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From the AOU Committee on Bird Collections

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Committee on Bird Collections: Basic standards for bird collections

Bird collections are an invaluable resource for research and education on many aspects of the biology of birds and their environments. The scientific value of bird collections is high, and the useful life of these collections often exceeds the life spans of individual scientists and even institutions. However, this utility can be realized only if appropriate standards of collections care are applied continuously. The AOU does not have a collection accreditation program to assure that appropriate standards are being met and has neither the budget nor the human resources to implement one. Nonetheless, in the absence of a formal accreditation program, we provide the following basic standards for development and maintenance of collections, so that institutions and collection professionals can periodically conduct their own reviews. By doing so, collections can realize their full scientific benefits, now and in the future. If these basic standards cannot be met, institutions or persons in charge of collections are encouraged to contact the AOU Committee on Bird Collections (www.aou.org/committees/collections/index.php3). This committee is available to individuals and institutions to evaluate collections status and provide recommendations.

Basic Standards for the Development and Maintenance of Collections:

1. Collections should be owned and maintained by nonprofit or private institutions unless a for-profit enterprise or individual can establish an endowment or trust that yields a sufficient return for annual maintenance costs.
2. One or more professional ornithologists with at least some experience with scientific specimens and collections must be in charge of a collection.
3. A collection must be housed in a building that provides protection from environmental risks that can degrade or destroy specimens (e.g., water, fire, insects, and too much light, humidity, or heat).
4. Specimen acquisition must be in accordance with all relevant regulations and permits (e.g., local, state–province, country, international, and import–export). Permits associated with an acquisition should be kept as part of the collection's permanent record.
5. Specimen labels, field catalogues and notes, and preparation catalogues comprise the original data of a collection and must be kept as a permanent record. New labels may be added to specimens, but original labels by the collector should never be removed.
6. The collection must maintain a permanent catalogue of all specimens. This catalogue should contain at least minimal data on each specimen, including catalogue number, taxonomic identity, date and location of collection, sex, and specimen type (e.g., skin, skeleton, combination prep, tissues, etc.).
7. Data associated with specimens must be linked physically to individual objects (individual birds and their preserved parts) through an attached label, a catalogue number, or both.
8. Collection records (e.g., catalogues, permits, and original field notes) should be housed safely on site, with backup copies kept off site for additional security, as warranted.
9. Specimens must be prepared and housed in ways that ensure their utility. Skeletal specimens should be prepared using dermestid beetles (or other appropriate insects), and these insect colonies must be housed and used in a manner that prevents infestation of the collection. Spirit specimens should be fixed in formalin before being transferred to ethanol, and spirit levels must be monitored in permanent specimen containers. Tissues for genetic study should be preserved using cryogenic methods whenever possible, and cryogenic systems for frozen tissues must have adequate backup securities in place. When cryogenic preservation is not possible due to logistic or infrastructure constraints, alcohol (>70%) or buffer-based preservation should be used, although these methods are less adequate for long-term preservation.
10. Specimens must be kept in containers that prevent the entry of insects, light, and particulates such as dust, dirt, and smog. Use of archival-quality materials is encouraged. Adequate space must be maintained to prevent specimens from damaging each other through excessive contact.
11. Specimens must be inspected regularly for insect pests. When infestations occur, they must be eliminated promptly using legal methods. Use of fumigants is highly regulated and must conform to regulations and institutional policies. When possible, use of chemical-free methods (e.g., cryofumigation) is encouraged. An integrated pest management plan is also encouraged.
12. Specimens (including all associated parts) should be arranged in a manner that enables ready retrieval. Different arrangements may be necessary for different parts (e.g.,

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study skins vs. tissues), but the collection plan must be recorded and, preferably, posted for visitors.
13. Every reasonable effort must be taken to make data as accurate as possible, from collection catalogues to electronic databases.
14. Development of electronic catalogues of specimens and associated data is strongly encouraged. In whatever form, collections data should be made available to qualified researchers, and, when practical, collections are encouraged to integrate their electronic data sets with database networks (e.g., ORNIS; ornisnet.org) that permit efficient access via the Internet.
15. Specimens in the collection must be accessible to qualified users. Access by unqualified users should be restricted.
16. Because of the damage that occurs from frequent handling, teaching collections should be separate from research collections.
17. Specimen loan policies should be developed, and loans to outside researchers and institutions should be handled in a professional and legal manner. All appropriate permits should accompany specimen shipments, which should be packed to prevent damage and meet shipping regulations.
18. Policies regarding destructive sampling should be developed, and such requests should be evaluated on a case-by-case basis to ensure that specimen damage is minimal and the scientific return warranted.
19. Type specimens must be labeled as such, housed in separate cases, and made available only to qualified researchers. They should be deposited in institutions where perpetual care is assured, and they should not be loaned.
20. Institutions with collections should show evidence that they will continue to support the collection to these minimal standards. If priorities change and assurance of institutional care becomes doubtful, the institution should be willing to transfer the collection to another institution that will ensure its continued maintenance and availability.
21. Vouchering genetic collections with specimens identifiable by phenotype is strongly encouraged to enable replicability and further study.

Acknowledgments

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Literature Cited

American Society of Mammalogists Systematic Collections Committee. 2004. Basic curatorial standards for systematic collections of mammals. Journal of Mammalogy 85:180–181.

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