

garlic mustard

Alliaria petiolata (Bieb.) Cavara & Grande

Synonyms: *Alliaria alliaria* (L.) Britt., *A. officinalis* Andrzej. ex. Bieb., *Arabis petiolata* M. Bieberstein, *Erysimum alliaria* L., *Sisymbrium alliaria* (L.) Scop.

Other common names: none

Family: Brassicaceae

Invasiveness Rank: 70 The invasiveness rank is calculated based on a species' ecological impacts, biological attributes, distribution, and response to control measures. The ranks are scaled from 0 to 100, with 0 representing a plant that poses no threat to native ecosystems and 100 representing a plant that poses a major threat to native ecosystems.

Description

Garlic mustard is a biennial herb that grows from a taproot. Stems are erect and sparsely hairy and unbranched below the inflorescences. They can grow over 90 cm tall but are generally between 30 and 46 cm tall. Basal leaves are kidney-shaped with slender petioles. Stem leaves are heart-shaped and 6 to 10 inches wide. Garlic mustard has short racemes of white, four-petaled flowers. Plants give off a strong garlic odor when crushed (Douglas et al. 1998).



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Similar species: There are a number of other white-flowered mustards in Alaska, but none of them have

large, well-developed, toothed stem leaves or a garlic scent.

Ecological Impact

Impact on community composition, structure, and interactions: Garlic mustard often dominates forest understories and outcompetes native species for light, moisture, and nutrients. It readily spreads into undisturbed forests and species-rich sites. Garlic mustard appears to alter habitat suitability for native birds, mammals, and amphibians, and it may affect the populations of these animals. Garlic mustard reduces foraging sites for deer and other large herbivores. Phytotoxic chemicals produced by garlic mustard may interfere with the growth of native plant species. Garlic mustard has no known natural enemies in North America (Nuzzo 2000, Blossey et al. 2002).

Impact on ecosystem processes: The impacts of garlic mustard on ecosystem processes are unknown.

Biology and Invasive Potential

Reproductive potential: Flowers readily self-fertilize in the absence of insect visitation, but can also be cross-pollinated by a variety of insects. Each plant can produce between 194 and 8,000 seeds. Seeds can remain viable in the soil for four to five years (Byers and Quinn 1998, Nuzzo 2000).

Role of disturbance in establishment: Soil disturbances create favorable environments for the germination and growth of garlic mustard. Continued disturbances promote greater seed production, which in turn promotes larger populations. In the absence of disturbances, a garlic mustard population will gradually decline to a low, stable level (Pyle 1995, Luken et al. 1997, Nuzzo 2000, Blossey 2003).

Potential for long-distance dispersal: Wind dispersal is limited, and seeds do not float well, although they readily attach to moist surfaces. Seeds can be dispersed by rodents, birds, and deer (Nuzzo 2000).

Potential to be spread by human activity: The small seeds are transported on boots and clothing, as well as by roadside mowing, automobiles, and trains (Rowe and

Swearingen 2003). Garlic mustard has been used as a medicinal remedy (McGuffin 1997).

Germination requirements: Seeds require cold stratification to germinate.

Growth requirements: This species is well adapted to growing in sand, loam, and clay with pH between 5 and 7.2; it frequently grows in well-fertilized sites. This species is successful in many habitat types. Garlic mustard grows best in moist, shaded areas but also grows in open areas.

Congeneric weeds: No other *Alliaria* species are known to occur as weeds (Invaders 2010, ITIS 2010).

Legal Listings

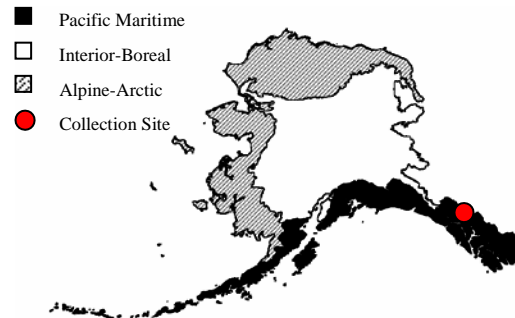
- Has not been declared noxious
- Listed noxious in Alaska
- Listed noxious by other states (AL, MN, VT, WA; considered ecologically invasive by TN and WI; listed as quarantined in OR and WA)
- Federal noxious weed
- Listed noxious in Canada or other countries (listed as a weed on other continents)

Distribution and Abundance

Garlic mustard commonly grows in roadsides, abandoned fields, yards, gardens, wet meadows, and forests.

Native and current distribution: Garlic mustard is native to Europe, from England to Sweden and south to the Balkans and Italy. It has spread through North Africa, India, Sri Lanka, New Zealand, and North America. Garlic mustard was introduced to the United States for food and as a medicinal herb. It has escaped cultivation.

This species was first recorded in the United States in 1868 from Long Island, New York. Currently, infestations occur from Maine to South Carolina and west through the Midwestern states to Washington and Oregon. Garlic mustard has been documented from the Pacific Maritime ecogeographic region of Alaska (AKEPIC 2010, UAM 2010).



Distribution of garlic mustard in Alaska

Management

A combination of hand-pulling, cutting, burning, and herbicide treatment can successfully control or eliminate garlic mustard. Garlic mustard can resprout after the removal of the aboveground biomass (Wisconsin DNR 2004). It is essential that an area be monitored for at least five years after the initial control efforts due to recruitment from the seed bank. Studies are being conducted to determine effective biological control agents, which include five European weevils and one flea beetle. If approved by the USDA, these biological control agents may become an option (Driesche 2002).

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