

Small Mammal Diversity of four differing habitat types in Itasca State Park and Agassiz Dunes

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Introduction

In the summer of 2008 we set out to sample the diversity of small mammals in two differing ecosystems in Itasca State Park and Agassiz Dunes. In Itasca we picked 4 different habitat types; Burnt Pine, Red Pine, Aspen, and Bog. Similarly, at Agassiz Dunes we selected Burnt Prairie near a road, Prairie adjacent to Aspen, burnt prairie way from a road, and Oak Savannah. In Itasca and Agassiz Dunes we sampled each habitat type concurrently for 3 days. The results of which are the basis of this paper here.

Methods

We selected four differing habitat types for Itasca State Park (Burnt Pine, Red Pine, Aspen, and Bog), and four differing habitat types at Agassiz Dunes (Burnt Prairie near a road, Prairie adjacent to Aspen, burnt prairie way from a road, and Oak Savannah). We placed a small mammal grid in each habitat type that was 5 lines long with 10 trap stations each. Each station was 10m apart making each grid 100m x 50m. Nine Sherman traps were placed on each line and one station consisted of a Longworth and Russian trap, making 10 stations per line. Traps were left open 24 hours a day for 3 days resulting in 165 trap nights per grid. Trap grids were checked once a day in Itasca and twice a day in Agassiz Dunes.

Results

In Itasca a total of 7 different species were trapped across all four habitat types (Figure 1). In the Burnt Pine habitat three species were present (*Peromyscus spp.*, *Myodes gapperi*, *Tamias striatus*). Red Pine habitat contained the largest number of species (*Myodes gapperi*, *Peromyscus spp.*, *Zapus hudsonius*, *Tamias striatus*, and *Sorex spp.*) (Figure 2). The Aspen habitat contained only one species *Peromyscus spp.* The Bog contained three species and our only capture of *Tamiasciurus hudsonicus* (*Myodes gapperi*, *Microtus pennsylvanicus*, *Tamiasciurus hudsonicus*). At Agassiz Dunes 5 different species were represented (*Peromyscus spp.*, *Spermophilus tridecemlineatus*, *Zapus hudsonius*, *Microtus pennsylvanicus*, *Myodes gapperi*). Burnt Prairie by the road and Aspen prairie each contained 3 species (*Peromyscus spp.*, *S. tridecemlineatus*, *M. pennsylvanicus*, and *Peromyscus spp.*, *S. tridecemlineatus*, *Z. hudsonius* respectively). The burn not by the road and the Oak Savannah each contained two species (*Peromyscus spp.*, *S. tridecemlineatus*, and *Peromyscus spp.*, *Myodes gapperi* respectively).

Figure 1- The number of species represented in each habitat type in Itasca State Park.

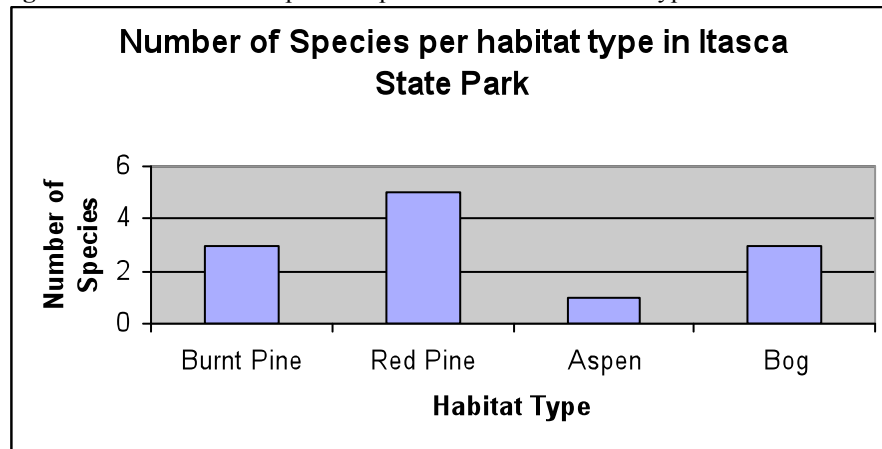
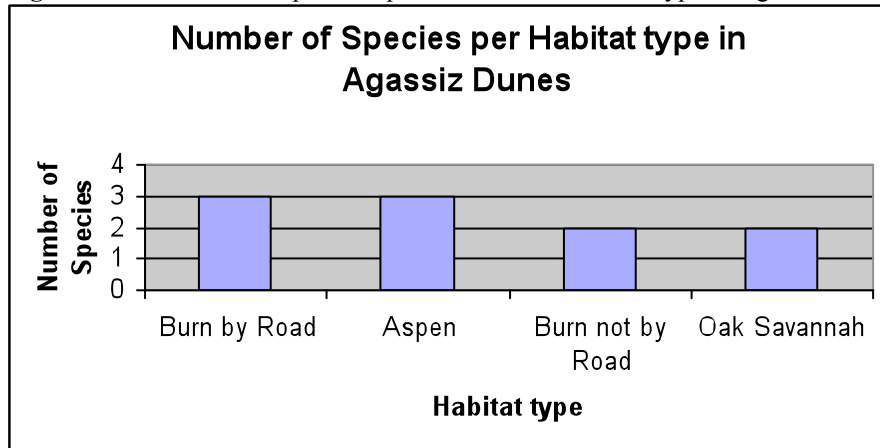


Figure 2- The number of species represented in each habitat type in Agassiz Dunes.



Discussion

As an overall ecosystem comparison the coniferous aspen habitat of Itasca State Park has shown to have greater overall species diversity than the prairie ecosystem of Agassiz Dunes (7 to 5). When comparing average number of species per habitat type, Itasca averages 3 species per habitat to Agassiz's 2.5 species. The most productive habitat across both parks was the Red Pine habitat within Itasca with 5 species represented. The least productive habitat (Aspen) was also within Itasca State Park and produced only 1 species. The Agassiz sites were all very close in the number of species per habitat. *Microtus pennsylvanicus*, *Myodes gapperi*, and *Zapus hudsonius* each appeared in only one habitat type. Where *Peromyscus spp.* appeared in all 4 sites and *Spemophilus tridecemlineatus* was only absent from the Oak Savannah site. In the Itasca sites *Zapus hudsonius*, *Sorex cinereus*, and *Tamiasciurus hudsonicus* were each present in only one site. With *Z. hudsonius* and *S. cinereus* occurring only in the Red Pine site, and *T. hudsonicus* occurs only in the Bog. *Myodes gapperi* and *Tamias striatus* each occur in both the Red Pine and the Burnt Pine sites. *Peromyscus spp.* occurs across all sited in both parks. The Oak Savannah site in Agassiz produced only two species but

also had the least number of trap nights (140). The Oak Savannah showed the presence of a larger mammal, most likely *Canis latrans*, on the last trap night with 17 traps being disturbed and several crushed with canine puncture holes present. The most unlikely occurrence was the presence of *Myodes gapperi* on the Oak Savannah site. *M. gapperi* prefers boreal conifer forests of northern Minnesota (Hazard 1982), and so its presences in the Oak Savannah is some what puzzling. Another odd species *Peromyscus* spp. occurs in all our habitat types. However saliva data may show that not one species but several different species are occurring separately in these habitats. The inability to differentiate *Peromyscus* species by sight can lead to the conclusion that only one species is occurring when most likely at least three are present (*P. maniculatus*, *P. leucopus*, *P. maniculatus bairdii*).

Literature Cited

Hazard, E. B. 1982. The Mammals of Minnesota. University of Minnesota Press. pg. 90-91.