

2017–2018 Virginia Trapper Harvest Survey



Submitted to the Virginia Department of Game and Inland Fisheries

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January 2019

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ABSTRACT

A mail survey was conducted following the 2017–2018 season to quantify trapper harvest and effort for furbearer species. Surveys were mailed to 1,500 randomly selected trappers who held annual or multi-year trapping licenses valid during the 2017–2018 season ($N=1,634$). Of the 1,500 surveys mailed, 586 (39.1%) were returned and 557 (37.1%) contained usable data. Of the trappers who responded with useable information, 339 (61.9%) reported that they trapped during the 2017-2018 season (active trappers) and 218 (37.4%) reported that they did not trap (non-active trappers). On average, active trappers set an average of 9.5 (SE \pm 0.5) traps for 25.4 (SE \pm 1.1) days during the 2017–2018 season. Response data was used to estimate trapping experiences of non-respondents and calculate total harvest, number of trappers, trapping effort, and catch per unit effort for each furbearer species statewide and by region. Trappers harvested an estimated statewide total of $35,637 \pm 98$ furbearers. Raccoons and muskrats were the top two harvested species with estimated harvest totals of $8,616 \pm 26.5$ and $6,841 \pm 62.3$, respectfully. No harvest of long-tailed weasel was reported and only one trapper indicated targeting the species. In addition, several observations of fishers, spotted skunks, and least weasels were reported by trappers.

GOAL & OBJECTIVE

To quantify 2017–2018 statewide trapper effort and furbearer harvest and obtain additional occurrence information for rare furbearer species (i.e., fisher, spotted skunk, and least weasel).

METHODS

A total of 1,634 persons possessed Virginia trapping licenses valid during the 2017-2018 trapping season. From that total, a random sample of 1,500 persons was selected using information from the Virginia Department of Game & Inland Fisheries license database. The

sample represented 91.8% of license holders from three categories of licenses: annual license holders who purchased a license after 28 February 2017, the end of 2016–2017 season ($N=1,451$), multi-year license holders valid during the 2017–2018 season ($N=28$), and non-resident license holders ($N=21$). On 3 June 2018, each trapper was mailed a one-page (front and back) questionnaire (Appendix A), cover letter (Appendix B), and a postage-paid return envelope. A reminder postcard (Appendix C) was sent to non-respondents on 17 July 2018. A third and final mailing identical to the first was sent on 22 August 2018 to survey recipients who did not respond to the previous two mailings. No surveys were reported as undeliverable so the effective sampling total was 1,500. Trapping season date information is provided in Appendix D. Survey response data (i.e., harvest data) were entered into an Access database where they were checked for quality and cleaned prior to statistical analyses.

Data Analysis.—Descriptive and inferential statistical analyses were conducted in RStudio (R Core Team 2018) with the assistance of Packages dplyr (Wickham et al. 2018) and survey (Lumley 2017). Raw harvest data (county, species, number harvested, days trapped, number traps) were imported from the Access database as .csv files, transposed from column to row format, and used to create and append additional variables to the matrix, including trap region, number of trap days, and whether the data record represented target or non-target efforts and if trap efforts were successful. Successful harvest data were considered non-target harvest, or “bycatch”, if the respondent reported take but zero trap days (i.e., number of days x number of traps). These variables were used to subset and analyze data by target versus non-target efforts, successful versus non-successful efforts, and by region.

Input data for inferential statistical analyses conducted with Package ‘survey’ were prepared by summarizing (subset) harvest data by individual trappers (rows) and species (columns) for the

parameter of interest. Using these new input matrices, statewide and regional statistics (Tables 9–12) were estimated using the `svydesign()` function which allows for the incorporation of a finite population correction factor (FPC). For example, to estimate the total number of successful target trappers (Table 10), the function is multiplying the proportion of successful target trappers among all survey responses ($313/557 = 0.562$) by the total number of trapping licenses ($0.562 * 1,634 = 918$). Where standard deviations (SD) are presented to describe the variability of survey response data (e.g., *average* days trapped; descriptive statistics), standard errors (SE) are presented to provide a measure of precision around estimated parameters (e.g., *estimated* total number of furbearer species harvested) and were calculated by dividing the standard deviation (SD) by the square root of the sample size ($n=557$). In addition, as is recommended when sampling is conducted without replacement from more than 5% of a finite population, a finite population correction factor (FPC) was used to calculate SE (i.e., more than 5% of the population of 2017–2018 trappers were sampled; 557 samples; finite population = 1,634 trapping licenses) (Lumley 2010; Thompson 2012). As survey responses were not normally distributed, 95% confidence intervals were calculated by using a logarithmic transformation of the estimate and delta-method approximation of variance (Seber 1982; Fletcher 2008). Hence, 95% CIs will not be symmetrical around parameter estimates.

RESULTS

A total of 586 (39.1% effective response rate) license holders responded to the survey. Of the 586 surveys returned, 557 were considered usable responses, and 15 were considered unusable (contained incomplete or unreliable data) (Table 1). Of the 557 usable surveys, 339 (61.9%) reported trapping activity during the 2017–2018 season (active trappers) and 218 (37.4%) reported no trapping activity (non-active trappers) (Table 1). Statewide, an estimated 980

trappers set, on average, 9.5 (SE \pm 0.5) traps for 25.4 (SE \pm 1.1) days and harvested an estimated total of $35,637 \pm 98$ furbearers (Tables 3, 11, 12). By species, total statewide trapper harvest was estimated to be 8,616 raccoons, 6,841 muskrats, 5,527 opossums, 4,048 coyotes, 3,617 red foxes 3,092 beavers, 1,314 gray foxes, 959 striped skunks, 789 bobcats, 569 otters, 235 mink, 29 nutria, and 0 long-tailed weasels (Table 11). Average harvest per season for trappers targeting certain species was highest for muskrat, followed by raccoon, opossum, beaver, red fox, coyote, striped skunk, gray fox, otter, bobcat, nutria, and mink (Table 12). Trapper responses by license type and reported numbers of trappers, effort, and harvest from response data are presented in Tables 1–8. Extrapolated statewide and regional trapping effort and harvest estimates for all furbearer species are presented in Tables 9–12. Rare furbearer observations are reported in Table 13.

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TABLES & FIGURES

Table 1. Summary of trapping licenses sold in Virginia (2017–2018), license types represented in the survey sample, and license types represented by those who responded (active and non-active trappers) to the 2017–2018 Virginia Trapper Harvest Survey.

License Type	No. licensed trappers	% of licensed trappers	No. in survey sample	% in survey sample	No. of respondents	% of respondents	No. active trappers	% of respondents	% of non-active trappers	No. of respondents
Annual	1,579	96.6	1,451	96.7	380	68.2	244	64.2	136	35.8
Multi-year	34	2.1	28	1.9	9	1.6	6	66.7	3	33.3
Non-resident	21	1.3	21	1.4	14	2.5	11	78.6	3	21.4
Not determined ¹					154	27.6	78	50.6	76	49.4
Total	1,634		1,500		557	37.1 ²	339	60.9 ³	218	39.1 ³

¹ Responses resulting from the 2nd survey mailing were not coded to license type

² Derived from the number of respondents resulting from the survey sample (557/1500)

³ Proportion of active/non-active trappers by-license type (e.g., 339/557)

Table 2. Number of Virginia trappers who trapped in one or more county/city locations and the number of trappers who trapped in each physiographic region during the 2017–2018 season. Note that some trappers reported trapping in more than one region.

No. of county/city locations reported	No. trappers	% of active trappers	Region	No. trappers	% of active trappers
1	277	81.7	Northern Mountain	50	14.7
2	49	14.5	Northern Piedmont	56	16.5
3	13	3.8	Southern Mountain	86	25.4
4	0	0	Southern Piedmont	83	24.5
≥ 5	0	0	Tidewater	59	17.4
			Unknown	19	5.6

Table 3. Targeted furbearer trapping efforts reported by respondents to the 2017–2018 Virginia Trapper Harvest Survey ($N=339$ active trappers).

Target species	No. trappers that targeted species	% of total active trappers	Total no. days trapped	Average no. days trapped	Average no. traps set per day per trapper	Total no. of trap days
Beaver	117	34.5	2,638	22.5	8.2	31,382
Bobcat	115	33.9	3,539	30.8	11.7	49,435
Coyote	217	64.0	7,760	35.8	13.2	106,677
Gray Fox	132	38.9	4,531	34.3	13.5	63,608
Red Fox	170	50.2	6,141	36.1	13.7	89,452
Mink	50	14.8	1,392	27.8	11.1	20,503
Muskrat	101	29.8	2,426	24.0	14.1	46,299
Nutria	1	0.3	2	2.0	6.0	12
Opossum	77	22.7	2,969	38.6	16.6	53,610
Otter	67	19.8	1,796	26.8	8.9	22,987
Raccoon	181	53.4	5,826	32.2	13.0	79,410
Striped Skunk	32	9.4	1,113	34.8	17.4	26,211
Long-tailed Weasel	1	0.3	17	17.0	2.0	34
All species	334	98.5	8,475	25.4	9.5	80,704

*Note: Five trappers did not report species-specific target trapping efforts

Table 4. Reported number of successful trappers by species for target and non-target trapping efforts in Virginia, 2017–2018.

Species	# Successful trappers					
	Target		Non-target		Total	
	No.	% ¹	No.	% ²	No.	% ³
Beaver	106	90.6	8	3.6	114	33.6
Bobcat	69	60.0	8	3.6	77	22.7
Coyote	170	78.3	8	6.6	178	52.5
Gray Fox	103	78.0	21	10.1	124	36.6
Red Fox	145	85.3	17	10.1	161	47.5
Mink	38	76.0	5	1.7	43	12.7
Muskrat	91	90.1	7	2.9	98	28.9
Nutria	1	100.0	3	0.9	4	1.2
Opossum	76	98.7	116	44.3	191	56.3
Otter	54	80.6	8	2.9	60	17.7
Raccoon	177	97.8	70	44.3	244	72.0
Striped Skunk	32	100.0	58	18.9	90	26.6
Long-tailed Weasel	0	0	0	0	0	0

¹ of trappers who targeted species

² of trappers who did not target species

³ of total active trappers (N=339)

Table 5. Reported harvest by species for target and non-target trapping efforts in Virginia, 2017–2018.

Species	Target harvest	% of total	Non-target harvest	% of total	Total harvest
Beaver	1,032	97.9	22	2.1	1054
Bobcat	252	93.7	17	6.3	269
Coyote	1,357	98.3	23	1.7	1380
Gray Fox	399	89.1	49	10.9	448
Red Fox	1,162	94.2	71	5.8	1233
Mink	72	90.0	8	10.0	80
Muskrat	2,295	98.4	37	1.6	2332
Nutria	2	20.0	8	80.0	10
Opossum	753	40.0	1,131	60.0	1884
Otter	181	93.3	13	6.7	194
Raccoon	2,428	82.7	509	17.3	2937
Striped Skunk	117	35.8	210	64.2	327
Long-tailed Weasel	0	0.0	0	0	0

Table 6. Frequency distribution of trappers by total number of each species harvested in 2017–2018 ($N=339$). Note, when interpreting this table, the number of trappers that harvested “0” individuals includes trappers that actively targeted the species and those who did not target the species.

Total number harvested during season	Total no. of trappers in each harvest category												
	Beaver	Bobcat	Coyote	Gray Fox	Red Fox	Mink	Muskra t	Nutria	Otter	Opossu m	Raccoo n	Skunk	Long-tailed Weasel
0	225	262	161	215	178	296	241	335	148	279	95	249	339
1–5	56	65	115	105	101	43	43	4	90	52	113	76	0
6–10	24	7	31	10	27	0	15	0	40	5	47	9	0
11–15	14	2	11	5	12	0	13	0	26	2	27	3	0
16–20	5	3	3	2	9	0	3	0	15	1	15	1	0
21–25	6	0	7	1	4	0	3	0	2	0	13	1	0
26–50	7	0	7	1	6	0	11	0	16	0	22	0	0
51–75	2	0	2	0	0	0	4	0	2	0	5	0	0
76–100	0	0	2	0	1	0	1	0	0	0	1	0	0
>100	0	0	0	0	1	0	5	0	0	0	1	0	0

Table 7. Reported harvest of furbearer species and percent of statewide harvest by region in Virginia, 2017–2018.

Species	State total	Region											
		Northern Mountain		Northern Piedmont		Southern Mountain		Southern Piedmont		Tidewater			
		No.	No.	%	No.	%	No.	%	No.	%	No.	%	
Beaver	1,054	68	6.5	274	26.0	109	10.3	224	21.3	356	33.8	23	2.2
Bobcat	269	15	5.6	20	7.4	155	57.6	45	16.7	23	8.6	11	4.1
Coyote	1,380	111	8.0	191	13.8	533	38.6	289	20.9	196	14.2	60	4.3
Gray Fox	448	78	17.4	42	9.4	111	24.8	126	28.1	82	18.3	9	2.0
Red Fox	1,233	280	22.7	337	27.3	235	19.1	164	13.3	190	15.4	27	2.2
Mink	80	15	18.8	7	8.8	41	51.3	7	8.8	7	8.8	3	3.8
Muskrat	2,332	119	5.1	141	6.0	375	16.1	115	4.9	1,323	56.7	259	11.1
Nutria	10	0	0.0	0	0.0	0	0.0	0	0.0	10	100.0	0	0.0
Opossum	1,884	237	12.6	197	10.5	578	30.7	493	26.2	270	14.3	109	5.8
Otter	194	20	10.3	17	8.8	40	20.6	48	24.7	61	31.4	8	4.1
Raccoon	2,937	292	9.9	433	14.7	941	32.0	591	20.1	562	19.1	118	4.0
Striped Skunk	327	95	29.1	37	11.3	92	28.1	89	27.2	12	3.7	2	0.6
Long-tailed Weasel	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
All species	12,148	1,330		1,696		3,210		2,191		3,092		629	

Table 8. Reported harvest of furbearer species by county in Virginia, 2017–2018.

County	Species												
	Beaver	Bobcat	Coyote	Gray Fox	Red Fox	Mink	Muskrat	Nutria	Opossum	Otter	Raccoon	Striped Skunk	Long-tailed Weasel
Accomack	0	0	0	7	94	0	548	0	0	12	83	0	0
Alleghany	2	0	3	0	2	0	0	0	8	0	9	0	0
Amelia	0	5	3	3	8	0	0	0	34	0	30	4	0
Amherst	0	1	33	4	24	0	0	0	31	0	15	6	0
Appomattox	10	1	0	0	1	0	12	0	6	2	16	0	0
Augusta	30	3	28	31	97	4	33	0	83	6	77	38	0
Bath	0	0	0	1	0	0	0	0	2	0	1	2	0
Bedford	6	2	18	15	23	3	29	0	52	0	72	9	0
Bland	1	7	9	6	7	5	22	0	29	2	155	11	0
Botetourt	11	16	110	40	69	6	65	0	133	7	115	27	0
Brunswick	17	0	7	1	4	0	0	0	0	1	4	0	0
Buchanan	7	18	18	4	0	0	3	0	21	0	9	0	0
Buckingham	8	3	17	20	2	0	0	0	0	0	0	4	0
Campbell	7	1	23	7	23	2	19	0	58	2	37	3	0
Caroline	79	0	15	15	29	0	31	0	55	1	47	16	0
Carroll	9	10	10	15	20	2	81	0	30	4	142	4	0
Charles City	7	0	0	0	0	0	0	0	0	0	0	0	0
Charlotte	0	2	0	0	0	0	0	0	0	0	12	0	0
Chesapeake	14	0	3	0	0	0	4	2	1	4	11	0	0
Chesterfield	8	0	9	7	9	2	11	0	11	1	14	1	0
Clarke	0	0	0	0	0	0	0	0	0	0	0	0	0
Craig	17	0	2	0	9	0	9	0	9	3	18	0	0
Culpeper	1	2	5	3	5	0	3	0	32	3	41	9	0
Cumberland	0	11	19	2	0	0	0	0	50	0	11	0	0
Dickenson	25	2	16	1	6	0	2	0	3	0	8	0	0
Dinwiddie	46	3	4	1	4	0	9	0	26	7	25	0	0
Essex	0	0	2	0	12	0	0	0	5	0	36	0	0
Fairfax	0	0	0	7	94	0	548	0	0	12	83	0	0

Table 8 (continued). Reported harvest of furbearer species by county in Virginia, 2017–2018

County	Species												
	Beaver	Bobcat	Coyote	Gray Fox	Red Fox	Mink	Muskrat	Nutria	Opossum	Otter	Raccoon	Striped Skunk	Long-tailed Weasel
Fauquier	8	5	21	0	1	0	8	0	9	3	16	2	0
Floyd	0	0	2	0	0	0	0	0	8	0	5	0	0
Fluvanna	24	0	12	3	47	0	2	0	13	1	23	8	0
Franklin	1	0	28	3	1	0	12	0	45	0	57	10	0
Frederick	0	0	5	0	6	0	0	0	0	0	2	0	0
Giles	1	7	7	0	0	0	6	0	15	0	15	9	0
Gloucester	16	0	2	5	4	0	0	0	6	0	10	0	0
Goochland	14	1	0	4	6	0	11	0	3	3	19	1	0
Grayson	2	0	5	0	2	5	48	0	5	2	76	0	0
Greene	0	0	0	0	1	0	0	0	0	0	0	0	0
Greenville	76	5	118	2	3	3	5	0	77	18	38	5	0
Halifax	82	21	47	35	24	0	3	0	89	18	131	14	0
Hanover	19	0	0	1	1	0	2	0	0	2	1	0	0
Henrico	0	0	0	0	0	0	1	0	0	0	2	0	0
Henry	7	0	5	0	7	0	0	0	23	0	6	3	0
Highland	24	0	27	6	10	0	7	0	15	0	13	1	0
Isle of Wight	0	0	0	0	0	0	110	0	2	0	18	0	0
James City	6	1	0	0	1	1	0	0	0	0	0	1	0
King & Queen	2	0	4	0	2	0	0	0	21	0	22	0	0
King George	24	0	1	5	15	2	205	0	19	2	17	3	0
King William	0	0	0	2	1	0	58	0	8	0	4	0	0
Lancaster	0	9	25	1	5	0	0	0	12	0	5	1	0
Lee	43	2	18	7	141	5	64	0	40	0	137	2	0
Loudoun	0	0	10	0	2	0	0	0	9	0	15	1	0
Louisa	15	2	2	1	6	0	12	0	9	2	2	2	0
Lunenburg	0	0	6	2	7	0	0	0	0	0	12	0	0
Madison	8	5	21	0	1	0	8	0	9	3	16	2	0

Table 8 (continued). Reported harvest of furbearer species by county in Virginia, 2017–2018.

County	Species												
	Beaver	Bobcat	Coyote	Gray Fox	Red Fox	Mink	Muskrat	Nutria	Opossum	Otter	Raccoon	Striped Skunk	Long-tailed Weasel
Mecklenburg	2	3	11	5	11	0	0	0	17	0	21	9	0
Middlesex	4	0	0	0	0	0	2	0	0	0	0	0	0
Montgomery	8	1	2	6	5	0	54	0	16	0	12	5	0
Nelson	0	2	9	6	4	0	0	0	4	0	16	1	0
New Kent	22	0	0	0	0	0	5	0	2	1	5	0	0
Newport News	10	0	6	5	11	0	25	0	15	0	11	0	0
Northampton	0	0	0	0	0	0	0	0	0	0	0	0	0
Northumberland	0	0	0	1	19	0	46	0	1	0	16	0	0
Nottoway	0	0	1	0	1	0	0	0	0	0	0	0	0
Orange	25	0	10	2	4	0	0	0	9	5	53	9	0
Page	9	0	7	2	24	0	0	0	11	0	31	5	0
Patrick	0	1	0	4	9	0	0	0	3	0	7	8	0
Pittsylvania	2	0	11	0	0	0	6	0	10	1	36	0	0
Prince Edward	12	0	0	0	0	0	0	0	0	0	0	0	0
Prince George	18	0	35	23	16	2	16	0	97	10	62	12	0
Prince William	0	0	1	0	0	0	0	0	1	0	2	0	0
Pulaski	5	3	17	0	10	0	0	0	31	4	6	1	0
Rappahannock	43	0	2	0	1	0	0	0	1	0	3	0	0
Richmond	0	0	0	0	13	0	0	0	2	0	5	0	0
Roanoke	12	12	53	0	0	0	0	0	12	0	8	0	0
Rockbridge	10	1	8	0	2	0	140	0	7	0	25	0	0
Rockingham	0	0	2	3	2	0	0	0	43	0	4	1	0
Russell	27	6	37	11	39	1	3	0	18	8	34	5	0
Scott	2	0	21	20	79	9	80	0	57	6	83	29	0
Shenandoah	0	19	18	7	28	2	0	0	22	0	23	2	0
Smyth	34	12	38	0	13	0	0	0	52	5	19	11	0
Southampton	0	0	10	7	22	1	3	0	9	0	32	6	0
Spotsylvania	4	4	29	10	38	5	16	0	18	2	53	2	0

Table 8 (continued). Reported harvest of furbearer species by county in Virginia, 2017–2018.

County	Species												
	Beaver	Bobcat	Coyote	Gray Fox	Red Fox	Mink	Muskrat	Nutria	Opossum	Otter	Raccoon	Striped Skunk	Long-tailed Weasel
Stafford	11	0	25	1	24	0	3	0	8	2	32	0	0
Suffolk	14	2	11	8	6	0	12	0	7	0	30	1	0
Surry	4	0	0	0	0	0	0	0	6	0	2	0	0
Sussex	4	1	0	0	0	0	0	0	0	1	0	0	0
Tazewell	4	3	11	0	0	0	10	0	50	2	25	2	0
Virginia Beach	4	2	2	35	14	1	144	3	17	9	72	0	0
Warren	2	0	2	1	13	0	0	0	8	0	20	0	0
Washington	0	1	57	2	15	0	1	0	25	0	35	4	0
Westmoreland	2	0	0	0	0	0	0	0	0	0	0	0	0
Wise	28	20	85	5	8	5	3	0	23	5	20	0	0
Wythe	0	17	86	10	23	11	66	0	26	11	217	13	0
York	6	1	1	1	0	0	0	0	19	0	152	0	0
UNKNOWN	23	11	60	9	27	3	259	0	109	8	118	2	0
State total	1,054	269	1,380	448	1,233	80	2,332	10	1,884	194	2,937	327	0

Table 9. Expanded statewide estimates of the total number of trappers by targeted furbearer species in Virginia, 2017–2018.

Species	Est. no. trappers	SE	95% confidence interval	
			Lower	Upper
Beaver	343	0.88	304	387
Bobcat	337	0.88	299	380
Coyote	637	0.89	597	680
Gray Fox	387	0.91	347	431
Red Fox	499	0.93	458	544
Mink	147	0.66	119	181
Muskrat	296	0.85	259	338
Nutria	3	0.10	1	14
Opossum	226	0.78	193	265
Otter	197	0.74	166	235
Raccoon	531	0.93	490	576
Striped Skunk	94	0.54	72	123
Long-tailed Weasel	3	0.10	1	14

Table 9a. Expanded statewide estimates of the total number of trappers by targeted furbearer species in the Northern Mountain region of Virginia, 2017–2018.

Species	Est. no. trappers	SE	95% confidence interval	
			Lower	Upper
Beaver	21	0.25	12	37
Bobcat	35	0.31	23	53
Coyote	97	0.33	83	114
Gray Fox	76	0.36	61	94
Red Fox	97	0.33	83	114
Mink	32	0.3	21	49
Muskrat	35	0.31	23	53
Nutria	0	-	-	-
Opossum	29	0.29	18	46
Otter	21	0.25	12	37
Raccoon	62	0.35	48	81
Striped Skunk	18	0.23	10	33
Long-tailed Weasel	0	-	-	-

Table 9b. Expanded statewide estimates of the total number of trappers by targeted furbearer species in the Southern Mountain region of Virginia, 2017–2018.

Species	Est. no. trappers	SE	95% confidence interval	
			Lower	Upper
Beaver	73	0.43	56	96
Bobcat	138	0.47	118	161
Coyote	173	0.43	154	194
Gray Fox	85	0.44	67	108
Red Fox	117	0.47	97	141
Mink	70	0.42	53	93
Muskrat	97	0.46	78	121
Nutria	0	-	-	-
Opossum	47	0.37	33	67
Otter	59	0.4	43	81
Raccoon	129	0.47	109	153
Striped Skunk	18	0.24	10	33
Long-tailed Weasel	0	-	-	-

Table 9c. Expanded statewide estimates of the total number of trappers by targeted furbearer species in the Northern Piedmont region of Virginia, 2017–2018.

Species	Est. no. trappers.	SE	95% confidence interval	
			Lower	Upper
Beaver	82	0.38	66	102
Bobcat	32	0.3	21	50
Coyote	88	0.38	72	107
Gray Fox	38	0.32	26	56
Red Fox	79	0.38	63	99
Mink	12	0.2	6	26
Muskrat	38	0.32	26	56
Nutria	0	-	-	-
Opossum	41	0.33	28	60
Otter	26	0.28	16	43
Raccoon	106	0.36	91	124
Striped Skunk	12	0.2	6	26
Long-tailed Weasel	3	0.1	1	14

Table 9d. Expanded statewide estimates of the total number of trappers by targeted furbearer species in the Southern Piedmont region of Virginia, 2017–2018.

Species	Est. no. trappers	SE	95% confidence interval	
			Lower	Upper
Beaver	67	0.41	50	89
Bobcat	91	0.45	73	114
Coyote	182	0.39	165	201
Gray Fox	114	0.46	95	137
Red Fox	117	0.46	98	140
Mink	18	0.24	10	33
Muskrat	44	0.36	30	64
Nutria	0	-	-	-
Opossum	50	0.37	35	71
Otter	29	0.3	18	47
Raccoon	126	0.46	106	149
Striped Skunk	35	0.32	23	54
Long-tailed Weasel	0	-	-	-

Table 9e. Expanded statewide estimates of the total number of trappers by targeted furbearer species in the Tidewater region of Virginia, 2017–2018.

Species	Est. no. trappers.	SE	95% confidence interval	
			Lower	Upper
Beaver	100	0.38	84	119
Bobcat	26	0.28	16	43
Coyote	79	0.39	63	99
Gray Fox	50	0.35	36	69
Red Fox	65	0.38	50	85
Mink	6	0.14	2	18
Muskrat	65	0.38	50	85
Nutria	3	0.1	1	14
Opossum	35	0.31	23	53
Otter	44	0.34	31	63
Raccoon	79	0.39	63	99
Striped Skunk	12	0.2	6	26
Long-tailed Weasel	0	-	--	--

Table 10. Expanded statewide estimates of the total number of successful target and non-target trappers by furbearer species in Virginia, 2017–2018.

Species	Target				Non-target				Total			
	95% CI				95% CI				95% CI			
	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper
Beaver	311	0.86	274	354	23	0.28	13	41	334	0.88	296	377
Bobcat	202	0.75	170	240	23	0.28	13	41	226	0.78	193	265
Coyote	499	0.93	458	544	23	0.28	13	41	522	0.93	481	567
Gray Fox	302	0.86	265	344	62	0.45	44	87	364	0.9	325	408
Red Fox	425	0.92	384	470	50	0.41	34	73	472	0.93	431	517
Mink	111	0.59	87	142	15	0.22	8	30	126	0.62	100	158
Muskrat	267	0.82	231	308	21	0.26	12	38	287	0.84	250	329
Nutria	3	0.1	1	14	9	0.17	4	22	12	0.2	6	26
Opossum	223	0.78	190	262	340	0.88	301	384	560	0.92	519	605
Otter	158	0.68	129	193	23	0.28	13	41	176	0.71	146	212
Raccoon	519	0.93	478	564	205	0.75	173	243	716	0.84	678	756
Striped Skunk	94	0.54	72	123	170	0.7	140	206	264	0.82	229	305
Long-tailed Weasel	0	--	--	--	0	--	--	--	0	--	--	--
All Species	918	0.5	895	941	455	0.93	414	500	965	0.31	951	980

Table 10a. Expanded statewide estimates of the total number of successful target and non-target trappers by furbearer species in the Northern Mountain region of Virginia, 2017–2018.

Species	Target				Non-target				Total			
	95% CI				95% CI				95% CI			
	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper
Beaver	21	0.25	12	37	3	0.1	1	14	23	0.26	14	39
Bobcat	18	0.23	10	33	0	0	--	--	18	0.23	10	33
Coyote	67	0.36	52	86	3	0.1	1	14	70	0.36	55	89
Gray Fox	65	0.35	51	84	12	0.2	6	26	76	0.36	61	94
Red Fox	85	0.35	70	103	6	0.14	2	18	91	0.34	76	108
Mink	29	0.29	18	46	3	0.1	1	14	32	0.3	21	49
Muskrat	35	0.31	23	53	3	0.1	1	14	38	0.32	26	56
Nutria	0	--	--	--	0	--	--	--	0	--	--	--
Opossum	29	0.29	18	46	53	0.34	39	72	82	0.35	67	100
Otter	18	0.23	10	33	0	0	--	--	18	0.23	10	33
Raccoon	56	0.35	42	75	44	0.33	31	62	100	0.33	86	117
Striped Skunk	18	0.23	10	33	44	0.33	31	62	62	0.35	48	81
Long-tailed Weasel	0	--	--	--	0	--	--	--	0	--	--	--
Total	135	0.17	127	143	70	0.36	55	89	138	0.14	132	145

Table 10b. Expanded statewide estimates of the total number of successful target and non-target trappers by furbearer species in the Southern Mountain region of Virginia, 2017–2018.

Species	Target				Non-target				Total			
			95% CI				95% CI				95% CI	
	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper
Beaver	62	0.4	46	84	3	0.1	1	14	65	0.41	49	87
Bobcat	91	0.45	72	115	6	0.14	2	18	97	0.46	78	121
Coyote	141	0.46	121	164	3	0.1	1	14	144	0.46	124	167
Gray Fox	65	0.41	49	87	15	0.22	8	30	79	0.44	61	102
Red Fox	103	0.46	84	127	12	0.2	6	26	111	0.47	91	135
Mink	47	0.37	33	67	9	0.17	4	22	56	0.39	41	77
Muskrat	79	0.44	61	102	3	0.1	1	14	82	0.44	64	105
Nutria	0	--	--	--	0	--	--	--	0	--	--	--
Opossum	47	0.37	33	67	94	0.45	75	118	141	0.46	121	164
Otter	50	0.37	35	71	6	0.14	2	18	56	0.39	41	77
Raccoon	123	0.47	103	147	62	0.4	46	84	182	0.42	164	202
Striped Skunk	18	0.24	10	33	50	0.37	35	71	67	0.42	50	89
Long-tailed Weasel	0	--	-	-	0	--	-	-	0	--	-	-
Total	232	0.24	221	243	117	0.47	97	141	241	0.17	233	249

Table 10c. Expanded statewide estimates of the total number of successful target and non-target trappers by furbearer species in the Northern Piedmont region of Virginia, 2017–2018.

Species	Target				Non-target				Total			
			95% CI				95% CI				95% CI	
	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper
Beaver	73	0.38	58	93	3	0.1	1	14	76	0.38	60	96
Bobcat	9	0.17	4	22	0	0	-	-	9	0.17	4	22
Coyote	65	0.37	50	85	6	0.14	2	18	70	0.37	55	90
Gray Fox	26	0.28	16	43	12	0.2	6	26	38	0.32	26	56
Red Fox	73	0.38	58	93	12	0.2	6	26	85	0.38	69	104
Mink	9	0.17	4	22	0	-	-	-	9	0.17	4	22
Muskrat	32	0.3	21	50	6	0.14	2	18	38	0.32	26	56
Nutria	0	-	-	-	0	-	-	-	0	-	-	-
Opossum	41	0.33	28	60	41	0.33	28	60	82	0.38	66	102
Otter	18	0.24	10	33	3	0.1	1	14	21	0.25	12	37
Raccoon	106	0.36	91	124	21	0.25	12	37	126	0.31	112	141
Striped Skunk	12	0.2	6	26	15	0.22	8	29	26	0.28	16	43
Long-tailed Weasel	0	-	-	-	0	-	-	-	0	-	-	-
Total	150	0.2	141	159	50	0.35	36	69	155	0.14	149	162

Table 10d. Expanded statewide estimates of the total number of successful target and non-target trappers by furbearer species in the Southern Piedmont region of Virginia, 2017–2018.

Species	Target				Non-target				Total			
	95% CI				95% CI				95% CI			
	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper
Beaver	65	0.41	49	87	9	0.17	4	22	73	0.42	56	96
Bobcat	50	0.37	35	71	6	0.14	2	18	56	0.39	41	77
Coyote	144	0.45	125	167	9	0.17	4	22	153	0.44	134	175
Gray Fox	88	0.44	70	111	9	0.17	4	22	97	0.45	78	120
Red Fox	94	0.45	75	117	6	0.14	2	18	100	0.45	81	123
Mink	12	0.2	6	26	0	-	-	-	12	0.2	6	26
Muskrat	44	0.36	30	64	3	0.1	1	14	47	0.36	33	67
Nutria	0	-	-	-	0	-	-	-	0	-	-	-
Opossum	50	0.37	35	71	91	0.45	73	114	141	0.45	122	164
Otter	26	0.29	16	43	6	0.14	2	18	29	0.3	18	47
Raccoon	123	0.46	103	146	53	0.38	38	74	173	0.41	155	193
Striped Skunk	35	0.32	23	54	50	0.37	35	71	85	0.44	67	108
Long-tailed Weasel	0	-	-	-	0	-	-	-	0	-	-	-
Total	214	0.29	201	228	126	0.46	106	149	238	0.1	233	243

Table 10e. Expanded statewide estimates of the total number of successful target and non-target trappers by furbearer species in the Tidewater region of Virginia, 2017–2018.

Species	Target				Non-target				Total			
			95% CI				95% CI				95% CI	
	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper
Beaver	94	0.39	78	114	0	0	-	-	94	0.39	78	114
Bobcat	23	0.27	13	39	12	0.2	6	26	35	0.31	23	53
Coyote	62	0.37	47	82	3	0.1	1	14	65	0.38	50	85
Gray Fox	41	0.33	28	60	12	0.2	6	26	53	0.36	39	73
Red Fox	53	0.36	39	73	12	0.2	6	26	65	0.38	50	85
Mink	6	0.14	2	18	3	0.10	1	14	9	0.17	4	22
Muskrat	59	0.37	44	79	6	0.14	2	18	65	0.38	50	85
Nutria	3	0.10	1	14	9	0.17	4	22	12	0.20	6	26
Opossum	32	0.3	21	50	53	0.36	39	73	82	0.39	66	102
Otter	32	0.3	21	50	9	0.17	4	22	38	0.32	26	56
Raccoon	79	0.39	63	99	23	0.27	13	39	100	0.38	84	119
Striped Skunk	12	0.2	6	26	6	0.14	2	18	18	0.24	10	33
Long-tailed Weasel	0	-	-	-	0	-	-	-	0	-	-	-
Total	161	0.17	153	169	73	0.38	57	93	164	0.14	158	171

Table 11. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in Virginia, 2017–2018.

Species	Target				Non-target				Total			
	Est. No.	SE	95% CI		Est. No.	SE	95% CI		Est. No.	SE	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Beaver	3,027	13.8	2,452	3,736	65	1.0	32	133	3,092	13.7	2,517	3,799
Bobcat	739	4.4	561	973	50	0.7	26	95	789	4.4	609	1,022
Coyote	3,981	18.5	3,210	4,937	67	1.0	35	130	4,048	18.5	3,277	5,001
Gray Fox	1,170	5.9	928	1,475	144	1.7	83	250	1,314	6.0	1,063	1,624
Red Fox	3,409	17.7	2,680	4,336	208	2.7	113	383	3,617	17.8	2,880	4,542
Mink	211	1.3	158	282	23	0.4	10	52	235	1.4	180	307
Muskrat	6,733	62.3	4,384	10,340	109	2.7	35	340	6,841	62.3	4,484	10,436
Nutria	6	0.2	1	29	23	0.6	8	70	29	0.6	11	74
Opossum	2,209	12.7	1,692	2,884	3,318	14.8	2,699	4,078	5,527	18.1	4,748	6,434
Otter	531	3.2	400	704	38	0.6	18	78	569	3.3	434	746
Raccoon	7,123	26.4	5,997	8,460	1,493	8.7	1,138	1,958	8,616	26.5	7,470	9,938
Striped Skunk	343	2.7	238	493	616	4.1	452	840	959	4.8	762	1,208
Long-tailed Weasel	0	-	-	-	0	-	-	-	0	-	-	-
All Species	29,482	91	25,554	34,015	6,155	26	5,071	7,471	35,637	98	31,386	40,464

Table 11a. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in the Northern Mountain region of Virginia, 2017–2018.

Species	Target				Non-target				Total			
	Est. No.	SE	95% CI		Est. No.	SE	95% CI		Est. No.	SE	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Beaver	194	3.3	89	423	6	0.2	1	29	199	3.3	93	425
Bobcat	44	0.7	20	96	0	-	-	-	44	0.7	20	96
Coyote	320	3.1	205	498	3	0.1	1	14	323	3.1	208	501
Gray Fox	205	2.0	131	322	12	0.2	6	26	217	2.0	142	331
Red Fox	757	5.4	543	1,055	35	0.9	11	109	792	5.4	578	1,085
Mink	41	0.5	24	69	3	0.1	1	14	44	0.5	27	71
Muskrat	314	3.6	185	533	12	0.4	3	57	326	3.6	196	542
Nutria	0	-	-	-	0	-	-	-	0	-	-	-
Opossum	267	4.2	129	554	428	3.9	281	651	695	5.2	491	983
Otter	59	0.9	30	116	0	-	-	-	59	0.9	30	116
Raccoon	528	4.6	353	789	317	3.2	200	502	845	4.8	651	1,097
Striped Skunk	73	1.4	30	178	205	2.8	109	386	279	3.0	169	460
Long-tailed Weasel	0	-	-	-	0	-	-	-	0	-	-	-
All Species	2,802	16.8	2,122	3,700	1,021	8.2	704	1,481	3,822	18.7	3,046	4,796

Table 11b. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in the Southern Mountain region of Virginia, 2017–2018.

Species	Target				Non-target				Total			
	Est. No.	SE	95% CI		Est. No.	SE	95% CI		Est. No.	SE	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Beaver	305	3.0	194	479	12	0.4	3	57	317	3.0	205	490
Bobcat	443	3.4	310	634	12	0.3	4	41	455	3.4	321	645
Coyote	1,546	11.5	1,095	2,183	9	0.3	2	43	1,555	11.5	1,104	2,190
Gray Fox	293	3.4	172	500	29	0.5	13	63	323	3.4	199	525
Red Fox	657	5.6	441	978	26	0.6	10	70	684	5.7	466	1,004
Mink	106	1.0	70	161	15	0.3	5	42	120	1.0	82	176
Muskrat	1,050	9.8	681	1,618	6	0.2	1	29	1,056	9.8	687	1,623
Nutria	0	-	-	-	0	-	-	-	0	-	-	-
Opossum	484	6.1	271	865	1,153	9.0	804	1,653	1,637	10.1	1,231	2,177
Otter	109	0.9	74	160	6	0.1	2	18	114	0.9	79	165
Raccoon	2,080	16.8	1,432	3,021	607	6.5	369	999	2,687	17.0	2,004	3,603
Striped Skunk	88	1.7	37	212	179	1.9	110	291	267	2.4	176	406
Long-tailed Weasel	0	-	-	-	0	-	-	-	0	-	-	-
All Species	7,161	34.7	5,721	8,964	2,054	15.3	1,455	2,899	9,214	40.3	7,523	11,286

Table 11c. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in the Northern Piedmont region of Virginia, 2017–2018.

Species	Target				Non-target				Total			
	Est. No.	SE	95% CI		Est. No.	SE	95% CI		Est. No.	SE	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Beaver	774	6.2	535	1120	9	0.3	2	43	783	6.2	544	1,127
Bobcat	56	1.6	15	215	0	0.0	-	-	56	1.6	15	215
Coyote	543	8.8	255	1,154	15	0.4	4	54	557	8.8	267	1,161
Gray Fox	62	0.8	34	112	50	1.4	13	186	111	1.6	57	215
Red Fox	833	11.1	450	1,541	109	2.5	38	312	942	11.2	544	1,630
Mink	21	0.5	8	58	0	0.0	-	-	21	0.5	8	58
Muskrat	329	6.3	135	804	79	2.6	17	368	408	6.8	189	881
Nutria	0	-	-	-	0	-	-	-	0	-	-	-
Opossum	141	1.5	86	232	414	5.4	227	754	554	5.3	355	865
Otter	44	0.7	20	95	3	0.1	1	14	47	0.7	23	97
Raccoon	1,109	8.5	778	1581	138	2.7	56	340	1247	8.5	909	1,712
Striped Skunk	21	0.4	9	49	70	1.7	23	209	91	1.7	39	214
Long-tailed Weasel	0	-	-	-	0	-	-	-	0	-	-	-
All Species	3,931	28	2,829	5,462	886	14	433	1,815	4,817	35	3,445	6,735

Table 11d. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in the Southern Piedmont region of Virginia, 2017–2018.

Species	Target				Non-target				Total			
	Est. No.	SE	95% CI		Est. No.	SE	95% CI		Est. No.	SE	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Beaver	645	6.2	413	1,008	12	0.2	5	31	657	6.2	424	1,017
Bobcat	117	1.6	63	216	15	0.4	4	54	132	1.6	76	230
Coyote	813	5.1	608	1,087	35	0.7	13	93	848	5.1	643	1,119
Gray Fox	355	3.1	237	533	15	0.3	6	38	370	3.1	251	545
Red Fox	469	3.4	335	657	6	0.1	2	18	475	3.4	341	662
Mink	21	0.4	8	55	0	-	-	-	21	0.4	8	55
Muskrat	334	3.9	195	572	3	0.1	1	14	337	3.9	198	574
Nutria	0	-	-	-	0	-	-	-	0	-	-	-
Opossum	725	8.4	423	1,243	722	5.8	499	1,044	1,446	9.4	1,069	1,956
Otter	123	1.7	64	236	18	0.5	5	68	141	1.9	76	263
Raccoon	1,525	10.4	1,112	2,091	208	1.8	140	310	1,734	10.1	1,324	2,270
Striped Skunk	114	1.1	72	181	147	1.6	89	243	261	1.8	189	361
Long-tailed Weasel	0	-	-	-	0	-	-	-	0	-	-	-
All Species	5,242	31.9	3,953	6,951	1,179	7.3	884	1,573	6,422	33.8	5,033	8,195

Table 11e. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in the Tidewater region of Virginia, 2017–2018.

Species	Target				Non-target				Total			
	Est. No.	SE	95% CI		Est. No.	SE	95% CI		Est. No.	SE	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Beaver	892	6.2	646	1,231	0	-	-	-	892	6.2	646	1,231
Bobcat	38	0.5	20	73	23	0.4	9	56	62	0.7	38	102
Coyote	499	9.1	214	1,163	3	0.1	1	14	502	9.1	217	1,164
Gray Fox	205	2.8	108	389	32	0.7	11	94	238	2.9	136	417
Red Fox	531	9.6	230	1,224	23	0.4	10	53	554	9.5	249	1,231
Mink	6	0.1	2	18	6	0.2	1	29	12	0.2	5	31
Muskrat	3,866	56.5	1,963	7,613	9	0.2	3	29	3,875	56.5	1,971	7,618
Nutria	6	0.2	1	29	23	0.6	8	69	29	0.6	12	73
Opossum	197	2.8	102	380	537	7.7	276	1,045	733	7.9	444	1,211
Otter	117	1.6	63	216	12	0.2	5	31	129	1.6	73	226
Raccoon	1,452	13.8	935	2,255	179	3.4	75	427	1,631	13.9	1,099	2,420
Striped Skunk	29	0.6	11	75	6	0.1	2	18	35	0.6	16	78
Long-tailed Weasel	0	-	-	-	0	-	-	-	0	-	-	-
All Species	7,839	64.7	5,347	11,492	854	10.8	475	1,535	8,692	66.7	6,089	12,407

Table 12. Statewide estimates and summary statistics for each furbearer species targeted.

Species	Est. # trappers that targeted species	% of total licenses ¹	Avg. # days trapped per trapper			Est. total # days trapped	Avg. # traps set per day per trapper			Avg. season harvest per trapper	Avg. harvest per 100 trap days per trapper			Est. total number of trap days	SE
			SD	SE	SD		SD	SE	SD		SD	SE	SD		
Beaver	343	21.0	22.5	21.5	7,739	30.7	8.2	11.5	8.8	10.4	21.0	27.0	92,061	986	
Bobcat	337	20.6	30.8	27.8	10,382	40.4	11.7	13.8	2.2	3.6	1.9	3.6	145,021	1,095	
Coyote	637	39.0	35.8	29.7	22,765	54.2	13.2	14.5	6.3	11.9	2.3	3.8	312,945	1,390	
Gray Fox	387	23.7	34.3	30.9	13,292	47.3	13.5	15.9	3.0	4.5	2.3	5.4	186,599	1,188	
Red Fox	499	30.5	36.1	30.1	18,015	51.7	13.7	15.5	6.8	12.6	3.8	8.2	262,414	1,338	
Mink	147	9.0	27.8	26.8	4,084	26.4	11.1	15.6	1.4	1.3	1.5	2.3	60,147	942	
Muskrat	296	18.1	24.0	23.7	7,117	31.5	14.1	16.7	22.7	58.6	14.0	18.6	135,821	1,285	
Nutria	3	0.2	2.0	-	6	0.2	6.0	-	2.0	-	16.7	-	35	1	
Opossum	226	13.8	38.6	31.3	8,710	40.8	16.6	17.3	9.8	11.5	7.4	15.6	157,269	1,243	
Otter	197	12.1	26.8	23.2	5,269	27.5	8.9	14.7	2.7	3.1	4.3	7.4	67,434	964	
Raccoon	531	32.5	32.2	30.8	17,091	51.2	13.0	13.6	13.4	17.2	11.0	18.5	232,955	1,252	
Striped Skunk	94	5.8	34.8	24.4	3,265	23.4	17.4	19.9	3.7	3.2	3.1	7.0	76,892	1,054	
Long-tailed Weasel	3	0.2	17.0	-	50	1.7	2.0	-	-	-	-	-	100	3	
Total	980	-	25.4	20.6	117,783	280.5	9.5	9.1	7.1	16.9	7.5	11.9	1,729,693	10,942	

¹ the total number of licenses is 1,634

Table 12a. Northern Mountain region estimates and summary statistics for each furbearer species targeted.

Species	species	Est. # trappers that targeted	% of total licenses ¹	Avg. # days trapped		Est. total # days		Avg. # traps set per day		Avg. season harvest per trapper		Avg. harvest per 100 trap days per trapper		Est. total number of trap days	
				SD	trapped	SE	trapper	SD	trapper	SD	trapper	SD	trapper	SD	SE
Beaver		21	1.3	33.6	31.7	689	11.5	8.1	6.0	9.4	9.1	9.9	9.8	6,114	107
Bobcat		35	2.1	18.8	8.1	663	6.4	10.3	11.1	1.3	1.9	0.8	1.4	8,314	133
Coyote		97	5.9	32.1	25.1	3,198	18.2	11.5	10.9	3.2	4.9	1.5	2.6	28,866	193
Gray Fox		76	4.7	33.7	28.1	2,670	19.0	13.7	14.3	2.7	3.4	1.3	1.6	31,128	291
Red Fox		97	5.9	37.2	25.9	3,714	19.7	14.0	13.4	7.9	8.1	2.7	2.9	44,951	326
Mink		32	2.0	24.3	24.1	783	10.6	6.3	4.5	1.3	0.8	1.5	1.5	5,289	77
Muskrat		35	2.1	27.2	22.1	1,036	11.6	7.8	4.2	8.8	6.5	7.2	6.0	8,293	101
Nutria		0	-	-	-	-	-	-	-	-	-	-	-	-	-
Opossum		29	1.8	43.4	23.4	1,273	14.4	22.3	19.4	9.1	10.7	3.1	3.3	19,790	244
Otter		21	1.3	34.3	22.5	704	10.3	6.1	2.6	2.9	2.0	2.0	2.0	4,603	75
Raccoon		62	3.8	28.9	21.9	1,778	14.3	13.8	13.2	8.6	7.5	4.0	3.0	22,911	231
Striped Skunk		18	1.1	31.3	19.0	552	8.5	20.3	18.4	4.2	4.4	2.4	2.9	10,150	190
Long-tailed Weasel		0	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		144	-	29.8	19.8	17,059	74.7	9.9	8.1	4.9	4.1	3.0	3.3	190,409	1,315

¹ the total number of licenses is 1,634

Table 12b. Southern Mountain region estimates and summary statistics for each furbearer species targeted.

Species	species	Est. # trappers that targeted	% of total licenses ¹	Avg. # days trapped per trapper			Est. total # days trapped	SE	Avg. # traps set per day per trapper	SD	Avg. season harvest per trapper	SD	Avg. harvest per 100 trap days per trapper	SD	Est. total number of trap days	SE
				Avg. # days trapped per trapper	Est. total # days trapped	SE										
Beaver	73	4.5	18.7	20.9	1,373	13.1	9.8	19.7	4.2	4.8	16.4	25.0	35,760	914		
Bobcat	138	8.4	32.9	26.4	4,529	23.8	12.4	18.2	3.2	4.5	2.3	3.8	75,088	962		
Coyote	173	10.6	37.2	28.3	6,542	27.3	15.8	22.0	8.8	13.9	2.4	2.9	124,181	1,140		
Gray Fox	85	5.2	46.7	32.9	4,107	27.6	17.4	26.1	3.4	5.5	1.3	1.7	80,254	1,051		
Red Fox	117	7.2	40.4	30.9	4,864	27.5	17.0	23.9	5.5	7.8	3.1	7.1	101,742	1,119		
Mink	70	4.3	29.9	30.2	2,106	19.4	14.5	21.2	1.5	1.5	1.1	1.4	43,168	921		
Muskrat	97	5.9	23.4	25.9	2,335	18.6	14.1	18.8	11.0	14.5	16.8	25.1	50,900	951		
Nutria	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Opossum	47	2.9	38.5	30.4	1,919	19.0	20.1	25.3	10.9	11.9	13.3	28.5	59,229	1,066		
Otter	59	3.6	27.8	23.9	1,710	15.6	12.1	22.7	1.8	1.2	3.6	6.7	36,417	911		
Raccoon	129	7.9	36.7	30.0	4,849	26.6	15.7	17.9	16.3	22.2	9.7	21.6	93,205	1,087		
Striped Skunk	18	1.1	38.5	32.0	678	11.7	24.5	37.7	5.0	5.1	8.0	15.8	30,720	911		
Long-tailed Weasel	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	249	-	25.9	20.4	35,012	167.8	10.9	12.6	5.8	6.9	7.1	12.7	730,665	10,179		

¹ the total number of licenses is 1,682

Table 12c. Northern Piedmont region estimates and summary statistics for each furbearer species targeted.

Species	Species	Est. # trappers that targeted species	% of total licenses ¹	Avg. # days trapped per trapper		Est. total # days trapped	SE	Avg. # traps set per day per trapper	SD	Avg. season harvest per trapper	SD	Avg. harvest per 100 trap days per trapper	SD	Est. total number of trap days	SE
				trappers	days										
Beaver	82	5.0	24.4	21.0	2,077	14.6	6.9	5.6	9.3	9.4	12.5	16.7	16,883	177	
Bobcat	32	2.0	28.1	18.0	989	10.7	11.0	9.3	1.7	4.6	1.9	4.0	6,275	70	
Coyote	88	5.4	34.4	19.8	3,124	17.0	12.4	11.4	6.0	15.3	2.7	7.2	30,588	260	
Gray Fox	38	2.3	31.0	20.4	1,273	12.6	11.8	10.9	1.8	1.8	1.5	2.2	12,547	171	
Red Fox	79	4.8	33.3	24.6	2,731	18.1	11.2	10.7	10.7	19.5	6.9	10.1	27,757	265	
Mink	12	0.7	28.0	19.2	329	6.5	12.8	9.4	1.8	1.7	0.4	0.3	5,591	138	
Muskrat	38	2.3	24.3	25.9	997	12.4	7.2	7.3	8.1	15.6	10.8	16.0	10,232	167	
Nutria	0	-	-	-	-	-	-	-	-	-	-	-	-	-	
Opossum	41	2.5	43.7	39.4	1,924	21.0	10.6	9.9	3.7	2.9	3.0	3.1	16,061	201	
Otter	26	1.6	33.4	25.5	980	12.5	4.7	5.4	1.6	1.8	2.9	4.3	5,113	100	
Raccoon	106	6.5	33.8	31.4	3,670	22.6	8.8	8.0	10.4	12.5	11.4	21.0	30,536	254	
Striped Skunk	12	0.7	42.0	13.0	616	9.5	11.0	11.3	2.6	2.1	1.6	2.0	5,808	112	
Long-tailed Weasel	3	0.2	17.0	-	50	1.7	2.0	-	-	-	-	-	100	3	
Total	158	-	24.2	19.1	18,760	97.7	7.0	6.3	5.6	6.4	7.7	10.7	167,492	1,267	

¹ the total number of licenses is 1,682

Table 12d. Southern Piedmont region estimates and summary statistics for each furbearer species targeted.

Species	Est. # trappers that targeted species	% of total licenses ¹	Avg. # days trapped		Est. total # days trapped	SE	Avg. # traps set per day	SD	Avg. season harvest per trapper	SD	Avg. # traps per 100 trap days	SD	Avg. harvest per 100 trap days	Est. total number of trap days	SE
			trappers	per trapper											
Beaver	67	4.1	23.0	21.6	1,552	14.0	8.7	10.8	9.6	10.1	16.8	19.5	15,624	207	
Bobcat	91	5.6	30.9	38.7	2,810	25.5	10.5	9.8	1.3	2.6	1.4	2.8	36,447	423	
Coyote	182	11.1	35.1	36.2	6,492	31.8	10.8	8.6	4.4	6.0	2.3	3.1	73,850	471	
Gray Fox	114	7.0	30.4	37.2	3,479	27.1	10.2	9.2	3.1	4.4	4.4	9.2	37,843	353	
Red Fox	117	7.2	38.2	38.6	4,480	30.1	12.1	9.2	4.0	4.5	2.3	3.5	57,483	469	
Mink	18	1.1	33.5	28.8	590	10.4	6.0	3.6	1.2	1.5	0.9	1.0	2,708	46	
Muskrat	44	2.7	30.3	26.3	1,335	14.7	12.1	13.5	7.6	7.3	7.0	9.2	21,738	373	
Nutria	0	-	-	-	-	-	-	-	-	-	-	-	-	-	
Opossum	50	3.1	38.9	31.1	1,942	19.2	15.1	12.1	14.5	15.9	9.1	14.2	31,228	395	
Otter	29	1.8	34.8	28.0	1,021	13.5	9.9	14.9	4.2	3.9	5.4	10.1	10,719	200	
Raccoon	126	7.7	33.9	38.4	4,277	29.6	11.9	10.1	12.1	13.3	7.8	9.1	50,921	410	
Striped Skunk	35	2.1	24.8	23.5	874	11.3	11.4	7.1	3.3	1.2	2.4	1.5	13,791	281	
Long-tailed Weasel	0	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	235	-	27.7	25.1	28,852	158.2	9.0	6.7	4.6	4.2	5.0	7.9	352,351	2,707	

¹ the total number of licenses is 1,634

Table 12e. Tidewater region estimates and summary statistics for each furbearer species targeted.

Species	Species	Est. # trappers that targeted species	% of total licenses ¹	Avg. # days trapped per trapper		Est. total # days trapped	Avg. # traps set per day per trapper		Avg. season harvest per trapper	Avg. harvest per 100 trap days per trapper		Est. total number of trap days	SE	
				SD	SE		SD	SE		SD	SE			
Beaver	100	6.1	19.0	17.7	1.951	12.7	7.0	7.3	10.2	11.4	32.6	35.8	17,235	229
Bobcat	26	1.6	32.0	22.2	939	11.6	14.5	11.0	1.5	1.2	2.7	6.2	15,662	219
Coyote	79	4.8	30.0	25.2	2,467	17.7	13.0	11.6	7.0	17.0	1.7	2.0	42,648	500
Gray Fox	50	3.1	27.7	18.9	1,464	12.7	15.4	9.3	3.9	5.8	1.8	2.2	22,876	232
Red Fox	65	4.0	27.2	18.7	1,833	13.6	13.5	8.9	7.9	19.0	5.5	15.4	27,892	253
Mink	6	0.4	29.7	26.7	261	6.4	13.0	11.8	1.7	1.2	1.3	1.7	3,297	78
Muskrat	65	4.0	18.2	19.6	1,229	11.7	21.5	21.7	57.4	109.2	17.5	16.6	41,519	752
Nutria	3	0.2	2.0	-	6	0.2	6.0	-	2.0	-	16.7	-	35	1
Opossum	35	2.1	27.5	31.6	1,050	14.3	18.2	16.4	6.7	7.3	3.6	4.1	22,398	342
Otter	44	2.7	15.8	15.2	739	8.1	7.8	8.8	3.6	4.8	5.5	9.5	9,822	214
Raccoon	79	4.8	22.3	17.4	1,831	12.6	15.3	16.2	17.9	22.5	18.4	19.3	25,537	215
Striped Skunk	12	0.7	46.5	25.3	546	10.2	24.0	18.1	2.5	1.9	0.3	0.3	16,422	395
Long-tailed Weasel	0	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	167	-	19.3	16.4	14,316	91.4	9.9	8.9	14.1	37.1	14.2	17.2	245,343	2,127

¹ the total number of licenses is 1,634

Table 13. Rare furbearer observations based upon responses to the 2017–2018 Trapper Harvest Survey

Species	No. observed	No. trapped	List of counties observed	List of counties where trapped
Fisher	5	0	Augusta, Frederick (2), 2 unlisted	None
Spotted Skunk	7	1	Culpeper, Highland, Nottoway, Rockingham, Bland/Wythe line (tracks)	Culpeper
Least Weasel	3	0	Bland/Wythe line	None

Appendix A: Survey Instrument



2017-18 Virginia Trapper Harvest Survey



This is your 2017-2018 Virginia Trapper Harvest Survey. Please complete the survey and return it in the enclosed business reply envelope. Your response is completely confidential and very important. Please send in your response, even if you did not trap this season. If you have any questions, please contact Furbearer Project Leader Mike Fies at (540) 248-9390 or mike.fies@dgif.virginia.gov.

First, did you trap in Virginia between November 15, 2017 and February 28, 2018?

Yes No

If NO, stop here and return the survey in the postage-paid envelope.

If YES, please follow the instructions below and complete the remainder of the survey on the other side of this page.

Instructions for Completing the Trapping Table:

1. Please only report information for furbearers trapped during the general trapping season (Nov. 15, 2017 to Feb. 28, 2018). Do not report information for animals trapped under authorization of a Commercial Nuisance Animal Permit or other nuisance animals trapped outside the general season. Also, please do not include live foxes trapped for transport to foxhound training preserves.
2. **For Targeted Species (animals you were targeting when you set the traps):**
 - Indicate total # of animals trapped, total # of days trapped, and average # of traps set per day for each species in each county.
 - If you were unsuccessful at catching a targeted species, place a "0" for the total # of animals trapped, but still report the total # of days trapped and the average # of traps set per day for that species. See bobcat example for how to report unsuccessful target species trapping.
3. **For Non-Target/Incidental captures (animals you captured while targeting something else):**
 - If you captured non-target/incidental animals, please report the total # of animals trapped, but place a "0" for the total # of days trapped and a "0" for the average # of traps set per day, since these animals were not the primary target for your traps. See gray fox and opossum examples for how to report incidentally trapped animals.
4. **For fisher, spotted skunk, and least weasel:**
 - Please indicate if you observed or trapped these species during the past trapping season. If YES, please provide a detailed location where each animal was observed or trapped OR you may contact DGIF Furbearer Project Leader Mike Fies at 540-248-9390 or mike.fies@dgif.virginia.gov to provide specific details.]

Please read the instructions on the opposite side of this page before completing this survey.

Write in the name of each county or city in which you trapped						
Example	County/City #1	County/City #2	County/City #3	County/City #4	County/City #5	
<i>Buckingham</i>						
For each species, record total # of animals trapped, total # days trapped, and average # traps set per day (see instructions on opposite side of page) →	# Days Trapped	Average # Traps Set Per Day	# Animals Trapped	Average # Traps Set Per Day	# Days Trapped	Average # Traps Set Per Day
Beaver	17	15	10			
Bobcat	0	7	5			
Coyote						
Gray Fox	2	0	0			
Red Fox	10	12	8			
Mink						
Muskrat	55	30	15			
Nutria						
Opossum	25	0	0			
Otter						
Raccoon						
Striped Skunk						
Long-tailed Weasel						
Least Weasel						
Fisher	Spotted Skunk	Did you observe a least weasel during the past trapping season?	Did you observe a spotted skunk during the past trapping season?	Did you trap a least weasel during the past trapping season?	Did you trap a spotted skunk during the past trapping season?	Did you observe a least weasel during the past trapping season?
Please indicate if you observed or trapped any of the following species during this past trapping season. If YES, please provide a detailed location where the observation occurred. You may also provide details to DGIF Furbearer Project Leader Mike Fies at 540-248-9390 or mike.fies@digit.virginia.gov	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Detailed location: _____	Detailed location: _____	Detailed location: _____	Detailed location: _____	Detailed location: _____	Detailed location: _____

Appendix B: Cover Letter (1st Mailing)



Matthew J. Strickler
Secretary of Natural Resources

COMMONWEALTH of VIRGINIA
Department of Game and Inland Fisheries

Robert W. Duncan
Executive Director

April 16, 2018

Dear Trapper,

Enclosed you will find the 2017-18 Virginia Trapper Harvest Survey from the Virginia Department of Game and Inland Fisheries. We would appreciate your cooperation in this voluntary survey designed to provide us with the necessary information to estimate the statewide harvest of furbearers during the 2017-18 trapping season.

This survey is being sent to a random sample of Virginia licensed trappers. It's important that every recipient send in a response. All information on this survey is **completely confidential**. No personally identifiable information is being collected on the survey so that responses cannot be tied to an individual. A postage-paid envelope (addressed to our survey administrators at Virginia Tech) has been enclosed for your convenience in returning the completed questionnaire.

If you have questions or comments about this survey, please feel free to contact Mike Fies, Furbearer Project Leader, via email at mike.fies@dgif.virginia.gov, phone at (540) 248-9390, or by mail at Virginia Department of Game and Inland Fisheries, P.O. Box 996, Verona, VA 24482.

Your assistance in providing trapping harvest information is greatly appreciated and important for effectively managing Virginia's furbearers in the future. Please try to complete and return the questionnaire **within the next 10 days**. Thanks in advance for your cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael L. Fies".

Michael L. Fies
Furbearer Project Leader
Virginia Dept. of Game and Inland Fisheries

Appendix C: Postcard Reminder



2017-2018 Virginia Trapper Survey Reminder



We haven't heard from you yet! This is a friendly reminder to fill out and return the 2017-2018 Virginia Trapper Survey that was recently mailed to you. If you have already completed this confidential survey and returned it, please accept our sincere thanks and disregard this reminder notice. If you haven't returned the survey yet, please do so at your earliest convenience. Your response is important to us and will help generate meaningful estimates of statewide furbearer harvests to effectively manage populations for future trappers. If you did not receive a questionnaire, it was misplaced, or you have questions about the survey, please feel free to contact me at 540-248-9390 or mike.fies@dgif.virginia.gov

Thank you,

Mike Fies
Furbearer Project Leader
Virginia Department of Game & Inland Fisheries

Appendix D: 2017–2018

Virginia Trapping Season Dates

There is a continuous open season to trap beaver, muskrat, opossum, and raccoon within the incorporated limits of any city or town in the Commonwealth, and in the counties of Arlington, Chesterfield, Fairfax, Henrico, James City, Loudoun, Prince William, Spotsylvania, Stafford, Roanoke, and York.

When beavers are damaging crops or lands, the owner of the premises, his agent, or tenant, may kill the animals or have them killed. This includes shooting, except in areas where the discharge of firearms is prohibited.

Species	Start of Season	End of Season
Beaver	December 1 st	February 28 th
Bobcat	November 15 th	February 28 th
Coyote	Continuous open season	
Fisher	Continuous closed season	
Fox ¹	November 15 th	February 28 th
Mink	December 1 st	February 28 th
Muskrat	December 1 st	February 28 th
Nutria	Continuous open season	
Opossum	November 15 th	February 28 th
Otter	December 1 st	February 28 th
Raccoon	November 15 th	February 28 th
Striped Skunk	Continuous open season	
Spotted Skunk	Continuous closed season ²	
Weasel	December 1 st	February 28 th

¹ Fox trapping is prohibited in Clarke (except on G. Richard Thompson WMA), Fauquier (except on Chester F. Phelps WMA and G. Richard Thompson WMA), Loudoun, and Rappahannock counties.

² Spotted skunk and the pelts of spotted skunk may not be sold.

Appendix E: Map of Trapping Regions in Virginia

