Diversity of Small Mammals in Forest and Prairie Habitats

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Introduction:

The prairie habitat of North America used to span the entire center of our nation as well as southern portions of Canada. Today however, it has been reduced by more than 70% (Samson et al 2004). Tall grass prairies took the greatest loss of approximately 99.8% (Carey 2000). The major reason for this loss is European settlement initiated by the Homestead Act of 1862 which sold allotments of prairie for farming. The disturbance of this major ecosystem not only affected the actual land purchased, but it also disrupted the natural cycle of the surrounding wild prairie. Without a natural burn to return nitrogen to the soil and cut down woody growth the prairie can quickly be converted into woodland (Matlack et al 2008). This can and did affect the diversity of wildlife on the prairie, causing the depletion of original prairie inhabitants while allowing forest dwellers to survive. In this study we compared the small mammal diversity of several different forest habitats to that of the prairie. We predicted that there will be a higher diversity on the prairie sites than in the forest sites.

Materials and Methods:

The data collected for this experiment was taken from 6 separate forested areas within Itasca State Park, and 6 prairie areas located in Waubun, MN, Frenchman's Bluff, and Rush. In each habitat a grid of approximately 50x100 meters was set up with Sherman traps spaced out every 10 meters. At a randomly chosen trap site on each line a Sherman was replaced by one Russian and One Longworth trap in its place. The traps were checked three days in a row for a total of 165 trap checkings per site. The data found in this paper is pooled from each site checked.

Results:

Out of 1100 trap settings on the prairie sites a total of 62 small mammals were caught. Figure 1 shows the ratio of species caught on these sites. There was a total of 8 species caught. The most common species caught was *Spermophilus tridecemlineatus.*

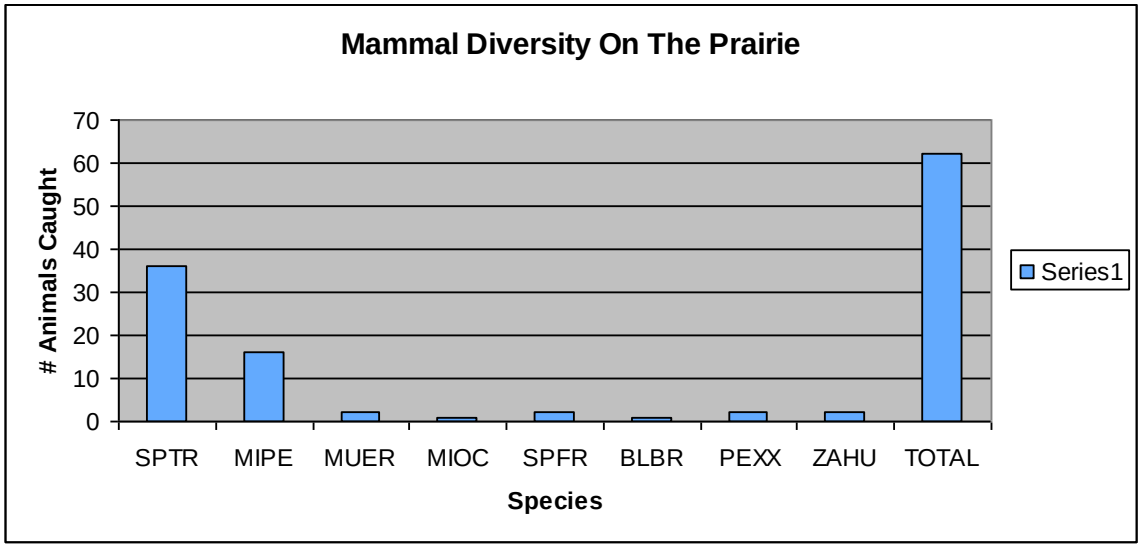

Figure 1: Bar graph depicting number of different species caught across the 3 prairie Sites. Total number caught on the prairie was 62.

Out of 990 traps checked in the forest sites a total of 97 animals were caught. Figure 2 shows the number of species caught. There was a total of six species caught. The most common species caught was *Peromyscus x* followed closely by *Myodes gapperi*.

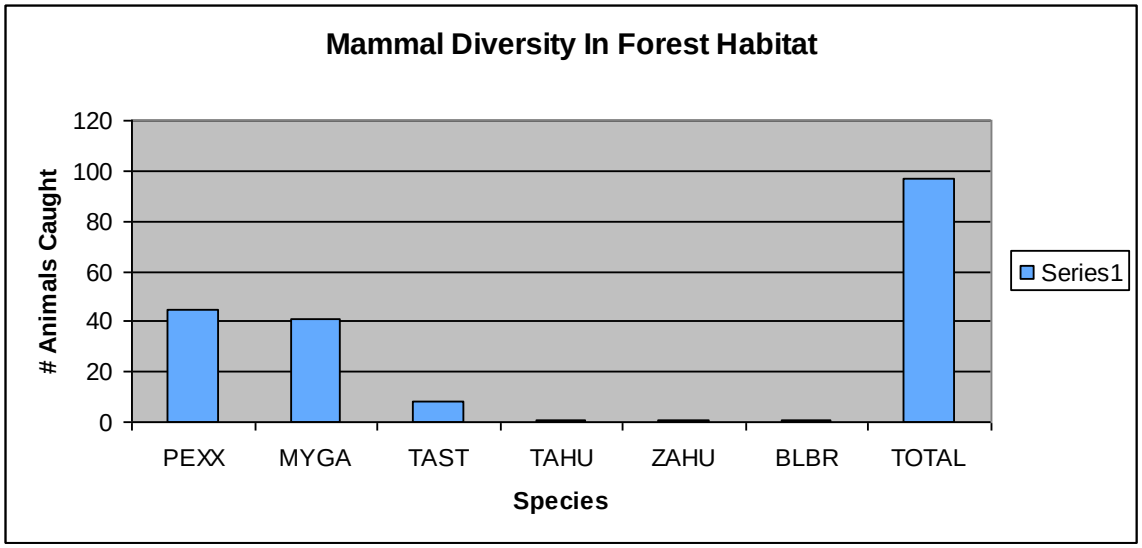

Figure 2: Bar graph depicting the number of different species caught in forest habitats. The total number caught was 97.

Discussion:

The results of our study reveal that although the prairie sites yielded a higher diversity of species, the forested habitats yielded a greater number of species in all. The genus *Peromyscus* along with species *Zapus hudsonius* and *Blarina brevacauda* were found at both prairie and forest habitats. Although the species of *Peromyscus* can not be determined until DNA anaylsis, it is predicted that those found on the prairie are the subspecies *maniculatus bairdii* and those in the forest are either *leucopus* or *maniculatis gracilis.* Zapus hudsonius is known to occupy several habitats, but prefers wet grassland and is thought to avoid heavily wooded areas (Hazard 1982). Blarina brevacauda is found all over the state and can also occupy several habitats (Hazard 1982). The ZAHU found in the forest was at the less dense burned deciduous site. The population difference between habitats suggests that the species found in forested habitats are more successful than those in the prairie. This is supported by the fact that there are more species per area

than the forest, yet the total number caught was significantly smaller. A more extensive study could be performed by extending the trapping period to gather more data points.

Literature Cited:

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