

## **QMN PROCEDURE: Destructive Analysis**

### **(Cultures & Histories and Biodiversity & Geosciences Programs)**

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#### **1.0 PURPOSE**

The purpose of this procedure is to establish the parameters for responsible and ethical use of collection items in destructive analysis, which balances the needs of research against the significance and integrity of the collection. The Queensland Museum has a legal, professional and moral obligation to maintain its collections in perpetuity and for the public good; destructive techniques should only be used if there is no other available approach, such as CT scanning, micro CT analysis.

#### **2.0 SCOPE**

This procedure applies to all staff and honoraries in the Cultures & Histories and Biodiversity & Geosciences Programs and external researchers seeking to conduct destructive analysis on collection items. Sections of the collection that may be subject to destructive testing and sampling include:

- Archaeological collections
- Social history collections
- Biodiversity collections
- Geological collections

(Destructive analysis of Anthropological collections will require additional permissions, both internal and external, and will only be undertaken after ethical consideration and community consultation. Destructive analysis of Type specimens, human remains or Secret / Sacred material will not be considered.)

#### **3.0 DEFINITIONS**

**Ancestral remains** refers to skeletal remains, soft tissue or hair samples of deceased Aboriginal people or Torres Strait Islanders. It also includes any plaster casts of human remains.

**Accessioned Items** are Objects or Specimens or Specimen Lots that have been incorporated into the State Collection through the formal process of Registration (numbering), and Accessioning (recording locality and other contextual information in an electronic database).

An **archaeological specimen** is a product of manufacture, alteration or use that may have been modified by or deposited due to human activities. It is primarily of value for its prehistoric, historic, cultural or scientific significance, and discovered on or beneath land or

submerged or partially submerged beneath the surface of any water course or permanent body of water. Such objects may derive from Indigenous, historical, maritime, prehistoric or classical contexts, including stone, plant, faunal, ceramic, glass, metal, charcoal, sedimentological or other materials.

**Burial goods** refers to items found with ancestral remains such as bark coffins and other objects.

A **Collection item** is an Object or Specimen and associated data that has been formally acquired by QMN.

**Destructive analysis** is a procedure that permanently alters, destroys, permanently devalues, or negatively alters in a significant way all or a significant portion of an object, or specimen.

**Documentation** is supporting evidence, recorded in a permanent manner using a variety of media (paper, photographic, electronic etc.) of the identification, condition, history, or significance of an Object, Specimen or collection. This encompasses information that is inherent to the individual Object / Specimen and its associations in its environment as well as that which reflects processes and transactions affecting the Object / Specimen (e.g. Accessioning, documenting, loaning, analysis, treatment etc.). Documentation is an integral aspect of use, management and preservation of an Object, Specimen or collection. All digital and paper based documentation must be collected, maintained and stored in accordance with *QM318: Collection and Research Record Keeping Policy*.

**Frozen Tissue Collection** refers to biological tissue samples stored in the ultra-cold freezer (-80°C) located in the dry invertebrate collection area on level 6, QM&S. The Frozen Tissue Collection is managed as part of the Research Collection.

**Lot** is the term used to define a group of Specimens or Objects recovered from the same location at the same time, which are registered, accessioned, stored and documented together for efficiency reasons based on manageable quantities of Objects (e.g. multiple specimens of insects, fishes, small crustaceans).

An **Object** is a human-made item, often manufactured or created from naturally-occurring materials and made for use in a cultural context. This term differentiates human-made collection items from those acquired in nature (Specimens).

**QMN** means the Queensland Museum Network

**QMATSICC** is the Queensland Museum Aboriginal and Torres Strait Islander Consultative Committee, a group of community representatives which has the responsibility of advising the QM Board of issues, and to consult with communities.

**Research Collection** consists of Objects or Specimens for research or loan generally intended to be kept indefinitely, but not individually registered or had a significance assessment undertaken (see Lot). Specimens retained for destructive analysis are managed as part of the Research Collection.

**Reserve Collection** items are held by various programs and campuses of QMN specifically for the purpose of public display, teaching, public education and or interpretation, non-

scientific loans, etc. The former group of items do not meet QMN criteria for state significance, are not accessioned into the State Collection, nor intended to be held in perpetuity.

**Restricted Collection** pertains to a Collection Item, image, data or information, to which unrestricted access may cause offence or endanger the safety or sanctity of that item, image, data or information, or the survival of the population from which the material was collected. Restricted Collection Items may include rare and threatened species, species of significant commercial value, secret and sacred objects, etc.

**Secret sacred objects** are objects with intrinsic cultural significance to Aboriginal peoples and/or Torres Strait Islanders. This material is traditionally subject to restrictions and/or protocols regarding access and use.

**Specimen** means any animal or plant, or any part, product, egg, seed, or root of any animal or plant or geological sample.

**State Collection** is the official collection of Items registered by QMN through Acquisition or Transfer. It is the sum total of all Accessioned items of scientific or historical significance vested in the Board of QM.

**Type Specimen** is a zoological, palaeontological or mineral Item that serves as the basis for the name of the taxon (i.e. for identification of unnamed material through comparison with the type). Primary Types (holotype, neotype, lectotype etc) and secondary Types (paratype, paralectotypes etc) underpin the concept of the species and its variability in nature. QMN Type Specimens are irreplaceable Items of vital national and international significance for scientific research and identification verification.

A **Voucher Specimen** is an item lodged at QMN to represent (or vouch for) a larger number of putatively identical items collected for various non-taxonomic purposes, such as published ecological surveys, or 'biodiscovery' entities, or a Specimen that is material evidence of the occurrence of a species in a particular locality or belongs to particularly important taxonomic group.

## 4.0 ACTIONS

### 4.1 Requisition and approval process

Requests to undertake destructive testing / sampling for analysis must be submitted via a [\*QM304 Queensland Museum Application for Destructive Sampling\*](#), submitted to the relevant Program Head. Requests will be considered by the relevant Curator, Senior Conservator and Head of Program, therefore researchers should allow at least 4 weeks for the Museum to consider the application and reach a decision. Researchers may, at any stage, be asked to supply additional information regarding the project or analysis technique. (Certain requests may require CEO sign-off and/or additional approvals from internal stakeholders (such as QMATSIACC) and/or external stakeholders; which may extend the decision-making timeframe.)

While every effort will be made to accommodate researcher's requests, decisions concerning destructive analysis of collection items are made on a case by case basis. Some requests may also be subject to state and/or federal legislation. (Requests from the **Frozen Tissue Collection** are subject to a separate policy and procedure: *QM204 Genetic Resources Collection Policy* and *QMN205 Genetic Resources Acquisitions and Loans*.)

The decision whether or not to approve a request for destructive analysis will depend on the following:

- significance, cultural / scientific value, and condition of the item to be sampled
- nature of the sampling and damage or loss expected to the item
- amount of material available and sample size requested
- risks to the item during sampling
- feasibility and appropriateness of the sampling technique
- value of the proposed research and likely outcomes
- likelihood of positive outcome
- experience of the researcher in sampling technique and analysis
- existing or similar research on the collection item or on similar items
- previous sampling and testing of the item requested (or similar or associated collection items)
- potential impact on the ability to carry out future scientific testing
- suitability as a pilot program
- if the same data can be determined/generated via other means

(It should be noted that historical records pertaining to collection items may not be comprehensive and therefore previous treatments, such as chemical applications to surfaces, may not be recorded. These treatments may affect the analysis of the samples.)

If the request is rejected, the QMN will inform the researcher in writing, explaining the reasons for the rejection.

#### **4.2 Onsite or off site sampling**

It is preferred that sampling occurs onsite at QMN, in the presence of a curator or conservator. However offsite sampling by the researcher will be considered with appropriate justification. Researchers carrying out sampling onsite are required to consider any Work Health and Safety risks of the sampling technique and must outline the proposed measures to reduce risks to the collection items, QMN staff and any personnel involved in the sampling process in their application.

Individuals or institutions borrowing material for sampling offsite will be required to undertake a formal loan process, completing a *Research Loan Agreement* application form. In addition, in some cases a fee may be charged in order to recover costs associated with the preparation of the loan material, which would be determined on a case by case basis. (Generally loans will not be granted to graduate students, but may be allowed in certain circumstances where the student's supervisor accepts responsibility for signing the loan agreement, overseeing the process and ensuring the return of collection material.) Researchers must also ensure that they have the appropriate recognised and necessary permits or licenses for shipping specific material across regional or national boundaries, if required. The samples taken remain the property of QMN and must not be transferred to a third party without written permission from QMN. All remaining parts of the collection item, unused portions of the removed sample (including DNA samples) and samples taken for non-destructive testing must be returned to QMN within 3 months following completion of analysis.

#### **4.3 Method and process of sampling**

The location on the item where the sample is to be taken needs to be considered carefully. QMN staff will assess the proposed sampling area on each item and may require further justification if significant or diagnostically important areas are requested. In general samples should be taken from existing fragments or obscured portions of the item.

The researcher will need to provide information regarding 'proof of principle' in their application, outlining where and how the sampling and analytical techniques proposed have been used elsewhere.

Pilot studies on a small selection of collection items may be requested by QMN staff before sampling of large numbers of items are approved.

#### **4.4 Responsibilities and restrictions**

Where permission is granted for destructive analysis, those requesting the analysis must fulfil the following terms and conditions. Failure to comply with the process may prejudice future requests for access to collection items. QMN staff will monitor compliance and ascertain if the work has been undertaken within these conditions. Access may be withdrawn if requirements or instructions are contravened.

(QMN staff are responsible for taking images of the specimen, any measurements (including weight) and ensuring these are attached to the Vernon record, where applicable, prior to any analysis being carried out, to ensure a full record of the object is maintained.)

The researcher is required to provide QMN with copies of any laboratory report or data (including DNA, radiocarbon, or isotopic results), laboratory reference numbers (e.g. Beta-1234), reports, images in original format (X-ray, print, digital etc.), datasets, analytical result, report, thesis or publication based on their research as well as a full written and

illustrated report containing the data sets and results of any analyses. This will become part of the archival record associated with the object.

The researcher must take before and after photographs of all material which is to be sampled (unless any alteration to the specimen is deemed to be so minor as to be insignificant, or result in a positive impact on the value of the specimen). Photographs must include a locator image of the area on the collection item indicating where the sample was removed and a close-up of the relevant area before and after sampling. Each image should include an identifying number or label and should be taken with appropriate skill and lighting so that any necessary details are visible. These images and associated metadata must be supplied to QMN after sampling has occurred.

In addition the researcher must take full measurements (including weight), in order to adequately document the specimen. They must also note information on provenance (e.g. charcoal sample for radiocarbon determination or a valve of a shell for isotopic determination). (The Curator can indicate to the researcher what measurements should occur based on literature references.)

These requirements are required for both samples taken in-house and/or those that are sent offsite for sampling purposes.

QMN staff are responsible for ensuring that any research or knowledge gained from the testing and sampling of its collection is attached to the relevant Vernon record in the QMN Collection Management System and/or filed in the e-File Central Records system. In addition they should ensure that each specimen which has undergone any form of destructive sampling should be annotated with a label indicating the material which was removed, the nature of the study, the researchers name and affiliation, date and any other associated document numbers in order to ensure a direct link remains between the physical specimen and the archived documents.

QMN will consider any confidentiality clauses pertaining to the results and research gained from testing its collection items; but these restrictions must be stated by the researcher at the time of application.

The researcher is to ensure that QMN is fully acknowledged in any report and subsequent publications based on the research. Any images taken by QMN and supplied to the researcher must acknowledge QMN copyright in the credit line. Specialist Museum staff should also be recorded as co-authors on any paper arising from the research if they have made a significant contribution during the development or discussion of the project, during sampling, testing, analysis or interpretation phase of the project. The museum reserves copyright and all other commercial, moral and intellectual property rights to material in its collections.

Researchers must seek permission to reproduce any images of the collection items for reports and publications separately, via the *QMN Publications and Photography* section as fees and copyright restrictions may apply.

All documentation associated with destructive analysis must be scanned and attached to the relevant record in Vernon (where one exists) and hard copies must be kept in the appropriate file located in the Collections and Research Records area (whether that is the designated CRRC located in the QM&S Library or a campus / Collection specific repository) in accordance with *QM319 Collections and Research Record Keeping Procedure*.

## 5.0 POLICY BASIS

The *QM78 QMN Collection Policy* outlines the underlying legislation and general requirements relevant to the application and interpretation of this procedure.

In relation to Biodiversity collections, this procedure upholds the core obligations of the *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS)* (as a supplementary agreement to the Convention on Biological Diversity) with reference to benefit-sharing and compliance obligations.

## 6.0 DOCUMENT HISTORY

VERSION	DATE	AMENDMENT
0.1	April 2015	Initial draft circulated for comment
1.0	Sept 2015	Comments incorporated from Natural Environment and Cultural Environment staff

## 7.0 AUTHORISATION

<b>Approved by:</b>	Prof. Suzanne Miller
<b>Title:</b>	CEO, QMN
<b>Signature</b>	
<b>Approval date:</b>	05/09/2015

## 8.0 MORE INFORMATION

<b>Policy owner/creator:</b>	Head, Collection Services
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## 9.0 REVIEW PROCESS

This document will be reviewed every 2 years and at other times if any significant new information or legislative or organisational change warrants a change to this document.

*Once printed this document is no longer a controlled document.*