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HISTORICAL FORCES SHAPING AMERICANS' PERCEPTIONS OF WILDLIFE AND HUMAN-WILDLIFE CONFLICTS

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Abstract: From colonial times until the 19th century, the dominant American view of wildlife and its management was dualistic—wildlife species were divided into good animals (those which had commercial value or could be eaten) or bad animals (those which threatened the colonists' safety or food supply). Philosophically, early colonial Americans believed that the environment was to be manipulated for man's purposes. Under the impact of modernization, Darwinian influence, over-exploitation of resources, and environmentally-conscious professionals, Americans in the late 19th century began to appreciate the recreational value of wildlife and to develop a more protective attitude toward it. Still the dichotomy between good and bad wildlife prevailed, with "good" species now being those that could be hunted. The world wars and the Great Depression halted the tilt toward a more protective approach to wildlife as Americans became more concerned with economic matters and agricultural productivity. Only during the prosperous post-World War II era, did the "ecological" approach to wildlife seem to gain ascendancy over the traditional dualistic, consumptive views. Implementation of protective game laws and science-based wildlife management had their intended result as wildlife populations soared to levels not seen since colonial times. However, these increasing wildlife populations had unexpected consequences as they moved into urban areas and wildlife damage intensified. Since World War II, more Americans have shown a greater interest in, and concern about, their wildlife legacy. However, this increasingly diverse clientele for wildlife has resulted in a period of rising tensions and deepening divisions within society about how wildlife should be managed.

Key Words: history, wildlife acceptance, wildlife damage management

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COLONIAL AMERICA: 1620-1776

Among Europe's earliest settlers in North America were the Puritans who settled in New England and left a tangible record of their attitude toward wildlife and its management. Although their legacy to the American nation is an enduring one, with the "work ethic" and "sense of mission" being among the best-known aspects of this heritage, their attitude toward wildlife and their efforts at wildlife management also are important.

The Puritan view of wildlife was dualistic—there were "good" wildlife and "bad" wildlife based on how the species affected the Puritans' economic and self-survival needs. "Bad" wildlife species threatened human safety or food supply. "Good" wildlife species could be eaten or had commercial value. This attitude would remain the prevailing American view of wildlife until the 20th Century.

Also enduring for centuries was the Puritan

philosophy toward "wilderness" and its inhabitants, which was rooted in Biblical notions. The Old Testament, a part of the Bible with which the Puritan settlers were very familiar, cites the term "wilderness" at least 245 times. Puritans believed that wilderness was a place of evil and hardship that had to be "subdued" or "conquered" or "vanished" before the Puritans could create their "city on a hill" (which was their reason for coming to North America). In diaries, addresses, and memorials of the period, the Puritans articulated this need to transform—and eradicate—portions of the wilderness to "tame" it. God, as Genesis hinted, had ordained man to establish dominance over nature. Two such targets of eradication were the native inhabitants and "bad" wildlife (Nash 1979, Reed and Drabell 1984, Conover and Conover 1987, Conover and Conover 1989).

Thus, the Puritans had both moral and practical

reasons to “make war” on wildlife. In these early years, starvation was a very real concern of these colonists. Any threat to their subsistence, particularly predation of livestock, was very serious indeed. By destroying predators that threatened their livestock, the Puritans were trying to protect an important source of food upon which their lives depended. Livestock's importance to the early English settlers was indicated, for instance, in the journals of William Bradford and John Winthrop, leaders of the Plymouth and Massachusetts Bay colonies, who noted the arrival of sheep, goats, swine, and cattle (Walcott 1936, Conover and Conover 1987, Conover and Conover 1989).

These attitudes toward predators were translated into action by means of bounties that Puritan colonies paid for dead wolves (*Canis lupis*) and other predators, such as mountain lions (*Felis concolor*). For instance, soon after the Puritans settled the New Haven colony in 1639, they established a bounty on wolves and foxes (*Vulpes* spp.). The intention of the colonists was not merely to manage predator populations, but to eradicate them. For instance, as wolf populations declined, bounties increased dramatically to encourage the removal of the last few wolves (Conover and Conover 1987, Conover and Conover 1989).

Hunting with dogs and trapping were the primary means of predation control in the 1600s. The Massachusetts Bay legislature, for example, ordered towns in 1648 to use “so many hounds as they thinke meete [sic]...that so all meanes may be improved for the destruction of wolves.” Other methods of predation control included habitat destruction. In particular, swamps were drained and cleared as a means of eliminating threatening predators (Trumbull 1850, Hoadly 1857, Conover and Conover 1989).

Wildlife threatened the colonists' food supply not only through livestock predation, but also from crop damage by birds (particularly “sterlings” or red-wing blackbirds [*Agelaius phoeniceus*]) that fed on ripening corn. Again, bounties were offered as incentive for damage control, such as when New Haven in 1648 offered 10 shillings for every thousand blackbirds killed. Passenger

pigeons also were targeted by colonial farmers because they destroyed grain crops (Hoadly 1857, Conover and Conover 1987).

In the area of predator control, the Puritans scored success. Wolves, the main predation threat, practically were eliminated from Massachusetts, Connecticut, and Rhode Island by the end of the colonial period (although wolves did remain in the more sparsely settled northern New England region).

While successful in eliminating the “bad” wildlife, Puritans had mixed results trying to protect the “good” species of animals that had commercial value or provided food. The beaver (*Castor canadensis*) especially was important to early New England settlers due to the monetary value of its pelts when shipped back to England. As William Bradford, leader of Plymouth Colony, noted in 1623, his settlers had “...no other means to procure them foode [sic] which they so much wanted, and cloaths allso [sic]” than by acquiring beaver pelts for commercial exchange. Beaver pelts in New England, like tobacco in the Chesapeake colonies, were such important commodity for survival that they were used as legal tender for a time (Conover and Conover 1989). But the beaver supply soon was exhausted and the fur trade in New England declined. In Connecticut, the beaver population dwindled within the first 10 to 20 years of English settlement (Conover and Conover 1989).

Deer (*Odocoileus virginianus*) populations in the settled portions of New England suffered similar declines. Deer hides had been coveted colonial exports and venison was an important food source. The value of a deer for hide and meat compared favorably with the value of corn. In 1681 in Connecticut, corn was valued at 2.5 shillings/bushel (Trumbull 1859), a deer skin was worth 6 pence per pound, and venison was priced between 1-2.5 pence/pound (McCabe and McCabe 1984, Conover and Conover 1987). But, like beaver, deer were over-hunted (Dexter 1917, Nettles 1927). Despite various, belated management efforts by the colonial leadership, deer practically were eliminated from southern New England even before the American Revolutionary War.

Other important sources of food, such as turkeys (*Meleagris gallopavo*), also were over-harvested. And once again, belated efforts to protect the diminishing bird populations failed. Over-harvesting by New Englanders, however, was not the sole cause of the region's decline in wildlife populations. Habitat alteration also was important, as Puritans cleared the land for farming and cut the trees for lumber. In addition, the proliferation of colonial livestock, which competed with native herbivores for food, added new stresses on the region's flora and fauna. Today, New England has a flourishing population of deer, beaver, and turkey. But this resurgence of wildlife stems from management programs developed after 1900 (Dunlap 1988, Tober 1989, Chasko and Conover 1988).

AMERICA: 1776-1880

From the beginning of the United States as an independent country through the post-Civil War years, American attitudes toward wildlife scarcely changed. Wildlife retained its dual function for Americans: a source of food or revenue and an obstacle or hindrance to be eliminated. Westward expansion was the predominant theme in American history from the 1770's to 1880's. And the colonial pattern of human over-exploitation of natural resources would be repeated continuously as settlers moved across the North American continent.

An important causative factor in westward expansion was man's constant over-exploitation of beavers because the trappers' constant need to locate unexploited beaver populations took the trappers further and further west. As trappers explored the West and returned with their pelts, their descriptions of the trans-Mississippi West fueled interest in westward expansion (Trefethen, 1975, Anderson 1991).

Meanwhile, the westward-bound American farmers, who followed the trappers to the frontier, continued to detest "bad" wildlife. They held the dominant Anglo-American view that the "wilderness" must be conquered. In this dominant mindset, predators—wolves, mountain lions, coyotes (*Canis latrans*)—served "as symbols of the savage wilderness" that early Americans had sought to tame (Kellert and Berry

1980, Kellert and Westervelt 1982, Feldman 1996). For instance, consider the American experience in Ohio in the early 19th century. Insight into the views held by this new wave of Americans settling in the West is provided by Historian Stephen Ambrose, who wrote:

"'Getting rid of it'—with 'it' meaning anything or anyone who stood in the way of progress—was a universal American passion and a commonplace experience for all those living in the Old Northwest."

Later, he adds, "This assault on nature ...owed much to sheer need, but something also to a compelling desire to destroy conspicuous specimens of the fauna and flora of the wilderness ..." What was the result of this Anglo-American move into Ohio? Writes Ambrose, "The Ohio Valley today has neither trees nor animals to recall adequately the splendor of the garden of the Indian which the white man found and used so profligately" (Ambrose 1975).

Another example of this dominant mind-set that advocated the eradication of "wilderness" is provided by General Philip Sheridan, Civil War hero and, in the post-Civil War era, commander of the military department of the Southwest. His aim was to eliminate the Native American by eliminating the bison (*Bos bison*) population. In late 1870, he traveled to Austin to address the Texas Legislature, which was debating a bill to protect buffalo herds. According to one source, Sheridan warned the Texas legislature "...that they were making a sentimental mistake by legislating in the interest of the buffalo. He told them that instead of stopping the hunters, they ought to give them a hearty, unanimous vote of thanks, and appropriate a sufficient sum of money to strike and present to each one a medal of bronze, with a dead buffalo on one side and a discouraged Indian on the other."

Specifically, Sheridan said:

"These men [the buffalo hunters] have done in the last two years and will do more in the next year, to settle the vexed Indian question, than the entire regular army has done in the last thirty years.

They are destroying the Indians' commissary...Send them [bison hunters] powder and lead, if you will; but, for the sake of a lasting peace, let them kill, skin and sell until the buffaloes are exterminated. Then your prairies can be covered with speckled cattle, and the festive cowboy, who follows the hunter as a second forerunner of an advanced civilization" (Marcus and Burner 1991).

Sheridan's contemporary, John R. Cook, a buffalo hunter, applauded the General's perspective and added a new dimension of social Darwinism to the older (Christian) ideological perspective. Put succinctly, Cook argued that the Native Americans' and bison's demise was "...simply a case of the survival of the fittest." Influenced by the conservative social Darwinism of the age, Cook saw the decline of both "...as a process that not only was inevitable, but would lead to the establishment of a more advanced civilization on the North American continent" (Marcus and Burner 1991).

AMERICAN IN THE GILDED AND PROGRESSIVE ERAS (1870-1917)

Even as Sheridan, Cook, and others continued to espouse the traditional rhetoric about wildlife, Americans' view of wildlife began to change. Consider the words of the editors of the newly created popular journal, *Forest and Stream*, who stated that their objective was to promote a "healthful interest in outdoor recreation and ... a refined taste for natural objects." Moreover, it was hoped the readers of *Forest and Stream* would become "familiar with the living intelligences that people the woods and the fountains" (Forest and Stream 1873). Clearly such had not been the typical attitude of Americans toward wildlife in past decades. Since the days of the Puritans in the 17th century, Americans had viewed wildlife, like the wilderness, as an evil to be conquered, subdued, and eradicated. While the older dominant view remained—after all, America's population in 1890 was still rural, as 6 in 10 Americans were farmers—a new, more "humanistic" or "non-economic" view of wildlife was emerging (Norton et al. 1996).

Several factors accounted for the emergence of this new attitude toward natural resources, including the urbanization of American society, the closing of the frontier, and the rise of progressive leaders. By 1890, America surpassed Britain as the world's leading industrial power, signaling a shift in the American power structure from rural or agrarian interests to urban or industrial ones. America had ceased to be a "frontier" country. As the national census announced, the frontier had been closed; wilderness had finally been conquered. The goal of Americans for 250 years had been obtained. But rather than celebrating or having a sense of accomplishment, Americans began to consider what had been lost.

New, Progressive leaders were beginning to agitate for change, at the local and state level, and soon at the national level (Cawley 1993, Norton et. al. 1996). Behind the emergence of these Progressive reformers was a tremendous growth in higher education and professionalism. During the 1870s and 1880s, the number of colleges proliferated, and the range of study expanded. Concomitantly, there came an emphasis on professionalism, "...with its imposition of standards, licensing of practitioners and accreditation of professional schools" (Tindall and Shi 1996). Professional wildlife associations also were organized, including the American Ornithologists' Union, established in 1883 in New York City, and the Audubon Society, formed in 1886 (Tober 1989, Anderson 1991).

A new intellectual perspective also began to emanate originally from Charles Darwin's work in 1859, *On the Origin of Species*. Every field of thought after the American Civil War was affected by the ideas expressed by Darwin, as popularized by British intellectual Herbert Spencer, and Yale Professor William Graham Sumner, and others. Although many Americans developed a distorted, simplistic view of Darwinist ideas, they did acquire a greater appreciation of the biological basis of human life (Tindall and Shi 1996). Even Theodore Roosevelt, who played an important role in the early conservation movement, viewed life from an evolutionary perspective (Reed and Drabelle 1984).

Along with these new forces of modernization came the clear realization that wildlife populations were not inexhaustible. The visible over-exploitation of natural resources would help transform attitudes and result in new policies for the management of America's resources. Signs of concern for the over-exploitation of resources had already appeared. Behind the earlier mentioned Sheridan-Texas legislature debate on the protection of bison was the realization that in just a few years, from 1872-1874, nearly 4 million bison were slaughtered. Even earlier, in the late 1850s, the Ohio legislature had debated a bill to protect passenger pigeons, a bird whose numbers once had seemed unlimited but, by the 20th century, had become extinct (Trefethen 1975, Marcus and Burner 1991).

Accompanying this modernization process and public awareness of over-exploitation of resources were two new forces: more leisure time, and the mass media, which catered to and shaped the attitudes of mass society. Newspapers, magazines, and motion pictures proliferated in numbers and impact.

Playing an important function in shaping the newly-emerging conservationist attitude and in politicizing hunters were popular sports magazines, such as *Forest and Stream*, started by George Bird Grinnell, who also helped to create the Audubon Society. Relatively inexpensive magazines became available after the Civil War owing to technological innovations that produced high-speed printing and low-cost paper, along with advertising revenues and nationwide mail delivery. Among the emerging sports magazines were *The American Sportsman* (1871), *Forest and Stream* (1873), *Field and Stream* (1874), and *American Angler* (1881). During this "conservation" decade, these national periodicals gave sportsmen a public forum for discussion of hunting, fishing, natural history, and conservation (Dunlap 1988, Gray 1993).

The growing popularity of sport hunting helped create a more positive attitude toward wildlife. The "transformation" of hunting from a commercial or life-sustaining activity to a sport, an ennobling activity, was, according to Dunlap (1988) "...one of the first steps toward wildlife

preservation." The greatest advocate of this new view of hunting was Henry William Herbert or (his pseudonym) Frank Forester, an English writer who moved to the U.S. in the mid-1800s. In his writings, he urged fellow Americans to hunt only game animals using "sporting methods" (e.g., not shooting sitting ducks). He also urged hunters to treat their dogs and horses humanely; cruelty to animals, in Herbert's view, indicated that a man was not "a true sportsman and gentleman" (Dunlap 1988).

Forester's advocacy of hunting and sportsman-like conduct began to spread among the upper class, who began to appreciate wildlife and adopt a more positive attitude toward it. Sportsmen's clubs began to appear in a few cities before the Civil War; these associations and the concept of sportsmanship spread more rapidly after the war. In the 1870s, for instance, the number of sportsmen's clubs tripled in numbers to over 300. The most prominent was the Boone and Crockett Club, founded in 1887 by Grinnell, editor of *Forest and Stream*, and Theodore Roosevelt, future U.S. president. Roosevelt, and others like him, felt that hunting, like warfare, provided an "an arena for forming and testing the character of Americans that would substitute for the now vanishing frontier. Later generations, going to the field, could re-create the pioneer experience and develop the virtues of the pioneer" (Reiger 1975, Belanger 1988, Dunlap 1988).

Meanwhile, to save their sport as the supply of game declined rapidly, hunters had to take action. They organized and called upon local, state, and federal governments to save the animals by outlawing such unfair or "unsporting" activities as jack-lighting, hunting deer with dogs or in the water, or using baits. Other helpful regulations included lowering bag limits, shortening the hunting season, and restricting the kind of firearms that hunters could use. Finally, these hunting organizations wanted "these new laws enforced, preferably by a professional set of wardens under the direction of a state game commission" (Dunlap 1988). Thus, as a result of these efforts, slowly but surely, a conservation effort was emerging at the state, and then national, level. The 1870s witnessed several important conservation developments, such as the

organization of state wildlife agencies in California and New Hampshire and initiation of measures to protect non-game wildlife in Connecticut and New Jersey (Matthiessen 1987, Gray 1993).

Besides the sport hunter, “nature lovers” played an important role in changing attitudes toward wildlife. This group can trace its origins to the antebellum period, when ideas of European romanticism had inspired writers such as Henry David Thoreau and Ralph Waldo Emerson to view nature (and wildlife) in spiritual terms. This aesthetic appreciation of nature grew in the post-Civil War period among writers and artists. Writes Dunlap (1988), “Wild animals, nature lovers believed, provided an opportunity for spiritual and aesthetic experiences. Contact with them, like appreciation of beautiful scenery, was an antidote to the artificial life of civilization.” This group included “foresters, most of whom had been trained in European schools, writers, artists, and businesspeople” (Trefethen 1975, Anderson 1991).

Thus, Theodore Roosevelt, the “hunter,” along with “nature lovers” such as John Muir, led the movement to change attitudes toward wildlife in the late 19th century. They preached their message via new popular magazines (such as *Forest and Stream*) and through organized political action. The result was a plethora of laws and regulations aimed at protecting America's natural resources (Trefethen 1975, Belanger 1988, Dunlap 1988).

In response to changes in American attitudes toward wilderness and wildlife, the federal government initiated some important changes in policy for the nation's natural resources. The most famous change was the establishment of Yellowstone National Park in 1872. Meanwhile, numerous forest reserves were established to manage and protect America's timber resources. Yet another indication of policy change was the federal government's creation in 1885 of a wildlife agency, the Division of Economic Ornithology and Mammalogy, in response to pressure from the American Ornithologists Union (Anderson 1991). Federal actions to protect natural resources would expand enormously after 1901, when Vice President Theodore (“Teddy”)

Roosevelt became President (Trefethen 1975).

Despite America's expanded consciousness about wildlife, the division of animals into “good” and “bad” groups continued, but “good” animals were now those species that could be hunted or provided sport. “Bad” animals were those that preyed upon or competed with the “good” animals. Hence, government policy still was dualistic; actions were taken to protect some species from over-exploitation and to eradicate others. In particular, wolves and mountain lions were targeted as “threats” to be removed through the same methods used since colonial times—trapping and hunting. World War I, however, would bring change.

AMERICA IN THE EARLY TWENTIETH CENTURY

Events in the early twentieth century—World Wars I and II and the Great Depression—brought tremendous change to all aspects of U.S. society. The wars had important repercussions for America's wildlife policy, primarily because the country faced a vastly increased need for food, owing to the collapse of food production in Europe. The collapse occurred because European economies were forced to emphasize war production over agriculture and to send much of their agricultural labor force to the military. This resulted in food shortages and soaring prices as America tried to feed both itself and its allies. Americans were accustomed to cheap and abundant food. In response to the threat of food shortages and higher prices, Americans' concern for livestock waxed and their concern for wildlife waned (Feldman 1986).

Another significant change in wildlife management in the early 20th century was technology driven. Chemistry was in its heyday, spurred by the realization during World War I that new chemical discoveries (e.g., poisonous gases) could contribute to the war effort. The U.S. federal agency responsible for predator control, the Bureau of Biological Survey, took advantage of these new chemical developments and introduced poisons as a tool to control coyotes (Belanger 1988, Dunlap 1988, Feldman 1996).

This Bureau, established by the Department of Agriculture during the Progressive Era, initially was formed to serve “as an information center for state bounty systems, circulating booklets, and conducting demonstrations on control techniques.” But, as Feldman observes, “By 1915, under pressure from western ranching interests, the government for the first time hired professional hunters, and Congress allocated \$125,000 to deal with predatory animals” (Anderson 1991). The Bureau, justifying these actions on economic grounds, met little opposition (Dunlap 1988, Feldman 1996).

MODERN AMERICA

Following World War II, Americans became more interested in the nation's wildlife. The country had entered a period of prosperity that gave Americans more money and leisure time, which they increasingly spent outdoors. By 1960, there were 30 million hunters and fishermen, who spent nearly \$4 billion in pursuit of wildlife. Better highways and more affordable cars gave more Americans the opportunity to travel to the nation's many national parks. The government expressed concern for these developments through the establishment of an Outdoor Recreation Resources Review Commission in 1958. One of its actions was the creation of the Land and Water Conservation Fund (enacted in 1964), which aimed to preserve, develop, and provide public access to outdoor recreation resources. A resulting trend observed by the mid-1960s was the increasing enjoyment of fish and wildlife by non-anglers and non-hunters (Belanger 1988). By 1970, 128 million people participated in outdoor recreation—not just hunting and fishing, but nature walking, bird watching, and wildlife photographing. Clearly, the wildlife conservation movement was drawing an “increasingly diverse clientele” (Belanger 1988).

A new invention—television—also elevated interest in wildlife as people all across the country could watch, and marvel at, the beauty of the nation's wildlife resource without having to leave their living rooms. Television produced a national constituency for wildlife. No longer were wildlife problems just a local issue. Now, people in New York City could follow and care about the fate of

a wildlife population a thousand miles away. Now, local concerns about how wildlife should be managed had to be balanced with the concerns of distant citizens.

But, with an increasingly diverse clientele, tensions began to mount concerning wildlife management. Opinions often differed between the expanding urban population and the declining rural one. Most publicized was the constant struggle between local commodity interests in the West and national environmental interests. Those who espoused the “commodity point of view” included representatives of the western livestock industry and the mining, oil and gas, and timber interests. Supporting the opposing viewpoint, or environmental interests, were the Friends of the Earth, the National Wildlife Federation, the Natural Resources Defense Council, the Sierra Club, and the Wilderness Society (Satchell 1990, Reiger 1992, Cawley 1993).

Battle lines also were drawn between hunters, non-hunters, and anti-hunters. Although the major conservation organizations—National Audubon Society, Wilderness Society, Wildlife Society, American Forestry Association, Sierra Club, National Wildlife Federation—still considered sport hunting legitimate action and a valid tool of wildlife management, the American public opinion seemed to be shifting against hunting. The media helped fuel these flames (Belanger 1988, Dunlap 1988). An early example of this occurred in November 1969, when NBC TV aired a program, “The Wolf Man,” which showed the slaughter of wolves by bounty hunters in Alaska. Thousands of TV watchers sent letters of protest to the Interior Department concerning the grisly scenes. More TV programs would follow that raised the question of whether hunting should be tolerated (Feldman 1996).

A climax in the media's “feeding frenzy” came in 1982, when the news media found “a hot story” in the fate of 5,500 deer in the Florida Everglades whose habitat was being flooded. With a deer die-off apparently imminent, the Florida state game commission recommended an emergency hunt. But animal rights groups, led by the Fund for Animals, filed an injunction to prevent the hunt. They contended that shooting the deer was

inhumane, that deer had “rights.” At one point, more than 150 television reporters had converged on the scene. Finally, a compromise was reached; the hunt took place in the northern section of the area, while animal rights groups tried to rescue deer in the southern section. In the long run, the wildlife managers’ approach of hunting the excess population proved to be more “humane” and allowed more deer to survive than in the non-hunted area (Belanger 1988).

Polarization also increased beginning in the 1960s when some, but not all, Americans experienced a paradigm shift in how they perceived the environment and their role in it. The new view was that the environment was fragile, with many interconnected features, and that changes brought about by man could have serious and unexpected consequences. Helping to lead the change was Rachel Carson’s *Silent Spring*, which promoted the adoption of an “ecologist” mind-set. The spread throughout the country of this mind-set led to the establishment of events such as “Earth Day” in 1970 (Feldman 1996, Norton et al. 1996).

Still, this new environmental consciousness was not accepted universally. Throughout U.S. history, rural folk continued to hold more “utilitarian perspectives” than urban residents. Rural residents relied more directly on the land than urban residents, and they traditionally worked in more “extractive occupations” (e.g., farming, logging, trapping) than did urbanites. Given their dependence on natural resources, many rural Americans maintained the traditional perspective of their pioneer ancestors (Conover and Decker 1991, Conover 1998).

The result of all of these contentious issues was the polarization of American society (local versus nation interests, urban versus rural residents, hunters versus anti-hunters, “ecologists” versus “utilitarians”). Americans’ perception of society also changed. No longer did people value consensus and uniformity, but instead embraced the notion of diversity. Citizens learned how to use the media and the political process to make their voice heard. This polarization of society made wildlife management decisions controversial because no action could please everyone.

Society and public perceptions were not the only changes since World War II. The passage of game laws that protected wildlife from over-exploitation by humans and the adoption of science-based management practices had their intended result: populations of game species (e.g., deer, elk, turkey, geese) and many fur-bearers (e.g., beaver) increased to levels not seen since colonial days. Likewise, predator populations, freed from unrestricted killing, recovered. However, these increasing wildlife populations produced some unforeseen negative consequences for society. Wildlife damage to crops and livestock increased (Conover and Decker 1991). In the 1990s, estimates of wildlife damage to U.S. agricultural producers range from \$500 million (Wywiałowski 1990, Conover 1994, Conover et al. 1995) to \$2 billion (Conover 1998). Wildlife attacks on humans also increased as predator-human confrontations became more common, owing both to soaring predator populations and a growing enthusiasm for outdoor recreation. Furthermore, some wild animals were losing their fear of humans. Illustrative of this trend was the increased frequency of alligator attacks on humans. From 1948-1970, when alligators were persecuted by human poachers, <1 human was attacked yearly by alligators in U.S. (Conover and DuBow 1997). From 1990-1995, as alligators and humans increasingly shared the same habitat, a mean of 22 humans were attacked annually by alligators (Conover and DuBow 1997).

Another new trend was the establishment of urban wildlife populations. Many species of wildlife (e.g., deer, Canada geese [*Branta canadensis*], foxes, turkeys), which used to be found only in remote areas, moved into many U.S. metropolitan areas. Initially, these urban wildlife populations were encouraged by local residents. But, as wildlife populations increased, some metropolitan residents became concerned with some of the negative consequences of high wildlife populations (Conover and Chasko 1985, Conover 1997a). A recent survey of American metropolitan residents found that they suffered \$3.8 billion in damages caused by wildlife, despite spending \$1.9 billion and 268 million hours trying to solve or prevent these problems (Conover 1997b). Furthermore, deer-car collisions in the

U.S. became more common until, by the 1990's, they exceeded 1 million annually (Conover et al. 1995). Other problems included an increase in zoonoses, such as rabies, hantavirus, and Lyme disease, which were virtually unknown in the U.S. a few decades ago (Conover et al. 1995). For instance, there were >12,000 human cases of Lyme disease in 1992 (Conover et al. 1995).

AMERICA IN THE TWENTY-FIRST CENTURY: WHAT NOW?

So, as the second millennium approaches, will the pendulum continue to oscillate? Perhaps, but, in the words of Mark Twain, "history may not repeat itself, but it does rhyme."

Future Americans could have a sense of *déjà vu* with regard to their encounters with wildlife. From the days of the Puritans until today, Americans have encroached upon wildlife habitat. Such trends will continue in the future as human populations increase, although this movement is counter-balanced with a movement of wildlife into urban human habitats. In the words of Anthony Brandt (1997):

"By moving into their habitat, by eliminating their predators, we have caused the explosion of deer and geese and beavers and moose and coyotes on what we persist in thinking is our property. We are the stewards of the world; we hold it in sacred trust. But the world isn't 'out there' any longer, somewhere in Montana or the rain forest of the Amazon basin. The world is staring at us with big soulful brown eyes where our azaleas used to be."

Future generations of Americans may experience threats to their property, health, and even lives, in ways that their colonial ancestors could appreciate (Kellert and Berry 1980, Kellert and Westervelt 1982, Kellert 1985). A 1997 survey indicated that 65% of the families in North Haven, New York, on Long Island, had experienced Lyme disease (nearly 30% of the households there suffered 3 or more cases). Brandt (1997) suggested that "this level of infection can only be described as a plague."

As this study suggests, "progress" has been made in terms of saving wildlife. Will this progress continue in the next century? History has demonstrated that society will sacrifice wildlife resources for food resources when its food supply is threatened. Hence, the future of wildlife will be tied to our ability to increase our food productivity faster than the increase in the human population. Will this happen? Time will tell, but we are optimists. Despite Malthus' grim predictions in the 1700's about increasing populations causing famines, civilization has thus far been able to cope.

As we have seen, disagreements about how wildlife should be managed have occurred since colonial times, and the divisions have become deeper since World War II as interest in wildlife has increased (Van-Putten 1997). This polarization of American society has made the wildlife manager's job of obtaining consensus about how wildlife should be managed almost impossible. It will not become easier in the future.

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