

2013 Connecticut Deer Program Summary



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Introduction

This booklet is the 32nd 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 2013, including changes in deer management regulations and reporting requirements, 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 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. 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 urban deer populations.

Pursuant to the goal of reducing overabundant deer populations, aggressive management strategies have been implemented in areas with high deer densities. Strategies include the issuance of free replacement antlerless tags (1995), changes in state law to allow hunting over bait (2003), extending the archery season to include the month of January (2003), implementation of sharp-shooting programs (2003), development of an earn-a-buck program (2005), increased bag limits in specific deer management zones (2009), allowing the use of crossbows during January (2010), and allowing the use of crossbows statewide (2013).

The replacement antlerless tag program, which was initiated in 1995, allows hunters in deer management zones (DMZs) 11 and 12 to harvest additional antlerless deer, with the goal of increasing the harvest of does. In 2003, hunting over bait was permitted in DMZs 11 and 12 during all seasons on private land. Use of bait in areas where hunter access to private land is limited will increase hunter opportunity and success. Starting in 2005, hunters could earn a free either-sex tag for harvesting a buck after harvesting 3 antlerless deer during the same season. In 2009, hunters were issued 1 additional antlerless tag in DMZ 7 and 2 additional antlerless tags in DMZ 11 and DMZ 12 with their shotgun/rifle and muzzleloader permits. In 2010, hunters were allowed to use crossbows in January. In 2013, use of crossbows was expanded to include use during the entire archery season on state and private land in all DMZ's. 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.

In recent years, town governments have been taking a more active role in initiating local deer management programs. In 2004, representatives of 10 towns in Fairfield County formed a Regional Deer Management Working Group called the Fairfield County Municipal Deer Management Alliance (www.deeralliance.com). Currently, 19 of 23 Fairfield County towns have joined the Alliance. The Alliance assists towns in establishing deer committees, shares knowledge and experience about managing urban deer with other towns, provides input on urban deer problems so as to influence wildlife policy decision makers, increases public awareness, and provides input for developing long-term solutions to control deer overabundance in southwestern Connecticut.

Residents of the town of Redding developed a website (<http://BeSafeRedding.org>) to facilitate a process whereby willing landowners are matched up with hunters that are committed to removing deer from private land at no cost to the landowner. The mission is to get Redding residents to work together for the purpose of reducing tick-related diseases and deer-vehicle accidents that result from deer overabundance and reducing deer impacts to the forest understory to facilitate the return of native bird and wildlife species. At the request of the town, Redding and the Wildlife Division initiated a special research project in March 2011 to develop a town-wide management plan. The final report is expected to be completed in 2014. The town of Newtown is working on a similar mission.

An ongoing multi-year deer research project assessing fawn production, adult and juvenile survival rates, causes of mortality, and habitat use in Connecticut DMZ 1 entered its third year during winter and spring of 2014. The Wildlife Division's Deer Program, along with Wildlife Management Institute staff, has captured and equipped approximately 75 does and 63 fawns with radio collars in the towns of Canaan, Cornwall, Salisbury, and Sharon over the past 3 years. Average birth rate has been 1.45 fawns per doe and survival rate during the first couple years has been about 31%, with predation from bears and bobcats being the primary cause of mortality. Additional deer will be captured, fitted with radio collars, and monitored for another year. The Division will be collecting teeth from harvested deer to examine the age structure of the deer population in DMZ 1. In this zone, to complement the on-going fawn survival research, the Division will be collecting deer heads to test for chronic wasting disease (CWD) during the 2014 hunting season. Anyone interested in donating deer teeth or heads from harvested deer should contact William Embacher (william.embacher@ct.gov) or Andrew LaBonte (andrew.labonte@ct.gov) at 860-642-7239 for more information.

Hunter Notes

New regulations approved in 2013 now allow hunters to use: crossbows during the archery season on private and state land; muzzleloaders during the shotgun/rifle season on private and state land; and unplugged shotguns on private land during the shotgun/rifle season. In 2014, junior hunter training days for deer will expand from the 2 Saturdays before the season opens, to a full week of hunter training days.

As of June 2013, individuals and groups are now able to participate in a new on-line deer lottery process. Paper applications are no longer being accepted for entry into the deer lottery. The deer lottery program can be accessed on-line or at select DEEP locations. The on-line application allows hunters to apply individually or as a group (4 hunter maximum). Applicants may apply for up to 6 different hunt areas. The new lottery process streamlines the distribution of deer permits and allows state land and controlled hunt lottery hunters to know immediately whether they were selected for their lottery area of choice. More specific details are on the DEEP website at www.ct.gov/deep/hunting.

Information on dates and locations of hunter education courses can be obtained by calling the DEEP Wildlife Division's Franklin office (860-642-7239) or Sessions Woods office (860-675-8130), or on the DEEP website (www.ct.gov/deep/hunting). Licenses and permits to fish, hunt, and trap in Connecticut can be purchased on-line by going to Connecticut's Online Sportsmen Licensing System at www.ct.gov/deep/sportsmenlicensing.

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. Specific wording of the regulation (www.ct.gov/deep/lib/deep/regulations/26/26-55-4.pdf) and an updated list of states where CWD has been documented can be found on the DEEP website at www.ct.gov/deep/hunting.

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 in 2009 and after. During the 2013 hunting season, 12,549 deer were legally harvested and reported (Table 1), which is the ninth highest harvest reported since 1975 (Figure 1). This represents a 6.5% decrease from the 2012 harvest. State land archery and muzzleloader hunters showed the greatest increase in harvest (12.5% and 8.7% respectively) compared to 2012. Harvest by crossbow hunters comprised 43% and 47% of the January harvest in 2012 and 2013.

In 2013, 2,018 deer were harvested during the first 4 days of the shotgun/rifle season, a 20% decrease from 2012 (2,534). Using the telephone and on-line reporting systems, the reported shotgun/rifle harvest was 4,340 deer in 2013, a 25% decrease from 2012 (5,783). The reason for the decline in the shotgun/rifle harvest is unclear. In 2013, the landowner harvest was 1,216, slightly lower than in 2012 (1,267). 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 antlerless and either-sex replacement tag harvest was higher in 2013 (500) than in 2012 (482). Deer harvested under the replacement antlerless and either-sex tag program (500) contributed to 15.2% of the total deer harvest on private land in DMZs 11 and 12. Archery and shotgun/rifle hunters accounted for 48.2% and 34.6% respectively of all deer taken in 2013, which is the first time the archery harvest has exceeded the shotgun/rifle harvest. Landowners and muzzleloader hunters accounted for 9.7% and 7.5% of all deer taken in 2013. Harvest varied considerably by season and town (Appendix 1).

A Junior Deer Hunter Training Day was established in 2003 for youth hunters and was increased to two days in 2009. Youth hunters continue to take advantage of these special days, which have occurred on the two Saturdays prior to opening day. The 3-year average harvest for the Junior Deer Hunter Training Days is 99 deer.

Permit Allocation

To reduce Connecticut's deer population growth rate, the Wildlife Division provides opportunities for hunters to purchase multiple deer permits. Permit issuance increased consistently from 1975 to 1992, and remained relatively stable from 1992-2009 (Figure 1). Since the implementation of the on-line license system and an increase in fees, permit issuance declined (2009-2011) 9% from the previous (2006-2008) 3-year average (61,859; Table 2). Deer permit issuance in 2013 was similar to 2012. Issuance for state land B season permits had the greatest 1-year decline (22.9%), followed by state land muzzleloader permits (8.2%). Overall, shotgun/rifle hunters purchased the largest percentage of permits (41.8%), followed by archery hunters (29%), muzzleloader hunters (20.8%), and landowners (8.1%). Fifty-one percent of firearms deer permits were issued for use on private land and the remaining 49% were issued for state-managed lands. During the fourth year of authorizing the use of revolvers for deer hunting, 891 hunters took advantage of this new opportunity, a 6.0% decrease in issuance from 2012 (945).

Table 1. Deer harvested during Connecticut's regulated hunting seasons, 2012-2013.

Season	Harvest 2012	Harvest 2013	3-year Average Harvest (2009-2011)	% of Total 2013	% Change from 2012 to 2013	% Change 3-year Average to 2013
Archery						
State Land	642	722	623	5.8%	12.5%	15.8%
Private Land	4,771	5,051	4,475	40.3%	5.9%	12.9%
Replacement Antlerless ^{A, B}	225	267	259	2.1%	18.7%	3.0%
Either-sex Tag ^{A, B}	94	117	103	0.9%	24.5%	13.6%
January ^B	289	273	248	2.2%	-5.5%	10.1%
Replacement Antlerless ^{A, B}	31	30	24	0.2%	-3.2%	25.0%
Either-sex Tag ^{A, B}	1	4	1	0.0%	300.0%	500.0%
Crossbow ^B	123	127	95	1.0%	3.3%	33.2%
Subtotal	5,413	6,046	5,098	48.2%	11.7%	18.6%
Muzzleloader						
State Land	115	125	147	1.0%	8.7%	-14.8%
Private Land	843	822	891	6.6%	-2.5%	-7.7%
Replacement Antlerless ^{A, C}	8	16	6	0.1%	100.0%	182.4%
Either-sex Tag ^{A, C}	16	6	11	0.0%	-62.5%	-43.8%
Subtotal	958	947	1,037	7.5%	-1.1%	-8.7%
Shotgun/Rifle						
State Land A ^C	778	625	703	5.0%	-19.7%	-11.1%
State Land B ^C	113	71	124	0.6%	-37.2%	-42.6%
Private Land	4,892	3,644	4,644	29.0%	-25.5%	-21.5%
Replacement Antlerless ^{A, D}	40	24	36	0.2%	-40.0%	-32.7%
Either-sex Tag ^{A, D}	67	70	57	0.6%	4.5%	22.8%
Revolver ^D	11	10	15	0.1%	-9.1%	-31.8%
Muzzleloader ^D		22		0.2%		
Subtotal	5,783	4,340	5,470	34.6%	-25.0%	-20.7%
Youth Hunting Day^D	96	111	99	0.9%	15.6%	11.7%
Landowner	1,267	1,216	1,228	9.7%	-4.0%	-1.0%
Total	13,421	12,549	12,834	100.0%	-6.5%	-2.2%

^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.

Figure 1. Total deer permit issuance and total deer harvest in Connecticut, 1975-2013.

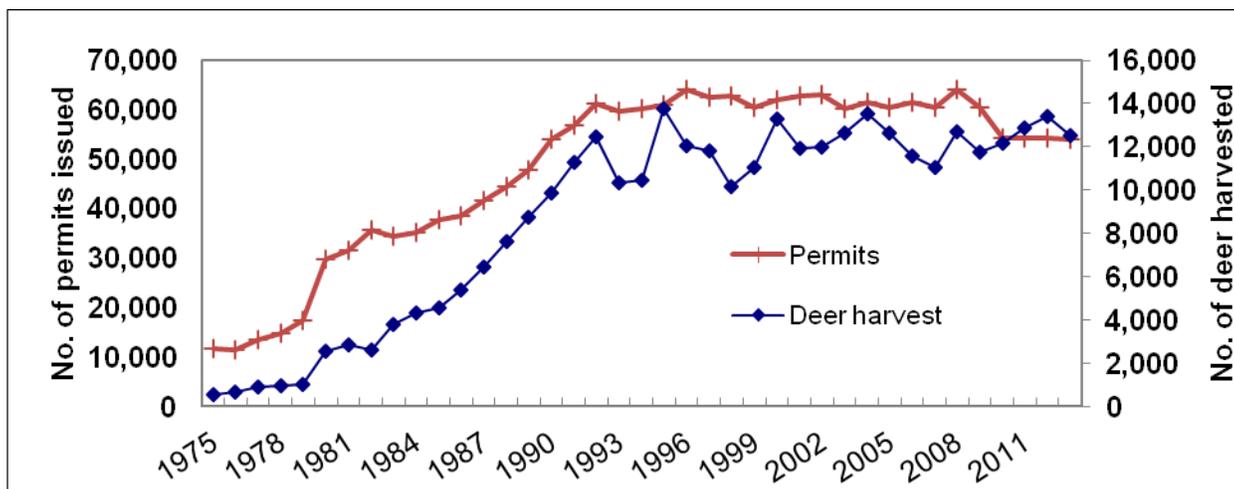


Table 2. Deer hunting permits issued in Connecticut for all regulated hunting seasons, 2011-2013.

Season	Permits 2011	Permits 2012	Permits 2013	3-year Average Permits 2009-2011	% of Total 2013	% Change 2012 to 2013	% Change 3-year Avg. to 2013
Archery	13,725	14,341	15,800	13,781	29.0%	10.2%	14.7%
Muzzleloader							
State Land	4,141	3,713	3,408	4,060	6.3%	-8.2%	-16.1%
Private Land	8,152	8,126	7,843	7,936	14.5%	-3.5%	-1.2%
Subtotal	12,293	11,839	11,251	11,996	20.8%	-5.0%	-6.2%
Shotgun/Rifle							
State Land A*	5,237	5,053	5,541	5,282	10.3%	9.7%	4.9%
State Land B*	2,577	2,423	1,868	2,550	3.5%	-22.9%	-26.7%
Private Land	15,937	15,284	15,159	15,791	28.1%	-0.8%	-4.0%
Subtotal	23,751	22,760	22,568	23,623	41.8%	-0.8%	-4.5%
Revolver^A	795	945	891	763	1.6%	-5.7%	16.7%
Landowner	4,598	4,387	4,394	4580	8.1%	0.2%	-4.1%
Total	54,367	54,272	54,013	54,294	100.0%	-0.5%	-0.5%

*Includes controlled hunt permits.

^A Not included in total permits

Hunter Success

Hunter success rate was estimated by dividing total deer harvest by total permit issuance and multiplying by 100 (Table 3). Success rates may fluctuate annually, depending on weather conditions, timing of rain and snow storms, fall acorn crops, and deer herd size. Bowhunter success rates fluctuated between 24.3% and 27.6% from 2004 to 2008. Hunter success in 2009 (33.6%), 2010 (35.2%), 2011 (38.0%), 2012 (37.7), and 2013 (38.3) exceeded the previous record high set in 2003 (27.8%). It is assumed that this success rate is more reflective of actual success rates, due to a more convenient method of reporting harvested deer and an increase in use of trail cameras, bait, and crossbows. Success rates for the remaining seasons varied slightly from 2012 to 2013. Success rates in 2013 decreased slightly for the shotgun/rifle hunting season compared to the 3-year average. In 2013, archery hunters had the highest annual success rate (38.3%), followed by landowners (27.7%), and private land shotgun/rifle hunters (24.0%). Success rate for the combined muzzleloader seasons was 8.4%. Lower success rates are expected because the muzzleloader season occurs after the shotgun/rifle deer hunting seasons.

Table 3. Deer hunter success rates (%) in Connecticut, 2012-2013.

Season	2012	2013	3-year Avg. Success Rate (2010-2012)	Difference from 2012	Difference from 3-year Avg.
Archery					
Combined ^A	37.7%	38.3%	37.0%	0.5	1.3
Muzzleloader					
State Land	3.1%	3.7%	3.6%	0.6	0.1
Private Land	10.4%	10.5%	11.3%	0.1	-0.8
Combined	8.1%	8.4%	8.6%	0.3	-0.2
Shotgun/Rifle					
State Land A	15.4%	11.3%	13.3%	-4.1	-2.1
State Land B	4.7%	3.8%	4.9%	-0.9	-1.1
Private Land	32.0%	24.0%	29.5%	-8.0	-5.4
Combined	25.4%	19.2%	23.2%	-6.2	-4.0
Landowner	28.9%	27.7%	26.9%	-1.2	0.8
Average^B	24.7%	23.2%	23.6%	-1.5	-0.4

^A Data available only for state and private land combined.

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

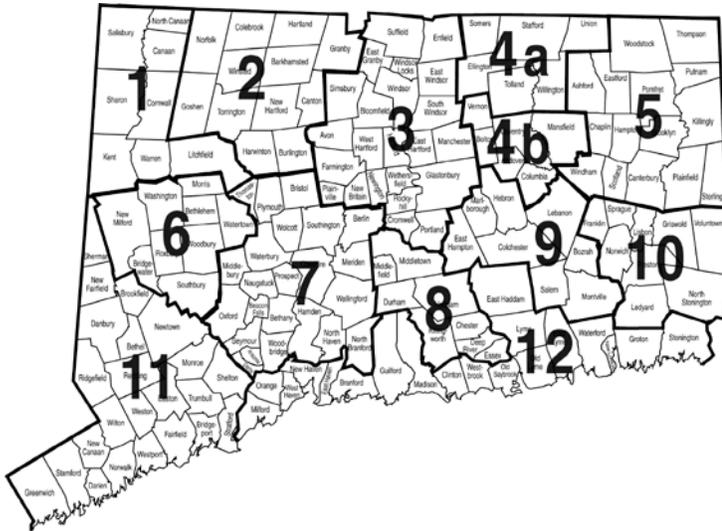
Archery Statistics

Excluding the landowner season, just over half (53%) of the deer taken during the hunting seasons was harvested by a bowhunter. For the past three years (2011, 2012, and 2013), record bow harvests have been recorded (5,211, 5,413, and 6,046 respectively). For the first time in history, the bow harvest (6,046) exceeded the shotgun/rifle harvest (5,470) in 2013. Seventy-four percent (4,493 – 3,862 private, 631 state) of the total archery harvest was taken during the early archery season (September 16 to November 19); 13% (756 – 700 private, 56 state) was taken during the 3-week shotgun/rifle season (open in all zones on private land and state land bowhunting-only areas); 9% (527 – 490 private, 37 state) was taken during the muzzleloader season (December 11 to December 31); and 5% (273) was taken during the January season open in DMZs 11 and 12 on private land only (January 1-31, 2014). 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. According to information reported by hunters in response to the questions, the number of deer observed per hour in 2013 (1.4) was greater than in 2012 (1.2). Number of fawns per doe in 2013 (0.46) was similar to 2012 (0.52), as was number of bucks per doe in 2013 (0.47) compared to 2012 (0.51).

Connecticut Deer Management Zones

To better manage the statewide deer population, data from hunter surveys, regulated deer harvests, and total deer mortality have been recorded and evaluated by deer management zones (Figure 2). Current population status and long-term trends are analyzed for each deer management zone. This approach facilitates the assessment and management of regional deer populations.

Figure 2. Connecticut's deer management zones, 2013.

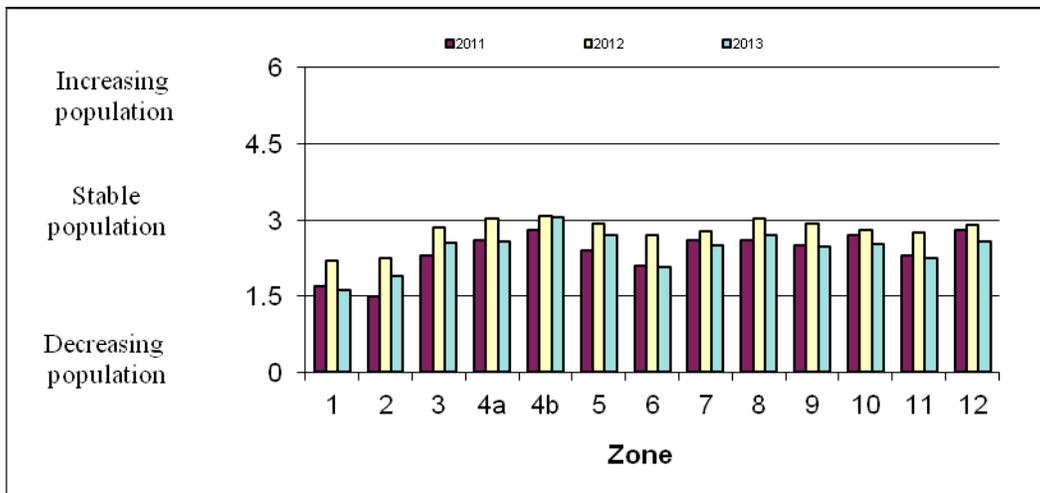


Hunter Perceptions of Population Trends

In 2013, 10,245 deer hunters were sent an e-mail and asked to complete an on-line hunter survey. A total of 2,772 hunters responded for a 27% response rate. Similar to hunter surveys from previous years, the survey included the question, "How would you describe the status of the deer population 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). Forty-one percent of the hunters who responded to the survey believed that the population was declining, 43% believed it was stable, and 16% believed it was increasing. Deer management zones 5, 8, and 4B had the highest average rank (2.69 and 3.06) (Figure 3). In general, hunters perceived that populations are relatively stable or have been decreasing slightly in most zones over the past 3 years.

Based on the survey, hunters also reported 550 bear sightings in 85 towns in 2013 (526 bear sightings in 75 towns in 2012), at a rate of one bear sighting per 73 days spent afield. Hunters reported 971 bobcat sightings in 143 towns in 2013 (1,105 bobcat sightings in 130 towns in 2012), at a rate of one bobcat sighting per 41 days spent afield. Hunters reported 5,988 coyote sightings in 166 towns in 2013 (7,526 coyote sightings in 163 towns in 2012), at a rate of one coyote per 6.7 days spent afield.

Figure 3. Perception of zonal deer population trends (average rank) by Connecticut's deer hunters, 2011-2013.



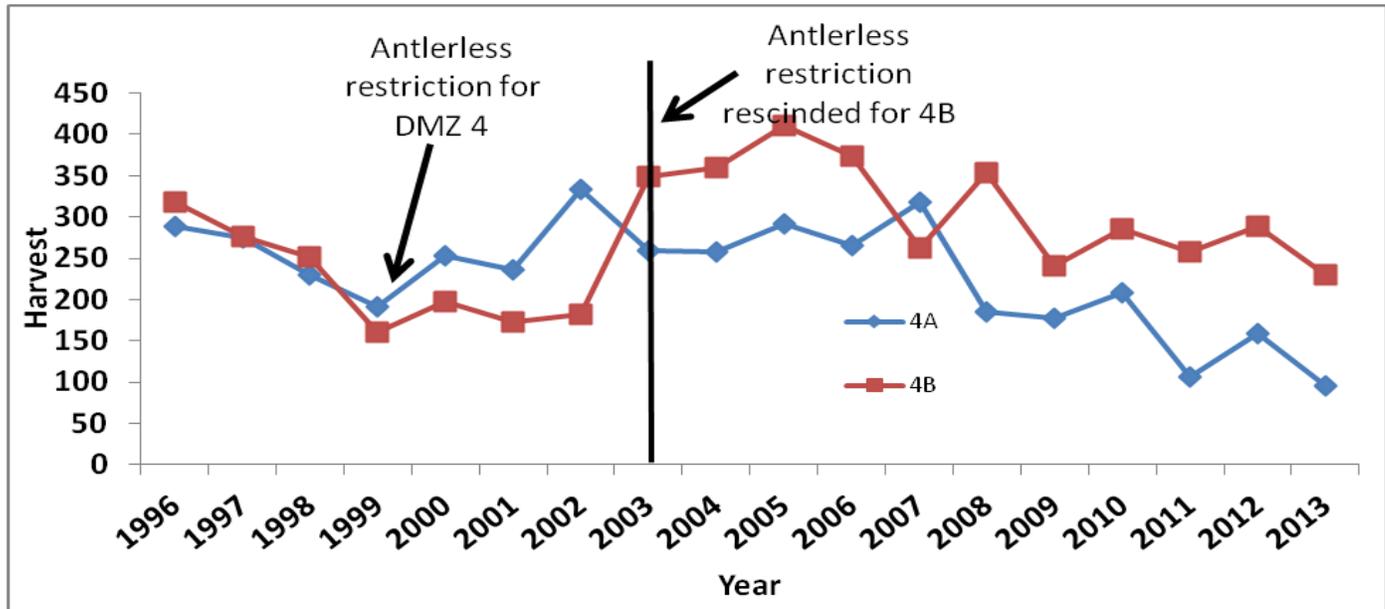
Zonal Deer Management

Because deer populations vary across the state, deer management zones were established. Management strategies in each zone may vary depending on population status. In DMZ 4, a 4-year decreasing trend, beginning in 1996, prompted harvest restrictions on female deer in this zone in 1999. During shotgun/rifle and muzzleloader seasons, the antlerless-only tag on 2-tag permits was not valid in

DMZ 4. This restriction resulted in a decrease in the number of does harvested, allowing the population to stabilize. In 2002, deer populations appeared to be stable in the southern portion, but not in the northern portion of DMZ 4. In 2003, 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) (Figure 4).

Free replacement antlerless tags and either-sex tags (bonus buck tags) were available in DMZs 11 and 12 during the private land archery, shotgun/rifle, and muzzleloader seasons in 2013. Replacement tags were available in these zones because these regions of the state were experiencing more human-deer conflicts and, therefore, had different management objectives than other regions. These programs have resulted in a substantial increase in the harvest of antlerless deer.

Figure 4. Private land shotgun/rifle deer harvest in deer management zones 4A and 4B, 1996-2013.



Insight into Deer Hunter Success Rates by Zone

Shotgun/Rifle Season Success

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 deer management zone. However, without information on hunter distribution and effort by zones, the potential usefulness of this data is limited. To gain insight into hunter distribution and success rates by zone, 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 deer management zone was multiplied by total number of deer permits issued in 2013 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 4). In general, higher hunter success rates suggest higher deer density. Of the 13 management zones, most firearms hunting (42%) occurred in four zones (1, 5, 9, and 11). Highest private land deer harvests were reported for DMZs 5, 9, 11, and 12. Zone 4B had the highest deer harvest per square mile (1.9) and DMZs 8 and 11 had the greatest density of hunters (5.5 and 5.6 per square mile). Hunter success rate was highest in zone 4B (41%), likely due to several years of an antlerless tag restriction, while success in zones 2 and 4A were the lowest (13% and 10%). The 3-year trend in hunter success rates declined for 5 of 13 zones (Table 5). Four deer management zones (4B, 5, 10, and 12) have continued to produce relatively high hunter success rates over the past 3 years (Table 5).

Archery Season Success

Based on the number of deer harvested and reported by bowhunters, 1 of 3 (35%) hunters harvested 2 or more deer during the regular archery season. Bowhunter success rates were highest in zones 4B, 5, 6, 10, and 12. In zone 4A, the restriction on the use of antlerless tags during the firearms seasons allowed for the population to increase between 1999 and 2003. In 2003, the zone was split into 4A and 4B, and the antlerless restriction was rescinded in 4B, likely resulting in higher success rates. In zones 11 and 12, firearms hunting is more limited and the archery season framework is liberal (use of bait, unlimited tags, longer seasons) (Table 6). The archery deer harvest in zone 11 was nearly 2 times higher than all other zones.

Table 4. Zonal hunter numbers, harvest, and success rates for private land during the 2013 shotgun/rifle hunting season.

Zone	Zone Hunted Private Land^A Shotgun/Rifle	% of Hunters Answered Question^A	Estimated # of Private Land Shotgun/Rifle Hunters	Harvest	Area (sq. miles)	Deer Harvest/ Sq. Mile	Hunters/ Sq. Mile	% Success Rate
1	174	9.4	1,430	273	344.6	0.8	4.2	19
2	165	9.0	1,356	177	410.7	0.4	3.3	13
3	97	5.3	797	185	273.3	0.7	2.9	23
4A	116	6.3	954	96	213.5	0.4	4.5	10
4B	68	3.7	559	230	120.7	1.9	4.6	41
5	239	13.0	1,965	724	445.9	1.6	4.4	37
6	108	5.9	888	247	260.0	0.9	3.4	28
7	119	6.5	978	205	373.1	0.5	2.6	21
8	114	6.2	937	192	169.1	1.1	5.5	20
9	169	9.2	1,389	365	279.4	1.3	5.0	26
10	124	6.7	1,019	293	244.4	1.2	4.2	29
11	197	10.7	1,619	298	291.5	1.0	5.6	18
12	154	8.4	1,266	359	358.4	1.0	3.5	28
Total	1,844	100.0	15,159	3,644	3,785.0	1.0	4.0	24

^ABased on hunter survey question asking hunters which zone they primarily hunt in.

Table 5. Zonal comparisons in private land shotgun/rifle harvest, hunter distributions, and success rates, 2011-2013.

Zone	Area (sq. miles)	Deer Harvest/Sq. Mile			Hunters/Sq. Mile			Hunter Success Rate (%)		
		2011	2012	2013	2011	2012	2013	2011	2012	2013
1	344.6	1.0	1.2	0.8	3.7	3.7	4.2	32	31	19
2	410.7	1.3	0.6	0.4	3.1	2.6	3.3	18	24	13
3	273.3	1.1	0.9	0.7	3.9	3.4	2.9	22	27	23
4A	213.5	0.8	0.7	0.4	4.1	3.5	4.5	12	21	10
4B	120.7	0.9	2.4	1.9	4.7	5.5	4.7	45	43	41
5	445.9	0.9	1.9	1.6	4.4	5.0	4.4	42	39	37
6	260.0	1.0	1.3	0.9	4.1	5.0	3.4	26	26	28
7	373.1	0.8	0.8	0.5	2.7	2.7	2.6	25	29	21
8	169.1	0.9	1.6	1.1	4.8	4.0	5.6	31	40	20
9	279.4	1.0	1.6	1.3	4.9	5.2	5.0	34	30	26
10	244.4	0.9	1.7	1.2	4.4	5.0	4.2	38	35	29
11	291.5	1.4	1.2	1.0	7.6	4.6	5.6	16	26	18
12	358.4	0.8	1.6	1.0	3.8	3.9	3.6	38	40	28
Total	3,785.0	1.0	1.3	1.0	4.2	4.0	4.0	29	32	24

Table 6. Zonal comparisons of archery season success rates, 2013.

Zones	Zone Hunted Archery ^A	% of Hunters Answered Question ^A	Estimated # of Archery Hunters	Harvest	Hunter Success Rate %
1	90	5.5	863	262	30.3
2	94	5.7	902	179	19.9
3	91	5.5	873	315	36.1
4A	81	4.9	777	268	34.5
4B	61	3.7	585	254	43.4
5	161	9.8	1,545	569	36.8
6	94	5.7	902	265	29.4
7	178	10.8	1,708	550	32.2
8	82	5.0	787	298	37.9
9	116	7.0	1,113	349	31.4
10	68	4.1	652	265	40.6
11	349	21.2	3,348	1,458	43.5
12	182	11.1	1,746	741	42.4
Total	1,647	100.0%	15,800	5,773	36.5

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

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 2013, 49% of the hunters who responded to the survey ranked the fall acorn crop as scarce, 43% as moderate, and 8% as abundant. DMZs 11 and 12 had the highest average rank (2.1), while DMZs 1 and 4 had the lowest average ranks (1.4 and 1.5; Figure 5). On a scale of 0-6, the average rank statewide was 1.76.

The past 20 years of data on acorn abundance and deer harvest rates suggest that a correlation exists between hunter success and acorn abundance (Figure 6). In 1993, when acorns were most abundant, hunter success was one of the lowest success rates recorded, and in 2004, when acorns were least abundant, 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, the acorn-success pattern was inconsistent and may have been influenced by the warm weather. On average, the acorn crop statewide has been moderate most years, scarce about every 5-6 years, and abundant every 2 years.

Figure 5. Perception of acorn crops (average rank) by Connecticut's deer hunters, 2010-2013.

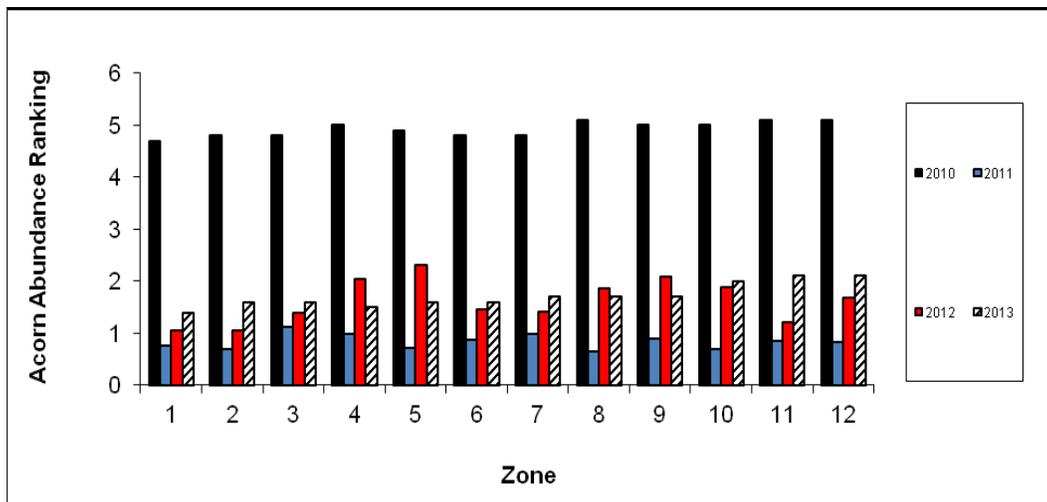
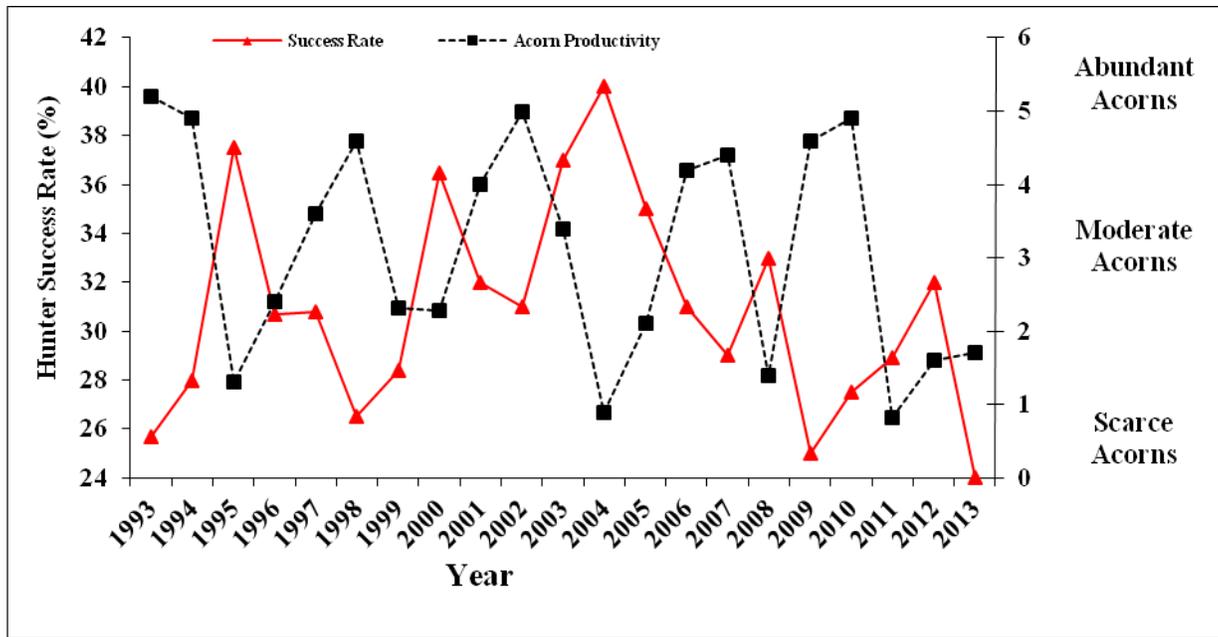


Figure 6. Relationship between private land shotgun/rifle hunter success rates and fall acorn productivity, 1993-2013.



Private Land Deer Harvest

The 2013 private land deer harvest was highest for DMZs 5, 11, and 12 (Table 7). 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 7). Highest total deer harvest over the last 9 years has been observed in zone 11, likely a result of the availability of replacement deer tags and increased access to land for hunting. Total private land deer harvest increased 2.3% from 2012 to 2013.

Table 7. Private land deer harvest for all seasons (excluding landowner) in each of Connecticut's deer management zones, 2003-2013.

Zone	Year										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	796 ^c	828	811	639	680	710	719	703	721	728	558
2	373 ^b	383	369	357	323	385	394	320	374	395	356
3	457	434	413	362	338	397	442	481	487	529	491
4A	237 ^b	207	273	218	259	293	267	293	276	348	320
4B	397	445	476	467	329	471	434	445	470	547	486
5	1,250 ^c	1,510	1,607	1,348	1,165	1,488	1,218	1,232	1,400	1,375	1,345
6	550 ^c	596	544	511	458	489	524	556	500	584	557
7	564 ^b	618	473	454	438	584	685	772	797	771	765
8	463	514	467	398	330	360	343	374	473	549	489
9	873 ^c	882	817	757	628	693	612	624	718	721	721
10	521	664	567	504	504	640	486	576	632	662	533
11	2,084 ^b	2,128	1,799	1,898	1,846	2,179	2,088	1,997	2,022	1,923	1,921
12	1,272 ^b	1,330	1,080	976	1,030	1,040	872	954	1,324	1,370	1,251
Total	9,793	10,485	9,613	8,832	8,328	9,955	9,084	9,327	10,194	10,502	10,748
% Change	6.0%	7.1%	-8.3%	-8.1%	-5.7%	19.5%	-8.7%	2.7%	9.2%	3.0%	2.3%

^b In 2003 town/towns added to zone.

^c In 2003 town/towns removed from zone.

Harvest Effort, Observations, and Fawn Recruitment

Hunter observations provide good trend indices into zonal population changes. 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 between years, as was the percent of each class harvested between years (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).

Table 8. Hunter observations and harvest ratios reported during the first month of the archery season in Connecticut, 2011-2013.

	First month of Archery					
	Observation %			Harvest %		
	2011	2012	2013	2011	2012	2013
Bucks	23%	23%	25%	38%	37%	37%
Does	51%	49%	55%	47%	48%	50%
Fawns	26%	27%	25%	15%	14%	13%

Table 9. Number of deer observed per hour, number of fawns per doe, and number of deer harvested per hour collected at the time of harvest reporting during the first month of the archery season by deer management zone (DMZ) in Connecticut, 2011-2013.

DMZ	Deer Harvested and Observed/Hour														
	Reported on Day of Harvest														
	First Month of Archery														
	2011				2012				2013				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	H/hr
1	98	1.17	0.43	0.32	107	1.21	0.50	0.32	88	1.01	0.43	0.34	-0.17	-0.07	0.06
2	67	0.85	0.35	0.32	58	0.85	0.43	0.29	54	0.95	0.23	0.35	0.12	-0.2	0.21
3	91	0.93	0.46	0.36	86	1.18	0.59	0.34	116	1.06	0.42	0.35	-0.10	-0.17	0.03
4A	90	0.85	0.59	0.30	79	0.85	0.46	0.28	99	0.90	0.55	0.35	0.06	0.09	0.25
4B	63	1.18	0.67	0.37	83	1.38	0.53	0.33	96	1.16	0.69	0.34	-0.16	0.16	0.03
5	177	1.03	0.57	0.30	169	0.99	0.61	0.28	235	1.07	0.57	0.31	0.08	-0.04	0.11
6	63	1.06	0.48	0.32	79	1.18	0.51	0.30	80	1.07	0.36	0.30	-0.09	-0.15	0.00
7	144	1.07	0.45	0.34	160	1.07	0.51	0.31	197	1.08	0.41	0.33	0.01	-0.1	0.06
8	68	1.15	0.51	0.34	92	1.27	0.50	0.31	87	1.12	0.42	0.32	-0.12	-0.08	0.03
9	73	0.81	0.52	0.29	105	0.98	0.50	0.29	126	1.09	0.48	0.31	0.11	-0.02	0.07
10	70	0.98	0.49	0.32	85	1.20	0.55	0.31	89	1.22	0.48	0.33	0.02	-0.07	0.06
11	494	1.21	0.56	0.33	478	1.23	0.58	0.30	533	1.23	0.51	0.31	0.00	-0.07	0.03
12	236	1.18	0.41	0.34	268	1.49	0.61	0.35	227	1.33	0.41	0.34	-0.11	-0.2	-0.03

¹Deer observed per hour hunted based on successful hunters

²Deer harvested per hour hunted based on successful hunters

³Change from 2012 to 2013

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 10). In zone 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 (1.2 males per female) (Table 11).

Based on observations reported on-line at the time of harvest, a bias (proportion observed vs. proportion harvested) towards harvest of bucks occurs as the season progresses (Table 8). Selectivity towards fawns remains the same (Table 8). In 2013, 55% (6,885) 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 2).

Table 10. Sex ratios (male:female) and antlered to antlerless ratios of deer harvested in 2013.

	Muzzleloader	Shotgun/Rifle	Archery	Landowner	Crop Damage	Total
Male:Female	0.76:1	1.57:1	1.09:1	1.66:1	0.83:1	1.11:1
Antlered:Antlerless	0.53:1	1.11:1	0.80:1	1.18:1	0.58:1	0.80:1

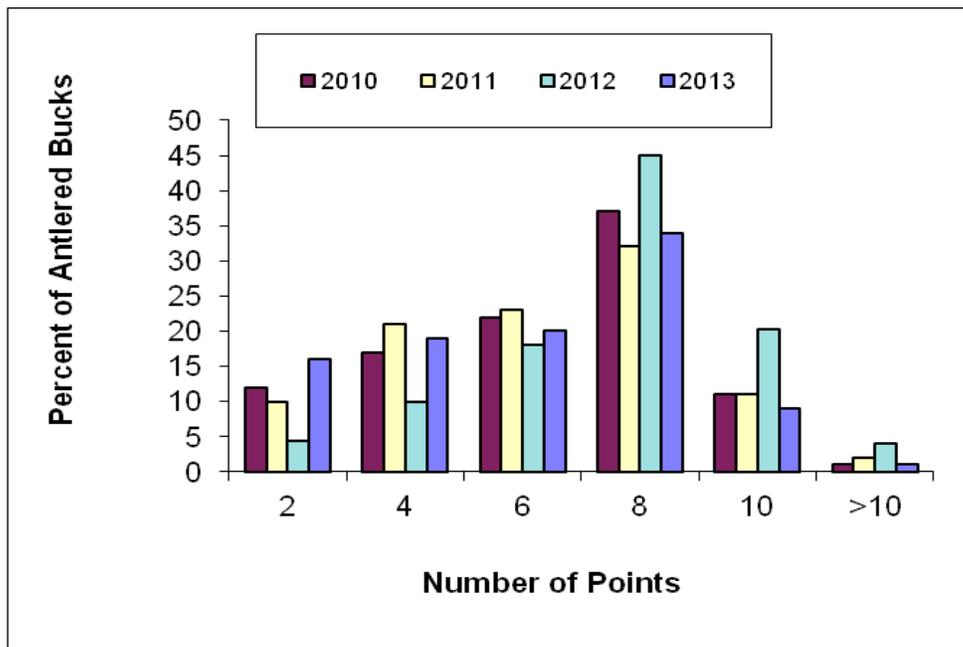
Table 11. Sex ratios (male:female) of deer harvested during Connecticut's regulated hunting seasons, 2011-2013.

2012		2013		Males per Female			3-year Average
Males	Females	Males	Females	2011	2012	2013	(2011-2013)
7,913	6,298	6,518	5,681	1.2:1	1.3:1	1.2:1	1.2:1

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 7-8 or more points (\geq) and few adults (less than 12%) have 4 points or less (\leq), based on the known aged samples in Connecticut. Using antlered bucks with ≤ 4 points (yearling) and those with $\geq 7-8$ 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 entire shotgun/rifle season was 43% in 2010, 45% in 2011, 40% in 2012, and 44% in 2013. Of all antlered bucks harvested, 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 of bucks collected at check stations (2010-2011), or the telecheck/online reporting system (2012 and 2013) during the shotgun/rifle hunting season in Connecticut, 2010-2013.



Replacement Tags

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 has increased nearly 5 times (from 200 to almost 1,000 deer annually). Buck harvest has increased in recent years with the addition of earn-a-buck in 2005. The number of roadkills in DMZ 11 has shown a steady decline since 1998 (Figure 8). 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), and now is close to 1:1 (Figure 9).

Figure 8. Comparison of trends in roadkills and the antlered and antlerless deer harvests during the archery deer season in deer management zone 11, 1995-2013.

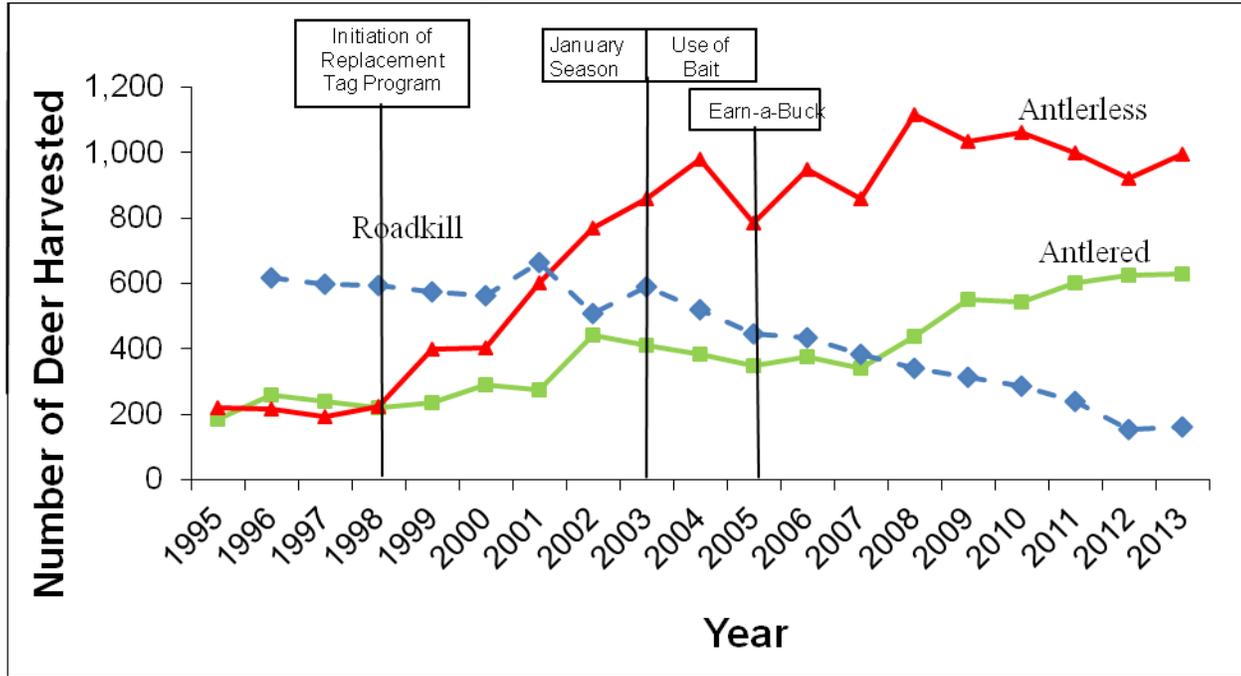
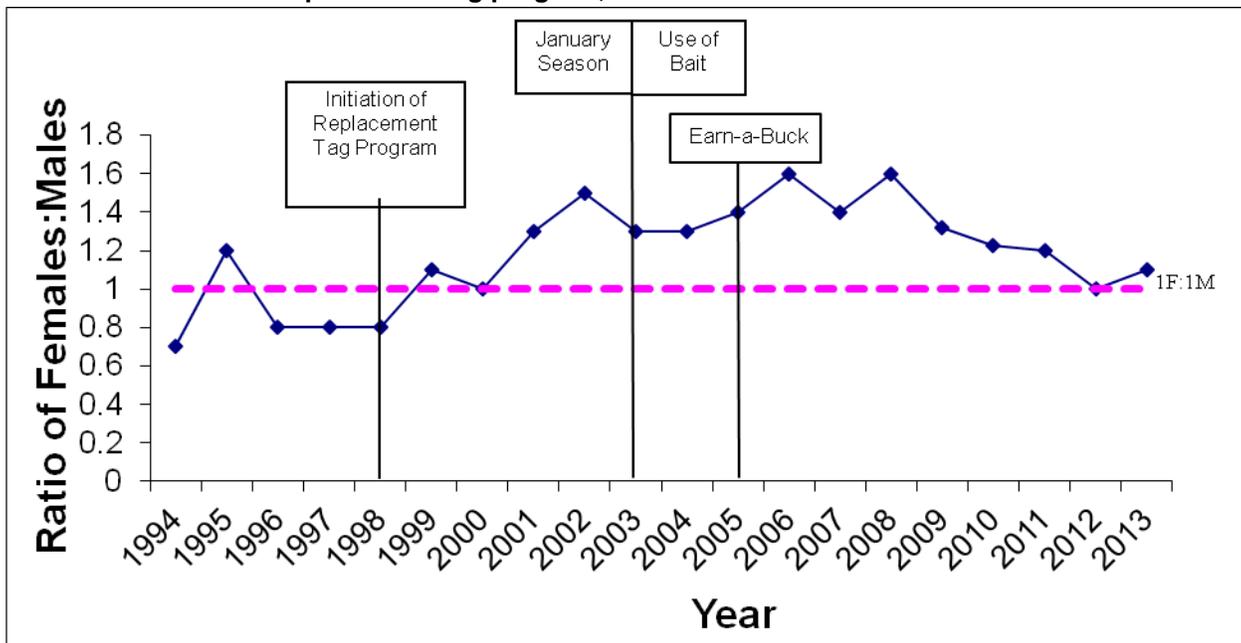


Figure 9. Sex ratios of harvested deer from deer management zone 11 after implementation of the archery antlerless replacement tag program, 1994-2013.



Deer Hunter Expenditures, Effort, and Venison Calculations

Deer hunting-related expenditures contribute significantly to Connecticut's economy. Deer permit sales generated \$1,626,606 in 2012 and \$1,601,187 in 2013 to the Connecticut General Fund. In addition, data collected from the annual deer hunter surveys indicated that Connecticut deer hunters spent an estimated \$13,452,477 on deer hunting-related goods and services in 2013.

In 2013, 39% of deer hunters reported that they used trail cameras for hunting and the average number of cameras used per hunter was 2.2. Hunters also indicated in 2013 that they needed to harvest 1.9 deer per year to meet their venison needs. Fifty-four percent of hunters indicated that they typically harvest enough deer to meet their needs, while 46% said they did not. Of hunters who purchased a state land lottery permit using the new instant award system, 81% rated their experience as good, 13% as fair, and 6% as poor. Seventy-seven percent of hunters would support allowing hunters to purchase both a state land lottery and state land no-lottery deer permit for the shotgun deer season, while 23% would not. In 2013, deer hunters spent a cumulative total of 347,303 days afield. Private and state land shotgun/rifle hunters used the greatest percentage of available hunting days during those seasons (31.1% and 37.8% respectively). Although bowhunters used a smaller percentage of available hunting days (23.9%), the archery season is much longer than the firearms season. Connecticut deer hunters collectively spent slightly less time (28 days per deer taken) but slightly more money (\$1,072 per deer taken) in 2013 compared to 2012 (29 days at \$866 per deer taken). In 2013, hunters harvested an estimated 627,450 pounds (average 50 lbs. of meat/hunter; 280 tons total) of venison at an estimated value of \$4,235,287 (\$6.75/lb).

Subscription Rates for State Land Lottery Permits

In 2013, 1,950 hunters were selected to hunt during the shotgun and controlled hunt seasons through the state-administered deer lottery program. Lottery permits were allocated at a maximum rate of 1 shotgun permit per 20 acres. In many areas, permit issuance was less than the permit quota established for a given area and many areas were re-designated as no-lottery areas. In 2013, the total number of lottery hunt areas was 17 during the "A" season and 7 during the "B" season. Seventy-eight percent of all potential lottery permits were issued. Permit issuance reached 100% for 3 of 7 controlled hunt areas during the A season (Table 12).

Table 12. Instant award deer lottery selection results by Deer Hunting Lottery Area (DHLLA), 2013.

Deer Hunting Lottery Area	% of Hunting Slots Filled	
	2013	
	A	B
7	100	NL
8	100	NL
9	87	NL
11	70	NL
12	63	NL
15	78	NL
26	100	93
27	100	NL
28	100	60
51 ^a (Yale)	92	NL
52 ^a (Bristol Water Co.)	100	100
53 ^a (Maromas)	73	NL
54 ^a (Skiff Mt.)	100	NL
56 ^a (BHC-CWSF)	82	66
58 ^a (MDC Valentine)	100	30
59 ^a (MDC Pine Hill)	69	6
60	100	50

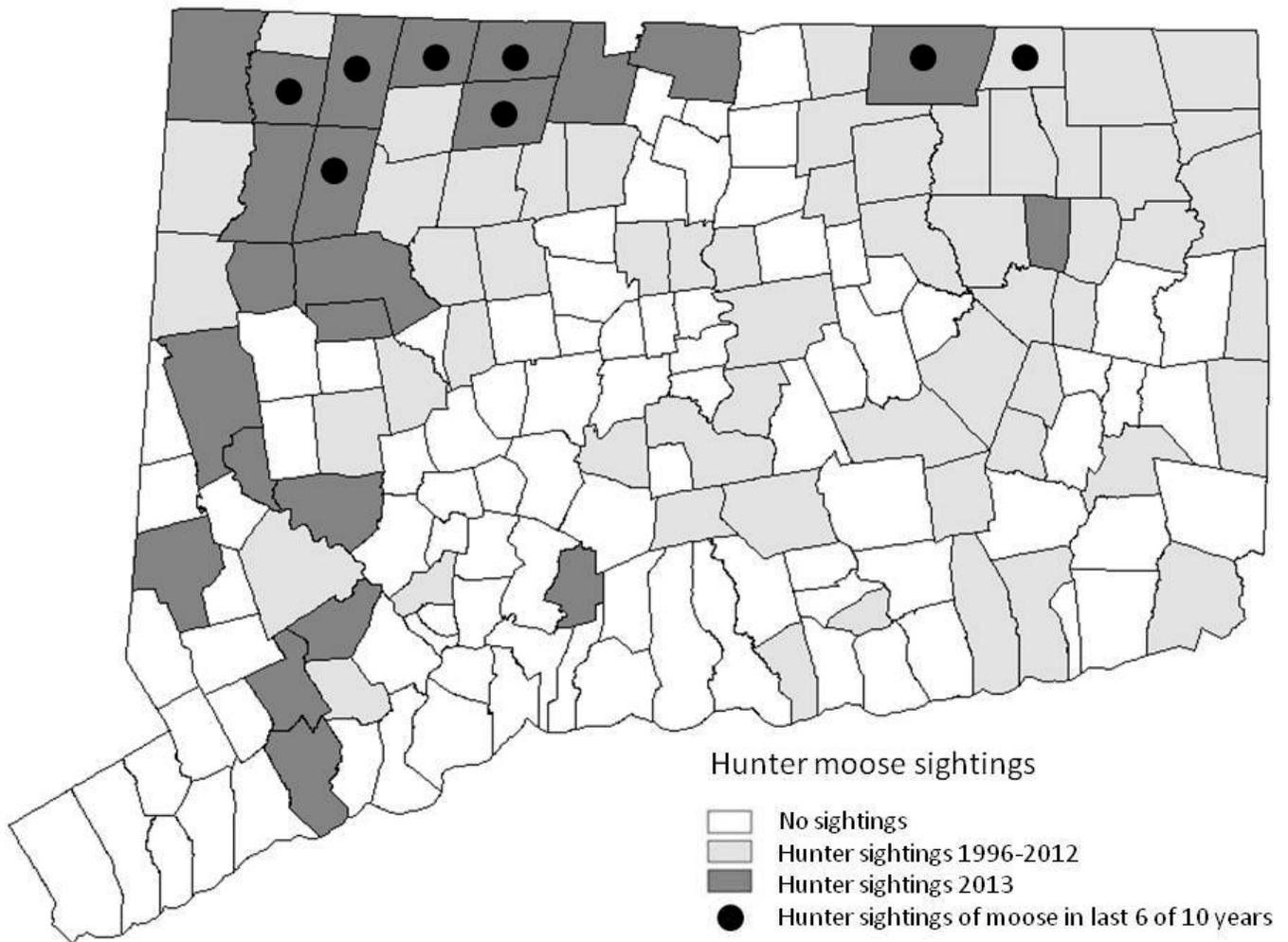
^a Controlled hunt area

Moose Sightings

An increasing moose population in Massachusetts has led to an increased number of moose wandering or dispersing into Connecticut. In an effort to monitor trends in moose sightings in Connecticut, a question was added to the deer hunter survey in 1996 regarding hunter observations of moose during the fall hunting season. Deer hunters reported 56 moose sightings in 23 towns in 2013 and 637 sightings over the past 17 years (Figure 10). During the 17-year period, moose sightings were reported in 80 different towns. Sightings were reported from 9 to 23 different towns each year. Moose were observed in Barkhamsted, Canaan, Colebrook, Goshen, Hartland, Norfolk, Stafford, and Union for 6 of the last 10 years. Most towns where hunters report moose sightings occur along the Connecticut-

Massachusetts border. In 2013, an average of 1 moose was observed by hunters for every 718 hunter-days spent in the field, less days than in 2012, when 1 moose was observed for every 1,027 hunter-days in the field. Currently, Connecticut has no open hunting season for moose.

Figure 10. Moose sightings reported on deer hunter surveys, 1996-2013.



Controlled Deer Hunts

Yale Forest (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 2013 controlled hunt, 26 deer were harvested.

Bristol Water Company (BWC; 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 requested to continue participating in the program. During the 2013 controlled hunt, 17 deer were harvested.

Maromas Cooperative Management Area (Area 53): Since 1996, Maromas, a 1,400-acre parcel in Middletown owned by Northeast Utilities, has been open to shotgun and muzzleloader hunting to maintain deer densities at levels compatible with available habitat. During the 2012 controlled hunt, 20 deer were harvested.

Skiff Mountain (Area 54): Skiff Mountain is a 710-acre property in Sharon owned by Northeast Utilities. It is open to shotgun and muzzleloader hunting. During the 2013 controlled hunt, 10 deer were harvested.

Centennial Watershed State Forest (formerly known as Bridgeport Hydraulic Company) (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 2013 controlled hunt, 74 deer were harvested.

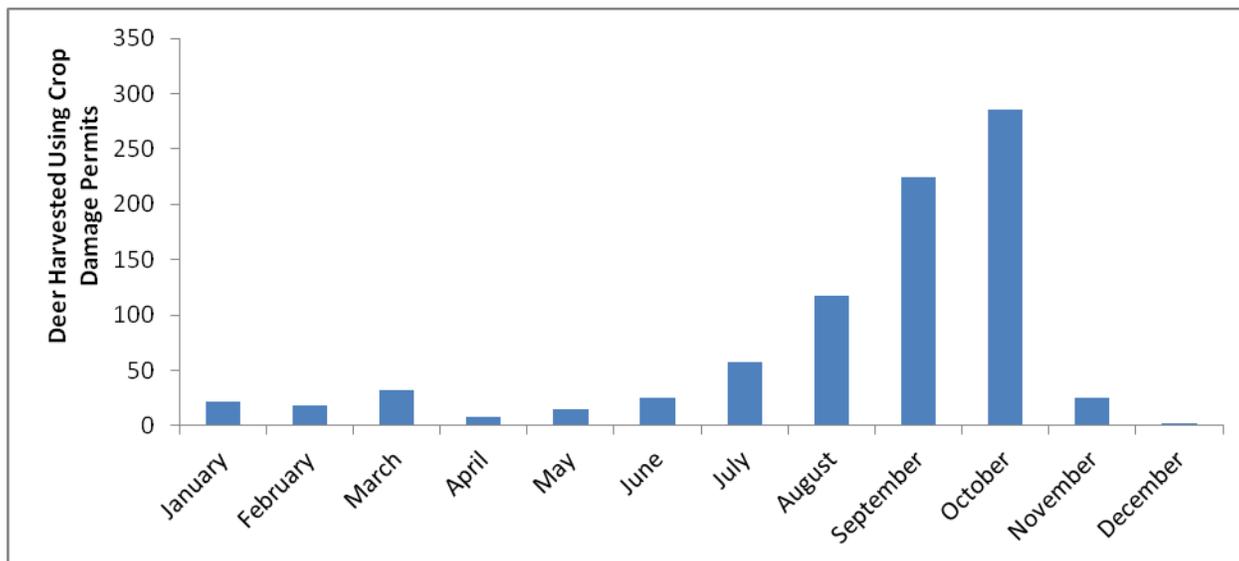
MDC Nepaug Reservoir (Area 58 and 59): In 2007, MDC contacted the Wildlife Division and expressed concern about the impacts of deer on forest regeneration at their Valentine (Area 58, 1,075 acres) and Pine Hill (Area 59, 325 acres) forest blocks. A browse survey indicated that over 95% of forest regeneration 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 the 2013 controlled hunt, 15 deer were harvested.

Bluff Point: Controlled hunts and DEEP deer removals at Bluff Point Coastal Reserve in Groton have been implemented over the past 17 years to reduce and maintain the deer population at about 25 animals. Since the program started in 1996, 572 deer have been removed from Bluff Point, resulting in improved deer herd health and ecosystem stability. In December 2013, the deer population was estimated to be 44 deer. In March 2014, 18 deer were removed by DEEP personnel. After the March 2014 removal, the population was estimated at 26 deer.

Crop Damage Permits

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 that 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. During the 2013 calendar year, 831 deer were taken with crop damage permits (Appendix 3). From 1993-2013, annual deer harvest with crop damage permits has fluctuated between 543 and 946 deer. Harvest in DMZ 10 accounted for 14.2% of deer removed with crop damage permits in 2013. Crop damage harvest increased steadily from May to October, with 61% of the annual harvest occurring in September and October (Figure 11). Crop damage permits are not valid in November and December; however, 27 deer were harvested with special jacklight permits in November and December.

Figure 11. Crop damage harvest by month, 2013.



Non-hunting Deer Mortality

Non-hunting deer mortality, particularly roadkills, 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 2013, 1,305 non-hunting deer mortalities were reported (Appendix 4). Of those, 1,211 were killed in deer-vehicle collisions. This equates to an average of 3.3 deer being killed per day on Connecticut roads and highways. Deer-vehicle collisions accounted for 93% of all reported non-hunting mortality (excluding crop damage) in 2013. 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 2013 was 7,266. Nearly 13% (163) of all roadkilled deer reported in Connecticut in 2013 occurred in DMZ 11 (Fairfield County, Figure 2), much lower than in past years (Appendix 5). The number of roadkills in DMZ 11 has shown a steady decline since the implementation of the replacement tag program, extension of the archery season, and the legalization of baiting (Figure 8). Non-hunting mortality comprised 14.5% of the total reported deer mortality in Connecticut, including crop damage harvest (Appendix 4).

Conclusion

Over the past 33 years, deer population size, human land-use practices, and public attitudes toward wildlife have changed considerably. Today, hunters may legally take up to 14 deer 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 be attributed to the poor economy, where harvesting one's own food may be a desirable means of obtaining quality protein. In 2009, permit issuance declined slightly, likely due to the increased cost of permits. From 2010 through 2012, permit issuance remained stable at levels similar to those 20 years ago. This may be due to increased costs and the ability to purchase permits at any time. 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, the harvest has more than doubled, while roadkills have been exhibiting a steady downward trend. Increased harvest efforts appear to have stabilized deer populations in many areas of the state.

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 from the DEEP website at www.ct.gov/deep/wildlife, by contacting the Wildlife Division's Deer Program via e-mail at deep.franklinwildlife@ct.gov or calling the Franklin Wildlife office at 860-642-7239. 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 on-line (www.ct.gov/dep/lib/deep/wildlife/pdf_files/game/urbandeer07.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 (www.ct.gov/dep/lib/deep/wildlife/pdf_files/game/deeroptions.pdf).

Appendix 1. Total reported deer harvest and roadkills by town, 2013.

Town	Archery	Shotgun/Rifle	Landowner	Muzzleloader	Cropkill	Roadkill	Other	Total
Andover	35	21	11	6	0	1	0	74
Ansonia	13	7	0	0	0	0	0	20
Ashford	49	111	40	25	3	14	0	242
Avon	11	10	1	2	0	11	3	38
Barkhamsted	19	14	7	8	0	6	1	55
Beacon Falls	19	16	3	5	0	0	0	43
Berlin	45	24	1	7	11	0	1	89
Bethany	39	10	6	9	0	1	0	65
Bethel	59	9	0	3	0	5	0	76
Bethlehem	7	16	5	4	7	4	0	43
Bloomfield	16	7	1	4	0	6	0	34
Bolton	23	23	2	3	13	3	0	67
Bozrah	18	29	15	1	9	1	0	73
Branford	22	6	0	0	3	1	0	32
Bridgeport	0	0	0	0	0	0	0	0
Bridgewater	32	30	3	1	2	2	0	70
Bristol	9	5	0	0	0	11	0	25
Brookfield	57	12	0	3	0	6	2	80
Brooklyn	24	35	16	8	12	6	0	101
Burlington	21	17	1	1	0	13	0	53
Canaan	19	21	5	3	7	4	2	61
Canterbury	28	47	27	7	1	5	1	116
Canton	24	21	4	1	1	7	0	58
Chaplin	30	37	12	15	0	2	0	96
Cheshire	59	9	3	6	42	8	1	128
Chester	14	25	2	1	0	2	0	44
Clinton	25	3	0	0	2	2	0	32
Colchester	50	69	22	20	13	7	2	183
Colebrook	4	13	4	1	0	0	0	22
Columbia	30	30	15	4	26	2	0	107
Cornwall	21	36	14	4	0	4	0	79
Coventry	82	99	10	9	4	30	0	234
Cromwell	10	2	1	0	6	4	1	24
Danbury	71	15	0	1	0	6	0	93
Darien	33	3	0	0	0	12	1	49
Deep River	9	7	4	4	7	2	0	33
Derby	5	2	0	0	0	0	0	7
Durham	35	27	5	6	2	4	0	79
East Granby	15	7	0	1	0	6	0	29
East Haddam	112	101	41	28	2	8	0	292
East Hampton	50	60	18	12	8	22	0	170
East Hartford	4	1	0	1	5	5	0	16
East Haven	17	2	0	0	0	0	0	19
East Lyme	52	43	6	11	0	16	2	130
East Windsor	20	18	6	8	1	4	0	57
Eastford	23	57	10	6	0	0	0	96
Easton	90	36	3	2	12	17	4	164
Ellington	24	15	8	3	2	8	0	60

Town	Archery	Shotgun/Rifle	Landowner	Muzzleloader	Cropkill	Roadkill	Other	Total
Enfield	40	23	6	6	0	15	0	90
Essex	5	6	1	0	0	2	1	15
Fairfield	86	10	0	5	0	13	2	116
Farmington	10	9	0	1	3	25	1	49
Franklin	17	33	7	13	6	0	0	76
Glastonbury	40	45	9	13	61	31	4	203
Goshen	20	24	19	4	0	4	0	71
Granby	14	12	7	6	0	14	0	53
Greenwich	83	10	0	0	0	0	0	93
Griswold	34	61	16	7	21	3	1	143
Groton	49	11	5	1	7	14	0	87
Guilford	93	36	6	8	7	14	1	165
Haddam	63	63	25	17	0	9	0	177
Hamden	23	21	1	7	27	2	2	83
Hampton	22	49	21	7	8	1	0	108
Hartford	0	0	0	0	0	0	0	0
Hartland	3	11	2	11	0	0	0	27
Harwinton	24	23	5	5	9	14	0	80
Hebron	60	56	15	11	5	5	0	152
Kent	25	52	6	6	6	5	2	102
Killingly	32	52	22	10	12	8	0	136
Killingworth	31	50	12	14	0	1	0	108
Lebanon	72	99	46	25	30	8	0	280
Ledyard	48	37	10	3	0	28	0	126
Lisbon	17	20	26	5	0	1	0	69
Litchfield	38	46	17	6	3	21	2	133
Lyme	74	64	16	21	4	0	0	179
Madison	38	14	1	2	0	34	1	90
Manchester	24	4	0	0	0	12	0	40
Mansfield	65	63	13	19	13	40	0	213
Marlborough	21	34	9	10	0	3	0	77
Meriden	15	5	1	1	0	9	0	31
Middlebury	16	9	3	0	0	6	0	34
Middlefield	31	23	2	5	27	5	0	93
Middletown	58	48	13	20	4	5	0	148
Milford	20	0	0	0	5	4	1	30
Monroe	61	11	0	1	3	0	0	76
Montville	48	51	15	6	9	49	0	178
Morris	32	16	2	5	1	2	0	58
Naugatuck	32	16	1	4	0	2	0	55
New Britain	1	0	0	0	0	6	0	7
New Canaan	90	1	0	0	0	20	3	114
New Fairfield	45	14	4	2	0	1	0	66
New Hartford	30	38	7	2	3	4	0	84
New Haven	4	0	0	1	0	4	0	9
New London	1	2	0	0	0	0	0	3
New Milford	79	55	15	13	6	2	0	170
Newington	2	0	0	0	0	0	1	3
Newtown	217	67	4	9	14	9	0	320

Town	Archery	Shotgun/Rifle	Landowner	Muzzleloader	Cropkill	Roadkill	Other	Total
Norfolk	4	21	4	2	0	4	0	35
North Branford	52	7	1	1	2	14	3	80
North Canaan	9	6	7	0	0	5	0	27
North Haven	25	2	0	1	0	0	0	28
North Stonington	31	61	17	7	11	5	0	132
Norwalk	20	0	0	0	0	1	0	21
Norwich	34	30	4	4	3	12	4	91
Old Lyme	62	18	2	7	0	3	0	92
Old Saybrook	12	5	0	1	0	0	1	19
Orange	74	5	0	4	0	7	1	91
Oxford	34	40	5	3	12	11	2	107
Plainfield	54	65	24	11	1	4	1	160
Plainville	3	3	0	1	0	0	0	7
Plymouth	26	10	5	2	1	3	0	47
Pomfret	50	87	15	16	12	2	0	182
Portland	28	46	3	3	6	17	0	103
Preston	24	39	20	5	27	0	0	115
Prospect	15	8	0	0	0	13	0	36
Putnam	21	15	6	7	0	2	0	51
Redding	92	40	0	9	15	0	0	156
Ridgefield	164	33	0	39	0	19	10	265
Rocky Hill	6	6	1	2	0	7	0	22
Roxbury	23	28	3	9	2	7	0	72
Salem	30	31	12	8	3	4	0	88
Salisbury	77	67	9	15	11	16	1	196
Scotland	30	48	20	7	5	5	0	115
Seymour	37	8	0	3	0	5	2	55
Sharon	63	66	13	22	8	9	1	182
Shelton	52	8	0	0	29	7	1	97
Sherman	30	27	5	6	17	3	0	88
Simsbury	27	5	1	2	0	6	0	41
Somers	41	18	1	1	1	10	0	72
South Windsor	23	17	6	0	10	1	0	57
Southbury	23	21	6	4	0	27	0	81
Southington	47	13	3	6	5	20	1	95
Sprague	11	23	11	3	3	0	0	51
Stafford	67	54	48	17	6	15	0	207
Stamford	64	2	0	0	0	0	0	66
Sterling	25	48	26	11	17	0	0	127
Stonington	50	42	6	8	9	11	2	128
Stratford	17	4	0	1	0	0	0	22
Suffield	19	21	5	4	0	4	0	53
Thomaston	17	10	4	1	3	1	1	37
Thompson	76	66	31	18	11	5	0	207
Tolland	60	23	21	9	7	20	0	140
Torrington	11	15	3	5	2	8	0	44
Trumbull	61	0	0	0	0	24	3	88
Union	32	28	13	6	0	4	0	83
Vernon	19	8	0	0	0	11	1	39

Town	Archery	Shotgun/Rifle	Landowner	Muzzleloader	Cropkill	Roadkill	Other	Total
Voluntown	49	64	12	10	12	4	0	151
Wallingford	55	26	3	5	15	15	1	120
Warren	10	19	5	1	9	7	0	51
Washington	26	40	8	17	37	8	0	136
Waterbury	12	1	0	0	0	4	0	17
Waterford	104	35	10	11	0	24	6	190
Watertown	21	19	4	1	1	2	0	48
West Hartford	2	0	0	0	0	0	0	2
West Haven	12	0	0	0	5	0	0	17
Westbrook	15	13	3	3	0	1	0	35
Weston	61	25	0	0	0	1	0	87
Westport	18	0	0	1	0	0	0	19
Wethersfield	2	2	0	0	2	2	0	8
Willington	44	33	18	5	0	10	1	111
Wilton	138	29	1	5	1	12	2	188
Winchester	5	13	7	0	0	0	0	25
Windham	39	48	13	15	6	1	1	123
Windsor	8	4	1	0	3	4	0	20
Windsor Locks	4	0	1	1	0	0	0	6
Wolcott	10	9	0	4	0	7	0	30
Woodbridge	31	7	0	2	0	5	3	48
Woodbury	22	27	8	4	6	14	0	81
Woodstock	66	77	39	15	0	5	1	203
Totals	6,053	4,341	1,216	947	831	1,211	93	14,692

Appendix 2. Sex ratios (male:female) of deer harvested during Connecticut's regulated hunting seasons, 2011-2013.

Season	2011		2012		2013		3-year Average (2010-2012)		Males per Female		
	Males	Females	Males	Females	Males	Females	Males	Females	2011	2012	2013
Archery											
State Land	311	259	360	280	369	347	352	291	1.2:1	1.3:1	1.1:1
Private Land	2,277	2,337	2,451	2,285	2,546	2,474	2,253	2,265	0.9:1	1.1:1	1.0:1
Subtotal	2,588	2,596	2,811	2,565	2,915	2,821	2,606	2,556	1.0:1	1.10:1	1.0:1
Muzzleloader											
State Land	86	77	52	61	41	80	73	76	1.1:1	0.9:1	0.5:1
Private Land	398	558	359	480	317	499	363	531	0.7:1	0.8:1	0.6:1
Subtotal	484	635	411	541	358	579	436	607	0.7:1	0.8:1	0.6:1
Shotgun/Rifle											
State Land A	417	188	535	236	386	233	466	222	2.2:1	2.3:1	1.7:1
State Land B	65	53	70	43	34	36	67	51	1.2:1	1.6:1	0.9:1
Private Land	2,594	1,715	2,914	1,960	2,077	1,550	2,713	1,688	1.5:1	1.5:1	1.3:1
Subtotal	3,076	1,956	3,519	2,239	2,497	1,819	3,246	1,960	1.6:1	1.6:1	1.4:1
Landowner	700	489	788	474	748	462	746	474	1.4:1	1.7:1	1.6:1
Total	6,848	5,676	6,741	5,345	6,518	5,681	6,772	5,598	1.2:1	1.3:1	1.2:1

Appendix 3. Deer harvested using crop damage permits in Connecticut's deer management zones, 2001-2013.

Zone	Year												
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	121	103	106	98	82	64	58	59	55	45	37	67	44
2	7	10	16	24	18	18	17	17	12	19	17	25	15
3	59	44	61	109	105	71	49	76	101	70	99	70	97
4	41	40											
4A			17	9	25	14	21	21	6	4	10	15	16
4B			35	46	38	32	33	51	33	39	28	41	56
5	75	46	71	124	129	95	68	119	95	57	93	87	88
6	71	73	77	56	82	77	54	90	58	78	56	74	62
7	49	60	78	90	62	69	89	114	93	88	123	127	118
8	39	47	42	53	37	47	33	42	33	32	28	36	40
9	38	27	42	43	53	48	30	69	79	55	56	56	77
10	48	51	45	36	50	66	51	82	76	75	104	90	83
11	110	104	164	159	114	109	116	111	106	118	93	113	91
12	31	28	72	99	47	45	48	32	33	35	60	63	44
Total	689	633	826	946	842	755	667	883	780	715	804	864	831

Appendix 4. Non-hunting deer mortality reported in Connecticut, 2001-2013.

Cause of Death	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Road	3,038	2,434	2,778	2,620	2,667	2,029	1,967	2,190	1,902	1,456	1,683	1,177	1,211
Dog	12	6	11	2	3	3	4	3	1	1	0	2	0
Unknown	190	140	217	183	183	117	162	72	92	49	82	58	89
Illegal	21	13	5	6	2	3	1	9	3	10	4	6	4
Crop Damage	689	633	831	946	842	755	667	883	780	715	804	864	831
Total	3,950	3,226	3,842	3,757	3,697	2,907	2,801	3,157	2,778	2,231	2,573	2,108	2,135
Non-hunting: Harvest	1:3.0	1:3.7	1:3.0	1:3.6	1:3.4	1:3.4	1:3.9	1:4.0	1:4.2	1:5.5	1:5.0	1:6.7	1:5.9
% Mortality*	25.7	19.6	23.3	21.7	22.6	19.3	20.2	20.0	19.1	11.1	11.6	13.5	14.5
% of Harvest	33.1	26.9	30.3	27.7	29.2	29.2	25.3	24.9	23.6	12.4	14.0	14.7	17.0

* 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, 2009-2013.

Zone	Five-year					Habitat	Roadkills/Sq. Mile				
	2009	2010	2011	2012	2013		Total	Zonal % (sq. miles)	2011	2012	2013
1	82	69	82	60	71	364	4.9	344.1	0.24	0.17	0.21
2	82	68	66	58	74	348	4.7	409.85	0.16	0.14	0.18
3	204	136	162	141	166	809	10.9	272.1	0.60	0.52	0.61
4A	85	64	81	59	67	356	4.8	213.1	0.38	0.28	0.31
4B	125	100	115	77	87	504	6.8	120.0	0.96	0.64	0.73
5	207	170	190	120	60	747	10.1	444.9	0.43	0.27	0.13
6	88	65	71	75	68	367	4.9	259.1	0.27	0.29	0.26
7	192	156	214	130	116	808	10.9	370.9	0.58	0.35	0.31
8	40	10	15	11	44	120	1.6	167.6	0.09	0.07	0.26
9	190	154	199	114	99	756	10.2	277.8	0.72	0.41	0.36
10	80	58	79	45	53	315	4.2	243.6	0.32	0.18	0.22
11	313	285	238	155	163	1,154	15.5	290.76	0.82	0.53	0.56
12	214	121	171	131	143	780	10.5	356.4	0.48	0.37	0.40
Total	1,902	1,456	1,683	1,176	1,211	7,428	100	3,770.2	0.45*	0.31*	0.32*

* These numbers are averages, not totals.

Appendix 6. Deer harvest on state Deer Lottery Hunting Areas (DLHA), 2013.

DLHA	Shotgun	Muzzleloader	Archery	Total
7	4	0	2	6
8	10	2	10	22
9	18	7	20	45
11	57	4	36	97
12	31	15	29	75
15	21	3	18	42
26	1	0	6	7
27	1	2	5	8
28	7	0	8	15
51	23	0	3	26
52	17	0	0	17
53	8	2	10	20
54	5	0	5	10
56	25	0	49	74
58	6	0	1	7
59	5	0	3	8
Total	239	35	205	479

Appendix 7. Archery harvest on state areas (Archery only areas), 2013.

Name of Area	Total Deer	Female	Male	Unknown
Aldo Leopold WMA	2	0	2	0
Algonquin State Forest	6	3	3	0
Babcock Pond WMA	5	1	4	0
Barber Pond WMA	2	0	2	0
Barn Island WMA	6	5	1	0
Bartlett Brook WMA	3	1	2	0
Bear Hill WMA	8	5	3	0
Beaver Brook State Park	8	5	3	0
Bennett's Pond State Park	6	3	3	0
Bigelow Hollow State Park	5	4	1	0
Bishops Swamp WMA	12	4	8	0
Bloomfield Flood Control Area (Site 1)	2	1	1	0
Camp Columbia State Forest	5	2	3	0
Cedar Swamp WMA	1	0	1	0
Centennial Watershed SF	45	21	23	1
Centennial Watershed SF (Canaan Block)	2	2	0	0
Centennial Watershed State Forest (BHC)	5	3	2	0
Cockaponset State Forest	33	14	19	0
Collis P. Huntington State Park	4	2	2	0
Cromwell Meadows WMA	3	1	2	0
Durham Meadows WMA	3	1	1	1
East Swamp	1	0	1	0
East Twin Lakes Water Access Area	4	4	0	0
Ellithorpe Flood Control Area	1	1	0	0
Enders State Forest (Worthen Parcel)	2	1	0	1
Franklin Swamp WMA	5	2	3	0
George C. Waldo State Park	3	3	0	0
Great Swamp Flood Control Area	9	6	3	0
Harkness/Verkades	7	5	2	0
Higganum Meadows WMA	3	3	0	0
Higganum Reservoir	1	0	1	0
Housatonic River WMA	8	5	3	0
Housatonic State Forest	3	1	2	0
John Minetto State Park	1	0	1	0
Killingly Pond State Park	1	1	0	0
Kollar WMA	4	2	2	0
Larson Lot WMA	4	1	3	0
Lebanon Coop Mgmt Area	1	1	0	0
Little River Fish and Wildlife Area	1	1	0	0
Mansfield Hollow Lake	12	6	6	0
Mansfield State-Leased Field Trial Area	2	1	1	0
Mattatuck State Forest	7	2	5	0
MDC – Colebrook Reservoir/Hogback Dam	1	0	1	0
MDC – Greenwood Pond	2	1	1	0
MDC – Pine Hill Block	3	2	1	0
MDC - Valentine Block	1	1	0	0
Meshomasic State Forest	33	14	19	0
Messerschmidt WMA	2	1	1	0
Millers Pond	1	0	1	0

Name of Area	Total Deer	Female	Male	Unknown
Mohegan State Forest (Inc Waldo Tract)	6	2	4	0
Mono Pond	1	0	1	0
Mount Riga State Park	1	0	1	0
Nassahegon State Forest	4	1	3	0
Natchaug State Forest	29	16	12	1
Nathan Hale State Forest Mgmt. Area	6	1	5	0
Naugatuck State Forest	17	8	9	0
Naugatuck State Forest (Great Hill Block)	3	3	0	0
Naugatuck State Forest (Quillinan Reservoir Block)	8	4	4	0
Nehantic State Forest	10	5	5	0
Nepaug State Forest	1	1	0	0
Newgate WMA	10	6	4	0
Nipmuck State Forest	24	15	9	0
Nott Island	1	1	0	0
NU-Maromas Coop WMA	10	5	5	0
NU-Skiff Mtn. Coop WMA	5	2	3	0
Nye Holman State Forest	8	5	3	0
Pachaug State Forest	73	31	42	0
Paugnut State Forest	2	2	0	0
Paugussett State Forest	10	1	9	0
Peoples State Forest	1	1	0	0
Pomeroy State Park	7	2	5	0
Pootatuck State Forest	2	2	0	0
Quaddick State Forest	7	4	3	0
Quinebaug River WMA	4	0	4	0
Quinnipiac River Marsh	5	2	3	0
Quinnipiac River State Park	16	7	9	0
Raymond Brook Marsh	1	1	0	0
Red Cedar Lake	2	1	1	0
Robbins Swamp WMA	6	5	1	0
Roraback WMA	11	4	7	0
Rose Hill WMA	2	0	2	0
Ross Marsh WMA	2	1	1	0
Ross Pond State Park	1	1	0	0
Salmon River Cove & Haddam Neck	1	1	0	0
Salmon River State Forest	25	13	12	0
Scantic River State Park	10	5	5	0
Selden Neck State Park	6	2	4	0
Sessions Woods WMA	2	1	1	0
Shenipsit State Forest	21	9	12	0
Silvio O. Conte NWR	2	1	1	0
Simsbury WMA	4	1	3	0
Spignesi WMA (formerly Pudding Hill WMA)	5	2	3	0
Suffield WMA	2	1	1	0
Talbot WMA	8	6	2	0
Tankerhoosen WMA	8	4	4	0
Thomaston Dam	1	0	1	0
Trout Brook Valley State Park	6	5	1	0
Tunxis State Forest	4	0	4	0

Name of Area	Total Deer	Female	Male	Unknown
Wangunk Meadows	3	0	3	0
West Thompson Dam	6	3	3	0
Wooster Mountain State Park	1	1	0	0
Wyantenock State Forest	2	0	2	0
Yale Forest	3	2	1	0
Zemko Pond WMA	6	4	2	0
Total	711	344	363	4