Dung beetles provide a variety of ecosystem services, such as dung decomposition, pest control, and soil fertilization (Nichols *et. al* 2008). I was interested in the relationship between vegetation density and dung beetle abundance. I used Robel pole data collected at Nachusa Grasslands in Franklin Grove, IL over the summer of 2018 to represent density. High Robel pole values indicate high vegetation density. The dung beetle abundance values were from pitfall samples also collected at Nachusa Grasslands during the summer of 2018. A pitfall trap is a cup in the ground with diluted anti-freeze at the bottom to preserve specimens. The cups are baited with bison dung to attract dung beetles, but other invertebrates, such as lepidopterans (butterflies and moths), orthopterans (crickets and grasshoppers), and arachnids (spiders and harvestman) are found in the sample too. Unfortunately, there will sometimes be a small mammal or frog in the trap. There are 10 traps per site and we have 20 study sites. There are some sites in the bison (*Bison bison*) enclosure and some sites are in non-bison areas. Dung beetles are highly mobile

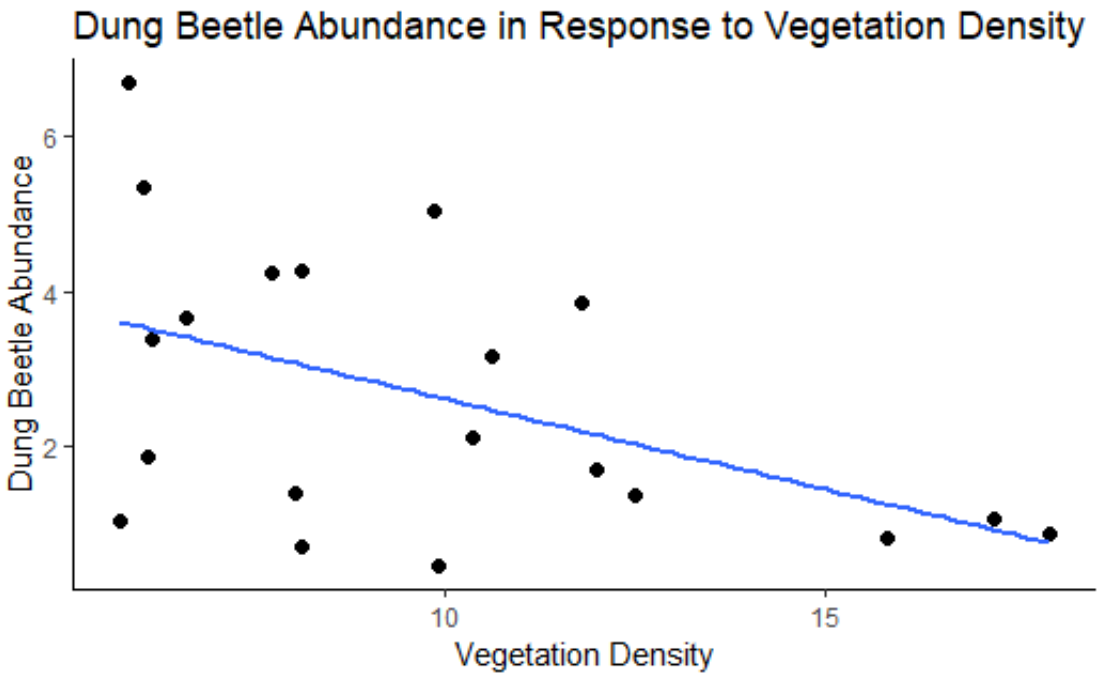

Figure 1. Figure 1 illustrates the relationship between the amount of dung beetles in varying plant densities.

and use their sense of smell to find food (Larsen & Forsyth 2005), so even the non-bison sites attracted dung beetles. The pitfall samples were brought back to the lab and rinsed with water to remove dirt and dung before they were put into ethanol. The samples were then sorted and the dung beetles were counted.

My hypothesis is that dung beetles prefer areas with lower vegetation density because it is easier for them to fly around. Once I analyzed the data in "R", I found that there was a p value of 0.03018 which means there is a relationship between beetle and plant density. This supports my hypothesis that dung beetles prefer areas with low vegetation density.

During my SEF experience, I gained skills in arthropod identification, lab techniques, simple statistical analyses, and coding using the software "R". I also gained experience in understanding general ecological principles, scientific methods and experimental design, professional and scientific writing, and data management and analyses.

I met with the graduate students in person weekly during time in the lab to discuss my progress with lab tasks, questions about experimental methods and design, and to help summarize my results. I had access to equipment in the lab to perform all necessary duties. Additional information about the research project and design were available, as well as access to scientific journals. The SEF program had a positive impact on my academic career. I learned more by designing my own experiment and being able to ask my own personal research questions. This experience helped me prepare for graduate school. I would love to be part of future SEF research projects. I would like to thank the graduate students (Anna Farrell and Sheryl Hosler) and my mentor (Dr. Rich King) for guiding me through this project.

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