

Got Your Moose or Your Elk Yet?

During the great 1960 - 70 moose years in central BC, I was often reminded that we had not got our moose yet, and after the third or fourth snowfall, Why? Because it was important to get our meat supply for winter. It is question asked of moose, elk and deer hunters every autumn once the hunting season begins, and like most we always liked to answer affirmatively. It was always, "Yes, I got a good one" during times of elk abundance in the 1950s when I hunted them as a teenager in the Alberta Foothills, and in the southern Rocky Mountain Trench in the 1980s as a fifty year old, but on a ten day deer hunt in my former elk haunt in late November 2019, I never saw a single elk where 25 years ago I would easily have seen 100-200, and on a nine day moose hunt west of Babine Lake in September 2016, I didn't see single moose. I know that our meat supplies have dwindled, and I don't believe that Climate Change is the reason. "What Happened to Our Big Game" was the topic of a KWHS symposium held on April 13, 2019 in Cranbrook, BC, and although some very clear answers were provided, many unanswered ones remain, which is the subject of much work for the KWHS. The range of questions is considerable: How many elk are there, and how many were there during the 1980-90s, and how many could the region have supported, and as a former game manager, what should have been done to maintain the high numbers and why did we not harvest more of them?

How Many?

A standard comparison using the number of animals per square mile or kilometer is the usual metric but also measuring other parameters such as population demographics is a management necessity. So, how does the East Kootenay compare with other jurisdictions managing similar game populations? We chose examples of moose and elk management from four different jurisdictions, two from Alberta, one from Newfoundland and another from Fennoscandia, with Norway and Sweden as representatives. I recommend that you visit the Journal, Alces to learn how moose are managed in the Parkland Region of Alberta, and for Newfoundland, check the Government website, and for Fennoscandia, Google, "Moose Harvesting in Norway" for the remarkable amount of moose and elk (red deer) management information that is available. The Norwegian website covers harvest data for all ungulates including a record of those killed by other means. It also provides current harvests for other game species, wolves, brown bears and lynx. These data are available within 6-8 weeks after the hunting seasons end, an unbelievable administrative feat.

Alberta (AB)

The first example is from Elk Island National Park (EINP), a 75 mi/194 km square area of the Parkland Grassland-Boreal Transition zone located south east of Edmonton. It was established in 1913 and is fully enclosed by a perimeter fence. It has not been altered by cultural practices such as logging, and farming and hunting is not permitted. Results of a game survey conducted in 2007 were as follows: 605 elk, 300 moose, 500 deer and 315 bison for a total count of 1720 ungulates; 23.2 animals per square mile and 8.7 per square kilometer. The Park boasts the highest density of wild ungulates in Canada and although “no wolves, cougars or bears are allowed in”, predation exists as there are some black bears, and coyotes but no cougars within its confines. Surplus animals are usually shipped for transplanting elsewhere. When bison numbers exceed 450, the surplus are captured and sold.

The second example is also from the Prairie Parkland Region but unlike EINP, is a very important agricultural area. Its forest remnants vary from about 10 to 40 percent and are interspersed with ponds and marshes that provide water, food and cover for moose. However, the animals have adapted to the conversion of forest and prairie grassland to agricultural use and are thriving. This has evolved only recently, beginning in the mid 1990s, and by 2015 the population had increased significantly and is presently a popular moose hunting area. In 2015, 3555 licenses were sold, up from 852 in 1996, a fourfold increase. Hunter success was 74.5 per cent whereas the harvest in the Boreal forest was 48 per cent. Classified counts are equally impressive: 76 calves per 100 cows whereas in the Boreal it was 46 per hundred cows. Three factors contribute to this success. First, a high-octane food source in oil seed (canola), cereals and legumes; secondly, an absence of wolves, and thirdly, a game management program that maintains production while containing the population to reduce the impacts on agricultural production. It is a widely dispersed population that is readily accessible because of the road system required for farming. The terrain is user friendly, flat to gently rolling which is ideal for Old Timers like me...and some of you, and 20 percent of Alberta moose hunters think it is too. The annual moose harvest in Alberta is about 8500 animals, whereas the elk harvest is almost half, at 4500-5000 per year, and 80 percent from the Foothills Region.

Newfoundland (NL)

Moose were introduced to the island in 1904 and have thrived. Their food supplies are produced by clear-cutting the island boreal forest that presently sustains a population of about 100,000 animals. The government boasts “one license for every two moose” and about 20,000 are harvested annually. Predation is not a serious threat as there aren't any wolves on the island. However, black bears and coyotes exist but are a greater threat to woodland caribou than moose. Vehicle-moose collisions are a serious problem in areas of

high moose population density. Game management in NL is the envy of game managers and hunters everywhere. Newfoundland hunters are able to share their some of their meat with others by having it processed as sausage (baloney) and delivered to supermarkets for others to purchase.

Fennoscandania

The history and records of moose and red deer management in Norway, Sweden and Finland is readily available, and truly outstanding. There are three main reasons for the high populations and harvests. First, clear-cutting replaced selective forest harvesting in mid 1950s creating an abundant food supply of shrubs; second, an almost total absence of large predators, wolves and brown bears from 1935 to 1995, and third, by harvesting a greater number of young moose, calves and yearlings than adults and populations increased significantly.

For example, in Sweden, 174,709 moose were harvested in 1982, Norway 39,309 in 1999, and Finland 84,524 in 2002. Almost a quarter of a million moose were harvested per year from 1980 to 2002. Imagine removing 250,000 animals from a population and being able to repeat it the following year. That's money! At \$6.00 a pound or even a kilo, it's a very important source of income for landowners. Managers also keep moose populations in check to reduce the impact of browsing on conifers, their main source of income. In 2000, 200,000 moose were harvested, down from the higher numbers a decade earlier but this harvest of 200,000 animals, at a rate of 20-25 per cent required a minimum population four times or more in size, at the start of the hunting season. The economic and social values of meat production and hunting was, and still is the result of integrated forest and game population management, and agricultural practices to sustain them. Red deer and moose management practices are similar, with harvest rates at approximately 25 per cent; comprising calves and yearlings of both sexes; 60 per cent, and older ones 40 per cent.

Predation was not a factor because brown bears and wolves were almost completely absent for 70 years. Culling of wolves and bears in Dalarna County, Sweden are presented in Figures 5, 7 and 11. It also prevailed in Norway, Jon Lykke (Pers. comm) and Finland. The wolf bounty in Sweden ended in 1965. Wild ungulate populations increased significantly during this period, and livestock losses were negligible. However, in late 1990s a decree from the European Union demanded that member nations increase their wolf and bear populations. This has resulted in a significant decrease in moose harvests. The 2019 harvest in Norway of 30,353 moose is 20 per cent lower than it was in 2000. Wolf populations continue to increase but have not yet expanded into south-western Norway where red deer (elk) populations continue to thrive. In 2018, 43,777 red deer were harvested and another 2509 were road-killed.

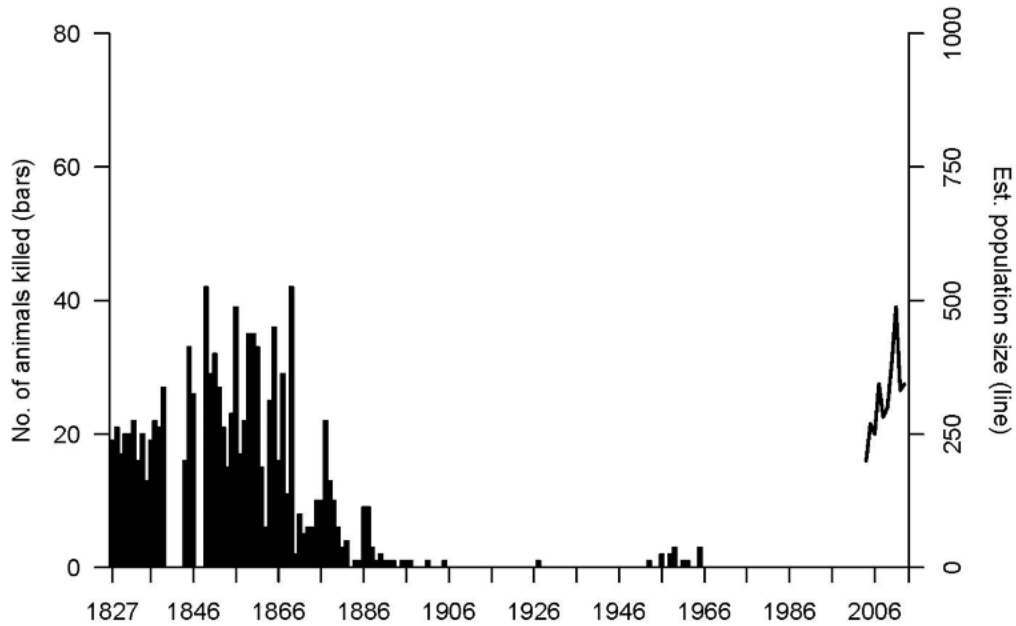


Figure 5. Number of wolves killed 1827–1965 (no data available for 1840–1843 and 1847–1848) in Dalarna (bars). Wolf population size based on yearly winter counts 1998/1999–2014/2015 in Dalarna (line). Source: Swedish National Forest Service and Wildlife Damage Centre. Please note that the bounty data end in 1965 and winter counts start in the winter 1998/1999.

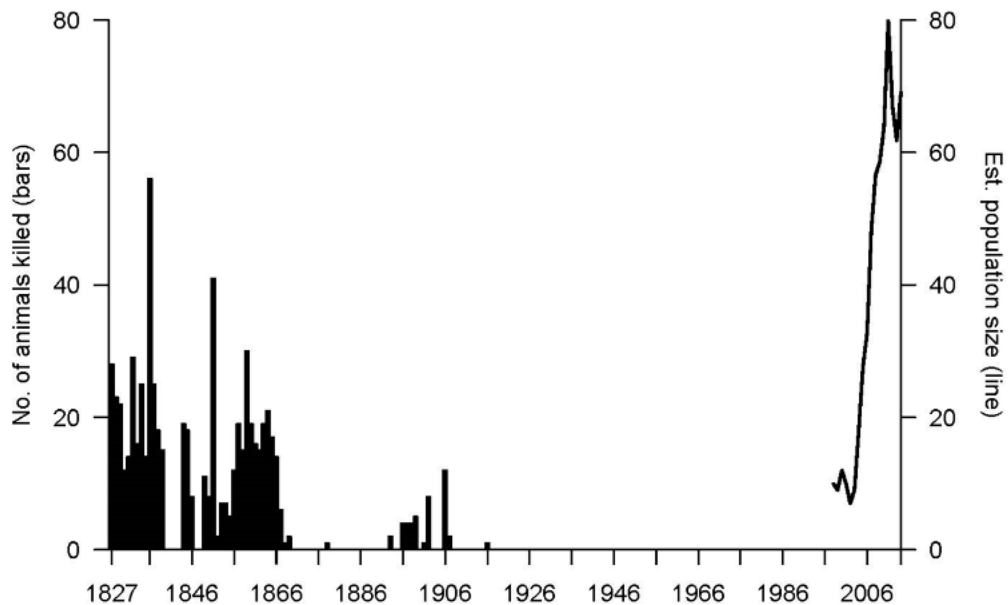


Figure 7. Number of bears killed 1827–1965 (no data available for 1840–1843 and 1847–1848) in Dalarna (bars). Estimated population size of bears 2004–2013 in Dalarna (line). Sources: Swedish National Forest Service and the County Boards of Dalarna. **Please note** the different scales on the y-axes and that the bounty data end in 1965 and population estimates start in 2004.

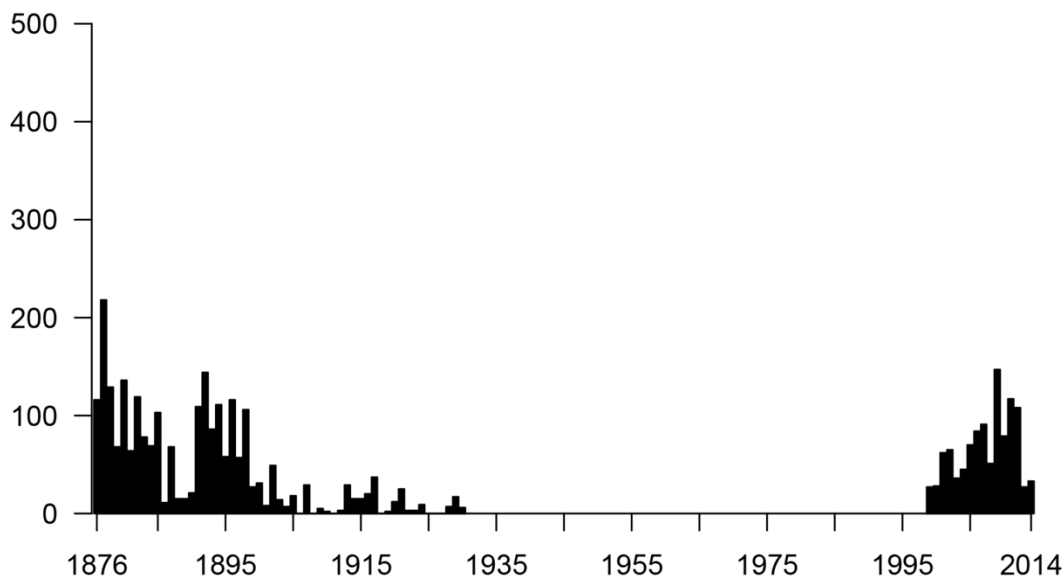


Figure 11. Illustration of the total number of livestock depredated by carnivores per year, 1876-19-30 and 1998-2014, in the country of Dalarna. Sources: Swedish National Forest Service and the Wildlife Damage Centre. Please note that there are no records of livestock killed for years 1931 to 1998.

Wolf hunting under a conservative quota is unable to contain populations. Twice the legal numbers of wolves are being killed by disgruntled moose and red deer hunters.

East Kootenay

The best example is saved for last because it borders on disbelief, the fact that there were many many more elk in the East Kootenay in the 1980-90s than there are now, and for very good and substantive reasons. First, food (forage) was usually inadequate as both livestock and elk competed for it but from 1975-82 range conditions improved under Coordinated Resource Planning. Supplemental feeding was also required in some accessible areas during severe winters to prevent population loss due to starvation. Forest harvesting also contributed to the food supply for elk, moose, and deer. Second, grizzly bear, black bear, cougar and coyote predation was a limiting factor though they were hunted or trapped, but wolves arrived during the mid 1980s, and by 1990 became a major cause of mortality for elk and other ungulates that continues unchecked today.

Third, a change in elk management that included harvesting cows and calves under Limited Entry permits increased annual harvests. This required a method of determining population size before and after harvesting, and other factors that also affect their survival. Measuring the demographics of game populations for harvesting and monitoring the changes that occur until the next hunting season

had to be accurate and realistically attainable. Age determinations were made by tooth sectioning the incisors of harvested animals and conducting classified counts for determining herd composition. This was and still is an important Game Management activity that does not require counting them all, for this is impossible, and expensive. Only an adequate sample size is necessary.

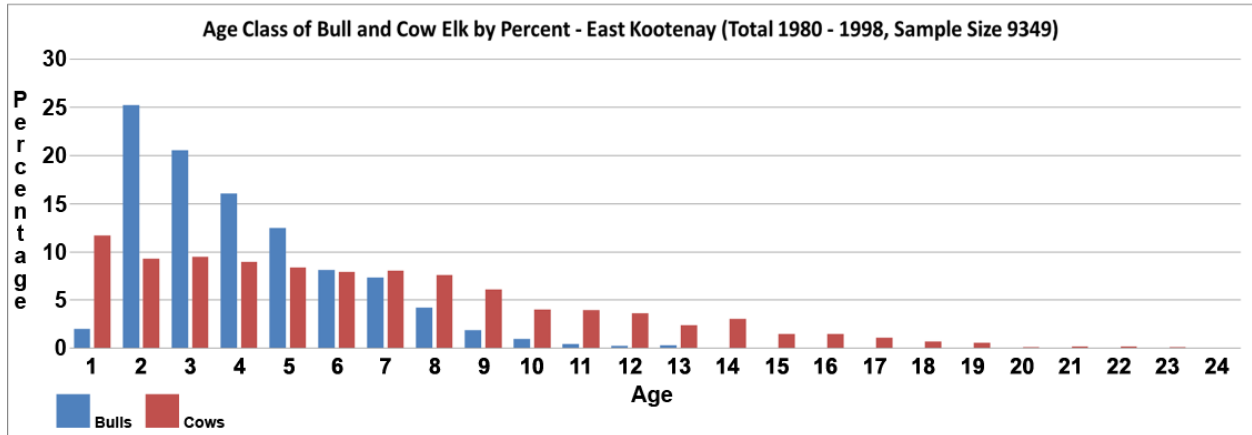


Figure 1. Composition of East Kootenay Elk, 1980-98; ages derived by tooth sectioning depicts a greater harvest of males than females as expected by regulation. The longevity of females is twice that of males indicating a population capable of sustaining itself.

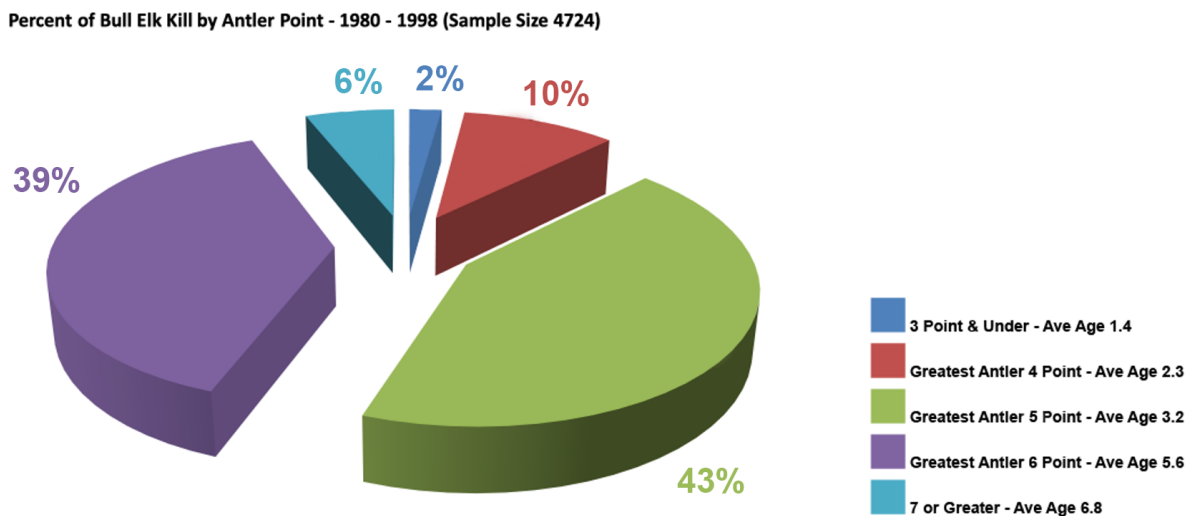


Figure 2. Percent of Bull Elk harvested 1980 - 1998, Identified by Antler Points and Age Determined by Tooth section.

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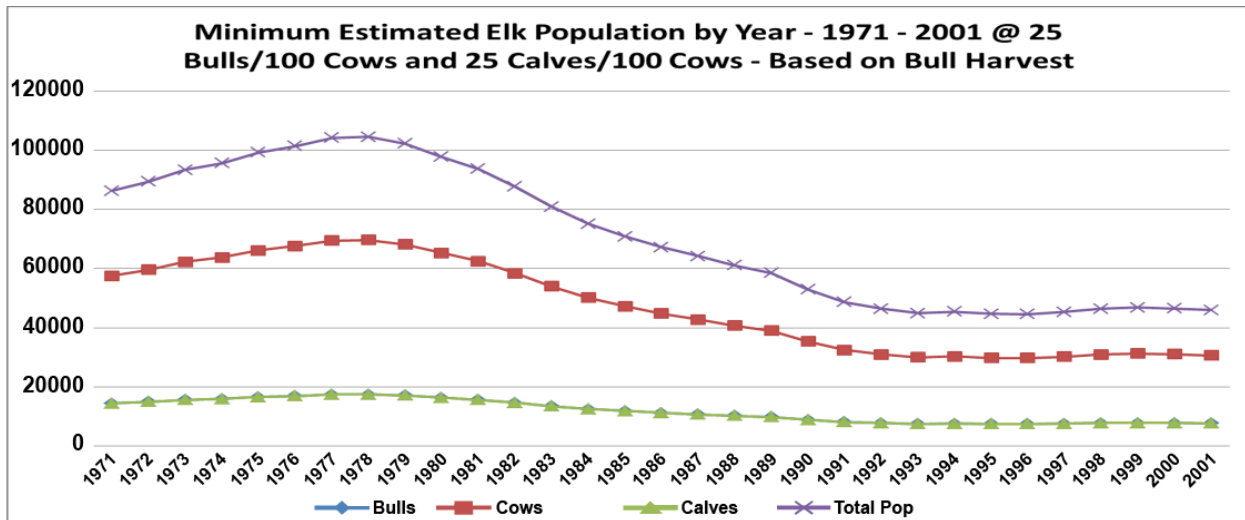


Figure 3. Minimum Estimated Elk Population by Year - 1971 - 2001

Summary comments

The principal factors limiting wild ungulate populations are food supply, predation, hunting, disease and severe weather conditions during winter months. Mitigating for any of these factors to reduce mortality is achieved only by human intercession as management practices. Forest and agricultural activities create important sources of food but supplemental feeding is required during winter to ensure survival. Predation is reduced by culling and hunting wolves, bears and cougars. These game management practices have been applied successfully for decades in Europe and North America.

The large elk population in the East Kootenay exemplifies the success achieved by the Regional game managers from 1980 to 1998. The minimum population estimate during the mid 1980s was a conservative 65,540 animals but clearly the data presented indicate that it was at least 85,000 animals.

Grizzly bears, black bears and cougars were hunted as a partial check on predation. However, when wolves arrived in the mid 1980s, predation became a significant mortality factor that presently continues to limit ungulate population recovery.

Depleted and declining game populations in BC are the result of changes in management policy over the past two decades.

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References and suggested reading:

Wolf and Bear Depredations on Livestock in Northern Sweden 1827 - 2014:
Combining History, Ecology and Interviews, Sept. 2017, Linkowski et al.

Safe From the Wolf: Biodiversity and Competing Philosophies of Nature,
Henry Buller, 2008

Alces, Vol. 54: 71 - 84 (The Moose Journal)

Elk Harvests and Herd Reconstruction in Alberta for Adaptive Management,
Tyler Steven Trump, 2019

SSB Statistics Norway, (covers all game harvests)

Government websites for Moose and Elk in Europe and North America