

Restoring Native Habitats to Urban Landscapes

Katey Westergren, Ian Noyes, Emma Vautour, Mike Ryskamp, and Dr. Dave Warners

In response to continual urban development ecologists (working in the area of ‘reconciliation ecology’) have raised the question of how to maintain biodiversity within this expanding urban landscape. At Calvin this question has also been engaged within the context of our calling to be stewards of God’s creation. As one attempt to address this question Dr. Dave Warners and Dr. Gail Hefner started Plaster Creek Stewards (PCS). This organization seeks to restore the local urban watershed and be mindful of our downstream neighbors through efforts of education, research, and restoration projects. As background for our project we worked alongside the PCS in landscaping jobs that are helping to restore health and beauty to the watershed.

Our society’s obsession with the manicured lawn has resulted in a loss of native plant species and the organisms they host, increased soil compaction and water runoff, heavy fossil fuel inputs for lawn chemicals and maintenance efforts, and other associated costs to creation. Our goal for this project is to find the best method to restore an area of lawn to native habitat, more specifically to shortgrass prairie. The soil itself presents the biggest obstacle since under years of lawn care; soils become compacted and oversaturated with nutrients, conditions that hinder restoration. We hope to find the most successful approach to this type of restoration so that the lessons we learn can be implemented across other areas of low- or non-trafficked lawn at Calvin, as well as other appropriate places in the Plaster Creek Watershed.

We planted a shortgrass prairie on the edge of the Ecosystem Preserve at Calvin with 60 half meter squared test plots set up within the larger prairie. Half of these plots were roto-tilled and the other half were left untilled. Our second variable was soil quality. We used sand: organic compost ratios of 50:50, 70:30, and 90:10 with each ratio randomly assigned to a plot until we had twenty of each ratio. Each plot was then planted identically with the same five native plant species in the same plot locations. This project will be available for data collection and assessment in the coming years – data that will be compared with the baseline data set we collected this year. For our initial data set we recorded the height of each plant, a bird’s eye view photograph of each plot, and a rating for the health of each plant that was the average of three different individual ratings on a 0-5 scale.

My original path of study has thus far revolved around cellular Biology so signing up for this project was a little out of my comfort zone. I realized the value of working under a great professor and wanted the research experience but little did I know I would end up finding a passion for restoration ecology. I have come to understand the importance of all focuses of Biology and how they overlap with other practices. I have not only gained valuable skills in research activity but also how to work with others: the academic community, an already established group like the PCS, and the staff at Calvin’s Physical Plant. This experience has prepared me like no other could have no matter what career path I choose - Katey Westergren.

As a Biology and Environmental Studies double major this project was a very refreshing and engaging opportunity. I was thrilled and challenged by the multifaceted skill set it required. Through this summer experience I have been able to help organize volunteers at project sites, work independently at the greenhouse, work collaboratively with my peers designing and implementing both landscaping and research projects, and work alongside and educate urban youth who were hired by PCS this summer. This summer’s experience has involved a healthy combination of ecology, community organization, and critical thinking that has given me a sense of empowerment and contentment, and further affirmed the work God has called me to - Ian Noyes.