Running Head: COMPARISON OF CONTROL METHODS...

Comparison of Control Methods for the Hemlock Woolly Adelgid

Simran Koura

August 2, 2014

Field Botany and Ecology

Michael J. Baranski (Instructor) and Sarah Wike (Assistant)

Summer Ventures in Science and Mathematics

University of North Carolina at Charlotte

Abstract:

The hemlock woolly adelgid is a parasite of certain hemlock species and is responsible for the Eastern and Carolina Hemlock's rapid decline. This project was conducted to compare the different methods of control that scientists have used to manage the adelgids. Various experiments by other researchers were assessed to understand the value of each control method. The methods found were mechanical, biological, and chemical-based. Mechanical methods were found to be the most inefficient. The influence of natural predators, a biological control, was discovered through a researcher's experiment that introduced various predators into an environment with adelgid-infested hemlocks. These predators were discovered to have little impact upon the adelgid population, with the exception of several small beetles that show some promise of control. Another researcher crossbred different species of hemlocks and found success only over a short period of time. As for chemical controls, experiments were conducted to test the effects of various pesticides at different growing periods on the adelgid. It was found that most of the pesticides were successful in reducing the adelgid population and did not cause harm to the surrounding environment. Research done on the commonly used pesticide imidacloprid appeared to be successful when the pesticide was applied before an infested hemlock experienced extreme damage. The results show that the use of a chemical control is the best choice for reducing the hemlock woolly adelgid population and preserving hemlock species.