



Museum of Comparative Zoology Destructive Sampling Policy

The Museum of Comparative Zoology's destructive sampling policy adheres to standards set by the MCZ Collection Management Policy. Full usage guidelines can be found at <https://mcz.harvard.edu/collection-management-policy>.

"Destructive sampling" applies to any procedure performed on an MCZ specimen that results in the permanent removal of material, including but not limited to extant/Recent and fossilized bone, claws, feathers, hair, muscle, otoliths, scales, skin, teeth, toe pad tissue, cuticle, or shell. Removal of material may be necessary for molecular analyses, chemical analyses, or preparation of specimens for microscope-based studies, such as SEM. "Invasive sampling" includes methods that change or alter the physical state of the specimen, such as dissection, clearing-and-staining, and removal of matrix. MCZ departments may develop specific guidelines that apply to destructive and invasive sampling of specimens in their collections. This museum-wide policy pertains only to destructive sampling.

Destructive sampling requires prior written approval of the curator(s) and/or collection manager of the corresponding MCZ department. All destructive sampling requests must be submitted in writing, include a complete list of MCZ specimens requested, and describe:

- Pertinent qualifications of the investigators, including prior experience with the proposed sampling techniques
- The scientific merit of the proposed study
- The methodology to be used, including chemicals and equipment
- How results will be disseminated (e.g., peer-reviewed publication, deposit of sequence data to an online database)
- Efforts to collect new specimens and/or obtain samples from other museums

Requests to allow destructive sampling will be evaluated on a case-by-case basis. Decisions will be informed by:

- Rarity of the species in the wild (e.g., vulnerable, endangered, extinct)
- Rarity of the species in museum collections
- Representation of the species in MCZ collections
- Status as type specimen(s)
- Degree of destruction likely to result from the proposed methods
- Physical condition of the specimen(s)

Any material remaining after destructive sampling of an MCZ specimen (e.g., dissected parts, tissues, fossilized material) as well as new preparations (e.g., SEM stubs, histological slides) and unused byproducts (e.g., DNA extractions, RNA extractions, PCR products, matrix) remain the property of MCZ unless alternate provisions are specifically approved in writing by the



curator(s) and/or collection manager of the corresponding MCZ department prior to sampling. Samples or subsamples of MCZ specimens may not be accessioned into any other institution's collection or used for any purpose other than that proposed in the original loan request, and such materials should always be referred to by their MCZ catalog numbers. Published sequences submitted to NCBI or other databases must reference the MCZ specimen catalog number. Instructions for submitting MCZ catalog numbers to NCBI can be found on the MCZ website.

Due to the unavoidable loss of material during sampling, paleontological specimens may need to be molded, cast and scanned with 3D-imaging techniques, such as CT scanning, prior to any destructive sampling procedure that involves cutting, embedding and/or drilling. In particular, histological stubs used to create study slides may need to be molded and cast prior to slide preparation. This ensures that the museum will have an accurate physical and digital representation of the specimen available for researchers after destructive sampling. All molds, casts, 3D models and component parts and matrix shall be returned to the relevant MCZ department.

Following the dissection of biological specimens or the preparation of paleontological specimens, the specimens and any component parts shall be returned to the relevant MCZ department in an appropriate container labeled with the MCZ catalog number. Consult with the corresponding collection manager for proper labeling and packaging protocols prior to returning such materials to MCZ. Data resulting from any destructive analysis (e.g., publications, NCBI GenBank/BioProject/BioSample numbers) shall be reported to the appropriate MCZ department so they can be added to the specimen's online record in MCZbase.

All destructive sampling completed in departmental collections for the purposes of genetic analysis will be transferred to the MCZ Cryogenic Collection (MCZ-CRYO) for loan processing and post-loan monitoring. MCZ-CRYO will complete the loan paperwork, facilitate legal and compliance issues, ship the samples, and complete any necessary follow-up communication with researchers. MCZ-CRYO will monitor these genetic loans and officially close the loan when the borrower informs MCZ-CRYO of the completion of the work, returns unused material or byproducts, provides reprints (PDF copies), and gives written notice of all online sequence database submissions.