



## Data and Analysis Tool Sharing Policy

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Avian Knowledge Northwest is a regional node of the Avian Knowledge Network that provides information on birds and the environment for scientists, natural resource managers, and other individuals interested in conservation science in the northwestern United States. Avian Knowledge Northwest seeks to advance ecosystem conservation by providing knowledge about birds and their habitats from comprehensive and current datasets. Such information will increase our understanding of bird population distributions and trends and will help inform ecological planning. Avian Knowledge Northwest represents collaboration among Klamath Bird Observatory, US Forest Service Pacific Southwest Research Station-Arcata, Point Blue Conservation Science, Cornell Laboratory of Ornithology, and a wide array of additional collaborators. *Persons or institutions contributing data or analysis tools to Avian Knowledge Northwest are committed to sharing these resources with the AKN under the policy and terms described below.*

A guiding principal of this policy is that the investments in time, money, and intellect that are committed to collection of a data set, the development of data processing or analysis tools, and the knowledge generated from related analyses entitle the “Owner” of these data, tools, and results to the fundamental benefits of the work. This policy recognizes the Owner(s) as the investigator(s) and institution(s) responsible for data collection or compilation, development of tools, and generation of results. Therefore, publication of descriptive or interpretive methods, and results derived directly from the data or tools, by the Owners or a third party, are a privilege and responsibility that primarily belongs to the Owners.

Avian Knowledge Northwest acknowledges that ecological data are highly valuable and must be properly preserved for the purposes originally intended and for other purposes not necessarily anticipated by the data collector. Sharing data in a distributed database system such as the AKN improves data longevity by preserving datasets in more than one location. It also facilitates providing access to other investigators when the Owners decide it is appropriate. Such open access to data can greatly enhance our ability to understand patterns and dynamics of bird populations.

Data Owners must be assured that their data and tools are secure and access is controlled. Avian Knowledge Northwest has the following data access levels and sharing options, and Owners are encouraged to specify which level of access is to be granted:

- **Level 1**— Data Owners request that their data are not exposed to the public in any form at all. LaMNA and the AKN act only as an external repository.
- **Level 2**— Data can be used in certain publicly-available, predefined visualizations (i.e. maps and graphs – not for publication) by the AKN warehouse, LaMNA, or a partner AKN node, but direct access to the primary data is restricted only to the data Owner.
- **Level 3**— Data can be used in certain publicly-available, predefined visualizations (i.e. maps and graphs), and the complete data set is available for download directly via the Internet upon prior written consent from the data Owner. The data Owner may thus set terms for cooperation, such as acknowledgement or co-authorship in publications.

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- **Level 4**— Data can be used in publicly-available, predefined visualizations (i.e. maps and graphs), or available for download with prior consent by the Owner. Additionally, the Owner agrees to make data available to existing bioinformatic efforts (GBIF and ORNIS). These bioinformatic efforts only provide the data for the locations where the observations were made, and the number of individuals reported (summarized data).
- **Level 5**— Data are used in publicly-available, predefined visualizations (i.e. maps and graphs), and are available to existing bioinformatic efforts. Additionally, the complete Bird Monitoring Data Exchange data set is fully available, including all the variables taken by the collector, and the data Owner must be acknowledged in any publications when the data were used.

A critical component of data preservation is complete documentation of the methods, location, and effort used in the taking the data (that is, the metadata). These metadata are needed to ensure the data can be properly understood and their quality and potential usefulness judged. In this document, preserving data is understood to imply also preserving the metadata.

It is Avian Knowledge Northwest policy that data should be shared whenever possible, while considering the tradeoffs between widespread distribution of data sets, the need to assure data quality and validity, and the privacy rights of land owners, as applicable. Avian Knowledge Northwest encourages its partners to anticipate that most data collected will eventually become part of the public domain, and recommends that procedures be employed to facilitate this sharing, such as concurrent metadata generation, data verification (whenever possible), data entry, data backup, agreements, and procedures for prompt data transfer and curation by Avian Knowledge Northwest and partner Avian Knowledge Network nodes. Data for which there are no associated metadata have limited utility, and generally would not be shared. Avian Knowledge Northwest encourages members to share data 10 years old or older without restrictions (level 5 above).

Avian Knowledge Northwest will encourage and facilitate the ethical and courteous use of data within its archives. Avian Knowledge Northwest will maintain a record of all data access and will notify potential users that these data may be the intellectual property of a Data Center partner. All those who wish to access data from Avian Knowledge Northwest, regardless of the sharing level of the data requested, will be required to explicitly agree to these data sharing terms and policy.

Avian Knowledge Northwest seeks to promote knowledge generation by encouraging widespread and unrestricted tool development and use, allowing collaborators to build upon existing tools. Avian Knowledge Northwest encourages all tools to be developed as “open source.” Developers are encouraged to use a general public license, specific data and tool sharing agreement, or other means to allow for the opportunity to request acknowledgement (e.g., in the form of citations) in publications using distributed copies or modified versions of an analysis tool, or to restrict any use of their products. It is Avian Knowledge Northwest policy that new analyses and data visualization tools should be always shared as soon as possible.

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