

Morris County Park Commission

White-tailed Deer Management Program
Annual Report 2018-19

Prepared by the Morris County Park Commission's Natural Resources Unit:

Kelli Kovacevic, Superintendent of Natural Resources

Matt Trump, Assistant Superintendent of Natural Resources

Table of Contents

List of Tables	iii
List of Figures	iii
List of Appendices	iii
Executive Summary.....	1
I. Background	4
II. History of the White-tailed Deer Management Program.....	4
III. 2018/19 Program Overview.....	6
A. Hunt Schedule and Hunting Areas	6
B. Hunter Registration and Access Permits.....	8
IV. 2018/19 Program Results	11
A. End-of-Season Surveys and Hunter Participation	11
B. Deer Harvest.....	15
C. Bow Program Results by Park.....	15
1. Jonathan’s Woods	15
2. Mahlon Dickerson Reservation	16
3. Minnisink Reservation	17
4. Mount Hope Historical County Park.....	17
5. Silas Condict County Park	18
6. Black River Facilities: Bamboo Brook and the Willowwood Arboretum; the Knight/Allen/Luce Properties; Cooper Gristmill and the Kay Environmental Center	18
7. Schooley’s Mountain County Park.....	19
8. Mount Paul Memorial County Park.....	19
9. Alamatong Wellfield (MCMUA Property).....	20
10. Central Park of Morris County.....	20
11. Fosterfields Living Historical Farm.....	21
12. Frelinghuysen Arboretum – North Tract	22
13. James Andrews Memorial County Park.....	22
14. Lewis Morris County Park.....	23
15. Loantaka Brook Reservation.....	23
16. Passaic River County Park.....	24

17. Pyramid Mountain Natural Historic Area	24
18. Tourne County Park	25
19. Waughaw Mountain Greenway	25
D. Firearm Program Results by Park	26
1. Black River Facilities.....	27
2. Lewis Morris County Park.....	27
E. Hunter Productivity	28
F. Weapon Analyses	31
G. Negative Incidents.....	33
V. Hunter Feedback.....	34
A. Overall Satisfaction.....	34
B. Hunter Expectations	35
C. Program Recommendations.....	36
VI. Deer Population and Forest Health Indices.....	38
A. Bow Hunter Observation Logs.....	38

List of Tables

Table 1: Results of infrared aerial surveys done to assess deer densities at Lewis Morris County Park.....	5
Table 2: Amount of land included in the 2018/19 program at each MCPC facility.	7
Table 3: Total number of hunters and permits in 2018/18 as compared with 2017/18.	10
Table 4: Number of permits held by each hunter in 2018/19.	10
Table 5: Counties of residence of hunters registered in the 2018/19 program.	11
Table 6: Number of survey forms returned and number of hunters that did not utilize their access permit in 2018/19.....	12
Table 7: Harvest totals for the 2018/19 program.....	13
Table 8: Number of permits, hunting days and deer harvested in the 2018/19 program as compared with the 2017/18 program.	14
Table 9: Sex information for the 2018/19 program deer harvest.	15
Table 10: Number of deer harvested per hunter in 2018/19.	28
Table 11: Number of deer harvested in 2018/19 according to the number of hunting days per hunter. .	29
Table 12: Number of deer harvested in 2018/19 by month.....	30
Table 13: Number of deer harvested in 2018/19 by day of the week.....	31
Table 14: Weapon use statistics for the 2018/19 program.	32
Table 15: Weapon use statistics for 2018/19 program as compared with 2017/18 program.	33
Table 16: Hunter ratings of overall satisfaction with the 2018/19 program.	35
Table 17: Hunter Expectations, Number of Deer Seen in 2018/19	35
Table 18: Hunter Satisfaction, Number of Deer Observed in 2018/19.....	36
Table 19: Index of relative abundance (IRA) based on bow hunter observation reports from 2008 - 2019.	40
Table 20: Antlerless to antlered deer ratios based on bow hunter observation reports from 2008 - 2019.....	41

List of Figures

Figure 1: Signs with park closure dates.....	8
Figure 2: Bow program signs.....	8

List of Appendices

Appendix A:	Harvest Statistics
Appendix B:	Hunt Schedule
Appendix C:	Park Hunting Maps
Appendix D:	Program Forms
Appendix E:	Sample Correspondence
Appendix F:	Program Rules & Regulations

Executive Summary

This report provides a summary of the Morris County Park Commission's (MCPC) 2018/19 White-tailed Deer Management Program. Key points from this report are as follows.

2018/19 Program Overview

- 19 areas included in program
 - 17 had bow hunting only
 - Two had both firearm and bow hunting
- Changes from 2017/18 Program:
 - Suspended firearm season at Schooley's Mountain County Park
 - Implemented bow programs at Lewis Morris Park South, Minnisink Reservation and Passaic River County Park.
 - Addition of 5 acres to bow hunting area at Tourne County Park.
- There were 2,458 available hunting days (2,441 bow and 17 firearm), an 11% increase from 2,207 available hunting days (2,180 bow and 27 firearm) in 2017/18
- 10,787 acres were included in the 2018/19 program, 54% of the MCPC's stewardship responsibility
- Bow permit fees remained at \$40 per access permit for Morris County residents and \$60 per access permit for non-residents. Bow permits remained park-specific.
- Firearm permit fees remained at \$20 per permit for Morris County residents and \$40 for non-residents. Firearm permits allowed for access to two firearm areas.
- 326 hunters participated in the program, a 12% increase from the 2017/18 program when 292 hunters participated
- 448 annual access permits (346 bow and 102 firearm) were distributed, up 7% from 418 permits in 2017/18
- 59% of the registered hunters were Morris County residents, down slightly from 60% in 2017/18.

2018/19 Program Results

- 437 of 448 (98%) end-of-season hunter surveys were returned, up from 95% in 2017/18
- 55 (13%) permits were never utilized, up from 40 (10%) in 2017/18
- 274 deer were harvested: 237 (86%) antlerless deer and 37 (14%) antlered deer, a 15% decrease from 2017/18 program during which 322 deer were harvested
- 201 female deer were harvested, 73% of the total deer harvest, up from 71% in 2017/18
- 73 male deer were harvested, 27% of the total deer harvest, down from 29% in 2017/18
- The highest totals of harvested deer were at Lewis Morris County Park (63) and Black River County Park (46)
- The lowest totals of harvested deer were at Frelinghuysen Arboretum Area (1) and Minnisink Reservation (3)

2018/19 Program Results (cont.)

- Increases in harvested deer from 2017/18 were seen in 5 parks:
 - Mahlon Dickerson Reservation (12 deer harvested, 33% increase)
 - Mount Paul Memorial County Park (21 deer harvested, 17% increase)
 - Pyramid Mountain Natural Historic Area (10 deer harvested, 11% increase)
 - Silas Condict County Park (8 deer harvested, 14% increase)
 - Waughaw Mountain Greenway (7 deer harvested, 75% increase)
- Decreases in harvested deer from 2017/18 were seen in 12 parks:
 - Alamatong Wellfield (7 deer harvested, 30% decrease)
 - Black River County Park (46 deer harvested, 6% decrease)
 - Central Park of Morris County (13 deer harvested, 24% decrease)
 - Fosterfields Living Historical Farm (5 deer harvested, 44% decrease)
 - Frelinghuysen Arboretum (1 deer harvested, 88% decrease)
 - James Andrews Memorial County Park (17 deer harvested, 45% decrease)
 - Jonathan's Woods (15 deer harvested, 12% decrease)
 - Lewis Morris County Park (63 deer harvested, 17% decrease)
 - Loantaka Brook Reservation (7 deer harvested, 13% decrease)
 - Mount Hope Historical County Park (5 deer harvested, 38% decrease)
 - Schooley's Mountain County Park (18 deer harvested, 18% decrease)
 - Tourne County Park (10 deer harvested, 9% decrease)

Hunter Productivity

- 141 (44%) hunters harvested at least one deer, down from 57% in 2017/18
- Bow program: hunter success rate increased with the number of hunting days up until the 41-45 day range. The month of October saw the largest deer harvest. Saturday was the most productive day of the week despite having the lowest number of available hunting days.
- Firearm program: hunter success rate increased with the number of hunting days up until the 7-8 day range. The month of December saw the largest deer harvest despite having less available hunting days than January. Wednesday was the most productive day of the week but also had the highest number of available hunting days.

Weapon Analysis

- For the firearm hunt, 100% of hunters used a shotgun; 8% also used a muzzleloader. Shotgun hunters were responsible for 97% of the firearm harvest and 14% of the total deer harvest. Firearm hunter success rates were 35% for shotgun hunters and 20% for muzzleloader hunters.
- For the bow hunt, 67% of bow hunters used a compound bow; 50% used a crossbow and 1% used a recurve or longbow. Bow hunter success rates were 41% for compound bow hunters, 58% for crossbow hunters and 0.4% for recurve/longbow hunters. Crossbow hunters were responsible for 50% of the total deer harvest.

Negative Incidents

- 7 hunters received warnings for rule violations
- 3 hunters were suspended for violating multiple program rules
- Negative incidents reported by hunters included unauthorized hunting, non-hunters in parks that were closed for hunting, off-trail use by non-hunters, unleashed dogs and off-road vehicle use.

Hunter Feedback

- 85% of hunters reported a satisfaction level of 3 or higher (good to excellent) down from 91% in 2017/18
- Of 65 firearm hunters that used their permits, only 12 (18%) hunted in more than one park.
- The most common recommendations hunters provided for improving the program were as follows:
 - Allow for the use of feeders to bait deer (14)
 - Allow earlier hunting and/or Saturday hunting during bow seasons (14)
 - Allow bear hunting (8)
 - Allow Sunday hunting (7)
 - Allow 2 or more tree stands per park (6)
 - Allow for the use of mineral blocks (6)
 - Allow crossbow hunting from the ground (6)

Deer Population and Forest Health Indices

- 143 hunters returned bow hunter observation logs recording 6,535 observation hours during 1,700 individual outings
- Index of Relative Abundance:
 - Increases since 2017/18 occurred at Alamatong Wellfield, Central Park of Morris County, Mahlon Dickerson Reservation, Pyramid Mountain Natural Historic Area and Waughaw Mountain Greenway.
 - Decreases since 2017/18 occurred at James Andrews Memorial County Park, Jonathan's Woods, Loantaka Brook Reservation, Mount Hope Historical County Park, Mount Paul Memorial County Park, Silas Condict County Park and Tourne County Park.
 - No change since 2017/18 occurred at Black River Facilities, Fosterfields Living Historical Farm, Frelinghuysen Arboretum, Lewis Morris County Park, and Schooley's Mountain County Park.
- Alamatong Wellfield had the highest antlerless to antlered ratio (5.0). Frelinghuysen Arboretum had the lowest ratio (0.4).

I. Background

The Morris County Park Commission (MCPC) is currently responsible for the stewardship of over 20,133 acres of land. It recognizes that a controlled hunting program is currently the most efficient and effective way to minimize the severe threats posed to the biodiversity of native flora and fauna by an overabundant white-tailed deer population. The MCPC's controlled hunts are specifically used as a population management tool and do not represent recreational hunting opportunities.

II. History of the White-tailed Deer Management Program

From 1988 to 1989, the MCPC worked with a nine-member Wildlife Advisory Committee to examine deer population management options available for implementation throughout the park system. The Committee members represented a broad spectrum of interests including those of the animal rights community, the agricultural community, local municipalities and State agencies. Extensive research was performed by the Committee on each management option, focused primarily on each strategy's effectiveness and efficiency at controlling high numbers of deer. Management strategies that were researched by the Committee included hunting, fencing, deer-resistant landscaping options and contraception. The Committee also conducted 14 meetings that were open to the public to assess any concerns and input they might have. The Committee issued a report to the MCPC in November 1989 summarizing their findings and outlining several recommendations of procedures that should be followed if the MCPC decided to implement a trial controlled hunting program.

The first controlled hunting program was initiated at the MCPC's Black River Facilities in Chester Township during the hunting season of 1991/92. The program operated according to the New Jersey Division of Fish and Wildlife's (NJDFW) standard hunting regulations. The park was open to registered hunters on select days during the permit shotgun season. The continued success of this program throughout the early 1990's in addition to increased evidence of an overabundant deer population and the deterioration of forest health at Lewis Morris County Park led to consideration of expanding the deer management program to include Lewis Morris County

Park. The Wildlife Advisory Committee was reconvened in 1994 to review the condition of the forest and deer population at Lewis Morris County Park alongside the results of the MCPC’s Black River Facilities deer management program in order to make a recommendation on the potential expansion of the program. The Wildlife Advisory Committee then issued a second report to the MCPC in July 1994 with its recommendations for a trial, controlled hunting program at Lewis Morris County Park.

This report along with an aerial infrared survey of the local white-tailed deer population density completed in March 1996 led to the initiation of a trial program at Lewis Morris County Park during the hunting season of 1996/97. Three aerial infrared deer population surveys were performed at Lewis Morris County Park during the years 1996, 1997, and 1998. As can be seen in Table 1, the deer densities within the Park consistently were well above wildlife biologists’ recommended densities of 15 to 20 deer

per square mile. The initial program at Lewis Morris County Park was developed with the assistance of the NJDFW. From 1996 to 2002, hunting at Lewis Morris County Park was performed by designated agents under a NJDFW Community Based Deer Management Program permit.

Table 1: Results of infrared aerial surveys done to assess deer densities at Lewis Morris County Park.

Survey Year	Deer per square mile
1996	63.2
1997	58.8
1998	57.7

Concurrently, the MCPC implemented a trial immunocontraception program at the Frelinghuysen Arboretum in August 1997 in cooperation with the Humane Society of the United States. This program continued until early 2000. An evaluation of the results of this program found contraception to be an ineffective and inefficient means to control high numbers of deer within the park system due primarily to the difficulty of annually locating previously tagged deer for the mandatory booster shot of contraceptive drugs. By that time, the controlled hunting program was expanded to include five parks in the park system and was having greater success than the immunocontraception program in reducing numbers of deer.

Beginning in 2002/03, the Community Based Deer Management Program was no longer an option for the MCPC due to a change in the NJDFW’s regulations. This resulted in a decision

to run all of the MCPC's deer management programs under the NJDFW's standard hunting regulations. Licensed hunters are selected for participation through a lottery system overseen by Natural Resources Management staff. Hunters that were enrolled in the program in prior years, and who demonstrated good effort and results are given preference to participate in subsequent years. A limited number of permits are distributed for each park. This number is generally set at one hunter per 15 acres of huntable land in accordance with NJDFW recommendations. The deer hunting area excludes all land within 450 feet of a structure for the bow and firearm programs in each park. This meets the NJDFW's safety zone regulation for firearm hunting and exceeds the 150-foot requirement for bow hunting.

III. 2018/19 Program Overview

A. Hunt Schedule and Hunting Areas

The schedule for the 2018/19 White-tailed Deer Management Program was approved by the MCPC on May 21, 2018. The schedule was established using dates within legal hunting seasons for each deer management zone in accordance with NJDFW regulations. Nineteen areas were included in the 2018/19 program: 17 had bow hunting only and two had both firearm and bow hunting. This total includes the Alamatong Wellfield, a property owned and managed by the Morris County Municipal Utilities Authority (MCMUA).

There were several changes to the hunt schedule from the 2017/18 program. The firearm program at Schooley's Mountain County Park was suspended, and bow programs at Lewis Morris Park South, Minnisink Reservation, and Passaic River County Park were initiated. Overall, the 2018/19 program had a total of 2,458 available hunting days (2,441 bow and 17 firearm) which represents an 11% increase from 2,207 available hunting days (2,180 bow and 27 firearm) in 2017/18.

Table 2 lists the size of each MCPC facility and indicates how much area in each was included in the 2018/19 program. The MCPC is responsible for the stewardship of 20,133 acres of land. A total of 10,787 (54%) of the land under the MCPC's stewardship responsibility was included in the 2018/19 program. There is a discrepancy between the total number of areas as

referenced above and the number of facilities where hunting occurred as indicated in Table 2 because the MCMUA's Alamatong Wellfield is not included in Table 2 as it is not a MCPC Facility.

Table 2: Amount of land included in the 2018/19 program at each MCPC facility.

Facility	Size of Park* (acres)	Huntable Acres	Percentage of Park in Program
Berkshire Valley Golf Course	498	n/a	n/a
Black River Facilities – Cooper Gristmill, Elizabeth D. Kay Environmental Center, Bamboo Brook Outdoor Education Center and Willowood Arboretum	1,683	1,233	73%
Central Park of Morris County	420	121	29%
Columbia Trail	106	n/a	n/a
Craigmear Recreation Area	62	n/a	n/a
Flanders Valley Golf Course	413	n/a	n/a
Fosterfields Living Historical Farm	230	87	38%
Frelinghuysen Arboretum	124	13	10%
Great Swamp Outdoor Education Center	45	n/a	n/a
Hedden County Park	420	n/a	n/a
Historic Speedwell	8	n/a	n/a
Hugh Force Park	9	n/a	n/a
James Andrews Memorial County Park	595	402	68%
Jonathan's Woods	560	385	69%
Lee's County Park Marina	13	n/a	n/a
Lewis Morris County Park	2,195	1,404	64%
Loantaka Brook Reservation	883	245	28%
Mahlon Dickerson Reservation	3,494	2,426	69%
Minnisink Reservation	328	293	89%
Mount Hope Historical County Park	444	419	94%
Mount Paul Memorial County Park	298	151	51%
Old Troy County Park	162	n/a	n/a
Passaic River County Park	847	620	73%
Patriot's Path	474	n/a	n/a
Pinch Brook Golf Course	102	n/a	n/a
Pyramid Mountain Natural Historic Area	1,675	941	56%
Schooley's Mountain County Park	823	442	54%
Seaton Hackney Stables	21	n/a	n/a
Silas Condict County Park	1,513	988	65%
Sunset Valley Golf Course	217	n/a	n/a
Tourne County Park	561	294	52%

Table 2 Continued

Facility	Size of Park* (acres)	Huntable Acres	Percentage of Park in Program
Traction Line Recreation Trail	15	n/a	n/a
Waughaw Mountain Greenway	368	323	88%
West Morris Greenway	509	n/a	n/a
William G. Mennen Sports Arena	18	n/a	n/a
Totals	20,133	10,787	54%

*Sizes were rounded to the nearest whole number

Parks were closed to the public during all scheduled firearm hunts. For these parks, signs were posted at major trail heads and in parking areas listing the dates on which the park would be closed for the program (Figure 1). For each firearm hunt, staff members were stationed at the main point of access to the park in order to check in hunters and turn non-hunters away.

Parks were open to public use during all bow hunting programs. Signs were placed at all major trail heads and parking lots cautioning park users that bow hunting might be taking place and to stay on trails (Figure 2). The program rules and regulations (Appendix F) prohibit hunters from placing tree stands within 50 feet of marked trails and service, access or public roads. The rules also prohibit the discharge of weapons across maintained access roads and trails.

Figure 1: Signs with park closure dates



Figure 2: Bow program signs



B. Hunter Registration and Access Permits

Similar to last year, bow permits were park specific for the 2018/19 program, i.e. a hunter was required to purchase individual permits for each park (s)he wanted to hunt. Firearm hunters were issued a general permit that allowed them to access the two areas with scheduled firearm hunting: Black River Facilities and Lewis Morris County Park.

Natural Resources Management staff coordinated hunter registration. The registration process was similar to that of the 2017/18 program. Applications were processed in two rounds. Hunters that participated in the 2017/18 program and returned their end-of-season harvest surveys by the deadline were eligible to apply during the first application round. These hunters were mailed application forms on June 22 with a deadline of July 9. Hunters could apply for both a firearm permit and a bow permit, listing their first, second, and third choice for a bow permit. Permits were assigned giving preference to those hunters that had demonstrated good effort and results in the 2017/18 program. Applicants were notified by mail as to the results of their applications on July 30.

Once permits were assigned to return hunters, individuals on a waiting list were mailed application forms that specified which parks still had permits available. These applications were mailed on July 30 with a deadline of August 10. Applicants were assigned to their first choice park whenever possible. A lottery was used to assign permits when there were more applications than permits available. All second-round applicants were notified as to the results of their applications by mail on August 15.

All new hunters were required to attend an orientation meeting before they could pick up their permit. New hunters could attend one of two meetings: August 27 or September 5. Both meetings were held at 7:30 pm at the Morris County Cultural Center in Lewis Morris County Park. At each meeting, staff presented the program rules and regulations (Appendix F) and answered questions. Permits were made available once the meeting concluded. In addition to their permits, each hunter was provided with a copy of the program rules and regulations (Appendix F); maps that indicated the boundaries of the park and deer hunting areas (Appendix C); identification tags for hunter armbands and parking tags.

Permit fees for the 2018/19 program remained the same as the 2017/18 program: bow permits were \$40 per access permit for Morris County residents and \$60 for non-residents; firearm permits were \$20 per access permit for Morris County residents and \$40 per permit for non-residents.

A harvest incentive program has been in place since the 2011/12 program which provides

each hunter with a \$5 credit towards their permit fees for each female deer (s)he harvest during the previous year’s program up to a maximum of \$30 per permit. To be eligible for this credit, the hunter must supply the NJDFW harvest confirmation number for each harvested deer and the data supplied to the MCPC must correspond with the information provided to the NJDFW through their automated harvest report system. A total of \$930 in credit was used by 115 hunters towards permit fees in the 2018/19 program.

Three hundred and twenty-six (326) hunters were registered for the 2018/19 program, a 12% increase from the 2017/18 program which had 292 hunters registered. Four hundred and forty-eight (448) annual access permits were distributed: 346 for bow hunting and 102 for firearm hunting. The number of permits distributed increased by 7% from the 2017/18 program during which 418 permits were distributed. Table 3 compares the number of hunters and permits between the 2018/19 and 2017/18 programs. Table 4 lists the number of permits held by each hunter in the 2017/18 program.

Table 3: Total number of hunters and permits in 2018/18 as compared with 2017/18.

	2018/19	2017/18	% Difference
Number of Hunters	326	292	12%
Total Permits Distributed	448	418	7%
Bow Permits	346	306	13%
Firearm Permits	102	112	-9%

Table 4: Number of permits held by each hunter in 2018/19.

Permits Held Per Hunter	Hunters
1	224
2	82
3	20

Hunters in the 2018/19 program came from 12 New Jersey counties. There were also eight hunters from outside the state of New Jersey: seven from New York and one from Michigan. The majority (59%) of the registered hunters were Morris County residents, down slightly from

60% in 2017/18. The counties of residence of hunters in the 2018/19 program are listed in Table 5.

Table 5: Counties of residence of hunters registered in the 2018/19 program.

County	Hunters	% Total	County	Hunters	% Total
Morris	193	59.0%	Middlesex	9	2.8%
Bergen	31	9.5%	Hudson	7	2.2%
Passaic	23	7.0%	Essex	6	1.8%
Sussex	16	4.9%	Warren	5	1.5%
Somerset	11	3.4%	Ocean	4	1.2%
Union	10	3.0%	Hunterdon	3	0.9%

Note: 7 hunters were from New York State and 1 was from Michigan

IV. 2018/19 Program Results

A. End-of-Season Surveys and Hunter Participation

Hunters are required to submit an end-of-season survey form to report their harvest totals for the year. Hunters that fail to submit their forms are permanently removed from the program. The survey forms were mailed to all registered hunters on January 31 along with a postage-paid envelope addressed to Natural Resources Management staff. An initial deadline of February 22 was established for the return of all survey forms. Hunters that had not submitted their forms by the deadline received reminder notices via email. Anyone that did not have an email address was called with a reminder. Reminders were sent regularly until February 28. As can be seen in Table 6, 437 of 448 surveys (98%) were returned. The survey response rate was up from 95% in the 2017/18 program.

Table 6 also summarizes the number of hunters registered for each park that did not utilize their permits. Of the 437 surveys returned, 55 (12.6%) were for permits that were never utilized. A larger proportion of firearm permits (34.3%) were unused as compared to bow permits (6.2%). For comparison purposes, 40 (10%) of the permits in the 2017/18 program went unused. Hunters that do not utilize their permits for two years are removed from the program in accordance with the program rules and regulations.

Table 6: Number of survey forms returned and number of hunters that did not utilize their access permit in 2018/19.

Permit Type	Park	Total Permits	Returned Survey Forms	Did Not Utilize Permit*
Firearm	Black River Facilities and Lewis Morris	102	99	34
	Total	102	99	34
Bow	Alamatong Wellfield	14	12	0
	Black River Facilities	39	39	3
	Central Park of Morris County	14	13	0
	Fosterfields Living Historical Farm	6	6	1
	Frelinghuysen Arboretum	2	2	0
	James Andrews Memorial County Park	31	31	0
	Jonathan's Woods	16	16	2
	Lewis Morris County Park	49	48	5
	Loantaka Brook Reservation	13	13	1
	Mahlon Dickerson Reservation	20	19	0
	Minnisink Reservation	9	8	2
	Mount Hope Historical County Park	11	11	0
	Mount Paul Memorial County Park	16	16	0
	Passaic River County Park	15	14	0
	Pyramid Mountain Natural Historic	23	23	3
	Schooley's Mountain County Park	28	27	3
	Silas Condict County Park	16	16	0
	Tourne County Park	12	12	1
	Waghaw Mountain Greenway	12	12	0
	Total	346	338	21
Overall Total		448	437	55

*Number reflects those that reported not utilizing their permit on the returned survey. Hunters that did not return their survey or that did not provide this information are not accounted for.

Table 7: Harvest totals for the 2018/19 program.

Location	Bow Harvest			Firearm Harvest			Total Harvest		
	Antlerless	Antlered	Total	Antlerless	Antlered	Total	Antlerless	Antlered	Total
Alamatong Wellfield	6	1	7	n/a	n/a	n/a	6	1	7
Black River Facilities (Bamboo Brook/Willowood; Knight/Allen/Luce; Kay Center)	24	6	30	15	1	16	39	7	46
Central Park of Morris County	12	1	13	n/a	n/a	n/a	12	1	13
Fosterfields Living Historical Farm	5	0	5	n/a	n/a	n/a	5	0	5
Frelinghuysen Arboretum	1	0	1	n/a	n/a	n/a	1	0	1
James Andrews Memorial County Park	14	3	17	n/a	n/a	n/a	14	3	17
Jonathan's Woods	14	1	15	n/a	n/a	n/a	14	1	15
Lewis Morris County Park	35	6	41	20	2	22	55	8	63
Loantaka Brook Reservation	6	1	7	n/a	n/a	n/a	6	1	7
Mahlon Dickerson Reservation	10	2	12	n/a	n/a	n/a	10	2	12
Minnisink Reservation	3	0	3	n/a	n/a	n/a	3	0	3
Mount Hope Historical County Park	5	0	5	n/a	n/a	n/a	5	0	5
Mount Paul Memorial County Park	19	2	21	n/a	n/a	n/a	19	2	21
Passaic River County Park	2	4	6	n/a	n/a	n/a	2	4	6
Pyramid Mountain Natural Historic Area	8	2	10	n/a	n/a	n/a	8	2	10
Schooley's Mountain County Park	16	2	18	n/a	n/a	n/a	16	2	18
Silas Condict County Park	7	1	8	n/a	n/a	n/a	7	1	8
Tourne County Park	8	2	10	n/a	n/a	n/a	8	2	10
Waghaw Mountain Greenway	7	0	7	n/a	n/a	n/a	7	0	7
2018/19 Program Totals	202	34	236	35	3	38	237	37	274

Table 8: Number of permits, hunting days and deer harvested in the 2018/19 program as compared with the 2017/18 program.

Location	2018/19						2017/18						Difference in Deer Harvest
	Bow Hunting			Firearm Hunting			Bow Hunting			Firearm Hunting			
	Permits	Available Hunting Days	Deer Harvested	Permits	Available Hunting Days	Deer Harvested	Permits	Available Hunting Days	Deer Harvested	Permits	Available Hunting Days	Deer Harvested	
Alamatong Wellfield	14	114	7	n/a	n/a	n/a	21	113	10	n/a	n/a	n/a	-30%
Black River Facilities	39	138	30	102	9**	16	30	137	19	112	9	30	-6%
Central Park of Morris County	14	131	13	n/a	n/a	n/a	15	130	17	n/a	n/a	n/a	-24%
Fosterfields Living Historical Farm	6	138	5	n/a	n/a	n/a	6	137	9	n/a	n/a	n/a	-44%
Frelinghuysen Arboretum	2	138	1	n/a	n/a	n/a	2	137	2	7	1	6	-88%
James Andrews Memorial Cty Park	31	138	17	n/a	n/a	n/a	38	137	31	n/a	n/a	n/a	-45%
Jonathan's Woods	16	123	15	n/a	n/a	n/a	23	122	17	n/a	n/a	n/a	-12%
Lewis Morris County Park	49	131	41	102	8	22	33	130	47	112	9	29	-17%
Loantaka Brook Reservation	13	104	7	n/a	n/a	n/a	12	103	8	n/a	n/a	n/a	-13%
Mahlon Dickerson Reservation	20	123	12	n/a	n/a	n/a	25	122	9	n/a	n/a	n/a	33%
Minnisink Reservation	9	123	3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Mount Hope Historical County Park	11	123	5	n/a	n/a	n/a	11	122	8	n/a	n/a	n/a	-38%
Mount Paul Memorial County Park	16	138	21	n/a	n/a	n/a	15	137	18	n/a	n/a	n/a	17%
Passaic River County Park	15	138	6	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Pyramid Mountain Natural Historic Area	23	138	10	n/a	n/a	n/a	22	137	9	n/a	n/a	n/a	11%
Schooley's Mountain County Park	28	138	18	n/a	n/a	n/a	20	137	22	112	8	9	-42%
Silas Condict County Park	16	123	8	n/a	n/a	n/a	12	122	7	n/a	n/a	n/a	14%
Tourne County Park	12	104	10	n/a	n/a	n/a	11	103	11	n/a	n/a	n/a	-9%
Waughaw Mountain Greenway	12	138	7	n/a	n/a	n/a	10	137	4	n/a	n/a	n/a	75%
Totals			236			38			248			74	-15%

Notes: *Firearm permits allowed access to all parks with scheduled firearm hunts. **Includes a special one-day firearm hunt open to 6 permitted hunters

B. Deer Harvest

The 2018/19 harvest results are summarized in Table 7. A total of 274 deer were harvested during the 2018/19 program: 237 antlerless deer and 37 antlered deer. This represents a 15% decrease from the 2017/18 program during which 322 deer were harvested. Antlerless deer represented 86% of the harvest total, a slight decrease from 88% in the 2017/18 program. Lewis Morris County Park had the highest harvest total (63). The Black River Facilities had the second highest harvest total (46). Frelinghuysen Arboretum had the lowest harvest total (1). Table 8 compares the number of permits, hunting days and deer harvested during the 2018/19 program with the 2017/18 program. Detailed information about the program results in each park is included in Sections C and D of this report.

Hunters were required to provide sex information for each deer they harvested. The sex information for the 2018/19 program is summarized in Table 9. Female deer constituted 73% of the total deer harvest and 85% of the total antlerless deer harvest. Male deer constituted 27% of the total deer harvest and 15% of the total antlerless deer harvest. The proportion of harvested male deer decreased slightly from the 2017/18 program during which males comprised 29% of the total deer harvest and 19% of the total antlerless deer harvest.

Table 9: Sex information for the 2018/19 program deer harvest.

Sex Information	Deer Harvested	% of Total Deer Harvest	% of Antlerless Deer Harvest
Female	201	73%	85%
Male	73	27%	15%
<i>Antlered</i>	37	14%	<i>n/a</i>
<i>Antlers < 3"</i>	3	1%	1%
<i>Button Buck</i>	27	10%	11%
<i>Shed Buck</i>	6	2%	3%

C. Bow Program Results by Park

1. Jonathan's Woods

The hunting area at Jonathan's Woods consisted of 385 acres (69% of the park). This park

was open for bow hunting a total of 124 days: 42 days during the fall bow season, 55 days during the permit bow season, and 27 days during the winter bow season. Hunting on Saturdays was permitted during all three seasons. The season structure was identical to that of the 2017/18 program.

Sixteen (16) hunters were registered for the bow program at Jonathan's Woods, seven less than in 2017/18. There was a 100% survey return rate. Two hunters reported that they did not use their permits for this park. The hunters reported 158 hunting days among 14 participants. The maximum number of days that any one hunter used his permit was 29.

Fifteen deer were harvested at Jonathan's Woods, 14 of which were antlerless. This represents a 12% decrease from the 2017/18 program during which 17 deer were harvested. Eight (8) or 50% of the hunters at Jonathan's Woods did not harvest any deer with their permits.

2. Mahlon Dickerson Reservation

The hunting area at Mahlon Dickerson Reservation consisted of 2,426 acres (69% of the park). This park was open for bow hunting a total of 124 days: 42 days during the fall bow season, 55 days during the permit bow season, and 27 days during the winter bow season. Hunting on Saturdays was permitted during all three seasons. The season structure was identical to that of the 2017/18 program.

Twenty (20) hunters were registered for the bow program at Mahlon Dickerson Reservation, five less than in 2017/18. There was a 95% survey return rate. All hunters reported using their permits for this park. The hunters reported 234 hunting days among 19 participants. The maximum number of days that any one hunter used his permit was 27.

A total of 12 deer were harvested at Mahlon Dickerson Reservation, 10 of which were antlerless. This represents a 33% increase from the 2017/18 program during which nine deer were harvested. Twelve (12) or 63% of the hunters that returned surveys at Mahlon Dickerson Reservation did not harvest any deer with their permits. Two hunters were responsible for 58% of the deer harvest in this park.

3. Minnisink Reservation

The hunting area at Minnisink Reservation consisted of 293 acres (89% of the park). This park was open for bow hunting a total of 124 days: 42 days during the fall bow season, 55 days during the permit bow season, and 27 days during the winter bow season. Hunting on Saturdays was permitted during all three seasons. This was the first bow program at Minnisink Reservation since 2007/08.

Nine (9) hunters were registered for the bow program at Minnisink Reservation. There was an 88% survey return rate. Three of the hunters reported not using their permits for this park. The hunters reported 99 hunting days among 6 participants. The maximum number of days that any one hunter used his permit was 35.

Three deer were harvested at Minnisink Reservation, all of which were antlerless. Six (6) or 75% of the hunters that returned surveys at Minnisink Reservation did not harvest any deer with their permits. Two hunters were responsible for 100% of the deer harvest in this park.

4. Mount Hope Historical County Park

The hunting area at Mount Hope Historical County Park consisted of 419 acres (94% of the park). This park was open for bow hunting a total of 124 days: 42 days during the fall bow season, 55 days during the permit bow season, and 27 days during the winter bow season. Hunting on Saturdays was permitted during all three seasons. The season structure was identical to that of the 2017/18 program.

Eleven (11) hunters were registered for the bow program at Mount Hope Historical County Park, the same as in 2017/18. There was a 100% survey return rate. All hunters reported that they used their permits for this park. The hunters reported 129 hunting days among eleven participants. The maximum number of days that any one hunter used his permit was 21.

Five deer were harvested at Mount Hope Historical County Park, all of which were antlerless. This represents a 38% decrease from the 2017/18 program during which eight deer were harvested. Seven or 64% of the hunters at Mount Hope Historical County Park did not harvest any deer with their permits.

5. Silas Condict County Park

The hunting area at Silas County Park consisted of 988 acres (65% of the park). This park was open for bow hunting a total of 124 days: 42 days during the fall bow season, 55 days during the permit bow season, and 27 days during the winter bow season. Hunting on Saturdays was permitted during all three seasons. The season structure was identical to that of the 2017/18 program.

Sixteen (16) hunters were registered for the bow program at Silas Condict County Park, four more than in 2017/18. There was a 100% survey return rate. All hunters reported that they used their permits for this park. The hunters reported 168 hunting days among 16 participants. The maximum number of days that any one hunter used his permit was 47.

Eight deer were harvested at Silas Condict County Park, seven of which were antlerless. This represents a 14% increase from the 2017/18 program during which seven deer were harvested.

6. Black River Facilities: Bamboo Brook and the Willowood Arboretum; the Knight/Allen/Luce Properties; Cooper Gristmill and the Kay Environmental Center

A total of 1,224 acres were included in the 2018/19 bow program at the Black River Facilities (73% of the park). Hunters were permitted to access all three sections of the park (Bamboo Brook and the Willowood Arboretum; the Knight/Allen/Luce Properties; and the Kay Environmental Center) under one permit. This park was open for bow hunting a total of 138 days: 42 days during the fall bow season, 55 days during the permit bow season, and 41 days during the winter bow season. Hunting on Saturdays was permitted during all three seasons. The season structure was identical to that of the 2017/18 program.

Thirty-nine (39) hunters were registered for the bow program at Black River Facilities, nine more than in 2017/18. There was a 100% survey return rate. Three hunters reported that they did not use their permits for this park. The hunters reported 347 hunting days among 36 participants. The maximum number of days that any one hunter used his permit was 22.

Thirty (30) deer were harvested during the bow program at Black River County Park, twenty-six (26) of which were antlerless. This represents a 58% increase from the 2017/18 bow program during which 19 deer were harvested. Twenty-three (23) or 59% of the bow hunters at Black River Facilities did not harvest any deer with their permits.

7. Schooley's Mountain County Park

The hunting area at Schooley's Mountain County Park consisted of 442 acres (54% of the park). This park was open for bow hunting a total of 138 days: 42 days during the fall bow season, 55 days during the permit bow season, and 41 days during the winter bow season. The park was divided into a north and south section for scheduling purposes. Bow hunters were permitted to hunt on Saturdays in the north section; Saturday hunting was not permitted in the south section. The season structure was identical to that of the 2017/18 program.

Twenty-eight (28) hunters were registered for the bow program at Schooley's Mountain County Park, eight more than in 2017/18. There was a 96% survey return rate. Three hunters reported not using their permits for this park. The hunters reported 339 hunting days among 24 participants. The maximum number of days that any one hunter used his permit was 35.

Eighteen (18) deer were harvested at Schooley's Mountain County Park, 16 of which were antlerless. This represents an 18% decrease from the 2017/18 program in this park during which twenty-two deer were harvested. Two hunters were responsible for 50% of the deer harvest in this park.

8. Mount Paul Memorial County Park

The hunting area at Mount Paul Memorial County Park consisted of 151 acres (51% of the park). This park was open for bow hunting a total of 138 days: 42 days during the fall bow season, 55 days during the permit bow season, and 41 days during the winter bow season. Hunting on Saturdays was permitted during all three seasons. The season structure was identical to that of the 2017/18 program.

Sixteen (16) hunters were registered for the bow program at Mount Paul Memorial County Park, one more than in 2017/18. There was a 100% survey return rate. All hunters

reported using their permits for this park. The hunters reported 180 hunting days among 16 participants. The maximum number of days that any one hunter used his permit was 21.

Twenty-one (21) deer were harvested at Mount Paul Memorial County Park, 19 of which were antlerless. This represents a 17% increase from the 2017/18 program during which eighteen deer were harvested. Eleven or 69% of the hunters at Mount Paul Memorial County Park harvested a deer with their permits.

9. Alamatong Wellfield (MCMUA Property)

A total of 441 acres were included in the 2018/19 program at the Alamatong Wellfield (65% of the property), a facility of the MCMUA. This area was open for bow hunting a total of 121 days: 35 days during the fall bow season, 45 days during the permit bow season and 41 days during the winter bow season. Bow hunting was permitted from Monday through Friday; hunting on Saturdays was not permitted. The season structure was identical to that of the 2017/18 program.

Fourteen (14) hunters were registered for the bow program at the Alamatong Wellfield, seven less than in 2017/18. Twelve (12) or 86% of the hunters returned their survey forms. All hunters reported using their permits for this park. The hunters reported 81 hunting days among 12 participants. The maximum number of days that any one hunter used his permit was 12.

Seven deer were harvested at the Alamatong Wellfield, six of which were antlerless. This represents a 30% decrease from the 2017/18 program during which 10 deer were harvested.

10. Central Park of Morris County

The hunting area at Central Park of Morris County consisted of 121 acres (29% of the park). This park was open for bow hunting a total of 131 days: 35 days during the fall bow season, 55 days during the permit bow season, and 41 days during the winter bow season. Hunting on Saturdays was permitted during the permit and winter bow seasons. The season structure was identical to that of the 2017/18 program.

Fourteen (14) hunters were registered for the bow program at Central Park of Morris County, one more than in 2017/18. There was a 93% survey return rate. All hunters reported

using their permits for this park. The hunters reported 185 hunting days among 13 participants. The maximum number of days that any one hunter used his permit was 41.

Thirteen (13) deer were harvested at Central Park of Morris County, 12 of which were antlerless. This represents a 24% decrease from the 2017/18 program during which 17 deer were harvested. One hunter was responsible for 31% of the total deer harvest in this park.

11. Fosterfields Living Historical Farm

Fosterfields Living Historical Farm was divided into a north and south section for scheduling purposes but registered hunters could access both sections with their permits. A total of 87 acres were included in the 2018/19 program at Fosterfields Living Historical Farm (38% of the park): 37 acres in the north section and 50 acres in the south section. The schedule for the north section was more restrictive due to park programming. The north section was open for bow hunting a total of 96 days: 14 days during the fall bow season, 41 days during the permit bow season, and 41 days during the winter bow season. Intermittent dates were permitted during the fall and permit bow seasons due to historic programming that was scheduled at the site. Hunting on Saturdays was permitted during the permit and winter bow seasons beginning November 3. The south section of Fosterfields Living Historical Farm was open for bow hunting a total of 138 days: 42 days during the fall bow season, 55 days during the permit bow season, and 41 days during the winter bow season. Hunting on Saturdays was permitted during all three seasons. The season structure was identical to that of the 2017/18 program.

Six hunters were registered for the bow program at Fosterfields Living Historical Farm, the same as in 2017/18. There was a 100% survey return rate. One hunter reported that they did not use their permits for this park. The hunters reported 59 hunting days among six participants. The maximum number of days that any one hunter used his permit was 30.

Five deer were harvested at Fosterfields Living Historical Farm, all of which were antlerless. This represents a 44% decrease from the 2017/18 program during which nine deer were harvested. Three of the six hunters (50%) harvested at least one deer.

12. Frelinghuysen Arboretum – North Tract

A total of 13 acres were included in the 2018/19 program at Frelinghuysen Arboretum-North Tract (10% of the park). This park was open for bow hunting a total of 138 days: 42 days during the fall bow season, 55 days during the permit bow season, and 41 days during the winter bow season. Hunting on Saturdays was permitted during all three seasons. The season structure was identical to that of the 2017/18 program.

Two hunters were registered for the bow program at Frelinghuysen Arboretum-North Tract, the same as in in 2017/18. There was a 100% survey return rate. All hunters reported using their permits for this park. The hunters reported 20 hunting days between two participants. The maximum number of days that any one hunter used his permit was 17.

One antlerless deer was harvested at Frelinghuysen Arboretum-North Tract. This represents a 50% decrease from the 2017/18 program during which two deer were harvested.

13. James Andrews Memorial County Park

The hunting area at James Andrews Memorial County Park consisted of 402 acres (68% of the park proper) including 41 acres on two properties owned by Randolph Township: Hidden Valley Park and property around the municipal building on Millbrook Avenue. James Andrews Memorial County Park was open for bow hunting a total of 138 days: 42 days during the fall bow season, 55 days during the permit bow season, and 41 days during the winter bow season. Hunting on Saturdays was permitted during all three seasons. The season structure was identical to that of the 2017/18 program.

Thirty-one (31) hunters were registered for the bow program at James Andrews Memorial County Park, seven less than in 2017/18. There was a 100% survey return rate. All hunters reported using their permits for this park. The hunters reported 328 hunting days among 31 participants. The maximum number of days that any one hunter used his permit was 33.

Seventeen (17) deer were harvested at James Andrews Memorial County Park, 14 of which were antlerless. This represents a 45% decrease from the 2017/18 program during which 31 deer were harvested. Twenty (20) or 65% of the hunters at James Andrews Memorial County

Park that returned their survey forms did not harvest any deer with their permits.

14. Lewis Morris County Park

The hunting area at Lewis Morris County Park consisted of 1,335 acres (61% of the park). The park was divided into two areas for permitting purposes: Lewis Morris County Park North (719 acres) and Lewis Morris County Park South (616 acres). Lewis Morris County Park North and South was open for bow hunting a total of 131 days: 35 days during the fall bow season, 55 days during the permit bow season, and 41 days during the winter bow season. Hunting on Saturdays was permitted during the permit and winter bow seasons. This was the first year a bow program was held at Lewis Morris County Park South. The season structure for Lewis Morris County Park North was identical to that of the 2017/18 program.

Forty-nine (49) hunters were registered for the bow program at Lewis Morris County Park, 16 more than in 2017/18. Forty (40) hunters were registered for Lewis Morris County Park North and nine hunters were registered for Lewis Morris County Park South. Forty-eight (48) or 98% of the hunters returned their survey forms. Five hunters reported not using their bow permits for this park. The hunters reported 488 hunting days among 43 participants. The maximum number of days that any one hunter used his permit was thirty-one (31).

Forty-one (41) deer were harvested during the bow program at Lewis Morris County Park, thirty-five (35) of which were antlerless. Thirty (30) deer were harvested at Lewis Morris County Park North and 11 deer were harvested at Lewis Morris County Park South. This represents a 13% decrease from the 2017/18 bow program during which 47 deer were harvested. Twenty-nine (29) or 60% of the bow hunters at Lewis Morris County Park that returned their survey forms did not harvest any deer with their permits.

15. Loantaka Brook Reservation

The hunting area at Loantaka Brook Reservation consisted of 245 acres (28% of the park). This park was open for bow hunting a total of 104 days: 25 days during the fall bow season, 45 days during the permit bow season, and 34 days during the winter bow season. Bow hunting was permitted from Monday through Friday; hunting on Saturdays was not permitted. The season

structure was identical to that of the 2017/18 program.

Thirteen (13) hunters were registered for the bow program at Loantaka Brook Reservation, one more than in 2017/18. There was a 100% survey return rate. One hunter reported not using his permit for this park. The hunters reported 145 hunting days among 12 participants. The maximum number of days that any one hunter used his permit was 60.

Seven deer were harvested at Loantaka Brook Reservation, six of which were antlerless. This represents a 13% decrease from the 2017/18 program during which eight deer were harvested. Eight or 62% of the hunters at Loantaka Brook Reservation did not harvest any deer with their permits.

16. Passaic River County Park

The hunting area at Passaic River County Park consisted of 620 acres (73% of the park). This park was open for bow hunting a total of 138 days: 42 days during the fall bow season, 55 days during the permit bow season, and 41 days during the winter bow season. Hunting on Saturdays was permitted during all three seasons. This was the first year a bow program was held at Passaic River County Park.

Fifteen (15) hunters were registered for the bow program at Passaic River County Park. There was a 93% survey return rate. All hunters reported that they did use their permits for this park. The hunters reported 119 hunting days among fourteen participants. The maximum number of days that any one hunter used his permit was 20.

Six deer were harvested during the bow program at Passaic River County Park, two of which were antlerless. One hunter was responsible for 50% of the total deer harvest in this park.

17. Pyramid Mountain Natural Historic Area

The hunting area at Pyramid Mountain Natural Historic Area consisted of 941 acres (56% of the park). This park was open for bow hunting a total of 138 days: 42 days during the fall bow season, 55 days during the permit bow season, and 41 days during the winter bow season. Hunting on Saturdays was permitted during all three seasons. The season structure was identical to that of the 2017/18 program.

Twenty-three (23) hunters were registered for the bow program at Pyramid Mountain Natural Historic Area, one more than in 2017/18. There was a 100% survey return rate. Three hunters reported that they did not use their permits for this park. The hunters reported 250 hunting days among ten participants. The maximum number of days that any one hunter used his permit was 25.

Ten deer were harvested during the bow program at Pyramid Mountain Natural Historic Area, eight of which were antlerless. This represents an 11% increase from the 2017/18 program during which nine deer were harvested. Seventeen (17) or 74% of the bow hunters at Pyramid Mountain Natural Historic Area did not harvest any deer with their permits.

18. Tourne County Park

The hunting area at Tourne County Park consisted of 294 acres (52% of the park). This park was open for bow hunting a total of 104 days: 25 days during the fall bow season, 45 days during the permit bow season, and 34 days during the winter bow season. Bow hunting was permitted from Monday through Friday; hunting on Saturdays was not permitted. The season structure was identical to that of the 2017/18 program.

Twelve (12) hunters were registered for the bow program at Tourne County Park, one more than in 2017/18. There was a 100% survey return rate. One hunter reported not using their permit for this park. The hunters reported 169 hunting days among ten participants. The maximum number of days that any one hunter used his permit was 24.

Ten deer were harvested at Tourne County Park, eight of which were antlerless. This represents a 9% decrease from the 2017/18 program during which 11 deer were harvested. Nine or 75% of the bow hunters at Tourne County Park did not harvest any deer with their permits. One hunter was responsible for 50% of the total deer harvest in this park.

19. Waughaw Mountain Greenway

The hunting area at Waughaw Mountain Greenway consisted of 323 acres (88% of the park). Waughaw Mountain Greenway was open for bow hunting a total of 138 days: 42 days during the fall bow season, 55 days during the permit bow season, and 41 days during the winter

bow season. Hunting on Saturdays was permitted during all three seasons. The season structure was identical to that of the 2017/18 program.

Twelve (12) hunters were registered for the bow program at Waughaw Mountain Greenway, two more than in 2017/18. There was a 100% survey return rate. All hunters reported using their permits for this park. The hunters reported 133 hunting days among eight participants. The maximum number of days that any one hunter used his permit was 25.

Seven deer were harvested at Waughaw Mountain Greenway, all of which were antlerless. This represents a 75% increase from the 2017/18 program during which four deer were harvested. Five or 42% of the hunters at Waughaw Mountain Greenway not harvest any deer with their permits.

D. Firearm Program Results by Park

As discussed in Section B, Hunter Registration and Access Permits, a general permit was issued to firearm hunters allowing them to access both facilities open to firearm hunting: Black River Facilities and Lewis Morris County Park. Of 65 firearm hunters that used their permits, only 12 (18%) hunted in more than one park.

One hundred and two (102) hunters were registered for the firearm program. Ninety-nine (99) or 97% of the firearm hunters returned their survey forms. Thirty-four (34) or 34% of the firearm hunters that returned their survey forms reported not using their permits. The hunters reported 239 hunting days among 99 participants. The maximum number of days that any one hunter used his permit was nine. Seventy-six (76) or 77% of the firearm hunters that returned their survey forms did not harvest a deer. Nine (9) hunters were responsible for 60% of the total firearm deer harvest.

A total of 38 deer were harvested during the 2018/19 firearm program, 35 of which were antlerless. This represents a 49% decrease from the 2017/18 firearm program during which 74 deer were harvested.

1. Black River Facilities

A total of 1,233 acres were included in the 2018/19 firearm program at the Black River Facilities (73% of the park). Hunters were permitted to access all three sections of the park (Bamboo Brook and the Willowwood Arboretum; the Knight/Allen/Luce Properties; and the Kay Environmental Center) under the permit. Black River Facilities was open for a total of nine days of firearm hunting, including an additional one-day special firearm hunt at Willowwood Arboretum to remove deer from inside the enclosure. All nine firearm days fell within the NJDFW's permit shotgun season. Eight days coincided with the NJDFW's permit muzzleloader season and two days coincided with the NJDFW's six-day firearm season. The scheduled firearm season in this park was one day shorter than it was during the 2017/18 program but the special one-day hunt resulted in nine total days, identical to the season length during the 2017/18 program.

Sixteen (16) deer were harvested during the firearm program at Black River Facilities, 15 of which were antlerless. This represents a 47% decrease from the 2017/18 program during which 30 deer were harvested.

2. Lewis Morris County Park

A total of 1,404 acres were included in the 2018/19 firearm program at Lewis Morris County Park (64% of the park). This park was open for a total of eight days of firearm hunting. All eight days fell within the NJDFW's permit shotgun season. Seven days coincided with the NJDFW's permit muzzleloader season and one day coincided with the NJDFW's six-day firearm season. The firearm season in this park was one day shorter than it was during the 2017/18 program.

Twenty-two (22) deer were harvested during the firearm program at Lewis Morris County Park, 20 of which were antlerless. This represents a 24% increase from the 2017/18 program during which twenty-nine (29) deer were harvested.

E. Hunter Productivity

Of the 319 hunters that returned their surveys, 141 (44%) harvested deer during the 2018/19 program, a decrease from 57% in the 2018/19 program. Table 10 lists the number of deer harvested per hunter. Of the 141 hunters that harvested deer, 45% harvested two or more.

Table 10: Number of deer harvested per hunter in 2018/19.

# Deer Harvested	Hunters	% Total Hunters
0	178	55.8%
1	78	24.5%
2	27	8.5%
3	20	6.3%
4	8	2.5%
5	2	0.6%
6	2	0.6%
7	4	1.3%

Note: Based on the 319 hunters that submitted surveys.

Table 11 lists the number of deer that were harvested by hunters according to the number of days they hunted. The success rate for bow hunters generally increased with the number of hunting days until the 41-45 day range. Almost three-quarters (75%) of bow hunters that used their permit hunted a total of 6 to 25 days. Bow hunters in this range were responsible for 75% of the total bow harvest and 66% of the total deer harvest.

The success rate for firearm hunters increased with the number of hunting days up to 60% in the 7-8 day range. Firearm hunters that hunted from five to 6 days were responsible for 50% of the total firearm harvest.

Table 11: Number of deer harvested in 2018/19 according to the number of hunting days per hunter.

# Hunting Days per Hunter	# Hunters	# Deer Harvested	# Successful Hunters	Success Rate
Bow				
1-5	56	13	10	18%
6-10	82	42	29	35%
11-15	55	53	29	53%
16-20	48	50	29	60%
21-25	19	33	13	68%
26-30	4	18	4	100%
31-35	6	15	6	100%
36-40	2	1	1	50%
41-45	3	6	3	100%
46+	4	5	3	75%
Firearm				
1-2	22	7	4	18%
3-4	16	6	5	31%
5-6	21	19	11	52%
7-8	5	6	3	60%
9-10	1	0	0	0%

Table 12 lists the number of deer harvested during each month of the program. For the bow hunt, the most deer (66 deer, 28% of the total bow harvest) were harvested during the month of October. However, the September harvest saw only two less deer harvested (64 deer, 27% of the total bow harvest) despite the fact that September had 174 fewer available hunting days. It is also worth noting that 95% of the deer harvested in September were antlerless. The proportion of antlerless deer harvested in October and November was markedly lower (79% and 66% respectively). These results were very similar to those seen during the 2017/18 program.

For the firearm hunt, December saw the highest deer harvest (20 deer, 53% of the total firearm harvest) but had only five available hunting days compared to January, which had eight.

Table 12: Number of deer harvested in 2018/19 by month.

Month	Available Hunting Days	Deer Harvested	% of Total Bow/Firearm Harvest	Proportion of Antlerless Deer
Bow				
September	321	64	27%	95%
October	495	66	28%	79%
November	482	35	15%	66%
December	460	21	9%	90%
January	501	32	14%	97%
February	187	18	8%	94%
Firearm				
November	1	1	3%	100%
December	5	20	53%	85%
January	8	9	24%	100%
February	3*	8	21%	100%

*Includes special one-day hunt at Willowood Arboretum

Table 13 lists the number of deer harvested on each day of the week. For the bow program, Saturday was the most productive day of the week for hunters (65 deer, 28% of the total bow harvest) despite there being 49-68 less available hunting days when compared with other days of the week. Mondays, Wednesdays, and Fridays each accounted for 17% of the total bow harvest. Saturdays were also the most productive day of the week for the bow program in 2017/18.

For the firearm program, the most productive day of the week was Wednesday, which also had the most available hunting days. A total of 23 deer (61% of the total firearm harvest) were harvested on Wednesdays. Mondays and Thursdays were very close in terms of hunter productivity (18% and 21% of the total firearm harvest, respectively) though there were five less available hunting days on Mondays.

Table 13: Number of deer harvested in 2018/19 by day of the week.

Day of the Week	Available Hunting Days	Deer Harvested	% of Total Bow/Firearm Harvest
Bow			
Monday	423	41	17%
Tuesday	404	27	11%
Wednesday	423	40	17%
Thursday	423	24	10%
Friday	418	39	17%
Saturday	355	65	28%
Firearm			
Monday	2	7	18%
Wednesday	8*	23	61%
Thursday	7	8	21%

**Includes special one-day hunt at Willowwood Arboretum*

F. Weapon Analyses

For the bow program, hunters were permitted to use compound bows, crossbows, recurve bows and long bows. The use of a crossbow required that the hunter be in an elevated tree stand and that the crossbow be kept unloaded except when in a tree stand. Per the request of the MCMUA, crossbows were not permitted at the Alamatong Wellfield except in instances where hunters demonstrated a special need to use one.

For the firearm program, hunters were permitted to use shotguns or muzzleloaders. Muzzleloaders were permitted on days where the NJDFW muzzleloader season coincided with the NJDFW permit shotgun season. Though the NJDFW regulations do designate days when only muzzleloaders may be used, the MCPC did not include any of these days in the hunt schedule.

Hunters were asked on the end-of-season surveys which type of weapon they used when hunting in the park and how many deer they harvested with each type of weapon. Weapon success rates were calculated by dividing the number of hunters that were successful in harvesting a deer with a particular weapon by the total number of hunters that used that type of

weapon. Weapon use statistics for the 2018/19 program are summarized in Table 14.

Table 14: Weapon use statistics for the 2018/19 program.

	Firearm Hunting		Bow Hunting		
	Shotgun	Muzzleloader	Compound	Crossbow	Recurve/Long Bow
Number of hunters	65	5	197	147	3
Percent of firearm/bow hunters*	100%	8%	67%	50%	1%
Number of deer harvested	37	1	97	138	1
Percent of firearm/bow harvest	97%	3%	41%	58%	0.4%
Percent of total deer harvest	14%	0.4%	35%	50%	0.4%
Number of successful hunters	23	1	66	73	1
Success rate	35%	20%	34%	50%	33%

*Only accounts for hunters that utilized a permit.

For the firearm program, more hunters utilized shotguns than muzzleloaders. All 65 firearm hunters that used their permits used a shotgun. Five firearm hunters used a muzzleloader in addition to a shotgun. Shotgun hunters harvested 37 deer (97% of the total firearm harvest); muzzleloader hunters harvested one deer (0.4% of the total firearm harvest). The success rates for shotgun and muzzleloader hunters were 35% and 20% respectively.

The majority of bow hunters used a compound bow for hunting. Of the 279 bow hunters that used their permits, 197 (67%) used a compound bow; 147 (50%) used a crossbow; and three (1%) used a recurve or longbow. Thirty (30) hunters used more than one type of bow and were included in multiple categories. Crossbow hunters were responsible for a higher proportion of the total bow harvest. One hundred and thirty-eight (138) deer (58% of the bow harvest) were harvested with a crossbow; 97 deer (41% of the bow harvest) were harvested with a compound bow and one deer (0.4% of the bow harvest) was harvested with a recurve or longbow. Looking at the three types of bow hunters, crossbow hunters had the highest success rate. The success rate was 50% for crossbow hunters, 34% for compound bow hunters and 33% for recurve/long bow hunters.

Table 15 compares the weapon use statistics between the 2018/19 and 2017/18

programs. Firearm hunters saw a decrease in their overall success rate (53% in 2017/18 to 35% in 2018/19) though muzzleloader hunters saw a slight increase in their success rate (13% to 20%). Bow hunters also saw a decrease in their overall success rate (57% to 46%). Crossbow and compound bow hunters also had decreased success rates (67% to 50% and 48% to 34%, respectively) while recurve/long bow hunters saw an increased success rate (0 to 33%).

The contribution of bow hunters and firearm hunters to the total deer harvest was very similar between the two program years, though firearm hunters did see a decrease in their contribution to the total deer harvest from 23% in 2017/18 to 14% in 2018/19. However, for both program years, bows were responsible for the majority of the total deer harvest (77% in 2017/18 and 86% in 2018/19).

Table 15: Weapon use statistics for 2018/19 program as compared with 2017/18 program.

Weapon Type		Success Rate By Weapon		Overall Success Rate		Percent of Total Deer Harvest By Weapon Type		Percent of Total Deer Harvest – Bow vs. Firearm	
		2018/19	2017/18	2018/19	2017/18	2018/19	2017/18	2018/19	2017/18
Firearm	Shotgun	35%	54%	35%	53%	14%	22%	14%	23%
	Muzzleloader	20%	13%			0.4%	0.6%		
Bow	Compound	34%	48%	46%	57%	35%	39%	86%	77%
	Crossbow	50%	67%			50%	38%		
	Recurve/Longbow	33%	0			0.4%	0		

G. Negative Incidents

Negative incidents were reported by hunters to staff throughout the program as well as on their end of season survey forms. MCPC staff also reported negative incidents to the Division of Natural Resources as they occurred.

Seven (7) hunters received warnings during the 2018/19 program for violations of the MCPC’s White-tailed Deer Management Program Rules & Regulations. Warnings were issued to hunters for having unmarked tree stands; placing tree stands and game cameras within the safety zone buffer; failure to display a parking permit; bringing a non-hunter while participating in the deer program; and baiting earlier in the season than is permitted. Three hunters were suspended

from the 2018/19 program for violating multiple program rules.

Staff removed nine unmarked tree stands from the Pyramid Mountain Natural Historic Area (3), Alamatong Wellfield (2), Minnisink Reservation (2), Schooley's Mountain County Park (1), and Loantaka Brook Reservation (1). Theft of game cameras was reported at Jonathan's Woods and Schooley's Mountain County Park. Other hunting gear was stolen or tampered with at James Andrews Memorial County Park, Lewis Morris County Park and Mount Paul Memorial County Park. Unauthorized hunting was reported at the Alamatong Wellfield.

Hunters reported that other hunters were interfering with their hunts by hunting too close a distance at Jonathan's Woods, Lewis Morris County Park, James Andrew Memorial County Park, Schooley's Mountain County Park, and Passaic River County Park.

Hunters reported that non-hunters were present in Lewis Morris County Park on dates when the parks were closed to the public for hunting. Off-trail use by non-hunters was observed at Jonathan's Woods, James Andrews Memorial County Park, Lewis Morris County Park, Passaic River County Park, Pyramid Mountain Natural Historic Area, Central Park of Morris County and Schooley's Mountain County Park. Hunters at James Andrews Memorial County Park observed children starting fires and building forts. Dumping was reported at Black River County Park.

Unleashed dogs continue to be a major problem in the parks and were observed by numerous hunters at Central Park of Morris County, Pyramid Mountain Natural Historic Area, Jonathan's Woods, Schooley's Mountain County Park, Lewis Morris County Park, Black River Facilities and Mount Hope Historical County Park.

There were reports of ATV and dirt bike use at Mount Hope Historical County Park and Passaic River County Park.

V. Hunter Feedback

A. Overall Satisfaction

In addition to gathering harvest statistics, the end-of-season survey forms provide a means for the MCPC to gather input from hunters on their impressions of the program and their

opinions on procedural changes. Most of the hunters take this opportunity to voice their concerns and suggestions.

Hunters were asked to rate their overall satisfaction with the 2018/19 program on a scale of 1 to 5, with 1 being poor, 3 being good, and 5 being excellent. A total of 301 or 92% of the hunters responded, including some

Table 16: Hunter ratings of overall satisfaction with the 2018/19 program.

Rating	Hunters	Percent of Total
1 (Poor)	18	6%
2	28	9%
3 (Good)	80	27%
4	75	25%
5 (Excellent)	100	33%

hunters that did not use their permits. The results are summarized in Table 16. The majority of hunters (85%) gave the program a rating of good or above, a decrease from 91% in 2017/18. The percentage of hunters that were unsatisfied with the program (rating of 1 or 2) increased from 9% in 2017/18 to 15% in 2018/19.

B. Hunter Expectations

Hunters were asked to indicate how the number of deer seen in the parks compared with their expectations. The results are listed in Table 17. Most bow hunters (49%) reported that they saw as many deer as expected, though the number that reported seeing less deer than expected was not far off (43%). An almost equivalent number of firearm hunters reported seeing the same number of deer as expected as seeing less deer than expected. No trends were observed in terms of responses by facility.

Table 17: Hunter Expectations, Number of Deer Seen in 2018/19

	Less than Expected	Same as Expected	More than Expected
Bow Hunters	135	153	27
Firearm Hunters	30	29	6

Hunters were also asked to rate their satisfaction with the number of deer they saw during the entire 2018/19 hunting season on a scale of 1 to 5, with 1 being very dissatisfied, 3 being neutral and 5 being very satisfied. Bow hunters were asked to provide a rating for each

permit they held. Three hundred and fifteen (315) responses were received from bow hunters. The majority of the responses were for a rating of 3 to 4 (65%) though almost a quarter of the responses (24%) were for a rating of 1 to 2. Sixty-five (65) responses were received from firearm hunters. The majority of the responses were for a rating of 3 (41.5%), though 29% of the responses were for a rating of 1 to 2.

Table 18: Hunter Satisfaction, Number of Deer Observed in 2018/19

	Bow Hunters	% of Total	Firearm Hunters	% of Total
1 (Very Dissatisfied)	32	9.2%	5	7.7%
2	45	12.9%	14	21.5%
3 (Neutral)	116	33.2%	27	41.5%
4	88	25.2%	17	26.2%
5 (Very Satisfied)	34	9.7%	2	3.1%

C. Program Recommendations

Hunters were also asked to provide comments on how the program could be improved. The following responses were given. The number of individuals that provided the listed response is shown in parentheses.

Hunting Schedule – General

- Allow Sunday hunting (7)

Hunting Schedule – Firearm

- Schedule Saturday dates during the firearm season (1)
- Schedule more dates during the firearm season (1)

Hunting Schedule – Bow

- Allow Saturday bow hunting at:
 - Loantaka Brook Reservation (2)
 - Alamatong Wellfield (1)
 - Tourne County Park (1)
 - Schooley’s Mountain South (1)
- Allow Saturday bow hunting earlier in the season at:
 - Lewis Morris County Park (8)
 - Central Park of Morris County (1)
- Allow earlier bow hunting season at Loantaka Brook Reservation (1)

Programs – Existing and New

- Reinstate:
 - Firearm program at Schooley’s Mountain County Park (2)

Programs – Existing and New (cont.)

- Add firearm program at:
 - Mahlon Dickerson Reservation (1)
 - Minnisink Reservation (1)
- Suspend firearm program at Lewis Morris County Park (1)

Parking and Access

- Allow ATV use (2)
- Provide additional parking at Jonathan’s Woods (1)
- Provide vehicle access to Winona Trail at Mahlon Dickerson Reservation (1)
- Stop blocking off unauthorized ATV trails at Mount Hope Historical Park (1)

Hunter Check-In Requirements

- Extend the hours for hunter check-ins (3)

Hunter Density

- Issue less permits at Tourne County Park (1)

Permits

- Issue separate firearm permits for Lewis Morris North and South (2)

Weapon Restrictions

- Allow crossbow hunters to use ground blinds (6)
- Allow for the use of crossbows at the Alamatong Wellfield for youth hunters (1)
- Allow firearm hunters to use bows under their firearm access permits (1)

Tree Stands

- Allow hunters to have two tree stands in each park (6)
- Allow hunters to put up tree stands earlier than two weeks before the season (2)
- Encourage hunters to use better manners when placing tree stands (2)
- Continue to require crossbow hunters to hunt from a tree stand (1)
- Allow hunters to leave tree stands in the park after the season (1)
- Require hunters to maintain 450 feet between tree stands (1)
- Require hunters to mark all tree stands with orange flagging (1)
- Auction off confiscated tree stands (1)

Deer Baiting

- Allow for the use of feeders (14)
- Allow for the use of mineral blocks (6)
- Allow larger quantities of bait (2)
- Provide bait for hunters (2)

Deer Drives

- Prohibit deer drives (3)
- Limit deer drives (2)

Harvest Requirements

- Allow hunters to harvest a buck without taking does (1)
- Limit doe harvest to increase population at:
 - Central Park of Morris County (1)
 - James Andrew Memorial County Park (1)

Safety Zones

- Reduce the bow hunting safety zone buffer (2)

Park Boundaries

- Improve boundary postings at Black River Facilities (1)

Park Signage

- Post more bow hunting signs along trails at Pyramid Mountain Natural Historic Area (1)

Hunting of Other Species

- Allow bear hunting (8)
- Allow coyote hunting (1)
- Allow turkey hunting (1)
- Allow small game hunting (1)

Public Use of the Parks

- Do a better job at closing the parks during the firearm season (1)
- Require non-hunters to wear orange during bow seasons (1)
- Better enforce hikers staying on trails (1)

VI. Deer Population and Forest Health Indices***A. Bow Hunter Observation Logs***

All bow hunters registered for the 2018/19 program were provided with a daily observation log in their permit packages (Appendix D). The log provided an opportunity for bow hunters to record their observations during each of their hunting trips. The information collected included the date of the observation, the number of hours spent afield, and the number of antlerless and antlered deer observed. Hunters were also asked to record other observations and comments including other wildlife species that were observed. The collection of this data is restricted to bow hunters because the lengths of the bow seasons in the parks are generally longer than the lengths of the firearm seasons allowing for a greater number of observations. In addition, the nature of bow hunting allows for more accurate identifications as to the numbers and types of deer, i.e. antlered versus antlerless. The MCPC has been conducting this survey since the 2008/09 program.

The data collected allows for the calculation of an index of relative abundance (IRA). The IRA is calculated by dividing the total number of deer observed within a particular park by the total number of hunter observation hours within that park. The IRA is not an estimate of actual

herd size; rather it is an index that allows for the analysis of trends in deer abundance. The total number of deer observed is not indicative of population size, as individual deer may have been counted more than once. These numbers are simply used in the calculation of the IRAs. The data collected also allows for the calculation of antlerless to antlered deer ratios, which can also be compared from year to year to determine trends.

One hundred and forty-three (143) hunters returned their daily observation logs and recorded a total of 6,535 observation hours during 1,700 individual outings. The same number of hunters returned a log during the 2017/18 program but the total hours and individual outings recorded saw declines of 5% and 7% percent, respectively. The IRAs for each facility since 2018/19 are listed in Table 19.

As can be seen in Table 19, increases in the IRA since 2017/18 were seen at five facilities but no facility saw an increase of more than 0.3 points (Pyramid Mountain Natural Historic Area). Decreases in the IRA since 2017/18 were seen at seven facilities. No single facility saw a decrease of more than 0.3 points (Mount Paul Memorial County Park and Tourne County Park). Most of the parks have seen an overall positive trend in the IRA (i.e. a decrease in value) over the 11 years that this data has been collected. A number of parks have seen substantial decreases in the IRA value since an earlier year: 0.6 points at Alamatong Wellfield since 2012; 1.9 points at Central Park since 2008; 1.6 points at James Andrews since 2008; 3.2 points at Loantaka Brook Reservation since 2010; 1.0 point at Schooley's Mountain since 2012; and 1.3 points at Tourne County Park since 2010. These trends are indicative of positive effects of the deer management program in managing the deer population.

Table 19: Index of relative abundance (IRA) based on bow hunter observation reports from 2008 - 2019.

Park	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
Alamatong Wellfield	n/a	n/a	n/a	n/a	1.2	0.8	0.7	0.6	0.6	0.4	0.6
Black River Facilities	0.6	0.7	0.7	0.8	0.5	0.5	0.4	0.4	0.5	0.4	0.4
Central Park of Morris County	2.7	1.4	1.9	1.7	1.6	0.6	1.0	0.7	0.6	0.7	0.8
Flanders Valley Golf Course	n/a	n/a	0.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fosterfields	--	--	0.4	1.1	1.0	1.7	0.8	0.2	0.3	0.6	0.6
Frelinghuysen Arboretum	3.7	0.6	0.4	0.1	0.1	0.7	3.0	n/a	n/a	0.4	0.4
Hedden County Park	n/a	n/a	n/a	1.1	1.2	1.1	0.4	n/a	n/a	n/a	n/a
James Andrews	1.9	1.6	1.5	0.9	0.8	0.6	0.4	0.2	0.3	0.4	0.3
Jonathan's Woods	n/a	0.5	0.6	0.6	0.4	0.4	0.2	0.2	0.4	0.3	0.2
Lewis Morris County Park	n/a	n/a	n/a	n/a	0.5	0.6	0.3	0.5	0.4	0.4	0.4
Loantaka Brook Reservation	1.8	3.5	3.9	0.5	n/a	n/a	0.4	0.8	0.5	0.8	0.7
Mahlon Dickerson Reservation	n/a	0.7	0.5	0.5	0.4	0.2	0.2	0.2	0.2	0.3	0.4
Minnisink Reservation	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.2
Mount Hope	1.0	0.8	1.3	n/a	--	0.4	0.4	0.1	0.7	0.6	0.5
Mount Paul	0.9	1.1	0.8	0.9	0.7	0.6	0.7	0.5	0.6	1.0	0.7
Old Troy County Park	n/a	1.8	1.7	0.5	0.4	0.6	0.6	n/a	n/a	n/a	n/a
Passaic River County Park	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.2
Pyramid Mountain	0.4	n/a	n/a	0.6	0.8	n/a	0.5	0.2	0.2	0.2	0.5
Schooley's Mountain	n/a	n/a	n/a	1.0	1.4	n/a	0.5	0.4	0.5	0.4	0.4
Silas Condict County Park	n/a	n/a	n/a	n/a	n/a	n/a	0.3	0.2	0.4	0.4	0.2
Tourne County Park	n/a	0.7	1.6	0.7	0.3	0.5	0.3	0.3	0.3	0.6	0.3
Waghaw Mountain Greenway	n/a	n/a	n/a	n/a	n/a	n/a	0.4	0.4	0.3	0.3	0.5

Key to symbols:

(n/a) bow program was not held at Park. (--) data was not provided by participating hunters

Table 20: Antlerless to antlered deer ratios based on bow hunter observation reports from 2008 - 2019.

Park	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
Alamontong Wellfield	n/a	n/a	n/a	n/a	3.8	3.9	2.5	3.4	2.5	1.9	5.0
Black River Facilities	4.6	3.9	3.1	4.1	3.7	2.3	3.6	2.8	2.0	2.2	2.7
Central Park	3.6	4.6	4.4	4.6	2.9	2.4	3.9	4.0	2.8	2.7	3.5
Flanders Valley GC	n/a	n/a	12.9	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fosterfields	--	--	1.8	4.4	2.5	9.0	3.0	1.5	2.4	1.8	1.3
Frelinghuysen	2.3	3.1	0.8	1.5	0.5	1.7	x	n/a	n/a	0.9	0.4
Hedden	n/a	n/a	n/a	5.6	5.7	3.4	6.9	n/a	n/a	n/a	n/a
James Andrews	6.5	5.5	4.3	3.4	5.4	2.3	3.0	1.4	2.1	3.5	1.6
Jonathan's Woods	n/a	2.8	3.3	2.9	6.7	7.4	2.8	3.0	2.4	2.1	2.3
Lewis Morris	n/a	n/a	n/a	n/a	2.5	2.6	2.4	2.1	2.8	1.5	1.4
Loantaka Brook	5.0	4.4	4.7	2.2	n/a	n/a	2.3	2.0	1.3	0.9	0.6
Mahlon Dickerson	n/a	3.4	4.5	3.3	3.9	2.5	5.0	2.1	2.2	3.4	3.8
Minnisink	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4.1
Mount Hope	6.4	3.5	3.4	n/a	--	5.0	7.7	2.6	2.6	4.2	3.0
Mount Paul	4.1	3.9	2.4	4.3	3.3	2.8	6.0	4.5	3.4	3.1	2.2
Old Troy	n/a	5.2	4.3	1.6	7.0	3.9	2.3	n/a	n/a	n/a	n/a
Passaic River	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.6
Pyramid Mtn.	1.9	n/a	n/a	2.7	3.0	n/a	2.6	3.1	0.9	2.4	0.7
Schooley's Mtn.	n/a	n/a	n/a	4.9	3.7	n/a	2.4	4.1	2.5	3.3	2.6
Silas Conduct	n/a	n/a	n/a	n/a	n/a	n/a	7.6	3.1	1.8	3.3	3.4
Tourne	n/a	2.7	2.5	2.1	1.8	2.9	2.3	1.3	6.9	4.5	1.4
Waughaw Mtn.	n/a	n/a	n/a	n/a	n/a	n/a	4.1	4.9	2.5	2.3	2.0

Key to symbols:

(n/a) bow program was not held at Park.

(--) data was not provided by participating hunters

(x) incalculable

Since hunters break their observations down into antlerless and antlered deer, an antlerless to antlered deer ratio can be calculated. This number indicates how many antlerless deer exist for every antlered deer. If there were an equal number of each in the population, the ratio would be 1. While this index is interesting, it is not indicative of the sex ratio of the population. Since bucks shed their antlers in the winter, they can be counted as an antlerless deer during those months and as such, may artificially skew the ratio towards antlerless deer.

The antlerless to antlered deer ratios for each program since 2008/09 are listed in Table 20. Alamatong Wellfield had the highest antlerless to antlered ratio in 2018/19 with a value of 5.0. This was a very large increase from the 2017/18 program when the ratio was 1.9, one of the lower values for that year's program. In 2018/19, Frelinghuysen Arboretum had the lowest antlerless to antlered deer ratio with a value of 0.4.

The bow hunter observation logs also included 110 observations of seven different wildlife species. Black bears were observed at the Black River Facilities, Jonathan's Woods, Lewis Morris County Park, Mahlon Dickerson Reservation, Mount Hope Memorial County Park, Minnisink Reservation, Pyramid Mountain, Silas Condict and Waughaw Mountain Greenway. Bobcats were observed at Mahlon Dickerson Reservation.

Eastern coyotes were observed at Alamatong Wellfield, Black River Facilities, James Andrews, Lewis Morris County Park, Mahlon Dickerson, Mount Paul Memorial County Park, Minnisink Reservation, Tourne County Park and Waughaw Mountain Greenway. Eastern red fox were observed at Jonathan's Woods, Loantaka Brook and Lewis Morris County Park. Raccoons were observed at Lewis Morris County Park.

Wild turkeys were observed at Alamatong Wellfield, Black River Facilities, Loantaka Brook Reservation, Lewis Morris County Park, Passaic River County Park, Schooley's Mountain and Tourne County Park. A great-horned owl was observed at Lewis Morris County Park.

APPENDIX A

Harvest Statistics

APPENDIX B

Hunt Schedule

APPENDIX C

Park Hunting Maps

APPENDIX D

Program Forms

APPENDIX E

Sample Correspondence

APPENDIX F

Program Rules & Regulations