

REPORT OF THE CONSERVATION COMMITTEE—1978

NONGAME CONSERVATION AND MANAGEMENT

If ideas are enlightened by the times, then nongame management is an "idea" whose time has finally come. Nongame management started, in a general sense, with the environmental era of the 1960s (stimulated in large measure by Rachel Carson's *Silent Spring* in 1962) and with the enactment of the Endangered Species Act of 1966 which set the stage for rapid advancements in conservation attitudes.

The National Environmental Policy Act (NEPA) of 1969 and the environmental impact statement process laid the foundation for a broader and more in-depth consideration of wildlife, exposing how little was being done to evaluate proposed developments, how little was known about impacts on living resources, and the inadequacies of project designs to prevent adverse impacts on living resources.

Ornithologists jumped into the mainstream; symposia were held and research pushed forward, e.g., on birds damaged by chlorinated hydrocarbons. Not the least among these advancements was the development—new and renewed—of a conservation ethic by laymen across the land. Membership in the National Audubon Society increased 8-fold in 15 years and the public entered the spirited debate. An example of this was the activist group, Greenpeace; its members literally sallied between whale and harpoon. Clearly, the time was at hand for the conservation and management of nongame.

Historically, ornithologists have taken the lead in promoting conservation, research and management for nongame species. The pioneering work of John James Audubon and Alexander Wilson did not discriminate between the edible and the more aesthetic species.

William Brewster, one of the founders of the American Ornithologists' Union and Curator of Birds and Mammals at Harvard University, aroused the A.O.U. in 1884 to form a Committee for the Protection of Birds (Trefethen 1975) working toward suitable state legislation to protect birds. Early members of this committee included J. A. Allen, George Sennett, William Dutcher and Frank M. Chapman (who also played a leading role in affairs of the National Audubon Society and, in many ways, stimulated public interest in nongame species in the first decades of the twentieth century).

Another pioneer ornithologist, Joseph Grinnell, was instrumental in the campaign against commercialization of wildlife. Through Congressman John Lacey, Grinnell prompted the Lacey Act in 1900 that protected interstate shipment of illegally killed wildlife as well as foreign transport of wildlife (Trefethen 1975).

Committee action within the newly formed American Ornithologists' Union advocated formation of the Division of Economic Ornithology under the U.S. Department of Agriculture, which eventually led to formation of the Fish and Wildlife Service within the U.S. Department of the Interior, with regulatory authority over migratory game and nongame birds (Leedy 1961). Committee action of the A.O.U. also was instrumental in the establishment, in 1903, of Pelican Island, Florida, as the first bird refuge, even paying initial expenses for having the area patrolled (Trefethen 1975).

For nearly a century The Wilson Ornithological Society, American Ornithologists' Union (preceded by the Nuttall Ornithological Club) and The Cooper Ornithological Society have provided outlets for publication of significant papers on nongame species.

It was not state or federal governments that initiated research on rare and endangered species, but ornithologists, such as Carl Koford for the National Audubon Society (California Condor [*Gymnogyps californianus*], 1939-1946), Josselyn Van Tyne of the University of Michigan and Harold Mayfield (Kirtland's Warbler [*Dendroica kirtlandii*], from 1942 on).

Ornithologists at Cornell University's Laboratory of Ornithology have stimulated a variety of new approaches to the study of nongame species, including sound recording and spectrographic analysis of bird vocalizations and the establishment of a nation-wide network for the collection of nest records and a facility for propagation of endangered raptors.

Joseph Hickey's "A Guide to Bird Watching," published in 1943 when he was still an amateur ornithologist, encouraged many other amateurs; similar encouragement and expertise now is provided by various bird observatories, which depend on well-trained amateur help in much of their ornithological research.

Interest in specific lines of endeavor has resulted in the formation of special interest groups (i.e., bird banding associations, the Raptor Research Foundation, Hawk Migration Association of North America, Pacific Seabird Group, Colonial Waterbird Group and the North American Bluebird Society), as well as a vast array of rehabilitation and conservation education groups concerned primarily with nongame species. Sportsmen have also been strong supporters of educational and legislative activities relating to protection of nongame as well as game (Trefethen 1975), and have influenced the broadening of wildlife programs.

In 1975, the Wildlife Management Institute issued a study report entitled, "Current investments, projected needs and potential new sources of income for nongame fish and wildlife programs in the United States" (hereafter cited as the WMI Nongame Report), incisively noting that previous efforts to deal with troubled species have been largely "rescue oriented."

In effect, efforts were a salvage operation designed to recover declining populations from the abuses of development and mismanagement from a multitude of single purpose, land use enterprises, although restrictive laws were often the only means available to conservation agencies for counterattack. Occasionally, the results were positive. Alligator (*Alligator mississippiensis*) populations, once at desperately low numbers, responded within the last decade to the protection and rigorous enforcement of new legislation. Now the species is no longer regarded as threatened in most southern states, and limited harvests are again in effect. Nonetheless, the restoration of alligator, sea otter (*Enhydra lutris*), bison (*Bison bison*) or Atlantic salmon (*Salmo salar*) populations represented action initiated after these species were recognized as threatened. Moreover, these restorations cannot be defined as last-ditch efforts because, literally, no action at all preceded detection of each species' dire status. Too often indifference and ignorance characterized the hapless fund of biological knowledge at hand for nongame.

Clearly, then, the long-term objective of any wildlife program—game or nongame alike—should obviate the need for rescue oriented operations. The WMI Nongame Report thus sounds a clarion call for a scientifically based approach to the management of all wildlife resources.

A PICTURE OF NONGAME FUNDING

The WMI Nongame Report presented a thorough review of revenues devoted to various fish and wildlife programs and activities, including monies invested by more than 30 states or other political units in research, management and enforcement. Analysis of data from the WMI Nongame Report further emphasizes the need for nongame programs for birds. Monetary figures are based on the 1975 dollar value.

Clearly, only a minuscule portion of funds currently available to state and territorial wildlife agencies is spent on identifiable nongame projects. Of funds expressly allocated to nongame, nearly 42% was appropriated for birds, foremost among the groups identified (Table 1). Analysis in Table 1 also reveals that research activities for nongame birds (27%) run a poor third to enforcement (65%) and management (48%) activities.

On a per project basis, 37 projects dealing with the management of nongame birds received

TABLE 1
 STATE AND TERRITORIAL EXPENDITURES IN MANAGEMENT, RESEARCH AND LAW
 ENFORCEMENT FOR NONGAME BIRDS, 1974-1975, ADAPTED FROM WMI NONGAME REPORT
 (1975)

Activity	All programs ^a	Nongame birds	%	All nongame programs ^b	Nongame birds	%
Management	\$ 84,248,176	\$ 426,074	0.5	\$ 893,459	\$ 426,074	47.6
Research	40,550,213	449,305	1.1	1,657,764	449,305	27.1
Enforcement	51,628,385	525,804	1.0	804,815	525,804	65.3
Totals	\$176,426,774	\$1,401,183	0.8	\$3,356,038	\$1,401,183	41.7

All figures based on 1975 dollar value.

^a Includes game and nongame programs.

^b Includes nongame programs for birds, mammals, fish and other species and their habitats.

an average of \$11,516 (vs \$12,584 average for each of 71 projects in the management category for all types of nongame); 47 research projects received an average of \$9560 (vs \$13,053 average for each of all 127 nongame research projects); and 22 law enforcement projects addressing nongame birds averaged \$23,900 (vs an average of \$16,425 for each of all 49 nongame projects in the enforcement category).

Thus, nongame projects for birds fell far short of the overall average in both management and research at the state level. Law enforcement allocations for nongame birds, however, were well above the average amount for all nongame projects. These data are somewhat surprising. Birds are foremost in abundance among the nongame species in the United States, as shown in Table 2; 600 (46%) of the 1291 vertebrate species classified as nongame are birds, yet research and management expenditures currently fall far short of this representation of birds in nongame biota. Moreover, birds are the most abundant group of vertebrates officially designated as rare or endangered in the United States.

A major point in these and other financial data concerns the source of revenues supporting nongame research programs. Of some 247 nongame projects at the state level identified in the WMI Nongame Report, less than 4% were funded by "other" revenues. That is, hunting and fishing license sales were the mainstay of nearly all nongame research. Similarly, the states' nongame management and enforcement projects derived the bulk of their funds from license sales to sportsmen.

Nevertheless, numerous states have acquired lands to preserve prairie chicken (*Tympanuchus* spp.) and other nongame wildlife habitat by using funds designed for acquisition of public-use areas. In addition, the thousands of acres of refuge and public hunting lands have greatly benefited nongame wildlife. Concerted efforts to raise funds for threatened species have rested primarily on private donors through various organizations, such as the World Wildlife Fund, the National Audubon Society and The Nature Conservancy. A few states have had unsuccessful birding licenses; others are trying them now. Other funding techniques offer promise. Colorado, for example, recently enacted legislation providing a voluntary check-off box on the state's income tax form, dedicating contributions to a nongame wildlife program. Taxpayers in Colorado now can earmark a portion of their tax rebates for specific nongame projects administered by the State's Division of Wildlife.

At the federal level, funding for nongame birds made up 1.8% of the total wildlife budget and nearly 18% of allocations for nongame projects, excluding law enforcement activities (Table 3). On a project basis, 21 nongame bird management projects received an average of

TABLE 2
 APPROXIMATE OCCURRENCE OF GAME AND NONGAME SPECIES BY VERTEBRATE GROUPS
 IN THE UNITED STATES,^a ADAPTED FROM WING (1951)

Vertebrate group	Total no. species (approx.)	Game			Nongame		
		No.	% of group	% game	No.	% of group	% nongame
Birds	811	69	8.5	29	600	74	46
Mammals	670	82	12.0	34	399	60	31
Fish (freshwater)	600	88	15.0	37	90	15	7
Reptiles	149	0	0.0	0	70	47	5
Amphibians	138	0	0.0	0	132	96	10
Totals	2368	239	10.0	100	1291	54.5	99

^a Excluded are those species considered as "game-commercial" (e.g., salmon) and those considered as "harmful" (e.g., poisonous snakes). Because of overlapping designations for some species, the total for all categories equals 113%.

\$61,689 (vs \$55,467 average for 41 management projects in all categories), but research for nongame birds averaged only \$19,009 for 36 projects (vs \$64,975 average for 135 nongame research projects of all types).

Thus, the funding picture for nongame birds was limited. Research funds, in particular, were less than satisfactory for a resource so widely appreciated in the United States. That either appropriated funds (federal), or those derived from license sales (state), make up the major portion of investments to nongame projects clearly indicates that other sources of revenue are needed to support the research necessary for comprehensive management of nongame birds.

DEVELOPMENT OF THE U.S. NONGAME BILL

Following distribution of its 1975 Nongame Report, the Wildlife Management Institute was invited by the Senate Subcommittee on Resource Protection to draft a nongame conservation

TABLE 3
 FEDERAL EXPENDITURES IN MANAGEMENT, RESEARCH AND LAW ENFORCEMENT FOR
 NONGAME BIRDS, 1974-1975, ADAPTED FROM WMI NONGAME REPORT (1975)

Activity	All programs ^a	Nongame birds	%	All nongame programs ^b	Nongame birds	%
Management	\$ 65,845,422	\$1,295,460	1.9	\$ 2,274,166	\$1,295,460	56.9
Research	41,950,320	684,325	1.6	8,771,603	684,325	30.2
Enforcement	9,053,000	— ^c	—	2,264,700	— ^c	—
Totals ^d	\$107,795,742	\$1,979,785	1.8	\$11,045,769	\$1,979,785	17.9

^a Includes game and nongame programs.

^b Includes nongame programs for birds, mammals, fish and other species and their habitats.

^c No breakdown available for birds and other groups.

^d Total shown excludes enforcement funds.

bill, as recommended in the Report. However, the 94th Congress adjourned before the first draft was heard, which was reintroduced in the 95th Congress on 28 March 1977, as S. 1140. A similar bill, H.R. 8606, was introduced in the House on 28 July 1977.

The Senate completed hearings on S. 1140 in early August and the House followed suit with H.R. 8606 in late September. H.R. 8606 was subsequently revised and reintroduced as H.R. 10255.

The Senate proceeded with its version of the bill and S. 1140 was passed 24 May 1978. The House Merchant Marine and Fisheries Committee favorably reported H.R. 10255 and sent the bill to the House Rules Committee.

Both of these bills would establish a nongame fish and wildlife conservation program similar to the long-standing Federal Aid in Fish and Wildlife Resotation Programs that have been successful in restoring and maintaining largely game populations. Strong support for the concepts and proposed nongame program was provided at both Senate and House Committee hearings by a broad spectrum of conservation, environmental and humane organizations, as well as the state fish and wildlife agencies.

Both S. 1140 and H.R. 10255 called for general appropriations to be made available through Congressional actions. Past experiences have shown that such appropriations for wildlife are not dependable, fluctuating widely among years, making it difficult to build or sustain programs.

In February 1978, another nongame bill (H.R. 10915) was introduced, but did not receive hearings in the 95th Congress. It was identical to H.R. 10255 except for the funding mechanism. It called for an 11% manufacturers' excise tax on bird seed, feeders and baths, certain camping equipment, and some binoculars and spotting scopes. That tax could yield from \$20-30 million annually to fund nongame research and management.

Although President Carter, in his environmental message in the spring of 1978, pledged to strengthen wildlife programs, the Office of Management and Budget voiced strong opposition to the proposed nongame fish and wildlife conservation act. In June 1978, a coalition of power associations, labor unions and the U.S. Chamber of Commerce swamped House members with letters and telegrams opposing the nongame bill (H.R. 10255), largely on procedural grounds. This opposition, and the negative views of the Office of Management and Budget, stalled action in the Rules Committee and, therefore, in the House.

In mid-August 1978 the conservation community, representing the views of over 100 conservation and environmental leaders, made a direct appeal to President Carter to support the nongame proposal. The bill languished and did not pass before the 95th Congress adjourned in October, 1978. The bills will now have to be reintroduced in the 96th Congress.

THE NONGAME ETHIC

Scheffer (1974, 1976) provided a framework for a modern nongame ethic for wildlife biologists. He believes that 2 new ideas have emerged in the relationship between man and wildlife: (1) man is responsible for the integrity of natural systems—man cannot guide his planet safely or permanently without the proper functioning of Earth's environmental equipment; and (2) there is new awareness and understanding of the values of living organisms.

These ideas, Scheffer predicted, will move wildlife managers into the spectrum of optimal yield, largely replacing the older concept of maximum sustained yield that prevailed for deer, quail and other game species. The natural diversity of ecosystems, not abundance of a select few species, will be the criterion of management. This shift in emphasis will incur changes in the administrative machinery of respective agencies responsible for wildlife management. Hunting will diminish as a dominant influence and instead wildlife agencies will consider more fully the values and benefits of wildlife to nonhunters (Scheffer notes that only 1 in 10 Americans 12 years of age or older was listed as a hunter in 1970).

This climate has brought forth changes in agency names; game departments have become wildlife agencies, or divisions of natural resources. Almost overnight, agencies of game management and biologists trained in game management have inherited the responsibilities for nongame research and management. The states' responses, of course, showed a wide range of involvement and investment. Some states have formed identifiable nongame sub-units of several persons, with at least modest budgets. Other states have put forth only limited efforts, further constrained by inadequate funding. Federal response has been somewhat stronger. Several agencies, particularly the Fish and Wildlife Service, were already responsible for nongame species (e.g., Whooping Cranes [*Grus americana*]) prior to enactment of the Endangered Species Act of 1966. Recovery teams comprised of biologists from state, federal and private sectors have been established to deal with designated species; birds figured heavily in these projects.

Universities have also responded favorably. Departments previously oriented toward game species, now emphasize wildlife sciences and natural resources. Crawford (1976) discussed the role of universities in meeting the modern training needs of students in natural resources disciplines. Of the 2 general categories of curricula, he suggested that the "principles method" would best serve today's students. The "life history method" (emphasizing the biology and management of individual species) has a limited perspective in both time and coverage. With the principles method, the ecological role of fire in management can be demonstrated ably with Kirtland's Warbler as an example. This species and its ecological needs would scarcely be mentioned were only the life history approach used in programs that emphasized upland game bird management. Furthermore, the principles method does not preclude instruction in game management, but integrates game and nongame within the perspective of an ecosystem approach.

MISSOURI'S LEADERSHIP

Design for Conservation, initiated by a wide audience of concerned Missourians, began with a petition of 164,000 signatures requesting funding for a comprehensive program addressing the natural resources of Missouri. It ended with the enactment of legislation in 1977 dedicating $\frac{1}{8}$ of 1% of the existing sales taxes for the program. These revenues are expected to reach \$25 million annually.

The first objective has been to acquire conservation lands. Under 4% of Missouri is in public ownership, including state and federal properties. Now with a funding base, the quest is to acquire 121,000 a of upland and wetland sites, natural areas for rare and endangered species, and pristine springs and spring branches. In the first 10 months of the program, \$12 million was expended for the purchase of 28,000 a.

Design for Conservation will also support a variety of public services, including wildlife and fisheries management for all species, forest management, conservation education programs, research of several types and a refinement of enforcement operations. The nongame facet of Missouri's program led to a new Natural History Section in the Department of Conservation. The staff includes a section chief, a rare and endangered species coordinator for both plants and animals, a natural area coordinator, an ornithologist, a herpetologist, a naturalist-nature center coordinator and 2 urban wildlife specialists.

The research program includes restoration of Ruffed Grouse (*Bonasa umbellus*) populations (a nongame species in Missouri), shorebird management, management of native prairies for nongame and an evaluation of traditional wildlife management practices and their effects on nongame populations. The program also includes research on prairie chickens and endangered raptors.

A major attempt to avoid land condemnation of vital endangered habitats has been successful to date, and the group hopes never to employ "eminent domain" in the acquisitions

process. Fortunately, the large number of willing sellers of habitats has precluded the possibility of legislative backlash if land condemnation had to be employed widely. In all, Design for Conservation is a model deserving national attention.

RECOMMENDATIONS

(1) Through individual and organized efforts, encourage states to develop special sources of revenue dedicated to natural resources research and management with special reference to nongame programs. Sources of state revenue may be derived from the sales of specially imprinted license plates, nongame stamps akin to the well-known duck stamp, dedication of a percentage of state sales or income taxes, rebates or other means to assure revenues independent, but not exclusive, of state appropriations. These funds may be used, in part, as matching funds for federal cost-sharing programs, as described earlier in this report.

(2) Work with existing state conservation agencies to establish viable and comprehensive nongame programs. Formal recommendations establishing nongame research and management priorities, including critical habitat acquisition, originating with local, state or regional ornithological societies or similar conservation groups should be part of this effort.

(3) Direct research findings, whenever possible, to nongame management recommendations (e.g., population and behavioral data as the basis for recommending optimum sized parcels of habitat for acquisition). Funding for nongame projects may be obtained more readily, at least initially, when ornithologists assume mission-oriented research based on previously established priorities.

(4) Vigorously support pending state and federal legislation that can benefit nongame and constructively oppose those with possible negative impacts. Many land and water bills do not contain language addressing wildlife considerations, and such legislation often is patently inimical to the best interests of wildlife resources. Too often, land and water bills may regard wildlife in narrow terms (e.g., game). The ornithological community must guard against such limited interpretations of the ecological impacts of legislation on all wildlife species and populations.

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