

2007 Connecticut Deer Program Summary



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Introduction

This booklet is the 27th 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 2007, 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 focused on the stabilization of zonal deer populations at moderate densities 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 deer populations in overpopulated areas, aggressive management strategies are being 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), and development of an earn-a-buck program (2005). The replacement antlerless tag program, which was initiated in 1995, allows hunters in deer management zones (zones) 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 zones 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 areas where firearms hunting is not feasible, the DEP stresses the usefulness 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 a sharp-shooting program.

In recent years, town governments have been taking a more active role in managing local deer populations. 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, 15 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.

The booklet entitled *Managing Urban Deer in Connecticut* was revised, updated, and reprinted in 2007. The purpose of this booklet is to assist large landowners, neighborhoods, communities, and town-appointed deer committees with managing deer in urban-suburban areas. The booklet includes information on history of deer in Connecticut, population dynamics, deer management options, case studies of successful urban deer management programs in the state, and guidance on developing a deer management program. It is available by contacting the Wildlife Division's Franklin office at 860-642-7239, or by sending an email to howard.kilpatrick@ct.gov. The booklet is also on the DEP website at: http://www.ct.gov/dep/lib/dep/wildlife/pdf_files/game/urbandeer07.pdf

Hunter Notes

Information on dates and locations of hunter education courses can be obtained by calling the DEP Wildlife Division's Franklin office (860-642-7239) or Sessions Woods office (860-675-8130), or on the DEP website at www.ct.gov/dep/hunting; click on "Hunting/Trapping Classes" on the left tab.

Regulations were enacted in October 2005 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 can be found below:

"Section 26-55-4: No person shall import or possess whole carcasses or parts thereof of any deer, moose, or elk from wild or captive herds from other states or Canadian Provinces where chronic wasting disease has been confirmed, including, but not limited to, Colorado, Wyoming, Utah, New Mexico, Montana, South Dakota, Kansas, Minnesota, Wisconsin, Illinois, Nebraska, Oklahoma, New York, West Virginia, Alberta and Saskatchewan. Any additional states and provinces where chronic wasting disease is confirmed will be published in the Department's annual Hunting and Trapping Guide and on the Department's Web site (www.ct.gov/dep/hunting). This provision shall not apply to meat that's de-boned, cleaned skullcaps, hides or taxidermy mounts."*

Licenses to fish, hunt, and trap in Connecticut can now be purchased online by going to Connecticut's new [Online Sportsmen Licensing System](http://www.ct.gov/dep/sportsmenlicensing) (www.ct.gov/dep/sportsmenlicensing). Applications for private land and state land no-lottery deer and turkey permits also may be downloaded from the DEP website. Some changes in the deer hunting season regulations may occur in fall 2008. Be sure to check the DEP website for changes that may occur after the printing of the Connecticut Hunting and Trapping Field Guide.

* CWD was recently documented in Michigan.

Regulated Deer Harvest

Regulated hunting is the most effective and cost-efficient method for maintaining deer populations at acceptable densities. During the 2007 hunting season, 11,062 deer were legally harvested and reported (Table 1). This represents a 4.6% decrease from the 2006 harvest. Total deer harvest was slightly lower than the previous 3-year average. Warm and wet weather on high harvest days (opening day, Saturdays, and Thanksgiving) during the 3-week firearms season, a good acorn crop (Figure 8), and limited snow cover in January likely contributed to the slight decline in harvest rates. Snow cover in late December likely attributed to the increased harvest during the muzzleloader season. The antlerless replacement tag harvest decreased from 590 to 543 deer from 2006 to 2007. Deer harvested under the replacement antlerless and either-sex tag program (586) attributed to 21.0% of the total deer harvest on private land in zones 11 and 12. Shotgun/rifle hunters accounted for 58.2% of all deer taken in 2007, while archery hunters, landowners, and muzzleloader hunters accounted for 26.4%, 8.8%, and 6.6%, respectively. Since 2003 special hunt days have been available for youth hunters. Youth hunters continue to take advantage of the Junior Hunter Training Day for deer, which occurs the Saturday prior to opening day. The 3-year average harvest for the Junior Hunter Training Day has been 46 deer. As more youths become aware of the opportunity, harvest is expected to increase. Landowner harvest consisted mainly of deer harvested with shotguns/rifles (961), while few deer were harvested with muzzleloaders (12) and bow and arrows (3). The source of landowner harvest for 10 deer was unknown. Harvest varied considerably by season and town (Appendix 1).

Table 1. Deer harvested during Connecticut's regulated hunting seasons, 2006-2007.

Season	Harvest 2006	Harvest 2007	3-year Average Harvest (2004-2006)	% of Total 2007	% Change from 2006 to 2007	% Change 3-year Average to 2007
Archery						
State Land	499	454	445	4.1%	-9.0%	2.1%
Private Land	2,658	2,470	2,721	22.3%	-7.1%	-9.2%
Replacement Antlerless ^{A,B}	444	342	419	3.1%	-23.0%	-18.3%
Either-sex Tag ^{A,B}	40	33	30	0.3%	-17.5%	11.9%
January ^B	151	210	173	1.9%	39.1%	21.6%
Replacement Antlerless ^{A,B}	33	32	31	0.3%	-3.0%	3.2%
Either-sex Tag ^{A,B}	5	3	3	0.0%	-40.0%	0.0%
Subtotal	3,157	2,924	3,166	26.4%	-7.4%	-7.6%
Muzzleloader						
State Land	147	181	190	1.6%	23.1%	-4.7%
Private Land	550	544	674	4.9%	-1.1%	-19.3%
Replacement Antlerless ^A	10	33	20	0.3%	230.0%	67.8%
Either-sex Tag ^A	0	0	0			
Subtotal	697	725	864	6.6%	4.0%	-16.1%
Shotgun/Rifle						
State Land A ^C	973	925	898	8.4%	-4.9%	3.0%
State Land B ^C	183	198	236	1.8%	8.2%	-16.1%
Private Land	5,622	5,314	6,272	48.0%	-5.5%	-15.3%
Replacement Antlerless ^A	103	136	165	1.2%	32.0%	-17.7%
Either-sex Tag ^A	3	7	9	0.1%	133.3%	-22.2%
Subtotal	6,778	6,437	7,406	58.2%	-5.0%	-13.1%
Youth Hunting Day^E	43	51	46	0.5%	18.6%	10.1%
Landowner	959	986	1,160	8.8%	1.8%	-15.9%
Total	11,591^D	11,062	12,598	100.0%	-4.6%	-12.2%

^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 Includes controlled hunt areas.

^D Includes 6 harvested deer whose sex and location were not recorded.

^E Harvest was included in shotgun/rifle totals for state and private land.

Permit Allocation

To reduce Connecticut's deer population growth rate, the Wildlife Division provides opportunities for hunters to purchase multiple deer permits. From 1975 to 1992, permit issuance increased consistently and has remained relatively stable since 1992 (Figure 1). Overall, permit issuance in 2007 (60,108) decreased 2.1% from 2006 (61,410) (Table 2). Permit issuance decreased slightly for both state (0.5%) and private land muzzleloaders (2.1%). Landowner permit issuance decreased slightly in 2007 and has fluctuated between 4,898 (1999) and 6,133 (1992) for the past 15 years. Issuance of shotgun/rifle permits in 2007 was similar to 2006. Overall, shotgun/rifle hunters purchased the largest number of permits (45.7%), followed by muzzleloader hunters (24.6%), archers (20.7%), and landowners (9.1%). Archery permit issuance increased 3.2% in 2007, approaching permit issuance levels observed prior to 2003 when all bowhunters were required to take the bowhunter safety course before purchasing any archery deer permit. Sixty-four percent of firearms deer permits were issued for use on private land and the remaining 36% were issued for state-managed lands.

Figure 1. Total deer permit issuance in Connecticut, 1975-2007.

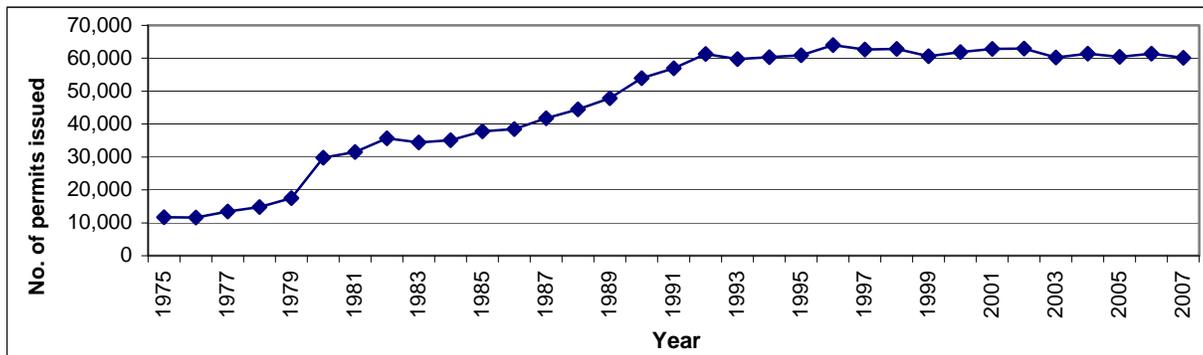


Table 2. Deer hunting permits issued in Connecticut for all regulated hunting seasons, 2005-2007.

Season	Permits 2005	Permits 2006	Permits 2007	3-year Average Permits 2004-2006	% of Total 2007	% Change 2006 to 2007	% Change 3-year Avg. to 2007
Archery	12,008	12,392	12,423	12,154	20.7%	3.2%	2.2%
Muzzleloader							
State Land	5,388	5,702	5,676	5,510	9.4%	-0.5%	3.0%
Private Land	9,143	9,297	9,101	9,196	15.1%	-2.1%	-1.0%
Subtotal	14,531	14,999	14,777	14,706	24.6%	-1.5%	0.5%
Shotgun/Rifle							
State Land A*	5,981	6,223	5,903	6,121	9.8%	-5.1%	-3.6%
State Land B*	4,131	4,001	4,085	4,111	6.8%	2.1%	-0.6%
Private Land	18,237	18,249	17,468	18,428	29.1%	-4.3%	-5.2%
Subtotal	28,349	28,473	27,456	28,659	45.7%	-3.6%	-4.2%
Landowner	5,545	5,546	5,452	5,566	9.1%	-1.7%	-2.1%
Total	60,433	61,410	60,108	61,086	100.0%	-2.1%	-1.6%

*Includes controlled hunt 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. Success rate for the archery season reached a record high of 27.8% in 2003 and 27.6% in 2004, then dropped slightly in 2005 (25.0%), and stabilized in 2006 (25.5%) and 2007 (24.3%). Success rates for the remaining seasons varied from 2006 to 2007, with the private land shotgun/rifle season experiencing the greatest decrease and the state land muzzleloader season experiencing the greatest increase. Compared to the 3-year average, success rates decreased or remained stable for all hunting seasons in 2007 except the state land shotgun A season. In 2007, private land shotgun/rifle hunters had the highest annual success rate (29.1%), followed by archers (24.3%) and landowners (17.6%). Success rate for the combined muzzleloader seasons was 4.9%. The greatest proportion of

successful muzzleloader hunters used in-line muzzleloaders (84%), while use of percussion (16%) and flintlock (<1%) muzzleloaders was low. Low success rates are expected because the muzzleloader season occurs after the shotgun/rifle deer hunting seasons.

Table 3. Deer hunter success rates (%) in Connecticut, 2006-2007.

Season	2006	2007	3-year Avg. Success Rate (2004-2006)	Difference from 2006	Difference from 3-year Avg.
Archery					
Combined ^A	25.5%	24.3%	26.8%	-1.2%	-1.7%
Muzzleloader					
State Land	2.6%	3.3%	3.5%	0.7%	-0.2%
Private Land	5.9%	5.9%	7.3%	0.0%	-1.4%
Combined	4.6%	4.9%	5.9%	0.3%	-1.0%
Shotgun/Rifle					
State Land A	15.6%	15.4%	14.7%	-0.2%	0.7%
State Land B	4.6%	4.8%	5.7%	0.2%	-0.9%
Private Land	30.8%	29.1%	34.0%	-1.7%	-4.9%
Combined	23.8%	22.7%	25.8%	-1.1%	-3.1%
Landowner					
	17.3%	17.6%	20.9%	0.3%	-3.3%
Average^B	18.9%	18.3%	20.5%	-0.6%	-2.2%

^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.

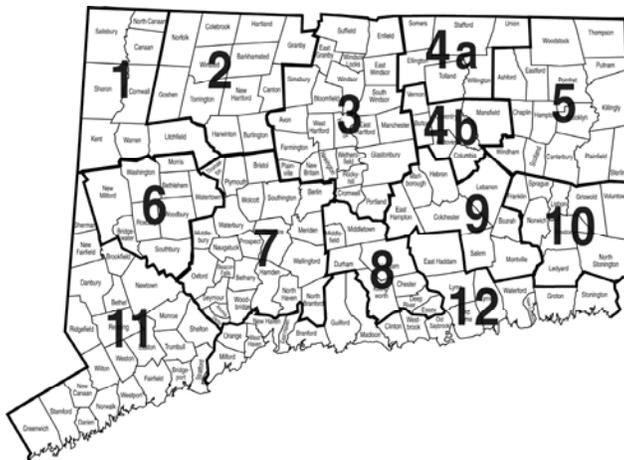
Archery Statistics

About 1 of 4 deer taken during the hunting season was harvested by a bowhunter. Seventy-three percent (2,129; 1,748 private, 381 state) of the total archery harvest was taken during the early archery season (September 15 to November 13); 9% (265; 217 private, 48 state) was taken during the 3-week shotgun/rifle season (open in zones 11 and 12 on private land and state land bowhunting only areas); 3.3% (99; 94 private, 5 state) was taken during the muzzleloader season; 7.5% (221; 202 private, 19 state) was taken during the late archery season (December 19 to December 31); and 7.2% (210) was taken during the January season open in zones 11 and 12 on private land only (January 1-31, 2008).

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. In 2003, some zones were re-delineated and zone 4 was split into zones 4A and 4B.

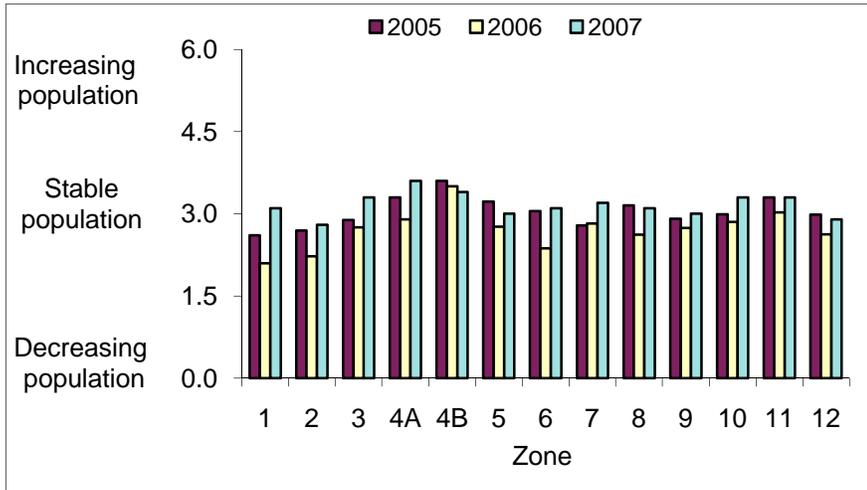
Figure 2. Connecticut's deer management zones, 2007.



Hunter Perceptions of Population Trends

Each year, 10-20% of all deer hunters complete and return their hunter survey card, which includes 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). Half of the hunters (50%) who responded to the survey believed that the population was stable, 26% believed it was increasing or slightly increasing, and 24% believed it was decreasing or slightly decreasing. Deer management zones 2 and 12 had the lowest average rank (2.8 and 2.9; Figure 3) and zone 4 had the highest average rank (3.5). Zones 4A, 3, and 11 had the highest relative frequency of hunters (38%, 32%, 32%) who believed the deer population was increasing. After 7 years of antlerless tag restrictions in zone 4A, hunters are seeing a noticeable increase in the deer population.

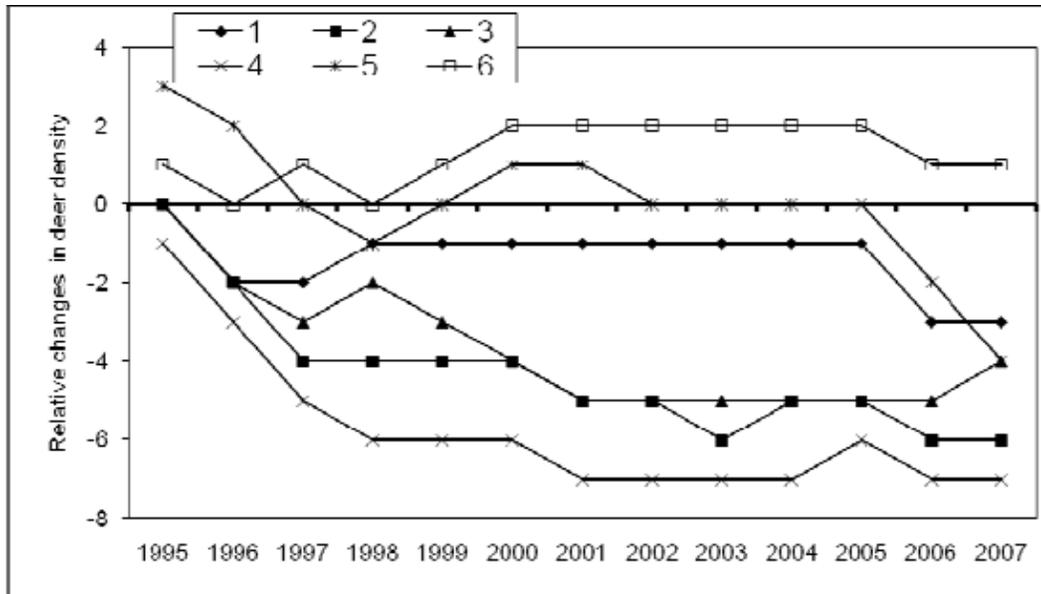
Figure 3. Perception of zonal deer population trends (average rank) by Connecticut's deer hunters, 2005-2007.



Population Trends

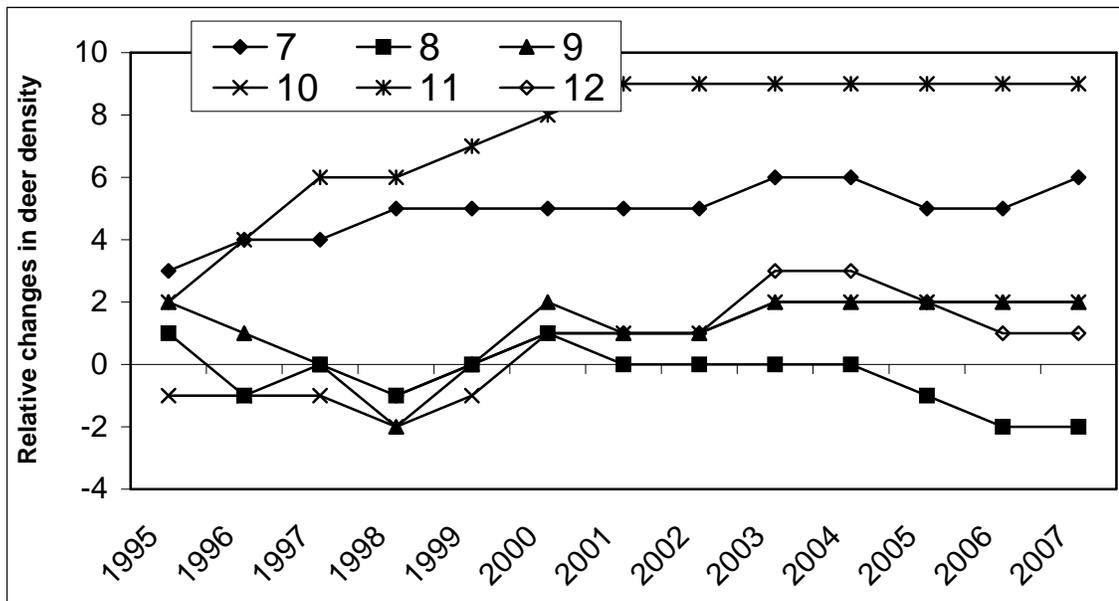
To assess the status of zonal deer populations in Connecticut, hunter perceptions and changes in harvest data (buck harvest/square mile, hunter success, yearling antler beam diameters, total deer mortality/square mile, and roadkills/square mile) were analyzed. This analysis suggests that from 2006 to 2007, 9 zones (1, 2, 4, 6, 8, 9, 10, 11, 12) had stable populations, 1 zone (5) had decreasing to slightly decreasing populations, and 2 zones (3 and 7) had increasing to slightly increasing populations (Figures 4 and 5).

Figure 4. Trends in Connecticut deer population growth in zones 1-6 from 1995 to 2007.*



*Horizontal lines represent a stable population relative to the previous year. Lines that project upwards or downwards represent increasing or decreasing populations when compared to the previous year.

Figure 5. Trends in Connecticut deer population growth in zones 7-12 from 1995 to 2007.*



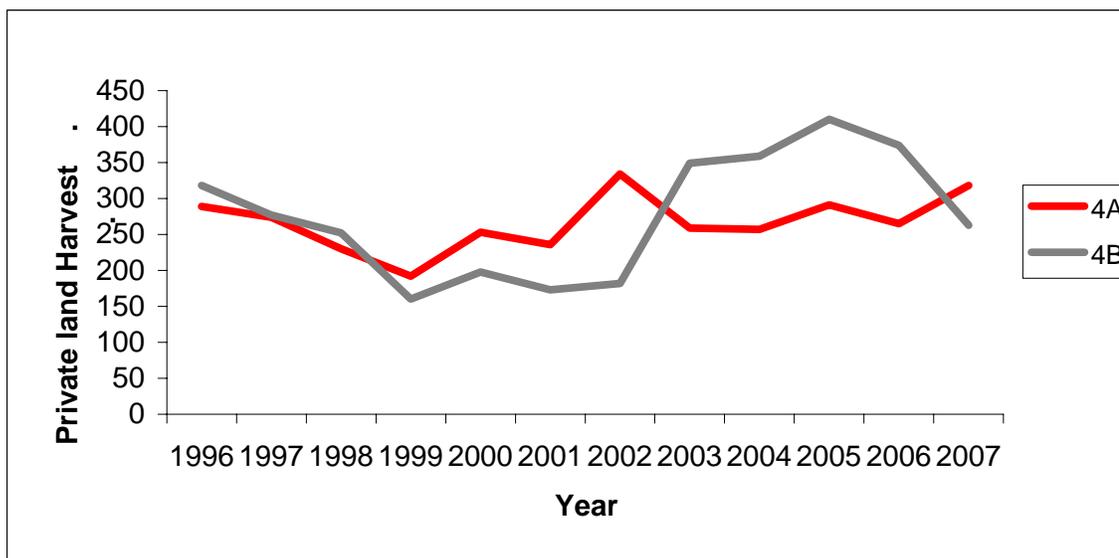
*Horizontal lines represent a stable population relative to the previous year. Lines that project upwards or downwards represent increasing or decreasing populations when compared to the previous year.

Zonal Deer Management

Because deer populations vary across the state, Connecticut developed 12 deer management zones. Management strategies in each zone may vary depending on population growth. In zone 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 zone 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 zone 4. In 2003, Zone 4 was split into two zones (4A and 4B), allowing each zone to maintain different management objectives. In zone 4A (northern portion), the restriction on the use of antlerless tags was retained, while the use of antlerless tags was again allowed in zone 4B (southern portion). The town of Union was removed from zone 5 and added to zone 4A (Figure 6).

The percentage of antlered deer harvested was larger for zone 4A (60.8%) than zone 4B (56.8%) in 2007. This was expected due to the restricted use of antlerless tags in zone 4A.

Figure 6. Twelve-year trend of private land deer harvest in Zones 4A and 4B.



In zones 11 and 12, free replacement antlerless tags and either-sex tags (bonus buck tags) were available during the private land archery, shotgun/rifle, and muzzleloader seasons in 2007. 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.

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 permit applications were modified to include the question, "In what zone do you do most of your deer hunting?" In 2007, 62% (10,781 of 17,468) of private land shotgun/rifle deer hunters answered this question on their application. The relative percent of hunters in each deer management zone was multiplied by total number of deer permits issued in 2007 to estimate total number of hunters by zone. Total number of hunters and total private land 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 12 management zones, most hunting (45%) occurred in four zones (1, 5, 9, and 11). Highest private land deer harvests were reported for zones 1, 5, 11, and 12. Zones 5 and 11 had the highest deer harvest per square mile (2.0) and zones 5 and 11 had the greatest density of hunters (7.0 and 6.4 per square mile), but zone 12 had the highest hunter success rate (40%). The 3-year trend in hunter success rates declined for 6 of 12 zones (Table 5). Hunter success rates were lowest in zone 2. In the past, zone 4 had a low success rate due to restrictions on the antlerless harvest. However, increased hunter success in zone 4 over time indicates the deer herd is recovering. Five deer management zones (4B, 5, 9, 11, and 12) have continued to produce relatively high hunter success rates over the past 3 years (Table 5).

Archery Season

Statewide Success: Based on the number of kill report cards submitted by bowhunters, 1 of 3 (36%) hunters harvested 2 or more deer during the bowhunting season. Bowhunter success rates were highest in zones 11 and 12 where firearms hunting is more limited and the archery season framework is liberal (use of bait, unlimited tags, longer seasons) (Table 6). Based on hunter surveys, the actual harvest rate is higher than the reported harvest rate from kill cards.

Table 4. Zonal hunter numbers, harvest, and success rates for private land during the 2007 shotgun/rifle hunting season.

Zone	2007 Zone hunted Private Land Shotgun/Rifle	% of Hunters Answered Question	2007 Estimated # of Private Land Shotgun/ Rifle	2007 Harvest	Area (sq. miles)	Deer Harvest/ Sq. Mile	2007 Hunters/ Sq. Mile	2007 Success Rate
1	1,033	9.6	1,749	506	344.59	1.5	5.1	29%
2	825	7.7	1,396	258	410.69	0.6	3.4	18%
3	468	4.3	792	262	273.33	1.0	2.9	33%
4	863	8.0	1,461	434	334.16	1.3	4.4	30%
5	1,856	17.2	3,142	898	445.94	2.0	7.0	29%
6	837	7.8	1,417	341	260.03	1.3	5.4	24%
7	508	4.7	860	260	373.08	0.7	2.3	30%
8	522	4.8	884	237	169.11	1.4	5.2	27%
9	949	8.8	1,606	485	279.39	1.7	5.7	30%
10	882	8.2	1,493	403	244.36	1.7	6.1	27%
11	1,098	10.2	1,859	591	291.53	2.0	6.4	32%
12	940	8.7	1,591	639	358.39	1.8	4.4	40%
Total	10,781	100.0	18,249	5,314	3,785	1.4	4.8	29%

Table 5. Zonal comparisons in private land shotgun/rifle harvest, hunter distributions, and success rates, 2005-2007.

Zone	Area (sq. miles)	Deer Harvest/Sq. Mile			Hunters/Sq. Mile			Hunter Success Rate %		
		2005	2006	2007	2005	2006	2007	2005	2006	2007
1	344.59	1.9	1.4	1.5	4.8	5.0	5.1	38	28	29
2	410.69	0.7	0.7	0.6	3.4	3.3	3.4	21	22	18
3	273.33	1.2	1.0	1.0	3.6	3.2	2.9	33	31	33
4	334.16	1.7	1.5	1.3	4.4	4.3	4.4	39	35	30
4A	213.50	0.9	0.9	0.9	4.4 ^A	4.3 ^A	4.4 ^A	20	21	20
4B	120.66	3.2	3.2	2.0	4.4 ^A	4.3 ^A	4.4 ^A	70	72	45
5	445.94	2.8	2.3	2.0	6.7	7.0	7.0	41	33	29
6	260.03	1.6	1.4	1.3	4.9	5.1	5.4	32	27	24
7	373.08	0.8	0.7	0.7	2.8	2.6	2.3	29	29	30
8	169.11	1.7	1.6	1.4	5.8	5.7	5.2	29	28	27
9	279.39	2.3	2.2	1.7	6.3	6.1	5.7	36	37	30
10	244.36	1.9	1.6	1.6	5.8	5.8	6.1	32	27	27
11	291.53	2.3	2.0	2.0	6.0	6.2	6.4	37	33	32
12	358.39	1.9	1.6	1.8	4.4	4.6	4.4	42	36	40
Total	3,785	1.7	1.5	1.4	4.8	4.8	4.8	35	31	29

^A Zone 4 was separated into zones 4A and 4B in 2003, but hunter survey data did not reflect this change.

Table 6. Zonal comparisons of archery season success rates, 2007.

Zones	Zone Hunted Archery	% of Hunters	2007 Estimated	2007 Harvest	2007 Success Rate
		Answered Question	# of Archery Hunters		
1	622	6.9%	860	151	17.6
2	660	7.3%	913	84	9.2
3	397	4.4%	549	86	15.7
4 ^A	624	6.9%	863	167	19.4
5	1,061	11.8%	1,467	258	17.6
6	478	5.3%	661	86	13.0
7	671	7.5%	928	175	18.9
8	422	4.7%	584	113	19.4
9	559	6.2%	773	122	15.8
10	513	5.7%	709	119	16.8
11	2,127	23.7%	2,942	1,201	40.8
12	849	9.5%	1,174	362	30.8
Total	8,983	100.0%	12,423	2,924	23.5

^A Zone 4 was separated into zones 4A and 4B in 2003, but hunter survey data did not reflect this change.

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 on abundance of the fall acorn crop from hunter surveys since 1993. Hunter perceptions of the fall acorn crop were ranked on a scale from 0 (scarce) to 6 (abundant acorns). In 2007, 55% of the hunters who responded to the survey ranked the fall acorn crop as abundant, 38% as moderate, and 7% as scarce. Zone 11 had the highest average rank (4.9) and zone 2 had the lowest average rank (4.1; Figure 7). On a scale of 0-6, the average rank statewide was 4.4.

The past 15 years of data on acorn abundance and the deer harvest suggest that a correlation exists between hunter success and acorn abundance (Figure 8). In 1993, when acorns were most abundant, hunter success was lowest, and in 2004, when acorns were least

abundant, the hunter success rate was highest. During years with low acorn productivity, deer travel more to access other food sources, such as green fields, increasing their vulnerability to hunters. On average, the acorn crop statewide has been moderate most years, scarce about every 7 years, and abundant every 3-4 years.

Figure 7. Perception of acorn crops (average rank) by Connecticut's deer hunters, 2004-2007.

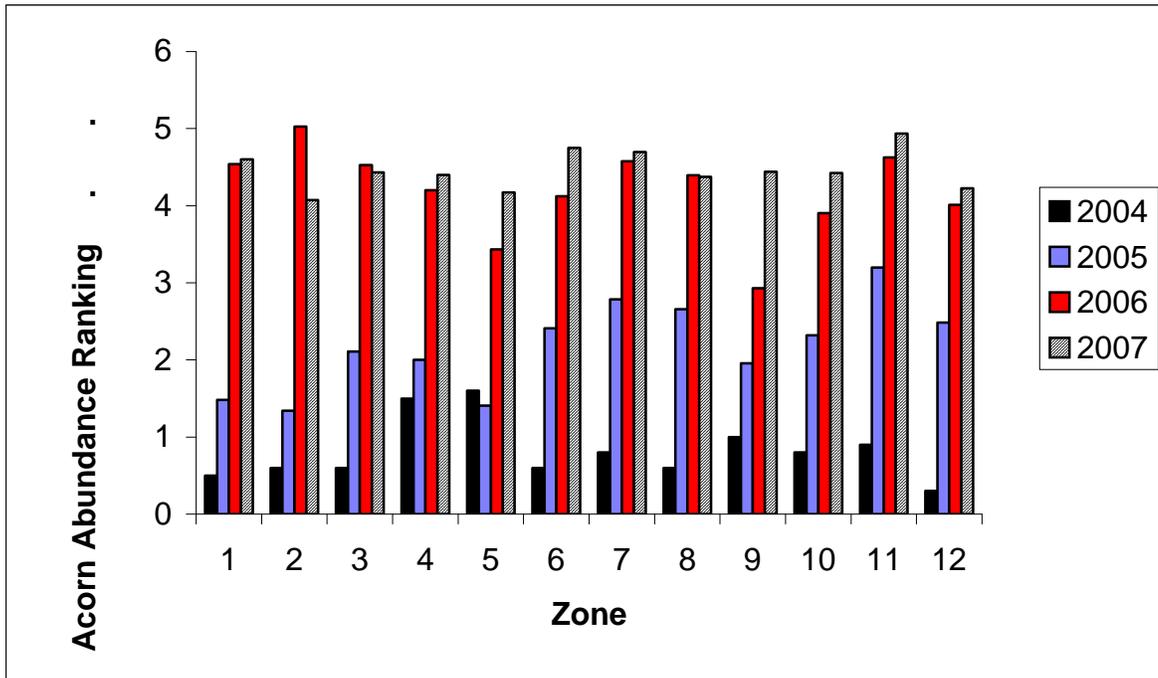
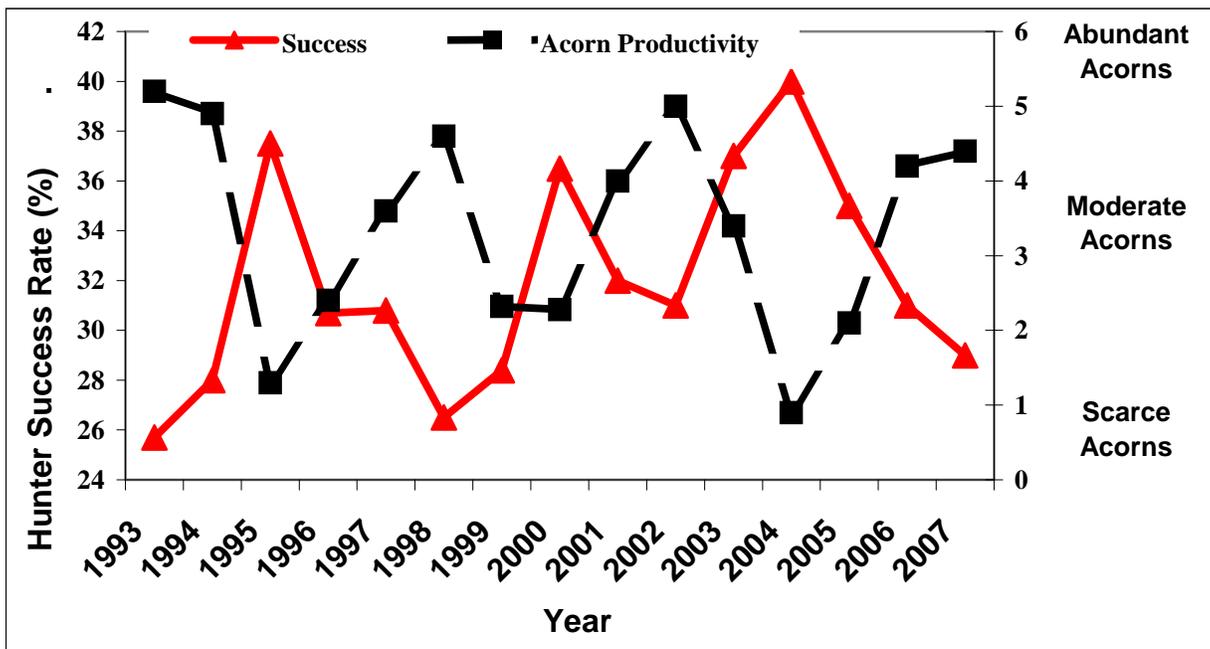


Figure 8. Relationship between private land shotgun/rifle hunter success rates and fall acorn productivity, 1993-2007.



Private Land Deer Harvest

The 2007 private land deer harvest was highest for deer management zones 5, 11, and 12 (Table 7). Zonal harvest levels have fluctuated in most zones over the past 10 years (Table 7). These fluctuations likely reflect the difference in weather conditions, snow cover, acorn abundance, and deer densities. Although there is much variability, a consistently decreasing harvest trend is most noticeable over the past 3 years. Highest total deer harvest for the last 5 years has been observed in zone 11, and the harvest in zone 12 has nearly doubled since 2002, likely a result of the availability of replacement antlerless tags in zones 11 and 12 and from expanding the size of these zones (see note below Table 7). Total private land deer harvest decreased 5.7% from 2006 to 2007.

Table 7. Private land deer harvest for all seasons (excluding landowner) in each of Connecticut's deer management zones, 1998-2007.

Zone	Year									
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
1	1,116	910	1,184	936	937	796 ^C	828	811	639	680
2	394	360	389	351	259	373 ^B	383	369	357	323
3	549	397	529	442	478	457	434	413	362	338
4 ^A	678	583	729	662	471					
4A						237 ^B	207	273	218	259
4B						397	445	476	467	329
5	1,382	1,612	2,061	1,651	1,293	1,250 ^C	1,510	1,607	1,348	1,165
6	627	808	909	854	746	550 ^C	596	544	511	458
7	518	529	624	524	489	564 ^B	618	473	454	438
8	389	486	523	433	378	463	514	467	398	330
9	894	1,208	1,593	1,408	1,197	873 ^C	882	817	757	628
10	468	597	746	713	519	521	664	567	504	504
11	1,020	1,237	1,400	1,562	1,839	2,084 ^B	2,128	1,799	1,898	1,846
12	627	679	720	646	636	1,272 ^B	1,330	1,080	976	1,030
Total	8,662	9,406	11,407	10,182	9,242	9,793	10,485	9,613	8,832	8,328
% Change	-14.1%	8.6%	21.3%	-10.7%	-9.2%	6.0%	7.1%	-8.3%	-8.1%	-5.7%

^A Zone 4 separated into Zones 4A and 4B in 2003.

^B In 2003 town/towns added to zone.

^C In 2003 town/towns removed from zone.

Herd Health

Measuring antler beam diameters (1 inch above the base) of yearling males is one method of assessing deer herd health. Mean antler beam diameters on yearling males are correlated with female productivity, which is related to habitat quality. For example, yearling males with large antler beam diameters (20.0+ mm) indicate excellent herd health, while small beam diameters (12-15.4 mm) imply poor herd health. Beam diameters 15.5-17.9 mm and 18.0-19.9 mm imply the herd is in fair to good condition. Mean yearling antler beam measurements in 2007 indicate that the deer herd in most zones was in fair to good condition. Mean beam measurements exceeded 18.0 in 2 of 12 zones (zones 2 and 8, Table 8). Mean antler beam measurements typically ranged between 17-18mm in 10 of the past 12 years. Minor variations in beam measurements from year to year probably are due to fluctuations in food availability, winter conditions, or other variables. Most zones have fluctuated within the fair to good range since 1995.

Table 8. Average antler beam diameter (mm) of yearling males in each of Connecticut's deer management zones, 1995-2007.*

Zone	Year											
	1995	1996	1997	1999	2000	2001	2002	2003	2004	2005	2006	2007
1	18.3	16.4	16.6	17.9	17.2	17.7	18.9	17.4	16.8	17.0	16.4	17.3
2	18.4	17.7	18.0	18.1	18.1	16.7	18.1	18.6	16.9	19.2	17.0	18.4
3	17.7	17.6	18.7	19.3	18.7	15.7	18.3	18.2	16.1	19.8	16.4	17.8
4 ^A	17.3	15.9	17.0	18.4	18.7	16.0	17.9					
4A ^A								18.7	16.2	15.8	15.4	17.8
4B ^A								18.0	18.0	17.8	16.7	16.9
5	18.9	16.6	16.8	18.3	18.2	17.0	17.8	16.4	18.1	15.8	16.3	16.1
6	18.5	17.2	18.0	18.1	18.1	16.3	18.4	18.0	16.9	15.7	17.0	17.6
7	18.5	17.2	17.5	17.1	18.3	16.1	17.9	17.4	17.8	17.5	16.1	17.9
8	18.7	15.7	17.5	18.0	17.4	16.8	17.3	18.6	17.6	20.5	17.5	18.8
9	17.7	16.6	17.1	19.1	17.9	16.5	18.4	17.3	16.7	17.7	17.5	17.9
10	17.8	17.2	18.1	17.6	17.1	16.0	17.9	15.9	17.5	15.5	14.5	16.2
11	17.5	18.1	16.5	16.3	16.8	18.7	17.2	17.9	17.4	15.3	20.3	16.4
12	ND*	ND*	ND*	17.4	17.1	15.7	18.2	17.1	17.1	17.8	16.2	16.4
Average	18.0	16.9	17.3	17.8	17.4	16.9	18.0	17.6	17.2	17.3	16.7	17.1

*No data collected in 1998 - no biological check stations.

^A Zone 4 separated into zones 4A and 4B in 2003.

ND= No data due to small sample sizes (N<5).

ND* =No data collected. Zone 12 was not delineated before 1997.

Deer Weights

Trends in deer weights are another indicator of overall herd health. Average dressed weights were similar from 2006 to 2007 for harvested young-of-year and yearling males (Table 9). Weights of harvested young-of-year males decreased by 6 pounds in zone 1 and increased by 11 pounds in zone 7. During the 2007 shotgun/rifle season, 5 bucks weighing 200 pounds or more were checked in at check stations when biological data were being collected (4 days; Table 10). The heaviest three bucks were harvested in Plainfield (220 lbs.), Cornwall, (214 lbs), and Woodstock (208 lbs.).

Table 9. Average dressed weights (lbs.) of male deer harvested during the shotgun/rifle hunting season, 2005-2007.

Zone	Young-of-Year			Yearling			Adult		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
1	60.9	76.0	69.9	110.0	104.3	107.1	146.0	136.2	142.5
2	77.8	72.5	68.0	110.4	110.6	109.5	149.9	143.4	145.6
3	71.9	68.0	66.0	112.0	103.5	98.7	153.3	135.2	144.9
4A	57.2	57.0	64.4	104.6	99.0	105.5	140.8	134.7	139.3
4B	64.2	64.1	68.2	110.3	103.1	102.3	141.9	138.9	135.1
5	64.3	64.4	65.9	106.1	105.9	101.6	146.6	137.7	138.9
6	67.3	71.3	74.0	108.9	109.5	106.6	143.9	144.2	139.2
7	68.0	63.4	74.4	107.1	102.5	103.0	140.1	142.0	139.4
8	75.0	66.0	62.3	105.1	104.4	102.2	145.8	142.4	147.0
9	64.8	65.0	66.2	104.4	107.5	101.5	136.9	139.1	133.9
10	60.4	66.8	73.6	108.8	107.5	107.1	143.4	140.1	138.9
11	60.1	62.4	60.2	101.8	103.5	101.9	134.3	129.9	129.2
12	62.9	64.5	63.9	96.2	100.5	103.9	128.8	136.5	135.8
Average	65.8	66.3	67.5	106.6	104.7	103.9	142.4	138.5	139.2

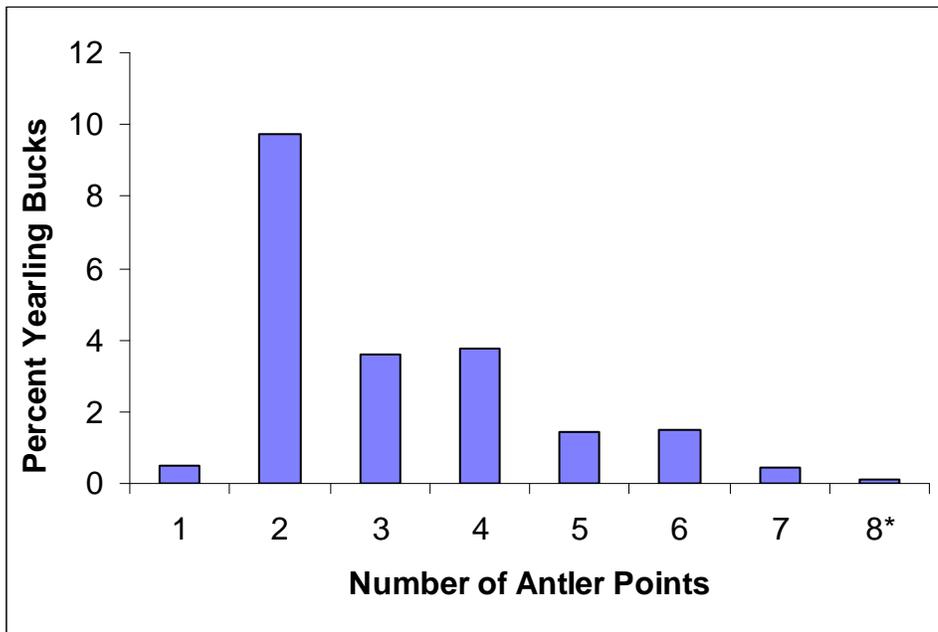
Table 10. Bucks over 200 pounds (dressed weight) registered at biological check stations (4 days) during the shotgun/rifle season, 2007.

Town	Weight (lbs)	Points
Plainfield	220	6
Cornwall	214	11
Woodstock	208	8
Bloomfield	207	8
Waterford	200	8

Antler Points

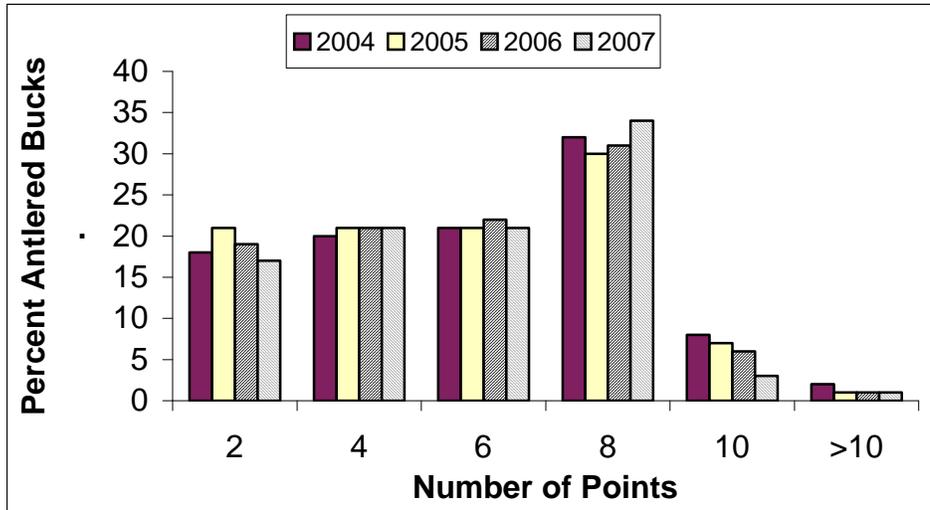
Deer age, nutritional status, and genetics affect the number of antler points on bucks. Number of antler points on yearling bucks aged at check stations ranged from 1 to 8 in 2007 (Figure 9). Most yearling bucks had 2 (43.2%) or 4 (21.5%) points and 10% had 6 or more points in 2007 (Figure 9, Appendix 2). Mean number of antler points on yearling males has fluctuated between 2 and 4 among most zones during the past 3 years (Appendix 3). Of all antlered bucks harvested, 8-pointers were the most frequent point category, followed by 6, 4, and 2 points (Figure 10). Number of points on antlered bucks has remained consistent over the past 4 years (Figure 10).

Figure 9. Number of antler points on yearling males harvested during the shotgun/rifle deer season, 2007.



*Less than 1% of yearlings had more than 8 points.

Figure 10. Percent of all antlered bucks harvested by point category during the shotgun/rifle deer season, 2004-2007.



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. Hunters could take 1 or 2 antlerless deer with all 2-tag permits except in zone 4A where the antlerless-only tag was NOT valid. Although button bucks are included in the antlerless harvest, this system promotes the removal of female deer (Table 11). Overall deer harvest sex ratios have been similar over the past 3 years (1.3 males per female) (Table 12). In 2007, 52% (5,750) of the total regulated deer harvest (excludes crop damage harvest) was comprised of antlerless deer. Although harvest was slightly higher for males than females, a significant proportion of the harvest included adult females, which contributes to population control efforts (Appendix 4).

Table 11. Sex ratios and antlered to antlerless ratios of deer harvested in 2007.

	Muzzleloader	Shotgun/Rifle	Archery	Landowner	Crop Damage	Total
Male:Female	0.77:1	1.7:1	0.99:1	1.40:1	0.69:1	1.32:1
Antlered:Antlerless	0.48:1	1.17:1	0.64:1	0.96:1	0.47:1	0.89:1

Table 12. Sex ratios (male:female) of deer harvested during Connecticut's regulated hunting seasons, 2004-2007.

2006		2007		Males per Female				3-year Average
Males	Females	Males	Females	2004	2005	2006	2007	(2003-2005)
6,836	5,375	6,676	5,074	1.3:1	1.3:1	1.3:1	1.3:1	1.3:1

Replacement Tags

The replacement tag system was developed to increase the harvest of female deer. This system is currently in place in zones 11 and 12. Since 1998, when archery hunters had access to replacement tags in zone 11, the buck harvest has remained relatively stable while the antlerless harvest in that zone has increased nearly 5 times (from 200 to almost 1,000 deer annually) (Figure 11). The ratio of female deer harvested in zone 11 increased from 0.9 females per male (1994-1997) to 1.2 females per male (1998-2007) (Figure 12).

Check stations in zones 11 and 12 issued 1,217 replacement antlerless tags (480 shotgun/rifle, 672 archery, 65 muzzleloader) and 132 either-sex tags (29 shotgun/rifle, 97 archery, 6 muzzleloader) during the 2007 shotgun/rifle, archery, and muzzleloader deer seasons (Table 13). Bowhunters used the greatest proportion (55%) of replacement tags, likely due to the longer season.

Figure 11. Comparisons of antlered and antlerless deer harvests during the archery deer season in zone 11, 1995-2007.

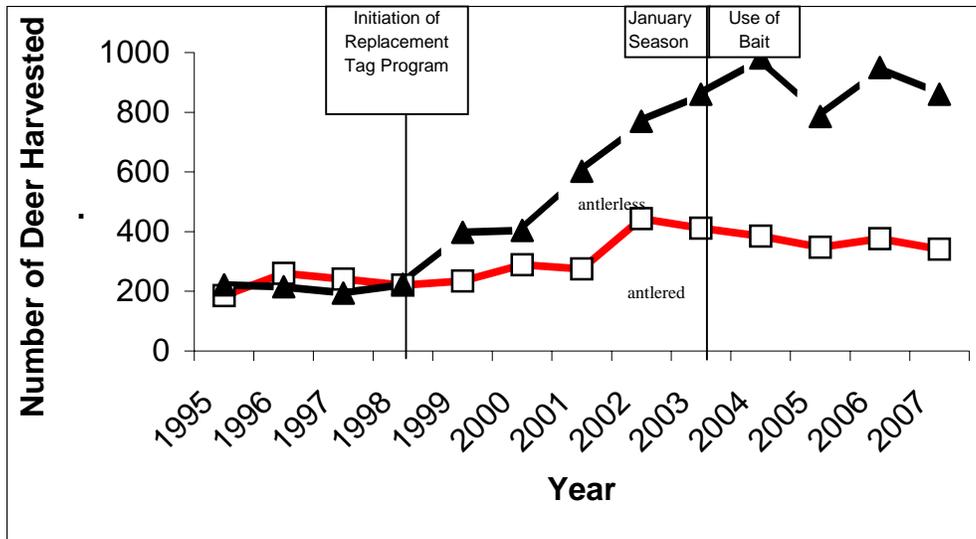


Figure 12. Sex ratios of harvested deer from zone 11 after implementation of the archery antlerless replacement tag program, 1994-2007.

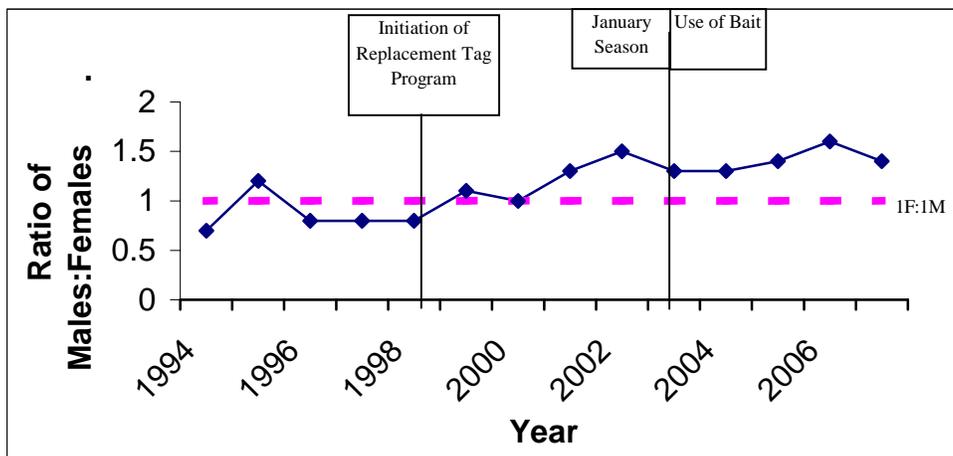


Table 13. Issuance and use of replacement antlerless and either-sex tags during the archery, firearms, and muzzleloader deer hunting seasons in 2007.

	Bow 9/15-1/31		Shotgun/Rifle 11/15-12/5		Muzzleloader 12/6-12/19		Total	
	Antlerless	Either-sex	Antlerless	Either-sex	Antlerless	Either-sex	Antlerless	Either-sex
2007 Issued	672	97	480	29	65	6	1,217	132
2007 Used	374	36	136	7	33	0	543	43
Percentage Used	55.70%	37.1%	28.3%	24.1%	50.8%	0.0%	44.6%	32.6%

Deer Hunter Expenditures, Effort, and Venison Calculations

Deer hunting-related expenditures contribute significantly to Connecticut's economy. Deer permit sales generated \$1,239,449 in 2006 and \$1,225,456 in 2007 to the Connecticut General Fund. In addition, data collected from the annual deer hunter surveys indicated that Connecticut deer hunters spent an estimated \$10,236,315 on deer hunting-related goods and services in 2007.

In 2007, deer hunters spent a cumulative total of 378,680 days afield. Private and state land shotgun/rifle hunters used the greatest percentage of available hunting days during those seasons (31.1% and 44.4%). Although bowhunters used a smaller percentage of available hunting days (20.8%), the archery season is much longer than the firearms season. Connecticut deer hunters collectively spent slightly less time (34.2 days per deer taken) and more money (\$925 per deer taken) in 2007 than in 2006 (36.4 days at \$766 per deer taken). In 2007, hunters harvested an estimated 553,100 pounds (avg. 50 lbs. of meat/hunter) (268 tons) of venison at an estimated value of \$2,759,969 (\$4.99/lb.).

2007 Subscription Rates for State Land Lottery Permits

In 2007, 7,712 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 one shotgun permit per 20 acres. In many areas, permit issuance was less than the permit quota established for a given area. In 2007, 9 areas were changed to no-lottery areas for the B season, bringing the total number of no-lottery hunt areas up to 18. Seventy-one percent of all potential lottery permits were issued. Permit issuance reached 100% of both A and B seasons for 3 of 6 controlled hunt areas (Table 14). The following example explains how to interpret Table 14: In Deer Lottery Hunting Area (DLHA) 12, 100% of A season permits and 21% of B season permits were issued. Consequently, DLHA 12 was under-subscribed compared to DLHA 52, which was filled to capacity (100%) for both A and B seasons and thus experienced greater hunter density. For applicants, the odds of receiving an "A" season permit are greater in areas with low hunter subscription rates. Hunters also should look at harvest levels in the different state land areas when selecting an area to hunt (Appendix 5 and 6).

Moose Sightings

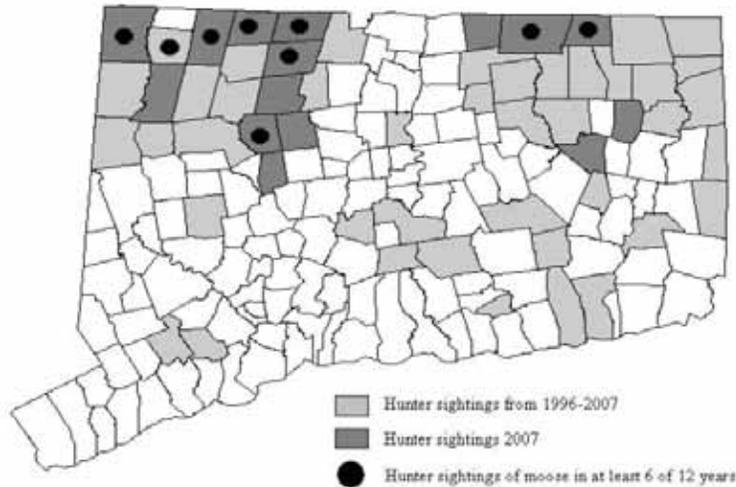
An increasing moose population in Massachusetts has led to an increased number of moose wandering or dispersing into Connecticut. In an effort to monitor trends in moose sightings in Connecticut, a question was added to the deer hunter survey card in 1996 regarding hunter observations of moose during the fall hunting season. Deer hunters reported 38 moose sightings in 15 towns in 2007 and 374 sightings over the past 12 years (Figure 13). Fourteen hunters reported seeing moose sign in 12 towns. During this 12-year period, moose sightings have been reported in 59 different towns. Sightings have also been reported from 9 to 22 different towns each year and in 9 towns in at least 6 of 12 years. Moose have been observed in Union and Hartland for 11 of 12 years. Most towns where hunters report moose sightings occur along the Connecticut-Massachusetts border. In 2007, an average of 1 moose was observed by hunters for every 755 hunter-days spent in the field, a slight increase in the number of days spent hunting to observe a moose compared to 2006, when a moose was observed for every 597 hunter-days in the field. Currently, Connecticut has no open hunting season for moose. Seventy-eight percent of hunters were supportive of a very limited moose hunting season in Connecticut.

Table 14. Percent of available A and B season hunting slots filled through the annual, state-administered shotgun deer lottery, 2005-2007.

Deer Lottery Area	% of Hunting Slots Filled					
	2005		2006		2007	
	A	B	A	B	A	B
1	69	0	68	0	64	NL
2	78	0	76	0	79	NL
3	32	NL	57	NL	44	NL
4	30	NL	35	NL	37	NL
5	90	NL	82	NL	70	NL
6	94	14	100	0	100	NL
7	92	58	100	75	100	100
8	92	78	100	100	100	100
9	92	91	100	100	100	100
10	95	43	100	29	100	NL
11	93	20	100	16	100	36
12	94	28	100	17	100	21
13	95	5	95	0	100	NL
14	93	5	100	6	95	0
15	96	62	100	71	100	61
16	63	NL	64	NL	69	NL
17	30	NL	27	NL	33	NL
18	89	NL	83	NL	82	NL
19	30	NL	27	NL	30	NL
20	65	0	77	0	69	NL
21	23	NL	27	NL	26	NL
22	72	0	85	0	91	NL
23	34	NL	40	NL	44	NL
24	81	0	91	0	74	NL
25	71	0	73	0	46	NL
26	80	87	100	100	100	100
27	100	82	100	100	100	100
51 (Yale)	97	41	100	44	100	30
52 (Bristol)	100	100	100	100	100	100
53 (Maromas)	93	100	100	100	100	100
54 (Skiff Mt.)	97	60	100	26	100	29
56 (BHC-Hemlock)	97	91	100	100	100	100
57 (Colebrook)	29	0	28	0	44	0

NL=No Lottery

Figure 13. Moose sightings reported on deer hunter surveys, 1996-2007.



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 2007 controlled hunt, 64 deer (45 males, 19 females) 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 2007 hunting season, 30 deer were harvested (19 males, 11 females).

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. In 2007, hunters harvested 12 deer (10 males, 2 females).

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. In 2007, hunters harvested 2 deer (1 male, 1 female).

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). In 2007, 118 deer (63 males, 55 females) were harvested.

MDC Colebrook Reservoir/Hogback Dam (Area 57): This 4,159-acre parcel in Colebrook was opened to hunting in 1999. In 2007, 2 deer (2 males) were harvested.

Devil's Den: The Nature Conservancy owns this 1,660-acre property in Weston and Redding. In 2007, 20 deer were removed (14 males, 6 females).

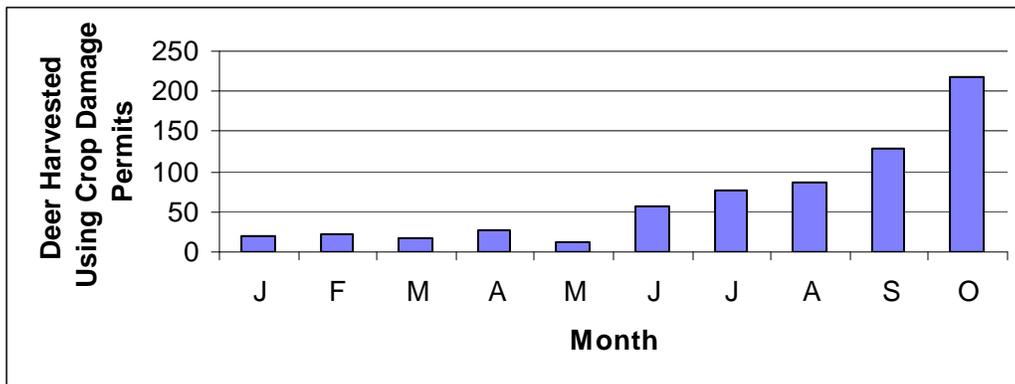
Bluff Point: Controlled hunts and DEP deer removals at Bluff Point Coastal Reserve in Groton have been implemented over the past 12 years to reduce and maintain the deer population at about 25 animals. Since the program started in 1996, 494 deer have been removed from Bluff Point, resulting in improved deer herd health and ecosystem stability. In December 2007, the deer population was estimated to be 36 deer. In February 2008, 12 deer were removed by DEP personnel. After the February 2008 removal, the population was estimated to be between 20 and 40 deer.

Greenwich: Greenwich Audubon would like to reduce the deer population so as to restore the biological health of this 285-acre sanctuary located in northern Greenwich. In 2007, hunters from Greenwich Sportsmen's and Landowners Association harvested 21 deer (17 females, 4 males).

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 verifiable 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 2007 calendar year, 667 deer were taken with crop damage permits (Appendix 7). From 1993-2007, annual deer harvest with crop damage permits has fluctuated between 543 and 946 deer. Harvest in zone 11 accounted for 17% of deer removed with crop damage permits in 2007. Crop damage harvest increased steadily from May to October, with 52% of the annual harvest occurring in September and October (Figure 14). Crop damage permits are not valid in November and December.

Figure 14. Crop damage harvest by month, 2007.



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 2007, 2,801 non-hunting deer mortalities were reported (Appendix 8). Of those, 1,967 were killed in deer-vehicle collisions. This equates to an average of 5.4 deer being killed per day on Connecticut roads and highways. Roadkills accounted for 92% of all reported non-hunting mortality (excluding crop damage) in 2007. 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 a vehicle and not reported. Based on this correction factor, it is estimated that the actual number of roadkills in 2007 was 11,802. Twenty percent (384) of all reported roadkilled deer in Connecticut occurred in deer management zone 11 (Fairfield County, Figure 2) in 2007 (Appendix 9). Deer roadkills in zone 11 have been 2 to 6 times greater than in all other deer management zones (Appendix 9). Non-hunting mortality comprised 19.3% of the total reported deer mortality in Connecticut, including crop damage harvest (Appendix 8).

Chronic Wasting Disease

Over the past 4 years, the Wildlife Division has focused much effort on conducting surveillance for chronic wasting disease (CWD) in deer. CWD is one of a group of diseases called transmissible spongiform encephalopathies (TSE), or prion diseases, that are inevitably fatal to members of the deer family. CWD is closely related to, but different from, other TSE's in other species, such as scrapie in sheep.

CWD was first recognized as a disease in 1967 in captive mule deer at a wildlife research facility in Fort Collins, Colorado. The disease was first diagnosed in free-ranging elk, mule deer, and white-tailed deer in Colorado and Wyoming in 1981, 1985, and 1990, respectively. To date, CWD has been diagnosed in captive cervid facilities in Alberta, Colorado, Kansas, Montana, Minnesota, Michigan, Nebraska, New York, Oklahoma, Saskatchewan, and South Dakota, and in free-ranging cervids in Colorado, Illinois, Nebraska, New Mexico, New York, South Dakota, Saskatchewan, Utah, West Virginia, Wisconsin, and Wyoming.

In 2002, concerns about CWD entering Connecticut prompted emergency regulations to be enacted restricting the movement of live animals into the state. In 2003, the DEP began its first intensive CWD surveillance program. From 2003 to 2007, a total of 2,480 samples have been collected from hunter harvested and roadkilled deer and tested at either the University of Connecticut's Department of Pathobiology and Veterinary Science or the Wisconsin Veterinary Diagnostic Laboratory, and all tested negative for CWD. In 2004, 317 samples were collected from zone 11 and all tested negative for CWD. In 2006, 667 samples were tested, 310 from high-risk areas (zones 1, 6, and 11) along the Connecticut/New York border and 357 from the remainder of the state. Similarly, in 2007, 623 samples were tested, 269 from high-risk areas (zones 1, 6, and 11) along the Connecticut/New York border and 354 from the remainder of the state. All samples were tested at the University of Connecticut's Department of Pathobiology and Veterinary Science and all tested negative for CWD. The DEP will continue to monitor for CWD as long as funding is available.

Conclusion

Over the past 29 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 additional deer may be taken in 2 of the 12 deer management zones. Historically, permit issuance has 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. Archery permit issuance declined in 2003 when all hunters were required to complete the archery hunting safety course and the cost of an archery permit increased. However, archery permit issuance has increased close to what it was prior to 2003. 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 in these areas. Increased harvest efforts appear to have stabilized deer populations in many areas of the state.

Although hunting is the most effective and cost-efficient means of deer population control, opinions regarding use of different options for managing urban deer herds vary greatly. To better understand deer movement patterns and public opinions regarding deer populations in urban and suburban areas, the Wildlife Division initiated several long-term urban deer studies in residential communities in recent 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. To obtain copies of these reports, check on the DEP website (www.ct.gov/dep) or contact the Wildlife Division's Deer Program 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 the Wildlife Division to assist communities in developing effective deer management programs.

Appendix 1. Total Deer harvest and reported roadkilled deer by town, 2007.

Town	Archery	Shotgun/Rifle	Landowner	Muzzleloader	Cropkill	Roadkill	Other	Total
Andover	11	37	7	5	0	4	0	64
Ansonia	3	1	0	0	0	0	0	4
Ashford	14	106	31	5	8	22	0	186
Avon	2	17	0	1	3	8	0	31
Barkhamsted	9	21	6	5	0	9	0	50
Beacon Falls	1	24	1	5	3	3	1	38
Berlin	20	27	5	0	3	2	0	57
Bethany	15	30	2	8	9	2	0	66
Bethel	28	35	0	7	0	23	3	96
Bethlehem	7	20	7	2	0	6	0	42
Bloomfield	9	10	0	1	0	3	0	23
Bolton	7	19	3	1	8	15	1	54
Bozrah	7	30	14	7	3	4	2	67
Branford	6	7	0	1	7	3	0	24
Bridgeport	1	1	0	0	0	0	0	2
Bridgewater	5	34	3	5	2	7	0	56
Bristol	2	3	1	1	0	5	0	12
Brookfield	36	17	0	5	0	14	1	73
Brooklyn	10	50	16	3	3	15	1	98
Burlington	13	24	1	2	0	16	0	56
Canaan	15	48	6	6	6	9	0	90
Canterbury	10	72	25	8	4	11	0	130
Canton	5	24	4	2	1	5	0	41
Chaplin	14	76	12	6	0	7	1	116
Cheshire	6	26	1	4	22	13	1	73
Chester	5	33	6	6	0	2	1	53
Clinton	5	10	0	1	1	0	0	17
Colchester	27	109	19	12	7	64	0	238
Colebrook	5	16	3	0	0	1	0	25
Columbia	9	42	11	0	11	7	0	80
Cornwall	14	77	4	11	0	8	1	115
Coventry	21	94	8	7	5	28	1	164
Cromwell	4	3	0	0	1	5	0	13
Danbury	43	40	2	14	0	27	2	128
Darien	32	0	0	0	0	15	1	48
Deep River	4	16	4	7	4	3	0	38
Derby	1	4	0	0	0	0	0	5
Durham	21	59	2	3	0	4	0	89
East Granby	4	12	0	1	0	5	0	22
East Haddam	41	161	47	15	6	13	2	285
East Hampton	9	73	7	9	9	6	1	114
East Hartford	3	3	0	0	0	7	1	14
East Haven	5	3	0	2	0	2	1	13
East Lyme	22	61	6	10	0	20	1	120
East Windsor	4	20	6	4	2	1	0	37
Eastford	11	75	14	7	2	4	0	113

Town	Archery	Shotgun/Rifle	Landowner	Muzzleloader	Cropkill	Roadkill	Other	Total
Easton	90	75	0	1	20	29	15	230
Ellington	3	32	4	2	0	9	0	50
Enfield	9	22	4	1	0	30	0	66
Essex	6	5	0	5	0	1	7	24
Fairfield	95	13	0	1	0	19	0	128
Farmington	1	7	0	0	12	14	1	35
Franklin	13	60	8	2	0	5	0	88
Glastonbury	12	76	4	6	15	33	3	149
Goshen	5	41	12	3	4	8	1	74
Granby	3	27	5	3	1	0	0	39
Greenwich	76	1	0	0	0	15	7	99
Griswold	11	70	15	6	16	6	0	124
Groton	13	10	2	0	11	13	1	50
Guilford	35	61	3	11	0	25	3	138
Haddam	19	102	15	11	5	8	0	160
Hamden	13	17	2	1	15	3	0	51
Hampton	13	47	22	7	0	7	0	96
Hartford	0	0	0	0	0	3	0	3
Hartland	3	29	3	8	0	0	0	43
Harwinton	15	43	3	2	7	10	1	81
Hebron	16	65	9	8	0	31	0	129
Kent	11	90	8	5	3	3	1	121
Killingly	12	69	30	7	6	35	1	160
Killingworth	21	48	5	11	0	2	0	87
Lebanon	28	142	23	28	11	31	1	264
Ledyard	4	50	8	4	8	36	1	111
Lisbon	5	24	15	2	6	6	0	58
Litchfield	31	63	20	15	7	38	0	174
Lyme	31	116	10	16	18	3	0	194
Madison	19	14	3	1	0	10	0	47
Manchester	9	6	0	0	0	13	1	29
Mansfield	20	61	10	7	9	59	0	166
Marlborough	9	42	3	4	0	16	0	74
Meriden	2	7	0	1	0	6	0	16
Middlebury	9	12	2	2	0	15	1	41
Middlefield	16	21	1	0	21	4	0	63
Middletown	21	64	11	3	3	8	1	111
Milford	9	1	0	0	2	6	1	19
Monroe	27	33	3	3	1	0	0	67
Montville	13	62	8	8	0	47	1	139
Morris	4	22	4	2	5	8	2	47
Naugatuck	12	28	1	0	0	3	0	44
New Britain	0	1	0	0	0	4	0	5
New Canaan	94	0	1	0	0	40	23	158
New Fairfield	26	44	3	3	0	25	2	103
New Hartford	9	34	10	2	2	5	0	62
New Haven	1	0	0	0	0	1	1	3

Town	Archery	Shotgun/Rifle	Landowner	Muzzleloader	Cropkill	Roadkill	Other	Total
New London	2	0	0	0	0	1	0	3
New Milford	25	102	10	12	9	1	2	161
Newington	0	0	0	0	0	0	0	0
Newtown	116	132	6	13	24	21	3	315
Norfolk	3	36	4	5	0	4	0	52
North Branford	8	3	0	1	6	8	0	26
North Canaan	1	25	0	0	5	2	0	33
North Haven	6	2	0	0	0	8	0	16
North Stonington	16	109	10	10	1	5	0	151
Norwalk	4	5	0	0	0	2	1	12
Norwich	15	57	4	5	0	14	2	97
Old Lyme	36	55	2	6	0	27	0	126
Old Saybrook	6	7	1	0	0	5	0	19
Orange	8	11	1	1	0	4	1	26
Oxford	7	55	6	5	9	14	1	97
Plainfield	21	86	17	9	4	16	1	154
Plainville	0	7	0	0	0	1	0	8
Plymouth	4	22	9	0	0	4	2	41
Pomfret	47	107	11	13	23	9	0	210
Portland	4	44	7	6	6	18	0	85
Preston	7	44	11	1	5	7	0	75
Prospect	4	13	1	2	0	18	0	38
Putnam	4	28	8	1	0	21	1	63
Redding	125	89	7	15	16	28	1	281
Ridgefield	176	30	0	9	0	37	16	268
Rocky Hill	2	7	0	0	2	3	0	14
Roxbury	6	29	6	2	7	2	0	52
Salem	13	35	8	5	0	12	0	73
Salisbury	47	126	9	8	25	14	0	229
Scotland	23	44	10	9	2	11	0	99
Seymour	9	13	0	1	0	3	1	27
Sharon	25	127	13	12	6	8	1	192
Shelton	20	12	1	2	48	2	1	86
Sherman	18	52	4	5	6	14	1	100
Simsbury	3	8	1	0	0	2	0	14
Somers	5	36	4	7	0	16	1	69
South Windsor	7	20	3	0	6	8	0	44
Southbury	9	32	5	3	16	49	0	114
Southington	8	12	2	0	13	11	3	49
Sprague	7	25	8	1	4	1	0	46
Stafford	25	97	24	15	4	13	1	179
Stamford	35	15	0	1	0	1	1	53
Sterling	13	46	22	10	4	7	0	102
Stonington	43	66	7	2	2	21	4	145
Stratford	6	6	0	0	0	4	1	17
Suffield	7	39	3	1	1	1	0	52
Thomaston	1	7	5	0	4	3	0	20

Town	Archery	Shotgun/Rifle	Landowner	Muzzleloader	Cropkill	Roadkill	Other	Total
Thompson	38	104	18	5	5	23	1	194
Tolland	21	45	15	5	15	31	1	133
Torrington	6	17	7	2	2	3	2	39
Trumbull	9	0	0	0	0	26	7	42
Union	22	60	18	8	2	2	0	112
Vernon	8	10	0	1	0	24	1	44
Voluntown	41	83	13	12	11	2	0	162
Wallingford	17	19	2	2	4	15	0	59
Warren	7	46	5	1	6	4	0	69
Washington	13	55	8	8	7	7	0	98
Waterbury	3	1	0	0	0	7	0	11
Waterford	76	97	6	5	1	39	1	225
Watertown	9	29	3	3	4	2	0	50
West Hartford	0	0	0	0	0	6	0	6
West Haven	1	0	0	0	0	1	0	2
Westbrook	3	23	1	2	0	2	0	31
Weston	45	32	0	5	0	3	0	85
Westport	10	2	0	0	0	7	1	20
Wethersfield	0	1	0	1	1	1	0	4
Willington	15	48	13	4	0	21	0	101
Wilton	89	79	3	39	1	32	1	244
Winchester	8	24	6	0	0	2	0	40
Windham	3	47	9	5	0	16	1	81
Windsor	6	8	2	1	0	7	0	24
Windsor Locks	0	1	0	0	0	0	0	1
Wolcott	5	7	0	1	0	10	1	24
Woodbridge	19	5	0	0	1	27	4	56
Woodbury	8	37	13	3	4	29	1	95
Woodstock	25	116	20	13	7	16	0	197
Totals	2,924	6,446	986	725	667	1,967	167	13,882

Appendix 2. Percent of yearling bucks harvested by antler point category, 1986-2007.

Year	Sample Size	Number of Antler Points on Yearling Bucks									
		1	2	3	4	5	6	7	8	9	10
1986	373	0.8	39.7	13.7	24.4	8.8	8.3	1.6	2.1	0.3	0.3
1987	463	0.2	45.4	14.9	19.7	7.6	8.4	1.5	2.2	0.2	0.0
1988	735	2.3	54.6	11.6	15.5	7.6	5.6	0.7	1.6	0.3	0.3
1989	607	0.8	55.4	14.2	14.8	6.3	4.9	1.3	2.0	0.3	0.0
1990	485	0.4	49.3	14.8	20.4	6.2	5.8	1.0	1.0	0.6	0.4
1991	579	0.0	46.8	14.3	22.1	6.4	7.6	1.0	1.6	0.2	0.0
1992	342	0.3	38.3	13.7	23.4	9.1	10.2	2.6	2.0	0.3	0.0
1993	370	0.3	62.7	14.3	11.9	3.5	4.3	1.6	1.1	0.3	0.0
1994	328	0.6	43.9	14.3	19.8	8.8	9.1	1.5	1.5	0.3	0.0
1995	428	0.7	28.5	13.6	26.2	13.3	11.4	3.5	2.3	0.2	0.2
1996	524	0.8	47.9	13.4	19.5	8.2	7.4	1.5	1.1	0.2	0.0
1997	506	0.4	47.6	11.9	20.4	8.9	7.1	2.6	1.2	0.0	0.0
1998*											
1999	564	0.4	31.2	13.8	28.2	10.5	10.1	2.8	3.0	0.0	0.0
2000	739	0.1	34.4	12.6	24.6	11.9	11.5	3.7	1.2	0.0	0.0
2001	573	0.9	55.0	11.3	18.7	6.5	5.9	0.9	0.9	0.0	0.0
2002	535	3.7	33.1	15.1	26.0	8.0	10.7	2.8	0.6	0.0	0.0
2003	499	0.2	32.0	17.0	25.0	11.6	9.2	3.0	1.4	0.2	0.0
2004	671	1.0	41.0	15.0	22.0	7.0	9.0	2.0	2.0	0.0	0.0
2005	603	3.4	43.1	15.3	20.7	7.6	7.3	1.1	1.9	0.2	0.2
2006	528	2.3	46.2	17.2	17.8	6.8	7.2	2.1	0.4	0.0	0.0
2007	475	4.0	43.2	12.2	21.5	8.4	6.1	2.3	1.3	0.5	0.5
Average	523	1.1	43.8	14.0	21.1	8.2	8.0	2.0	1.5	0.2	0.1

*No data collected in 1998.

Appendix 3. Mean number of antler points of yearling males by zone, 1999-2007.

	1	2	3	4	4A	4B	5	6	7	8	9	10	11	12
1999	3.7	3.5	3.8	3.9			3.8	4	3.3	4.3	3.9	4	3	3.8
2000	3.7	3.7	3.6	3.5			4.1	4.2	3.6	2.9	3.6	3.1	3.2	3.2
2001	3.2	3.1	2.6	2.6			3	2.9	3.2	3.6	3	2.9	3.5	2.8
2002	4.0	4.5	3.0	4.0			5.0	3.5	3.8	3.0	3.5	4.0	4.0	4.0
2003	3.1	3.8	3.6		3.8	3.5	3.4	4	3.8	3.8	3.6	3.6	3.2	3.5
2004	3.2	3.1	3.6		3.6	3.3	3.6	3.2	3.1	3.5	3.4	3.7	3.3	3.0
2005	3.2	3.4	3.7		3.2	3.5	3.3	3.2	3.4	3.5	3.3	3.6	2.3	2.9
2006	2.8	2.7	3.1		2.7	2.9	3.0	3.1	3.4	3.9	3.4	3.5	3.3	3.2
2007	3.4	3.5	3.5		3.1	3.1	2.9	4.1	3.5	4.0	3.6	2.7	3.7	2.3

Appendix 4. Sex ratios (male:female) of deer harvested during Connecticut's regulated hunting seasons, 2005-2007.

Season	2005		2006		2007		3-year Average (2004-2006)		Males Per Female		
	Males	Females	Males	Females	Males	Females	Males	Females	2005	2006	2007
Archery											
State Land	210	198	257	242	248	206	235	210	1.1:1	1.1:1	1.2:1
Private Land	1,215	1,383	1,186	1,321	1,205	1,265	1,245	1,426	0.88:1	0.90:1	0.95:1
Subtotal	1,425	1,581	1,443	1,563	1,453	1,471	1,479	1,636	0.90:1	0.92:1	.99:1
Muzzleloader											
State Land	77	109	69	78	91	90	85	105	0.71:1	0.88:1	1.0:1
Private Land	240	355	298	252	320	224	307	366	0.68:1	1.2:1	1.4:1
Subtotal	317	464	367	330	411	314	392	471	0.68:1	1.1:1	1.3:1
Shotgun/Rifle											
State Land A	580	267	653	320	527	235	619	296	2.2:1	2.0:1	2.2:1
State Land B	197	139	111	72	112	86	134	95	1.4:1	1.5:1	1.3:1
Private Land	3,830	2,579	3,417	2,206	3,308	2,003	3,771	2,473	1.5:1	1.6:1	1.7:1
Subtotal	4,607	2,985	4,181	2,598	3,947	2,324	4,525	2,864	1.5:1	1.6:1	1.7:1
Landowner	695	556	567	392	576	410	660	500	1.3:1	1.5:1	1.4:1
Total	7,044	5,586	6,558	4,883	6,387	4,519	7,056	5,471	1.3:1	1.3:1	1.4:1

Appendix 5. Deer harvest on state Deer Lottery Hunting Areas (DLHA), 2007.

DLHA	Shotgun	Muzzleloader	Archery	Total
1	77	5	12	95
2	63	4	0	69
3	3	0	1	7
4	142	9	9	164
5	42	4	6	57
6	138	3	6	153
7	32	2	2	43
8	3	4	5	20
9	3	10	14	36
10	32	23	33	98
11	54	9	15	88
12	142	0	1	155
13	41	8	7	69
14	86	6	2	108
15	279	3	10	307
16	68	12	18	114
17	4	8	21	50
18	77	13	32	140
19	6	1	10	36
20	92	6	10	128
22	168	1	11	202
23	73	16	55	167
24	50	7	10	91
25	34	1	1	61
26	122	2	0	150
27	12	3	1	43
51	50	0	0	104
52	16	0	0	72
53	75	1	6	135
54	12	0	2	68
56	21	0	30	107
57	64	1	0	124
Total	2,081	162	330	3,253

Appendix 6. Archery harvest on state areas, 2007.

Shaded areas = areas open to bow hunting only

Name Of Area	Total	F	M
Assekonk Swamp WMA	1	1	0
Babcock Pond WMA	8	4	4
Barn Island WMA	9	2	7
Bartlett Brook WMA	1	0	1
Bear Hill WMA	2	1	1
Beaver Brook State Park	1	1	0
Bennets Pond SP	13	8	5
BHC Saugatuck Reservoir	1	1	
Bishops Swamp WMA	4	2	2
Black Rock Lake	3	2	1
Bloomfield Flood Control Area	4	1	3
Camp Columbia State Forest	1		1
Cedar Swamp WMA	2	2	0
Centennial Watershed SF	30	13	17
Cockaponset State Forest	33	15	18
Cromwell Meadows WMA	3	0	3
Durham Meadows WMA	1	1	0
East Swamp	4	3	1
East Twin Lakes Water Access	1	0	1
Eight Mile River WMA	1	0	1
Franklin Swamp WMA	1	0	1
Goshen WMA	1	0	1
Great Swamp Flood Control Area	1	0	1
Harkness/Verkades	5	3	2
Higganum Meadows WMA	4	2	2
Higganum Reservoir	1	1	0
Housatonic State Forest	10	5	5
Kollar WMA	4	1	3
Lebanon Coop	3	1	2
Mad River Dam Flood Control Area	3	2	1
Mansfield Hollow Lake	7	2	5
Mansfield State Leased	2	2	0
Mattatuck State Forest	4	0	4
MCD Greenwoods	2	1	1
Meshomasic State Forest	14	4	10
Mohegan State Forest	3	2	1
Mount Riga State Park	4	2	2
Nassahegon State Forest	3	1	2
Natchaug State Forest	32	10	22
Nathan Hale State Forest	4	1	3
Naugatuck State Forest	14	8	6
Nehantic State Forest	6	5	1
Nepaug State Forest	3	0	3
Newgate WMA	4	2	2
Nipmuck State Forest	21	13	8
NU-Maromas Coop WMA	6	3	3

Name Of Area	Total	F	M
NU-Skiff Mtn. Coop WMA	2	1	1
Nye Holman State Forest	2	1	1
Pachaug State Forest	55	25	30
Paugnut State Forest	1	0	1
Paugussett State Forest	5	2	3
Peoples State Forest	5	2	3
Pomeroy State Park	4	0	4
Pootatuck State Forest	2	0	2
Quaddick State Forest	4	3	1
Quinebaug River WMA	2	1	1
Quinnipiac River State Park	5	0	5
Robbins Swamp WMA	2	1	1
Roraback WMA	12	8	4
Rose Hill WMA	1	1	0
Ross Marsh WMA	1	0	1
Ross Pond State Park	1	0	1
Salmon River Cove & Haddam Neck	14	3	11
Salmon River State Forest	1	1	0
Scantic River State Park	4	4	0
Selden Island State Park	2	1	1
Shenipsit State Forest	18	6	12
Sunnybrook SP	2	2	0
Talbot WMA	5	5	0
Topsmead State Forest	2	2	0
Tunxis State Forest	4	1	3
Twin Lake	1	0	1
Wangunk Meadows	1	1	0
West Thompson Dam	6	4	2
Wooster Mountain State Park	3	2	1
Zemko Pond WMA	2	1	1
Total	454	206	248

Appendix 7. Deer harvested using crop damage permits in Connecticut's deer management zones, 1996-2007.

Zone	Year											
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
1	213	133	126	160	159	121	103	106	98	82	64	58
2	4	13	9	20	16	7	10	16	24	18	18	17
3	42	32	76	52	60	59	44	61	109	105	71	49
4	72	45	52	34	43	41	40					
4A								17	9	25	14	21
4B								35	46	38	32	33
5	128	55	26	48	87	75	46	71	124	129	95	68
6	86	83	39	146	112	71	73	77	56	82	77	54
7	45	34	54	78	44	49	60	78	90	62	69	89
8	39	65	26	42	60	39	47	42	53	37	47	33
9	66	70	33	64	59	38	27	42	43	53	48	30
10	41	60	31	31	54	48	51	45	36	50	66	51
11	65	92	71	113	122	110	104	164	159	114	109	116
12	ND	66*	49	50	52	31	28	72	99	47	45	48
Total	801	748	592	838	868	689	633	826	946	842	755	667

ND=No data collected. Zone 12 was not delineated between 1994 and 1996.

* Calculated after establishment of zone 12; includes deer from zones 7, 8, 9, 10.

Appendix 8. Non-hunting deer mortality reported in Connecticut, 1996-2007.

Cause of Death	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Road	2,875	2,612	2,263	2,674	3,101	3,038	2,434	2,778	2,620	2,667	2,029	1,967
Dog	4	2	2	6	9	12	6	11	2	3	3	4
Unknown	140	173	200	179	175	190	140	217	183	183	117	162
Illegal	1	1	5	10	14	21	13	5	6	2	3	1
Crop damage	801	748	592	838	868	689	633	831	946	842	755	667
Total	3,821	3,536	3,062	3,707	4,167	3,950	3,226	3,842	3,757	3,697	2,907	2,801
Non-hunting:												
Harvest	1:3.2	1:3.4	1:3.3	1:3.0	1:3.2	1:3.0	1:3.7	1:3.0	1:3.6	1:3.4	1:3.4	1:3.9
% Mortality*	24.6	23.6	23.7	25.7	24.4	25.7	19.6	23.3	21.7	22.6	19.3	20.2
% of Harvest	31.7	29.7	30.2	33.6	31.3	33.1	26.9	30.3	27.7	29.2	29.2	25.3

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

Appendix 9. Frequency of deer road kills in each of Connecticut's deer management zones, a 5-year comparison, 2003-2007.

Zone	Five-year					Total	Zonal % (sq. miles)	Habitat Roadkills/Sq. Mile			
	2003	2004	2005	2006	2007			2005	2006	2007	
1	136	91	119	64	86	496	4.1	344.1	0.35	0.19	0.25
2	62	75	97	58	63	355	2.9	409.85	0.24	0.14	0.15
3	297	238	230	207	173	1,145	9.5	272.1	0.85	0.76	0.64
4A	78	110	135	83	92	498	4.1	213.1	0.63	0.39	0.43
4B	150	137	196	128	137	748	6.2	120.0	1.63	1.07	1.14
5	269	270	330	240	220	1,329	11.0	444.9	0.74	0.54	0.49
6	120	127	106	93	111	557	4.6	259.1	0.41	0.36	0.43
7	295	285	261	202	180	1,223	10.1	370.9	0.70	0.54	0.49
8	53	53	54	35	32	227	1.9	167.6	0.32	0.21	0.19
9	247	265	282	199	211	1,204	10.0	277.8	1.02	0.72	0.76
10	149	122	117	93	82	563	4.7	243.6	0.48	0.38	0.34
11	592	519	448	433	384	2,376	19.7	290.76	1.54	1.49	1.32
12	330	328	292	191	196	1,337	11.1	356.4	0.82	0.54	0.55
Total	2,778	2,620	2,667	2,026	1,967	12,058	100.0	3,770.2	0.71*	0.54*	0.52*

*These numbers are averages, not totals.