GARLIC MUSTARD

(Alliaria petiolata)

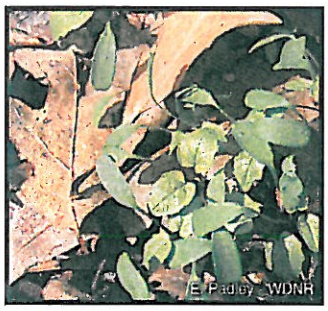
IMPACTS ON FORESTS

- ⊘ *Out-competes many tree seedlings and other native vegetation.*
- ⊘ *Adversely affects native insects and other wildlife.*

4-petaled flowers

FIRST-YEAR PLANTS

Garlic mustard is a biennial; it has a two-year life cycle. Seeds germinate in 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 PLANTS

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

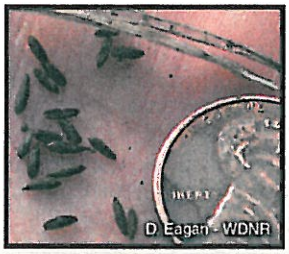
Leaves: Heart-shaped to triangular, 1-3 inches wide, coarsely toothed on edges, alternate on the stem, give off a garlic odor when crushed.

Height: Flowering stalks grow 1-4 feet tall.

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

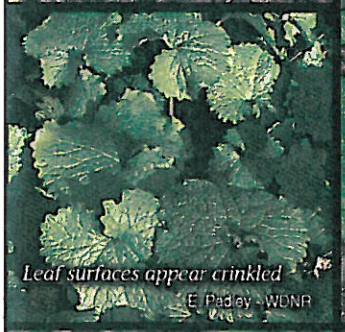
Seeds: Capsules appear soon after flowering and quickly lengthen.

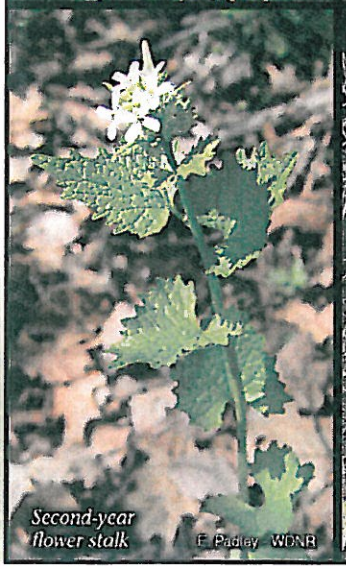
Seeds are small, produced in a row inside the capsule, and black when ripe. More than 100 seeds per plant.



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.*



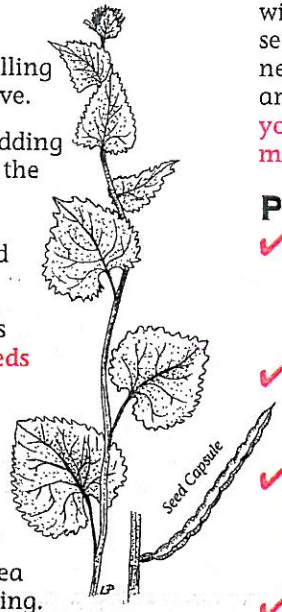


Control Methods for Garlic Mustard

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 seeds can still ripen after plants are uprooted! (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.
- ✔ To send bagged plants to the landfill, label the bags as 'Invasive Plants – approved by DNR for landfilling'.

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 – if too large for manual methods – 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 and/or very early spring. At these times most native plants are dormant, but garlic mustard is green and vulnerable. 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 (for wet conditions)

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. Burning permits may be required.

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 Morrisey, Univ. of Wisconsin-Extension, 2002. It was revised by Colin Kelly, David Eagan, Eunice Padley, Kelly Kearns, and Colleen Matula, WDNR, 2006.

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