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Author(s): Carter, D. J. & Walker, A. K.

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Appendix I

Documentation

David J. Carter and Annette K. Walker*

*Entomology Department, The Natural History Museum, Cromwell Road,
London SW7 5BD, UK*

Formerly of the International Institute of Entomology

Introduction

Whilst we should guard against a growing museum bureaucracy which threatens to overwhelm curators and conservators with unnecessary paperwork, good documentation adds value to specimens and leads to more efficiently managed collections.

Informative data enhance the scientific, cultural and historical importance of collections and it is therefore as important to conserve data as it is to conserve specimens themselves. Natural history specimens without data are seldom of any scientific value, although they may sometimes be of use for display or teaching purposes.

Data relating to curatorial actions are essential for the maintenance and management of collections. It is important to identify the information that needs to be recorded for future reference and to store this data in such a way that it can be used to support the curatorial processes and actions described in Chapter 9 on policies and procedures.

In its publication *SPECTRUM* (see Chapter 9 on policies and procedures) the Museum Documentation Association has provided a framework for documentation of institution-specific procedures which helps to identify the information requirements both for objects and for the processes they undergo. Relevant processes include risk management, condition surveying, conservation and displays and exhibitions.

Not only must documentation be adequate, it must also be archived. Materials used for inks and labels should be carefully assessed for their permanence as detailed in Appendix II (which also deals with methods for remedial conservation of labels).

Collection level documentation

As recommended by the Museums and Galleries Commission (1992), entry records should be maintained for all specimens deposited in a museum whether as enquiries, loans or potential acquisitions. Acquisitions form the basis upon which collections are built and a registration system is necessary to provide details of the material acquired and its provenance (Plate 34). Before specimens are databased, checks and balances should be set to ensure that the specimens have been collected legitimately and that the collection meets the requirements of the acquisition policy of the institution (see Chapter 9 on policies and procedures).

Registration of acquisitions may be at specimen level or collection level depending on the nature of the material. For instance, a collection of ten mammals may be registered as individual specimens whilst a collection of ten thousand beetles may be practically registered as a unit. Registration data may include details of the collector, range of localities, method of preservation, field notebooks etc.

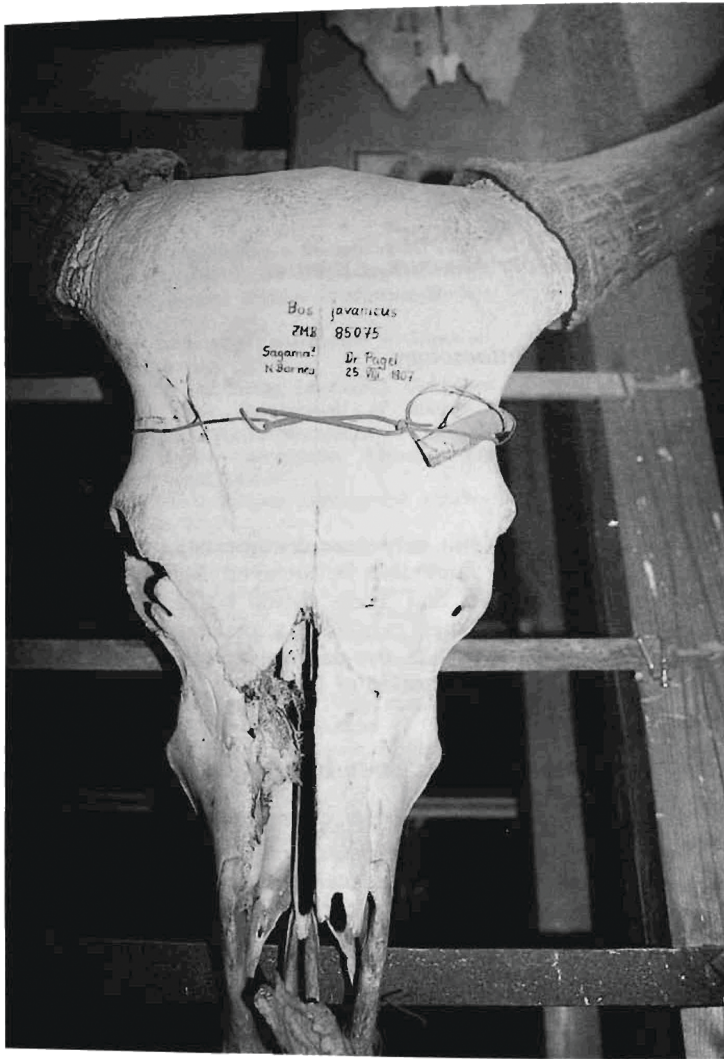


Figure AL1 An example of an ink label written directly on to a skull.

Specimen level documentation

The specimen data label provides the prime source of information about any specimen and should remain with it at all times. Wherever possible it should be attached firmly to the specimen or enclosed with it in a sealed jar or other suitable container. The size of the label should be dictated by the amount of information necessary but is often also limited by the size of the specimen; thus small invertebrates tend to have very small labels, often with minimal data.

Minimum data to be recorded should include location, date of collecting and collector, but this may be expanded to meet the needs of the particular group of organisms or the purposes for which they are being collected (Davis, 1994). Where specimens are mounted or treated in a special way (e.g. slide mounted or fluid-preserved), information on mountants, preservatives etc. should be accompanied by the preparator's name. In some museums, large, robust specimens (e.g. skulls) have data or reference numbers written directly on the surface (Fig. AL 1). While this ensures that the

data are not lost, it is generally an irreversible process and may cause unacceptable damage.

Numerous card indexes, record accession books, registers and field notebooks are associated with natural history collections. Often hooks and record cards are used as a reference to cross-link information to specimens. For instance, because insects are usually very small, additional information which could not be fitted on the specimen label was sometimes kept on record cards and cross-referenced by code numbers. At another extreme, different parts of the same large mammal may have been stored in different areas of a museum and a tracking number used to associate antlers stored in a basement with the skin in a cupboard on another floor. Such records were also often used to refer to additional collectors' notes or correspondence about the collections. In many collections, even today, sometimes the only information on a specimen is a code number and it is important that the primary records are not lost. The temptation to dispose of old index cards and books must be resisted until a thorough investigation has been made into how these are linked to the collections.

Electronic databases

The development of computer programmes for databasing collections has meant that records can be stored in a much more compact and more powerfully accessible form, although the initial work of inputting a backlog of data may be considerable. The end result, however, adds greatly to the value and potential of a collection.

Databasing has great value in the care and conservation of a collection. In some cases, a databasing system may include information on condition and conservation action which is directly relevant while other data stored in such a system will add value to the specimens and make them more readily accessible. In some cases this will reduce unnecessary handling of collections and consequent physical damage. It will also facilitate the sharing and repatriation of data an important issue and potentially a very valuable alternative to storing collections in countries where the environment is extremely hostile to preserved biological material (e.g. wet tropical regions).

Preservation of specimen data in electronic form is also a valuable back-up for the original data attached to the specimen itself.

There is an increasing pressure to specimen-database all major natural history collections, but this is clearly not a realistic objective given the vast numbers of specimens in museums and the lack of both human and financial resources to achieve this. It is therefore essential to set priorities for any databasing project and to periodically review the parameters used. It is important to remember that databasing does not directly conserve collections and should not be carried out at the cost of basic collections care.

Bar codes

Although bar codes *have* been used in commerce for many years it is only relatively recently that they have been considered for natural history collections. Botanical curators were among the first to adopt them, as the majority of specimens and associated data are mounted on flat sheets and the information is easy to scan and lends itself to a bar code system. The Botany Department of the Natural History Museum, London uses pre-printed self-adhesive labels to identify herbarium sheets sent out on loan. Janzen (1992) presents a very comprehensive account of a bar code label system that the INBio institute in Costa Rica has adopted for its insect collections and it is recommended that this paper is consulted if consideration is being given to developing a bar code system for insects or other small specimens.

The capturing of data as new material is processed is discussed at length by Thompson (1994) and in this paper he publishes the resolution 'Entomological Collections Network Bar Code Standard Resolution', passed at the 1993 Annual Meeting of the Entomological Collections Network. This Standard is repeated here:

1. A bar code will be a unique identifier that consists of a string of alphabetic characters that identifies the organization that created the associated data record followed by a sequential number.
2. As bar code labels need to be as small as possible so as not to take up too much

space and must also encode sufficient data to uniquely identify specimens, code 49 uniform symbology will be used.

3. Organizations will maintain computer files of specimen associated data that the bar codes uniquely identify, making the information available to users following the appropriate community standards (such as the ASC Database Policy).
4. Organizations and individuals will respect bar code labels by leaving them attached, by not covering them with other labels, and by using existing bar codes, so that only ONE bar code is used per specimen and that bar code is always clearly visible.
5. Organizations and individuals will provide the originator (the organization maintaining the computer files of associated data) of the bar code with the scientific name and identifier, if so requested.

Pitkin (1993) notes that there are practical difficulties involved with the use of bar codes. In particular, the specimen may obscure the bar code, thus making it difficult for the scanner to read the label but, as Janzen points out, if the label is pinned upside-down it can be read by an upward directed laser beam.

The method of bar code labelling is still in its infancy in most natural history collections and any new developments should be taken into account when investigating the most suitable system to adopt. Advantages to take into account are the rapid and practicable means of being able to capture and/or transfer information electronically (e.g. via the Internet) and for bio-accountancy purposes. For instance, Thompson (1994) estimated that he had extracted data from about 4000 specimens in one year and that bar coding would have saved him about a quarter of a million or more keystrokes. Similarly, the Botany Department of the Natural History Museum, London, has found that considerable time has been saved in producing annual reports on its loans.

Documentation of curatorial actions

Garrett (1989) stressed the importance of complete and accurate documentation of preparation and conservation treatments and

gives guidelines which were adopted as a working document by the Conservation Committee of the Society for the Preservation of Natural History Collections (SPNHC). This paper is recommended if a documentation system is being designed to record the preparation and conservation treatments of a specimen. The author stresses that documentation is particularly important in determining if previous treatment might affect the validity of a current analytical investigation. Garrett (1989) further suggests that this documentation could easily be incorporated into routine collection management procedures such as registration or acquisition documentation. Important points to consider are:

- Ensure that the documentation of the curatorial action and/or the signature of the preparator of a specimen is recorded.
- Keep a record of the date when a specimen jar has been topped up or, if the liquid has been replaced with another substance, note this in the jar with the date, substance and signature of the curator (see Chapter 5 on fluid preservation).
- If it is necessary to fumigate the collections, record the date when the last fumigation took place.
- If preventive fumigants are used, such as naphthalene, record the date when the treatment took place.
- When a microscope slide has been remounted, the signature of the preparator, the date and the mountant used should be noted for future reference.
- Keep an archive of examples of handwriting as a reference for future workers.

Archiving of documentation/documents

Wherever there are registers or indexes of collections holdings, an additional complete copy should be kept in a secure location separate from the main collections building. So often in the past such records have been destroyed during fires or other disasters, so that it is not possible to ascertain what has been destroyed. Similarly, all electronic databases should be regularly copied and copies stored separately.

Although many old paper records are now being transferred to electronic databases, it is desirable to deposit the original records in an archive or some other place of safe-keeping as there may still be cause to make reference to the primary source.

Never remove labels or code numbers from specimens or discard the original numbering system as this information may play an important historical role in the documentation of the specimens. For instance, a code number may have been documented in the literature and could be used to distinguish type material. Where original labels are damaged or disintegrating, they may be supplemented by new labels but the originals must be retained.

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