

**North American Bird Conservation Initiative (NABCI)
United States NABCI Steering Committee**

Monitoring Subcommittee

**HISTORY AND PROPOSED TERMS OF REFERENCE
MARCH 17, 2000**

History

In 1996 the Commission for Environmental Cooperation (CEC) facilitated the formation of the North American Bird Conservation Initiative (NABCI), an agreement among agencies and organizations throughout North America to sustain avian populations by increasing the effectiveness of conservation initiatives, by enhancing coordination among initiatives, by fostering greater international cooperation, and by building on existing institutional structures for conservation delivery. Activities of NABCI are coordinated through a tri-national (Canada, United States, Mexico) steering committee, which in turn is comprised of representatives of national committees. An interim U.S. NABCI Committee (Committee) was formed in March 1999 and a final membership established in September 1999. The Committee has adopted the goal of delivering “the full spectrum of bird conservation through regionally based, biologically driven, landscape-oriented partnerships.” To achieve this goal, the Committee has assumed responsibility for facilitating interaction among various bird initiatives, increasing the resources available for conservation activities, and representing the United States on issues of international concern. One of the most important functions of the Committee likely will be to foster the development of new bird conservation joint ventures, by emulating the implementation model of the extremely successful North American Waterfowl Management Plan (NAWMP).

At an organizational meeting in November 1999, the Committee approved the continued existence of the U.S. monitoring working group as a standing subcommittee. The origin of the U.S. monitoring group can be traced to the first international working meeting of NABCI in Puebla, Mexico in November 1998. Avian monitoring was one of five issues (the others were mapping, conservation objectives, implementation, and support) for which tri-national teams of conservationists conducted strategic assessments. The international monitoring group subsequently drafted “A Strategic Framework for Monitoring North American Bird Populations” (Appendix). That framework provides guiding principles, and goals, objectives, and tasks for improving the quantity and quality of data necessary to assess the status of bird populations in North America. Considerable emphasis is placed on a need for more comprehensive, large-scale operational monitoring programs and the infrastructure necessary to organize and disseminate information derived from such programs.

The purpose of this document is to propose terms of reference for the U.S. NABCI Monitoring Subcommittee (Subcommittee). This proposal was authored by the current members of the Subcommittee: Marshall Howe (USGS Patuxent Wildlife Research Center, Chair), Fred Johnson

(U.S. Fish and Wildlife Service, Office of Migratory Bird Management), Douglas Johnson (USGS Northern Prairie Wildlife Research Center), Keith Bildstein (Hawk Mountain Sanctuary Association), and Bruce Peterjohn (USGS Patuxent Wildlife Research Center). Here we propose guiding principles, roles and responsibilities, and organizational structure for the Subcommittee that derive from the more general strategic framework for monitoring produced at the Puebla meeting. Using that document as a guideline but not as constraining dogma, we strove to think broadly about the nature of support the Subcommittee should provide to better enable NABCI to achieve its all-bird conservation goals.

Guiding Principles

(1) Goal-setting. Monitoring programs should be explicitly goal-directed. Designers of monitoring programs should have a clear vision of how the monitoring information will be used, because those uses determine what is to be measured (e.g., abundance or vital rate), at what spatial, temporal, and bio-organizational scales measurement should be designed, and what precision and accuracy is necessary. As a general rule, the greater the “omnibus” character of a monitoring program (i.e., the more species or attributes that are sampled simultaneously) the greater the risk that the accuracy and precision of inference at large spatial and temporal scales will be compromised, and inference at small scales will be difficult or impossible.

(2) Scale Issues. Conservation actions take place simultaneously on multiple spatial, temporal, and bio-organizational scales. Likewise, birds respond to their environment on a range of scales. Therefore, understanding patterns of variation in bird abundance and identifying appropriate conservation responses will require population and environmental monitoring programs that are conducted a variety of scales, and which are logically linked across scales. A useful hierarchical framework is the system of Bird Conservation Regions (BCR) recently adopted by NABCI. BCRs are aggregations of CEC level II, III, and IV ecoregions in combinations that reflect current understanding of species distribution, life history requirements, and conservation challenges. Within BCRs, level III and IV ecoregions will be useful for guiding the design of regional and local monitoring and assessment programs. At higher scales, aggregations of BCRs provide a useful ecological framework for defining both large-scale population change and seasonal needs of migratory species that share breeding, migrating, and wintering areas.

(3) Applications. Monitoring data have two principal applications: (a) to permit state-specific conservation actions; and (b) to help build understanding of system dynamics. Traditionally, the design of avian monitoring programs has been concerned primarily with the first of these objectives. The result has been an ability to document population trends (reliably in some cases). This level of information by itself is useful for providing early clues to potential population problems that would be otherwise unrecognized and for highlighting fruitful areas for research. Rarely, however, does such information provide the local manager clear guidance on how to respond effectively to the negative trends identified. Although not always feasible at large geographical scales, population monitoring programs are most informative when guided by and integrated with a process for biological prediction and testing. Bird monitoring programs should strive to transcend simple assessment of spatial and temporal patterns of abundance to

include means for determining how populations respond to environmental dynamics, including planned management actions. Ideally, population data should be complemented by data that elucidate patterns of variation in relevant environmental attributes.

(4) Adaptive Management Conceptual Framework. Effective conservation depends on understanding the responses of populations to uncontrolled and controlled variation in the environment. That understanding can be built in part through an adaptive process of conservation planning, implementation, and evaluation, where (a) *planning* relies on management objectives and the anticipated effects of management actions to evaluate alternative conservation strategies; (b) *implementation* proceeds in accordance with the preferred conservation strategy, recognizing constraints on actions and limits to biological understanding; and (c) *evaluation* measures progress toward management objectives, and provides a basis for refining strategies in future planning efforts.

In this context, the justification for biological planning is to ensure successful conservation strategies, while the rationale for evaluation is to improve the effectiveness of that planning. Resource monitoring, and the associated biological assessment it supports, is an integral feature of this adaptive process because it both informs current conservation strategies and provides the feedback necessary to improve future strategies.

Roles and Responsibilities

The role of the Subcommittee shall be to foster an iterative cycle of conservation planning, implementation, and evaluation through the following actions:

(1) Facilitate comprehensive and integrated population monitoring across bird conservation planning initiatives.

By coordinating dialogue among bird conservation initiatives at both large geographic scales and within BCRs, promote and facilitate development of cost-effective methodologies for monitoring avian populations. Promote quantitatively sound designs for both broad-scale monitoring networks and for local evaluation. Facilitate coordination of programs among scales, so that inferences about population dynamics at any particular scale can be strengthened (i.e., population responses to habitat variation at one time/place can be influenced heavily by events occurring at other times and places). Identify monitoring gaps and promote development of sampling techniques, standards, and protocols for these species and guilds. Identify opportunities for merging efforts across initiatives as a means of achieving efficiencies in sharing of resources.

(2) Promote development of technical capacity to monitor habitat and landscape attributes relevant to bird population change.

Foster environmental monitoring efforts that focus on biologically relevant habitat and landscape patterns at multiple scales. This will involve the application of remote sensing methods, pattern

recognition technologies, procedures for geo-referencing, habitat classification, and other technologies for spatial characterization of avian habitats. This characterization is a key element in the elucidation of species-habitat relationships, which in turn provide the basis for informed, science-based, conservation decisions.

(3) Advise on establishment and operation of centralized, accessible databases.

Advise on development of the infrastructure necessary to assemble, catalogue, maintain, and serve avian population and habitat data to support conservation planning and evaluation. The purposes of this infrastructure would be: (1) to assemble and document existing avian population and habitat data at their lowest levels of spatial and temporal resolution; (2) to assure that databases remain current through periodic update; and (3) to provide web-based access to the data by avian managers and researchers interested in science-based conservation strategies for BCRs.

(4) Encourage active partnerships between technical monitoring interests and wildlife managers at all levels.

Foster technical partnerships among existing research and management organizations to advance our understanding of bird population dynamics and how birds might respond to management interventions. The success of the North American Waterfowl Management Plan (NAWMP) is attributed in large part to its ability to create and sustain partnerships for delivering conservation programs. However, the leveraging of resources for implementation needs to be complemented with mechanisms for marshaling and sharing technical expertise and resources that are needed for conservation planning and evaluation. These technical partnerships should focus on all aspects of monitoring and assessment from the national to the local scale. These would include the design of data-collection programs, the examination of relationships among biological, physical, and social components of the managed systems, and the implications of uncertainty in conservation decision-making.

(5) Serve as a forum for coordinating monitoring across international boundaries

Keep abreast of existing and developing monitoring programs in Canada and Mexico through communication with the analogous committees in those countries. Through e-mail and periodic joint meetings, establish regular dialogue with those committees to review opportunities for collaboration on monitoring efforts at the continental scale and for minimizing excessive redundancies. Discuss needs and recommend mechanisms for providing, international technical assistance as needed for implementing monitoring programs.

Organizational Structure

Subcommittee members should be experienced conservation biologists with technical knowledge of monitoring science, strong communication skills, and a commitment to improving the biological foundation for avian conservation. They should have primary jobs in bird

conservation or research and ideally should be positioned to influence mobilization of resources within their own and collaborating organizations to help meet NABCI goals. Subcommittee members also will provide important links between researchers and managers, among BCRs, and among various bird initiatives.

The Subcommittee membership will consist of: (a) a representative of the U.S. Fish and Wildlife Service; (b) a representative of the USGS Biological Resources Division; and (c) one representative from each of the bird conservation initiatives (NAWMP, Partners-In-Flight, shorebirds, and colonial waterbirds). Representatives will be appointed to the Subcommittee by the appropriate representatives of these bird initiatives or agencies on the NABCI Steering Committee or Federal Subcommittee. The Subcommittee will retain the option of selecting at least one additional member to represent bird monitoring interests or technical knowledge not effectively represented by the core membership. The Subcommittee will elect a Chair to coordinate its work and to communicate with the Steering Committee. Team members will be appointed to 3-year staggered terms to ensure healthy turnover while providing enough continuity for efficient operation. At the discretion of the Subcommittee, additional help may be recruited for special purposes. The Subcommittee will determine its agenda and priorities in consultation with the Steering Committee and report regularly to the Steering Committee on activities, progress in meeting its responsibilities, and on items requiring action by the Committee.