

Rights-of-Way Ecology at Penn State

Plant and animal community response to long-term vegetation management on rights-of-way
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Small Mammal Populations

Small mammals are important components of any ecosystem, including rights-of-way. From an ecological perspective, small mammals serve as prey for predators and are major links in the food chain.

A two-year study was conducted on SGL33 to determine relative abundance and species richness (number of species) of small mammals on the right-of-way compared to the adjacent forest. Results of the study showed that eight species of small mammals were noted on the right-of-way compared to only two in the adjacent forest. Five species of mice [whitefooted mouse (*Peromyscus leucopus*), meadow vole (*Microtus pennsylvanicus*), red-backed vole (*Clethrionomys gapperi*), woodland jumping mouse (*Napaeozapus insignis*), and meadow jumping mouse (*Zapus hudsonius*)], two shrew species [short-tailed (*Blarina brevicauda*) and masked (*Sorex cinereus*)], and a short-tailed weasel (*Mustela erminea*) occurred on the right-of-way.

The findings of this study and a companion study conclude that specific treatments on the right-of-way produce cover types that benefit small mammals compared to the adjacent forest cover type. In addition, small mammals use a diversity of cover types found on the right-of-way from grass to shrub. Evidently, the right-of-way serves as a large forest clearing, which provides habitat for forest species (e.g., white-footed mouse and woodland jumping mouse) in border zones and habitat for early successional species (e.g., meadow vole and meadow jumping mouse) in wire zones.



Key Findings

1. Small mammals contribute to the diversity of wildlife within a right-of-way.
2. Small mammal population and diversity is greater within the treated right-of-way than the adjacent forest.
3. Cover types that benefit small mammals can be predicted through the implementation of specific right-of-way maintenance techniques.
4. Small mammals use a diversity of cover types from grass to shrub that result from integrated vegetation management on the right-of-way.
5. Small mammals are important in reducing tree reinvasion by feeding on tree seeds and seedlings.

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