Liza McFarland: Interim Report

GCA Coastal Wetlands Scholarship

September 1, 2014

My introduction to wetland microbial ecology was truly made possible by the scholarship funds provided by the Garden Club of America. As the project's original intention was to connect plant characteristics with soil characteristics in different hydrologic areas of depressional wetlands, incorporating microbial dynamics as well was the next logical step. The first few months of the microbial project were spent learning the techniques and budgeting my time. Due to time limitations, we refined the methodology to include a q-PCR component rather than an enzyme assay. This limits our ability to look directly at the denitrification capability of these wetlands, but increases our scope in terms of breaking down the composition into direct clades of denitrification potential.

The bulk of my microbial project was conducted in August to match field seasons with last year's vegetation sampling. I took three field trips, during which I visited each of my sites to collect composite soil samples from of my 135 research plots. Once samples were returned to the lab, we prepared for the subsequent data analysis. We calculated the percent moisture composition of each sample, and we extracted DNA on separate subsamples for later genetic analysis. I spent a few weeks fine-tuning a technique for assessing how much microbial biomass is present using chloroform fumigation. The rest of the genetic analyses (including q-PCR and T-RFLP) and remaining biomass analysis will be finalized and completed this fall.