



HOW TO REMOVE GARLIC MUSTARD

By: Lauren Bell, Invasive Species Centre

Garlic mustard is considered one of Ontario's most damaging invasive forest plant species, due largely to its ability to spread quickly throughout many different habitats. This invasive herb is native to Europe and was once sought after as an edible plant due to its richness in vitamins A and C.

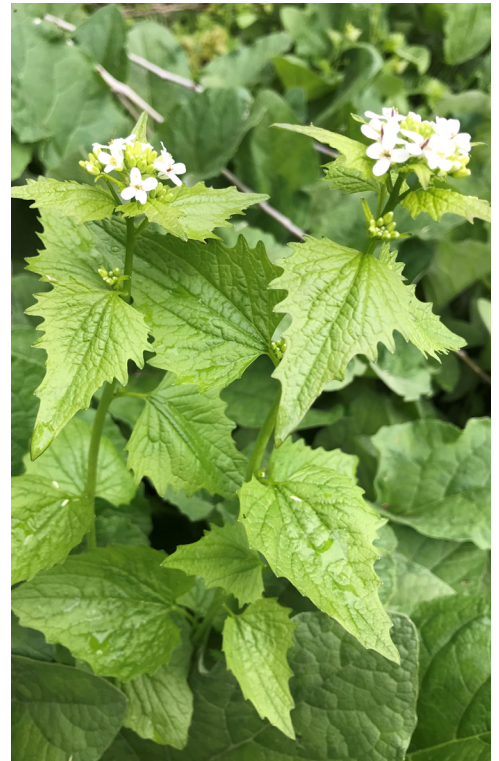
This invasive plant is no stranger to Ontario gardens, and while it used to be planted as an edible herb, gardeners are quickly realizing the potential negative implications. Some of these impacts include:

- Outcompeting native species including species at risk (e.g. American ginseng, drooping trillium).
- Allelopathic effects, meaning that its roots produce chemicals that change soil chemistry and prevent other species from growing nearby. These same chemicals deter most animals from eating the plant as well.
- Rapid growth and ability to thrive in a variety of conditions further accelerates spread.
- Long-term management plans may be required to successfully eradicate large populations of the plant, making it expensive to municipalities and landowners.

How do I know it's garlic mustard?

Garlic mustard has a two-year life cycle, with two distinctive identification features. The first year plants grow in clusters called basal rosettes; this is the stage where a strong root system is developed and the plant overwinters. The leaves are dark green and kidney-shaped. The second year plants are those that have survived the winter and can now produce seed. These plants will produce hundreds of seeds in one season.

Garlic mustard can be easily mistaken for other plants, such as native violets, and knowing the difference is very important in management. The leaves of garlic mustard have a distinct garlic smell when crushed - this is a key identification feature that sets it apart from other native plants. The smell is strongest in younger



FIRST YEAR PLANT



SECOND YEAR PLANT



leaves. Second year (seed-producing) plants are easy to identify by their triangular upper leaves that point to a narrow tip and white flowers with four small petals. The plant will develop a seed pod that will grow to about 2.5 – 6 cm long. As the season progresses, these seed pods will dry out and eventually split open mid-summer where you can see the black seed. These pods drop into the soil, where seeds can remain viable for seven years.

How do I remove it?

Garlic mustard is easy to pull by hand and efforts to remove it can work wonders for your yard and garden. Focus your control efforts on the second year (seed-producing) plants, as removing these prevents further seed dispersal.



- The taproot of this plant is “S” shaped - properly removing the whole root will help prevent the plant from growing back.
- Start by pulling the outlying populations (isolated plants or satellite populations) first to prevent further spread of the plant. Pulling plants before or while they are in flower, but before they set seed, is the best timing to achieve effective control and limit further seed dispersal. This timing will depend on where you are located. Throughout most of Ontario the ideal time to pull is mid-May to early June.
- Do not compost any of the plant material (seeds and roots) at home or send to a landfill. Pulled plants which have flowered may still be able to produce seeds, so pulled garlic mustard should be “solarized” to ensure the plant is no longer viable. Solarize viable plant material by placing it in sealed black plastic bags (e.g. black garbage bags) and leaving them in direct sunlight for 1-3 weeks. Alternatively, place in yard waste bags, cover with a dark-coloured tarp, and leave in the sun for 1-3 weeks. This allows the stems and roots to dry out thoroughly.
- Use a construction grade garbage bag to avoid tears that could lead to accidental spread.
- And finally, make sure that all equipment, boots, and clothing are cleaned at the site to ensure seeds are not transported from the site. You can repurpose a simple nail brush as a makeshift boot brush - which you can also throw in your backpack to take with you on hikes! When you leave a site or trail, always check yourself and your pets for any hitchhiking invasive species.

Check out the [Garlic Mustard Best Management Practices](#) document and [How to Remove Garlic Mustard by Hand](#) video on YouTube for more information on removal options for your plot size. Everyone has a role to play in limiting the spread of invasive plants in Ontario, especially gardeners! Looking for native species garden alternatives but not sure what to plant? Check out the Grow Me Instead guides for [Southern](#) and [Northern Ontario](#).