

Federal research on migratory nongame birds: is the United States Fish and Wildlife Service doing its job?

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THE UNITED STATES FISH AND Wildlife Service, (hereafter, U.S.F.&W.S.), within the United States Department of the Interior, is the federal agency charged with the conservation of migratory birds. Of the 832 species of migratory birds covered by four bird-protection treaties, 757 or 91%, are not ordinarily hunted, nor are they listed as Threatened or Endangered throughout their ranges under the Endangered Species Act.

Federal responsibility

At approximately the turn of the century, the excesses of market, egg, sport, subsistence, and plume hunters aroused conservation-minded ornithologists and led to the recognition that birds in North America could not sustain unregulated "harvesting." Also, that individual states were not providing adequate protection. In 1913, Congress asserted that migratory bird conserva-

(excepting certain species taken by Native Americans for subsistence living) In 1918, Congress passed the Migratory Bird Treaty Act to implement the treaty and to more firmly establish that the conservation and management of migratory birds is a federal responsibility. Today this law now implements migratory bird treaties involving Canada, Mexico, Japan, and the Soviet Union (Bean 1983, 1986).

In 1929, the federal government's

The time to save a species is while it is still common. Rosalie Edge, 1877–1962

Each year millions of dollars are allocated to research and management activities to benefit hunted species, primarily waterfowl, and endangered species, such as the Whooping Crane (*Grus americana*) and the California Condor (*Gymnogyps californianus*). But what of the 91% of North America's migratory birds that are neither hunted nor endangered? In view of the rising tide of concern about the future of migratory birds—particularly those that migrate south of the United States during the northern winter, it is appropriate to explore what the U.S.F.&W.S. is doing to fulfill its statutory obligations. That is the purpose of this review.

tion was a federal responsibility by passing the Migratory Bird Act, but the law was found to violate state rights to manage wildlife, and was declared unconstitutional. Under the constitution, however, only the federal government can enter into treaties. Proponents of federal management succeeded in passing legislation to authorize the President to negotiate a bird-protection treaty with Great Britain on behalf of Canada.

In 1916, the Convention for the Protection of Migratory Birds between the United States and Great Britain (39 Stat. 1702; TS 628) was ratified, and it prohibited the hunting or taking of insectivorous and other nongame birds

role in migratory bird protection was enlarged. The Migratory Bird Conservation Act established a commission to approve habitat areas recommended for acquisition by the Secretary of the Interior. It authorized the Secretary to cooperate with local wildlife conservation authorities, to conduct investigations and publish documents related to North American birds, and to maintain and develop refuges.

The federal role was extended still further in 1940, when President Roosevelt signed the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere (56 Stat. 1354; TS 981). The protection of bird species

that cross American boundaries, at any season, is a major feature of the treaty. To implement this legislation, the Secretary of the Interior was directed to identify migratory species and their habitats within the Western Hemisphere. Further, the Secretary was to implement cooperative measures to ensure that migratory species do not become endangered or threatened (16 U.S.C.A. 1537[e]).

gram is to prevent any species from becoming listed as threatened or endangered. It realizes that it must have the ability to monitor the status and trends of *all* species under its authority (Jantzen 1984). These objectives, then, provide a basis for evaluating the U.S.F.&W.S. program. Does this agency have a continuing program in place that is sufficiently sensitive and comprehensive to:

At present, national management direction and coordination is provided by the Office of Migratory Bird Management through the U.S.F.&W.S. Director to the regional offices and operational units. Research is directed and coordinated through the Division of Wildlife Research. Specific management and research activities are scattered throughout the Service from the Office of Endangered Species to the Division of Law Enforcement.

Historically, particularly in the 1970s, significant research on migratory nongame birds was carried out at the Denver, Northern Prairie, and Patuxent Wildlife Research Centers, the National Museum of Natural History, and the Alaska Office of Fish and Wildlife Research. Budget cuts and program changes have caused restriction or elimination of most of the nongame work at these units. In theory, research activities are intended to develop and evaluate new techniques and to conduct basic research on life histories and habitat requirements and threats. Museum-based research is usually oriented toward avifaunal surveys and taxonomic relationships. Once research is concluded, the Office of Migratory Bird Management should then identify and recommend management actions, including projects that continuously monitor populations.

The primary program used by the U.S.F.&W.S. to monitor nongame birds is the North American Breeding Bird Survey (hereafter, B.B.S.). This is conducted in cooperation with the Canadian Wildlife Service and several hundred volunteers (Bystrak 1981, Jantzen 1984). The B.B.S. effectively monitors about 250 species, mostly songbirds. Another 250 species are encountered, but are not effectively monitored. The B.B.S. is a model of cooperative data gathering, and those data are made available to all researchers. The U.S.F.&W.S. does not routinely analyze trends in songbird populations. A summary of population trends, 1965–1979, by C.S. Robbins is forthcoming, but future plans for and commitments to assessments are uncertain.

Although the B.B.S. certainly has potential as a way to monitor many songbird populations, it neither adequately samples rarer species nor raptors. The B.B.S. is a roadside survey and therefore cannot be used for marine, shore, or wading birds.

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Traditionally, conservation efforts of the U.S.F.&W.S. have been directed largely toward legally hunted species, particularly waterfowl. Nongame birds have benefitted directly and indirectly from various U.S.F.&W.S. activities not targeted exclusively at nongame species (e.g., law enforcement and the bird banding program). Overall, the prevailing philosophy has been that nongame birds will prosper if they are protected from “harvesting” (Jantzen 1984). Certain aspects of federal migratory bird activities are oriented toward game species owing to the large, well-organized hunter constituency contributing to their support. For example, habitat acquisition has been oriented toward purchase of wetlands for waterfowl owing to the numerous duck and goose hunters, all of whom are required to purchase Migratory Bird Hunting and Conservation Stamps (Duck Stamps). Unlike state fish and game agencies, however, the U.S.F.&W.S. receives nearly all of its operating funds from general fund tax dollars in the United States Treasury.

Declines in many species of migratory nongame birds in the Western Hemisphere suggest that the passive approach to migratory bird conservation is not enough. Deforestation and forest fragmentation, conversion of wetlands, urbanization, pollution, modern agricultural practices, including use of pesticides and herbicides, and depletion of surface and ground water supplies dramatically influence the distribution and abundance of migratory birds (e.g., Powell and Rappole 1986).

The U.S.F.&W.S. has recognized that the most important objective of its pro-

- a) identify unstable and declining species populations before they reach threatened or endangered status, and
- b) provide information on life history and habitat requirements and threats to enable a coordinated response by federal, state, and private agencies and, when necessary, their counterparts in other nations?

Structure and program

Describing the U.S.F.&W.S. migratory nongame bird program is difficult, because the objectives of federal nongame migratory bird management have not been formally specified. In 1983, the Office of Migratory Bird Management drafted a “Nongame Migratory Bird Management Plan for the United States.” That document was never released for public comment, nor revised, formally adopted, or implemented (Chandler 1986). The major goals of the draft plan (U.S.F.&W.S. 1983) are to:

- develop a coordinated federal/state and international migratory nongame bird management program
- prevent any migratory nongame bird species from becoming threatened or endangered
- identify and evaluate threats to migratory nongame birds from pollution, illegal or incidental kill and other forms of man-induced mortality
- identify migratory nongame bird habitat necessary to achieve population goals and objectives

cates resources to projects that gather or evaluate data on the species not covered by the B.B.S. For example, such projects have included 8–10 years of support for raptor migration counts at five sites in the eastern United States. However, funding for the counts is now in jeopardy, even before the U.S.F.&W.S. has completed an analysis and evaluation of the data as a population monitoring tool.

scheme for monitoring bird populations.

An updated version of the report on unstable and declining species has not appeared since the original was prepared in 1982. National resource plans have been prepared for five of the species listed in the report: Least Tern (*Sterna antillarum*), Roseate Tern (*S. dougallii*), Piping Plover (*Charadrius melodus*), Northern Spotted Owl (*Strix*

cient duration, inadequate data management and retrieval systems, and unshared data. Scarce resources are not used wisely and projects' key results do not reach policy decision-makers.

Through its North American Waterfowl Plan, Flyway Councils, and the presence of regional Migratory Bird Coordinators and others, the U.S.F.&W.S. provides national direction and coordination with respect to hunted species. Migratory nongame birds, on the other hand, get almost no attention unless they reach the Endangered Species list.

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Budget and staff

Even prior to enforcement of the Gramm-Rudman-Hollings budget cuts, the U.S.F.&W.S. program changes resulted in a declining commitment to nongame migratory bird activities. At Patuxent, for example, permanent staff (Full-time Equivalents) devoted to nongame migratory bird research (not including endangered species) declined from 14.4 in Fiscal Year 1981 to 5.9 in Fiscal Year 1986. During the same period, operating funds declined substantially to a low of \$13,200 (U.S.F.&W S 1986a).

Some staff members, formerly working on nongame species, have now been

Projects that supplement the B.B.S. are typically run on shoestring budgets or initiated on an opportunistic basis (e.g., taking advantage of available unused year-end funds), rather than as part of a series of interlocking, long-term studies filling in gaps in B.B.S. coverage. To wit, in Fiscal Year 1983–1985, funds were allocated to evaluate the International Shorebird Survey (coordinated by the Manomet Bird Observatory and the Canadian Wildlife Service—Morrison and Harrington 1979) as a method for monitoring shorebird populations and to determine current trends (Senner and Howe 1984). After the initial research, no additional funds have been spent to help improve or maintain the surveys at a level sufficient to ensure their value as a monitoring tool, nor have any resources been allocated to routinely incorporate survey results into U.S.F.&W.S. programs and policies. A similar situation could develop with maintenance of the Colonial Bird Register, a project that currently receives U.S.F.&W.S. support.

In 1982, the Office of Migratory Bird Management and the Patuxent Wildlife Research Center prepared an internal report, "Nongame Migratory Bird Species With Unstable or Declining Populations Trends in the United States." It incorporates data from a variety of sources, and lists 28 bird species for which there is evidence of unstable or declining populations (Table 1). For 14 of the 28 species listed, B.B.S. data are not available. This underscores the limitations of that program as the primary

occidentalis), and Trumpeter Swan (*Cygnus buccinator*). However, there has been little research targeted at any of those species nor has the U.S.F.&W.S. implemented management programs. Subsequent to the release of the report, four species have been listed as Endangered: Wood Stork (*Mycteria americana*), the Great Lakes populations of Piping Plover, the interior population of Least Tern, and the California population of Bell's Vireo (*Vireo bellii*).

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States with nongame programs devote considerable resources to migratory birds (Cerulean and Fosburgh 1986), as do universities and private organizations and individuals. By definition, migratory birds cross many geographic and political boundaries in the course of their annual movements. Truly effective research and management programs require attention at national and international levels. The present lack of nationally coordinated direction exacerbates potential problems: nonstandard techniques, duplication, projects sustained for insuffi-

reassigned to waterfowl projects, and, overall, nongame species receive few resources relative to game species. During Fiscal Years 1981–1986, salaries for nongame research personnel at Patuxent declined by 38.2%, while salaries for game personnel increased by 28.8%. A U.S.F.&W.S. (1985) briefing paper on bird research on species other than waterfowl acknowledges that:

The Fiscal Year 1986 budget for waterfowl-related research is more than three times the amount budgeted for nonwaterfowl bird research and several nongame studies included in the Fiscal

Table 1. Species identified as having unstable or declining populations in an internal FWS report, "Nongame Migratory Bird Species With Unstable or Declining Population Trends in the United States," prepared in 1982.

| Species | FWS Regions Where Status is of Concern | Basis for Listing | | | Primary Reason for Listing | | |
|------------------------|----------------------------------------|------------------------------------------------|--------------------------------------|-----------------------|-----------------------------|-----------------------|--------------------|
| | | Significant or Negative BBS Trend ^a | BBS or other Data Indicating Decline | No BBS Date Available | Apparent Population Decline | Small Population Size | Restricted Habitat |
| Common Loon | 5 | | X | | X | | |
| Reddish Egret | 2, 4 | | X | | | X | X |
| Least Bittern | 1, 3, 4, 5, 6 | | | X | X | | X |
| American Bittern | 3, 5 | X | | | X | | X |
| Wood Stork | 4 | | X | | X | | X |
| White-faced Ibis | 1, 6 | | | X | | X | X |
| Trumpeter Swan | 1, 6 | | X | | | X | X |
| Red-shouldered Hawk | 3, 5 | | | X | X | | X |
| Ferruginous Hawk | 1, 2 | | | X | X | X | |
| Northern Harrier | 1, 2, 3, 5, 6 | X | | | X | | X |
| Black Rail | 1, 2, 4, 6 | | | X | X | | X |
| Piping Plover | 3, 5, 6 | | | X | X | | X |
| Snowy Plover | 1, 2, 4, 6 | | | X | X | | X |
| Long-billed Curlew | 1, 6 | | | X | | | X |
| Upland Sandpiper | 3, 5 | | X | | X | | X |
| Gull-billed Tern | 4, 5 | | | X | X | X | X |
| Roseate Tern | 4, 5 | | X | | X | X | X |
| Least Tern | 2, 3, 6 | | | X | X | | X |
| Black Tern | 3, 6 | X | | | X | | X |
| Common Barn-Owl | 4, 5 | | | X | X | | X |
| Northern Spotted Owl | 1, 2 | | | X | | X | X |
| Loggerhead Shrike | 3, 5 | | X | | X | | |
| Bell's Vireo | 1, 6 | | X | | X | | X |
| Golden-cheeked Warbler | 2 | | | X | | | X |
| Baird's Sparrow | 6 | | X | | X | | |
| Henslow's Sparrow | 3, 5 | | X | | X | | |
| Seaside Sparrow | 4 | | | X | | | X |
| Bachman's Sparrow | 3, 4 | | X | | X | | |

^a At $P < 0.05$ in at least one of the Regions listed.

Year 1986 list are due to terminate within the next two years. Research on upland game bird species by Service laboratories has diminished to minimal levels in recent years. Nonwaterfowl bird research supported by the Habitat Resources program is virtually all contaminant-oriented. It represents about 10% of the Fiscal Year 1986 Habitat Resources research budget. In contrast, nonwaterfowl birds make up a major (over 60%) component of the Endangered Species research program, reflecting the documented decline of several species nationwide.

In response to a Congressional inquiry, the U.S.F.&W.S. (1986b) indicated that it "plans to retain staff expertise and continue research on 'nongame' species over the short term at a static or only slightly declining level." Nongame species research within the President's Fiscal Year 1987 budget request for the U.S.F.&W.S. "Wildlife Resources" category is down 8.5% from the amount appropriated in Fiscal Year 1986.

Essential elements

A comprehensive migratory nongame bird program should function as an early warning system that (a) detects problems before they become critical, and (b) allows ample time for research and preventative (not just restorative) conservation actions. At the very least, a successful program should include the following elements:

- a higher profile and a greater commitment, within the agency and publicly
- clearly defined objectives and a comprehensive plan for research, management, and conservation of North American birds
- continuous population monitoring of major groups of birds, as well as rare, unstable, and declining species
- continuous field, statistical, and museum-based research on monitoring techniques, life history and habitat requirements, and reasons for population declines
- periodic national assessments of all species' status and population trends and the factors that influence them
- liaison with cooperating agencies (international, state, and private) through placement of regional nongame coordinators in each U.S.F.&W.S. region, supported in Washington with adequate staff to provide national and international leadership
- training, technical assistance, and research in sister nations in the Western Hemisphere in fulfillment of treaty obligations

Conclusion

The cost of mounting a program including these basic elements is modest. The U.S.F.&W.S. now spends less than one million dollars annually on nongame bird research. A preliminary estimate of the cost of *additional* commitments in Fiscal Year 1986 to implement the Nongame Migratory Bird Management Plan is about \$1.7 million annually. If implemented, this would substantially cover the essential elements outlined above. Thus, an annual financial commitment on the order of

the energy and expertise of the ornithological community. The federal government is in the best position to do this, and it is uniquely capable of synthesizing and translating the results of broadscale monitoring and research efforts into management and conservation actions at national and international levels.

The time to save species is indeed while they are still common. It is more effective and it saves money. The ornithological community is doing its part—and is willing to do more. But the question remains, is the United

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\$3 million would be minimal, but probably sufficient.

One of the reasons that the costs are relatively low is that much of the labor for these programs can be carried out by volunteers. The B.B.S., for example, costs only about \$50,000 annually because volunteers do the field work. The International Shorebird Survey and most raptor counts also rely substantially on volunteers. With the exception of seabirds in Alaska and at offshore colonies elsewhere, it is probably feasible to use volunteer labor to monitor most groups of North American breeding birds.

A variety of private, professionally-staffed organizations, with networks of volunteers and cooperators in place, are poised to assist in the monitoring efforts. Indeed, some key elements of the nationwide program may be entirely or substantially private efforts. In addition to such existing efforts as the Breeding Bird Censuses and Winter Bird-Population Studies (Butcher 1986) in the United States, the various projects of the British Trust for Ornithology provide excellent examples of what may be accomplished through private efforts (Hickling 1983).

The missing elements are the national direction, organizational structure, and even minimal commitment of staff and financial resources to sustain a program that uses and complements

States Fish and Wildlife Service doing its job?

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