

****Effectiveness of Audiomoth Acoustic Recording Devices in Detecting Black-Billed Cuckoo Calls over Varying Distances (Poster)**

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Black-billed cuckoos (*Coccyzus erythrophthalmus*) are classified as a species of concern in Montana and have seen declines due to habitat loss and fragmentation. However, we lack data on the current population of Black-billed cuckoos in Montana. They are a cryptic species and do not often call in the presence of people. Thus, they are difficult to detect, making research and management of them difficult. Autonomous acoustic survey methods offer the potential to be more effective and efficient than traditional avian survey methods. Autonomous recording units (ARUs) are small, programmable, relatively inexpensive acoustic detectors, and have been used in several other studies. Cuckoos, however, nest and perch in dense riparian vegetation, potentially limiting the detection capabilities of ARUs. We investigated the detection distance of ARUs and the change in effectiveness within varying levels of vegetation cover. We set up thirteen 200 meter transects in locations in Western Montana. Each site had varying levels of vegetation cover, from open landscape to dense vegetation. We mounted an ARU to a 6-foot PVC pipe at one end of the transect, then played Black-billed cuckoo calls from a speaker at intervals of 50 meters. We then analyzed how well the ARU detected the calls at each distance interval and how that changed with increased vegetation cover. Detection capability decreased as distance increased, then decreased further as vegetation increased. We also found that increased levels of ambient noise further decreased detection distance both with and without dense vegetation. Our work will help researchers to maximize detection probability by modifying the number of ARUs, and the distance between each ARU.