

## **Small Mammal Diversity between Forested Areas and Prairies**

### Abstract:

An experiment was performed in order to determine which ecosystem had greater small mammal diversity, forested areas or prairie areas. This was done by setting mammal traps in both areas, and comparing trap results. Prairies had one more species caught than forests, but this can not be conclusive that prairies have greater diversity.

### Intro:

Forests and prairies are quite different from each other, all the way through the vegetation to the soil. These differences create different niches that animals exploit. Every possible resource is used in order to promote the maximum amount of life sustainable. Our experiment of trapping small mammals at these two ecosystems was performed in order to show us which site has a greater diversity.

### Methods:

At each site, grids of traps were laid out. The forested sites within Itasca State Park included burned deciduous, unburned deciduous, aspen, burned red pine, and unburned red pine. The prairie sites approximately an hour's drive from Itasca State Park were rush prairie north, rush south, Coburn east, Coburn west, Wauben wet, and Wauben dry. At each site the trap grids were set in four lines of ten Sherman traps each. These four lines were labeled A-D, with the traps being labeled 1-10. The lines A-D were ten meters apart from one another, and each trap was ten meters from the next. Included at random sites on each line next to a Sherman trap were two Longworth traps. This totaled 48 traps at each site. Sherman traps were baited with seed, while Longworths were baited

with wet cat food. Each site was baited and checked three consecutive times, and all species caught were catalogued.

#### Results:

A total of seven different species was caught at the forested grids over the course of trapping. These species included *Peromyscus spp.*, *Myodes gapperi*, *Tamias striatus*, *Tamiasciurus hudsonicus*, *Microtus pennsylvanicus*, *Blaurina brevicauda*, and *Glaucomys volans*. At the prairie grids, a total of eight species were caught. These species were *Peromyscus spp.*, *Zapus hudsonius*, *Condylura cristata*, *Microtus pennsylvanicus*, *Spermophilus tridecemlineatus*, *Microtus ochrogaster*, *Sorex haydeni*, and *Blaurina brevicauda*.

#### Discussion:

The results show that there is very little difference in the number of species trappable by Sherman and Longworth traps in forested and prairie areas. The prairie site had only one more species trapped than the forested area did. This could be attributed to the fact that the two sites, though different ecosystems, are relatively close together. This means that the two sites have about the same climactic effects. One would expect more species in the structurally more complex forests due to the habitat heterogeneity concept (Tews 2004), but we refrained from setting traps for arboreal species, allowing for similar results. However, it should be noted that the forested areas had much more abundance of individuals caught than the prairie did. A possible explanation of this could be a forest's larger biomass produces more food, allowing for higher concentrations of individuals. Compared to a forest, prairies have a relatively low biomass/carbon store (Fargione 2008), and individuals of the same species may need to be spread farther apart in order to

obtain enough food. This experiment also was unable to capture any of the many small mammals living underground in the prairie. Due to the open nature of the prairie, several species tunnel through the ground and would be unaccounted for by traps set on the surface. Should this experiment be repeated, more trap nights, more grids, and a greater range of traps used could produce more conclusive results.

## CITATIONS

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