



### H158 The Impact of Confinement in Vehicle Trunks on Decomposition and Entomological Colonization of Carcasses

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**Learning Overview:** The goal of this presentation is to inform attendees about the impact on decomposition and insect colonization when confining a carcass inside a vehicle trunk in comparison with exposed carcasses.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by showing the differences in entomological colonization and decomposition and delay in colonization caused by confining a carcass inside a vehicle trunk, a common way of disposing of a body. It is important that these differences are understood by forensic investigators, particularly forensic entomologists.

In order to investigate the impact of confinement in a car trunk on decomposition and insect colonization of carcasses, three freshly killed pig (*Sus scrofa domesticus* Erxleben) carcasses were placed individually in the trunks of older-model cars and deployed in a forested area in the southwestern region of British Columbia, Canada (Coastal Western Hemlock Biogeoclimatic Zone, Dry Maritime Subzone), together with three freshly killed similar carcasses that were exposed in protective cages in the same forest. The cages prevented bears and other vertebrates from removing the carrion but allowed insect access. Decomposition rate and insect colonization of all carcasses was examined twice a week for four weeks. At each collection time, the cars were covered with an extensive plastic sheet to prevent egress and ingress of insects while the researcher entered the vehicle for collection.

The exposed carcasses were colonized immediately by *Calliphora latifrons* (Hough) and *C. vomitoria* (Linnaeus) (Diptera: Calliphoridae), followed by *Lucilia illustris* (Meigen), *Phormia regina* (Meigen), and *Protophormia terraenovae* (R.-D.). There was a delay of three to six days before the confined carcasses were colonized, first by *P. regina*, followed by *Pr. terraenovae*. These species remained the sole blow fly species on the confined carcasses. Temperatures were greatly increased inside the vehicles. Despite the delay in colonization, decomposition progressed much more rapidly in two of the confined carcasses in comparison with the exposed carcasses due to the greatly increased temperatures inside the vehicles, with the complete skeletonization of two of the confined carcasses between 9 and 13 days after death. One confined carcass was an anomaly, attracting many fewer insects, supporting fewer larval calliphorids, and decomposing much more slowly than other carcasses, despite similarly increased temperatures. It was later discovered that the vehicle in which this carcass was confined had a solid metal fire shield between the passenger area and the trunk, which served to reduce insect access and the release of odors. These data may be extremely valuable when analyzing cadavers found inside vehicle trunks.

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#### Entomology, Confinement, Decomposition