**Bat Call Monitoring Study and Discrimination Between Species in Taylor County, Kentucky**

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The purpose of the bat monitoring program at Clay Hill Memorial Forest (CHMF) is to discriminate between bat species using multivariate analysis. Song Meter SM3 Bat from Wildlife Bioacoustics is the recorder being used within this study. It was hung on a pulley system 65 feet up high in a tree and the calls were recorded on a SD card. These were filtered through Kaleidescope 3.0.1 set at recommendation of USFW Indiana bat monitoring. Analysis was done using SyStat and SigmaPlot to visually plot species separation. The variables used for discrimination include: frequency maximum, minimum, and mean, frequency of the characteristic, frequency of the knee, slope of the characteristic, initial slope, duration of the call, time between calls, time of the characteristic, time of the knee, and the species of each identified call. Gray, Little Brown, Silver-haired, Tri-colored, Big Brown, Eastern Red, Hoary, and Evening are the species that have been positively identified as having been present at CHMF. Small-footed and Indiana had a few identified call series but not enough to show with little doubt that they were in fact present. This scientific study can hopefully assist in formulating a baseline on what bat species are present at CHMF.