

# Garlic Mustard *Alliaria petiolata*

**G**arlic mustard, which originated in Europe, was recorded first in America in New York in 1868. It was probably introduced for use as a vegetable

and as a garlic-flavored herb. By 2003, distribution had increased to 30 states, mainly in the Northeast and Midwest.

In Oregon, it has been found in Multnomah and Clackamas counties

(Figure 4, back page). It is one of the few alien herbaceous species that invades and

dominates forested understories (Figure 1). It has no known natural enemies in North America and is difficult to eradicate once established. Garlic mustard appears to alter habitat for native birds, mammals, and amphibians and may affect their populations and diversity. Once introduced, it outcompetes native plants for moisture, nutrients, and space.



Figure 1.—Garlic mustard in forested understory. Photo: Glenn Miller, Oregon Department of Agriculture.

## Description

Garlic mustard is a biennial herb with stalked, coarsely toothed leaves that are triangular to heart-shape (Figure 2) and give off the odor of garlic when crushed. Seeds germinate in early spring and create very high seedling densities. First-year plants appear as rosettes close to the ground. The plants overwinter as green rosettes and develop into a flowering plant the following spring



(Figure 3). The flower stalk is 2 to 3.5 feet high with a cluster of small white flowers, each with four petals in the shape of a cross. A single plant can produce as many as 8,000 seeds. Seeds lie dormant for at least a year before germinating and can remain viable for 5 years or more.

## Management options

Several methods are available for managing garlic mustard. For this reason, an integrated weed management plan, including tactics to prevent the spread of garlic mustard outside infested areas, is recommended. A combination of mechanical and chemical control may be appropriate depending on the sensitivity of the infested area and the extent of the infestation.

### Biological control

Cornell University is coordinating an investigation into insects and fungi that are associated with garlic mustard in Europe. Those that prove to feed exclusively on garlic mustard and that pass all safety and specificity tests required by the U.S. Department of Agriculture will be brought to North America for field tests. However, the research is ongoing, and no release date has been set.

### Chemical control

Note: Before you apply herbicide on forest land, you must file a “notification of operations” with the Oregon Department of Forestry at least 15 days in advance.

The following information about herbicides is only a brief summary; consult your local Extension agent or



Figure 2 (far left).—Garlic mustard leaves.

Figure 3 (left).—Garlic mustard flower stalk. Photos: Glenn Miller, Oregon Department of Agriculture.

Oregon Department of Agriculture representative for specific recommendations for your situation. Read and follow the herbicide label carefully. Before spraying over or around seedlings, ensure the chemicals pose no hazard.

Applying a 1- to 2-percent solution of glyphosate to rosettes in late autumn or early spring is effective, as is applying triclopyr to rosettes in spring. Note: Glyphosate is nonselective; that is, it will kill or injure any plant tissue it contacts, including that of desirable plants. Also, an early-spring application of 1-percent triclopyr (amine) solution has been shown to be effective.

Any herbicide treatment program should rotate among chemicals to prevent developing herbicide-resistant strains of the weed.

For details on chemical control, refer to the current edition of the *PNW Weed Management Handbook* and to *Herbicide-resistant Weeds and Their Management*, PNW 437. Both are available from OSU Extension <http://extension.oregonstate.edu/catalog/>

## Use pesticides safely!

- Wear protective clothing and safety devices as recommended on the label. Bathe or shower after each use.
- Read the pesticide label—even if you've used the pesticide before. Follow closely the instructions on the label (and any other directions you have).
- Be cautious when you apply pesticides. Know your legal responsibility as a pesticide applicator. You may be liable for injury or damage resulting from pesticide use.

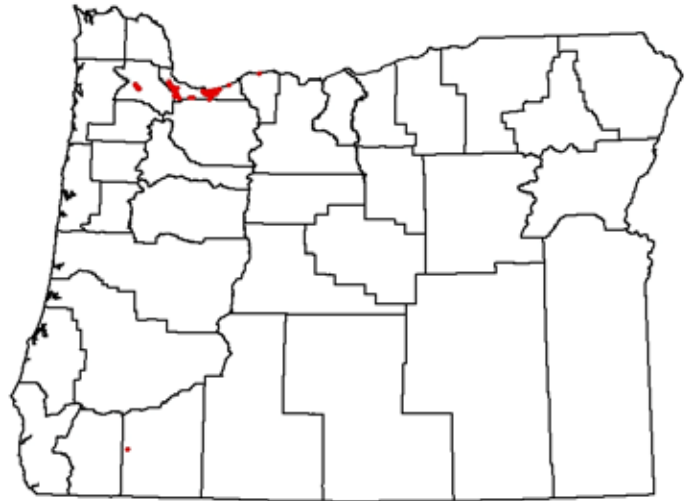


Figure 4.—Garlic mustard distribution in Oregon. Map: Weedmapper.

## Mechanical control

Hand pulling is possible, but take care to remove the entire plant and its root system because new plants can sprout from root fragments. Flowering stems can be cut at ground level to prevent seed production. Once seed pods form, but before seeds mature and scatter, cut and bag stalks and dispose of them in a manner that will not contribute to increased dispersal.

## Grazing

Deer or other large herbivores rarely graze garlic mustard.

## For more information

Weedmapper, a collaborative project of Oregon Department of Agriculture, Oregon State University, U.S. Bureau of Land Management, and U.S. Forest Service.  
<http://www.weedmapper.org/>

The Nature Conservancy, Global Invasive Species Initiative.  
<http://tncweeds.ucdavis.edu/esadocs/documnts/allipet.pdf>

USDA National Agriculture Library.  
<http://www.invasivespeciesinfo.gov/plants/garlicmustard.shtml>

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