A145 Instars and Stripes: The Scavenging Behavior and Taphonomic Contribution of the Striped Skunk

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Learning Overview: After attending this presentation, attendees will understand scavenging activities of the American striped skunk (*Mephitis mephitis*) as they relate to human taphonomy.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by presenting observations of the scavenging activities of the striped skunk, which may affect trauma and entomological analyses associated with medicolegal investigations.

Scavenging frequently plays a role in the taphonomy of human remains in outdoor contexts. Certain scavengers are known to scatter remains, while others affect a case simply by consuming tissues, which can affect the decomposition sequence and potentially the determination of the postmortem interval. Understanding the type and behavior of scavengers is thus a crucial part of analyzing remains found outdoors.

The research in this presentation was conducted at the Northern Michigan University Forensic Research Outdoor Station (FROST) in Marquette, MI. Common scavengers and carrion feeders of this area include coyotes, bears, gray and red foxes, eagles, gulls, and turkey vultures, though only red foxes and skunks have been observed during data collection activities at FROST. To prevent large scavengers and carrion birds from harming or removing the donor remains at FROST, each body is protected by a large metal mesh cage.

FROST is unique in its location as a forensic research facility, experiencing long, often extremely cold, winters with substantial snow accumulation and several freeze-thaw cycles in a given year. This climatic characteristic markedly affects the decomposition process, but may also affect the scavenging behavior of animals in the area. To better understand the scavenger activity as well as non-scavengers (e.g., songbirds, rodents, deer, etc.), FROST researchers set up trail cameras near recently placed donor remains. The cameras are checked for functionality, and the images are downloaded on a regular basis. The cameras are currently programmed to capture four-image bursts each time they detect motion, 24 hours per day. On several occasions, scavenger activity was noticed on donor remains prior to camera placement, resulting in the setup of a camera in a location that may not have been of interest initially.

Based on previous sightings of foxes and other small mammals in and around the site, many of the animals captured on the trail cameras were unremarkable (e.g., foxes, rabbits, squirrels, and birds), and none have been observed penetrating the cages and scavenging the donor remains. The striped skunk, however, was somewhat surprising, as it represents the overwhelming majority of documented scavenger activity at the site and has repeatedly managed to get inside the protective cages. The skunk appears to be the only recently active scavenger, and trail camera photos demonstrate the consumption of both human tissue and maggot masses when a skunk is present.

Through analysis of the trail camera images and daily observations of the donor remains, FROST researchers have noted two distinct feeding times, as a skunk is often recorded in the late evening and then again in the very early morning, with generally less activity in-between. Skunks also appear to have a preference for scavenging the tissue of the limbs and face, similar to documented observations of raccoons, although there is footage of one skunk consuming tissue from the abdomen of a donor.[1,2] Scavenging of maggot masses is most commonly evidenced by clean-scraped dirt in areas where maggot masses have been observed, indicating that the skunks have scraped up and consumed the maggots. For several months, FROST was frequented by what appeared to be a single skunk, but since mid-July of 2019, four new skunks have been documented. These additional skunks are smaller than the original, suggesting a sharing of knowledge regarding a reliable food source from parent to offspring.

While skunks are known to be carrion feeders and have been observed by researchers during previous taphonomy studies, this is the first instance, per research, of skunks not only representing the primary mammalian scavengers at a site, but also apparently displaying behavior indicating a transfer of knowledge of the human tissue as a food source.[3-5] These observations contribute to the understanding of the ways in which the scavenging activities of the American striped skunk affect human taphonomy.

Reference(s):

1. Steadman D.W., Dautartas A.M., Mundorff A.Z., Vidoli G.M., and Jantz L.M. Differential Racoon Scavenging among Pig, Rabbit, and Human Subjects. *Proceedings of the American Academy of Forensic Sciences*, 68th Annual Scientific Meeting, Las Vegas, NV. 2016.
2. Steadman D.W., Dautartas A., Kenyhercz M.W., Jantz L.M., Mundorff A., Midoli G.M. Differential Scavenging among Pig, Rabbit, and Human Subjects. *J Forensic Sci* 2018: 63(6): 1684-1691.
3. Bright L.N. and Morton R.J. Taphonomic Signatures of Animal Scavenging: The Benefits of Using Remote Recording Equipment to Monitor Scavenging Activity. *Proceedings of the American Academy of Forensic Sciences*, 64th Annual Scientific Meeting, Atlanta, GA. 2012.
4. Morton R.J., Lord W.D. Taphonomy of Child-Sized Remains: A Study of. Scattering and Scavenging in Virginia, USA. *J Forensic Sci* 2006: 51(3): 475-479.
5. Sharanowski B.J., Walker E.G., Anderson G.S. Insect Succession and Decomposition Patterns on Shaded and Sunlit Carrion in Saskatchewan in Three Different Seasons. *Forensic Sci Int* 2008: 179: 219-240.

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