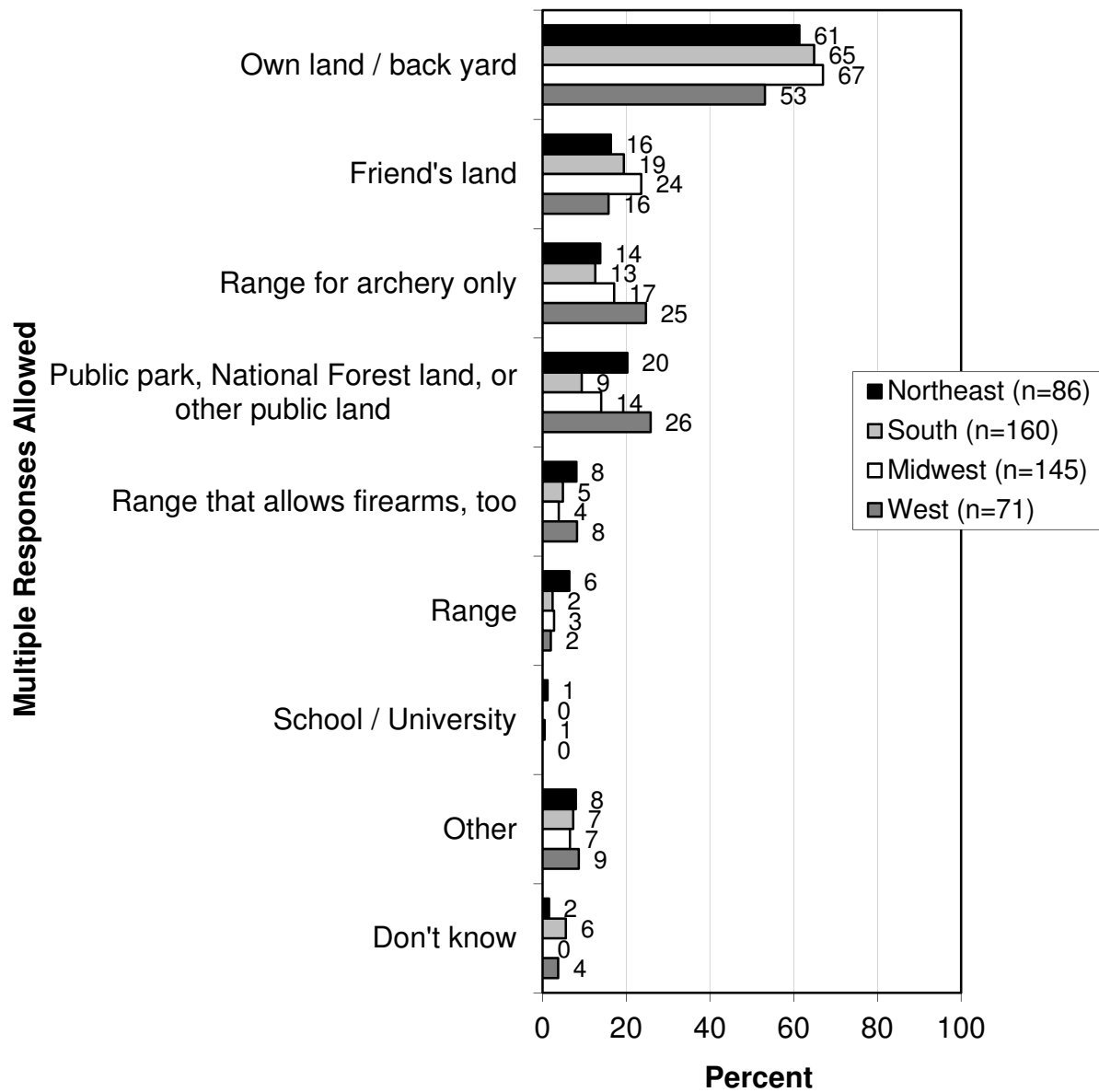
LOCATIONS IN WHICH ARCHERS PARTICIPATE IN ARCHERY

- The majority of archery participants engaged in the activity on their own land (63%). Other places named by substantial percentages include a friend's land (20%), a range for archery (16%), and public park, National Forest land, or other public land (15%).
 - Regional results follow the overall results.

Where did you shoot a bow and arrow in 2014? Please name all that apply. (Asked of those who participated in archery in 2014.)



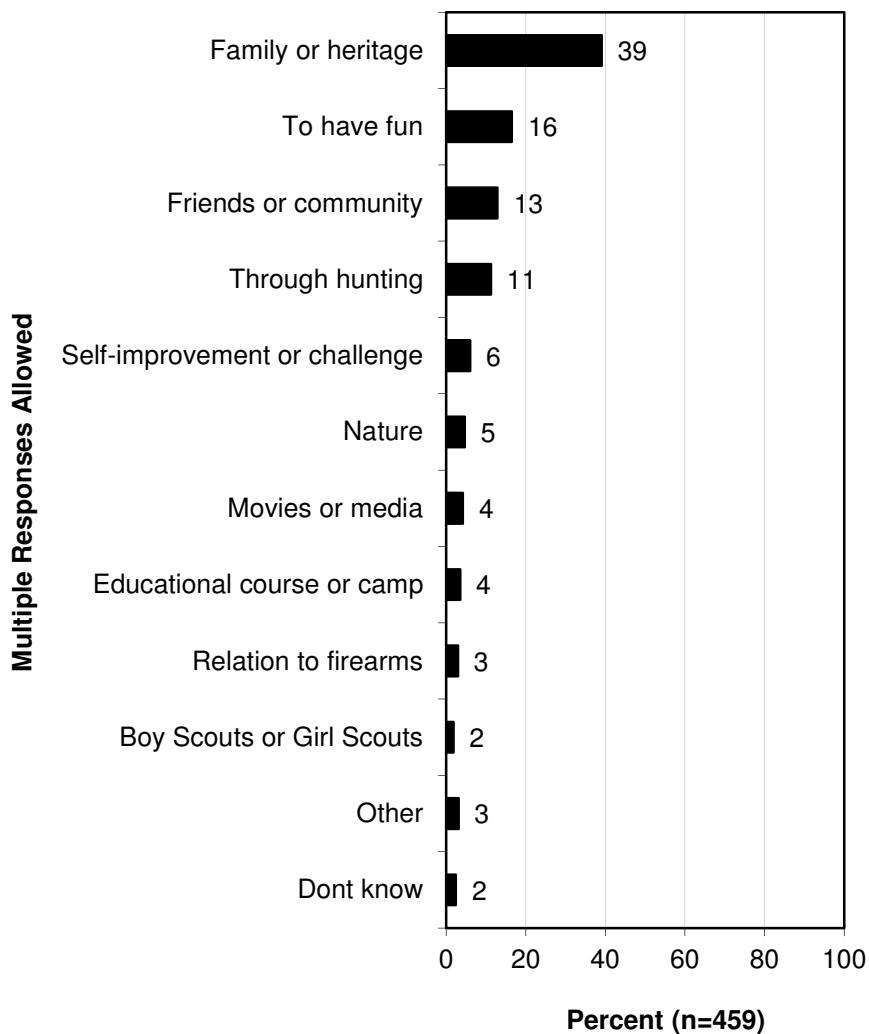
**Where did you shoot a bow and arrow in 2014?
Please name all that apply. (Asked of those who participated in archery in 2014.)**



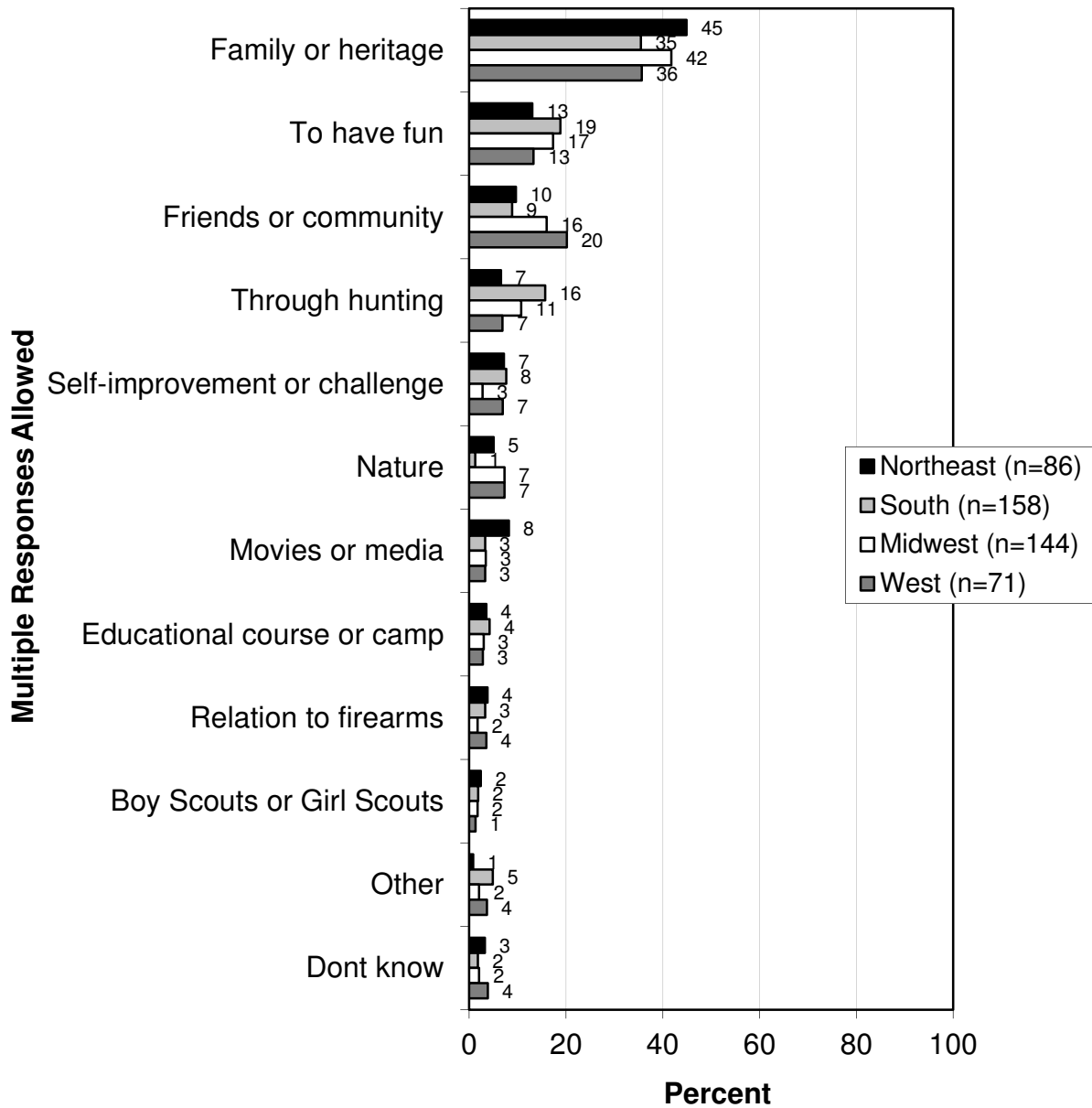
INITIATION INTO ARCHERY

- The survey asked archery participants to indicate what had influenced them to become involved in archery. The top influence was family/as part of their heritage—39% of 2014 archery participants gave this response. Other ways to be initiated included wanting to have fun (16%), through friends/community (13%), and through hunting (11%).
 - The results are also shown regionally.

What influenced you to become involved in archery? (Asked of those who participated in archery in 2014.)

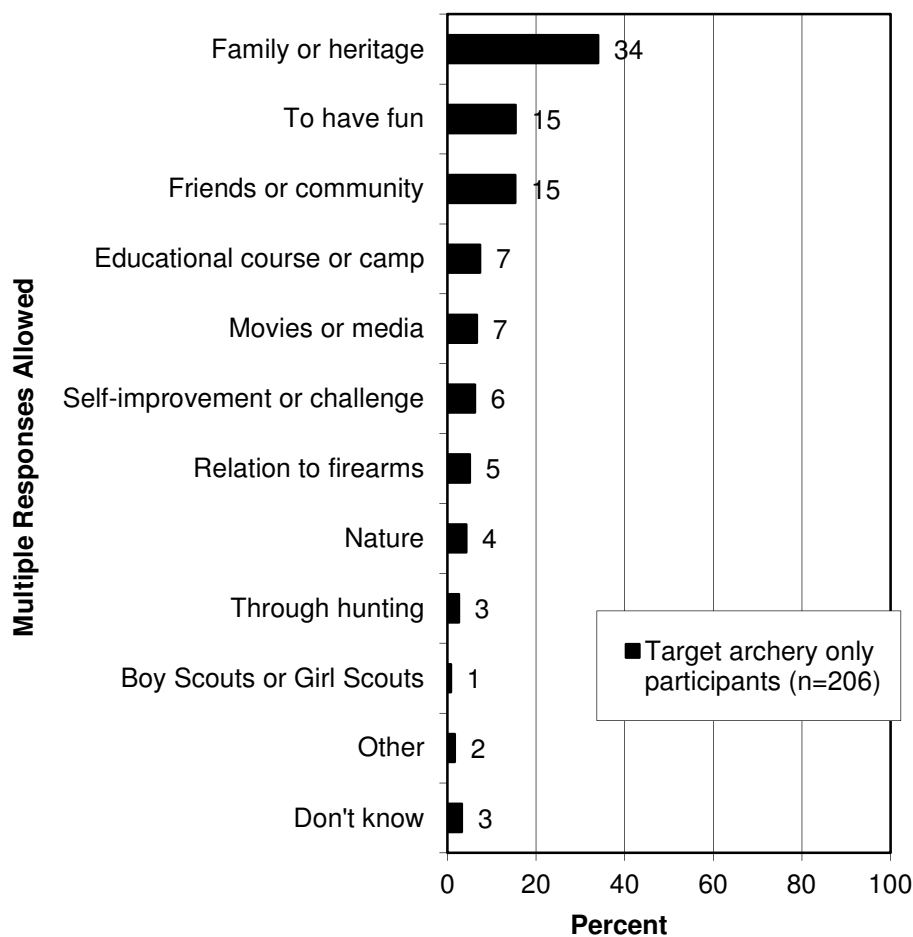


What influenced you to become involved in archery? (Asked of those who participated in archery in 2014.)

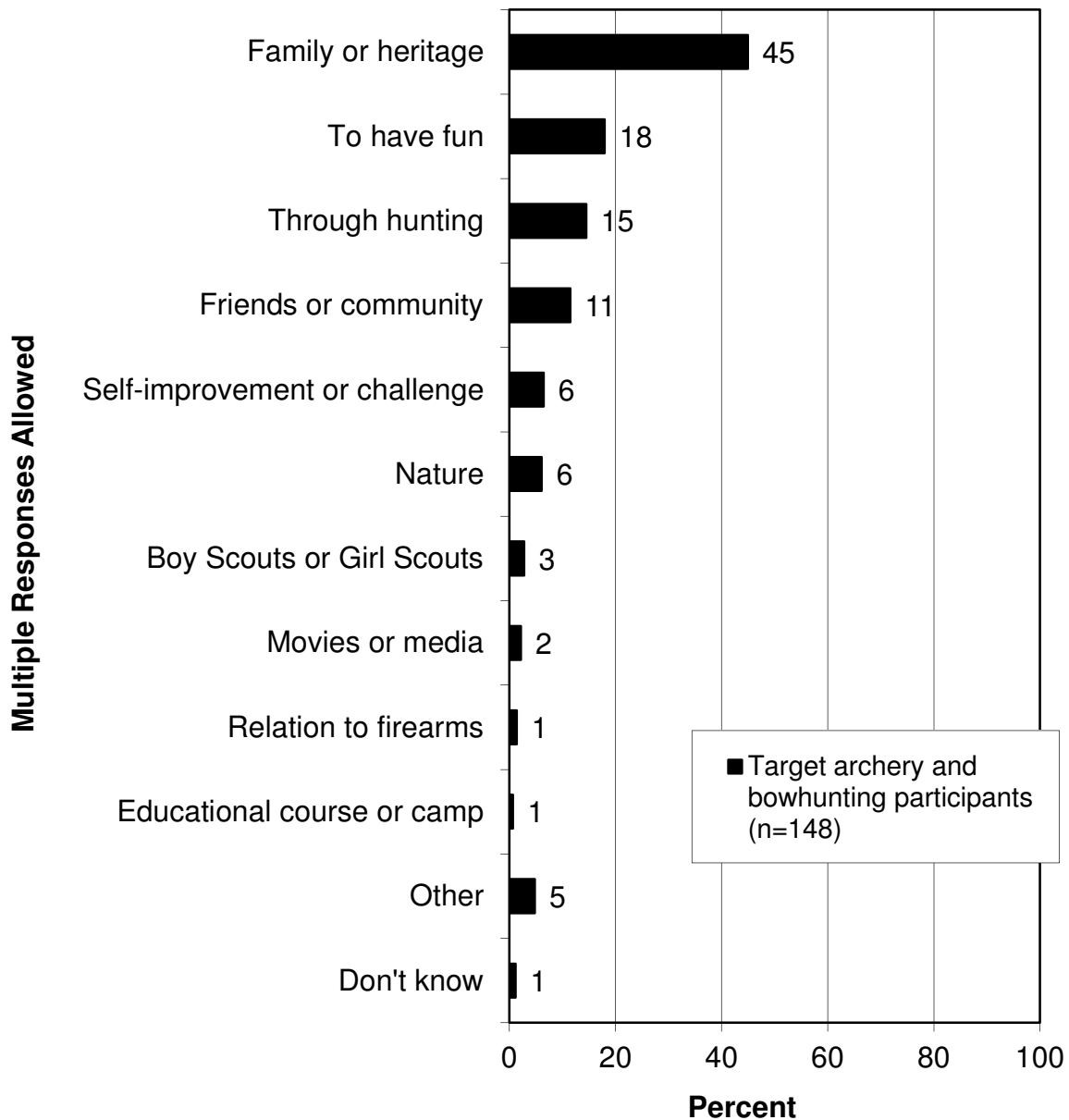


- The question about initiation into archery was also analyzed among the three aforementioned subgroups:
- Among *target archery only participants*, 34% were influenced by family/as part of their heritage, 15% because they wanted to have fun, 15% by friends/community, and only 3% through hunting.
 - Among *target archery and bowhunting participants*, 45% were influenced by family/as part of their heritage, 18% because they wanted to have fun, 15% through hunting, and 11% by friends/community.
 - Finally, among *bowhunting only participants*, 41% were influenced by family/as part of their heritage, 23% through hunting, 17% because they wanted to have fun, and 10% by friends/community.

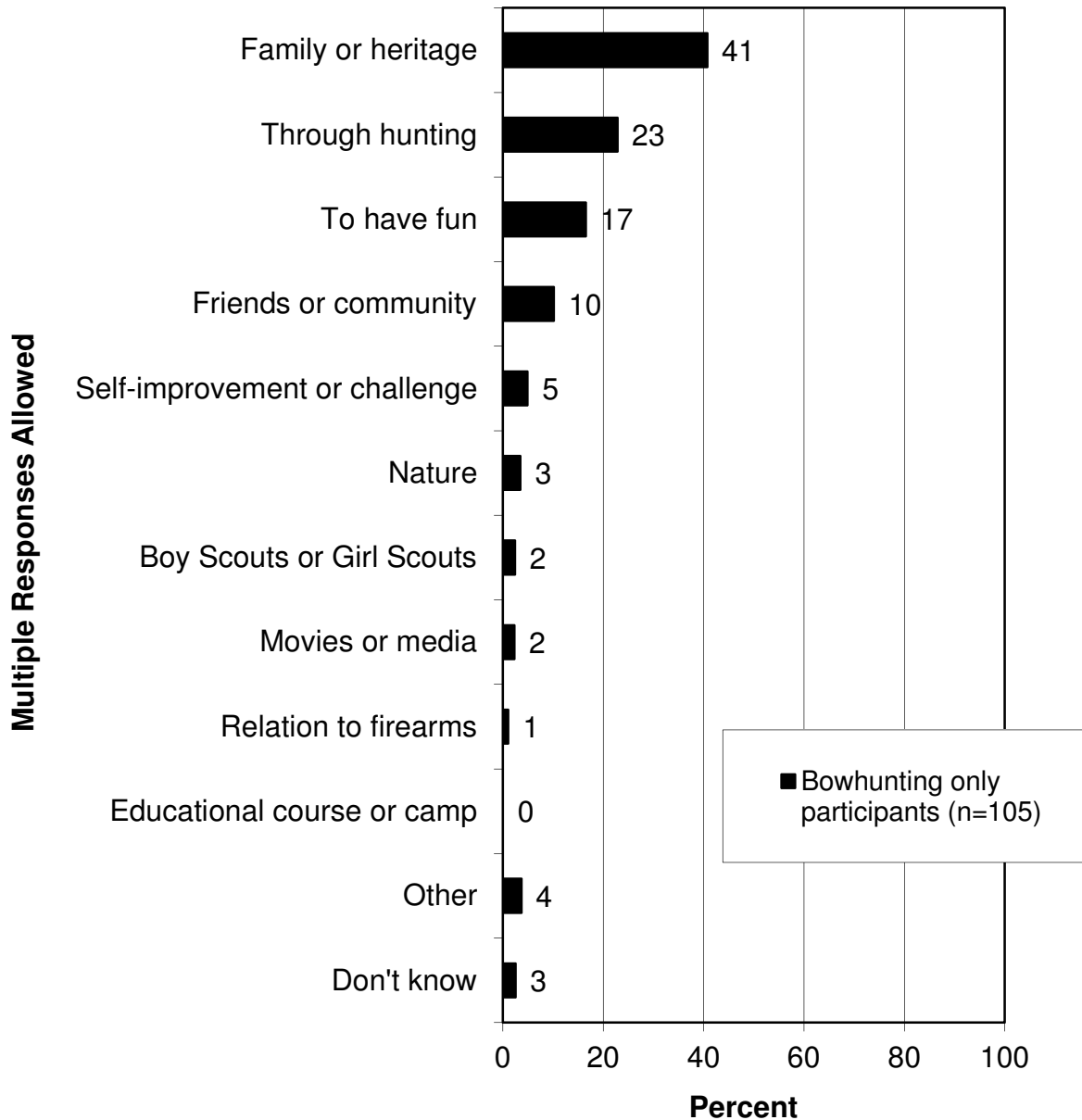
What influenced you to become involved in archery? (Asked of those who participated in archery in 2014.)



What influenced you to become involved in archery? (Asked of those who participated in archery in 2014.)



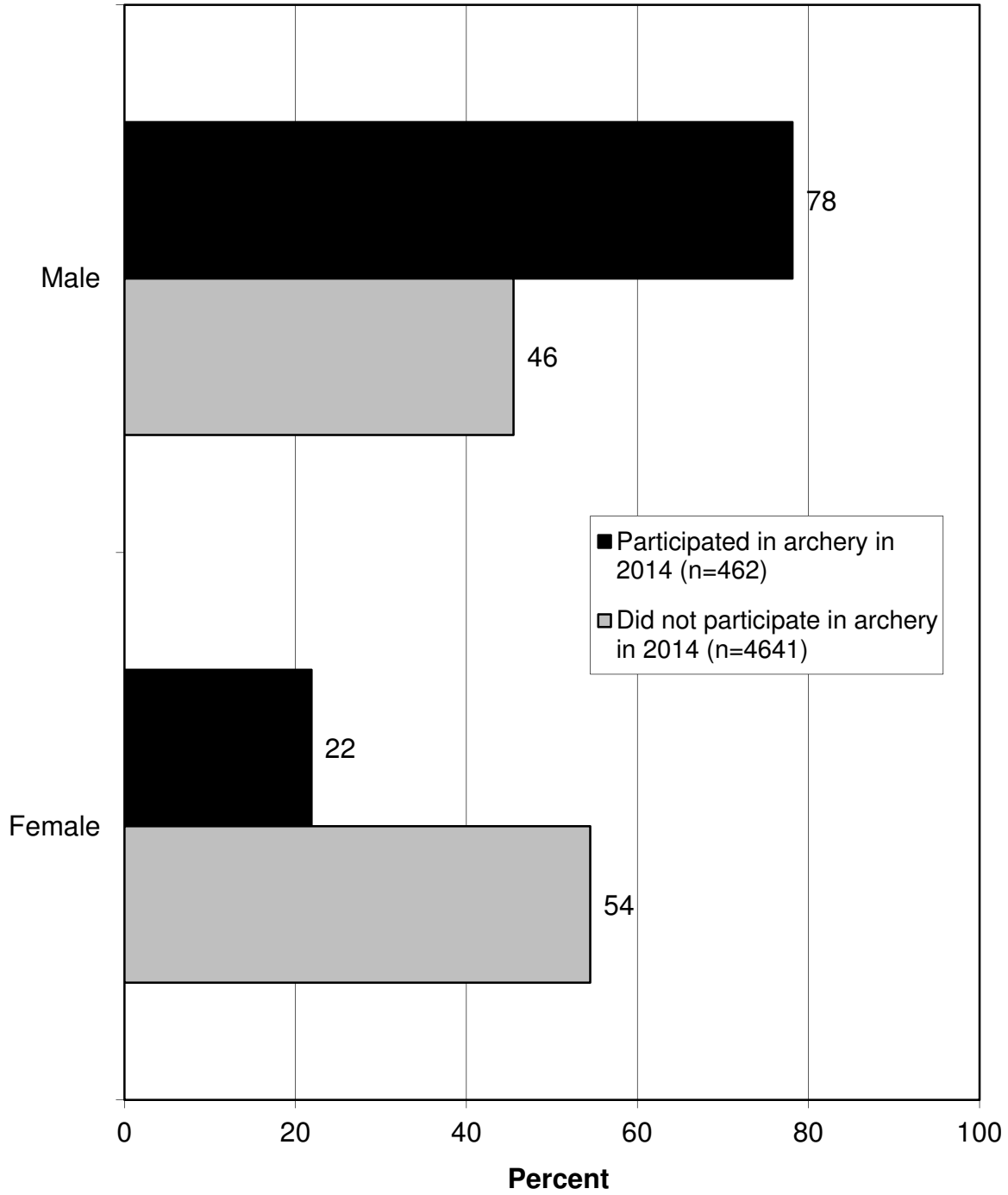
What influenced you to become involved in archery? (Asked of those who participated in archery in 2014.)



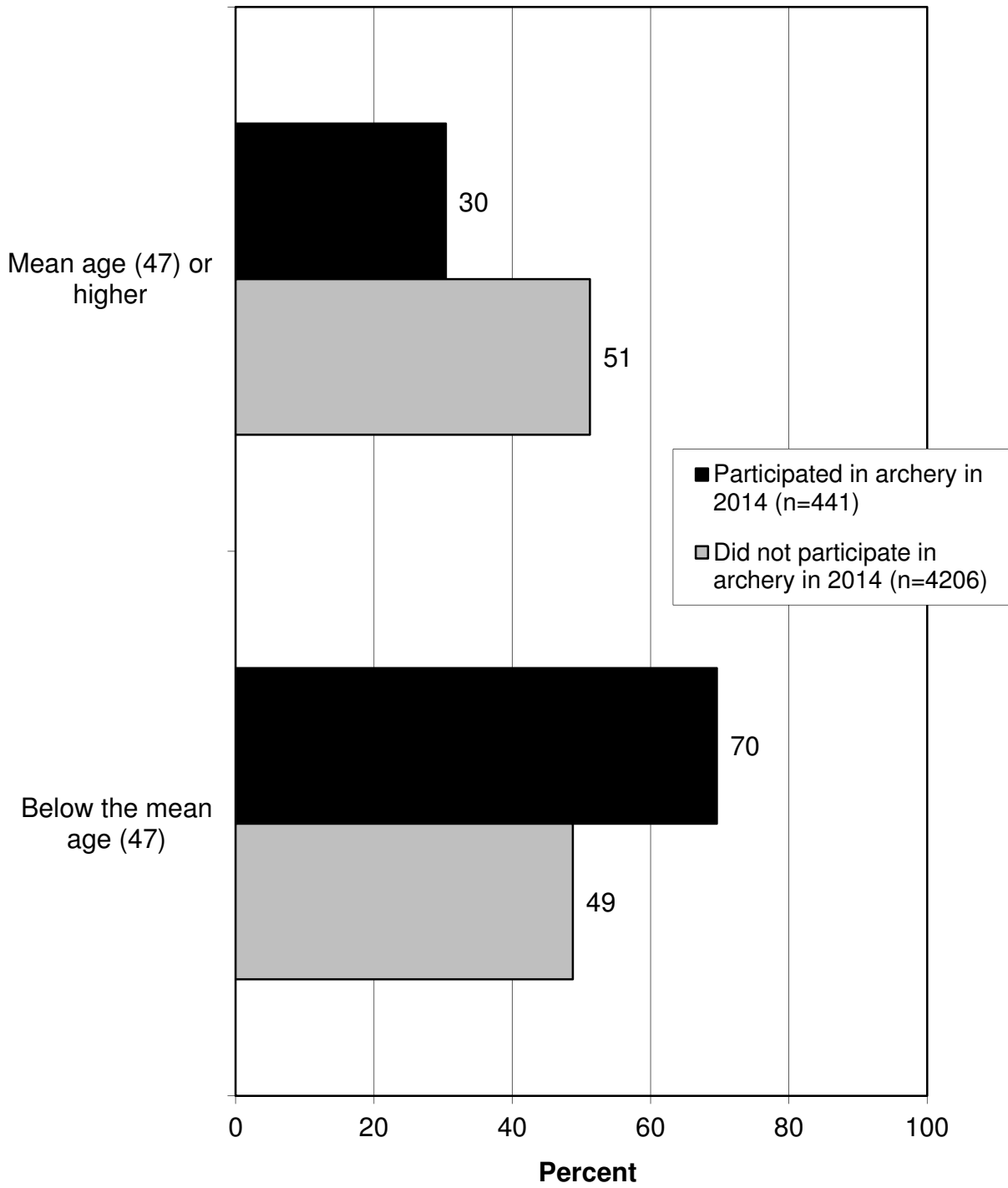
DEMOGRAPHIC CHARACTERISTICS OF ARCHERY PARTICIPANTS

- The graphs on the following pages are among all respondents in the survey, including those who did not participate in archery. Specifically, the graphs that follow compare those who shot archery in 2014 (asked at the beginning of the survey as one of the basic participation questions) and those who did not. The survey quantifiably defines the basic characteristics of typical archery participants. On each graph, the black bars represent *all archery participants* in 2014; the grey bars represent non-archers among the general public.
- Archery participants in 2014 were more often male than female by about a 3:1 margin: 78% of 2014 archers were male, and 22% were female.
 - Archery participants in 2014 were typically younger than non-archers. Two graphs pertaining to age are included, one split by the mean age, and the second broken into three age groups. These graphs show that people older than 55 were particularly low in archery participation.
 - The fourth graph in this series shows gender and age together: more than half of archery participants in 2014 (55%) were male and younger than the mean age.
 - Additional pages show graphs that suggest that archers were more on the rural side of the continuum rather than the urban side, that they had a strong Midwest presence, and they typically grew up with a firearm in their household.
 - Also in this section, some trends graphs show that the proportion of archery participants who are men increased slightly from 2012 to 2014, as the proportion made up of women decreased slightly. While age by itself did not change greatly, the graph showing age and gender together shows an increase in the proportion made up of young males. The proportion of all archery participants made up of rural people increased between 2012 to 2014. Also, the proportion of archery participants who grew up in a household with firearms increased between the two surveys.

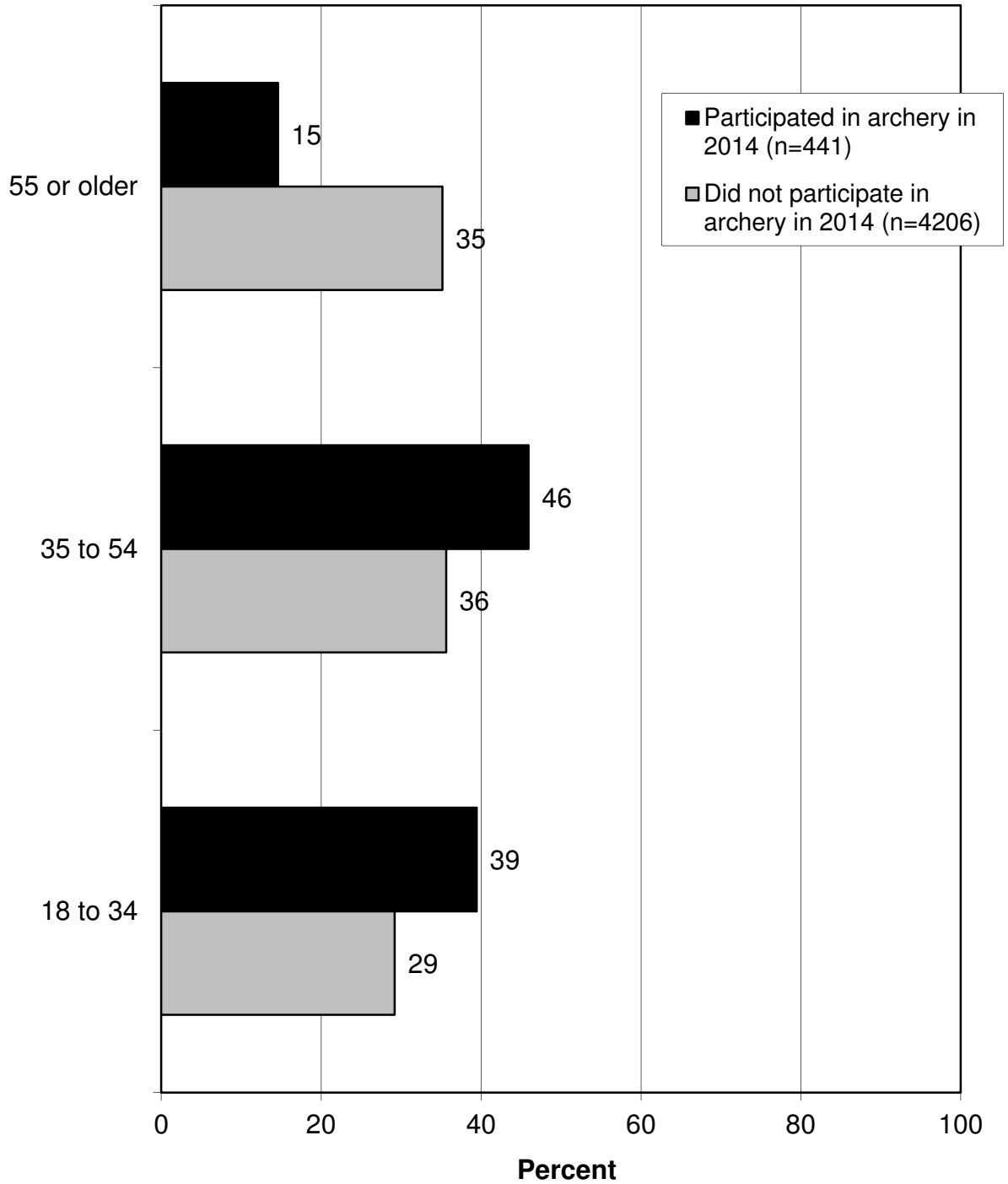
**Respondent's gender (observed by interviewer;
not asked).**



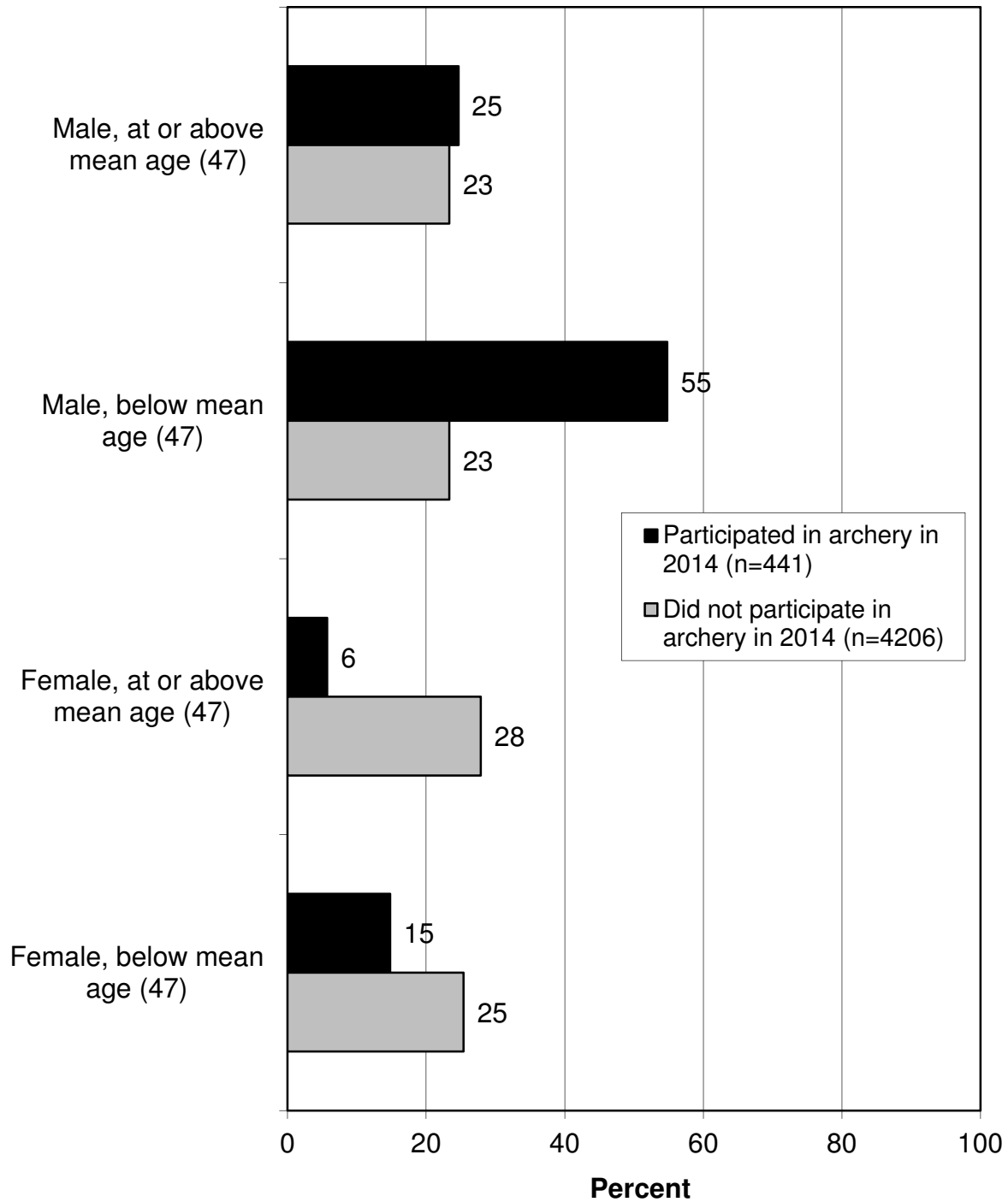
Mean split of age.



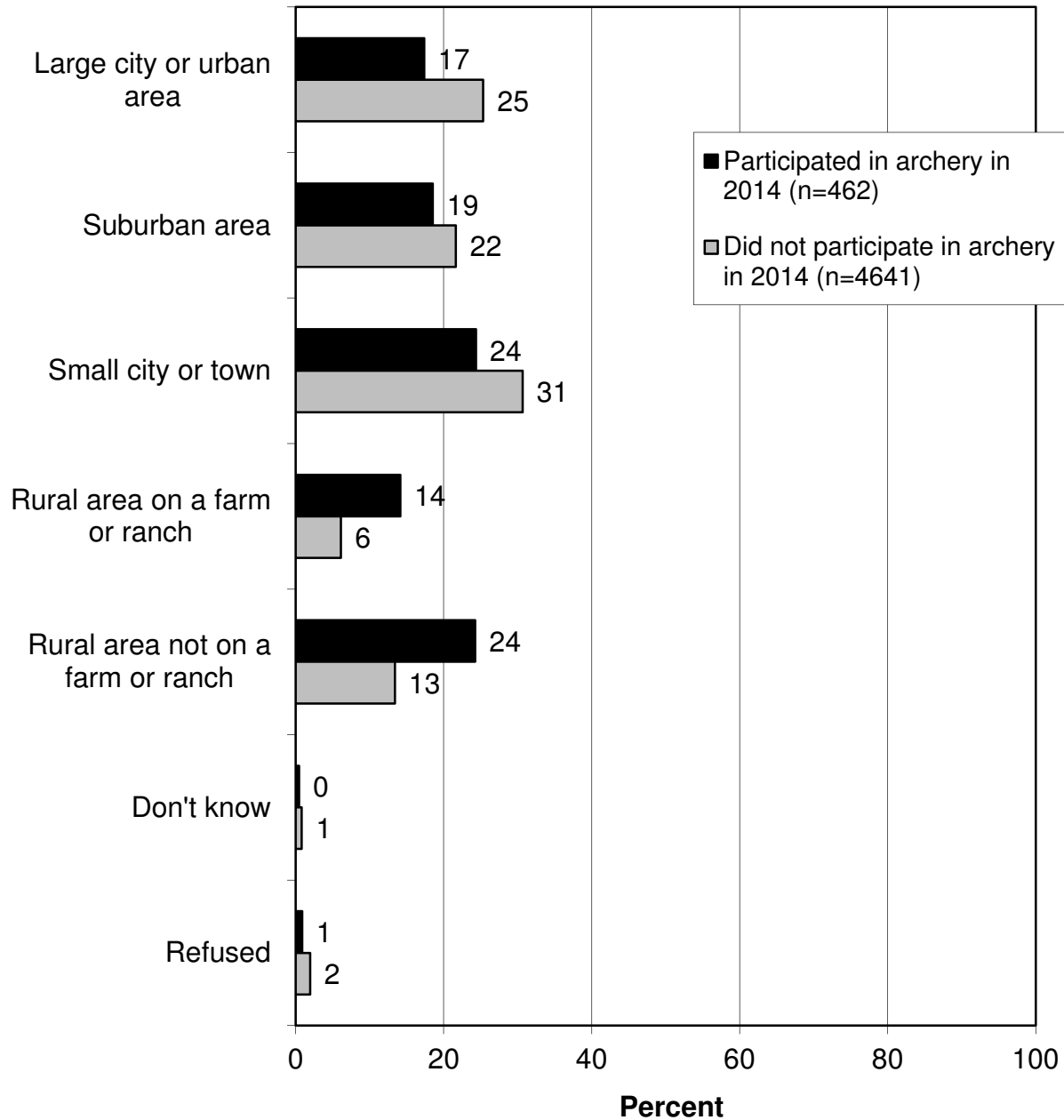
Age in three categories.



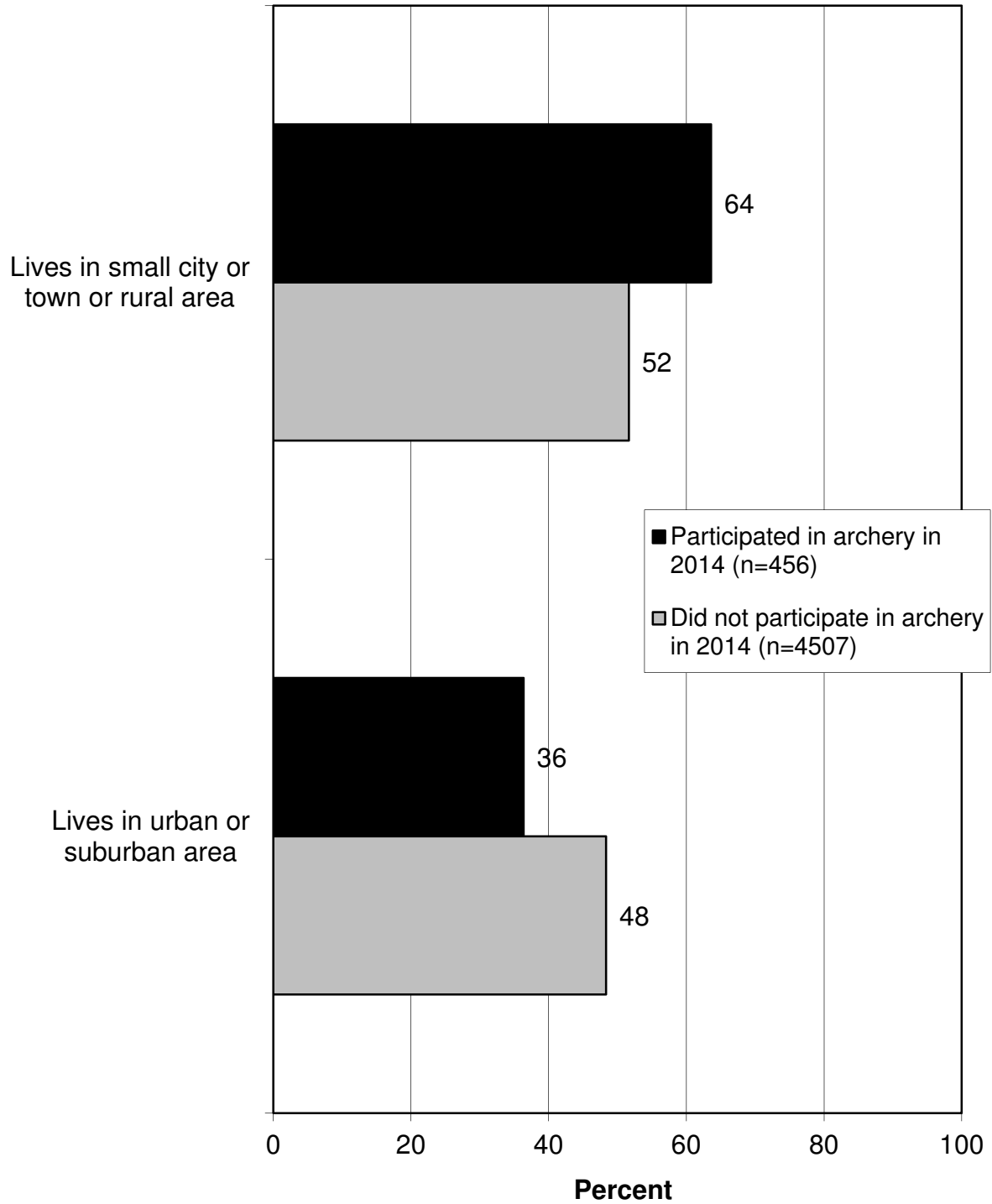
Gender / mean age categories.



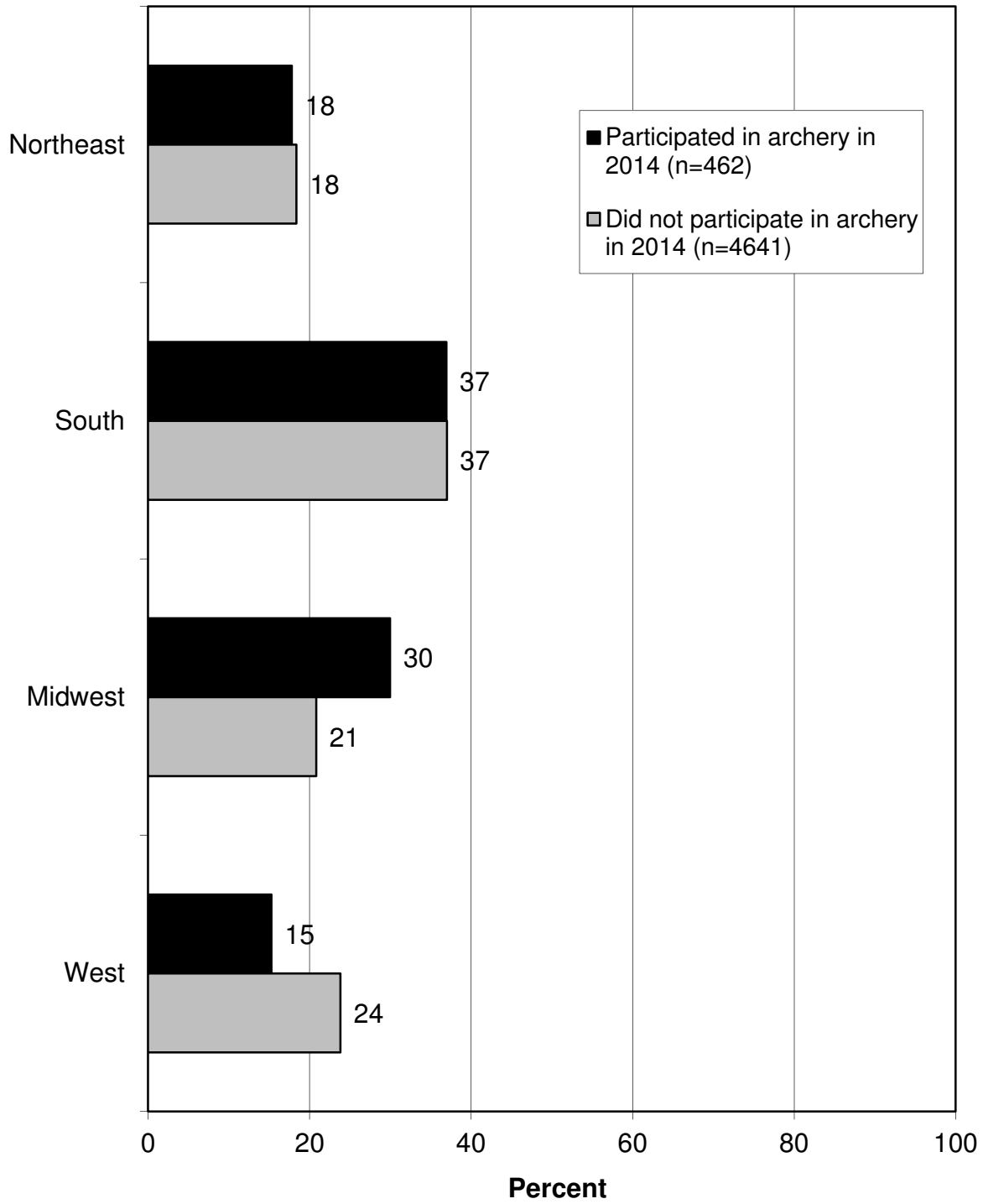
Do you consider your place of residence to be a large city or urban area, a suburban area, a small city or town, a rural area on a farm or ranch, or a rural area not on a farm or ranch?



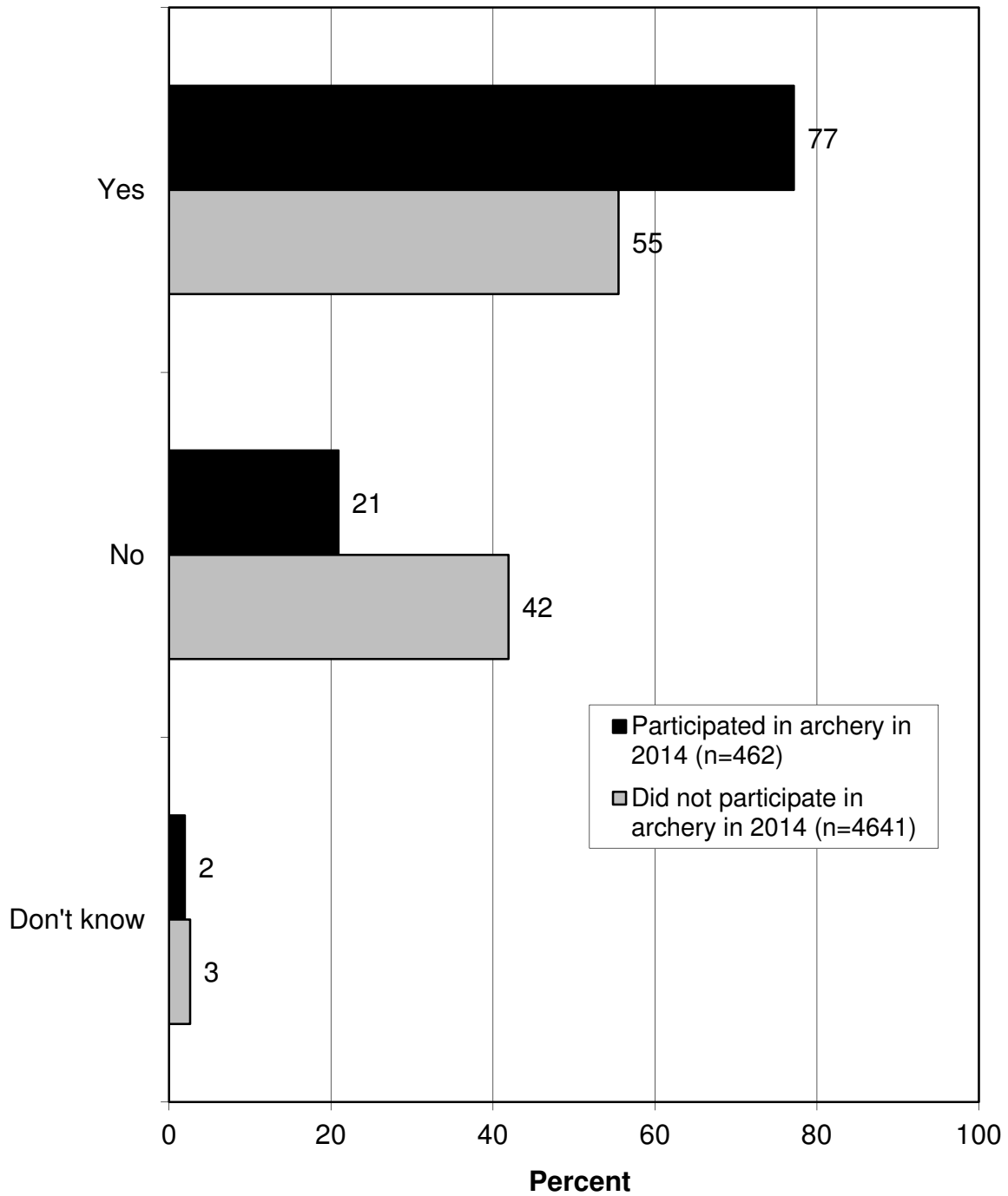
Urban / rural split.

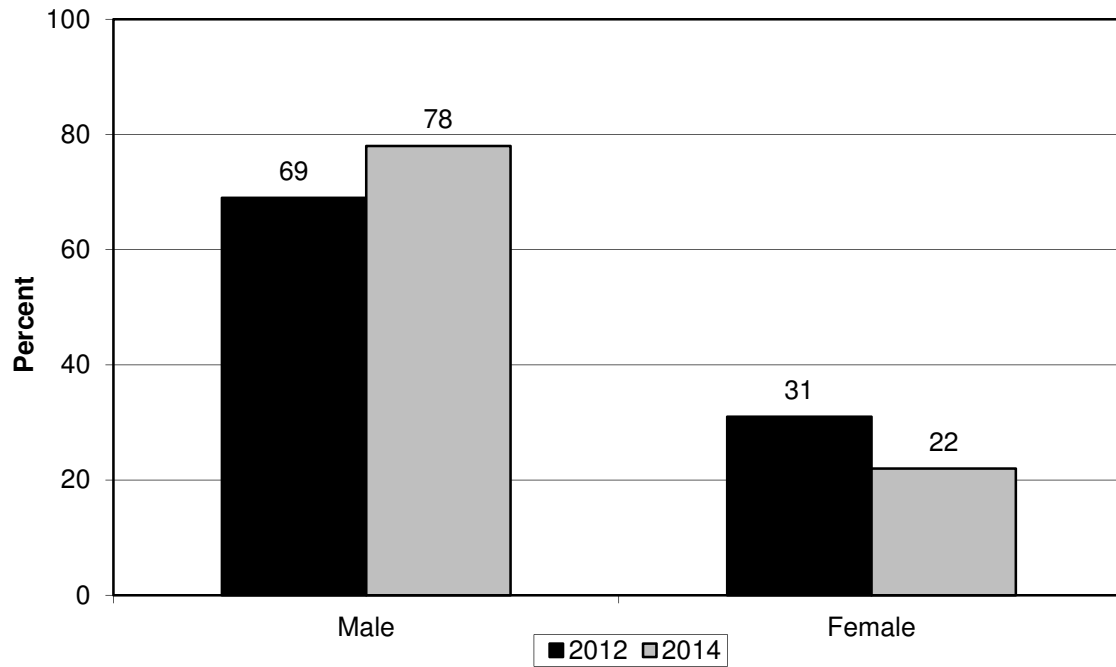
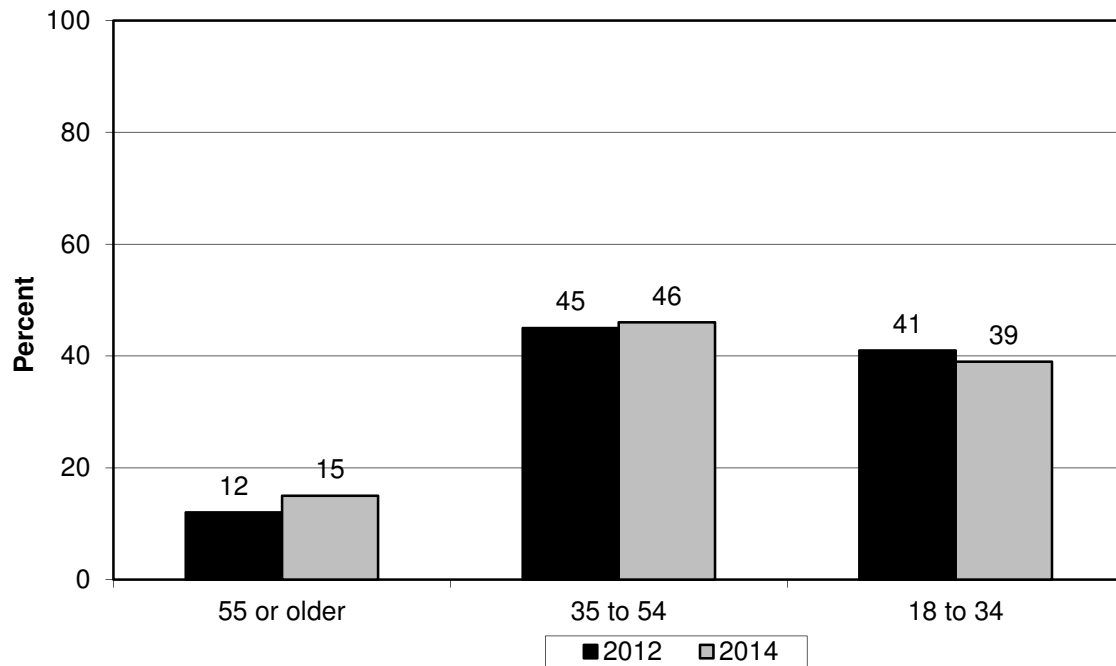


U.S. Census Region.

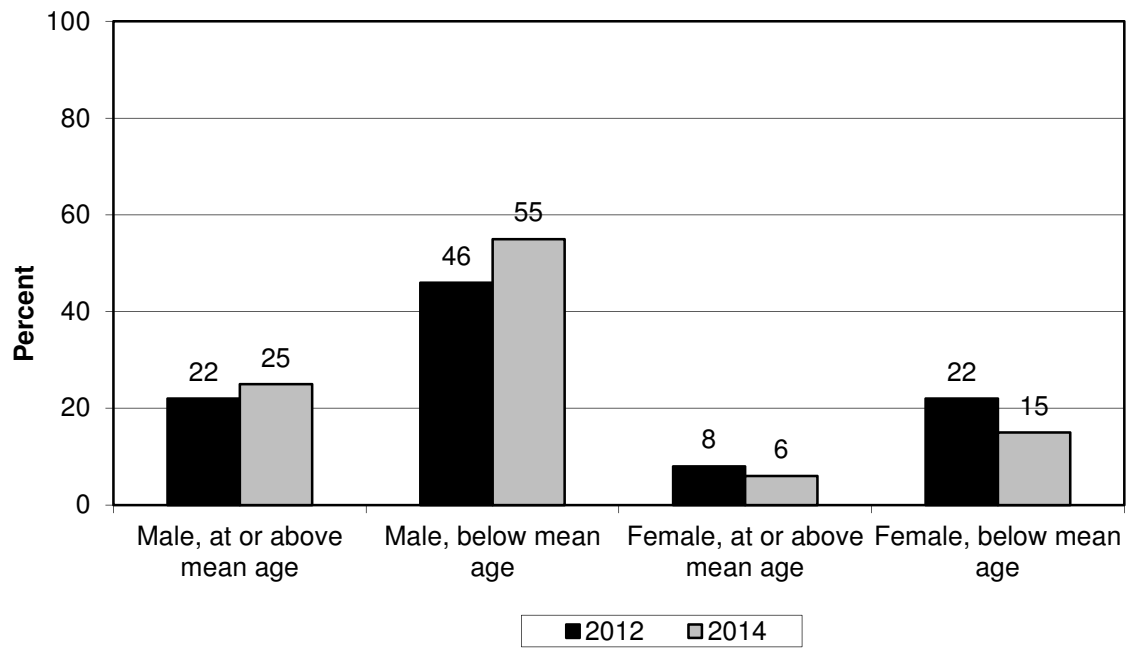


When you were growing up, did your family own any firearms?

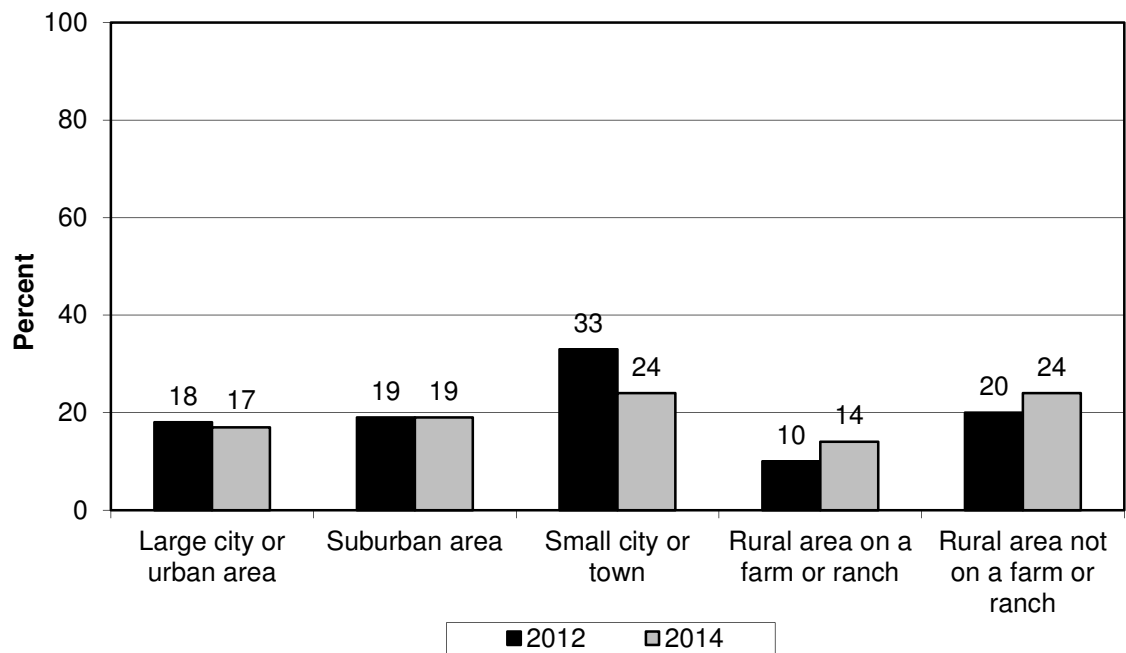


2012-2014 Gender of archery participants.**2012-2014 Age of archery participants.**

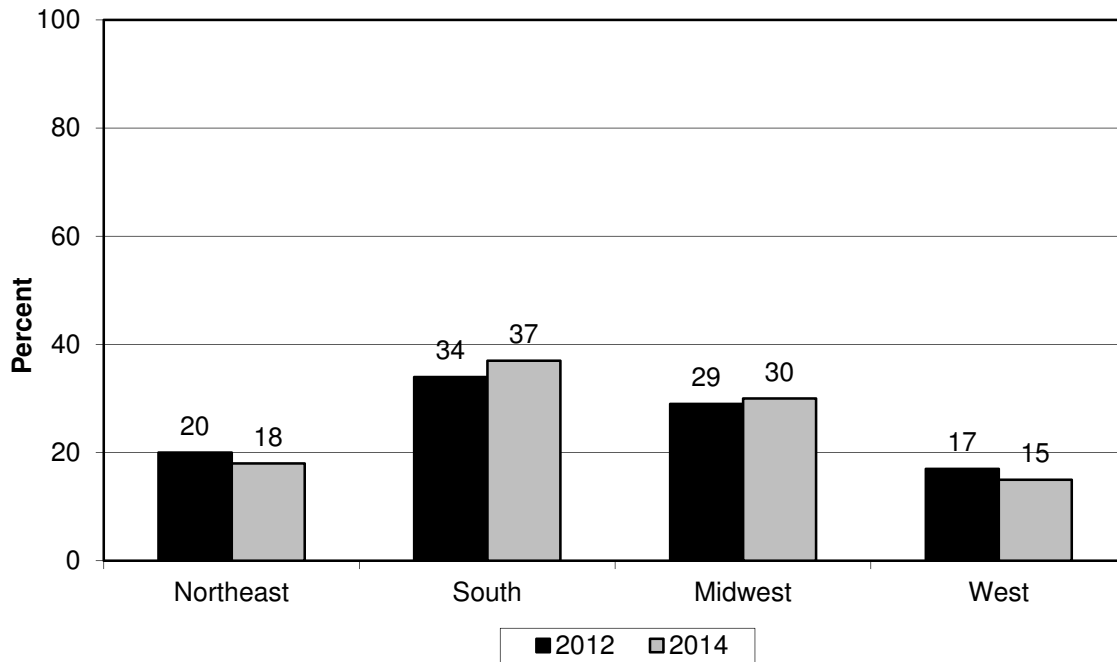
2012-2014 Gender and age of archery participants.



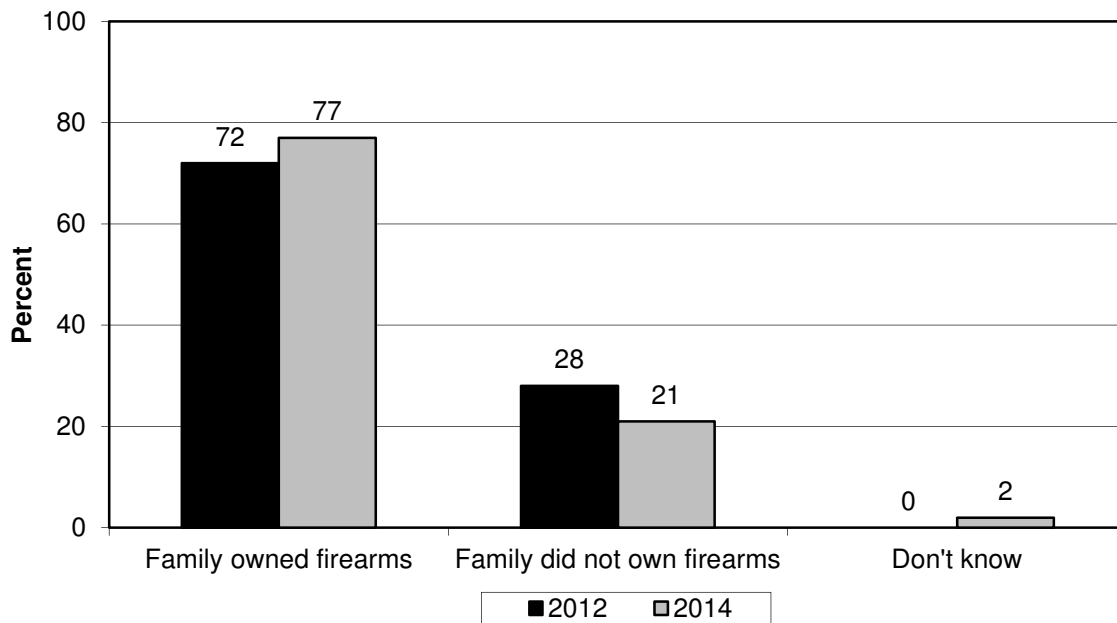
2012-2014 Residence of archery participants.



2012-2014 Region of archery participants.

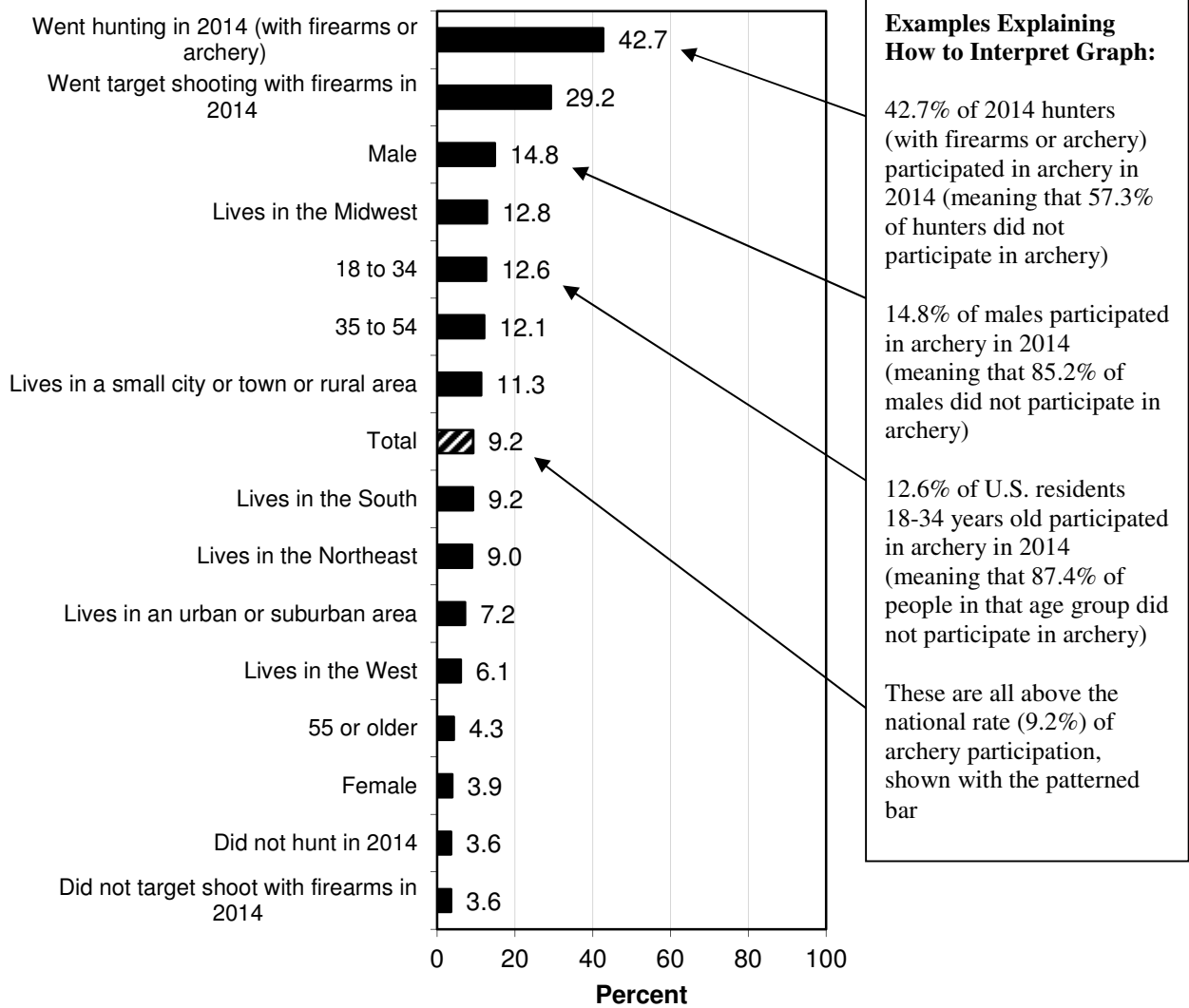


2012-2014 Household firearm status when growing up among archery participants.



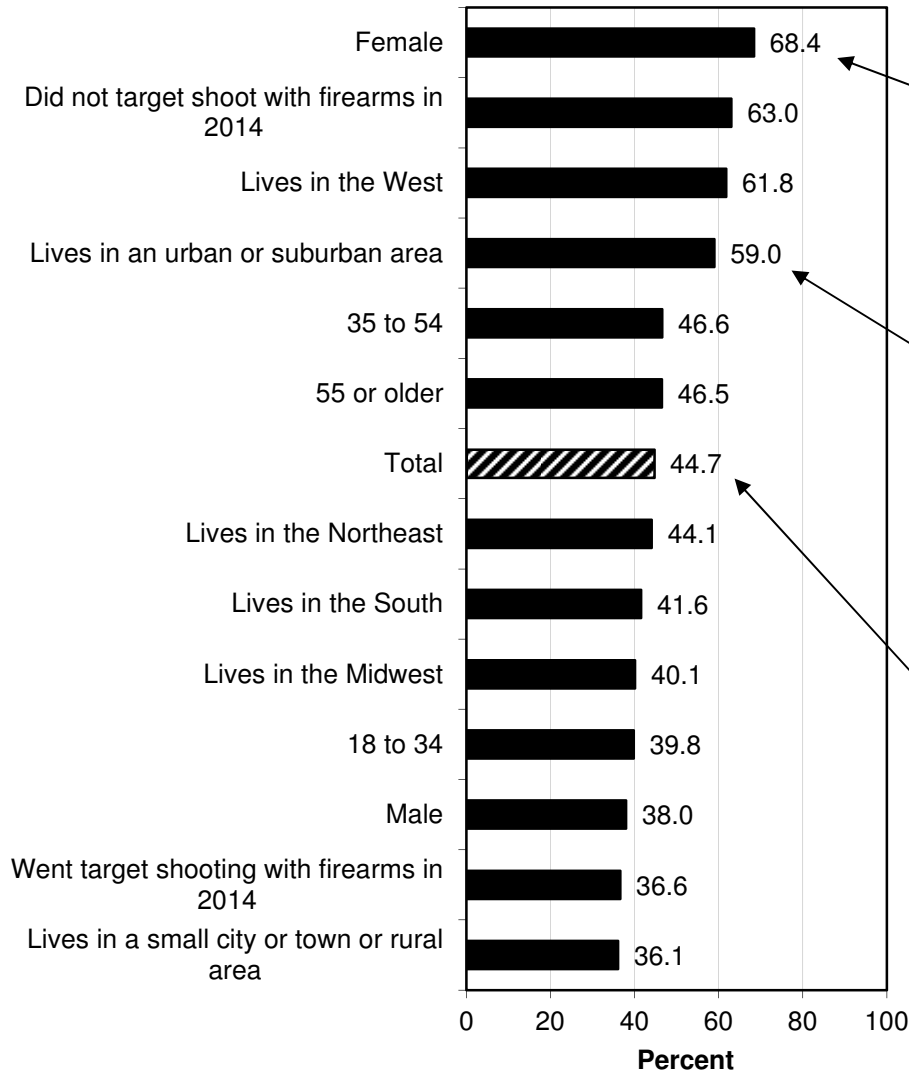
- The following graph examines the demographic characteristics of archers by comparing all of them together. The top of the graph shows those demographic correlations that are the most important—the groups that are most likely to have participated in archery. The bottom of the graph shows those groups that participate in archery at lower than the average rate among the population as a whole.
 - As shown below, participation in archery is strongly correlated with hunting participation (firearms or bowhunting), with target shooting participation (firearms), and being a young male.

Percent of each of the following groups who participated in archery in 2014:



- Similar graphs starting on the following page are included for each subgroup of archery participants: target archery only participants, target archery and bowhunting participants, and bowhunting only participants. Unlike the graph on the previous page, which shows the percentages out of all U.S. residents, the next three graphs show the percentages *out of those who participated in any archery (target archery or bowhunting) in 2014*.
- One shows the demographic characteristics of *target archery only participants*. They are correlated with being female, living in the West Region, and being on the more urban side of the rural-urban continuum, among other characteristics.
 - A second graph shows the demographic characteristics of *target archery and bowhunting participants*. They are correlated with living in the Midwest, being more on the rural side of the continuum, and being male.
 - The last graph shows the demographic characteristics of *bowhunting only participants*. They also are correlated with living more on the rural side of the continuum, living in the South, and being male.

Among all archery participants (target or bowhunting), the percent of each of the following groups who participated only in target archery:



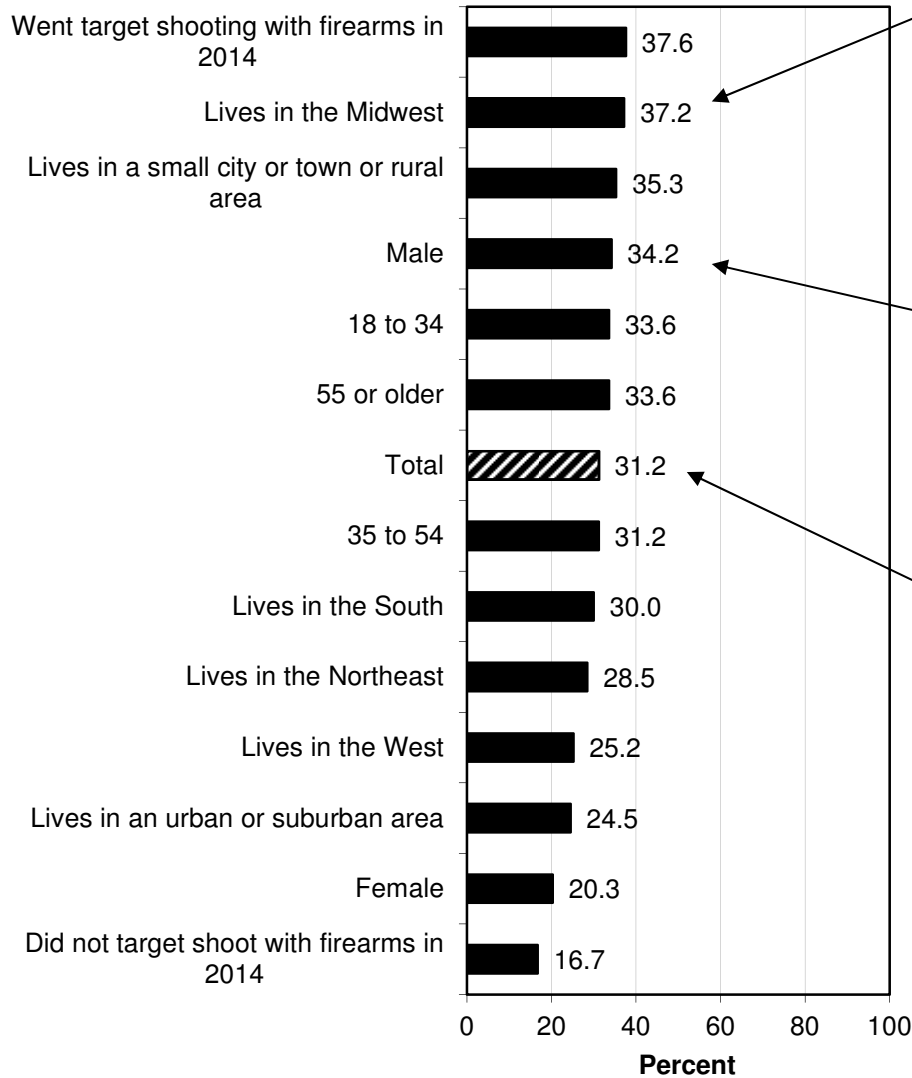
Examples Explaining How to Interpret Graph:

68.4% of female archery participants were *target archery only participants* (meaning that 31.6% of female archery participants were in either of the other two subgroups)

59.0% of archery participants who live in an urban or suburban area were *target archery only participants* (meaning that 41.0% of archery participants from those areas were in either of the other two subgroups)

These are all above the national rate among archery participants (44.7%) who participated in archery but not bowhunting, shown with the patterned bar

Among all archery participants (target or bowhunting), the percent of each of the following groups who participated in both target archery and bowhunting:



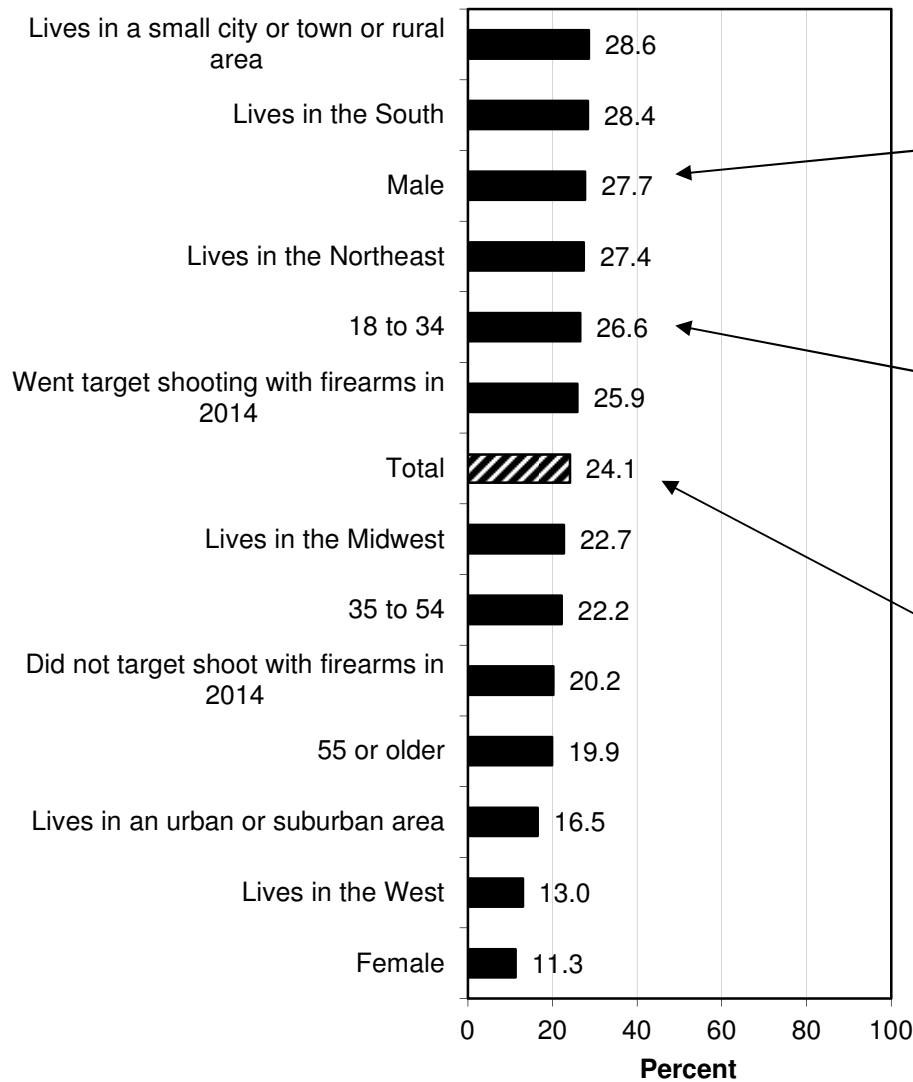
Examples Explaining How to Interpret Graph:

37.2% of archery participants who live in the Midwest were *target archery and bowhunting participants* (meaning that 62.8% of archery participants who live in the Midwest were in either of the other two subgroups)

34.2% of male archery participants were *target archery and bowhunting participants* (meaning that 65.8% of male archery participants were in either of the other two subgroups)

These are above the national rate among archery participants (31.2%) who were *target archery and bowhunting participants*, shown with the patterned bar

Among all archery participants, the percent of each of the following groups who participated only in bowhunting:



Examples Explaining How to Interpret Graph:

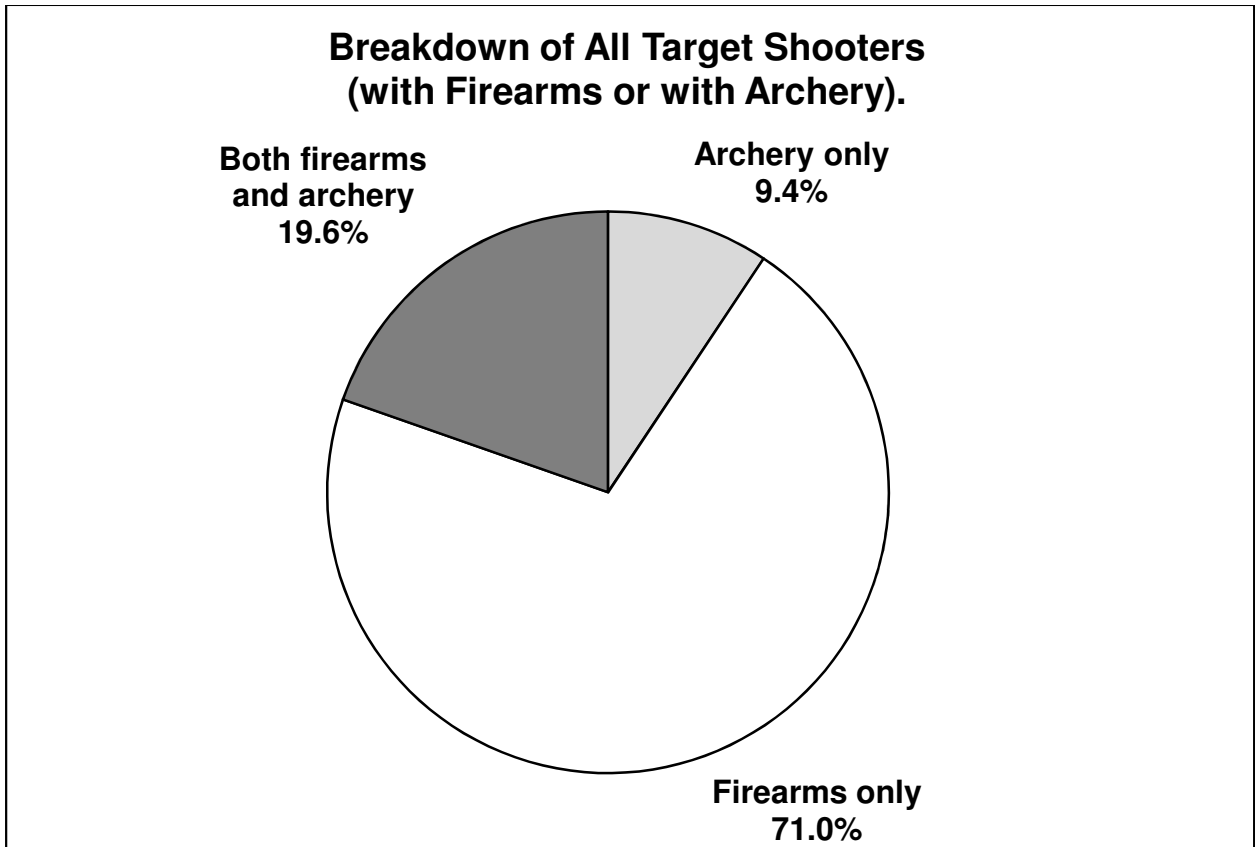
27.7% of male archery participants were *bowhunting only participants* (meaning that 72.3% of male archery participants were in either of the other two subgroups)

26.6% of archery participants 18-34 years old were *bowhunting only participants* (meaning that 73.4% of archery participants 18-34 years old were in either of the other two subgroups)

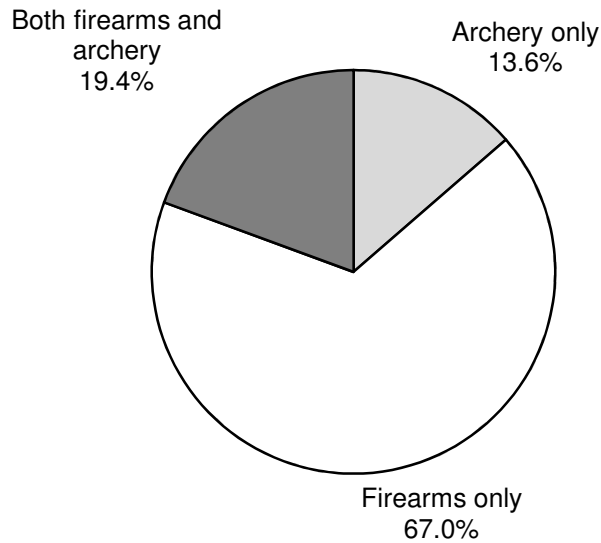
These are above the national rate among archery participants (24.1%) who were *bowhunting only participants*, shown with the patterned bar

TARGET SHOOTING, HUNTING, AND ARCHERY PARTICIPATION

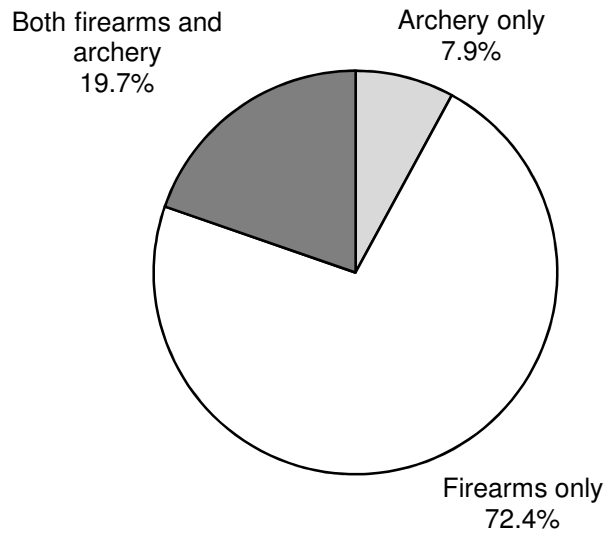
- The survey explored the interactions of target shooting (with firearms or archery) and hunting (with firearms or archery). The first analysis shows all target shooters. Among all target shooters, 29.0% use archery, including 9.4% who target shoot exclusively with archery. Meanwhile, 71.0% use firearms only for target shooting, and another 19.6% use both firearms and archery (a sum of 90.6% using firearms).
 - A regional comparison is also shown, as well as graphs of trends.



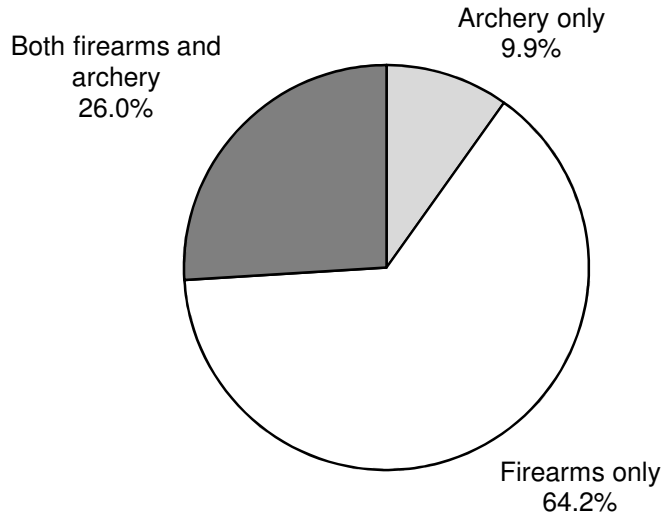
**Breakdown of All Target Shooters
(with Firearms or with Archery).
Northeast Region (n=196)**



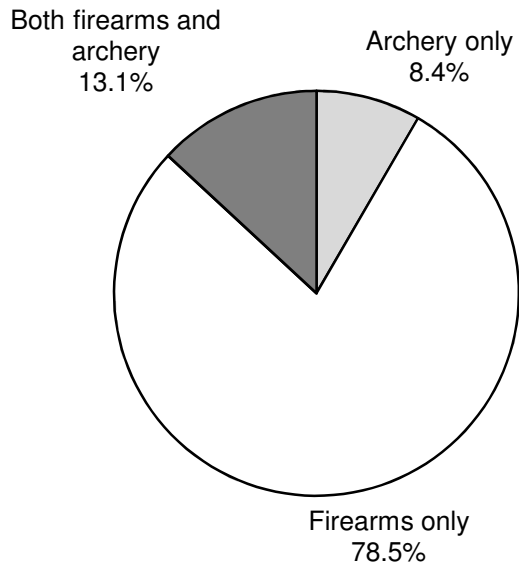
**Breakdown of All Target Shooters
(with Firearms or with Archery).
South Region (n=432)**



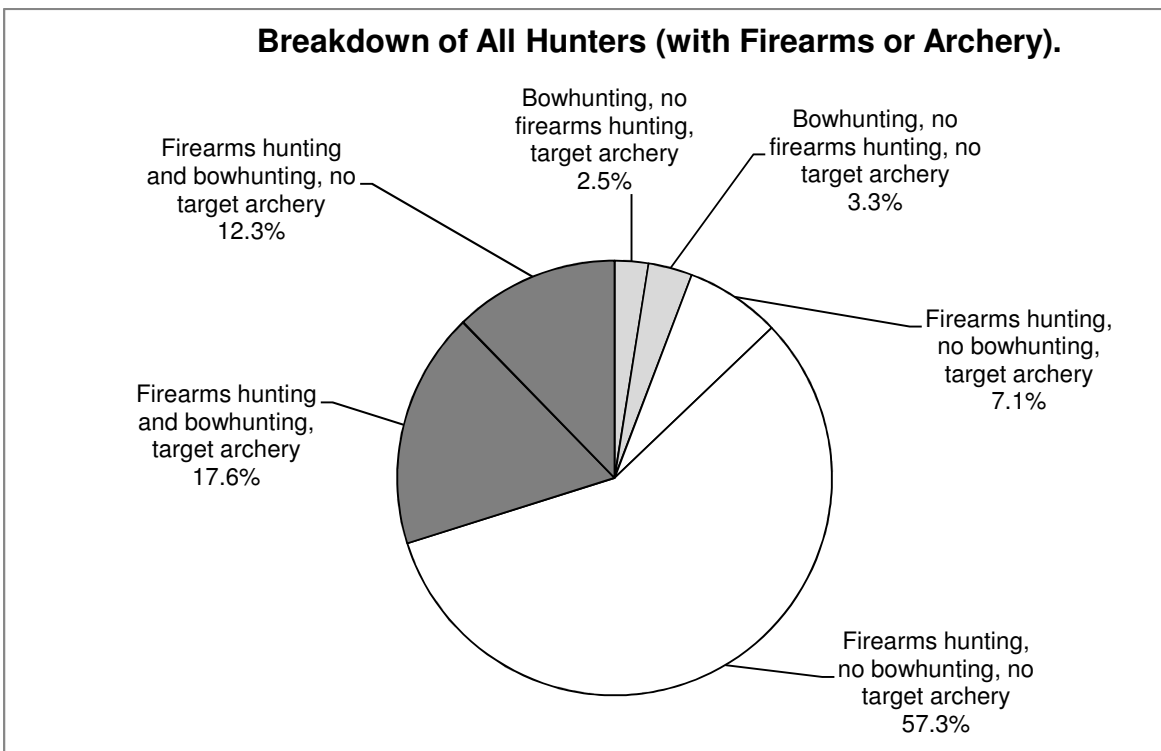
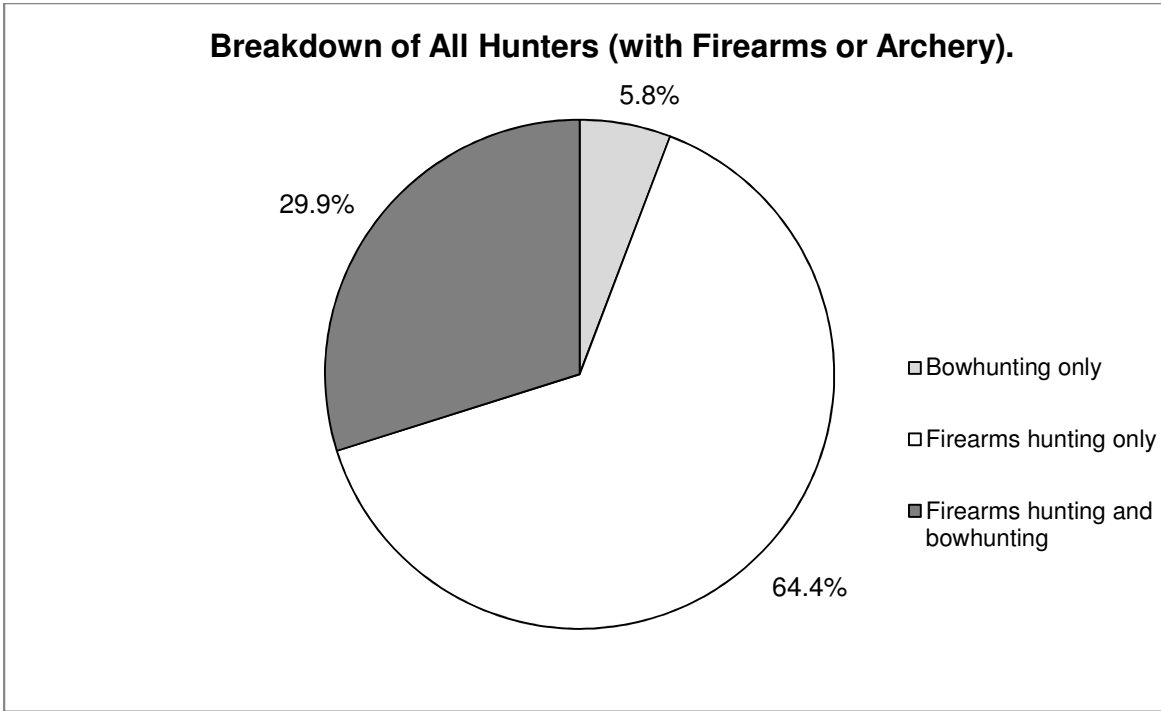
**Breakdown of All Target Shooters
(with Firearms or with Archery).
Midwest Region (n=311)**

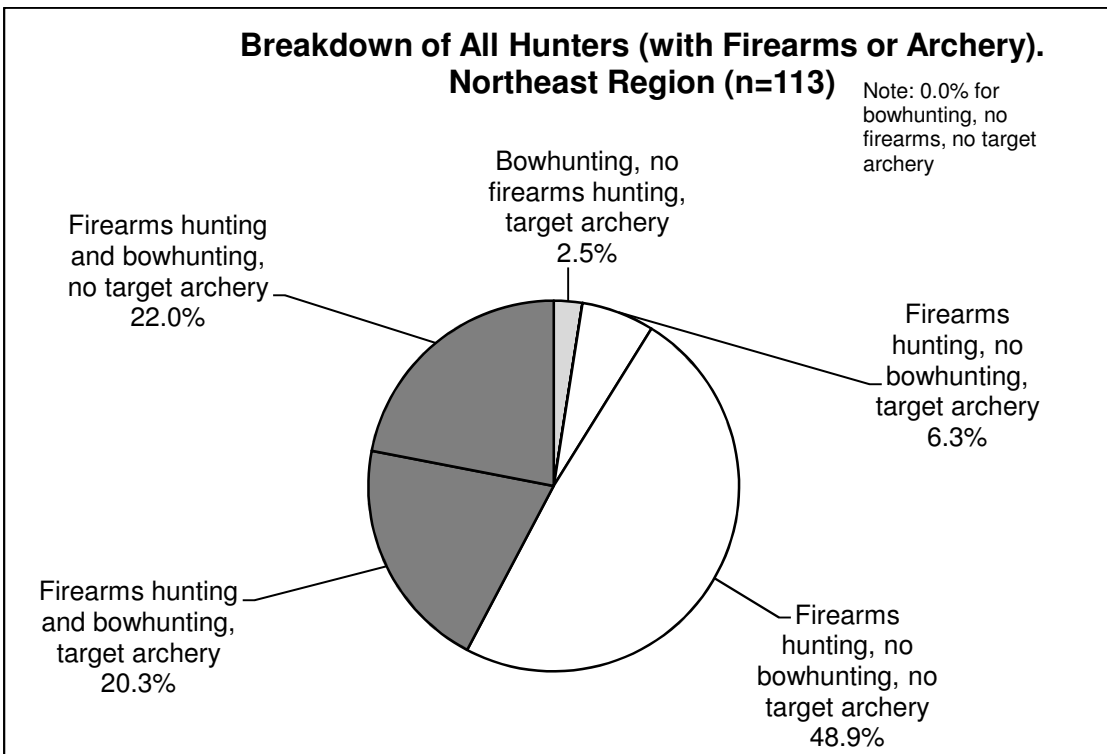
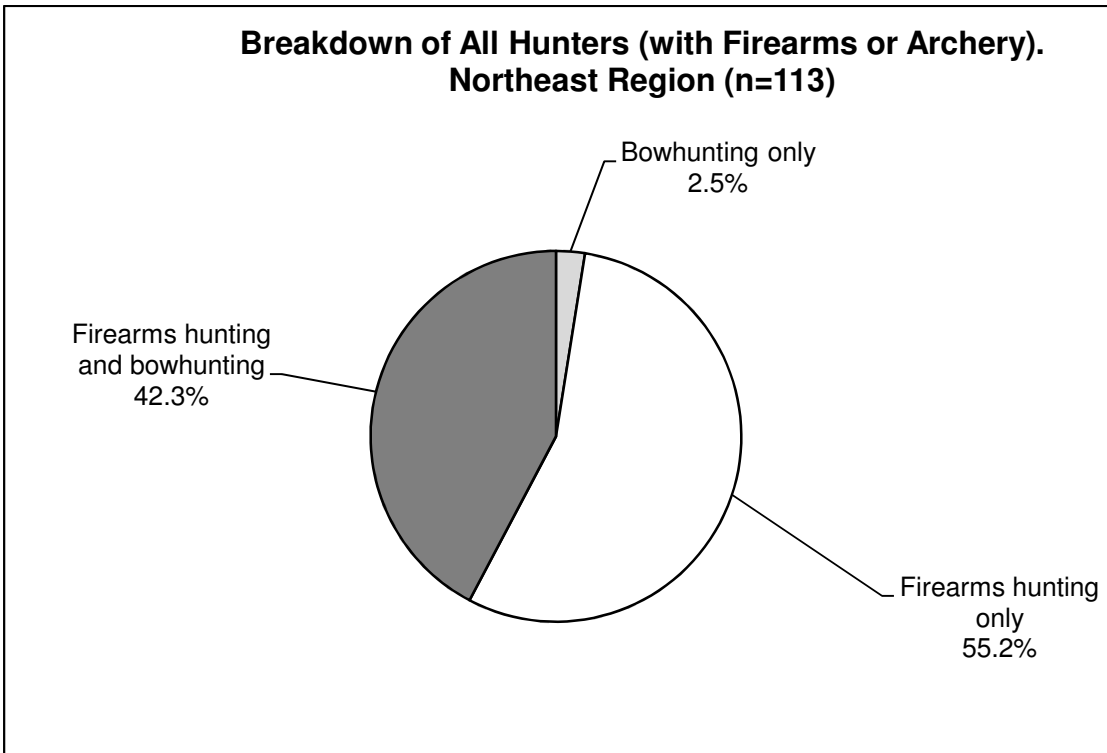


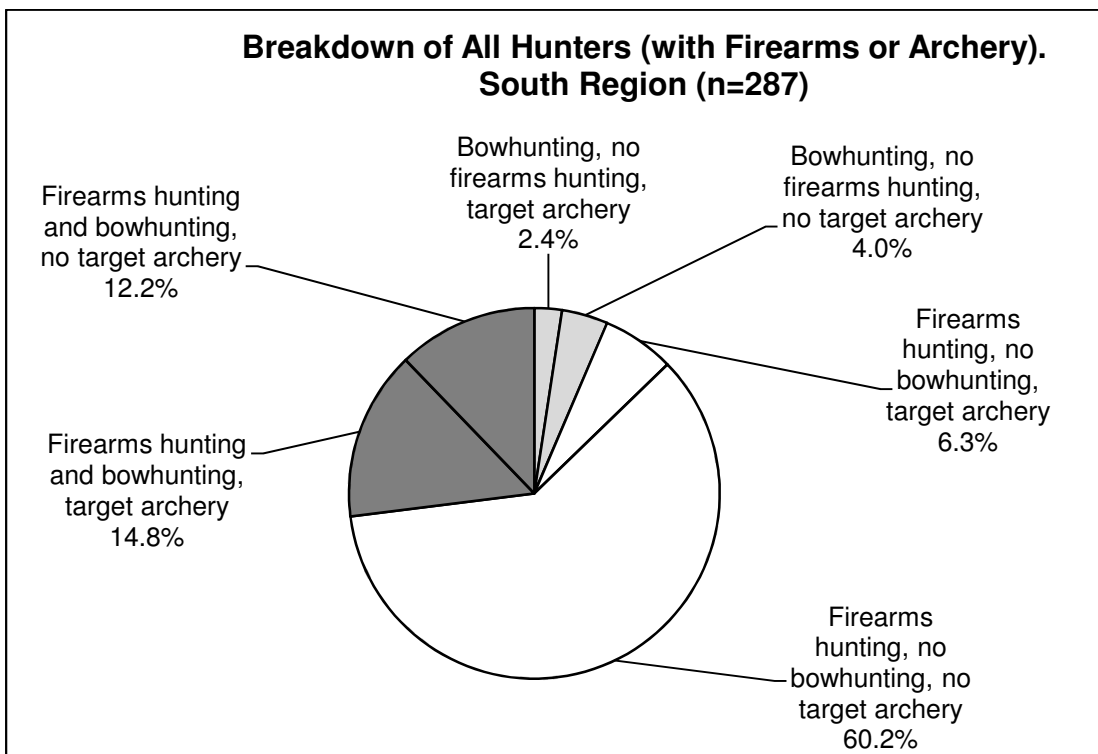
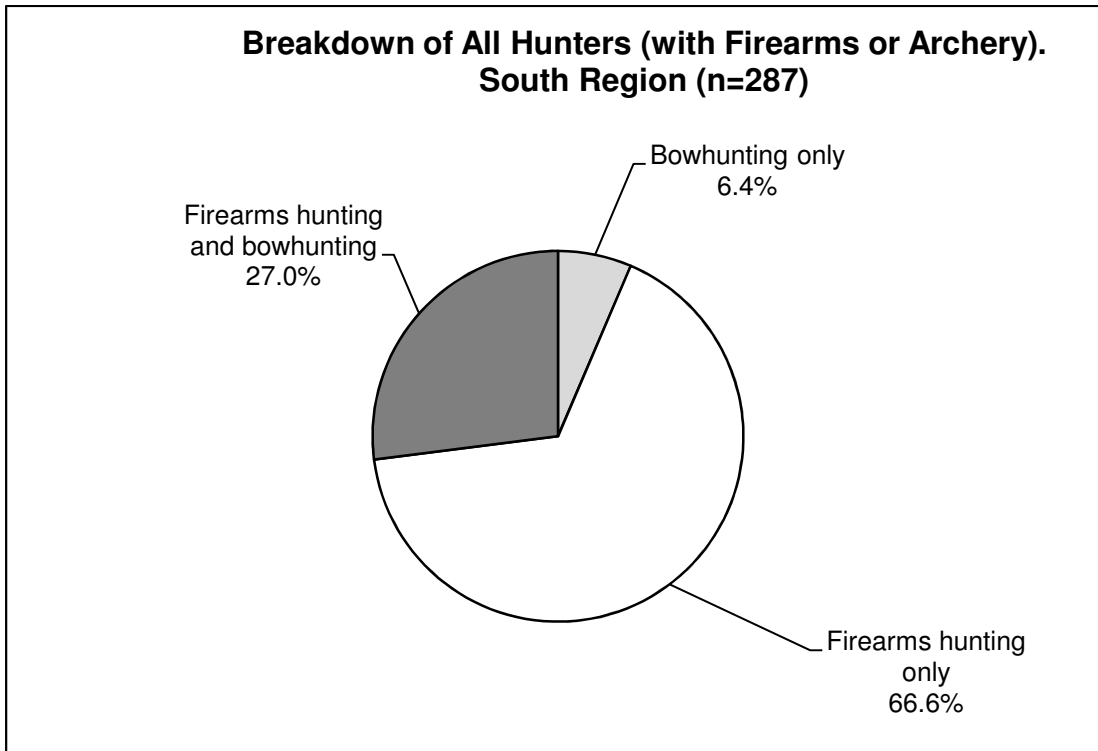
**Breakdown of All Target Shooters
(with Firearms or with Archery).
West (n=287)**

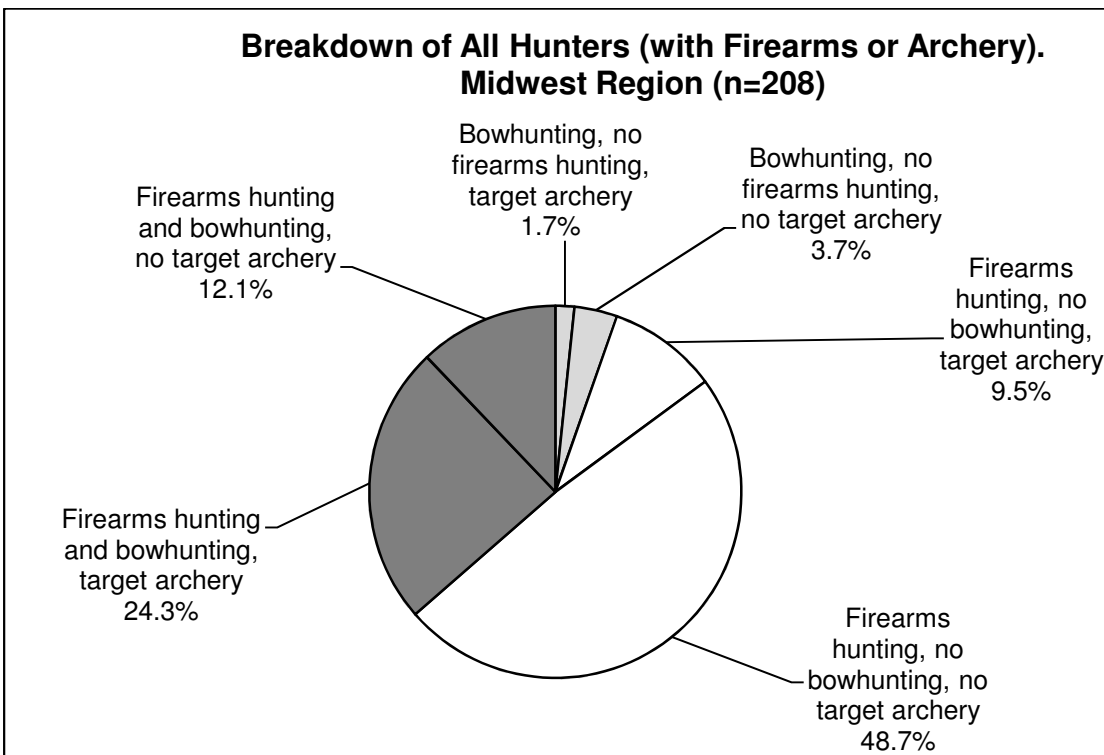
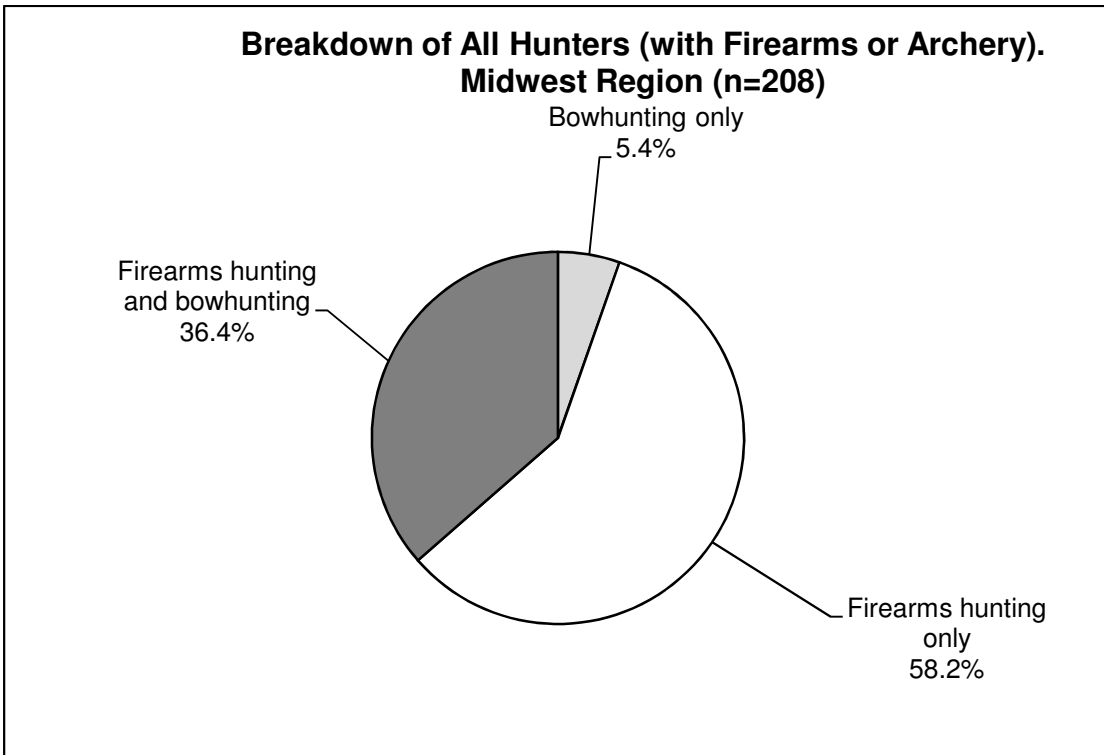


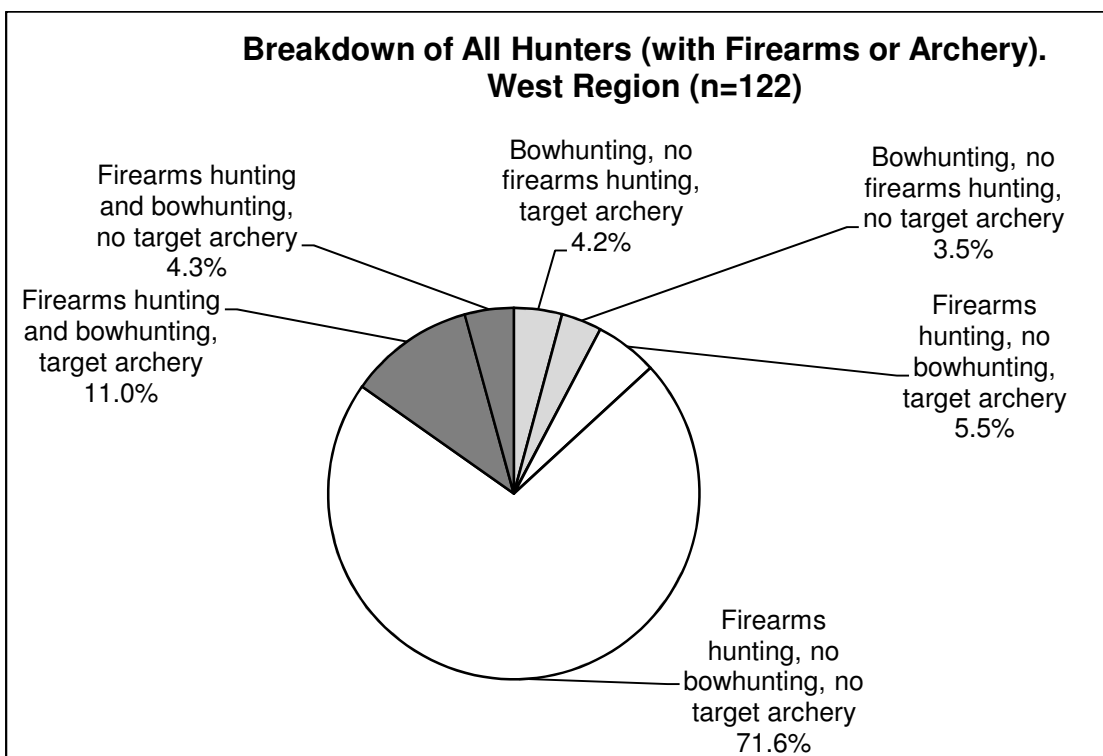
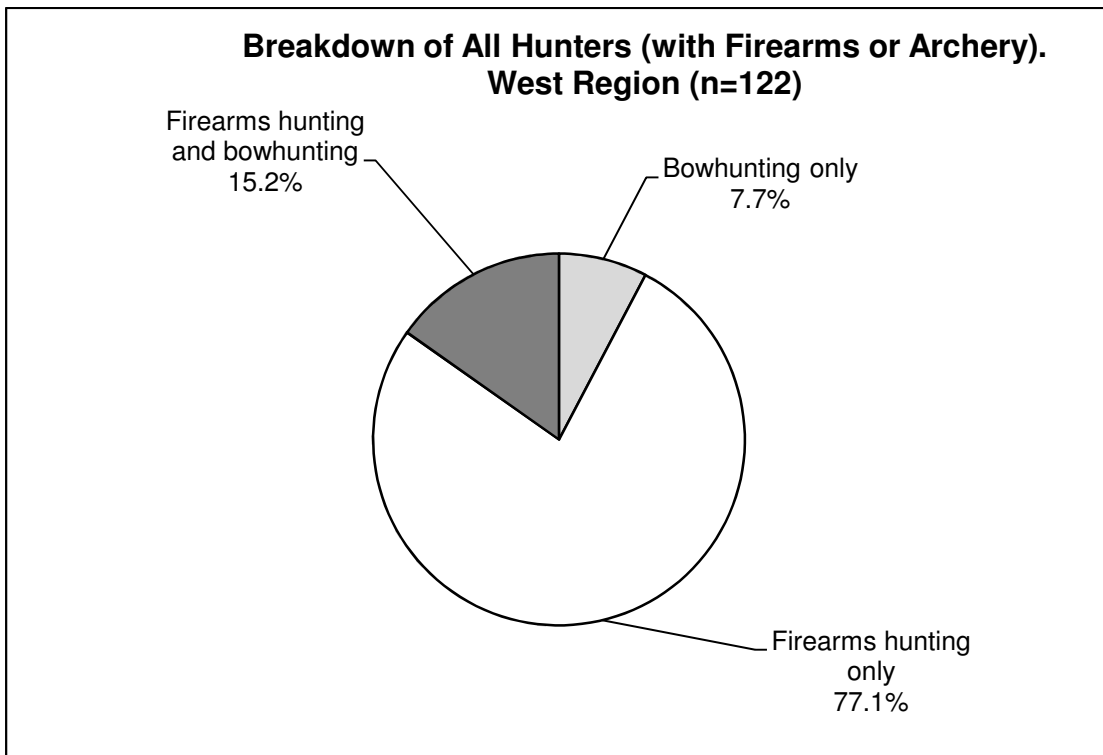
- As was done previously, all hunters were categorized into groups; the bottom graph simply divides each of the three major groups into those who did target archery (i.e., separate from bowhunting) and those who did not do it. A little more than a third of hunters (35.7%) use archery equipment at least some of the time.



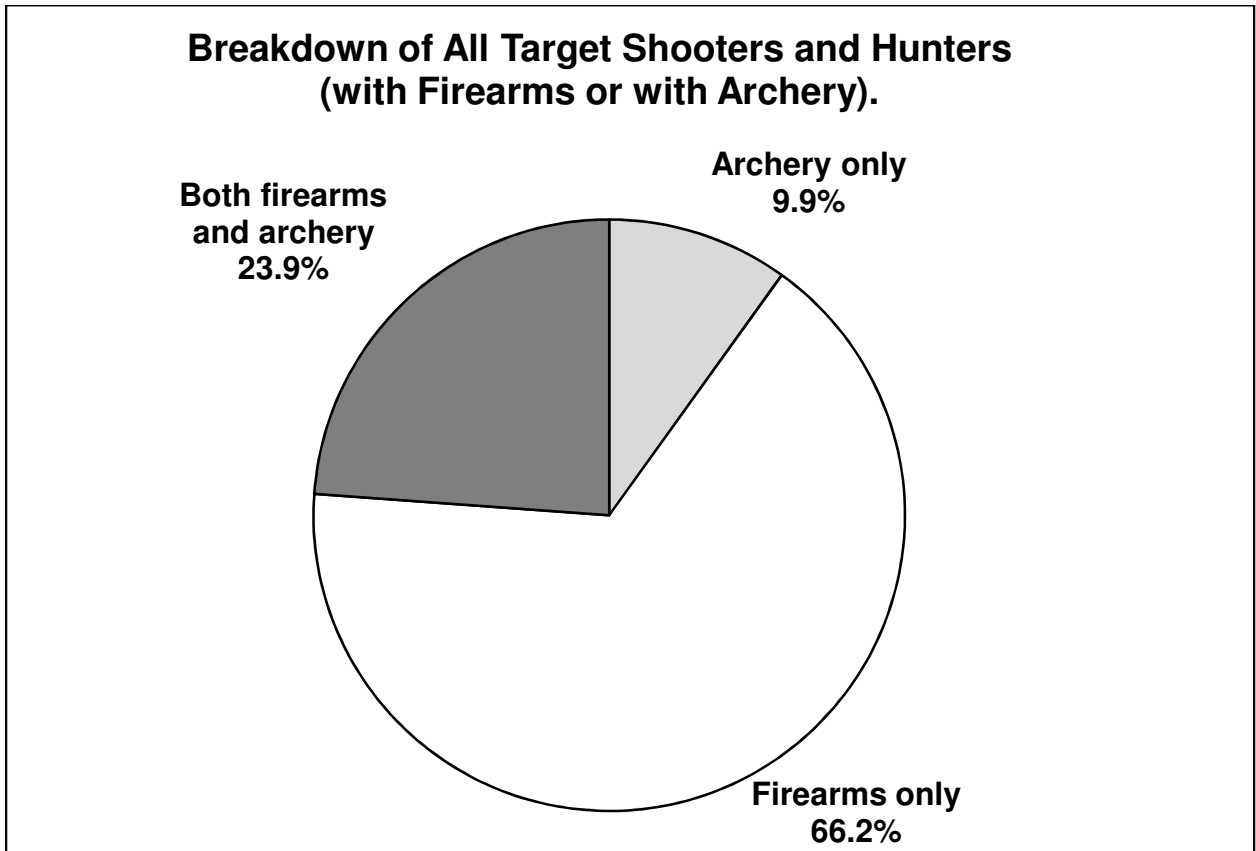




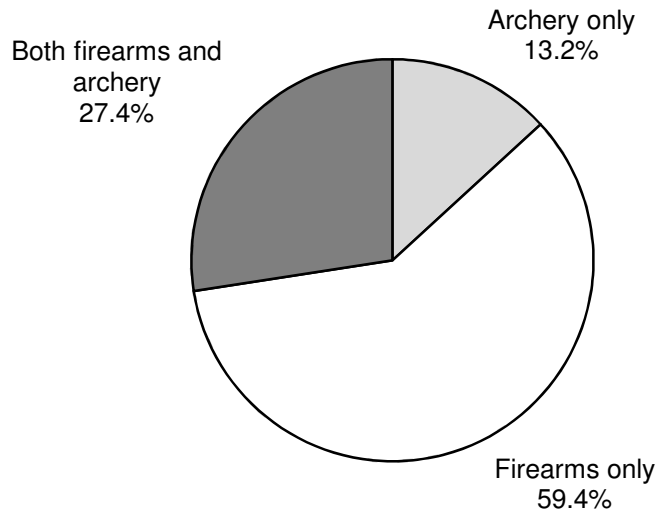




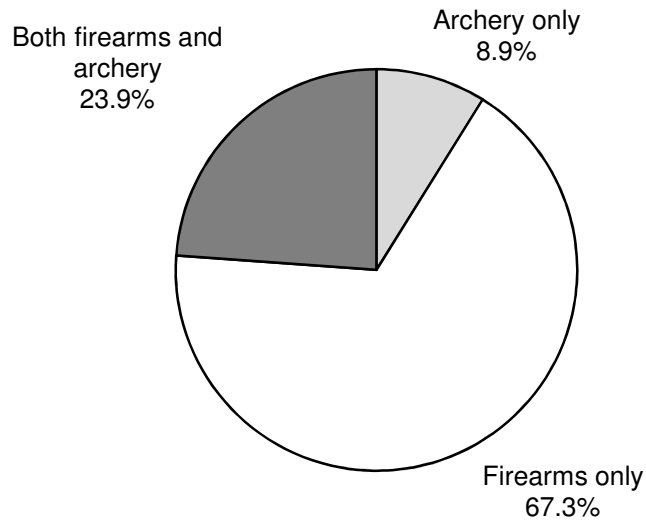
- Finally, all those who did either target shooting or hunting, with either firearms or archery, were categorized. In this breakdown, 33.8% use archery for one or both of the activities (firearms still predominate, with 90.1% using them for one or both activities).



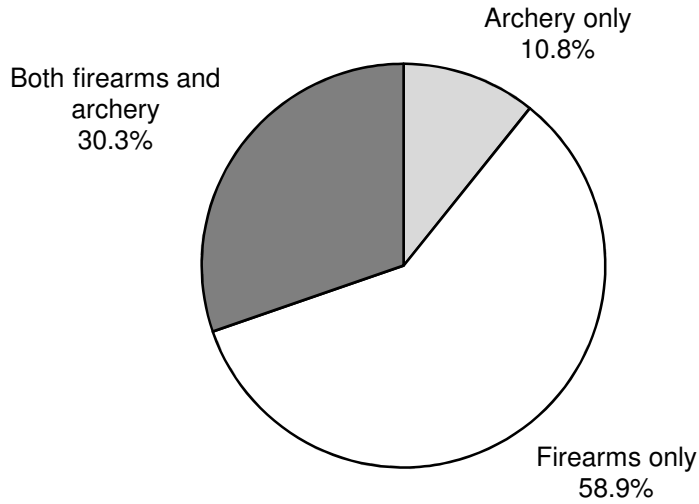
**Breakdown of All Target Shooters and Hunters
(with Firearms or with Archery).
Northeast Region (n=219)**



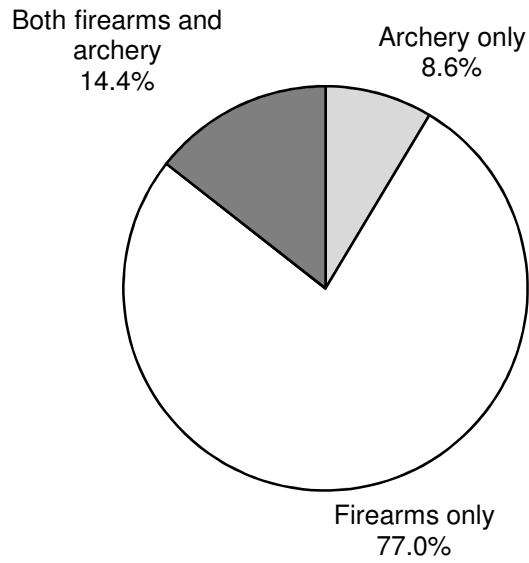
**Breakdown of All Target Shooters and Hunters
(with Firearms or with Archery).
South Region (n=509)**



**Breakdown of All Target Shooters and Hunters
(with Firearms or with Archery).
Midwest Region (n=352)**

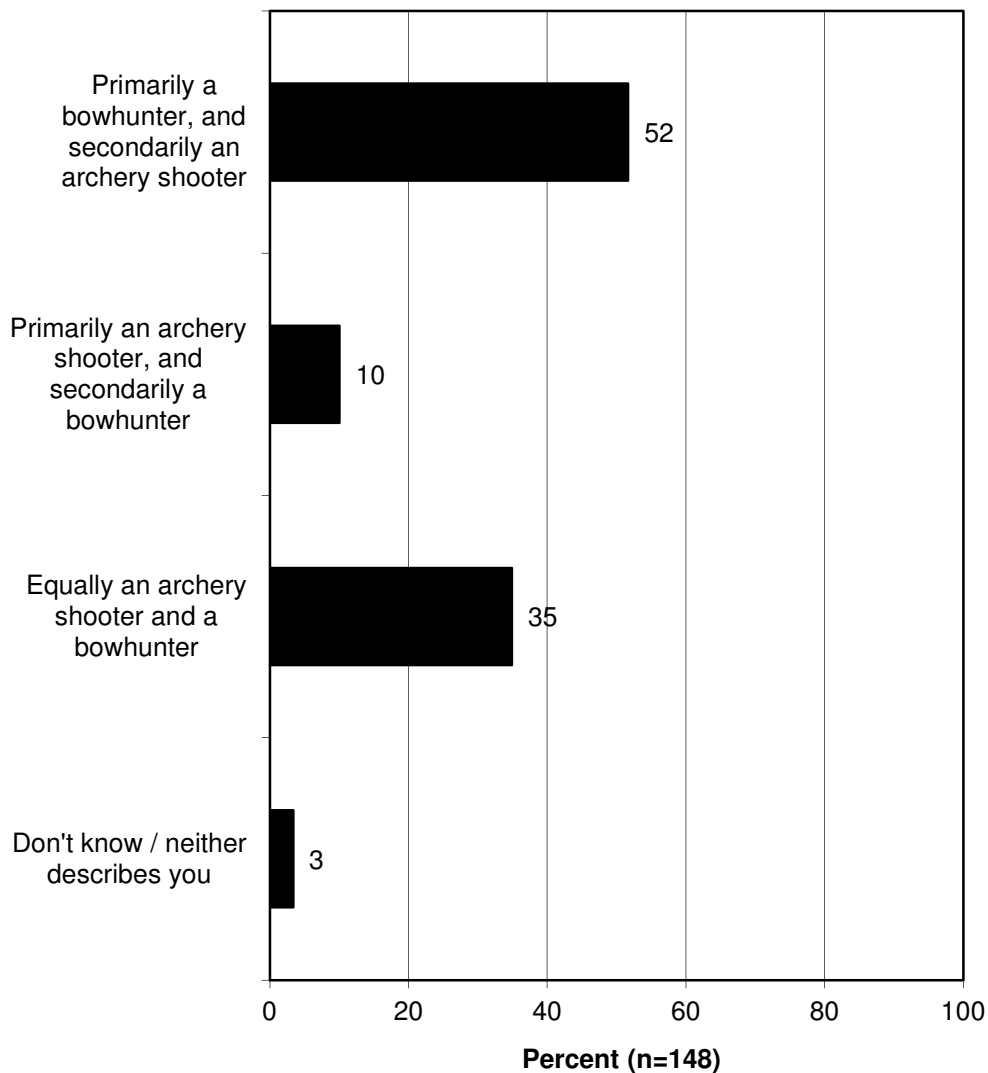


**Breakdown of All Target Shooters and Hunters
(with Firearms or with Archery).
West Region (n=308)**

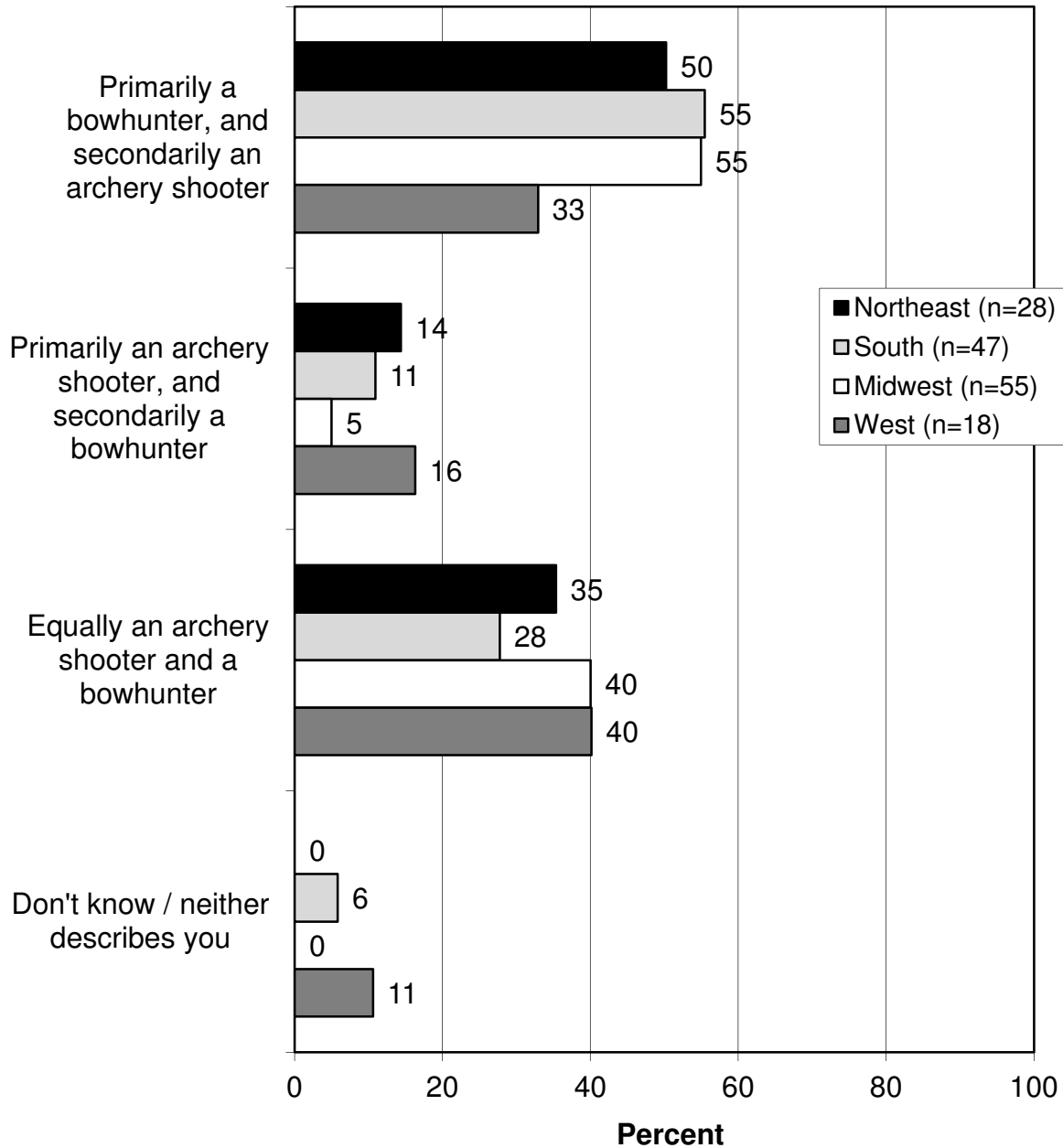


- The survey asked those who did both bowhunting and archery shooting exclusive of bowhunting whether they considered themselves more of a bowhunter or more of an archery shooter, or whether they considered themselves both. Slightly more than half of these respondents (52%) consider themselves to primarily be bowhunters; only 10% consider themselves to primarily be archery shooters.

**Which of the following do you consider yourself regarding bowhunting and archery?
(Asked of those who participated in target archery shooting and bowhunting in 2014.)**



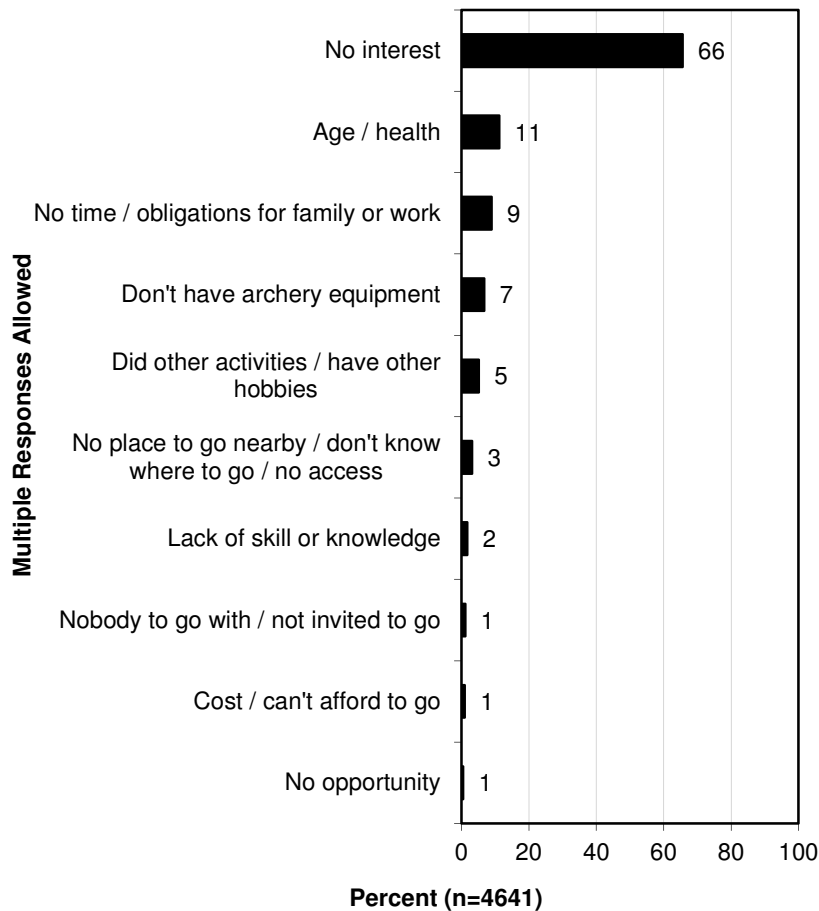
**Which of the following do you consider yourself regarding bowhunting and archery?
(Asked of those who participated in target archery shooting and bowhunting in 2014.)**



AN ATTITUDINAL AND DEMOGRAPHIC ANALYSIS OF NON-ARCHERS

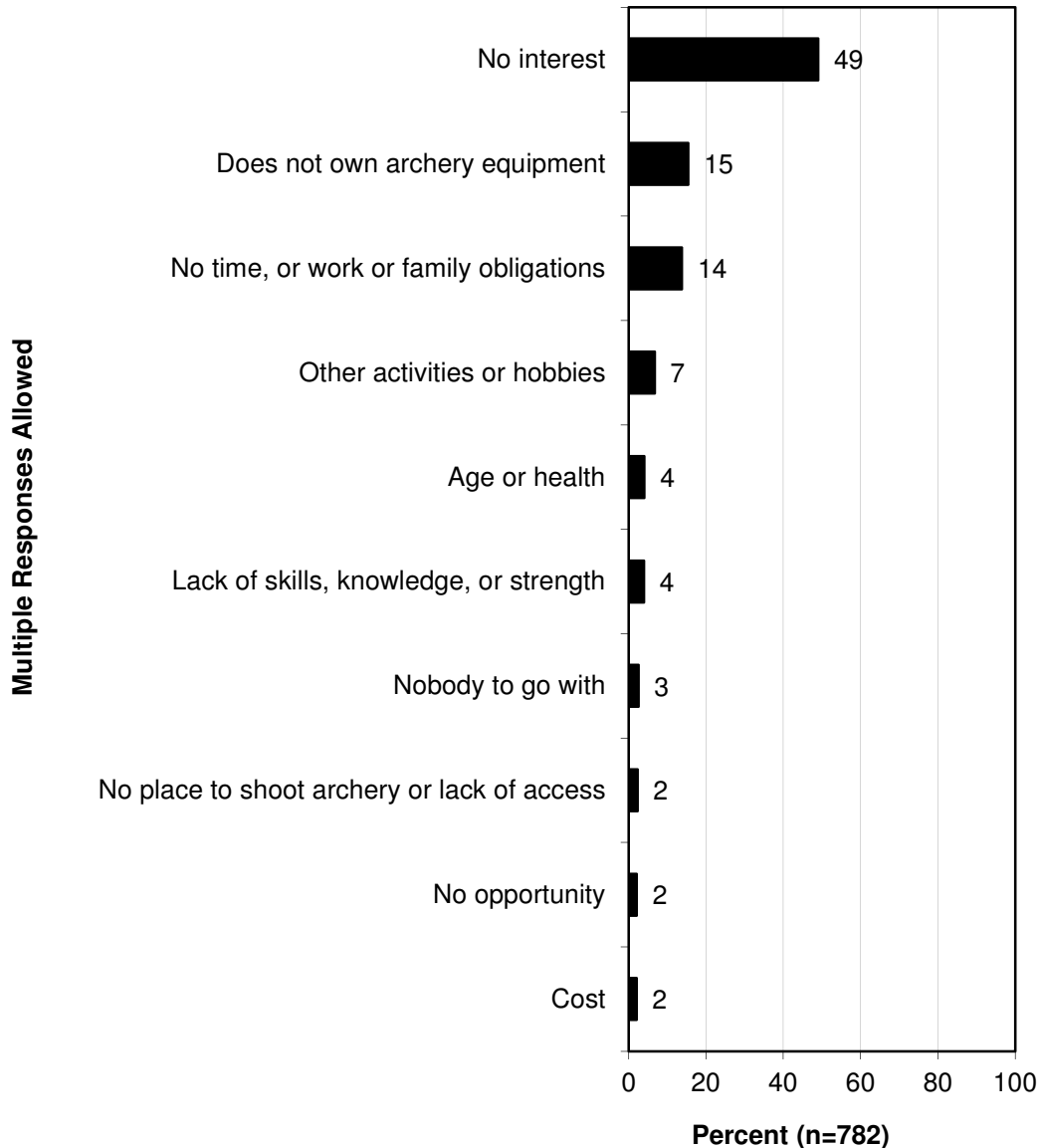
- Among those who did not participate in archery in 2014, two questions were asked about reasons for not participating. Both questions had the same wording but were asked of different groups: one group was made up of those who did no archery and did no firearms shooting either; the second group was made up of those who did no archery but had shot firearms during 2014.
 - Among those who did no archery or firearm shooting, lack of interest was the top reason (66% of those non-participants), as to be expected regarding almost any sport among non-participants. However, there appear to be some people showing signs of interest in the sport because they name constraints other than lack of interest: age/health (11%), lack of time (9%), and lacking equipment (7%).

**In just a few words, tell me why you did not participate in any archery activities in 2014.
(Asked of those who did not participate in either archery or firearm shooting.)**



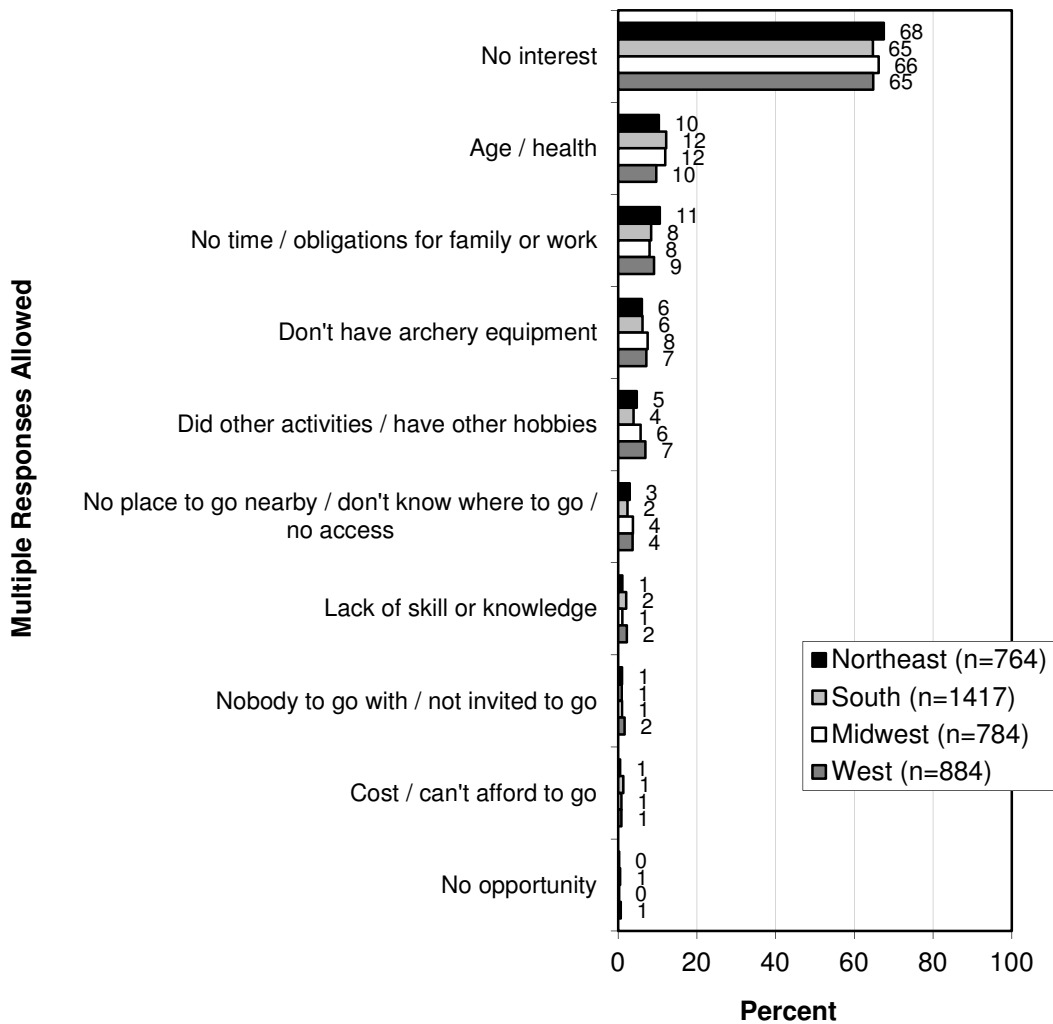
- Among firearms shooters who did not participate in archery, lack of interest is the top reason, but at a lower percentage than among non-shooters.

**In just a few words, tell me why you did not participate in any archery activities in 2014.
(Asked of those who did not participate in archery but participated in firearm shooting.)**

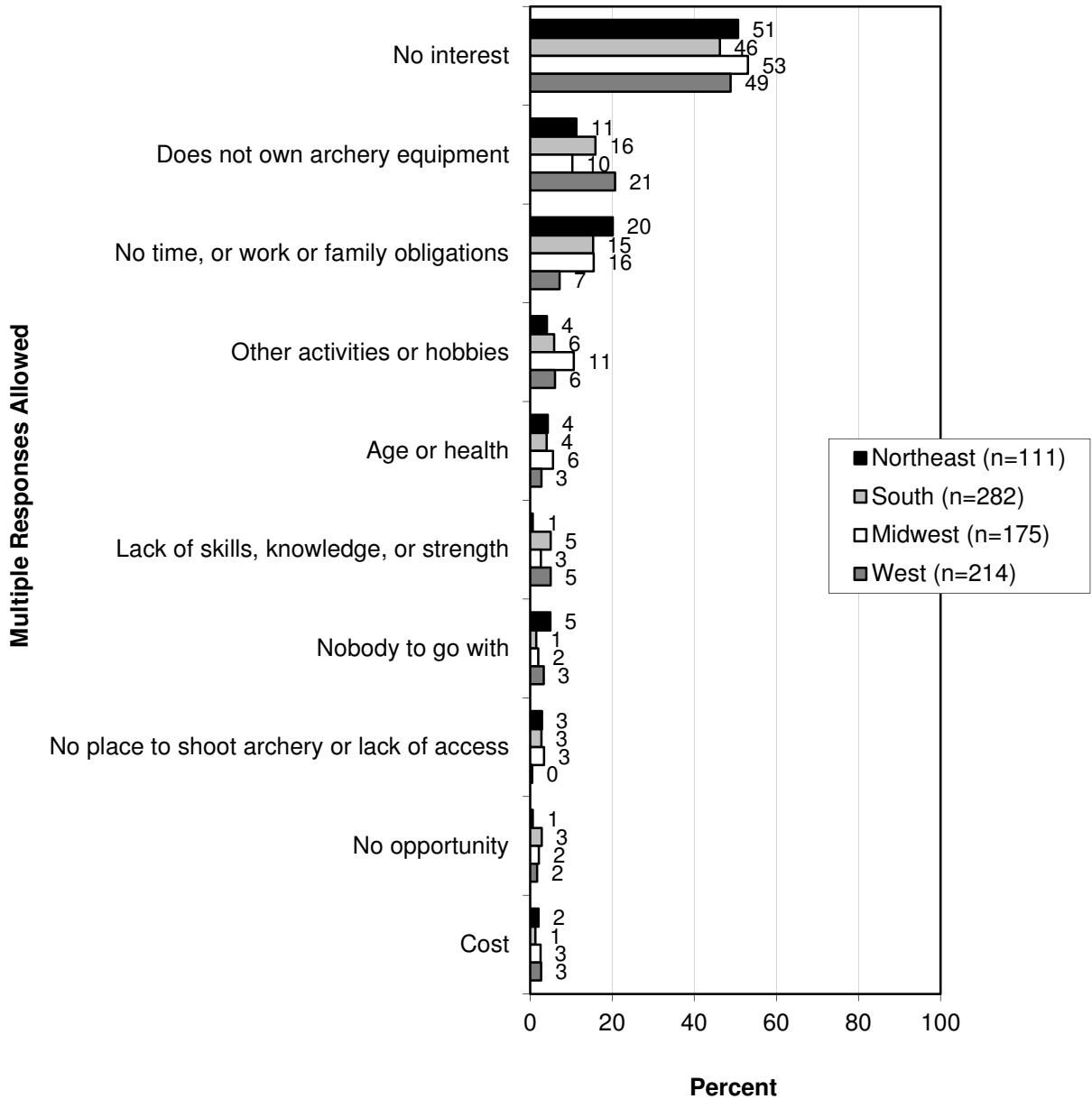


- The results of the above questions are also shown regionally.
 - The first regional graph shows those who did neither archery nor firearm shooting; the second regional graph shows those who did no archery but did firearm shooting.

**In just a few words, tell me why you did not participate in any archery activities in 2014.
(Asked of those who did not participate in either archery or firearm shooting.)**

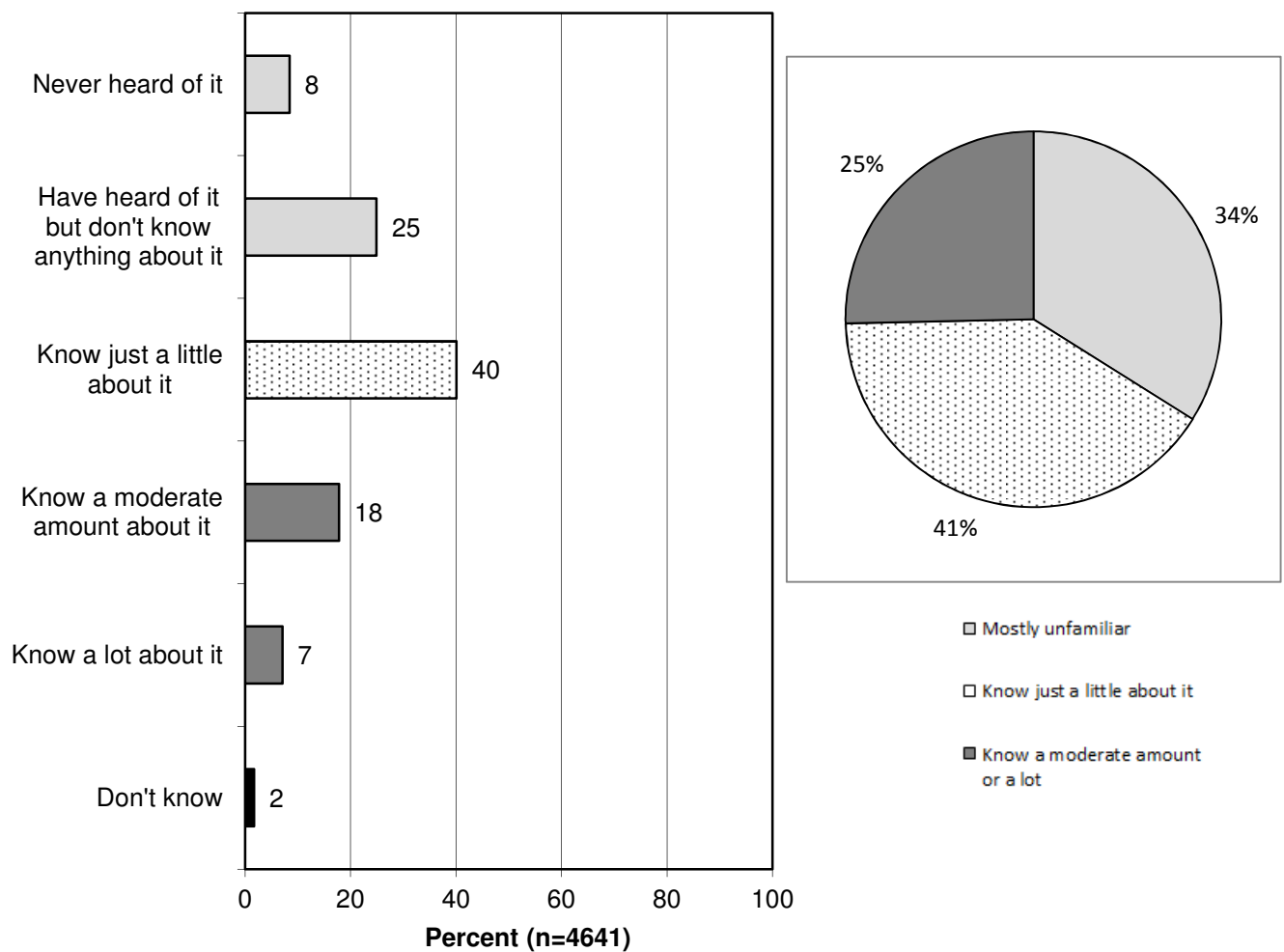


In just a few words, tell me why you did not participate in any archery activities in 2014. (Asked of those who did not participate in archery but participated in firearm shooting.)

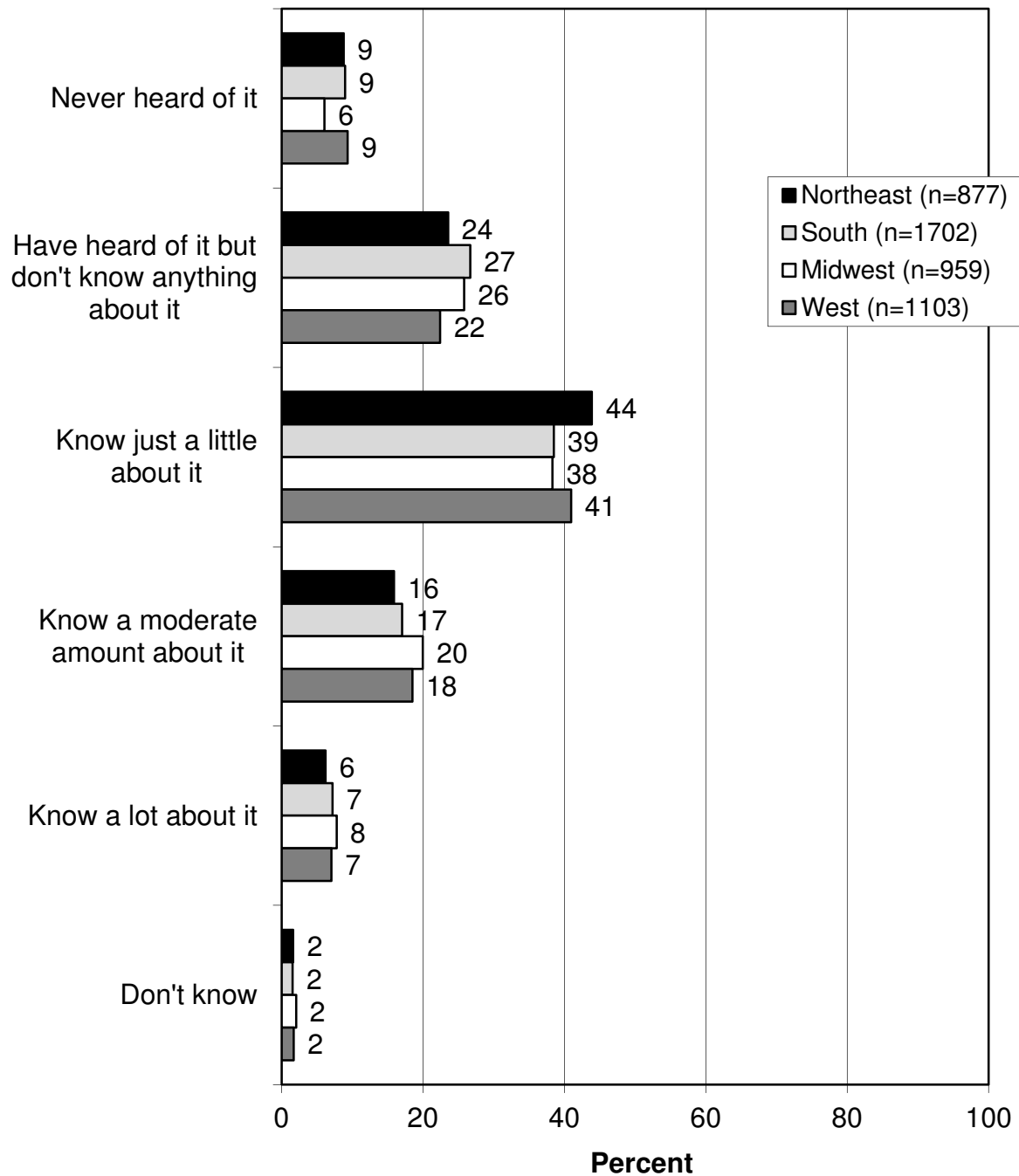


- One way to look at those who did not participate in archery in 2014 is to break them down into groups based on their overall familiarity with archery. Non-participants were asked to place themselves on a scale of familiarity. Most commonly, they are in the middle, saying that they know “just a little” about archery (40% of non-participants). Meanwhile, at one end of the scale, 33% are largely unfamiliar with it (“never heard of it” or “have heard...but don’t know anything”), and at the other end, 25% know a moderate amount or a lot about it (see graph below).
 - A pie graph is included with combined responses, followed by the regional results. Also, demographic analyses are included of those pie graph groups. The pie graph percentages were calculated without the “don’t know” responses.
 - Demographic analyses are included as well.

**How familiar or unfamiliar are you with archery? Would you say...?
(Asked of those who did not shoot archery in 2014.)**

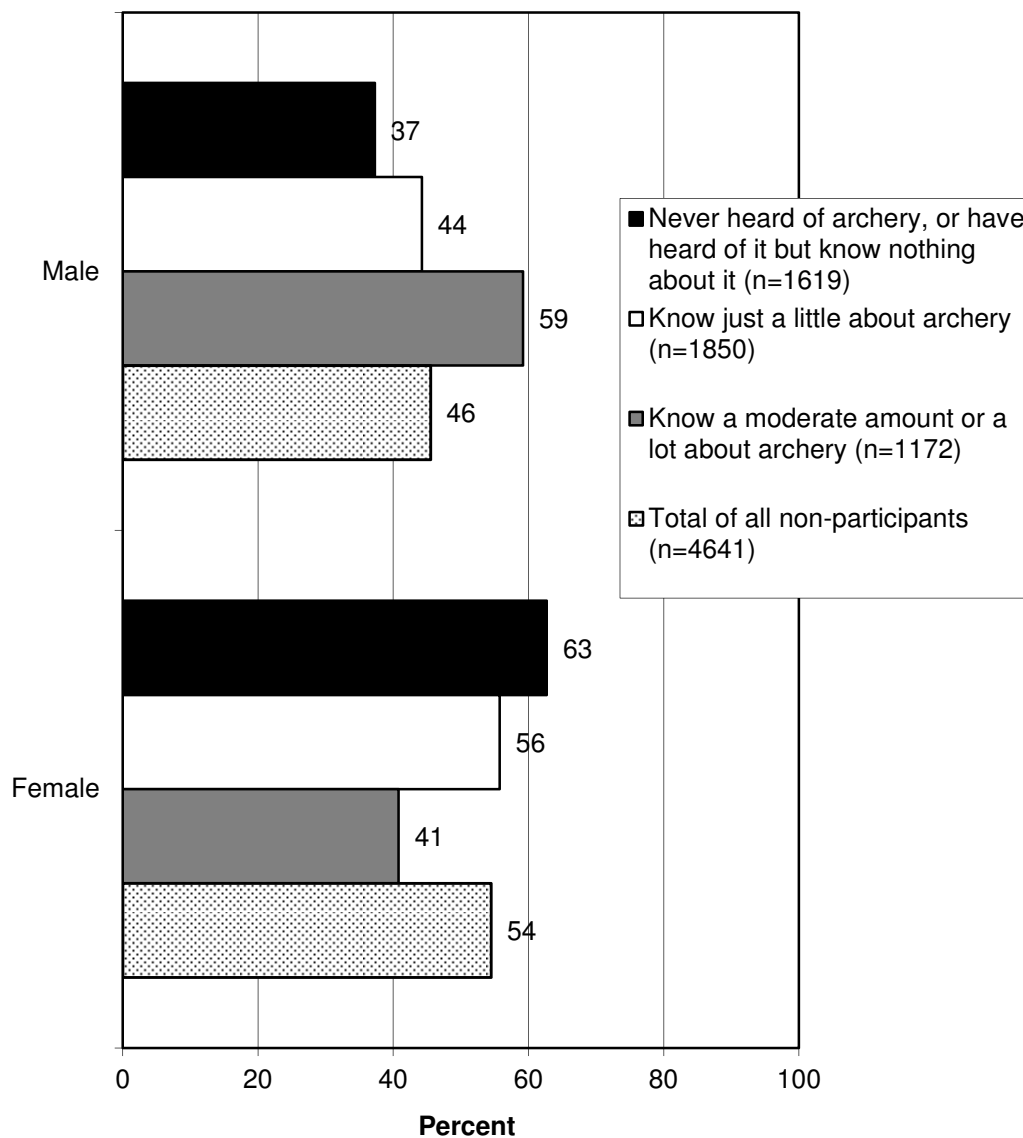


**How familiar or unfamiliar are you with archery?
Would you say...? (Asked of those who did not
shoot archery in 2014.)**

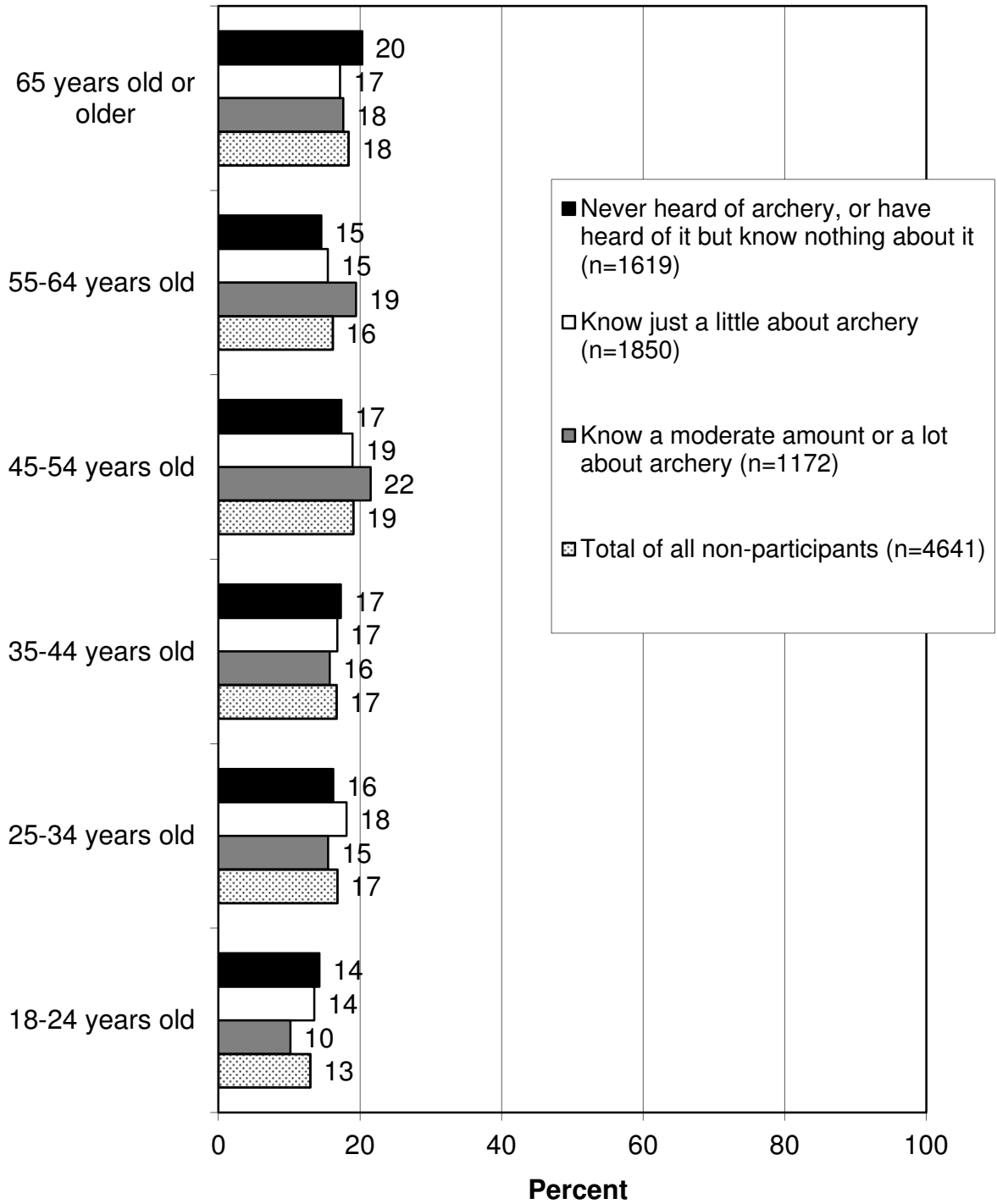


- The five graphs that follow show the demographic analyses of the three primary groups of non-participants, compared to non-participants overall. Women are correlated with being in the “mostly unfamiliar” group; men are on the other end of the continuum. Regarding age, there is a higher propensity to know a moderate amount or a lot about archery among those the mean age or older, compared to those younger than the mean age. Rural non-participants tend to be more familiar with archery than urban non-participants. Regional differences are just slight.

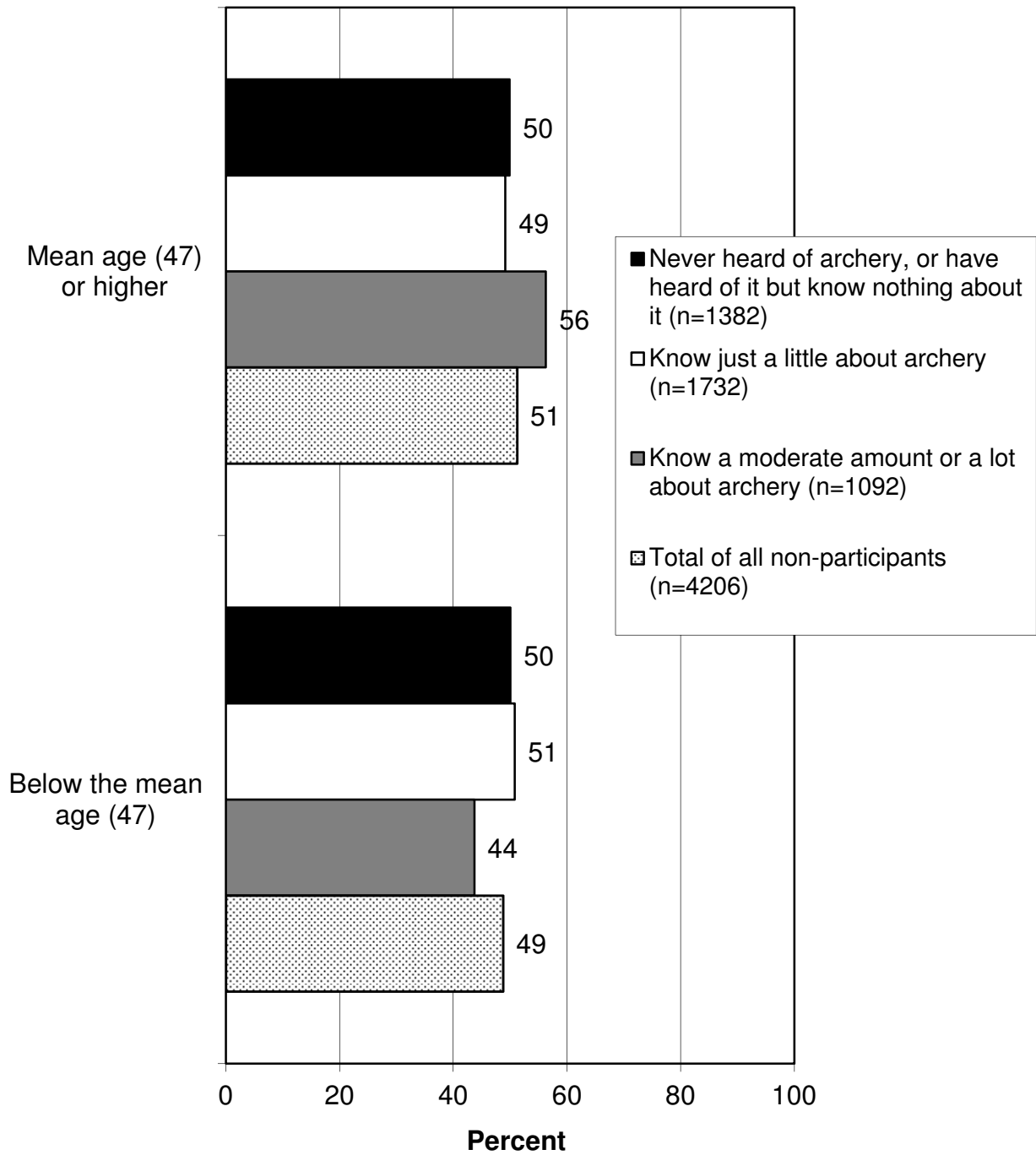
Q152. Respondent's gender (observed by interviewer; not asked).



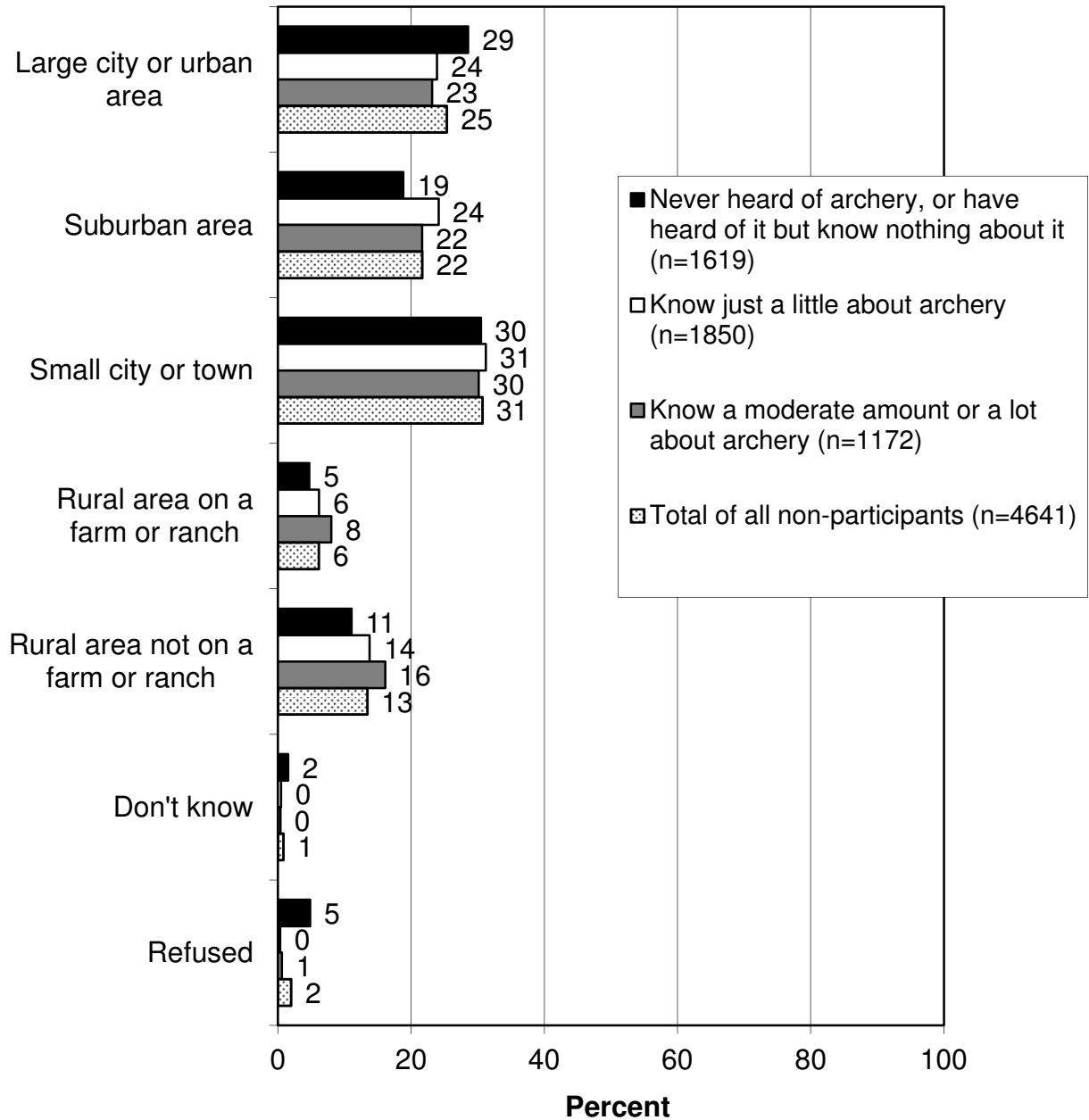
Q137. May I ask your age?



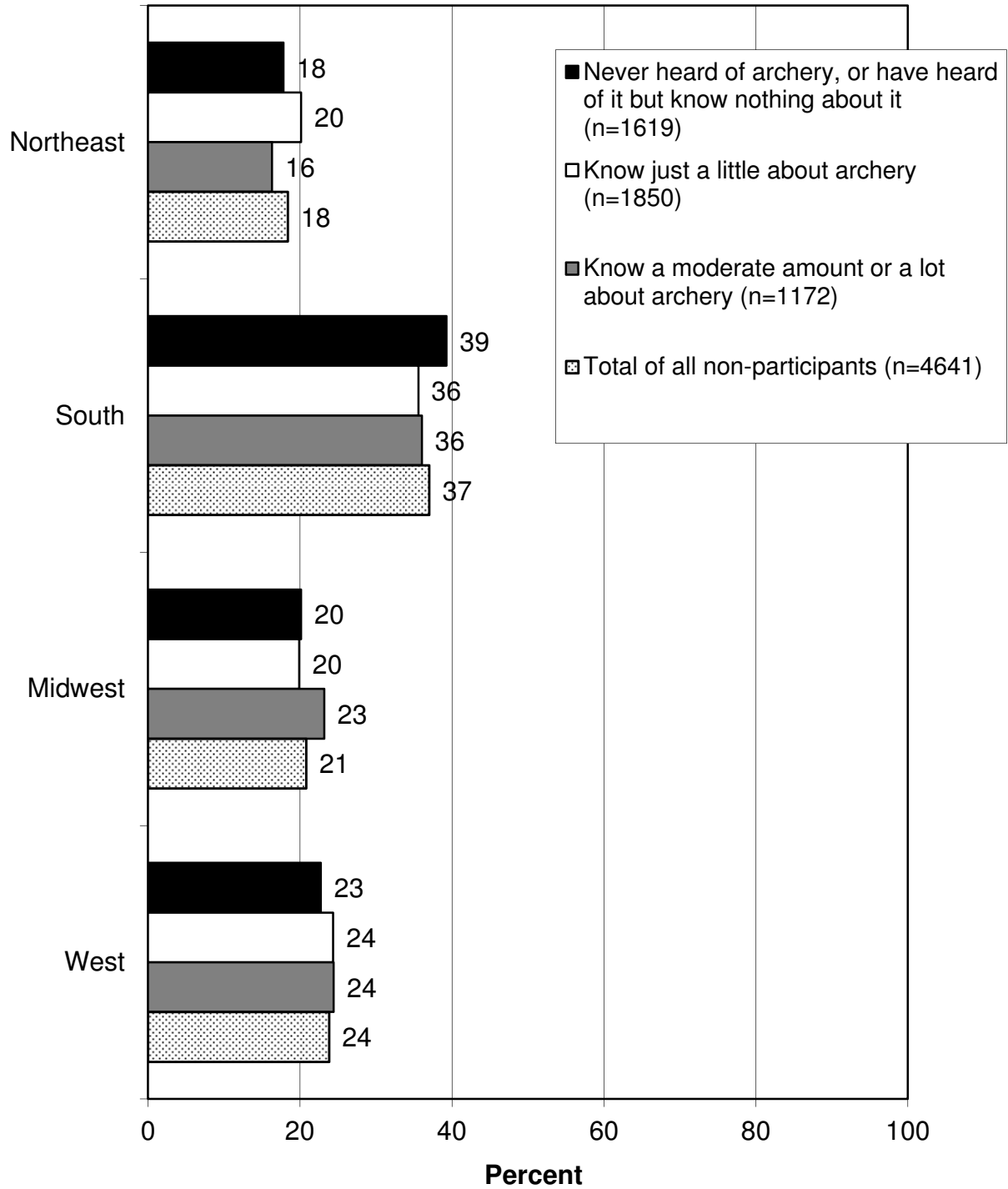
Mean split of age.



Q136. Do you consider your place of residence to be a large city or urban area, a suburban area, a small city or town, a rural area on a farm or ranch, or a rural area not on a farm or ranch?

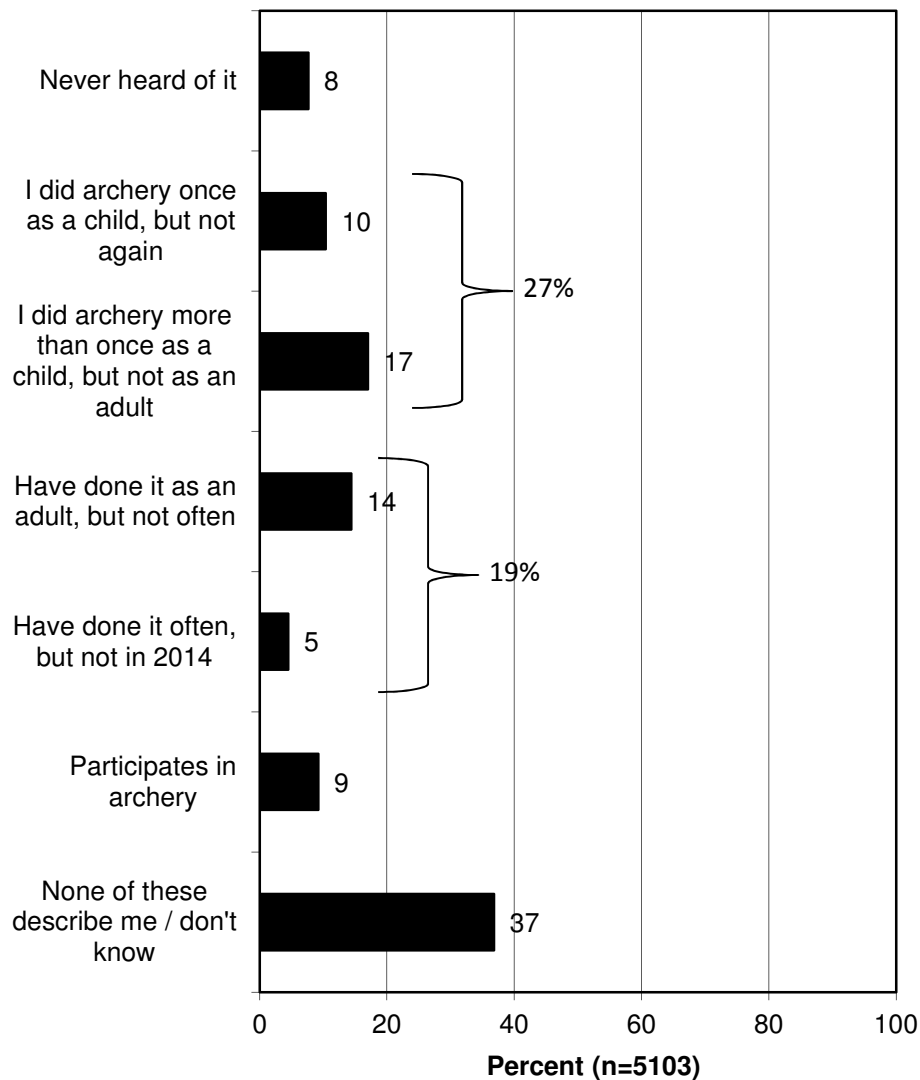


U.S. Census Region.



- The survey asked non-participants in 2014 a question to help determine their background in archery. Nearly 1 in 5 people (19%) indicate that they have participated in archery as an adult but did not do so in the most recent year (2014), which is a sizeable target audience that is, at least somewhat, predisposed to participate in archery. Additionally, 27% did archery as a child but not as an adult, and they also would seem to be an important target audience.
 - Demographic analyses were run of these groups.

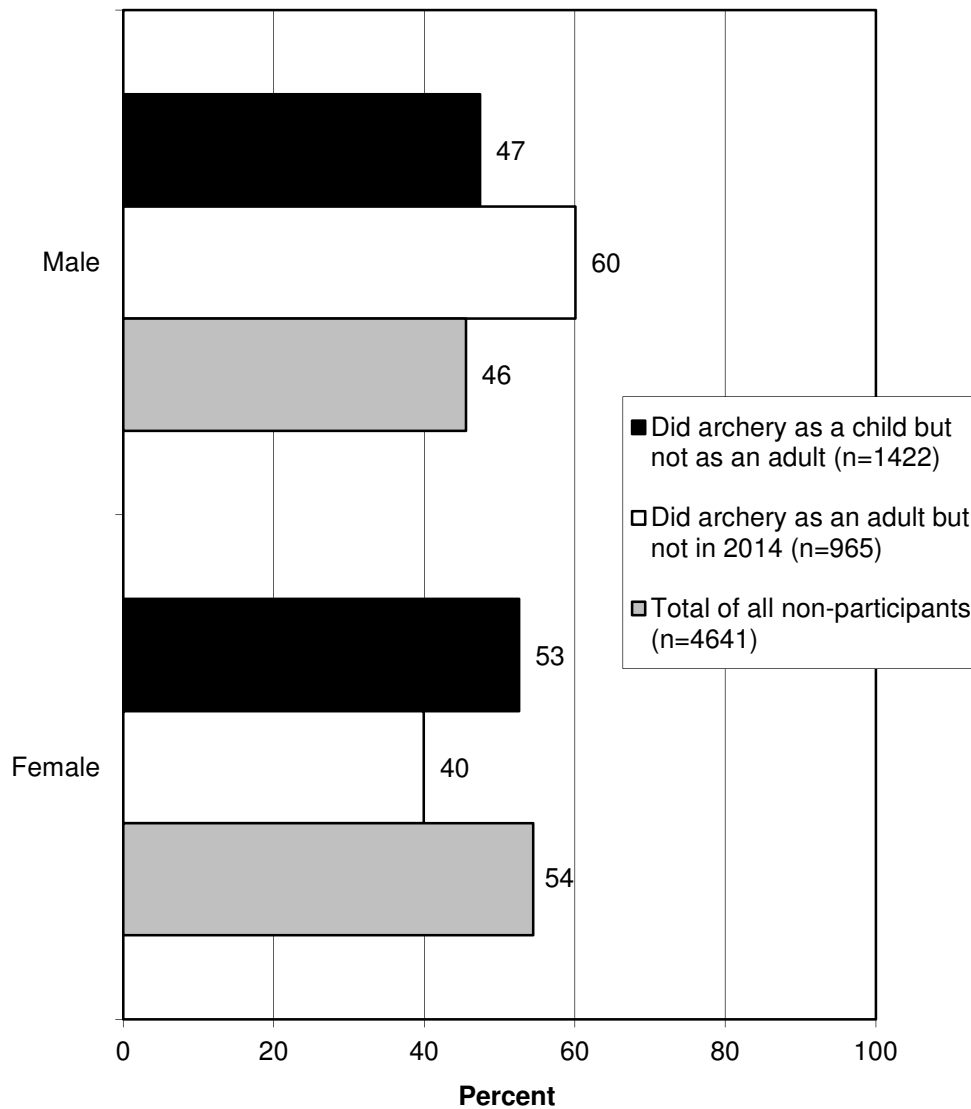
Which best describes you? Would you say...?*



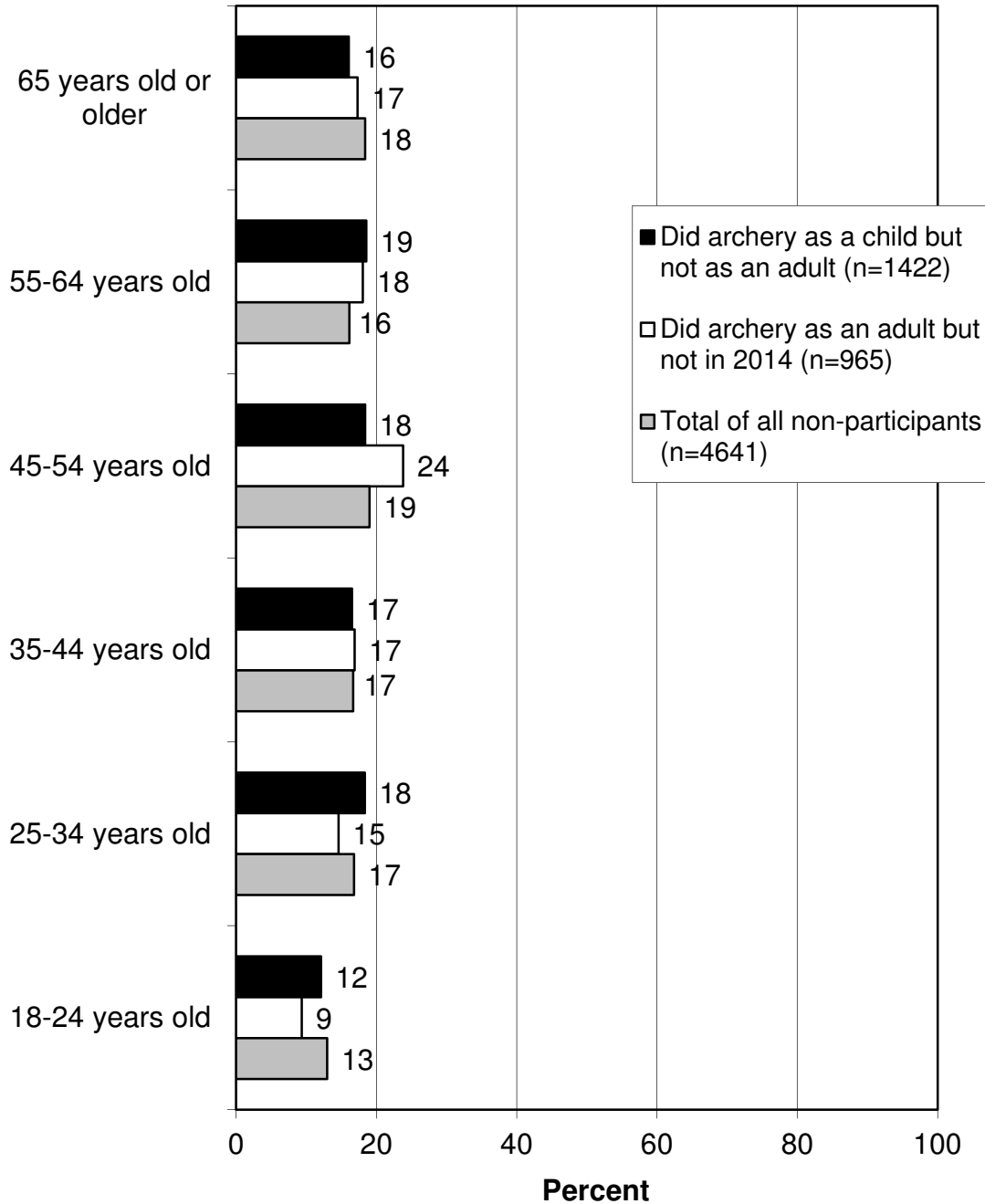
*Strictly speaking, those who indicated that they had never heard of archery as a sport prior to the survey were not asked the question, but their results are carried over on the graph; additionally, 2014 archery participants were not asked the question, but their results are also carried over on the graph.

- As before, five graphs are presented showing the two groups indicated by the brackets in the previous graph; they are compared to the total of all those who did not participate in archery (target or bowhunting) in 2014. Those who did archery as a child but not as an adult are very close to all non-participants in 2014 regarding gender. However, men are more likely than women to have done archery as an adult but not in 2014.

Q152. Respondent's gender (observed by interviewer; not asked).

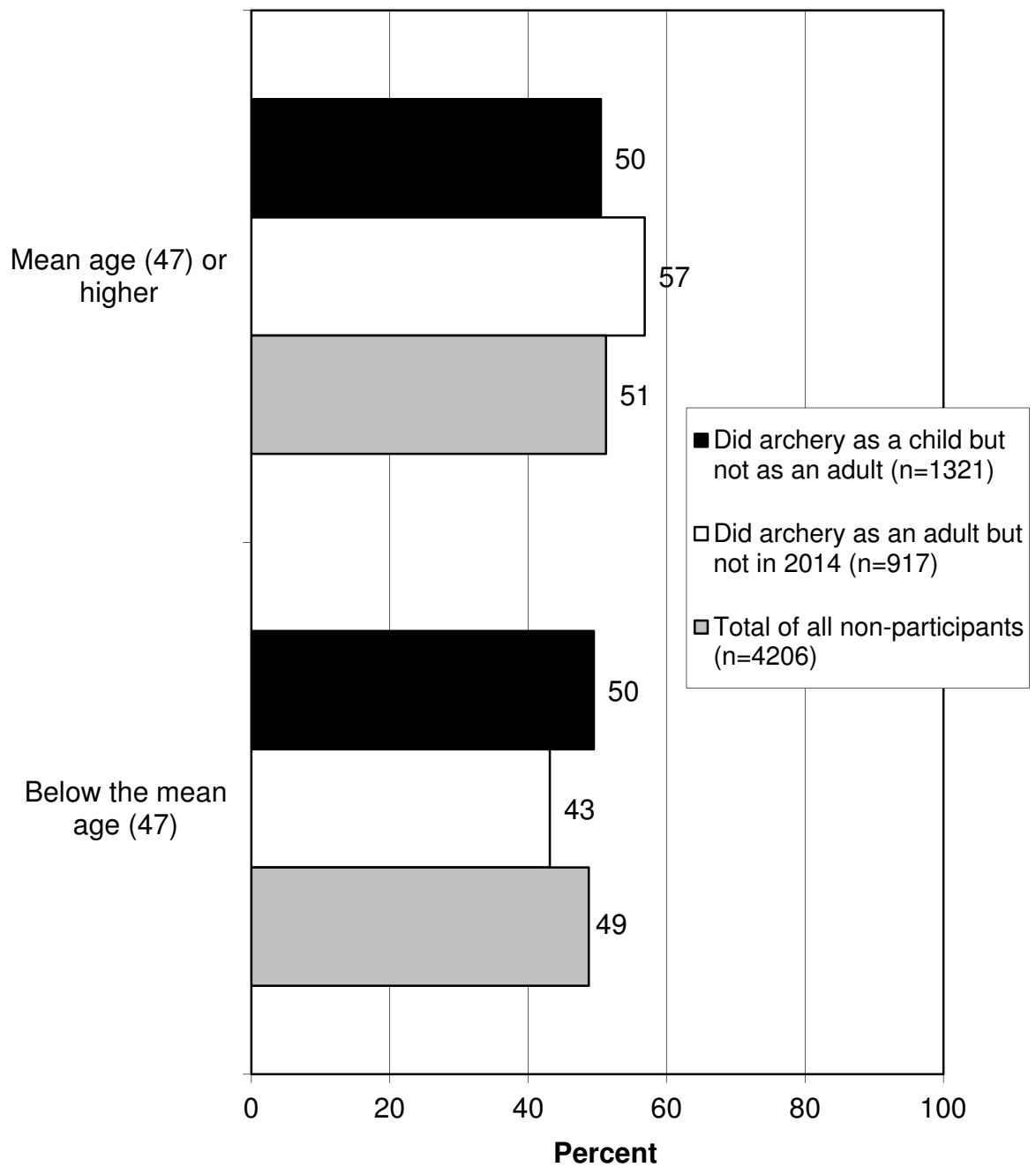


Q137. May I ask your age?



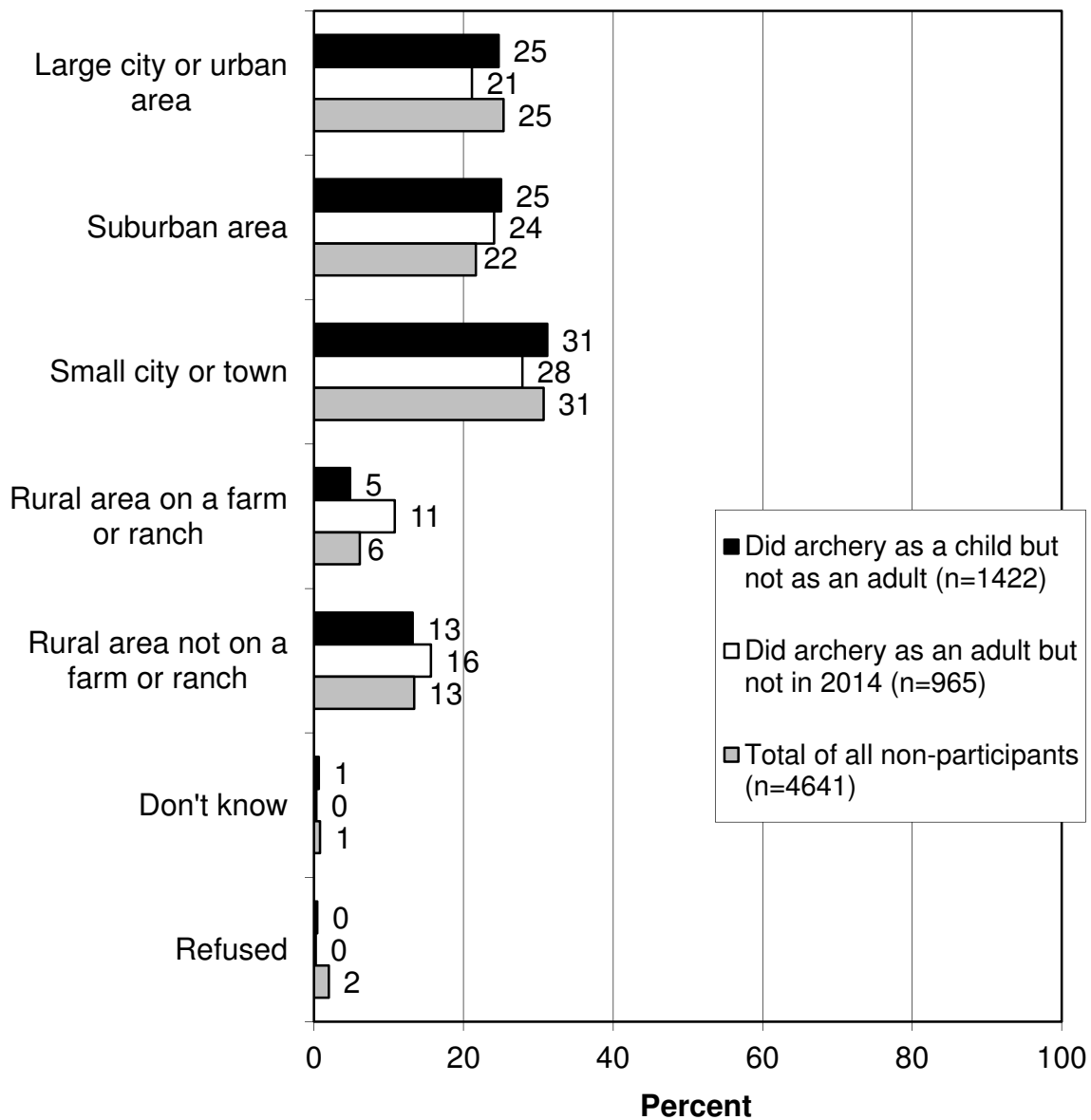
- Those who did archery as an adult but not in 2014 tend to be older than non-participants as a whole.

Mean split of age.



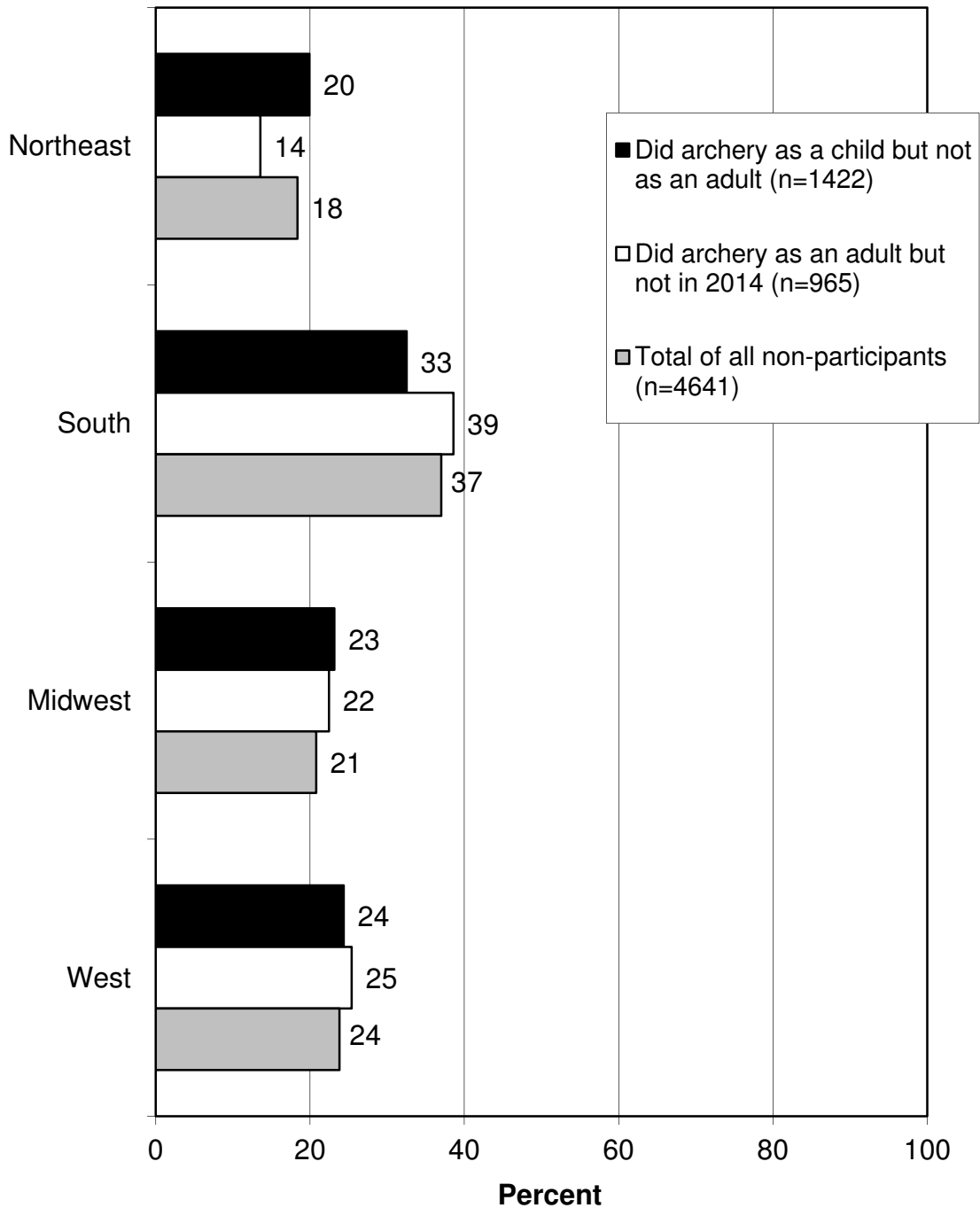
- Those who did archery as an adult but not in 2014 tend to be more rural than non-participants as a whole.

Q136. Do you consider your place of residence to be a large city or urban area, a suburban area, a small city or town, a rural area on a farm or ranch, or a rural area not on a farm or ranch?



- Those who did archery as an adult but not in 2014 tend to *not* be from the Northeast Region, compared to non-participants as a whole.

U.S. Census Region.



PUTTING RESPONSIVE MANAGEMENT'S PARTICIPATION DATA INTO CONTEXT

This section of the report discusses the quality of Responsive Management's data collection efforts and its resulting participation data, and the section also compares Responsive Management's survey findings with other research on participation.

REVIEW OF SURVEYING METHODS

As in the previous survey, the 2015 study entailed a survey of U.S. residents ages 18 years old and older. Each survey was conducted via telephone using random digit dialing, a scientific and highly reliable data collection methodology that is routinely used to predict the outcomes of presidential elections down to the electoral vote.¹

Telephones were selected as the sampling medium for each participation survey because of the high reliability and validity of telephone surveys using scientifically chosen random samples and because of the almost universal ownership of telephones among the general population. The methodology for the 2015 survey used a dual-frame sample consisting of a random sample of landline telephones and a random sample of cell phone numbers. These numbers were then called in their proper proportions, which ensured that all people in the pool of telephone users had an approximately equal chance of being called. A target number of interviews was obtained in each state from both landlines and cell phones in their proper proportions, so that the number of respondents in each state in the sample was exactly proportional to the state's population and, by extension, within the United States population as a whole.

The survey questionnaire was developed cooperatively by Responsive Management and the Archery Trade Association (ATA), based on a previous similar survey conducted for the ATA. As in the previous study on archery participation, a "ruse" line of questioning was used at the beginning of the survey. This was done because the main objective of the survey was to determine national and regional participation rates in archery, and the survey was worded to avoid bias that would arise from the tendency for those who do *not* participate in archery to refuse to participate in a survey about it. Therefore, the survey started by asking about some general activities, mixing archery and hunting participation in with participation in other non-archery activities such as watching television and dining at a restaurant.

OVERALL ARCHERY PARTICIPATION RATE

Responsive Management's 2015 survey found that 9.2% of the U.S. adult population participated in archery (either target archery or bowhunting) in 2014. This participation rate marks a slight increase over the 8.0% rate among Americans in 2012. This rate produces an estimate of 21.6 million archery participants in 2014.

¹ Silver, Nate. "Which Polls Fared Best (and Worst) in the 2012 Presidential Race," *The New York Times*, 10 November 2012: http://www.nytimes.com/2010/07/28/health/policy/28obesity.html?_r=1.

QUALITY OF RESPONSIVE MANAGEMENT'S SURVEY DATA

One of the most important indicators of the quality and reliability of a survey's findings is how closely the raw survey data reflect the population under study. Researchers collect samples from populations in order to make inferences about the overall population. In doing so, researchers strive to ensure that the demographic characteristics of the sample accurately reflect the demographic characteristics of the broader population; in other words, the gender, age, and ethnic proportions of the sample should roughly match those of the overall population.

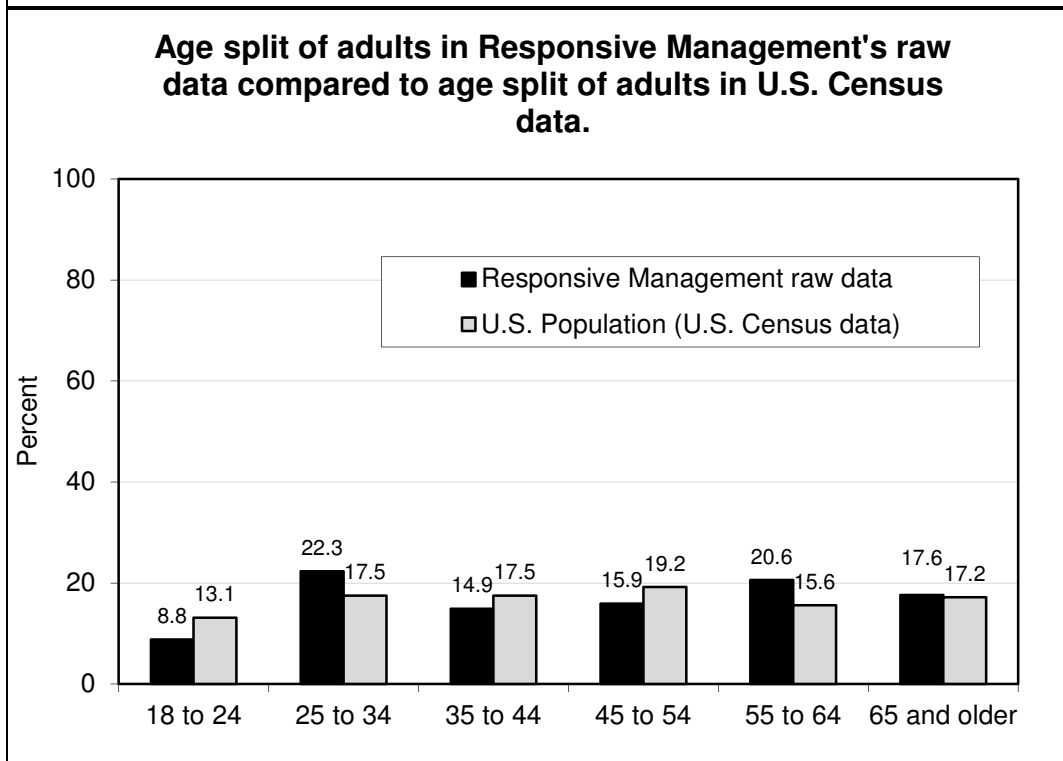
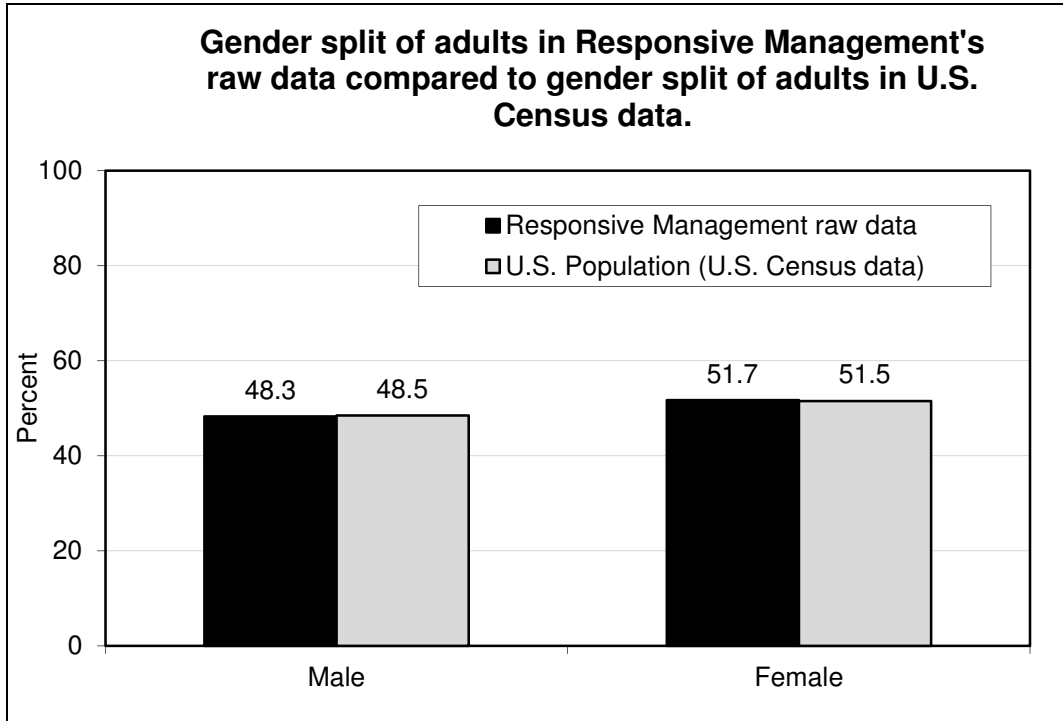
The process of using known population characteristics to systematically adjust raw survey data to match the population is known as weighting. If it is known, for example, that the gender split of the U.S. population is approximately 50% male and 50% female, a survey sample whose gender split is 40% male and 60% female can be weighted to correct for the imbalance: the impact of the responses from females is reduced in order to boost the impact of the responses from males—as a result, the weighted data more accurately reflect the overall U.S. population.

While research firms routinely weight survey data to some degree to correct for certain demographic imbalances in their samples, excessive weighting carries certain risks. A survey sample of 90 females and 10 males, for instance, could be weighted to ensure that the responses from males would equal the cumulative responses of females. However, this now means that fewer males are being used to represent males' opinions in general, and each single male's opinions have greater sway over the total male opinion in the sample. Concurrently, there is greater likelihood that the males in the sample, because there are so few of them, do not accurately represent the actual opinion in the population.

Because of this, the decision to weight a sample is a delicate balance between increasing the sample's accuracy in reflecting the population while not excessively increasing the influence of individual respondents. Of course, the closer the raw data reflects the actual proportions of demographic characteristics in the population, the less need there is to weight the data. In an ideal scenario, there would be no need for weighting, as the survey sample would simply be collected in such a way as to exactly mirror the demographic proportions of the overall population.

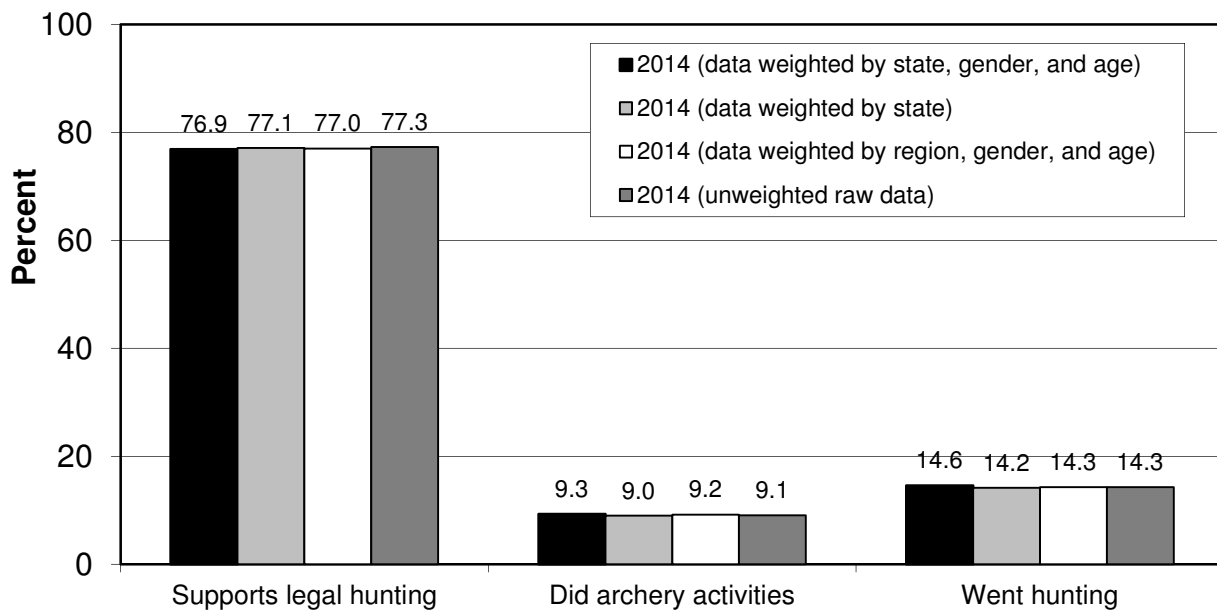
Notably, Responsive Management's 2015 participation study was based on a substantial sample size (5,103 completed interviews) that also accurately reflected the demographic characteristics of the U.S. population *prior to any weighting of the data*. In fact, the 5,103 survey interviews Responsive Management collected so closely matched the U.S. population that post-survey weighting made little difference in the overall results. While Responsive Management did apply weighting to ensure that the results accurately matched population demographic characteristics on a regional basis, the weighting variables applied were minimal, an indication of the high quality of the raw data.

The graphs that follow provide a comparison of Responsive Management’s raw survey data (i.e., the survey results as collected, before any weighting was applied) to the demographic data from the most recent U.S. Census in 2010. As is evident in the comparisons, the gender and age of the raw survey sample were highly reflective of the U.S. general adult population.



When survey data are weighted following the initial data collection, the eventual results run the risk of portraying the population inaccurately, particularly if large differences exist between the data as originally collected and the data as eventually presented. However, weighting did not markedly alter Responsive Management’s 2015 data. An analysis was conducted in which Responsive Management’s data were weighted in several ways to see if marked changes in the final data occurred. In the case of Responsive Management’s 2015 participation study, the data, after being weighted in several different ways, essentially continued to show the same results (this is illustrated in the graph below, which compares the raw survey data to the data weighted by various factors). This graph shows the reliability of Responsive Management’s findings due to the fact that only slight differences were observed between the data collected and the data reported after weighting. (Note that Responsive Management’s data were weighted in the report by region, gender, and age to match the method used in the previous survey.)

Comparison of unweighted raw survey data and survey data weighted by key demographic characteristics.



DATA FROM OTHER SOURCES THAT PROVIDE INSIGHT REGARDING THE ACCURACY OF RESPONSIVE MANAGEMENT'S DATA

The following is an overview of key external data supporting the findings from Responsive Management's participation survey.

Excise Tax Receipts on Firearms, Archery Equipment, and Ammunition

A measure suggesting increased participation in archery is the trend in gross receipts for bows and arrows from the Federal Aid in Wildlife Restoration Act (also called the Pittman-Robertson Act) excise tax. The Pittman-Robertson Act provides funding for the restoration of wildlife and birds and their habitat through an 11% excise tax on sporting arms, ammunition, and archery equipment, and a 10% excise tax on handguns. Excise tax gross receipts from the past 9 years are tabulated below, with archery showing a rise from \$44 million in 2012 to \$55 million in 2014:

Wildlife Restoration Gross Receipts (thousands of dollars)									
	FY 06	FY 07	FY08	FY09	FY10	FY11	FY12	FY13	FY14
Pistols - Revolvers	57,697	73,571	76,903	124,928	106,351	102,323	160,050	223,160	219,148
Firearms	107,619	115,960	120,446	162,005	112,791	110,626	178,856	286,218	250,717
Ammunition	84,261	98,235	114,904	166,058	141,484	131,213	172,479	252,271	298,903
Bows and Arrows	28,667	33,797	36,574	32,147	36,115	44,054	44,384	50,896	55,132
Total Gross Receipts	278,244	321,563	348,827	485,138	396,741	388,216	555,769	812,545	823,900

Source: <http://wsfrprograms.fws.gov/Subpages/GrantPrograms/WR/WR-ReceiptsForecast.pdf>

Again, this is only an indication of participation, not a perfect match, but it seems reasonable that some of the increase in excise taxes from Fiscal Year 2012 to Fiscal Year 2014 is from a general increase in participation in archery, as suggested by Responsive Management's 2012 and 2014 data.

Hunting Participation

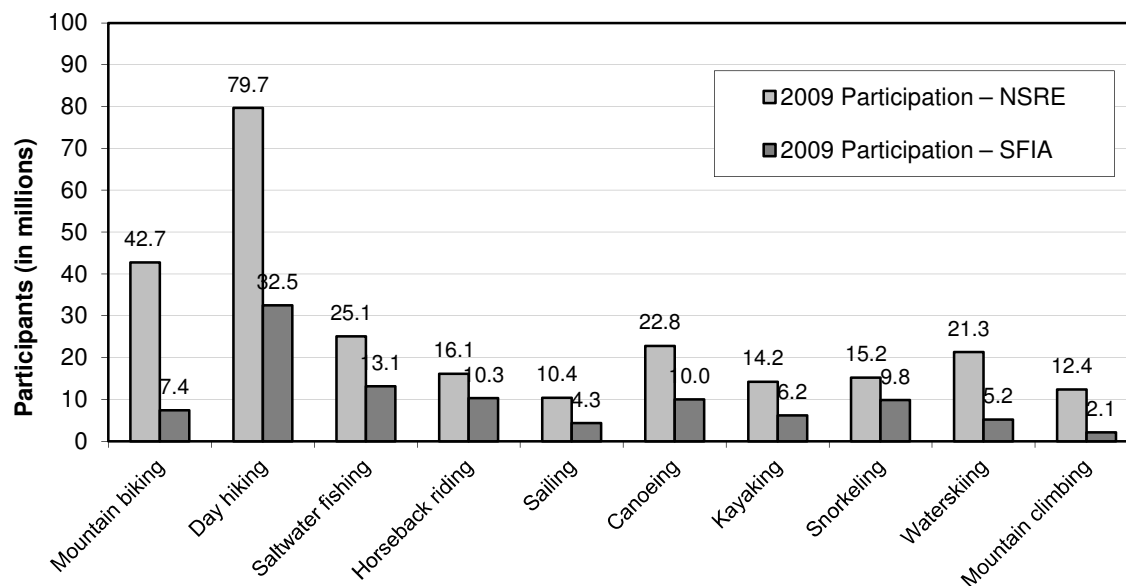
The accuracy of Responsive Management's study is further demonstrated through verification of its participation findings by way of comparisons with other high-quality studies. One such comparison involves the hunting participation rate. Responsive Management found a hunting rate of 14% among Americans in 2014. While this is higher than the hunting rate found in the U.S. Fish and Wildlife Service/U.S. Census Bureau's *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* in 2011 (6%), it is commensurate with the rate of self-identification as an active hunter found in the 2013 Cornell National Social Survey (17%).²

² Decker, Stedman, Larson, and Seimer. "Hunting for Wildlife Management in America." *Wildlife Professional*, v. 9, no. 1, 2015.

USE OF INTERNET PANEL SURVEYS TO ASSESS PARTICIPATION RATES

One Internet panel survey found drastically lower participation numbers when compared to a telephone survey of randomly selected respondents. Responsive Management conducted a review of participation studies in 2012 for the ATA that revealed widely divergent numbers of participants in a range of outdoor activities, as measured by a scientific telephone survey (conducted for the U.S. Forest Service's *National Survey on Recreation and the Environment* [NSRE] by the University of Georgia) and by interviews with members of an online panel (conducted for the Sports and Fitness Industry Association's [SFIA] Sports, Fitness and Leisure Activities Study). As depicted in the graph below, the numbers of participants measured through the online panel survey are consistently and dramatically lower than the numbers of participants measured through the telephone survey.

Comparison of activity participation numbers as measured by the NSRE telephone survey and the SFIA online panel.



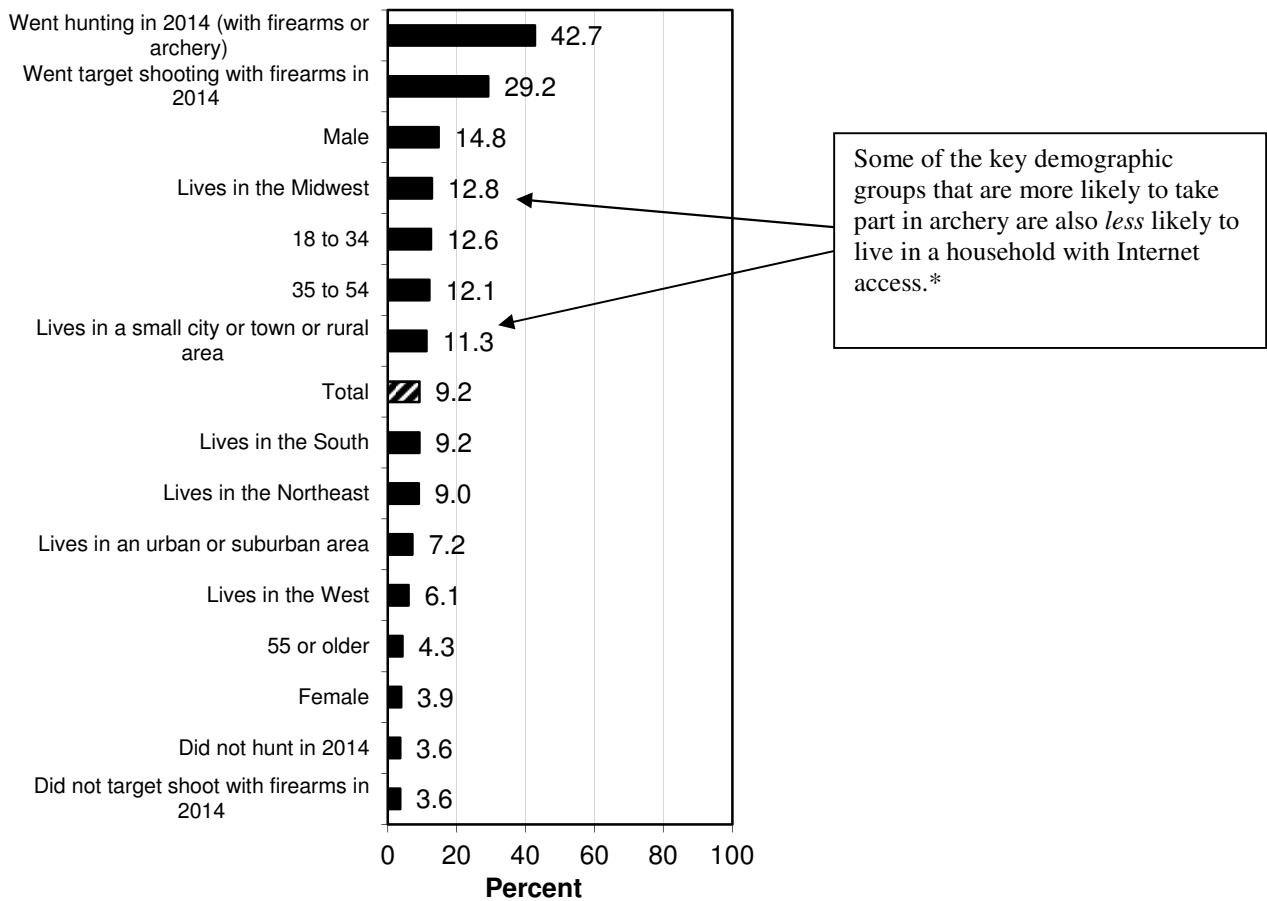
Note that the NSRE participation numbers are among U.S. residents 16 years old and older, while the SFIA numbers are among U.S. residents 6 years old and older. One would expect that, because the SFIA measures participation across a broader range of individuals, the numbers would generally be higher since more potential participants are included.

A further consideration of Internet panel surveys is the potential for the very demographic groups that are most likely to engage in the activity(s) in question to be underrepresented or even excluded from the sample. This is particularly relevant when contrasting the demographic groups most likely to participate in archery and hunting and the demographic groups most likely to live in a household with Internet access.

In looking at the potential pool for Internet panel samples, a substantial number of people are excluded from the outset—those without Internet access. Some of those most likely to

participate in archery activities are individuals who live in small cities or towns or rural areas (i.e., nonmetropolitan areas) and people from the Midwest Region of the United States— demographic characteristics that coincide with low Internet access (see graph and tabulation below).

Percent of each of the following groups who participated in archery in 2014:



Internet Use for Households: 2013	
Household Characteristic	Percent of Households That Had No Reported Internet Access*
Metropolitan Status	
Metropolitan area	23.9
Nonmetropolitan area	35.2
Region	
Northeast	23.2
Midwest	26.6
South	28.3
West	21.9

*Access as defined by having a subscription to an Internet service

Source: U.S. Census Bureau's 2013 American Community Survey; www.census.gov/history/pdf/2013computeruse.pdf

There is a potential, because of the exclusion of potential respondents from the sample (those without feasible Internet access), that participation studies that employ online panels to assess participation rates are systematically minimizing involvement from the very individuals who are most likely to participate in certain activities, particularly archery and hunting.

CONCLUSION

Responsive Management's data collection methods were compared to a variety of other data collection methods, and its data were compared to other data. The evidence presented previously suggests that scientifically conducted telephone surveys may provide better data on participation in archery and hunting than online panel samples. The evidence also helps to validate the accuracy of Responsive Management's research on these sports.

ABOUT RESPONSIVE MANAGEMENT

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

Utilizing our in-house, full-service telephone, mail, and web-based survey facilities with 50 professional interviewers, we have conducted more than 1,000 telephone surveys, mail surveys, personal interviews, and focus groups, as well as numerous marketing and communication plans, needs assessments, and program evaluations.

Clients include the federal natural resource and land management agencies, most state fish and wildlife agencies, state departments of natural resources, environmental protection agencies, state park agencies, tourism boards, most of the major conservation and sportsmen's organizations, and numerous private businesses. Responsive Management also collects attitude and opinion data for many of the nation's top universities.

Specializing in research on public attitudes toward natural resource and outdoor recreation issues, Responsive Management has completed a wide range of projects during the past 25 years, including dozens of studies of hunters, anglers, wildlife viewers, boaters, park visitors, historic site visitors, hikers, birdwatchers, campers, and rock climbers. Responsive Management has conducted studies on endangered species; waterfowl and wetlands; and the reintroduction of large predators such as wolves, grizzly bears, and the Florida panther.

Responsive Management has assisted with research on numerous natural resource ballot initiatives and referenda and has helped agencies and organizations find alternative funding and increase their membership and donations. Additionally, Responsive Management has conducted major organizational and programmatic needs assessments to assist natural resource agencies and organizations in developing more effective programs based on a solid foundation of fact.

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 has also conducted focus groups and personal interviews with residents of the African countries of Algeria, Cameroon, Mauritius, Namibia, South Africa, Tanzania, Zambia, and Zimbabwe.

Responsive Management routinely conducts surveys in Spanish and has conducted surveys in Chinese, Korean, Japanese and Vietnamese and has completed numerous studies with specific target audiences, including Hispanics; African-Americans; Asians; women; children; senior citizens; urban, suburban, and rural residents; large landowners; and farmers.

Responsive Management's research has been upheld in U.S. District Courts; used in peer-reviewed journals; and presented at major natural resource, fish and wildlife, and outdoor recreation conferences across the world. Company research has been featured in most of the nation's major media, including CNN, *The New York Times*, *The Wall Street Journal*, and on the front pages of *USA Today* and *The Washington Post*. Responsive Management's research has also been highlighted in *Newsweek* magazine.

Visit the Responsive Management website at:

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