



INVASIVE PLANTS OF OHIO

Fact Sheet 3

Garlic Mustard

Alliaria petiolata



DESCRIPTION:

Garlic mustard is a biennial herb that emits a garlic-like odor from crushed leaves. In the first year, a rosette of kidney-shaped leaves hug the ground and remain green throughout the winter. Sharply-toothed, triangular leaves form on the 2-4 foot tall flower stem during the second year. White flowers with four petals bloom in clusters at the end of the stem from late April to mid June. The fruit is a long, green capsule that turns brown as the seeds mature. As the plant dies, the long, brown seed capsules at the end of a long naked stem split and release hundreds of seeds.

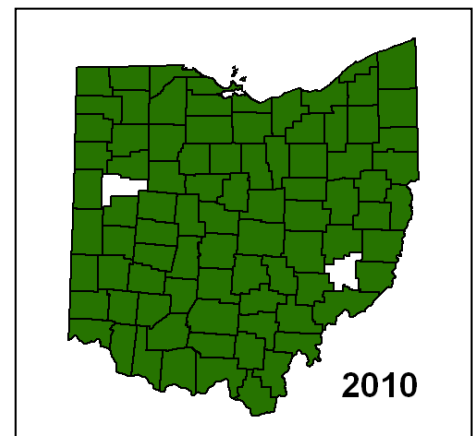
Garlic mustard was introduced from Europe for herbal and medicinal purposes. In 1868, it was first recorded in Long Island, New York. It is recorded from nearly every county in Ohio.

HABITAT:

Garlic mustard prefers some shade in mesic upland and floodplain forests, savannas, pastures, lawns, and along fencerows and roadsides. It invades forest edges and progresses into the interior along streams and trails.

INVASIVE CHARACTERISTICS:

In forests and woodlands, garlic mustard reduces growth of wildflowers in the early spring before canopy leaf out, and suppresses soil fungi that are mutualistic with trees. It produces large quantities of seeds that can remain viable for up to 10 years. Seeds are dispersed by water or transported by animals and humans.



Map based on records as of 2010.

CONTROL:

Mechanical: Hand-pulling is effective in small infestations. Care must be taken to insure that the entire plant, including the root system, is removed and all plant materials are bagged and taken off-site. The plant can continue to mature and produce seeds even after it has been pulled. Control should continue until the seed bank is exhausted (at least 7 years). Cutting stems when flowering can be effective in larger populations. The stems should be cut low to ensure that flowering is hampered. Cutting during flowering generally results in total mortality of the plant. However, seed heads will continue to mature and disperse seeds, so plants should either be cut into pieces or all cut materials should be removed from the site. Control in the spring, targeting first-year rosettes and second-year plants before they flower, is generally more effective than fall treatment of only first-year rosettes. Prescribed fire in late spring can be effective in large populations, particularly if conducted for several years.



Chemical: Foliar application of systemic herbicides, such as Roundup, Glypho, or AquaNeat, is effective, even in winter (to kill overwintering rosettes), as long as the temperature is at least 50 degrees F and the area remains dry for eight hours. Extreme care must be taken not to apply the herbicide on desirable plants as these products are non-selective. Herbicide application to the first-year rosettes in the late fall, winter, and early spring will minimize impacts to non-target species while they are dormant. It is crucial to spray all plants within the control area, otherwise the survivors will respond with greater growth and

reproduction. If carried out in late fall or winter, it is essential to kill all rosettes in the treated areas, otherwise the survivors will grow large in the absence of competition and seed production will not be lower than in untreated areas. Spray shields may also be used to better direct herbicide and limit non-intentional drift.

Biological:

Researchers at Cornell University are investigating potential biological control agents for garlic mustard. Four weevil species that feed on stems, seeds, and root-crowns are being studied for bio-control of garlic mustard.

Credits and additional information:

Plant Conservation Alliance-Alien Plant Working Group
Ohio Department of Natural Resources, www.ohiodnr.gov
The Nature Conservancy, Ohio Chapter
Noxious Weed Control Board (WA), www.nwcb.wa.gov/siteFiles/Alliaria_petiolata.pdf
The Ohio State University Extension, <http://woodlandstewards.osu.edu>
OIPC website, www.oipc.info