NATURAL RESOURCES COMMISSION
Quarterly Meeting
October 28, 2018
MINUTES

The quarterly meeting of the Natural Resources Commission was held on Sunday, October 28, 2018 at Stonewall Resort State Park, Roanoke, West Virginia. The following individuals attended:

NATURAL RESOURCES COMMISSIONERS

Jeffrey S. Bowers
David M. Milne
Kenneth R. Wilson
Peter L. Cuffaro
Thomas O. Dotson
Gregory K. Burnette
Byron K. Chambers - Absent

DIVISION OF NATURAL RESOURCES

Stephen S. McDaniel, Director (Presiding), South Charleston, WV
Lysti Looney, Director's Office (Recording Secretary), South Charleston, WV
Emily Fleming, Director's Office, South Charleston, WV
Paul Johansen, Wildlife Resources, South Charleston, WV
Jerry Jenkins, Law Enforcement, South Charleston, WV
David Trader, Law Enforcement, South Charleston, WV
Gary Foster, Wildlife Resources, South Charleston/Elkins, WV
Chris Ryan, Wildlife Resources, WV University, Morgantown, WV
Scott Warner, Wildlife Resources, South Charleston, WV
Keith Krantz, Wildlife Resources, Elkins, WV
Jim Crum, Wildlife Resources, Elkins, WV
Mark Scott, Wildlife Resources, South Charleston, WV
Mike Peters, Wildlife Resources, Farmington, WV
David James, Law Enforcement, French Creek, WV
Zack Brown, Wildlife Resources, South Charleston, WV

Randy Tucker, Wildlife Resources, Elkins, WV
Doug Benson, Law Enforcement, French Creek, WV
Cliff Brown, Wildlife Resources, Elkins, WV
Michael Spangler, Law Enforcement, French Creek, WV
Brendan Rumney, Law Enforcement, French Creek, WV
Mack Frantz, Wildlife Resources, Elkins, WV

ORGANIZATIONS AND OTHER MEMBERS OF THE PUBLIC

Larry Lawson, Belle, WV
Justin Hettick, West Virginia Bowhunters Association, Morgantown, WV
William Vandale, Charleston, WV
Gary Francisco, Charleston, WV
Camron Stover, Quality Deer Management Association, Williamstown, WV
Don Radcliff, West Virginia Bear Hunters Association, Elkview, WV
Dave Truban, Morgantown, WV
Jerod Harman, Bridgeport, WV
Deloris Dotson, White Sulphur Springs, WV
Roger Davis, French Creek, WV
Yvonne Davis, French Creek, WV
Justin Preston, Morgantown, WV
Mike Persinger, Quality Deer Management Association, Oak Hill, WV
John McCoy, Charleston Gazette Mail, Charleston, WV

CALL TO ORDER

Director McDaniel called the meeting to order at approximately 1:00 p.m. Director McDaniel introduced himself and welcomed everyone to the meeting. He asked the commissioners to introduce themselves and state the county they represent.

RATIFICATION OF MINUTES

Commissioner Bowers made a **MOTION** to approve the minutes of the July 29, 2018 meeting of the Natural Resources Commission as submitted. Commissioner Dotson seconded the motion. The motion passed unanimously.

REVIEW RESULTS OF 2018 WEST VIRGINIA DEER HUNTER OPINION SURVEY

Randy Tucker presented a power point presentation on the methodology and results of the deer hunter opinion survey. Wildlife Resources Section staff worked in preparing the questions for the survey instrument. Hunters were given options relating to season opening dates, bag limits and base license privileges. The ELS (Electronic Licensing System) was used to randomly select participants for the survey. Several questions were asked which were addressed relating to survey bias, survey return rate, conducting survey on ELS system, annual buck limit results, and survey strata by age. (Attachment A)

PUBLIC COMMENTS

William Vandale has concerns with catch & release trout fishing regulations and opposed the petitions against catch & release fishing regulations. Questioned why DNR is stocking trout on private lands where landowners are posting property with no trespassing signs. He feels that trout are paid for by people of WV, and that Trout Unlimited wants all trout fishing to be catch & release resulting in the enjoyment of a few anglers.

Gary Francisco does not understand why DNR is turning 100 miles of stream into catch & release – brook trout do not need these regulations. Feels there should be a 5-year moratorium on making any more streams catch & release.

Camron Stover, President, Mid-Ohio Branch Quality Deer Management Association, Director McDaniel announced that Camron Stover and his teammate were the winners of the 2018 Governor's One Shot Hunt - Camron thanked Director McDaniel. He also stated that Eureka Midstream has donated $75,000 for wildlife habitat improvements at Lewis Wetzel WMA directed at invasive plant species removal. Work is to be completed by a third-party contractor. Camron stated he will continue to work with DNR Wildlife Biologist Steve Rauch on this project.

Don Radcliff, West Virginia Bearhunters Association, Board of Directors, stated there was a comment in the Charleston Gazette stating heat does affect hunting dogs, feels early September is too early for bear seasons. Would like to see legislation requiring the purchase of an extra bear stamp for hunters taking two bears and that bear stamp needs to be purchased before the season. Thanked Commissioner Wilson for his work with Cabela's on eliminating bear bait from being sold in their stores. Stated it has been a good season and is looking forward to good bear hunting in December, because it has

been a good mast year.

Roger Davis, camps at the campground here at Stonewall Resort State Park. Stated there are forty camping sites and that the campground was established 1991. Feels the camping area is a forgotten area and is asking for help in getting improvements to the campground.

Justin Hettick, President, West Virginia Bowhunters Association, stated it was a good bow hunting season and great to be able to hunt on Sundays. He appreciates the information on the Hunters Survey and feels the results seem to echo what he is hearing. Appreciates the DNR and NRC looking at the issues head-on and recommends that regulation decisions must be revenue neutral.

Jeremy Preston, Mountaineer Chapter Quality Deer Management Association, appreciates the opportunity to hunt on Sunday. Thanked the Governor's One Shot committee for their efforts and for working with the West Virginia Department of Agriculture in expanding the Hunters Helping the Hungry program. Thanked Eureka Midstream for the donation and would like to see some news releases on the donation. Feels we are giving away buck tags and privileges on our base license and are losing sight of what young hunters want in the future. Would like to see more results from the recent deer hunter opinion survey and would like to be a part of the survey to be conducted with Southwick and Associates.

Jerod Harmon President, West Virginia Wildlife Federation, stated he encouraged Mr. and Mrs. Davis to attend the Natural Resources Commission meeting and speak to the Commissioners regarding the campground. Stated he is seeing a lot of otters and that maybe there is a need to expand the otter bag limit. He also stated that a WV Bass Nation youth fishing tournament with sixty teams is being held at Stonewall Jackson Lake today and upon leaving the Commission meeting everyone is encouraged to stop by the marina parking area to observe the tournament.

Larry Lawson mentioned an article by John McCoy in today's paper on the elk restoration program in southern WV. In addition, he stated that he respects the Natural Resource Police Officers.

DIRECTOR McDANIEL'S COMMENTS

I am not aware of any streams DNR stocks on private land. Mr. Vandal stated Trout

Unlimited publishes in their monthly article the information and areas. Director McDaniel stated DNR will check into it. We have some good streams and the biologist continue to monitor these steams and fish. I have been out due to an illness I apologize no release has been done on the donation from Eureka. I will make sure a news release is announced. DNR very much appreciates this donation. DNR is constantly looking in to ways to improve the bear problems. I am glad Cabela's removed bear bait sales from their stores. I will setup a meeting with Rudy Henley who is with Stonewall Resort State Park regarding improvements for the campground. DNR is trying to find out what we can do to get more interest on hunting and fishing in West Virginia and raise revenue. Southwick is conducting a survey and hopefully we will have the information at our next sportsmen's round table meeting. I will stop by the youth tournament to speak to the participants when this meeting is over. Otters are a problem we need to figure out a way to handle the issues. DNR has conducted 24 elk tours which were very successful, and we plan on continuing the tours in the future. With the AML (Abandoned Mine Lands) grant, we plan on building an elk viewing area. Wildlife Resources has completed the 5-year plan for our WMA's - I am so proud of them they have done an excellent job. We are working on adding the 5-year plan to our website.

NEXT MEETING DATE AND PLACE

The dates for 2019 Natural Resources Commission quarterly meetings have not been confirmed - once confirmed they will be announced. The first quarterly meeting for 2019 will be held at DNR headquarters in South Charleston.

ADJOURN

Commissioner Wilson made a **MOTION** to adjourn. Commissioner Bowers seconded the motion. The motion passed unanimously. The meeting adjourned at approximately 2:30 p.m.

Attachment A

2018

West Virginia Deer Hunter Opinion Survey

West Virginia Division of Natural Resources

Wildlife Resources Section

October 28, 2018

Author:
Randy L. Tucker

2018 West Virginia Deer Hunter Opinion Survey

Executive Summary

- 8,500 West Virginia deer hunters were randomly selected from the Electronic License System (ELS) and sent survey questionnaires to establish opinions and marketing potential regarding:
    - Changing the opening day of buck firearms season.
    - Reducing the annual maximum buck harvest bag limit.
    - Reducing annual season bag limit privileges.

- Two separate surveys were sent: 1) an initial survey consisting of hunters purchasing additional deer harvesting privileges plus a representative sample of non-licensed hunters; and, 2) an additional survey consisting of hunters not purchasing additional deer harvesting privileges. Because few significant differences were found between initial and additional surveys, responses from both surveys were pooled for analysis.

- Licensed respondents and non-licensed respondents showed many significant differences in opinions and were therefore analyzed and presented separately.

- Approximately 65% of licensed respondents and 70% non-licensed respondents were satisfied with the deer management in West Virginia.

- Both licensed respondents (70%) and non-licensed respondents (76%) preferred to keep the opening day of buck firearms season on Monday before Thanksgiving.

- Licensed respondents were closely divided regarding the maximum buck bag limit. Over 40% preferred the current annual bag limit of 3 bucks per year, while over 39% preferred an annual buck limit of 2. Less than 15% of licensed respondents preferred a 1-buck limit per hunter per year. A small percentage of licensed respondents (5%) preferred an annual buck limit of 4. Non-licensed respondents were also divided, but were statistically different from licensed respondents.

- 55% of licensed and 61% of non-licensed respondents reported a preference to keep the current base harvest privileges (3 deer per year per specific season).

2018 West Virginia Deer Hunter Opinion Survey

Objective: To determine West Virginia Deer Hunter opinions and the marketing potential of alternative season dates, harvest strategies and bag limits including:

1 Moving the opening day of Buck Firearms Season to Saturday prior to Thanksgiving

2 Desired maximum annual buck harvest limit per hunter

3 Limiting the base license season bag limit privileges to 1 antlerless and 1 either-sex deer to be harvested across any season

APPROACH:

Based on previous survey efforts and time constraints, a mail survey was deemed the most efficient and appropriate survey method. A random sample of deer hunters was selected from the Electronic Licensing System (ELS) and asked a series of questions to determine their views on the above objectives. The ELS contains harvest and license purchase history of active deer hunters in West Virginia for the past three years.

SAMPLE SIZE:

To satisfy the objectives listed above, the following factors were considered:

1. The sample must be large enough to provide precision about the estimate of the interest variable. Sample size requirements are calculated to provide a precision of ± 4% of the estimate with a 95% confidence level. In other words, we can be 95% confident that the survey estimate is within ± 4%. The level of precision was determined based on a compromise between time constraints and the ability to manage the mailings/analysis in a timely manner by WRS staff.

2. To obtain an adequate sample size, additional surveys must be added to account for non-deliverable (7%), non-hunting (20%) and non-response

(65%). These percentages were based on recent Deer Hunter Survey returns.

3. Mailing must be small enough to be handled by existing WRS staff and incorporated into the existing workload.

4. A final analysis must be available by August 31, 2018.

The sample size needed to meet this estimate of precision was calculated using the unadjusted normal approximation to the binomial distribution (Snedecor and Cochran 1967) under the worst possible case (i.e., where p = q).

Therefore:

95% C.I. = 1.96
p = q = 0.50

The maximum error (E) of the estimate for the proportion is:

$$E = z(\alpha/2) * \sqrt{(pq/n)}$$

To use this formula to calculate the sample size, we rearrange the formula as:

$$n = \frac{\left[z\left(\frac{\alpha}{2}\right)\right]^2 \cdot p \cdot q}{(E)^2}$$

Where:

$1 - \alpha = 0.95$
$E = 0.04$
$p = 0.5$; therefore $q=1-0.5 = 0.5$

$$n = \frac{1.96^2 * 0.5 * 0.5}{(0.04)^2} = \frac{0.9604}{0.0016}$$

n = 600 responses (sample size) needed per question to achieve the desired level of precision.

Under these assumptions, the opinions of hunters that hunted deer in West Virginia between the 2015 and 2017 hunting seasons for the above objectives can be made within ± 4% from the actual at the 95% confidence level.

The sample size was calculated using the following estimated losses/returns from the initial sample:

Unable to contact (7%)	6,000 x0.07 420
Did not hunt in 2015 - 2017 (20%) (Non-licensed only)	1,216 x0.20 243
Did not respond to survey (65%)	6,000 x0.65 3,900
Expected losses from initial sample (420 + 243 + 3,900)	4,563
Expected useable responses (6,000 – 4,563)	1,437

SAMPLING SELECTION:

Unique survey recipients were randomly selected from West Virginia's Electronic Licensing System (ELS) based on the following criteria:

1. Must be at least 18 years old
2. Must be a verified customer
3. Must have purchased a hunting privilege that allows the harvest of an additional deer between 2015 and 2017 or classified as a resident non-licensed customer. Non-licensed customers were defined as resident customers within the ELS system that had not purchased a base hunting license within the last 3 years.

Based on these criteria, 147,782 individuals were identified as potential survey recipients. For individuals who purchased multiple licenses, the most recent purchase was used to represent their current mailing address to minimize the non-deliverable

rate. A total of 6,000 recipients were randomly selected from the 147,782 sample population in proportion to the hunting privilege purchased (Table 1).

Table 1. Number and percent of customers registered in sample population and selected recipients by license class for the 2018 West Virginia deer hunter opinion survey.

	Sample Population		Selected Recipients	
	N	%	N	%
Non-Licensed	29,942	20.3%	1,216	20.3%
N	61,461	41.6%	2,495	41.6%
NN	16,595	11.2%	674	11.2%
RB	13,284	9.0%	539	9.0%
RG	18,876	12.8%	766	12.8%
RM	510	0.3%	21	0.4%
RRB	1,922	1.3%	78	1.3%
RRG	5,090	3.4%	207	3.5%
RRM	102	0.1%	4	0.1%
Totals	147,782	100.0%	6,000	100.0%

METHODS

Recipients were sent the survey instrument (Appendix I), a cover letter explaining the nature of the survey (Appendix II) and a self-addressed envelope for easy return. All recipients were assigned a unique number for identification purposes while retaining anonymity.

Tables 2-7 illustrate the distribution of selected recipients compared to the ELS customers purchasing a base hunting license between 2015 and 2017.

Table 2. Number and percentage of customers registered by state in the West Virginia Electronic License System (ELS) database, sample population and selected survey recipients for the 2018 West Virginia deer hunter opinion survey.

	ELS Database*		Sample Population		Selected Recipients	
State	N	%	N	%	N	%
Alabama	336	0.1%	28	0.0%	6	0.1%
Alaska	99	0.0%	105	0.1%		
Arizona	82	0.0%	23	0.0%	2	0.0%
Arkansas	98	0.0%	25	0.0%	1	0.0%
California	231	0.0%	90	0.1%	2	0.0%
Colorado	195	0.0%	55	0.0%	1	0.0%
Connecticut	148	0.0%	44	0.0%	2	0.0%
DC	65	0.0%	23	0.0%	1	0.0%
Delaware	677	0.1%	205	0.1%	10	0.2%
Florida	4,030	0.8%	1,413	1.0%	68	1.1%
Georgia	1,015	0.2%	336	0.2%	23	0.4%
Hawaii	11	0.0%	10	0.0%		
Idaho	32	0.0%	14	0.0%		
Illinois	390	0.1%	105	0.1%	4	0.1%
Indiana	610	0.1%	163	0.1%	10	0.2%
Iowa	35	0.0%	14	0.0%		
Kansas	39	0.0%	17	0.0%	1	0.0%
Kentucky	1,349	0.3%	361	0.2%	14	0.2%
Louisiana	375	0.1%	128	0.1%	5	0.1%
Maine	137	0.0%	70	0.0%	3	0.1%
Maryland	12,754	2.4%	3,453	2.3%	120	2.0%
Massachusetts	332	0.1%	127	0.1%	3	0.1%
Michigan	1,029	0.2%	300	0.2%	10	0.2%
Minnesota	47	0.0%	13	0.0%		
Mississippi	113	0.0%	37	0.0%	1	0.0%
Missouri	162	0.0%	53	0.0%	1	0.0%
Montana	42	0.0%	14	0.0%		
Nebraska	29	0.0%	11	0.0%		
Nevada	55	0.0%	13	0.0%	1	0.0%
New Hampshire	203	0.0%	90	0.1%	5	0.1%
New Jersey	1,554	0.3%	447	0.3%	18	0.3%
New Mexico	37	0.0%	15	0.0%		
New York	479	0.1%	130	0.1%	5	0.1%
North Carolina	4,685	0.9%	1,286	0.9%	58	1.0%
North Dakota	17	0.0%	9	0.0%		
Ohio	20,315	3.8%	6,570	4.4%	293	4.9%
Oklahoma	54	0.0%	21	0.0%		
Oregon	29	0.0%	11	0.0%	1	0.0%
Out of Country	130	0.0%	57	0.0%	1	0.0%
Pennsylvania	19,321	3.7%	5,613	3.8%	198	3.3%
Rhode Island	28	0.0%	12	0.0%		
South Carolina	1,492	0.3%	456	0.3%	23	0.4%
South Dakota	21	0.0%	5	0.0%		
Tennessee	1,168	0.2%	343	0.2%	12	0.2%
Texas	559	0.1%	175	0.1%	13	0.2%
Utah	46	0.0%	13	0.0%		
Vermont	180	0.0%	70	0.0%		
Virginia	11,793	2.2%	3,179	2.2%	121	2.0%
Washington	65	0.0%	28	0.0%	1	0.0%
West Virginia	441,793	83.6%	121,959	82.5%	4,960	82.7%
Wisconsin	94	0.0%	31	0.0%	2	0.0%
Wyoming	45	0.0%	10	0.0%		
(blank)	2	0.0%	2	0.0%		
Grand Total	528,627	100.00%	147,782	100.00%	6,000	100.0%

* Contains all hunting licenses purchased from 2015 to 2017.

Table 3. Number and percentage of customers registered by age in the West Virginia Electronic License System (ELS) database, sample population and selected survey recipients for the 2018 West Virginia deer hunter opinion survey.

	ELS Database*		Sample Population		Selected Recipients	
Age	N	%	N	%	N	%
18	9,131	1.7%	2,002	1.4%	96	1.6%
19	8,176	1.5%	1,960	1.3%	84	1.4%
20	9,053	1.7%	2,225	1.5%	99	1.7%
21	8,826	1.7%	2,199	1.5%	116	1.9%
22	8,510	1.6%	2,165	1.5%	95	1.6%
23	8,240	1.6%	2,104	1.4%	77	1.3%
24	8,238	1.6%	2,114	1.4%	84	1.4%
25	8,208	1.6%	2,101	1.4%	93	1.6%
26	8,130	1.5%	2,113	1.4%	80	1.3%
27	8,114	1.5%	2,113	1.4%	84	1.4%
28	8,241	1.6%	2,178	1.5%	81	1.4%
29	8,026	1.5%	2,153	1.5%	79	1.3%
30	7,792	1.5%	2,065	1.4%	95	1.6%
31	7,834	1.5%	2,072	1.4%	95	1.6%
32	8,151	1.5%	2,176	1.5%	81	1.4%
33	7,989	1.5%	2,233	1.5%	89	1.5%
34	7,996	1.5%	2,168	1.5%	80	1.3%
35	7,901	1.5%	2,281	1.5%	95	1.6%
36	8,325	1.6%	2,275	1.5%	93	1.6%
37	8,247	1.6%	2,300	1.6%	91	1.5%
38	9,289	1.8%	2,553	1.7%	101	1.7%
39	9,386	1.8%	2,527	1.7%	109	1.8%
40	9,013	1.7%	2,520	1.7%	88	1.5%
41	9,998	1.9%	2,660	1.8%	93	1.6%
42	9,371	1.8%	2,568	1.7%	105	1.8%
43	9,448	1.8%	2,611	1.8%	117	2.0%
44	11,197	2.1%	2,856	1.9%	112	1.9%
45	11,256	2.1%	2,862	1.9%	132	2.2%
46	12,105	2.3%	3,034	2.1%	127	2.1%
47	12,783	2.4%	3,328	2.3%	133	2.2%
48	12,450	2.4%	3,218	2.2%	140	2.3%
49	11,688	2.2%	3,041	2.1%	126	2.1%
50	11,846	2.2%	3,043	2.1%	109	1.8%
51	11,585	2.2%	2,940	2.0%	109	1.8%
52	11,663	2.2%	2,946	2.0%	132	2.2%
53	11,483	2.2%	2,900	2.0%	132	2.2%
54	11,917	2.3%	2,976	2.0%	101	1.7%
55	11,589	2.2%	2,904	2.0%	118	2.0%
56	11,364	2.1%	2,847	1.9%	105	1.8%
57	11,309	2.1%	2,940	2.0%	119	2.0%
58	11,056	2.1%	2,880	1.9%	104	1.7%

* Contains all hunting licenses purchased from 2015 to 2017.

Table 3. Number and percentage of customers registered by age in the West Virginia Electronic License System (ELS) database, sample population and selected survey recipients for the 2018 West Virginia deer hunter opinion survey. (Continued)

	ELS Database*		Sample Population		Selected Recipients	
Age	N	%	N	%	N	%
59	11,264	2.1%	2,768	1.9%	104	1.7%
60	10,849	2.1%	2,749	1.9%	110	1.8%
61	11,430	2.2%	2,746	1.9%	121	2.0%
62	10,676	2.0%	2,580	1.7%	101	1.7%
63	10,212	1.9%	2,346	1.6%	110	1.8%
64	10,427	2.0%	2,419	1.6%	103	1.7%
65	10,212	1.9%	2,393	1.6%	81	1.4%
66	11,198	2.1%	2,213	1.5%	95	1.6%
67	10,766	2.0%	2,143	1.5%	93	1.6%
68	8,289	1.6%	1,930	1.3%	79	1.3%
69	6,093	1.2%	1,833	1.2%	71	1.2%
70	4,909	0.9%	1,719	1.2%	57	1.0%
71	4,622	0.9%	1,711	1.2%	73	1.2%
72	1,871	0.4%	2,157	1.5%	80	1.3%
73	1,300	0.2%	1,669	1.1%	73	1.2%
74	1,254	0.2%	1,625	1.1%	73	1.2%
75	1,258	0.2%	1,510	1.0%	55	0.9%
76	981	0.2%	1,337	0.9%	59	1.0%
77	870	0.2%	1,193	0.8%	53	0.9%
78	674	0.1%	951	0.6%	35	0.6%
79	478	0.1%	810	0.5%	25	0.4%
80	424	0.1%	769	0.5%	28	0.5%
81	423	0.1%	625	0.4%	31	0.5%
82	324	0.1%	531	0.4%	18	0.3%
83	216	0.0%	397	0.3%	19	0.3%
84	226	0.0%	356	0.2%	13	0.2%
85	135	0.0%	291	0.2%	8	0.1%
86	110	0.0%	211	0.1%	9	0.2%
87	67	0.0%	178	0.1%	8	0.1%
88	34	0.0%	119	0.1%	7	0.1%
89	29	0.0%	105	0.1%	2	0.0%
90	16	0.0%	78	0.1%	2	0.0%
91	24	0.0%	68	0.0%	3	0.1%
92	7	0.0%	20	0.0%	1	0.0%
93	14	0.0%	31	0.0%	1	0.0%
94	4	0.0%	17	0.0%		
95	11	0.0%	8	0.0%		
96	1	0.0%	13	0.0%		
97	2	0.0%	4	0.0%		
98	3	0.0%	5	0.0%		
Total	528,627	100.0%	147,782	100.0%	6,000	100.0%

* Contains all hunting licenses purchased from 2015 to 2017.

Table 4. Number and percentage of West Virginia customers registered by county in the West Virginia Electronic License System (ELS) database, sample population and selected survey recipients for the 2018 West Virginia deer hunter opinion survey.

	ELS Database*		Sample Population		Selected Recipients	
County	N	%	N	%	N	%
Barbour County	6,351	1.2%	1,996	1.4%	77	1.3%
Berkeley County	14,697	2.8%	4,517	3.1%	186	3.1%
Boone County	8,568	1.6%	1,878	1.3%	91	1.5%
Braxton County	5,232	1.0%	1,557	1.1%	63	1.1%
Brooke County	3,807	0.7%	1,340	0.9%	42	0.7%
Cabell County	9,797	1.9%	2,431	1.6%	115	1.9%
Calhoun County	3,059	0.6%	1,070	0.7%	36	0.6%
Clay County	4,122	0.8%	1,009	0.7%	34	0.6%
Doddridge County	2,221	0.4%	776	0.5%	35	0.6%
Fayette County	12,975	2.5%	2,891	2.0%	134	2.2%
Gilmer County	2,368	0.4%	827	0.6%	26	0.4%
Grant County	6,129	1.2%	1,634	1.1%	69	1.2%
Greenbrier County	10,718	2.0%	2,845	1.9%	117	2.0%
Hampshire County	6,888	1.3%	2,314	1.6%	87	1.5%
Hancock County	3,831	0.7%	1,317	0.9%	60	1.0%
Hardy County	5,861	1.1%	1,789	1.2%	88	1.5%
Harrison County	15,651	3.0%	4,840	3.3%	225	3.8%
Jackson County	8,117	1.5%	2,322	1.6%	83	1.4%
Jefferson County	5,671	1.1%	1,711	1.2%	52	0.9%
Kanawha County	31,667	6.0%	8,314	5.6%	330	5.5%
Lewis County	6,557	1.2%	1,951	1.3%	76	1.3%
Lincoln County	6,759	1.3%	1,475	1.0%	65	1.1%
Logan County	10,758	2.0%	2,118	1.4%	83	1.4%
Marion County	13,899	2.6%	4,004	2.7%	186	3.1%
Marshall County	5,653	1.1%	1,513	1.0%	80	1.3%
Mason County	7,402	1.4%	2,103	1.4%	95	1.6%
McDowell County	5,971	1.1%	1,152	0.8%	52	0.9%
Mercer County	10,183	1.9%	2,785	1.9%	112	1.9%
Mineral County	7,808	1.5%	2,676	1.8%	104	1.7%
Mingo County	7,306	1.4%	1,348	0.9%	69	1.2%
Monongalia County	13,989	2.6%	4,313	2.9%	195	3.3%
Monroe County	3,935	0.7%	1,123	0.8%	54	0.9%
Morgan County	3,755	0.7%	1,279	0.9%	41	0.7%
Nicholas County	11,312	2.1%	2,576	1.7%	124	2.1%
Ohio County	4,057	0.8%	1,129	0.8%	51	0.9%
Pendleton County	3,363	0.6%	803	0.5%	29	0.5%
Pleasants County	2,415	0.5%	680	0.5%	32	0.5%
Pocahontas County	4,000	0.8%	870	0.6%	32	0.5%
Preston County	11,379	2.2%	4,453	3.0%	197	3.3%
Putnam County	11,931	2.3%	3,256	2.2%	131	2.2%
Raleigh County	18,395	3.5%	4,462	3.0%	195	3.3%
Randolph County	12,479	2.4%	3,370	2.3%	127	2.1%
Ritchie County	3,475	0.7%	1,105	0.7%	31	0.5%
Roane County	4,727	0.9%	1,714	1.2%	67	1.1%
Summers County	3,416	0.6%	964	0.7%	40	0.7%
Taylor County	4,859	0.9%	1,605	1.1%	60	1.0%
Tucker County	3,532	0.7%	1,007	0.7%	43	0.7%
Tyler County	2,592	0.5%	829	0.6%	34	0.6%
Upshur County	9,415	1.8%	3,153	2.1%	109	1.8%
Wayne County	7,343	1.4%	1,233	0.8%	50	0.8%
Webster County	5,209	1.0%	1,301	0.9%	73	1.2%
Wetzel County	4,572	0.9%	1,421	1.0%	50	0.8%
Wirt County	2,344	0.4%	790	0.5%	39	0.7%
Wood County	15,739	3.0%	4,912	3.3%	220	3.7%
Wyoming County	9,433	1.8%	2,094	1.4%	81	1.4%
(blank)	100,935	19.1%	28,837	19.5%	1,023	17.1%
Grand Total	528,627	100.0%	147,782	100.0%	6,000	100.0%

* Contains all hunting licenses purchased from 2015 to 2017.

Table 5. Number and percentage of customers registered by residence in the West Virginia Electronic License System (ELS) database, sample population and selected survey recipients for the 2018 West Virginia deer hunter opinion survey.

	ELS Database*		Sample Population		Selected Recipients	
Residence	N	%	N	%	N	%
NonResident	83,760	15.8%	23,867	16.2%	965	16.1%
Resident	444,867	84.2%	123,915	83.8%	5,035	83.9%
Total	528,627	100.0%	147,782	100.0%	6,000	100.0%

* Contains all hunting licenses purchased from 2015 to 2017.

Table 6. Number and percentage of customers registered by gender in the West Virginia Electronic License System (ELS) database, sample population and selected survey recipients for the 2018 West Virginia deer hunter opinion survey.

	ELS Database*		Sample Population		Selected Recipients	
Gender	N	%	N	%	N	%
Female	53,155	10.1%	8,643	5.8%	775	12.9%
Male	475,464	89.9%	109,195	73.9%	5,225	87.1%
Unknown	8	0.0%	29,944	20.3%		
Total	528,627	100.0%	147,782	100.0%	6,000	100.0%

* Contains all hunting licenses purchased from 2015 to 2017.

Table 7. Number and percentage of customers registered by base license class in the West Virginia Electronic License System (ELS) database, sample population and selected survey recipients for the 2018 West Virginia deer hunter survey.

	ELS Database *		Sample Population		Selected Recipients	
ProductCode	N	%	N	%	N	%
A	58,172	11.00%	12,137	8.2%	619	10.3%
AAH	787	0.15%				
AAHJ	274	0.05%				
AB-L	24,317	4.60%	10,722	7.3%	452	7.5%
AB-L-I	3,705	0.70%				
AH	2,093	0.40%				
AHJ	1,393	0.26%				
A-L	3,349	0.63%	1,438	1.0%	50	0.8%
A-L-I	68	0.01%				
E	79,315	15.00%	22,632	15.3%	899	15.0%
X	309,879	58.62%	55,927	37.8%	2,233	37.2%
XJ	16,081	3.04%	3,602	2.4%	83	1.4%
XS	26,583	5.03%				
XXJ	2,611	0.49%	789	0.5%	44	0.7%
Non-Licensed			40,535	27.4%	1,620	27.0%
Grand Total	528,627	100.00%	147,782	100.0%	6,000	100.0%

* Contains all hunting licenses purchased from 2015 to 2017.

After the initial mailing of the survey instrument, a concern was raised that the selection of recipients favored a particular group of individuals, i.e., only individuals purchasing extra harvesting privileges. The argument was based on the assumption that non-licensed or hunters purchasing additional deer harvesting privileges might have different opinions when compared to deer hunters that did not purchase additional deer harvesting privileges. Therefore, a second mailing of the survey instrument was sent to individuals who purchased a base hunting license but did not purchase additional deer harvesting privileges. Based on the additional criteria, 176,452 individuals were identified as potential survey recipients (Table 8). Two thousand five hundred (2,500) additional surveys were mailed to randomly selected individuals who purchased a base hunting license with no additional harvesting privileges. No individuals selected for the initial survey were included in the additional survey sample.

Table 8. Number and percentage of customers purchasing a base hunting privileges only and selected recipients by license class for the 2018 West Virginia deer hunter opinion survey.

	Base License Holder		**Survey Recipients**	
License Class	**N**	**%**	**N**	**%**
A	15,820	8.97%	224	8.96%
AAH	319	0.18%	3	0.12%
AAHJ	128	0.07%	2	0.08%
AB-L	11,800	6.69%	167	6.68%
AB-L-I	2,165	1.23%	31	1.24%
AH	926	0.52%	13	0.52%
AHJ	647	0.37%	9	0.36%
A-L	1,642	0.93%	23	0.92%
A-L-I	45	0.03%	1	0.04%
E	20,961	11.88%	297	11.88%
X	98,370	55.75%	1,394	55.76%
XJ	4,555	2.58%	65	2.60%
XS	18,246	10.34%	259	10.36%
XXJ	828	0.47%	12	0.48%
Grand Total	**176,452**	**100.00%**	**2,500**	100.00%

A total of 8,500 randomly selected individuals were sent a survey instrument. Distribution of surveys included resident and non-resident hunters (Figures 1-2).

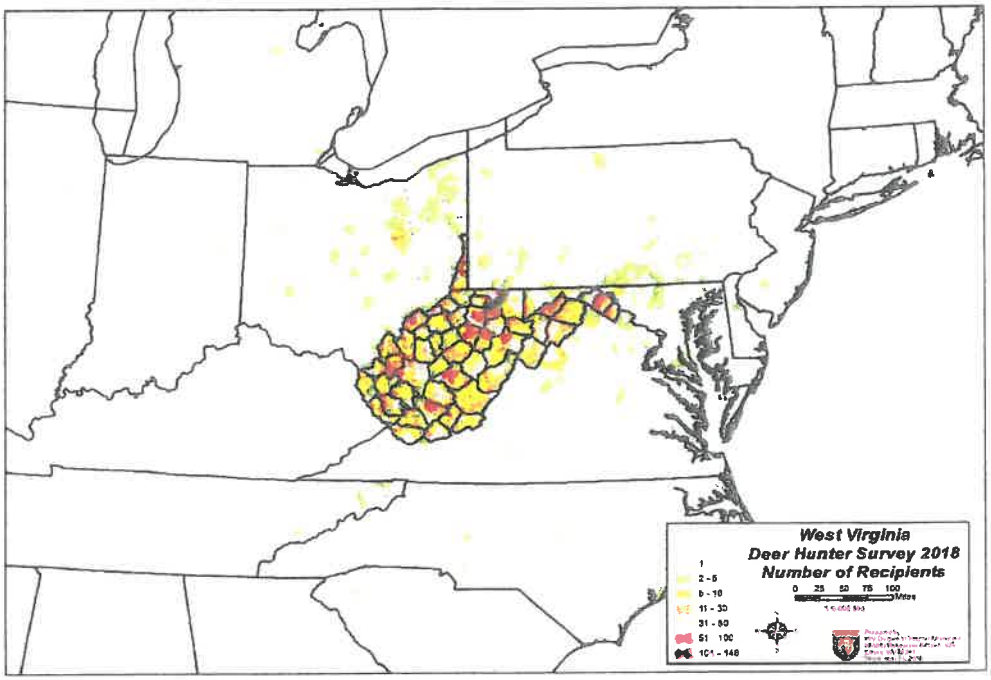

Figure 1. Regional distribution of 8,500 West Virginia deer hunter survey recipients, August 2018.

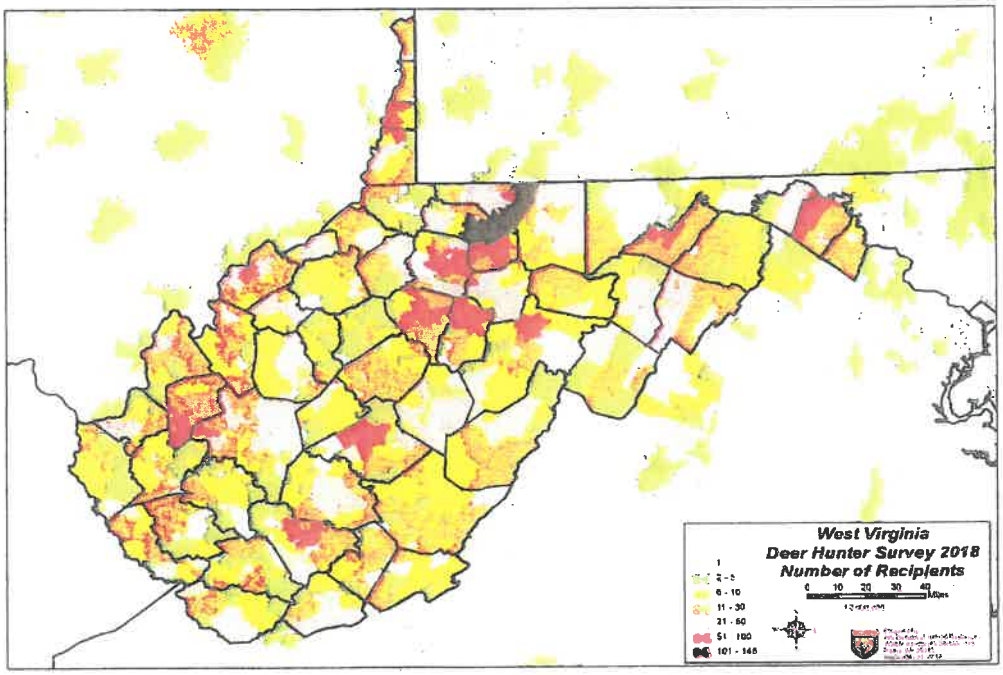

Figure 2. Statewide distribution of 8,500 West Virginia deer hunter survey recipients, August 2018.

Responses for each survey were collected for 30 days from the initial date of mailing. Records were kept regarding the number received by date. Each completed survey was given a unique number for archive purposes then keyed, verified, and imported into a database for analysis.

At the completion of data entry, the data was screened for errors and additional interest variables were calculated based on fields stored in the ELS database.

All significance tests were computed by compiling the number of positive responses for both initial and additional surveys and compared using a Z-score test for proportions. The following formula was used to calculate the Z-score statistic:

$$Z = \frac{P1 - P2}{\sqrt{pq(\frac{1}{n1} + \frac{1}{n2})}}$$

Where:

P1 = number of positive responses received from initial survey
P2 = Number of positive responses received from additional survey
p = Pooled estimate for population proportion
q = 1 – p
n1 = number of responses from initial survey
n2 = number of responses from additional survey

An $\alpha = 0.05$ was used for all significance test, i.e., if the Z-score was greater than 1.64 (Z table value with $\alpha = 0.05$) the comparison was deemed significant. All questions on the survey instrument were analyzed by determining the number of positive responses reported by respondents. Results from both surveys (initial and additional) were compiled and tested for significance using a Z-test for population proportions. An $\alpha = 0.05$ was used for all significance tests.

RESULTS

Survey response by recipients was better than expected (Table 9). A total of 1,722 completed responses were received for the initial survey representing a 31.5% response rate. The response rate for the additional mailing was similar to the initial mailing. Six hundred twenty (620) responses were received for the additional mailing representing a 27.7% response rate. During the analytical process it was discovered that 141 of the recipients in the additional sample had purchased additional harvesting privileges between 2015 and 2017. These responses (n = 141) were removed from the

620 additional survey responses leaving 479 responses for comparison. Because respondents did not always answer every question, sample size varied among questions.

Table 9. Expected and actual response rates for initial and additional mailings for the 2018 West Virginia deer hunter opinion survey.

	Initial Survey		Additional Survey	
	Expected	Actual	Expected	Actual
Initial Mailing	6,000	6,000	2,500	2,500
Non Deliverables	420	527	175	259
Returns	1,437	1,722	600	620
Total Effective Sample (TES)	5,580	5,473	2,325	2,241
Response Rate	25.8%	31.5%	25.8%	27.7%

Because initial analyses found very few significant differences between the initial and additional surveys, responses from both surveys were pooled to provide an overall response of survey questions by respondents. Significant differences between licensed and non-licensed respondents were noted. Questions for each survey were analyzed and presented in Tables 10-13.

On average, deer hunter survey respondents had hunted deer for 33.5 years. Over 55% of hunters had hunted between 21 and 50 years (Table 10). Only 13.4% have hunted 10 years or less which would indicate the majority of respondents were seasoned hunters.

Table 10. Number of years hunted by licensed and non-licensed respondents to the West Virgina deer hunter opinion survey, 2015-2017.

	Licensed Respondents		Non-licensed Respondents		Pooled Survey	
Years Hunted	N	%	N	%	N	%
01 - 10 Years	259	14.29%	36	10.23%	295	13.40%
11 - 20 Years	245	13.53%	49	12.73%	294	13.36%
21 - 30 Years	293	16.20%	47	12.73%	340	15.45%
31 - 40 Years	338	18.82%	79	19.42%	417	18.95%
41 - 50 Years	372	21.66%	104	21.50%	476	21.63%
51 - 60 Years	127	10.86%	110	10.44%	237	10.77%
61 - 70 Years	21	3.14%	40	1.46%	61	2.77%
70+ Years	0	0.29%	5	0.00%	5	0.23%
(blank)	61	1.22%	15	11.48%	76	3.45%
Grand Total	1,716	100.00%	485	100.00%	2,201	100.00%

Respondents from all 55 West Virginia counties were represented in the survey (Table 11). County hunted most reported by respondents was distributed statewide suggesting the results for the survey questionnaire represented a comprehensive view of West Virginia hunters.

Overall, the majority of respondents were satisfied with deer management in West Virginia (Tables 12 and 13). A significant difference was found between licensed and non-licensed respondents. A greater percentage of non-licensed respondents (70%) were satisfied than licensed respondents (65%).

No significant difference was found between licensed and non-licensed respondents involving the importance of hunting on the first day of buck firearms season. Over 68% of all respondents reported that hunting on the first day of buck firearms season was 'very important' to them. Approximately 21% reported that hunting on the first day of buck firearms season was 'somewhat important' and 10% reported 'not important'.

Not only was the ability to hunt the opening day important to respondents, but also the timing of the opening day. Respondents clearly prefer the 'traditional Monday opening before Thanksgiving' to the 'Saturday before Thanksgiving' option. There was a significant difference between licensed (70%) and non-licensed (75%) respondents regarding their preference for keeping the opening day of buck firearms season on the Monday before Thanksgiving.

Table 11. County hunted most often by licnesed and non-licensed respondents to the West Virginia deer hunter opinion survey.

	Licensed Respondents		Non-Licensed Respondents		Pooled Sample	
County	N	%	N	%	N	%
BARBOUR	28	1.63%	7	1.46%	35	1.59%
BERKELEY	50	2.91%	6	1.04%	56	2.54%
BOONE	20	1.17%	5	1.04%	25	1.14%
BRAXTON	38	2.21%	9	1.67%	47	2.14%
BROOKE	14	0.82%	4	0.21%	18	0.82%
CABELL	16	0.93%	7	1.46%	23	1.04%
CALHOUN	15	0.87%	6	1.04%	21	0.95%
CLAY	9	0.52%	4	0.84%	13	0.59%
DODDRIDGE	16	0.93%	11	1.04%	27	1.23%
FAYETTE	37	2.16%	4	2.30%	41	1.86%
GILMER	23	1.34%	10	1.25%	33	1.50%
GRANT	35	2.04%	5	2.09%	40	1.82%
GREENBRIER	37	2.16%	12	3.13%	49	2.23%
HAMPSHIRE	50	2.91%	15	3.76%	65	2.95%
HANCOCK	16	0.93%	5	0.42%	21	0.95%
HARDY	43	2.51%	16	2.09%	59	2.68%
HARRISON	48	2.80%	9	2.92%	57	2.59%
JACKSON	33	1.92%	15	1.25%	48	2.18%
JEFFERSON	10	0.58%	4	0.21%	14	0.64%
KANAWHA	46	2.68%	14	3.97%	60	2.73%
LEWIS	43	2.51%	13	0.84%	56	2.54%
LINCOLN	23	1.34%	9	1.46%	32	1.45%
LOGAN	14	0.82%	2	0.63%	16	0.73%
MARION	37	2.16%	15	0.42%	52	2.36%
MARSHALL	33	1.92%	6	1.25%	39	1.77%
MASON	42	2.45%	16	3.97%	58	2.64%
MCDOWELL	15	0.87%	1	0.63%	16	0.73%
MERCER	25	1.46%	7	1.25%	32	1.45%
MINERAL	40	2.33%	10	2.51%	50	2.27%
MINGO	8	0.47%		0.84%	8	0.36%
MONONGALIA	51	2.97%	9	2.92%	60	2.73%
MONROE	22	1.28%	12	1.04%	34	1.54%
MORGAN	22	1.28%	5	1.04%	27	1.23%
NICHOLAS	32	1.86%	17	1.88%	49	2.23%
OHIO	20	1.17%	5	1.25%	25	1.14%
PENDLETON	34	1.98%	8	1.04%	42	1.91%
PLEASANTS	12	0.70%	4	1.04%	16	0.73%
POCAHONTAS	29	1.69%	10	1.88%	39	1.77%
PRESTON	85	4.95%	20	4.18%	105	4.77%
PUTNAM	28	1.63%	7	1.88%	35	1.59%
RALEIGH	36	2.10%	3	2.30%	39	1.77%
RANDOLPH	55	3.21%	20	3.13%	75	3.41%
RITCHIE	41	2.39%	12	1.67%	53	2.41%
ROANE	27	1.57%	14	1.67%	41	1.86%
SUMMERS	20	1.17%	8	1.67%	28	1.27%
TAYLOR	23	1.34%	8	1.25%	31	1.41%
TUCKER	36	2.10%	6	1.25%	42	1.91%
TYLER	25	1.46%	3	1.25%	28	1.27%
UPSHUR	36	2.10%	10	1.67%	46	2.09%
WAYNE	25	1.46%	4	2.30%	29	1.32%
WEBSTER	28	1.63%	7	1.04%	35	1.59%
WETZEL	23	1.34%	7	1.04%	30	1.36%
WIRT	23	1.34%	8	0.84%	31	1.41%
WOOD	39	2.27%	16	2.92%	55	2.50%
WYOMING	15	0.87%	3	0.42%	18	0.82%
(blank)	65	3.79%	12	10.44%	77	3.50%
Grand Total	1,716	100.00%	485	100.00%	2,201	100.00%

Concerning the maximum annual buck harvest bag limit, respondents were divided regarding the maximum buck bag limit. There was a significant difference between licensed and non-licensed respondent answers in all categories except the 1-buck bag limit, where the values of 14.9% for licensed respondents and 12.3% for non-licensed were not statistically different.

Table 12. Responses (number and proportion) for licensed West Virginia deer hunters responding to 2018 West Virginia Deer Hunter Opinion Survey.

	Licensed Respondents	
Survey Question	N	%
How satisfied or dissatisfied are you with deer management in WV?		
Satisfied	1,058	64.59%
Neither Satisfied or Dissatisfied	209	12.76%
Dissatisifed	371	22.65%
Total	1,638	100.00%
How important is it to you to hunt opening day of buck firearms season each year?		
Very Important	946	68.90%
Somewhat Important	296	21.56%
Not Important	131	9.54%
Total	1,373	100.00%
What is your preference for opening day of buck firearms season?		
Prefer traditional Monday before Thanksgiving	1,163	70.02%
Saturday before Thanksgiving	320	19.27%
No Strong opinion	178	10.72%
Total	1,661	100.00%
What should be the annual maximum buck harvest bag limit per hunter?		
1 Buck	246	14.88%
2 Bucks	660	39.93%
3 Bucks	671	40.59%
4 Bucks	76	4.60%
Total	1,653	100.00%
2 Bucks or less	906	54.81%
3 Bucks or more	747	45.19%
Total	1,653	100.00%
What harvest privileges would you prefer:		
Keep current privileges (3-deer)	755	55.07%
Allow 1-antlerless and 1-either sex deer	616	44.93%
Total	1,371	100.00%

Table 12. Responses (number and proportion) for licensed West Virginia deer hunters responding to 2018 West Virginia Deer Hunter Opinion Survey. (Continued)

Survey Question	Licensed Respondents N	Licensed Respondents %
Do you typically hunt during one of the archery and/or crossbow deer seasons?		
Yes	1,063	60.24%
No	587	39.76%
Total	1,650	100.00%
Is the length of archery and/or crossbow season:		
Too short	153	9.02%
Just Right	1,110	71.97%
Too Long	256	19.01%
Total	1,519	100.00%
Do you typically hunt during the buck firearm season?		
Yes	1,573	96.66%
No	58	3.34%
Total	1,631	100.00%
Is the length of the buck firearm season:		
Too Short	295	18.07%
Just Right	1,230	75.03%
Too Long	119	6.90%
Total	1,644	100.00%
Do you typically hunt during one of the antlerless deer seasons?		
Yes	1,195	75.94%
No	435	24.06%
Total	1,630	100.00%
Is the length of the antlerless deer season:		
Too Short	295	18.09%
Just Right	998	63.22%
Too Long	287	18.70%
Total	1,580	100.00%
Do you typically hunt during the muzzleloader deer season?		
Yes	777	47.64%
No	862	52.36%
Total	1,639	100.00%
Is the length of the muzzleloader deer season:		
Too Short	338	24.73%
Just Right	970	70.32%
Too Long	70	4.95%
Total	1,378	100.00%
Do you plan to deer hunt in the new mountaineer heritage season?		
Yes	645	43.06%
No	848	56.94%
Total	1,493	100.00%

Table 13. Responses (number and proportion) for non-licensed West Virginia deer hunters responding to 2018 West Virginia Deer Hunter Opinion Survey.

	Non-Licensed Respondents	
Survey Question	N	%
How satisfied or dissatisfied are you with deer management in WV?		
Satisfied	329	70.15%
Neither Satisfied or Dissatisfied	53	11.30%
Dissatisifed	87	18.55%
Total	469	100.00%
How important is it to you to hunt opening day of buck firearms season each year?		
Very Important	254	67.91%
Somewhat Important	76	20.32%
Not Important	44	11.76%
Total	374	100.00%
What is your preference for opening day of buck firearms season?		
Prefer traditional Monday before Thanksgiving	362	75.89%
Saturday before Thanksgiving	65	13.63%
No Strong opinion	50	10.48%
Total	477	100.00%
What should be the annual maximum buck harvest bag limit per hunter?		
1 Buck	58	12.29%
2 Bucks	158	33.47%
3 Bucks	220	46.61%
4 Bucks	36	7.63%
Total	472	100.00%
2 Bucks or less	216	45.76%
3 Bucks or more	256	54.24%
Total	472	100.00%
What harvest privileges would you prefer:		
Keep current privileges (3-deer)	225	61.31%
Allow 1-antlerless and 1-either sex deer	142	38.69%
Total	367	100.00%

Table 13. Responses (number and proportion) for non-licensed West Virginia deer hunters responding to 2018 West Virginia Deer Hunter Opinion Survey. (continued)

Survey Question	Non-Licensed Respondents N	%
Do you typically hunt during one of the archery and/or crossbow deer seasons?		
Yes	219	46.60%
No	251	53.40%
Total	470	100.00%
Is the length of archery and/or crossbow season:		
Too short	27	6.44%
Just Right	284	67.78%
Too Long	108	25.78%
Total	419	100.00%
Do you typically hunt during the buck firearm season?		
Yes	451	96.78%
No	15	3.22%
Total	466	100.00%
Is the length of the buck firearm season:		
Too Short	74	15.78%
Just Right	373	79.53%
Too Long	22	4.69%
Total	469	100.00%
Do you typically hunt during one of the antlerless deer seasons?		
Yes	347	73.67%
No	124	26.33%
Total	471	100.00%
Is the length of the antlerless deer season:		
Too Short	83	17.97%
Just Right	289	62.55%
Too Long	90	19.48%
Total	462	100.00%
Do you typically hunt during the muzzleloader deer season?		
Yes	203	43.47%
No	264	56.53%
Total	467	100.00%
Is the length of the muzzleloader deer season:		
Too Short	87	22.48%
Just Right	281	72.61%
Too Long	19	4.91%
Total	387	100.00%
Do you plan to deer hunt in the new mountaineer heritage season?		
Yes	164	39.90%
No	247	60.10%
Total	411	100.00%

Currently, a resident hunter purchasing a base West Virginia hunting/trapping license can harvest up to 3 deer each year during specified seasons. A proposed alternative strategy would limit each hunter to harvest 1-antlerless and 1-either sex deer each year but allowing the privileges to be filled during any season. Over 55% of licensed respondents reported a preference to keep the current privileges while 45% preferred the either sex option. A significantly larger percentage (61%) of non-licensed respondents prefer to keep the current privileges while 39% preferred the either sex option.

The remainder of the survey requested the respondent's participation and opinions on season length of various deer seasons open each year and are presented in Tables 12 and 13. Of note was typical participation in archery and/or crossbow season was significantly higher in licensed respondents (60%) versus non-licensed respondents (47%).

The final question on the survey inquired if the respondent intended to participate in the new Mountaineer heritage season. Numerous calls were received asking about the season. This was expected since it is a new season available to hunters in 2019. Forty two percent (42%) of respondents indicated potential participation in the new season. There was no significant difference between the licensed and non-licensed respondents.

DISCUSSION

Without question, the white-tailed deer is the most popular big game animal in West Virginia. Chapter 20 of the West Virginia Code charges the West Virginia Division of Natural Resources (DNR) with the responsibility of managing all wildlife for the citizens of the State. The DNR embraces a science based approach in the management of the white-tailed deer, i.e., the North American Model.

Although the DNR uses the most reliable data assembled from a variety of sources to recommend season lengths and bag limits, deer hunters play an important role in the management of white-tailed deer. The DNR regularly surveys hunters to identify hunting and harvesting patterns. Opinions of West Virginia deer hunters are diverse regarding the proper management of deer. Hunter opinions, however, are often influenced by many sources and are not always rooted in a science based approach to deer management. This survey was conducted to identify participation of West Virginia hunters in various deer seasons and their opinions regarding potential changes in deer management strategies.

Overall, 65% of licensed respondents and 70% of non-licensed respondents were satisfied with the current deer management in West Virginia. Many comments were received which acknowledged appreciation and commended the DNR on their job of managing the wildlife of the State. Other comments recommended changes to harvest regulations and strategies and the need to increase law enforcement efforts.

It is clear the opening day of buck firearms season marks the beginning of an important hunting tradition in West Virginia. It is an anchor that many West Virginia hunters use to coordinate and synchronize their hunting activities.

The traditional opening day of buck firearms season (Monday before Thanksgiving) was established in the mid-1960's. Setting Monday as the opening day of the season has several advantages. First, it allows hunters a weekend to prepare for opening day. For non-resident hunters, it allows time to travel and establish camps near their favorite haunts without taking additional time off work. Second, it establishes a perception of fairness for all hunters hunting opening day. Every hunter desires an equal opportunity to harvest a buck during buck firearms season. This was clearly borne out by respondents indicating the importance of hunting opening day. Almost 90% indicated that hunting opening day of buck firearms season was 'very' or 'somewhat important'. Finally, setting the opening day of buck firearms season to the Monday before Thanksgiving serves to reinforce the hunting tradition. Hunting in West Virginia is historically significant and steeped in tradition. Schools are dismissed, hunters take scheduled vacation days and many businesses are closed allowing employees the time to hunt. Celebrated along with Thanksgiving, hunting provides additional time to spend with family and friends. In a deer hunter survey conducted in 2016 by the DNR (Tucker, 2016), respondents reported the following primary reasons for hunting: 1) put food on the table (51%); 2) spend time with family/friends (22%); 3) enjoy the outdoors (15%); and, 4) harvest a buck (6%). Given these compelling reasons to open the buck firearms season on Monday before Thanksgiving, it is easy to see why respondents (71%) overwhelmingly prefer this option.

The DNR must carefully examine all ramifications when considering changes to existing harvest strategies. The current annual maximum bag limit is 3 bucks per license year. Licensed hunters slightly favored a 2 or fewer buck harvest limit (55%), while non-licensed hunters slightly favored a 3 or 4 buck harvest limit (54%). Harvest data compiled from the DNR's ELS between 2015 and 2017 suggests a reduction in annual buck limit would have little effect in producing older age-class bucks. Table 14 shows that less than 2% of bucks harvested were taken by hunters taking 3 or more bucks per year. This would equate to approximately 1,000 bucks per year statewide.

Table 14. Percentage of bucks in total buck harvest by year in West Virginia from 2015 to 2017.

Number antlered bucks harvested per hunter	% Antlered Bucks in Harvest		
	2015	2016	2017
1	84.52	87.06	86.82
2	13.58	11.65	11.88
3	1.81	1.26	1.27
4+	0.09	0.03	0.03
Total	100.00	100.0	100.00

The last proposal under review concerns changing the total annual limit of deer allowed to be harvested per hunter on a base hunting/trapping license. The current regulations allow up to 3 deer without the purchase of additional harvesting privileges (1 deer in archery season, 1 antlered buck in firearms season and 1 deer in muzzleloader season). Any change in harvest limit deserves careful consideration. It is unknown what effect reducing the annual bag limit of deer will have on hunter participation, license sales, etc. For certain, deer hunting remains the mainstay of revenue for the DNR and generates the lion's share of revenue for wildlife management activities enjoyed by all.

LITERATURE CITED

Snedecor, W. G. and Cochran, W.G. (1967) Statistical Methods. Iowa State University Press, Ames Iowa. 593 pp.

Tucker, R. L. 2016. 2015 West Virginia Deer Hunter Survey- Bulletin 16-4. 52 pp.

Appendix I

West Virginia Division of Natural Resources Deer Hunter Survey

1. ***Do you hunt deer in WV? (choose one answer)*** ☐ Yes ☐ No

If Yes, please answer questions 2-17, if No, please stop and return the survey in the envelope provided.

2. ***How many years have you hunted deer in WV?*** _____ years

3. ***In what county do you deer hunt most in WV?*** _____ county

4. ***Overall, how satisfied or dissatisfied are you with deer management in WV? (choose one answer)***

   ☐ Very Satisfied ☐ Satisfied ☐ Neither ☐ Dissatisfied ☐ Very Dissatisfied

5. ***How important is it to you to hunt opening day of Buck Firearms Season each year? (check all that apply)***

   ☐ Very Important

   ☐ Somewhat Important

   ☐ Not Important

   ☐ I always hunt opening day (except emergency, etc.)

   ☐ I hunt opening day when it's convenient

6. ***Currently the Buck Firearms Season opens on the Monday before Thanksgiving. What is your preference for opening day of Buck Firearms Season? (choose one answer)***

   ☐ *I prefer keeping the traditional Monday before Thanksgiving*

   ☐ *I would be more likely to hunt opening day if it were on the Saturday just prior to Thanksgiving*

   ☐ *I don't have a strong opinion about it*

7. ***West Virginia currently has a maximum annual buck harvest bag limit of 3.*** In your opinion, ***what should be the annual maximum buck harvest bag limit per hunter: (choose one answer)***

   ☐ 1 Buck ☐ 2 Bucks ☐ 3 Bucks ☐ 4 or more Bucks

Answer question 8 if you purchase a West Virginia Resident License (Class X, XJ, XS) or have purchased a West Virginia Lifetime License with hunting privileges (AL, ABL).

8. ***Currently the base West Virginia hunting license allows for the harvest of 3 deer (one either-sex deer during Archery/Crossbow Seasons, one antlered deer in Buck Firearms Season and one either-sex deer in Muzzleloader Season). Would you prefer: (choose one answer)***

   ☐ Keeping the current harvest privileges

   or

   ☐ Allow 1-antlerless and 1-either sex deer to be harvested across any season

«SurveyNo»

Questions 9-17 on back -->

For questions 9-17, we would like to know your typical deer hunting participation. Please choose one answer for each question.

Archery/Crossbow Seasons

9. Do you typically hunt during one of the Archery and/or Crossbow Deer Seasons? (choose one answer)

☐ Yes ☐ No

10. The length of the Archery and/or Crossbow Deer Seasons are: (choose one answer)

☐ Too Short ☐ Just Right ☐ Too Long

Buck Firearms Season

11. Do you typically hunt during the Buck Firearms Deer Season? (choose one answer) ☐ Yes ☐ No

12. The length of the Buck Firearms Deer Season is (choose one answer)

☐ Too Short ☐ Just Right ☐ Too Long

Antlerless Deer Season

13. Do you typically hunt during one of the Antlerless Deer Seasons? (choose one answer) ☐ Yes ☐ No

14. The length of the Antlerless Deer Seasons are: (choose one answer)

☐ Too Short ☐ Just Right ☐ Too Long

Muzzleloader Season

15. Do you typically hunt during the Muzzleloader Deer Season (choose one answer) ☐ Yes ☐ No

16. The length of the Muzzleloader Deer Season is (choose one answer)

☐ Too Short ☐ Just Right ☐ Too Long

17. Do you plan to deer hunt in the new Mountaineer Heritage Season open January 10-13, 2019?

☐ Yes ☐ No

Comments (please write any comments you have)

_____

_____

_____

_____

Thank you for your time and willingness to participate in this survey. Please return the survey in the self-stamped envelope provided.

«SurveyNo»

Appendix II

DIVISION OF NATURAL RESOURCES
Wildlife Resources Section
Elkins Operations Center
738 Ward Rd., PO Box 67
Elkins, WV 26241
Telephone 304-637-0245
Fax 304-637-0250

Stephen S. McDaniel
Director

July 6, 2018

[redacted]

Dear [redacted]:

I am an analyst/wildlife biologist for the West Virginia Division of Natural Resources (WVDNR). My job includes surveying individuals who hunt and fish in West Virginia and then compile the results to guide the agency. The Director of the WVDNR is interested in your opinion regarding the status of deer management in West Virginia and would like your help. You have been randomly selected from our Electronic Licensing System to share your opinions and hunting experiences. Your responses will be used to develop a report for the Director in guiding revisions to West Virginia's white-tailed deer management program.

A Deer Hunter Survey is enclosed with a self-addressed stamped envelope for easy return. This survey is only being sent to a small sample of hunters, therefore **your response is critical.** It should only take you about 5 minutes to complete the survey. I understand your concerns for privacy so your responses will be kept confidential. Please feel free to contact me at the address above if you have any questions regarding this survey.

Your response is valuable because your opinions and hunting experiences will be used to represent the typical individual who hunts in West Virginia. By taking a few minutes to share your experiences, the Wildlife Resources Section will be better equipped to manage the resources that are enjoyed by you and many others.

I hope you enjoy filling out the questionnaire and I look forward to receiving your response.

Sincerely,

Randy L. Tucker
Environmental Resources Analyst

D[redacted]
Enclosure