

Testing ability of hairtubes to detect species

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Accurate and reliable sampling techniques are paramount in studying wildlife. Small mammals offer particular challenges to sampling due to small size, inconspicuousness, and often cryptic behavior. Hairtube sampling presents great potential for small mammal research. Hairtubes are noninvasive, can be placed over large areas, can sample for extended periods, and any one tube has potential to detect more than one species. Like other North American red squirrels the Mt. Graham red squirrel (MGRS: *Tamiasciurus hudsonicus grahamensis*) is a territorial, larderhoarding species. These central feeding areas create large, conspicuous scale piles used for caching cones and are indicative of occupancy. Thus the MGRS offers an ideal model to test ability of hairtubes to detect species when occupancy is well-known.

We placed hairtubes at occupied MGRS middens (n=30). Tubes were placed over 30 m radial transects extending N, E, S, and W of the occupied midden. On each transect, one tube was placed at midden center; following tubes placed 10m, 20m, and 30m, from center. Tubes were baited with peanuts and peanut butter. Gorilla Tape (Gorilla Glue Company; Cincinnati, Ohio, USA) was used as adhesive for collecting mammal hair. Tubes were checked once a week for three weeks totaling 336 hairtube sampling days. Tape was replaced at all tubes

during each collecting period. Hairy tubes detected MGRS hair at each distance from the occupied midden. Across all occupied middens, initial analysis suggests average proportion of hairy tubes detecting MGRS presence is 0.73 at midden center; whereas, overall average proportion of hairy tubes detecting MGRS hair is 0.57 at the farthest point (30m) from midden center.

Our results show hairy tubes do have potential for reliably detecting species when present. Continued research endeavors to determine if hairy tube sampling can be a dependable technique for sampling small mammal species and be relied upon as a valuable research tool.