

RISK ASSESSMENT AND TREATMENT OF GARLIC MUSTARD IN MICHIGAN'S UPPER PENINSULA

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ABSTRACT

Garlic mustard (*Alliaria petiolata*) is an invasive exotic biennial herb native to Europe. Where established, it can outcompete native vegetation and impact ecosystem function. Garlic mustard has been identified in the Upper Peninsula of Michigan, but is not yet widely distributed. Because of its growth characteristics, it has the potential to be a serious, widely distributed invasive weed. The objectives of this research were to test the effectiveness of control methods for garlic mustard and to determine the areas within Michigan's Upper Peninsula that are at greatest risk for invasion.

Treatments using hand-pulling, herbicide, scorching, and various combinations were applied to sites invaded by garlic mustard. The hand-pull treatment did not significantly differ in garlic mustard abundance from the

control. Garlic mustard was reduced to a mean abundance of < 1 individual per 1-m² quadrat following herbicide, hand-pull/herbicide, scorch, and hand-pull/scorch treatments.

A spatial model is being developed to predict the areas at highest risk for invasion. The model will use garlic mustard site preferences, environmental characteristics, and human-induced factors to calculate risk levels. Accuracy of the model will be tested by comparing predictions against known garlic mustard invasions. The final maps will highlight areas at highest risk for invasion by garlic mustard, and additional maps for key areas in Upper Michigan will be produced that will aid monitoring efforts for new populations of garlic mustard.