

GARLIC MUSTARD

(*Alliaria petiolata*)



Impacts on forests

- Outcompetes many tree seedlings and other native vegetation.
- Adversely affects native insects and other wildlife.



Infested forest

First-year plants

Garlic mustard is a biennial; it has a two-year life cycle. Seeds germinate in early April. Seedlings are shown below. ↓ Note oak leaves for size comparison.



Leaves: Clusters of 3-8 rounded to kidney-shaped leaves develop at ground level during the first growing season.

They have scalloped edges, a wrinkled appearance, and remain green all winter.



Second-year flower stalk with seed capsules

Second-year plants

Flowers: Small (1/4 inch), white, 4 petals, on the end of the main stem and side branches, blooms April through June. (see top of page)

Leaves: Heart-shaped to triangular, 1-3 inches wide, coarsely toothed on edges, alternate on the stem, give off a garlic odor when crushed.

Height: Flowering stalks grow 1-4 feet tall.

Roots: Taproot is slender, white, and often has an S-shaped bend near the top.

Seeds: Capsules appear soon after flowering and quickly lengthen. Seeds are small, produced in a row inside the capsule, and black when ripe. More than 100 seeds per plant.



Similar species

- Violet leaves resemble first-year plants, but flowers bloom low and have 5 petals, leaf surfaces are less crinkly. No taproot.
- Ground ivy (creeping Charlie) spreads along the ground as a vine and has purple flowers.

Plants die and seeds are dispersed in July or August. Dry stalks often remain standing through winter. →



CONTROL METHODS for GARLIC MUSTARD



Control strategies must be applied for eight or more years until the garlic mustard seed bank is depleted. Methods may vary over time, depending on the extent of the invasion. Vulnerable areas, especially woodlands, should be monitored each spring to promptly detect new invasions and prevent re-occurrence. Mark areas where plants were found to aid in future monitoring.

Hand Pulling

For smaller infestations or where large groups of people are involved, hand pulling or digging garlic mustard can be effective.

- If plants are pulled or dug before budding begins, they may be scattered about the area to dry out, preferably off the ground. Do not put pulled plants in piles where roots may stay moist and development can continue .
- Once flowering has begun, all plants must be bagged. Garlic mustard can still ripen seed after it is pulled! (using energy stored in stems and leaves.) Pulled plants may be put in plastic bags or large paper bags.
- Bagged plants should be disposed of by burning, burying deeply in an area that will not be disturbed, or landfilling. (Please, do not burn plastic bags.) Let garlic mustard collected in paper bags dry thoroughly before burning.
- Do not compost garlic mustard. Few compost piles produce enough heat to destroy all garlic mustard seeds.
- Call the Bureau of Endangered Resources (WI-DNR) at 608-266-7012 if you have difficulty getting permission to landfill garlic mustard.

Cutting

Cutting plants a few inches above the soil surface just after the flower stalks have elongated but before the flowers have opened can be effective in preventing seed production and may kill garlic mustard plants. However, some plants may send out new flower stalks that require additional cutting. Monitor site regularly.

Herbicides

- Extensive infestations -- can be controlled by using a 1% or 2% solution of glyphosate (there are many brands). Apply to the foliage of individual plants and dense patches in fall or very early spring. At these times most native plants are dormant, but garlic mustard is green and vulnerable. Fall application is best because it will not affect early-blooming spring wildflowers. Glyphosate is a nonselective herbicide that will kill or injure all green non-target plants. Use caution during application, and spray so that herbicide neither

drips from the garlic mustard leaves or drifts onto adjacent desired vegetation.

Use herbicides only when necessary. ALWAYS read the entire herbicide label carefully, following all mixing and application instructions. Wear recommended protective gear and clothing.

Weed Torch

Another method for spot-killing patches of newly germinated seedlings in spring is to "flame" them with a propane weed torch. Flames quickly kill tender seedlings, usually without permanently damaging nearby perennial plants. Use the weed torch cautiously, and only when conditions are wet. ALWAYS contact your local fire control agency prior to using this method.

Preventing Further Spread

- Clean shoes, pockets, pants cuffs and equipment thoroughly after walking or working in infested areas. Garlic mustard seeds are tiny and are often carried off in clothing, shoes and mud.
- Survey your area for green garlic mustard plants. Plants can be spotted any time they are not covered by fallen leaves or snow.
- When you find an infestation, remove plants that are producing seed first, working from the least infested to the most infested area. Then remove other plants, again starting with the least infested areas.
- Monitor non-infested woodlands carefully and frequently. Removing one or two plants before they go to seed is much easier than removing hundreds or thousands later on.

Websites

<http://tncweeds.ucdavis.edu/esadocs/allipeti.html>

An extensive summary of information about garlic mustard. The Nature Conservancy also has information on many other invasive plants.

<http://dnr.wi.gov/invasives/fact/garlic.htm>

A summary of garlic mustard information from the Wisconsin DNR, with links to other sites.

<http://www.botany.wisc.edu/Wisflora>

Photos and information on all Wisconsin plants.

Credits. This factsheet is based on the brochure: *Garlic Mustard – A Major Threat to Wisconsin's Woodlands*, by Paul Hartman and Sharon Morrissey, UW-Extension, 2002. It was revised by John W. Koning, Jr., with assistance from Colin Kelly, Eunice Padley, Kelly Kearns, David Eagan, and Colleen Matula of WI DNR. For copies, contact Kelly Kearns (608) 267-5066.

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