



ZOO-MUSEUM NETWORK PARTNERSHIP DEVELOPMENT AND SPECIMEN TRANSFER GUIDE

Introduction

This is intended to be a guide to establishing partnerships and transfer agreements or standard operating procedures (SOP) for the transfer of specimens and samples from zoos or aquaria (hereafter “zoos”) to natural history museum collections (hereafter “museums”). This is not meant to be an exhaustive guide that will cover the needs for every zoo/museum partnership, but is a general guide of things that should be considered when developing partnerships. It is recommended that institutions also create and sign a Memorandum of Understanding (MOU) outlining the details and expectations for the partnership. A sample MOU template can be found on the ZooMu Network website (<http://zoomunetwork.org/>).

Involved parties

The first step to establishing a relationship between a zoo and a museum for the purpose of transferring specimens and samples is to determine the people at each institution who need to be involved in that relationship.

At zoos, this list may include:

- Curators
- Veterinarians
- Veterinary technicians
- Registrars

At museums, this list may include:

- Curators
- Collection managers
- Registrars

Members of the following groups from both institutions may need to be involved in approving and formalizing the conditions of the relationship:

- Senior leaders
- Marketing, communications, and public relations professionals
- Lawyers

Specimens

Species of Interest

The zoo and museum should communicate to determine which species are of interest for the natural history collection. The museum may start by providing the zoo a list of species of particular interest. Alternatively, the zoo may provide a species holdings list to the museum so they may determine what is of interest to their collection. Species lists should include the following details:

- Scientific name
- Common name
- Order
- Family
- Permits and regulations (ex. Marine Mammal Protection Act, etc.)
- Managed program requirements (ex. SSPs)

Detailed taxonomic and conservation information is important for museums to eliminate species that do not fit with its collecting priorities or permit authority. Information about managed programs, such as Species Survival Plans (SSPs), will help museums determine if a species has too many stipulations on use of its remains for it to be a viable specimen for their collection. After reviewing this information, the zoo and museum will work together to determine which species/specimens will be transferred.

Special Preparation and Condition Requests

The museum should specifically indicate in what condition they are able to accept specimens. For extremely rare species, it may be worth taking the specimen even in poor condition or if incomplete; for large species, the museum may only have storage space for tissues and not an entire skeleton; and for very common species, the museum may have enough representatives that they can only take individuals that are in excellent condition.

There may be preparation steps the zoo could take with little extra time or effort that significantly increase the scientific impact of the specimen once it is in a museum collection, such as performing a cosmetic necropsy, taking tissue samples during necropsy, or fixing tissues in formalin before freezing. After the museum has indicated which species on the list are of interest, they and the zoo should agree on a feasible plan for specimen preparation and the museum will prepare and share a sampling protocol to be used for those specimens. The zoo may request that museum staff members train zoo staff members on this protocol if it is unfamiliar. Partners may also agree that, if appropriate and logistically feasible, museum staff members will help with large or complicated preparation procedures at the request of the zoo, and this can be indicated on the species list.

Final Specimen List Review

Once the species of interest list is determined, the zoo and museum partners should discuss any complications or stipulations that apply to certain species or individual specimens on the list. In cases where a specimen of interest is owned by another zoo or government entity (such as USFWS), permission should be sought from the owning institution for transfer to the museum upon that individual's death. This conversation will allow the partners to work through any challenges of transferring certain specimens ahead of time.

The result of this process should be a list of species that the zoo can refer to any time an animal from its living collection dies. If the animal is of a species on this list, the zoo doesn't need to ask the museum if they might be interested in the animal's remains and can quickly move on to coordinating the transfer, and if it is not, the zoo can proceed with disposal of the animal's remains.

Transfer logistics

Physical Logistics

Determining the logistics of a transfer at the start of the partnership can make things much easier when Zoo staff need to move quickly, and often in a sensitive emotional state, to handle their animals' remains. Some of the physical logistics that should be detailed in a transfer agreement or SOP include:

- Communication protocols and expectations between the zoo and museum, including primary and secondary contacts.
- If a specimen needs to be shipped, who covers shipping cost.
- Which partner provides a cooler/container for shipping a specimen.
- Responsibility for logistics of transferring a specimen locally (pick up by museum, or drop off by zoo). This may be determined on a case-by-case basis depending on specimen size and specific equipment needs.
- Capacity for storage of specimens by the zoo for batch transfer.
- Length of time the zoo will hold a specimen for transfer for the museum before the decision will be made for carcass disposal.
- Sampling and preparation protocols for specific species/specimens and who provides supplies, if needed.
- Determination of additional loan agreements/permissions are needed for zoo samples that are sent from the museum to other researchers.

All of the above will likely depend on the size of the specimen and the size of storage facilities at both the zoo and museum, and so some flexibility may be appropriate in the procedure or agreement language.

Case-specific Details

To ensure the museum receives all of the information it needs to make a decision about a specimen when it is contacted by the zoo, we recommend the museum create a form for the zoo to complete any time an individual on the list of species approved for transfer passes away including the following information:

- Scientific name
- Size and weight of the specimen (ensuring adequate staff assistance and freezer space at the Museum)
- Transfer timeline, if it differs from that detailed in the agreement
- Storage location at the zoo (refrigerated or frozen)
- Ownership
- Specimen condition
- Wild-caught or captive-bred (including any specific regulations or restrictions for the specimen)
- Known transmissible diseases
- Known envenomation or poison risk
- Medications (may pose a contamination hazard or affect beetle colonies)

Although some of these items will have been covered in a general sense by the species list that the zoo and museum agreed to at the beginning of the partnership, the specifics may vary from individual to individual.

Ownership

Museums exist to steward objects and specimens for educational and scientific use by both known and hypothetical individuals who may be members of the public or a research community. This means that their collections and associated data are regularly made available for research or education uses, including exhibits, that align with the museum's mission via off-site loans, on-site access, or digital access. Access to specimens for research is determined by scientific staff working in the museum's collection, but specifics of the approval process will vary by institution and the museum should expect to need to explain that process to any donating zoos. Zoos should assume that, unless they specify otherwise, data they transfer to the Museum about their animal will end up openly available online.

The current best practice for museums is that when a specimen is donated to their collection, ownership of and all related rights to the object and its data transfer to that institution. This allows museums to make decisions about how to store, display, lend out for use, transfer, and dispose of objects in a way that aligns best with its strategic priorities and complies with legal regulations, without consulting other parties. Ownership is usually transferred via signing of donation paperwork when the object or specimen is physically moved from the donor's property to the natural history collection.

Because some individual animals may not be owned by the zoo that housed them at time of death and what happens to their remains may be a sensitive subject in the public eye, there are extra considerations around transferring ownership to the museum. The owning zoo will need to either officially transfer ownership to the donating zoo, or directly transfer ownership to the museum. If the zoo wishes to restrict display, research use, educational use, transfer, or disposal of the specimen, that needs to be established in the transfer paperwork and agreed to by the museum as conditions cannot be added after ownership is transferred. Examples of display and educational uses that may not immediately come to mind, but should be specified, are public viewing of the specimen during dissection, posts on social media about the specimen, and media appearances with the specimen.

Zoos may also have an interest in restricting research use of donated specimens to ensure that research done on those specimens does not counter the zoo's mission. One way that a zoo may wish to and could have input on the research use of donated specimens is to appoint a staff member to sit on the museum's research approval committee, or for the museum to send research requests regarding zoo animal remains to the donating zoo for approval. Some zoos may approve of samples they formerly owned being accessed on-site at the museum but not being loaned to other institutions. Each zoo and museum will have different tolerances for restrictions or lack thereof on future use of former zoo animal remains, so the members of each partnership will need to work together to reach an agreement.

Data sharing

The extent of and conditions for sharing data generated by the zoo during and animal's, or animals' forebears, lives also need to be established in the agreement or standard operating procedure. At minimum, the museum should receive a copy of the specimen report generated by the zoo's database indicating studbook numbers, specimen numbers, transfers, and general data such as birth and death date. If the zoo does not want this specimen report made publicly available, they need to communicate their desired restrictions, such as only being available to museum staff (a bare minimum requirement), available to researchers using the museum's collection, etc.

Museum specimens are only as valuable as the data associated with them, so the museum will be interested in adding as much data about the specimen as the zoo is willing to share. If the zoo is not willing to share all of the data it generated during the animal's life, such as medical records, an agreement needs to be established on how future researchers using the museum's collection can request access to that data. The museum will also need to be satisfied with the zoo's data management plan for the data they are not willing to have stored at the museum. Significant time and money go into curating museum specimens, and it is important that data remain available for that specimen as long as it remains in the collection.

Museums understand the value of tracking scientific outputs based on their own specimens, so they will also support helping the zoo track scientific outputs from animals they once cared for. What that looks like should be established in the transfer agreement or SOP. A museum partner

could commit to sending an annual report of any research output that it is aware of that was based on former zoo animal remains now held in its collection. If the museum partner transfers a former zoo specimen to another museum, which would only happen in alignment with the original transfer agreement with the zoo, the original museum partner could require the new recipient to maintain the same communication with the zoo.

Formalization

Writing and agreeing to a transfer agreement or SOP may be a sufficiently formal arrangement for some zoo and museum partners. However, some partners may wish to formalize their relationship with a signed MOU. However the partners decide to formalize the relationship, we recommend that they establish the duration of the relationship and the frequency of renewal. For example, a transfer agreement (here used as a catch-all term for an SOP, MOU, or any similar agreement) could last three years and get renewed each year. At the end of the original duration, both partners agree to a new duration. Changes can be agreed upon and enacted by both partners at any time throughout the duration, but regular renewals and end dates should serve as convenient times to revisit and reassess the specifics of the agreement. We also recommend updating contact information for staff members at both institutions and updating the species list, both of which should be part of any agreement, at least once each year.

Reciprocal benefits

There are many reciprocal benefits for each institution in a partnership beyond zoos not having to pay for disposal of their animals' remains and museums adding more specimens to their collections. Through their stewardship of specimens, museums make possible current and future research on biodiversity conservation, which extends the zoo's ability to deliver on conservation, education, and research mission objectives. Zoo and museum staff can benefit from professional development opportunities such as learning new skills from each other and visiting each other's facilities. The museum can support the growth of the zoo's education collection by helping staff prepare biofacts from deceased animals that the zoo wants to keep, loaning objects from the museum's education collection, and transferring excess education collection objects that lack scientific data to the zoo. Zoo and museum partners can support each other's public engagement by having staff members make appearances or give talks at the other partner institution or by sharing social media posts about the impact of their partnership on biodiversity conservation.