

Bowhunting: An Effective but Overlooked Tool for Wildlife Management in British Columbia

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Introduction

Although bowhunting has long been established as an effective tool for wildlife management, it is in its infancy here in British Columbia. Because of its challenging nature, most jurisdictions provide bowhunters with liberal seasons without fear of excessive harvest. British Columbia however, has some of the shortest archery only seasons in North America. Members of archery and bowhunting related organizations have tried to change this by lobbying local fish and game clubs, wildlife managers and blanket organizations such as the BC Wildlife Federation (BCWF) in an effort to change attitudes and perceptions towards bowhunting. These efforts have been relatively unsuccessful as bowhunters are the minority among hunters and efforts to change hunting regulations are generally met with strong opposition by individuals wishing to maintain the status quo despite changing times.

Bowhunting however continues to grow and provides a number of advantages as a management tool for wildlife:

1. Because bows are relatively short range weapons their use in areas with dense human populations is safer and more socially acceptable.
2. Bowhunting provides increased recreation while utilizing less of the resource.
3. Archery only seasons restrict harvests without having to resort to biologically unsound practices such as exploiting only one segment of a population (e.g. “bucks only” seasons).
4. Archery only seasons restrict harvests without complicated regulations.
5. Bows are not a restricted weapon and are not subject to the same level of bureaucratic harassment as are rifles.

Bowhunting Statistics

Trends in Bowhunter Numbers and Resident License Sales

It is difficult to determine the actual number of bowhunters in BC because of the system of recording bowhunting activity. In order to be recorded, bowhunters must check off a small box in the bottom corner of their Basic Hunting License. Since the checking of this box is not mandatory, it is often overlooked and provides an underestimate of the number of bowhunters in the province. Despite this fact, bowhunter numbers have approximately doubled in the past 10 years in the province of BC despite a decline in the sales of Basic Resident Hunting Licenses¹ (Table 1; Figure 1). There are now at least 8, 981 bowhunters in BC: approximately 12% of all hunters.

Table 1. The number of Basic Resident and LEH licenses sold along with the number of hunters that indicated they were bowhunting from 1990 to 2002.

| Year | Licenses Sold | | Ratio LEH : BR | Bowhunter Checks | Percent Bowhunters |
|-------|----------------|---------|-------------------|---------------------|-----------------------|
| | Basic Resident | LEH | | | |
| 90/91 | 110,174 | 133,748 | 1.2 | 2,192 | 2% |
| 91/92 | 109,355 | 135,241 | 1.2 | 3,289 | 3% |
| 92/93 | 110,911 | 144,063 | 1.3 | 4,305 | 4% |
| 93/94 | 104,920 | 150,601 | 1.4 | 4,904 | 5% |
| 94/95 | 101,782 | 145,427 | 1.4 | 5,295 | 5% |
| 95/96 | 98,574 | 144,681 | 1.5 | 6,394 | 6% |
| 96/97 | 94,015 | 162,379 | 1.7 | 6,196 | 7% |
| 97/98 | 91,642 | 161,483 | 1.8 | 6,573 | 7% |
| 98/99 | 89,745 | 155,469 | 1.7 | 7,595 | 8% |
| 99/00 | 83,454 | 158,074 | 1.9 | 7,883 | 9% |
| 00/01 | 80,554 | 159,716 | 2.0 | 7,649 | 9% |
| 01/02 | 74,185 | 160,368 | 2.2 | 8,771 | 12% |
| 02/03 | 73,411 | 166,144 | 2.3 | 8,981 | 12% |

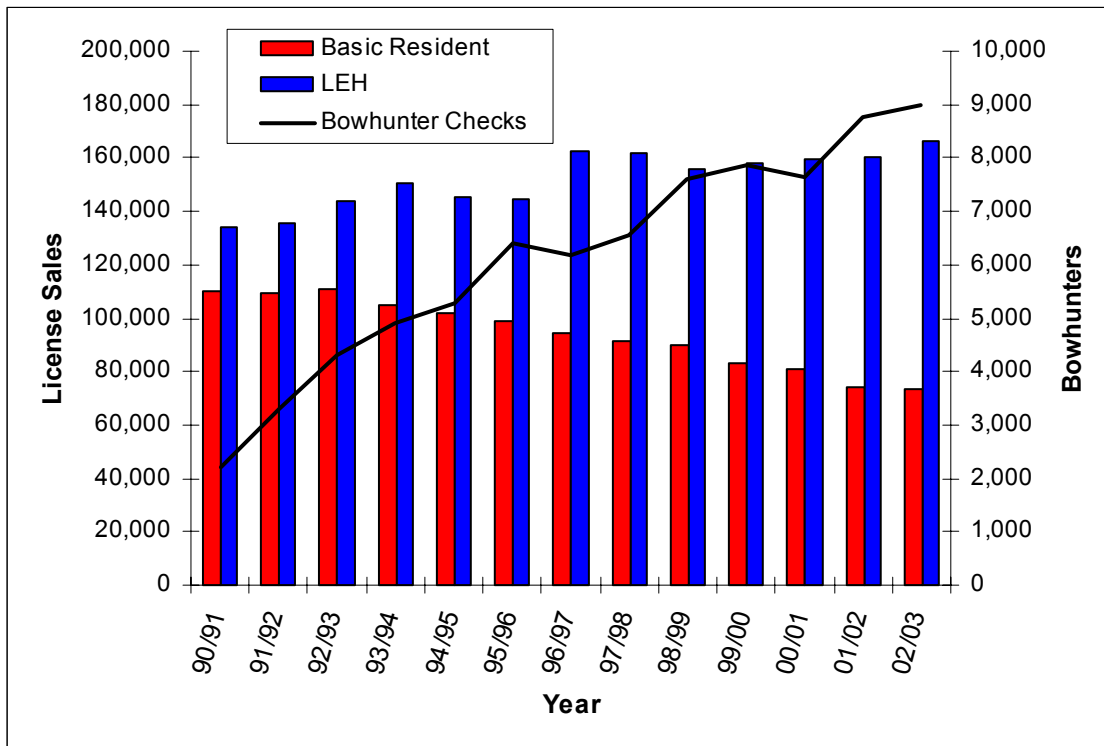


Figure 1. The number of Basic Resident Hunting Licenses and Limited Entry Hunting Draws sold in each year from 1990 to 2003 as well as the number of Basic Residence Licenses with the Bowhunter box checked.

This is consistent with US statistics which also show a doubling in the number of bowhunters over the past 10 years². In the US however, there are approximately 3.2 million bowhunters that make up approximately 29% of all US hunters.

Limited Entry Hunting (LEH) Draw sales have increased relative to the number of Basic Resident Licenses sold: from 1.2 LEH draws purchased to 2.3 LEH draws purchased per resident hunter. This suggests that many hunters now feel an LEH draw is required in order for a chance at a successful hunt.

The *US National Survey on Fishing, Hunting and Wildlife-Associated Recreation*³ states that the overall number of hunters in the US has declined from approximately 14 million in 1991 to approximately 13 million in 2001. This decline is primarily in the number of small game and duck hunters as the number of big game hunters has actually increased slightly during this same time frame: from 10.7 million to 10.9 million. This is not consistent with the apparent trend in BC where the number of species licenses sold has also declined, indicating a decline in the number of big game hunters (Figure 2).

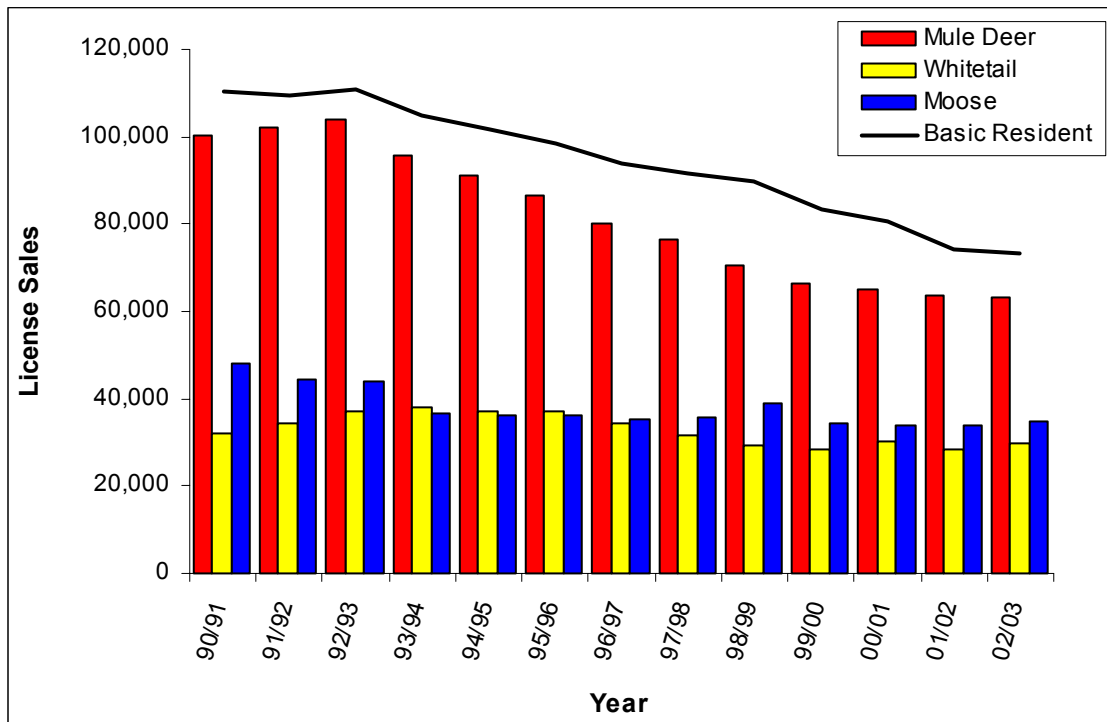


Figure 2. The number of Basic Resident Licenses sold in relation to the number of mule deer, white-tail and moose Licenses sold from 1990 to 2002.

A study entitled *Big Game Hunting: the Future of Hunting in America*⁴ credits the increase in the number of big game hunters in the US primarily to increased populations of several big game species and to an increase in the popularity of bowhunting.

The Impact of Bowhunting on Big Game Populations

On average it takes approximately 4 times longer to make a kill with a bow than a rifle (Table 2; Figure 3).

Table 2. The number of hunter-days required to harvest a mule deer with a rifle and a bow.

| State/Prov. | Year | Rifle | | | Bow | | | Comments |
|--------------|------|---------|---------|-----------------|---------|---------|-----------------|--|
| | | Days | Harvest | Days Harvest | Days | Harvest | Days Harvest | |
| Colorado | 2002 | 238,025 | 32,739 | 7 | 78,465 | 1,999 | 39 | Stats for all rifle and bow seasons combined. WT and Mule Deer combined. |
| Idaho | 2002 | 641,118 | 34,335 | 19 | 98,669 | 1,409 | 70 | WT and Mule Deer combined. |
| Oregon | 2001 | 317,585 | 29,097 | 11 | 156,444 | 3,687 | 42 | Eastern Oregon only - likely Mule Deer |
| Washington | 2002 | 637,211 | 28,314 | 23 | 151,945 | 3,649 | 42 | |
| Wyoming | 2002 | 349,494 | 37,580 | 9 | | | | All weapons combined. |
| South Dakota | 2002 | 492,552 | 62,599 | 8 | 151,729 | 3,300 | 46 | WT and Mule Deer combined. |
| Alb | 2002 | 212,722 | 17,562 | 12 | 46,690 | 1,153 | 40 | Mule Deer only. |
| BC | 2002 | 378,485 | 16,654 | 23 | | | | Stats for all weapons combined. Residents only. |

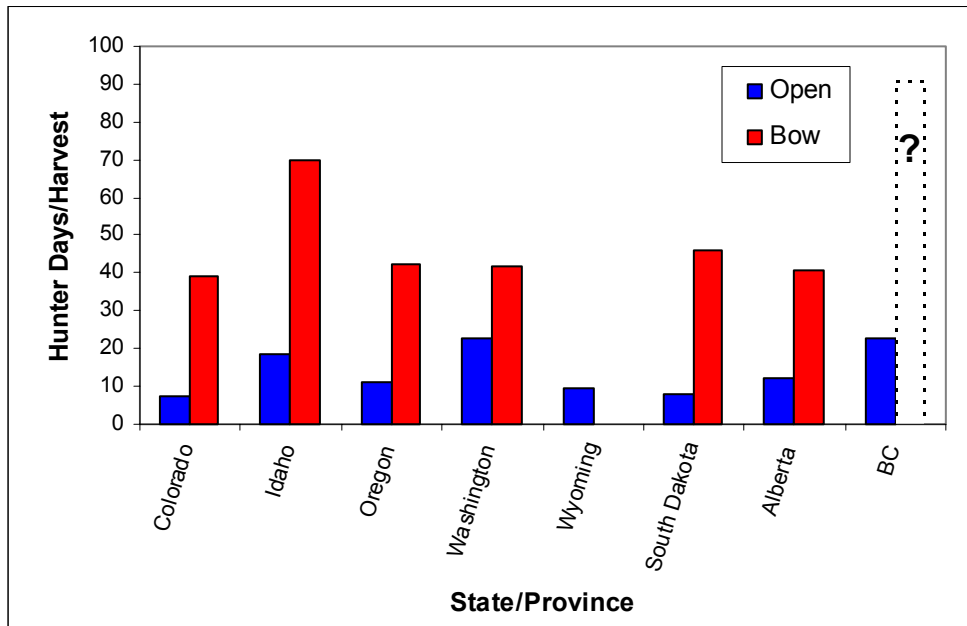


Figure 3. A comparison of the number of hunter-days required to harvest a mule deer with a rifle vs. a bow. The ghost bar is the projected number of hunter-days required for a bowhunter in BC to harvest a mule deer based on the average ratio of hunter-days per harvest for bows and rifles in each state.

This data was collected from the web pages of western US Fish and Game Departments. Less than half of the US web pages visited contained this type of harvest data. BC and

Alberta were the only western provinces that collected and published this type of data. Only Alberta distinguished between rifle and bow harvested mule deer. Although this data consistently shows that it takes much longer to harvest a mule deer with a bow than a rifle, there are some problems in making comparisons with the data. Since this data was collected from the internet, details on how variables were calculated were not given. It is possible that the calculation of hunter-days varies in each jurisdiction. Many states also combine harvest data for mule deer and white-tail although the intention was to only compare harvest data for mule deer. A final consideration is that the number of hunter-days required to harvest a deer with a bow or a rifle is dependant on many variables and not simply on weapons type.

Although the Province of BC does not distinguish between bow and rifle harvested mule deer in their annual Harvest Questionnaire, there are seasons in BC where rifle and bow seasons occur simultaneously and there is mandatory reporting of harvests. For the 4 years that there has been a youth rifle/archery season from September 1st to 9th in Region 3 of BC, there are only 2 years of data available (*Doug Jury*⁵ *Pers. Comm.*). For the two years where data is available, bowhunters reported harvesting a total of 3 mule deer whereas youth rifle hunters reported a total harvest of 56 mule deer (Figure 4).

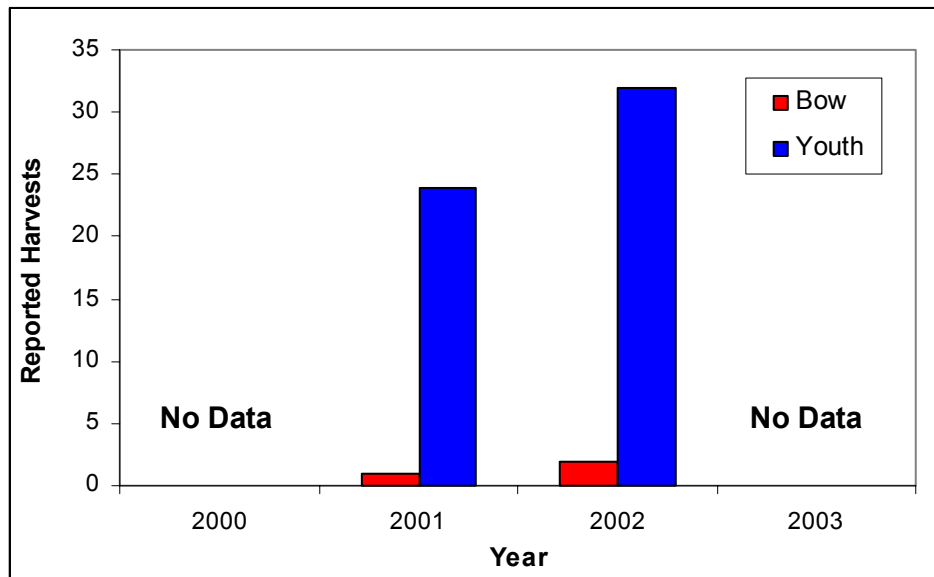


Figure 4. The number of mule deer harvested by youth rifle hunters and bowhunters in Region 3 from 2000 to 2003.

Although this data is derived from seasons which occur simultaneously, in the same areas and for the exact same amount of time, it cannot account for the variability in hunter-days.

Similar data exists for the Kootenays (Region 4) for elk, whitetail and mule deer (*Irene Teske*⁶), although the archery only and general open seasons (GOS) occur at different times and are considerably different in length (Figure 5; Tables 3 and 4).

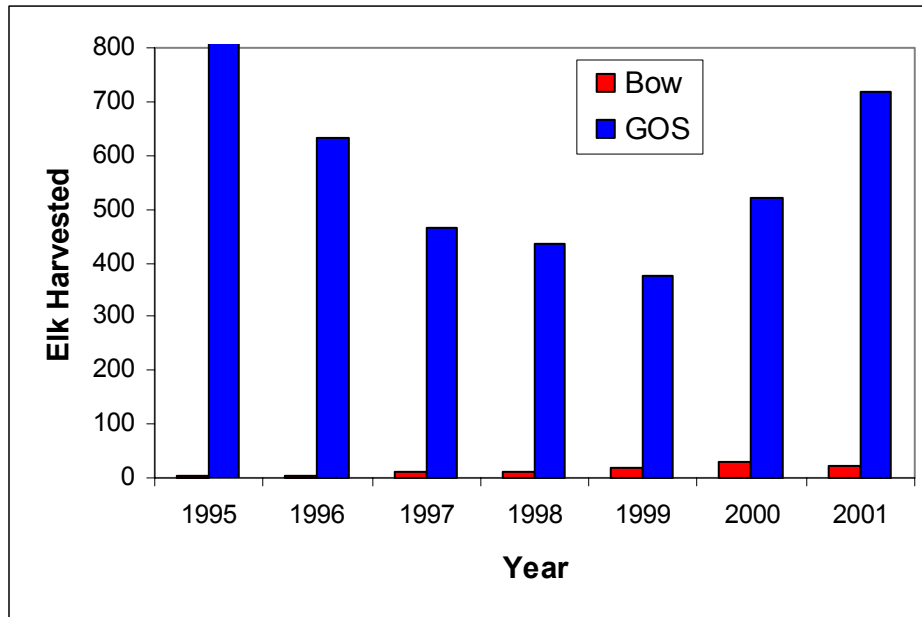


Figure 5. The number of Elk reported as harvested in the general open season and the archery only season in Region 4 from 1995 to 2001.

Table 3. The number of whitetail deer reported as harvested in the general open season and the archery only season in Region 4 from 1995 to 2001.

| Mandatory Reports | | | |
|-------------------|-----|------|----------|
| Year | Bow | GOS | % by Bow |
| 1995 | 1 | 3463 | 0.03% |
| 1996 | 0 | 2717 | 0.00% |
| 1997 | 1 | 1546 | 0.06% |
| 1998 | 0 | 1323 | 0.00% |
| 1999 | 1 | 1734 | 0.06% |
| 2000 | 10 | 2472 | 0.40% |
| 2001 | 4 | 2897 | 0.14% |

Table 4. The number of mule deer reported as harvested in the general open season and the archery only season in Region 4 from 1995 to 2001.

| Mandatory Reports | | | |
|-------------------|-----|------|----------|
| Year | Bow | GOS | % by Bow |
| 1995 | 2 | 1776 | 0.11% |
| 1996 | 2 | 1452 | 0.14% |
| 1997 | 1 | 576 | 0.17% |
| 1998 | | 670 | |
| 1999 | 3 | 577 | 0.52% |
| 2000 | 4 | 404 | 0.99% |
| 2001 | 2 | 652 | 0.31% |

The harvest data from the GOS in Region 4 may also contain some archery kills. This number however is unknown to wildlife managers and is likely very small.

Archery Seasons in BC and Other Jurisdictions

It is immediately apparent when looking at the data in Tables 5 and 6 and Figures 6 and 7 that most other provinces have embraced bowhunting as an effective management tool much more so than BC⁷. Not only are bow season lengths longer in other provinces than in BC, they also have fewer restrictions and are often timed during periods of peak game activity. This all adds up to better opportunities for bowhunters and possibly better game management. Closer inspection of the data also reveals a number of other trends.

There is a trend among the larger provinces to have longer bow seasons and shorter open seasons in the southern portion of the province with longer open seasons and shorter bow seasons in the northern, more remote regions of the province (Tables 3 and 4). This trend was expected since higher population densities occur in the southern portion of any province in Canada. Higher population densities usually mean more access and more hunters that can put pressure on game populations. It is also generally considered socially unacceptable to hunt near large population centers. Using this same line of reasoning, some provinces have designated areas adjacent to high population densities as bow only zones. To me this represents a deliberate form of management, where bow and open seasons are carefully designed to provide the most opportunity while still preserving game populations and the image of hunting. The only larger province where this north/south trend is not apparent is BC. Region 3 has the shortest bow season of all regions and yet is located in the southern one third of the province. Region 6, which one of the most northerly regions, has one of the longest bow only seasons. This suggests that the length of bow seasons in BC depends more on the personalities involved in each region rather than planning and the use of scientific management principles.

Table 5. A comparison of 2002 mule deer hunting seasons across Canada.

| Prov | Management Units | Bow Only Seasons | | | | Open Seasons | | | | Total Days | | Comments |
|------|------------------|------------------|--------|--------|-----------|--------------|--------|-------|-----|------------|------|--|
| | | Start | End | Start | End | Start | End | Start | End | Bow | Open | |
| BC | R1 | 25-Aug | 7-Sep | | | 8-Sep | 10-Dec | | | 13 | 93 | bucks*; Nov1 to Nov10 doe season in 1-1 |
| BC | R2 | 1-Sep | 9-Sep | 16-Dec | 15-Jan | 10-Sep | 15-Dec | | | 38 | 96 | bucks; late season for Texada Is only |
| BC | R3 | 1-Sep | 9-Sep | | | 1-Sep | 10-Dec | | | 8 | 100 | bucks |
| BC | R4 | 1-Sep | 10-Sep | | | 10-Sep | 10-Dec | | | 9 | 91 | bucks |
| BC | R5 | 1-Sep | 9-Sep | 1-Dec | 24-Dec | 1-Sep | 30-Nov | | | 31 | 90 | bucks; Dec1 to Dec 10 in interior |
| BC | R6 | 1-Sep | 30-Sep | 21-Nov | 30-Nov | 10-Sep | 20-Nov | | | 38 | 71 | bucks |
| BC | R7 | 1-Sep | 21-Sep | | | 10-Sep | 30-Nov | | | 20 | 81 | bucks; Sep1 to Sep 9 in R7 west |
| BC | R8 | 1-Sep | 9-Sep | 25-Nov | 10-Dec | 10-Sep | 10-Nov | | | 23 | 61 | bucks |
| Alb | Prarie | 5-Sep | 31-Oct | | | 1-Nov | 24-Nov | | | 48 | 20 | any deer; rifle hunts by draw only |
| Alb | Parkland | 5-Sep | 1-Nov | | | 1-Nov | 30-Nov | | | 49 | 25 | any deer; rifle hunts by draw only |
| Alb | Mountains | 25-Aug | 23-Sep | | | 24-Sep | 30-Nov | | | 25 | 57 | any deer/bucks only in some mu's; rifle hunts by draw only |
| Alb | Foothills | 25-Aug | 31-Oct | | | 17-Sep | 30-Nov | | | 57 | 63 | any deer/bucks only in some mu's; rifle hunts by draw only |
| Alb | N. Boreal Forest | 25-Aug | 31-Aug | 5-Sep | 31-Oct | 1-Sep | 30-Nov | | | 53 | 77 | bucks; rifle hunts by draw only |
| Sask | < Zone 41 | 4-Sep | 28-Oct | | | 6-Nov | 18-Nov | | | 46 | 10 | any deer; rifle hunts by draw only |
| Sask | > Z41 and < Z55 | 4-Sep | 28-Oct | | | 6-Nov | 18-Nov | | | 46 | 10 | any deer; rifle hunts by draw only |
| Sask | > Zone 55 | | | | No Season | | | | | | | |

Table 6. A comparison of 2002 white-tail deer hunting seasons across Canada.

| Prov | Management Unit | Bow Only Seasons | | | | Open Seasons | | | | Total Days | | Comments |
|------|------------------|------------------|--------|--------|--------|--------------|-----------|-------|-------|------------|------|---|
| | | Start | End | Start | End | Start | End | Start | End | Bow | Open | |
| BC | R3 | 1-Sep | 9-Sep | | | 1-Sep | 10-Dec | | | 8 | 100 | bucks |
| BC | R4 | 1-Sep | 10-Sep | 1-Dec | 20-Dec | 10-Sep | 10-Dec | | | 28 | 91 | bucks |
| BC | R5 | 1-Sep | 9-Sep | 1-Dec | 10-Dec | 10-Sep | 30-Nov | | | 17 | 81 | bucks; Dec1 to Dec 10 in interior |
| BC | R6 | 1-Sep | 9-Sep | 21-Nov | 30-Nov | 10-Sep | 20-Nov | | | 17 | 71 | bucks |
| BC | R7 | 1-Sep | 21-Sep | | | 10-Sep | 20-Nov | | | 20 | 71 | bucks; Sep1 to Sep 9 in R7 west |
| BC | R8 | 1-Sep | 9-Sep | 25-Nov | 10-Dec | 10-Sep | 20-Nov | | | 23 | 71 | any deer/bucks; any deer late bow season only |
| Alb | Prarie | 5-Sep | 31-Oct | | | 1-Nov | 24-Nov | | | 48 | 20 | any deer; Draw for does for rifle hunt. |
| Alb | Parkland | 5-Sep | 1-Nov | | | 1-Nov | 30-Nov | | | 49 | 25 | any deer; Draw for does for rifle hunt. |
| Alb | Mountains | 25-Aug | 23-Sep | | | 24-Sep | 30-Nov | | | 25 | 57 | any deer |
| Alb | Foothills | 25-Aug | 31-Oct | | | 17-Sep | 30-Nov | | | 57 | 63 | any deer; limited doe season |
| Alb | N. Boreal Forest | 25-Aug | 31-Aug | 5-Sep | 31-Oct | 1-Sep | 30-Nov | | | 53 | 77 | any deer; limited doe season |
| Sask | < Zone 41 | 4-Sep | 4-Nov | | | 20-Nov | 9-Dec | | | 52 | 16 | any deer |
| Sask | > Z41 and < Z55 | 4-Sep | 4-Nov | | | 20-Nov | 9-Dec | | | 52 | 16 | any deer |
| Sask | > Zone 55 | 28-Aug | 4-Nov | | | 2-Oct | 9-Dec | | | 58 | 58 | any deer |
| Man | F | 27-Aug | 1-Dec | | | | No Season | | | 82 | 0 | any deer; one Zone only, south of Winnipeg |
| Man | E | 27-Aug | 10-Nov | | | 12-Nov | 1-Dec | | | 64 | 16 | any deer |
| Man | D | 27-Aug | 15-Sep | 15-Oct | 10-Nov | 12-Nov | 1-Dec | | | 39 | 16 | any deer |
| Man | C | 27-Aug | 10-Nov | | | 12-Nov | 1-Dec | | | 64 | 16 | any deer |
| Man | B | 27-Aug | 15-Sep | 15-Oct | 10-Nov | 12-Nov | 1-Dec | | | 39 | 16 | any deer |
| Man | A | 27-Aug | 15-Sep | 15-Oct | 10-Nov | 17-Sep | 13-Oct | | | 39 | 22 | any deer |
| Ont | M1 Z78 - Z94 | 1-Oct | 31-Dec | | | 5-Nov | 9-Nov | 3-Dec | 7-Dec | 91 | 8 | bucks; draw for does but 100% success |
| Ont | M2 Z44 - Z77 | 6-Oct | 4-Nov | 12-Nov | 31-Dec | 5-Nov | 17-Nov | | | 78 | 12 | bucks; draw for does but 100% success |
| Ont | M3 Z1 - Z43 | 15-Sep | 16-Nov | | | 6-Oct | 15-Dec | | | 62 | 70 | bucks; draw for does but 100% success |
| NB | | 2-Oct | 18-Nov | | | 23-Oct | 18-Nov | | | 40 | 22 | bucks; draw for does |
| NS | | 30-Sep | 26-Oct | 4-Dec | 9-Dec | 27-Oct | 2-Dec | | | 27 | 31 | bucks; draw for does; 1in2 to 1in4 odds |

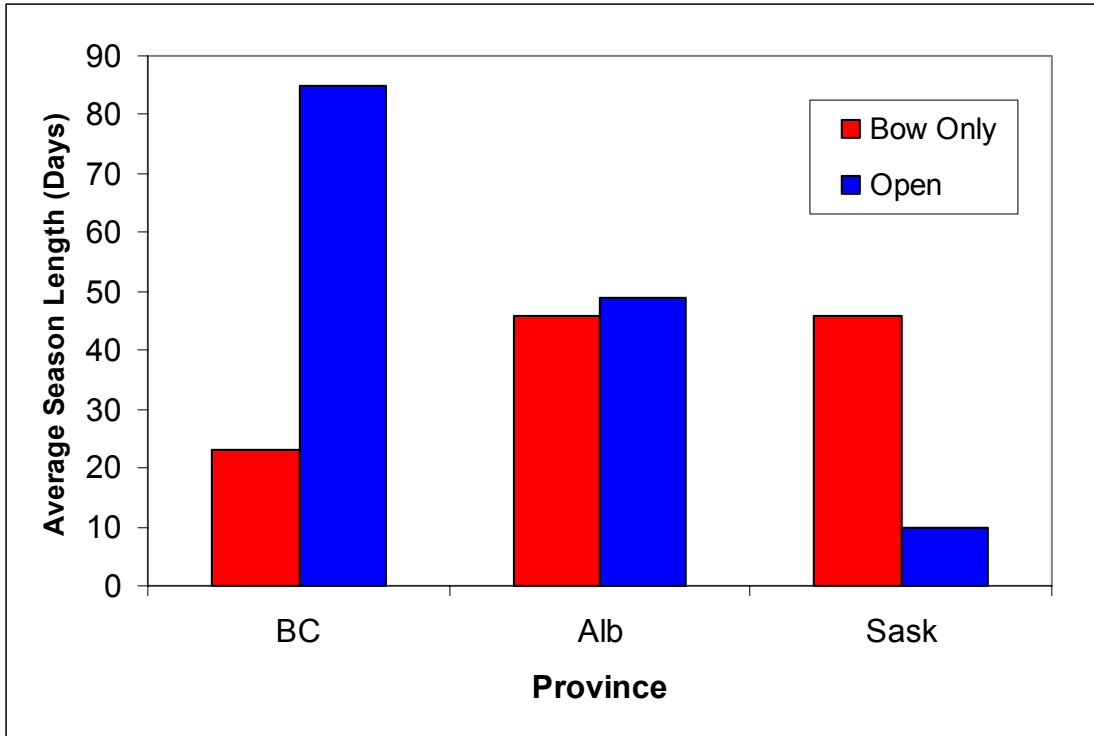


Figure 6. The length of open and bow only mule deer seasons in Canada in 2002.

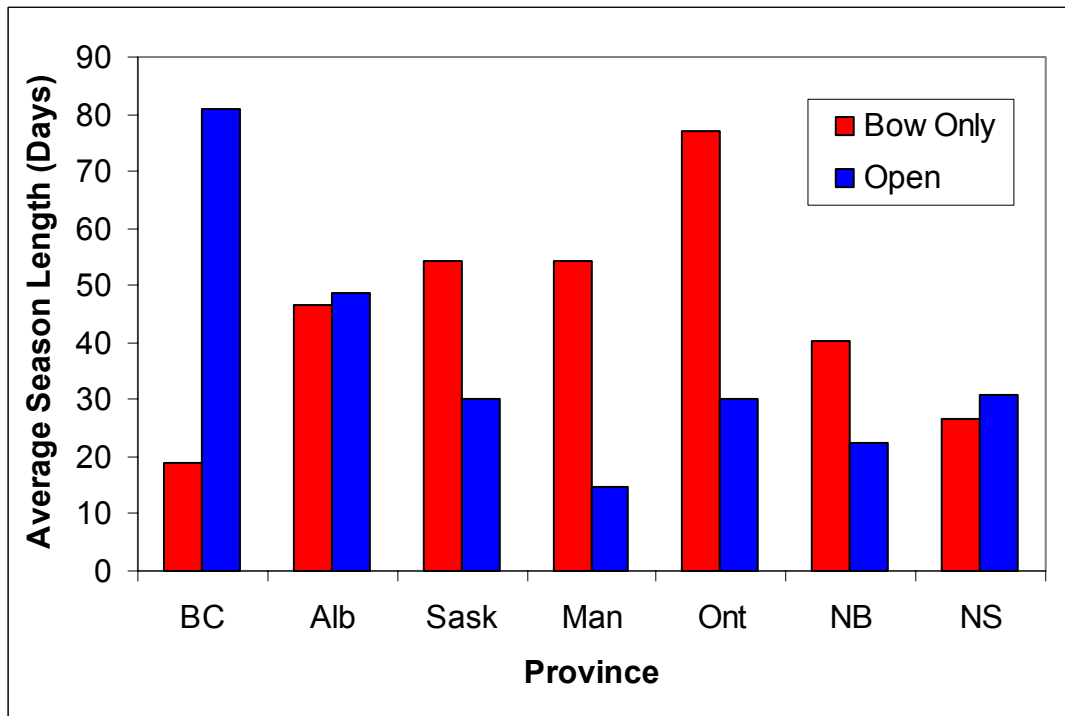


Figure 7. The length of open and bow only white-tail seasons in Canada in 2002.

The Future of Bowhunting in BC

Despite increasing numbers, bowhunters still make up a small minority of the big game hunters in BC. Even in jurisdictions where archery only seasons are much more liberal, bowhunters are still in the minority. This means that any increase in bowhunting opportunity must be a conscious decision on the part of government and cannot be arrived at by a majority vote. The alternative is to maintain the status quo of long GOS in BC's hunting regulations. Doing this however means that harvests must be reduced by changes to the timing of seasons and by restrictions on the class of animal that may be harvested. This will likely have biological, demographic and financial implications towards the future of hunting in BC. Demographically, there are fewer big game hunters in BC now than there were 10 years ago, implying that hunters are either not satisfied with the opportunities currently available or hunter recruitment is down. This means that fewer hunters will be purchasing fewer licenses and spending less money on hunting related activities and equipment. More importantly, this translates into less money for wildlife related research.

Biologically, the affects of exploiting one segment of a population in order to facilitate long GOS is not so clear cut. Traditional thinking suggests that males are relatively expendable and can be harvested with little overall impact to the population. The harvesting of a mature male of many species also has a long standing tradition with hunters. This tradition clashes with the ecological reality that populations with balanced sex ratios and appropriate age structures are likely more viable in the long term.

These are the challenges currently facing wildlife managers and bowhunting can be used as a management tool to overcome some of these challenges. In the US, bowhunting opportunity and an increasing number of bowhunters have been partially credited with maintaining the overall number of big game hunters. Bowhunting seasons can be relatively long and liberal without fear of over harvesting. Bowhunting is also a useful management tool around urban interfaces. In the Eastern US a coalition was formed between the Audubon Society, landowners and some local bowhunters to help reduce the population of whitetail deer in a sanctuary⁸. The program was a success with 30 deer being harvested and none were wounded or unaccounted for.

Unfortunately in BC, bowhunting appears to be over looked as a wildlife management tool. The tradition in BC seems to lean towards open access hunting seasons with no restrictions on the type of equipment used. Often times it seems that there is a lack of understanding and in some cases respect among wildlife managers toward bowhunting. This is fuelled by a lack of data regarding bowhunter harvests and pressure on wildlife managers to maintain the status quo. Change is inevitable however and regardless of how that change is carried out it is my hope that wildlife in BC will be the beneficiary.

References

1. John Thornton, Wildlife Biometrician, Victoria, BC
2. Data from the Archery Manufacturer's and Merchants Organization
3. U.S. Department of the Interior, Fish and Wildlife Service and U.S. Department of Commerce, U.S. Census Bureau. 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.
4. Kenyon, S. and M. D. Duda. 2001. Big Game Hunting: the Future of Hunting in America. Sponsored by the Dallas Safari Club and Conservation Force.
5. Doug Jury. Wildlife Biologist, Environmental Stewardship Division, Region 3, Kamloops, BC.
6. Irene Teske. Wildlife Biologist.
7. Renn, J.R. 2001. A comparison of archery only and open hunting seasons for white-tail, mule deer and moose across Canada.
8. Shono, K. and M. Smith. 2003. Management Plan for the Control of White-tailed Deer at the Audubon Center in Greenwich, Connecticut. Endorsed by the Audubon Greenwich Board.