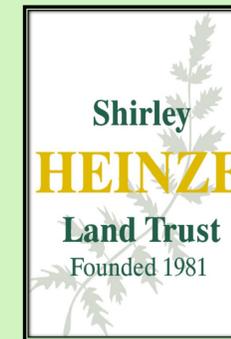


# Treatment of Target Plant Species at Barker Woods

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**Purpose:** This project includes an approach to improve the habitat quality of the wet forest and oak woodland habitats located within the Barker Woods nature preserve. By utilizing methods to eradicate target species (includes both native and exotic invasive species), we are able to increase native species diversity within the property, which in turn preserves biodiversity in the region.

## Site Description: "Barker Woods"

- 30 acres within Michigan City, IN
- Consists of wet forest and mesic oak woodland
- Supports several state-listed rare plant species
- Hydrological alterations and fire suppression have reduced plant diversity and allowed native greenbrier (*Smilax spp.*) to overpopulate
- Exotic species such as burning bush (*Euonymus alatus*), garlic mustard (*Alliaria petiolata*), and Japanese honeysuckle (*Lonicera japonica*) are also contributing to a reduction in biodiversity

## Materials and Methods

- Herbicides (Garlon™ 3A, Rodeo™, Pathfinder™) and physical tools were used for target species removal
- Meter tape and PVC meter square for data collection
- Thirty-one, 50-meter transects were established (See map). At each 10m increment, greenbrier density was recorded. Density was estimated and recorded categorically, with letters corresponding to varying levels of concentration (Chart 1).
- Initial concentration data was collected prior to chemical application or any other form of invasive species control.



## Data and Results:

- A total of 146, 1m<sup>2</sup> plots at each 10m intervals were examined for Greenbrier concentration.
- Using the midpoint from each category to calculate average Greenbrier cover, initial data collection revealed that on average, any randomly-selected meter square on the site would contain 22.13605% Greenbrier cover.
- Data post-treatment was not yet ready for collection in mid-August, as chemicals had not fully taken effect yet, however in initial post-treatment data which we were able to collect in several plots showed improvement ranging from down one cover class, to complete removal of the Greenbrier.

This photo displays how a plant would appear moments after herbicide application.



**Tablet 1**

Category	Cover Class
-	0%
A	1%-5%
B	5%-25%
C	25%-50%
D	50%-75%
E	75%-95%
F	95%-100%

**Summary:** At the end of the summer work season, we have been able to establish monitoring locations throughout the Barker Woods site, to allow continued maintenance of the property over the coming years. We also covered the entire woods, applying herbicide to target species that could be sprayed, and physically cutting down plants that were too large for chemical use alone. We did test several different concentrations of two different chemicals, which will serve to provide future stewards and volunteers the ability to choose the best approach to dealing with the specific needs of the site. We encountered several minor setbacks, including struggles initially determining which chemical concentration would be most appropriate to kill the plant but not damage more desirable species growing in the same area. Mid-way through July, our main chemical (Garlon™, active ingredient Triclopyr) began to lose its effectiveness due to the stage of development of the target plants, as well. Our work was instrumental in creating new habitat for native plants, for restoring areas of Barker Woods that have changed in recent years due to changes in the surrounding environment, and for maintaining one site of many that Shirley Heinze uses to sustain regional biodiversity.

## Target Species:

**Greenbrier**  
(*Smilax spp.*)



**Burning Bush**  
(*Euonymus alatus*)



**Garlic Mustard**  
(*Alliaria petiolata*)



**Japanese Honeysuckle**  
(*Lonicera japonica*)



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