

What Next?

- **Remove Young Plants- Repeat Next Year!**
- **Year After That: Remove Young Plants!**
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- **Remove other invasive plants:** Remaining invasive species, such as buckthorn, honeysuckles, tansy, will take over the habitat left behind after garlic mustard removal.



Honeysuckle Infestation

- **Consider planting non-invasives where garlic mustard has been removed:** Planting with non-invasives gives competition to the invaders and protective cover to the newly bared ground.
- **Join local conservation efforts with the Duluth CISMA (Collaborative Invasive Species Management Area).**

What Can You Do?

Learn to identify invasive plants:

US Department of Interior: www.invasivespecies.gov

US Department of Agriculture: www.plants.usda.gov

MN Department of Agriculture: www.mda.state.mn.us

Private website: www.minnesotawildflowers.info/

Report new sightings:

EDDMapS Midwest: www.eddmaps.org/midwest

GLEDN: <https://apps.bugwood.org/apps/gledn>

Perform control:

Follow MN weed laws that regulate handling and control.

See www.mipn.org, www.mda.state.mn.us control methods.

If using herbicides always follow the label instructions.

Prevent the spread:

Never plant invasive species.

Control invasive plants, then clean tools & footwear on site.

Follow MN weed laws that regulate handling & control.

Spread the word to others you know!

For local information:

www.stewardshipnetwork.org/duluth



Do your part: protect Minnesota's health, economy, environment, and outdoor heritage!

Credits:

Front Photo: Wikimedia Commons

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The **Duluth Cooperative Invasive Species Management Area (CISMA)** is a group of city, county, and state agencies, nonprofit organizations, community associations, and private citizens. Our Mission: We help citizens & communities protect our lands from the damages caused by invasive species.

GET RID OF Garlic Mustard

Alliaria petiolata



**A SERIOUS THREAT
To Minnesota's Forests**



What is Garlic Mustard?

- Brought to U.S. by early settlers for use as food & medicines. Unfortunately escaped their gardens.
- Not recorded as invader in Duluth area until 2005.
- Is a biennial:
 - Seedlings emerge in spring, form leaves close to the ground, which continue to stay green through the winter.
 - In the second spring the plants shoot up and produce flowers and then seed pods.
 - Plants die after seeds are produced.

What is the threat to Minnesota?

- Grows well in the deep shade, threatening mature forests & biodiversity.
- Grows taller than other forest-floor plants, its shade weakening their growth.
- Where garlic mustard has been abundant for a few years it also degrades the soil quality for those other species by killing off soil fungi that they need.



Regulations

- Garlic Mustard is a Restricted Noxious Weed under MN law as of 2018.
- Illegal to plant, import, sell, or transport any propagating parts.

Recognizing Garlic Mustard

Smell: Stems and leaves have the garlic smell.. Crushing a leaf or stem beneath the nose reveals a garlic smell if it is garlic mustard.

Leaves: 1st Year- Rounded leaves with scalloped edges. Some other plants, such as creeping charlie or violets, may look similar, but can be told by the smell.

2nd Year — Leaves that grow on the upright stem are more arrowhead shaped, with blunt teeth along the edges.



1st year rosettes & spring appearance



2nd year plant



2nd year flower & seed pods

Flowers: Clusters of numerous white flowers develop toward the top of the stem. Each flower is small and has four petals. There are no other plants that look highly similar.

Seeds: Seed pods are green, narrow, and get up to about 2 inches long. The plant often still has some white flowers when the first pods reach full size. Pods dry and lose their green color, become brittle, and break to release seeds. Plants with pods and flowers may be up to 4 feet tall, but may also be only a few inches tall. **Pictured right & below:** pods & seeds.

Seed bank: Seeds live for 5-10 years in the soil. New plants emerge even if you have pulled all of the standing garlic mustard. More seeds will sprout; ongoing management is required. Seeds are not spread long distances by birds or mammals. Do not move the soil that may be contaminated with seeds. They can be spread in soil that is sticking to footwear, tools, or tires, including bicycle tires. If they are produced near a creek the water can spread them.



Removal & Control Options



Manual: 1st Year Plants - If these are numerous, it is easier to wait until the following year to pull them. Some of the young plants will not survive to the following spring. But if the infestation seems to be a new one that is not too extensive, pulling first-year plants may make sense.

2nd Year Plants- Pull before their pods have begun to break. Grab the root just below the soil surface, getting your fingertips dirty. Pull slowly and steadily straight up to avoid breaking the root and leaving enough of it to resprout. Have patience! The roots usually have a large curve and tend to break along that. The root may curve under a stick or stone in the soil. In clay or compacted soil you are probably going to break some roots. These may grow back, but sometimes not flower until next year.

Herbicide: Visit www.dnr.state.mn.us, www.mipn.org, www.mda.state.mn.us, www.dot.state.mn.us for treatment options.

Garlic Mustard Waste Options

- Mature pods can be burned on the same property.
- Leave material at the site & pile in the sun (if possible) to wilt and rot

