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Title: Geospatial and Temporal Variation of Vertebrate and Invertebrate Scavenger Densities in Eastern Massachusetts

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Abstract: Scavengers are integral to the nutrient cycling of animal remains in ecosystems. Scavengers are categorized into invertebrate and vertebrate groups, each serving different roles in the movement of carrion nutrients throughout the food web. Specifically, vertebrate consumption of carrion integrates nutrients into upper trophic levels and only becomes available to plants through animal waste. Invertebrate animals integrate nutrients into lower trophic levels through interactions with microbial communities and through consumption by insectivores. Therefore, understanding the biology and life histories of scavengers aid in understanding competitive interactions across groups for carrion resources; influencing who ultimately consumes these remains and nutrient flow. Studies have shown seasonal variation in scavenging influences carrion fate, but these studies are often conducted in southern regions of the United States. The goal of this study is to understand geospatial and temporal variation in scavenger densities for future study on carrion fate in the region. Curry College exists adjacent to the Blue Hills Reservation, a 7,000-acre protected state park and 11 kilometers southwest of downtown Boston. Curry College is divided by wetland with wooded habitat surrounding the southernmost side of campus, serving as a refuge for wildlife populations migrating to and from the Blue Hills. Unbated 24 game cameras have been placed ~50 meters from each other around the wood habitat of the Curry College campus. Wildlife densities have been monitored since October 2022, using digiKam to identify species in photos using metadata tags. Similarly invertebrate scavengers have been monitored using baited hanging traps ~5ft off the ground. Traps were hung at five cameras at a time with at least ~100 meters between traps. Traps were located at each camera once a month, with four weeks between placement in the same location. Traps were hung for no longer than a week at a time, where all insects present were identified to family level. R and Q-GIS software were used to extract metadata and compare spatial means of different vertebrate and invertebrate taxa across months. Spatiotemporal variation in scavenger density and richness with repercussions of animal movement on carrion fate will be discussed.