

A COMPARISON OF MOOSE MANAGEMENT BETWEEN SCANDINAVIA AND ALASKA

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The statistics are impressive. During the fall of 2009, some 240,000 Swedish hunters harvested 88,015 moose. In Norway, roughly 60,000 moose hunters killed 36,409 moose. Together, about 300,000 hunters in both countries harvested about 124,000 moose on a total land area of approximately 283,000 square miles. In Alaska, about 25,000 hunters harvested roughly 8,000 moose on 571,000 square miles.

The differences have to do as much with numbers of humans and hunters as those of moose. There are 14.2 million Swedes and Norwegians, compared to about 710,000 Alaskans. The estimated moose population in Sweden and Norway is about 350,000 moose, as compared to roughly 200,000 here in Alaska. Overall moose density in Scandinavia is about 3.5 times greater than in Alaska, but Scandinavian hunters harvested only 1.3 times as many moose per hunter compared to Alaskan hunters. Scandinavian hunters harvest about 30 times as many moose per square mile compared to Alaska, but the per capita moose harvest is actually slightly higher here in Alaska, with 11 moose harvested per thousand residents versus nine moose per thousand residents in Scandinavia.

The Swedish moose population peaked in 1982 with a record harvest of 174,709 moose. Moose were considered at that point to be extremely overabundant, and managers and hunters worked together to drastically reduce the population rather than let it crash on its own. In Norway, careful, scientific management of the moose herd prevented a dramatic explosion, and the harvest has been relatively stable over most of the past two decades, having peaked at 39,309 moose in 1999. In portions of Norway, some local populations were overstocked, and have been drastically reduced in recent years to prevent widespread damage to habitats and property.

A DIFFERENT HUNTING CULTURE

The way moose are hunted and managed in Scandinavia is quite foreign to us. Moose meat can be sold. Landowners, including public land agencies, own the moose on their land, and profit from the harvest. Quotas (based on sex and age) are assigned to each and every land owner, and there is strong economic incentive to fill these quotas. Hunters lease the land they hunt and often have to pay a portion of the meat value to landowners up front, which might be as much as \$4000 for a larger bull. Landowners are paid a price below market value of the meat, allowing hunters to recoup some of their costs by selling meat on the open market. Because the incentive to fill quotas is high for both landowner and hunter, a high percentage of moose quotas are met in both countries.

Almost every acre of moose habitat in Scandinavia is accessible to hunters. Dense systems of high quality forest roads are drivable by car or pickup. Moose hunting is highly organized, with teams consisting of anywhere between 5 and 30 hunters using their intimate knowledge of the terrain, as well as cell phones, walkie talkies, moose hounds, and drive-hunting techniques to kill as many as 5-10 moose in a day's effort. Hunting parties have exclusive rights to the territory they hunt on, so there are no conflicts with other moose hunters. Enforcement problems

are sparse. There is very little poaching or other violations due to strong self-regulation.

Hunting teams generally have access to slaughter houses and meat cooling facilities on their hunting properties, which allows them to quarter and hang moose shortly after they are harvested. Since meat can be sold on the open market, there are very high standards of meat care that must be met. Moose meat is subject to agricultural inspection. Hides are sold to make a variety of high quality, commercial leather products.

SURPLUS CALVES AND YEARLINGS

One of the biggest reasons Scandinavian hunters can take so many moose is because there are very few natural predators. Although wolves and bears have been nearly absent for decades, in parts of Scandinavia, brown bear and wolf populations are returning, and there is some concern that predation has already reduced the surplus available to hunters in some areas. In Alaska, wolves and bears control most moose populations, not hunters. For example, wolves and bears take most of the calf moose in Alaska and usually keep moose densities low relative to forage availability.

Since natural predation on calves and yearlings is low or non-existent, Scandinavian hunters must step in to play the role of predators to harvest the available surplus and keep moose populations under control. About 40% of all moose killed in Sweden and Norway are fall calves. That is about 48,000 moose calves harvested every year in Scandinavia. When cows with calves are encountered, calves are always taken first. Cows with calves are never shot unless the calf also is shot. Scandinavian studies show that most calves orphaned in the fall do not survive the winter, even where there are no predators. In addition to calves, yearlings of both sexes comprise an additional 20% of the harvest. About 15 to 20% of the total harvest consists of adult cows, with adult bulls comprising the remaining 20 to 25%. This scheme of 60% calves and yearlings and 40% adults is designed for maintaining a stable population over time, under Scandinavian conditions.

TROPHIES NOT IMPORTANT

Trophy moose in Norway and Sweden are a far cry from those in Alaska. A bull older than 4 years is a rarity. Antler spreads above 35-40 inches are noteworthy and rare. So are palmate antlers in general. Most bulls harvested are spikes or forks, with "trophy class" bulls having three or more points on a side. When hunters talk about "big moose" in Scandinavia, they generally refer to slaughter weights. When antlers are discussed, they never talk about antler spreads, but rather the number of points on both antlers, similar to our eastern count system for white-tails. Even the largest Scandinavian bull would be considered small by Alaskan standards. In Alaska, we harvest a much greater proportion of older, adult bulls when compared to hunters in Scandinavia. Ask almost any Scandinavian hunter, and he or she will tell you that they dream of coming here to shoot a big bull moose in a wilderness setting, something that is almost impossible for them to do at home.

MANAGING FOR ABUNDANCE, NOT OVERABUNDANCE

Although abundance of moose is desirable, overabundance is not. It is fortunate that Scandinavian hunters are well organized and have been able to work with managers to systematically and quickly reduce moose populations where this has been necessary. The prime motivation for drastically reducing the Swedish moose population in the 1980's was due to unacceptably high economic losses due to forest damage, coupled with the high human and material costs of numerous moose-vehicle accidents. Also, in the highest density populations, disease, parasites and symptoms of malnutrition were common. Weights of harvested moose and twinning rates declined, with lasting negative effects for these stressed populations. For example, intensive moose browsing suppressed regeneration of preferred foods such as aspen and rowan, which had negative effects not only on moose but other wildlife species as well.

HOW DOES ALASKA COMPARE?

Some places in Alaska have densities of moose on par with Scandinavia. For instance, consider Game Management Unit 20A, south of Fairbanks. In 2003, the moose density in Unit 20A peaked at 3.5 moose per square mile after almost thirty years of careful management, which included limited periods of wolf control. This peak density was at or above typical moose densities in Scandinavia. Antlerless harvests were implemented to control the population in 20A, and the current density is about 2.9 moose per square mile, which is also considered to be a good moose density in much of Norway and Sweden.

Some places in Alaska support densities of moose similar to good moose-producing areas in Scandinavia, but nutritional condition of interior Alaskan moose appears to be lower due to poorer quality habitat. Twinning rate is used by managers as an index of the nutritional health of a moose population because it requires cows in good body condition to produce twins. At a population density similar to 20A, southern Scandinavian moose cows produce twins at a rate of 20-25% as compared to a rate of only 7% by moose cows in 20A. This illustrates that interior Alaska moose are not as productive as their Scandinavian counterparts at the same densities. Why is that? Areas with the highest moose densities in Scandinavia experience milder winters and longer growing seasons with forest interspersed with productive agricultural land. Scandinavian forests are intensively managed mainly through clear-cutting and regenerating plantations. All these factors result in abundant, high-quality moose forage.

ABUNDANCE BRINGS ITS OWN CHALLENGES

High moose densities do not necessarily lead to higher hunter satisfaction. Dense moose populations generally produce fewer trophy bulls, perhaps due to nutritional stress, and high hunter harvest of bulls. Since lots of moose attract more hunters, especially where access is available, hunters efficiently take most bulls with an antler spread of 50 inches or greater.

In Alaska, hunter overcrowding is a common result of relatively few accessible areas. Limited access can also prevent hunters from getting to places of moose abundance, and to overharvest along access corridors, while moose a few miles inland can be underutilized. In contrast, Scandinavian hunters are easily capable of accessing every moose in their populations without the need for aircraft or off-road vehicles.



Our research shows that in areas with good habitat, predator control over sufficient time can increase moose numbers and densities in Alaska. Research also shows that over-browsing is a problem when moose become too numerous. Once moose numbers are elevated, it is critical that hunting keeps populations at levels their habitat can support. If moose numbers become too high, the population becomes more susceptible to “crashes” – abrupt and drastic declines – and it increases the risk of long-term damage to moose browse. Hunters can be effective in maintaining numbers of moose at levels the habitat can support. In areas with high moose densities, harvesting more antlerless moose (cows, yearlings and calves) helps keep an abundant population within the bounds of its forage base. Otherwise hunters will not be ensured a sustained opportunity over time.

We can point to successful programs in interior Alaska where we now enjoy moose populations with densities similar to the idealized Scandinavian scenario, but uniformly high density moose populations across Alaska would challenge managers and hunters. Given the vast moose distribution we have in Alaska, the relatively small human population, and the costs associated with intensive management efforts, we need to pick our battles wisely. Factors such as winter severity, habitat quality, hunter ability to harvest moose and their predators, as well as our ability to manipulate predators and habitat have to be carefully assessed. Once elevated populations are achieved, our biggest challenge is to ensure that hunters will be able to harvest enough moose to keep the population healthy and within the bounds of its habitat over time. This has been a huge challenge in Scandinavia, as well as in Alaska, as our experience in much of Unit 20A demonstrates. ■