

Bureaucracy and Wildlife: A Historical Overview

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This paper provides a framework for understanding the Government's position on many wildlife topics, including humane ethics. The historical role of Government in wildlife conservation is traced in relation to pertinent theories of bureaucracy. It is shown that Government involvement in wildlife conservation increased through successive stages of change because of interest group activity.

These periods of increased Government involvement in wildlife matters are shown to have followed periods of resource exploitation. Recurrent cycles of exploitation, accompanied by economic prosperity, have then been followed by attitudes favorable to conservation and political activism. This, in turn, has produced periods of backlash when the public rejected Government regulation, which has then caused another period of exploitation.

However, the process of Government regulation works such that the losses during the periods of backlash have been of far lesser magnitude than the amount of permanent change introduced during major increments in growth of regulation. This paper shows that most of the permanent change in Government has been institutionalized through the creation of new staff within agencies who represent the position of interest groups on various issues. Direct communication between these internal staffs and their associated interest groups, special-purpose legislative appropriation, and advisory commissions, have given these organizations the appearance of independent regulatory agencies. This system has tended to produce a tension between the old and new roles of Government in wildlife conservation and has increased agency reliance on regulatory rules for making decisions.

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Introduction

In order to engage in any meaningful discussion about wildlife issues in the United States, it is helpful to have some understanding of the history of Government's role in wildlife matters. This is because wildlife conservation in this country has been strongly affected by governmental policy and action. Wildlife in the United States is considered as a public matter (or "good"), like national defense and public education. Wildlife benefits and conservation programs are distributed throughout the political system by legislative mandate in accordance with the demands of voters and interest groups. As a result, a bald eagle nesting in a Michigan white pine belongs equally as well to a textile worker in South Carolina, a Senator in Oregon, and an automaker in Detroit.

However, wildlife is considered a private good in many nations; government in these countries assumes quite different roles in this regard. Discussion of wildlife issues in these nations therefore requires less knowledge of government and history. Wildlife benefits are distributed throughout their economic systems according to the laws of supply and demand, and wildlife, like timber and livestock, is assumed to belong to private landowners.

The public nature of policy toward wildlife in the United States has created the need for a sizeable bureaucracy. The Wildlife Management Institute reported that in 1979, wildlife budgets were \$40 million for the U.S. Forest Service, \$17 million for the Bureau of Land Management, and \$289.5 million for the U.S. Fish and Wildlife Service. Hunting license revenues totaled \$199 million for the 50 States, and \$94 million was available to the States from Federal excise taxes on ammunition and firearms. These dollar amounts, in addition to those that are not reported for other Federal, State,

county, township, and city programs for wildlife conservation, allow us to estimate that nearly \$1 billion is spent each year by Government on wildlife programs in the United States.

The purpose of this paper is to trace the historical development of this sizeable bureaucracy, to examine the relationship between public behavior and Government response, and to analyze the essential nature of wildlife-related bureaucracy in relation to theories of public administration. This analysis should provide us with a better appreciation of the tension between the biological and political dimensions of current wildlife conservation decisions. It will also be helpful in understanding the inherent dilemma of Government in trying to, on the one hand, respond to the will of the people while at the same time ensuring sufficient continuity of policy regarding the enhancement of wildlife resources. This perspective should also be useful in identifying the channels that have been used successfully throughout history to create social change.

Colonial Customs

The early explorers and colonists who arrived in this country found wildlife to be abundant. Their initial period of hardship and starvation here has been attributed to a lack of knowledge rather than to a shortage of available game (Graham, 1947). Many of the English and Dutch commoners had no experience in hunting and fishing, since these were privileges of the ruling classes in Europe. With experience, and with assistance of the Indians, the colonists soon developed a number of customs regarding the proper relationship of humans to wildlife.

Not all of these customs reflected much sophistication about biological facts. For example, Trefethen (1964) discussed colonial attitudes toward predators. He argued that the English settlers, unlike the French in Canada who adapted

their society to wilderness conditions, tried instead to replace the wilderness with a village "landscape of spired towns and cleared land filled with cattle and sheep." At that time, many colonial laws and customs were based on reducing the threat of predators, especially the timber wolf. Bounties were paid for the scalps of predators, as early as 1629 (Kellert and Westervelt, 1981). Colonists were often required to tend wolf pits, set out poison, and participate in wolf-killing drives. Virginia established a tax on Indian tribes, calculated according to the number of available hunters, which was to be paid in wolf scalps to the colonial Government (Trefethen, 1964).

Although many rules were passed before 1677, this year is normally cited as the date when the first game law was passed (Palmer, 1912). At that time, Connecticut limited the number of months during which deer could be taken and also prohibited the export of game meat and hides. Certain methods of hunting were also prohibited, first by Maryland in 1730: it was made illegal to hunt deer by firelight. Many colonies prohibited hunting on Sunday. Uniform fines were also passed for violations; for example, a fine of 5 British pounds was associated with violating the 1646 law in Portsmouth. Half of this fine went to the person making the arrest and half to the town treasury.

By 1720, nearly all of the colonies had some type of game law in force. According to British mandate, each town was to appoint local individuals as "informers of the deer." These were later denoted as "deer wardens" in 1739 in Massachusetts, and then as "deer reeves" in 1764. These early laws were passed with little political initiative and were met with limited resistance from the public, since they were designed to restrict only the most flagrant of outcasts, who were thought to pose a threat to the food supply of early settlements. But more important, these laws constituted

statements of consensus about values concerning wildlife that reflected certain elements in the Puritan ethic.

Western Exploration

Expansion westward was motivated, in part, by a search for water routes and precious metals, political conflict over American land among several interested European powers, and by missionary attempts to convert the Indians. However, the primary motive was interest in furs. The history of colonization has shown that most development involved the export of luxury items for waiting markets in Europe. In a sense, then, it was aristocrats in Europe who created a significant demand for western exploration in America. Pelts of bear, elk, deer, martin, raccoon, mink, muskrat, opossum, lynx, wolf, and fox were shipped to Europe in great quantity. But the most important fur was the beaver pelt, which was used for the broad-brimmed hats that were fashionable in the late 1600's and early 1700's. Beaver and otter pelts were shipped from the colonies to Europe as early as 1621 (Trefethen, 1964).

Much of the fur trade had a direct economic impact on the governments of Europe. It was common practice at the time for rulers to sell monopolistic fur rights to trading companies, in exchange for flat payments of substantial size. In turn, the fur companies established trading posts in their assigned regions, to buy pelts from Indians and from unlicensed fur dealers, the "coureurs de bois." These white men often lived with the Indians, had Indian wives, and blatantly ignored the assignments of monopolistic trapping rights to trading companies.

Government intervention during these times was quite complex. French policies vacillated between westward expansion of fur trading posts and protection of permanent settlements along the St. Lawrence, depending on the price

of furs in Europe. After considerable controversy, the Proclamation of 1696 called for the withdrawal of western posts back to the area around the St. Lawrence, a recall of all soldiers and settlers back from the West, and severe restrictions on the fur trade of the *coureurs de bois*. However, part of the rationale behind this proclamation can be attributed to an oversupply of beaver pelts, which had seriously depressed prices.

The fur market gradually recovered from the French attempts at control of exports from America. As it did, the British expanded south and west from their former center of trade, the Hudson Bay area. Vast areas of land in the West were conveyed to the British colonies by charter from the Crown of England. This caused a series of intense wars between the French and British for control of the interior fur trade. The British were victorious; at the Peace of Paris in 1763 they received all of the former French territory east of the Mississippi. Spain was given New Orleans, as well as all former French land west of the Mississippi.

British policy after the wars was formulated to keep the Indians contented: like the French, an attempt was made by the English to restrict western encroachment of white settlers onto Indian lands. Therefore, the Proclamation of 1763 restricted settlers from going west of the Alleghenies, and British officials were appointed to regulate fur prices to make sure that Indians were not cheated. A licensing system was imposed on fur traders, and the Proclamation nullified many land claims of the colonies in the West.

Government activities, as these related to wildlife matters during western exploration, were rarely concerned about the conservation of resources or social values, in contrast to the wildlife protectionist measures introduced in early colonial times. Wildlife legislation was now based on competition for profits, control of economic prices, relationships be-

tween Indians and settlers, and colonial domination by European powers. Unlike the earlier period, a significant amount of public resentment and resistance was associated with this new legislation. Some of this resentment coalesced into the fervor for independence that eventually led to the American Revolution.

Eastern Exploitation

One of the first jobs of the new Federal Government after the end of the Revolutionary War was to decide upon the disposition of land claims in the West that had been made by the original colonies. Six of the original States, led by Maryland, had no western land claims and refused to ratify the 1778 Articles of Confederation, unless the other States relinquished their rights to western land. Various proposals were debated; it was finally resolved that these lands would remain as a public domain that was owned by the United States as a whole. According to the subsequent land ordinance of 1785, these lands would be surveyed and sold to the public with the revenue used to support the activities of the Federal Government.

This concept about the role of the early Government is consistent with the thinking of our founding fathers (Flader, 1976). They saw land management as an enterprise for private citizens, not as an appropriate function of government. Policies related to the transfer of land previously held in the public domain to individuals reflected John Locke's position that government should work to secure human rights and Thomas Jefferson's concept that government should foster the pursuit of individual happiness. Land was seen as a means of ensuring both individual self-sufficiency and personal freedom. The assumption behind this policy was that husbandry of resources could be accomplished by applying discernible natural laws to manipulation of the environment.

These attitudes had three immediate consequences. First, there was serious concern over the exact description of natural laws, because Jefferson, Madison, Franklin, and others were actively involved in interpreting the results of their own formal experiments on logging, plowing, fertilizing, and crop rotation to maintain soil values. Next, there was a rapid acquisition of land in the West; this land was subsequently transferred to individuals. The Government also acquired a vast amount of land between 1803 and 1853 by the Louisiana Purchase, the conquest of Mexico, the treaty with England, and by accessions from Spain, Texas, and Mexico. The U.S. Government had wanted much of this land because of certain ancillary goals, such as control of harbors and ports, railroad construction, and protection of the fur trade. The Government attached no great value to the land itself and only promoted western expansion because it had an excess of land—which might as well be sold—and a shortage of cash. The third effect was that the emphasis on productivity and manipulation of land encouraged unchecked exploitation of natural resources (Flader, 1976).

The eastern states were the first to suffer serious abuses of natural resources. There was overgrazing of ranges, indiscriminate exploitation of minerals, high-grading of timber, and various practices that led to soil erosion. No controls on exploitation of this type had been part of the colonial customs (as compared with concerns about wildlife, as noted above); nor had settlement laws been used to control the fur take or fur prices during the periods of French and British rule.

Eastern Protectionism

Soon, however, citizens began to realize the effects of abuse of resources and reduction of wildlife population, and new measures for protection of these

resources in the several eastern States were introduced. Many laws were passed to restrict the length of hunting seasons (Palmer, 1912). For example, Massachusetts established hunting seasons for snipe in 1818, New Jersey for rabbits in 1820, and New Hampshire (in 1821) for beaver, mink, and otter. Maine established a moose hunting season in 1830, Pennsylvania set a season on squirrels in 1841, and the hunting of screech owls was regulated in New Jersey in 1850.

This trend toward protection was associated with an increased public concern about natural resources. It also coincided with the advent of special-interest groups. During the 1840's, a wave of reforming zeal swept across the United States. This was influenced by "Jacksonian Democracy," which called for greater public participation in Government. Aspects of this new fervor included the movement to abolish slavery, an anti-Catholic movement, the Temperance crusade, and a concern about women's rights.

About this time, wildlife issues also began to receive attention. The earliest wildlife group, the New York Association for the Protection of Game, was organized in 1844. This, and other wildlife interest groups, assumed "quasi-police powers" (Trefethen, 1961) and made legislative recommendations directly to the States.

Western Exploitation

During the mid-1800's, there were conflicting trends: resources were beginning to be protected in the East, while exploitation continued in the West. This resulted in the advent of a major industry—market hunting—which began in 1850 and peaked in the 1880's. Game meat taken by professional hunters who had given up farming and ranching was sold in western markets. The Civil War helped the industry by creating a market for game meat to feed both armies. Then,

when railroads reached the West and population increased, game prices rose and attracted eastern hunters and entrepreneurs. In the late 1880's, railroads going east carried large amounts of game meat and hides.

The effects of this market hunting industry, and the corresponding public feeling that wildlife supplies were virtually unlimited, are now legendary. The passenger pigeon, whose population had been estimated at 10 billion in 1840, was exterminated. Hunters shot indiscriminately into flocks so large they darkened the sky — in one case, a single flock contained over 2 million birds. A more effective method for market hunters was to build smudge fires in the birds' roosts. Nestlings, prized as squab, were thereby suffocated; blinded adults were driven out of roosts and caught in large nets. By 1890 the species was nearly extinct. To a great extent, the demise of this species was caused by overhunting, but extensive depletion of the hardwoods, on which it depended for acorns, also contributed to its inability to survive. The last passenger pigeon in existence died on September 1, 1914 in the Cincinnati Zoological Garden (Trefethen, 1964; Schoger, 1955).

The bison is another well-known victim of resource exploitation. It was doomed by the advent of the railroad, which effectively divided the total herd into two populations, northern and southern, and also provided ready access for bison products to distant markets. Buffalo were slaughtered by the millions by men who considered a take of 50 a day to be a poor average. Often, only the tongues and hide were actually used. In 1872 and 1873 the railroads originating in Kansas shipped 1,250,000 hides to eastern tanneries; in 1882 the Northern Pacific Railroad alone shipped 200,000 buffalo hides. By 1880 the huge herds had essentially disappeared and the prairie landscape of the bison was forever alter-

ed (Trefethen, 1964; Allen, 1954).

The passenger pigeon and bison were not the only species to be affected by market hunting. In the early 1890's, railroad stations in North Dakota were lined with ducks, and it was not unusual to see carloads of spoiled birds dumped in warm weather (Gustafson *et al.*, 1940). In addition to waterfowl, there was a significant market for deer, rabbits, antelope, and elk. A large trade in women's millinery also developed a market for the nuptial plume feathers of herons, and ornamental quills and breast feathers of pelicans, gulls, egrets, and grebes. These "plume birds" nested in colonies, and large numbers were killed on their breeding grounds.

Public Involvement

The early sportsmen's groups, formed during the 1840's, expanded in size and number as a response to the growth in market hunting. By 1900, there were 374 of these groups in the United States. Scientists concerned with the effects of exploitation also organized into groups, for example, the American Fish Culturist's Association (1870) and the American Ornithological Union (1883). The American Humane Association, a national federation of humane societies, was formed in 1877 and supported the protection of plume birds that was then being promoted by actress Minnie M. Fiske, the AOU, and the New York Zoological Society. Many Audubon societies, preservation groups, and horticulture associations were also formed during this period; the American Forestry Association appeared in 1875 and the Sierra Club was established in 1892.

In addition to the appeals by such formal organizations for regulation of resource abuse, the general public was becoming aware of some of the scientific and esthetic issues entailed in wildlife conservation. Henry William Herbert, writing under the pen name of Frank Foster,

reached millions of Americans with the message that wildlife should be used for recreation and not for commerce. The public was also becoming acquainted with the works of Audubon, Wilson, and

The public discontent that resulted from these new ideas produced a flurry of Government activity. The game protection trend moved westward: Wisconsin established a hunting season for prairie chickens in 1851, California for elk in 1852, and Idaho for bison in 1864. The first law on a bag limit, which restricts the number of animals taken per day, was passed by Iowa in 1878. Some legislation was also enacted at the State level concerning non-game birds (Palmer, 1902). In 1850, both Connecticut and New Jersey passed laws making it illegal to kill insectivorous birds. Other States followed, with laws aimed at protection of "songbirds" or "harmless" birds. Plume birds and seabirds were first protected by Florida in 1877, and in 1897 California made it illegal to possess, or wear, the plumage or skin of several birds.

State governments also responded to this new public demand by establishing special agencies to consider fish and game matters. The first State Fish and Game Commissions were created in New Hampshire and California during 1878. The right of the States to enact their own separate legislation on wildlife, however, did not go unchallenged. But in 1896, a U.S. Supreme Court case, *Geer vs. Connecticut* (161 U.S. 569), upheld the authority of States in this area. The principle that wildlife is a public good, implied in the Magna Carta of 1215, had been legally upheld by the highest court in the United States. The idea that government should assume control over wildlife management, even on private land, might not have evolved if we had not had such great quantities of publicly held land in the United States. By contrast, countries where wildlife is treated as a private good and considered as the

landowner's property had proportionately less public land at the time when their wildlife legislation was first being formulated.

The first professional officials for enforcing wildlife legislation appeared during this period. Before this time, early game laws had been enforced by local police officers, who received part of their salaries from fines, or by political appointees, such as the deer wardens in Massachusetts (1739). These new professionals were first seen in 1887, when Michigan, Minnesota, and Wisconsin created full-time salaried positions. The appropriate State agencies were correspondingly structured so as to provide enforcement powers for regulation.

Public involvement in the politics of resource management also made a significant impact on the Federal Government. In 1871, Congress created the U.S. Commission on Fish and Fisheries. The Timber Culture Act of 1873 gave homestead owners an additional 160 acres, if they agreed to plant and cultivate 40 acres of trees over a period of 10 years. The combined efforts of wildlife-oriented humanists, scientists, hunting groups, legislators, and Government officials culminated in the Lacey Act of 1900, which prohibited interstate traffic in birds killed in violation of State law. Many States had by that time passed laws for protection of wildlife, but these were being openly violated by market hunting industries. The Lacey Act brought an end to this era, destroyed the market hunting industry, and demonstrated the power that is inherent in the political process when groups with different interests unite to press for a common cause (Cart, 1971).

Regulatory Theory

Bernstein's (1955) theory has been used to explain the creation of formal regulatory agencies, like the Interstate Commerce Commission, which were or-

ganized during the same time period as the wildlife agencies. It proposes that there is a series of stages through which regulatory agencies pass until they reach their final end-point—obsolescence. Initially, there is some sort of publicly expressed disagreement with an industry. People then become organized and present their concerns about the problem to legislators. The usual legislative response is to create an independent agency, outside the executive branch of Government, to deal with the problem. After the agency has been set up, public interest in the issues tends to become less intense. The legislature then reduces the amount of financial support given the agency, in accordance with waning public interest. At the same time, the regulated industry will have spent a considerable sum to influence the newly created agency. In the process, the agency comes to depend upon the industry it was created to regulate and thereby becomes "captured." With time, the industry finds that it no longer needs the agency and reduces its support; soon, the regulatory agency is dissolved.

The historical development of wildlife management agencies fits only the first part of this model. A large number of interest groups were attempting to reduce the volume of market hunting, which was a powerful industry in the 1880's. Disagreement on this specific issue was expressed to legislators as one element in this era of widespread reformation, and new agencies, which received little administrative control from State governors, were created. Funding of these agencies was subsequently linked to hunting interests when several States, beginning with North Dakota, required hunting licenses in 1895. It is at this point that the broad pattern in the historical evolution of wildlife regulation departs from the model, for this action induced *increased*, rather than reduced

activity by interest groups after the creation of new agencies. As a result, the market hunting industry was virtually destroyed. The interest groups, and not industry, had captured the agencies. This was best evidenced by the appointment of Major W.A. Wadsworth, president of the Boone and Crockett Club, as director of New York Fish and Game Commission. The subsequent "wedding" of Government and sportsmen in 1900, when Teddy Roosevelt became governor of New York, laid the foundation for control of Government by interest groups (Trefethen, 1961).

Stigler (1971), in arguing against Bernstein's theory on the independence of regulatory agencies, suggested that industry actively seeks Government regulation for four basic reasons: (1) to control entry of new firms, (2) to reduce effects of market substitutes, (3) to generate direct subsidies, and (4) to have price controls enforced by coercive power. Applying Stigler's approach to the area of wildlife concerns, and assuming that interest groups also seek regulation, four parallel effects can be generated. Interest groups would desire regulation so that the entry of other interest groups into the political arena could be controlled by the agency. Substitute land-use products, like timber and agricultural goods, would have reduced value. Regulation might also be sought so that non-wildlife interests would subsidize wildlife agencies. Finally, game laws would be enforced by police-like agencies.

This modification of Stigler's theory seems to fit quite well with the actual practice of wildlife agencies in the early 1900's. At that time, interest groups actively sought regulation and initiated a considerable amount of legislation: a total of 1,324 game laws were passed in the United States, between 1900 and 1910 (Palmer, 1912). Many of these laws appear to relate to the above-mentioned rea-

sons why wildlife interest groups might actively seek regulation.

Progressivism

Wildlife conservation became a serious part of the machinery of the Federal Government during the administration of Teddy Roosevelt. This man, well known for his adventures in war and wilderness, was more than just a big-game hunter. He was also a perceptive naturalist and a talented organizer. In 1888 he founded the Boone and Crockett Club with 100 members, many of whom were influential in business, politics, and the military. All of the members were big-game hunters who had an ingrained respect for the natural environments of the grizzly bear, elk, deer, caribou, and moose. It was only natural that many of these hunting friends would be placed in high positions when Roosevelt was elected in 1901. Immediate changes were made. The Biological Survey was positioned at a higher administrative level. In 1905, the United States Forest Service was created and given to Pinchot, a member of Roosevelt's club and the father of American forestry. The term "conservation" was coined by Pinchot or his assistant, Prince, in 1907 and became the cornerstone of policy in the Roosevelt administration. The original definition of conservation, "wise use, without waste," became the slogan of Government bureaus, as well as many interest groups.

The policy on land in the public domain also changed during these years. Yellowstone National Park had been designated in 1872 as an area where hunting and timber cutting were prohibited. Often, these restrictions were ignored until the Yellowstone Park Protection Act was passed in 1894. President Harrison had designated 13 million acres of land as a public forest reserve in 1891. Afognak Island, Alaska, was declassified

as a forest preserve in 1892 and then designated as a salmon preserve by the U.S. Bureau of Fisheries; finally, it was established as a Wildlife Refuge for sea lions and sea otters. President Roosevelt continued this policy of placing land within the public domain. In 1903 the first National Wildlife Refuge was created on Pelican Island, Florida, to protect plume birds. During the rest of his administration, vast holdings of land were transferred to the national forest reserve, national wildlife refuge system, and national park system.

One of the most significant events of the Roosevelt administration was the White House Conference of Governors in 1908. This represented one aspect of a broad alliance that was built up between the Federal and State governments during the early 1900's. The chief idea to emerge from this meeting was that natural resources could be utilized under a system of management, rather than simply be preserved or protected. After the meeting, a list of resolutions was enacted, 41 State conservation commissions were formed, and 50 commissions of national organizations were organized. The first North American Conservation Conference was held in 1909 (Graham, 1947).

The Roosevelt and Wilson administrations operated under a philosophy of progressivism, in which the powers of Government were used to counteract or control the growing concentration of private power. The immediate effect of this effort was an increase in the strength of the public interest groups that had been created after the era of Jacksonian Democracy in the 1840's. This policy also facilitated expansion of the bureaucracy organized to handle conservation issues, as the Federal Government withdrew large tracts of land from private hands and placed them once again in the public domain.

Flader (1976) has argued that the

Roosevelt administration, and its intellectual leaders like Pinchot, Powell (of the U.S. Geological Survey), and McGee (from the Inland Waterways Commission), have been given too much credit for the conservation movement that evolved at the turn of the century. She has stated that citizens themselves had petitioned the Government to preserve pristine areas, for recreational opportunities and for resource protection, and that this sentiment was later "co-opted" by administrators who sought to formulate a rational framework for managing land production systems on behalf of the public benefit. This view is consistent with some of the theories of government regulation previously discussed.

Renewed Exploitation

Difficulties in generating congressional support for progressive reform began to appear during the latter part of Roosevelt's term. Congress failed to appropriate money for the National Conservation Commission and also stopped the scientific bureaus from doing any commission work. This trend continued under Wilson's administration, although the major setback for natural resource management came with World War I. Not only was national attention diverted from conservation, but conflict also legitimized exploitation under the guise of support for war-related industrial activity. Some legislation was passed, despite the war, such as the bill that created the National Park Service in 1916 and the Migratory Bird Treaty in 1918, which made it illegal to shoot waterfowl during spring.

After the war, exploitation of resources continued and became one element in the great burst of economic prosperity during the 1920's. Kellert and Westervelt (1981) noted a peak of interest in wildlife, as measured by the number of animal-related articles in newspapers,

during the 1920's. They attributed this to a variety of factors, including the automobile, which suddenly made the wilderness accessible to many people. But there was also a boom in wheat prices, leading to increased production at the expense of soil, timber, and wildlife. In addition, industrial growth had reduced the number of farms and increased the need for recreational use of land. Further, the major growth of wildlife agencies within Government had begun to show a real decline from the rampant increases seen during the Progressive Era.

The New Deal

The Great Depression, and the New Deal policy of Government control to remedy economic problems, gave power back to the conservation agencies. The basic pre-war trends in conservation were therefore re-activated in the 1930's. Agencies were structured bureaucratically by division of labor, authority was allocated according to rank and expertise, and employees were given expanded civil service protection. New agencies, like the Soil Conservation Service, were created, as were public works projects like the Civilian Conservation Corps. Many laws were passed at the Federal and State levels involving forestry, grazing, parks, fisheries, and soil conservation. The most notable measure involving wildlife was the Pittman-Robertson Act of 1937—excise taxes on firearms and ammunition were to be collected at the Federal level and then returned to the States for restoration of wildlife.

Kellert and Westervelt (1981) found a second peak of interest in wildlife during the 1930's. They attributed this trend to a renewed demand for, and interest in, protectionism. Major drainage of wetlands in the early 1900's, which was followed by drought and dustbowls, and overhunting during the 1920's, aroused the concern of a broad spectrum of peo-

ple: recreationists, protectionists, scientists, and humanists. In response, considerable Federal and State legislation was enacted to arrest the deterioration of wildlife habitats and other natural resources.

The 1930's also saw the emergence of a closer union between scientists and Government decision-makers. This new collaboration had been inspired by Franklin Roosevelt's concept of a "brain trust" of academics who would be available for Government consultation. The idea that Government programs might sometimes be considered as social experiments, a concept explicit in the New Deal Philosophy, also had an impact on wildlife agencies. Some began formal experiments. Universities responded appropriately, as evidenced by the publication of Leopold's classical text *Game Management* in 1933 and by his title—the first professor of wildlife management.

During this era, agencies began to realize that regulation of the numbers of animals taken by hunters was not alone sufficient for effective wildlife management. Land with special wildlife value was therefore purchased by agencies, game-farming and stocking programs were initiated, and attempts to control wildlife habitats began. This period also marked the point in the history of conservation when regulation began to be based on principle. This two-part principle held that Government efficiency in wildlife programs depended on adherence to basic biological laws and that equity in these programs depended on an equal distribution of benefits among all of the interest groups involved in financing the agency. Whenever agencies faced a new problem, this principle was utilized in making critical decisions.

Post-War Specialization Within Government

Developments in conservation were arrested by World War II, which once

again promoted resource abuse. Correspondingly, agencies in Government again began to expand as the war ended and the results of exploitation were recognized. At the same time, the number of hunters increased and fees paid by them provided a strong economic foundation for wildlife management programs in Government. Agencies began to hire resource managers who had taken advantage of the GI Bill to attain specialized training in this area.

This professional specialization fostered in educational centers, combined with knowledge about the working of division of labor gained in the military, caused agencies to develop sub-units to enhance efficiency. Special sections were established at State and Federal levels to manage big game, waterfowl, upland game, and other groups of hunted species. Research, laboratory, field, and administrative functions were assigned to assist different groups of agency employees. Separation of fish, forestry, parks, wildlife, and enforcement duties occurred in many agencies.

The division of labor within agencies and the presence of multiple interest groups influenced the method by which wildlife conservation decisions were made. The pre-war agency could develop long-range plans because its organizational environment was simple and predictable. However, the uncertain environment created by conflict and competition among sub-units, as well as by outside power coalitions, made this kind of simple, rational decision-making impossible in agencies reorganized after World War II.

As a consequence of this uncertainty, agencies developed rigorous data collection systems so they could monitor the changing environment. Statistical data banks were created to monitor the harvest of animals, license sales, program effects, budgetary expenses, hunting accidents, and the various types of

game law violations. Attitude surveys were begun to determine public sentiment on controversial issues and the relative positions of the various interest groups on significant topics. Much of this effort can be understood as necessary for providing information to agencies concerning changing organizational environments and for including public input in decision-making. It might be concluded that the best way to understand a Government organization, during this period, was to look at its monitoring data. And the best way to change the agency was to request that it collect new kinds of monitoring data.

The Ecological Revolution

The events of the 1960's and 1970's jarred the complacency of the old wildlife conservation agencies. They became reflective about their proper role, as new, broad environmental legislation created rapid growth in all of the agencies responsible for natural resource functions other than wildlife conservation. At the same time, powerful public interest groups appeared in the political arena to promote complex and confusing demands concerning the environment. Hunter populations also changed with the advent of a new group of recreationists, who came from urban and suburban areas and who had had no family tradition in hunting. New biologists were hired by agencies and some communication problems developed because of the differences in training and attitudes between these individuals and the more senior biologists who had been recruited right after World War II.

Kellert and Westervelt (1981) found an increase in the number of animal-related newspaper articles during the 1960's. They considered a wide diversity of antecedents for this trend, including the influence of President John F. Kennedy, who criticized the Eisenhower administration for its lack of an environ-

mental conscience. Stuart L. Udall, a dedicated conservationist, was appointed as Secretary of the Interior. In 1962, Rachel Carson's book *Silent Spring* was published, became a best-seller, and had a major impact on public attitudes. There were also a number of dramatic and well-publicized environmental tragedies in the 1960's, including oil spills from the wreck of the *Torrey Canyon* and from an off-shore drilling accident in the Santa Barbara Channel.

Federal legislation enacted during this period reflected this public concern over broad issues related to natural resource management. Major new efforts included the Sikes Act (1960), the Refuge Recreation Act (1962), the Wilderness Act (1964), the Water Resources Planning Act (1965), the Land and Water Conservation Fund Act (1965), the Federal Water Quality Act (1967), and the Wild and Scenic Rivers Act (1968).

Wildlife conservation agencies soon became painfully aware of the growth in competing Government bureaus. It was in this context that such agencies admitted during the 1970's that their programmatic emphasis to date had been on hunting programs, and that they had failed to serve the larger public. Certain policy changes therefore resulted. In response to public demand, many States developed systems for collecting wildlife revenues from recreationists who did not hunt. The Federal Government developed an Endangered Species Program to provide aid to the States, and the Wildlife Management Institute promoted a Federal aid program for non-game species. Most important, the idea that wildlife conservation agencies should be involved in the management of biological communities, rather than simply be concerned about selected populations of species, gained acceptance at this time. In fact, though, this idea had been around for some time.

The legitimacy of hunting was also

seriously challenged during this period. Anti-hunting groups began to make themselves heard at legislative hearings and to use the courts to challenge existing legislation and policy. The U.S. Fish and Wildlife Service was taken to court over its failure to develop an Environmental Impact Statement on waterfowl hunting. The Pittman-Robertson Act was challenged on the basis that non-game responses to game management programs were not being assessed. In response to these challenges, agencies added training in wildlife biology and sportsmanship to hunter education courses. National conferences on hunting ethics were held in Charleston, North Carolina, in 1977 and in Des Moines, Iowa, in 1980 to promote appropriate agency action, guide the drafting and proper enforcement of legislation, and increase citizen awareness about the role of hunting in wildlife management. Research was initiated on non-game and endangered species and on the effects of habitat manipulation of biological communities.

But perhaps the most important development during the 1960's and 1970's was the renewed emphasis on single-issue politics. The organization of interest groups during this time was based on the existence of an astute group of leaders who focused on systems of ethical values, combined with memberships who had strong emotional involvements related to somewhat isolated issues. This combination caused these interest groups to search for new issues to broaden and increase their memberships. But this process also caused some loss of control over members, as the diversity of issues proliferated. The types of legislation enacted, agency growth, and interest-group activity continued to foster this issue-orientation, often at the expense of considerations about broader issues related to policy or value guidelines. When many of these single-issue cases came to be debated in the courts, fundamental val-

ues underlying the issues were rarely addressed, because there was only a small constituency among these groups who were able to discriminate between cause and effect. It is not unusual, then, for us to remember the 1970's in terms of much-publicized issues like the Grand Canyon burros, the snail darter, and de-classification of the timber wolf, along with a variety of other case studies that tended to obscure broader policy questions.

The New Regulation

The behavior of wildlife agencies during this period cannot be explained by Bernstein's model, nor by the modification of Stigler's model discussed previously in this paper. Rather, Weaver's (1978) idea of "new regulation" seems to provide a better fit for the events that occurred. Weaver felt that a different kind of regulation process was being utilized in newer agencies, such as the Environmental Protection Agency. In this model, new interest groups promote reform and thereby revitalize a particular Government agency by forcing a proportionate reduction in the influence of the more traditional groups. The evaluation of new issues, in this model of regulation, most often involves the transfer of power from those who produce material products to groups of intellectual reformers who promote abstract values, new concepts, and higher ethical standards.

Weaver also indicated that success in this new climate of regulation has been achieved primarily through "internalizing the externalities." This procedure involves forcing manufacturers and consumers to pay for the social costs involved in upgrading the processes entailed in providing goods and services. The usual example of this policy that is cited in the literature concerns industries that pollute (Kneese and Schultze, 1975). Since interest groups promoting the value of clean air and water do not themselves pro-

duce any taxable good, they do not have the funds to provide direct support for the Government work entailed in cleaning up the effects of pollution. Rather, success in getting funds for the requisite agency work has come about through the interest group's ability to coalesce voting power to pressure the agency. In response, the agency charges fees to the industries, in accordance with the new costs of cleaning up which were not previously included in the price of goods. The Government is thereby provided with sufficient funds to undertake pollution control and clean-up programs.

In reviewing the application of Weaver's model to the actions taken by agencies in the 1970's, there is clear evidence of the emergence of new and different interest groups into the political arena, the evolution of new issues, reformation of policy and programs based on the application of ethical values, and corresponding attempts to reduce the power of traditional interest groups. There is considerable evidence that revitalization of agencies occurred as one consequence of this process. However, there was no evidence of internalization of externalities seen in the wildlife politics of the 1970's.

Rather, revitalization occurred through a system of "user-pay" Government financing. Traditional interest groups, threatened by the advent of newer competitive demands, requested further regulation, just as they had done in former times. Therefore, many wildlife bills passed in the 1970's included special-purpose funding; in many States, fixed percentages of funds from hunting license revenues were earmarked for specific purposes. Special fees, such as those obtained from issuing State waterfowl hunting stamps, upland game bird stamps, public access stamps, and others were assessed for individual user groups. This targeting of funds allowed wildlife agencies to become increasingly inde-

pendent from the processes of the executive, judicial, and legislative branches of Government.

Special-purpose funding also allowed the concerns of outside interest groups to gain representation within the agencies. Interest groups could then communicate directly with a staff of Government workers who would be responsive to their particular cause, since these workers' salaries were being paid by the group. However, at the same time, competitive interests were often making different sorts of appeals from the outside, through the courts and the legislatures. These other kinds of effects, because they lacked the economic mechanisms for establishing internal representation within the appropriate agencies, were generally unsuccessful in the 1970's.

The Dominance of Economic Concerns

In the 1980's the major wildlife issues have all involved economic considerations. Voters in the United States, by their demonstrated preferences in the 1980 election, were expressing a concern about the costs entailed in regulation, about the possible effects of deficit Government spending on inflation, and about the cost of environmental protection and natural resource management. Secretary Watt, Department of the Interior, announced a new trend in policy in his speech at the 46th North American Wildlife and Natural Resource Conference: agencies must begin to consider the economic tradeoffs involved in the various policies related to regulation.

State and Federal wildlife agencies entered the 1980's in a state of fiscal crisis. Hundreds of agency positions went unfilled throughout the Nation because of shortages in funds. New and important programs were postponed or reduced in scope. Others were initiated without any expectation of general fund-

ing revenues sufficient to supplement anticipated recreational revenues. Energy development, agriculture, and urban development were given precedence in land management—doves, woodpeckers, and rabbits were assumed to be worth less per acre than oil, corn, or subdivisions. Internal audit procedures reinforced this trend, since it was easier to show economic progress from activities that destroyed wildlife habitats than from activities that restored the amount of living space available to wild animals.

However, if we are correct in applying Weaver's model to the evolution of wildlife management agencies, Government can expect continued revitalization by interest groups which request that the social costs involved in enhancing the environment (and wildlife in particular) be incorporated into the prices of goods and services. In some parts of the United States, this trend has already begun to appear. In Michigan there has been a longstanding controversy over exploration and drilling for oil and gas in the Pigeon River Country State Forest because this area has one of the only two populations of elk east of the Mississippi River. The court decision on this issue was that (1) drilling should be permitted in the southern part of the forest only and (2) that biologists should work with the oil industry to minimize the negative effects on the elk herd. Also, legislation was passed to earmark part of the royalties gained from profits on the drilling operations for the purchase of lands for wildlife elsewhere in Michigan. In addition, the oil company was ordered by the courts to support agency research on enhancement of wildlife values in the State Forest. Resolutions like the above, based on the principle that the cost of externalities be included in the price of oil, may represent a glimpse of things to come.

Conclusions

Gilbert (1971) proposed that the different eras in the historical development of thinking about natural resource management coincided with changes in social theory. He proposed that an Era of Abundance existed until 1850, because there was little worry about supply during that period. This period was followed by the Era of Exploitation (1850-1900) when resource destruction occurred, but, at the same time, restrictions to counter perceived destruction were initiated. The next era, Preservation and Production, lasted from 1900-1935 and was characterized by the advent of many of our basic principles about conservation. During 1935-1970, the Era of Harvest and Habitat predominated. Multiple-use philosophies arose at this time: land was to provide the "greatest good for the greatest number in the long run." Gilbert denoted the next stage as the Era of Technology, Sophistication, and Human Management in which the *users* of resources, as well as the resources themselves, became the focus of attention by managers. He speculated that we were about to enter another Era of Exploitation, due to shortcomings in the results achieved by the policies in force during this last stage.

Although there are some important differences between Gilbert's "eras" and the stages of growth discussed in this paper, the similarities are nevertheless clear and merit more discussion. It has been shown that agency growth has been principally achieved in large steps. These stepwise increments have been achieved by the efforts of particular interest groups, through direct communication with the responsible agencies. Major changes in legislative appropriation for wildlife conservation have occurred most often when interest groups and agencies have presented a unified front in terms of policy, in conjunction with a plan for deriving independent revenue.

After new programs are created, one consequence is often an increased level of activity among interest groups. Younger professionals are added to the agency staff to represent these new interests. The resulting change in agency thinking about new and old problems is, in turn, communicated back to the competing interest groups. Due to the nature of the regulatory process, concerns that are *not* represented internally in the agency only enter into the decision-making process inasmuch as they affect general public relations. External activity, as attempted through the courts, legislatures, or other natural-resource bureaus, has had little impact on the internal behavior of the agency. Rather, decisions tend to be influenced by legislative hearings with communicators who are already known to the agencies, and through exposure to issues brought directly to independent advisory commissions. Because of the special quality of this process, agency growth between the major steps has been slow; most changes have occurred only when new interest group concerns come to be internalized within an appropriate agency.

The differences in agency mission and interest group sentiment that we have seen evolve through time should not obscure our vision of several important elements of continuity. Wildlife conservation, during all historical phases, has been essentially a regulatory process. The relevant agencies have shown certain characteristics in their decision-making; these include a dependence on principle, independence from other branches of Government, and protection of regulated interests.

The first of these characteristics explains why wildlife policy so often becomes a political issue, despite the presence of a scientific basis for making decisions. As discussed above, two separate regulatory principles guide agency deci-

sions: conservation practices ought to be based on biological facts; but also, opportunities for wildlife benefits should be equally distributed among all who finance the agency. These two principles have been used by agencies to make decisions, defend their positions, propose innovation, and perceive newly emerging issues. Due to the regulatory nature of these organizations, it appears that the dimension of equal distribution takes precedence in the event of conflict, unless there is some specific legislative intervention. Thus, if a given wildlife issue primarily involves questions of equity, then the scientific facts pertinent to the issue will take a back seat. Conversely, if the issue does not primarily involve equity, then the scientific basis for decisions comes to be emphasized. However, since these two dimensions are simultaneously present in most decisions, the scientific aspect of the problem is often used to justify a decision that is based primarily on the goal of increased equity. At other times, an agency may appear to contradict itself by arguing against scientific fact in the name of a perceived threat to equity. This organizational behavior has evolved chiefly because of the basic economic fact that an increase in efficiency will reduce equity, and vice versa (Okun, 1975).

The regulatory nature of the wildlife conservation agencies also explains the close relationship between the hunting interest groups and Government. It has been shown that this trend originated during the 1840's under the influence of the philosophy of Jacksonian Democracy, and that it became institutionalized under the influence of Teddy Roosevelt in the early 1900's. It is a cliché in both the wildlife conservation and public administration literature to argue that the regulatory process excludes significant segments of the public from participating in Government. According

to our modification of Stigler's theory, this is exactly what regulated interests desire. Government's solution to this problem is to attempt to ensure that the actions entailed in the regulatory process be consistent with traditional or emerging values and customs. This solution should result in greater compliance with regulation, greater satisfaction arising from the increased freedom to utilize natural resources, and greater potential for internalizing the demands of old and new interest groups.

Although this is the correct form of Government behavior for a capitalistic democracy, questions arise when the expressed will of the people is distorted, juvenile, or potentially destructive. Regulatory agencies typically have evolved amid precisely these kinds of conditions and thereby serve to mediate, educate, punish, and guide the development of human behavior. But there may be a new problem, created by the use of regulatory tools, *i.e.*, an effect on ethical values. Individuals who operate at the highest levels of ethical behavior tend to make moral decisions on the basis of their own internal guidelines. In contrast, regulation emphasizes external rules, signals, and punishments. So, it is possible that individuals may lose—or never develop—a capacity for making internal value judgments under the strict control of a regulatory system.

This dilemma is not simply a problem that relates to administrative theory. The research of Kellert and Westervelt (1981) clearly shows that there may be a real conflict between the will of the people and the appropriate ethical relationships between Americans and wildlife. This article has shown that the national attitude toward wildlife is basically one of utilitarianism, and that this attitude has been prevalent for the past 75 years. This national norm, that animals are only of value if they can be used to fill human needs, is an underlying public at-

titude that requires modification. A more acceptable attitude would be one that emphasizes the wise use of these resources, and a superior national standard would concentrate on *responsible* and wise use.

The effectiveness of the wildlife-related bureaucracy should not be underestimated. The agencies involved have been very successful in doing what has been mandated to them by citizens who vote for legislators, pay tax money to Government, and provide testimony to courthouses. For example, there are twice as many deer in Michigan alone than the 500,000 found in all of North America in the early 1900's. Pronghorns, which came close to facing the fate of the bison, are now frequently sighted on western ranges. Many raptor populations have been successfully saved from decimation by pesticides, and several endangered species have been restored, and even declassified from the endangered species list through scientific management.

Also, Government's capacity for change in responding to changing public attitudes should not be underestimated. We have seen that cycles of resource exploitation have been followed by political activism, bureau action, a subsequent backlash reaction, and then more exploitation. These cycles have made change in Government the rule rather than the exception.

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