

# Extinct and endangered bird collections: managing the risk

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Cooper, J.H. & M.P. Adams. Extinct and endangered bird collections: managing the risk. *Zool. Med. Leiden* 79-3 (11), 30-ix-2005, 123-130.— ISSN 0024-0672.

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Keywords: extinct; endangered; bird specimens; collections management.

Approaches to managing the collection of extinct and endangered birds at The Natural History Museum, Tring, U.K., are discussed, in particular practices relating to storage, access, loans, and acquisition of new material.

## Introduction

Specimens of extinct and endangered (E&E) birds are often presented as the jewels in the crown of many ornithological collections, their underlying scientific and historical significance enhanced by the enduring human fascination with rarity. Combining scientific (and in some cases commercial) value with being almost certainly irreplaceable, E&E specimens will probably constitute the material at highest risk within most collections. As a result, there is a need for a heightened degree of curatorial care of such material (Adams et al., 2003; Knox & Walters, 1994). This paper seeks to provide an overview of the approach taken to managing the E&E bird collection of The Natural History Museum (NHM), held at Tring. It can be regarded as a sequel to Adams et al. (2003), which began to discuss some of the principles that are explained in more detail here.

The collection of E&E birds housed at Tring is one of the most extensive in the world and is subject to a relatively high demand for both public and research access, through activities such as exhibition loans, behind-the-scenes tours or through requests for destructive sampling. There is also increasing pressure to develop virtual access to the collection through on-line catalogues and inventories. All of this comes with associated risks to the specimens, particularly of damage and theft. Management of the E&E collection is therefore a matter of balancing the use of the resource with its ongoing preservation. The principal demands placed on the E&E bird collection of the NHM, and the associated approaches to collection management, are considered below.

## Inventories

Inventories and catalogues underpin the management of the NHM's E&E collection in two critical ways. Extinct species are generally familiar to curatorial staff, but as there is a greater, and ever-expanding, number of endangered species, many of these may be less well known to all staff. In the first instance then, compilation of an E&E inventory identifies the status of extinct or endangered specimens in the collection and prevents them from being overlooked and therefore not adequately protected. Secondly, an accurate inventory, or even better a catalogue, provides a record of the collection that has both security and curation applications, e.g. for auditing a collection or for helping to determine the preparation method for a new specimen.

Assessing the E&E component of a collection requires an initial list of taxa to include. Whilst the world list of extinct species is relatively static, the list of endangered birds is ever changing. However, it is not necessary, or arguably even practical, to attempt special curatorial management of an E&E collection including all known endangered species. Knox and Walters' (1994) original E&E catalogue for the NHM was based on a list that combined elements from a range of publications, but as the authors observed, the complexities of drawing together multiple sources in this way meant that a number of species were omitted. A single source of objective information on species' status is therefore preferable. An invaluable source is the recent BirdLife International (2000) publication "Threatened Birds of the World", which provides details on over 1,200 threatened and extinct bird species. From this volume a condensed list more appropriate for collections management can be derived (Adams et al., 2003) and used as the basis for an up-to-date review of E&E material. This process is currently underway at the NHM, and will include all collections areas (skins, skeletons, fluid preserved specimens, eggs and nests) to take account of all holdings of E&E material.

Adams et al. (2003) provides a suggested core list for E&E inventories; however, additional taxa may be incorporated into the review in order to protect specimens of other threatened birds that are known to be particularly scarce in museum collections.

### Storage

The NHM's E&E collections of skins, skeletons and fluid preserved specimens are held in separate series to the main collection, within locked cabinets to which only the curators have access. The entire egg collection is held in locked storage, but E&E specimens are not presently separated from the main series. Management of E&E specimens in both the egg and nest collections is under review, with the likely outcome that they will also be removed from the main collections into dedicated cabinets.

The largest series of separated E&E specimens is held in the skin collection, and is located in a high-visibility area adjacent to the curators' offices where any activity in the collection may be easily monitored. Holding E&E specimens within their own dedicated storage may be regarded as a disadvantage in one respect: a disaster (e.g. fire, flood) within that part of the collections area will potentially damage the entire E&E collection. However, the approach has many advantages, the most important being that only a few key areas need additional protective measures to maintain security. In the event of a disaster these areas are designated as being the highest priority for salvage and concentrating efforts within them should result in saving the maximum amount of this valuable material. The same precautions are also extended to certain historically important or valuable specimens, as well as the type collection.

The Museum recognises that the precise location of certain material within the museum can be regarded as sensitive information and therefore do try to treat it with caution. Filming or photography that might easily be used to subsequently identify a specimen's storage location is discouraged and in the case of public tours behind-the-scenes, material is increasingly displayed away from its storage cabinets.

### Direct access

Access to the E&E collections takes many forms, including direct access to the specimens at Tring, or at other institutions through loans. Increasingly, there is also a demand for virtual access through on-line collection catalogues.

Direct access to E&E specimens for research by visitors to the collections is supervised by a curator. Upon request, specimens of E&E taxa will be removed from their cabinets by a curator. Normally, a limited number of specimens and/or taxa will be made available at any one time. The same curator is then also responsible for replacing the specimens in storage.

### Loans

Loans may result from requests for entire specimens, or increasingly, for tissue samples. It can be argued that under normal circumstances, loans represent the greatest potential risk to E&E material, as the responsibility for the safety of the specimen concerned passes out of the direct control of the lending institution. In the worst case scenario, specimens could be irretrievably damaged or even lost through inadequate administration of loans.

All loans made from the E&E collection at the NHM are governed by the Museum's Loans Policy and are considered on a case by case basis. The predominant factor determining whether a loan may or may not be granted is the 'one-third' rule. Only one-third of the total holdings of a species may be loaned at any one time, which means that there must be at least three specimens available. Potential availability may be further affected by the condition or data associated with a specimen. For example, if there is only one male of a given taxon, even if holdings are more than three specimens in total, it may not be loaned. If suitable specimens are available, then the nature of the request and the quality of the proposal are considered in detail before a final decision is reached.

Primarily the demand for loans of E&E specimens is for exhibition purposes – there are few requests for research loans of this material. In any event, loans of most E&E material for research purposes would generally be made only under exceptional circumstances; we would in the first instance strongly encourage a researcher to visit the collection in person.

Proposals received for exhibition loans are assessed very carefully and appropriate insurance, environmental conditions, security and pest-control measures etc. must all be agreed before a loan can be made. A further restriction on the loan of E&E material is that it is couriered by hand to and from the borrowing institution, either by an NHM curator or an appropriate member of staff from the borrowing institution. Negotiations for exhibition loans can admittedly be at times drawn out, but this is usually reasonable given the value and unique nature of the material concerned.

Tissue sampling is governed by a separate policy which requires a detailed proposal from the researcher. An assessment of the specimens concerned is necessary prior to granting a request, and this may again be a lengthy process depending on the nature of the request. For example a proposal seeking bone samples from a study skin will require that the skins are first x-rayed, whilst a more straightforward request for toepad tissue will be easier to assess. Initially, sampling will generally only be permitted from

a limited number of specimens to check that the analytical techniques being applied are successful. Once good results have been obtained further sampling can be requested. Details of all tissue sample loans are held on a database as a convenient means of monitoring which specimens and taxa have been sampled to ensure that unnecessary repeat sampling is not carried out.

Currently, charges are not made for research loans of either specimens or tissue samples. However, it would normally be expected that the borrower would cover any other associated costs of a loan, e.g. specialist repair of specimens following sampling.

In any loan transaction it is critical that the procedures are strictly followed and that the documentation is completed at all stages. At the NHM one curator is responsible for the overall administration of the loans system, this enables easier monitoring of the system and prevents the communication problems that can arise in processes in which a number of people may be involved (an approach based on experience!).

### **Dissection**

The destructive sampling policy that covers tissue sampling also extends to requests for dissection of spirit specimens. Dissection of E&E material may be permitted in exceptional circumstances when a strong scientific case can be made. In addition to the availability of specimens, the key factors influencing decisions on a dissection request are the overall quality of the proposal and the experience of the researcher. However, permission would normally only be granted to dissect on one side of a specimen, and this would have to be carried out on site, in direct consultation with a supervising curator. These measures are taken as the result of past experience, whereby an unauthorised dissection made of an E&E specimen whilst on loan resulted in its near-destruction. If permission is not granted to dissect the specimens originally sought by a researcher, other taxa may be suggested as possible alternatives.

### **Virtual access**

The free availability of collection catalogues via the World Wide Web has perhaps started to be taken for granted, in that increasingly, there seems to be an expectation from internet users that they will have access to collections data on-line. In response to this demand, collections managers and curators are increasingly under pressure to supply them. Some of the pros and cons of mass-release of collections data on-line were considered at the workshops of the first meeting of European Bird Curators' Conference, "Why Museums Matter" (Cooper & Steinheimer, 2003). However, a few more thoughts on the subject are given here, the future publication of on-line databases relating to the NHM's E&E bird collection is currently being considered.

Various points seem to need consideration prior to the release of data. Firstly, that any given database will serve a clear purpose by being available on-line and is not just being released as a knee-jerk reaction to demand for data on-line. Collections databases are often created in the course of collections management but the purpose for which a given database was prepared may not actually be compatible with its wider publication, and consequently its release may not be an appropriate step to take.

Another issue that requires serious thought is the fact that placing information regarding holdings of E&E species on-line may represent a security risk to the collections by advertising the existence of certain material to an unknown, global audience. It might also be anticipated that this would lead to an increased burden of enquiries relating to the collection and a rise in demand for physical access to the specimens. This may require assessment to ensure such demand can be managed adequately, with procedures in place to take account of it.

It has been argued that release of uncensored locality data from endangered species may also pose a threat to existing wild populations. However, the whereabouts of these populations are probably sufficiently well known that in most cases collections data are not actually as sensitive as they may first appear. It may also be argued that the greatest threat to collections in terms of theft is actually posed by 'insiders' already well aware of what material exists and where. Furthermore, many institutions already have published catalogues of their E&E material (e.g. Knox & Walters, 1994; see also Adams et al., 2003), though as hard-copies these may in practice be available to a relatively restricted specialist community. However, this does mean that much of the specimen data is already available. A reasonable compromise may be to provide on-line either censored data and/or a resource with access restricted to collections staff and bona fide researchers. If computerised databases of E&E collections were created for on-line publication in this manner, it could represent a step towards the collation of an international database, an idea first raised at the European Bird Curators' Conference workshops in 1999 (Cooper & Steinheimer, 2003). Compilation of such a catalogue would necessarily involve extensive collaboration between institutions but as with the ongoing global bird types database (Bruckert, this volume), its initial foundation would probably require a core of existing databases.

### New material

Whilst previously unknown specimens of extinct species still surface occasionally from various sources, there is generally little scope for additional specimens to reach collections. This is not necessarily the case for many endangered species, specimens of which may still be obtained through salvage, without recourse to collecting. The principle sources for such birds are casualties from wild populations or, more frequently, birds from captive populations, either from conservation programmes or in private collections. The NHM bird collections have in recent years received both wild and captive specimens of a number of endangered species. In all cases these acquisitions have been made possible through the assistance of a network of conservation and avicultural contacts.

Once obtained, decisions must be taken as to the best way to preserve any given specimen. Although this decision is primarily based on the NHM's holdings of the species in question, the Museum is also aware of trying to make the best contribution to the species' global holdings. In general, endangered and other rarely obtainable taxa are now routinely preserved with multi-preparation techniques. A typical example shown here is a captive-bred Uvea Parakeet *Eunymphicus uvaensis* (Layard & Layard, 1882) (Fig. 1), prepared as a study skin with replacement cast skull, spread wing, partial skeleton (including skull, a wing and a foot), and also tissue samples. Other combinations might include a spirit-preserved trunk.



Fig. 1. Multi-prepared specimen of Uvea Parakeet *Eunymphicus uvaensis* BMNH 2002.2.1, including study skin, spread wing and partial skeleton (not all elements shown). Photo: The Natural History Museum.

An ongoing obstacle to the acquisition of salvaged specimens of endangered taxa is a simple lack of awareness outside the museum community of the value of such specimens in research collections (Cooper et al., 2003). Many potentially valuable specimens sadly end up incinerated following post-mortem, rather than preserved. We appreciate

that some institutions are better placed geographically, financially, or perhaps through personal contacts, than others to obtain specimens of endangered taxa. Furthermore, with a reliable source of otherwise scarce material, particular institutions may have access to more specimens than they alone require. In these cases, we would highly recommend exchange as a means of distributing material of scarce taxa more widely (see Cooper & Steinheimer, 2003 for further comment on exchanges).

### Conclusions

Extinct and endangered collections may be regarded as a double-edged sword: they invariably represent the most valued components of an institution's bird collection but may also pose a challenge in terms of protecting them from damage, over-use and theft. The key points of the management practices relating to the NHM's collections of E&E birds have been summarized here. In particular, the need for inventories for known, secure storage locations and the importance of establishing clear procedures and policies for managing visitor access and loan requests has been emphasised.

An E&E collection will always carry some level of associated risk and will therefore always present its own particular challenge, but it can be used to great benefit. In addition to the ongoing research use of E&E collections, they can also have, for example, an important educational role. Experience at the NHM in using E&E specimens in behind-the-scenes tours or other public presentations seems to demonstrate that seeing at first hand an extinct or endangered bird can assist in getting a conservation message across with considerable impact. The Museum accepts the multiple needs for increasing access to its extinct and endangered holdings, and will continue to develop its management of the collection to meet both the requirements of the specimens and their users.

Every institution holding material of extinct and endangered taxa will develop its own curation practices, according to available resources, anticipation of potential risks to the collection and also direct experience. These notes regarding the management of the NHM's extinct and endangered bird collection are offered to assist those curators or collections managers who may be reviewing their holdings, and hope that the experiences at the NHM can be used to complement their own. Discussion on any of the points raised is welcome, especially via the Electronic Bulletin for European Avian Curators (eBEAC) (see Scharlemann, 2003).

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Received: 14.iv.2004

Accepted: 15.i.2005

Edited: P. Howlett & C. van Achterberg