

Response of the Invasive Vine Pale Swallow-Wort Following Two Years of Mowing and Herbicide Application. A. DiTommaso*, L.R. Milbrath, and T. Bittner, Cornell University, Ithaca, NY

Pale swallow-wort [PSW] (*Vincetoxicum rossicum*) is an invasive non-native perennial vine that is increasing in many regions of the NE U.S. and southern Canada. It thrives in old fields but can also establish in shaded forest understories. Control of PSW has been difficult and limited information is available on the efficacy of herbicides for its control. We conducted a 2-yr (2008/09) herbicide and clipping study in an old field (OF) and adjacent forest understory (FU) site near Ithaca, NY. We compared 7 treatments on PSW stem density and percent cover in these habitats. Treatment plots were 4 x 4 m and vegetation in all plots was mowed to a 5 cm height in mid-June of both years. There were 7 replicate plots for each treatment (49 plots total/ habitat). The 7 treatments were: (1) glyphosate (Roundup Pro[®]) at 4.87 & 2.44 kg ai/ha in OF and FU, respectively; (2) triclopyr triethylamine salt (Brush-B-Gone[®]) at 0.93 & 0.46 kg ai/ha in OF and FU; (3) triclopyr triethylamine salt (Garlon[®]3A) at 4.87 & 1.70 kg ai/ha in OF and FU; (4) triclopyr butoxyethyl ester (Garlon[®]4 Ultra) at 2.99 & 0.43 kg ai/ha in OF and FU; (5) triclopyr butoxyethyl ester (Garlon[®]4 Ultra) at 4.87 & 2.27 kg ai/ha in OF and FU; (6) an untreated check; and (7) a second mowing at the time of herbicide application. Pre-treatment assessments of PSW stem number and percent cover, in a 1 x 1m sub-plot, were made a few days prior to mowing (mid-June). Herbicides were applied in late August with a CO₂ back-pack sprayer pressurized at 100 kPa. Post-treatment measurements for 2008 & 2009 applications were made in mid-June 2009 and 2010, respectively. By mid-June 2010, treatment effects differed in the two habitats. In the OF, the highest reductions in cover relative to pre-treatment levels were observed for the triclopyr butoxyethyl (Garlon[®]4 Ultra– 4.87 kg/ha) (84%) and glyphosate-treated plots (77%). Mowing plots twice in 2008 and 2009 resulted in a 301% increase in PSW cover. The density of large (>5cm) PSW stems declined by 86% in triclopyr triethylamine (Garlon[®]3A– 4.87 kg/ha) and triclopyr butoxyethyl (4.87 kg/ha)-treated plots. Large stem density increased by 73% in mowed plots. Small (<5cm) stem density decreased in all treatments, with the greatest decline (96%) in plots treated with triclopyr triethylamine at 4.87 kg/ha. In the FU, cover was reduced in all treatments including mowed plots (20%). The highest reductions were achieved in the glyphosate (80%) and triclopyr triethylamine (78%) (1.70 kg/ha)-treated plots. Large stem density decreased in all FU treatments, with the largest decrease (91%) occurring in triclopyr triethylamine (1.70 kg/ha)-treated plots. The greatest decline in small stem density (37%) occurred in plots treated with triclopyr butoxyethyl at 2.27 kg/ha. The density of small stems increased by 77% in triclopyr triethylamine (Brush-B-Gone[®]– 0.46 kg/ha)-treated plots and by 36% in triclopyr butoxyethyl (0.43 kg/ha)-treated plots. Findings suggest that management of PSW using herbicides in combination with mowing can be effective but may vary with habitat. Land managers should consider these possible differences to ensure successful control of this vine.