G94 A DNA Database for Species Identification of Forensically Important Flesh Flies (Diptera: Sarcophagidae) in the Continental United States

Trevor I. Stamper, PhD, 3516 State Route 222, Batavia, OH 45103- 9708; Alice E. Timm, PhD, Department of Biological Sciences, University of Cincinnati, Cincinnati, OH 45221-006; Gregory A. Dahlem, PhD, Department of Biological Sciences, Northern Kentucky University, Highland Heights, KY 41099; and Ronald W. DeBry, PhD, Department of Biological Sciences, University of Cincinnati, Cincinnati, OH 45221-0006*

The goal of this presentation is to inform attendees of the basic content for a newly developed DNA database for the identification of carrion flies in the continental United States. In particular, emphasis is placed upon the flesh flies (Diptera: Sarcophagidae), a hitherto largely unusable resource due to the lack of expertise in species identification for either adults or immature (larval or pupal) stages.

This presentation will impact the forensic science community because with this tool, species identification of sarcophagid flies is possible in a fast, precise method. This will then allow flesh flies, species commonly encountered at carrion, to be used by forensic entomologists in postmortem interval (PMI) estimation.

Species were collected from as far across their United States geographic range as possible. Geographic patterns of the mtDNA locus as well as the utility of subdivisions of the locus for species identification will be discussed.

Additionally, data is also provided for other sarcophagid species that are believed to be closely related to forensically important species, or might be confused for forensically important species from morphological examination. In total, we report on twenty three individual species, for a total of over 200 specimens. All specimens are vouchered in a collection that will be publicly available, allowing for future comparison of the original specimens if necessary.

This sarcophagid data joins the 300 plus specimens already sequenced from the families Calliphoridae and Muscidae to provide the most comprehensive database to date for the sole purpose of species identification of these flies and allows for the first time a rapid, independent verification of almost every major species found actively involved in the decomposition process.

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 ** Presenting Author*