



OSAC Research Needs Assessment Form

Title of research need: Geographic and seasonal variation of postmortem changes

Keywords: pathology, identification, cause of death, postmortem interval, decomposition

Submitting subcommittee(s): Medicolegal Death Invest **Date Approved:** 1/28/16

(If SAC review identifies additional subcommittees, add them to the box above.)

Background information:

1. Description of research need:

To develop a robust understanding of the extent to which geographic and seasonal variables affect postmortem changes. These variables are numerous and should include those such as temperature, humidity, precipitation, biological/decomposer activity, housing type, and vegetation. This list of variables is not exhaustive and the research should be conducted in terrestrial and aquatic systems.

2. Key bibliographic references relating to this research need:

Carter D.O., Metcalf J.L., Bibat A. & Knight R. (2015). Seasonal variation of postmortem microbial communities. *Forensic Sci Med Pathol*, 11, 202-207.

Dabbs, G.R., Martin D.C. (2013) Geographic variation in the taphonomic effect of vulture scavenging. *J Forensic Sci*, 58:S20-S25.

Haglund W.D., Sorg, M.H. (1997) *Forensic Taphonomy: The Postmortem Fate of Human Remains*. CRC Press: Boca Raton, FL

Meyer J., Anderson B. & Carter D.O. (2013). Seasonal variation of carcass decomposition and gravesoil chemistry in a Cold (Dfa) climate. *J Forensic Sci*, 58, 1175-1182.

3a. In what ways would the research results improve current laboratory capabilities?

This research would help medicolegal death investigators interpret postmortem changes, which can differ between geography and season. This research would also result in the identification of geographically/seasonally unique physical evidence and decomposition processes. For example, some insects are only associated with certain geographies during certain seasons. Also, the rate of some postmortem changes are slowed or inhibited in certain geographies and seasons.

3b. In what ways would the research results improve understanding of the scientific basis for the subcommittee(s)?

Understanding the development of postmortem changes in contrasting geography and season could improve the ability to establish cause of death, postmortem interval, and locate clandestine graves. These improvements should also contribute to establishing the identity of the deceased.

3c. In what ways would the research results improve services to the criminal justice system?

The understanding of these regional differences would improve the decision-making process and efficiency of medicolegal death investigation. Ultimately, improved establishment of the postmortem interval can assist with the development of a timeline.

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

II

	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.

Subcommittee

Approval date:

(Approval is by majority vote of subcommittee. Once approved, forward to SAC.)

SAC

1. Does the SAC agree with the research need? Yes No

2. Does the SAC agree with the status assessment? Yes No

If no, what is the status assessment of the SAC:

Approval date:

(Approval is by majority vote of SAC. Once approved, forward to NIST for posting.)