

VIRGINIA



Bridging the 50-State Survey
of Fishing, Hunting, and Wildlife-
Associated Recreation with
Previous National Survey of
Fishing, Hunting, and Wildlife-
Associated Recreation Trends

Final Methodology Overview

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THE ROCKVILLE INSTITUTE, FOR
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OVERVIEW

In 2016, the Rockville Institute conducted the 50-State Survey of Fishing, Hunting and Wildlife-Associated Recreation (FHWAR); see more details in Rockville Institute (2018). Concurrently, the Census Bureau conducted the 2016 National Survey of FHWAR; see more details in U.S. Department of the Interior, U.S. Fish & Wildlife Service, and U.S. Department of Commerce U.S. Census Bureau (2018). The two surveys were based on samples of addresses intended to be representative of the United States population living in households, and used questionnaires as nearly identical as possible. Both surveys identified likely sports-persons and wildlife watchers within sampled households, and individual participation surveys covered all of calendar year 2016. However, differences in sample design, sample selection process and mode of data collection resulted in estimates that were substantially different between the surveys.

Estimates from the 2016 National Survey of FHWAR are directly comparable to those from previous surveys such as the 2011 National Survey of FHWAR; see U.S. Department of the Interior, U.S. Fish & Wildlife Service, and U.S. Department of Commerce U.S. Census Bureau (2014). Due to its modest sample size, it can only produce reliable estimates at the national and census division level. In contrast, the 50-State Survey of FHWAR produced state-level estimates, but these estimates are not directly comparable to those from previous surveys. The Rockville Institute therefore completed a project to create new state-level estimates that are calibrated to those of the 2016 National Survey of FHWAR. The dual purpose of these calibrated estimates is to maintain the fine level of granularity of the 50-State Survey of FHWAR but enable comparison to previous National Surveys of FHWAR.

Through this bridging project, the Rockville Institute created new state-level tables showing adjusted survey

estimates by state of residency of the participants. These tables show the estimated demographics, participation, days, trips and expenditures, for fishing, hunting and wildlife-related activities for residents of each of the 50 states and DC. The tables correspond to Tables 5, 15, 22, 28, 30, 33, 35, and 36 in the state reports released by the Rockville Institute in 2018, with the exception of Tables 28 and 33, where we report an extended set of statistics compared to those reported in the 50-State Survey of FHWAR report.

The calibration procedure used to create these tables involved a combination of data harmonization and statistical modeling of the differences between the two surveys. The procedure consisted of the following major steps. First, the estimated demographic compositions of both surveys were aligned at the census division level, using survey calibration methods. Second, a statistical model was developed to account for the differences in participation rates in hunting, fishing and wildlife-related activities between the two surveys. This “bridging model” was used to predict state-level participating rates that are consistent with those obtained using the Census Bureau methodology. By combining these predicted participation rates with the harmonized population estimates, calibrated estimates of the numbers of participants in each state were obtained. Third, the characteristics of the participants’ activities, such as the number and type of activities, days of participation and types of associated expenditures, were adjusted by means of estimated products or ratios of these characteristics between the two surveys. Finally, applying these products or ratios to the calibrated estimates of the participant numbers made it possible to produce the calibrated tables of estimates mentioned above. For more details about the bridging project, see Rockville Institute (2020).

References

- Rockville Institute. 2018. *2016 50-State Survey of Fishing, Hunting, and Wildlife-Related Recreation: National*.
- Rockville Institute. 2020. *Bridging the 50-State Surveys of Fishing, Hunting, and Wildlife-Associated Recreation with Previous National Survey of Fishing, Hunting, and Wildlife-Associated Recreation Trends. Final Methodology Report*.
- U.S. Department of the Interior, U.S. Fish and Wildlife Service, and U.S. Department of Commerce U.S. Census Bureau. 2014. *2011 National Survey of Fishing, Hunting, and Wildlife-Related Recreation*.
- U.S. Department of the Interior, U.S. Fish and Wildlife Service, and U.S. Department of Commerce U.S. Census Bureau. 2018. *2016 National Survey of Fishing, Hunting, and Wildlife-Related Recreation*.

APPENDIX A: POINT ESTIMATES

The tables in Appendix A depict the calibrated point estimates, subject to rounding error. The format of the calibrated tables in this appendix matches closely the format used in the 50-State Survey of FHWAR reports. Summary statistics reported in the calibrated tables are described below, by table.

Table 5

Fishing and hunting, participation, days, and trips

- Total fishing participation and total hunting participation: product-type statistics derived using model predictions for percent participation in the population and total population based on adjusted 50-State Survey of FHWAR weights.
- Total freshwater, freshwater except Great Lakes, Great Lakes, and saltwater fishing participation, total big game, small game, migratory birds, and other animals hunting participation: product-type statistics derived using total fishing participation, total hunting participation, percent participation of freshwater, freshwater except Great Lakes, Great Lakes, and saltwater fishing in all fishing, and percent participation of big game, small game, migratory birds, and other animals hunting in all hunting (columns denoted by %).
- Total fishing (all and subcategories) days/trips of participation and total hunting (all and subcategories) days/trips of participation: product-type statistics derived using total number of fishing (all and subcategories) participants, total number of hunting (all and subcategories) participants, and days/trips per participant (not displayed).
- Percent participation (columns denoted by %): statistics constructed using full adjusted 50-State Survey of FHWAR final weights, using data from the fishing or hunting survey for the fishing and hunting sections, respectively.

Table 15

Fishing and hunting, demographics

- Total population (all and subcategories): composite statistics constructed using 2-way composite factors to adjusted 50-State Survey of FHWAR final weights, using data from both the fishing and the hunting surveys.
- Total number of anglers and total number of hunters: product-type statistics derived using model predictions for percent participation in the population (columns denoted by % Pop.), and total population based on adjusted 50-State Survey of FHWAR final weights.
- Total number of sportspersons: ratio-type statistics derived using total number of anglers and percent anglers in sportspersons (not displayed).
- Total population, sportspersons, anglers, hunters, by demographics: product-type statistics, derived using total population, sportspersons, anglers, hunters participation, and percent demographic-specific participation in total participation (columns denoted by %).
- Percent demographic-specific population, sportspersons, anglers, hunters participation in total participation (columns denoted by %): composite statistics constructed using 2-way composite factors to adjusted 50-State Survey of FHWAR final weights, using data from the fishing and hunting surveys.
- Percent demographic-specific anglers and hunters participation in the total demographic-specific population (columns denoted by % Pop.): ratio-type statistics, derived using total demographic-specific anglers and hunters participation and total demographic-specific population.

- Percent total and demographic-specific sportspersons participation in the total and demographic-specific population (column denoted by % Pop.): ratio-type statistics, derived using total population and sportspersons participation.

Table 22

Fishing and hunting, spenders and expenses

- Total fishing and hunting expenditure (all and subcategories) amount, total fishing expenditure (all and subcategories) amount, total hunting expenditure (all and subcategories) amount, and total unspecified expenditure amount: product-type statistics derived using expenditure amount per participant (columns denoted by Average Per Sportsperson), and total sportspersons participation (all and subcategories), total anglers participation (all and subcategories), total hunters participation (all and subcategories) and total sportspersons participation, respectively.
- Expenditure amount per participant (columns denoted by Average Per Sportsperson) and expenditure amount per spender (columns denoted by Average Per Spender):
 - > Fishing section: statistics constructed using full adjusted 50-State Survey of FHWAR final weights, using data from the fishing survey only.
 - > Hunting section: statistics constructed using full adjusted 50-State Survey of FHWAR final weights, using data from the hunting survey only.
 - > Fishing and hunting, and unspecified sections: except for some expenses and spenders noted in the table footnotes, these are composite statistics constructed using 2-way composite factors to adjusted 50-State Survey of FHWAR final weights, using data from the fishing and hunting surveys.
- Total fishing and hunting (all and subcategories) number of spenders, total fishing (all and subcategories) number of spenders, total hunting (all and subcategories) number of spenders, and total unspecified number of spenders: product-type statistics derived using the percent spenders in total participation (not displayed), and total sportspersons participation (all and subcategories),

total anglers participation (all and subcategories), total hunters participation (all and subcategories) and total sportspersons participation, respectively.

Table 28

Wildlife watching, participation, days, and trips

- Total wildlife watching participation: product-type statistics derived using model predictions for percent participation in the population, and total population based on adjusted 50-State Survey of FHWAR final weights.
- Total away from home (all and subcategories) and around the home (all and subcategories) wildlife watching participation: product-type statistics derived using total wildlife watching participation, and percent participation of away from home (all and subcategories) and around the home (all and subcategories) wildlife watching in all wildlife watching (columns denoted by %).
- Total wildlife watching (all and subcategories) days/trips of participation: product-type statistics derived using total number of wildlife watching (all and subcategories) participants and days/trips per participant (not displayed).
- Percent participation (columns denoted by %): statistics constructed using full adjusted 50-State Survey of FHWAR final weights, using data from the wildlife watching survey.
- Percent participation in the total population (column denoted by % Pop.): ratio-type statistics, derived using total population from Table 30 and wildlife watching participation.

Table 30

Wildlife watching, demographics

- Total population (all and subcategories): composite statistics constructed using full adjusted 50-State Survey of FHWAR final weights, using data from the wildlife watching survey. Note that the total population estimates in Tables 15 and 30 differ due to demographic harmonization without state targets estimated from the National Survey of FHWAR (information not available); see Rockville Institute (2020) for more details about the demographic harmonization.

- Total number of wildlife watchers: product-type statistics derived using model predictions for percent participation in the population (columns denoted by % Pop.) and total population based on adjusted 50-State Survey of FHWAR weights.
- Total number of away from home or around the home wildlife watchers: product-type statistics derived using total number of wildlife watchers, and percent away from home or around the home wildlife watchers in all wildlife watchers (columns denoted by % Pop. in Table 35; not displayed).
- Total population, wildlife watchers, away from home, around the home, by demographics: product-type statistics, derived using total population, wildlife watchers, away from home, around the home participation, and percent demographic-specific participation in total participation (columns denoted by %).
- Percent demographic-specific population, wildlife watchers, away from home, around the home participation in total participation (columns denoted by %): composite statistics constructed using full adjusted 50-State Survey of FHWAR final weights, using data from the wildlife watching survey.
- Percent demographic-specific wildlife watchers, participation in the total demographic-specific population (column denoted by % Pop.): ratio-type statistics, derived using total demographic-specific wildlife watchers participation and total demographic-specific population.
- Percent total and demographic-specific away from home and around the home participation in the total and demographic-specific population (columns denoted by % Pop.): ratio-type statistics, derived using total population and away from home and around the home participation, respectively.

Table 33

Wildlife watching, spenders and expenditures — three versions for all wildlife watchers, away from home wildlife watchers, and around the home wildlife watchers

- Total wildlife watching expenditure (all and subcategories) amount: product-type statistics derived using total number of wildlife watching (all and subcategories)

participants and expenditure amount per participant (columns denoted by Average Per Wildlife Watcher).

- Expenditure amount per participant (columns denoted by Average Per Wildlife Watcher) and expenditure amount per spender (columns denoted by Average Per Spender): statistics constructed using full adjusted 50-State Survey of FHWAR final weights, using data from the wildlife watching survey only.
- Total wildlife watching (all and subcategories) number of spenders: product-type statistics derived using total number of wildlife watching (all and subcategories) participants and the percent spenders in total participation (columns denoted by Percent of Wildlife Watchers).
- Percent spenders in total participation (columns denoted by Percent of Wildlife Watchers): statistics constructed using full adjusted 50-State Survey of FHWAR final weights, using data from the wildlife watching survey only.

Table 35

Wildlife watchers participating in fishing and hunting

- Total number of wildlife watchers: product-type statistics derived using model predictions for percent participation in the population (columns denoted by % Pop. in Table 30), and total population based on adjusted 50-State Survey of FHWAR final weights (displayed in Table 30).
- Total number of away from home or around the home wildlife watchers: product-type statistics derived using total number of wildlife watchers, and percent away from home or around the home wildlife watchers in all wildlife watchers (columns not displayed).
- Total number of wildlife watchers, away from home, around the home who did not fish or hunt, fished or hunted, fished, hunted: product-type statistics, derived using total number of wildlife watchers, and percent sportsperson-specific category in the corresponding total participation (columns denoted by %).
- Percent sportsperson-specific category in the corresponding total participation (columns denoted by %): statistics constructed using full adjusted 50-State Survey of FHWAR final weights, using data from the wildlife watching survey.

Table 36

Sportspersons participating in wildlife watching

- Total number of sportspersons: ratio-type statistics derived using total number of anglers, percent anglers in sportspersons (not displayed).
- Total number of anglers or total number of hunters: product-type statistics derived using model predictions for percent participation in the population (columns denoted by % Pop. in Table 15), and total population based on adjusted 50-State Survey of FHWAR final weights (displayed in Table 15).
- Total number of sportspersons, anglers, or hunters who did not wildlife watch, wildlife watch, wildlife watch away from home, wildlife watch around the home: product-type statistics, derived using total number of sportspersons, anglers, or hunters, and percent wildlife watcher-specific category in the corresponding total participation (columns denoted by %).
- Percent wildlife watcher-specific category in the corresponding total participation (columns denoted by %): composite statistics constructed using 3-way composite factors to adjusted 50-State Survey of FHWAR final weights, using data from the fishing, hunting, and wildlife watching surveys.

Table 5 Virginia Resident Anglers and Hunters, Days of Participation and Trips in the United States,
by Type of Fishing and Hunting: 2016
(Population 16 years and older. Numbers in thousands)

	PARTICIPANTS		DAYS OF PARTICIPATION		TRIPS	
	#	%	#	%	#	%
ALL FISHING	957	100	17,261	100	14,057	100
All freshwater	638	67	13,340	77	10,894	77
Freshwater, except Great Lakes	638	67	13,340	77	10,894	77
Great Lakes	—	—	—	—	—	—
Saltwater	484	51	3,921	23	3,164	23
ALL HUNTING	259	100	5,896	100	4,684	100
Big game	237	92	5,105	87	3,190	68
Small game	80	31	1,571	27	1,320	28
Migratory birds	30	12	55	1	55	1
Other animals	45	17	240	4	119	3

— No sample data

NOTE: Detail does not add to total because of multiple responses.

Table 15 Virginia Resident Anglers and Hunters, by Selected Characteristics: 2016
(State population 16 years and older. Numbers in thousands)

	POPULATION		SPORTSPERSONS			ANGLERS			HUNTERS		
	Total	%	Total	% Pop.	%	Total	% Pop.	%	Total	% Pop.	%
TOTAL	6,288	100	1,021	16	100	957	15	100	259	4	100
RESIDENCE DENSITY											
Urban	4,857	77	662	14	65	629	13	66	162	3	63
Rural	1,431	23	358	25	35	328	23	34	97	7	37
RESIDENCE SIZE											
Metropolitan Statistical Area (MSA)	5,768	92	884	15	87	840	15	88	200	3	77
1,000,000 or more	4,534	72	634	14	62	610	13	64	124	3	48
250,000 to 999,999	473	8	44	9	4	23	5	2	19	4	7
50,000 to 249,999	760	12	206	27	20	208	27	22	56	7	22
Outside MSA	520	8	137	26	13	117	23	12	59	11	23
SEX											
Male	3,052	49	737	24	72	677	22	71	201	7	78
Female	3,236	51	284	9	28	280	9	29	58	2	22
AGE											
16 to 17 years	136	2	13	10	1	12	8	1	4	3	1
18 to 24 years	873	14	110	13	11	110	13	12	16	2	6
25 to 34 years	1,067	17	134	13	13	124	12	13	16	1	6
35 to 44 years	862	14	149	17	15	148	17	16	58	7	23
45 to 54 years	1,097	17	295	27	29	266	24	28	76	7	29
55 to 64 years	1,010	16	174	17	17	160	16	17	34	3	13
65 years and older	1,243	20	145	12	14	137	11	14	55	4	21
65 to 74 years	889	14	111	12	11	108	12	11	45	5	17
75 and older	353	6	34	10	3	29	8	3	11	3	4
ETHNICITY											
Hispanic	763	12	50	7	5	52	7	5	19	2	7
Non-Hispanic	5,525	88	970	18	95	905	16	95	240	4	93
RACE											
White	4,796	76	774	16	76	702	15	73	229	5	88
African American	903	14	128	14	13	132	15	14	—	—	—
All Others	588	9	119	20	12	123	21	13	30	5	12

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Table 15 Virginia Resident Anglers and Hunters, by Selected Characteristics: 2016 (continued)
(State population 16 years and older. Numbers in thousands)

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	POPULATION		SPORTSPERSONS			ANGLERS			HUNTERS		
	Total	%	Total	% Pop.	%	Total	% Pop.	%	Total	% Pop.	%
ANNUAL HOUSEHOLD INCOME											
Less than \$20,000	494	8	95	19	9	92	19	10	5	1	2
\$20,000 to \$29,999	221	4	17	8	2	16	7	2	4	2	1
\$30,000 to \$39,999	517	8	44	8	4	35	7	4	16	3	6
\$40,000 to \$49,999	532	8	41	8	4	28	5	3	14	3	5
\$50,000 to \$74,999	665	11	139	21	14	126	19	13	35	5	14
\$75,000 to \$99,999	565	9	102	18	10	98	17	10	39	7	15
\$100,000 to \$149,999	1,063	17	190	18	19	175	16	18	58	5	22
\$150,000 or more	1,117	18	227	20	22	221	20	23	66	6	26
Not reported	1,113	18	166	15	16	167	15	17	22	2	9
EDUCATION											
8 years or less	189	3	27	14	3	27	15	3	3	2	1
9 to 12 years	1,619	26	329	20	32	301	19	31	79	5	31
1 to 3 years of college	1,995	32	221	11	22	220	11	23	35	2	13
4 years or more of college	2,485	40	443	18	43	409	16	43	142	6	55

— No sample data

NOTE: Detail does not add to total because of multiple responses. Percent population (% Pop.) columns show the percentage of each row's population who participated in the activity named by the column (the percentage of the population living in urban areas who fished, etc.). Columns labeled "% under Sportspeople, Anglers, and Hunters show the percentage of each column's participants who are described by the row heading (the percentage of anglers who lived in urban areas, etc.).

Table 22 Expenditures by Virginia Residents for Fishing and Hunting Both In and Out of Virginia: 2016
(State population 16 years and older. Numbers in thousands)

	AMOUNT (thousands of \$)	AVERAGE PER SPORTSPERSON (\$) ¹	AVERAGE PER SPENDER (\$) ¹	NUMBER OF SPENDERS (thousands)
FISHING AND HUNTING	3,104,426	3,042	2,879	1,078
Food and lodging	358,284	351	458	783
Transportation	220,475	216	266	829
Other trip costs ²	358,362	351	450	797
Equipment (fishing, hunting)	405,388	397	473	856
Auxiliary equipment ³	169,280	166	629	269
Special equipment ⁴	632,336	620	5,134	123
Magazines, books, and DVDs	11,243	11	67	167
Membership dues/contributions	9,545	9	61	157
Other ⁵	939,513	920	1,459	644
FISHING	1,402,737	1,465	1,523	921
Food and lodging	294,581	308	427	690
Transportation	171,531	179	243	705
Other trip costs ²	329,861	345	411	803
Fishing equipment	196,645	205	279	706
Auxiliary equipment ³	16,239	17	157	103
Special equipment ⁴	22,507	24	434	52
Magazines, books, and DVDs	5,829	6	53	110
Membership dues/contributions	6,595	7	57	115
Other ⁵	358,950	375	756	475
HUNTING	847,903	3,276	3,276	259
Food and lodging	46,547	180	278	167
Transportation	34,724	134	165	211
Other trip costs ²	20,880	81	246	85
Hunting equipment	148,675	574	682	218
Auxiliary equipment ³	20,610	80	287	72
Special equipment ⁴	148,967	576	5,787	26
Magazines, books, and DVDs	3,453	13	56	62
Membership dues/contributions	1,691	7	57	30
Other ⁵	422,357	1,632	1,680	251
UNSPECIFIED ⁶	530,505	520	4,898	108

1 Average expenditures are annual estimates.

2 Includes boating costs, equipment rental, guide fees, access fees, heating and cooking fuel, and ice and bait (for fishing only).

3 Includes sleeping bags, packs, duffel bags, tents, binoculars and field glasses, special fishing and hunting clothing, foul weather gear, boots and waders, maintenance and repair of equipment, processing and taxidermy costs, and electronic equipment such as a GPS device.

4 Includes big-ticket items bought primarily for hunting and fishing, including boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs) and other special equipment.

5 Includes land leasing and ownership, licenses, stamps, tags, permits, and plantings (for hunting only).

6 Respondent could not specify whether expenditure was primarily for either fishing or hunting.

NOTE: Individual estimates do not add to total because of multiple responses, nonresponse, the independent bridging of fishing and hunting participation, and the bridging of sportspersons participation relative to fishing participation.

Table 28 Virginia Resident Wildlife Watchers Both In and Out of Virginia: 2016
(State population 16 years and older. Numbers in thousands)

	PARTICIPANTS			DAYS OF PARTICIPATION		TRIPS	
	#	%	% Pop.	#	%	#	%
WILDLIFE WATCHERS	2,106	100	35	250,993	100	24,067	100
Away from home	969	46	16	75,039	30	24,066	100
Observe wildlife	963	46	16	50,338	20	x	x
Photograph wildlife	555	26	9	33,562	13	x	x
Feed wildlife	322	15	5	38,247	15	x	x
Around the home	2,001	95	33	175,954	70	x	x
Observe wildlife	1,447	69	24	133,432	53	x	x
Photograph wildlife	1,138	54	19	28,985	12	x	x
Feed wildlife	1,354	64	22	x	x	x	x
Visit parks or natural areas ¹	652	31	11	13,537	5	x	x
Maintain plantings or natural areas	413	20	7	x	x	x	x

x Not applicable

¹ Includes visits only to parks or natural areas within one mile of home.

NOTE: Detail does not add to total because of multiple responses. Percent population (% Pop.) columns show the percentage of each row's population who participated in the activity named by the column (the percentage of the population who observed wildlife away from home, etc.). Columns labeled "%" show the percentage of each column's participants who are described by the row heading (the percentage of wildlife watchers who observed wildlife away from home, etc.).

Table 30

Virginia Resident Wildlife Watchers, by Selected Characteristics: 2016

(State population 16 years and older. Numbers in thousands)

	POPULATION		TOTAL			AWAY FROM HOME			AROUND THE HOME		
	Total	%	Total	% Pop.	%	Total	% Pop.	%	Total	% Pop.	%
TOTAL	6,075	100	2,106	35	100	969	16	100	2,001	33	100
RESIDENCE DENSITY											
Urban	4,827	79	1,630	34	77	779	16	80	1,524	32	76
Rural	1,248	21	477	38	23	190	15	20	477	38	24
RESIDENCE SIZE											
Metropolitan Statistical Area (MSA)	5,643	93	1,951	35	93	902	16	93	1,845	33	92
1,000,000 or more	4,086	67	1,354	33	64	573	14	59	1,248	31	62
250,000 to 999,999	538	9	131	24	6	49	9	5	131	24	7
50,000 to 249,999	1,019	17	466	46	22	279	27	29	466	46	23
Outside MSA	431	7	155	36	7	67	16	7	155	36	8
SEX											
Male	3,145	52	1,141	36	54	506	16	52	1,036	33	52
Female	2,930	48	965	33	46	463	16	48	965	33	48
AGE											
16 to 17 years	138	2	28	21	1	28	21	3	28	21	1
18 to 24 years	719	12	365	51	17	266	37	27	260	36	13
25 to 34 years	1,007	17	301	30	14	70	7	7	301	30	15
35 to 44 years	824	14	237	29	11	155	19	16	237	29	12
45 to 54 years	1,090	18	508	47	24	172	16	18	508	47	25
55 to 64 years	1,201	20	354	29	17	219	18	23	354	29	18
65 years and older	1,095	18	313	29	15	59	5	6	313	29	16
65 to 74 years	681	11	209	31	10	53	8	5	209	31	10
75 and older	414	7	104	25	5	6	1	1	104	25	5
ETHNICITY											
Hispanic	411	7	126	31	6	50	12	5	126	31	6
Non-Hispanic	5,664	93	1,980	35	94	919	16	95	1,875	33	94
RACE											
White	4,592	76	1,743	38	83	833	18	86	1,637	36	82
African American	741	12	162	22	8	—	—	—	162	22	8
All Others	743	12	201	27	10	136	18	14	201	27	10

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Table 30 Virginia Resident Wildlife Watchers, by Selected Characteristics: 2016 (continued)
(State population 16 years and older. Numbers in thousands)

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	POPULATION		TOTAL			AWAY FROM HOME			AROUND THE HOME		
	Total	%	Total	% Pop.	%	Total	% Pop.	%	Total	% Pop.	%
ANNUAL HOUSEHOLD INCOME											
Less than \$20,000	472	8	240	51	11	57	12	6	240	51	12
\$20,000 to \$29,999	201	3	6	3	0	6	3	1	6	3	0
\$30,000 to \$39,999	621	10	160	26	8	63	10	7	160	26	8
\$40,000 to \$49,999	281	5	88	31	4	3	1	0	88	31	4
\$50,000 to \$74,999	911	15	270	30	13	112	12	12	270	30	14
\$75,000 to \$99,999	406	7	177	44	8	109	27	11	177	44	9
\$100,000 to \$149,999	1,076	18	458	43	22	207	19	21	352	33	18
\$150,000 or more	1,066	18	463	43	22	265	25	27	463	43	23
Not reported	1,041	17	244	23	12	147	14	15	244	23	12
EDUCATION											
8 years or less	140	2	7	5	0	—	—	—	7	5	0
9 to 12 years	1,942	32	705	36	33	381	20	39	600	31	30
1 to 3 years of college	1,454	24	528	36	25	215	15	22	528	36	26
4 years or more of college	2,538	42	865	34	41	373	15	39	865	34	43

— No sample data

NOTE: Detail does not add to total because of multiple responses and nonresponse. Percent population (% Pop.) columns show the percentage of each row's population who participated in the activity named by the column (the percentage of the population living in urban areas who participated, etc.). Columns labeled "% under TOTAL, Away From Home, and Around the Home show the percentage of each column's participants who are described by the row heading (the percentage of those who lived in urban areas, etc.).

Table 33A Expenditures by Virginia Residents for All Wildlife Watching Both In and Out of Virginia: 2016
(State population 16 years and older. Numbers in thousands)

	AMOUNT (thousands of \$)	AVERAGE PER WILDLIFE WATCHER (\$) ¹	AVERAGE PER SPENDER (\$) ¹	NUMBER OF SPENDERS (thousands)	PERCENT OF WILDLIFE WATCHERS
ALL EXPENDITURES	3,284,242	1,559	2,009	1,635	78
TRIP-RELATED EXPENDITURES	2,169,746	1,030	2,500	868	41
Food and lodging	1,188,622	564	1,418	838	40
Food	714,154	339	852	838	40
Lodging	474,468	225	1,685	282	13
Transportation	572,367	272	681	841	40
Other trip costs ²	408,757	194	775	528	25
EQUIPMENT AND OTHER EXPENDITURES	1,114,494	529	717	1,554	74
Wildlife-watching equipment	682,642	324	486	1,406	67
Binoculars, spotting scopes	56,624	27	157	360	17
Film and photo processing	21,876	10	85	257	12
Cameras, special lenses, video cameras, and other photographic equipment, including memory cards	216,734	103	350	619	29
Day packs, carrying cases, and special clothing	114,550	54	332	345	16
Bird food	130,053	62	126	1,033	49
Food for other wildlife	67,162	32	156	430	20
Nest boxes, bird houses, bird feeders, and bird baths	72,698	35	97	750	36
Other equipment (including field guides)	2,945	1	25	117	6
Auxiliary equipment ³	93,375	44	214	435	21
Special equipment ⁴	29,642	14	814	36	2
Magazines, books, and DVDs	28,290	13	47	607	29
Membership dues and contributions	66,829	32	132	506	24
Land leasing and ownership	144,628	69	821	176	8
Plantings	69,089	33	275	251	12

¹ Average expenditures are annual estimates.

² Includes equipment rental and fees for guides, pack trips, public land use and private land use, boat fuel, other boating costs, and heating and cooking fuel.

³ Includes tents, tarps, frame packs and other backpacking equipment, other camping equipment, and other auxiliary equipment.

⁴ Includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs) and other special equipment.

NOTE: Detail does not add to total because of multiple responses and nonresponse.

Table 33B Expenditures by Virginia Residents for Away-from-home Wildlife Watching Both In and Out of Virginia: 2016
(State population 16 years and older. Numbers in thousands)

	AMOUNT (thousands of \$)	AVERAGE PER WILDLIFE WATCHER (\$) ¹	AVERAGE PER SPENDER (\$) ¹	NUMBER OF SPENDERS (thousands)	PERCENT OF WILDLIFE WATCHERS
ALL EXPENDITURES	2,759,728	2,848	3,088	894	92
TRIP-RELATED EXPENDITURES	2,536,214	2,617	2,903	874	90
Food and lodging	1,548,687	1,598	1,850	837	86
Food	674,350	696	805	837	86
Lodging	874,337	902	1,685	519	54
Transportation	704,057	727	817	862	89
Other trip costs ²	283,470	293	630	450	46
EQUIPMENT AND OTHER EXPENDITURES	223,514	231	600	373	38
Wildlife-watching equipment	166,280	172	520	320	33
Binoculars, spotting scopes	23,018	24	100	230	24
Film and photo processing	—	—	—	—	—
Cameras, special lenses, video cameras, and other photographic equipment, including memory cards	23,018	24	100	230	24
Day packs, carrying cases, and special clothing	119,081	123	476	250	26
Bird food	—	—	—	—	—
Food for other wildlife	—	—	—	—	—
Nest boxes, bird houses, bird feeders, and bird baths	—	—	—	—	—
Other equipment (including field guides)	1,162	1	17	70	7
Auxiliary equipment ³	23,018	24	100	230	24
Special equipment ⁴	—	—	—	—	—
Magazines, books, and DVDs	12,574	13	38	327	34
Membership dues and contributions	21,642	22	200	108	11
Land leasing and ownership	—	—	—	—	—
Plantings	—	—	—	—	—

— No sample data

¹ Average expenditures are annual estimates.

² Includes equipment rental and fees for guides, pack trips, public land use and private land use, boat fuel, other boating costs, and heating and cooking fuel.

³ Includes tents, tarps, frame packs and other backpacking equipment, other camping equipment, and other auxiliary equipment.

⁴ Includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs) and other special equipment.

NOTE: Detail does not add to total because of multiple responses and nonresponse.

Table 33C Expenditures by Virginia Residents for Around-the-home Wildlife Watching Both In and Out of Virginia: 2016
(State population 16 years and older. Numbers in thousands)

	AMOUNT (thousands of \$)	AVERAGE PER WILDLIFE WATCHER (\$) ¹	AVERAGE PER SPENDER (\$) ¹	NUMBER OF SPENDERS (thousands)	PERCENT OF WILDLIFE WATCHERS
ALL EXPENDITURES	467,386	234	401	1,166	58
TRIP-RELATED EXPENDITURES	x	x	x	x	x
Food and lodging	x	x	x	x	x
Food	x	x	x	x	x
Lodging	x	x	x	x	x
Transportation	x	x	x	x	x
Other trip costs ²	x	x	x	x	x
EQUIPMENT AND OTHER EXPENDITURES	467,386	234	401	1,166	58
Wildlife-watching equipment	288,504	144	265	1,091	55
Binoculars, spotting scopes	26,365	13	169	156	8
Film and photo processing	4,963	2	45	111	6
Cameras, special lenses, video cameras, and other photographic equipment, including memory cards	54,793	27	224	244	12
Day packs, carrying cases, and special clothing	3,153	2	125	25	1
Bird food	104,250	52	117	891	45
Food for other wildlife	18,197	9	71	257	13
Nest boxes, bird houses, bird feeders, and bird baths	75,905	38	128	594	30
Other equipment (including field guides)	878	0	25	35	2
Auxiliary equipment ³	5,449	3	64	86	4
Special equipment ⁴	49,033	25	1,450	34	2
Magazines, books, and DVDs	18,481	9	84	220	11
Membership dues and contributions	32,719	16	168	195	10
Land leasing and ownership	—	—	—	—	—
Plantings	73,200	37	307	239	12

— No sample data x Not applicable

¹ Average expenditures are annual estimates.

² Includes equipment rental and fees for guides, pack trips, public land use and private land use, boat fuel, other boating costs, and heating and cooking fuel.

³ Includes tents, tarps, frame packs and other backpacking equipment, other camping equipment, and other auxiliary equipment.

⁴ Includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs) and other special equipment.

NOTE: Detail does not add to total because of multiple responses and nonresponse.

Table 35 Virginia Resident Wildlife Watchers Participating in Fishing or Hunting: 2016
(State population 16 years and older. Numbers in thousands)

	TOTAL		AWAY FROM HOME		AROUND THE HOME	
	#	%	#	%	#	%
ALL WILDLIFE WATCHERS	2,106	100	969	100	2,001	100
Did not fish or hunt	1,214	58	341	35	1,214	61
Fished or hunted	892	42	628	65	786	39
Fished	872	41	628	65	767	38
Hunted	499	24	416	43	393	20

NOTE: Detail does not add to total because of multiple responses and nonresponse.

Table 36 Virginia Resident Sportspersons Participating in Wildlife Watching: 2016
(State population 16 years and older. Numbers in thousands)

	SPORTSPERSONS		ANGLERS		HUNTERS	
	#	%	#	%	#	%
ALL SPORTSPERSONS	1,021	100	957	100	259	100
Did not watch wildlife	295	29	282	29	48	18
Watched wildlife	725	71	675	71	211	82
Away from home	476	47	454	47	166	64
Around the home	654	64	612	64	177	68

NOTE: Detail does not add to total because of multiple responses and nonresponse.

APPENDIX B: STANDARD ERRORS

The tables in Appendix B depict the standard errors, subject to rounding error, corresponding to the calibrated point estimates reported in the tables in Appendix A. Summary statistics reported in these calibrated tables are described below, by table.

Table 5

Fishing and hunting, participation, days, and trips

- Standard errors of total fishing participation and total hunting participation: product-type statistics derived using model point estimates and standard errors of percent participation in the population and survey point estimates and standard errors of total population based on adjusted 50-State Survey of FHWAR weights.
- Standard errors of total freshwater, freshwater except Great Lakes, Great Lakes, and saltwater fishing participation, total big game, small game, migratory birds, and other animals hunting participation: product-type statistics derived using point estimates and standard errors of total fishing participation, point estimates and standard errors of total hunting participation, point estimates and standard errors of percent participation of freshwater, freshwater except Great Lakes, Great Lakes, and saltwater fishing in all fishing, and point estimates and standard errors of percent participation of big game, small game, migratory birds, and other animals hunting in all hunting (columns denoted by %).
- Standard errors of total fishing (all and subcategories) days/trips of participation and total hunting (all and subcategories) days/trips of participation: product-type statistics derived using point estimates and standard errors of total number of fishing (all and subcategories) participants, point estimates and standard errors of total number of hunting (all and subcategories) participants, and point estimates and standard errors of days/trips per participant (not displayed).

- Standard errors of percent participation (columns denoted by %): statistics constructed using full adjusted 50-State Survey of FHWAR final and replicate weights, using data from the fishing or hunting survey for the fishing and hunting sections, respectively.

Table 15

Fishing and hunting, demographics

- Standard errors of total population (all and subcategories): composite statistics constructed using 2-way composite factors to adjusted 50-State Survey of FHWAR final and replicate weights, using data from both the fishing and the hunting surveys.
- Standard errors of total number of anglers and total number of hunters: product-type statistics derived using model point estimates and standard errors for percent participation in the population (columns denoted by % Pop.) and survey point estimates and standard errors of total population based on adjusted 50-State Survey of FHWAR final and replicate weights.
- Standard errors of total number of sportspersons: ratio-type statistics derived using point estimates and standard errors of total number of anglers and point estimates and standard errors of percent anglers in sportspersons (not displayed).
- Standard errors of total population, sportspersons, anglers, hunters, by demographics: product-type statistics, derived using point estimates and standard errors of total population, sportspersons, anglers, hunters participation, and point estimates and standard errors of percent demographic-specific participation in total participation (columns denoted by %).

- Standard errors of percent demographic-specific population, sportspersons, anglers, hunters participation in total participation (columns denoted by %): composite statistics constructed using 2-way composite factors to adjusted 50-State Survey of FHWAR final and replicate weights, using data from the fishing and hunting surveys.
- Standard errors of percent demographic-specific anglers and hunters participation in the total demographic-specific population (columns denoted by % Pop.): ratio-type statistics, derived using point estimates and standard errors of total demographic-specific anglers and hunters participation and total demographic-specific population.
- Standard errors of percent total and demographic-specific sportspersons participation in the total and demographic-specific population (column denoted by % Pop.): ratio-type statistics, derived using point estimates and standard errors of total population and sportspersons participation.

Table 22

Fishing and hunting, spenders and expenses

- Standard errors of total fishing and hunting expenditure (all and subcategories) amount, total fishing expenditure (all and subcategories) amount, total hunting expenditure (all and subcategories) amount, and total unspecified expenditure amount: product-type statistics derived using point estimates and standard errors of expenditure amount per participant (columns denoted by Average Per Sportsperson), and point estimates and standard errors of total sportspersons participation (all and subcategories), point estimates and standard errors of total anglers participation (all and subcategories), point estimates and standard errors of total hunters participation (all and subcategories) and point estimates and standard errors of total sportspersons participation, respectively.
- Standard errors of expenditure amount per participant (columns denoted by Average Per Sportsperson) and expenditure amount per spender (columns denoted by Average Per Spender):
 - > Fishing section: statistics constructed using full adjusted 50-State Survey of FHWAR final and replicate weights, using data from the fishing survey only.

- > Hunting section: statistics constructed using full adjusted 50-State Survey of FHWAR final and replicate weights, using data from the hunting survey only.
- > Fishing and hunting, and unspecified sections: except for some expenses and spenders noted in the table footnotes, these are composite statistics constructed using 2-way composite factors to adjusted 50-State Survey of FHWAR final and replicate weights, using data from the fishing and hunting surveys.
- Standard errors of total fishing and hunting (all and subcategories) number of spenders, total fishing (all and subcategories) number of spenders, total hunting (all and subcategories) number of spenders, and total unspecified number of spenders: product-type statistics derived using the point estimates and standard errors of percent spenders in total participation (not displayed), and point estimates and standard errors of total sportspersons participation (all and subcategories), point estimates and standard errors of total anglers participation (all and subcategories), point estimates and standard errors of total hunters participation (all and subcategories) and point estimates and standard errors of total sportspersons participation, respectively.

Table 28

Wildlife watching, participation, days, and trips

- Standard errors of total wildlife watching participation: product-type statistics derived using model point estimates and standard errors of percent participation in the population, and survey point estimates and standard errors of total population based on adjusted 50-State Survey of FHWAR final and replicate weights.
- Standard errors of total away from home (all and subcategories) and around the home (all and subcategories) wildlife watching participation: product-type statistics derived using point estimates and standard errors of total wildlife watching participation, point estimates and standard errors of percent participation of away from home (all and subcategories) and point estimates and standard errors of around the home (all and subcategories) wildlife watching in all wildlife watching (columns denoted by %).

- Standard errors of total wildlife watching (all and sub-categories) days/trips of participation: product-type statistics derived using point estimates and standard errors of total number of wildlife watching (all and subcategories) participants and point estimates and standard errors of days/trips per participant (not displayed).
- Standard errors of percent participation (columns denoted by %): statistics constructed using full adjusted 50-State Survey of FHWAR final and replicate weights, using data from the wildlife watching survey.
- Standard errors of percent participation in the total population (column denoted by % Pop.): ratio-type statistics, derived using point estimates and standard errors of total population from Table 30 and point estimates and standard errors of wildlife watching participation.

Table 30

Wildlife watching, demographics

- Standard errors of total population (all and subcategories): composite statistics constructed using full adjusted 50-State Survey of FHWAR final and replicate weights, using data from the wildlife watching survey. Note that the standard errors of total population estimates in Tables 15 and 30 differ due to demographic harmonization without state targets estimated from the National Survey of FHWAR (information not available); see Rockville Institute (2020) for more details about the demographic harmonization.
- Standard errors of total number of wildlife watchers: product-type statistics derived using model point estimates and standard errors of percent participation in the population (columns denoted by % Pop.) and survey standard error of total population based on adjusted 50-State Survey of FHWAR final and replicate weights.
- Standard errors of total number of away from home or around the home wildlife watchers: product-type statistics derived using point estimates and standard errors of total number of wildlife watchers and point estimates and standard errors of percent away from home or around the home wildlife watchers in all wildlife watchers (columns denoted by % Pop. in Table 35).

- Standard errors of total population, wildlife watchers, away from home, around the home, by demographics: product-type statistics, derived using point estimates and standard errors of total population, wildlife watchers, away from home, around the home participation and point estimates and standard errors of percent demographic-specific participation in total participation (columns denoted by %).
- Standard errors of percent demographic-specific population, wildlife watchers, away from home, around the home participation in total participation (columns denoted by %): composite statistics constructed using full adjusted 50-State Survey of FHWAR final and replicate weights, using data from the wildlife watching survey.
- Standard errors of percent demographic-specific wildlife watchers in the total demographic-specific population (column denoted by % Pop.): ratio-type statistics, derived using point estimates and standard errors of total demographic-specific wildlife watchers participation and point estimates and standard errors of total demographic-specific population.
- Standard errors of percent total and demographic-specific away from home and around the home participation in the total and demographic-specific population (columns denoted by % Pop.): ratio-type statistics, derived using point estimates and standard errors of total population and away from home and around the home participation, respectively.

Table 33

Wildlife watching, spenders and expenditures — three versions for all wildlife watchers, away from home wildlife watchers, and around the home wildlife watchers

- Standard errors of total wildlife watching expenditure (all and subcategories) amount: product-type statistics derived using point estimates and standard errors of total number of wildlife watching (all and subcategories) participants and point estimates and standard errors of expenditure amount per participant (columns denoted by Average Per Wildlife Watcher).

- Standard errors or expenditure amount per participant (columns denoted by Average Per Wildlife Watcher) and expenditure amount per spender (columns denoted by Average Per Spender): statistics constructed using full adjusted 50-State Survey of FHWAR final and replicate weights, using data from the wildlife watching survey only.
- Standard errors of total wildlife watching (all and subcategories) number of spenders: product-type statistics derived using point estimates and standard errors of total number of wildlife watching (all and subcategories) participants and point estimates and standard errors of the percent spenders in total participation (columns denoted by Percent of Wildlife Watchers).
- Standard errors of percent spenders in total participation (columns denoted by Percent of Wildlife Watchers): statistics constructed using full adjusted 50-State Survey of FHWAR final and replicate weights, using data from the wildlife watching survey only.

Table 35

Wildlife watchers participating in fishing and hunting

- Standard errors of total number of wildlife watchers: product-type statistics derived using model point estimates and standard errors of percent participation in the population (columns denoted by % Pop. in Table 30) and survey point estimates and standard errors of total population based on adjusted 50-State Survey of FHWAR final and replicate weights (displayed in Table 30).
- Standard errors of total number of away from home or around the home wildlife watchers: product-type statistics derived using point estimates and standard errors of total number of wildlife watchers and point estimates and standard errors of percent away from home or around the home wildlife watchers in all wildlife watchers (columns not displayed).
- Standard errors of total number of wildlife watchers, away from home, around the home who did not fish

or hunt, fished or hunted, fished, hunted: product-type statistics, derived using point estimates and standard errors of total number of wildlife watchers and point estimates and standard errors of percent sportsperson-specific category in the corresponding total participation (columns denoted by %).

- Standard errors or percent sportsperson-specific category in the corresponding total participation (columns denoted by %): statistics constructed using full adjusted 50-State Survey of FHWAR final and replicate weights, using data from the wildlife watching survey.

Table 36

Sportspersons participating in wildlife watching

- Standard errors of total number of sportspersons: ratio-type statistics derived using point estimates and standard errors of total number of anglers and point estimates and standard errors of percent anglers in sportspersons (not displayed).
- Standard errors of total number of anglers or total number of hunters: product-type statistics derived using model point estimates and standard errors of percent participation in the population (columns denoted by % Pop. in Table 15) and survey point estimates and standard errors of total population based on adjusted 50-State Survey of FHWAR weights (displayed in Table 15).
- Standard errors of total number of sportspersons, anglers, or hunters who did not wildlife watch, wildlife watch, wildlife watch away from home, wildlife watch around the home: product-type statistics, derived using point estimates and standard errors of total number of sportspersons, anglers, or hunters and point estimates and standard errors of percent wildlife watcher-specific category in the corresponding total participation (columns denoted by %).
- Standard errors of percent wildlife watcher-specific category in the corresponding total participation (columns denoted by %): composite statistics constructed using 3-way composite factors to adjusted 50-State Survey of FHWAR final and replicate weights, using data from the fishing, hunting, and wildlife watching surveys.

Table 5 SE Standard Errors of Virginia Resident Anglers and Hunters, Days of Participation and Trips in the United States,
by Type of Fishing and Hunting: 2016
(Population 16 years and older. Numbers in thousands)

	PARTICIPANTS		DAYS OF PARTICIPATION		TRIPS	
	#	%	#	%	#	%
ALL FISHING	170.48	0.00	4,463.77	0.00	3,993.59	0.00
All freshwater	140.26	8.73	4,178.39	8.76	3,769.77	10.34
Freshwater, except Great Lakes	140.26	8.73	4,178.39	8.76	3,769.77	10.34
Great Lakes	—	—	—	—	—	—
Saltwater	123.36	9.38	1,441.85	8.76	1,292.18	10.34
ALL HUNTING	66.43	0.00	2,268.13	0.00	1,602.59	0.00
Big game	62.48	5.67	2,169.65	9.54	1,201.99	14.31
Small game	35.26	11.44	863.47	19.07	819.12	13.83
Migratory birds	18.11	6.55	40.72	0.83	40.72	0.89
Other animals	27.69	10.07	155.81	3.56	76.59	1.79

— No sample data

Table 15 SE Standard Errors of Virginia Resident Anglers and Hunters, by Selected Characteristics: 2016
(State population 16 years and older. Numbers in thousands)

	POPULATION		SPORTSPERSONS			ANGLERS			HUNTERS		
	Total	%	Total	% Pop.	%	Total	% Pop.	%	Total	% Pop.	%
TOTAL	251.21	0.00	183.28	2.99	0.00	170.48	2.64	0.00	66.43	1.04	0.00
RESIDENCE DENSITY											
Urban	322.35	3.30	135.20	2.93	6.41	129.66	2.80	6.93	48.30	1.02	9.83
Rural	198.68	3.30	91.02	7.25	6.41	87.62	6.90	6.93	34.96	2.62	9.83
RESIDENCE SIZE											
Metropolitan Statistical Area (MSA)	275.37	1.62	162.10	2.90	3.28	152.45	2.73	3.09	54.79	0.96	7.73
1,000,000 or more	315.69	3.57	132.63	3.08	6.78	128.48	2.98	7.29	41.63	0.94	10.70
250,000 to 999,999	161.34	2.55	22.80	5.75	2.13	16.97	3.94	1.75	13.00	3.08	4.81
50,000 to 249,999	140.30	2.26	66.13	10.04	5.45	67.18	10.18	5.95	25.83	3.66	8.57
Outside MSA	98.49	1.62	41.06	9.34	3.28	35.83	8.10	3.09	24.59	5.20	7.73
SEX											
Male	211.68	2.86	138.42	4.83	4.04	127.60	4.46	4.43	54.90	1.86	7.61
Female	226.22	2.86	65.15	2.10	4.04	65.08	2.10	4.43	24.21	0.76	7.61
AGE											
16 to 17 years	56.53	0.90	9.17	7.85	0.88	9.27	7.68	0.96	3.08	2.55	1.16
18 to 24 years	174.64	2.80	41.61	5.39	3.65	42.13	5.45	3.96	11.28	1.34	4.21
25 to 34 years	241.20	3.64	54.89	5.88	4.91	53.55	5.67	5.17	13.04	1.27	4.96
35 to 44 years	176.60	2.77	53.76	7.17	4.64	54.76	7.27	5.09	32.27	3.99	11.42
45 to 54 years	162.99	2.54	75.28	7.93	5.34	71.64	7.46	5.70	31.37	3.04	9.81
55 to 64 years	146.38	2.32	52.62	5.78	4.21	52.05	5.64	4.62	14.48	1.51	4.64
65 years and older	149.88	2.21	40.45	3.55	3.08	39.56	3.45	3.31	22.37	1.88	6.92
65 to 74 years	144.14	2.15	35.15	4.44	2.89	35.37	4.44	3.15	20.01	2.39	6.56
75 and older	80.53	1.29	15.14	4.82	1.38	14.04	4.38	1.39	6.39	1.93	2.32
ETHNICITY											
Hispanic	252.78	3.94	33.09	4.86	3.17	34.21	5.03	3.50	19.64	2.70	7.61
Non-Hispanic	310.36	3.94	177.09	3.35	3.17	164.52	3.12	3.50	64.47	1.19	7.61
RACE											
White	253.73	3.94	155.91	3.36	7.04	144.73	3.12	7.74	62.23	1.32	8.17
African American	257.94	3.85	70.61	8.80	6.65	73.07	9.10	7.34	—	—	—
All Others	132.96	2.14	49.21	9.53	4.41	50.66	9.82	4.85	21.82	3.88	8.17

(continued on next page)

Table 15 SE Standard Errors of Virginia Resident Anglers and Hunters, by Selected Characteristics: 2016 (continued)
(State population 16 years and older. Numbers in thousands)

(continued from previous page)

	POPULATION		SPORTSPERSONS			ANGLERS			HUNTERS		
	Total	%	Total	% Pop.	%	Total	% Pop.	%	Total	% Pop.	%
ANNUAL HOUSEHOLD INCOME											
Less than \$20,000	137.44	2.20	45.00	10.56	4.15	46.27	10.70	4.60	4.01	0.86	1.52
\$20,000 to \$29,999	108.08	1.72	8.93	5.56	0.83	8.86	5.36	0.89	2.92	1.55	1.11
\$30,000 to \$39,999	151.25	2.45	18.40	4.33	1.66	16.34	3.73	1.60	9.24	2.00	3.30
\$40,000 to \$49,999	205.69	3.23	19.72	4.77	1.82	13.25	3.24	1.30	12.22	2.51	4.67
\$50,000 to \$74,999	134.12	2.17	45.71	8.07	3.81	42.96	7.50	3.89	17.93	2.90	6.18
\$75,000 to \$99,999	149.29	2.44	34.81	7.77	2.95	34.04	7.55	3.11	18.14	3.68	6.07
\$100,000 to \$149,999	238.39	3.76	62.67	7.13	5.23	62.34	6.93	5.73	24.12	2.57	7.62
\$150,000 or more	223.31	3.53	80.32	8.25	6.90	80.96	8.25	7.51	35.17	3.36	12.31
Not reported	253.97	3.64	72.23	7.33	6.56	71.57	7.29	6.91	20.16	1.87	7.73
EDUCATION											
8 years or less	79.69	1.25	16.18	10.39	1.54	16.69	10.72	1.69	2.38	1.42	0.90
9 to 12 years	212.56	3.17	88.37	6.08	6.54	84.37	5.75	6.92	29.70	1.94	8.66
1 to 3 years of college	269.04	3.97	67.34	3.69	5.41	67.95	3.72	5.89	15.27	0.80	4.96
4 years or more of college	245.50	3.92	101.88	4.46	6.33	96.15	4.20	6.66	44.40	1.87	10.15

— No sample data

NOTE: Percent population (% Pop.) columns show the percentage of each row's population who participated in the activity named by the column (the percentage of the population living in urban areas who fished, etc.). Columns labeled "%" under Sportspeople, Anglers, and Hunters show the percentage of each column's participants who are described by the row heading (the percentage of anglers who lived in urban areas, etc.).

Table 22 SE Standard Errors of Expenditures by Virginia Residents for Fishing and Hunting Both In and Out of Virginia: 2016
(State population 16 years and older. Numbers in thousands)

	AMOUNT (thousands of \$)	AVERAGE PER SPORTSPERSON (\$) ¹	AVERAGE PER SPENDER (\$) ¹	NUMBER OF SPENDERS (thousands)
FISHING AND HUNTING	922,464.28	732.00	730.92	214.63
Food and lodging	125,846.21	107.72	153.97	174.18
Transportation	66,477.86	53.19	68.95	180.44
Other trip costs ²	194,765.74	183.08	235.31	168.75
Equipment (fishing, hunting)	97,898.62	65.20	99.57	183.47
Auxiliary equipment ³	114,095.17	109.53	390.12	73.71
Special equipment ⁴	367,239.34	347.83	2,900.20	47.12
Magazines, books, and DVDs	4,109.73	3.57	13.12	58.43
Membership dues/contributions	4,482.72	4.13	24.97	53.07
Other ⁵	518,195.29	487.98	779.88	145.15
FISHING	517,982.62	481.65	499.49	165.29
Food and lodging	117,933.86	112.11	159.47	138.59
Transportation	57,493.95	51.70	71.27	139.69
Other trip costs ²	190,570.61	192.43	227.60	150.14
Fishing equipment	56,535.26	47.11	65.55	140.75
Auxiliary equipment ³	6,419.59	6.08	24.21	41.50
Special equipment ⁴	13,154.29	13.30	138.54	30.66
Magazines, books, and DVDs	3,275.05	3.30	14.77	65.84
Membership dues/contributions	4,089.91	4.16	34.40	46.86
Other ⁵	346,769.04	361.76	734.62	112.36
HUNTING	316,544.22	918.90	918.90	66.43
Food and lodging	22,180.29	74.71	83.75	58.66
Transportation	14,743.92	46.95	56.32	57.34
Other trip costs ²	9,562.56	31.66	43.85	37.45
Hunting equipment	55,487.10	161.03	209.05	57.84
Auxiliary equipment ³	9,927.80	33.58	51.07	30.03
Special equipment ⁴	131,495.03	502.94	5,954.31	15.25
Magazines, books, and DVDs	1,668.56	5.65	10.43	29.42
Membership dues/contributions	938.47	3.33	41.03	20.58
Other ⁵	265,397.15	968.40	995.94	64.75
UNSPECIFIED⁶	343,659.79	328.85	2,824.14	46.10

1 Average expenditures are annual estimates.

2 Includes boating costs, equipment rental, guide fees, access fees, heating and cooking fuel, and ice and bait (for fishing only).

3 Includes sleeping bags, packs, duffel bags, tents, binoculars and field glasses, special fishing and hunting clothing, foul weather gear, boots and waders, maintenance and repair of equipment, processing and taxidermy costs, and electronic equipment such as a GPS device.

4 Includes big-ticket items bought primarily for hunting and fishing, including boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs) and other special equipment.

5 Includes land leasing and ownership, licenses, stamps, tags, permits, and plantings (for hunting only).

6 Respondent could not specify whether expenditure was primarily for either fishing or hunting.

Table 28 SE Standard Errors of Virginia Resident Wildlife Watchers Both In and Out of Virginia: 2016
(State population 16 years and older. Numbers in thousands)

	PARTICIPANTS			DAYS OF PARTICIPATION		TRIPS	
	#	%	% Pop.	#	%	#	%
WILDLIFE WATCHERS	184.98	0.00	2.61	56,826.18	0.00	7,780.97	0.00
Away from home	170.00	7.01	2.89	23,145.69	6.30	7,650.91	0.00
Observe wildlife	169.79	7.02	2.89	16,812.55	4.44	x	x
Photograph wildlife	157.41	7.13	2.62	19,409.11	6.67	x	x
Feed wildlife	109.16	5.03	1.81	19,863.06	6.60	x	x
Around the home	207.10	5.23	3.72	40,814.65	6.30	x	x
Observe wildlife	191.40	6.82	3.33	30,006.43	4.66	x	x
Photograph wildlife	179.91	7.13	3.08	11,079.59	3.80	x	x
Feed wildlife	183.61	6.67	3.19	x	x	x	x
Visit parks or natural areas ¹	158.69	7.05	2.66	8,348.19	3.02	x	x
Maintain plantings or natural areas	114.90	5.20	1.92	x	x	x	x

x Not applicable

¹ Includes visits only to parks or natural areas within one mile of home.

NOTE: Percent population (% Pop.) columns show the percentage of each row's population who participated in the activity named by the column (the percentage of the population who observed wildlife away from home, etc.). Columns labeled "%" show the percentage of each column's participants who are described by the row heading (the percentage of wildlife watchers who observed wildlife away from home, etc.).

Table 30 SE Standard Errors of Virginia Resident Wildlife Watchers, by Selected Characteristics: 2016
(State population 16 years and older. Numbers in thousands)

	POPULATION		TOTAL			AWAY FROM HOME			AROUND THE HOME		
	Total	%	Total	% Pop.	%	Total	% Pop.	%	Total	% Pop.	%
TOTAL	275.26	0.00	184.98	2.61	0.00	170.01	2.89	0.00	207.10	3.72	0.00
RESIDENCE DENSITY											
Urban	334.82	4.66	180.26	4.41	5.22	154.98	3.40	7.67	193.54	4.57	5.64
Rural	294.65	4.66	117.33	13.03	5.22	80.40	7.38	7.67	122.53	13.33	5.64
RESIDENCE SIZE											
Metropolitan Statistical Area (MSA)	284.35	2.51	178.10	3.60	2.32	161.76	2.98	3.52	197.15	3.86	2.46
1,000,000 or more	418.96	6.13	187.87	5.72	6.93	160.33	4.18	13.09	188.48	5.58	6.90
250,000 to 999,999	249.66	4.11	61.97	16.14	2.90	33.35	7.53	3.38	62.23	16.17	3.05
50,000 to 249,999	290.53	4.74	145.46	19.32	6.65	139.97	15.80	13.74	143.04	19.15	6.77
Outside MSA	154.10	2.51	50.54	17.40	2.32	35.59	9.94	3.52	51.43	17.54	2.46
SEX											
Male	319.00	4.80	138.29	5.74	4.54	129.18	4.42	9.84	146.05	5.72	4.99
Female	324.15	4.80	127.52	5.68	4.54	124.10	4.58	9.84	140.78	6.03	4.99
AGE											
16 to 17 years	102.59	1.70	29.98	26.47	1.42	30.56	26.81	3.16	29.97	26.47	1.50
18 to 24 years	267.94	4.30	128.03	26.00	5.91	111.03	20.70	10.56	115.63	20.97	5.65
25 to 34 years	240.88	3.93	94.85	11.82	4.34	47.00	4.96	4.75	93.03	11.68	4.41
35 to 44 years	246.22	4.02	81.25	13.07	3.74	71.35	10.31	6.92	79.03	12.87	3.78
45 to 54 years	208.64	3.53	111.40	13.56	4.87	73.14	7.36	6.98	116.06	13.89	5.20
55 to 64 years	243.41	3.92	90.53	9.62	4.05	81.23	7.70	7.50	93.16	9.79	4.30
65 years and older	212.05	3.28	78.92	9.09	3.53	28.46	2.80	2.78	83.97	9.46	3.89
65 to 74 years	114.17	1.88	52.75	9.30	2.36	27.33	4.22	2.69	56.69	9.78	2.63
75 and older	182.65	2.93	58.56	17.98	2.76	6.02	1.58	0.62	59.01	18.07	2.92
ETHNICITY											
Hispanic	185.98	3.00	65.94	21.19	3.10	32.31	9.56	3.26	66.07	21.21	3.26
Non-Hispanic	279.03	3.00	185.66	3.70	3.10	164.27	3.01	3.26	204.58	3.96	3.26
RACE											
White	311.05	4.61	182.97	4.74	4.78	159.62	3.69	6.74	197.47	4.93	5.10
African American	241.96	3.84	72.36	12.12	3.38	—	—	—	73.48	12.24	3.60
All Others	240.67	3.93	79.43	13.84	3.69	68.57	10.98	6.74	80.25	13.93	3.90

(continued on next page)

Table 30 SE Standard Errors of Virginia Resident Wildlife Watchers, by Selected Characteristics: 2016 (continued)
(State population 16 years and older. Numbers in thousands)

(continued from previous page)

	POPULATION		TOTAL			AWAY FROM HOME			AROUND THE HOME		
	Total	%	Total	% Pop.	%	Total	% Pop.	%	Total	% Pop.	%
ANNUAL HOUSEHOLD INCOME											
Less than \$20,000	184.12	3.06	94.71	28.24	4.40	37.49	9.23	3.79	94.54	28.21	4.58
\$20,000 to \$29,999	98.40	1.64	5.92	3.26	0.28	6.02	3.31	0.62	5.92	3.26	0.30
\$30,000 to \$39,999	280.58	4.68	85.02	17.99	4.00	68.10	11.90	7.04	84.52	17.93	4.16
\$40,000 to \$49,999	106.18	1.75	42.10	19.10	1.97	3.59	1.36	0.37	42.17	19.13	2.07
\$50,000 to \$74,999	235.03	3.98	85.63	12.12	3.92	56.66	6.98	5.57	86.57	12.20	4.12
\$75,000 to \$99,999	122.85	2.08	62.70	20.28	2.90	55.38	15.87	5.44	63.22	20.38	3.04
\$100,000 to \$149,999	315.36	5.17	147.38	18.52	6.76	118.77	12.40	11.85	105.19	13.69	4.96
\$150,000 or more	352.71	5.61	165.81	21.17	7.66	143.68	15.78	14.25	161.62	20.88	7.76
Not reported	317.02	4.81	91.07	11.30	4.22	72.63	8.19	7.12	93.04	11.45	4.50
EDUCATION											
8 years or less	129.47	2.13	7.77	7.38	0.37	—	—	—	7.78	7.39	0.39
9 to 12 years	373.36	5.97	171.07	11.24	7.60	149.28	8.56	13.99	162.51	10.26	7.55
1 to 3 years of college	325.64	5.17	140.62	12.63	6.33	101.74	7.74	9.91	140.31	12.62	6.49
4 years or more of college	344.11	5.72	154.12	7.63	6.39	126.75	5.38	11.37	160.44	7.83	6.69

— No sample data

NOTE: Percent population (% Pop.) columns show the percentage of each row's population who participated in the activity named by the column (the percentage of the population living in urban areas who participated, etc.). Columns labeled "% under TOTAL, Away From Home, and Around the Home show the percentage of each column's participants who are described by the row heading (the percentage of those who lived in urban areas, etc.).

Table 33A SE Standard Errors of Expenditures by Virginia Residents for All Wildlife Watching Both In and Out of Virginia: 2016
(State population 16 years and older. Numbers in thousands)

	AMOUNT (thousands of \$)	AVERAGE PER WILDLIFE WATCHER (\$) ¹	AVERAGE PER SPENDER (\$) ¹	NUMBER OF SPENDERS (thousands)	PERCENT OF WILDLIFE WATCHERS
ALL EXPENDITURES	1,166,924.44	538.90	674.45	187.99	5.78
TRIP-RELATED EXPENDITURES	1,072,059.95	502.81	1,138.45	161.96	6.81
Food and lodging	635,894.59	298.96	717.72	161.62	6.86
Food	425,717.38	200.68	500.59	161.62	6.86
Lodging	277,316.48	130.67	605.68	103.79	4.80
Transportation	267,605.45	125.27	289.81	160.57	6.80
Other trip costs ²	198,813.17	93.20	221.59	160.41	7.32
EQUIPMENT AND OTHER EXPENDITURES	272,432.87	121.17	154.00	183.85	5.87
Wildlife-watching equipment	160,249.95	70.83	95.90	182.48	6.40
Binoculars, spotting scopes	24,083.87	11.23	45.59	144.43	6.72
Film and photo processing	13,754.14	6.49	37.25	103.35	4.81
Cameras, special lenses, video cameras, and other photographic equipment, including memory cards	64,084.32	29.16	93.88	143.74	6.34
Day packs, carrying cases, and special clothing	57,301.49	26.89	74.22	134.44	6.24
Bird food	27,522.86	11.93	18.99	179.35	7.37
Food for other wildlife	41,084.58	19.38	88.98	128.95	5.88
Nest boxes, bird houses, bird feeders, and bird baths	25,222.41	11.63	32.14	142.46	6.02
Other equipment (including field guides)	1,521.08	0.71	4.37	64.53	3.04
Auxiliary equipment ³	49,399.91	23.22	100.51	140.07	6.42
Special equipment ⁴	30,361.09	14.42	990.94	27.09	1.28
Magazines, books, and DVDs	9,744.15	4.49	13.99	137.64	6.05
Membership dues and contributions	25,252.19	11.71	46.73	157.03	7.18
Land leasing and ownership	74,369.97	34.92	312.14	93.48	4.39
Plantings	26,632.84	12.36	68.19	89.99	4.16

¹ Average expenditures are annual estimates.

² Includes equipment rental and fees for guides, pack trips, public land use and private land use, boat fuel, other boating costs, and heating and cooking fuel.

³ Includes tents, tarps, frame packs and other backpacking equipment, other camping equipment, and other auxiliary equipment.

⁴ Includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs) and other special equipment.

Table 33B SE Standard Errors of Expenditures by Virginia Residents for Away-from-home Wildlife Watching
Both In and Out of Virginia: 2016
(State population 16 years and older. Numbers in thousands)

	AMOUNT (thousands of \$)	AVERAGE PER WILDLIFE WATCHER (\$) ¹	AVERAGE PER SPENDER (\$) ¹	NUMBER OF SPENDERS (thousands)	PERCENT OF WILDLIFE WATCHERS
ALL EXPENDITURES	1,566,483.45	1,561.58	1,704.38	166.68	5.93
TRIP-RELATED EXPENDITURES	1,647,282.22	1,662.48	1,874.43	165.16	6.45
Food and lodging	991,007.16	998.96	1,188.41	164.82	7.83
Food	552,426.88	565.61	672.42	164.82	7.83
Lodging	575,099.69	580.98	623.25	241.85	23.49
Transportation	459,198.80	463.59	533.85	163.96	6.65
Other trip costs ²	208,057.60	211.76	360.60	234.55	23.15
EQUIPMENT AND OTHER EXPENDITURES	196,809.37	202.16	370.90	233.89	23.54
Wildlife-watching equipment	171,516.48	177.16	486.24	236.57	24.09
Binoculars, spotting scopes	24,622.03	25.46	0.00	246.22	25.46
Film and photo processing	—	—	—	—	—
Cameras, special lenses, video cameras, and other photographic equipment, including memory cards	24,622.03	25.46	0.00	246.22	25.46
Day packs, carrying cases, and special clothing	122,620.45	126.65	276.34	244.33	25.19
Bird food	—	—	—	—	—
Food for other wildlife	—	—	—	—	—
Nest boxes, bird houses, bird feeders, and bird baths	—	—	—	—	—
Other equipment (including field guides)	1,278.44	1.32	0.00	76.70	7.94
Auxiliary equipment ³	24,622.03	25.46	0.00	246.22	25.46
Special equipment ⁴	—	—	—	—	—
Magazines, books, and DVDs	7,624.78	7.65	34.98	236.34	24.03
Membership dues and contributions	17,658.17	18.08	20.71	86.36	8.83
Land leasing and ownership	—	—	—	—	—
Plantings	—	—	—	—	—

— No sample data

¹ Average expenditures are annual estimates.

² Includes equipment rental and fees for guides, pack trips, public land use and private land use, boat fuel, other boating costs, and heating and cooking fuel.

³ Includes tents, tarps, frame packs and other backpacking equipment, other camping equipment, and other auxiliary equipment.

⁴ Includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs) and other special equipment.

Table 33C SE Standard Errors of Expenditures by Virginia Residents for Around-the-home Wildlife Watching
Both In and Out of Virginia: 2016

(State population 16 years and older. Numbers in thousands)

	AMOUNT (thousands of \$)	AVERAGE PER WILDLIFE WATCHER (\$) ¹	AVERAGE PER SPENDER (\$) ¹	NUMBER OF SPENDERS (thousands)	PERCENT OF WILDLIFE WATCHERS
ALL EXPENDITURES	157,124.62	75.13	118.00	204.12	8.27
TRIP-RELATED EXPENDITURES	x	x	x	x	x
Food and lodging	x	x	x	x	x
Food	x	x	x	x	x
Lodging	x	x	x	x	x
Transportation	x	x	x	x	x
Other trip costs ²	x	x	x	x	x
EQUIPMENT AND OTHER EXPENDITURES	157,124.62	75.13	118.00	204.12	8.27
Wildlife-watching equipment	106,456.31	51.35	87.05	195.99	8.05
Binoculars, spotting scopes	16,285.18	8.07	30.75	86.57	4.27
Film and photo processing	3,021.14	1.50	17.92	57.23	2.82
Cameras, special lenses, video cameras, and other photographic equipment, including memory cards	24,283.81	11.87	60.45	96.61	4.69
Day packs, carrying cases, and special clothing	3,275.78	1.64	0.00	26.20	1.31
Bird food	32,231.63	15.26	30.20	180.64	7.80
Food for other wildlife	15,098.52	7.53	56.73	106.21	5.17
Nest boxes, bird houses, bird feeders, and bird baths	39,142.50	19.27	58.64	154.71	7.13
Other equipment (including field guides)	921.00	0.46	0.00	36.85	1.84
Auxiliary equipment ³	4,524.48	2.26	57.99	57.20	2.84
Special equipment ⁴	51,891.93	25.95	0.00	35.79	1.79
Magazines, books, and DVDs	14,431.79	7.19	58.65	97.80	4.78
Membership dues and contributions	18,732.64	9.26	60.21	85.38	4.17
Land leasing and ownership	—	—	—	—	—
Plantings	35,764.48	17.57	99.18	106.28	5.20

— No sample data x Not applicable

¹ Average expenditures are annual estimates.

² Includes equipment rental and fees for guides, pack trips, public land use and private land use, boat fuel, other boating costs, and heating and cooking fuel.

³ Includes tents, tarps, frame packs and other backpacking equipment, other camping equipment, and other auxiliary equipment.

⁴ Includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs) and other special equipment.

Table 35 SE Standard Errors of Virginia Resident Wildlife Watchers Participating in Fishing or Hunting: 2016
(State population 16 years and older. Numbers in thousands)

	TOTAL		AWAY FROM HOME		AROUND THE HOME	
	#	%	#	%	#	%
ALL WILDLIFE WATCHERS	184.98	0.00	170.01	0.00	207.10	0.00
Did not fish or hunt	180.20	6.92	105.52	9.11	188.34	7.05
Fished or hunted	165.04	6.92	140.39	9.11	162.17	7.05
Fished	165.72	7.00	140.39	9.11	161.87	7.09
Hunted	156.98	7.18	140.96	12.64	150.16	7.26

Table 36 SE Standard Errors of Virginia Resident Sportspersons Participating in Wildlife Watching: 2016
(State population 16 years and older. Numbers in thousands)

	SPORTSPERSONS		ANGLERS		HUNTERS	
	#	%	#	%	#	%
ALL SPORTSPERSONS	183.28	0.00	170.48	0.00	66.43	0.00
Did not watch wildlife	75.62	5.37	73.62	5.71	20.97	6.79
Watched wildlife	140.93	5.37	131.68	5.71	56.75	6.79
Away from home	112.08	7.23	108.18	7.63	50.11	10.48
Around the home	135.89	6.80	128.46	7.22	55.41	12.71

