Multi-scale Factors Related To Snowshoe Hare Densities In Fragmented Forests[TWS]

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Habitat needs of snowshoe hares (*Lepus americanus*) have been examined extensively at scales as large as forest stands, but few data exist to suggest how landscape composition and configuration affect hare populations. We explored how the surrounding forest matrix affected snowshoe hare densities in patches of suitable habitat using fecal pellets to index hare density. Using a multi-scale modeling approach, models that included a combination of landscape- and stand-level variables performed better than singl e-scale models, demonstrating a marked effect of matrix characteristics on snowshoe hare pellet density. Stand-level variables, especially sapling and medium-sized tree density, were the best univariate predictors of snowshoe hare pellet density, but pellet densities were also positively associated with the amount of boreal forest and the degree of landscape heterogeneity within 300 m of a patch of suitable hare habitat and negatively correlated with the amount of open-structured forest at that scale. Our results stressed the importance of stand-level vegetative factors, yet add an understanding of the extent to which the matrix affects snowshoe hare densities. Resource managers should consider the matrix, striving for greater heterogeneity, more boreal forest, and less open-structured habitat, when snowshoe hare densities are a concern.