



Photo: Steven Katovich, USDA Forest Service, Bugwood.org

Other Control Methods

Use herbicide control methods only for large infestations where manual and mechanical removal becomes impractical. For any herbicide applications we urge you to work with a licensed herbicide applicator. To learn more, consult the best management practices provided by the 4-County Cooperative Weed Management Area (www.4countycwma.org/AWeeds/Best-Management-Practices/). If any information provided contradicts the label, the label takes precedence. Always read and follow the label on any herbicide product you are using!

Please contact your local weed program in either Oregon (www.Oregon.gov/ODA/programs/Weeds/Pages/CountyWeedPrograms.aspx) or Washington (www.NWCB.wa.gov/Find-Your-County-Weed-Boards) for more information about how to control this invasive weed.



The mission of the 4-County Cooperative Weed Management Area, comprising Clackamas, Clark, Multnomah, and Washington Counties, is to create and support collaborative weed management in the greater Portland area. For more details on our collaborative efforts in management, mapping, and outreach, please visit our website:

www.4CountyCWMA.org



GARLIC MUSTARD (*Alliaria petiolata*)

4-County CWMA Class B
Oregon Class B
Washington Class A



Photo: Frank Mayfield

Overview

Garlic mustard is an aggressive invasive species in the Pacific Northwest. Originally introduced in North America for culinary uses, it has escaped cultivation to become a very serious invader in many states. Garlic mustard is a groundcover that can grow in established forests, wetlands, disturbed soil, and people's yards. Once established, garlic mustard may exude a chemical which impedes native shrub and tree establishment and hinders natural forest regeneration.

How to Identify

Garlic mustard is a biennial plant with two different forms in its first and second years. The first year it forms a **small rosette of round, kidney-shaped leaves**, with scalloped edges. In the second year, an elongated flower stalk appears (growing 12-48 inches) with alternating leaves along the stem. These leaves are different from the first year growth in that they are **toothed with a triangular shape**. Plants have long, flowering stems with several white flowers. Each flower has **4 white petals in a cross shape**. When crushed between the fingers, the plant gives off a distinct garlic smell, distinguishing it from look-alikes. Garlic mustard stems and leaves lack the tiny hairs of similar looking native plants.

Look-alikes

Garlic mustard resembles a number of native plants, including wild ginger (*Asarum caudatum*), the piggy-back plant (*Tolmiea menziesii*), and fringe-cup (*Tellima grandiflora*). It also looks like the 'money plant' (*Lunaria annua*) or 'creeping Charlie' (*Glechoma hederacea*) when it's young. Make sure to check for the garlicky smell, smooth stems, and the white flower to confirm garlic mustard.

When to Remove

The most important consideration when dealing with garlic mustard is to prevent flowering plants from going to seed. Hand-pull plants that have bolted and stop before the seed pods harden. Handling garlic mustard when seed pods are opening will scatter seeds; avoid pulling at this stage. First year growth will generally not produce seed and may be removed any time the soil is moist. Second year growth must be removed by late April or May.

Manual Control Method

THIS METHOD SHOULD BE USED WHEN:

- Infestation is small and manageable
- Terrain is flat or gently sloped
- Invasion is near surface water
- The soil is moist
- There are desired plants in or around invasion

TOOLS YOU NEED:

- Gloves
- Weeding knife or trowel (optional)

1. HAND-PULL and REMOVE small plants in their first year if at all possible. These plants consist of first year growth and will not set seed until their second year. Therefore, simply dispose of pulled plants in your compost or yard debris bin. NEVER plant material in parks or natural areas.
2. HAND-PULL and REMOVE second year plants before they form seed pods (do this by May). It is important to remove the roots, as these can regrow and develop into flowering plants later in the season. To avoid breaking off the s-shaped root, pull at the base of the stem or root crown.
3. Garlic mustard is notorious for seeding after it has been pulled. *Do not leave plants out after pulling.* Make sure to dispose of pulled plants properly.



Photo of first year rosettes: Chris Aldassy, East Multnomah Soil and Water Conservation District



Photo of seed pods: Chris Evans, University of Illinois, Bugwood.org



Photo of second year leaf: Chris Aldassy, East Multnomah Soil and Water Conservation District

4. For plants that have FLOWERS or immature SEED pods, take special precautions.
 - Carefully remove and place into garbage bags labeled "**Invasive plant parts - do NOT compost**".
 - Place the entire garbage bag into trash bin destined for the landfill. Do NOT place in curbside or backyard compost.
 - Do NOT handle or remove plants once seed pods turn yellow and dry out.
5. CLEAN off equipment, shoes, pets, and any clothes that have potentially come in to contact with seeds. Seeds can be transported very easily to new places and thus create a new invasion.
6. PLANT native plants in the area that is being controlled after the bulk of the invasive plants are removed. This will help to re-populate the area with desired species and prevent new and recurring invasions.
7. Seeds can remain viable in the soil for at least five years. It is important to MONITOR the site two or three times during the spring to remove any new growth.



Photo of leaf variation: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org