

2022-2023 Virginia Trapper Harvest Survey

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ABSTRACT

A mail survey was conducted following the 2022-2023 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 2022-2023 season ($N=1,859$). Of the 1,500 surveys mailed, 386 (25.7%) were returned and all contained some usable data. Of the trappers who responded, 226 (58.5%) reported that they trapped during the 2022-2023 season (active trappers), and 160 (41.5%) reported that they did not trap (non-active trappers). We removed respondents that did not provide complete information or location data ($N=32$), so most estimates reported are based on data reported by 194 trappers.

On average, active trappers set 11.8 ($SE \pm 0.8$) traps for 30.8 ($SE \pm 1.6$) days during the 2022-2023 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 $33,831 \pm 4,145$ furbearers. Raccoons and muskrat were the most-harvested species with estimated totals of $10,542 \pm 1,396$ and $5,172 \pm 2,942$, respectfully. Observations of fishers, least weasels, and spotted skunks were also reported by trappers, but only spotted skunks were trapped.

GOAL & OBJECTIVE

To quantify 2022-2023 statewide trapper effort and furbearer harvest and to obtain additional occurrence information for rare furbearer species (i.e., fisher, spotted skunk, and least weasel).

METHODS

A total of 1,859 persons purchased annual or multi-year Virginia trapping licenses valid during some portion of the 2022-2023 trapping season (Table 1a). From that total, a random sample of 1,500 persons with valid addresses was selected using information from the Virginia Department of Wildlife Resources

license database and a web-based tool to remove undeliverable addresses. The sample represented 80.1% of all license holders who held a valid license for some portion the 2022-2023 season. On June 2, 2023, each trapper in the sample was mailed a one-page (front and back) questionnaire (Appendix A), cover letter (Appendix B), and a postage-paid return envelope. Trappers were also provided with an option to complete the survey online. A second and final mailing identical to the first was sent on 15 August 2023 to survey recipients who did not respond to the previous mailing (N=1,271). 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 and effort data) were entered into an online database (Question Pro) where they were reviewed for quality and cleaned prior to statistical analyses.

Data Analysis — Descriptive and inferential statistical analyses were conducted in Microsoft Excel or RStudio (R Core Team 2018) with the assistance of R library packages “dplyr” (Wickham et al. 2018) and “survey” (Lumley 2017). Raw harvest data (county, species, number harvested, days trapped, number of traps) were imported from the database, and used to create and append additional variables to the matrix, including trap region (Appendix E), number of trap days, 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 (either 0 days trapped or 0 traps set), or if the species was marked as “non-target” in the response.

We attempted to utilize all data provided whenever possible. For example, respondents may have provided information about their harvests but neglected to identify the overall number of days trapped or traps set. That information was retained when analyzing state-level response rates but was omitted from other estimates; therefore, the number of respondents included for each level of analysis may differ. This results in differences in calculated metrics that are presented in data tables.

Input data for inferential statistical analyses conducted with R 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 in R which allows for the incorporation of a finite population correction factor (FPC). 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 appropriate sample size.

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 2022-2023 trappers were sampled; 194 samples; finite population = 1,859 trapping licenses) (Lumley 2010; Thompson 2012).

RESULTS SUMMARY

A total of 386 (25.7% effective response rate) license holders responded to the survey (Table 1b). Of the 386 surveys returned, all were considered usable responses for some aspect of the analysis. Of these, 226 (58.5%) reported trapping activity during the 2022-2023 season (active trappers) and 160 (41.5%) reported no trapping activity (non-active trappers). Those respondents that supplied all the requested data (N=194) reported trapping a total of 6,592 days (average 30.8 days per trapper), setting an average of 11.8 traps per day (Table 3), and harvesting 5,011 furbearers (Tables 5). When results were extrapolated statewide, an estimated 1,077 trappers (Table 10) harvested a total of 33,831 ± 4,145 furbearers (Table 11). By species, total statewide trapper harvest was estimated to be 10,542 raccoon, 5,173 muskrat, 4,544 opossum, 3,776 red fox, 3,136 beaver, 3,108 coyote, 982 gray fox, 1,206 striped skunk, 595 bobcat, 561 otter, 157 mink, 50 nutria, and 0 long-tailed weasel (Table 11). Average harvest per season for trappers targeting certain species was highest for muskrat, followed by raccoon,

opossum, beaver, red fox, striped skunk, coyote, gray fox, otter, bobcat, mink, nutria, and long-tailed weasel (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 1a. Summary of trapping licenses sold for the 2022-2023 season (excluding lifetime licenses).

License Type	Total		Sample	
	N	%	N	%
County/City Resident Trapping	618	33.2	518	34.5
Non-Resident State Trapping	39	2.1	20	1.3
Resident 65 and older Trapping	156	8.4	133	8.9
Resident Junior State Trapping	59	3.2	13	0.9
Resident State Trapping	910	49.0	761	50.7
Resident State Trapping - 2 Years	41	2.2	26	1.7
Resident State Trapping - 3 Years	11	0.6	8	0.5
Resident State Trapping - 4 Years	25	1.3	21	1.4
Total	1,859		1,500	

Table 1b. Summary of trapping licenses sold in Virginia that were valid during the 2022-2023 season, license types represented in the survey sample, and license types represented by those who responded (active and non-active trappers) to the 2022-2023 Virginia Trapper Harvest Survey.

License Type	No. licensed trappers	% of licensed trappers	No. in survey sample	% in survey sample	No. of respondents	% Return for License Type ¹	No. active trappers	% of respondents ²	No. non-active trappers	% of respondents ²
Annual	1,743	93.8	1,425	95.0	362	25.4	213	94.2	149	93.1
Multi-year	77	4.1	55	3.7	16	29.1	8	3.5	8	5.0
Non-resident	39	2.1	20	1.3	6	30.0	5	2.2	1	0.6
Unknown	0	0.0	0	0.0	2	---	0	0.0	2	1.3
Total	1,859		1,500	100.0	386	25.7	226	58.5	160	41.5

¹ Derived by dividing the number of respondents by the total number in the survey sample for each license type

² Derived by dividing the number of active/non-active trappers by the total number of respondents for each license type

Table 2. Number of Virginia trappers by number of counties trapped and physiographic region during the 2022-2023 season.

No. of Counties Trapped	No. of Active Trappers	% of Trappers
One	179	79.2
Two	33	14.6
Three or more	6	2.7
No county reported	8	3.5
Total	226	

Region Trapped	No. of Active Trappers ¹	% of Trappers ²
Northern Mountain	28	13.0
Southern Mountain	47	21.8
Northern Piedmont	64	29.6
Southern Piedmont	60	27.8
Tidewater	64	29.6
Not Given	8	3.7

¹ An individual trapper may trap in multiple regions; hence, the summation of these values will exceed the total number of trapper respondents

² Derived by dividing number of trappers in region by total number of trappers that reported county information (N=216)

Table 3. Targeted furbearer trapping efforts reported by respondents to the 2022 - 2023 Virginia Trapper Harvest Survey (N = 194).

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 ¹
Beaver	71	36.6	1,239	15.9	5.3	6,567
Bobcat	67	34.5	2,085	28.2	8.5	17,723
Coyote	120	61.9	4,114	31.1	11.5	47,311
Gray Fox	58	29.9	1,960	30.7	11.5	22,540
Long-tailed Weasel	0	0.0	0	0	0	0
Mink	24	12.4	512	19.3	6.3	3,226
Muskrat	29	14.9	473	14.8	15.5	7,332
Nutria	0	0.0	0	0	0	0
Opossum	38	19.6	1,210	28.8	11.4	13,794
Otter	38	19.6	959	22.9	6.3	6,042
Raccoon	108	55.7	3,160	26.6	9.5	30,020
Red Fox	85	43.8	2,904	31.0	15.2	44,141
Striped Skunk	22	11.3	712	29.4	9.2	6,550
All Species	194		6,592	30.8	11.8	78,059

¹ Total number days trapped x average number traps set per day per trapper

Table 4. Reported number of successful trappers by species for target and non-target trapping efforts in Virginia, 2022-2023 (N = 194 number of trappers who supplied necessary data).

Species	# Successful trappers					
	Target		Non-target		Total	
	No.	% ¹	No.	% ²	No.	% ³
Beaver	62	87.3	0	0.0	62	32.0
Bobcat	44	65.7	3	2.4	47	24.2
Coyote	88	73.3	0	0.0	88	45.4
Gray Fox	39	67.2	6	4.4	45	23.2
Long-tailed Weasel	0		0	0.0	0	0.0
Mink	13	54.2	2	1.2	15	7.7
Muskrat	26	89.7	2	1.2	28	14.4
Nutria	0		2	1.0	2	1.0
Opossum	37	97.4	63	40.4	100	51.5
Otter	31	81.6	5	3.2	36	18.6
Raccoon	104	96.3	35	40.7	139	71.6
Red Fox	71	83.5	6	5.5	77	39.7
Striped Skunk	21	95.5	27	15.7	48	24.7

¹ of total active trappers who reported targeting the species (see Table 3)

² of total active trappers who did not target that species (194 - # target)

³ of total active trappers who supplied necessary data (N=194)

Table 5. Reported harvest by species for target and non-target trapping efforts in Virginia, 2022-2023 (N=194).

Species	Target harvest	% of total	Non-target harvest	% of total	Total harvest
Beaver	559	100.0	0	-	559
Bobcat	103	97.2	3	2.8	106
Coyote	554	100.0	0	-	554
Gray Fox	164	93.7	11	6.3	175
Long-tailed Weasel	0		0		0
Mink	25	89.3	3	10.7	28
Muskrat	920	99.8	2	0.2	922
Nutria	0	-	9	100.0	9
Opossum	324	40.0	486	60.0	810
Otter	83	83.0	17	17.0	100
Raccoon	1,499	79.8	380	20.2	1,879
Red Fox	656	97.5	17	2.5	673
Striped Skunk	124	57.7	91	42.3	215
Total	5,011	83.1	1,019	16.9	6,030

Table 6. Frequency distribution of trappers by total number of each species harvested in 2022-2023 (N =194 active trappers providing species and capture numbers). 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	Long-tailed Weasel	Mink	Muskrat	Nutria	Opossum	Otter	Raccoon	Red Fox	Striped Skunk
0	132	147	106	149	194	179	166	192	94	158	55	117	146
1–5	35	44	62	36	0	14	11	2	50	32	54	48	38
6–10	16	3	13	7	0	1	8	0	23	2	32	16	7
11–15	2	0	5	1	0	0	1	0	14	2	19	6	1
16–20	1	0	4	0	0	0	1	0	7	0	12	1	1
21–25	0	0	1	1	0	0	3	0	4	0	4	2	0
26–50	7	0	2	0	0	0	2	0	2	0	13	2	1
51–75	1	0	1	0	0	0	0	0	0	0	2	1	0
76–100	0	0	0	0	0	0	1	0	0	0	2	0	0
>100	0	0	0	0	0	0	1	0	0	0	1	1	0

Table 7. Reported harvest of furbearer species and percent of statewide harvest by region in Virginia, 2022-2023 (N=232 records, exceeds total number of respondents since some trappers reported harvest of a species in more than one region). Total number of records in each region are provided.

Species	State total harvest No.	Region									
		Northern Mountain		Northern Piedmont		Southern Mountain		Southern Piedmont		Tidewater	
		No.	%	No.	%	No.	%	No.	%	No.	%
Beaver	559	7	1.3	57	10.2	169	30.2	58	10.4	268	47.9
Bobcat	106	9	8.5	12	11.3	40	37.7	26	24.5	19	17.9
Coyote	554	60	10.8	58	10.5	214	38.6	111	20.0	111	20.0
Gray Fox	175	25	14.3	33	18.9	29	16.6	48	27.4	40	22.9
Long-tailed Weasel	0	0	0.0	0	0.0	0	0.0		0.0	0	0.0
Mink	28	7	25.0	0	0.0	15	53.6	6	21.4	0	0.0
Muskrat	922	34	3.7	1	0.1	94	10.2	34	3.7	759	82.3
Nutria	9	5	55.6	0	0.0	0	0.0		0.0	4	44.4
Opossum	810	98	12.1	135	16.7	186	23.0	238	29.4	153	18.9
Otter	100	7	7.0	4	4.0	28	28.0	11	11.0	50	50.0
Raccoon	1,879	400	21.3	348	18.5	420	22.4	410	21.8	301	16.0
Red Fox	673	251	37.3	174	25.9	55	8.2	94	14.0	99	14.7
Striped Skunk	215	77	35.8	33	15.3	30	14.0	62	28.8	13	6.0
Grand Total	6,030	980	16.3	855	14.2	1,280	21.2	1,098	18.2	1,817	30.1
Number of records	232	23		52		43		57		57	

Table 8. Reported harvest of furbearer species by county in Virginia, 2022-2023 (N=194 trappers providing necessary data).

County	Species												
	Beaver	Bobcat	Coyote	Gray Fox	Long-tailed Weasel	Mink	Muskrat	Nutria	Opossum	Otter	Raccoon	Red Fox	Striped Skunk
Accomack	0	1	0	4	0	0	570	0	15	1	35	15	0
Albemarle	0	0	0	0	0	0	0	0	4	0	6	0	0
Amelia	6	0	8	0	0	0	0	0	0	0	20	18	9
Augusta	0	0	5	14	0	2	6	0	4	0	31	48	37
Bath	4	4	3	0	0	0	0	0	22	2	26	3	2
Bedford	5	7	23	7	0	4	24	0	68	2	99	12	13
Bland	1	6	9	0	0	0	0	0	5	4	16	0	0
Botetourt	0	0	9	2	0	2	0	0	13	0	10	0	1
Brunswick	2	4	2	0	0	0	0	0	9	0	13	0	2
Buchanan	0	0	7	0	0	0	0	0	0	0	0	0	0
Buckingham	0	0	13	0	0	0	0	0	13	0	10	5	2
Campbell	0	1	1	1	0	0	0	0	15	0	8	0	0
Caroline	1	0	0	0	0	0	0	0	20	0	7	0	2
Carroll	13	8	7	1	0	10	6	0	22	5	58	2	4
Charlotte	4	0	0	0	0	0	0	0	0	0	2	0	0
Chesterfield	3	1	1	0	0	0	0	0	5	0	2	0	0
Clarke	0	0	39	0	0	0	0	0	19	0	206	138	9
Culpeper	0	2	13	1	0	0	0	0	0	0	0	30	0
Cumberland	2	0	0	0	0	0	0	0	0	0	5	0	0
Dickenson	37	13	29	1	0	0	0	0	35	1	21	2	0
Dinwiddie	2	0	5	0	0	0	0	0	10	0	19	2	0
Essex	15	2	2	0	0	0	6	0	10	1	17	3	0
Fauquier	10	7	18	0	0	0	1	0	22	1	140	42	3
Floyd	0	5	15	4	0	0	0	0	1	3	31	13	5
Fluvanna	0	0	2	0	0	0	0	0	4	0	4	6	0
Franklin	0	1	18	5	0	0	0	0	13	0	13	8	0
Frederick	2	0	1	0	0	1	4	0	2	4	26	13	0
Giles	0	0	0	0	0	0	0	0	2	0	2	0	0
Gloucester	0	0	0	0	0	0	1	0	0	0	1	0	6

Table 8 (continued). Reported harvest of furbearer species by county in Virginia, 2023-2023.

County	Species												Striped Skunk
	Beaver	Bobcat	Coyote	Gray Fox	Long-tailed Weasel	Mink	Muskrat	Nutria	Opossum	Otter	Raccoon	Red Fox	
Greensville	50	0	73	4	0	0	0	4	25	6	14	8	0
Halifax	12	5	9	13	0	0	0	0	16	4	11	6	3
Hanover	2	0	0	2	0	0	0	0	0	0	0	1	0
Henrico	4	0	0	5	0	0	0	0	0	0	3	4	0
Henry	0	1	17	4	0	0	0	0	15	0	44	10	2
Highland	0	4	1	0	0	1	0	0	30	1	38	5	12
Isle of Wight	37	2	0	1	0	0	0	0	0	2	12	0	0
James City	7	1	7	0	0	0	78	0	13	0	30	0	0
King and Queen	11	0	2	0	0	0	0	0	0	9	1	0	0
King George	5	1	3	0	0	0	0	0	7	3	18	15	0
King William	55	0	0	0	0	0	32	0	0	18	0	0	0
Lancaster	4	0	0	0	0	0	0	0	0	0	5	3	0
Lee	0	0	0	0	0	0	0	0	5	0	5	0	5
Loudoun	1	0	3	0	0	0	0	0	20	0	127	29	7
Louisa	2	2	8	25	0	0	0	0	30	0	26	15	15
Lunenburg	6	0	0	5	0	0	0	0	7	0	0	4	2
Madison	3	0	0	0	0	0	0	0	0	0	0	0	0
Mecklenburg	13	0	0	4	0	1	6	0	15	0	5	8	2
Montgomery	3	0	5	0	0	0	4	0	0	0	11	0	0
Nelson	0	1	0	0	0	0	0	0	4	0	60	0	0
New Kent	3	1	2	1	0	0	0	0	25	1	22	10	1
Nottoway	0	3	8	0	0	0	0	0	5	0	37	17	12
Orange	5	0	0	0	0	0	0	0	8	0	5	2	5
Page	0	0	0	0	0	0	0	0	0	0	0	0	0
Patrick	4	0	5	2	0	1	4	0	6	4	41	0	9
Pittsylvania	2	3	2	7	0	0	0	0	42	0	23	4	6
Powhatan	15	0	1	0	0	0	0	0	0	2	0	0	0
Prince Edward	0	0	0	0	0	0	0	0	0	1	0	0	0
Prince George	30	0	0	0	0	0	0	0	0	3	0	0	0

Table 8 (continued). Reported harvest of furbearer species by county in Virginia, 2022-2023.

County	Species												
	Beaver	Bobcat	Coyote	Gray Fox	Long-tailed Weasel	Mink	Muskrat	Nutria	Opossum	Otter	Raccoon	Red Fox	Striped Skunk
Pulaski	0	0	6	0	0	0	0	0	0	0	0	0	0
Rappahannock	0	0	0	0	0	0	0	0	0	1	0	0	0
Richmond	13	0	8	0	0	0	0	0	28	1	45	25	5
Roanoke	0	3	13	2	0	0	0	0	3	0	17	13	0
Rockbridge	0	1	0	0	0	0	0	0	3	0	9	0	0
Rockingham	0	0	2	2	0	1	19	0	7	0	23	12	2
Scott	2	0	3	0	0	0	0	0	24	0	33	0	1
Shenandoah	1	0	9	9	0	2	5	5	11	0	38	32	15
Smyth	36	0	39	8	0	2	42	0	40	0	92	11	2
Southampton	10	1	0	0	0	0	0	0	3	2	2	1	0
Spotsylvania	0	0	0	0	0	0	0	0	0	0	0	0	0
Stafford	11	0	3	0	0	0	0	0	0	0	1	8	0
Suffolk City	9	3	6	11	0	0	0	0	8	2	4	11	1
Sussex	7	2	4	3	0	0	0	0	6	1	4	0	0
Tazewell	0	0	18	10	0	0	0	0	0	0	20	3	0
Virginia Beach City	0	4	0	14	0	0	47	0	2	0	8	0	0
Warren	0	0	0	0	0	0	0	0	0	0	3	0	0
Washington	3	2	11	0	0	1	19	0	9	11	16	1	6
Westmoreland	0	1	4	0	0	0	0	0	0	0	7	5	0
Wise	72	2	32	0	0	0	0	0	19	1	42	3	0
Wythe	2	1	11	1	0	0	23	0	8	3	46	7	6
York	12	0	0	2	0	0	25	0	11	0	76	3	0
Grand Total	559	106	554	175	0	28	922	9	810	100	1879	673	215
Pulaski	0	0	6	0	0	0	0	0	0	0	0	0	0
Rappahannock	0	0	0	0	0	0	0	0	0	1	0	0	0
Richmond	13	0	8	0	0	0	0	0	28	1	45	25	5
Roanoke	0	3	13	2	0	0	0	0	3	0	17	13	0
Rockbridge	0	1	0	0	0	0	0	0	3	0	9	0	0
Rockingham	0	0	2	2	0	1	19	0	7	0	23	12	2

Table 8 (continued). Reported harvest of furbearer species by county in Virginia, 2022-2023.

Species

County	Beaver	Bobcat	Coyote	Gray Fox	Long-tailed Weasel	Mink	Muskrat	Nutria	Opossum	Otter	Raccoon	Red Fox	Striped Skunk
Scott	2	0	3	0	0	0	0	0	24	0	33	0	1
Shenandoah	1	0	9	9	0	2	5	5	11	0	38	32	15
Smyth	36	0	39	8	0	2	42	0	40	0	92	11	2
Southampton	10	1	0	0	0	0	0	0	3	2	2	1	0
Spotsylvania	0	0	0	0	0	0	0	0	0	0	0	0	0
Stafford	11	0	3	0	0	0	0	0	0	0	1	8	0
Suffolk City	9	3	6	11	0	0	0	0	8	2	4	11	1
Sussex	7	2	4	3	0	0	0	0	6	1	4	0	0
Tazewell	0	0	18	10	0	0	0	0	0	0	20	3	0
Virginia Beach City	0	4	0	14	0	0	47	0	2	0	8	0	0
Warren	0	0	0	0	0	0	0	0	0	0	3	0	0
Washington	3	2	11	0	0	1	19	0	9	11	16	1	6
Westmoreland	0	1	4	0	0	0	0	0	0	0	7	5	0
Wise	72	2	32	0	0	0	0	0	19	1	42	3	0
Wythe	2	1	11	1	0	0	23	0	8	3	46	7	6
York	12	0	0	2	0	0	25	0	11	0	76	3	0
Grand Total	559	106	554	175	0	28	922	9	810	100	1879	673	215

Table 9. Expanded statewide estimates of the total number of trappers by targeted furbearer species in Virginia, 2022-2023 (N=194).

Species	Est. no. trappers	95% confidence interval		
		SE	Lower	Upper
Beaver	398	34	364	432
Bobcat	376	34	342	410
Coyote	673	34	639	707
Gray Fox	325	33	292	358
Long-tailed Weasel	0	0	0	0
Mink	135	23	112	158
Muskrat	163	25	138	188
Nutria	0	0	0	0
Opossum	213	28	185	241
Otter	213	28	185	241
Raccoon	606	35	571	641
Red Fox	477	35	442	512
Striped Skunk	123	23	100	146

Table 9a. Expanded estimates of the total number of trappers by targeted furbearer species in the Northern Mountain region of Virginia, 2022-2023 (N=21).

Species	Est. no. trappers	95% confidence interval		
		SE	Lower	Upper
Beaver	17	8	9	25
Bobcat	39	11	28	50
Coyote	84	11	73	95
Gray Fox	34	11	23	45
Long-tailed Weasel	0	0	0	0
Mink	28	10	18	38
Muskrat	28	10	18	38
Nutria	0	0	0	0
Opossum	17	8	9	25
Otter	34	11	23	45
Raccoon	90	10	80	100
Red Fox	73	12	61	85
Striped Skunk	45	12	33	57

Table 9b. Expanded estimates of the total number of trappers by targeted furbearer species in the Southern Mountain region of Virginia, 2022-2023 (N=37).

Species	Est. no. trappers	95% confidence interval		
		SE	Lower	Upper
Beaver	90	16	74	106
Bobcat	129	15	114	144
Coyote	168	12	156	180
Gray Fox	67	15	52	82
Long-tailed Weasel	0	0	0	0
Mink	39	12	27	51
Muskrat	45	13	32	58
Nutria	0	0	0	0
Opossum	56	14	42	70
Otter	22	10	12	32
Raccoon	112	16	96	128
Red Fox	79	15	64	94
Striped Skunk	11	7	4	18

Table 9c. Expanded estimates of the total number of trappers by targeted furbearer species in the Northern Piedmont region of Virginia, 2022-2023 (N=44).

Species	Est. no. trappers.	95% confidence interval		
		SE	Lower	Upper
Beaver	73	16	57	89
Bobcat	45	13	32	58
Coyote	123	17	106	140
Gray Fox	28	11	17	39
Long-tailed Weasel	0	0	0	0
Mink	22	10	12	32
Muskrat	6	5	1	11
Nutria	0	0	0	0
Opossum	22	10	12	32
Otter	22	10	12	32
Raccoon	135	17	118	152
Red Fox	101	17	84	118
Striped Skunk	6	5	1	11

Table 9d. Expanded estimates of the total number of trappers by targeted furbearer species in the Southern Piedmont region of Virginia, 2022-2023 (N=50).

Species	Est. no. trappers	95% confidence interval		
		SE	Lower	Upper
Beaver	90	17	73	107
Bobcat	112	18	94	130
Coyote	191	17	174	208
Gray Fox	140	18	122	158
Long-tailed Weasel	0	0	0	0
Mink	39	13	26	52
Muskrat	39	13	26	52
Nutria	0	0	0	0
Opossum	50	14	36	64
Otter	84	17	67	101
Raccoon	146	18	128	164
Red Fox	157	18	139	175
Striped Skunk	45	13	32	58

Table 9e. Expanded estimates of the total number of trappers by targeted furbearer species in the Tidewater region of Virginia, 2022-2023 (N=51).

Species	Est. no. trappers.	95% confidence interval		
		SE	Lower	Upper
Beaver	146	18	128	164
Bobcat	50	14	36	64
Coyote	135	18	117	153
Gray Fox	56	15	41	71
Long-tailed Weasel	0	0	0	0
Mink	6	5	1	11
Muskrat	45	13	32	58
Nutria	0	0	0	0
Opossum	73	16	57	89
Otter	50	14	36	64
Raccoon	129	18	111	147
Red Fox	84	17	67	101
Striped Skunk	17	9	8	26

Table 10. Expanded statewide estimates of the total number of successful target and non-target trappers by furbearer species in Virginia, 2022-2023.

Species	Target				Non-target				Total			
	Est. no. trappers	SE	95% CI		Est. no. trappers	SE	95% CI		Est. no. trappers	SE	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Beaver	398	34	364	432	-	-	-	-	398	34	364	432
Bobcat	376	34	342	410	17	9	8	26	387	34	353	421
Coyote	673	34	639	707	-	-	-	-	673	34	639	707
Gray Fox	325	33	292	358	34	12	22	46	359	33	326	392
Red Fox	477	35	442	512	34	12	22	46	511	35	476	546
Mink	135	23	112	158	11	7	4	18	140	24	116	164
Muskrat	163	25	138	188	11	7	4	18	174	26	148	200
Nutria	-	-	-	-	11	7	4	18	11	7	4	18
Opossum	213	28	185	241	353	33	320	386	241	29	212	270
Otter	213	28	185	241	28	11	17	39	567	35	532	602
Raccoon	606	35	571	641	196	27	169	223	780	32	748	812
Striped Skunk	123	23	100	146	151	25	126	176	275	31	244	306
Long-tailed Weasel	-	-	-	-	-	-	-	-	-	-	-	-
All Species	1,077	7	1,070	1,084	482	35	447	517	1,077	7	1,070	1,084

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, 2022-2023.

Species	Target				Non-target				Total			
	Est. no. trappers	SE	95% CI		Est. no. trappers	SE	95% CI		Est. no. trappers	SE	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Beaver	17	8	9	25	-	-	-	-	17	8	9	25
Bobcat	39	11	28	50	-	-	-	-	39	11	28	50
Coyote	84	11	73	95	-	-	-	-	84	11	73	95
Gray Fox	34	11	23	45	-	-	-	-	34	11	23	45
Red Fox	73	12	61	85	6	5	1	11	79	11	68	90
Mink	28	10	18	38	6	5	1	11	34	11	23	45
Muskrat	28	10	18	38	-	-	-	-	28	10	18	38
Nutria	-	-	-	-	6	5	1	11	6	5	1	11
Opossum	34	11	23	45	39	11	28	50	17	8	9	25
Otter	17	8	9	25	-	-	-	-	73	12	61	85
Raccoon	90	10	80	100	11	7	4	18	101	8	93	109
Striped Skunk	45	12	33	57	11	7	4	18	56	12	44	68
Long-tailed Weasel	-	-	-	-	-	-	-	-	-	-	-	-
All Species	118	-	118	118	56	12	44	68	118	-	118	118

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, 2022-2023.

Species	Target				Non-target				Total			
	Est. no. trappers	SE	95% CI		Est. no. trappers	SE	95% CI		Est. no. trappers	SE	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Beaver	90	16	74	106	-	-	-	-	90	16	74	106
Bobcat	129	15	114	144	6	5	1	11	129	15	114	144
Coyote	168	12	156	180	-	-	-	-	168	12	156	180
Gray Fox	67	15	52	82	6	5	1	11	73	15	58	88
Red Fox	79	15	64	94	11	7	4	18	90	16	74	106
Mink	39	12	27	51	6	5	1	11	39	12	27	51
Muskrat	45	13	32	58	6	5	1	11	50	13	37	63
Nutria	-	-	-	-	-	-	-	-	-	-	-	-
Opossum	22	10	12	32	101	16	85	117	62	14	48	76
Otter	56	14	42	70	6	5	1	11	123	15	108	138
Raccoon	112	16	96	128	67	15	52	82	168	12	156	180
Striped Skunk	11	7	4	18	45	13	32	58	56	14	42	70
Long-tailed Weasel	-	-	-	-	-	-	-	-	-	-	-	-
All Species	208	-	208	208	140	15	125	155	208	-	208	208

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, 2022-2023.

Species	Target				Non-target				Total			
	Est. no. trappers	SE	95% CI		Est. no. trappers	SE	95% CI		Est. no. trappers	SE	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Beaver	73	16	57	89	-	-	-	-	73	16	57	89
Bobcat	45	13	32	58	-	-	-	-	45	13	32	58
Coyote	123	17	106	140	-	-	-	-	123	17	106	140
Gray Fox	28	11	17	39	11	7	4	18	39	12	27	39
Red Fox	101	17	84	118	-	-	-	-	101	17	84	118
Mink	22	10	12	32	-	-	-	-	22	10	12	32
Muskrat	6	5	1	11	6	5	1	11	11	7	4	11
Nutria	-	-	-	-	-	-	-	-	-	-	-	-
Opossum	22	10	12	32	73	16	57	89	22	10	12	32
Otter	22	10	12	32	-	-	-	-	95	17	78	134
Raccoon	135	17	118	152	17	9	8	26	151	17	134	152
Striped Skunk	6	5	1	11	45	13	32	58	50	14	36	58
Long-tailed Weasel	-	-	-	-	-	-	-	-	-	-	-	-
All Species	241	5	236	246	84	16	68	100	241	5	236	246

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, 2022-2023.

Species	Target				Non-target				Total			
	Est. no. trappers	SE	95% CI		Est. no. trappers	SE	95% CI		Est. no. trappers	SE	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Beaver	90	17	73	107	-	-	-	-	90	17	73	107
Bobcat	112	18	94	130	-	-	-	-	112	18	94	130
Coyote	191	17	174	208	-	-	-	-	191	17	174	208
Gray Fox	140	18	122	158	-	-	-	-	140	18	122	158
Red Fox	157	18	139	175	6	5	1	11	163	18	145	181
Mink	39	13	26	52	-	-	-	-	39	13	26	52
Muskrat	39	13	26	52	-	-	-	-	39	13	26	52
Nutria	-	-	-	-	-	-	-	-	-	-	-	-
Opossum	84	17	67	101	73	16	57	89	50	14	36	64
Otter	50	14	36	64	-	-	-	-	157	18	139	175
Raccoon	146	18	128	164	45	13	32	58	191	17	174	208
Striped Skunk	45	13	32	58	39	13	26	52	84	17	67	101
Long-tailed Weasel	-	-	-	-	-	-	-	-	-	-	-	-
All Species	281	-	281	281	101	17	84	118	281	-	281	281

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, 2022-2023.

Species	Target				Non-target				Total			
	Est. no. trappers	SE	95% CI		Est. no. trappers	SE	95% CI		Est. no. trappers	SE	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Beaver	146	18	128	164	-	-	-	-	146	18	128	164
Bobcat	50	14	36	64	11	7	4	18	62	15	47	77
Coyote	135	18	117	153	-	-	-	-	135	18	117	153
Gray Fox	56	15	41	71	17	9	8	26	73	16	57	89
Red Fox	84	17	67	101	11	7	4	18	95	17	78	112
Mink	6	5	1	11	-	-	-	-	6	5	1	11
Muskrat	45	13	32	58	-	-	-	-	45	13	32	58
Nutria	-	-	-	-	6	5	1	11	6	5	1	11
Opossum	50	14	36	64	79	16	63	95	95	17	78	112
Otter	73	16	57	89	22	10	12	32	129	18	111	147
Raccoon	129	18	111	147	62	15	47	77	185	18	167	203
Striped Skunk	17	9	8	26	11	7	4	18	28	11	17	39
Long-tailed Weasel	-	-	-	-	-	-	-	-	-	-	-	-
All Species	281	5	276	286	112	18	94	130	281	5	276	286

Table 11. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in Virginia, 2022-2023 (N= 194).

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	3,136	588	2,548	3,724	-	-	-	-	3,136	588	2,548	3,724
Bobcat	578	92	486	670	17	9	8	26	595	92	503	687
Coyote	3,108	477	2,631	3,585	-	-	-	-	3,108	477	2,631	3,585
Grey Fox	920	189	731	1,109	62	27	35	89	982	190	792	1,172
Red Fox	3,680	886	2,794	4,566	95	47	48	142	3,776	886	2,890	4,662
Mink	140	48	92	188	17	11	6	28	157	50	107	207
Muskrat	5,162	2,942	2,220	8,104	11	7	4	18	5,173	2,942	2,231	8,115
Nutria	-	-	-	-	50	32	18	82	50	32	18	82
Opossum	1,818	302	1,516	2,120	2,727	396	2,331	3,123	4,544	454	4,090	4,998
Otter	466	113	353	579	95	54	41	149	561	124	437	685
Raccoon	8,410	1,333	7,077	9,743	2,132	546	1,586	2,678	10,542	1,396	9,146	11,938
Striped Skunk	696	193	503	889	511	125	386	636	1,206	223	983	1,429
Long-tailed Weasel	-	-	-	-	-	-	-	-	-	-	-	-
All Species	28,114	3,909	24,205	32,023	5,717	876	4,841	6,593	33,831	4,145	29,686	37,976

Table 11a. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in the Northern Mountain region of Virginia, 2022-2023 (N=21).

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	39	23	17	62	-	-	-	-	39	23	16	62
Bobcat	50	25	25	76	-	-	-	-	50	25	25	75
Coyote	337	181	155	518	-	-	-	-	337	181	156	518
Grey Fox	140	65	75	205	-	-	-	-	140	65	75	205
Red Fox	1,386	687	698	2,073	22	20	2	42	1,408	686	722	2,094
Mink	34	15	19	49	6	5	1	11	39	15	24	54
Muskrat	191	97	94	288	-	-	-	-	191	97	94	288
Nutria	-	-	-	-	28	25	3	53	28	25	3	53
Opossum	382	144	237	526	168	92	76	260	550	155	395	705
Otter	39	23	17	62	-	-	-	-	39	23	16	62
Raccoon	2,081	956	1,126	3,037	163	132	31	295	2,244	950	1,294	3,194
Striped Skunk	410	164	245	574	22	14	8	36	432	162	270	594
Long-tailed Weasel	-	-	-	-	-	-	-	-	-	-	-	-
All Species	5,089	1,864	3,225	6,953	410	163	247	573	5,498	1,938	3,560	7,436

Table 11b. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in the Southern Mountain region of Virginia, 2022-2023 (N=37).

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	948	421	527	1,369	-	-	-	-	948	421	527	1,369
Bobcat	219	60	159	279	6	5	1	11	224	61	163	285
Coyote	1,201	257	944	1,458	-	-	-	-	1,201	257	944	1,458
Grey Fox	157	67	90	224	6	5	1	11	163	66	97	229
Red Fox	297	101	196	398	11	7	4	18	309	101	208	410
Mink	73	43	30	116	11	10	1	21	84	45	39	129
Muskrat	522	262	260	784	6	5	1	11	527	262	265	789
Nutria	-	-	-	-	-	-	-	-	-	-	-	-
Opossum	123	59	64	182	920	262	658	1,182	1,044	259	785	1,303
Otter	101	33	68	134	56	51	5	107	157	59	98	216
Raccoon	1,167	296	871	1,463	1,189	458	731	1,647	2,356	505	1,851	2,861
Striped Skunk	28	21	7	49	140	47	93	187	168	50	118	218
Long-tailed Weasel	-	-	-	-	-	-	-	-	-	-	-	-
All Species	4,836	1,014	3,822	5,850	2,345	650	1,695	2,995	7,181	1,526	5,655	8,707

Table 11c. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in the Northern Piedmont region of Virginia, 2022-2023 (N=44).

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	320	100	220	420	-	-	-	-	320	100	220	420
Bobcat	67	38	29	105	-	-	-	-	67	38	29	105
Coyote	325	112	213	437	-	-	-	-	325	112	213	437
Grey Fox	174	126	48	300	11	7	4	18	185	126	59	311
Red Fox	976	314	662	1,290	-	-	-	-	976	314	662	1,290
Mink	-	-	-	-	-	-	-	-	-	-	-	-
Muskrat	-	-	-	-	6	5	1	11	6	5	1	11
Nutria	-	-	-	-	-	-	-	-	-	-	-	-
Opossum	123	60	63	183	634	196	438	830	757	197	560	954
Otter	22	12	10	34	-	-	-	-	22	12	10	34
Raccoon	1,807	539	1,268	2,346	146	103	43	249	1,952	540	1,412	2,492
Striped Skunk	17	15	2	32	168	69	99	237	185	70	115	255
Long-tailed Weasel	-	-	-	-	-	-	-	-	-	-	-	-
All Species	3,832	789	3,043	4,621	965	320	645	1,285	4,797	856	3,941	5,653

Table 11d. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in the Southern Piedmont region of Virginia, 2022-2023 (N=50).

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	325	87	238	412	-	-	-	-	325	87	238	412
Bobcat	146	41	105	187	-	-	-	-	146	41	105	187
Coyote	623	110	513	733	-	-	-	-	623	110	513	733
Grey Fox	269	64	205	333	-	-	-	-	269	64	205	333
Red Fox	522	159	363	681	6	5	1	11	527	158	369	685
Mink	34	14	20	48	-	-	-	-	34	14	20	48
Muskrat	191	91	100	282	-	-	-	-	191	91	100	282
Nutria	-	-	-	-	-	-	-	-	-	-	-	-
Opossum	825	203	622	1,028	511	132	379	643	1,335	211	1,124	1,546
Otter	62	29	33	91	-	-	-	-	62	29	33	91
Raccoon	1,924	384	1,540	2,308	376	205	171	581	2,300	407	1,893	2,707
Striped Skunk	180	68	112	248	168	90	78	258	348	108	240	456
Long-tailed Weasel	-	-	-	-	-	-	-	-	-	-	-	-
All Species	5,100	596	4,504	5,696	1,060	329	731	1,389	6,160	728	5,432	6,888

Table 11e. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in the Tidewater region of Virginia, 2022-2023 (N=51).

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	1,504	346	1,158	1,850	-	-	-	-	1,504	346	1,158	1,850
Bobcat	95	31	64	126	11	7	4	18	107	31	76	138
Coyote	623	294	329	917	-	-	-	-	623	294	329	917
Gray Fox	180	88	92	268	45	26	19	71	224	91	133	315
Long-tailed Weasel	499	164	335	663	56	42	14	98	555	167	388	722
Mink	-	-	-	-	-	-	-	-	-	-	-	-
Muskrat	4,258	2,917	1,341	7,175	-	-	-	-	4,258	2,917	1,341	7,175
Nutria	-	-	-	-	22	20	2	42	22	20	2	42
Opossum	365	136	229	501	494	129	365	623	858	171	687	1,029
Otter	241	93	148	334	39	19	20	58	281	94	187	375
Raccoon	1,431	417	1,014	1,848	258	86	172	344	1,689	412	1,277	2,101
Red Fox	62	37	25	99	11	7	4	18	73	37	36	110
Striped Skunk	-	-	-	-	-	-	-	-	-	-	-	-
All Species	9,257	3,006	6,251	12,263	937	236	701	1,173	10,194	3,017	7,177	13,211

Table 12. Statewide estimates and summary statistics for each furbearer species targeted in 2022- 2023. Note that data for averages, and related SE, are derived from the sample data. Estimates for number of trappers and days trapped for each species are extrapolations from those estimates. Overall estimates (all species combined) were derived from the sample values reported by trappers directly rather than combining estimates by species.

Species	Est. # trappers that targeted species	% of total licenses ¹	Avg. # days trapped per trapper	SE	Est. total # days trapped	Avg. # traps set per day per trapper	SE	Avg. season harvest per trapper	SE	Avg. harvest per 100 trap days per trapper	Est. total number of trap days
Beaver	398	21.4	18.6	1.9	7,403	6.0	0.7	7.9	1.4	7.1	44,417
Bobcat	376	20.2	31.7	2.8	11,919	8.5	1.1	1.6	0.2	0.6	101,313
Coyote	673	36.2	38.3	2.6	25,776	12.5	1.1	4.7	0.7	1.0	322,199
Gray Fox	325	17.5	36.0	3.7	11,700	11.7	1.4	2.8	0.5	0.7	136,890
Long-tailed Weasel	0	0.0	-	-	0	-	-	-	-	-	0
Mink	135	7.3	22.0	3.7	2,970	6.1	1.0	1.1	0.3	0.9	18,117
Muskrat	163	8.8	17.1	3.1	2,787	17.1	3.4	32.9	19.5	10.9	47,663
Nutria	0	0.0	-	-	0	-	-	-	-	-	0
Opossum	213	11.5	32.2	3.4	6,859	11.8	1.9	8.5	0.9	5.6	80,931
Otter	213	11.5	27.1	3.4	5,772	6.3	1.0	2.2	0.5	1.5	36,365
Raccoon	606	32.6	30.1	2.2	18,241	9.9	0.9	13.9	2.1	5.8	180,582
Red Fox	477	25.7	38.7	3.3	18,460	12.0	1.3	7.8	1.9	1.7	221,519
Striped Skunk	123	6.6	32.4	4.4	3,985	13.1	2.3	5.9	1.3	2.3	52,206
All Species	1,077	57.9	34.0	1.5	36,596	13.1	0.7	29.0	3.6	7.1	479,405

¹ the total number of licenses is 1,859

Table 12a. Northern Mountain region estimates and summary statistics for each furbearer species targeted in 2022-2023. Note that data for averages, and related SE, are derived from the sample data. Estimates for each species are extrapolations from those estimates. Estimates for all species are derived from the sample values reported by trappers directly rather than derived from by-species effort reporting.

Species	Est. # trappers that targeted species	% of total licenses ¹	Avg. # days trapped per trapper	SE	Est. total # days trapped	Avg. # traps set per day per trapper	SE	Avg. season harvest per trapper	SE	Avg. harvest per 100 trap days per trapper	Est. total number of trap days
Beaver	17	0.9	19.0	6.7	323	2.7	0.7	2.3	0.9	4.5	872
Bobcat	39	2.1	26.3	5.4	1,026	7.1	2.8	1.3	0.6	0.7	7,282
Coyote	84	4.5	27.9	3.5	2,344	13.9	3.2	4.0	2.3	1.0	32,576
Gray Fox	34	1.8	31.8	6.4	1,081	20.7	6.9	4.2	1.6	0.6	22,381
Long-tailed Weasel	0	0.0	-	-	0	-	-	-	-	-	0
Mink	28	1.5	17.0	7.0	476	5.4	1.3	1.2	0.4	1.3	2,570
Muskrat	28	1.5	13.0	3.7	364	8.6	1.7	6.8	2.9	6.1	3,130
Nutria	0	0.0	-	-	0	-	-	-	-	-	0
Opossum	34	1.8	26.7	5.9	908	17.8	7.0	11.3	2.7	2.4	16,159
Otter	17	0.9	30.7	6.4	522	3.3	0.7	2.3	0.9	2.3	1,722
Raccoon	90	4.8	23.2	3.8	2,088	14.1	3.3	23.2	11.4	7.1	29,441
Red Fox	73	3.9	28.4	4.0	2,073	15.8	3.7	19.0	9.9	4.2	32,757
Striped Skunk	45	2.4	27.9	6.8	1,256	19.6	5.2	10.4	3.2	1.7	24,608
All Species	118	6.3	27.6	3.3	3,253	16.0	2.3	46.0	16.2	9.8	52,055

¹ the total number of licenses is 1,859

Table 12b. Southern Mountain region estimates and summary statistics for each furbearer species targeted in 2022-2023. Note that data for averages, and related SE, are derived from the sample data. Estimates for each species are extrapolations from those estimates. Estimates for all species are derived from the sample values reported by trappers directly rather than derived from by-species effort reporting.

Species	Est. # trappers that targeted species	% of total licenses ¹	Avg. # days trapped per trapper	SE	Est. total # days trapped	Avg. # traps set per day per trapper	SE	Avg. season harvest per trapper	SE	Avg. harvest per 100 trap days per trapper	Est. total number of trap days
Beaver	90	4.8	20.9	5.2	1,881	8.7	2.4	10.6	4.8	5.8	16,365
Bobcat	129	6.9	28.5	4.7	3,677	7.9	1.3	1.7	0.5	0.8	29,044
Coyote	168	9.0	38.7	6.2	6,502	11.0	1.9	7.1	1.6	1.7	71,518
Gray Fox	67	3.6	26.3	5.3	1,762	7.7	1.7	2.3	1.0	1.2	13,568
Long-tailed Weasel	0	0.0	-	-	0	-	-	-	-	-	0
Mink	39	2.1	22.3	6.6	870	7.9	2.8	1.9	1.1	1.1	6,871
Muskrat	45	2.4	25.3	4.7	1,139	16.0	6.9	11.6	5.5	2.9	18,216
Nutria	0	0.0	-	-	0	-	-	-	-	-	0
Opossum	22	1.2	23.0	7.9	506	10.0	1.4	5.5	1.4	2.4	5,060
Otter	56	3.0	29.1	6.9	1,630	8.2	2.8	1.8	0.4	0.8	13,363
Raccoon	112	6.0	30.0	5.7	3,360	8.6	1.7	10.4	2.4	4.0	28,896
Red Fox	79	4.2	43.7	11.6	3,452	10.1	2.1	3.8	1.2	0.9	34,868
Striped Skunk	11	0.6	40.0	5.0	440	14.5	3.5	2.5	1.5	0.4	6,380
All Species	208	11.2	39.1	4.1	8,129	12.8	1.4	32.9	6.9	4.6	104,049

¹ the total number of licenses is 1,859

Table 12c. Northern Piedmont region estimates and summary statistics for each furbearer species targeted in 2022-2023. Note that data for averages, and related SE, are derived from the sample data. Estimates for each species are extrapolations from those estimates. Estimates for all species are derived from the sample values reported by trappers directly rather than derived from by-species effort reporting.

Species	Est. # trappers that targeted species	% of total licenses ¹	Avg. # days trapped per trapper	SE	Est. total # days trapped	Avg. # traps set per day per trapper	SE	Avg. season harvest per trapper	SE	Avg. harvest per 100 trap days per trapper	Est. total number of trap days
Beaver	73	3.9	14.4	3.7	1,051	4.3	0.9	4.4	1.1	7.1	4,520
Bobcat	45	2.4	41.8	12.4	1,881	5.3	2.1	1.5	0.8	0.7	9,969
Coyote	123	6.6	43.3	8.4	5,326	7.8	1.7	2.6	0.9	0.8	41,542
Gray Fox	28	1.5	67.0	32.4	1,876	10.8	3.9	6.2	4.6	0.9	20,261
Long-tailed Weasel	0	0.0	-	-	-	-	-	-	-	-	0
Mink	22	1.2	17.5	7.8	385	3.3	1.1	-	-	-	1,271
Muskrat	6	0.3	20.0	0	120	2.0	0	-	-	-	240
Nutria	0	0.0	-	-	-	-	-	-	-	-	0
Opossum	22	1.2	21.3	4.3	469	5.8	1.5	5.5	1.5	4.5	2,718
Otter	22	1.2	22.5	10.5	495	3.0	0.6	1.0	0.4	1.5	1,485
Raccoon	135	7.3	34.0	5.7	4,590	8.4	1.3	13.4	4.0	4.7	38,556
Red Fox	101	5.4	44.4	10.3	4,484	8.3	1.6	9.7	3.0	2.6	37,221
Striped Skunk	6	0.3	25.0	-	150	4.0	-	3.0	-	2.8	600
All Species	241	13.0	34.0	3.1	8,194	9.3	1.1	16.8	2.5	5.0	76,204

¹ the total number of licenses is 1,859

Table 12d. Southern Piedmont Mountain region estimates and summary statistics for each furbearer species targeted in 2022-2023. Note that data for averages, and related SE, are derived from the sample data. Estimates for each species are extrapolations from those estimates. Estimates for all species are derived from the sample values reported by trappers directly rather than derived from by-species effort reporting.

Species	Est. # trappers that targeted species	% of total licenses ¹	Avg. # days trapped per trapper	SE	Est. total # days trapped	Avg. # traps set per day per trapper	SE	Avg. season harvest per trapper	SE	Avg. harvest per 100 trap days per trapper	Est. total number of trap days
Beaver	90	4.8	12.8	2.3	1,152	3.8	0.4	3.6	0.8	7.4	4,378
Bobcat	112	6.0	35.8	4.6	4,010	11.7	3.0	1.4	0.3	0.3	46,912
Coyote	191	10.3	35.9	3.9	6,857	14.3	2.6	3.4	0.5	0.6	98,054
Gray Fox	140	7.5	37.7	4.2	5,278	13.2	2.3	1.9	0.4	0.4	69,670
Long-tailed Weasel	0	0.0	-	-	0	-	-	-	-	-	0
Mink	39	2.1	30.7	9.5	1,197	6.4	1.9	1.0	0.2	0.4	7,663
Muskrat	39	2.1	11.8	3.9	460	9.3	1.8	5.7	2.0	4.5	4,280
Nutria	0	0.0	-	-	-	-	-	-	-	-	-
Opossum	84	4.5	37.9	5.7	3,184	14.7	3.6	9.8	1.6	1.8	46,799
Otter	50	2.7	24.9	7.9	1,245	5.2	1.3	1.4	0.6	1.0	6,474
Raccoon	146	7.9	31.9	4.5	4,657	12.3	2.3	13.2	2.3	3.4	57,286
Red Fox	157	8.4	37.2	4.1	5,840	14.5	3.2	3.4	1.0	0.6	84,686
Striped Skunk	45	2.4	28.3	5.2	1,274	10.6	2.1	4.0	1.1	1.3	13,499
All Species	281	15.1	33.8	3.0	9,487	15.1	1.5	20.7	2.2	3.6	143,247

¹ the total number of licenses is 1,859

Table 12e. Tidewater region estimates and summary statistics for each furbearer species targeted in 2022-2023. Note that data for averages, and related SE, are derived from the sample data. Estimates for each species are extrapolations from those estimates. Estimates for all species are derived from the sample values reported by trappers directly rather than derived from by-species effort reporting.

Species	Est. # trappers that targeted species	% of total licenses ¹	Avg. # days trapped per trapper	SE	Est. total # days trapped	Avg. # traps set per day per trapper	SE	Avg. season harvest per trapper	SE	Avg. harvest per 100 trap days per trapper	Est. total number of trap days
Beaver	146	7.5	20.7	3.4	3,022	6.2	1.0	10.3	2.2	8.0	18,738
Bobcat	50	2.6	26.8	8.3	1,340	6.8	1.3	1.9	0.4	1.0	9,112
Coyote	135	6.9	34.9	4.6	4,712	12.7	3.1	4.6	2.3	1.0	59,836
Gray Fox	56	2.9	30.5	8.0	1,708	7.6	1.9	3.2	1.5	1.4	12,981
Long-tailed Weasel	0	0.0	-	-	0	-	-	-	-	-	0
Mink	6	0.3	10.0	-	60	6.0	-	-	-	-	360
Muskrat	45	2.3	15.3	9.4	689	32.4	8.1	94.9	68.1	19.1	22,307
Nutria	0	0.0	-	-	-	-	-	-	-	-	-
Opossum	50	2.6	35.4	9.1	1,770	6.3	1.6	7.2	2.1	3.3	11,151
Otter	73	3.7	25.3	6.8	1,847	6.9	1.8	3.3	1.2	1.9	12,744
Raccoon	129	6.6	27.8	5.1	3,586	6.7	1.3	11.1	3.1	6.0	24,028
Red Fox	84	4.3	30.9	5.6	2,596	8.0	1.5	5.9	1.7	2.4	20,765
Striped Skunk	17	0.9	52.7	23.9	896	4.7	1.7	3.7	1.5	1.5	4,211
All Species	281	14.4	32.5	2.9	9,119	12.9	1.6	34.8	10.4	7.9	117,632

¹ the total number of licenses is 1,859

Table 13. Rare furbearer observations based upon responses to the 2022-2023 Trapper Harvest Survey.

Species	No. observed	No. trapped	List of counties observed ¹ or feature reported	List of counties where trapped
Fisher	2	0	Culpeper, Clarke	None
Spotted Skunk	5	1	Bath, Buchanan, Patrick, Wise	Mecklenburg
Least Weasel	6	0	Augusta, Bland, Dickenson, Fauquier, Suffolk, Wise	None

¹ county locations are provided where possible and are based on descriptions provided by respondents. Some determinations assumed based on county of trapping activity.

Appendix A: Survey Instrument



2022-2023 Virginia Trapper Harvest Survey



This is your 2022-2023 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 or concerns, please contact Mathew Overstreet at 434.525.7522 or Matthew.Overstreet@dwr.virginia.gov.

First, did you trap in Virginia between November 15, 2022 and February 28, 2023?

Yes No

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

If YES: How many days did you trap during the season dates listed above? _____

On average, how many traps did you have set per day (or night)? _____

Please complete the remainder of the survey on the opposite side of this page using the instructions below.

Instructions for Completing the Trapping Table (see opposite side of this page):

1. Please only report information for furbearers trapped during the general trapping season (Nov. 15, 2022 to Feb. 28, 2023). 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 Primary and Secondary Target Species (animals you were targeting when you set the traps):
 - The **primary target** species is the animal you were most interested in catching in a particular trap set. If you were targeting multiple species with the same trap set (i.e. a dirt hole set for coyotes and foxes), please choose **one** species as your primary target and list the others as **secondary targets**.
 - For each **primary target** species, please circle "P" in the first column and indicate total # of days trapped, average # of traps set per day, and total # of animals trapped in each county. See beaver example for how to report primary target species trapping.
 - For each **secondary target** species, please circle "S" in the first column and list the same information as for target species, including the total # of days trapped, average # of traps set per day, and total # of animals trapped in each county. See red fox/gray fox/raccoon example for reporting a trap line with primary and secondary targets.
 - 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 Species (animals you were not intending to capture as either a primary or secondary target):
 - 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 target of your traps. See opossum and striped skunk 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 Mathew Overstreet at 434.525.7522 or Matthew.Overstreet@dwr.virginia.gov to provide specific details.

PLEASE READ THE INSTRUCTIONS ON THE OPPOSITE SIDE OF THIS PAGE BEFORE COMPLETING THIS SURVEY.

	Example				County/City #1				County/City #2				County/City #3			
	<i>Buckingham</i>															
	Primary (P), Secondary (S), or Non-Target (N)	# Days Trapped	Average # Traps Set Per Day	# Animals Trapped	Primary (P), Secondary (S), or Non-Target (N)	# Days Trapped	Average # Traps Set Per Day	# Animals Trapped	Primary (P), Secondary (S), or Non-Target (N)	# Days Trapped	Average # Traps Set Per Day	# Animals Trapped	Primary (P), Secondary (S), or Non-Target (N)	# Days Trapped	Average # Traps Set Per Day	# Animals Trapped
For each species, record whether it was a primary, secondary, or non-target species, total # of animals trapped, total # days trapped, and average # traps set per day (please see instructions on opposite side of page)																
↑	P S N	15	10	17	P S N				P S N				P S N			
Beaver	P S N	7	5	0	P S N				P S N				P S N			
Bobcat	P S N				P S N				P S N				P S N			
Coyote	P S N				P S N				P S N				P S N			
Gray Fox	P S N	12	8	2	P S N				P S N				P S N			
Red Fox	P S N	12	8	10	P S N				P S N				P S N			
Mink	P S N				P S N				P S N				P S N			
Muskrat	P S N	30	15	55	P S N				P S N				P S N			
Nutria	P S N				P S N				P S N				P S N			
Opossum	P S N	0	0	25	P S N				P S N				P S N			
Otter	P S N				P S N				P S N				P S N			
Raccoon	P S N	8	12	9	P S N				P S N				P S N			
Striped Skunk	P S N	0	0	012	P S N				P S N				P S N			
Long-tailed Weasel	P S N				P S N				P S N				P S N			

Species	Fisher	Spotted Skunk	Least Weasel
<p>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 Matthew Overstreet at 434.525.7522 or Matthew.Overstreet@dwr.virginia.gov</p>	<p>Did you observe a fisher during the past trapping season? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Did you trap a fisher during the past trapping season? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Detailed location: _____</p>	<p>Did you observe a spotted skunk during the past trapping season? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Did you trap a spotted skunk during the past trapping season? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Detailed location: _____</p>	<p>Did you observe a least weasel during the past trapping season? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Did you trap a least weasel during the past trapping season? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Detailed location: _____</p>

Use this code for online entry: **K7958** or return this sheet by mail

2022-2023 VDWR Trapper Survey

Appendix B: Cover Letter (1st Mailing)



COMMONWEALTH of VIRGINIA

Department of Wildlife Resources

Travis Voyles
Secretary of Natural
and Historic Resources

Ryan J. Brown
Executive Director

July 27, 2023

Dear Trapper,

Enclosed you will find the 2022-2023 Virginia Trapper Harvest Survey from the Virginia Department of Wildlife Resources. If you provided trapping data during previous years, we greatly appreciate your past cooperation. Regardless of whether you have participated in the past, we hope that you will choose to fill out the survey this year. This voluntary survey provides the Department with important information to estimate the total statewide harvest of furbearers during the 2021-2022 trapping season. Using information provided in the 2020-2021 survey, we estimate that 1,222 trappers harvested 36,834 furbearers, averaging 13.6 traps set for 33.1 days.

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

If you prefer to fill out this survey online, we have provided this option to you. The online version can be accessed at <http://vatrappingsurvey.info>. Please enter the code from the bottom of your survey in the space where requested, and do not send in a paper copy of the survey if you choose to respond online.

If you have questions or comments about this survey, please feel free to contact Matthew Overstreet via email at Matthew.Overstreet@dwr.virginia.gov, phone at (540) 248-9390, or by mail at Virginia Department of Wildlife Resources, P.O. Box 996, Verona, VA 24482.

Your assistance in providing trapping harvest information is greatly appreciated and important for protecting trappers' interests and effectively managing Virginia's furbearers into the future. Please try to complete and return the questionnaire **within the next 10 days**, if at all possible. Thank you in advance for your cooperation.

Sincerely,

Matthew Overstreet
Region II Wildlife Manager
Virginia Department of Wildlife Resources

517 LEE HIGHWAY, P.O. BOX 996, VERONA, VA 24482
Equal Opportunity Employment, Programs and Facilities

Appendix C: 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.

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 D: Map of Trapping Regions in Virginia

