A Summary of Weapon Use by Wisconsin Deer Hunters 2014 – 2017

Wildlife Management Program
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A Summary of
Weapon Use
By Wisconsin Deer Hunters
2014-2017
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In 2013, the Wisconsin State Legislature passed laws that created a separate crossbow hunting season and crossbow deer hunting license. In addition, rules were created that allowed all hunters (not just disabled or those over the age of 65) to use a crossbow during the open deer hunting season starting in 2014.

The following report summarizes a variety of outcomes as a result of firearm, archery (in some graphs referred to as bow or vertical bow), and crossbow use during the 2014-2017 deer seasons.

### Hunter Success by Authority Type for Antlered Deer: 2014-2017

Note: PAT means Conservation Patron License Holder

<table>
<thead>
<tr>
<th>Hunter Success by Authority (Antlered)</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of hunters that killed an antlered deer by authority (only counted once if they harvested +1)</td>
<td>No. of hunters with authority (no duplicates in Crossbow or Archery upgrades)</td>
<td>Hunter Success¹</td>
<td></td>
</tr>
<tr>
<td>UPGRADE</td>
<td>4,533</td>
<td>23,077</td>
<td>19.6%</td>
<td></td>
</tr>
<tr>
<td>ARCHERY</td>
<td>22,056</td>
<td>161,991</td>
<td>13.6%</td>
<td></td>
</tr>
<tr>
<td>CROSSBOW</td>
<td>8,336</td>
<td>42,788</td>
<td>19.5%</td>
<td></td>
</tr>
<tr>
<td>GUN</td>
<td>77,428</td>
<td>562,218</td>
<td>13.8%</td>
<td></td>
</tr>
<tr>
<td>PAT</td>
<td>11,228</td>
<td>47,561</td>
<td>23.6%</td>
<td></td>
</tr>
</tbody>
</table>

¹ Not corrected for nonparticipation
The above tables summarize total deer hunting authority (license) sales and the number of hunters that harvest an antlered deer, by weapon type, during the 2014-2017 deer seasons.

A few important notes regarding the data presented:

- These figures are not corrected for non-participation, so actual success rates are probably higher for all weapon types.
- The all-inclusive Conservation Patron license success rates are for all deer harvested (gun, archery, and crossbow) by these license holders, as they have authority to hunt with all three weapons. However, these same hunters do not have to claim any weapon type that they will use while hunting at the time of purchase.

Crossbow users have the highest success rate of all weapon types.

**Total Deer Hunting Authorities: 1999-2017**

The above graph shows total deer hunting by any authority (license) that allows the taking of a deer including archery deer, crossbow deer, upgrades, conservation patrons, and gun deer as well as the total number of individuals that purchased a license.

Wisconsin has averaged about 650,000 individual deer hunters purchasing 800,000 authorities, and spending about 7.5 million days afield for the past 10+ years. The number of individuals purchasing deer hunting authorities has been on a long-term decline for several years at about 0.25-1.5% per year. However, the total number of deer authorities has been stable to increasing, indicating that more hunters are purchasing a license to hunt with another weapon type. This trend has been occurring for several decades.
License Sales by Weapon Type: 1965-2017

The figure above shows the trend in total license sales by license type starting in 1965 when individual archery license sales (labeled as “bow”) began.

- 2014-17 Archery and Crossbow license sales figures BOTH contain Patrons and upgrade license sales
  - Patrons and upgrades are counted twice because they can’t be separated in either group as Patron hunters do not have to declare a weapon type
- There was a 13,000 loss in Firearm deer hunters between 2015 and 2016
- There was a similar 13,000 increase in archery/crossbow hunters between 2014 and 2015.

Downward trends in individual deer hunters began in the late 1990’s. Nationally, it is well documented that the hunting population is aging and hunters are falling out at a faster rate than recruitment of new hunters is occurring. Wisconsin appears to be retaining and recruiting hunters at a faster rate than most other states as our rate of decline is less than the national average.
The above graphic shows the number of days annually spent afield by Wisconsin gun-deer hunters during the 9-day gun season compared to those hunting with archery/crossbow. The graphic is built using information collected from the annual 9-day firearm deer hunter questionnaire, and the 4-year archery questionnaire. Each survey is mailed to approximately 10,000 hunters randomly selected from all license buyers of that type during survey years. Only days afield during the 9-day season are accounted for in this survey, so days gun hunters spend during the youth, muzzleloader, December antlerless, holiday hunt, are not accounted for.

This graph indicates there is an increase in archery days spent afield as compared to gun-deer hunting days afield which has generally been declining since the late 1990’s. Over the evaluation period identified, Wisconsin’s archery hunters have experienced increased season lengths as well as increased hunter participation, while hunter surveys indicate gun-deer hunters during the 9-day gun season experienced lower hunter days due to hunter losses as well as additional gun-deer seasons when to hunt and kill a deer. 2017 will be the first time that the archery survey will be conducted to account for “full inclusion” of crossbow seasons in determining hunter days spent afield for “archers”, but this data is not yet available.

In general, Wisconsin deer hunters spend approximately 7.5 million days afield each year. In the past, this figure was dominated by gun deer hunters, but has changed over time. Since the 2009 survey, more days afield are spent during the archery season. While overall effort has not changed, WHEN hunters spend time outdoors has over that last several decades.
Percentage of Antlered Deer Registration by Weapon Type

The above graphic shows the percent of antlered deer registered by weapon type over the past 60+ years. Bow and crossbow harvest data are combined from 2014-2017.

During the past 60 years, there has been a gradual shift in how and when antlered deer are killed. In the last decade, about 30% or more of the total antlered deer harvest occurred using archery or crossbow. The percentage of archery/crossbow antlered harvest began to accelerate in the 1980s. The two most likely influences on this trend occurred shortly after compound bows became popular and hunting from an elevated platform became legal. On an overall population or statewide scale, when deer are being harvested has been influenced by these factors however the overall antlered deer harvest does not appear to be influenced by weapon type.

Despite weapon popularity or season changes over time, these lines will likely cross sometime in the future.
The above graphic shows the percentage of hunters who registered an antlered deer with both gun and archery/crossbow during the 2011-2017 deer seasons. Prior to 2014, the percentage of hunters doing so were less than 5%, generally around 3.5% and has remained fairly similar since 2014. The actual number of hunters bagging 2 bucks is relatively small when compared to the overall number of deer hunters (around 10,000 hunters annually).

One commonly stated concern is that hunters that use both a crossbow and gun are bagging two bucks at a higher rate than those hunting archery equipment and gun. Data indicates that there is approximately a 1-2% difference between the two groups. In addition, 41.6% of the hunters that held a crossbow license and a gun license bagged 2 antlered deer at least once since 2005 while 47% of hunters that held just a vertical bow and a gun license bagged 2 antlered deer at least once since 2005.

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Percentage of Total Harvest on Public Lands: 2014-2017

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crossbow</td>
<td>12.4%</td>
<td>12.4%</td>
<td>13.1%</td>
<td>13.9%</td>
</tr>
<tr>
<td>Archery</td>
<td>13.9%</td>
<td>14.1%</td>
<td>14.4%</td>
<td>15.6%</td>
</tr>
<tr>
<td>All Weapons</td>
<td>12.6%</td>
<td>12.9%</td>
<td>13.5%</td>
<td>14.5%</td>
</tr>
</tbody>
</table>

The above table shows the percentage of deer harvest occurring on public lands by weapon types during the 2014-2017 hunting seasons. Comparing weapon types, there are minimal differences in public land harvest rates. With most of the state in private ownership (85%), the majority of deer hunting occurs on private land where permission is required, leaving the decision of the weapon type used to harvest a deer up to the landowners/leasees.

Age Frequency of Crossbow and Archery Hunters: 2017

The above graph shows the number of hunters comparing archery vs. crossbow. Currently crossbow license buyers are older than archery hunters with an average age of 52 years old compared to 39 years old for archery hunters. Based on the graph above, the opportunity to use crossbows may be allowing more hunters to be retained and re-engaged in deer hunting later in life.