

# Data Management for Bird Population Monitoring Policy Statements

## *U.S.-North American Bird Conservation Monitoring Subcommittee*

*February 2009*

In the North American Bird Conservation Initiative (NABCI)-sponsored *Opportunities for Improving Avian Monitoring*<sup>1</sup>, the fourth goal states the need to maintain bird population monitoring data in modern management systems and provide greater access to avian monitoring information. The overall purpose of these policy statements, which partially meets the above goal, is to facilitate full and open access to quality data for bird population monitoring. They represent an adaptation of the *Data Management for Global Research Change Policy Statements*<sup>2</sup>, which provide general data management recommendations equally applicable to the management of all bird population monitoring data. Increasing funding for data management will likely be needed to successfully implement many of the following recommended practices.

1. Bird population monitoring requires an early and continuing commitment to the establishment, maintenance, validation, description, accessibility, and distribution of high-quality, long-term data sets.
  2. Full and open sharing of all bird population monitoring data sets in accordance with legal, proprietary and sensitive data considerations is a fundamental objective.
  3. Preservation of all data needed for long-term bird population monitoring data is required. For each and every data set, there should be at least one explicitly designated archive. Procedures and criteria for setting priorities for data acquisition, retention, and purging should be developed by participating organizations, both nationally and internationally. Consultative and clearinghouse processes should be established to prevent the purging and loss of important data sets.
  4. Data archives must include easily accessible information about the data holdings, including quality assessments, supporting ancillary information, and guidance and aids for locating and obtaining the data.
  5. National and international standards should be used to the greatest extent possible for the processing and communication of bird population monitoring data sets.
  6. Data should be provided at the lowest possible cost in the interest of full and open access to data. This cost should be no more than the marginal cost of filling a specific user request. Data providers should act to streamline administrative and technological arrangements for exchanging data.
  7. For those programs in which selected principal investigators have initial periods of exclusive data use, data should be made openly available as soon as they become widely useful. In each case, the funding organization should explicitly define the duration of any exclusive use period.
-

<sup>1</sup> U.S.-North American Bird Conservation Initiative Monitoring Subcommittee. 2007. Opportunities for Improving North American Avian Monitoring. U.S. Fish and Wildlife Service, Arlington, VA, USA. 47 pp.

<sup>2</sup> U.S. Global Change Research Program, 1991, adopted by the U.S. Government. See <http://www.gcric.org/USGCRP/DataPolicy.html>

## ANNEX

### **Data Management for Bird Population Monitoring Policy Statements**

*U.S.-North American Bird Conservation Monitoring Subcommittee  
February 2009*

#### **1. Bird population monitoring requires an early and continuing commitment to the establishment, maintenance, validation, description, accessibility, and distribution of high-quality, long-term data sets.**

The U.S.-NABCI Monitoring Subcommittee report, *Opportunities for Improving Avian Monitoring*<sup>1</sup>, noted that inadequate attention has often been given to creating and maintaining long-term data sets. This neglect reflects the relatively low priority given to long-term data management compared with initial data collection and a concomitant lack of resources for the longer term effort. The long-term cost of maintaining large volumes of data can be significant and the required resources for this purpose should be committed at the start of monitoring projects. The responsibility for establishing and maintaining bird population monitoring data sets may be shared by organizations other than the originators of the data collection efforts. Plans should be developed to ensure that the investment in data collection is enhanced and expanded by adequate long-term data management practices and to increase funding of these practices.

Furthermore, the proper preparation, validation, description, and care of data sets are critical to their use in bird conservation by the widest possible audience. Those not involved in the initial data collection and processing must be able to easily determine how data have been collected, validated, and otherwise transformed through the development and maintenance of standardized descriptions (metadata) of data sets.

#### **2. Full and open sharing of all bird population monitoring data sets in accordance with legal, proprietary and sensitive data considerations is a fundamental objective.**

NABCI proposes establishing a fundamental objective of full and open sharing of bird population monitoring data in accordance with legal, proprietary and sensitive data considerations. Data sets should be made available in a timely manner, but the definition of timeliness is a responsibility of the funding organizations and data managers. As data are made available, full and open access should be provided without restriction on their use except as needed by legal, proprietary and sensitive data considerations.

To accomplish this objective, data must be submitted to archives, and metadata files describing data sets must also be created and made available. Access policies for these archives should encourage the widest possible use of bird population monitoring data to meet bird conservation and management objectives.

<sup>1</sup> U.S.-North American Bird Conservation Initiative Monitoring Subcommittee. 2007. Opportunities for Improving North American Avian Monitoring. U.S. Fish and Wildlife Service, Arlington, VA, USA. 47 pp.

**3. Preservation of all data needed for long-term bird population monitoring data is required. For each and every data set, there should be at least one explicitly designated archive. Procedures and criteria for setting priorities for data acquisition, retention, and purging should be developed by participating organizations, both nationally and internationally. Consultative and clearinghouse processes should be established to prevent the purging and loss of important data sets.**

Many data sets important to bird population monitoring do not presently have an archive "home". This policy statement emphasizes the responsibility of data collecting organizations to identify suitably supported, long-term archives for all data sets important to bird population monitoring, make arrangements for those archives to acquire the data sets and related information, and make them available for open use. This principle is not meant to exclude distributed or multiple archives where appropriate, but to establish at least one explicitly designated archive for each data set.

In light of the high cost of long-term data maintenance, NABCI recommends establishment of specific criteria and procedures that establish priorities for data acquisition, retention, and purging. Some data may not be worth retaining on a long-term basis due to poor quality or other considerations. However, a mechanism should be developed to ensure that the bird conservation and management stakeholders are consulted prior to decisions that result in data loss. This includes the opportunity for a new organization to assume responsibility for maintaining data sets no longer given a high priority by the original organization. This consultative and clearinghouse process should include international as well as national organizations.

**4. Data archives must include easily accessible information about the data holdings, including quality assessments, supporting ancillary information, and guidance and aids for locating and obtaining the data.**

Archive data should include supporting information sufficient to permit its effective use by anyone unfamiliar with the original data collection project or the particular protocols used during the project. One limitation on using existing data is the difficulty encountered in identifying what data exist, how to access them, and the real meaning of the information contained in these data sets. In the absence of supporting documentation on bird population monitoring programs and their ancillary information, full evaluation and application of existing data can be limited. The repositories for bird population monitoring data sets must recognize their obligation to obtain or develop full

accompanying information for all data holdings and make the data and the supporting information easily available. This requires a well-conceived directory, catalog, and inquiry system.

Peer review is one important mechanism for establishing and documenting data quality but may not always be necessary before data release. Data should be sufficiently documented to ensure users understand and are able to assess the information they have received. NABCI recommends developing a comprehensive information system linking archive directories, allowing users to obtain information about existing data holdings without having to separately contact each organization although some interaction and consultation between data managers and users may be necessary for more complex data sets. Once data of interest are located, the user can then obtain these data from the appropriate archive.

**5. National and international standards should be used to the greatest extent possible for the processing and communication of bird population monitoring data sets.**

Bird population monitoring data should be accessible in a "vendor-independent" environment. To the extent possible, through standards and protocols, users should be able to obtain, read, and process data without purchasing data-specific hardware, software, and systems.

Much progress has been made in the development of data processing and communication standards by national and international standards organizations, some of which address very broad areas of application and others which are more discipline or application specific. These efforts and others should be encouraged and the resulting standards and protocols should be used to disseminate bird population monitoring data when applicable. The critical objective of standards use is to ensure the widespread availability and use of data in standard formats and through agreed communications protocols, not necessarily that the internal details of individual organization's data handling and data archiving systems be common.

**6. Data should be provided at the lowest possible cost in the interest of full and open access to data. This cost should be no more than the marginal cost of filling a specific user request. Agencies should act to streamline administrative and technological arrangements for exchanging data.**

Organizations are governed by a wide variety of data access policies and practices, including data charging and pricing. NABCI recommends that data should be provided either free of cost or at the marginal cost of reproduction and distribution. Charging the marginal cost of reproduction and distribution may effectively manage requests for large data sets without restricting access, permitting organizations to support widespread data use without adverse budget impacts. For small data sets and those accessed infrequently, the administrative burden of marginal cost recovery may outweigh the benefits of

charging such costs, and data may be more efficiently provided at no cost. The essential principle is that data use should not be subject to commercial, profit-based pricing.

**7. For those programs in which selected principal investigators have initial periods of exclusive data use, data should be made openly available as soon as they become widely useful. In each case, the funding organization should explicitly define the duration of any exclusive use period.**

The objective of this data policy statement is to facilitate full and open access to quality data on a timely basis. Although some data are made available as soon as the data are collected, some organizations provide initial periods of exclusive data use so that data evaluation and validation are accomplished before general release. Data are not always fully documented during the initial data collection and analysis period, necessitating the need for flexibility in data release.

Deciding when data become widely useful is the responsibility of the funding organization and data managers, which should explicitly define the period of restricted access, if any. In the past, some Principal Investigators have retained data for indefinite periods, inhibiting their widespread use. This practice should be discouraged through active consideration of the tradeoffs between widespread distribution of data sets and the need to assure data quality and validity. The guiding principle is that data should be released as soon as they become useful for bird conservation along with documentation that allows users to assess data quality and potential usefulness, while recognizing that full and open access to data may have to be restricted by legal, proprietary and sensitive data considerations in some circumstances.