H6 Small Asian Mongoose Scavenging Behavior on Oahu

Hannah Dibner, BA, 1645 Bertram Street, Honolulu, HI 96816; Chelsie K.R. Mangca Valdez, BS, 2218 California Avenue, Wahiawa, HI 96786; and David O. Carter, PhD, Chaminade University of Honolulu, Forensic Sciences Unit, Honolulu, HI 96816*

After attending this presentation, attendees will understand the role the small Asian mongoose (*Herpestes javanicus*) plays in carcass decomposition on Oahu, HI, and the potential impact this behavior may have on forensic investigations.

This presentation will impact the forensic science community by indicating that outdoor death investigations should consider the scavenging activity of mongooses, which can alter death scenes.

Carcass decomposition is site-dependent. In built environments such as a house or apartment, microbes and insects dominate the decomposition process; however, at outdoor scenes, vertebrate scavengers are often responsible for the majority of consumption, modification, and dispersal of remains. Familiarity with local scavenging behavior helps forensic investigators recover clandestine remains and distinguish damage caused by scavenging. According to research, this is the first formal study of carcass scavenging on Oahu, which has approximately 50 outdoor death scenes per year.

Many animals scavenge, and the members of a scavenging guild vary according to ecosystem and environment. On mainland North America, a guild typically consists of both birds and mammals, and prominent scavengers include black bear (*Ursus americanus*), coyote (*Canis latrans*), turkey vulture (*Cathartes aura*), and raven (*Corvus corax*). Due to its geographic isolation, Hawaii has a very limited number of species that may act as scavengers. Not only are there few species of mammals present, there are also no wild populations of carrion birds (e.g., crows, and vultures) and only occasional gulls (family Laridae). During this study, the only vertebrate scavenger observed was the small Asian mongoose (*H. javanicus*).

Three swine carcasses (*Sus scrofa domesticus*) were decomposed in a tropical savanna ecosystem located in Palalo Valley, Oahu, HI, from February to April 2016. The swine were killed via single stab wound to the neck, drained of blood, and immediately transported to the decomposition site. Scavenging activity on a single pig was monitored using a Reconyx® PC900 Hyperfire camera, which features dark Infrared (IR) illumination and motion detection. It recorded a rapid sequence of five photos when triggered by motion as well a still frame every 15 minutes, regardless of wildlife activity. Images were downloaded every one to two days. Animals were characterized to lowest possible taxon and timing of visits was noted along with displayed behaviors.

Two distinct periods of mongoose scavenging were observed. The first period of activity was on days four and five (89.5 - 122.5 hours postmortem), when the mongooses visited the carcass seven times and fed on areas where there was significant larval activity. Given that this species of mongoose is primarily insectivorous, it is likely they were feeding on larvae rather than pig tissue, but this is not clear from the images.[1] After the main larval migration event at 131.5 hours postmortem, there was almost no direct interaction with the carcass until day nine (213 hours postmortem), when the mongooses visited the carcass four times, fed on, dislodged, and carried off small pieces of skin, bone, and remaining tissue. There was considerable bone displacement in one of the unmonitored pigs during a comparable stage of decomposition, and although this may be attributable to environmental factors (wind, rain, etc.), the presence of mongoose scat amid the remains suggests herpestid involvement.

This study is significant for several reasons. Understanding the scavenging patterns of *H. javanicus* will better inform recovery and analysis of clandestine remains. In addition, mongoose interaction with the larval mass could affect PMI estimates based on larvae or any associated bacterial signature.

Reference(s):

1. Hays W.S.T., Conant S. 2007. Biology and impacts of Pacific Island invasive species. 1. A worldwide review of effects of the small Indian mongoose, *Herpestes javanicus* (Carnivora: Herpestidae). *Pacific Science* 61(1): 3–16.

Taphonomy, Decomposition, Mongoose Scavenging