

2020 Connecticut Deer Program Summary



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Introduction

This booklet is the 41st in a series, since the passage of the White-tailed Deer Management Act of 1974, reporting on the status of the white-tailed deer resource in Connecticut. It summarizes white-tailed deer information for 2020, including changes in deer management regulations, harvest statistics, research activities, and population dynamics of Connecticut's deer population.

Connecticut's Deer Management Program goals are: 1) to maintain the population at levels compatible with available habitat and land uses, and 2) to allow for a sustained yield of deer for use by Connecticut hunters. The program has mainly focused on stabilizing or reducing deer population growth for the best long-term interest of the deer resource, native plant and animal communities, and the public, while increasing populations in a few areas. Regulated deer hunting has proven to be an ecologically sound, socially beneficial, and fiscally responsible method of managing deer populations. Deer Program efforts have focused on increasing harvest of antlerless deer, coordinating controlled hunts for overabundant deer herds, assisting communities and large landowners with deer management issues, and research and management of deer populations.

Pursuant to the goal of maintaining populations at levels compatible with available habitat and land uses, aggressive management strategies have been implemented in areas with high deer densities. In 1995, the replacement antlerless tag program was initiated, allowing hunters in deer management zones (DMZs) 11 and 12 to harvest additional antlerless deer, with the goal of increasing the doe harvest. In 2003, hunting over bait was permitted in DMZs 11 and 12 during all seasons on private land. The use of bait in areas where hunter access to private land is limited increases hunter opportunity and success. Starting in 2005, hunters could earn a free either-sex tag (Earn-a-Buck; EAB) after harvesting 3 antlerless deer during the same season. In 2009, hunters were issued 1 additional antlerless tag in DMZ 7 and an additional 2 antlerless tags in DMZs 11 and 12 with their shotgun/rifle and muzzleloader permits. In 2010, hunters were allowed to use crossbows in January in DMZs 11 and 12. In 2013, crossbows were expanded for use during the entire archery season on state and private land in all DMZs. In October 2015, archery hunters were allowed to hunt on Sundays on private land in DMZs where deer were considered overpopulated, which included all DMZs except 2, 3, and 4A. In 2018, archers were allowed to hunt on Sundays on private land in all DMZs. In developed areas where firearms hunting is not feasible, DEEP encourages the use of bowhunting as a management tool. Communities experiencing deer overpopulation problems may choose to initiate controlled hunts or, under special conditions, may be eligible to implement sharp-shooting programs.

Pursuant to the goal of allowing for a sustained yield of deer by Connecticut hunters, in other areas of the state where long-term declines in the population appeared to be occurring, a restriction on the use of either sex tags during the firearms seasons was needed (DMZ 4 in 1999 and DMZ 2 in 2016). In 2002, deer populations appeared to be stable in the southern portion, but not in the northern portion of DMZ 4. Following the 2002 season, DMZ 4 was split into two zones (4A and 4B), allowing each zone to maintain different management objectives. In DMZ 4A (northern portion), the restriction on the use of antlerless tags was retained, while the use of antlerless tags was again allowed in DMZ 4B (southern portion). A similar low population density has been observed in DMZ 2, forcing a restriction on the use of the either-sex tag during the firearms season (2016). Until a clear increasing trend begins to occur in those zones, the restriction remains in place.

Hunter Notes

Information on dates and locations of hunter education courses can be obtained by calling the DEEP Wildlife Division at 860-424-3011 or on the DEEP website (<https://portal.ct.gov/DEEP/Hunting/CEFS/CEFS-Program>). Licenses and permits to fish, hunt, and trap in Connecticut can be purchased at licensing vendors or online by going to Connecticut's Online Outdoor Licensing System at <https://portal.ct.gov/CTOutdoorLicenses>.

In 2017, a concerned hunter reported finding several dead deer along a small body of water adjacent to the Connecticut River in Portland. A few fresh carcasses were submitted for testing with 3 deer testing positive for Hemorrhagic Disease (HD). Based on reports, it is believed over 70 deer may have died due to infections that year. No infected animals were reported in 2018 or 2019; however, in 2020 one deer tested positive for HD in Ridgefield, with approximately 20 or more found in the surrounding areas near water bodies, indicating they may have died from HD. Hunters were asked on the 2020 deer hunter survey "if they had observed any dead deer that appeared to die of unknown causes or observed dead deer in or around a water body." Based on those responses, an additional 20 deer many have died from HD, so the total number of deer that died was probably closer to 80 deer in 2020. Hemorrhagic Disease is one of the most important infectious diseases affecting white-tailed deer and spreads by a bite from an infected midge. Additional information about HD can be found in the 2020 Connecticut Hunting and Trapping Guide and on the DEEP website at <https://portal.ct.gov/DEEP/Wildlife/Wildlife-Diseases#HD>.

Regulations remain in place prohibiting hunters from transporting into Connecticut any deer or elk carcasses or part thereof from any state where chronic wasting disease (CWD) has been documented, unless de-boned. Beginning in 2020, the use of natural deer urine products was prohibited, particularly for the purposes of taking or attempting to take or attract deer, or for the surveillance or scouting of deer. CWD can spread through exposure to infected deer urine. This new regulation safeguards Connecticut's native deer population against unnecessary risk of contracting CWD. Specific wording of the regulation and an updated list of states where CWD has been documented can be found on the DEEP website at <https://portal.ct.gov/DEEP/Wildlife/Wildlife-Diseases#CWD>. In 2020, the

DEEP collected 433 CWD samples from throughout the state, all of which tested negative. Since the beginning of collection efforts in 2003, over 8,000 samples have been collected, all of which have tested negative for CWD.

The Connecticut Department of Energy and Environmental Protection (DEEP) Wildlife Division expects to be collecting deer heads to test for CWD and possibly blood samples for HD (from towns along the Connecticut River or in DMZ 11) during the 2021 hunting season. Anyone interested in donating deer heads or blood samples from harvested deer should contact Wildlife Division staff, Andrew LaBonte (Andrew.labonte@ct.gov) or Tim McKinney (Timothy.McKinney@ct.gov) for more information.

Permit Allocation

To successfully manage Connecticut's deer population growth rate, the Wildlife Division provides opportunities for hunters to purchase multiple deer permits with varying numbers of tags. Permit issuance increased consistently from 1975 to 1992 and remained relatively stable from 1992 to 2009 (Figure 1). Since implementation of the online license system and an increase in fees, permit issuance declined 9% (2009-2011) from the previous 3-year average of 61,859 (2006-2008). Deer permit issuance in 2014 declined nearly 1,000 permits from 2013 and declined another 2,327 permits in 2015. Permit issuance in 2016 was similar to permit issuance levels in 1989. Issuance continues to decline every year except this past year where we saw a slight increase, likely attributed to the COVID-19 pandemic and the presence of snow during the muzzleloader season (Figure 1). In 2020, issuance for private land shotgun/rifle (-0.4%) and landowner (-3.9%) permits had the only one-year decline (Table 1). Archery permit issuance increased to a record high of 17,029 in 2017, declined slightly in 2018 and 2019, but increased again in 2020, again likely a result of the pandemic (Table 1). Overall, shotgun/rifle hunters purchased the largest percentage of permits (37.5%), followed by archery hunters (37.0%), muzzleloader hunters (18.0%), and landowners (7.5%). Sixty-three percent of firearms deer permits were issued for use on private land and the remaining 37% were issued for state-managed lands. During the eleventh year of authorizing the use of revolvers for deer hunting, 931 hunters took advantage of this opportunity, more than the previous year (2019; 858).

Figure 1. Total deer permit issuance and total deer harvest in Connecticut, 1975-2020.

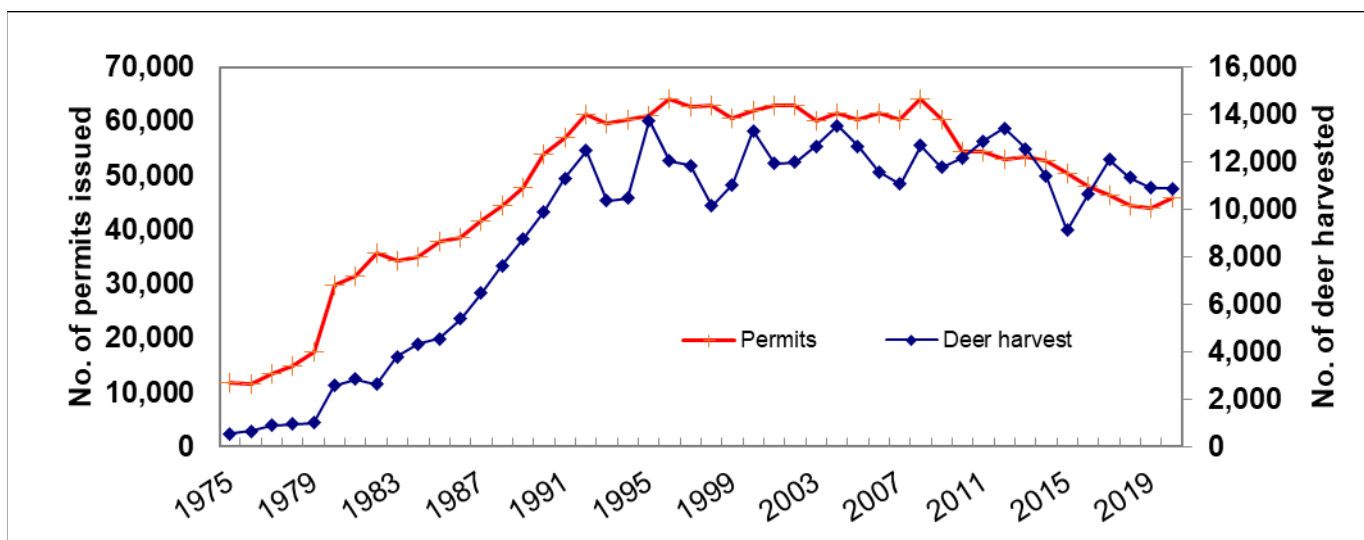


Table 1. Deer hunting permits issued in Connecticut for all regulated hunting seasons, 2017-2020.

Season	Permits 2017	Permits 2018	Permits 2019	Permits 2020	3-year Average Permits 2017-2019	% of Total 2020	% Change 2019 to 2020	% Change 3-year Avg. to 2020
Archery	17,029	16,451	16,428	16,997	16,636	37.0%	3.5%	2.2%
Muzzleloader								
State Land	2,892	2,693	2,566	3,004	2,717	6.5%	17.1%	10.6%
Private Land	5,478	5,280	4,964	5,249	5,241	11.4%	5.7%	0.2%
Subtotal	8,370	7,973	7,530	8,253	7,958	18.0%	9.6%	3.7%
Shotgun/Rifle								
State Land*	5,860	5,552	5,531	6,326	5,648	13.8%	14.4%	12.0%
Private Land	11,629	10,974	10,946	10,897	11,183	23.7%	-0.4%	-2.6%
Subtotal	17,489	16,526	16,477	17,223	16,831	37.5%	4.5%	2.3%
Revolver^A	853	857	858	931	856	2.0%	8.5%	8.8%
Landowner	3,676	3,594	3,580	3,439	3,617	7.5%	-3.9%	-4.9%
Total	46,564	44,544	44,015	45,912	45,041	100.0%	4.3%	1.9%

* A and B season combined and Includes controlled hunt permits.

^A Not included in total permits.

State Land Lottery and Controlled Hunt Permits

Over the years, permit issuance has been less than the permit quota established for a given area and many areas were re-designated as no-lottery areas (Appendix 2). Lottery permits were allocated at a maximum rate of 1 shotgun permit per 20 acres. In 2020, the total number of lottery hunt areas was 15. In 2020, 888 hunters were selected to hunt during the state land lottery and controlled hunt seasons through the state-administered Deer Lottery Program, with 76% of all potential lottery permits actually purchased. Deer Hunting Lottery Areas 64, 66, and 67 reached 100% permit issuance (Table 2). Hunters also should look at harvest levels in the different state land areas when selecting an area to hunt (Appendix 2).

Regulated Deer Harvest

Regulated hunting is an effective and cost-efficient method for maintaining deer populations at acceptable densities. With the implementation of a new system for reporting harvested deer in 2009, caution should be exercised when comparing harvest data collected before 2009 to harvest data collected thereafter. During the 2020 hunting season, 10,881 deer were legally harvested and reported (Table 3; Figure 1). This represents a 0.2% decrease from the 2019 harvest.

Table 2. Instant award deer lottery selection results by Deer Hunting Lottery Area, 2020.

Deer Hunting Lottery Area	% of Hunting Slots Filled
26	80
27	27 ^A
28	82
51 (Yale)	71 ^A
52 (Bristol Water Company)	93
53 (Maromas)	91 ^A
54 (Skiff Mt.)	57 ^A
56 (Centennial Watershed State Forest)	71
58 (MDC ^B Nepaug - Valentine)	75 ^A
60 (Tankerhoosen)	53
62 (Aldo Leopold)	55
63 (Mohawk-Ziegler)	33
64 (MDC ^B Barkhamsted East Block)	100 ^A
66 (MDC Nepaug Sweetheart Mt. Block)	100
67 (MDC ^B Barkhamsted West Block)	100 ^A

^A Lottery for A season only.

^B Metropolitan District Commission.

Excluding the landowner season, over half (58%) of the deer taken during the 2020 hunting season were harvested by bowhunters. Since 2010, record bow harvests have been recorded (5,211; 5,413; 6,046; 5,433; 4,566; 5,286; 5,910; 5,332; 5,738, and 5,803 respectively) and those harvests have exceeded the shotgun/rifle harvest. Sixty-nine percent (4,007 total – 3,410 private, 597 state) of the total archery harvest was taken during the early archery season (September 15 to November 17); 17% (973 total – 931 private, 42 state) was taken during the 3-week shotgun/rifle season (open in all zones on private land and state land bowhunting-only areas); 11% (624 – 588 private, 36 state) was taken during the muzzleloader season (December 9 to December 31); and 3% (200) was taken during the January season open in DMZs 11 and 12 on private land only (January 1-31, 2021). State lands open to archery hunting are a valuable resource to Connecticut deer hunters, as well (Appendix 2). Harvest by crossbow hunters during the January season (2021, 65%) has increased greatly since it was first legalized in 2010 (33%), and crossbow harvest has increased similarly during the regular season (2020, 58%) since legalized statewide in 2013 (28%). Based on the number of deer harvested and reported by bowhunters, approximately 1 of 3 (33%) hunters harvested 2 or more deer during the regular archery season.

In 2020, 1,796 deer were harvested during the first 4 days of the shotgun/rifle season (includes junior hunting days), a 5% increase from 2019 (1,713). The reported shotgun/rifle harvest was 3,429 deer in 2020, a 3.4% decrease from 2019 (3,550). In 2020, the landowner harvest was 927, an 8.9% decrease from 2019 (1,018). Typically, unlike the 3-week shotgun/rifle season, the landowner season runs from November to December and is less affected by periods of inclement weather and snowfall. The decrease in shotgun rifle harvest in 2020 is likely due to poorer weather conditions on typical peak harvest days and the decline in the landowner season is likely due to the decline in permit issuance.

Archery and shotgun/rifle seasons accounted for 53.3% and 31.5% of all deer taken in 2020, while landowners and muzzleloader hunters accounted for 8.5% and 6.6% of all deer taken. Harvest varied considerably by season and town (Appendix 1). The slight decline in the 2020 deer harvest was likely attributed to poorer weather conditions on peak harvest days of the shotgun/rifle season.

A Junior Deer Hunter Training Day was established in 2003 for youth hunters. This training period increased to two days in 2009, and then expanded to a full week in 2014. Youth hunters continue to take advantage of these special training days. The recent 3-year average harvest for Junior Deer Hunter Training Days is 37 deer (Table 3).

The replacement antlerless and either-sex tag (EAB) harvest was lower in 2020 (302) than in 2019 (496); however, confusion in harvest reporting (antlered buck vs. “Earn a Buck”) likely has affected harvest reports using the EAB selection over the years. Of 186 deer reported with EAB in 2020, only 32% were harvested in a zone in which EAB tags are actually available and, according to check-station records, only 46 EAB tags were issued during the entire season, including January. A change in the harvest report will be made so that “antlered buck” shows up before “Earn a buck” in hopes to rectify the problem.

Table 3. Deer harvested during Connecticut's regulated hunting seasons, 2019-2020.

Season	Harvest 2019	Harvest 2020	3-year Average Harvest (2017-2019)	% of Total 2020	% Change from 2019 to 2020	% Change 3-year Average to 2020
Archery						
State Land	597	675	548	6.2%	13.1%	23.1%
Private Land	4,961	4,928	4,878	45.3%	-0.7%	1.0%
Crossbow^{A, B}	3,161	3,253	2,612	29.9%	2.9%	24.5%
Replacement Antlerless ^{A, B}	130	96	139	0.9%	-26.2%	-30.8%
Replacement Either-sex Tag ^{A, B}	142	128	120	1.2%	-9.9%	6.7%
January ^E	180	200	234	1.8%	11.1%	-14.5%
Replacement Antlerless ^A	13	11	20	0.1%	-15.4%	-45.9%
Replacement Either-sex Tag ^A	1	2	1	0.0%	100.0%	50.0%
Crossbow	110	130	147	1.2%	18.2%	-11.4%
Subtotal	5,738	5,803	5,660	53.3%	1.1%	2.5%
Muzzleloader						
State Land	91	125	112	1.1%	37.4%	11.6%
Private Land	511	597	594	5.5%	16.8%	0.5%
Replacement Antlerless ^{A, C}	3	2	8	0.0%	-33.3%	-76.0%
Replacement Either-sex Tag ^{A, C}	4	4	7	0.0%	0.0%	-40.0%
Subtotal	602	722	706	6.6%	19.9%	2.3%
Shotgun/Rifle						
State Land A	546	613	583	5.6%	12.3%	5.1%
State Land B	109		120			
Private Land	2,895	2,816	3,339	25.9%	-2.7%	-15.7%
Replacement Antlerless ^{A, D}	11	7	17	0.1%	-36.4%	-58.0%
Replacement Either-sex Tag ^{A, D}	64	52	61	0.5%	-18.8%	-15.2%
Revolver ^D	6	7	7	0.1%	16.7%	-4.5%
Muzzleloader ^D	29	26	26	0.2%	-10.3%	-1.3%
Subtotal	3,550	3,429	4,043	31.5%	-3.4%	-15.2%
Youth Hunting Days^D	54	42	37	0.4%	-22.2%	13.5%
Landowner	1,018	927	1,035	8.5%	-8.9%	-10.5%
Total	10,908	10,881	11,444	100.0%	-0.2%	-4.9%

^A Replacement antlerless and either-sex tags were available in zones 11 and 12 only.

^B Included as part of private land archery total

^C Included as part of private land muzzleloader total.

^D Included as part of private land shotgun/rifle total.

^E Refers to the January following harvest year listed.

Hunter Success

Hunter success rate was estimated by dividing total deer harvest by total permit issuance and multiplying by 100 (Table 4). Success rates may fluctuate annually, depending on weather conditions, timing of rain and snowstorms, fall acorn crops, and deer herd size. Archery season success rates fluctuated between 24.3% and 27.6% from 2004 to 2008. Archery success exceeded 35% from 2010 through 2014 (35.2% in 2010; 38.0% in 2011; 37.7% in 2012; 38.3% in 2013; and 35.7% in 2014) but declined during the 2015 (26.9%) and 2016 (31.3%) hunting seasons. In 2017, archery success reached nearly 35% (34.7%), declined slightly in 2018 (31.3%), and increased again in 2019 (34.9%) and 2020 (34.1%). However, success rates in 2020 decreased for all hunting seasons (except muzzleloader) compared to 2019 and decreased for all seasons except archery and muzzleloader compared to the 3-year average. In 2020, archery hunters had the highest annual success rate (34.1%), followed by private land shotgun/rifle hunters (29.2%) and landowner hunters (28.6%). Success rate for the combined muzzleloader seasons was 8.7%. Lower success rates are expected because

the muzzleloader season occurs after the shotgun/rifle deer hunting seasons. Snow occurred during the muzzleloader season in 2020, likely resulting in the increase over the past couple years.

Table 4. Deer hunter success rates (%) in Connecticut, 2017-2020.

Season	2017	2018	2019	2020	3-year Avg. Success Rate (2017-2019)	Difference from 2019	Difference from 3-year Avg.
Archery							
Combined ¹	34.7%	31.3%	34.9%	34.1%	33.6%	-0.8%	0.5%
Muzzleloader							
State Land	4.7%	3.7%	3.5%	4.2%	4.0%	0.6%	0.2%
Private Land	12.3%	10.9%	10.3%	11.4%	11.2%	1.1%	0.2%
Combined	9.7%	8.4%	8.0%	8.7%	8.7%	0.8%	0.0%
Shotgun/Rifle							
State Land ²	11.8%	11.7%	10.9%	9.7%	11.5%	-1.2%	-1.8%
Private Land	30.3%	30.9%	26.4%	25.8%	29.2%	-0.6%	-3.4%
Combined	24.5%	24.6%	21.5%	19.9%	23.5%	-1.6%	-3.6%
Landowner	29.4%	28.1%	28.4%	27.0%	28.6%	-1.5%	-1.7%
Average³	26.0%	24.4%	24.8%	23.7%	25.0%	-1.1%	-1.4%

¹ Data available only for state and private land combined.

² State Land A and B was combined in 2020, and was recalculated for previous years

³ Average is based on total number of deer harvested/total number of permits issued.

Harvest on state land lottery/controlled hunt areas varied considerably by area, with 26 areas exceeding 10 deer harvested/mi² compared to 22 areas in 2019 (Appendix 2). Controlled hunts, which occur on large pieces of privately-owned land, play an important role in deer management with the harvest opportunities they provide. A few examples of harvest and success rates are provided below.

Yale Forest (Controlled Hunt Area 51): Yale Forest is a 7,700-acre forest located in Eastford and Ashford. The forest is owned and managed by Yale University for research, education, and forest products. Controlled hunts have been implemented on the property since 1984 in an effort to reduce deer impacts on forest regeneration. During the 2020 controlled hunt, 33 deer were harvested for a 20% success rate.

Bristol Water Company (BWC; Controlled Hunt Area 52): In 1994, BWC contacted the Wildlife Division and expressed interest in opening 4,500 acres for deer management. In 1995, the Wildlife Division conducted a winter aerial deer survey on BWC lands. After survey results were summarized, BWC requested to participate in the controlled hunt program for the 1996, 1997, and 1998 deer seasons to reduce the local deer population. After 3 years of successfully implementing a deer management program on BWC land, BWC asked to continue participating in the program. During the 2020 controlled hunt, 16 deer were harvested for a 24% success rate.

Maromas Cooperative Management Area (Controlled Hunt Area 53): Since 1996, Maromas, a 1,400-acre parcel in Middletown owned by Northeast Utilities (now known as Eversource), has been open to archery, shotgun, and muzzleloader hunting to maintain deer densities at levels compatible with available habitat. During the 2020 controlled hunt, 20 deer were harvested with a 9% success rate during the shotgun season.

Skiff Mountain (Controlled Hunt Area 54): Skiff Mountain is a 710-acre property in Sharon owned by Northeast Utilities (now known as Eversource). It is open to archery, shotgun, and muzzleloader hunting. During the 2020 controlled hunt, 9 deer were harvested with a 10% success rate during the shotgun season.

Centennial Watershed State Forest (formerly known as Bridgeport Hydraulic Company) (Controlled Hunt Area 56): The Hemlock Tract has been open to hunting since 1996. In 2005, an additional 1,765 acres were opened to hunting (3,474 total acres). During the 2020 controlled hunt, 84 deer were harvested for a 35% success rate.

MDC Nepaug Reservoir (Controlled Hunt Areas 58 and 59): In 2007, MDC (Metropolitan District Commission) contacted the Wildlife Division and expressed concern about the impacts of deer on forest regeneration at their Valentine (Area 58, 1,075 acres) and Pine Hill (Area 59, 325 acres) forest blocks. A browse survey indicated that over 95% of forest regeneration was browsed by deer. In 2008, MDC worked with the Wildlife Division to develop a deer management plan for the two forest blocks. In 2009, both Valentine and Pine Hill were opened to hunting for the early archery and shotgun/rifle seasons. During 2020, Area 58 was open to shotgun hunting only where 16 deer were harvested for a 35% success rate.

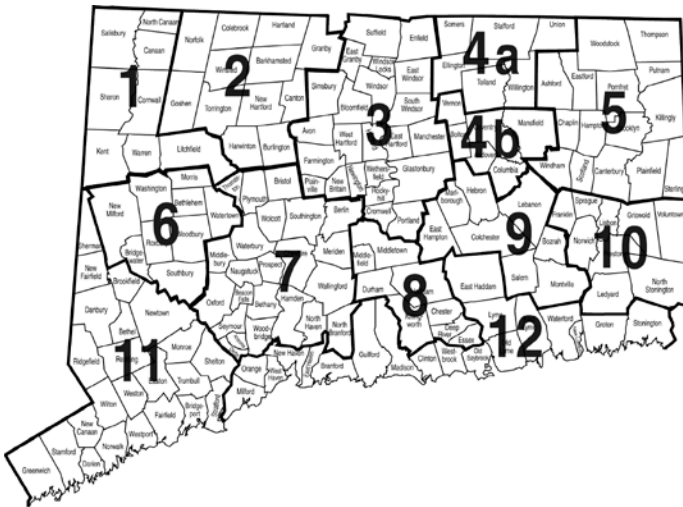
MDC Barkhamsted Reservoir (Controlled Hunt Area 64A and 67A): In 2014, MDC (Metropolitan District Commission) contacted the Wildlife Division and expressed concern about impacts of deer on forest regeneration at Barkhamsted Reservoir. This resulted in the establishment of two controlled deer hunts, one in 2016 on the east side (Area 64A – 4,282 acres) and a second in 2017 on the west side (Area 67A – 3,700 acres). To document the impacts of deer on forest regeneration and health, deer exclosures were constructed at four different sites. The vegetation has been monitored annually since 2016. During the past four years, research has shown that oak seedlings within the fence are healthier and twice the height of the unfenced oaks, primarily due to protection from deer browsing. Although deer continue to impact forest regeneration, the reduction in deer numbers have improved the health of the MDC forests. During the 2020 controlled hunt, 20 deer were harvested for a 25% success rate.

Bluff Point Coastal Reserve State Controlled Hunt: Controlled hunts and DEEP deer removals at Bluff Point Coastal Reserve in Groton have been implemented over the past 22 years to reduce and maintain the deer population at about 25 animals. Since the program started in 1996, over 500 deer have been removed from Bluff Point, resulting in improved deer herd health and ecosystem stability. In December 2019, the deer population was estimated to be 44 deer. In February 2020, 18 deer were removed by DEEP personnel for a 100% success rate.

Harvest by Deer Management Zone

Deer Management Zones (DMZs) were established because deer populations vary across the state. Management strategies in each zone may vary depending on population status. Data from hunter surveys, regulated deer harvests, and total deer mortality have been recorded and evaluated by DMZs (Figure 2) in an effort to better manage the statewide deer population. Current population status and long-term trends are analyzed for each DMZ. This approach facilitates the assessment and management of regional deer populations.

Figure 2. Connecticut's Deer Management Zones, 2020.



Annual deer harvest is one of many variables monitored by the Wildlife Division to assess changes in Connecticut's deer population over time for each DMZ. However, without information on hunter distribution and effort by zones, the potential usefulness of these data is limited. To gain insight into hunter distribution and success rates by zone, in 2020 we emailed 11,112 deer hunters and asked them to complete an online hunter survey. A total of 3,602 hunters responded for a 32% response rate.

Shotgun/Rifle Season

Deer hunters were asked on the hunter survey, "In what zone do you do most of your shotgun/rifle hunting?" The percent of hunters in each DMZ was multiplied by total number of deer permits issued in 2020 to estimate total number of hunters by zone. Total number of hunters and total private land shotgun/rifle deer harvest for each zone were used to estimate deer hunter success rates for each zone (Table 5). In general, higher hunter success rates suggest higher deer density. Of the 13 management zones, most firearms hunting (43%) occurred in four zones (2, 5, 9, and 10). Highest private land deer harvests were reported for DMZs 1, 5, 9, and 12. DMZ 4B had the highest deer harvest per square mile (1.5), while zone 8 had the greatest density of hunters (5.3 per square mile). Hunter success rate was highest in DMZ 6 (48%), while success in zone 2 was the lowest (12%). The trend in hunter success rates by zone has varied over the past 3 years (Table 6). Although hunter success has been variable due to the abundance of acorns and weather,

many DMZs have continued to produce relatively high hunter success rates over the past 3 years (Table 6). Hemorrhagic disease appeared to have little impact on hunter success in DMZ 11.

Table 5. Zonal hunter numbers, harvest, and success rates for private land during the 2020 shotgun/rifle season.

Zone	Zone Hunted	% of Hunters Answered Question ^A	Estimated # of Private Land		Area (sq. miles)	Deer		% Success Rate
	Private Land ^A		Land Shotgun/Rifle Hunters	Harvest		Harvest/Sq. Mile	Hunters/Sq. Mile	
1	161	7.8%	851	279	344.59	0.8	2.5	33%
2	215	10.4%	1137	141	410.69	0.3	2.8	12%
3	134	6.5%	708	208	273.33	0.8	2.6	29%
4A	127	6.2%	671	93	213.5	0.4	3.1	14%
4B	86	4.2%	455	185	120.66	1.5	3.8	41%
5	306	14.8%	1618	483	445.94	1.1	3.6	30%
6	83	4.0%	439	210	260.03	0.8	1.7	48%
7	139	6.7%	735	216	373.08	0.6	2.0	29%
8	168	8.2%	888	124	169.11	0.7	5.3	14%
9	180	8.7%	952	253	279.39	0.9	3.4	27%
10	177	8.6%	936	221	244.36	0.9	3.8	24%
11	125	6.1%	661	180	291.53	0.6	2.3	27%
12	160	7.8%	846	223	358.39	0.6	2.4	26%
Total	2061	100.0%	10,897	2,816	3,785	0.7	2.9	26%

^A Based on hunter survey question asking hunters which zone they primarily shotgun/rifle hunt in.

Table 6. Zonal comparisons in private land shotgun/rifle harvest, hunter distributions, and success rates, 2018-2020.

Zone	Area (sq. miles)	Deer Harvest/Sq. Mile			Hunters/Sq. Mile			Hunter Success Rate (%)		
		2018	2019	2020	2018	2019	2020	2018	2019	2020
1	344.6	1.0	0.7	0.8	2.9	2.5	2.5	33	30	33
2	410.7	0.4	0.3	0.3	2.2	2.5	2.8	18	12	12
3	273.3	0.8	0.7	0.8	2.8	2.8	2.6	27	23	29
4A	213.5	0.6	0.5	0.4	2.6	2.4	3.1	24	20	14
4B	120.7	1.8	1.4	1.5	4.1	4.0	3.8	44	36	41
5	445.9	1.6	1.3	1.1	3.5	3.5	3.6	44	36	30
6	260.0	0.9	0.8	0.8	2.9	2.9	1.7	32	27	48
7	373.1	0.7	0.6	0.6	2.1	2.0	2.0	32	29	29
8	169.1	0.9	0.9	0.7	2.8	3.4	5.3	34	27	14
9	279.4	1.2	0.9	0.9	3.4	3.7	3.4	35	26	27
10	244.4	1.3	1.0	0.9	3.5	3.2	3.8	36	31	24
11	291.5	0.7	0.5	0.6	3.0	2.9	2.3	23	18	27
12	358.4	0.9	0.7	0.6	2.6	2.8	2.4	36	27	26
Total	3,785	0.9	0.8	0.7	2.9	2.9	2.9	33	26	26

Archery Season

Deer hunters were asked on the hunter survey, "In what zone do you do most of your archery hunting?" The percent of hunters in each DMZ was multiplied by total number of archery permits issued in 2020 to estimate total number of hunters by zone. Bowhunter success rates in 2020 were highest in zones 7, 11 and 12 and lowest in zones 2 and 4A. Success rates over the past few years have been similar for most zones (Table 7). Hemorrhagic disease appeared to have little impact on hunter success in DMZ 11.

Table 7. Zonal comparisons of archery season success rates, 2017-2020.

Zones	Zone Hunted Archery ^A	% of Hunters	Estimated	Hunter				
		Answered Question ^A	# of Archery Hunters ^A	Harvest ^A	2017	2018	2019	2020 ^A
1	79	4.6%	777	296	30.6	31.9	37.8	38.1
2	128	7.4%	1,258	230	18.0	17.5	16.9	18.3
3	138	8.0%	1,357	405	24.3	24.8	25.4	29.9
4A	107	6.2%	1,052	209	29.6	23.6	31.8	19.9
4B	91	5.3%	895	284	42.7	33.4	39.3	31.7
5	192	11.1%	1,887	599	33.2	34.1	38.6	31.7
6	87	5.0%	855	280	29.0	25.6	26.9	32.7
7	171	9.9%	1,681	701	32.9	28.3	38.2	41.7
8	116	6.7%	1,140	258	32.8	32.8	35.6	22.6
9	114	6.6%	1,121	312	26.1	32.1	33.9	27.8
10	94	5.4%	924	297	33.6	27.3	39.4	32.1
11	256	14.8%	2,517	1,299	39.8	39.3	33.9	51.6
12	156	9.0%	1,534	633	44.5	45.7	41.2	41.3
Total	1,729	100.0%	16,997	5,803	33.2	32.2	33.8	34.1

^A Based on hunter survey question asking hunters which zone they primarily archery hunt in 2020.

Archery Observations, Harvest, and Effort

To obtain additional information beneficial to zonal deer management, archery hunters were asked “How many hours they hunted and how many fawns, does, and bucks they observed on the day they harvested their deer.” Observation rates were measured based on number of deer observed per hour of hunting. Fawn recruitment (number of fawns added to fall population) also is an important variable used to understand changes in population growth and deer herd dynamics. Fawn recruitment was measured as number of fawns observed per doe. The most representative samples of fawn to doe ratios are those collected at the start of the hunting season when fawns are easily identifiable and hunter harvest would have the least impact on observations. Another means of assessing zonal population changes is looking at the number of deer harvested per hour hunted. Observation rates of bucks, does, and fawns were similar to previous years, as was the percent of each class harvested (Table 8). Fawns were harvested at a lower rate than they were observed, compared to bucks which were harvested at a greater rate than they were observed (Table 8). Number of deer observed per hour, number of fawns observed per doe, and number of deer harvested per hour varied across years and by zone (Table 9). Deer observed per hour and number of fawns observed per doe decreased in many zones which could have been due to the warm weather or some other variable.

Table 8. Hunter observations and harvest ratios reported during the first month of the archery season in Connecticut, 2017-2020.

Age-sex	First Month of Archery Season (Sept. 15-Oct. 15)							
	Observation %				Harvest %			
	2017	2018	2019	2020	2017	2018	2019	2020
Bucks	12%	19%	20%	23%	39%	39%	40%	42%
Does	45%	56%	51%	50%	47%	50%	48%	48%
Fawns	43%	25%	29%	27%	14%	11%	12%	10%

Table 9. Observation rates (deer seen/hour; D/hr), number of fawns per doe (F:D), and number of deer harvested per hour (H/hr) collected at the time harvest was summarized for the first month of the archery season by Deer Management Zone (DMZ) in Connecticut, 2018-2020.

Deer Harvested and Observed/Hour															
Reported on Day of Harvest															
DMZ	First Month of Archery Season (Sept. 15-Oct. 15)														
	2018				2019				2020				Δ^3	Δ^3	Δ^3
	<i>n</i>	D/hr ¹	F:D	H/hr ²	<i>n</i>	D/hr ¹	F:D	H/hr ²	<i>n</i>	D/hr ¹	F:D	H/hr ²	D/hr ¹	F:D ⁴	H/hr
1	66	1.16	0.56	0.35	70	1.36	0.51	0.31	95	1.27	0.38	0.35	-0.09	-0.13	-0.04
2	56	1.22	0.46	0.40	53	1.09	0.41	0.38	69	0.96	0.43	0.34	-0.13	0.02	0.04
3	92	1.06	0.39	0.36	93	1.05	0.56	0.36	126	1.06	0.66	0.36	0.01	0.10	0.00
4A	56	0.92	0.53	0.31	81	0.87	0.50	0.32	66	1.10	0.42	0.40	0.23	-0.08	-0.08
4B	71	1.13	0.64	0.32	78	1.12	0.42	0.39	105	1.14	0.62	0.34	0.02	0.20	0.05
5	218	1.02	0.44	0.33	205	1.14	0.53	0.37	251	0.95	0.51	0.31	-0.19	-0.02	0.06
6	58	1.13	0.54	0.34	68	1.13	0.43	0.41	87	1.14	0.50	0.36	0.01	0.07	0.05
7	155	1.01	0.51	0.36	198	1.07	0.63	0.37	217	1.08	0.62	0.36	0.01	-0.01	0.01
8	83	1.10	0.30	0.42	67	1.09	0.61	0.39	80	1.16	0.52	0.32	0.07	-0.09	0.07
9	94	1.05	0.45	0.32	99	1.16	0.52	0.39	107	1.09	0.60	0.35	-0.07	0.08	0.04
10	73	1.37	0.31	0.35	85	1.11	0.65	0.36	103	1.17	0.49	0.32	0.06	-0.16	0.04
11	251	1.07	0.42	0.33	276	1.28	0.59	0.38	361	1.13	0.56	0.33	-0.15	-0.03	0.05
12	201	1.21	0.52	0.34	179	1.19	0.60	0.41	179	1.03	0.54	0.35	-0.16	-0.06	0.06

¹ Deer observed per hour hunted based on successful hunters.

² Deer harvested per hour hunted based on successful hunters.

³ Change from 2019 to 2020.

Weekend Archery Hunting

Sunday archery hunting was permitted on private land only in 2015 in all zones except 2, 3, and 4A and then in all zones in 2018. Comparing the percent of archery deer harvested on weekends from 2014 (29%; Saturday only), 2015 (37%; Saturday and Sunday), 2016 (35%; Saturday and Sunday), 2017 (37%; Saturday and Sunday), 2018 (40%; Saturday and Sunday), 2019 (44% Saturday and Sunday), and 2020 (37% Saturday and Sunday), there has been about a 7 to 10% increase in harvest on weekends from before to after Sunday hunting was allowed. In 2020, the Sunday harvest comprised 18% of the entire private land archery harvest.

In 2020, archery hunters were asked about “How frequently they hunted on the weekend”. A little over a third of archery hunters (37%) indicated they hunted Saturday and Sunday, 23% hunted one or the other depending on personal time, 17% hunt Saturdays only, 13% hunt one or the other depending on the weather, 7% do not hunt weekends, and 2% hunt Sundays only. Based on the survey, the majority of archery hunters hunted 1 to 2 Sundays a month (avg 1.7 Sundays) during the season.

Overall Private Land Deer Harvest

The 2020 private land deer harvest was highest for DMZs 5, 7, and 11 (Table 10). Zonal harvest levels have fluctuated in most zones over the past 11 years and likely reflect differences in weather conditions, snow cover, acorn abundance, and deer densities (Table 10). Highest total deer harvest over the last 11 years has been reported in DMZ 11, likely a result of deer abundance, availability of replacement deer tags, use of bait, and increased access to land for hunting. Total private land deer harvest decreased less than 1% from 2019 to 2020.

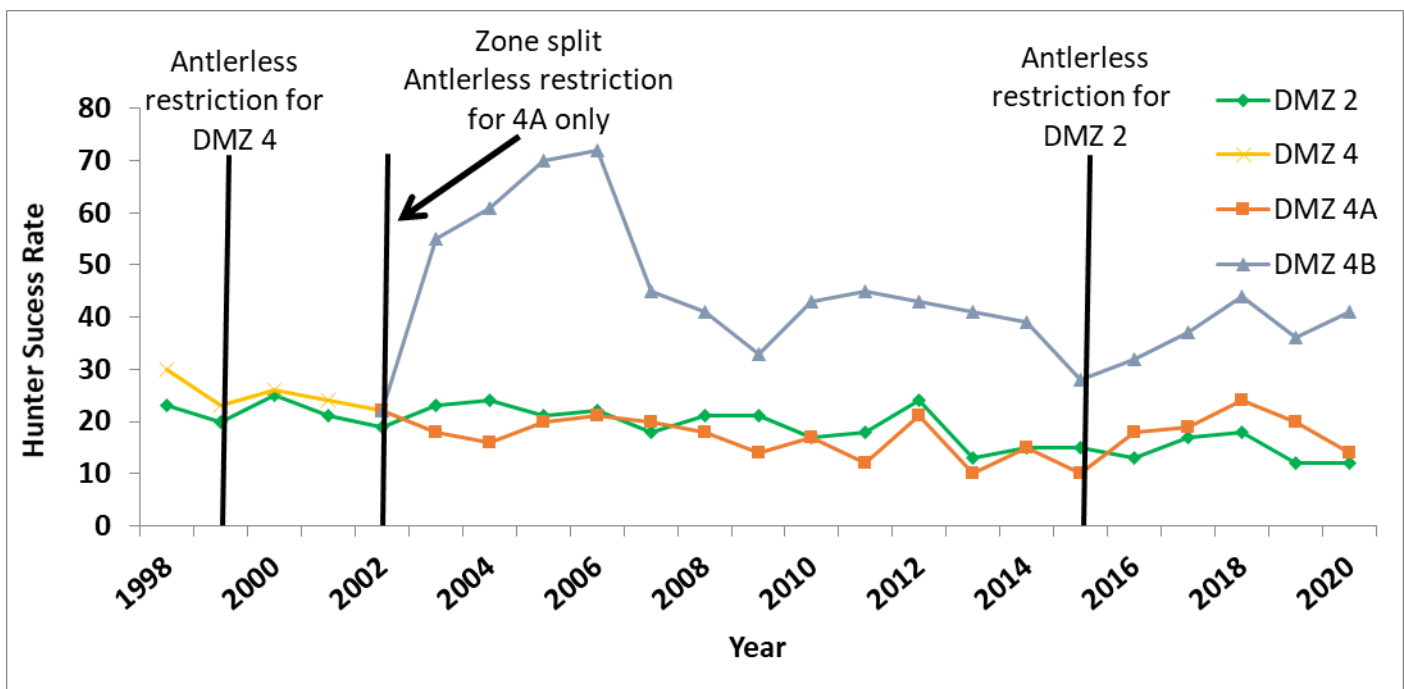
Table 10. Private land deer harvest for all seasons (excluding landowner) in each of Connecticut's Deer Management Zones, 2010-2020.

Zone	Year										
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1	703	721	728	558	521	472	573	551	609	545	585
2	320	374	395	356	296	273	294	365	326	313	360
3	481	487	529	491	536	426	516	566	520	493	626
4A	293	276	348	320	275	228	295	330	319	335	263
4B	445	470	547	486	496	357	452	488	471	431	462
5	1,232	1,400	1,375	1,345	1,163	902	1,062	1,244	1,251	1,197	1,072
6	556	500	584	557	490	416	488	528	503	483	534
7	772	797	771	765	747	743	838	880	806	897	911
8	374	473	549	489	398	342	368	423	408	418	358
9	624	718	721	721	685	511	580	701	697	623	563
10	576	632	662	533	546	433	471	606	558	528	493
11	1,997	2,022	1,923	1,921	1,505	1,321	1,538	1,666	1,440	1,148	1,329
12	954	1,324	1,370	1,251	1,017	781	916	1,212	1,116	956	786
Total	9,327	10,194	10,502	10,748	8,675	7,205	8,391	9,560	9,024	8,367	8,342
% Change	2.7%	9.3%	3.0%	2.3%	-19.3%	-16.9%	16.5%	13.9%	-5.6%	-7.3%	<-1.0%

Long-term Zonal Changes

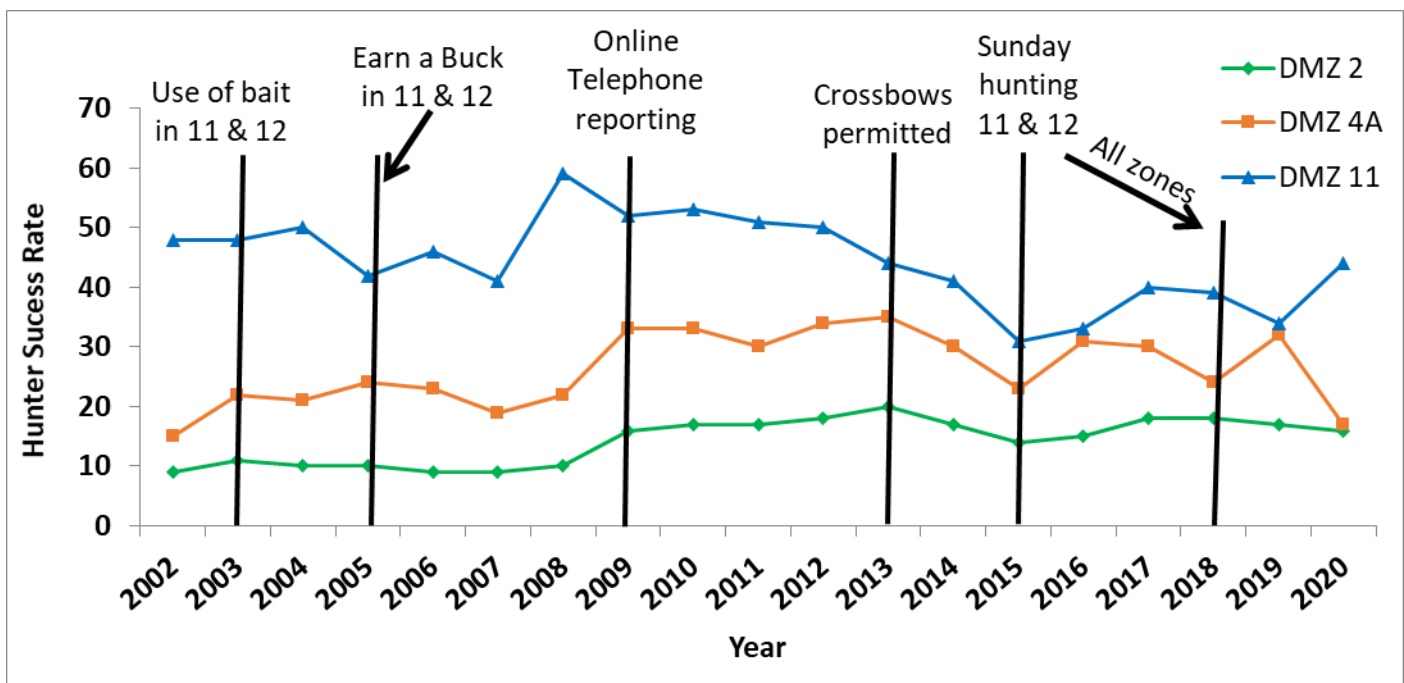
Most zones have not required any changes over time; however, others have required more management efforts. In DMZ 4, a decreasing trend prompted harvest restrictions on female deer in this zone in 1999. During the shotgun/rifle and muzzleloader seasons, the antlerless-only tag on 2-tag permits was not valid in DMZ 4. In 2002, deer populations appeared to be stable in the southern portion, but not in the northern portion of DMZ 4. Following the 2002 season, DMZ 4 was split into two zones (4A and 4B), allowing each zone to maintain different management objectives. In DMZ 4A (northern portion), the restriction on the use of antlerless tags was retained, while the use of antlerless tags was again allowed in DMZ 4B (southern portion). These changes increased private land shotgun/rifle hunter success in DMZ 4B but have yet to change hunter success in DMZ 4A (Figure 3). Similarly, increasing predator populations (mainly bear and bobcat) in DMZ 2 seemed to have impacted the deer population, resulting in persistently low private land shotgun/rifle hunter success, which prompted harvest restrictions on harvest of female deer in 2016. During shotgun/rifle and muzzleloader seasons, the antlerless-only tag on 2-tag permits was not valid. With little evidence of change in hunter success the past few years, a restriction on the 4-tag archery permit may be considered in DMZ 2 and 4A in upcoming years.

Figure 3. Private land shotgun/rifle hunter success in Deer Management Zones 2, 4A, and 4B, 1998-2020.



Archery hunter success in DMZ 2 and 4A has changed little over time, with DMZ 2 being the lowest in the state since first monitoring it on a zonal basis in 2002. Hunter success in DMZ 11 has fluctuated with the implementation of various management changes (use of bait, earn-a-buck, crossbows, and Sunday hunting); however, it still remains one of the highest rates in the state (Table 7, Figure 4). What appears to be an increase in DMZ 2 and 4A in 2009 is an artifact of the change in reporting requirements from kill report cards to the current online/telephone reporting system which increased in all zones except DMZs 11 and 12. It is believed that no change occurred in DMZs 11 and 12 because there was an incentive to report harvest due to the replacement tag program. The decrease in success seen in all 3 zones in 2015 was due to it being a year with the highest acorn abundance. It is unclear about the decline in success in DMZ 4A in 2020. Besides deer abundance, acorn abundance and weather can have a large impact on hunter success.

Figure 4. Archery hunter success in Deer Management Zones 2, 4A, and 11, 2002-2020.



Replacement Tags

In addition to the initial permits that come with tags in areas with substantial deer problems, the replacement tag system was developed to increase the harvest of female deer. This system is currently in place in DMZs 11 and 12. Since 1998, when archery hunters first had access to replacement tags in DMZ 11, the buck harvest remained relatively stable, while the antlerless harvest in that zone increased nearly 5 times (from 200 to almost 1,000 deer annually and has now declined to just above 600). The buck harvest has steadily increased over the years with the addition of the earn-a-buck program in 2005. The number of roadkills in DMZ 11 has shown a steady decline since 1998 (Figure 5). The ratio of female deer harvested in DMZ 11 increased from 0.9 females per male (1994-1997) to 1.3 females per male (2001-2009), with the past three years averaging around 0.8:1 (Figure 6).

Deer Harvest Sex Ratios

Removal of female deer is the most efficient means of stabilizing deer population growth. To facilitate stabilization, the Wildlife Division developed permits that encourage the harvest of female deer. All 2-tag permits come with 1 antlerless-only and 1 either-sex deer tag. In 2009, this was increased to 1 either-sex and 2 antlerless deer for hunters in DMZ 7 and 1 either-sex and 3 antlerless deer for hunters in DMZs 11 and 12. Although button bucks are included in the antlerless harvest, this system promotes the removal of female deer (Table 11). In zone 2 and 4A, the antlerless-only tag was NOT valid, reducing the bag limit to 1 deer per hunter during the private land firearms season. Overall, deer harvest sex ratios have been similar over the past 3 years (Table 12). In 2020, 47% (5,057) of the total regulated deer harvest (excluding crop damage harvest) was comprised of antlerless deer. A significant proportion of the harvest included adult females, which contributes to population control efforts (Appendix 3).

Figure 5. Comparison of trends in roadkills and the antlered and antlerless deer harvests during the archery deer season in Deer Management Zone 11, 1995-2020.

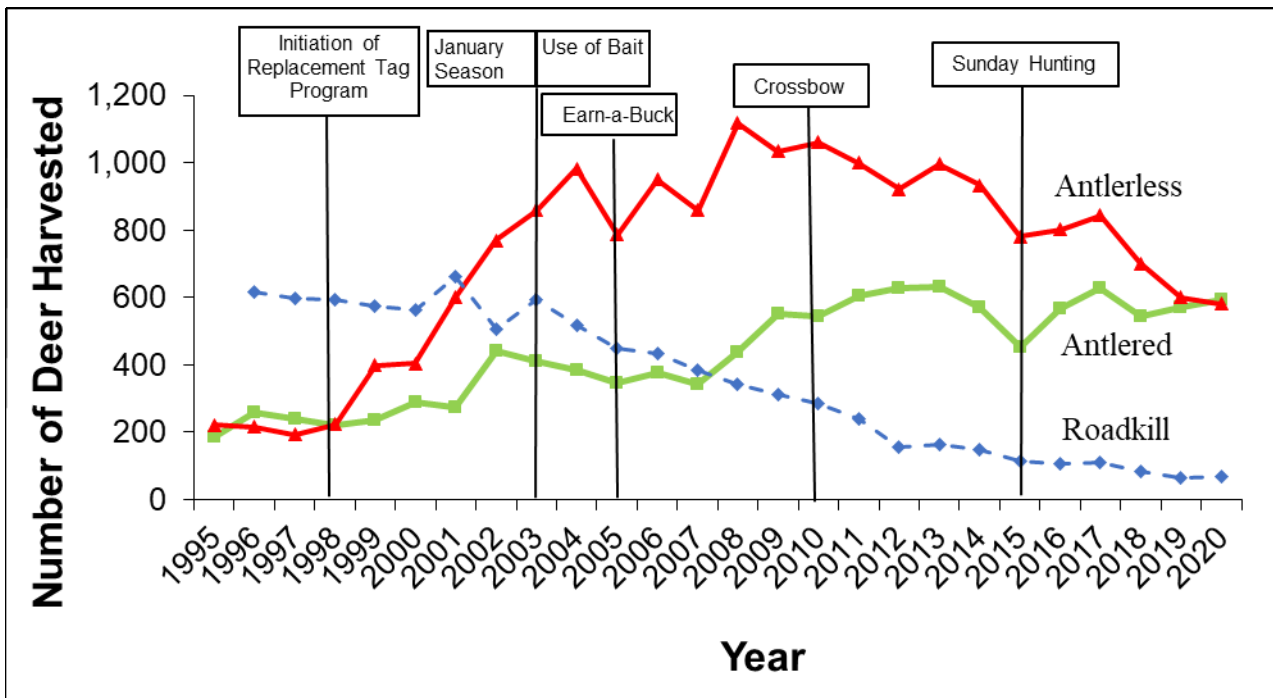


Figure 6. Changes in the sex ratios of harvested deer from Deer Management Zone 11 after implementing various management strategies during the archery season, 1995-2020.

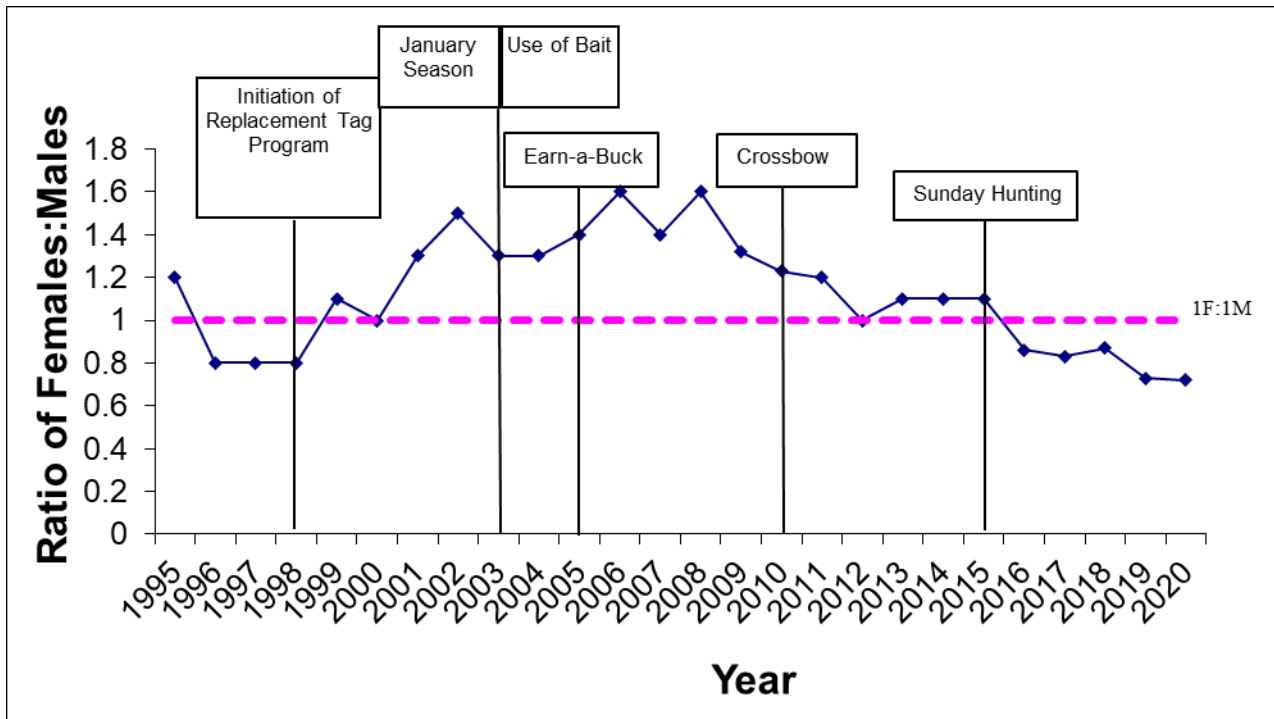


Table 11. Sex ratios (male:female) and antlered to antlerless ratios of deer harvested in 2020.

	Muzzleloader	Shotgun/Rifle	Archery	Landowner	Crop Damage	Total
Male:Female	0.87	1.96	1.36	1.91	0.72	1.36
Antlered:Antlerless	0.59	1.38	1.03	1.34	0.70	1.01

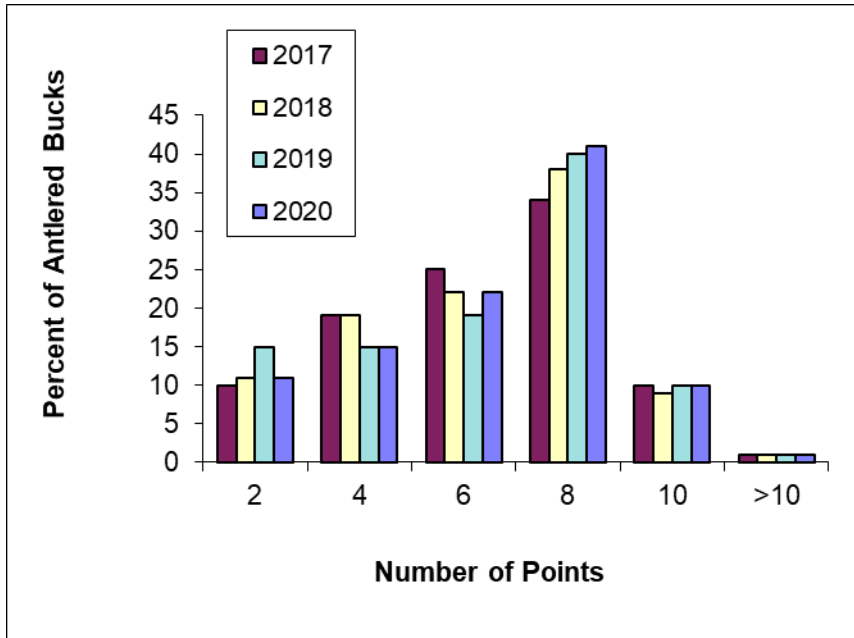
Table 12. Sex ratios (male:female) of deer harvested during Connecticut's regulated hunting seasons, 2018-2020.

2019		2020		Males per Female			3-year Average
Males	Females	Males	Females	2018	2019	2020	(2017-2019)
6,749	4,409	5,718	5,198	1.4:1	1.5:1	1.1:1	1.3:1

Antler Points and Yearling Fraction

Deer age, nutritional status, and genetics affect the number of antler points on bucks. The yearling fraction of the antlered buck harvest is a common measure of hunting pressure. Intensively hunted herds have yearling fractions of about 70%, while lightly hunted herds have fractions of about 30%. Few yearlings (less than 6%) have 7 or more points and few adults (less than 12%) have less than 5 points, based on the known aged samples in Connecticut. Using antlered bucks with less than 5 points (yearling) and those with 7 or more points (adults) is one way of estimating the yearling fraction of the antlered buck harvest. The statewide yearling male fraction based on antler points during the shotgun/rifle season was 40% in 2012, 44% in 2013, 45% in 2014, 42% in 2015, 36% in 2016, 39% in 2017, 39% in 2018, 36% in 2019, and 34% in 2020. Of all antlered bucks harvested (1 or 2 points, 3 or 4 points, 5 or 6 points, 7 or 8 points, 9 or 10 points, or >10 points), 8-pointers were the most frequent point category (Figure 7). The number of points on antlered bucks has remained relatively consistent over the past 4 years (Figure 7).

Figure 7. Number of antler points on bucks collected by the telecheck/online reporting system during the shotgun/rifle hunting season in Connecticut, 2017-2020.



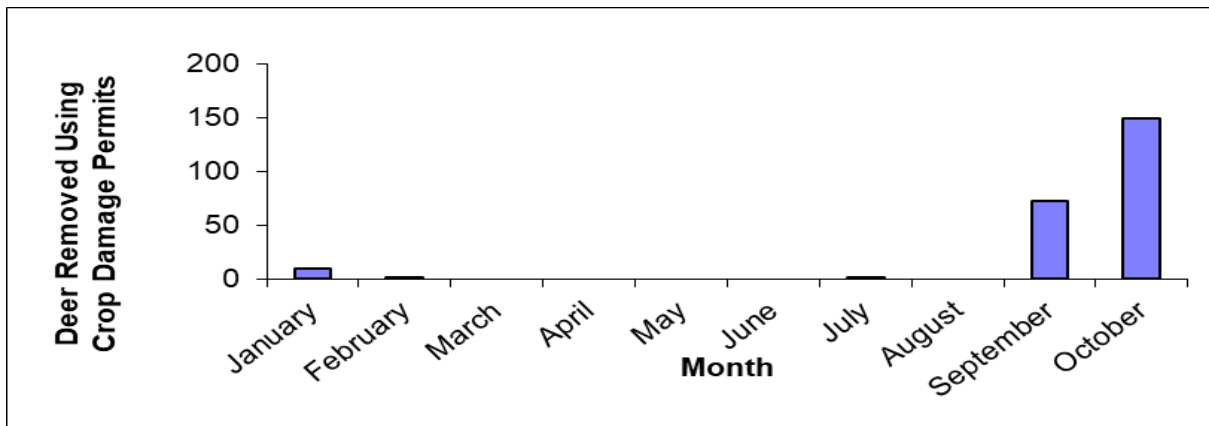
Non-hunting Deer Mortality

Non-hunting deer mortality, particularly roadkills and crop damage, represents a significant percentage of annual deer losses in Connecticut. Roadkill data provide important information relative to cultural carrying capacity, population modeling, and, to a lesser extent, deer density and herd sex ratios. In an urban-suburban state like Connecticut, measures of land-use conflicts, such as roadkills, are an important source of data for the formulation of management policies and recommendations.

In 2020, 653 non-hunting deer mortalities were reported (Appendix 4). Of those, 372 were killed in deer-vehicle collisions. This equates to just over an average of 1 deer being killed per day on Connecticut roads and highways. Deer-vehicle collisions accounted for 90% of all reported non-hunting mortality (excluding crop damage; 239) in 2020. Non-hunting mortality comprised 5.7% of the total reported deer mortality in Connecticut, including crop damage harvest (Appendix 4). Based on a 2-year study (2000-2001), for every 1 deer killed by a vehicle and reported to the Wildlife Division, 5 additional deer are killed by vehicles and not reported. Based on this correction factor, it is estimated that the actual number of roadkills in 2020 was 2,232. Eighteen percent of all road-killed deer reported in Connecticut in 2020 occurred in DMZ 11 (Fairfield County, Figure 2). However, roadkills per square mile had been declining over the past few years (Appendix 5). The number of roadkills in DMZ 11 has shown a steady decline since implementation of the replacement tag program, extension of the archery season, and legalization of baiting (Figure 5).

Deer damage is an important economic concern to some commercial agricultural operations. The Wildlife Division's crop damage program regulates the removal of deer on agricultural properties which meet specific criteria and are experiencing deer damage to specific plant commodities. The Division also encourages agriculturists to take advantage of the regulated deer hunting season to aid in the removal of problem deer and to use other methods, such as fencing, to reduce deer damage. In 2015, the crop damage application and deer registration process were streamlined. Crop damage applications can now be obtained from the Department's website (<https://portal.ct.gov/DEEP/Wildlife/Nuisance-Wildlife/Deer-Crop-Damage-Permit-Program>) and filled out electronically. Crop damage shooters are no longer required to mail in paper tags upon removing a deer but are now required to report their removal online or by telephone. During the 2020 calendar year, 239 deer were taken with crop damage permits (Appendix 6). From 1993 to 2020, annual deer removal with crop damage permits fluctuated between 239 and 946 deer. Deer removals in DMZ 7 accounted for 23% of deer removed with crop damage permits in 2020. During a typical year, the crop damage harvest increases steadily from January to October; however, in 2020, the crop damage kills primarily occurred in September and October (99%) (Figure 8). This increase is typically thought to reflect increasing interest in hunting as fall approaches rather than any damage-related trend. The trend in 2020 may have been related to concerns about COVID-19 at the start of the outbreak. An additional 15 deer were killed in November and December using jacklight permits, which are appropriated only under special circumstances.

Figure 8. Crop damage deer removals by month, 2020.



Population Trends

Based on aerial deer surveys conducted between 1975 and 2006 and population reconstruction models applied between 2011-2020, a statewide population estimate was calculated. Using these methods, over the past 20 years the population peaked at 152,000 in the early 2000s and declined some in the later 2000s (110,000) (Figure 9). Keep in mind that both methods are only estimates; aerial surveys are heavily impacted by forest type and snow cover; and the population reconstruction model uses variables based on reported hunter harvests and sightings of fawns, does, and bucks collected at time of harvest reporting, along with reported roadkills. A correction factor based on research has been applied to all variables.

The 2020 survey included the question, "How would you describe the status of the deer population in the zone you hunt most from last year to this year?" Hunter perceptions of deer population trends were ranked on a scale of 0 (decreasing population) to 6 (increasing population). Thirty-six percent of the hunters who responded to the survey believed that the population was declining, 51% believed it was stable, and 14% believed it was increasing. DMZs 4A and 6 had the highest average rank (2.8) (Figure 10), indicating that the population was mainly stable. In general, hunters perceived that deer populations are relatively stable or have been decreasing slightly in most zones over the past 3 years. Hunter perceptions seem to align with population estimates, which align with management objectives in several zones.

Figure 9. Statewide deer population estimates based on aerial surveys (1975-2006) and population reconstruction models (2011-2020) in Connecticut.

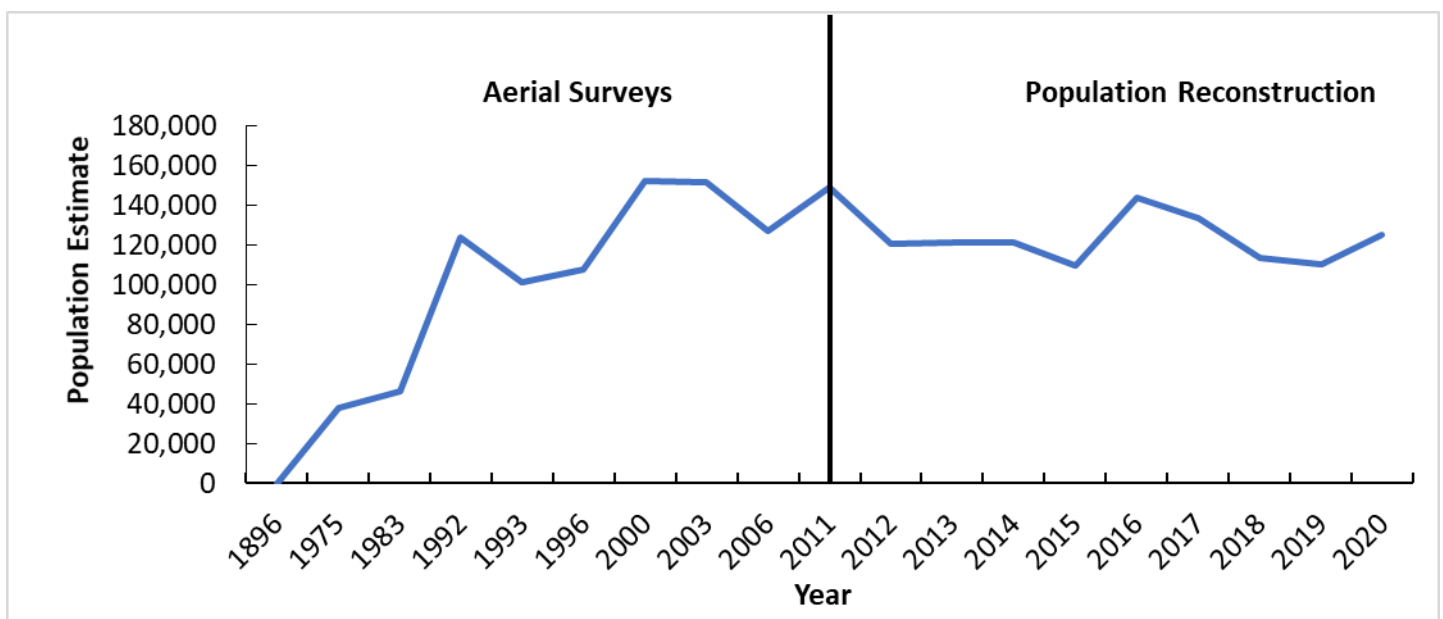
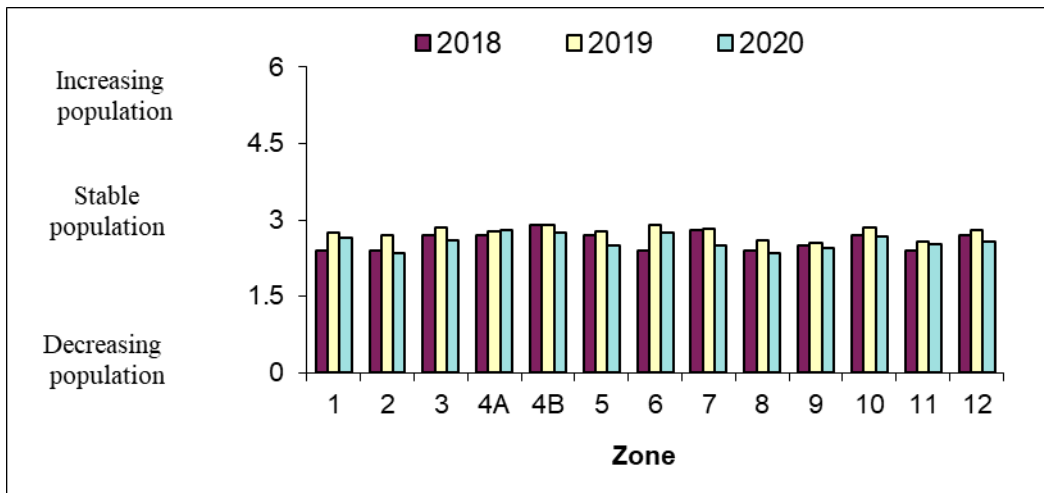


Figure 10. Perception of zonal deer population trends (average rank) by Connecticut's deer hunters, 2018-2020.



Based on the survey question “How many bear and bobcat have you observed and where”, observations and distribution of predators have continued to rise the past few years, indicating that the predator population has continued to increase. Hunters reported 2,802 bear sightings in 118 towns in 2020 at a rate of one bear sighting per 23.9 days spend afield (2,154 bear sightings in 118 towns in 2019 at a rate of one bear sighting per 28 days spent afield). Hunters reported 4,013 bobcat sightings in 160 towns in 2020 at a rate of one bobcat sighting per 16.7 days spent afield (2,830 bobcat sightings in 151 towns in 2019, at a rate of one bobcat sighting per 28 days spent afield). A 4-year study (2012-2015) assessing fawn mortality in northwest Connecticut indicated that mortality was primarily caused by bears (37%) and bobcats (40%). Survival rate of fawns based on this study was 36%.

Fall Acorn Crop

Acorns are a preferred food for white-tailed deer during fall and winter. Acorn availability influences deer movement patterns and herd health. To interpret changes in harvest rates, herd health, and herd productivity, the Deer Program has been collecting data since 1993 from hunter surveys on abundance of the fall acorn crop. Hunter perceptions of the fall acorn crop were ranked on a scale from 0 (scarce) to 6 (abundant acorns). In 2020, 51% of the hunters who responded to the survey ranked the fall acorn crop as moderate, 29% as scarce, and 19% as abundant. DMZs 2 and 10 had the highest average rank (3.50-3.22), while DMZs 6 and 11 had the lowest average ranks (2.46-2.32) (Figure 11). On a scale of 0-6, the average rank statewide was 2.96. Two consecutive years of gypsy moth outbreaks (2018 and 2019) caused substantial oak damage, particularly in eastern Connecticut where the long-term implications on acorn production is still apparent, although some recovery is evident based on survey results.

The past 28 years of data on acorn abundance and deer harvest rates suggest that a correlation exists between hunter success and acorn abundance (Figure 12). In 1993, when acorns were abundant, hunter success was one of the lowest recorded, and in 2004, when acorns were scarce, the hunter success rate was the highest. During years with low acorn productivity, deer travel more to access other food sources, such as green fields, increasing their vulnerability to hunters. In 2013 and 2014, the acorn-success pattern was inconsistent and may have been influenced by warm weather during the hunting season. During the 2015 and 2016 seasons, the abundance of acorns and warm weather resulted in lower hunter success rates. During the past couple of years, the lack of acorns has led to increased success rates. On average, the acorn crop statewide has been moderate in most years, scarce about every 5 to 6 years, and abundant every 4 years. In local areas, extensive gypsy moth damage has resulted in limited acorn productivity and severely impacted many white oak stands, resulting in large areas with nothing but standing dead oak trees. Depending on the severity of damage that occurs in the coming years, it could have a major impact on Connecticut’s forested landscape for years to come.

Figure 11. Perception of acorn crops (average rank) by Connecticut's deer hunters, 2017-2020.

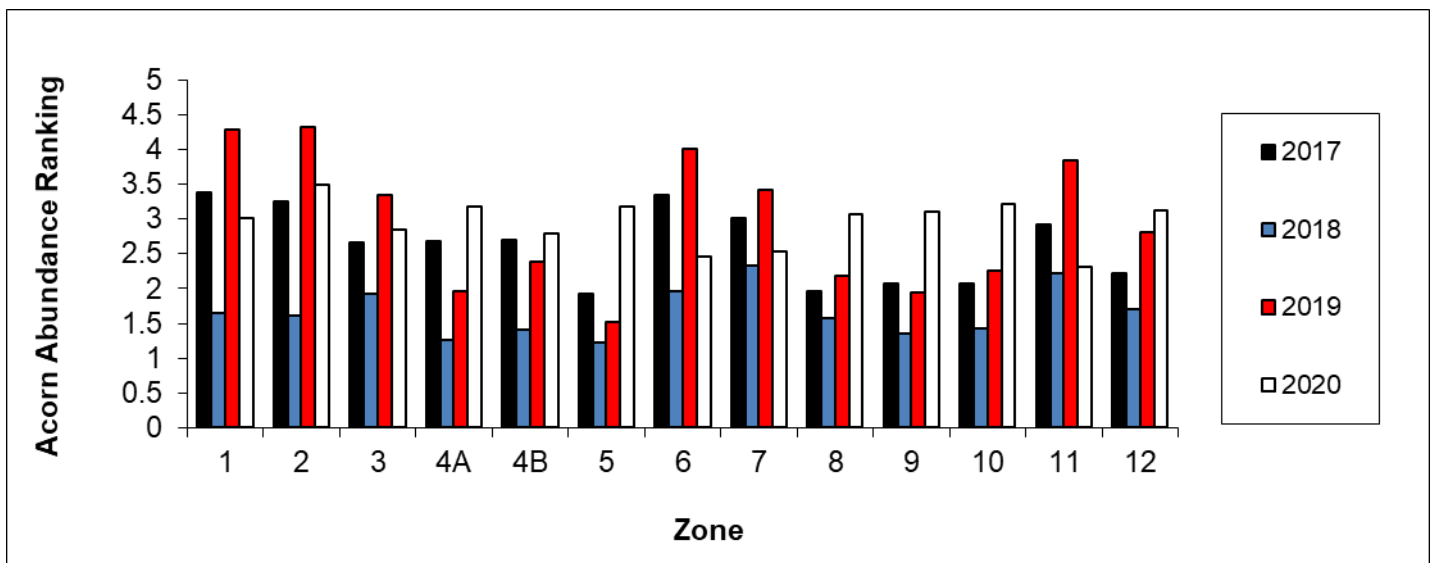
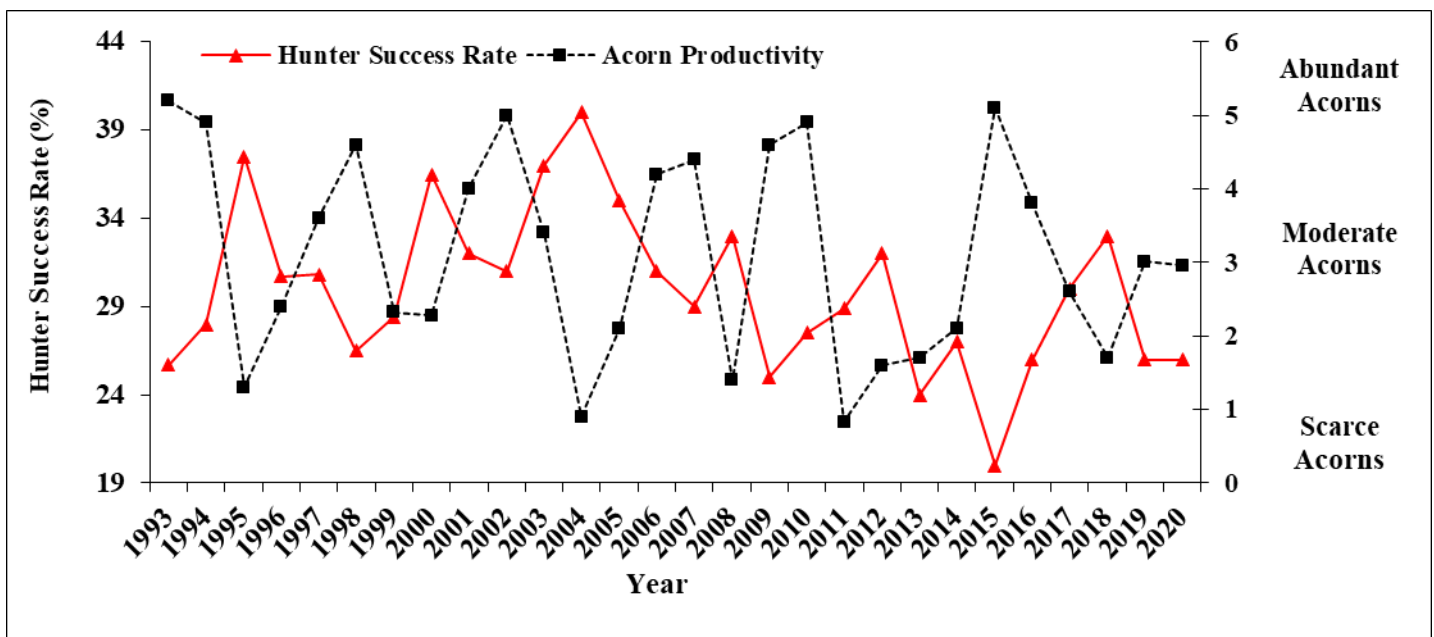


Figure 12. Relationship between private land shotgun/rifle hunter success rates and fall acorn productivity, 1993-2020.



Deer Hunter Expenditures, Effort, Venison Calculations, and Opinions

Deer hunting-related expenditures contribute significantly to Connecticut's economy. Deer permit sales generated \$1,601,187 in 2013, \$1,704,083 in 2014, \$1,687,962 in 2015, \$1,447,074 in 2016, \$1,430,519 in 2017, \$1,369,436 in 2018, \$1,356,289 in 2019, and \$1,414,775 in 2020 to the Connecticut General Fund. In addition, data collected from the annual deer hunter surveys indicated that Connecticut deer hunters spent an estimated \$5,705,600 on deer hunting-related goods and services in 2020, down from the \$6,726,783 spent in 2019.

In 2020, deer hunters spent a cumulative total of 557,371 days afield. State land shotgun/rifle hunters and archers used the greatest percentage of available hunting days during those seasons (45% and 44% respectively). Typically, bowhunters have used a smaller percentage of available hunting days (13%) since the archery season is much longer than the firearms season. However, a greater increase in usage during 2020 may have been due to the COVID-19 pandemic. On the deer hunter survey, hunters were asked if they had “more”, “less”, or “the same” amount of time to hunt this year compared to previous years due to issues surrounding the COVID-

19 pandemic. The majority of hunters (53%) indicated they had the “same amount of time”, 27% indicated they had “more time”, and 20% indicated they had “less time”. In 2020, Connecticut deer hunters collectively spent more time (51 days per deer taken) but less money (\$524 per deer taken) compared to 2019 (34 days at \$616 per deer taken). In 2020, hunters harvested an estimated 544,040 pounds (average 50 lbs. of meat/hunter; 243 tons total) of venison at an estimated value of \$3,672,337 (\$6.75/lb.).

Hunters were asked “how satisfied they were with their Connecticut deer hunting experience in 2020”. Excluding hunters who had no opinion (about 7%), over a third of hunters were moderately satisfied with their hunting experience (35%), a third were very satisfied (33%), and the remainder were slightly satisfied (16%) or not at all satisfied (16%), similar to opinions in 2019.

Hunters were asked, “what if anything affected their deer hunting season this year”. A third of hunters reported “no affects” (33%), while many reported increased hunting opportunities because of “Sunday hunting” (20%), “COVID” (16%), “access to new property” (11%), and “able to hunt a new season” (7%). Others reported decreased hunting opportunities because of “limited time” (22%), “limited access” (14%), “COVID” (9%), and “health problems” (7%). Additional factors that affected their season were “lack of deer” (23%), “disturbances from non-hunters” (13%), “disturbances from other hunters” (10%), “bad weather” (9%), “travel distance” (5%), “limited finances” (4%), “limited interest in hunting” (2%), and “other non-descript factors” (11%).

Hunters were asked “to select the top three reasons why they hunted from a list of choices”. The primary reasons were “for food” (44%), “spend time outdoors” (38%), and “tradition/time with family” (23%). Other reasons included “for fun” (16%), “for management/conservation” (15%), “for trophies/antlers” (6%), “to help reduce deer damage” (2%), and “other” (2%).

Hunters were asked “what the primary reason is why they hunt in the zones in which they do”. The primary reason for archers was “it is close to home” (44%) and “they have access to private land there” (42%), while firearms and muzzleloader hunters was “they have access to private land there” (46% and 42%), and “it is close to home” (34% and 37%). Other reasons for archery, firearms, and muzzleloader hunters included “have access to state land there” (7%, 11%, and 13%), “close to a friend’s house” (1%, 3%, and 3%), “close to work” (1%, 0%, and 1%), “high deer densities there” (1%, 1%, and 1%) and “other” reasons (3%, 4%, and 3%).

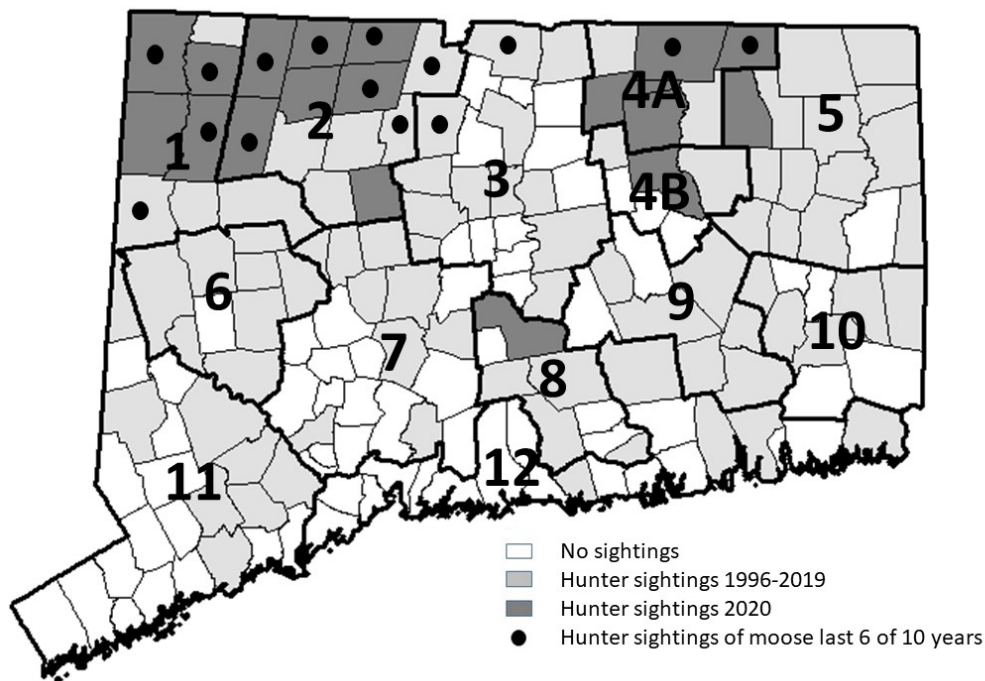
Archery hunters who indicated they primarily hunted in DMZ 11 and 12 were asked their opinion about the number of tags they preferred. The majority of hunters (47%) indicated they preferred the current 4 tag system (2 antlerless/2 either sex) with replacement antlerless and either sex tags available and check-stations, 27% preferred 4 tags (2 antlerless/2 either sex) with no replacement tags, 13% preferred 6 tags (3 antlerless/3 either sex) with no replacement tags, 5% preferred 8 tags (4 antlerless/4 either sex) with no replacement tags, 5% preferred 14 tags (7 antlerless/7 either sex) with no replacement tags, and 3% preferred 10 tags (5 antlerless/5 either sex) with no replacement tags. No hunters selected the 12-tag option.

Additional hunter concerns/comments on the survey were grouped into more specific and reportable concerns/comments and included 17% mentioning predators (bears, bobcats, and coyotes) and the need for hunting/trapping seasons for bears and bobcats and expanding shooting options for coyotes; 11% requested increased opportunities to hunt Sundays during various seasons, such as state land archery and firearms seasons; 9% indicated they felt the population was in decline; 6% experienced conflicts with non-hunters (especially mountain bikers and dogs off leash); 5% mentioned reducing bag limits; and 3% experienced conflicts with other hunters (deer and small game) on state land, leading to comments mentioning not enough land to hunt or limited access to land (3%). An additional 2% preferred changing the season dates and shooting hours for archery until ½ hour after sunset (2%) and increasing bait use (1%), while another 1% each had issues with the crossbow season being during the archery season, with the tagging/reporting system, not enough time to hunt, the cost to hunt, and not enough law enforcement presence. Others (1%) preferred to eliminate baiting, impose antler point restrictions, expand bag limits, and allow January archery statewide

Moose Sightings

An increasing moose population in Massachusetts led to an increased number of moose wandering or dispersing into Connecticut in the early 1990s. In an effort to monitor trends in moose sightings in Connecticut, a question was added to the deer hunter survey in 1996, “How many moose did you observe while hunting and in what towns”. Deer hunters reported 75 moose sightings (131 individuals) in 18 towns in 2020 and 1,396 sightings over the past 25 years (Figure 13). During the 25-year period, moose sightings were reported in 105 different towns. Sightings were reported from 8 to 43 different towns each year. Moose were observed in Barkhamsted, Canaan, Canton, Colebrook, Cornwall, Goshen, Granby, Hartland, Kent, Norfolk, Salisbury, Simsbury, Suffield, Stafford, and Union for 6 of the last 10 years. Most of the towns where hunters report the greatest number of moose sightings occur along the Connecticut-Massachusetts border. In 2020, an average of 1 moose was observed by hunters for every 512 hunter-days spent in the field, slightly less days than in 2019 when 1 moose was observed for every 564 hunter-days in the field. Currently, Connecticut has no open hunting season for moose.

Figure 13. Moose sightings reported on deer hunter surveys, 1996-2020.



Conclusion

Over the past several decades, deer population size, human land-use practices, and public attitudes toward wildlife have changed considerably. Today, hunters may legally take up to 14 deer (including the January archery season on private land in DMZs 11 and 12) per year if they participate in all hunting seasons, and unlimited deer may be taken in 2 of the 13 Deer Management Zones. Historically, deer permit issuance increased consistently from 11,710 in 1975 to 61,333 in 1992. Since 1992, permit issuance has remained relatively stable, fluctuating between 60,316 and 64,032. In 2008, permit issuance increased to its highest point in history. The cause for this increase is unknown but may have been attributed to the poor economy at the time. In 2009, permit issuance declined slightly, likely due to the switch to online license sales. Since 2010, permit issuance has continued to decline annually due to changes in the lottery system and the ability to purchase permits at any time rather than in advance of the hunting season, and a decline in hunter numbers. Permit issuance in recent years is now at the same level as it was in 1988. Over the last 10 years, harvest in most Deer Management Zones has remained relatively stable. However, with increased opportunities and incentives to harvest deer in urban Deer Management Zones 11 and 12, a harvest which had more than doubled is now beginning to decline, while roadkills have continued to trend downward. Increased harvest opportunities appear to have stabilized deer populations in many areas of the state and population reconstruction models show a stable to declining population in recent years.

The Wildlife Division continues to conduct research and evaluate the effectiveness of methods to control deer populations, particularly in urban-suburban landscapes. The Division initiated several long-term urban deer studies in residential communities in past years. Reports summarizing findings from these studies are available to communities interested in managing deer in more developed areas of the state, such as Fairfield County. Copies of these reports can be obtained by contacting the Wildlife Division's Deer Program via email at Andrew.LaBonte@ct.gov or calling the Wildlife Division's Franklin office at 860-418-5921. The Wildlife Division will continue to provide technical assistance on deer control options to interested communities. Future management efforts will continue to focus on deer population stabilization. In areas with overabundant deer populations, landowners will be encouraged to use hunting, where possible, as a management tool. A booklet on *Managing Urban Deer in Connecticut* is available from Wildlife Division offices or online (https://portal.ct.gov/-/media/DEEP/wildlife/pdf_files/game/urbandeer07pdf.pdf) to assist communities in developing effective deer management programs. Another publication, *An Evaluation of Deer Management Options*, was made available in 2009 by the Northeast Deer Technical Committee and can be found on the DEEP website as well (https://portal.ct.gov/-/media/DEEP/wildlife/pdf_files/game/deeroptionspdf.pdf).

The DEEP has been holding a special event (Discover Outdoor Connecticut) in September for several years as a means of exposing a wider range of participants to hunting, fishing, trapping, and the great outdoors. The event was cancelled in 2020 and 2021 due to concerns about COVID-19, but we hope to bring you another great event in the near future. Although this organized event has been cancelled, another great way to engage people in outdoor activities is to share your knowledge by being a mentor.

Mentor a New Hunter

Connecticut designates specific days when experienced adult hunters are encouraged to take a youth hunting, helping them learn safe and effective hunting practices, develop observational skills, and gain confidence and the comfort level they need to discover a passion for hunting and the outdoors.

Specific Youth training days for deer season and others can be found in the Connecticut Hunting and Trapping Guide or at <https://portal.ct.gov/DEEP-Junior-Hunting>.



Mentoring is also important for new adult hunters, so do not limit your efforts to just youths. The same skills taught to youth hunters are needed to help adults new to hunting learn the ropes. Whether it be a coworker, friend, or neighbor — either youth or adult — take the time to introduce a new hunter to a lifetime of appreciation for our natural resources through hunting.



Appendix 1. Total reported deer harvest and roadkills by town, 2020.

Town	Archery	Shotgun/Rifle	Landowner	Muzzleloader	Cropkill	Roadkill	Other	Total
Andover	39	21	9	3	0	0	0	72
Ansonia	5	3	0	0	0	0	0	8
Ashford	48	75	26	15	4	1	0	169
Avon	17	15	0	2	1	0	1	36
Barkhamsted	17	24	3	5	0	3	0	52
Beacon Falls	14	9	1	4	0	0	0	28
Berlin	49	24	6	3	0	0	0	82
Bethany	47	16	2	8	3	0	0	76
Bethel	41	18	0	1	0	12	2	74
Bethlehem	15	11	3	4	0	2	0	35
Bloomfield	29	11	2	7	0	0	0	49
Bolton	24	20	1	3	1	0	0	49
Bozrah	20	16	15	5	2	0	0	58
Branford	26	6	1	1	0	1	0	35
Bridgeport	0	0	0	0	0	0	0	0
Bridgewater	22	12	5	2	1	0	0	42
Bristol	7	4	0	0	0	3	0	14
Brookfield	49	2	0	0	0	1	0	52
Brooklyn	35	23	14	13	0	0	0	85
Burlington	32	21	0	4	0	5	0	62
Canaan	35	31	8	7	4	1	0	86
Canterbury	41	46	20	8	0	0	1	116
Canton	23	10	7	2	0	10	1	53
Chaplin	22	32	18	11	0	1	1	85
Cheshire	82	15	1	4	12	1	1	116
Chester	13	12	1	1	0	0	0	27
Clinton	18	6	0	4	0	0	0	28
Colchester	41	49	13	13	6	1	0	123
Colebrook	10	15	3	2	0	1	0	31
Columbia	35	19	19	5	4	1	0	83
Cornwall	21	37	7	10	0	0	0	75
Coventry	66	87	10	12	0	14	1	189
Cromwell	14	8	0	1	0	0	0	23
Danbury	71	5	0	1	0	6	0	83
Darien	51	0	0	0	0	7	5	63
Deep River	17	6	3	2	0	0	0	28
Derby	7	0	0	1	0	0	0	8
Durham	36	25	2	4	2	0	0	69
East Granby	10	5	1	1	2	2	0	21
East Haddam	65	63	7	18	0	3	0	156
East Hampton	26	28	11	7	0	0	0	72
East Hartford	16	7	0	1	3	2	0	29
East Haven	11	1	0	0	0	0	0	12
East Lyme	42	20	1	4	0	1	1	69
East Windsor	31	26	5	6	0	6	0	74
Eastford	17	39	10	5	0	0	0	71
Easton	93	41	2	1	9	3	0	149
Ellington	13	14	12	3	2	2	0	46

Town	Archery	Shotgun/Rifle	Landowner	Muzzleloader	Cropkill	Roadkill	Other	Total
Enfield	46	22	1	5	0	10	0	84
Essex	8	3	0	1	0	1	0	13
Fairfield	77	5	0	3	0	0	0	85
Farmington	13	4	0	3	2	15	1	38
Franklin	45	40	12	3	0	0	0	100
Glastonbury	31	35	4	7	4	10	1	92
Goshen	17	18	15	2	0	2	0	54
Granby	22	13	7	3	0	3	0	48
Greenwich	78	4	0	1	0	0	0	83
Griswold	44	42	16	10	6	1	0	119
Groton	51	5	1	2	2	1	1	63
Guilford	77	22	7	4	6	5	0	121
Haddam	42	49	13	4	0	0	0	108
Hamden	27	15	0	6	26	0	0	74
Hampton	29	23	19	5	0	0	0	76
Hartford	0	1	0	0	0	1	0	2
Hartland	10	26	4	7	0	0	0	47
Harwinton	15	24	4	6	2	8	0	59
Hebron	40	33	19	7	0	0	0	99
Kent	43	44	2	10	5	2	1	107
Killingly	46	47	22	13	0	3	0	131
Killingworth	39	22	7	7	0	0	0	75
Lebanon	72	101	29	11	15	0	0	228
Ledyard	62	23	7	6	1	9	0	108
Lisbon	10	11	14	2	0	5	0	42
Litchfield	56	54	13	13	4	5	1	146
Lyme	28	42	10	3	1	0	0	84
Madison	29	7	2	2	0	0	0	40
Manchester	32	2	0	6	1	2	0	43
Mansfield	110	50	19	11	5	7	0	202
Marlborough	30	21	11	9	0	0	0	71
Meriden	22	8	0	4	0	0	0	34
Middlebury	11	10	2	2	0	5	0	30
Middlefield	34	17	2	6	4	0	0	63
Middletown	68	39	9	9	0	2	0	127
Milford	20	1	0	2	0	0	0	23
Monroe	52	10	1	2	0	0	0	65
Montville	62	27	15	6	3	2	0	115
Morris	14	18	4	4	0	0	0	40
Naugatuck	29	17	0	1	0	2	0	49
New Britain	3	0	0	0	0	0	0	3
New Canaan	49	0	0	0	0	3	5	57
New Fairfield	47	13	2	0	0	0	0	62
New Hartford	33	23	5	3	2	5	0	71
New Haven	5	0	0	0	0	1	0	6
New London	2	0	0	0	0	0	0	2
New Milford	81	50	10	10	4	0	0	155
Newington	6	0	0	0	0	0	0	6
Newtown	126	34	2	8	4	9	0	183

Town	Archery	Shotgun/Rifle	Landowner	Muzzleloader	Cropkill	Roadkill	Other	Total
Norfolk	10	23	4	4	0	0	0	41
North Branford	42	9	3	3	0	12	1	70
North Canaan	15	9	5	2	0	0	0	31
North Haven	32	3	1	3	0	0	0	39
North Stonington	41	49	19	12	0	1	0	122
Norwalk	38	0	0	0	0	0	0	38
Norwich	29	26	0	2	0	13	8	78
Old Lyme	54	18	1	4	0	0	0	77
Old Saybrook	12	4	0	0	0	1	0	17
Orange	36	2	0	2	0	1	0	41
Oxford	43	23	4	3	10	1	0	84
Plainfield	51	41	21	10	0	2	0	125
Plainville	9	2	0	0	0	0	0	11
Plymouth	21	18	6	4	0	2	0	51
Pomfret	60	46	20	21	1	2	0	150
Portland	23	23	3	6	0	4	0	59
Preston	26	23	16	3	10	1	0	79
Prospect	37	8	0	2	0	2	0	49
Putnam	22	16	4	1	1	1	0	45
Redding	97	37	0	4	0	0	0	138
Ridgefield	88	14	0	6	0	0	0	108
Rocky Hill	10	10	0	1	0	0	0	21
Roxbury	16	15	2	5	2	1	0	41
Salem	21	20	10	0	0	0	0	51
Salisbury	62	62	8	4	9	0	0	145
Scotland	27	22	8	10	0	0	0	67
Seymour	33	10	2	0	0	5	0	50
Sharon	51	62	7	11	1	1	0	133
Shelton	59	9	0	1	3	2	0	74
Sherman	55	19	4	3	0	0	0	81
Simsbury	24	5	1	0	0	2	1	33
Somers	35	16	3	4	1	3	0	62
South Windsor	23	13	3	4	2	1	0	46
Southbury	41	24	4	2	0	8	2	81
Southington	43	11	0	2	2	6	0	64
Sprague	9	14	5	3	0	3	0	34
Stafford	48	36	30	14	4	2	0	134
Stamford	58	0	0	0	0	0	0	58
Sterling	28	27	9	7	0	0	0	71
Stonington	67	40	11	3	10	4	0	135
Stratford	13	1	1	0	0	1	0	16
Suffield	44	31	6	5	1	4	0	91
Thomaston	12	9	2	1	1	0	0	25
Thompson	73	63	18	13	1	0	0	168
Tolland	67	16	10	6	1	3	2	105
Torrington	26	17	3	5	0	2	0	53
Trumbull	24	0	0	0	0	2	0	26
Union	20	19	13	3	0	1	0	56
Vernon	10	5	0	0	0	5	0	20

Town	Archery	Shotgun/Rifle	Landowner	Muzzleloader	Cropkill	Roadkill	Other	Total
Voluntown	31	41	10	10	3	1	0	96
Wallingford	78	28	2	8	4	12	0	132
Warren	13	22	3	4	2	0	0	44
Washington	29	35	9	13	6	1	0	93
Waterbury	8	1	0	0	0	0	0	9
Waterford	68	11	7	6	0	2	0	94
Watertown	25	23	6	1	0	0	0	55
West Hartford	1	0	0	0	0	7	0	8
West Haven	12	0	0	0	0	0	0	12
Westbrook	10	7	2	1	0	0	0	20
Weston	37	21	1	0	0	0	0	59
Westport	2	0	0	0	0	0	0	2
Wethersfield	3	6	1	0	4	1	0	15
Willington	26	30	13	5	0	2	0	76
Wilton	94	20	0	7	3	1	0	125
Winchester	15	14	4	2	0	1	0	36
Windham	34	23	9	5	1	2	0	74
Windsor	18	11	3	3	0	2	0	37
Windsor Locks	2	0	0	0	0	0	0	2
Wolcott	13	5	1	0	0	2	0	21
Woodbridge	39	7	1	1	0	11	0	59
Woodbury	38	34	3	6	3	12	0	96
Woodstock	66	67	26	8	0	2	0	169
Total	5,803	3,429	927	722	239	367	38	11,524

Appendix 2. Deer harvest on state hunting areas, including Deer Lottery Hunting Areas (DLHA), 2020

Fall Archery	Muzzleloader	Lottery Area #	No-Lottery	Code	<ul style="list-style-type: none"> ● Hunting Permitted ▲ Designated Deer Bowhunting Only Area (▲ areas are open during shotgun and muzzleloader) ▲/● Some Sections open to Archery ONLY AB (No-Lottery A and B) B (No-Lottery B only) ○ Daily/Season Permit Required * Special Conditions shaded lines = Harvest/mi² greater than 10 	Square miles	Fall Archery	Muzzleloader	Lottery	No Lottery	Total Harvest	Harvest/mi ²
▲		62		308	Aldo Leopold WMA	0.87	0	1	3	0	4	4.60
●	●		AB	201	Algonquin SF	1.04	13	6	0	14	33	31.73
●	●		AB	202	American Legion SF	1.62	3	1	0	4	8	4.94
●	●		AB	272	Assekonk Swamp WMA	1.07	0	0	0	3	3	2.80
●	●		AB	244	Babcock Pond WMA	2.36	1	0	0	4	5	2.12
▲				203	Barber Pond WMA	0.11	1	0	0	1	2	18.18
●	●		AB	273	Barn Island WMA	1.58	5	0	0	5	10	6.33
●	●		AB	274	Bartlett Brook WMA	1.10	4	0	0	3	7	6.36
▲				275	Bear Hill WMA	0.57	1	0	0	0	1	1.75
▲				276	Beaver Brook SP	0.56	1	0	0	0	1	1.79
▲				309	Bennett's Pond SP	0.72	4	0	0	1	5	6.94
▲				277	Bigelow Hollow SP	0.80	0	0	0	0	0	0.00
▲				245	Bishops Swamp WMA	1.18	7	0	0	0	7	5.93
▲				337	Black Pond WMA	0.11	0	0	0	0	0	0.00
▲				204	Black Rock Lake (state and federally owned)	0.62	0	0	0	0	0	0.00
▲				205	Bloomfield Flood Control Area (Site 1)	0.51	6	0	0	0	6	11.76
		52		329	Bristol Water Company	6.75	0	0	16	0	16	2.37
▲/●	●	27		207	Camp Columbia SF	0.94	2	1	3	0	6	6.38
●	●		AB	347	Candlewood Hill WMA	0.31	0	1	0	4	5	16.13
▲				208	Cedar Swamp WMA	0.43	3	0	0	1	4	9.30
		56		310	Centennial Watershed SF	6.77	38	0	43	0	81	11.96
●	●		AB	209	Centennial Watershed SF (Canaan Block)	0.23	1	0	0	4	5	21.74
▲				311	Centennial Watershed SF (formerly Bpt. Hydr.) -Shelton	0.16	3	0	0	0	3	18.75
▲				310	Centennial Watershed SF -Monroe Parcel (Hattertown)	0.05	0	0	0	0	0	0.00
▲/●	●		AB	246	Cockaponset SF	26.85	48	5	0	45	98	3.65
▲				313	Collis P. Huntington SP	1.61	4	0	0	0	4	2.48
▲				247	Cromwell Meadows WMA	0.79	5	0	0	0	5	6.33
▲				210	CT Light & Power (borders Newgate WMA)	0.32	0	0	0	0	0	0.00
▲				248	Durham Meadows WMA	0.80	0	0	0	0	0	0.00
▲				315	East Swamp WMA	0.10	4	0	0	0	4	40.00
▲				211	East Twin Lakes Water Access Area	0.15	0	0	0	0	0	0.00
●	●		AB	249	Eightmile River WMA	0.48	0	0	0	1	1	2.08
●	●		AB	250	Ellithorpe Flood Control Area	0.64	3	1	0	0	4	6.25
▲				332	Enders SF (Worthen Parcel ONLY)	0.55	1	0	0	0	1	1.82
●	●		AB	278	Franklin Swamp WMA	1.07	6	0	0	3	9	8.41
▲				316	George C. Waldo SP	0.23	0	0	0	0	0	0.00

Fall Archery	Muzzleloader	Lottery Area #	No-Lottery	Code	<ul style="list-style-type: none"> ● Hunting Permitted ▲ Designated Deer Bowhunting Only Area (▲ areas are open during shotgun and muzzleloader) ▲/● Some Sections open to Archery ONLY AB (No-Lottery A and B) B (No-Lottery B only) ○ Daily/Season Permit Required * Special Conditions shaded lines = Harvest/mi² greater than 10 	Square miles	Fall Archery	Muzzleloader	Lottery	No Lottery	Total Harvest	Harvest/mi ²
●	●		AB	213	Goshen WMA	1.51	2	0	0	2	4	2.65
▲				318	Great Swamp Flood Control Area	0.53	1	0	0	0	1	1.89
●			AB	214	Hancock Brook Lake (federally owned)	1.10	2	0	0	2	4	3.64
○				280	Harkness Memorial SP ▲ (Verkade Property)	0.44	9	0	0	0	9	20.45
▲				251	Higganum Meadows WMA (off Clarkhurst Road)	0.40	1	0	0	0	1	2.50
▲				252	Higganum Reservoir	0.23	1	0	0	1	2	8.70
▲				215	Housatonic River WMA	0.87	7	0	0	0	7	8.05
●	●		AB	216	Housatonic SF	17.63	12	5	0	17	34	1.93
▲				217	John Minetto SP	1.12	1	0	0	0	1	0.89
▲				281	Killingly Pond SP	0.27	2	0	0	0	2	7.41
●	●		AB	253	Kollar WMA	1.40	10	0	0	3	13	9.29
●	●		AB	254	Larson Lot WMA	0.38	1	2	0	1	4	10.53
▲				282	Lebanon Coop Mgmt. Area	0.33	3	0	0	0	3	9.09
▲				283	Little River Fish and Wildlife Area	0.08	1	0	0	0	1	12.50
▲				218	Mad River Dam Flood Control Area	0.70	3	0	0	0	3	4.29
▲				255	Mansfield Hollow Lake (excluding SP)	3.14	17	0	0	1	18	5.73
▲				256	Mansfield State-Leased Field Trial Area	0.37	1	0	0	0	1	2.70
●	●		AB	219	Mattatuck SF	7.02	12	1	0	10	23	3.28
●	●		AB	220	MDC – Colebrook Reservoir/Hogback Dam	6.50	0	2	0	4	6	0.92
▲				221	MDC – Greenwoods Pond	0.31	3	0	0	0	3	9.68
▲		64		343	MDC Barkhamsted Res. -Barkhamsted Block	6.69	0	0	10	0	10	1.49
		67		346	MDC Barkhamsted Res.-Barkhamsted West Block	5.78	0	0	10	0	10	1.73
		58		330	MDC Nepaug Reservoir - Valentine/Pine Hill Block	2.32	0	0	16	0	16	6.90
●				349	MDC Lake McDonough	1.22	0	0	0	0	0	0.00
▲		66		345	MDC Sweetheart Mnt. Block	0.78	2	0	1	0	3	3.85
●	●		AB	339	Meadow Brook WMA	0.42	1	0	0	0	1	2.38
▲				338	Menunketesuck Pond WMA (formerly Chapmans Pond)	0.26	2	0	0	0	2	7.69
●	●		AB	257	Meshomasic SF	14.22	17	9	0	36	62	4.36
▲				258	Messerschmidt WMA	0.72	2	0	0	0	2	2.78
●	●		AB	259	Millers Pond	0.41	1	0	0	1	2	4.88
▲				341	Mohawk SF - Clark Pond Tract	0.19	0	0	0	0	0	0.00
●	●	63		342	Mohawk SF - Ziegler/Johnson Tract	0.51	0	0	0	0	0	0.00
●	●		AB	285	Mohegan SF	1.50	2	2	0	3	7	4.67
▲				260	Mono Pond	0.45	2	0	0	1	3	6.67
▲				222	Mount Riga SP	0.47	2	0	0	0	2	4.26
●	●		AB	223	Nassahegon SF	1.30	4	0	0	3	7	5.38
▲/●	●		AB	286	Natchaug SF	7.93	45	18	0	34	97	12.23
●	●		AB	261	Nathan Hale SF Mgmt. Area	2.27	13	2	0	15	30	13.22
●	●		AB	319	Naugatuck SF	21.15	16	6	0	22	44	2.08

Fall Archery	Muzzleloader	Lottery Area #	No-Lottery	Code	<ul style="list-style-type: none"> ● Hunting Permitted ▲ Designated Deer Bowhunting Only Area (▲ areas are open during shotgun and muzzleloader) ▲/● Some Sections open to Archery ONLY AB (No-Lottery A and B) B (No-Lottery B only) ○ Daily/Season Permit Required * Special Conditions shaded lines = Harvest/mi² greater than 10 	Square miles	Fall Archery	Muzzleloader	Lottery	No Lottery	Total Harvest	Harvest/mi ²
▲				320	Naugatuck SF (Great Hill Block)	0.37	5	0	0	0	5	13.51
*	●	28		321	Naugatuck SF* (Quillinan Reservoir Block)	0.90	5	0	0	2	7	7.78
▲/●	●		AB	287	Nehantic SF	7.91	8	1	0	17	26	3.29
●	●		AB	224	Nepaug SF	2.10	4	1	0	0	5	2.38
▲				225	Newgate WMA	0.70	3	0	0	0	3	4.29
●	●		AB	288	Nipmuck SF	14.40	17	8	0	11	36	2.50
▲				227	Northfield Brook Lake (federally owned)	0.31	1	0	0	0	1	3.23
▲				289	Nott Island	0.13	1	0	0	1	2	15.38
●	●	53		263	NU-Maromas Coop WMA	2.48	12	2	6	0	20	8.06
●	●	54		228	NU-Skiff Mtn. Coop WMA	1.13	6	0	3	0	9	7.96
*	●		AB	264	Nye Holman SF	1.20	11	0	0	4	15	12.50
▲/●	●		AB	290	Pachaug SF	40.84	68	13	0	41	122	2.99
●	●		AB	229	Paugnut SF	2.70	5	2	0	7	14	5.19
▲/●	●		AB	322	Paugussett SF	3.04	6	0	0	4	10	3.29
●	●		AB	291	Pease Brook WMA	0.33	1	2	0	2	5	15.15
●	●		AB	230	Peoples SF	4.60	1	0	0	2	3	0.65
▲				292	Pomeroy SP	0.32	5	0	0	0	5	15.63
●	●		AB	324	Pootatuck SF	1.72	0	0	0	3	3	1.74
●	●		AB	293	Quaddick SF	0.90	4	1	0	5	10	11.11
●	●		AB	294	Quinebaug River WMA	0.88	15	3	0	8	26	29.55
▲				295	Quinebaug River WMA (Aspinook Pond)	0.03	0	0	0	2	2	66.67
▲				326	Quinnipiac River SP	0.53	13	0	0	0	13	24.53
●	●		AB	296	Red Cedar Lake (Camp Mooween)	0.93	0	0	0	2	2	2.15
●	●		AB	231	Robbins Swamp WMA	2.45	3	0	0	1	4	1.63
●	●	61		232	Roraback WMA	3.10	6	2	5	0	13	4.19
●	●		AB	297	Rose Hill WMA	1.08	3	1	0	6	10	9.26
▲				298	Ross Marsh WMA	0.45	3	0	0	0	3	6.67
▲				299	Ross Pond SP	0.58	1	0	0	0	1	1.72
▲				267	Salmon River Cove and Haddam Neck	0.19	1	0	0	0	1	5.26
●	●		AB	300	Salmon River SF (including Holbrook Pond)	10.90	22	5	0	17	44	4.04
▲				268	Scantic River SP	0.92	6	0	0	0	6	6.52
●	●			301	Selden Neck SP (Selden Island)	0.88	0	0	0	0	0	0.00
○				233	Sessions Woods WMA	1.20	0	0	0	0	0	0.00
●	●		AB	269	Shenipsit SF	11.85	17	6	0	12	35	2.95
●	●		AB	333	Silvio O. Conte NWR - Salmon River Div. (federal land)	0.41	0	0	0	3	3	7.32
▲				234	Simsbury WMA	0.57	3	0	0	2	5	8.77
●	●		AB	302	Spignesi WMA	0.82	1	1	0	0	2	2.44
▲/●				350	Stewart B. McKinney NWR	0.72	0	0	0	0	0	0.00
▲				235	Sucker Brook Flood Control Area	0.24	1	0	0	0	1	4.17

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▲				236	Suffield WMA	0.30	0	0	0	0	0	0.00
●	●		AB	303	Sugarbrook Field Trial Area	0.31	3	1	0	0	4	12.90
▲				237	Sunnybrook SP (west of Newfield Rd.)	0.69	0	0	0	0	0	0.00
●	●		AB	304	Talbot WMA	0.79	9	2	0	0	11	13.92
●	●	60		334	Tankerhoosen WMA	0.78	4	0	1	0	5	6.41
▲				238	Thomaston Dam (federally owned)	1.33	3	0	0	0	3	2.26
●	●		AB	239	Topsmead SF (north and west of Rte. 118)	0.28	3	0	0	3	6	21.43
○	○	26		327	Trout Brook Valley SP	0.47	2	1	3	0	6	12.77
●	●		AB	240	Tunxis SF	15.88	9	1	0	15	25	1.57
●	●		AB	270	Wangunk Meadows (off Rte. 17a)	1.00	4	1	0	0	5	5.00
●	●		AB	305	West Thompson Dam (federal land)	1.71	7	2	0	3	12	7.02
▲				241	Whiting River Flood Control Area	0.29	0	0	0	0	0	0.00
▲				242	Wood Creek Flood Control Area	0.17	0	0	0	1	1	5.88
▲				328	Wooster Mountain SP	0.69	1	0	0	0	1	1.45
●	●		AB	271	Wopowog WMA	0.73	0	1	0	0	1	1.37
●	●		AB	243	Wyantenock SF	6.38	8	4	0	15	27	4.23
		51A		306	Yale Forest (owned by Yale University)	12.03	0	1	33	0	34	2.83
●	●		AB	307	Zemko Pond WMA	0.71	2	0	0	2	4	5.63

*Caution should be used when evaluating harvest on individual properties as errors can occur in the reporting process.

Appendix 3. Sex ratios (male:female) of deer harvested during Connecticut's regulated hunting seasons, 2018-2020.

Season	2018		2019		2020		3-year Average (2018-2020)		Males per Female		
	Males	Females	Males	Females	Males	Females	Males	Females	2018	2019	2020
Archery											
State Land	287	210	313	277	399	276	333	254	1.37	1.13	1.45
Private Land	2567	2030	2844	2038	2835	2094	2,749	2,054	1.26	1.40	1.35
Subtotal	2,854	2,240	3,157	2,315	3,234	2,370	3,082	2,308	1.27	1.36	1.36
Muzzleloader											
State Land	65	43	48	43	65	59	59	48	1.51	1.12	1.10
Private Land	291	307	233	278	272	325	265	303	0.95	0.84	0.84
Subtotal	356	350	281	321	337	384	325	352	1.02	0.88	0.88
Shotgun/Rifle											
State Land	495	209	446	206	427	182	456	199	2.37	2.17	2.35
Private Land	2,260	1,334	1,822	1,073	1,891	975	1,991	1,127	1.69	1.70	1.94
Subtotal	2,755	1,543	2,268	1,279	2,318	1,157	2,447	1,326	1.79	1.77	2.00
Landowner	631	378	688	330	608	319	642	342	1.67	2.08	1.91
Total	6,596	4,511	6,394	4,245	6,497	4,230	6,496	4,329	1.46	1.51	1.54

Appendix 4. Non-hunting deer mortality reported in Connecticut, 2007-2020.

Cause of Death	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Road	1,967	2,190	1,902	1,456	1,683	1,177	1,211	1,081	749	619	687	608	480	372
Dog	4	3	1	1	0	2	0	5	0	0	2	2	1	1
Unknown	162	72	92	49	82	58	89	59	62	49	43	31	14	39
Illegal	1	9	3	10	4	6	4	2	2	0	2	1	0	2
Crop Damage	667	883	780	715	804	864	831	812	464	462	560	569	520	239
Total	2,801	3,157	2,778	2,231	2,573	2,108	2,135	1,959	1,277	1,130	1,294	1,211	1,015	653
Non-hunting: Harvest	1:3.9	1:4.0	1:4.2	1:5.5	1:5.0	1:6.7	1:5.9	1:6.8	1:7.4	1:9.4	1:9.3	1:9.3	1:10.7	1:16.7
% Mortality*	20.2	20.0	19.1	11.1	11.6	13.5	14.5	14.6	12.2	9.5	9.7	9.7	8.5	5.7
% of Harvest	25.3	24.9	23.6	12.4	14.0	14.7	17.0	16.1	14.0	10.6	10.7	10.7	9.3	6.0

* Crop damage harvest is included under non-hunting mortality.

Appendix 5. Frequency of deer roadkills in each of Connecticut's Deer Management Zones, a 5-year comparison, 2016-2020.

Zone						Five-year		Habitat	Roadkills/Sq. Mile		
	2016	2017	2018	2019	2020	Total	Zonal %	(sq. miles)	2018	2019	2020
1	26	41	47	31	11	156	5.6	344.1	0.14	0.09	0.03
2	46	57	51	28	41	223	8.1	409.85	0.12	0.07	0.10
3	89	107	81	85	73	435	15.7	272.1	0.30	0.31	0.27
4A	32	17	26	26	15	116	4.2	213.1	0.12	0.12	0.07
4B	37	21	29	26	28	141	5.1	120.0	0.24	0.22	0.23
5	37	66	41	50	16	210	7.6	444.9	0.09	0.11	0.04
6	33	50	53	29	26	191	6.9	259.1	0.20	0.11	0.10
7	74	100	79	71	67	391	14.2	370.9	0.21	0.19	0.18
8	11	11	6	6	3	37	1.3	167.6	0.04	0.04	0.02
9	15	3	10	14	3	45	1.6	277.8	0.04	0.05	0.01
10	35	50	51	32	42	210	7.6	243.6	0.21	0.13	0.17
11	105	109	85	55	67	421	15.2	290.76	0.29	0.19	0.23
12	79	55	49	23	22	228	8.3	356.4	0.14	0.06	0.06
Total	619	687	608	476	372	2,762	100.0	3,770.2	0.16*	0.13*	0.10*

* These numbers are averages, not totals.

Appendix 6. Deer removed using crop damage permits in Connecticut's Deer Management Zones, 2008-2020.

Zone	Year												
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1	59	55	45	37	67	44	39	32	37	38	46	30	25
2	17	12	19	17	25	15	16	15	20	18	14	10	4
3	76	101	70	99	70	97	99	30	58	85	71	80	20
4A	21	6	4	10	15	16	8	10	8	3	12	19	8
4B	51	33	39	28	41	56	55	24	13	23	41	35	10
5	119	95	57	93	87	88	77	55	37	45	66	46	8
6	90	58	78	56	74	62	89	49	41	49	47	38	16
7	114	93	88	123	127	118	110	72	60	77	74	86	58
8	42	33	32	28	36	40	41	11	11	23	28	15	6
9	69	79	55	56	56	77	65	35	40	18	31	39	26
10	82	76	75	104	90	83	90	53	53	82	55	47	20
11	111	106	118	93	113	91	79	45	57	55	53	35	19
12	32	33	35	60	63	44	43	30	27	44	31	40	19
Total	883	780	715	804	864	831	812	464	462	560	569	520	239