HALI A. WESTCOTT, Dept. of Biology and Environmental Science, West Virginia Wesleyan College, Buckhannon, WV, 26201, and MATTHEW L. REID, Dept. of Biology and Environmental Science, West Virginia Wesleyan College, Buckhannon, WV, 26201. Effects of simulated psyllid herbivory on the root development of Japanese knotweed.

Japanese knotweed (*Reynoutria japonica)* is a notoriously invasive riparian plant species which spreads primarily through detachment and dispersal of rhizomes. Currently management options are limited, and there are no biological counters to its spread across the country besides one species. *Aphalara itadori*, a psyllid native to East Asia has recently been approved by the USDA to be released in the United States to control the spread of Japanese knotweed. This psyllid feeds by piercing aboveground tissues and sucking phloem from the stems and leaves. We investigated the potential role of aboveground herbivory by *A. itdori* on root system development and rhizome mass in a simulated herbivory experiment. We hypothesized that simulated herbivory would induce the plants to allocate more resources to aboveground tissues for defense or regrowth, potentially limiting root development and reducing rhizome mass. We conducted an experiment with 84 young Japanese knotweed plants divided into two treatment groups: control and simulated herbivory. The simulated herbivory treatment was applied weekly, and plants were harvested weekly to assess changes in rhizome mass and root system development via high resolution root scanning using WinRhizo software. We found that simulated herbivory does affect the root system, though results were inconsistent between weeks. Simulated herbivory decreased root length in week 5 and reduced rhizome mass in weeks 3 and 6. While results were idiosyncratic, they highlight that simulated herbivory may negatively impact root system development in Japanese knotweed, with potential benefits for limiting the spread of knotweed invasion.