

2015-16
Rhode
Island
White-
Tailed
Deer
Status
Report

June 23

2016

This report contains a summary of the Rhode Island 2015-16 deer hunting season as well as a summary of the biological information gathered, including herd health and disease surveillance.

RI Department
of
Environmental
Management -
Division of Fish
and Wildlife



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2015-16 Rhode Island White-Tailed Deer Status Report



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Introduction

The white-tailed deer has proven to be a resilient wildlife species that has benefitted from successful wildlife management programs that manage and improve habitat and regulate harvest. Today, white-tailed deer and deer hunting are more popular than ever and hunting for this animal is the best it has ever been in Rhode Island. While these changes are great news for hunters, over population of deer in some areas of the state have caused concerns to citizens who sustain nuisance agricultural, property, or ecological damage or experience public health and safety issues including auto accidents and tick borne disease. The DEM Division of Fish and Wildlife (DFW) has implemented programs and employed strategies to manage the deer for hunting and traditional uses and address ecological and health and safety concerns where these issues occur. The primary goals of the deer management strategy are: 1) To provide a sustainable quality deer management program that maintains deer populations that are healthy and ecologically sound and 2) to maintain quality hunting programs for the deer recognizing the strong hunting tradition in Rhode Island and recognizing the important role hunters play in population management. Central to the management process, DFW employs regulations for season length, bag limits, allowable equipment and methods to improve hunters' ability to take more deer, particularly with a focus on antlerless deer. These strategies included earlier opening dates, offering free replacement permits for hunters that harvest antlerless deer, adding more hunting days in overpopulated zones, allowance of crossbow use during the archery portion of the season and liberalized antlerless bag limits.

Regulations adopted in 2014 sought to reduce the antlered deer bag limit, reducing pressure on yearling bucks and putting more emphasis on the harvest of antlerless deer. While some success has been achieved, deer populations are a dynamic resource and management must respond accordingly to changes observed. In the 2015 season, overall deer mortality via hunting, auto strikes and nuisance permits was down by 7% overall, resulting in fewer nuisance impacts. The population of deer in RI is estimated at 18,000, and for effective management, requires consistent monitoring and adaptive management. Working with local communities and large private property owners, the division has helped establish archery hunting as a reliable method for reducing local deer populations. Improving hunter access and employing urban suburban deer management programs can help further. These collaborative efforts between hunters, local communities and the DFW will be vital in the future as deer management evolves.

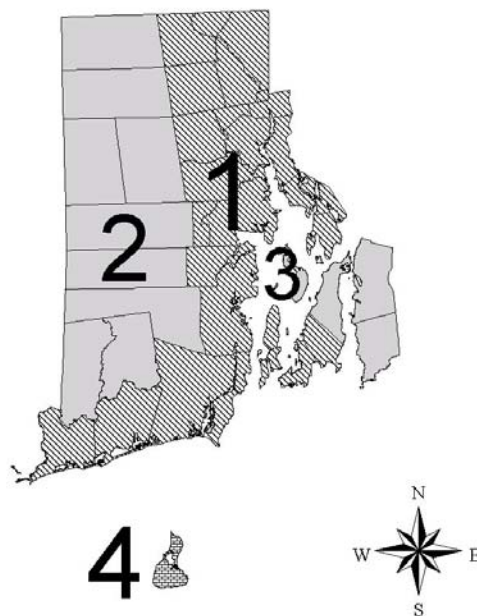
In the 2015-16 hunting season, RI hunters took 1,107 antlerless deer representing 59% of the total harvest statewide. Hunting is the most effective method for deer population management and fulfills a traditional and sustainable use of natural resources by hunters seeking to harvest meat and recreation. Hunters, through purchase of licenses and equipment, are also largely responsible for funding wildlife conservation and deer management. In light of these management successes, in parts of the state the deer herd exceeds desired population levels.

Aerial surveys reveal that deer densities in parts of deer management zone 1 are twice the desired population level and in Zone 3 (Prudence Island) and Zone 4 (Block Island) as much as two to five times desired population levels. Public awareness and concerns about deer and associated problems has increased. There is as a result growing demand for innovative measures to manage deer herds by using managed hunting programs to their fullest extent.

Harvest Summary

During the 2015-2016 deer hunting season (table 1) by all methods, Rhode Island hunters harvested 1,883 deer, compared to 2,182 in the 2014-15 season. The overall harvest declined by a total of 14% and declined in all management zones except zone 1 where harvest increased by 15%. Archers harvested 644 deer statewide and recorded a 20% success rate. Gun hunters harvested 1,239 deer and registered a 23% success rate. Hunters harvested 667 deer in management zone 1 (0.9 bucks per doe) and 939 deer in management zone 2 (1.3 bucks per doe) (table 2). The impact of crossbow as an effective tool for managing deer in suburban areas is proving effective for increasing antlerless harvests. Crossbow harvest (196) was 29% of the total archery take. Harvest by all methods declined by 14%, but the shotgun harvest declined by the largest amount at 21%. Harvest per square mile of forest habitat was 2.3 per mi² in zone 1 (7 of 26 communities had zero harvest) and 2.6 deer harvested per mi² of forest habitat in zone 2 (table 3). By comparison, the auto strike index increased slightly in both zones, as the index was 2.8 auto strikes per mi² in zone 1 (+8%) and 1.0 per mi² in zone 2 (+11%). Harvest by location was as follows: 85% of the harvest came from zones 1 and 2, 1% from Prudence-Patience Islands (zone 3) and 14% from Block Island (zone 4) (table 4).

RI Deer Management Units



2015-2016 Deer Hunting Season						
Table 1. R.I. Reported Deer Harvest						
Season Type	2015-16	2014-15	%Change	Males	Females	% TotalHarvest
Archery Zone 1 & 2	594	628	-5%	266	328	32%
Muzzleloader Zone 1 & 2	820	905	-9%	509	311	44%
Shotgun Zone 1 & 2	192	241	-20%	78	114	10%
Archery Zone 3 (Prudence Patience)	19	21	-10%	10	9	1%
Archery Zone 4 (Block Island)	31	97	-68%	12	19	2%
Muzzleloader Zone 4 (Block Island)	3	7	-57%	3	0	0%
Shotgun Zone 4 (Block Island)	224	283	-21%	36	188	12%
TOTALS	1883	2182	-14%	914	969	100%
			Harvest Males per Female	0.94		

Table 2. Deer Harvested by Management Zone in RI									
	2015-2016			2014-2015			2013-2014		
	Male	Female	Male to Female ratio	Male	Female	Male to Female ratio	Male	Female	Male to Female ratio
Zone 1	240	267	0.9 to 1	272	306	0.9 to 1	317	320	0.9 to 1
Zone 2	612	487	1.3 to 1	681	515	1.3 to 1	747	712	1.1 to 1
Zone 3 (PI)	10	9	1.1 to 1	11	10	1.1 to 1	19	29	0.7 to 1
Zone 4 (BI)	51	207	0.3 to 1	70	317	0.2 to 1	61	250	0.2 to 1

Table 3. 2015-2016 Town Deer Statistics												2015	2014	%Change
Zone	# of Towns	# Towns w/ Zero harvest	2015 F-sqmi	2015 T-sqmi	2015 Harvest	2015 H/FSqMi	2014 Harvest	2014 H/sqmi	2015 RoadK	2014 RoadK	2015 RK/FSq Mi	2014 RK/FSq Mi		
	Zone 1	26	7	223.7	511.3	507	2.3	567	1.8	664	602	2.8	2.6	8%
Zone 2	12	0	414.2	553.2	1099	2.6	1206	2.9	402	386	1.0	0.9	11%	
Special Deer Management Zones and Goals														
Zone 1 (urban-coastal)			Goal: reduce RK deer per sq mile to <1.5											
Zone 2 (rural)			Goal: reduce RK deer per sq mile to <1.0											

Table 4. Harvest by Location	2015-16	% of Harvest
Zones 1, 2 - Mainland	1606	85%
Zone 3 - Prudence Patience	19	1%
Zone 4 - Block Island	258	14%
Totals	1883	100%

Permit Sales and Hunter Success

During the 2015-16 deer season 18,401 total deer permits were sold, a 7% decrease in the number of deer permits sold from the previous year (table 5). The overall hunter success rate combining all methods was 22%. Individual success rates by method were as follows: for archery 20% success, for muzzleloader 26% success and for shotgun 20%. Further analysis of hunter take provides interesting insight into the effort of most hunters relative to multiple deer harvests. Most hunters (90%) harvest one deer during the season, 4% took two deer and only a small percentage (6%) of all hunters taking more animals (table 6.). The All Outdoors (AO) –

Sportsmen’s package maintains high popularity, allowing resident hunters to purchase one book of deer tags for use in the mainland zones 1 and 2, in any combination or method. Sale of AO permits is limited to 350 permits annually, allowing resident hunters 8 permits to take deer (2 antlered deer and 6 antlerless deer) for the price of six permits. Hunters that purchase AO permits tend to harvest multiple deer and the analysis found that AO hunters harvest approximately 30% of the total mainland deer harvest, thus contributing significantly to deer management efforts in the state (table 7).

Table 5. Hunter Success Rates				
	2015-16 Harvest	Estimated # Hunters	Success rate(1)	Permits sold(2)
Archery	644	3150	20%	6364
Muzzleloader	823	3192	26%	6877
Shotgun	416	2112	20%	4807
All Outdoors				350
Replacement				3
Totals	1883	8454	22%	18401
(1)success rate equals the percentage of hunters who harvest at least one deer by that method				
(2) Permits sold based on actual sales in 2015-16 season				

Table 6. How Many Deer Did Hunters Take?	
# of Deer	Percent of hunters taking this many
1	90.0%
2	4.0%
3	2.0%
4	2.0%
5	0.5%
6	1.0%
7	0.5%
8	0.1%
	100%

Table 7. Deer Harvested by All Outdoors Permit holders?	
# of Deer	Percent of hunters taking this many
1	33.0%
2	26.0%
3	14.0%
4	11.0%
5	4.0%
6	8.0%
7	3.0%
8	0.8%
	100%
* 350 All Outdoors hunting permits issued and these permit holders harvested 625 deer or 30% of the total mainland deer harvest.	

Herd Health

Measuring antler beam diameters (1 inch above the base) of yearling males and the trends in deer dressed weights are both measures of assessing deer herd health. Hog dressed weight (average) of mainland yearling deer decreased by 1.7% for males and increased by 1.1% for females (table 8). Deer from Block Island and Prudence Island generally have lighter body weights than mainland deer, the primary reason being lower quality habitats as a result of an overpopulation of deer on these islands. In a very small sample taken from deer harvested in winter 2016 on Block Island, average hog weight of male fawns (39.2 pounds) was 34% lighter than the average hog weight of mainland male fawns, and average hog weight of adult females deer (96.9 pounds) was 5% lighter than average mainland hog weights, indicating severe nutritional deficiencies. Even so, these weights represent minor improvements over the prior year.

Mean antler beam diameter of yearling deer is another indicator of herd health. Large antler beam diameters (20.0 mm+) indicate excellent health while small beam diameters (<15.0 mm) indicate poor health. Antler beam measurements in the 17 to 18 mm range indicate good body condition. Data collected from yearling males over the last several years indicate that overall, body condition is good (table 9).

Table 8. Average Hog Dressed Weights Mainland Deer										
	Male (lbs)					Female (lbs)				
	2015	2014	2013	% change 2014 to 2015	% change 3-year average	2015	2014	2013	% change 2014 to 2015	% change 3-year average
Fawn	59.7	58.6	58.9	1.9%	1.0%	56.3	53.8	51.4	4.6%	4.6%
Yearling	102.0	103.8	102.5	-1.7%	-0.8%	89.6	88.6	87.3	1.1%	1.2%
Adult	139.5	135.0	144.9	3.3%	-0.2%	102.1	104.0	98.9	-1.8%	0.4%

Table 9. Average antler beam diameter (mm) for yearling males							
2015	2014	2013	2012	2011	2010	2009	2008
16.3	15.6	15.7	15.3	17.2	17	16.8	17.3

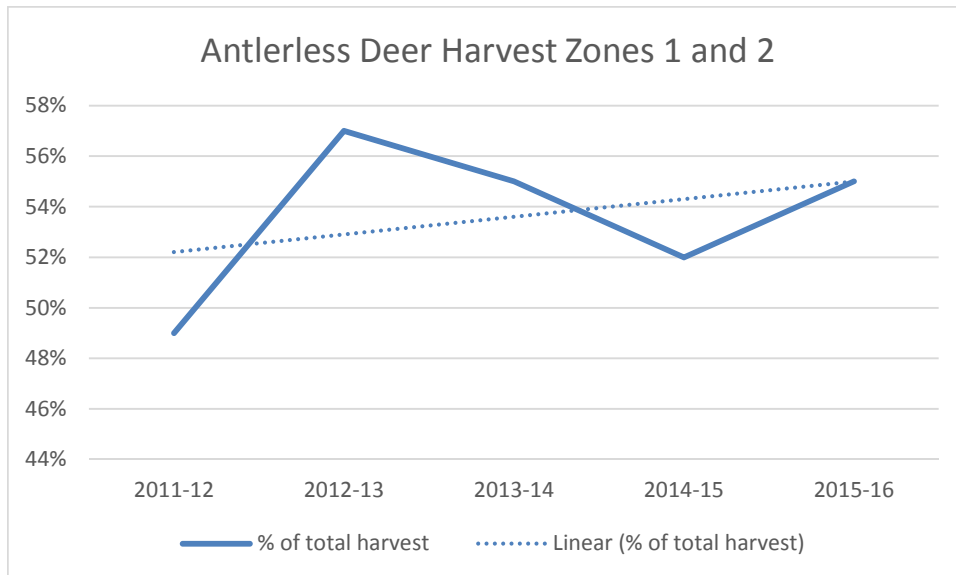
Antlerless Harvest

Hunters harvested 1,107 antlerless deer statewide in the 2015-16 hunting season representing 59% of our total harvest for all 4 management zones. Analysis of mainland deer (Zone 1, 2) found that 210 (24%) of the 891 antlerless deer taken in 2015-16 were fawns, compared to 16% in 2014-15 (table 10). A decline in the numbers of fawns in the harvest may suggest that predation or other limiting factors may be impacting fawns during the vulnerable period of June and July just after they are born. Males made up 66% of the fawns taken. The fawn to adult harvest ratio (F: A ratio) is reflective of the recruitment rate and in 2015-16 it was 0.3 fawns per adult doe. A healthy adult doe will have two fawns, so the recruitment rate is that portion

surviving to the hunting season. Low recruitment rates and poor survival can result from high predation, poor habitat quality, other limiting factors or any combination of events; however, additional research is necessary to determine the exact influence of these factors on fawn survival. Increasing the antlerless deer harvest in the state was deemed an essential element of the deer management strategy to reduce property damage, complaints and reduce ecological damage to forests (figure 1).

Table 10. Antlerless Harvest and Fawn / Adult Ratios of RI Deer Harvest for Zones 1 and 2 (Mainland)					
	2015-16	2014-15	2013-14	2012-13	2011-12
# Fawns	210	144	328	268	385
# Adult does	681	771	859	698	840
F:A ratio	0.3 to 1	0.2 to 1	0.4 to 1	0.4 to 1	0.5 to 1
% Male fawns	66%	65%	53%	55%	55%
antlerless harvest	891	915	1187	1154	1066
% of total harvest	55%	52%	55%	57%	49%
Total harvest	1609	1774	2141	2032	2188

Figure 1



Age Structure

Beginning with the 2011-12 hunting season, the Division began using a Pre-paid postage Kill Report Card for hunters to report deer harvest. Designed to make harvest reporting more efficient, it is vitally important that all hunters report their harvest so that accurate statistics on hunting season can be generated. Physically checking and collecting biological information (weight, age, antler beam diameters, disease testing etc.) on a sample of deer harvested is still required to provide accurate information on herd health. During the first four days of the

muzzleloader season, all hunters are required to physically check their harvested deer at a biological check. These bio-checked deer provide DEM biologists with the most important health indicators needed to properly manage deer, including dressed weights, age, and disease parameters (CWD surveillance).

Age of deer is one component that DEM biologists measure at the check stations and is an important aspect in deer management that many deer hunters are interested in. In order to reach mature status, a good proportion of the young deer must survive as yearlings and young adults. A decline in the proportion of older mature bucks harvested during the hunting season compared with an increase in the number of yearling bucks taken is one cause of concern. We feel that it is important to maintain a balanced age structure in the harvest, including a high percentage of mature deer, providing hunters with both venison and trophy quality bucks. Harvesting too many yearling bucks over time can diminish the trophy quality of mature deer as these young deer do not have the opportunity to reach maturity or pass on their genes. Protecting a significant portion of the yearling bucks allows them time to mature and breed. The deer harvest has shown a gradually increasing trend in the harvest of yearling bucks, which has stabilized at around 30% of the males harvested (figure 2). The harvest trend for adult deer (2.5 years old) and older mature bucks (≥ 3.5 years old) appears to have stabilized at around 30% of the males harvested (figure 3). The statewide bag limit of antlered deer was reduced from 3 antlered deer per season to 2 antlered deer per season in the 2014 hunting season to help reduce this impact on yearling bucks. Total number of antlered deer harvested declined 28% since 2012 (figure 4) and it remains to be seen if our deer herd can sustain this level of hunter harvest.

Figure 2

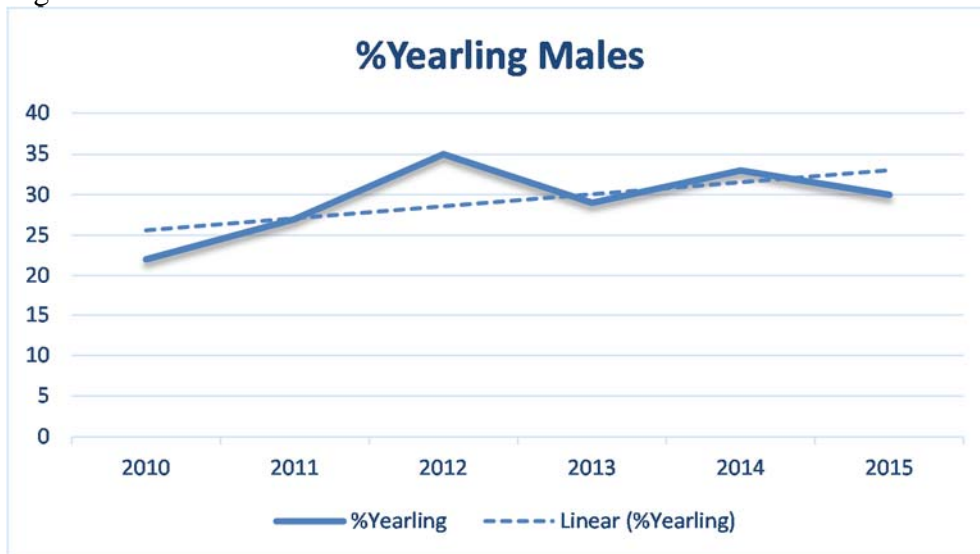


Figure 3

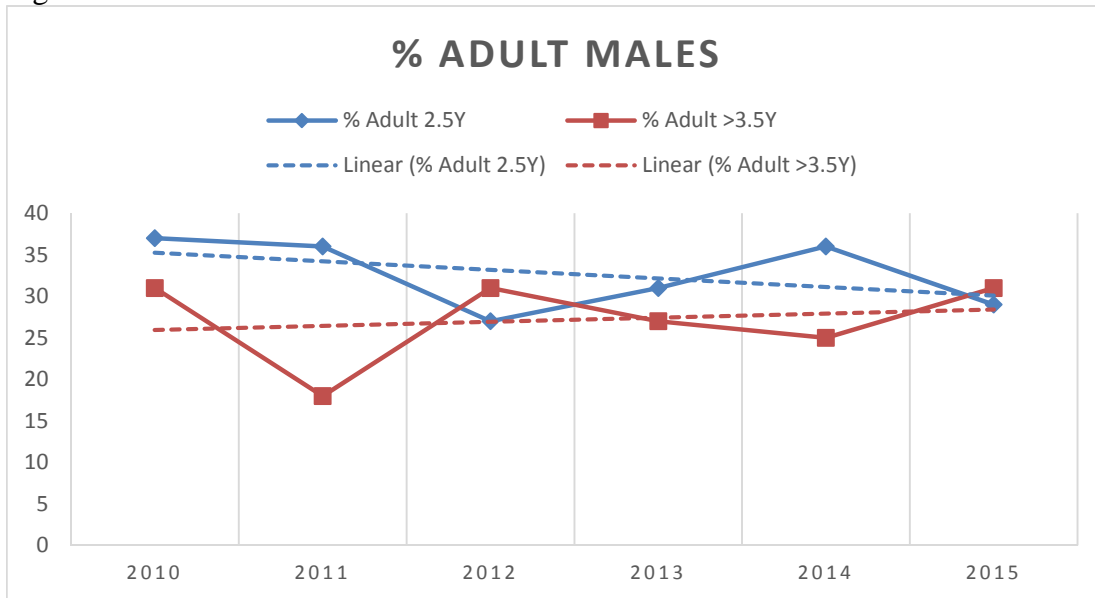
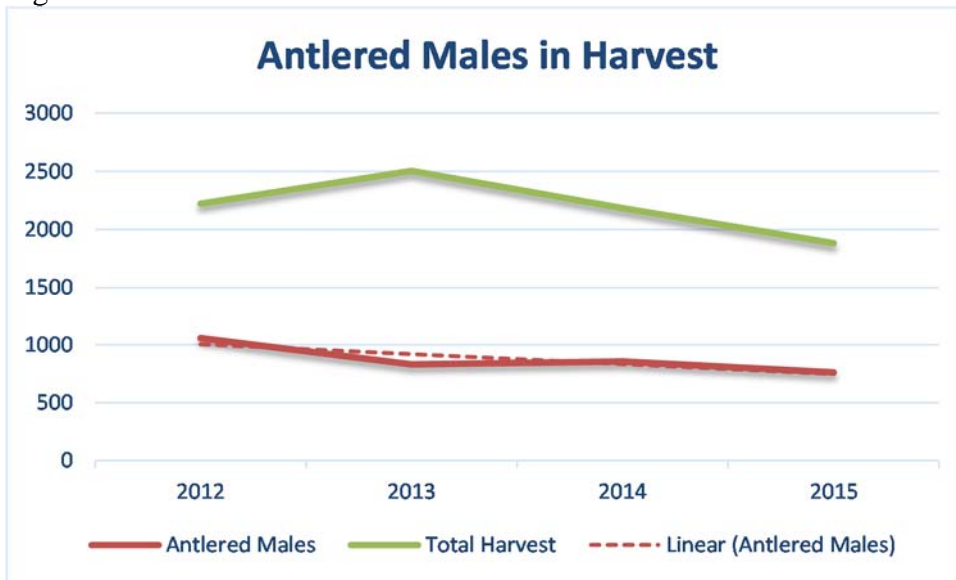


Figure 4



Chronic Wasting Disease

Rhode Island has annually monitored its deer herd for Chronic Wasting Disease (CWD) since 2002 by collecting and testing 2,621 deer samples from hunters' harvest and road kills (table 8). No positive samples have ever been recorded and Rhode Island is considered a CWD free state. Chronic Wasting Disease (CWD) is a serious potential threat to the health of the deer herd in Rhode Island. We annually conduct targeted and random surveillance for this disease using hunter harvested samples, collected at check stations and road killed deer. It is imperative that we continue monitoring to ensure rapid response and notification should CWD be discovered.

We plan to continue testing our deer in accordance with regional protocols and with hunters' cooperation. All samples (192) collected during the 2015 deer season tested negative for any signs of the disease.

	Targeted	Random	Suspects	Total Collected	Total Tested	No. Positive
2002	160	0	0	160	160	0
2003	41	7	0	48	44	0
2004	160	8	0	168	152	0
2005	183	27	0	210	190	0
2006	158	20	0	178	178	0
2007	180	13	0	193	186	0
2008	196	22	4	222	222	0
2009	150	31	0	181	181	0
2010	225	5	0	230	230	0
2011	192	6	0	198	198	0
2012	282	1	1	282	279	0
2013	177	0	1	178	178	0
2014	231	0	0	231	231	0
2015	192	0	0	192	192	0
				Total tested	2621	

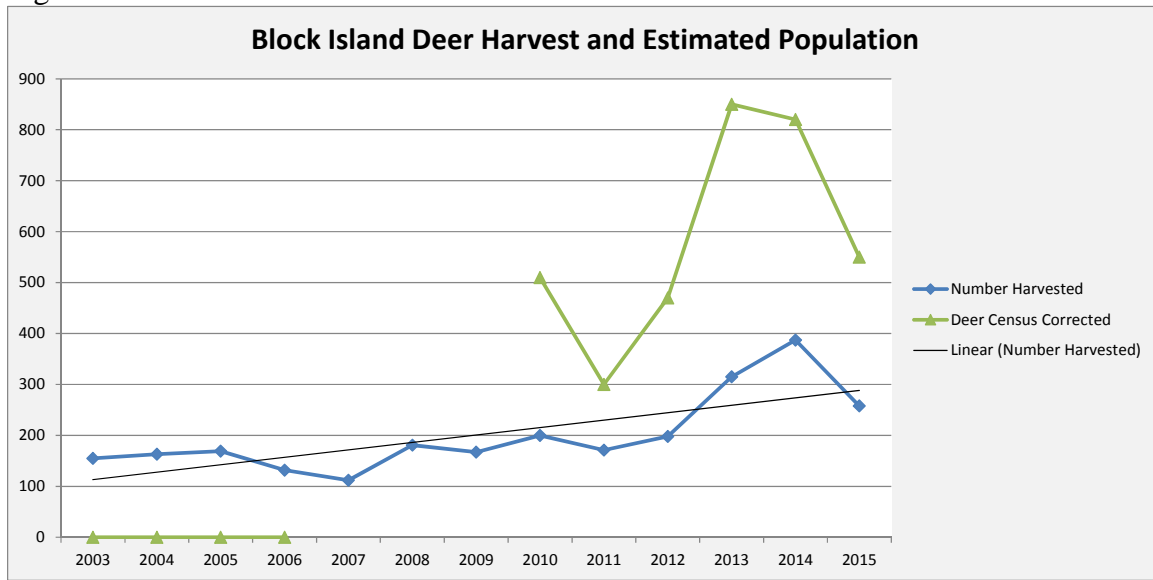
Private Land, Wildlife Management Areas and Cooperative Hunting Areas

White-tailed deer are widespread in Rhode Island and were harvested in 31 of 39 towns and cities (table 9). Private land access in Rhode Island is by written permission only; however, many landowners do allow hunting access if permission is requested. In summary, it is the large rural western communities that comprise Zone 2 (Burrillville, Foster, Glocester, Scituate, Coventry, Exeter, West Greenwich and Hopkinton) that harvest the most deer. Several suburban communities (7) with significant deer populations including Barrington, Central Falls, Warren, N. Providence, Newport, Providence and West Warwick recorded no harvest, but had a significant numbers of auto strikes. The city of Warwick registered two deer for the second year in a row. All of these communities could benefit from suburban deer management programs to encourage hunting; however, this will take considerable effort between state and local government to promote and recruit landowners. Even with this effort, some communities will never be capable of hunting, particularly Central Falls and Providence. The town of Lincoln was concerned about too many deer and in 2014 revised local ordinances to permit archery hunting on private land for the first time since mid-1990. The Town of New Shoreham (Block Island) registered 258 deer, which was the highest number harvested of all towns (figure 5). The Town passed an ordinance in 2014 which allowed local residents only to collect a \$150 bounty payment for each deer harvested, funded by the town and resident groups on the island. The program in its second year has had a modest influence on the deer herd which is still estimated to number over 500 animals.

Table 9. RI Deer Harvest by Town and City

Town	Archery	Muzzleloader	Shotgun	Total
Bristol	12	3	0	15
Burrillville	30	81	16	127
Charlestown	19	39	13	71
Coventry	27	53	15	95
Cranston	9	3	2	14
Cumberland	4	4	1	9
East Greenwich	10	8	3	21
East Providence	3	0	0	3
Exeter	43	78	15	136
Foster	27	68	16	111
Glocester	23	81	11	115
Hopkinton	21	40	10	71
Jamestown	30	8	2	40
Johnston	8	2	1	11
Lincoln	19	0	0	19
Little Compton	21	17	4	42
Middletown	8	0	0	8
Narragansett	12	4	1	17
New Shoreham	31	3	224	258
North Kingstown	54	33	10	97
North Smithfield	15	13	6	34
Pawtucket	0	0	0	0
Portsmouth	30	0	6	36
Richmond	18	44	9	71
Scituate	34	103	27	164
Smithfield	12	8	2	22
South Kingstown	56	56	12	124
Tiverton	27	10	3	40
Warwick	2	0	0	2
West Greenwich	20	50	11	81
West Warwick	0	0	0	0
Westerly	5	16	1	22
Woonsocket	2	0	0	2
Unreported				5
				1883

Figure 5



Cooperative hunting areas are managed for various private landowners participating in this program (table 10). Approximately 11,229 acres of private lands are enrolled and open in the DEM co-op hunting program and 598 permits to hunt were issued. Most participating private landowners have had long term agreements with the Division’s co-op hunting program. In its sixth year, the co-op with the Providence Water Supply Scituate Reservoir was expanded to 7,776 acres. The expanded PWS co-op resulted in 113 deer harvested, a 26% hunter success rate. The property managers at PWS have recognized the importance of managing deer abundance to the health of the watershed, the primary drinking water supply for the entire state, and are committed to a continuation of this hunting program. The Nature Conservancy of Rhode Island has also committed to opening many of its preserves to co-operative deer hunting in a conscious effort to manage the deer herd for the benefit of the ecology of the pristine landscapes that they own and manage in our state. These cooperative hunting efforts benefit the sportsmen, the landowners and the state’s ecology in a very important wildlife management program.

Table 10. Harvest for RI Cooperative Deer Hunting Areas 2015-2016

Hunting Cooperative	Property Acreage	#Permits Issued	# Days	# Hours	#DoesHarv	#BuckHarv	Total	Method
Northwest Cooperative	837	95	39	177	1	0	1	bow/gun
Providence Water Co-op	7,776	423	2,423	10,136	69	44	113	bow/gun
TNC Cooperatives	1,816	No permit req.	na	na	5	6	11	bow/gun
Burlingame NorthCamp	800	80	24	108	1	0	1	bow/gun
Totals	11,229	598	2,486	10,421	76	50	126	

Rhode Island hunters also enjoyed abundant public land hunting opportunities on over 48,000 acres of state land found on 27 wildlife management areas. The most popular hunting locations and some of the best recommendations for deer hunting on State owned lands are Arcadia WMA, Big River WMA, George Washington MA, Nicholas Farm WMA and Black Hut WMA. State management areas accounted for 312 deer or 17% of the total deer harvest in 2015-16 (table 11).

WMA	Archery	Muzzleloader	Shotgun	Total
Arcadia	14	42	7	63
Big River	10	22	7	39
Black Farm	0	1	0	1
Black Hut	5	13	4	22
Blue Pond	0	0	0	0
Buck Hill	2	4	0	6
Burlingame	2	6	3	11
Carolina	4	15	1	20
Cocumcussoc Park	5	5	0	10
Durfee Hill	1	11	2	14
Eight Rod	1	2	0	3
Galilee Bird Sanctuary	1	0	0	1
South Shore	5	6	0	11
George Washington	1	12	5	18
Great Swamp	1	13	0	14
Killingly	1	2	1	4
Nicholas Farm	3	14	4	21
Nokewa	0	0	0	0
Rockville	1	0	0	1
Rodmans Hollow	0	0	13	13
Simmons Mill Pond	7	2	1	10
Snake Den	2	0	0	2
Tillinghast	2	6	2	10
Washington Grove	0	1	0	1
Wickaboxet	0	3	0	3
Woody Hill	2	6	1	9
JL Curran	4	0	1	5
Totals	74	186	52	312

Non Hunting deer mortality

This category of mortality includes all other forms of mortality for deer other than hunting. Hunting is the primary cause of mortality in the RI deer herd; however, significant deer mortality occurs as a result of many other factors. Auto strikes (table 12) are a major factor in adult and juvenile deer and annually, account for up to half of the total deer mortality by hunting. In 2015, the number of deer auto strikes was 58% of the total reported hunting harvest, and auto strikes increased by 9% from the previous year. Auto strikes occur in Zone 1 (suburban coastal zone) at nearly twice the rate as they do in Zone 2. The deer management strategy strives to reduce auto strikes by increasing hunter harvest in restricted areas with too many deer. Deer damage permits issued to 24 agricultural producers and state airports accounted for 28 additional deer mortalities. Predation is the most significant cause of natural mortality with coyotes being the primary natural predator of deer, particularly on fawns during the first two months following

birth. Total mortality for deer in Rhode Island by way of hunting, auto-strikes and damage permits was 2,996 deer or 7% fewer than in 2014.

Town/City	2015 Auto Strikes	2014 Auto Strikes	2013 Auto Strikes	% Change 2014-2015
Barrington	5	5	5	0%
Bristol	21	11	14	91%
Burrillville	34	26	53	31%
Central Falls	0	0	0	0%
Charlestown	34	28	35	21%
Coventry	52	57	72	-9%
Cranston	31	21	46	48%
Cumberland	45	34	48	32%
E. Greenwich	28	35	54	-20%
E. Providence	14	12	19	17%
Exeter	29	22	41	32%
Foster	47	40	54	18%
Glocester	50	36	52	39%
Hopkinton	27	25	45	8%
Jamestown	20	21	26	-5%
Johnston	16	30	35	-47%
Lincoln	67	50	78	34%
Little Compton	10	2	17	400%
Middletown	8	2	8	300%
Narragansett	47	30	37	57%
New Shoreham	na	3	na	na
North Kingstown	82	70	113	17%
North Providence	10	10	5	0%
North Smithfield	35	37	52	-5%
Newport	1	3	0	-67%
Pawtucket	4	1	1	300%
Portsmouth	29	11	19	164%
Providence	9	1	7	800%
Richmond	33	26	35	27%
Scituate	53	70	95	-24%
Smithfield	25	26	41	-4%
South Kingstown	71	71	79	0%
Tiverton	29	43	51	-33%
Warren	2	3	7	-33%
Warwick	46	59	76	-22%
W. Greenwich	28	28	55	0%
W. Warwick	10	7	10	43%
Westerly	28	32	35	-13%
Woonsocket	5	3	6	67%
Unknown	0	1	12	-100%
Totals	1085	992	1438	9%

