

Abstract

The Motus Wildlife Tracking System (Motus) is used to track migratory animals, including birds, bats, and insects. It is an international collaborative research network that uses coordinated automated radio telemetry to assist in the research and education on the ecology and conservation of migratory flying animals. This study was conducted to examine the detectability rate of Motus towers using Unoccupied Aircraft Systems (UASs). UASs, often referred to as drones, are useful tools for collecting remote sensing data and have the potential to be used to test Motus tower capabilities. Different migratory flight paths were emulated using the drone, pre-planned flights, and an attached Lotek Nanotag. There was a total of 14 flights with differing speeds, altitudes, and distances from the Motus tower. We chose three different Motus towers located at different elevations: two were located near the Coweeta Hydrologic Laboratory in Otto, North Carolina and one was located at Berry College in Rome, Georgia. Signal strength was significantly impacted by distance, altitude, and speed. The results show that there is a negative correlation between all three parameters and signal strength. There were many different limitations that impacted this study: technology battery life, National Forest regulations, Federal Aviation Administration (FAA) regulations, and weather and time restraints.