

Towards Integrated Bird Conservation in North America: A U.S. Fish and Wildlife Service Perspective

JONATHAN M. ANDREW¹ AND BRAD A. ANDRES²

¹U.S. Fish and Wildlife Service, National Wildlife Refuge System
1875 Century Boulevard, Suite 420, Atlanta, GA 30345, USA
Internet: Jon_Andrew@fws.gov

²U.S. Fish and Wildlife Service, Division of Migratory Bird Management
4401 N. Fairfax Drive, Suite 634, Arlington, VA 22203, USA

Abstract.—Strategic efforts to conserve migratory and resident birds in North America have made unprecedented progress in the last 15 years. Integrated bird conservation is a process that maximizes effectiveness and efficiency of conservation delivery for all migratory and resident birds. Beginning with the Migratory Bird Treaty Act of 1918, the U. S. Fish and Wildlife Service has a history of supporting geographic integration of management programs. Modern Northern American perspectives must broaden to include larger geographic scales, novel private-public partnerships, stronger inter-governmental relationships, greater development of a conservation culture, and consideration of all resident and migratory bird species. The North American Bird Conservation Initiative provides a mechanism for developing new resources and optimizing existing resources. Full integration of bird conservation efforts in North America, and beyond, is our best hope of achieving conservation of migratory bird resources in future decades.

Key words.—Birds, conservation, integrated, land birds, management, North America, shorebirds, waterfowl, waterbirds.

Waterbirds 25(Special Publication 2): 122-127, 2002

In the last 15 years, unprecedented progress has been made toward the conservation of migratory and resident birds and their habitats in North America. Completion or development of conservation plans for waterfowl (U.S. Department of Interior and Environment Canada 1986), land birds (Pashley *et al.* 2000), shorebirds (Brown *et al.* 2001), and waterbirds (see www.nacwcp.org) has provided a strategic framework for building the partners and resources needed to achieve effective conservation of virtually all birds. Because of the desire to build plans on a solid scientific foundation, initial tasks focused on determination of the population status of species, delineation of important bird habitats, and identification of current and potential threats to populations and habitats. These assessments are then used to construct meaningful and measurable objectives and to build a conservation agenda for each group of birds. With most of these preliminary background exercises completed, objectives from all the plans must now be melded into a balanced and comprehensive agenda for the conservation of all migratory

and resident birds. Aside from obvious biological benefits of a unified approach, greater world complexity and connectivity and a socio-political climate where policy makers and funding institutions support cooperation and leveraging of resources indicate that an integrated strategy will be the most effective and efficient way to further bird conservation in the new millennium.

We define integrated bird conservation as a process to maximize efficiency and effectiveness in delivering migratory and resident bird conservation by accounting for similarities and differences in planning, implementation, and evaluation. These differences and similarities are assessed across geographic scales, cultural experiences, and shared ecologies to deliver successful conservation. Herein we describe the role the U.S. Fish and Wildlife Service (USFWS) has played in the development of this approach and describe elements of the integrated bird conservation process. We do not imply that the USFWS is the only group responsible for integrated bird conservation, just that we are most familiar with current and historical efforts of our organization.

A SHORT HISTORY OF INTEGRATED BIRD CONSERVATION

Like many “new” ideas, components of integrated bird conservation have a long history. In 1916, the U.S. entered into a convention with Great Britain (acting for Canada) that called for cooperative management of migratory birds across national borders. Quickly following this, the Migratory Bird Treaty Act was enacted in 1918 to provide basic legal authority for regulatory management. In support of a similar bilateral treaty developed with Mexico, U.S. President Franklin Roosevelt called, in 1936, for a North American Wildlife Conference under the premise that “our present wildlife situation is more than a local one. It is national and international” (Special Committee on Conservation of Natural Resources 1936:5). This conference brought together government entities from all three North American countries. Knowledge of waterfowl migration patterns used to develop the treaty were refined by Lincoln (1935) into the concept of migration corridors or flyways. The notion of managing populations across their migratory range caused the USFWS to initiate regulations of waterfowl harvest that used longitudinal flyways rather than latitudinal temperature zones (Gabrielson 1944). Implicit in this expanding geographic perspective of flyway management was increased interstate cooperation for the management of waterfowl populations. A similar flyway approach suggested and developed for Mourning Doves (*Zenaida macroura*) (Wright 1954) eventually led to the development of flyway management of all hunted migratory birds. The Western Hemisphere Convention was adopted in 1940 to promote the protection of migratory birds of economic or aesthetic value throughout the Americas; to date, 18 Latin American and Caribbean countries and the U.S. have signed this agreement. Conventions for the conservation of migratory birds were also signed with Japan (1972) and the former Soviet Union (1976; currently administered by the Russian Federation).

The foundation of spatial integration, coupled with an emphasis on cooperation

and leveraging resources, led to the development of the habitat-based North American Waterfowl Management Plan (NAWMP) in 1986. The NAWMP conservation blueprint, described as scientifically-based, landscape-oriented, and partnership-driven, was quickly borrowed to develop a strategy for “conservation on a grand scale” of neotropical migratory land birds (Stangel and Eno 1992). The basic conservation outline generated in the NAWMP has also been used as a framework for drafting conservation plans for shorebirds (Brown *et al.* 2001), waterbirds (see www.nacwcp.org), and even bats (see www.batcon.org). The development of conservation plans for virtually all birds has driven the need to simultaneously integrate bird conservation activities across traditional and new boundaries.

UNITS OF INTEGRATED BIRD CONSERVATION

Geographic Scales

Integration of activities across geographic regions is an obvious and, as noted above, historical means of expanding the scope of bird conservation. Landscape-level regions important to waterfowl were designated as conservation focus areas in the NAWMP. More recently, Bird Conservation Regions, terrestrial areas that share similar environmental features and avifauna, have been delineated (U.S. North American Bird Conservation Initiative Committee 2000; Pashley 2001) to provide a landscape-level context to plan, implement, and evaluate local projects (e.g., Brown *et al.* 2000). Bird Conservation Regions have been used as core planning units for land birds, waterbirds, and shorebirds. To provide a proper context for marine waterbird conservation, however, these landscape-level constructs are being expanded to include areas of the Pacific and Atlantic oceans (see www.nacwcp.org). Although Bird Conservation Regions provide an adequate framework for project implementation, migratory birds also require broader geographic perspectives. The long-distance migrations of arctic-nesting shorebirds to temperate, southern latitudes and that of

austral-breeding seabirds to temperate, northern waters ultimately demand a hemispheric, and even global, framework. Flyway strategies for the conservation of migratory waterbirds have been developed in the African-Eurasian and Asia-Pacific regions (see Beintema and van Vessern 1999), and efforts are still needed at all geographic scales to maximize efficiency and effectiveness of bird conservation activities in North America (Schmidt *et al.* 1999). Hemispheric perspectives are acknowledged in all of the recent bird conservation plans, and some existing USFWS programs such as the Wildlife Without Borders—Latin America and the Caribbean (USFWS 2001) and the North American Wetlands Conservation Act (e.g., Gustafson 2001) provide support to projects south of the U.S.-Mexico border. Passage of the Neotropical Migratory Bird Conservation Act of 2000 provides further impetus for expanding geographic scales of bird conservation in the Western Hemisphere.

Cultural Experiences

The fostering of strong private-public partnerships, known as joint ventures, were suggested as a mechanism to accomplish conservation goals and objectives of the NAWMP (see Williams *et al.* 1999). In addition to waterfowl, the expansion of private-public partnerships beyond traditional relationships have been used to address conservation of birds such as the Lesser Prairie Chicken (*Tympanuchus pallidicinctus*) (Western Governors' Association *et al.* 2001). Involvement of numerous, diverse public and private partners has been heralded by past (Babbitt 1999) and current administrations of the Department of Interior (G. A. Norton, Secretary of the Interior, remarks to the Ducks Unlimited Conference, July 2001, Washington, D.C.) as a modern model for achieving wildlife conservation in the U.S. Formation of co-management boards has given Native American subsistence users a stake in the management of migratory bird resources in Alaska (Armstrong 1999). The USFWS continues to support bird conservation partnerships with Mexico (USFWS

2000) and Canada (e.g., Morrison 2002). The USFWS has recently expanded agreements with Canada for the protection and recovery of species at risk (U.S. Department of the Interior and Environment Canada 2001). Building a greater conservation constituency among all stakeholders, developing new conservation partners across all cultural and political boundaries, and strengthening relationships among local, state, and national governments will clearly benefit migratory and resident birds across their annual ranges. Models of successful partnerships from around the globe should be evaluated and incorporated into any bird conservation strategy developed in North America. Holistic, integrated approaches to conservation are widely practiced in Latin America (Rich 2001).

Shared Ecology

Another obvious area of integration among bird conservation plans, and one that is already practiced to some degree, is at the species level; most often, integration occurs at the site or habitat scale. Integration to address all species needs, however, must be framed within a larger spatial context. Priority sites or habitats for each species group can be overlaid to determine where conservation activities might have the greatest benefits for all birds, or in some cases, where a management action for one group could have large detrimental effects on another group. Since its inception, Partners in Flight has worked to integrate land bird needs into habitat management programs traditionally developed for other wildlife species (see Finch and Stangel 1993). Joint ventures originally formed under the NAWMP are expanding to address habitat needs of all birds in their regions (e.g., Watson 2001) and National Wildlife Refuges continue to evolve management regimes that address habitat needs of all birds (see McKnight *et al.* 2001). With an all bird perspective, Geographic Information Systems and other management technologies are now being developed to assess habitat relationships for broad taxonomic groups of birds. In the Prairie Potholes,

for example, the effects of wetland alteration are being evaluated concurrently for migrant ducks and shorebirds (Johnson and Hubbard 2001).

Some monitoring programs, in addition to active management, could be expanded to incorporate additional species without comprising overall data quality. For example, counts of loons made during waterfowl pair surveys in Alaska provide the only information on boreal- and arctic-nesting loon populations on the continent (Groves *et al.* 1996). Surveys in other parts of the world, such as the Neotropical Waterbird Census and International Waterbird Census (see Delany *et al.* 1999; Blanco and Carbonell 2001), include methods for all waterbird groups. Greater communication among taxonomic specialists is needed to evaluate multi-species approaches to monitoring population sizes and trends of birds. A strong biological foundation for each group of birds is necessary to allow such multiple-species evaluations.

In contrast to many monitoring programs, outreach and education for bird conservation is usually more ecologically inclusive (e.g., de Zeeuw 1998). A bird community perspective is an old and consistent theme of many outreach and education materials produced on birds. Bird conservationists will continue to be challenged to transmit their message to broader and novel audiences.

Further work is needed to identify where management, monitoring, and outreach efficiencies can be improved by considering all species; when possible, integrated approaches should be encouraged. Conservation actions for upland game birds, for example, will need to be harmonized with conservation actions taken to benefit small land birds (see Pashley and Fenwick 2001). We acknowledge, however, that the multiple species approach will always need to be balanced by conservation concerns that are unique to a particular species. Small population size, alarming population trend, unique habitat use, or high socio-economic value may warrant conservation actions that are unique to a single species or, perhaps, a suite

of species. Fully functional integrated bird conservation will hopefully reduce the number of single-species approaches needed in the future.

A FRAMEWORK FOR INTEGRATED BIRD CONSERVATION

Full implementation of integrated bird conservation will require: 1) wider geographic perspectives, 2) formation of novel private-public partnerships, 3) strengthening inter-governmental relationships, 4) further development of a conservation culture, and 5) consideration of all resident and migratory bird species. Implicit in the integrated bird conservation process is full application of the tools of monitoring, research, land management, policy, outreach, and education. All these tools should be used in an adaptive way to implement and evaluate bird conservation actions (see Walters 1986; Conroy 2000). A view of integrated bird conservation parallels the USFWS's recent efforts to apply a comprehensive approach to all fish and wildlife management (Clark 1999). Integrated bird conservation will be achieved if common birds remain common, no birds are endangered or threatened, economically- and recreation-ally-valuable species are sustained at optimum levels, and super-abundant species are maintained at appropriate levels.

The need for coordination and integration of bird conservation plans gave rise to the development of the North American Bird Conservation Initiative in 1997. The intent of North American Bird Conservation Initiative is to facilitate the conservation of all native birds in Mexico, Canada, and the U.S. (Commission for Environmental Cooperation). The North American Bird Conservation Initiative provides a forum to promote the efficient use of current resources and champion the growth of new resources for bird conservation and is just the first step in North America to accomplish integrated bird conservation among all geographic scales, stakeholders, and species in future decades. Clearly, all governments, non-governmental organizations, corporations, private

land-owners, and citizens have a role in integrated bird conservation. The beauty of birds coupled with their awe-inspiring mobility serve well as catalysts for their conservation. Hopefully, the North American Bird Conservation Initiative, and similar efforts, will result in broad integration of bird conservation efforts across geographic, cultural, taxonomic, and political boundaries.

ACKNOWLEDGMENTS

Thanks to Robert P. Ford and three anonymous reviewers for providing helpful comments on drafts of this manuscript. We recognize the many unnamed bird conservationists who have influenced our thoughts on integrated bird conservation. We especially thank Charles Baxter for stimulating our thinking.

LITERATURE CITED

- Armstrong, F. 1999. Fish and Wildlife conservation agreements in Alaska. *Transactions of the North American Wildlife and Natural Resources Conference* 64: 420-434
- Babbitt, B. 1999. Noah's mandate and the birth of urban bioplanning. *Conservation Biology* 13: 677-678.
- Beintema, A. and J. van Vessern. 1999. Strategies for conserving migratory waterbirds. *Wetlands International Publication No. 55*, Wageningen.
- Blanco, D. E. and M. Carbonell. 2001. The Neotropical waterbird census—The first 10 years: 1990-1999. *Wetlands International and Ducks Unlimited, Inc.*, Memphis.
- Brown, C. R., C. Baxter and D. N. Pashley. 2000. The ecological basis for the conservation of migratory birds in the Mississippi Alluvial Valley. Pages 4-7 *in* Strategies for Bird Conservation: The Partners in Flight Planning Process (R. Bonney, D. N. Pashley, R. J. Cooper and L. Niles, Eds.). U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, RMRS-P-16, Ogden.
- Brown, S., C. Hickey, B. Harrington and R. Gill (Eds.). 2001. The U.S. shorebird conservation plan. *Manomet Center for Conservation Sciences*, Manomet.
- Clark, J. R. 1999. The ecosystem approach from a practical point of view. *Conservation Biology* 13: 679-681.
- Commission for Environmental Cooperation. No Date. *North American Bird Conservation Initiative*, Montreal.
- Conroy, M. J. 2000. An adaptive approach to habitat management for migratory birds in the southeastern United States. Pages 63-69 *in* Strategies for Bird Conservation: The Partners in Flight Planning Process (R. Bonney, D. N. Pashley, R. J. Cooper and L. Niles, Eds.). U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, RMRS-P-16, Ogden.
- Delany, S., C. Reyes, E. Hubert, S. Pihl, E. Rees, L. Haanstra and A. van Strien. 1999. Results from the International Waterbird Census in the Western Palearctic and Southwest Asia 1995 and 1996. *Wetlands International Publication No. 54*, Wageningen.
- de Zeeuw, M. 1998. Arctic-nesting shorebirds: A curriculum for grades K-12. U.S. Fish and Wildlife Service, Anchorage.
- Finch, D. M. and P. W. Stangel (Eds.). 1993. Status and Management of Neotropical Migratory Birds. Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado, and National Fish and Wildlife Foundation, Washington, D.C.
- Gabrielson, I. N. 1944. Managing the waterfowl. *Transactions of the North American Wildlife Conference* 9: 264-269.
- Groves, D. J., B. Conant, R. J. King, J. I. Hodges and J. G. King. 1996. Status and trends of loon populations summering in Alaska, 1971-1993. *Condor* 98: 189-195.
- Gustafson, E. 2001. La Laguna flamingos alive and recovering. Pages 12-13 *in* Birdscapes/Winter. U. S. Fish and Wildlife Service, Arlington.
- Johnson, R. and D. Hubbard. 2001. Factors affecting duck and shorebird use of prairie wetlands. Pages 20-21 *in* Birdscapes/Winter. U. S. Fish and Wildlife Service, Arlington.
- Lincoln, F. C. 1935. The waterfowl flyways of North America. U.S. Department of Agriculture Circular 342, Washington, D.C.
- McKnight, K., F. Reid and G. Zahn. 2001. Shorebirds and ducks and more: A look at integrated bird management and conservation. *Birding* 33: 356-360.
- Morrison, D. 2002. The western boreal forest. Pages 14-15 *in* Birdscapes/Winter. U.S. Fish and Wildlife Service, Arlington.
- Pashley, D. N. 2001. An introduction to the NABCI Bird Conservation Regions. *Birding* 33: 30-33.
- Pashley, D. and G. Fenwick. 2001. The Odd Couples. *Bird Conservation* 16: 8-10.
- Pashley, D. N., C. J. Beardmore, J. A. Fitzgerald, R. P. Ford, W. C. Hunter, M. S. Morrison and K. V. Rosenberg. 2000. Partners in Flight: Conservation of the landbirds of the United States. *American Bird Conservancy*, The Plains.
- Rich, T. 2001. Holistic conservation in the Sierra Gorda Biosphere Reserve. Pages 16-17 *in* Birdscapes/Fall. U.S. Fish and Wildlife Service, Arlington.
- Schmidt, P., D. Butler and D. Petit. 1999. Moving migratory bird management to the next level in North America. Pages 13-16 *in* Strategies for conserving migratory waterbirds (A. Beintema and J. van Vessern, Eds.). *Wetlands International Publication No. 55*, Wageningen.
- Special Committee on Conservation of Natural Resources. 1936. *Proceedings of the North American Wildlife Conference*. U.S. Government Printing Office, Washington, D.C.
- Stangel, P. W. and A. S. Eno. 1992. Conservation on a grand scale. *Transactions of the North American Wildlife and Natural Resources Conference* 57: 648-655.
- U.S. Department of the Interior and Environment Canada. 1986. *North American waterfowl management plan*. Washington, D.C.
- U.S. Department of the Interior and Environment Canada. 2001. *Conserving borderline species: A partnership between the United States and Canada*. Washington, D.C.
- USFWS. 2000. *Wildlife without borders: Mexico*. Arlington.
- USFWS. 2001. *Wildlife without borders - Latin America and the Caribbean*. Arlington.

- U.S. North American Bird Conservation Initiative Committee. 2000. North American Bird Conservation Initiative—Bringing it all together. U.S. Fish and Wildlife Service, Arlington.
- Walters, C. J. 1986. Adaptive management of renewable resources. MacMillan, New York.
- Watson, C. 2001. All birds, all habitats. Page 27 in *Birdscapes/Spring-Summer*. U.S. Fish and Wildlife Service, Arlington.
- Western Governors' Association, High Plains Partnership for Species at Risk and Lesser Prairie Chicken Interstate Working Group. 2001. *Ranch conversations: A blueprint for conserving species and rural lifestyles*. Denver.
- Williams, B. K., M. D. Koneff and D. A. Smith. 1999. Evaluation of waterfowl conservation under the North American waterfowl management plan. *Journal of Wildlife Management* 63: 417-440.
- Wright, H. M. 1954. Needed: A dove flyway concept. *Proceedings of the Southeastern Association of Game and Fish Commissioners* 8: 78-80.

