

Plaster Creek Stewards Rain Garden Research and Analysis

(Patrick Jonker with Professor Dave Warners)

Calvin College is a part of the Plaster Creek watershed. Plaster Creek, which runs through south eastern Grand Rapids and into the Grand River, has for years been plagued with a variety of contaminants, including sediment, harmful bacteria, and abnormally warm water. The Plaster Creek Stewards, a Calvin College program run by Dave Warners and Gail Heffner, aim to rid the creek of these contaminants, and restoring it to its original glory.

All of the issues with the creek are at least partially caused by the fact that the water levels in the creek are too high. To combat this issue, the Plaster Creek Stewards installed fourteen Curb-Cut Rain gardens in different lawns in the alger heights area. These curb-cut rain gardens soak up and transpire storm water that would otherwise run into Plaster Creek, thus lowering the water levels of the creek.

The job I was given to do was to research which plant species had the highest survivorship and performance in these rain gardens, and to research why certain gardens might have more successful plants than others. Micah Warners, Leira Lew and I went to the rain gardens in early june and took survivorship data on each garden, recording the number of seedlings from each plant we found in each garden. We also took performance data on each plant, measuring its height, and leaf number, using a random sample of five plants from each species in the garden to represent the species in that garden as a whole.

What we have found is that a few species like Wild bergamot, Leadplant, and prairie Alumroot tended to thrive significantly more than others in terms of survivorship. We also found that the gardens planted at 2448 Linden Avenue, 2315 Paris Avenue, and 2224 Paris Avenue did much better than gardens planted at our other locations. Although this originally posed serious questions, we soon found out that not all of the gardens were composted when installed, and that composting, in the end, was probably the deciding factor for the success of each garden.

This research affected me personally, in that it made me more conscious and appreciative of native planting and environmental issues in Grand Rapids. I have always considered myself an environmentalist, but until this summer I was not completely sure what that really looked like. Now, after working with Dave Warners and the rest of the Plaster Creek Stewards for ten weeks, feel like I know how to be a true steward of the earth.

It also affected me personally, in that now I know more about what it is like to be a researcher. Some of the things about research you don't immediately think about (e.g. analyzing data, sitting at a computer) became clearer as a result of this.