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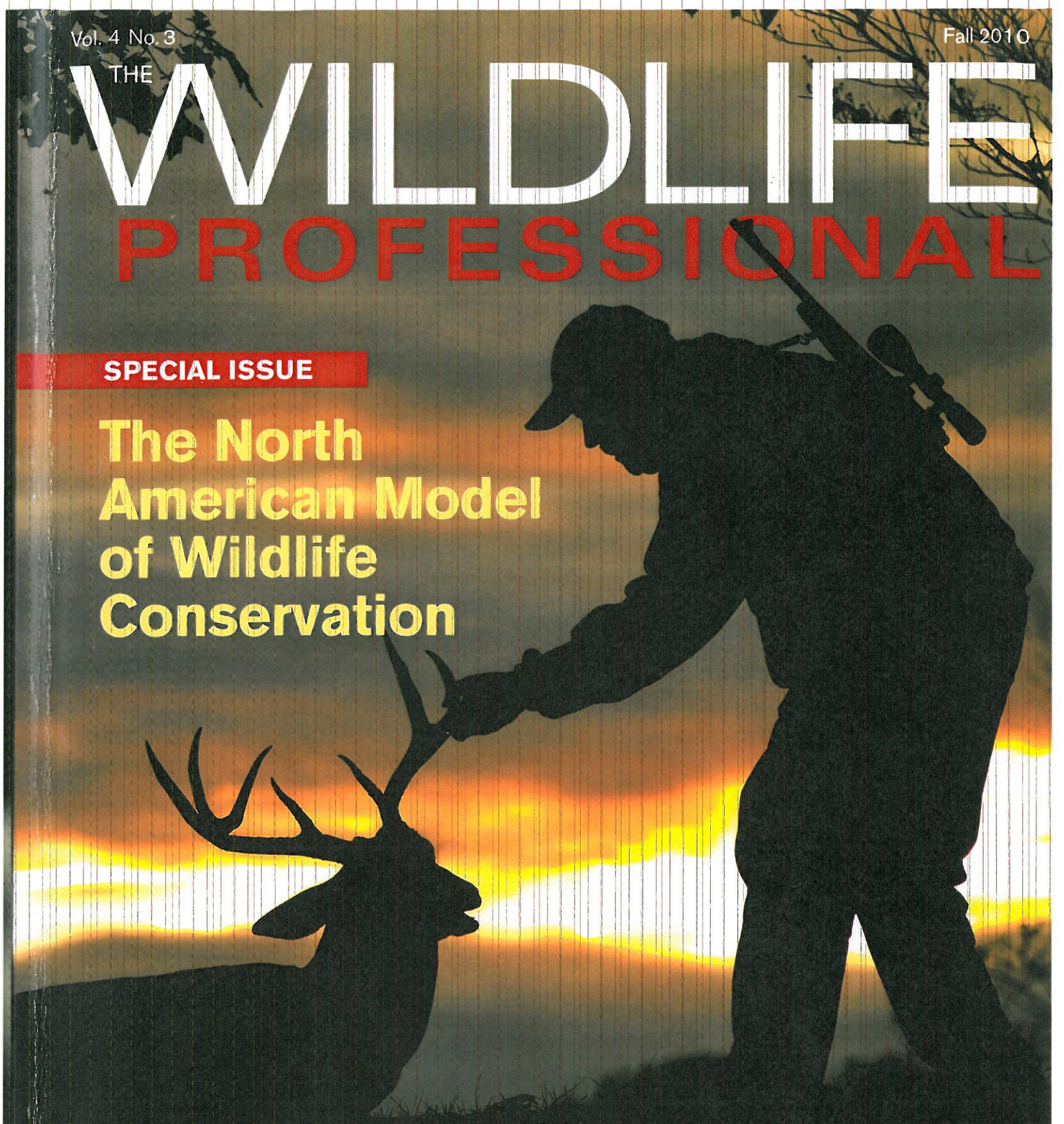

SPECIAL ISSUE

The North American Model of Wildlife Conservation

A Conservation Timeline

How Science Gains from Studying Game

The Role of Furbearer Management

THE WILDLIFE SOCIETY

Historical Context

The North American Model (the Model) has deep social and ecological roots. In the early days of North American exploration, English and French settlers came from cultures where wildlife at various times in their histories was the private property of an elite landed gentry (Manning 1993). The explorations of these settlers were driven by the incredible wealth of North America's renewable natural resources—and by an unfettered opportunity to exploit it. Today, wildlife conservation in Canada and the United States reflects this historic citizen access to the land and its resources. Indeed, the idea that natural resources belong to the citizenry drives democratic engagement in conservation and forms the heart of North America's unique approach (Krausman 2009).

After resource exploitation fueled the expansion of people across the continent, the Industrial Revolution brought social changes that indelibly marked the land and its wildlife. In 1820, 5 percent of Americans lived in cities, but by 1860, 20 percent were urban dwellers, marking the greatest demographic shift ever to occur in America (Riess 1995). Markets for wildlife arose to feed these urban masses and to festoon a new class of wealthy elites with feathers and furs. Market hunters plied their trade first along coastal waters and interior forests. With the advent of railways, hunters exploited the West, shipping products from bison, elk, and other big game back to eastern cities. The march of the market hunter left once abundant species teetering on the brink of extinction.

By August 1886—when Captain Moses Harris led cavalry troops into Yellowstone National Park to take over its administration and stop rampant poaching—bison, moose, and elk had ceased to exist in the U.S. as a viable natural resource (U.S. Dept. Interior 1987). The Army takeover of Yellowstone is symbolic of the desperate actions taken to protect the remnants of American wildlife from total extinction. Ironically, the sheer scale of the slaughter was to have some influence in engendering a remarkable new phenomenon: the conservation ethic (Mahoney 2007).

Northern shovelers (*Anas clypeata*) take to the air over Laguna Atascosa National Wildlife Refuge in Texas.

Credit: Steve Hillebrand/USFWS

Credit: Rene Monsalve

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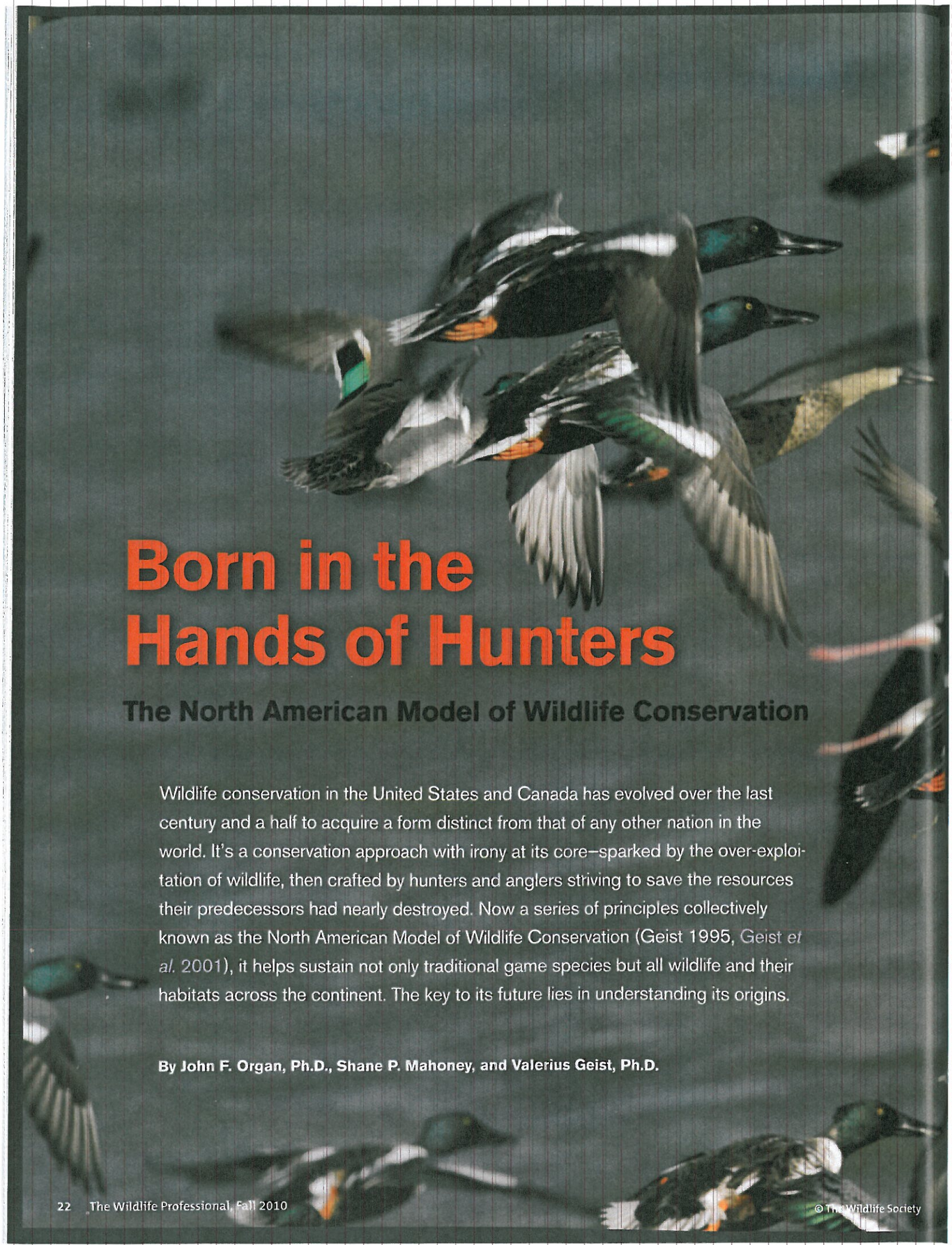

Born in the Hands of Hunters

The North American Model of Wildlife Conservation

Wildlife conservation in the United States and Canada has evolved over the last century and a half to acquire a form distinct from that of any other nation in the world. It's a conservation approach with irony at its core—sparked by the over-exploitation of wildlife, then crafted by hunters and anglers striving to save the resources their predecessors had nearly destroyed. Now a series of principles collectively known as the North American Model of Wildlife Conservation (Geist 1995, Geist *et al.* 2001), it helps sustain not only traditional game species but all wildlife and their habitats across the continent. The key to its future lies in understanding its origins.

By John F. Organ, Ph.D., Shane P. Mahoney, and Valerius Geist, Ph.D.

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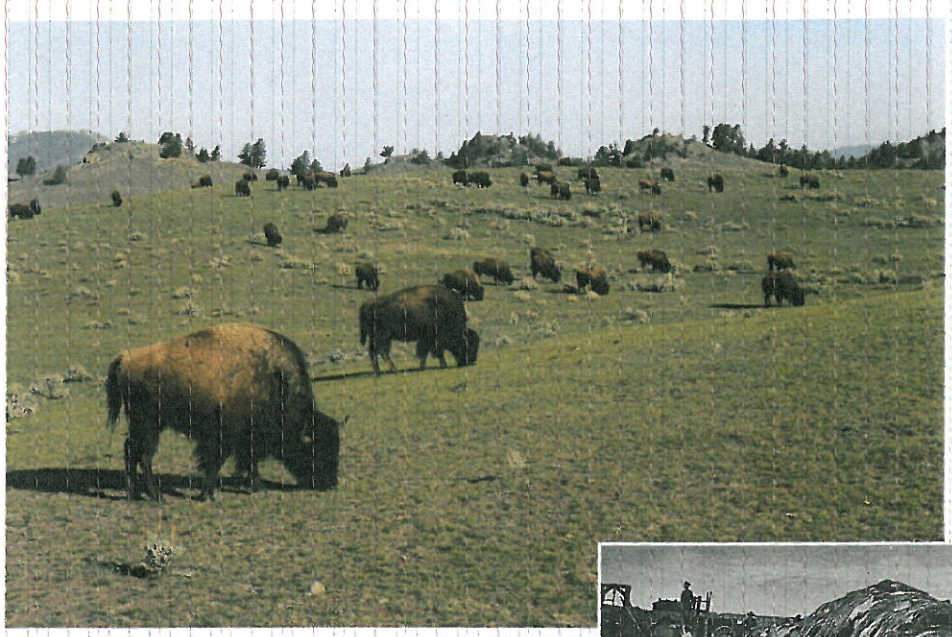

Credit: Jim Peaco/NPS

Credit: National Archives

Some 40,000 bison pelts in Dodge City, Kansas (right) await shipment to the East Coast in 1878—evidence of the rampant exploitation of the species. The end of market hunting and the continuing conservation efforts have given bison a new foothold across parts of their historic range, including Yellowstone National Park (above).

The increasing urban population found itself with something that farmers did not have: leisure time. The challenges of fair-chase hunting became a favored pastime of many, particularly those of means. Conflicts soon arose between market hunters, who gained fortune on dead wildlife, and the new breed of hunters who placed value on live wildlife and the sporting pursuit of it.

These "sport" hunters organized and developed the first wildlife hunting clubs (such as the Carroll's Island Club, founded in Maryland in 1832) where hunters protected game from market hunters. Recreational hunters also pushed for laws and regulations to curtail market hunting and overexploitation. The New York Sportsmen's Club, for example, drafted laws recommending closed seasons on deer, quail, woodcock, and trout—laws which passed in 1848 (Trefethen 1975).

Pioneers in Conservation

An early advocate of game protection, Yale-educated naturalist George Bird Grinnell acquired the sporting journal *Forest and Stream* in 1879 and turned it into a clarion call for wildlife conservation. Grinnell had accompanied George Armstrong Custer on his first western expedition in 1874, where he saw herds of bison and elk. A decade later, in 1885, Grinnell reviewed *Hunting Trips of a Ranchman* by fellow New Yorker Theodore Roosevelt. In that review, Grinnell criticized Roosevelt for his limited experience in the West and for presenting hunting myths as fact. Roosevelt went to talk with Grinnell, and upon comparing experiences the two realized that big game had declined drastically. Their discussion inspired them to found the Boone and Crockett Club in 1887, an organization whose purpose would be to "take charge of all matters pertaining to the enactment and carrying out of game and fish laws" (Reiger 1975).

Roosevelt and Grinnell agreed that America was strong because, like Canada, its people had carved the country from a wilderness frontier with self-reliance and pioneer skills. With the demise of the frontier and a growing urban populace, however, they feared that America would lose this edge. They believed that citizens could cultivate traditional outdoor skills and a sense of fair play through sport hunting, thereby maintaining the character of the nation (Brands 1997).

Endorsing these ideals, influential members of the Boone and Crockett Club used their status to great advantage, helping to create some of North America's most important and enduring conservation legacies. In 1900, for example, Congressman John Lacey of Iowa drafted the Lacey Act, making it a federal offense to transport illegally hunted wildlife across state borders. Canadian Charles Gordon Hewitt wrote the Migratory Bird Treaty of 1916 to protect migratory birds from egg and nest collectors and unregulated hunting. And during his presidency from 1901 to 1909, Theodore Roosevelt protected more than 230 million acres of American lands and waters, doing more to conserve wildlife than any individual in U.S. history.

The Canadian effort revolved around the Commission on Conservation, founded in 1909 under the guidance of Prime Minister Wilfrid Laurier and noted conservationist Clifford Sifton, who served as the Commission's chairman and was eventually knighted for his efforts. Established to combat resource exploitation, the Commission—and its prestigious panel of scientists, academics,

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and policymakers—sought to provide scientific guidance on the conservation of natural resources. Working committees conducted research on agricultural lands, water, energy, fisheries, forests, wildlife, and other natural-resource issues, eventually publishing the first comprehensive survey of Canadian resources and the challenges to their conservation.

Emergence of a Profession

By the early 20th century, much of the infrastructure of wildlife conservation was already in place. In the 1920s, however, leading conservationists recognized that restrictive game laws alone were insufficient to stem wildlife's decline. To help address such concerns, ecologist Aldo Leopold and other conservationists published *American Game Policy* in 1930, which proposed a program of restoration to augment existing conservation law. "For the first time," writes Leopold biographer Curt Meine, "a coherent national strategy directed the previously disparate activities of sportsmen, administrators, researchers, and ... landowners" (Meine 1991).

Leopold and others also promoted wildlife management as a *profession*, advocating for trained biologists, stable funding for their work, and university programs to educate future professionals. Within 10 years many of these goals had been realized. Among them:

- *Wildlife curriculum.* In 1933, the University of Wisconsin launched the first wildlife management curriculum, a program that taught wildlife science, setting a standard for other universities.
- *Cooperative Wildlife Research Units.* Federal legislation in 1935 established a nationwide network of what are now known as Cooperative Research Units, where federal and state agencies and universities cooperate in fish and wildlife research and training.
- *Professional societies.* In 1937, W. L. McAtee, Aldo Leopold, and others founded The Wildlife Society, the first professional scientific society for those working in wildlife management and conservation. Said McAtee, "The time is ripe for inaugurating a professional society" to promote discourse on issues facing wildlife conservation.
- *Funding legislation.* Congress passed the Duck Stamp Act of 1934 and the Federal Aid in Wildlife Restoration Act of 1937 (or the Pittman-Robertson Act) to provide reliable funding sources for federal and state wildlife conservation. (See article on page 35.)

Though initially launched in the U.S., these initiatives were endorsed and mirrored by Canadian policies and programs. In both nations, subsequent decades have brought expanded conservation legislation—such as the U.S. Endangered Species Act and Canadian Species at Risk Act—as well as partnership programs to promote and fund wildlife conservation, including the U.S. Migratory Bird Joint Ventures and the Teaming with Wildlife coalition.

The Model's Seven Pillars

Such key conservation laws and programs were built upon a firm foundation—the seven underlying principles of the North American Model (Geist *et al.* 2001). Those principles have stood the test of time, proving resilient to sweeping social and ecological changes (Mahoney and Jackson 2009). Will they stand the test of the future? That question can't be answered without a strong understanding of the principles themselves.

1. Wildlife as a Public Trust Resource. The heart of the Model is the concept that wildlife is

Credit: Dennis McKinney/Colorado Division of Wildlife

A Colorado hunter fires a Hawken muzzle-loading rifle, a primitive firearm first used on the American frontier in the 1820s. Sportsmen today carry on the tradition begun by early pioneers and trappers, tempered by the understanding that wildlife is a public trust resource to be killed only for legitimate purposes.

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owned by no one and is held by government in trust for the benefit of present and future generations. In the U.S., the common-law basis for this principle is the Public Trust Doctrine, an 1841 Supreme Court Decision declaring that wildlife, fish, and other natural resources cannot be privately owned (*Martin v. Waddell*). In drafting the Public Trust Doctrine, Supreme Court Chief Justice Roger Taney drew upon the *Magna Carta*, which in turn was rooted in ancient Greek and Roman law. A subsequent Supreme Court Decision in 1896 regarding illegal transport of hunted ducks across a state border firmly made wildlife a trust resource (Geer v. Connecticut). Today, however, each state or province has its own laws regarding wildlife as a public trust. Those laws face potential erosion from multiple threats—such as claims of private ownership of wildlife, commercial sale of live wildlife, limits to public access, and animal-rights philosophy—

Credit: John Gilbert

Jennifer Vashon, a biologist for the Maine Department of Inland Fisheries and Wildlife, retrieves Canada lynx kittens for study. Her research team will measure the cats, determine their sex, collect DNA, and tag them for monitoring. Such work–funded in part by hunting license fees–informs the management of this rare species.

which are prompting moves for model language to strengthen existing laws (Batcheller *et al.* 2010).

2. Elimination of Markets for Game. Historically, the unregulated and unsustainable exploitation of game animals and migratory birds for the market led to federal, provincial, and state laws that greatly restricted the sale of meat and parts from these animals. Those restrictions proved so successful that today there is an overabundance of some game species—such as snow geese (*Chen caerulescens*) and white-tailed deer (*Odocoileus virginianus*) in suburban areas—which may warrant allowing hunting and the sale of meat under a highly regulated regime. Such regulated hunting and trade could enhance public appreciation of hunting as a management tool by reducing human-wildlife conflicts with overabundant species. In addition, trapping of certain mammal species in North America and commerce in their furs are permitted, but are managed sustainably through strict regulation such that the impacts on populations lie within natural ranges (Prescott-Allen 1996). Unfortunately, trade in certain species of amphibians and reptiles still persists with little oversight, and should be curtailed through tighter restrictions.

3. Allocation of Wildlife by Law. As a trustee, government manages wildlife in the interest of the beneficiaries—present and future generations of the public. Access and use of wildlife is therefore regulated through the public law or rule-making process. Laws and regulations, such as the Migratory Bird Treaty Act, establish the framework under which decisions can be made as to what species can be hunted, what species cannot be harmed due to their imperiled status, and other considerations relative to public use of or impact on wildlife.

4. Kill Only for Legitimate Purpose. Killing wildlife for frivolous reasons has long been deemed unacceptable. The U.S. Congress passed a bill against "useless" slaughter of bison in 1874 (Geist 1995), and the "Code of the Sportsman" as articulated by Grinnell mandated that hunters use without waste any game they killed (Organ *et al.* 1998). Today, 13 states and provinces have "wanton waste" laws requiring hunters to salvage as much meat from legally killed game as possible. In Canada, the Royal Commission on Seals and Sealing recognizes that harvest of wildlife must have a practical purpose if it is to remain acceptable in society (Hamilton *et al.* 1998). Food, fur, self-defense, and property protection are generally considered legitimate purposes for the taking of wildlife. Other practices that conflict with this principle—such as prairie dog shoots or rattlesnake roundups—are under increasing scrutiny (see page 58).

5. Wildlife as an International Resource. One of the greatest milestones in the history of wildlife conservation was the signing of the Migratory Bird Treaty in 1916. Noted Canadian entomologist C. Gordon Hewitt, who masterminded the treaty, saw the protection of migratory songbirds as essential to the protection of agricultural crops against insect pests. Affecting far more than hunted wildlife, this was the first significant

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treaty that provided for international management of terrestrial wildlife resources. The impetus, of course, was that because some wildlife species migrate across borders, a nation's management policies—or lack thereof—can have consequences for wildlife living in neighboring countries. International commerce in wildlife, for example, has significant potential effects on a species' status. To address this issue, in 1973, 80 countries signed the first Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Today there are 175 parties to the treaty.

6. Science-based Wildlife Policy. Science as a basis for informed decision-making in wildlife management has been recognized as critical to wildlife conservation since the founding days of North American conservation (Leopold 1933). The subsequent application of this principle has led to many advances in management of diverse species, often under highly complex circumstances such as adaptive management of waterfowl harvest (Williams and Johnson 1995). Unfortunately, funding has been largely inadequate to meet the research needs of management agencies. In addition, a trend towards greater influence in conservation decision making by political appointees versus career managers profoundly threatens the goal of science-based management (Wildlife Management Institute 1987, 1997). So, too, do the divisions within the wildlife science community itself, which often splits along a human-versus-animal divide. The integration of biological and social sciences, which Leopold hoped would be one of the great advances of the 20th century, is necessary to meet the conservation challenges of the 21st century.

7. Democracy of Hunting. Theodore Roosevelt believed that society would benefit if all people had an access to hunting opportunities (Roosevelt *et al.* 1902). Leopold termed this idea the "democracy of sport" (Meine 1988)—a concept that sets Canada and the U.S. apart from many other nations, where the opportunity to hunt is restricted to those who have special status such as land ownership, wealth, or other privileges. Yet some note that the greatest historical meaning of the public trust is that certain interests—such as access to natural resources—are so intrinsically important that their free availability marks a society as one of citizens rather than serfs (Sax 1970).

Moving Beyond the Model

Bedrock principles of the North American Model of Wildlife Conservation evolved during a time when game species were imperiled and ultimately led to a continent-wide resurgence of wildlife at a scale unparalleled in the world, as evidenced by the restoration of deer, elk, waterfowl, bear, and many other species. It is clear that these principles have served wildlife conservation well beyond hunted species and helped sustain the continent's biodiversity, especially through the millions of acres of lands purchased with hunter dollars for habitat protection and improvement. Indeed, the structure of modern endangered species legislation harkens back to the old game laws, where the focus was on prevention of take.

Credit: Parks Canada

Elk in Canada's Waterton Lakes National Park are part of the "international herd," which regularly crosses the U.S.-Canada border. The North American Model holds that wildlife is an international resource and should be protected as such.

As wildlife conservation advances into the 21st century, these founding principles should be safeguarded and improved, and new approaches to biodiversity conservation should be developed that go beyond what the Model currently provides. A U.S.-Canadian treaty securing the Model and improvements in wildlife law would be the most powerful form of protection. As we seek solutions to new challenges, we should remember that only a minority of our citizens have a passion for the perpetuation of wildlife, and among those, the people who call themselves sportsmen and sportswomen have been answering this call for well over one hundred years. Wildlife can ill afford to lose them in a future that is anything but secure. ■

This article has been reviewed by subject-matter experts.

For a full bibliography, go to *www.wildlife.org*.

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