

William J. Lechel, II Memorial Scholarship

SCHOLARSHIP APPLICATION FORM

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ESSAY TITLE: NOCTURNAL OVIPOSITION BEHAVIOR OF BLOWFLIES IN MID MICHIGAN

Abstract:

Forensic entomology is the use of insects in matters that pertain to the court. The most common use of forensic entomology is medico-legal, which is establishing the post mortem interval (PMI) to aid investigators in determining the time of death. The PMI is calculated on the assumption that blowflies do not oviposit during the nighttime hours. The goal of this research is to determine whether the blowflies of mid-Michigan will oviposit during nocturnal hours and, if so, under what conditions. Data gathered from this research will be of extreme importance to the Forensic Entomology community because it will provide more data on the behavior of the blowflies, and information that will enable forensic entomologists to assess the PMI. The first field season studied blowfly behavior in relation to sunset, while the second field season studied blowfly behavior in relation to sunrise. Temperature and light data were collected in each of the trials. In field season one oviposition occurred two hours before sunset twice, one hour before sunset three times, at sunset twice, and zero times at one hour or two hours after sunset. The species that oviposited were *Phormia regina*, *Phaenicia sericata*, *Phaenicia coeruleiviridis* and *Calliphora vomitoria*. *P. coeruleiviridis* was the most frequent ovipositor. In field season two the average time that flies first appeared after sunrise was 0718. The average temperature and light readings at this time were 19.63°C and 3990 lux, respectively. The average time that oviposition occurred was 1225 with an average temperature of 33.81°C and an average light reading of 18655 lux. The species that oviposited were *P. sericata*, *C. vomitoria*, *Calliphora vicina*, *P. regina* and *Cochlimoyia macellaria*. The most frequent ovipositor was *P. sericata*. Oviposition occurred zero times in the laboratory study. The results of the Chi-squared test that pooled both season's data to see if there was a difference in oviposition rates between day and night yielded a p-value of <0.01, meaning that there is <1% chance of seeing oviposition after dark.