2017 VERMONT WILDLIFE HARVEST REPORT – MOOSE

VERMONT
FISH & WILDLIFE DEPARTMENT
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2017 Vermont Moose Harvest Report

Most of the programs described in this report are funded through the *Federal Aid in Wildlife Restoration Program*. This program was initiated in 1937 as the Federal Aid in Wildlife Act and created a system whereby taxes are paid on firearms, ammunition and archery equipment by the public who hunts. Today this excise tax generates over a hundred million dollars each year that are dedicated to state wildlife restoration and management projects across the United States. The State of Vermont uses these monies for acquiring land, and for restoring and managing wildlife. These excise tax dollars, coupled with state hunting license fees, have been the predominant source of money funding the successful restoration and management of Vermont's wildlife resources.

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The MISSION of the Vermont Fish & Wildlife Department is the conservation of fish, wildlife, and plants and their habitats for the people of Vermont.

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2017 Moose Report

Forty moose were harvested in Vermont's 2017 moose seasons. Eight moose were taken during the archery-only season and 32 in the regular season. An estimated 6 tons of moose venison was harvested during the combined seasons, providing an estimated 48,000 meals.

Archery Season

For Vermont's seventh annual archery-only moose season, a total of 1,265 valid lottery applications were received (796 residents and 469 non-residents). Specific numbers of permits were allocated for individual or a combination of Wildlife Management Units (WMUs), and only bulls could be harvested statewide. Eighteen permits were issued, with 16 allocated to residents, and 2 to non-residents. One non-resident won his permit through the annual auction.

Harvest Dates and Success Rates

The archery moose season ran for seven days, from October 1-7, during the peak of the moose rutting season. Bulls are more responsive to calling at this time of year compared to mid-October, thus increasing the odds that bow hunters can call in moose to within shooting distance. Moose were taken on three different days of the season (Table 1). The overall success rate was 44%, up from 33% in 2016 and above the long-term average of 36%. Success rates by WMU are given in Table 2.

TABLE 1. 2017 ARCHERY MOOSE HARVEST BY DAY OF SEASON

Season Day	1	2	3	4	5	6	7
Moose Harvested	3	0	0	3	2	0	0

Harvest Data

The Vermont Fish & Wildlife Department does not operate official biological reporting stations during the moose archery season. This is because with the low permit numbers and statewide distribution of the archers, it would not be cost effective to staff reporting stations. Instead, successful moose archers may report their kill to

Scouting

Moose hunter surveys were returned by 10 (56%) of the 18 archery season hunters, all of whom reported that their party scouted prior to the hunting season. Average time spent scouting was 30 hours/party, and the average number of moose seen per hour scouted was 0.063, or approximately 1 moose seen for every 16 hours of scouting effort.

Hunting Information

Six of the 10 archery survey respondents saw at least one moose during the open season; the total moose seen was 17. No hunters passed up on any bulls. Hunting methods used included calling (all 10 respondents), still hunting (5), ground blinds and tracking (2 each), and tree stand (1).

any authorized regular big game reporting station. Some of these stations are set up to weigh moose, and most also recorded antler spreads and point totals from the bulls. This data is presented in Table 3. Scaled carcass weights were obtained for 6 moose, the largest weighing 880 pounds. The largest spread was 52 inches. Seven moose were taken by residents and one by a non-resident. Three moose were taken with crossbows.

Photo Courtesy Vermont Big Game Trophy Club.

TABLE 2. 2017 VERMONT ARCHERY MOOSE HUNTER SUCCESS RATES BY WMU

WMU	Permits Issued	Harvest	2017 Percent Success
B & C	1	0	0.00
D1	1	0	0.00
D2	1	0	0.00
E1	3	1	0.33
E2	3	2	0.67
H	1	1	1.00
I	1	0	0.00
J1	1	1	1.00
J2	1	1	1.00
L	1	0	0.00
M & O	3	2	0.67
P & Q	1	0	0.00
Totals	**18**	**8**	**0.44**

NOTE: 1 auction winner elected to bow hunt in WMU M.

TABLE 3. 2017 VERMONT LEGAL MOOSE ARCHERY SEASON HARVEST DATA

WMU	Town of Kill	Age Class	Cementum Age	Sex	Scaled Weight (pounds)	Spread (inches)	Total Points
E1	Norton	Adult	12	Male	880	51	14
E1	Averill	Adult	3	Male	648	36	9
E2	Ferdinand	Adult	—	Male	747	52	14
H	Worcester	Adult	7	Male	762	47	14
J1	Roxbury	Adult	4	Male	692	31	4
J2	Concord	Adult	6	Male	702	47.25	10
M	Stockbridge	Adult	2	Male	—	30	10
M	Windham	Adult	—	Male	—	35	—

Regular Season

A total of 4,436 valid applications were received for the 2017 Vermont regular moose season lottery (3,199 residents and 1,237 non-residents). Unsuccessful applicants from the previous seasons were awarded bonus points if they applied again in 2017. Eighty-three percent of the permits (58) were allocated to residents and the remainder (12) to non-residents. Included in the non-resident total were four permits won through an auction process, and three Special Opportunity Permits issued, through a sponsoring organization, to youths with a life-threatening illness. All permits, except for the three Special Opportunity Permits, were valid only for bull moose.

Harvest Dates and Success Rates

Vermont's 25th moose season began on the third Saturday in October (21st) and ran for six days. The opening weekend weather was exceptionally warm, with highs in the 70s, and with no precipitation. Rain and wind occurred later in the season, but temperatures remained unseasonably warm. Hunter visibility was once again reduced due to the later than normal leaf fall. Over a third of the moose harvest occurred on opening day (Table 4). Overall success rate was 45%, down slightly from 47% the previous year (Table 5).

Biological Data

Thirty-one (97%) of moose taken were bulls and one (3%) was a cow. Completely-dressed carcass weights were obtained from 29 moose, or 91% of the total harvest. Three bulls weighed over 700 lbs., and the largest was a 731-lb., 6-year old taken in Belvidere. The bull with the widest spread at 47.5 inches was a 5-year old taken in Eden. The average completely-dressed weight of 5 yearling and 23 older bulls was 417 and 643 lbs., respectively.

The Department again sampled larval tick loads on moose harvested in 2017 and found an average of 16.9 ticks/bull, equal to the previous year and 40% lower the first count in 2013 (28.4 ticks/bull).

TABLE 4. 2017 VERMONT MOOSE HARVEST DISTRIBUTION BY DATE, SEX, AND AGE CLASS

Date	Bulls	Cows	Calves	Total	Percent
October 21	8	—	—	8	.25
October 22	2	—	—	2	.06
October 23	8	1	—	9	.28
October 24	7	—	—	7	.22
October 25	3	—	—	3	.09
October 26	3	—	—	3	.09
Totals	**31**	**1**	**0**	**32**	**1.00**

TABLE 5. 2017 VERMONT MOOSE HUNTER SUCCESS RATES BY WMU

WMU	Bulls	Cows	Male Calves	Female Calves	Total Harvest	Permits Issued	2017 Percent Success	2016 Percent Success
B & C	1				1	4	.25	.45
D1	2				2	9	.22	.20
D2	4				4	9	.44	.50
E1	10				10	12	.83	.70
E2	5	1			6	8	.75	.53
G	—				—	—	—	.40
H	1				1	4	.25	.40
I	0				0	4	0	.40
J1	1				1	3	.33	0
J2	1				1	4	.25	.10
L	1				1	4	.25	.40
M & O	4				4	4	1.00	.30
P & Q	1				1	4	.25	.20
Totals	**31**	**1**			**32**	**70**	**.46**	**.45**
% of Total	.97	.03						

Permit total of 70 includes 4 auction winners and 3 Special Opportunity (any WMU) Permits.

2 successful SOPs are included in WMU totals where their moose was taken.

1 unsuccessful SOP is not included in any WMU total, but only in the overall total.

A central incisor tooth was collected from 31 adult moose to establish age data. The average age of adult moose was 3.97 years (Figure 1). Fifty-eight percent of adults were four years old or older, which is well above the minimum goal of 25% as called for in the 10-year Big Game Plan. The oldest moose aged was a 10-year-old bull taken in Granby. Twenty-three percent were yearlings, up from a record low of 7% last year. Only 6.4% were 2-year-olds, down from 18% in 2016, further evidence that there was low survival of calves during the winter of 2015-16 and/or reduced calf production in 2015.

Town of Kill

Moose were taken in 21 different towns. The towns with the highest harvests were Lemington (5) and East Haven (3). Two moose were taken in 5 towns (Avery, Andover, Granby, Warren's Gore, and Wheelock), and 1 each in the remaining 14 towns. Figure 2 shows the geographic distribution of the moose harvest by township and WMU.

Scouting

Moose hunter surveys were returned by 39 of the 70 permittees, 37 (95%) of whom reported that they scouted prior to the hunting season. Average time spent scouting was 34.7 hours/ hunting party, and the average number of moose seen per hour scouted was 0.079, or approximately 1 moose seen for every 13 hours of scouting effort. This sighting rate was up 55% from the previous year (Table 6).

Hunter Success

Forty-one and 75% of resident and non-resident permits, respectively, were successfully filled. The eight successful non-resident permittees hailed from six different states as follows:

Connecticut, New York, and Wisconsin (two each), and Ohio and Virginia (one each). Sub-permittees took 4 (12.5%) of the moose killed. All moose were taken with a rifle. Physical measurements from harvested moose are shown in Table 7 (males) and Table 8 (females).

Overall, 38 hunters were unsuccessful, and 16 (42%) of them returned a survey. Two-thirds of these unsuccessful hunters hunted all six days of the season; the remaining third all hunted five days. Nine of the 16 responding unsuccessful hunters saw at least one moose, and two of them passed one bull each.

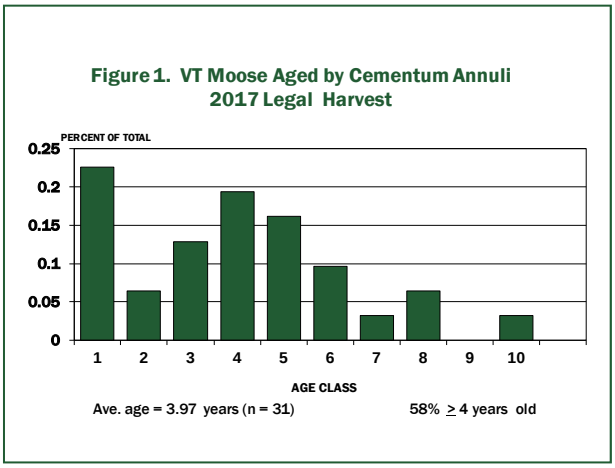

TABLE 6. MOOSE SEEN PER HOUR SCOUTED BY 37 HUNTERS WHO SCOUTED, 2017 VERMONT MOOSE HUNT

WMU	Number Scouting	Moose Seen	Hours Scouted	Hours/ Hunter	Moose/ Hr. Scouted	MSHS 2016	MSHS 2015	MSHS 2014	MSHS 2013
B/C	2	4	84	42	0.047	0.016	0.041	0.02	0.03
D1	4	0	115	28.8	0.000	0.043	0.017	0.03	0.05
D2	5	3	91	18.2	0.033	0.039	0.050	0.06	0.07
E1	4	20	112	28	0.179	0.087	0.100	0.14	0.08
E2	6	24	285	47	0.084	0.212	0.077	0.05	0.09
G	n/a	—	—	—	—	0.000	0.000	0.03	0.06
H	3	12	102	34	0.118	0.025	0.038	0.06	0.02
I	0	—	—	—	—	0.010	0.059	0.04	0.11
J1	2	6	84	42	0.071	0.000	0.063	0.04	0.04
J2	2	9	96	48	0.094	0.188	0.060	0.02	0.02
L	4	0	99	24.8	0.000	0.000	0.095	0.01	0.04
M/O	3	3	185	61.7	0.119	0.034	0.045	0.08	0.04
P/Q	2	2	32	16	0.031	0.020	0.206	0.03	0.02
Totals	**37**	**101**	**1,285**	**34.7**	**0.079**	**0.051**	**0.059**	**0.056**	**0.053**

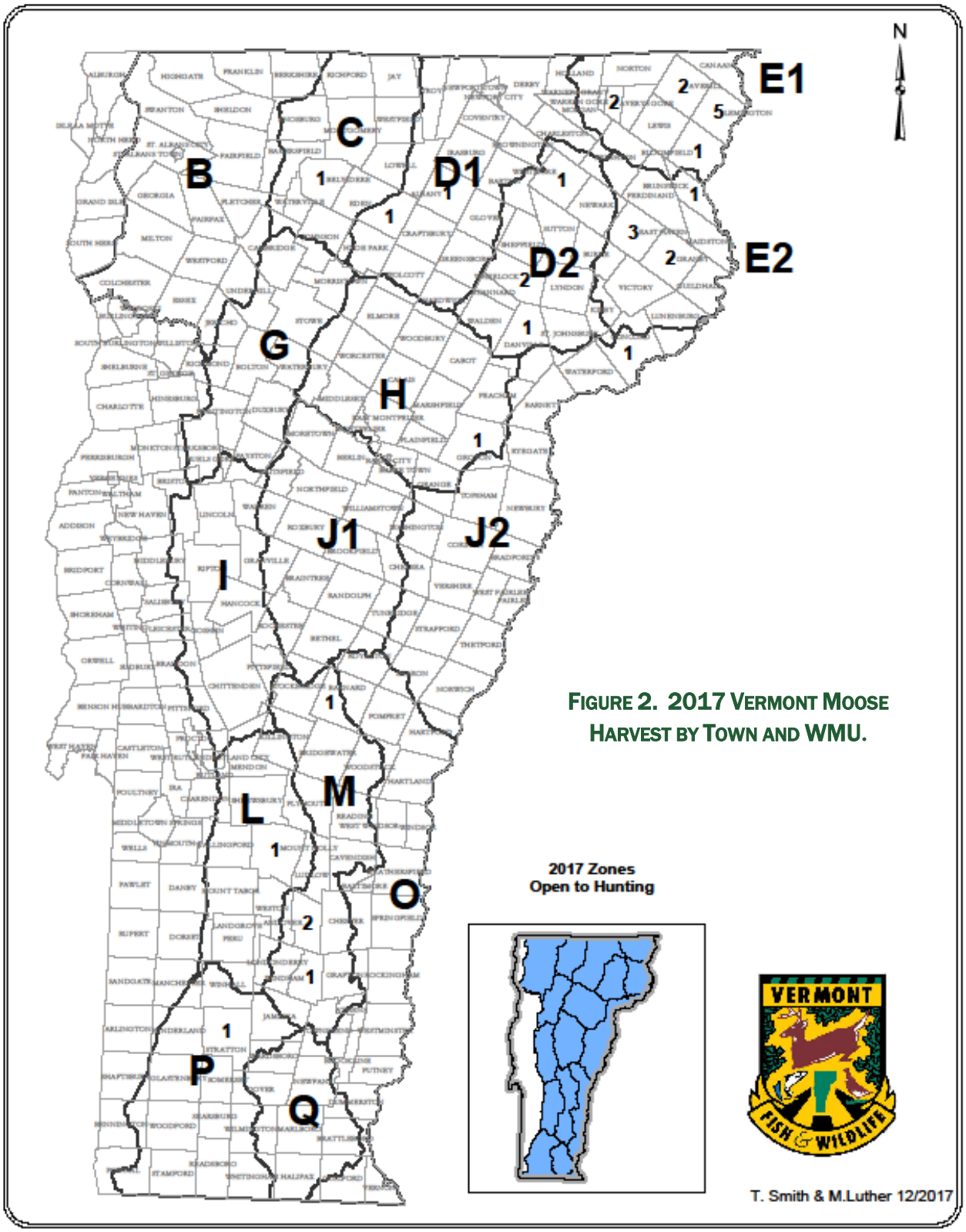

FIGURE 2. 2017 VERMONT MOOSE HARVEST BY TOWN AND WMU.

TABLE 7. 2017 VERMONT MOOSE LEGAL HARVEST DATA – MALES ONLY

WMU	TOWN of KILL	AGE	WEIGHT	BEAM	POINTS/L	POINTS/R	SPREAD
C	Belvidere	6	731	51.5	6	7	44
D1	Eden	5	653	49.5	6	8	47.5
D1	Albany	3	583	39.5	3	3	33.5
D2	Westmore	5	682	49	8	9	46
D2	Danville		665				
D2	Wheelock	3	606	41.5	3	4	31
D2	Wheelock	3	495	41	2	3	33
E1	Bloomfield	4	688	45	5	3	34
E1	Lemington	5	667	49	5	5	44
E1	Warren Gore	1	434	29	3	3	29
E1	Lemington	8	677	55.5	5	6	42.5
E1	Lemington	1	375	25.5	1	1	14
E1	Lemington	6	728	59	9	9	43.5
E1	Warren Gore	5	723	50	8	8	41.5
E1	Lemington	1		41.5	2	2	23
E1	Averill	2	582	40	5	6	37
E1	Averill	4	695	46.5	6	5	42.5
E2	Granby	6	661	52.5	7	6	42
E2	East Haven	4	650	45.5	6	5	42
E2	Granby	10		54	9	7	42
E2	East Haven	2	547	41.5	3	5	27
E2	East Haven	1	418	27	2	2	22
H	Groton	8	688	50.5	6	5	44
J1	Granville	7	667	99	4	4	37
J2	Concord	1	429	37	2	2	22
L	Mount Holly	3	639	47	4	5	42
M	Andover	4	691	48	8	6	38.5
M	Andover	1	429	37.5	2	2	24
M	Barnard	5	544	36	3	3	29
M	Windham	4	673	52.5	6	9	38.8
P	Somerset	4	526	40	4	4	31

Weight is carcass weight completely dressed in lbs., Beam is in millimeters, Pts. /Left and Right are number of points at least 1 inch long; Spread is in inches measured to the nearest half-inch. Age is cementum age except for 0.5 is a calf aged by tooth replacement at department-operated check station; Blank cells are unknown or missing data.

TABLE 8. 2017 VERMONT MOOSE LEGAL HARVEST DATA– FEMALES ONLY

WMU	TOWN of KILL	WEIGHT	AGE	OVARIES	CL1	CL2	TOTALCL
E2	Brunswick	422	1	YES	0	0	0

Weight is carcass weight completely dressed in pounds; Total CL is number of corpora lutea; Age is cementum age except for 0.5 is a calf aged by tooth replacement; Blank cells are unknown or missing data.

Permit Numbers

The moose herd in the Northeast Kingdom was finally reduced to target densities seven years ago, after many years of overpopulation. To achieve this, high numbers of either-sex and antlerless-only hunting permits were issued from 2004 through 2010. Permit numbers returned to normal levels in 2011 and were reduced over each of the next three years as the statewide moose estimate continued to decline over this period. Despite population reduction, reproductive rates remained well below healthy levels, and permit numbers were reduced further for the 2015 season. In addition, for the first time, permits for most WMUs were restricted to bulls-only to help populations grow more quickly toward the desired levels.

When moose population trends in most WMUs showed little to no growth, or continued to decline, permit numbers were lowered again in 2017, and bulls-only hunting was expanded to include all open WMUs. It was anticipated that bulls-only permits might be used for no more than a few years, otherwise the adult sex-ratio could become out of balance, possibly leading to late- or un-bred cows. Current data indicate the adult sex-ratio remains at acceptable levels, but it will continue to be monitored annually.

We remain concerned about how a warming climate may affect moose health, including the potential to lead to more severe parasite infestations, most notably winter ticks and brainworm. A multi-year study was begun in January 2017, with the radio-collaring of 30 cows and 30 calves in WMU E, designed to learn more about the rate and cause of mortalities, and calf production. First year results saw 60% and 90% overwinter survival of calves and cows, respectively, and the birth of 16 calves to 19 pregnant cows. Six of these calves, born in May 2017, died before mid-June. Another 30 calves, along with 6 additional cows, were successfully collared in January 2018.