

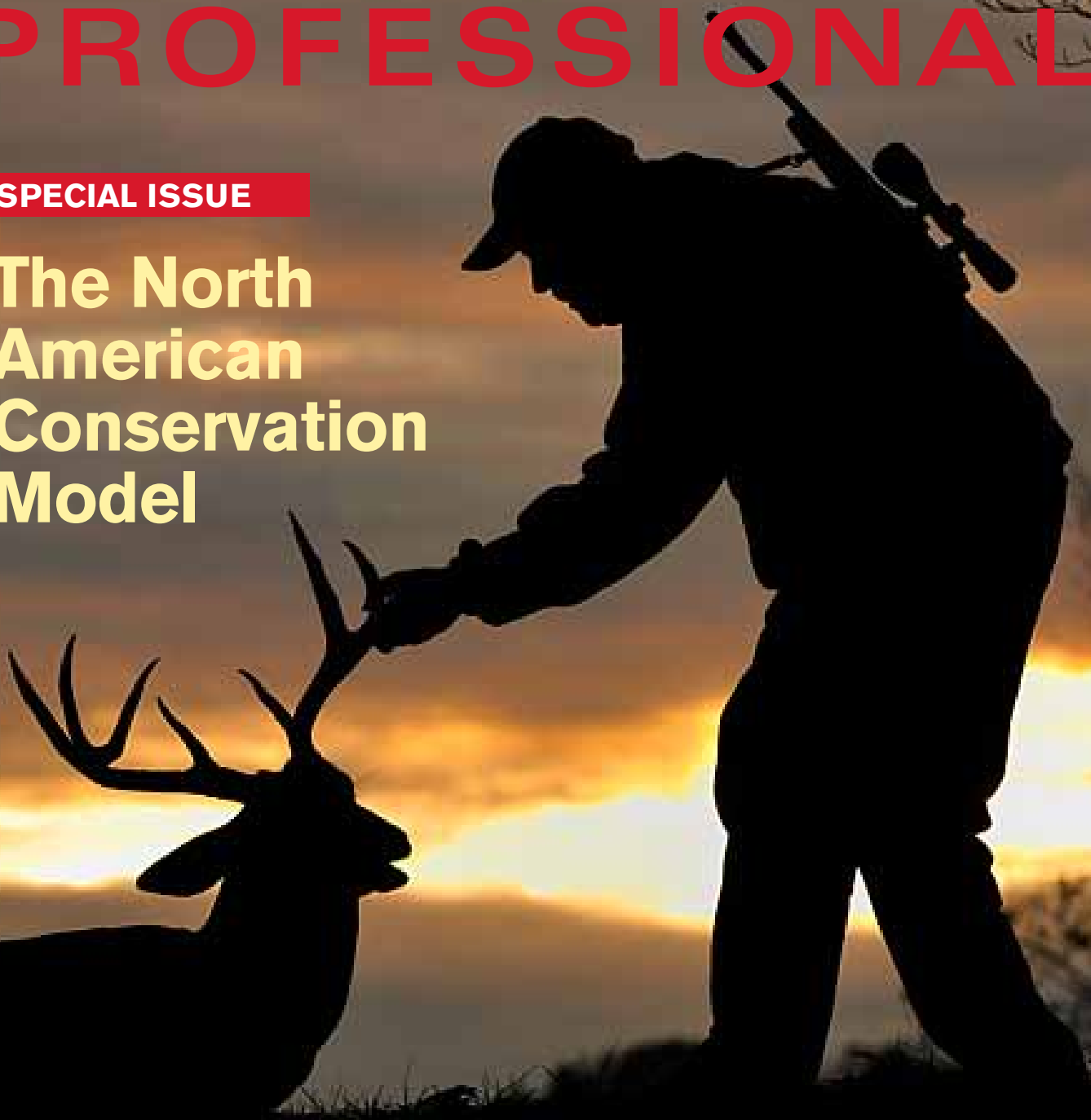
Vol. 4 No. 3

Fall 2010

THE WILDLIFE PROFESSIONAL

SPECIAL ISSUE

The North American Conservation Model



Conservation's Debt to Hunters

How Science Gains from Studying Game

The Role of Furbearer Management

Special Issue: North American Model of Wildlife Conservation

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By John Organ, Shane P. Mahoney, and Valerius Geist

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Credit: Jim Peaco/NPS



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Credit: Ken Logan/Colorado Division of Wildlife



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The Scandinavian Model

A DIFFERENT PATH TO WILDLIFE MANAGEMENT

By Scott M. Brainerd, Ph.D., and Bjørn Kaltenborn, Ph.D.



Credit: Bjørn Kaltenborn

Scott M. Brainerd, Ph.D., is a Wildlife Research Coordinator with the Alaska Department of Fish and Game and a Research Scientist with the Norwegian Institute for Nature Research. He served 15 years as the national wildlife specialist for the Norwegian Association of Hunters and Anglers.



Credit: Scott M. Brainerd

Bjørn Kaltenborn, Ph.D., is a Senior Research Scientist with the Norwegian Institute for Nature Research.

A moose-hunting team in Norway retrieves a kill from the field. Like other hunters in Scandinavia, the group leases moose-hunting rights on privately owned forest land, paying the landowner permit fees to harvest a set number of animals. Moose numbers are thriving under this system.

Many once-depleted wildlife populations in Sweden and Norway are flourishing today. Moose (*Alces alces*) are a prime example: Though nearly exterminated only a century ago due to overhunting, concerted efforts by Scandinavian hunter-conservationists and legislators have brought the species back from the brink (Swedish Hunter's Association 1992; Søylen 1995). Today, Sweden's annual harvest of moose totals more than 80,000 animals, and Norway's is nearly 40,000. This pattern of overhunting and recovery may sound familiar to North Americans. In many ways, the successes of wildlife conservation in Scandinavia have paralleled those of the North American Model of Wildlife Conservation.

The North American Model has been lauded as a great success and incorporated into the policy of the International Association of Fish and Wildlife Agencies (Prukop and Regan 2005). Yet there is room for improvement, as evidenced by problems such as chronic overpopulation of deer and geese in North America, and an inability to adequately regulate

these species through hunter harvests (e.g. Ankney 1996, Merrill *et al.* 2006, Connor *et al.* 2007).

To find solutions to such problems, it makes sense to observe wildlife conservation successes elsewhere in the world. With more than 60 years of collective experience working in both North America and Scandinavia, we believe that certain facets of the Scandinavian approach to wildlife management, if used wisely, may have potential application in North America.

What is the Scandinavian Model?

We propose the following as the eight guiding principles of the Scandinavian Model of Wildlife Conservation:

1) No one owns living wildlife, but landowners own wildlife legally harvested on their property. Living wildlife in Scandinavia is considered a public resource (Danielsen 2001). Animals that die of natural causes, are killed as part of special public control measures, or are otherwise



Credit: Eyvor Aas



not legally harvested (e.g., killed by vehicle collision or poaching) are considered property of the state, but legally harvested wildlife is the property of the landowner.

2) Game meat is a commercial commodity that can be sold on the open market.

Though game farms for wildlife products exist in the U.S., they are relatively rare. In Scandinavia, game meat is routinely sold on the open market and is considered an important part of the culture.

3) Landowners have exclusive rights to hunt on their land.

Scandinavian landowners have the right to hunt on their land, and can also lease access to other hunters. In Norway, landowners hold state hunting licenses allocated to their properties in accordance with plans approved by locally elected game boards and supervised by regional wildlife managers (Storaas *et al.* 2001).

4) Decision-making is decentralized through empowerment of local stakeholders.

Management of species such as moose has been gradually decentralized to allow more precise management in accordance with local management goals (Danielsen 2001, Lavsund *et al.* 2003). As a general rule, landowners are given responsibility to manage game populations on their land within a sound regulatory framework designed to incorporate data collected primarily by hunters.

5) Wildlife should only be killed for legitimate reasons.

As in the U.S. and Canada, the primary motivations for Scandinavian hunters are recreation and harvesting meat for the table. Wildlife can also be legally killed in self-defense or defense of property.

6) Wildlife is an international resource.

Norway and Sweden both work to conserve wildlife populations internationally, participating in pan-European and global agreements including the [Bonn Convention](#), the [Bern Convention](#), [RAMSAR](#), [CITES](#), and the [Convention on Biological Diversity](#). Norway recently took the lead in creating the European Charter on Hunting and Biodiversity, which recognizes the value and importance of hunting as a tool in European wildlife conservation.

7) Science should ground decisions to allocate wildlife resources to the public.

Scandinavia, like North America, has long relied

upon wildlife research and monitoring as the basis for sound management. Meticulous harvest statistics have been collected in both Norway and Sweden for over 150 years. While most monitoring programs have concentrated on cervids, funding for large carnivore research has increased dramatically in recent years, in pace with increasing wildlife populations.

8) Hunting is open to all citizens.

Hunters in Norway and Sweden comprise roughly 5 percent of the population (comparable to the U.S. percentage). They are representative of the population and do not belong to an elite class (Statistics Norway, U.S. DOI and U.S. DOC 2006).



Credit: Erling Solberg

A group enjoys a forest walk (above) on private land east of Trondheim, Norway. Unlike in North America, private land is largely available to the public for hiking, berry picking, and sometimes fishing (below). Fishing rights may also be leased from landowners.



Credit: Olav Strand



Where the Models Part Ways

While the two Models share much in common, several differences do exist arising from the different cultures, politics, and history of the nations involved. In 1899, for example, when Norway was in union with Sweden, private landowners were granted exclusive hunting rights to all game species on their property to avoid overharvesting of game species by the public—a “tragedy of the commons” situation (Søilen 1995). These rights endure today in both countries. In addition, because landowners can charge hunters for access and for the meat they harvest, landowners have incentive to sustainably manage wildlife on their property. They also recognize the need to regulate ungulate populations, especially moose, through hunting in order to prevent damage to forests and crops.

Some North American conservationists regard privatization as being in direct conflict with the Public Trust Doctrine (Williams *et al.* 2009). This does not seem to be the case in Scandinavia, where wildlife is not farmed or ranched, and landowners widely provide hunting opportunities to the public. Recent public opinion surveys in Norway indicate that a majority of the public are highly supportive of nature conservation and protection as well as hunting (Norsk Gallup 2008). Thus, we see no evidence that the fee-based system for wildlife management in Scandinavia has been detrimental to public support for either conserva-

tion or hunting (cf. Swenson 1983), in part due to cultural norms and values which are not directly translatable to other countries. Among other notable differences between the North American and Scandinavian models:

A Culture of Open Access

Land ownership in many, if not most, Scandinavian rural communities dates back many generations, even centuries in some families. In Norway the government has heavily subsidized rural communities to maintain older settlement patterns and thereby cultural continuity. The hunting culture is thus relatively intact—many urban hunters are able to return each fall to family-owned lands to hunt.

Although more than 75 percent of land in Norway and Sweden is privately owned, “No Trespassing” signs are almost non-existent. Instead, private lands in Scandinavia are generally freely open to the public for hiking, camping, berry picking, and to some extent fishing. Physical exercise and an appreciation of the “peacefulness of nature” are also important components of the culture in Scandinavia, where great emphasis is placed on healthy lifestyles, and obesity and associated health problems are comparatively rare.

State managed land is available for hunting. In Norway and certain areas in Sweden, laws stipulate that local residents have priority to use communal areas—private land managed in the public trust—for hunting and fishing. Access to large private estates may be limited to landowners and their friends, but in many cases, small landowners band together to ensure that they have enough land to meet requirements for harvesting a single deer or moose.

Whether on private or public land, however, hunters must have landowner permission to hunt, obtained either through leases—which provide exclusive access for hunting parties—or permits, which typically give individuals short-term access to small game or roe deer. (A typical lease for ptarmigan hunting on private land in southern Norway may cost upwards of \$10 per acre or more.)

Local hunters in Scandinavia generally have very good access to hunting through informal personal connections with landowners or through membership in organized hunting clubs. Hunters without local connections may find it challenging to gain access to big game hunting, and often must compete



Credit: Erling Solberg

Successful moose hunters dress their kill. They will leave the meat hanging until it becomes dry and tender. Hunters may keep moose and other game meat for private consumption, give or sell it to friends and acquaintances, or sell it on the open market.



for leases or permits on private or state land. Small game hunting is generally more available. Clubs also lease small game rights from consortiums of landowners, and manage the wildlife and hunting on their behalf. Profits above the lease fees are used for hunter education and wildlife caretaking (Heberlein 2001).

Commercial Markets for Game

Key to the Scandinavian Model is that game meat—moose, red deer, roe deer, wild reindeer, wild boar, brown bear, and small game such as ptarmigan—can and does have significant commercial value. Hunters must pay landowners to harvest the meat, but can then sell it for more than what they pay, so both landowners and hunters benefit and have incentive to sustain healthy wildlife populations.

Hunters pay landowners a fee based on the harvested animal's sex, age, and slaughter weight, from about \$8 per pound for a typical moose calf to \$10.50 per pound for an older bull. These payments are roughly 10 to 20 percent less than what one would pay in the commercial market—compensation to hunters for the service they render. Hunters also pay individual tag fees that in Norway range from about \$22 for a calf reindeer to about \$71 for an adult moose. Landowners typically charge hunters up front for permits, ranging between \$200 and \$400 per animal. Once animals are harvested, that amount is deducted from the total price the hunter pays for the meat. Hunters can then sell the meat they do not use to friends, neighbors, or others at market price.

This system provides hunters incentive to fill their quotas and thus recoup their investment, and may help explain the very high achievement of national moose quotas in particular—on the order of 80 percent or more annually (Statistics Norway 2009). To ensure quality, all privately harvested game meat sold on the market must pass a health inspection. In 2007, the total value of wildlife meat harvested in Norway was 500 million Norwegian kroner (90 million U.S. dollars), with moose meat alone valued at 300 million kroner (54 million U. S. dollars).

Fur also has commercial value in Scandinavia as it does in North America. However, with the exception of Arctic fox (*Alopex lagopus*) in the Svalbard archipelago, commercial trapping of furbearers is very limited, primarily due to low fur values for the most commonly trapped species such as marten



Credit: Erling Solberg

Working for the Norwegian Institute for Nature Research, doctoral student Christer Rolandsen tracks a radio-collared moose in central Norway. As in North America, wildlife management in Scandinavia is grounded in scientific research and monitoring.

(*Martes martes*) (Helldin 2000). Many trappers indicate that wildlife management is their primary motivation for trapping (Ødegård *et al.* 1994).

Conservation Funding

There is no special excise tax on firearms and ammunition in Scandinavia akin to the Pittman-Robertson Act funds (see page 35). However, as in the U.S., wildlife management and research are generally paid for by hunting license and permit fees. In Norway these funds have been earmarked for wildlife management and research since 1951—a feat considering that the Norwegian Finance Department abhors dedicated fees. Hunting and fishing are also important and steadily increasing parts of the overall economy in Norway, contributing roughly \$580 million a year (Norwegian Agriculture and Food Department). Likewise in Sweden, hunter license fees and dues for membership in the Swedish Association for Hunters and Wildlife Management pay for management and research. These contributions, both in terms of funding and local involvement, represent considerable hunter “ownership” of Scandinavia’s conservation system.

Hunting Ethics

Laws and policies in Norway and Sweden emphasize the need for high hunter competence and ethical standards, as in North America. Yet in Scandinavia, hunting teams must have dogs available to track wounded game, and hunters must pass annual shooting tests before they can legally hunt big game. These standards are reflected in hunter proficiency: A recent study of 12,000 shots fired at red deer, moose, and wild reindeer in Norway indicated that wounding loss for the combined sample was less than 1 percent (Andestad 2009).

The relative concept of fair chase is balanced against other ethical considerations, such as achieving efficient and “clean” kills. In addition to using dogs for hunting moose and deer species, big game hunters in Scandinavia can use two-way radios and other communication devices—illegal in some U.S. states—to increase efficiency. In Sweden, hunters can gain access to remote areas with helicopters, but the use of off-road vehicles for recreational hunting is generally prohibited as it is considered a disturbance to wildlife and lands.

Unlike North America and elsewhere in Europe, obtaining trophies in Scandinavia is rarely an important objective. This may be partly explained by the egalitarian and collectivist nature of Scandinavian culture, where bragging or standing out from the group is discouraged (Daun 1996).

Public Perceptions of Hunting

Perhaps because of these high standards for competence and ethics, as well as the important cultural value of game meat, hunting is viewed by an increasing majority of Norwegians (74 percent in 2008) as an acceptable and even desirable activity (TNS Gallup 2008). One study found that the Swedish public was highly supportive of hunting when the main objectives were recreation and meat (81 percent), but less so (33 percent) when the objectives were recreation and sport (Heberlein and Willebrand 1998).

Public attitudes toward guns also differ significantly from those in the States. Some hunting advocates in the U.S. warn that gun control will impose serious limitations on hunting (Williams *et al.* 2009). Ironically, Norway has rather strict gun control laws by U.S. standards, yet gun ownership in Norway is the highest in Europe at 32 percent of households compared to 39 percent in

the U.S. (Kates and Mauser 2007, Gallup 2009). Hunters without serious criminal backgrounds in Norway generally have no trouble obtaining gun permits since hunting is considered a legitimate and important activity under the law. The same holds true in Sweden, although just 15 percent of households have guns (Kates and Mauser 2007), which may reflect the country’s higher proportion of urban residents.

A Different Model for Success

The Scandinavian Model of Wildlife Conservation has promoted the recovery and sustained management of many big and small game species in Sweden and Norway. Yet this model also has its challenges. Competing interests in an increasingly urbanized society will continue to place wildlife and their habitats under pressure. In addition, successful recovery of large carnivore populations brings its own headaches. Many hunters perceive wolves, bears, and lynx to be unwelcome competitors or adversaries, as do agriculturalists in rural communities. As a result, poaching of large carnivores is on the increase, and appears to have slowed recovery of the wolf population significantly (Liberg *et al.* 2010). The Scandinavian governments have begun to dedicate more resources to wildlife law enforcement to counteract this trend.

The Scandinavian Model is the result of a strong partnership between the states, landowners, and the public. This “revier,” or hunting territory, system—where hunters, landowners, and the government partner in the management of local properties—provides real incentives for local wildlife conservation and management (Bubenik 1989). Therefore, in areas of North America that are dominated by private land and where game populations are dense and hunter access is lacking (such as in the northeastern U.S.), it may benefit wildlife conservation to consider the creative implementation of a model similar to that practiced in Scandinavia, giving private landowners incentive to allow hunters to help manage wildlife on their property. ■



For a complete bibliography, go to www.wildlife.org.