



A17 Effects of Scavenging Birds and Insects on Decomposition Time of Pig Carcasses at the Rice Creek Field Station

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After attending this presentation, attendees will better understand the role of avian scavenging during the decomposition process and how presence and timing of avian species differs between seasons in upstate New York.

This presentation will impact the forensic science community by providing an understanding of how avian species, habitat, and temperature ranges in the Northeast have different impacts on scavenging and carrion preservation levels. This presentation will add knowledge to an area of little research pertaining to avian scavengers and their impact on decomposition particularly in upstate New York.

A few studies have focused on avian scavenging or briefly discussed their contribution to the decomposition process; however, this subject has been severely understudied in the temperate Northeast.¹⁻⁴ Compared to mammals, avian carnivores are known to be more adapted with their abilities to scavenge for carrion.⁵ The effect of this region's climate and geography both play a role in the type of scavengers seen.

For this research, four separate 10'-diameter plots of 2"x4" mesh fencing were placed throughout the grounds at two different environmental locations in Rice Creek Field Station at the State University of New York at Oswego, NY. The control plot fencing was covered with bird netting to allow for natural decomposition without the effect of any scavengers. One pig (*Sus scrofa domesticus*) carcass was placed in each plot during the autumn of 2014 and the spring of 2015 ($n=8$). The two environments were open grassland and woodlands, both with an accompanying control. The autumn experiment ran from October 1 until December 1 and the spring experiment was from March 2 until late May. During decomposition, wildlife cameras were set out and checked weekly during midday hours.

The fall experiment pigs were predated on by a single avian species, turkey vultures. Maggots dominated the percentage of insect activity and had the most effect on decomposition. Vultures visited both the open and wooded experimental sites for only week two of the project. The average feeding time for vultures was 28.7 minutes over the course of five days. Observations found all pigs decayed by 80% within four weeks of placement. Insects primarily affected the rate of decomposition, with scavenger activity minimal. Insect activity was focused on the head and shifted downward as decomposition progressed.

The spring experiment results showed a 100% species variety increase and 193% increase of scavenging individuals. Red-tailed hawks and vultures were both seen within a few days of placement. Vultures continued to visit the forest site past week six of decomposition. The average feeding time for avian species in the spring was 30.8 minutes over the course of 19 days. The damage and scavenging done by avian species was higher by 800% in the spring but still did not heavily affect decomposition. Decay was delayed substantially, with no signs present within the first four weeks due to colder weather conditions in the spring. All pigs that were predated upon were scavenged mostly in three specific locations; these included the anal region, head, and torso.

This study's findings differ from others, particularly a study in Texas, which found that black vultures and turkey vultures completely skeletonized the pig in 3 to 27 hours of arrival.⁶ A case in southern Illinois, on the other hand, observed a delay in the time of first arrival of the vultures but still found complete skeletonization within two months.² This study found that scavenging was minimal with no complete skeletonization from avian species in either season.

In conclusion, this study provides evidence that while avian species may be present during the decomposition process, they may not heavily impact the rate of decay. Seasonal changes in the environment affected the abundance and variety of avian species seen at each site as well as insect activity present. Furthermore, data gained from this research can be used to illuminate the differences from other regions as well as caution that scavenging data from these areas cannot be applied to the Northeast.



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Scavenging, Decomposition, Taphonomy