Results of the 2013-2014 Virginia Trapper Harvest Survey

Department of Game & Inland Fisheries

CHRISTOPHER NEWPORT UNIVERSITY'S
JUDY FORD WASON
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Suggested Citation:
Kidd, Quentin, Elisabeth Harris and Meyrem Baer. 2014. Results of the 2013-2014 Virginia Trapper Harvest Survey. Virginia Department of Game and Inland Fisheries Contract #LLO-00448-402 Surveys. Wason Center for Public Policy. Christopher Newport University, Newport News, VA. 41 pp.

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ABSTRACT

A random sample of 1,916 people who purchased an annual trapping license after 28 February 2013, held a multi-year trapping license valid during the 2013-2014 season, or purchased a lifetime trapping license after 28 February, 2009 (in the most recent five years) was generated from Virginia Department of Game & Inland Fisheries data. Licensees were mailed a one-page (front and back) questionnaire, and 789 usable questionnaires were returned. Trappers set an average of 7 traps for 21 days or nights during the 2013-2014 season and harvested an estimated 65,505 furbearers. An estimated 19,759 raccoons were trapped during the 2013-2014 season. Muskrat harvest was next highest with an estimated 14,705 trapped. Observations of fishers, spotted skunks, and least weasels were also documented.

OJBECTIVE

To survey trappers in Virginia to quantify statewide furbearer harvest and effort , and to obtain additional occurrence information about several rare furbearer species (fisher, spotted skunk, and least weasel).

METHODS

A total of 2,395 persons held Virginia trapping licenses in 2013-2014. From that total, a random sample of 1,916 persons was generated from Virginia Department of Game & Inland Fisheries data on licensed Virginia trappers. The sample represented an 80% draw of license holders from three categories of licenses: annual license holders who purchased a license after 28 February 2013, the end of the 2012-2013 season (N=1,716; 80%=1,373); multi-year license holders valid during the 2013-2014 season (N=42; 80%=34); and lifetime licenses purchased

since 28 February 2009, the most recent 5 years (N=637; 80%=509). Each trapper was mailed a one-page (front and back) questionnaire (Appendix A), cover letter (Appendix B) and a postage-paid return envelope starting on 18 March 2014. Non-respondents were mailed a reminder postcard (Appendix C) starting on 1 April 2014. Remaining non-respondents were mailed a second questionnaire and cover letter (Appendix D) starting on 15 April 2014. The original sample of 1,916 was reduced to 1,851 due to 65 undeliverable addresses. Season date information is shown in Appendix F.

RESULTS

A total of 791 (43% effective response rate) license holders responded to the survey. The margin of error for the entire sample is +/- 2.91 at the 95% level of confidence. This means that for any given question where the responses are evenly distributed across the answer categories we can be 95% confident that the population average is +/- 2.91 of the sample average. Of the 791 surveys returned, 789 were considered usable surveys, and two were considered unusable or unreliable because the respondents filled in the same numbers across all or most of the categories of the survey. Of the 789 usable surveys, 408 respondents (51.7%) reported trapping activity and 381 (48.3%) reported no trapping activity. Trapper responses by license type, reported trapper effort, and reported trapper harvest are summarized in Figures 1-2 and Tables 1-7. Extrapolations with a finite population correction factor (Berenson, Levine, and Szabat 2015 and Steffen 1981) were produced to estimate total statewide trapper effort and harvest for all furbearer species in Virginia (Tables 8-19). Additionally, rare furbearer observations are reported in Table 20.

Trapper Participation and Effort

Of the 789 licensed trappers who responded to the survey, 408 (51.7%) set traps for furbearers in Virginia during the 2013-2014 season. Of the 408 licensed trappers who reported setting traps, 356 (87.3%) were annual license holders, 42 (10.3%) were lifetime license holders, and 10 (2.4%) were multi license holders (Table 1). A majority of lifetime license holders (83.8%) said they did not trap, while only a third of annual license holders (30.9%) and a third of multi-year license holders (33.3%) said they did not trap (Table 1). Most trappers (66.2%) set traps for ten days or less, while 4.4% set traps for more than 50 days (Figure 1).

Geographically, trapping occurred in every region of the state (Table 2). The South Mountain region (Appendix E) had the most reported trapping activity, with 24.8% of respondents reporting that region as their primary trapping location. The North Mountain region was the primary trapping location of 22.1% of trappers, followed by the Tidewater region with 20.1% of trappers. The North Piedmont and South Piedmont saw a nearly identical number of trappers (16.6% and 16.4% respectively) do their primary trapping in those regions. While all respondents who reported trapping listed at least one county/city location, a smaller percentage trapped in more than one location. Of the 408 trappers who reported trapping activity, 21.1% trapped in two county/city locations, 6.6% trapped in three county/city locations, 3.4% trapped in four county/city locations, and 1.7% trapped in five county/city locations.

Participation during the 2013-2014 season was highest among raccoon trappers, with 296 respondents (72.5%) reporting they targeted that species, and an estimated 1,017 trappers statewide, (Tables 3 and 8). Red fox was second with 230 respondents (56.4%) and an estimated 744 trappers statewide. Gray fox trapping was third with 221 respondents (54.2%) reporting targeting that species, and an estimated 735 trappers statewide. Coyote was fourth, with 210

respondents (51.5%) and an estimated 686 trappers statewide, followed by muskrat with190 respondents (46.6%) and an estimated 628 trappers statewide, beaver with 160 respondents (39.2%) and an estimated 513 trappers statewide, bobcat with 157 respondents (38.5%) and an estimated 492 trappers statewide, opossum with 124 respondents (30.4%) and an estimated 829 trappers statewide, otter with104 respondents (25.5%) and an estimated 346 trappers statewide, mink with 104 respondents (25.3%) and an estimated 361trappers statewide, striped skunk with 66 respondents (16.2%) and an estimated 464 trappers statewide, nutria with 21 respondents (5.1%) and an estimated 73 trappers statewide, and long-tailed weasel with 20 respondents (4.9%) and an estimated 64 trappers statewide.

Harvest

Trappers in Virginia harvested an estimated 19,759 raccoons statewide during the 2013-2014 season (Table 8), followed by an estimated 14,705 muskrat, 7,927 opossum, 5,556 red fox, 5,197 beaver, 3,353 gray fox, 2,946 striped skunk, 2,898 coyote, 1,485 otter, 790 bobcat, 719 mink, and 12 long-tailed weasel. Muskrat had the highest average harvest per season per trapper at 22.1, followed by raccoon at 20.0, beaver at 10.1, opossum at 9.7, red fox at 7.6, striped skunk at 7.3, gray fox at 4.5, coyote and otter at 4.3 each, nutria at 1.7, bobcat and mink at 1.6 each, and long-tailed weasel at 0.2 (Table 9).

Fauquier County had the highest reported harvest of land furbearers (973 total) during the 2013-2014 seasons, followed by Grayson and Rockingham counties with 712 total land furbearers reported harvested in each county (Table 6). New Kent County had the highest reported harvest of aquatic furbearers (486 total) during the 2013-2014 season, followed by Buckingham County, with 474 total aquatic furbearers harvested (Table 7).

Observation of Rare Furbearer

Fishers were reported to have been observed by 7 trappers during the 2013-2014 , but no fishers were reported trapped (Table 20). Fisher observations were reported in Amherst, Middlesex, Frederick, Page, Rockingham, and Caroline counties. Spotted skunks were reported observed by 8 trappers, with 2 reported trapped. Spotted skunks were reported observed in Spotsylvania, Frederick, Madison, Sussex, and Halifax counties. Least weasels were reported observed by 6 trappers, with 3 reported trapped. Least weasels were reported observed in Warren, Madison, Fauquier, Prince Edward, Prince George, and Sussex counties.

REFERENCES

Berenson, M.L., D.M. Levine, and K.A. Szabat. 2015. Basic Business Statistics, 13/E. New York: Pearson. 840pp.

Steffen D.E. 1981. Mississippi Mail Survey of Game Harvest and Hunter Effort for 1980-81. Federal Aid Project No. W-48-28 Job VI-1. Mississippi Department of Wildlife Conservation. Jackson, MS. 73pp.

Table 1: Response and participation rate by license type of trappers selected to participation in the 2013-2014 Virginia Trapper Harvest Survey

License Type	Number in sample	Number of respondents (% of sample)	Number who trapped (% of respondents)	Number who did not trap (% of respondents)
Annual	1,373	515 (37.5%)	356 (69.1%)	159 (30.9%)
Lifetime	509	259 (50.9%)	42 (16.2%)	217 (83.8%)
Multi year	34	15 (44.1%)	10 (66.7%)	5 (33.3%)
Total	1,916	789 (41.2%)	408 (51.7%)	381 (48.3%)

Table 2: Trapping locations and regional breakdown of trappers who respondent to the 2013-2014 Virginia Trapper Harvest Survey

Numbers (%) of trapping locations		Region of trapping for primary trapping location	
First county/city (primary trapping location)	408 (100%)	Tidewater	82 (20.1%)
		S. Piedmont	67 (16.4%)
Second county/city	86 (21.1%)	N. Piedmont	68 (16.6%)
Third county/city	27 (6.6%)	S. Mountain	101 (24.8%)
Fourth county/city	14 (3.4%)	N. Mountain	90 (22.1%)
Fifth county/city	7 (1.7%)		

Figure 1: Distribution of days trapped by active trappers who responded to the 2013-2014 Virginia Trapper Harvest Survey (n=408)

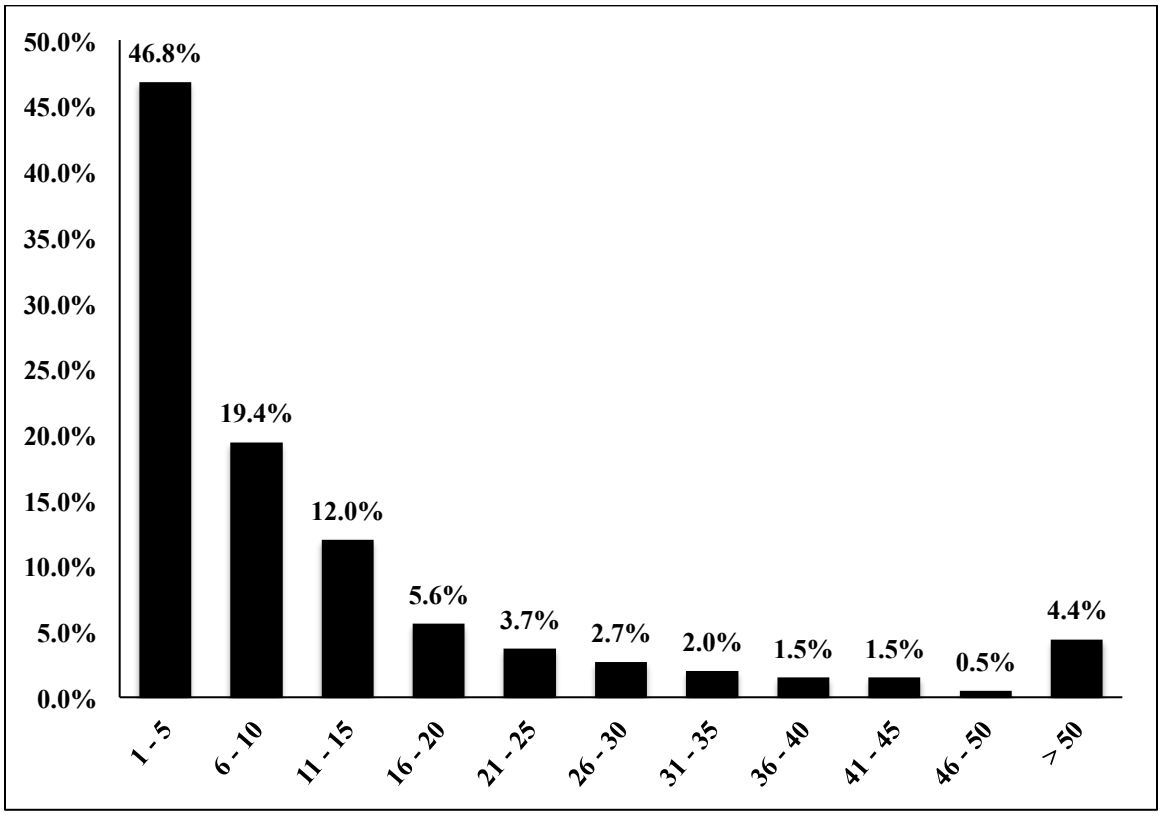


Figure 2: Trapping effort by license type of trappers who responded to the 2013-2014 Virginia Trapper Harvest Survey (n=408)

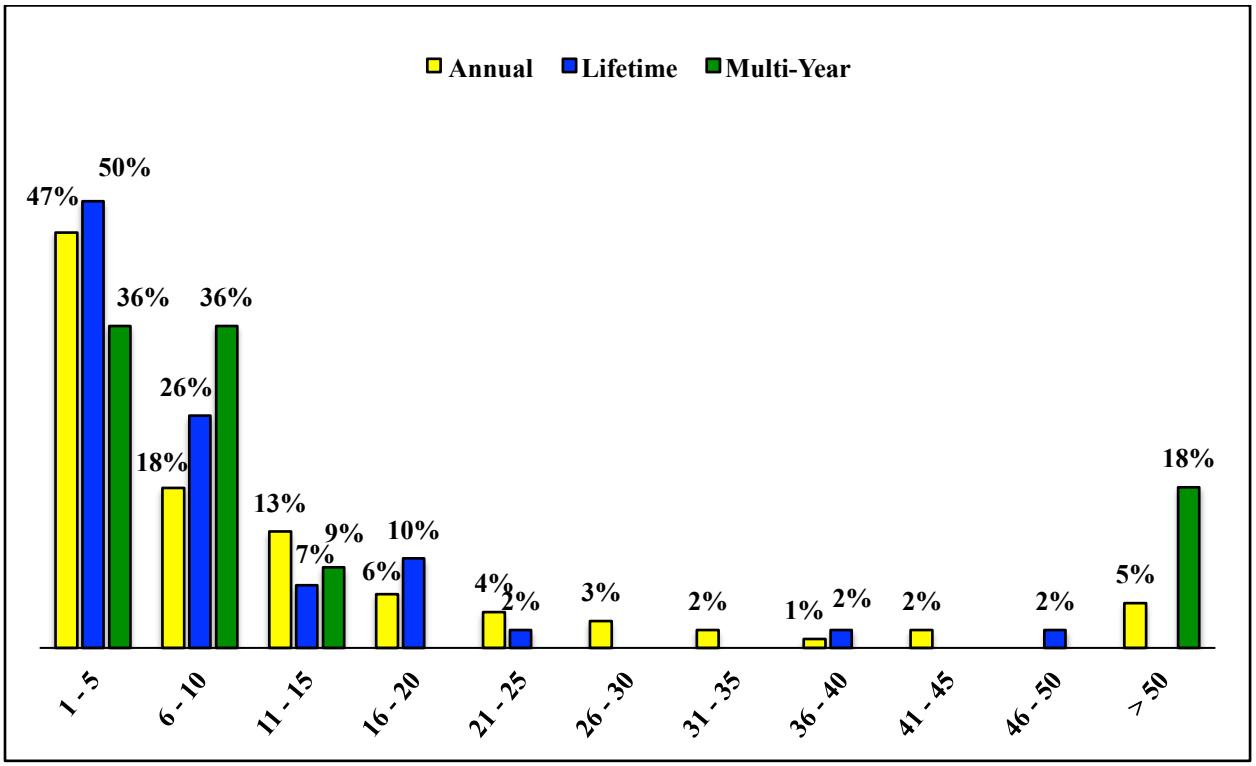


Table 3: Participation and effort of trappers who reported targeting furbearer species in the 2013-2014 Virginia Trapper Harvest Survey (n=408)

Species	# Trappers that targeted species (% of total trappers)	Total # days trapped	Average # traps set per day per trapper	Total # trap days
Beaver	160 (39.2)	4,079	5.1	20,803
Bobcat	157 (38.5)	4,981	6.0	29,886
Coyote	210 (51.5)	7,781	8.7	67,694
Gray Fox	221 (54.2)	7,496	9.1	68,213
Red Fox	230 (56.4)	8,524	9.9	84,387
Mink	104 (25.5)	3,376	4.0	13,504
Muskrat	190 (46.6)	5,823	12.3	71,622
Nutria	21 (5.1)	1,223	2.3	2,812
Opossum	124 (30.4)	4,645	6.0	27,870
Otter	104 (25.5)	3,704	3.9	14,446
Raccoon	296 (72.5)	11,087	13.1	145,240
Striped Skunk	66 (16.2)	2,676	4.6	12,310
Long-tailed Weasel	20 (4.9)	1,148	2.1	2,411

Table 4: Number of successful trappers and reported harvest by species for respondents to the 2013-2014 Virginia Trapper Harvest Survey (n=408)

Species	# (%) Successful Trappers			Reported Harvest		
	Target (%)	Non-target (%)	Total (%)	Target	Non-target	Total
Beaver	136 (85.0)	9 (3.6)	145 (35.5)	1,623	89	1,712
Bobcat	83 (52.8)	6 (1.8)	89 (21.9)	257	7	264
Coyote	151 (71.9)	17 (6.6)	168 (41.2)	894	61	955
Gray Fox	176 (79.6)	22 (9.5)	198 (48.5)	999	103	1,102
Red Fox	184 (80.0)	16 (7.1)	200 (49.0)	1,759	75	1,834
Mink	66 (63.5)	16 (4.7)	82 (20.1)	162	78	240
Muskrat	165 (86.8)	19 (7.8)	184 (45.1)	4,196	647	4,843
Nutria	2 (9.5)	4 (.01)	6 (1.5)	36	15	51
Opossum	117 (94.4)	149 (51.2)	266 (65.2)	1,206	1,406	2,612
Otter	68 (65.4)	11 (3.2)	79 (19.4)	444	42	486
Raccoon	284 (95.9)	41 (3.3)	325 (79.7)	5,916	595	6,511
Striped Skunk	55 (83.3)	88 (24.9)	143 (34.9)	480	492	972
Long-tailed Weasel	1 (.1)	1 (.002)	2 (.7)	3	1	4

Table 5: Distribution of reported harvest by species for trappers who responded to the 2013-2014 Virginia Trapper Harvest Survey (n=408)

Species	Average Season Harvest (% of Successful Trappers)					
	1-5	6-10	11-15	16-20	21-25	>25
Beaver	46.8	27.3	10.7	4.4	3.8	7.0
Bobcat	38.3	28.1	14.8	3.4	5.3	10.1
Coyote	25.1	33.0	17.8	6.4	4.9	12.8
Gray Fox	32.1	25.9	15.1	8.5	3.3	15.1
Red Fox	25.9	25.0	20.2	10.0	5.3	13.6
Mink	42.6	23.4	10.6	5.3	6.4	11.7
Muskrat	27.5	26.9	14.8	7.7	4.4	18.7
Nutria	21.1	15.7	26.4	0.0	10.5	26.3
Opossum	27.8	24.4	15.6	20.0	9.5	18.3
Otter	46.0	27.0	11.0	4.0	5.0	7.0
Raccoon	26.9	25.5	18.6	24.8	5.9	16.9
Striped Skunk	23.7	20.4	18.6	3.4	8.5	25.4
Long-tailed Weasel	96.8	0.7	0.8	0.0	0.5	1.2

Table 6: Reported harvest of land furbearer species by county for trappers who responded to the 2013-2014 Virginia Trapper Harvest Survey (n=408)

County	Bobcat	Coyote	Gray Fox	Red Fox	Raccoon	Opossum	Striped Skunk	Long-tailed Weasel
Accomack	0	0	39	140	216	35	0	0
Albermarle	2	4	0	10	27	14	7	3
Alleghany	4	9	2	4	50	11	1	0
Amherst	0	5	7	5	50	34	0	0
Appomattox	1	2	11	2	30	15	0	0
Augusta	4	24	53	78	169	117	35	0
Bath	0	0	0	1	2	5	0	0
Bedford	1	12	30	14	87	51	11	0
Bland	7	10	11	14	184	39	28	0
Botetourt	3	39	33	43	109	89	5	0
Buckingham	17	13	56	36	98	40	12	0
Brunswick	0	0	0	0	0	0	0	0
Campbell	19	46	72	7	152	41	23	0
Caroline	1	7	26	39	73	31	20	0
Carroll	3	11	11	5	135	39	21	0
Charles City	0	0	0	0	4	0	0	0
Charlotte	2	18	7	4	27	40	20	0
Chesapeake	1	36	37	2	40	10	0	0
Chesterfield	0	4	1	1	8	6	2	0
Clarke	0	2	0	0	1	0	0	0
Craig	1	13	8	4	131	43	0	0
Culpepper	0	2	0	4	32	5	5	0
Cumberland	0	0	0	0	3	0	0	0
Dayton	0	12	22	8	0	6	0	0
Dickenson	0	0	1	0	0	0	0	0
Dinwiddie	0	1	6	1	23	20	0	0
Essex	0	3	3	3	62	3	0	0
Fairfax	0	0	0	6	8	6	0	0
Fauquier	12	69	51	247	440	102	52	0
Floyd	7	9	12	11	122	43	32	0
Fluvanna	1	2	16	17	81	20	6	0
Franklin	1	5	11	6	28	23	4	0
Frederick	0	3	8	36	45	14	8	0
Giles	10	24	7	8	174	57	25	0
Gloucester	0	6	8	4	133	12	0	0
Goochland	0	0	0	0	8	2	0	0
Grayson	30	28	10	29	333	199	83	0

Table 6: Reported harvest of land furbearer species by county for trappers who responded to the 2013-2014 Virginia Trapper Harvest Survey (n=408), Cont.

County	Bobcat	Coyote	Gray Fox	Red Fox	Raccoon	Opossum	Striped Skunk	Long-tailed Weasel
Greensville	0	0	10	1	37	21	2	0
Halifax	0	6	9	1	2	2	1	0
Hampton	0	0	1	1	70	75	0	0
Hanover	0	10	6	0	65	11	6	0
Harrisonburg	0	0	2	3	8	5	2	0
Henrico	0	0	0	0	0	0	0	0
Henry	1	11	37	8	57	52	9	0
Highland	2	8	9	22	36	18	15	0
Isle of Wight	3	2	6	0	4	8	15	0
James City	0	0	3	1	50	13	0	0
King and Queen	0	0	5	2	29	40	4	0
King George	0	1	0	13	24	10	0	0
King William	4	0	10	14	107	23	1	0
Lancaster	0	0	0	0	0	0	0	0
Lee	3	0	1	3	8	0	0	0
Loudoun	1	8	19	278	187	58	7	0
Louisa	0	0	0	0	0	2	0	0
Lunenburg	0	0	4	0	0	3	2	0
Madison	0	2	0	7	1	3	5	0
Matthews	0	0	0	0	2	0	0	0
Mecklenburg	0	2	2	0	16	13	20	0
Middlesex	0	4	16	4	30	1	2	0
Montgomery	6	17	6	6	61	7	9	0
Nelson	0	0	1	0	1	0	0	0
New Kent	5	9	19	24	121	36	3	0
Newport News	0	0	0	0	0	0	0	0
Northampton	0	0	0	9	31	15	5	0
Northumberland	0	0	4	11	30	25	5	0
Nottoway	1	10	11	16	76	18	0	0
Orange	0	10	1	3	23	0	0	0
Page	17	68	50	116	232	28	47	0
Patrick	1	58	10	4	108	22	4	0
Pittsylvania	2	11	22	6	55	44	10	0
Powatan	0	0	3	0	0	0	0	0
Prince Edward	4	5	15	16	163	45	35	0
Prince George	2	3	4	1	20	23	6	0
Prince William	0	1	0	20	27	14	3	0

Table 6: Reported harvest of land furbearer species by county for trappers who responded to the 2013-2014 Virginia Trapper Harvest Survey (n=408), Cont.

County	Bobcat	Coyote	Gray Fox	Red Fox	Raccoon	Opossum	Striped Skunk	Long-tailed Weasel
Pulaski	0	11	0	2	92	15	3	0
Radford	0	0	0	0	0	0	0	0
Rappahannock	0	0	0	0	0	0	0	0
Richmond	0	0	2	2	36	26	0	0
Roanoke	0	0	0	0	1	2	0	0
Rockbridge	1	0	0	0	7	1	0	0
Rockingham	3	22	63	169	259	111	85	0
Russell	12	30	15	11	84	52	44	0
Scott	1	5	4	6	44	10	4	0
Shenandoah	1	23	46	129	96	126	69	0
Smyth	13	32	6	11	143	70	11	0
Southampton	2	2	11	2	6	12	0	0
Spotsylvania	0	3	2	5	17	5	3	0
Stafford	0	3	0	9	19	8	0	0
Suffolk	3	2	29	1	47	45	26	0
Surry	7	5	4	0	10	35	4	0
Sussex	0	17	14	21	102	6	31	0
Tazewell	8	12	0	7	130	60	12	1
Virginia Beach	0	0	2	0	5	3	0	0
Warren	0	4	3	0	23	4	3	0
Washington	2	9	8	3	138	58	5	0
Westmoreland	0	0	0	0	0	0	0	0
Wise	3	9	0	0	11	3	0	0
Wythe	10	70	22	42	266	83	46	0
York	0	0	0	2	19	9	0	0
No location	19	31	24	31	172	57	8	0

Table 7: Reported harvest of aquatic furbearer species by county for trappers who responded to the 2013-2014 Virginia Trapper Harvest Survey (n=408)

County	Beaver	Muskrat	River Otter	Mink	Nutria
Accomack	0	388	11	0	0
Albermarle	3	0	2	1	0
Alleghany	7	9	1	0	0
Amherst	3	0	2	1	0
Appomattox	27	23	15	0	0
Augusta	24	89	1	8	0
Bath	0	1	0	0	0
Bedford	1	4	0	2	0
Bland	1	53	0	6	0
Botetourt	22	43	8	5	0
Buckingham	23	427	23	1	0
Brunswick	0	0	0	0	0
Campbell	34	1	0	0	0
Caroline	134	0	9	2	0
Carroll	4	89	2	2	0
Charles City	57	87	15	0	0
Charlotte	4	3	0	0	0
Chesapeake	4	42	2	1	0
Chesterfield	0	0	0	0	0
Clarke	4	4	0	0	0
Craig	22	0	0	0	0
Culpepper	11	13	0	11	0
Cumberland	0	14	0	0	0
Dayton	0	0	0	1	0
Dickenson	0	0	0	0	0
Dinwiddie	20	4	0	0	0
Essex	173	163	16	0	0
Fairfax	9	0	0	0	0
Fauquier	77	27	16	4	7
Floyd	0	38	1	0	0
Fluvanna	8	13	3	1	0
Franklin	1	4	2	0	0
Frederick	15	16	0	2	0
Giles	4	100	5	2	0
Gloucester	35	239	4	3	0
Goochland	14	0	1	0	0
Grayson	23	32	1	6	0
Green	9	0	0	1	0
Greensville	47	6	18	0	4
Halifax	3	0	0	0	0

Table 7: Reported harvest of aquatic furbearer species by county for trappers who responded to the 2013-2014 Virginia Trapper Harvest Survey (n=408), Cont.

County	Beaver	Muskrat	River Otter	Mink	Nutria
Hampton	0	175	25	0	0
Hanover	41	78	0	1	0
Harrisonburg	0	12	0	0	0
Henrico	2	1	0	0	0
Henry	2	18	15	0	0
Highland	2	19	3	11	0
Isle of Wight	3	3	0	0	0
James City	1	344	3	0	0
King and Queen	25	11	6	0	0
King George	0	15	0	0	0
King William	26	315	6	0	0
Lancaster	0	78	0	0	0
Lee	8	5	0	48	0
Loudoun	7	16	0	6	0
Louisa	12	9	0	0	0
Lunenburg	2	0	0	0	0
Madison	2	0	0	0	0
Matthews	8	33	0	0	0
Mecklenburg	6	17	0	0	0
Middlesex	0	4	0	0	0
Montgomery	2	216	4	6	0
Nelson	0	0	0	0	0
New Kent	154	291	33	8	0
Newport News	0	2	0	0	0
Northampton	0	4	0	0	0
Northumberland	3	0	0	0	0
Nottoway	20	19	21	3	0
Orange	5	0	0	0	0
Page	22	8	1	0	0
Patrick	4	1	1	1	0
Pittsylvania	26	42	1	2	0
Powatan	0	0	0	0	3
Prince Edward	36	17	9	0	0
Prince George	21	16	0	0	0
Prince William	56	5	2	0	0
Pulaski	0	77	0	5	0
Radford	0	8	0	0	0
Rappahannock	0	4	0	0	0
Richmond	7	35	0	0	0
Roanoke	0	0	0	0	0
Rockbridge	5	0	0	1	0

Table 7: Reported harvest of aquatic furbearer species by county for trappers who responded to the 2013-2014 Virginia Trapper Harvest Survey (n=408), Cont.

County	Beaver	Muskrat	River Otter	Mink	Nutria
Rockingham	5	282	5	19	0
Russell	5	18	2	5	0
Scott	12	3	0	2	0
Shenandoah	15	96	118	7	0
Smyth	3	12	1	2	0
Southampton	41	2	7	0	1
Spotsylvania	37	1	3	1	0
Stafford	32	14	5	1	0
Suffolk	89	39	31	6	6
Surry	0	0	0	0	0
Sussex	90	1	0	1	0
Tazewell	3	18	1	4	0
Virginia Beach	0	147	0	0	30
Warren	3	0	0	6	0
Washington	2	21	1	0	0
Westmoreland	12	15	4	0	0
Wise	0	0	0	0	0
Wythe	8	177	14	18	0
York	0	0	0	0	0
No location	3	156	4	15	0

Table 8: Expanded statewide estimates of the total number of trappers, total number of successful trappers, and total harvest by furbearer species, based upon responses to the 2013-2014 Trapper Harvest Survey (standard error estimates in parentheses)

Species	Estimated Total # Trappers (± SE)			Estimated # Successful Trappers (± SE)			Estimated Total Harvest (± SE)		
	Target	Non-target	Total	Target	Non-target	Total	Target	Non-target	Total
Beaver	486 (±55)	27 (±15)	513 (±56)	413 (±52)	27 (±15)	440 (±53)	4,929 (±1,257)	270 (±255)	5,197 (±1,280)
Bobcat	474 (±55)	18 (±12)	492 (±55)	249 (±42)	18 (±12)	267 (±43)	774 (±202)	21 (±>15)	790 (±202)
Coyote	634 (±60)	52 (±20)	686 (±62)	458 (±54)	52 (±20)	510 (±56)	2,714 (±629)	185 (±129)	2,898 (±639)
Gray Fox	668 (±61)	67 (±23)	735 (±63)	534 (±57)	67 (±23)	601 (±59)	3,033 (±613)	313 (±177)	3,353 (±633)
Red Fox	695 (±62)	49 (±19)	744 (±63)	559 (±58)	49 (±19)	607 (±60)	5,339 (±1,505)	228 (±153)	5,556 (±1,552)
Mink	313 (±46)	49 (±19)	361 (±49)	200 (±38)	49 (±19)	249 (±42)	492 (±128)	237 (±240)	719 (±271)
Muskrat	571 (±58)	58 (±21)	628 (±60)	501 (±56)	58 (±21)	559 (±58)	12,737 (±3,822)	1,964 (±2,093)	14,705 (±4,339)
Nutria	61 (±22)	12 (±10)	73 (±24)	6 (±7)	12 (±10)	18 (±12)	109 (±149)	46 (±42)	144 (±155)
Opossum	376 (±50)	452 (±54)	829 (±65)	355 (±49)	452 (±54)	807 (±65)	3,661 (±784)	4,268 (±795)	7,927 (±1,070)
Otter	313 (±46)	33 (±16)	346 (±48)	206 (±38)	33 (±16)	240 (±41)	1,348 (±645)	120 (±97)	1,485 (±651)
Raccoon	892 (±66)	124 (±30)	1,017 (±68)	862 (±66)	124 (±30)	987 (±67)	17,958 (±2,372)	1,802 (±696)	19,759 (±2,429)
Striped Skunk	197 (±38)	267 (±43)	464 (±54)	167 (±35)	267 (±43)	434 (±53)	1,457 (±462)	1,494 (±437)	2,946 (±625)
Long-tailed Weasel	58 (±21)	3 (±5)	64 (±22)	3 (±5)	3 (±5)	6 (±7)	9 (±15)	3 (±5)	12 (±15)

Table 9: Expanded statewide estimates of total number of trappers, average days trapped, average season harvest, and average harvest per 100 trap nights for trappers targeting individual furbearer species, based upon responses to the 2013-2014 Trapper Harvest Survey (standard error estimates in parentheses)

Species	Estimated total # trappers that target species (±SE)	% of total license buyers (N=2395) (±SE)	Estimated average # days trapped per trapper (±SE)	Estimated total # days trapped (± SE)	Estimated average # traps set per day per trapper (±SE)	Estimated average season harvest Per Trapper (±SE)	Estimated average harvest per 100 trap days per trapper (±SE)
Beaver	486 (±55)	20.3% (±3.4%)	25.5 (±1.9)	12,390 (±939)	5.3 (±2.5)	10.1 (±1.3)	8.0 (±.8)
Bobcat	474 (±55)	19.8% (±3.3%)	31.7 (±1.9)	15,038 (±913)	5.9 (±2.6)	1.6 (±.2)	1.8 (±.2)
Coyote	634 (±60)	26.5% (±3.1%)	37.1 (±1.8)	23,491 (±1,123)	8.6 (±2.3)	4.3 (±.5)	2.8 (±.2)
Gray Fox	668 (±61)	27.9% (±3.0%)	33.9 (±1.6)	22,658 (±1.093)	9.1 (±2.4)	4.5 (±.4)	3.1 (±.2)
Red Fox	695 (±62)	29.0% (±3.0%)	37.1 (±1.8)	25,757 (±1,272)	9.9 (±2.2)	7.6 (±1.1)	2.1 (±.2)
Mink	313 (±46)	13.1% (±3.6%)	32.5 (±2.4)	10,160 (±774)	4.4 (±3.2)	1.6 (±.2)	3.2 (±.4)
Muskrat	571 (±58)	23.8% (±3.2%)	30.6 (±1.8)	17,499 (±1020)	11.9 (±5.4)	22.1 (±3.4)	13.6 (±1.2)
Nutria	61 (±22)	2.5% (±4.3%)	58.2 (±8.0)	3,553 (±490)	2.5 (±6.9)	1.7 (±3.0)	3.2 (±.8)
Opossum	376 (±50)	15.7% (±3.5%)	37.5 (±2.6)	14,084 (±974)	6.1 (±3.0)	9.7 (±.8)	18.0 (±1.8)
Otter	313 (±46)	13.1% (±3.7%)	35.6 (±2.8)	11,148 (±882)	4.1 (±3.2)	4.3 (±1.2)	6.3 (±.7)
Raccoon	892 (±66)	37.2% (±2.6%)	37.5 (±1.5)	33,410 (±1,342)	12.9 (±2.1)	20.0 (±1.1)	8.8 (±.5)
Striped Skunk	197 (±38)	8.2% (±3.9%)	40.5 (±3.8)	7,987 (±757)	4.3 (±4.0)	7.3 (±1.0)	16.4 (±2.3)
Long-tailed Weasel	58 (±21)	2.4% (±4.2%)	57.4 (±.85)	3,329 (±492)	2.4 (±6.9)	0.2 (±0)	0.3 (±.1)

Table 10: Expanded TIDEWATER REGION estimates of the total number of trappers, total number of successful trappers, and total harvest by furbearer species, based upon responses to the 2013-2014 Trapper Harvest Survey (95% confidence intervals in parentheses)

Species	Estimated Total # Trappers (± SE)			Estimated # Successful Trappers (± SE)			Estimated Total Harvest (± SE)		
	Target	Non-target	Total	Target	Non-target	Total	Target	Non-target	Total
Beaver	140 (±32)	3 (±5)	143 (±32)	121 (±30)	3 (±5)	124 (±31)	2,811 (±350)	142 (4)	2,953 (±3,364)
Bobcat	82 (±25)	0 (0)	82 (±25)	46 (±19)	0 (0)	46 (±19)	91 (±14)	0 (0)	91 (±134)
Coyote	106 (±28)	3 (±5)	109 (±29)	73 (±24)	3 (±5)	76 (±24)	379 (±55)	3 (3)	383 (±552)
Gray Fox	140 (±32)	12 (±10)	152 (±33)	118 (±30)	12 (±10)	131 (±31)	747 (±75)	70 (±42)	816 (±742)
Red Fox	137 (±31)	6 (±7)	143 (±32)	109 (±29)	6 (±7)	115 (±29)	902 (±138)	70 (±.42)	915 (±1,305)
Mink	39 (±17)	9 (±8)	49 (±19)	21 (±13)	9 (±8)	30 (±15)	58 (±15)	12 (±.6)	71 (±146)
Muskrat	137 (±32)	18 (±12)	155 (±34)	118 (±30)	18 (±12)	137 (±32)	7,161 (±1,119)	245 (±124)	7,316 (±1,612)
Nutria	18 (±12)	3 (±5)	21 (±13)	6 (±7)	3 (±5)	9 (±8)	109 (±48)	3 (2)	113 (±458)
Opossum	88 (±26)	88 (±25)	176 (±36)	82 (±25)	88 (±26)	170 (±35)	777 (±134)	957 (±159)	1,736 (±1,465)
Otter	94 (±27)	6 (±7)	100 (±27)	70 (±23)	6 (±7)	76 (±24)	489 (±73)	48 (±37)	537 (±724)
Raccoon	188 (±37)	27 (±14)	216 (±39)	179 (±36)	27 (±15)	206 (±38)	4,238 (±361)	236 (±81)	4,475 (±3,338)
Striped Skunk	36 (±17)	36 (±17)	73 (±24)	27 (±15)	36 (17)	64 (±22)	291 (±68)	142 (±57)	433 (±704)
Long-tailed Weasel	15 (±11)	0 (0)	15 (±11)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Table 11: Expanded TIDEWATER REGION estimates of total number of trappers, average days trapped, average season harvest, and average harvest per 100 trap nights for trappers targeting individual furbearer species, based upon responses to the 2013-2014 Trapper Harvest Survey (standard error estimates in parentheses)

Species	Estimated total # trappers that target species (±SE)	% of total license buyers (N=2395) (±SE)	Estimated average # days trapped per trapper (±SE)	Estimated total # days trapped (± SE)	Estimated average # traps set per day per trapper (±SE)	Estimated average season harvest Per Trapper (±SE)	Estimated average harvest per 100 trap days per trapper (±SE)
Beaver	140 (±32)	5.8% (±0.3%)	25.0 (±2.6)	3,500 (±366)	8.4 (±1.7)	20.1 (±3.7)	9.6 (±1.4)
Bobcat	82 (±25)	3.4% (±0.1%)	25.6 (±3.7)	2,098 (±300)	5.3 (±2.2)	1.1 (±.2)	0.8 (±.2)
Coyote	106 (±28)	4.4% (±0.2%)	28.3 (±3.2)	3,004 (±341)	6.9 (±1.9)	3.6 (±.8)	1.8 (±.3)
Gray Fox	140 (±32)	5.8% (±0.3%)	25.7 (±2.7)	3,610 (±376)	10.3 (±1.8)	5.3 (±.7)	2.0 (±.3)
Red Fox	137 (±31)	5.7% (±0.3%)	28.3 (±2.8)	3,882 (±384)	10.7 (±1.8)	6.6 (±1.6)	2.2 (±.3)
Mink	39 (±17)	1.6% (±0.1%)	32.2 (±5.2)	1,254 (±201)	3.6 (±3.1)	1.5 (±.6)	1.3 (±.4)
Muskrat	137 (±32)	5.7% (±0.3%)	26.8 (±3.0)	3,666 (±408)	28.4 (±9.9)	52.4 (±12.8)	6.9 (±1.1)
Nutria	18 (±12)	.8% (±0.03%)	51.3 (±9.1)	924 (±163)	3.0 (±4.5)	6.0 (±5.7)	3.9 (±3.0)
Opossum	88 (±26)	3.7% (±0.2%)	33.4 (±4.6)	2,937 (±406)	7.5 (±2.1)	8.8 (±2.2)	3.5 (±.7)
Otter	94 (±27)	3.9% (±0.2%)	32.3 (±3.9)	3,038 (±367)	5.6 (±2.0)	5.2 (±1.1)	2.9 (±.5)
Raccoon	188 (±37)	7.8% (±0.3%)	31.9 (±2.6)	6,004 (±494)	16.2 (±1.8)	22.5 (±2.8)	4.3 (±.5)
Striped Skunk	36 (±17)	1.5% (±0.1%)	38.9 (±6.1)	1,401 (±221)	3.6 (±3.4)	8.0 (±2.5)	5.7 (±1.6)
Long-tailed Weasel	15 (±11)	.6% (±0.001%)	58.6 (±8.3)	879 (±126)	2.8 (±4.9)	0 (±0)	0 (±0)

Table 12: Expanded SOUTH PIEDMONT REGION estimates of the total number of trappers, total number of successful trappers, and total harvest by furbearer species, based upon responses to the 2013-2014 Trapper Harvest Survey (95% confidence intervals in parentheses)

Species	Estimated Total # Trappers (± SE)			Estimated # Successful Trappers (± SE)			Estimated Total Harvest (± SE)		
	Target	Non-target	Total	Target	Non-target	Total	Target	Non-target	Total
Beaver	91 (±26)	6 (±7)	97 (±27)	76 (±24)	6 (±7)	82 (±25)	850 (±102)	12 (±4)	862 (±1,196)
Bobcat	79 (±24)	3 (±5)	82 (±25)	39 (±17)	3 (±5)	42 (±18)	143 (±32)	3 (1)	146 (±377)
Coyote	112 (±29)	9 (±8)	124 (±30)	82 (±25)	9 (±8)	91 (±26)	553 (±87)	9 (2)	604 (±1,022)
Gray Fox	137 (±32)	18 (±12)	155 (±34)	124 (±30)	18 (±12)	143 (±32)	807 (±107)	139 (42)	948 (±1,319)
Red Fox	106 (±28)	9 (±8)	115 (±29)	79 (±24)	9 (±8)	88 (±26)	282 (±30)	85 (±36)	368 (±526)
Mink	46 (±19)	3 (±5)	49 (±19)	27 (±15)	3 (±5)	30 (±15)	33 (±6)	3 (1)	37 (±67)
Muskrat	64 (±22)	18 (±12)	82 (±25)	49 (±19)	18 (±12)	67 (±23)	962 (±181)	1,302 (±596)	2,268 (±7,260)
Nutria	18 (±12)	3 (±5)	21 (±13)	0 (0)	3 (±5)	3 (±5)	0 (0)	12 (6)	12 (±67)
Opossum	67 (±23)	73 (±24)	140 (±32)	67 (±23)	73 (±24)	140 (±32)	732 (±88)	581 (±74)	1,314 (±1,203)
Otter	64 (±22)	3 (±5)	67 (±22)	46 (±19)	3 (±5)	49 (±19)	288 (±45)	18 (9)	307 (±537)
Raccoon	140 (±32)	24 (±14)	164 (±35)	137 (±32)	24 (±14)	161 (±34)	2,796 (±274)	182 (±32)	2,977 (±3,177)
Striped Skunk	42 (±18)	33 (±16)	76 (±24)	30 (±15)	33 (±16)	64 (±22)	261 (±53)	185 (±34)	445 (±712)
Long-tailed Weasel	15 (±11)	0 (0)	15 (±11)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Table 13: Expanded SOUTH PIEDMONT REGION estimates of total number of trappers, average days trapped, average season harvest, and average harvest per 100 trap nights for trappers targeting individual furbearer species, based upon responses to the 2013-2014 Trapper Harvest Survey (standard error estimates in parentheses)

Species	Estimated total # trappers that target species (±SE)	% of total license buyers (N=2395) (±SE)	Estimated average # days trapped per trapper (±SE)	Estimated total # days trapped (± SE)	Estimated average # traps set per day per trapper (±SE)	Estimated average season harvest Per Trapper (±SE)	Estimated average harvest per 100 trap days per trapper (±SE)
Beaver	91 (±26)	3.8% (±0.2%)	38.3 (±6.7)	3,488 (±606)	13.4 (±5.4)	9.3 (±1.7)	1.8 (±0.3)
Bobcat	79 (±24)	3.3% (±0.1%)	35.1 (±7.4)	2,774 (±586)	13.9 (±5.7)	1.8 (±.9)	0.4 (±0.1)
Coyote	112 (±29)	4.7% (±0.2%)	34.3 (±5.3)	3,943 (±608)	16.4 (±4.7)	5.6 (±1.4)	0.9 (±0.2)
Gray Fox	137 (±32)	5.7% (±0.3%)	33.2 (±4.5)	4,545 (±612)	18.6 (±4.4)	5.9 (±1.4)	1.0 (±0.1)
Red Fox	106 (±28)	4.4% (±0.2%)	35.7 (±5.6)	3,780 (±596)	18.1 (±4.9)	2.6 (±.4)	0.4 (±0.1)
Mink	46 (±19)	1.9% (±0.1%)	47.3 (±12.2)	2,117 (±562)	10.4 (±0.6)	0.7 (±0.1)	0.2 (±0.1)
Muskrat	64 (±22)	2.7% (±0.1%)	41.0 (±9.0)	2,627 (±574)	14.3 (±6.4)	15.1 (±4.9)	2.6 (±0.6)
Nutria	18 (±12)	.8% (±0.03%)	46.3 (±22.1)	834 (±399)	9.7 (±1.5)	0 (±0)	0 (±0)
Opossum	67 (±23)	2.8% (±0.1%)	42.2 (±8.7)	2,829 (±581)	12.1 (±6.6)	10.9 (±1.7)	2.1 (±0.5)
Otter	64 (±22)	2.7% (±0.1%)	46.8 (±9.4)	2,996 (±600)	12.1 (±6.3)	4.5 (±1.1)	0.8 (±0.2)
Raccoon	140 (±32)	5.8% (±0.3%)	46.3 (±4.3)	5,076 (±605)	20.7 (±4.4)	20.0 (±3.2)	2.7 (±0.3)
Striped Skunk	42 (±18)	1.8% (±0.1%)	50.5 (±12.9)	2,121 (±540)	10.5 (±8.0)	6.1 (±2.0)	1.2 (±0.4)
Long-tailed Weasel	15 (±11)	.6% (±0.001%)	47.6 (±24.0)	714 (±360)	9.2 (±13.8)	0 (±0)	0 (±0)

Table 14: Expanded NORTH PIEDMONT REGION estimates of the total number of trappers, total number of successful trappers, and total harvest by furbearer species, based upon responses to the 2013-2014 Trapper Harvest Survey (95% confidence intervals in parentheses)

Species	Estimated Total # Trappers (± SE)			Estimated # Successful Trappers (± SE)			Estimated Total Harvest (± SE)		
	Target	Non-target	Total	Target	Non-target	Total	Target	Non-target	Total
Beaver	134 (±31)	9 (±8)	143 (±32)	121 (±30)	9 (±8)	131 (±31)	1,621 (±2,609)	227 (±113)	1,845 (±2,685)
Bobcat	55 (±20)	0 (0)	55 (±20)	27 (±15)	0 (0)	27 (±15)	106 (±42)	0 (0)	105 (±312)
Coyote	85 (±25)	9 (±8)	94 (27)	61 (±22)	9 (±8)	70 (±23)	548 (±192)	21 (±10)	570 (±1,448)
Gray Fox	82 (±25)	9 (±8)	91 (±26)	67 (±23)	9 (±8)	76 (±24)	524 (±143)	21 (±19	547 (±1,079)
Red Fox	109 (±29)	9 (±8)	118 (±30)	94 (±27)	9 (±.8)	103 (±28)	2,222 (±595)	21 (±9)	2,250 (±4,483)
Mink	42 (±18)	21 (±13)	64 (±22)	21 (±27)	21 (±12)	42 (±18)	39 (±11)	51 (±22)	91 (±190)
Muskrat	85 (±25)	12 (±10)	97 (±27)	73 (±24)	12 (±10)	85 (±25)	1,057 (±195)	179 (±105)	1,238 (±1,619)
Nutria	9 (±8)	6 (±7)	15 (±11)	0 (0)	6 (±10)	6 (±7)	0 (0)	30 (±17)	31 (±126)
Opossum	73 (±24)	79 (±24)	152 (±33)	70 (±23)	79 (±7)	149 (±33)	475 (±97)	578 (±94)	1,051 (±886)
Otter	58 (±21)	9 (±8)	67 (±23)	36 (±17)	9 (±8)	46 (±19)	148 (±45)	42 (±25)	192 (±377)
Raccoon	152 (±33)	21 (±13)	173 (±35)	149 (±33)	21 (±24)	170 (±35)	3,518 (±470)	433 (±166)	3,961 (±3,573)
Striped Skunk	36 (±17)	49 (±19)	85 (±25)	30 (±15)	49 (±19)	79 (±24)	321 (±110)	200 (±39)	522 (±844)
Long-tailed Weasel	9 (±8)	0 (0)	9 (±8)	3 (5)	0 (0)	3 (±5)	1 (1)	0 (0)	1 (±1)

Table 15: Expanded NORTH PIEDMONT REGION estimates of total number of trappers, average days trapped, average season harvest, and average harvest per 100 trap nights for trappers targeting individual furbearer species, based upon responses to the 2013-2014 Trapper Harvest Survey (standard error estimates in parentheses)

Species	Estimated total # trappers that target species (±SE)	% of total license buyers (N=2395) (±SE)	Estimated average # days trapped per trapper (±SE)	Estimated total # days trapped (± SE)	Estimated average # traps set per day per trapper (±SE)	Estimated average season harvest Per Trapper (±SE)	Estimated average harvest per 100 trap days per trapper (±SE)
Beaver	134 (±31)	5.6% (±0.2%)	24.2 (±3.5)	3,243 (±475)	5.8 (±0.6)	12.1 (±2.9)	8.6 (±1.6)
Bobcat	55 (±20)	2.3% (±0.1%)	31.1 (±5.5)	1,711 (±300)	3.4 (±1.3)	1.9 (±1.1)	1.9 (±0.5)
Coyote	85 (±25)	3.5% (±0.1%)	29.8 (±3.8)	2,529 (±324)	6.9 (±1.2)	6.5 (±2.8)	3.2 (±0.6)
Gray Fox	82 (±25)	3.4% (±0.1%)	30.6 (±3.3)	2,510 (±275)	6.7 (±1.0)	6.4 (±2.0)	3.1 (±0.6)
Red Fox	109 (±29)	4.5% (±0.2%)	31.1 (±4.1)	3,391 (±443)	8.8 (±1.0)	20.4 (±6.2)	7.5 (±1.3)
Mink	42 (±18)	1.7% (±0.1%)	27.1 (±3.8)	1,137 (±160)	3.1 (±0.8)	0.9 (±0.2)	1.1 (±.3)
Muskrat	85 (±25)	3.5% (±0.1%)	33.0 (±5.0)	2,798 (±421)	5.8 (±.8)	12.5 (±2.2)	6.5 (±1.4)
Nutria	9 (±8)	.4% (±0.004%)	46.7 (±5.1)	420 (±46)	1.3 (±1.5)	0 (±0)	0 (±0)
Opossum	73 (±24)	3.0% (±0.1%)	31.7 (±5.4)	2,315 (±396)	5.6 (±1.0)	6.5 (±1.2)	3.7 (±0.9)
Otter	58 (±21)	2.4% (±0.1%)	33.1 (±6.9)	1,920 (±398)	2.5 (±0.7)	2.6 (±0.9)	3.1 (±0.9)
Raccoon	152 (±33)	6.3% (±0.3%)	34.5 (±3.5)	4,549 (±457)	13.8 (±1.4)	23.2 (±3.2)	4.9 (±0.7)
Striped Skunk	36 (±17)	1.5% (±0.1%)	32.9 (±7.9)	1,851 (±250)	4.1 (±1.3)	8.8 (±3.0)	6.5 (±2.0)
Long-tailed Weasel	9 (±8)	.4% (±0.004%)	37.0 (±3.0)	333 (±27)	1.2 (±1.2)	1.0 (±0)	2.3 (±1.3)

Table 16: Expanded SOUTHERN MOUNTAIN REGION estimates of the total number of trappers, total number of successful trappers, and total harvest by furbearer species, based upon responses to the 2013-2014 Trapper Harvest Survey (95% confidence intervals in parentheses)

Species	Estimated Total # Trappers (± SE)			Estimated # Successful Trappers (± SE)			Estimated Total Harvest (± SE)		
	Target	Non-target	Total	Target	Non-target	Total	Target	Non-target	Total
Beaver	100 (±27)	6 (±7)	106 (±28)	91 (±26)	6 (±7)	97 (±27)	433 (±102)	24 (±17)	460 (±522)
Bobcat	188 (±37)	15 (±11)	203 (±38)	115 (±29)	15 (±11)	131 (±31)	351 (±56)	18 (±7)	371 (±282)
Coyote	203 (±38)	24 (±14)	228 (±40)	158 (±34)	24 (±14)	182 (±36)	893 (±135)	133 (±68)	1,031 (±737)
Gray Fox	164 (±35)	18 (±12)	182 (±36)	106 (±28)	18 (±12)	124 (±30)	433 (±84)	58 (±25)	491 (±432)
Red Fox	176 (±36)	21 (±13)	197 (±38)	118 (±30)	21 (±13)	140 (±32)	554 (±104)	67 (±25)	622 (±530)
Mink	109 (±29)	9 (±8)	118 (±29)	73 (±24)	9 (±8)	82 (±25)	179 (±37)	157 (±129)	337 (±673)
Muskrat	167 (±35)	3 (±5)	170 (±35)	152 (±33)	3 (±5)	155 (±34)	2,680 (±533)	142 (±126)	2,830 (±2,753)
Nutria	6 (±7)	0 (0)	6 (±7)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Opossum	64 (±22)	143 (±32)	206 (±38)	61 (±22)	143 (±32)	203 (±38)	830 (±221)	1,917 (±308)	2,753 (±1,752)
Otter	64 (±22)	12 (±10)	76 (±24)	46 (±19)	12 (±10)	58 (±21)	133 (±35)	12 (5)	147 (±175)
Raccoon	237 (±41)	36 (±17)	273 (±44)	231 (±40)	36 (±17)	267 (±43)	6,422 (±711)	793 (±267)	7,232 (±3579)
Striped Skunk	36 (±17)	97 (±27)	134 (±31)	33 (±16)	97 (±27)	131 (±31)	369 (±138)	654 (±164)	2,069 (±1,280)
Long-tailed Weasel	6 (±7)	3 (±5)	9 (±8)	0 (±0)	3 (±5)	3 (±5)	0 (0)	3 (3)	3 (±14)

Table 17: Expanded SOUTHERN MOUNTAIN REGION estimates of total number of trappers, average days trapped, average season harvest, and average harvest per 100 trap nights for trappers targeting individual furbearer species, based upon responses to the 2013-2014 Trapper Harvest Survey (standard error estimates in parentheses)

Species	Estimated total # trappers that target species (±SE)	% of total license buyers (N=2395) (±SE)	Estimated average # days trapped per trapper (±SE)	Estimated total # days trapped (± SE)	Estimated average # traps set per day per trapper (±SE)	Estimated average season harvest Per Trapper (±SE)	Estimated average harvest per 100 trap days per trapper (±SE)
Beaver	100 (±27)	4.2% (±0.2%)	22.1 (±3.3)	2,212 (±333)	2.1 (±0.4)	4.3 (±0.8)	9.1 (±1.9)
Bobcat	188 (±37)	7.8% (±0.3%)	34.8 (±2.8)	6,540 (±483)	5.9 (±0.5)	1.9 (±0.2)	.9 (±0.1)
Coyote	203 (±38)	8.5% (±0.4%)	48.7 (±3.2)	9,889 (±649)	9.0 (±0.7)	4.4 (±0.6)	1.0 (±0.1)
Gray Fox	164 (±35)	6.8% (±0.3%)	44.3 (±3.4)	7,403 (±570)	6.5 (±0.7)	2.6 (±0.5)	.9 (±0.1)
Red Fox	176 (±36)	7.3% (±0.3%)	47.2 (±3.2)	8,302 (±569)	7.1 (±0.6)	3.1 (±0.5)	.9 (±0.1)
Mink	109 (±29)	4.6% (±0.1%)	34.4 (±3.1)	3,748 (±343)	3.7 (±0.7)	1.6 (±0.3)	1.3 (±0.2)
Muskrat	167 (±35)	7.0% (±0.3%)	34.1 (±2.9)	5,669 (±482)	7.9 (±1.0)	16.1 (±2.8)	6.0 (±0.8)
Nutria	6 (±7)	.3% (±0.01%)	28.5 (±2.9)	171 (±17)	0.1 (±0.2)	0 (±0)	0 (±0)
Opossum	64 (±22)	2.7% (±0.1%)	50.4 (±7.3)	3,224 (±465)	3.6 (±0.8)	13.0 (±2.5)	7.2 (±1.6)
Otter	64 (±22)	2.7% (±0.1%)	34.6 (±4.5)	2,215 (±288)	1.2 (±0.2)	2.1 (±0.4)	5.1 (±1.3)
Raccoon	237 (±41)	9.9% (±0.4%)	45.3 (±2.7)	10,740 (±641)	13.5 (±1.1)	27.2 (±2.5)	4.4 (±0.4)
Striped Skunk	36 (±17)	1.5% (±0.6%)	48.7 (±9.0)	1,752 (±324)	2.2 (±1.0)	10.2 (±2.8)	9.7 (±2.9)
Long-tailed Weasel	6 (±7)	.3% (±0.01%)	19.5 (±4.5)	117 (±27)	0.1 (±0.3)	0 (±0)	0 (±0)

Table 18: Expanded NORTHERN MOUNTAIN REGION estimates of the total number of trappers, total number of successful trappers, and total harvest by furbearer species, based upon responses to the 2013-2014 Trapper Harvest Survey (95% confidence intervals in parentheses)

Species	Estimated Total # Trappers (± SE)			Estimated # Successful Trappers (± SE)			Estimated Total Harvest (± SE)		
	Target	Non-target	Total	Target	Non-target	Total	Target	Non-target	Total
Beaver	93 (±23)	3 (±5)	73 (±24)	58 (±21)	3 (±5)	61 (±22)	439 (±110)	3 (3)	441 (±625)
Bobcat	73 (±24)	0 (0)	73 (±24)	33 (±16)	0 (0)	33 (±16)	100 (±41)	0 (0)	101 (±233)
Coyote	121 (±30)	9 (±8)	131 (±31)	94 (±26)	9 (±8)	103 (±28)	542 (±163)	12 (±6)	553 (±929)
Gray Fox	164 (±35)	12(±10)	176 (±36)	137 (±32)	12 (±10)	149 (±33)	818 (±146)	27 (±15)	854 (±832)
Red Fox	188 (±37)	6 (±7)	194 (±37)	176 (±36)	6 (±7)	182 (±36)	1,729 (±284)	51 (±40)	1,779 (±1,623)
Mink	88 (±28)	6 (±7)	94 (±27)	67 (±23)	6 (±7)	73 (±24)	173 (±39)	9 (±6)	183 (±224)
Muskrat	137 (32)	6 (±7)	143 (±32)	131 (±31)	6 (±7)	137 (±32)	1,565 (±294)	61 (±42)	1,627 (±1,675)
Nutria	3 (±5)	0 (0)	3 (±5)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Opossum	88 (±19)	106 (±28)	194 (±37)	85 (±25)	106 (±28)	191 (±37)	869 (±159)	596 (±145)	1,466 (±1,114)
Otter	49 (±19)	0 (0)	49 (±19)	30 (±15)	0 (0)	30 (±15)	415 (±299)	0 (0)	414 (±1,702)
Raccoon	219 (±39)	15 (±11)	234 (±41)	212 (±39)	15 (±11)	228 (±40)	3,049 (±395)	185 (±137)	3,235 (±2,321)
Striped Skunk	61 (±22)	79 (±24)	140 (±32)	58 (±21)	79 (±24)	137 (±32)	397 (±122)	445 (±138)	842 (±1,007)
Long-tailed Weasel	9 (±8)	0 (0)	61 (±22)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Table 19: Expanded NORTHERN MOUNTAIN REGION estimates of total number of trappers, average days trapped, average season harvest, and average harvest per 100 trap nights for trappers targeting individual furbearer species, based upon responses to the 2013-2014 Trapper Harvest Survey (standard error estimates in parentheses)

Species	Estimated total # trappers that target species (±SE)	% of total license buyers (N=2395) (±SE)	Estimated average # days trapped per trapper (±SE)	Estimated total # days trapped (± SE)	Estimated average # traps set per day per trapper (±SE)	Estimated average season harvest Per Trapper (±SE)	Estimated average harvest per 100 trap days per trapper (±SE)
Beaver	93 (±23)	3.9% (±0.2%)	13.0 (±3.2)	913 (±224)	2.0 (±0.4)	6.3 (±1.3)	4.2 (±1.2)
Bobcat	73 (±24)	3.0% (±0.2%)	26.4 (±4.5)	1,928 (±331)	3.1 (±1.1)	1.4 (±0.7)	1.7 (±0.4)
Coyote	121 (±30)	5.1% (±0.2%)	31.9 (±3.3)	3,859 (±394)	6.3 (±1.1)	4.5 (±1.4)	2.2 (±0.3)
Gray Fox	164 (±35)	6.8% (±0.3%)	32.6 (±9.3)	5,346 (±526)	8.5 (±0.9)	5.0 (±0.8)	9.5 (±1.3)
Red Fox	188 (±37)	7.9% (±0.3%)	37.1 (±4.0)	6,968 (±751)	9.8 (±0.8)	9.2 (±1.4)	2.5 (±0.4)
Mink	88 (±28)	3.7% (±0.2%)	22.2 (±3.0)	1,957 (±268)	3.4 (±0.5)	2.0 (±0.4)	3.7 (±0.8)
Muskrat	137 (32)	5.7% (±0.2%)	21.8 (±2.5)	2,986 (±348)	5.6 (±0.7)	11.5 (±1.9)	9.3 (±1.6)
Nutria	3 (±5)	.1% (±0.01%)	20.0 (±0)	60 (±0)	0.4 (±0.6)	0 (±0)	0 (±0)
Opossum	88 (±19)	3.7% (±0.2%)	29.4 (±2.9)	2,588 (±257)	4.7 (±0.9)	9.9 (±1.3)	7.2 (±1.3)
Otter	49 (±19)	2.0% (±0.01%)	24.6 (±4.9)	1,203 (±240)	1.6 (±0.9)	8.6 (±7.5)	2.1 (±0.5)
Raccoon	219 (±39)	9.1% (±0.4%)	34.7 (±3.4)	7,601 (±744)	10.9 (±0.9)	14.0 (±1.7)	3.7 (±0.5)
Striped Skunk	61 (±22)	2.5% (±0.1%)	31.9 (±5.9)	1,942 (±358)	3.8 (±1.3)	6.6 (±1.7)	5.4 (±1.4)
Long-tailed Weasel	9 (±8)	.4% (±0.02%)	35.7 (±12.0)	321 (±108)	0.4 (±0.6)	0 (±0)	0 (±0)

Table 20: Rare furbearer observations based upon responses to the 2013-2014 Trapper Harvest Survey

Fisher:

Number reported observed: 7

Number reported trapped: 0

Counties of observation: Amherst, Middlesex, Frederick, Page, Rockingham (x2), Caroline

Spotted Skunk:

Number reported observed: 8

Number reported trapped: 2

Counties of observation: Spotsylvania, Frederick, Madison, Sussex (x2), Halifax

Counties where trapped: Grayson

Least Weasel:

Number reported observed: 6

Number reported trapped: 3

Counties of observation: Warren, Madison, Fauquier, Prince Edward, Prince George, Sussex

Counties where trapped: Buckingham

APPENDIX A

2013-2014 Virginia Trapper Harvest Survey

This is your 2013-2014 Virginia Trapper Harvest Survey. Please complete the survey and return it in the enclosed business reply envelope. Your response is completely confidential and very important. Please send in your response, even if you did not trap this season. If you have any questions, please contact the survey administrator Dr. Quentin Kidd at (757) 594-8033 or qkidd@cnu.edu.

First, did you trap in Virginia between November 15, 2013 and February 28, 2014?

☐ **Yes** ☐ **No**

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

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

Instructions for Completing the Trapping Table:

1. Please report information for furbearers trapped during the general trapping season (Nov. 15, 2013 to Feb. 28, 2014) only. 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. Write "*Unknown*" if you do not recall the name of the county or city where you trapped.
3. **For Targeted Species:**
   - Indicate total # of animals trapped, total # of days trapped, and average # of traps set per day for each species in each county.
   - If you were unsuccessful at catching a targeted species, place a "0" for the total # of animals trapped, but still report the total # of days trapped and the average # of traps set per day for that species. ***See bobcat example for how to report unsuccessful target species trapping.***
4. **For Non-Target/Incidental captures:**
   - If you captured non-target/incidental animals, please report the total # of animals trapped, but place a "0" for the total # days trapped and a "0" for the average # of traps set per day, since these animals were not the primary target for your traps. ***See gray fox and opossum examples for how to report incidentally trapped animals.***
5. For fisher, spotted skunk, and least weasel, please indicate if you observed or trapped these species during the past trapping season. If YES, please provide a detailed location where each animal was observed or trapped OR you may contact DGIF Furbearer Project Leader Mike Fies at 540-248-9390 or mike.fies@dgif.virginia.gov to provide specific details.

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

	Write in the name of each county or city in which you trapped																	
	Example			County/City #1			County/City #2			County/City #3			County/City #4			County/City #5		
	Buckingham																	
For each species, record total # of animals trapped, total # days trapped, and average # traps set per day (see instructions on opposite side of page) →	# Animals Trapped	# Days Trapped	Average # Traps Set Per Day	# Animals Trapped	# Days Trapped	Average # Traps Set Per Day	# Animals Trapped	# Days Trapped	Average # Traps Set Per Day	# Animals Trapped	# Days Trapped	Average # Traps Set Per Day	# Animals Trapped	# Days Trapped	Average # Traps Set Per Day	# Animals Trapped	# Days Trapped	Average # Traps Set Per Day
Beaver	17	15	10															
Bobcat	0	7	5															
Coyote																		
Gray Fox	2	0	0															
Red Fox	10	12	8															
Mink																		
Muskrat	55	30	15															
Nutria																		
Opossum	25	0	0															
Otter																		
Raccoon																		
Striped Skunk																		
Long-tailed Weasel																		

Please indicate if you observed or trapped any of the following species during this past trapping season. If YES, please provide a detailed location where the observation occurred. You may also provide details to DGIF Furbearer Project Leader Mike Fies at 540-248-9390 or mike.fies@dgif.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: _____

2013-2014 VDGIF Trapper Survey 25

APPENDIX B

CHRISTOPHER NEWPORT UNIVERSITY'S
JUDY FORD WASON
CENTER FOR PUBLIC POLICY

March 18, 2014

First Name Last Name
Street Address
City, State, Zip

Dear First Name:

Enclosed you will find the 2013-14 Virginia Trapper Harvest Survey. This survey is being conducted by the Wason Center for Public Policy at Christopher Newport University for the Virginia Department of Game and Inland Fisheries. I would appreciate your assistance in this voluntary survey designed to estimate the statewide harvest for furbearers during the 2013-14 trapping season.

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

If you have questions or comments about this survey, please do not hesitate to contact me via phone at (757) 594-8033, email at **qkidd@cnu.edu**, or mail at Wason Center for Public Policy, Christopher Newport University, McMurran Hall 264, Newport News, VA 23601. You may also contact Mike Fies with the Virginia Department of Game and Inland Fisheries at (540) 248-9390, or **mike.fies@dgif.virginia.gov**.

Your assistance in providing information is appreciated and important for an effective furbearer management program in Virginia. Please complete and return the questionnaire **within the next 10 days**.

Sincerely,

Dr. Quentin Kidd

APPENDIX C

2013-2014 Virginia Trapper Harvest Survey

This is a friendly reminder to fill out and return your 2013-2014 Virginia Trapper Harvest Survey. The information gathered through this survey helps produce an effective furbearer management program in Virginia for future trappers. If you have any questions, please e-mail or call: qkidd@cnu.edu or 757-594-8499.

Thank you,

Quentin Kidd
Christopher Newport University

APPENDIX D

CHRISTOPHER NEWPORT UNIVERSITY'S
JUDY FORD WASON
CENTER FOR PUBLIC POLICY

April 15, 2014

First Name Last Name
Street Address
City, State, Zip

Dear First Name:

A few weeks ago we sent you the 2013-14 Virginia Trapper Harvest Survey. Sometimes there is a delay in our recording survey results, so if you have completed and returned the survey already, thank you and please disregard this reminder. Do not complete and return a second survey. If you have not yet completed the 2013-2014 Virginia Trapper Harvest Survey, we ask you to please do so now. This will be your last opportunity to participate in this year's study.

This survey is being conducted by the Wason Center for Public Policy at Christopher Newport University for the Virginia Department of Game and Inland Fisheries. It has been sent to a random sample of Virginia licensed trappers and it is important that every recipient send in a response. All information on this survey is **completely confidential**. No personally identifiable information is being collected so that responses cannot be tied to an individual. A postage-paid envelope has been enclosed for your convenience in returning the completed questionnaire.

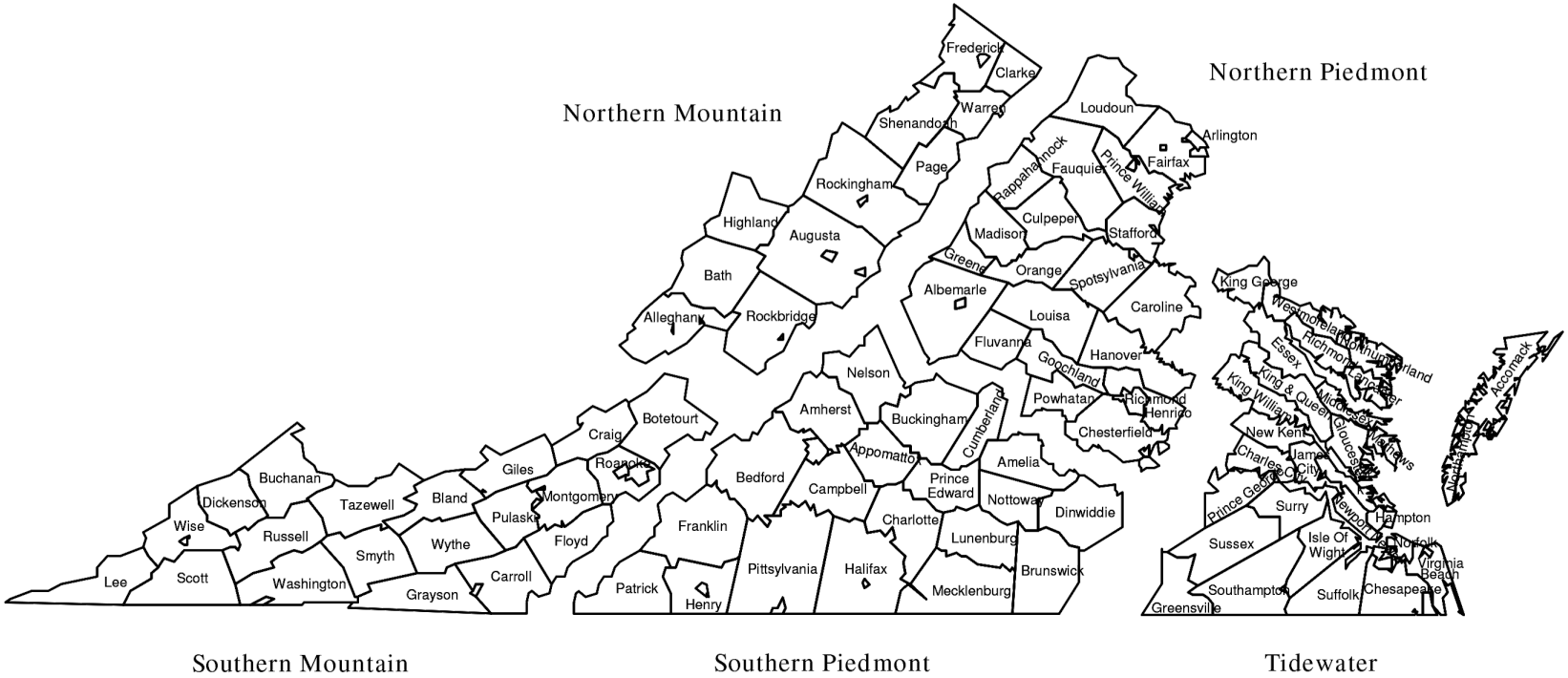
If you have questions or comments about this survey, please do not hesitate to contact me via phone at (757) 594-8033, email at **qkidd@cnu.edu**, or mail at Wason Center for Public Policy, Christopher Newport University, McMurran Hall 264, Newport News, VA 23601. You may also contact Mike Fies with the Virginia Department of Game and Inland Fisheries at (540) 248-9390, or **mike.fies@dgif.virginia.gov**.

Your assistance in providing information is appreciated and important for an effective furbearer management program in Virginia. Please complete and return the questionnaire **within the next 10 days**.

Sincerely,

Dr. Quentin Kidd

APPENDIX E


Northern Mountain
Northern Piedmont
Southern Mountain
Southern Piedmont
Tidewater
Frederick
Clarke
Warren
Shenandoah
Page
Rockingham
Highland
Augusta
Bath
Alleghany
Rockbridge
Loudoun
Arlington
Fairfax
Rappahannock
Fauquier
Prince William
Culpeper
Madison
Stafford
Greene
Orange
Spotsylvania
Albemarle
Louisa
Caroline
Fluvanna
Hanover
Goochland
Powhatan
Richmond
Henrico
Chesterfield
Nelson
Amherst
Buckingham
Cumberland
Appomattox
Amelia
Prince Edward
Nottoway
Dinwiddie
Charlotte
Lunenburg
Brunswick
Mecklenburg
Halifax
Pittsylvania
Campbell
Bedford
Franklin
Patrick
Henry
Botetourt
Craig
Roanoke
Giles
Montgomery
Pulaski
Floyd
Bland
Tazewell
Buchanan
Dickenson
Wise
Russell
Smyth
Wythe
Carroll
Grayson
Washington
Scott
Lee
King George
Westmoreland
Northumberland
Richmond
Lancaster
Essex
King & Queen
King William
Middlesex
Gloucester
Mathews
New Kent
Charles City
James City
Prince George
Surry
Newport
Hampton
Norfolk
Isle Of Wight
Sussex
Virginia Beach
Southampton
Suffolk
Chesapeake
Greensville
Accomack
Northampton

APPENDIX F

2013-2014 Virginia Trapping Season Dates

There is a continuous open season to trap beaver, muskrat, opossum, and raccoon within the incorporated limits of any city or town in the Commonwealth, and in the counties of Arlington, Chesterfield, Fairfax, Henrico, James City, Loudoun, Prince William, Spotsylvania, Stafford, Roanoke, and York. When beavers are damaging crops or lands, the owner of the premises, his agent, or tenant, may kill the animals or have them killed. This includes shooting, except in areas where the discharge of firearms is prohibited.

Beaver
December 1 through February 28

Bobcat
November 15 through February 28

Coyote
Continuous open season.

Fisher
Continuous closed season.

Fox
November 15 through February 28
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.

Mink
December 1 through February 28

Muskrat
December 1 through February 28

Nutria
Continuous open season

Opossum
November 15 through February 28

Otter
December 1 through February 28

Raccoon
November 15 through February 28

Skunk
Continuous open season for striped skunk. Continuous closed season for taking spotted skunk and the pelts of spotted skunk may not be sold.

Weasel
December 1 through February 28