



Physical Anthropology Section - 2012

H75 Taphonomic Impacts of Small and Medium- Sized Scavengers in Northern New England

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After attending this presentation, attendees will better understand the impact small and medium-sized scavengers can have on postmortem processes and on the estimation of postmortem interval (PMI).

This presentation will impact the forensic science community by emphasizing the role of regionally specific scavenger guilds in outdoor cases.

Published models of decomposition generally assume a progressive skeletonization that includes fresh, bloat, early decay, late decay and skeletal phases, a process that includes insect involvement and excludes mammalian and avian scavengers. However, when scavengers remove soft tissue, they can truncate this process, skip bloat and/or decay phases, and move directly to skeletonization.

Apart from increasing the skeletonization rate, scavengers may disarticulate, scatter and consume elements, altering PMI estimations. Furthermore, insect PMI indicators may be limited or absent in scavenged cases. First, when scavengers remove flesh, although insects may be attracted to the odor, there is little left for larval stages to feed on. Second, in colder climates, much of the year is too cold for insect activity, whereas carnivorous scavengers are active year-round.

Three pig cadavers were placed in similar forested, highland environments on October 20, 2010, in northern New England, about one mile apart. Replicating modal forensic cases, pigs were placed 15-30 meters off unpaved access roads. Cadavers were clothed to provide human scent. Each site was equipped with two trail cameras for 24-hour surveillance. Temperature and humidity data loggers at each site were set for hourly monitoring. Sites were visited approximately weekly and at that time, close-up photographs were taken of the cadavers.

Between October and early April temperatures at all three sites (Sites M, N, and O) remained below 5°C. From late December to early April the sites were snow-covered. All three cadavers were scavenged, but scavenger patterns differed. The Site M cadaver was unscavenged until late April, when turkey vultures consumed and scattered the remains. Insect infestation was concurrent. Sites N and O had no insect infestation.

At both Sites N and O, when snow was approximately 2.5 feet deep, raccoons built snow tunnels to access cadavers. The Site N cadaver, unscavenged until February 17, was then defleshed in 60 days, while snow-covered. Scavenging at Site O began in early December, prior to snowfall, and continued throughout winter, defleshing the remains by April 15. Ravens, turkey vultures, and a bobcat also utilized the snow tunnels.

The scavenger guild included pine marten, raccoon, bobcat, porcupine, skunk, ermine, turkey vultures, crows, ravens, blue jays, and chickadees. Coyotes, bears, and eagles visited the sites, but did not feed. Insect infestation and bloating did not begin until six months postmortem. Two of three sites had no insect involvement, but were entirely defleshed during winter, mostly while under snow cover.

By June, scatter extended approximately 15 meters at each site. Most bones were still present and there was very little bone chewing. The original body location at Sites N and O were identifiable due to the presence of clothing. At Site M clothing is associated with a decomposition island. Sites N and O have characteristics that may have influenced scatter. The N Site was located on a gentle slope, and scattering of this cadaver was dispersed down-slope from the original deposition. The O site, located on flat terrain, had a game trail; scatter extended primarily along this trail.

These sites exhibit modification and scatter from small and medium-size scavengers in a wooded environment from late fall through spring. More research is needed to explore whether these patterns are typical of these taxa in this environment.

This project is supported by the National Institute of Justice, Office of Justice Programs, U. S. Department of Justice. The opinions, findings, conclusions or recommendations expressed in this presentation are those of the authors and do not necessarily reflect those of the Department of Justice.

Taphonomy, Scavenging, Decomposition