OSAC RESEARCH NEEDS ASSESSMENT FORM

Title of research need: Textile Damage Caused by Animal Attacks

Keyword(s): Textile, damage, animal, bite, tear, attack

Submitting subcommittee(s): Trace (Materials) **Date Approved:** 6/12/2025

Background Information:

1. Does this research need address a gap(s) in a current or planned standard? (ex.: Field identification system for on scene opioid detection and confirmation)

Yes, the in-progress draft titled Forensic Examination of Textile Damage and Textile Impressions.

2. Are you aware of any ongoing research that may address this research need that has not yet been published (e.g., research presented in conference proceedings, studies that you or a colleague have participated in but have yet to be published)?

Yes, but it is limited and researchers have not sufficiently compared animal caused damage to other types of fabric damage typically found in forensic casework

3. Key bibliographic references relating to this research need: (ex.: Toll, L., Standifer, K. M., Massotte, D., eds. (2019). Current Topics in Opioid Research. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88963-180-3)

Hearle, John WS, Brenda Lomas, and William D. Cooke. *Atlas of Fibre Fracture and Damage to Textiles*. Elsevier, 1998.
Taupin, Jane Moira, and Chesterene Cwiklik. S*cientific Protocols for Forensic Examination of Clothing*. CRC Press, 2010.
Molina, G., De Luca, S., & Scarso, F. (2022). *Analysis and Identification of Damages Caused by Canine (Canis lupus familiaris) Manipulation of Woven Textiles as Cultural Evidence in Forensic Cases*. Forensic Anthropology, 5(3).

4. Review the annual operational/research needs published by the National Institute of Justice (NIJ) at https://nij.ojp.gov/topics/articles/forensic-science-research-and-development-technology-working-group-operational#latest? Is your research need identified by NIJ?

No.

5. In what ways would the research results improve current laboratory capabilities?

This research would address the ability to interpret textile damage in an attempt to determine potential causes of the damage observed. There are instances in which the cause of textile damage can be very important to an investigation. The ability to determine whether the damage was caused by an animal during a discrete attack, by one or more animal scavengers over a prolonged period of time, or by an object wielded by a human, is currently not well understood from a scientific perspective. Perhaps the most famous case illustrating the difficulty of answering this question occurred during the investigation into the death of Azaria Chamberlain in Australia. In this case, the

prosecution claimed that the parents caused the damage to the baby's clothing while the defense claimed that a wild dingo had attacked and killed the baby. Ultimately, this question was never satisfactorily answered.

6. In what ways would the research results improve understanding of the scientific basis for the subcommittee(s)?

This research would provide fundamental knowledge that is not within the current scientific literature.

7. In what ways would the research results improve services to the criminal justice system?

It would provide fundamental research that would augment the interpretation abilities of trace evidence examiners. The prosecution and defense often propose conflicting theories as to the cause of textile damage. Having more solid, science-based research into this topic would enhance the abilities of examiners to evaluate the physical evidence and interpret the findings in a report. Textile damage studies from cutting implements and projectiles have been published, however there is little documentation on damage caused by animals (biting, tearing, etc.) and whether the various dental configurations of different animals can produce a variety of textile damage patterns.

8. Status assessment (I, II, III, or IV): I

	Major gap in current knowledge	Minor gap in current knowledge
No or limited current research is being conducted	I	III
Existing current research is being conducted	II	IV

This research need has been identified by one or more subcommittees of OSAC and is being provided as an informational resource to the community.