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Standard for Taphonomic Observations in Support of the Postmortem Interval

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Foreword

Taphonomic observations are an important part of the investigation of unidentified human remains, particularly in regards to the estimation of postmortem interval. This document is intended to assist forensic anthropologists with observations related to taphonomy and the postmortem interval.

The American Academy of Forensic Sciences established the Academy Standards Board (ASB) in 2015 with a vision of safeguarding Justice, Integrity and Fairness through Consensus Based American National Standards. To that end, the ASB develops consensus based forensic standards within a framework accredited by the American National Standards Institute (ANSI), and provides training to support those standards. ASB values integrity, scientific rigor, openness, due process, collaboration, excellence, diversity and inclusion. ASB is dedicated to developing and making freely accessible the highest quality documentary forensic science consensus Standards, Guidelines, Best Practices, and Technical Reports in a wide range of forensic science disciplines as a service to forensic practitioners and the legal system.

This document was revised, prepared, and finalized as a standard by the Anthropology Consensus Body of the AAFS Standards Board. The draft of this standard was developed by the Scientific Working Group of Forensic Anthropology (SWGANTH) and updated by the Anthropology Subcommittee of the Organization of Scientific Area Committees (OSAC) for Forensic Science.

Questions, comments, and suggestions for the improvement of this document can be sent to AAFS-ASB Secretariat, asb@aafs.org or 401 N 21st Street, Colorado Springs, CO 80904.

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Keywords: *Forensic Anthropology, Taphonomy, Postmortem Interval, Depositional Environment.*

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Standard for Taphonomic Observations in Support of the Postmortem Interval

1 Scope

This standard provides requirements for describing and analyzing the taphonomic effects on human remains and associated evidence that can be observed in the laboratory as well as in the field. Also, it provides requirements for recording and reporting the taphonomic and contextual indicators that contribute to estimating the postmortem interval in sufficient detail to allow for independent interpretation, replication, and verification of conclusions drawn.

2 Normative References

There are no normative references.

3 Terms and Definitions

For purposes of this document, the following definitions apply.

3.1
depositional environment
The combination of physical, chemical, biological, and cultural processes associated with a deposit in a particular type of environment that may contain human remains.

3.2
postmortem interval
PMI
The time between death and discovery of the decedent or remains; also known as time since death.

3.3
skeleton/skeletal
Osseous, cartilaginous, and/or dental tissues.

3.4
taphonomy
The study of the processes affecting remains after death.

4 Requirements

4.1 General

The environmental context of the remains shall, when possible, be thoroughly documented, both during recovery and in the laboratory. This documentation shall include the environment of the remains, their context, and postmortem modification to soft and hard tissues. Laboratory processes, such as maceration, cleaning, and reconstruction shall be fully documented.

Skeletal material and soft tissue shall be examined in a systematic manner for the purpose of documenting abnormalities related to both depositional and laboratory environments.

4.2 Procedures

4.2.1 The completeness and preservation of the human remains shall be described and interpreted as part of the analysis.

4.2.2 Taphonomic conditions and anomalies shall be assessed in comparison with standard exemplars when possible. While gross observation may suffice to identify many taphonomic indicators, microscopic examination should be used for identification as necessary.

4.2.3 Any proffered interpretation of findings shall be supported by the scientific and/or taphonomic literature. Reasonable alternative interpretations shall be documented particularly if supporting literature does not exist.

4.2.4 Definitive conclusions shall not be drawn if the findings are equivocal.

4.3 Documenting Taphonomic Processes

4.3.1 The practitioner shall document all observations of taphonomic conditions and anomalies that are likely to have probative value.

4.3.2 Taphonomic changes resulting from abiotic, biotic, and chemical agents; thermal events; anthropogenic effects; and decompositional processes shall be documented when applicable.

4.3.3 Forensic anthropologists shall not interpret taphonomic events as trauma or use terms such as “trauma” and “injury” to describe taphonomic events or alterations.

4.4 Postmortem Interval Estimation

4.4.1 The context, including taphonomic indicators shall be used to describe the condition of a body. Where possible, pertinent decompositional indicators should be described and recorded, not just a phase or score (e.g., “early decomposition”).

4.4.2 The method selected to estimate postmortem interval should most closely match the physical and depositional environments of the case being examined. The observed factors that influence the rates of decomposition shall be described in notes and the report. To that end, the variables that influence decomposition shall be documented and may include ecological factors, physical characteristics, or modifications of the remains, among others.

4.4.3 All estimates of the PMI shall be referenced and supported by scientific observations. Extremely precise estimates shall be avoided, unless supported by scientific observations.

4.5 Considerations

A multidisciplinary approach should be used whenever possible. The analyst should be familiar with other disciplines’ (e.g., biology, chemistry, forensic entomology) recommended collection and preservation strategies, so that evidence may be submitted to an appropriate analyst at a later date.

4.6 Reporting

The practitioner shall report all observations of taphonomic conditions and anomalies that are likely to have probative value. Documentation shall include a written description and supporting

images including any exemplars used (e.g., photographs and sketches) and be of sufficient detail to allow for independent interpretation, replication, and verification of the work performed and the conclusions drawn.

Because taphonomic indicators and signatures can be epiphenomenal, inconsistent indicators shall be documented and described. If possible, the level of uncertainty (e.g., a prediction interval) based on published research shall be stated when using observations to reconstruct taphonomic processes to estimate a postmortem interval. Analytical artifacts (such as modifications created during maceration or recovery) shall be documented.

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