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The effect of vegetation density on sampling volume by ultrasonic bat detectors (AnabatIIÆ)

Ultrasonic detectors are becoming more common as a means of sampling bat activity and abundance. Many factors must be taken into consideration when using ultrasonic detectors, however. The sensitivity and range of bat detectors are influenced by a variety of environmental conditions that should be well understood in order to correctly interpret data collected using this technology. Abiotic factors such as temperature and humidity are known to influence ultrasonic detection; and vegetation density, abundance, and structural complexity may also influence the detection. While abiotic factors have been studied to a limited extent, there are no data available to describe the effect of vegetation on ultrasonic detection. The purpose of this proposed project was to examine how varying vegetation cover influences detection of sounds by ultrasonic bat detectors. Ultrasonic emitters (bat chirpers) were placed at varying distances within three categories of vegetation density and the detection ability of the devices for the chirpers was monitored. Detection levels among all vegetation classes were very low, suggesting factors other than vegetation may have a greater influence on detectability of chirpers. Further tests suggested that improved alignment and other technical details would enhance accuracy in discernment among vegetation densities.