PROJECT CODE NO.: 06210

TITLE: White-tailed Deer Research/Management

JOB CODE NO.: 21015

TITLE: Biological and social implications of a 7-day concurrent firearms season

PERIOD COVERED: 1 July 2010 through 30 June 2011

COOPERATING AGENCIES: Pennsylvania Cooperative Fish and Wildlife Research Unit, Pennsylvania State University

WORK LOCATION(S): Private and public lands in Wildlife Management Units 2D, 2G, 3C, and 4B

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DATE: 2 August 2010

ABSTRACT In 2008, the Board of Commissioners modified the firearm season length for antlerless deer in Wildlife Management Units (WMU) 2D, 2G, 3C, and 4B from a 12-day concurrent antlered and antlerless season to a 5-day antlered followed by a 7-day concurrent antlered and antlerless season. We investigated potential biological and social management implications that could occur due to this change to the firearms season. From January-April 2011, we captured 647 unique deer, marking 508 with $100 reward ear tags and 134 with radio collars. From June 2010-May 2011, 76 radio collared deer died, with the main cause of death being legal harvest. Compared to 2007-08, antlerless harvests and catch-per unit effort declined in two experimental WMUs, and increased in two. Since 2007-08, antlerless catch-per-unit-effort has remained relatively stable in all 4 control units (WMUs 1A, 2F, 3A, and 4A). The proportion of yearling bucks in the harvest remained similar in most control and treatment WMUs. To monitor social implications, 2,288 deer hunter diaries were mailed to hunters in the study WMUs with a 40% response rate. Diary data analysis will occur when data collection is completed in 2012.

OBJECTIVES

1. Estimate deer population abundance on each study area.
2. Determine relationship between deer population estimates, antlered harvest and antlerless hunter success rate indices.

3. Determine changes in antlerless hunter success rates from a 12-day concurrent to a 7-day concurrent firearm season.

4. Understand deer hunter experiences, satisfaction, and activity and the relationship from a 2-week concurrent to a 7-day concurrent firearms season.

5. Estimate changes in age structure of antlered harvest.

6. Determine whether deer population objectives can be achieved with a 7-day concurrent firearms season.

METHODS

Deer Capture, Survival, and Mortality Causes

Fieldwork to capture and monitor white-tailed deer (*Odocoileus virginianus*) was conducted in Wildlife Management Units (WMUs) 2D, 2G, 3C, and 4B. Field activities occurred across a broad area within each WMU to increase variability of survival and harvest covariates, thus improving biological inference of the relationship between survival and harvests and covariates (Steury et al. 2002).

We used drop nets (Conner et al. 1987), rocket nets, and modified Clover traps (Clover 1954, McCullough 1975) baited with corn to capture deer. Deer captured using drop-nets and rocket nets were sedated with a light, intramuscular (IM) dose of xylazine hydrochloride (XYL), and face-masked. XYL was delivered via hand syringe at about 0.6 mg/kg body weight, or about 20 mg for a fawn, 30 mg for a yearling, and 40 mg for an adult. These dosages were well below the dosage recommended by Bubenik (1982) for immobilization of white-tailed deer using xylazine alone; complete sedation was not required to facilitate handling deer tangled in the nets. Deer captured with Clover traps were manually restrained and face-masked.

When captured, all deer were fitted with an ear tag in each ear. For deer receiving radio collars, the ear tags contained numbers and a toll-free number. All remaining deer received bicolored ear tags (white on the inside of the ear and black on the outside) to reduce visibility of tags to hunters while hunting. The tag was labeled with a random identification number, toll-free phone number, and $100 reward for reporting the tagged animal. Rewards would be paid by the Pennsylvania Cooperative Fish and Wildlife Research Unit (PCFWRU) through a grant agreement with the Pennsylvania Game Commission (PGC). Handling protocols for deer were approved by the Pennsylvania State University (PSU) Institutional Animal Care and Use Committee.

Deer manually restrained by personnel were immediately released after individual markers were applied. Chemical immobilizations were antagonized with IM injections of tolazoline hydrochloride (TOL; 2.0 mg/kg) because it provides a more consistent antagonism of xylazine than yohimbine hydrochloride (Kreeger 1996).
We monitored survival using radio telemetry. Frequency of monitoring was a minimum of one time per month during the winter trapping season, and at least one time per week during the remainder of the year.

Mortality causes were determined by gross examination of the carcass or a necropsy by the PGC veterinarian. If a tagged deer was legally harvested, hunters were interviewed by biologist aides immediately after being notified to determine the time and circumstances of death.

**Unbiased Population Estimates**

Changing the firearms season format can potentially bias current methods of monitoring deer population abundance and trends. Some methods may be biased high, and others may be biased low. This creates confusion from which accurate assessment of changes in deer population abundance would not be possible. Unbiased population estimates and trends will be required to evaluate and explain observed changes in hunter success, behavior, and satisfaction.

In addition, combining deer population estimates with population indices provides an opportunity to investigate index calibration. Calibrating population indices with actual population estimates would strengthen the basis for future deer population monitoring and management recommendations.

**Antlerless Harvest Success Rates and Effectiveness of 7-Day Season**

We will use a repeated-measures ANOVA with 4 experimental WMUs (WMUs 2D, 2G, 3C, and 4B) and 4 control WMUs (WMUs 1A, 2F, 3A, and 4A). Analysis compared antlerless catch-per-unit-effort (CPUE) defined as antlerless harvest divided by number of antlerless licenses sold. The analysis is based on CPUEs before the season change (2004-2007) and after the season change (2008-2011).

For the first 2 years of the study, 2008-09 and 2009-10 hunting seasons, antlerless allocations remained unchanged in each treatment and control WMU. Following the 2009-10 hunting season, we assessed whether deer populations trends are meeting our objective of population stabilization. Increases in antlerless allocations for the 2010-11 hunting seasons were recommended. However, in April 2010, the Board of Commissioners decided to lower antlerless allocations below recommended levels. In 2011, more changes were made to allocations, season lengths, and antler point restrictions, further eroding the ability of this study to address all study objectives.

**Hunter Satisfaction**

No measure of satisfaction was scheduled for 2011. A final survey will be mailed in 2012.

**Deer Hunting Experiences**

We used hunter diaries (Appendix 1) to determine changes in deer sightings and hunter activity, opinions, and satisfaction. Given the potential for recall bias on hunter surveys more than 2 months after the firearms season, we also used hunter diaries to monitor deer sightings.
The diaries were mailed to a sample of hunters prior to the start of firearms seasons. Diaries were mailed to hunters from study WMUs based on Game Take Survey results and a random sample of 1,000 non-respondents to the Game Take Survey from the preceding year. In addition to providing greater detail on daily hunting activities, hunter diaries allow us to compare diary results to survey results to quantitatively evaluate the extent of recall bias.

**Antlered Harvest Age Structure**

Although we cannot make “before and after” comparisons using marked deer because of small sample sizes prior to the change to a 7-day concurrent season, it may be possible to observe changes in antlered harvest rates using age structure of the harvest from our sex-age-kill data collected during the firearms deer season. We are not able to estimate specific changes in harvest rate; but, we can observe whether any potential change in harvest rates affects the harvest age structure. For example, if antlered harvest rates on yearling bucks increase, we would expect to see a younger age structure in the harvest.

**Hunter Densities and Activity**

We used results from the annual Game Take Survey to estimate the number of hunter days during the firearms seasons in each study WMU. The Game Take Survey solicits responses from a sample of approximately 18,000 to 20,000 licensed hunters each year. We used standard responses to the Game Take Survey to estimate the number of days spent deer hunting during the firearms season in each study WMU.

**RESULTS**

**Deer Capture, Survival, and Mortality Causes**

We captured 647 deer, and an additional 54 recaptures (Table 1). Five hundred and eight deer were marked with reward tags, and 134 were marked with radio collars (Table 2). From June 2010-May 2011, 76 radio collared deer were lost to mortality (Table 3). Fifty-seven (34 adult males and 23 adult females) of the mortalities occurred due to legal harvest in the 2D, 2G, 3C, and 4B study areas. Other losses included unrecovered harvest (5), road killed (5), and natural causes (1). An additional 8 deer were lost to unknown causes. Ninety-one of the 520 reward tagged deer from 2010 were reported as legal harvests (Table 4). Eight of the 647 handled deer in 2011 were lost as a result of capture (Table 5).

**Unbiased Population Estimates**

Preliminary point estimates of adult deer (i.e., >1 year of age) populations were estimated using mark-recapture techniques (Chapman 1951). Based on harvest rates of marked deer, population estimates of adult deer were 195,742 in WMU 2D, 44,362 in WMU 2G, 137,623 in WMU 3C, and 55,659 in WMU 4B. These results are based on 2 years of data and do not include fawns because no fawns were marked. Additional years of data will improve reliability of these estimates.

**Antlerless Harvest Success Rates and Effectiveness of 7-Day Season**

Significant changes to antlerless allocations in 3 of the 8 WMUs make harvest comparisons of antlerless deer meaningless. In the first 2 years after the antlerless season was
shortened to 7 days, CPUE declined. In the 3rd year, CPUE increased in 3 or 4 study WMUs (Table 6). CPUEs in the 4 control units remained relatively stable.

**Hunter Satisfaction**

No hunter satisfaction survey was mailed in 2011.

**Deer Hunting Experiences**

We sent 2,288 deer hunter diaries to a random sample of deer hunters in study WMUs. Seventeen were undeliverable, and 39 were returned but filled out incorrectly with unusable data or the hunters indicated they did not hunt. After adjusting for the undeliverables, 907 of 2,271 diaries were returned by hunters for a 40% response rate. Results from hunter diaries will be reported in the final report of this study.

**Antlered Harvest Age Structure**

In 2007, yearling males (1.5 years of age) made up 39-67% of the antlered harvest in the experimental WMUs and 52-60% of the antlered harvest in the control WMUs. Changes during the 2008, 2009, and 2010 seasons have varied by WMU (Table 7).

**Hunter Densities and Activity**

Hunter days during the firearms season as estimated from the Game Take Survey results (Boyd and Weaver 2011) are provided in Table 8.

**RECOMMENDATIONS**

The Board of Commissioners at their April 2011 meeting, made more substantial changes that affect this research program. These include changes to antlerless allocations in several experimental units, adoption of a 7-day concurrent season for WMU 2F, and antler point restrictions were modified in the former 4-point WMUs making antlered deer with 3 points above the brow tine legal for harvest. These changes are contrary to the study plan. Because of these changes, some objectives of the original study plan have been negatively affected and uncertainty regarding interpretation of study results has increased. This project will continue to address those objectives that can be completed under the altered seasons, antler restrictions, and allocations.

**LITERATURE CITED**


Table 1. White-tailed deer initial captures (recaptures in parentheses) by sex and age class from January - April 2011 in WMUs 2D, 2G, 3C, and 4B, Pennsylvania. An adult is classified as an animal > 1 year of age. (Note: The reporting format is different in the 2009 report.)

<table>
<thead>
<tr>
<th>WMU</th>
<th>Sex/age class</th>
<th>WMU</th>
<th>2D</th>
<th>2G</th>
<th>3C</th>
<th>4B</th>
<th>All captures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male Adults</td>
<td></td>
<td>25</td>
<td>31</td>
<td>37</td>
<td>17</td>
<td>110</td>
</tr>
<tr>
<td></td>
<td>Male Fawns</td>
<td></td>
<td>46</td>
<td>29</td>
<td>55</td>
<td>53</td>
<td>183</td>
</tr>
<tr>
<td></td>
<td>Female Adults</td>
<td></td>
<td>42</td>
<td>41</td>
<td>85</td>
<td>50</td>
<td>218</td>
</tr>
<tr>
<td></td>
<td>Female Fawns</td>
<td></td>
<td>28</td>
<td>24</td>
<td>37</td>
<td>47</td>
<td>136</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>141</td>
<td>125</td>
<td>214</td>
<td>167</td>
<td>647</td>
</tr>
</tbody>
</table>

Table 2. Number of deer marked with reward ear tags and radio collars by WMU, January - April 2011, Pennsylvania. An adult is classified as an animal > 1 year of age.

<table>
<thead>
<tr>
<th>WMU</th>
<th>Reward ear tags</th>
<th>Radio collars</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Juvenile males</td>
<td>Adult males</td>
</tr>
<tr>
<td></td>
<td>2D</td>
<td>2G</td>
</tr>
<tr>
<td></td>
<td>36</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>46</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>36</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>135</td>
<td>82</td>
</tr>
</tbody>
</table>
Table 3. Mortality causes for radio collared white-tailed deer in Pennsylvania, June 2010 - May 2011.

<table>
<thead>
<tr>
<th>Mortality cause</th>
<th>WMU</th>
<th>2D</th>
<th>2G</th>
<th>3C</th>
<th>4B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal harvest</td>
<td></td>
<td>12</td>
<td>21</td>
<td>6</td>
<td>18</td>
<td>57</td>
</tr>
<tr>
<td>Male adults</td>
<td></td>
<td>8</td>
<td>12</td>
<td>3</td>
<td>11</td>
<td>34</td>
</tr>
<tr>
<td>Male fawns</td>
<td>--</td>
<td></td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Female adults</td>
<td></td>
<td>4</td>
<td>9</td>
<td>3</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>Female fawns</td>
<td>--</td>
<td></td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Unrecovered harvest</td>
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<td>0</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Male adults</td>
<td></td>
<td>0</td>
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<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Male fawns</td>
<td>--</td>
<td></td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Female adults</td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Female fawns</td>
<td>--</td>
<td></td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Poaching</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Male adults</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Male fawns</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Female adults</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Female fawns</td>
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<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>Roadkill</td>
<td></td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Male adults</td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Male fawns</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Female adults</td>
<td></td>
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<td>0</td>
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<td>1</td>
</tr>
<tr>
<td>Female fawns</td>
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</tr>
<tr>
<td>Natural Causes</td>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Male adults</td>
<td></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Male fawns</td>
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<td>0</td>
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<td>0</td>
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<td>2</td>
<td>3</td>
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<tr>
<td>Male adults</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Male fawns</td>
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<td>0</td>
<td>0</td>
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<td>2</td>
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<tr>
<td>Female adults</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Female fawns</td>
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<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>16</td>
<td>24</td>
<td>10</td>
<td>26</td>
<td>76</td>
</tr>
<tr>
<td>Male adults</td>
<td></td>
<td>10</td>
<td>14</td>
<td>6</td>
<td>16</td>
<td>36</td>
</tr>
<tr>
<td>Male fawns</td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Female adults</td>
<td></td>
<td>5</td>
<td>10</td>
<td>3</td>
<td>9</td>
<td>27</td>
</tr>
<tr>
<td>Female fawns</td>
<td></td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

*a Fawns less than 7 months-old are not marked during the hunting seasons.
Table 4. Reported harvests for reward tagged white-tailed deer (520) captured in Pennsylvania, October 2010 - January 2011.

<table>
<thead>
<tr>
<th>Legal harvest</th>
<th>WMU 2D</th>
<th>WMU 2G</th>
<th>WMU 3C</th>
<th>WMU 4B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>29</td>
<td>14</td>
<td>23</td>
<td>25</td>
<td>91</td>
</tr>
<tr>
<td>Male adults</td>
<td>19</td>
<td>6</td>
<td>17</td>
<td>14</td>
<td>56</td>
</tr>
<tr>
<td>Female adults</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>11</td>
<td>35</td>
</tr>
</tbody>
</table>

Table 5. Capture related mortalities from 647 handled white-tailed deer in Pennsylvania, January 2011 - May 2011.

<table>
<thead>
<tr>
<th>Capture related mortality</th>
<th>WMU 2D</th>
<th>WMU 2G</th>
<th>WMU 3C</th>
<th>WMU 4B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Male adults</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Male fawns</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Female adults</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Female fawns</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 6. Estimated antlerless harvests, number of antlerless licenses sold, and catch-per-unit-effort (CPUE) by WMU, 2007-08 through 2010-11.

<table>
<thead>
<tr>
<th>WMU</th>
<th>2007-08&lt;sup&gt;a&lt;/sup&gt;</th>
<th>2008-09&lt;sup&gt;b&lt;/sup&gt;</th>
<th>2009-10&lt;sup&gt;b&lt;/sup&gt;</th>
<th>2010-11&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Harvest</td>
<td>Lic. sold</td>
<td>CPUE</td>
<td>Harvest</td>
</tr>
<tr>
<td>2D</td>
<td>18,100</td>
<td>55,365</td>
<td>0.33</td>
<td>15,600</td>
</tr>
<tr>
<td>2G</td>
<td>6,600</td>
<td>25,779</td>
<td>0.26</td>
<td>6,500</td>
</tr>
<tr>
<td>3C</td>
<td>9,600</td>
<td>26,804</td>
<td>0.36</td>
<td>7,300</td>
</tr>
<tr>
<td>4B</td>
<td>4,500</td>
<td>22,687</td>
<td>0.20</td>
<td>3,800</td>
</tr>
<tr>
<td>1A</td>
<td>12,500</td>
<td>41,353</td>
<td>0.30</td>
<td>12,600</td>
</tr>
<tr>
<td>2F</td>
<td>7,100</td>
<td>27,716</td>
<td>0.26</td>
<td>9,100</td>
</tr>
<tr>
<td>3A</td>
<td>7,800</td>
<td>28,392</td>
<td>0.27</td>
<td>7,500</td>
</tr>
<tr>
<td>4A</td>
<td>6,700</td>
<td>28,402</td>
<td>0.24</td>
<td>6,900</td>
</tr>
</tbody>
</table>

<sup>a</sup> 12-day season in all 8 WMUs.

<sup>b</sup> 7-day season in WMUs 2D, 2G, 3C, and 4B.
Table 7. Harvest age structure of antlered deer by WMU, expressed as percentages, 2007-08 through 2010-11 hunting seasons.

<table>
<thead>
<tr>
<th>WMU</th>
<th>2007-08&lt;sup&gt;a&lt;/sup&gt;</th>
<th>2008-09&lt;sup&gt;b&lt;/sup&gt;</th>
<th>2009-10&lt;sup&gt;b&lt;/sup&gt;</th>
<th>2010-11&lt;sup&gt;b&lt;/sup&gt;</th>
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<td>Yearling</td>
<td>Adult</td>
<td>Yearling</td>
<td>Adult</td>
</tr>
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<td>2G</td>
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<td>0.61</td>
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<td>3C</td>
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</tr>
<tr>
<td>4B</td>
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<td>0.57</td>
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<td>0.56</td>
<td>0.44</td>
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</table>

<sup>a</sup> 12-day season in all 8 WMUs  
<sup>b</sup> 7-day season in WMUs 2D, 2G, 3C, and 4B

Table 8. Estimated hunter effort (days hunted) during the firearms season by WMU, 2007-08 through 2010-11 hunting seasons.

<table>
<thead>
<tr>
<th>WMU</th>
<th>2007-08&lt;sup&gt;a&lt;/sup&gt;</th>
<th>2008-09&lt;sup&gt;b&lt;/sup&gt;</th>
<th>2009-10&lt;sup&gt;b&lt;/sup&gt;</th>
<th>2009-10&lt;sup&gt;b&lt;/sup&gt;</th>
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<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>2D</td>
<td>178,702</td>
<td>171,353</td>
<td>217,350</td>
<td>193,950</td>
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<td>2G</td>
<td>201,264</td>
<td>212,093</td>
<td>205,440</td>
<td>204,541</td>
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<tr>
<td>3C</td>
<td>131,879</td>
<td>128,566</td>
<td>121,712</td>
<td>122,301</td>
</tr>
<tr>
<td>4B</td>
<td>103,559</td>
<td>101,440</td>
<td>123,336</td>
<td>108,026</td>
</tr>
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<td>1A</td>
<td>118,002</td>
<td>91,818</td>
<td>123,517</td>
<td>110,697</td>
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<td>2F</td>
<td>137,165</td>
<td>127,952</td>
<td>151,215</td>
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<tr>
<td>3A</td>
<td>95,534</td>
<td>73,905</td>
<td>102,765</td>
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<td>4A</td>
<td>135,938</td>
<td>120,275</td>
<td>122,885</td>
<td>112,999</td>
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<sup>a</sup> 12-day season in all 8 WMUs  
<sup>b</sup> 7-day season in WMUs 2D, 2G, 3C, and 4B
Appendix 1. 2010-11 Deer hunter diary to determine changes in deer sightings and hunter activity, opinions, and satisfaction.

Pennsylvania Game Commission
Deer Hunter Diary – 2010 Firearms Season (November 29th to December 11th)

1. Which of the following licenses and stamps did you purchase for the 2009-10 hunting seasons? (Circle all that apply)
   1. GENERAL HUNTING LICENSE
   2. JUNIOR or SENIOR COMBINATION HUNTING LICENSE
   3. LANDOWNER LICENSE
   4. ARCHERY STAMP
   5. MUZZLELOADER STAMP

2. How many WMU-specific antlerless licenses did you purchase? __________

3. How many DMAP permits did you purchase? __________

4. How many days did you scout for deer prior to the rifle season? (Circle one number)
   1. 0 DAYS
   2. 1-5 DAYS
   3. 6-10 DAYS
   4. MORE THAN 10 DAYS

5. Did you hunt during any of the early deer seasons (i.e., Archery, October muzzleloader, and October rifle)? (Circle all that apply)
   1. YES, ARCHERY SEASON
   2. YES, OCTOBER MUZZLELOADER SEASON
   3. YES, OCTOBER RIFLE SEASON FOR JUNIOR, SENIOR, DISABLED PERSON PERMIT HOLDER, & ACTIVE MILITARY
   4. NO, I DID NOT HUNT DEER DURING ANY EARLY SEASONS

5A. If you hunted during one of the early seasons, did you harvest any deer during these early seasons?
   1. NO
   2. YES, AN ANTLERED DEER
   3. YES, ________ ANTLERLESS DEER

INSTRUCTIONS FOR COMPLETING HUNTER DIARY (on back):
Each time you hunt deer during the rifle season (November 29 to December 11, 2010) please complete a row on the following sheet. You may have more than one entry for a day if you went out for two separate hunts.

- For land ownership, please record whether the land was privately owned, State Game Lands (SGL) or other publicly owned. For example, other publicly owned lands include State Forest Lands, State Parks, and National Forest. If you hunted on multiple land ownerships on a hunt, for example private lands and state game lands, circle both “Private” and “SGL”.

- When hunting, if you cannot identify a deer as antlered or antlerless, please record as “Unk” for unknown.

INSTRUCTIONS FOR RETURNING HUNTER DIARY:
Please return your diary in the self-addressed, postage paid envelope provided by December 17, 2010. Your answers will remain confidential.
### Pennsylvania Deer Hunter Diary – 2010 Firearms Season (November 29 to December 11, 2010)

<table>
<thead>
<tr>
<th>Date</th>
<th>WMU</th>
<th>Ownership of land hunted (circle all that apply)</th>
<th>Hours Hunted (to the nearest ½ hour)</th>
<th>Antlered deer seen while hunting</th>
<th>Antlerless deer seen while hunting</th>
<th>Unk deer seen</th>
<th>Did you harvest an antlered deer?</th>
<th>If you harvested an antlered deer, how many points did it have?</th>
<th>How many ANTLERLESS deer did you harvest with a WMU antlerless license?</th>
<th>How many ANTLERLESS deer did you harvest with a DMAP permit?</th>
<th>Did you hunt as part of a deer drive?</th>
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<tbody>
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</tr>
</tbody>
</table>

**IF MORE SPACE IS NEEDED, PLEASE COMPLETE THE SAME INFORMATION AND ATTACH ADDITIONAL SHEET(S) TO THIS FORM**

Please complete questions 6 and 7 after the 2010 rifle season.

6. How do you rate your satisfaction with your hunting experience during the 2010 rifle season? (Circle one number)

1. VERY DISSATISFIED 2. DISSATISFIED 3. NEITHER SATISFIED NOR DISSATISFIED 4. SATISFIED 5. VERY SATISFIED

7. How do you rate the Pennsylvania Game Commission’s deer management program? (Circle one number)

1. DON’T KNOW 2. POOR 3. FAIR 4. GOOD 5. EXCELLENT