Snowshoe Hare Fecal Pellet Deposition And Disappearance Rates Near Seeley Lake, Montana[TWS]

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We investigated fecal deposition and disappearance rates of snowshoe hare (*Lepus americanus*) in the Seeley-Swan area of western Montana to evaluate whether the deposition rate was comparable across forest types (diets), years, and seasons, and whether the disappearance rate was comparable over the landscape. These rates may be contributing to the variation causing low precision when the Krebs method is applied in Montana, and affecting the power of regression analysis to predict estimates of population densities. Weak locally-derived equations compromise the validity and generality of an assumed strong relationship between hares and pellets at the southern extension of their geographical range. We collected depositional data from 49 captive hares and found mean daily production was similar between diets (western larch [*Larix occidentalis*], Douglas-fir [*Pseudotsuga menziesii*]) and years (2002-03, 2003-04) but was differed ($P \leq 0.025$) between seasons (summer, winter). An adult hare feeding on either diet, regardless of year, deposited 575 ± 108 (mean ± 1 SD) pellets/day during summer and 467 ± 82 pellets/day during winter. We monitored pellets in the field and found the disappearance rate between pellet types (summer, winter) differed ($P = 0.020$), but disappearance was similar across the landscape within a pellet type. From October 2002 to August 2003, 90 percent of both pellet types remained, while 57 percent of summer pellets and 72 percent of winter pellets remained at the last count in June 2004. This information has influential implications for implementing the Krebs protocol and performing regression analysis, and advances in hare research benefit its specialist predator, the threatened Canada lynx (*Lynx canadensis*).