

The Mugwort Story: Dealing With Invasive Weeds

The invasive perennial weed mugwort (*Artemisia vulgaris* L.) spreads primarily through rhizome fragments in disturbed habitats, and more recently, natural areas. The invasion and subsequent spread of this rhizomatous weed often leads to dense monospecific stands, excluding native vegetation and reducing overall biodiversity.

This study reports the rates and mechanisms of vegetative proliferation of two mugwort populations (ITH-1 and ITH-2) over three growing seasons (2001-2003) under a disturbed fallow field habitat and a ryegrass (*Lolium* spp.) turfgrass field; fields were either mowed monthly or had no mowing (2 pops x 2 habitats x 2 management treatments x 3 seasons).

Over the three-year growing period the two mugwort populations experienced exponential growth with respect to total ramet number, with the ITH-2 population generating significantly more ramets than ITH-1 in both habitats. However, ramet numbers between the two

habitats differed dramatically, with an average of between 550 and 925 in the fallow field and 90 to 550 in the turfgrass field. This difference shows the variation in invasive strategy (rates of spread) between the populations and between the mowing treatments. Monthly mowing had a much greater effect on treatments in the turfgrass field than in the fallow field, with total ramet number below 100 (500 for non-mowed) versus the fallow field where mowing reduced total ramet number by only 100.

These mugwort populations collected from Ithaca, NY, which were maintained identically in a landscape previous to the experiment, are showing major phenotypic differences in lateral spread, total ramet production, average height, biomass, and response to mowing. This is important both for testing invasive potential in obligate clonally reproducing invasive species, as well as examining phenotypic (and likely genotypic) variation within a species.

Jacob Barney

Program Spotlight

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Please Note:

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Table 1. Effect of turfgrass on dissolved P concentrations, infiltration rate, and P load.

Observation	Turfgrass	Bare Soil
Mean P concentration, mg/L	0.09	0.09
Mean infiltration rate, cm/hr (in/hr)	38 (15.0)	10 (3.9)
Mean Runoff Volume, cm(in)	3.6 (1.4)	6.4 (2.5)
Mean P load, kg/ha (lbs./acre)	0.35 (0.31)	0.56 (0.50)

