



E87 Evaluation of Decomposition and Insect Colonization of Pig (*Sus Scrofa*) Cadavers Inside a Vehicle

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After attending this presentation, attendees will better understand the complexities involved in the assessment of remains recovered from the trunk of a vehicle; and how factors such as insect colonization delay, extreme temperatures, differing decomposition rates, and vehicle model must be considered.

This presentation will impact the forensic science community by illustrating how very few publications and little information regarding decomposition in a vehicle is available. This presentation will also include findings to enrich the forensic science community within this area such as explaining how the make of a vehicle can have an effect on insect colonization delay, as well as providing a clearer picture of decomposition in a closed vehicle environment.

Decomposition of a body in an open environment has been extensively studied; however, little is known of decomposition and insect succession within a closed environment, such as a vehicle. Decomposition in a closed environment will delay access of arthropods to the body, generate temperatures different than those in an open environment, and result in an altered rate of decomposition.

This study was conducted in southern Ontario, Canada, for two consecutive summers, using pig (*sus scrofa*) carcasses of similar biomass (25kg-27kg). Vehicles differed for each summer and specifically were a 1996 Volkswagen® Jetta® and a 1996 Pontiac® Sunfire®. For both experiments, the experimental carcass was placed in the trunk of the vehicle and a control carcass was positioned, unsheltered, on the ground 20 meters from the vehicle. Data loggers were placed inside the vehicles to record trunk and cabin temperature and humidity. In addition, a weather station was erected near the control carcass to record ambient temperature, humidity, and rainfall. To avoid introducing insects into the vehicle, sampling methods were developed to investigate the delay of insect colonization, pattern of insect succession, and general decomposition of the carcasses.

Results showed a delay of insect colonization of the pigs inside the vehicles of up to four days, as well as a greatly reduced species diversity. The elevated temperatures inside the trunk contributed to the rapid desiccation of the remains and, coupled with the accumulation of ammonia gas, resulted in the high mortality of insects. Despite using similar vehicles, differences in colonization delays were present on the experimental pigs, stressing that vehicle model should also be considered when conducting such a study.

Forensic Entomology, Vehicle, Colonization Delay