



Invasive Plant Alert

Garlic Mustard

Alliaria petiolata



Garlic mustard is a biennial plant typically found in shaded or semi-shaded, moist areas. Its habitats include forests, forest edges and openings, floodplains, and even areas with full sun, such as on roadsides and along railroad tracks.

What to look for

- Seeds germinate in early spring, producing a carpet of seedlings that grow into rosettes.
- Plants stay in the rosette stage for the first growing season. Leaves are heart- or kidney-shaped with scalloped edges and deeply veined surfaces.
- In the second season, the plants bolt and flower. Stems are up to 4 feet long. Leaves are triangular with toothed edges.
- Flowers are white with four petals, about 1/3 inch across. They bloom from April to June.
- Seeds are in narrow, ascending, pod-like fruits that are 1-2 inches long.
- The top of the root is S-shaped.
- Leaves smell like garlic when crushed or torn.



Ecological impacts

Garlic mustard spreads aggressively and displaces native plants. According to the Natural Resources Conservation Service (NRCS), garlic mustard populations can double in four years, and within 10 years they can overtake a forest floor community. Besides outcompeting native plants for sunlight, water, and nutrients, garlic mustard can secrete chemicals that inhibit the development of associations between beneficial fungi and plant roots. These associations, called mycorrhizae, help native wildflowers and tree seedlings absorb nutrients. In addition, non-native earthworms, which also damage forest ecosystems, have been found to favor garlic mustard infestations.

Garlic mustard also harms wildlife. According to the Minnesota DNR, infestations make habitat less suitable for native insects, and so for birds and mammals.

Garlic mustard reproduces only by seed, but the plants are prolific. A single plant can produce hundreds of seeds that remain viable in the soil for up to five years.

Status in Minnesota

The Minnesota Department of Agriculture (MDA) classifies garlic mustard as a restricted noxious weed. Importing or selling the plant or transporting its propagating parts (unless you're taking them to a disposal site) is illegal without a permit from the MDA.

References and more information

Minnesota Noxious Weeds – Minnesota Department of Transportation
<https://www.dot.state.mn.us/roadsides/vegetation/pdf/noxiousweeds.pdf>

Natural Resources Conservation Service
<https://efotg.sc.egov.usda.gov/references/public/mn/garlicmustardmn.pdf>

Minnesota Department of Natural Resources
<https://www.dnr.state.mn.us/invasives/terrestrialplants/herbaceous/garlicmustard.html>

Minnesota Department of Agriculture
<https://www.mda.state.mn.us/plants/pestmanagement/weedcontrol/noxiouslist/garlicmustard>

Stinson, Kristina A.; Argetsinger, Sophie; Jackson, Michelle R.; Coates-Connor, Erin; and Meadows-McDonnell, Madeleine, "Here's the Dirt: The Newest Recommendations for Garlic Mustard Management" (2018). *Environmental Conservation Educational Materials*. 4. https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1003&context=eco_ed_materials

Management

Hand-pull: This works best in early spring, when plants are in the seedling, rosette, or early bolting stage, but before flowers have opened. Try to remove the entire plant, including the tap root. Pile or scatter the plants or hang them from tree branches. Pulling is also effective in fall, when rosettes can be removed to reduce the population of flowering plants the next season. If plants have fruits, expect seeds to germinate where you pile them. Return to remove seedlings the next season.

Cut or mow: Using a weed whip, mower, or scythe, cut the plants as close to the ground as possible. Go back to the site in a couple of weeks to check for regrowth. Even if the plants grow back, seed viability will be low. This method is most effective in late spring or early summer, during peak flowering.

Use herbicide: If you choose this option, the Minnesota DNR recommends spot applications of 2% glyphosate. This is best done in early spring or late fall, after native plants have gone dormant.

Additional tips:

- Tackle recent infestations first. Their communities are the least affected and stand the best chance of recovering.
- Check sites for several years, especially if they were badly infested. Plants will continue to grow from the seed bank.
- Brush off your shoes, gloves, and tools before you leave the site to prevent spreading garlic mustard elsewhere.

