

Report for 2005DE61B: Sustainable, Low-Impact Methods for Managing Mosquito Populations in Storm Water Ponds

Publications

- Water Resources Research Institute Reports:
 - Gingrich, John, and Nancy McGehee Scott, 2006, Sustainable, Low-Impact Methods for Managing Mosquitoes in Storm Water Ponds, Delaware Water Resources Center, University of Delaware, Newark, Delaware, 11 pages.
- Other Publications:
 - Boyd, Amy, ed., 2005, Delaware Water Resources Center WATER NEWS Vol. 6 Issue 1 "DWRC Announces New Undergraduate Interns for 2005 – 2006", <http://ag.udel.edu/dwrc/newsletters/Summer2005.pdf>, p. 4-5.

Report Follows

Undergraduate Internship Project #8 of 17 for FY05



*Nancy Scott's "Proposal: Sustainable, Low-Impact Methods for Managing Mosquito Populations in Storm Water Ponds" was advised by Dr. Jack B. Gingrich of **University of Delaware**'s Department of Entomology and Wildlife Conservation. This **DWRC / UD College of Agriculture and Natural Resources** co-sponsored internship was an extension to a previous **DWRC** public health research project studying West Nile virus-carrying mosquito populations in stormwater retention ponds. Nancy searched for mosquito management methods that are environmentally safe and also cost-effective, requiring minimal human resource inputs to implement.*

"Our project surveyed the distribution of mosquitoes throughout Delaware and experimented with ways to control their populations in stormwater retention ponds. Through this internship, I am more aware of the complex communities that are a part of these ponds and the impacts that human activities have on them." -- Nancy Scott

Abstract

Storm water retention ponds collect water as runoff from developed and cultivated areas. Such ponds hold water for extended periods of time, usually more than ten days, and create habitats that are ideal for mosquito development. The purpose of this project was to find a low-impact sustainable treatment method to reduce the number of mosquito larvae. Of a total of thirty ponds, six were untreated control ponds, while the other twenty-four were treated in groups of six using various methods to reduce phosphate levels and therefore the amount of food available to growing mosquito larvae. Of the five methods tested, alum, or Bara-Clear, was the most effective treatment method. Alum-treated ponds showed the least amount of increased phosphate over the summer season, and the least amount of mosquito abundance. It is also a more sustainable method for controlling mosquitoes than most traditional pesticides because it generally requires fewer treatments. It also has little effect on other organisms in the pond.