## H18 *Lucilia eximia* (Wiedemann) (Diptera: Calliphoridae) Attraction and Colonization Behavior: A Little-Studied Species With Great Forensic Importance

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**Learning Overview:** After attending this presentation, attendees will have a better understanding of how an understudied blow fly species *(Lucilia eximia*) is of forensic importance. This information will enhance the forensic sciences, particularly in case reports involving medicolegal entomology, such as neglect and abuse, as well as will assist in civil litigations involving stored product and urban entomology.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by discussing the attraction and selection of decomposing animal remains by an understudied blow fly species. This research can aid in forensic entomology case reports in urban, stored product, and/or medical legal entomology.

*Lucilia eximia* (Wiedmann) (Diptera: Calliphoridae) is a forensically important blow fly native to the southern United States and South America and has been documented colonizing both dead and living (via myiasis) animals. Previous research indicated that *L. eximia* will readily colonize small carrion resources, even when colonized with fire ants *Solenopsis invicta* (Hymenoptera: Formicidae). Beyond this, understanding of *L. eximia* biology is largely unknown.

This research aims to better understand carcass selection, acceptance, and survivorship of *L. eximia* on small carrion resources. *L. eximia* was hypothesized to exhibit preferences for select types of carrion for greater offspring fitness. To test this hypothesis, dual choice cube olfactometers were utilized to provide 150 *L. eximia* adults the choice between one of the following: rats and a control (nothing), chicks and a control (nothing), or rats and chicks. Blow flies were allowed eight hours to make a choice between options specified above. This was repeated across three days, allowing the carrion to age without insect access. A second assay allowed carrion access to carrion by placing the carrion within a cage with 150 adult *L. eximia* for eight hours. Eggs were then removed from the carrion and weighed; this study was also conducted across three days to account for carrion aging. A final assay took *L. eximia* larvae and placed first instar larvae directly into a 30cm incision created on the abdomen of chick and rat carrion. Chick carrion had a maggot mass of 50 larvae, while rats had either 50 or 150 larvae placed in the incision site. *Lucilia eximia* were then allowed to reach adulthood before calculating successful pupations, emergence, and adult morphometrics.

Data indicate *L. eximia* does have preference for carrion type and age, specifically, for aged rat carrion, where eggs were laid on aged rat carrion up to two times more than chick. These results provide greater insight to what *L. eximia* are colonizing and where they may be of utmost importance. Specifically, *L. eximia* prefers small carrion and may be of greater significance in medicolegal cases involving neglect of children and small animals (i.e., forensic veterinary medicine). This medicolegal significance is in addition to being important in urban and stored product entomology.

**Calliphoridae, Medicolegal, Entomology**



*Presenting Author