



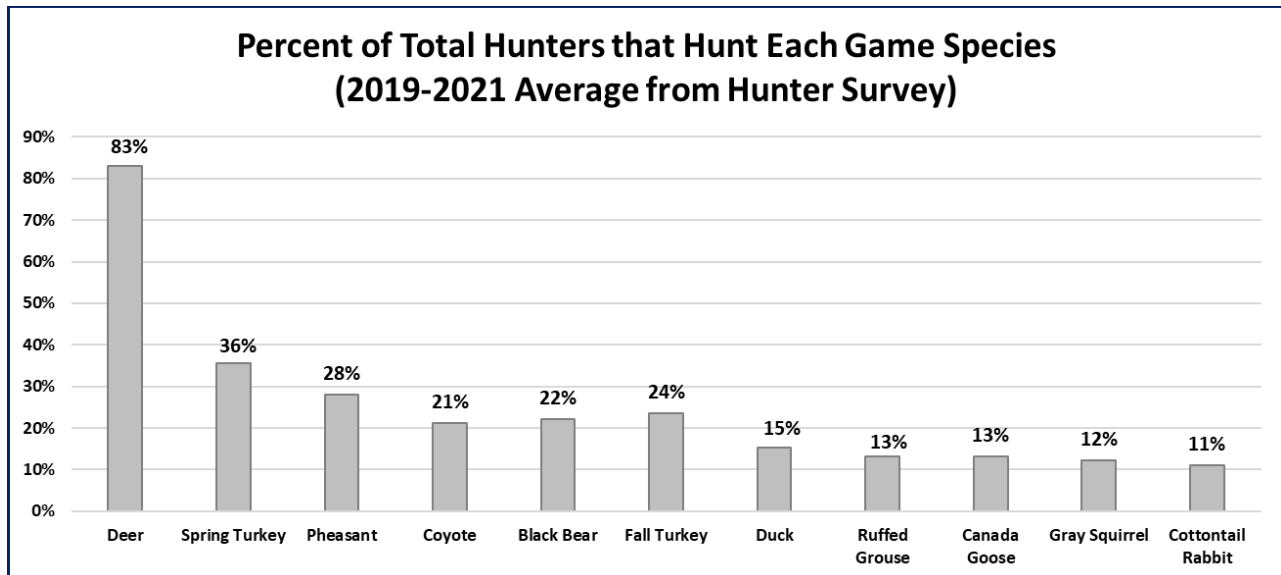
DIVISION OF FISHERIES & WILDLIFE

Hunter Survey Summary (2012 – 2021)

This is a summary of last year's hunter survey and some interesting harvest statistics. Thank you for responding to the hunter survey, which is sent out each year to a random selection of hunting or sporting license buyers that had a valid email address in the MassFishHunt system. Your responses are valuable for our biologists and for improving future hunting opportunities and decisions.

When asked if a respondent actually hunted in Massachusetts, **77%** responded with yes (3-yr average), **20%** responded with I bought a license intending to hunt, but did not actually hunt, and **3%** responded with I purchased a license with no intention of hunting (e.g., to donate money, etc.). We then use the 77% figure with our total hunting/sporting licenses sold (72,271 = 3-yr average) to come up with approximately **55,500** active MA hunters per year.

We can then use this estimate of 55,500 and the below estimates of the proportion of hunters that target each species, to come up with approximate estimates of the total number of hunters that actually hunted each species. For instance, we can calculate that there are approximately **46,000 deer hunters** in MA (55,500 active hunters x **82%** of surveyed hunters reported targeting deer).



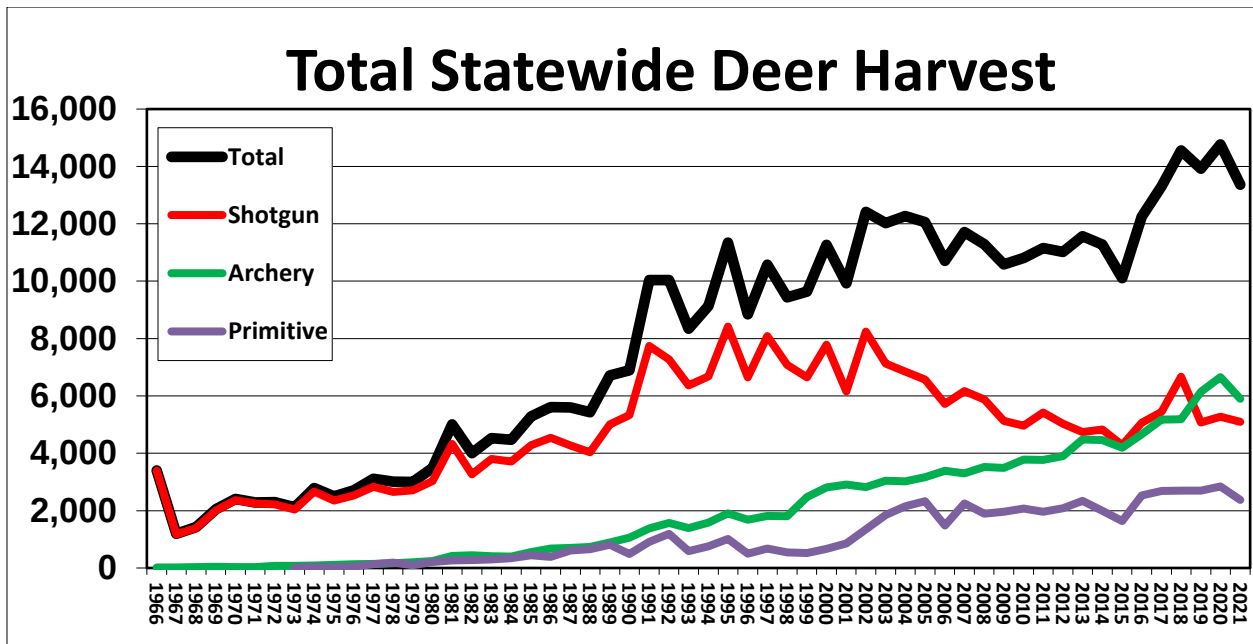
What does this figure mean? This figure shows the estimated percentage of MA hunters that reported pursuing each major game species, based on the average from 2019-2021 surveys. Game species hunted by fewer than 10% of hunters were not shown here. *Note: there is some bias in the survey (i.e., non-reporting bias) that may potentially lead to slight overestimates of hunter effort.*

Deer Hunting Questions

Of the estimated 46,000 deer hunters in MA, about **66%** hunted during the archery season, **84%** hunted during the shotgun season, **70%** hunted during the primitive season, and approximately **48%** hunted during all three seasons (based on average from 2019-2021 surveys). Also, **63%** of shotgun deer hunters reported hunting the opening day in 2021. Each year we collect biological data during the first week of the shotgun deer season when in-person checking is required. While this was not possible in 2020 due to the pandemic, we did resume data collection during the 2021 season.

Statewide Deer Harvest Summary

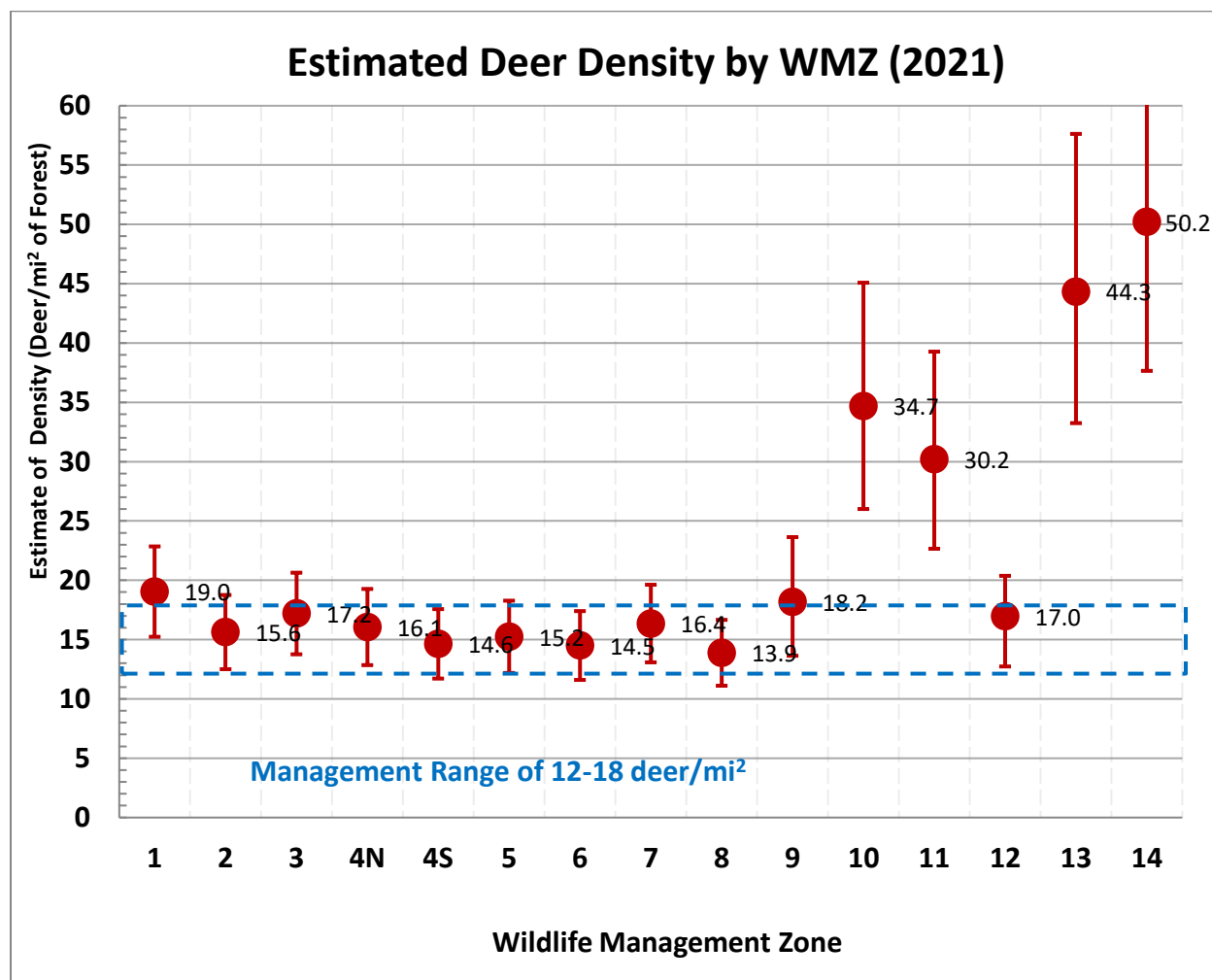
There was a 10% decline in the harvest in 2021, however, there have been recent record harvests in 2017, 2018, and 2020.



What does this figure mean? This figure shows the total reported deer harvest by year (black line) as well as the total harvest by season (archery=green, shotgun=red, and primitive firearms=purple). Complete deer harvest summaries can be found on our website: [LINK](#)

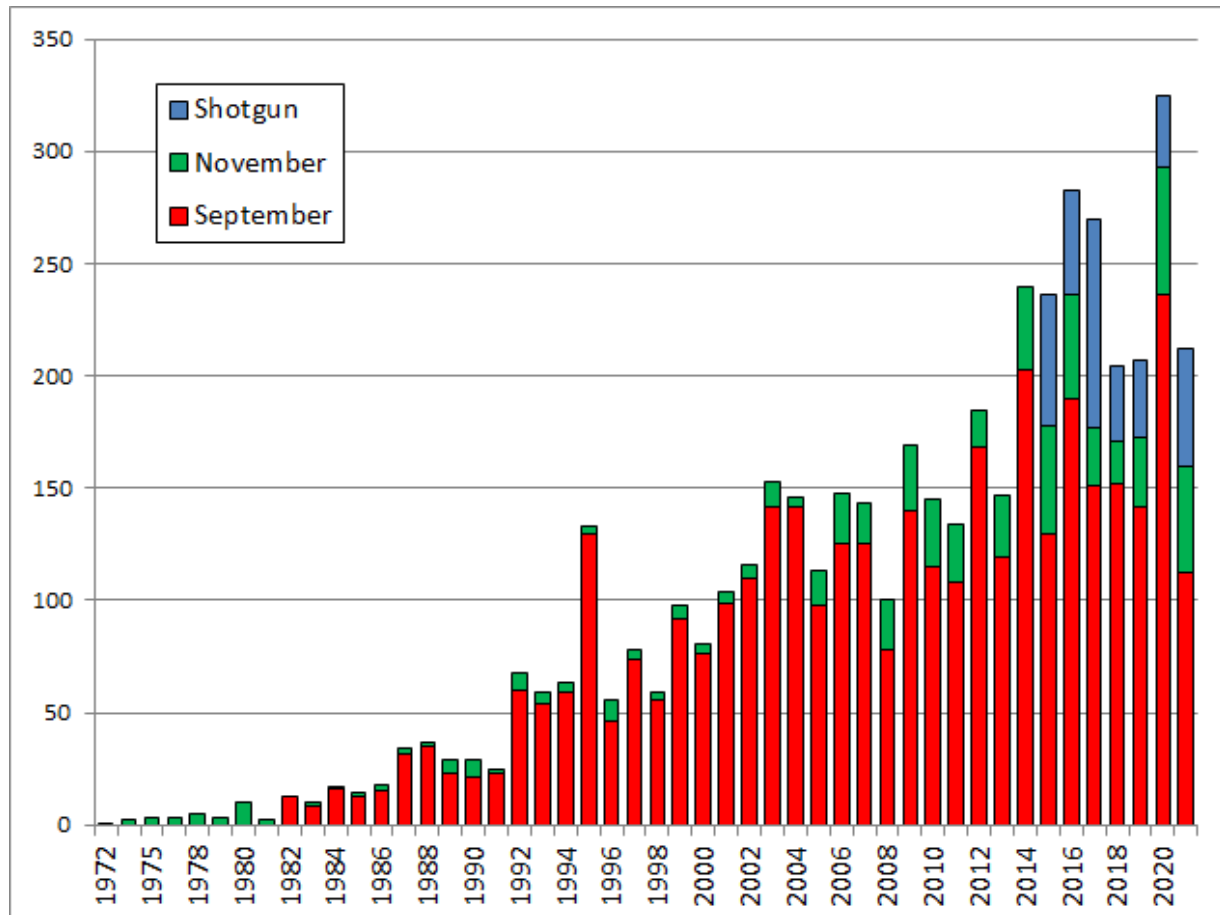
Estimated Deer Density by WMZ (from harvest reports, not the hunter survey):

Each year we utilize the harvest data submitted by hunters and biological collected at check stations during the first week of the shotgun season to estimate deer abundance across the state by wildlife management zone (WMZ). We utilize a Downing Reconstruction model that builds upon previous years. Estimates are averages across the entire WMZ and there may be significant variation across each zone. Since it is based on data collected from harvested deer only, it does not sample areas that are closed or restricted from hunting. These estimates are likely lower than actual abundance in closed areas. The Massachusetts Wildlife Board has approved a goal management range of 12-18 deer/mile² to balance hunter success and forest health. We modify antlerless permit allocations based on these estimates to try and keep zones within the management range.



What does this figure mean? This figure shows the estimated number of deer/sq. mile in each WMZ. The red circle is the estimate and the bars are the confidence interval, which is the likely range of possible densities for the areas open to hunting.

Harvest Data: Black Bear 1972-2021



What does this figure mean? This figure shows the total reported black bear harvest by year in Massachusetts, as well as how the harvest is distributed across the three bear hunting seasons.

Note: the September season makes up the majority of the bear harvest west of the Connecticut River, however the shotgun season makes up a large proportion of the total bear harvest east of the Connecticut River.

Harvest Data: Furbearers

Hunting/Trapping Season	River Otter ^{a,d}	Mink ^{a,d}	Muskrat ^{b,d}	Beaver ^{a,d}	Gray Fox ^{a,c}	Red Fox ^{a,c}	Weasel ^{b,c}	Skunk ^{b,c}	Opossum ^{b,c}	Raccoon ^{b,c}	Coyote ^{a,c}	Bobcat ^{a,c}	Fisher ^{a,d}
1992/1993	149	591	9,474	1,086	19	118	0	31	66	2,150	95	10	111
1993/1994	151	593	9,595	1,017	10	92	0	31	54	1,438	92	16	120
1994/1995	165	559	11,341	2,083	19	78	4	52	87	1,471	107	12	158
1995/1996	171	502	7,873	1,135	36	83	15	41	54	640	153	14	226
1996/1997	147	441	7,062	623	20	65	1	11	44	998	166	9	278
1997/1998	13	49	712	98	43	31	5	99	113	559	86	8	340
1998/1999	15	49	1,017	114	54	27	2	64	75	368	97	8	395
1999/2000	11	63	747	312	26	17	1	67	32	123	84	15	220
2000/2001	16	59	667	558	37	27	0	55	24	300	95	14	124
2001/2002	38	49	917	1,172	50	36	0	60	52	399	91	18	197
2002/2003	25	39	649	495	43	24	0	85	27	717	85	23	303
2003/2004	72	25	1,419	717	49	40	0	110	54	720	176	47	215
2004/2005	97	34	1,063	564	37	42	4	111	53	403	191	51	339
2005/2006	119	30	543	791	38	33	7	119	37	178	188	45	342
2006/2007	97	36	679	730	45	46	1	8	25	234	242	38	582
2007/2008	72	40	976	848	33	48	3	25	79	344	530	53	486
2008/2009	64	49	709	702	45	31	0	23	38	239	513	63	521
2009/2010	78	34	1,066	509	46	53	1	15	30	186	599	53	262
2010/2011	79	35	947	548	49	55	6	12	74	237	489	67	321
2011/2012	88	38	1,174	828	38	42	9	15	43	287	449	81	214
2012/2013	156	51	967	711	57	47			3	77	470	103	415
2013/2014	166	60	110	969	65	65	8	8	28	55	420	103	459
2014/2015	102	30	61	562	56	58	1	12	32	26	468	81	398
2015/2016	57	12	518	727	24	27	0	21	16	71	532	79	286
2016/2017	101	8	34	534	56	70	0	15	10	46	486	100	280
2017/2018	62	22	115	667	45	81	1	30	18	59	522	87	244
2018/2019	35	18	32	567	32	126	2	23	20	97	759	109	109
2019/2020	22	17	89	672	50	103	0	39	36	101	626	118	152
2020/2021	30	11	99	594	33	65	2	19	30	82	574	94	118
2021/2022	28	7	17	816	26	63	0	26	17	55	597	97	84
Past 5 Year Average	35.4	15	70.4	663.2	37.2	87.6	1	27.4	24.2	78.8	615.6	101	141.4

a - number of animals reported at official check stations or via online check system

b - number of animals reported from voluntary trapper survey

c - both hunting and trapping seasons

d - trapping season only

Hunter Survey Representativeness

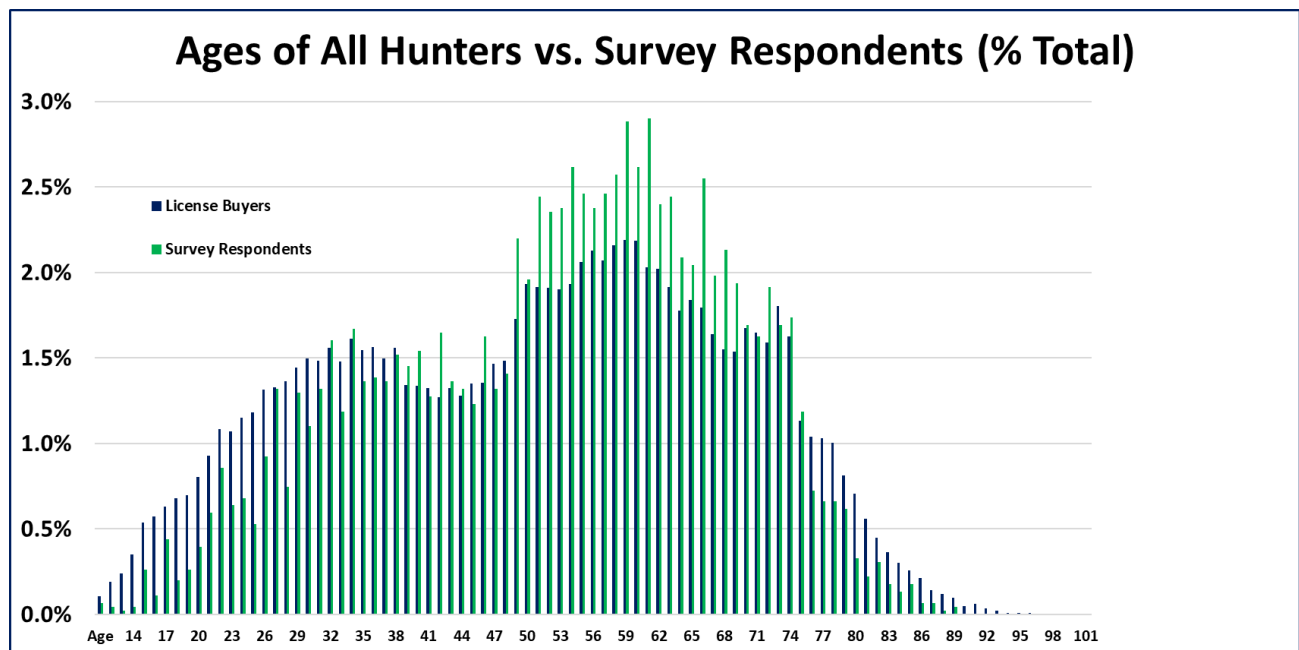
For a hunter survey to be accurate, the survey respondents must correctly represent the population of hunters (sample spread out geographically, representative ages, and a large enough sample size).

Did we have a large enough sample?

Yes, we've had an excellent sample size. We had over 8,000 responses each year during 2012-2014 (*invitations were sent to every valid email in the MassFishHunt system: over 30,000*). In subsequent years, we shortened the survey and began randomly selecting anywhere from 14,000 to 20,000 email addresses. The 2015 through 2020 survey efforts had an average total response rate of 33% (total response rate is calculated by dividing the number of responses started by the number of possible respondents). The average total response rate for the past 5 years (2017-2021) was 31% and the past 3-year average (2019-2021) was 30%. The 2021 survey had a total response rate of 25% (nearly 20,000 invitations were sent, and 5,057 responses were received). We are aiming to randomly sample at least 5% of all hunters each year, so your responses are very important.

Did the survey accurately reflect the ages of all MA hunters?

Yes, the survey respondents were representative of the ages of hunters in MA. The only issue was a slight under-representation of hunters under 30 (likely non-response) and over 75 (possibly due to lower email usage).



What does this figure mean? The green bars show the ages of the hunters that took the 2021 survey (percent of total) and the blue bars show ages of all hunters in MA (from 2021 license sales). The trends are very similar, which means the survey did an excellent job of representing hunters by age group. There was a slight underrepresentation of hunters over 75 and under 30 in the survey. We received similar results in other years.