Harrison Stoudt

Imperial, MO

Sp21-080

Junior

Natural Resources Science and Management (Fisheries and Wildlife Sciences)

Faculty Mentor: Summer LaRose, School of Natural Resources

Funding Source: CAFNR Undergraduate Research Internship

Mesocarnivore Activity in the Agroforestry Landscape

Harrison D. Stoudt and Summer H. LaRose

Agroforestry – the incorporation of trees into farming systems – presents a unique landscape aimed at integrating agricultural production alongside natural resource conservation. Such solutions allow for the integration of wildlife habitat within farmed landscapes, however different species are impacted differently by human activity. Raccoons (*Procyon lotor)*, Virginia opossums (*Didelphis virginiana*), and coyotes (*Canis latrans*) often thrive within close proximity to humans, but their activity and interactions may differ in these landscapes compared to natural environments. To evaluate mesocarnivore activity in the agroforestry landscape, we conducted a camera trapping survey during fall 2019 and 2020 across five natural (edge, open, wooded) or farmed (orchard, pasture) cover types available at the Horticulture and Agroforestry Research Center. We used the statistical software R and package 'activity' to quantify and compare activity patterns for coyote, raccoon, and Virginia opossum. Raccoons and opossums both exhibited typical nocturnal behavior across each cover type, but raccoons spent the majority of their time in orchards and we rarely observed opossums outside of orchard and wooded areas. Coyotes were primarily active at night, a pattern commonly observed in other human-dominated landscapes. Most of their daytime activity was spent in wooded cover, while they used orchards and wooded areas during nocturnal hours. There were no differences in the species' activity patterns within orchards, but raccoon and opossum activity differed from coyote activity in the wooded areas. We suspect orchards are a resource-rich area during the fall months, driving high activity overlap in those areas between the species.