

Control of Poison Ivy (*Toxicodendron* spp.) in Managed Grassland Systems

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ABSTRACT: In many cases, the first step in an autogenic restoration is to eradicate invasive or undesired species. One management strategy used to reduce cover of invasive species is to reintroduce a fire regime. The goal of this pilot study was to explore the effects of fire or herbicide treatment on mortality and stem growth of poison ivy, a native but potentially invasive species in Iowa. We tested the hypothesis that late season fire would cause greater above-ground mortality of poison ivy compared to late season herbicide application. A total of twelve, two meter square plots were established with a one meter square in the center receiving a treatment. Stem density of poison ivy was measured in all plots before and after management treatment and stem mortality was assessed in April 2006. Preliminary data indicate that fire may be effective in eradicating poison ivy in Iowa's seasonal climate.

Discussion

- First, timing of treatment and evaluation were constricted to the academic calendar. Herbicide would generally be foliar applied earlier in the growing season and most likely more successful. Difficulty in identification makes data uncertain, as poison ivy was not completely emerged from dormancy.
- Second, scale of treatment may have misrepresented typical fire intensity. However, mortality to stems in areas adjacent was contrary to hypothesized response and could be further studied. This could be explained by mortality to rhizomes branching from treated area to ramets surrounding it.
- Finally, extreme care must be taken when burning poison ivy as the fumes will cause allergic reactions on skin and in lungs.



Experimental Design

Site: Grassland associated with Austrian Pine stand in managed park. Receives one mowing annually.

Plots: Two meter square with a one meter square in the center receiving treatment. Six plots for each treatment.

Data: Stems were counted in inner square and surrounding area.

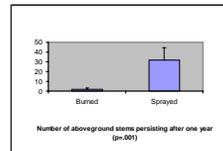
Results

Introduction

Poison Ivy is a highly variable perennial found all across the Midwest. Its growth form ranges from herbaceous plant to woody shrub to climbing vine. While native to Iowa, it shares many characteristics with invasive plants including both sexual and vegetative reproduction, ability to colonize disturbed areas, shade tolerance, large geographic distribution, and dense, thicket growth. These factors make eradication a difficult endeavor that must continue for several seasons. When combined with the allergic reaction caused in humans, poison ivy is a species of concern for land managers.

Research Questions

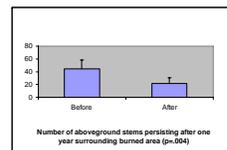
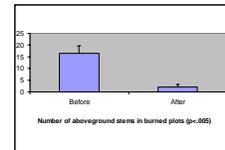
- Does late season fire result in mortality?
- Is late season fire a cost effective alternative to herbicide application?
- Does poison ivy allocate more resources to lateral growth in response to treatment?



Leaves emerging from herbicide treated stem



Stem top-killed from fire



Implications for Restoration

- Late season fire may be a suitable management option for poison ivy in climates with a substantial winter.
- Poison ivy can be integrated into invasive species management plans that include reintroduction of fire.
- There is a possibility of eradication in an area larger than actually treated by late season fire.

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