

Ecological restoration of the Plaster Creek Watershed
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Introduction

A watershed, by definition, is an area of land that drains to a common body of water. Calvin College rests within the Plaster Creek watershed, and 50% of the students, faculty, and staff reside within the watershed. Unfortunately, Plaster Creek is one of the most contaminated streams in the state of Michigan. Because Calvin is situated within the watershed, we are responsible to seek restoration for this once beautiful stream. A main source of contamination is large volumes of stormwater runoff in the stream, a result of land use that does not allow water to be cleared of sediment and contaminants before entering the stream. In order to combat this problem, our team, funded by a grant from the MDEQ, has spent the summer building rain gardens.

Methods

We built our rain gardens in the parkways between the road and the sidewalk in front of homes in the Alger Heights neighborhood, and cut the curb to allow water to flow from the street into the garden. Once the parkway is excavated, we add compost and shape the land to form a basin, and fill the basin with rocks. Around the rock basin, we design a garden full of salt-tolerant plants that are native to the Grand Rapids area. Not only are these plants more deep-rooted than non-native and invasive species, allowing stormwater to be filtered and absorbed more efficiently, but these native species promote native biodiversity. We lay mulch among the plants to reduce the spread of weeds within the gardens. Along with building new rain gardens, we also monitor and maintain old gardens, transplant young seedlings into plug flats to prepare them to be planted in rain gardens, and create digital maps of the rain gardens we plant so that homeowners can have a guide to help them care for their new rain garden.

Results

While it is estimated that it will be another 20 years until we can see measurable change in the water quality in the Plaster Creek watershed, we were able to complete 6 new curb cut rain gardens so far this summer, and have cleared buckets full of sediment in old rain gardens which otherwise would have further contaminated the creek. We also have established valuable connections with community members, and have been flooded with requests for new curb cut rain gardens to be installed.

Conclusion

Personally, I have significantly expanded my knowledge of landscaping techniques, sustainable land use, digital mapping, and identifying both native and non-native plant species. My connection to the place where I live- and the watershed I reside within- has become much more at the forefront of my thinking. What we do with land matters, not just for our own wellbeing, but for the wellbeing of our downstream neighbors and the natural environment. The skills I have learned this summer will be applicable no matter what career I find myself in, as I will always live within a watershed, and I am now equipped to understand and change the impact of my own use of water and land.