2020-2021 Virginia Trapper Harvest Survey

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ABSTRACT

A mail survey was conducted following the 2020-2021 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 2020-2021 season (*N*=1,954). Of the 1,500 surveys mailed, 395 (26.3%) were returned and all contained some usable data. Of the trappers who responded, 207(52.4%) reported that they trapped during the 2020-2021 season (active trappers) and 188 (47.6%) reported that they did not trap (non-active trappers).

On average, active trappers set 12.1 (SE ± 0.6) traps for 33.9 (SE ± 1.6) days during the 2020-2021 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 32,753 ± 4,541 furbearers. Raccoons and muskrat were the most-harvested species with estimated totals of 7,925 ± 992 and 6,886 ± 3,268, respectfully. Observations of fishers and spotted skunks were also reported by trappers, but no least weasels were reported.

GOAL & OBJECTIVE

To quantify 2020-2021 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 1,954 persons purchased annual or multi-year Virginia trapping licenses valid during some portion of the 2020-2021 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 76.8% of all license holders who held a valid license for some portion the 2020-2021 season. On 6 August 2021, each trapper 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 reminder postcard (Appendix C) was sent to non-respondents on 17 September 2021 (N=1,255). A third and final mailing identical to the first was sent around 5

November 2010 to survey recipients who did not respond to the previous two mailings (N=1,196). 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 Access database where they were checked 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 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 provide information about their harvest but neglect to identify the county in which the catch occurred. That information was retained when analyzing state-level metrics but was omitted from regional values; 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 2020-2021 trappers were sampled; 395 samples; finite population = 1,954 trapping licenses) (Lumley 2010; Thompson 2012).

RESULTS SUMMARY

A total of 395 (26.3% effective response rate) license holders responded to the survey (Table 1b). The number of surveys returned from each of the 3 mailings was 245, 59, and 91 respectively. Of the 395 surveys returned, all were considered usable responses for some aspect of the analysis. Of the 395 total returned surveys, 207 (52.4%) reported trapping activity during the 2020-2021 season (active trappers) and 188 (47.6%) reported no trapping activity (non-active trappers). Active trappers (N=207) reported trapping a total of 7,068 days (average 34.1 days per trapper), setting 12.1 traps per day, and harvesting 6,621 furbearers (Tables 3 and 5). When results were extrapolated statewide, an estimated 945 trappers harvested a total of 32,753 ± 4,541 furbearers (Table 11). By species, total statewide trapper harvest was estimated to be 7,925 raccoon, 6,886 muskrat, 4,165 opossum, 3,750 coyote, 3,730 red fox, 3,186 beaver, 984 otter, 757 skunk, 707 gray fox, 554 bobcat, 109 mink, 0 nutria, and 0 long-tailed weasels (Table 11). Average harvest per season for trappers targeting certain species was highest for muskrat, followed by raccoon, beaver, red fox, coyote, otter, opossum, striped skunk, gray fox, 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 2020-2021 season (excluding lifetime licenses.

	Total		Sample	
License Type	N	%	N	%
County/City Resident Trapping	692	35.4	541	36.1
Non-Resident State Trapping	32	1.6	25	1.7
Resident 65 and older Trapping	131	6.7	99	6.6
Resident Junior State Trapping	88	4.5	72	4.8
Resident State Trapping	953	48.8	716	47.7
Resident State Trapping - 2 Years	36	1.8	29	1.9
Resident State Trapping - 3 Years	5	0.3	5	0.3
Resident State Trapping - 4 Years	17	0.9	13	0.9
Total	1,954		1,500	

Table 1b. Summary of trapping licenses sold in Virginia that were valid during the 2020-2021 season, license types represented in the survey sample, and license types represented by those who responded (active and non-active trappers) to the 2020-2021 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	1,864	95.4	1,428	95.2	362	25.4	190	52.5	172	47.5
Multi-year	58	3.0	47	3.1	20	42.6	11	55.0	9	45.0
Non-resident	32	1.6	25	1.7	9	36.0	4	44.4	5	55.6
Unknown	0	0	0	0	4	---	2	50.0	2	50.0
Total	1,954	100.0	1,500	76.8	395	26.3	207	52.4	188	47.6

[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.

No. of Counties Trapped	No. of Active Trappers	% of Trappers
One	167	80.7
Two	29	14.0
Three or more	7	3.4
No county reported	4	1.9
Total	207	100.0

Region Trapped	No. of Active Trappers[1]	% of Trappers[2]
Northern Mountain	28	13.5
Southern Mountain	50	24.2
Northern Piedmont	33	15.9
Southern Piedmont	54	26.1
Tidewater	54	26.1
Not Given	4	1.9

[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=207)

Table 3. Targeted furbearer trapping efforts reported by respondents to the 2020 - 2021 Virginia Trapper Harvest Survey (*N*= 207).

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	73	35.3	1,596	21.9	7.2	11,491
Bobcat	72	34.8	2,467	34.3	10.8	26,644
Coyote	127	61.4	4,746	37.4	13.5	64,071
Gray Fox	70	33.8	2,291	32.7	11.1	25,430
Long-tailed Weasel	0	0.0	0	0.0	0.0	0
Mink	21	10.1	422	20.1	6.9	2,912
Muskrat	41	19.8	879	21.4	11.2	9,845
Nutria	0	0.0	0	0.0	0.0	0
Opossum	25	12.1	778	31.1	4.7	3,657
Otter	36	17.4	965	26.8	7.1	6,852
Raccoon	112	54.1	2,188	19.5	9.3	20,348
Red Fox	101	48.8	2,220	22.0	13.5	29,970
Striped Skunk	12	5.8	315	26.3	7.5	2,363
All Species	207		7,018	33.9	12.1	84,918

Table 4. Reported number of successful trappers by species for target and non-target trapping efforts in Virginia, 2020-2021 (N = 207 number of trappers who supplied necessary data).

	# Successful trappers					
	Target		Non-target		Total	
Species	No.	%[1]	No.	%[2]	No.	%[3]
Beaver	66	90.4	1	0.7	67	32.4
Bobcat	35	48.6	4	3.0	39	18.8
Coyote	93	73.2	2	2.5	95	45.9
Gray Fox	41	58.6	6	4.4	47	22.7
Long-tailed Weasel	0	0.0	0	0.0	0	0.0
Mink	15	71.4	2	1.1	17	8.2
Muskrat	37	90.2	5	3.0	42	20.3
Nutria	0	0.0	0	0.0	0	0.0
Opossum	22	88.0	81	44.5	103	49.8
Otter	29	80.6	10	5.8	39	18.8
Raccoon	103	92.0	42	44.2	145	70.0
Red Fox	79	78.2	5	4.7	84	40.6
Striped Skunk	10	83.3	29	14.9	39	18.8

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

[2] of total active trappers who did not target that species (207 - # target)

[3] of total active trappers who supplied necessary data (*N*=207)

Table 5. Reported harvest by species for target and non-target trapping efforts in Virginia, 2020-2021 (N=207).

Species	Target harvest	% of total	Non-target harvest	% of total	Total harvest
Beaver	641	99.5	3	0.5	644
Bobcat	103	92.0	9	8.0	112
Coyote	732	96.6	26	3.4	758
Gray Fox	131	91.6	12	8.4	143
Long-tailed Weasel	0	0	0	0	0
Mink	19	86.4	3	13.6	22
Muskrat	1,383	99.4	9	0.6	1,392
Nutria	0	0	0	0	0
Opossum	108	12.8	734	87.2	842
Otter	158	79.4	41	20.6	199
Raccoon	1,221	76.2	381	23.8	1,602
Red Fox	736	97.6	18	2.4	754
Striped Skunk	42	27.5	111	72.5	153
Total	5,274	79.7	1,347	20.3	6,621

Table 6. Frequency distribution of trappers by total number of each species harvested in 2020-2021 (*N*=207 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 no. of trappers in each harvest category												
Total number harvested during season	Beaver	Bobcat	Coyote	Gray Fox	Long-tailed Weasel	Mink	Muskrat	Nutria	Otter	Opossum	Raccoon	Red Fox	Striped Skunk
0	140	169	113	160	207	190	165	207	168	104	63	123	168
1–5	36	33	61	39	0	17	21	0	30	60	67	61	25
6–10	15	3	17	6	0	0	8	0	4	14	34	10	14
11–15	4	1	8	1	0	0	4	0	2	16	13	4	0
16–20	3	1	1	0	0	0	0	0	1	8	11	3	0
21–25	3	0	2	1	0	0	1	0	1	2	5	1	0
26–50	5	0	3	0	0	0	4	0	1	1	10	2	0
51–75	1	0	0	0	0	0	1	0	0	1	2	0	0
76–100	0	0	1	0	0	0	0	0	0	0	0	0	0
>100	0	0	1	0	0	0	3	0	0	1	2	3	0

Table 7. Reported harvest of furbearer species and percent of statewide harvest by region in Virginia, 2020-2021 (N=250 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.

		Region											
	State total harvest	Northern Mountain		Northern Piedmont		Southern Mountain		Southern Piedmont		Tidewater		Unknown	
Species	No.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Beaver	644	64	9.9	137	21.3	92	14.3	99	15.4	251	39.0	1	0.2
Bobcat	112	2	1.8	14	12.5	59	52.7	23	20.5	14	12.5	0	0.0
Coyote	758	28	3.7	148	19.5	363	47.9	99	13.1	116	15.3	4	0.5
Gray Fox	143	13	9.1	10	7.0	36	25.2	22	15.4	60	42.0	2	1.4
Long-tailed Weasel	0	0	0	0	0	0	0	0	0	0	0	0	0
Mink	22	4	18.2	0	0.0	9	40.9	5	22.7	4	18.2	0	0.0
Muskrat	1,392	20	1.4	13	0.9	159	11.4	51	3.7	1,144	82.2	5	0.4
Nutria	0	0	0	0	0	0	0	0	0	0	0	0	0
Opossum	842	41	4.9	79	9.4	256	30.4	141	16.7	310	36.8	15	1.8
Otter	199	4	2.0	35	17.6	35	17.6	76	38.2	49	24.6	0	0.0
Raccoon	1,602	87	5.4	165	10.3	552	34.5	272	17.0	488	30.5	38	2.4
Red Fox	754	89	11.8	169	22.4	126	16.7	84	11.1	283	37.5	3	0.4
Striped Skunk	153	25	16.3	5	3.3	44	28.8	55	35.9	24	15.7	0	0.0
Grand Total	6,621	377	5.7	775	11.7	1,731	26.1	927	14.0	2,743	41.4	68	1.0
Number of records	250	28		33		50		54		54		4	

Table 8. Reported harvest of furbearer species by county in Virginia, 2020-2021 (N=207 trappers providing necessary data).

	Species												
County	Beaver	Bobcat	Coyote	Gray Fox	Long-tailed Weasel	Mink	Muskrat	Nutria	Opossum	Otter	Raccoon	Red Fox	Striped Skunk
Accomack	0	0	1	14	0	0	757	0	7	32	86	235	0
Alleghany	0	0	1	14	0	0	757	0	7	32	86	235	0
Amherst	0	0	3	0	0	0	0	0	0	0	10	0	0
Appomattox	0	1	3	2	0	0	0	0	0	1	8	3	1
Augusta	1	0	0	0	0	0	0	0	0	0	0	0	0
Bath	15	0	9	6	0	2	14	0	3	15	37	55	8
Bedford City	0	0	0	0	0	0	0	0	0	0	0	0	0
Bedford	0	0	0	0	0	0	0	0	0	0	0	3	0
Bland	3	1	10	7	0	2	23	0	3	27	45	9	7
Botetourt	0	5	16	1	0	1	6	0	24	30	24	2	3
Brunswick	2	1	14	1	0	0	0	0	3	20	15	3	0
Buchanan	0	2	4	0	0	0	0	0	0	3	12	6	0
Buckingham	14	8	20	0	0	1	15	0	0	18	27	1	13
Campbell	4	0	8	1	0	0	5	0	0	3	19	3	3
Caroline	2	0	0	0	0	0	0	0	0	10	15	0	0
Carroll	48	0	2	4	0	0	1	0	16	2	5	6	2
Charles City	11	1	43	6	0	2	21	0	1	23	54	18	4
Charlotte	7	1	25	5	0	0	7	0	0	15	15	11	2
Chesapeake City	30	2	3	0	0	0	15	0	27	0	16	0	2
Chesterfield	3	0	0	0	0	0	0	0	6	0	0	0	0
Colonial Heights City	20	0	0	0	0	0	0	0	0	0	0	0	0
Craig	13	0	0	0	0	0	1	0	1	0	0	0	0
Culpeper	0	0	2	2	0	0	0	0	0	10	9	11	0
Cumberland	0	0	30	0	0	0	0	0	0	19	49	31	0
Dickenson	0	0	0	0	0	0	0	0	5	0	0	0	10
Dinwiddie	28	9	17	2	0	0	0	0	0	17	12	4	4
Essex	21	6	14	0	0	0	0	0	6	6	13	8	0
Fairfax	0	0	0	0	0	0	0	0	0	0	0	0	0
Fauquier	0	0	0	0	0	0	0	0	0	0	2	0	0
Floyd	0	0	2	0	0	0	0	0	0	0	11	4	0
Fluvanna	6	1	18	0	0	1	3	0	1	4	11	0	0
Franklin City	0	0	0	0	0	0	0	0	0	3	0	5	0

Table 8 (continued). Reported harvest of furbearer species by county in Virginia, 2020-2021

	Species												
County	Beaver	Bobcat	Coyote	Gray Fox	Long-tailed Weasel	Mink	Muskrat	Nutria	Opossum	Otter	Raccoon	Red Fox	Striped Skunk
Franklin	1	0	7	1	0	0	0	0	0	1	8	3	8
Frederick	0	0	2	1	0	0	0	0	0	1	10	8	0
Giles	0	2	12	0	0	0	1	0	0	16	36	5	1
Gloucester	27	0	1	0	0	0	0	0	4	0	0	0	0
Grayson	3	0	0	0	0	0	0	0	0	0	0	0	0
Greensville	60	3	14	0	0	0	120	0	2	104	117	2	6
Halifax	0	0	0	0	0	0	0	0	0	1	4	0	0
Hanover	20	0	0	0	0	0	0	0	4	2	6	1	0
Henrico	14	0	0	0	0	0	12	0	0	0	0	0	0
Isle of Wight	24	0	17	3	0	0	0	0	0	39	69	1	3
James City	0	0	1	0	0	0	0	0	0	7	14	0	1
King and Queen	24	0	0	0	0	2	17	0	3	1	5	0	0
King George	3	0	0	0	0	0	0	0	0	0	0	0	0
King William	20	0	0	0	0	1	200	0	4	2	12	16	0
Loudoun	2	4	32	0	0	0	0	0	2	30	58	46	2
Louisa	0	0	7	0	0	0	0	0	0	4	5	5	0
Lunenburg	12	1	3	1	0	0	4	0	5	13	8	2	1
Lynchburg City	0	0	0	0	0	0	0	0	0	6	0	2	0
Madison	7	0	0	0	0	0	0	0	0	0	1	0	0
Mathews	0	0	0	0	0	0	4	0	0	1	3	0	0
Mecklenburg	4	1	16	1	0	0	0	0	2	3	14	5	0
Middlesex	18	1	0	0	0	1	11	0	1	0	3	0	0
Montgomery	7	0	6	4	0	0	47	0	0	3	18	7	0
Nelson	9	3	6	0	0	1	1	0	3	22	30	19	2
New Kent	4	2	12	6	0	0	0	0	0	10	12	0	6
Nottoway	9	4	6	0	0	0	0	0	20	5	16	4	0
Page	0	0	0	0	0	0	0	0	0	1	0	1	0
Patrick	2	0	4	1	0	2	2	0	2	13	43	3	9
Petersburg City	9	0	0	0	0	0	0	0	2	0	0	0	0
Pittsylvania	0	1	15	8	0	0	0	0	3	25	16	14	10

Table 8 (continued). Reported harvest of furbearer species by county in Virginia, 2020-2021.

	Species												
County	Beaver	Bobcat	Coyote	Gray Fox	Long-tailed Weasel	Mink	Muskrat	Nutria	Opossum	Otter	Raccoon	Red Fox	Striped Skunk
Powhatan	1	0	0	0	0	0	0	0	0	0	0	0	0
Prince Edward	1	1	0	0	0	0	1	0	0	2	5	0	2
Prince George	31	2	21	3	0	0	2	0	2	17	34	0	6
Prince William	0	0	6	0	0	0	0	0	0	8	9	10	1
Pulaski	5	0	0	2	0	0	9	0	0	0	14	0	0
Rappahannock	6	10	46	4	0	0	0	0	11	11	18	54	0
Richmond	0	0	2	0	0	0	0	0	0	4	1	5	0
Roanoke	0	2	7	0	0	1	6	0	3	0	19	1	0
Rockbridge	37	1	6	1	0	0	0	0	1	10	10	0	4
Rockingham	12	0	0	0	0	1	6	0	0	6	3	1	8
Russell	7	2	6	0	0	0	8	0	0	22	46	2	0
Scott	5	5	4	0	0	0	1	0	0	16	27	2	3
Shenandoah	0	1	8	5	0	1	0	0	0	7	11	23	3
Smyth	0	0	1	0	0	1	2	0	0	3	1	2	0
Southampton	0	0	0	0	0	0	0	0	0	1	0	0	0
Stafford	10	0	23	2	0	0	0	0	0	0	1	7	0
Suffolk City	8	1	2	3	0	0	0	0	1	3	5	0	0
Surry	1	0	2	0	0	0	0	0	0	0	0	0	0
Sussex	0	2	2	0	0	0	0	0	0	14	4	6	0
Tazewell	1	19	93	3	0	0	6	0	0	45	66	29	0
Virginia Beach City	0	2	13	25	0	0	24	0	1	17	26	5	0
Warren	0	0	0	0	0	0	0	0	0	1	6	1	2
Washington	0	2	1	4	0	0	0	0	0	0	2	0	0
Westmoreland	0	0	0	0	0	0	0	0	0	1	7	0	0
Wise	3	0	13	1	0	0	0	0	0	17	2	0	0
Wythe	0	2	90	10	0	2	34	0	3	12	169	39	16
York	4	0	0	0	0	0	0	0	10	42	71	0	0
UNKNOWN	1	0	4	2	0	0	5	0	0	15	38	3	0
State total	644	112	758	143	0	22	1,392	0	199	842	1,602	754	153

Table 9. Expanded statewide estimates of the total number of trappers by targeted furbearer species in Virginia, 2020-2021.

Species	Est. no. trappers	SE	95% confidence interval Lower	Upper
Beaver	361	34	327	395
Bobcat	356	34	322	390
Coyote	628	41	587	669
Gray Fox	346	34	313	380
Red Fox	500	38	461	538
Mink	104	20	84	124
Muskrat	203	27	176	230
Nutria	0	0	0	0
Opossum	124	21	102	145
Otter	178	25	153	203
Raccoon	554	40	514	594
Skunk	59	15	44	74
Long-tailed Weasel	0	0	0	0

Table 9a. Expanded statewide estimates of the total number of trappers by targeted furbearer species in the Northern Mountain region of Virginia, 2020-2021.

Species	Est. no. trappers	SE	95% confidence interval Lower	Upper
Beaver	30	10	20	39
Bobcat	35	10	24	45
Coyote	84	12	72	96
Gray Fox	45	11	33	56
Red Fox	64	12	52	76
Mink	20	8	11	28
Muskrat	25	9	16	34
Nutria	0	0	0	0
Opossum	15	7	7	22
Otter	25	9	16	34
Raccoon	79	12	67	91
Skunk	10	6	4	16
Long-tailed Weasel	0	0	0	0

Table 9b. Expanded statewide estimates of the total number of trappers by targeted furbearer species in the Southern Mountain region of Virginia, 2020-2021.

			95% confidence interval	
Species	Est. no. trappers	SE	Lower	Upper
Beaver	74	14	60	89
Bobcat	143	16	128	159
Coyote	198	13	185	210
Gray Fox	94	15	79	109
Red Fox	134	16	118	149
Mink	49	13	37	62
Muskrat	69	14	55	83
Nutria	0	0	0	0
Opossum	25	9	15	34
Otter	40	12	28	51
Raccoon	153	15	138	169
Skunk	5	4	1	9
Long-tailed Weasel	0	0	0	0

Table 9c. Expanded statewide estimates of the total number of trappers by targeted furbearer species in the Northern Piedmont region of Virginia, 2020-2021.

			95% confidence interval	
Species	Est. no. trappers.	SE	Lower	Upper
Beaver	45	11	33	56
Bobcat	20	8	11	28
Coyote	59	12	48	71
Gray Fox	20	8	11	28
Red Fox	49	11	38	61
Mink	0	0	0	0
Muskrat	5	4	1	9
Nutria	0	0	0	0
Opossum	30	10	20	39
Otter	10	6	4	16
Raccoon	54	11	43	66
Skunk	15	7	7	22
Long-tailed Weasel	0	0	0	0

Table 9d. Expanded statewide estimates of the total number of trappers by targeted furbearer species in the Southern Piedmont region of Virginia, 2020-2021.

Species	Est. no. trappers	SE	95% confidence interval Lower	Upper
Beaver	89	15	74	104
Bobcat	104	15	88	119
Coyote	163	15	149	178
Gray Fox	104	15	88	119
Red Fox	134	16	118	149
Mink	15	7	7	22
Muskrat	45	12	32	57
Nutria	0	0	0	0
Opossum	20	9	11	28
Otter	54	13	41	67
Raccoon	109	16	93	124
Skunk	15	7	7	22
Long-tailed Weasel	0	0	0	0

Table 9e. Expanded statewide estimates of the total number of trappers by targeted furbearer species in the Tidewater region of Virginia, 2020-2021.

Species	Est. no. trappers.	SE	95% confidence interval Lower	Upper
Beaver	89	14	75	103
Bobcat	35	11	24	45
Coyote	79	14	65	93
Gray Fox	35	11	24	45
Red Fox	69	14	56	83
Mink	10	6	4	16
Muskrat	49	12	37	62
Nutria	0	0	0	0
Opossum	30	10	20	40
Otter	35	11	24	45
Raccoon	94	14	80	108
Skunk	15	7	7	22
Long-tailed Weasel	0	0	0	0

Table 10. Expanded statewide estimates of the total number of successful target and non-target trappers by furbearer species in Virginia, 2020-2021.

	Target				Non-target				Total			
			95% CI				95% CI				95% CI	
Species	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper
Beaver	326	30	297	356	5	4	1	9	331	30	302	361
Bobcat	173	24	149	197	20	9	11	29	188	25	163	213
Coyote	460	32	428	492	10	6	4	16	465	32	433	497
Gray Fox	203	25	177	228	30	11	19	40	233	27	206	259
Red Fox	391	31	360	422	25	10	15	35	416	31	384	447
Mink	74	17	58	91	10	6	4	16	84	17	67	102
Muskrat	183	24	159	207	25	10	15	35	208	26	182	233
Nutria	0	0	0	0	0	0	0	0	0	0	0	0
Opossum	109	20	89	128	401	31	370	432	193	25	168	218
Otter	143	22	121	166	49	14	36	63	510	32	478	541
Raccoon	510	32	478	541	208	26	182	233	712	29	683	742
Striped Skunk	49	14	36	63	143	22	121	166	193	25	168	218
Long-tailed Weasel	0	0	0	0	0	0	0	0	0	0	0	0
All Species	945	17	928	962	564	32	532	596	984	12	972	997

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, 2020-2021.

	Target				Non-target				Total			
			95% CI				95% CI				95% CI	
Species	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper
Beaver	25	9	16	34	5	4	1	9	30	10	20	39
Bobcat	10	6	4	16	0	0	0	0	10	6	4	16
Coyote	40	11	29	50	0	0	0	0	40	11	29	50
Gray Fox	30	10	20	39	0	0	0	0	30	10	20	39
Red Fox	49	11	38	61	0	0	0	0	49	11	38	61
Mink	15	7	7	22	0	0	0	0	15	7	7	22
Muskrat	20	8	11	28	0	0	0	0	20	8	11	28
Nutria	0	0	0	0	0	0	0	0	0	0	0	0
Opossum	15	7	7	22	35	10	24	45	15	7	7	22
Otter	15	7	7	22	0	0	0	0	49	11	38	61
Raccoon	64	12	52	76	20	8	11	28	84	12	72	96
Striped Skunk	10	6	4	16	20	8	11	28	30	10	20	39
Long-tailed Weasel	0	0	0	0	0	0	0	0	0	0	0	0
All Species	119	8	110	127	54	12	43	66	119	8	110	127

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, 2020-2021.

	Target				Non-target				Total			
			95% CI				95% CI				95% CI	
Species	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper
Beaver	64	14	50	78	0	0	0	0	64	14	50	78
Bobcat	69	14	55	83	0	0	0	0	69	14	55	83
Coyote	173	14	159	188	5	4	1	9	178	14	164	192
Gray Fox	59	13	46	73	10	6	4	16	69	14	55	83
Red Fox	114	16	98	130	15	7	7	22	129	16	113	144
Mink	30	10	19	40	5	4	1	9	35	11	24	46
Muskrat	64	14	50	78	10	6	4	16	74	14	60	89
Nutria	0	0	0	0	0	0	0	0	0	0	0	0
Opossum	25	9	15	34	119	16	103	134	35	11	24	46
Otter	30	10	19	40	5	4	1	9	143	16	128	159
Raccoon	143	16	128	159	64	14	50	78	208	12	196	219
Striped Skunk	5	4	1	9	54	13	41	67	59	13	46	73
Long-tailed Weasel	0	0	0	0	0	0	0	0	0	0	0	0
All Species	247	0	247	247	153	15	138	169	247	0	247	247

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, 2020-2021.

	Target				Non-target				Total			
			95% CI				95% CI				95% CI	
Species	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper
Beaver	64	13	52	77	0	0	0	0	64	13	52	77
Bobcat	15	7	7	22	5	4	1	9	15	7	7	22
Coyote	49	12	38	61	0	0	0	0	49	12	38	61
Gray Fox	15	7	7	22	0	0	0	0	15	7	7	22
Red Fox	49	12	38	61	5	4	1	9	54	12	42	67
Mink	0	0	0	0	0	0	0	0	0	0	0	0
Muskrat	5	4	1	9	5	4	1	9	10	6	4	16
Nutria	0	0	0	0	0	0	0	0	0	0	0	0
Opossum	20	8	11	28	40	11	29	51	30	10	20	40
Otter	15	7	7	22	15	7	7	22	59	12	47	72
Raccoon	59	12	47	72	30	10	20	40	89	13	76	102
Striped Skunk	10	6	4	16	5	4	1	9	15	7	7	22
Long-tailed Weasel	0	0	0	0	0	0	0	0	0	0	0	0
All Species	153	6	147	160	74	13	61	87	153	6	147	160

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, 2020-2021.

	Target				Non-target				Total			
			95% CI				95% CI				95% CI	
Species	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper
Beaver	84	15	69	99	0	0	0	0	84	15	69	99
Bobcat	49	13	37	62	5	4	1	9	54	13	41	68
Coyote	109	16	93	125	0	0	0	0	109	16	93	125
Gray Fox	45	12	32	57	5	4	1	9	49	13	37	62
Red Fox	109	16	93	125	0	0	0	0	109	16	93	125
Mink	15	8	7	22	5	4	1	9	20	9	11	28
Muskrat	45	12	32	57	0	0	0	0	45	12	32	57
Nutria	0	0	0	0	0	0	0	0	0	0	0	0
Opossum	15	8	7	22	124	16	107	140	64	14	50	78
Otter	49	13	37	62	15	8	7	22	139	16	122	155
Raccoon	114	16	98	130	59	14	46	73	173	16	157	189
Striped Skunk	20	9	11	28	49	13	37	62	69	14	55	84
Long-tailed Weasel	0	0	0	0	0	0	0	0	0	0	0	0
All Species	233	11	221	244	163	16	147	179	262	4	258	267

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, 2020-2021.

	Target				Non-target				Total			
			95% CI				95% CI				95% CI	
Species	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper	Est. no. trappers	SE	Lower	Upper
Beaver	114	16	98	130	0	0	0	0	114	16	98	130
Bobcat	30	10	19	40	10	6	4	16	40	12	28	51
Coyote	79	15	64	94	5	4	1	9	79	15	64	94
Gray Fox	49	13	37	62	15	8	7	22	64	14	50	78
Red Fox	64	14	50	78	0	0	0	0	64	14	50	78
Mink	15	8	7	22	0	0	0	0	15	8	7	22
Muskrat	45	12	32	57	10	6	4	16	54	13	41	68
Nutria	0	0	0	0	0	0	0	0	0	0	0	0
Opossum	35	11	24	46	84	15	69	99	64	14	50	78
Otter	49	13	37	62	15	8	7	22	119	16	102	135
Raccoon	119	16	102	135	45	12	32	57	163	16	147	179
Striped Skunk	5	4	1	9	15	8	7	22	20	9	11	28
Long-tailed Weasel	0	0	0	0	0	0	0	0	0	0	0	0
All Species	242	10	233	252	119	16	102	135	252	8	245	260

Table 11. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in Virginia, 2020-2021. N= 207

	Target				Non-target				Total			
			95% CI				95% CI				95% CI	
Species	Est. No.	SE	Lower	Upper	Est. No.	SE	Lower	Upper	Est. No.	SE	Lower	Upper
Beaver	3,171	517	2,654	3,688	15	13	2	28	3,186	516	2,669	3,702
Bobcat	510	117	392	627	45	21	23	66	554	122	432	676
Coyote	3,621	704	2,917	4,325	129	106	22	235	3,750	710	3,040	4,459
Gray Fox	648	132	516	780	59	29	30	89	707	134	574	841
Red Fox	3,641	942	2,698	4,583	89	49	40	138	3,730	942	2,788	4,672
Mink	94	22	72	116	15	10	5	25	109	24	85	133
Muskrat	6,841	3,269	3,573	10,110	45	24	21	68	6,886	3,268	3,618	10,154
Nutria	0	0	0	0	0	0	0	0	0	0	0	0
Opossum	534	142	392	677	3,631	617	3,014	4,248	4,165	621	3,544	4,787
Otter	782	186	595	968	203	110	93	313	984	214	771	1,198
Raccoon	6,040	938	5,102	6,978	1,885	438	1,447	2,323	7,925	992	6,933	8,917
Striped Skunk	208	74	134	282	549	106	443	655	757	126	631	883
Long-tailed Weasel	0	0	0	0	0	0	0	0	0	0	0	0
All Species	26,090	4,028	22,062	30,117	6,663	1,006	5,657	7,670	32,753	4,541	28,212	37,294

Table 11a. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in the Northern Mountain region of Virginia, 2020-2021. N=28

	Target				Non-target				Total			
			95% CI				95% CI				95% CI	
Species	Est. No.	SE	Lower	Upper	Est. No.	SE	Lower	Upper	Est. No.	SE	Lower	Upper
Beaver	302	167	134	469	15	13	2	28	317	167	150	484
Bobcat	10	6	4	16	0	0	0	0	10	6	4	16
Coyote	139	44	94	183	0	0	0	0	139	44	94	183
Gray Fox	64	29	36	93	0	0	0	0	64	29	36	93
Red Fox	440	163	277	604	0	0	0	0	440	163	277	604
Mink	20	10	9	30	0	0	0	0	20	10	9	30
Muskrat	99	43	56	142	0	0	0	0	99	43	56	142
Nutria	0	0	0	0	0	0	0	0	0	0	0	0
Opossum	25	14	10	39	178	67	111	245	203	66	137	269
Otter	20	10	9	30	0	0	0	0	20	10	9	30
Raccoon	262	70	192	333	168	97	71	266	430	109	322	539
Striped Skunk	45	29	15	74	79	40	39	119	124	47	76	171
Long-tailed Weasel	0	0	0	0	0	0	0	0	0	0	0	0
All Species	1,425	278	1,147	1,702	440	173	268	613	1,865	404	1,461	2,269

Table 11b. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in the Southern Mountain region of Virginia, 2020-2021. N=50

	Target				Non-target				Total			
			95% CI				95% CI				95% CI	
Species	Est. No.	SE	Lower	Upper	Est. No.	SE	Lower	Upper	Est. No.	SE	Lower	Upper
Beaver	455	140	315	596	0	0	0	0	455	140	315	596
Bobcat	292	101	191	393	0	0	0	0	292	101	191	393
Coyote	1,677	465	1,212	2,142	119	106	13	225	1,796	470	1,326	2,266
Gray Fox	143	36	107	180	35	27	8	61	178	43	135	221
Red Fox	549	162	387	711	74	47	27	122	623	165	458	788
Mink	35	13	22	47	10	9	1	19	45	15	29	60
Muskrat	757	263	494	1,020	30	22	7	52	787	263	524	1,049
Nutria	0	0	0	0	0	0	0	0	0	0	0	0
Opossum	153	75	78	228	1,113	279	834	1,392	1,266	279	987	1,546
Otter	54	21	33	76	119	106	13	225	173	107	66	280
Raccoon	2,063	534	1,529	2,597	668	283	384	951	2,731	566	2,164	3,297
Striped Skunk	35	31	4	66	183	58	125	241	218	64	154	282
Long-tailed Weasel	0	0	0	0	0	0	0	0	0	0	0	0
All Species	6,213	1,042	5,171	7,255	2,350	659	1,690	3,009	8,563	1,553	7,010	10,116

Table 11c. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in the Northern Piedmont region of Virginia, 2020-2021. N=33

	Target				Non-target				Total			
			95% CI				95% CI				95% CI	
Species	Est. No.	SE	Lower	Upper	Est. No.	SE	Lower	Upper	Est. No.	SE	Lower	Upper
Beaver	678	205	472	883	0	0	0	0	678	205	472	883
Bobcat	54	36	18	91	15	13	2	28	69	49	20	118
Coyote	732	469	263	1,202	0	0	0	0	732	469	263	1,202
Gray Fox	49	26	24	75	0	0	0	0	49	26	24	75
Red Fox	826	559	267	1,385	10	9	1	19	836	559	277	1,395
Mink	0	0	0	0	0	0	0	0	0	0	0	0
Muskrat	59	53	6	112	5	4	1	9	64	53	11	117
Nutria	0	0	0	0	0	0	0	0	0	0	0	0
Opossum	25	11	14	36	366	126	240	492	391	125	266	516
Otter	139	80	58	219	35	20	15	54	173	81	92	254
Raccoon	470	153	317	622	346	247	99	594	816	276	540	1,092
Striped Skunk	20	12	7	32	5	4	1	9	25	13	12	38
Long-tailed Weasel	0	0	0	0	0	0	0	0	0	0	0	0
All Species	3,052	1,152	1,900	4,204	782	350	432	1,131	3,834	1,486	2,348	5,319

Table 11d. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in the Southern Piedmont region of Virginia, 2020-2021. N=54

	Target				Non-target				Total			
			95% CI				95% CI				95% CI	
Species	Est. No.	SE	Lower	Upper	Est. No.	SE	Lower	Upper	Est. No.	SE	Lower	Upper
Beaver	490	158	332	648	0	0	0	0	490	158	332	648
Bobcat	109	38	71	146	5	4	1	9	114	38	76	151
Coyote	490	110	380	599	0	0	0	0	490	110	380	599
Gray Fox	104	42	62	145	5	4	1	9	109	42	67	150
Red Fox	416	106	309	522	0	0	0	0	416	106	309	522
Mink	20	11	9	30	5	4	1	9	25	11	13	36
Muskrat	252	96	156	348	0	0	0	0	252	96	156	348
Nutria	0	0	0	0	0	0	0	0	0	0	0	0
Opossum	104	62	42	166	594	140	454	733	698	147	551	844
Otter	341	150	192	491	35	23	12	57	376	150	226	526
Raccoon	989	221	768	1,211	356	119	237	475	1,346	229	1,116	1,575
Striped Skunk	104	59	45	163	168	54	114	223	272	77	195	349
Long-tailed Weasel	0	0	0	0	0	0	0	0	0	0	0	0
All Species	3,418	555	2,863	3,973	1,167	226	942	1,393	4,586	702	3,884	5,288

Table 11e. Expanded statewide estimates of the total number of target and non-target furbearer species harvested in the Tidewater region of Virginia, 2020-2021.N=54

	Target				Non-target				Total			
			95% CI				95% CI				95% CI	
Species	Est. No.	SE	Lower	Upper	Est. No.	SE	Lower	Upper	Est. No.	SE	Lower	Upper
Beaver	1,242	351	891	1,592	0	0	0	0	1,242	351	891	1,592
Bobcat	45	18	27	62	25	16	9	41	69	23	46	92
Coyote	564	198	366	762	10	9	1	19	574	198	376	772
Gray Fox	277	113	164	390	20	11	9	30	297	113	184	410
Red Fox	1,400	721	679	2,121	0	0	0	0	1,400	721	679	2,121
Mink	20	11	9	30	0	0	0	0	20	11	9	30
Muskrat	5,649	3,231	2,418	8,881	10	6	4	16	5,659	3,231	2,428	8,890
Nutria	0	0	0	0	0	0	0	0	0	0	0	0
Opossum	228	103	125	330	1,306	510	796	1,816	1,534	512	1,022	2,045
Otter	228	67	160	295	15	8	7	22	242	67	176	309
Raccoon	2,068	706	1,362	2,774	346	168	179	514	2,414	711	1,703	3,125
Striped Skunk	5	4	1	9	114	58	55	172	119	58	60	177
Long0tailed Weasel	0	0	0	0	0	0	0	0	0	0	0	0
All Species	11,724	3,615	8,109	15,339	1,845	613	1,232	2,458	13,569	3,870	9,699	17,440

Table 12. Statewide estimates and summary statistics for each furbearer species targeted in 2020- 2021. 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	361	18.5	21.9	2.7	7,906	7.2	0.8	8.8	1.4	5.6	56,923
Bobcat	356	18.2	34.3	3.0	12,211	10.8	1.5	1.4	0.3	0.4	131,879
Coyote	628	32.2	37.4	2.3	23,487	13.5	1.5	5.8	1.2	1.1	317,075
Gray Fox	346	17.7	32.7	3.0	11,314	11.1	2.0	1.9	0.4	0.5	125,585
Red Fox	500	25.6	22.0	2.3	11,000	13.5	1.8	7.3	1.0	2.5	148,500
Mink	104	5.3	20.1	6.4	2,090	6.9	2.3	0.9	0.2	0.6	14,421
Muskrat	203	10.4	21.4	4.1	4,344	11.2	2.0	33.7	17.4	14.1	48,653
Nutria	0	0	0.0	0.0	0	0	0.0	0.0	0.0	0	0
Opossum	124	6.3	31.1	5.8	3,856	4.7	0.7	4.3	1.0	2.9	18,123
Otter	178	9.1	26.8	4.6	4,770	7.1	0.9	4.4	1.0	2.3	33,867
Raccoon	554	28.4	19.5	2.5	10,803	9.3	1.1	10.9	1.7	6.0	100,468
Striped Skunk	59	3.0	26.3	5.9	1,552	7.5	2.2	3.5	0.0	1.8	11,640
Long-tailed Weasel	0	0	0.0	0.0	0	0	0.0	0.0	2.0	0.0	0
All Species	1,024	52.4	33.9	1.6	34,714	12.1	0.6	32.0	4.7	7.80	420,039

[1] the total number of licenses is 1,954

Table 12a. Northern Mountain region estimates and summary statistics for each furbearer species targeted in 2020-2021. 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	30	1.5	24.5	8.9	735	5.3	1.6	10.2	5.5	7.9	3,896
Bobcat	35	1.8	19.0	6.6	665	11.2	4.1	0.3	0.2	0.1	7,448
Coyote	84	4.3	33.6	5.8	2,822	8.0	1.5	1.6	0.5	0.6	22,579
Gray Fox	45	2.3	27.2	7.1	1,224	8.8	2.8	1.4	0.6	0.6	10,771
Red Fox	64	3.3	32.4	7.1	2,074	10.7	2.3	6.8	2.5	2.0	22,188
Mink	20	1.0	20.5	13.3	410	4.8	0.7	1.0	0.4	1.0	1,968
Muskrat	25	1.3	12.4	5.8	310	5.6	1.4	4.0	1.1	5.8	1,736
Nutria	0	0	0.0	0.0	0	0	0.0	0.0	0.0	0	00
Opossum	15	0.8	13.7	3.8	206	8.7	3.2	1.7	0.7	1.4	1,788
Otter	25	1.3	9.3	3.9	233	2.3	0.5	1.0	0.4	4.7	535
Raccoon	79	4.0	16.3	3.8	1,288	5.1	0.9	3.3	0.8	4.0	6,567
Striped Skunk	10	0.5	35.0	15.0	350	19.0	11.0	4.5	1.5	0.7	6,650
Long-tailed Weasel	0	0	0	0.0	0	0	0.0	0.0			0
All Species	139	7.1	32.4	1.7	4,504	9.6	0.5	13.5	1.2	4.3	43,235

Table 12b. Southern Mountain region estimates and summary statistics for each furbearer species targeted in 2020-2021. 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	74	3.8	20.7	5.4	1,532	7.5	1.8	6.1	1.7	3.9	11,489
Bobcat	143	7.3	32.3	4.8	4,619	10.0	2.3	2.0	0.7	0.6	46,189
Coyote	198	10.1	37.3	4.2	7,385	12.7	2.4	8.5	2.5	1.8	93,795
Gray Fox	94	4.8	28.3	4.3	2,660	7.7	1.4	1.5	0.3	0.7	20,484
Red Fox	134	6.9	29.0	3.4	3,886	10.7	2.0	4.1	1.2	1.3	41,580
Mink	49	2.5	18.4	6.8	902	4.9	1.1	0.7	0.2	0.8	4,418
Muskrat	69	3.5	23.4	7.0	1,615	9.1	2.2	10.9	3.5	5.1	14,693
Nutria	0	0	0.0	0.0	0	0	0.0	0.0	0.0	0.0	0
Opossum	25	1.3	23.2	4.7	580	4.4	1.4	6.2	2.3	6.1	2,552
Otter	40	2.0	19.6	5.9	784	6.3	1.2	1.4	0.4	1.1	4,939
Raccoon	153	7.8	35.5	4.8	5,432	10.6	2.2	13.9	3.7	3.7	57,574
Striped Skunk	5	0.3	30.0	0.0	150	3.0	0.0	7.0	0.0	7.8	450
Long-tailed Weasel	0	0	0	0.0	0	0	0.0	0.0	0.0	0.0	0
All Species	247	12.6	40.0	1.9	9,880	11.6	0.7	34.6	3.4	7.5	114,608

Table 12c. Northern Piedmont region estimates and summary statistics for each furbearer species targeted in 2020-2021. 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	45	2.3	17.6	1.7	792	6.6	1.0	10.5	2.8	9.0	5,227
Bobcat	20	1.0	46.0	7.8	920	13.4	3.9	2.2	1.5	0.4	12,328
Coyote	59	3.0	38.8	6.4	2,289	16.4	4.1	11.4	8.0	1.8	37,543
Gray Fox	20	1.0	34.6	8.8	692	12.2	4.5	2.0	0.9	0.5	8,442
Red Fox	49	2.5	34.5	8.0	1,691	13.3	4.8	15.2	11.2	3.3	22,484
Mink	0	0	0.0	0.0	0	0	0.0	0.0	0.0	0.0	0
Muskrat	5	0.3	8.5	1.5	43	8.5	1.5	6.0	6.0	8.3	361
Nutria	0	0	0.0	0.0	0	0	0.0	0.0	0.0	0.0	0
Opossum	30	1.5	34.2	16.5	1,026	3.0	1.0	0.8	0.3	0.8	3,078
Otter	10	0.5	40.5	21.5	405	6.8	2.3	7.0	3.5	2.5	2,754
Raccoon	54	2.8	34.7	8.1	1,874	4.8	1.0	7.3	2.2	4.4	8,994
Striped Skunk	15	0.8	9.5	4.5	143	5.0	1.0	2.0	0.0	4.2	713
Long-tailed Weasel	0	0	0	0.0	0	0	0.0	0.0	0.0	0.0	0
All Species	163	8.3	26.0	1.5	4,238	10.0	0.6	23.2	3.3	8.9	42,380

Table 12d. Southern Piedmont Mountain region estimates and summary statistics for each furbearer species targeted in 2020-2021. 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	89	4.6	17.3	3.6	1,540	5.2	0.9	5.2	1.6	5.8	8,006
Bobcat	104	5.3	34.5	4.7	3,588	11.3	3.3	1.0	0.4	0.3	40,544
Coyote	163	8.3	35.3	3.6	5,754	11.7	2.2	2.8	0.6	0.7	67,321
Gray Fox	104	5.3	32.9	4.6	3,422	7.1	0.7	0.9	0.4	0.4	24,293
Red Fox	134	6.9	33.2	3.9	4,449	10.5	2.5	2.8	0.7	0.8	46,712
Mink	15	0.8	7.3	3.8	110	3.3	1.5	1.3	0.3	5.4	361
Muskrat	45	2.3	15.8	3.4	711	4.8	0.9	5.7	1.8	7.5	3,413
Nutria	0	0	0.0	0.0	0	0	0.0	0.0	0.0	0.0	0
Opossum	20	1.0	49.0	22.2	980	5.5	1.8	5.3	2.7	2.0	5,390
Otter	54	2.8	30.4	6.9	1,642	7.3	1.7	5.8	2.5	2.6	11,984
Raccoon	109	5.6	31.4	5.5	3,423	9.0	2.4	7.7	1.6	2.7	30,803
Striped Skunk	15	0.8	37.5	13.5	563	8.3	1.2	5.3	2.5	1.7	4,669
Long-tailed Weasel	0	0	0.0	0.0	0	0	0.0	0.0	0.0	0.0	0
All Species	242	12.4	39.7	1.7	9,607	11.9	0.7	17.4	1.5	3.7	114,328

Table 12e. Tidewater region estimates and summary statistics for each furbearer species targeted in 2020-2021. 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	89	4.6	22.0	6.7	1,958	7.7	1.6	10.0	2.8	5.9	15,077
Bobcat	35	1.8	36.1	10.7	1,264	9.1	3.5	0.8	0.3	0.2	11,498
Coyote	79	4.0	40.3	8.2	3,184	19.5	6.0	5.2	1.9	0.7	62,082
Gray Fox	35	1.8	43.5	12.5	1,523	26.2	10.9	4.7	1.8	0.4	39,890
Red Fox	69	3.5	33.1	7.0	2,284	22.8	6.9	14.2	7.8	1.9	52,073
Mink	10	0.5	33.5	28.9	335	16.5	11.5	1.0	0.4	0.2	5,528
Muskrat	49	2.5	28.7	12.2	1,406	21.7	6.1	103.8	62.4	16.7	30,517
Nutria	0	0	0.0	0.0	0	0	0.0	0.0	0.0	0.0	0
Opossum	30	1.5	27.5	6.1	825	3.6	0.7	5.8	2.3	5.9	2,970
Otter	35	1.8	22.2	9.9	777	7.4	1.5	4.2	0.8	2.6	5,750
Raccoon	94	4.8	28.7	6.0	2,698	12.8	3.5	16.7	5.9	4.5	34,532
Striped Skunk	15	0.8	15.3	8.1	230	2.0	1.5	0.3	0.3	1.0	459
Long-tailed Weasel	0	0	0	0.0	0	0	0.0	0.0	0.0	0.0	0
All Species	267	13.7	31.1	1.5	8,304	17.4	1.3	61.0	9.3	11.3	144,484

Table 13. Rare furbearer observations based upon responses to the 2020-2021 Trapper Harvest Survey.

Species	No. observed	No. trapped	List of counties observed[1] or feature reported	List of counties where trapped
Fisher	3	0	Dinwiddie, Page, Indeterminable	None
Spotted Skunk	2	1	Bath, Wythe	Not given
Least Weasel	0	0	None	None

[1] county locations are provided where possible and are based on descriptions provided by respondents. Some reports did not specify county, or did not provide sufficient information to determine county.

Appendix A: Survey Instrument

2020-2021 Virginia
Trapper Harvest Survey

This is your 2020-2021 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. <u>Please send in your response, even if you did not trap this season.</u> If you have any questions or concerns, please contact Furbearer Project Leader Mike Fies at (540) 248-9390 or mike.fies@dwr.virginia.gov.

First, did you trap in Virginia between November 15, 2020 and February 28, 2021?

☐ Yes ☐ No

If ***<u>NO</u>***: Please stop here and return the survey in the postage-paid envelope.

If ***<u>YES</u>***: **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.

<u>Instructions for Completing the Trapping Table (see opposite side of this page):</u>

1. Please only report information for furbearers trapped during the general trapping season **(Nov. 15, 2020 to Feb. 28, 2021)**. Do **<u>not</u>** 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 **<u>one</u>** 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. ***<u>See beaver example for how to report primary target species trapping</u>***.
   - 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. ***<u>See red fox/gray fox/raccoon example for reporting a trap line with primary and secondary targets.</u>***
   - 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. ***<u>See bobcat example for how to report unsuccessful target species trapping</u>***.
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. ***<u>See opossum and striped skunk examples for how to report incidentally trapped animals</u>***.
4. **For fisher, spotted skunk, and least weasel:**
   - Please indicate if you observed or trapped these species <u>during the past trapping season</u>. If YES, please provide a detailed location where each animal was observed or trapped OR you may contact DWR Furbearer Project Leader Mike Fies at 540-248-9390 or mike.fies@dwr.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			
	Buckingham															
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) →	**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**
Beaver	(P) S N	*15*	*10*	*17*	P S N				P S N				P S N			
Bobcat	(P) S N	*7*	*5*	*0*	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	*12*	*8*	*9*	P S N				P S N				P S N			
Striped Skunk	P S (N)	*0*	*0*	*12*	P S N				P S N				P S N			
Long-tailed Weasel	P S N				P S N				P S N				P S N			

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 DWR Furbearer Project Leader Mike Fies at 540-248-9390 or mike.fies@dwr.virginia.gov

Fisher

Did you observe a fisher during the past trapping season?

☐ **Yes** ☐ **No**

Did you trap a fisher during the past trapping season?

☐ **Yes** ☐ **No**

Detailed location: _____

_____

_____

Spotted Skunk

Did you observe a spotted skunk during the past trapping season?

☐ **Yes** ☐ **No**

Did you trap a spotted skunk during the past trapping season?

☐ **Yes** ☐ **No**

Detailed location: _____

_____

_____

Least Weasel

Did you observe a least weasel during the past trapping season?

☐ **Yes** ☐ **No**

Did you trap a least weasel during the past trapping season?

☐ **Yes** ☐ **No**

Detailed location: _____

_____

_____

Appendix B: Cover Letter (1st Mailing)

Matthew J. Strickler
Secretary of Natural Resources

COMMONWEALTH of VIRGINIA
Department of Wildlife Resources

Ryan J. Brown
Executive Director

August 12, 2021

Dear Trapper,

Enclosed you will find the 2020-2021 Virginia Trapper Harvest Survey from the Virginia Department of Wildlife Resources. We apologize that you have not received this survey before now. If you have provided trapping data during previous years, we greatly appreciate your past cooperation. Last year, 512 trappers responded and reported harvesting 9,901 animals during 8,333 days afield. 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 2020-2021 trapping season.

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 https://vatrappingsurvey.info. There is no need to 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 Mike Fies, Furbearer Project Leader, via email at mike.fies@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,

Michael L. Fies
Furbearer Project Leader
Virginia Department of Wildlife Resources

Appendix C: Postcard Reminder

2020-2021 Virginia Trapper Survey Reminder

We haven't heard from you yet! This is a friendly reminder to please fill out and return the 2020-2021 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. If you prefer to respond online, you can do so at the following link: https://vatrappingsurvey.info. 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@dwr.virginia.gov.

Thank you,
Mike Fies
Furbearer Project Leader
Virginia Department of Wildlife Resources

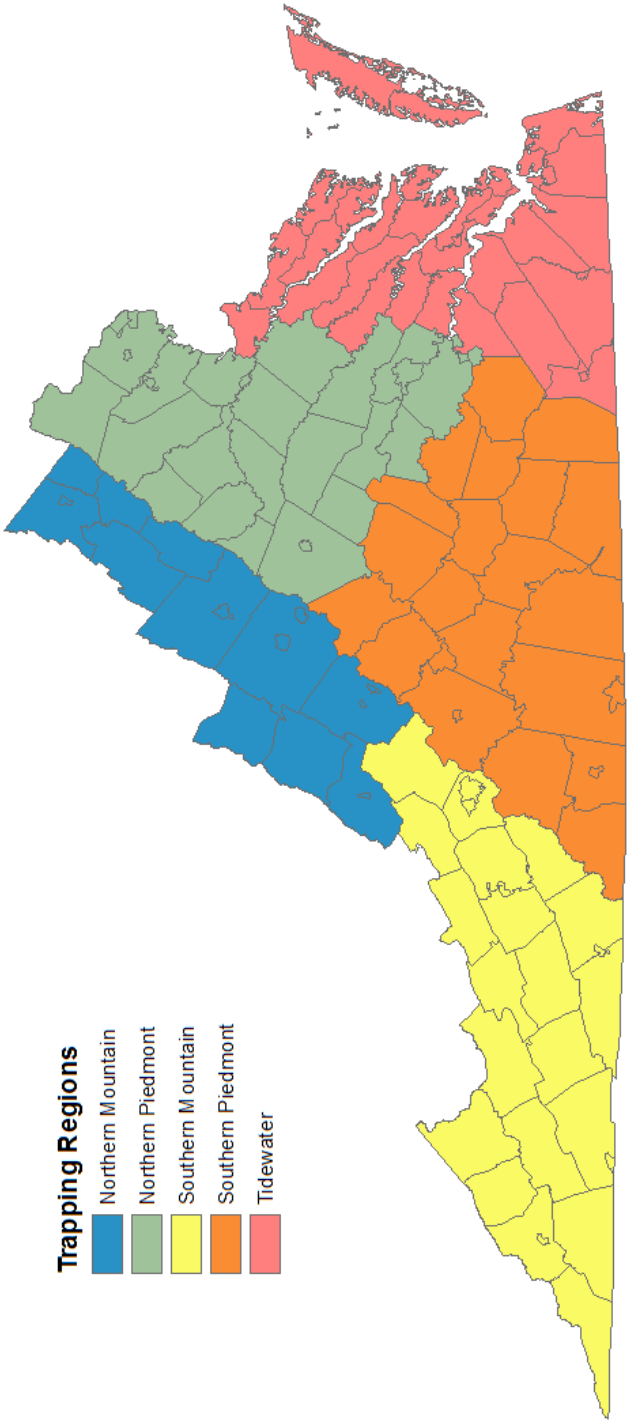
Appendix D: 2020–2021

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 1st	February 28th
Bobcat	November 15th	February 28th
Coyote	Continuous open season	
Fisher	Continuous **closed** season	
Fox[1]	November 15th	February 28th
Mink	December 1st	February 28th
Muskrat	December 1st	February 28th
Nutria	Continuous open season	
Opossum	November 15th	February 28th
Otter	December 1st	February 28th
Raccoon	November 15th	February 28th
Striped Skunk	Continuous open season	
Spotted Skunk	Continuous **closed** season[2]	
Weasel	December 1st	February 28th

[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