

Assessment of Taphonomic Alterations

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Assessment of Taphonomic Alterations

1 INTRODUCTION

This document describes procedures for assessing taphonomic changes to remains and skeletal material.

2 SCOPE

This document applies to Anthropology Examiners in the Trace Evidence Unit (TEU).

3 EQUIPMENT

- General laboratory supplies
- Personal protective equipment (e.g., lab coat, gloves, eye protection)

4 PROCEDURE

- A. ANTHRO-300: Forensic Anthropological Examinations will be followed.
- B. The assessment of taphonomic alterations may be performed for the purposes of documenting changes to soft tissues and/or skeletal tissues, differentiating taphonomic alterations from antemortem or perimortem trauma, and estimating the postmortem interval (PMI).
- C. Any referenced literature or material will be cited in the case notes. Appropriate reference literature includes relevant studies appearing in peer-reviewed journals or edited volumes and texts. Skeletal reference material includes bones, bone replicas, and bone casts produced or used for the purpose of skeletal examination and comparison.

4.1 Soft Tissue Taphonomic Alterations

- A. Following death, cellular and microbial processes (autolysis and putrefaction) result in changes to and reduction of soft (i.e., non-skeletal) tissues of the body.
- B. Examinations of soft tissues may include visual, microscopic, and/or radiologic analysis.
- C. In some cases, the condition of soft tissues may be scored according to published classification systems.
- D. Relevant information regarding the condition of soft tissues may include:
 - Presence/absence of tissue
 - Presence/absence of odor
 - Color
 - Distribution of tissue
 - Bloating
 - Marbling
 - Skin slippage
 - Mummification
 - Saponification

4.2 Skeletal Taphonomic Alterations

- A. Skeletal tissues are subject to modification by agents in the depositional environment.
- B. Relevant information regarding the condition of skeletal tissue may include:
 - Preservation (e.g., well-preserved, poorly-preserved)
 - Staining/color
 - Root presence/etching
 - Weathering (e.g., bleaching, cracking, flaking, warping, erosion)
 - Scavenging (e.g., disarticulation, missing bone, pitting, scoring, striations); in some cases, certain modifications can be associated to a particular scavenging group (e.g., carnivore, rodent)

4.3 Postmortem Interval (PMI) Estimation

- A. PMI estimation is typically based on the degree of soft tissue and/or skeletal taphonomic alteration, often combined with knowledge of the depositional environment, and usually derived from case study analyses and climate-specific research.
- B. In many cases, PMI estimates are qualitative and broad.
- C. In some cases, scoring systems and associated formula(e) may be used. The method used, scores, and calculations will be recorded in the case notes.

5 LIMITATIONS

The conclusions that can be reached from anthropological examinations assessing taphonomic alterations are dependent on the condition and completeness of the remains, as well as knowledge of the depositional environment. Results based on fragmentary or poorly preserved material or limited information on the depositional environment may be inconclusive.

Due to the number variables that affect postmortem tissue changes, the postmortem interval is an estimate. With increasing length of the postmortem interval, fewer methods are available and are typically less precise.

6 SAFETY

- While working with physical evidence, laboratory personnel will wear at least the minimum appropriate protective attire (e.g., laboratory coat, safety glasses, protective gloves).
- Universal precautions will be followed.
- Exposure to physical, biological, and chemical hazards may be associated with the examination techniques performed. Safety procedures related to specific materials, instruments or equipment will be followed. Refer to the [FBI Laboratory Safety Manual](#) for guidance.

7 REFERENCES

FBI Laboratory Safety Manual (current version)

ANTHRO-300: Forensic Anthropological Examinations (current version)

8 REVISION HISTORY

Revision	Issued	Changes
01	02/10/2020	Changed 'forensic anthropologist' to 'Anthropology Examiner' in Scope and 'examiner' throughout. Removed 'Sample Selection' from Section 4 title. Updated Fordisc to FORDISC throughout for consistency. Updated examples for Section 5.2 Scavenging.
02	01/28/2022	Formatting and language changes to conform to new template.